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# BUYERS GUIDES

# Arborist Equipment



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Welcome to our **BUYERSGUIDES**. These are free to all as a page-turning pdf or you can download a regular PDF by clicking on the cloud icon. Many of these GUIDES originally appeared in our print magazines so have been updated and **will continue to be updated every month**. The same link that you used this time can be used anytime to see the latest version. New Guides and those appearing in forthcoming magazines will also be incorporated into the relevant **BUYERSGUIDES** building into an amazingly comprehensive guide to the best products on the market. **PART 2 in early 2025 see next page**

The tabulated data in our GUIDES is non-subjective although the comprehensive introductions do have subjective comment and pick out key and interesting products.

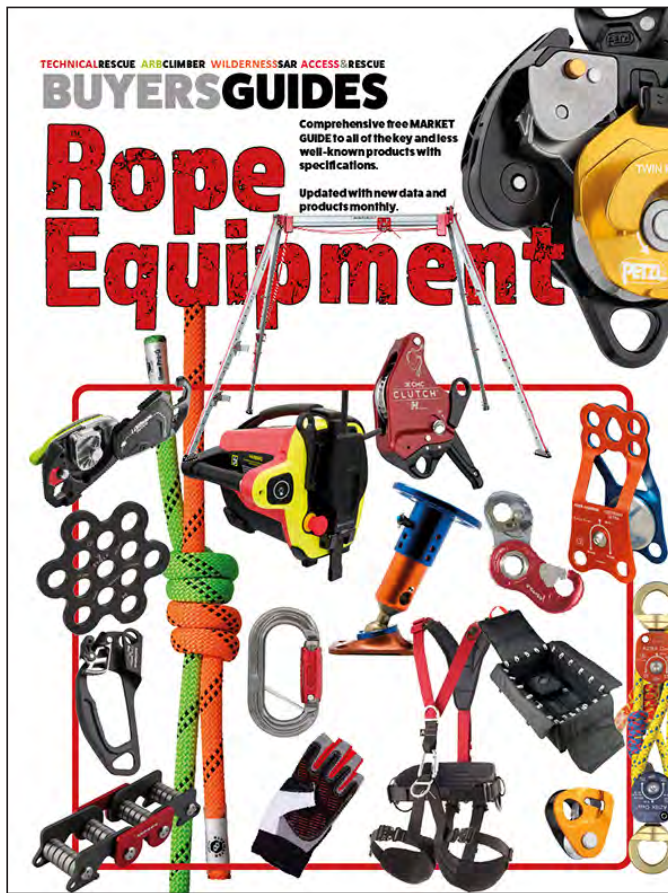
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**ARBORIST EQPT** pt2

From Q2 2025 we begin to add the following product groups to this **BUYERSGUIDE:**

- Batteries
- Chainsaws
- Blowers
- Chippers
- Hand Saws
- Chainsaw Boots
- Chainsaw Trousers
- Friction Savers
- Slings

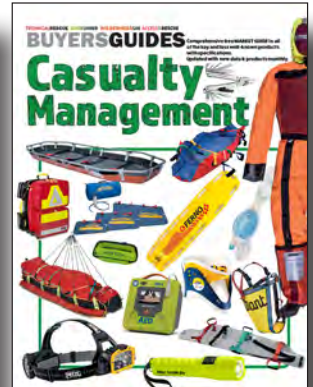
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Q2 2025



DRAFT in Q2 2025



DRAFT IN Q3 2025

## KEY TO TABLES:

CONVERSION RATE USED Q3 '24= 1.31 US\$ to the GBP£  
1.19 Euro€ to the GBP£  
0.91 Euro€ to the US\$

Across all of our BUYERS GUIDE tables, some of the data entries are quite complex in appearance and you do need to refer to the individual keys to fully understand the information in the tables. Note that in the print magazine we have tended to round down lbf (pounds force) from KiloNewtons as a straight 2.2lb:1kg conversion but these GUIDES use the actual lbf to KN conversion which is a little higher at almost 225lbf:1kN

Cyan blue is always a variant of the main model shown. data relating specifically to that version will be highlighted in cyan blue or any squares or circles may be outlined in cyan blue ■ ■ ■ ● ● ● the cyan blue outline is admittedly difficult to spot on the green square or circle.

□ □ □ ○ ○ ○ An outline square or circle of any colour = an OPTION, not part of the data shown

● ● ◆ a solid circle or diamond indicates that the usage or feature indicated is partial or OK but not ideal. this may be a use for which it is not intended but it cope OK in that role like a descender being used as an ascender. These also appear as an outline if they are an option. ○ ◆

🇺🇸 The main flags shown are the origin of the company listed but there may be a smaller inset flag like this 🇹🇼 Taiwan flag, indicating that the country of manufacture is different.

COSTS are all approximate and rounded up. We include VAT at 20% and State tax at 10% but these can all vary, especially state taxes in the US. £\$€ Prices shown in burnt orange are currency conversions only. They do not reflect import costs like shipping, duty and local taxes so are a very rough guide only

Page corners are colour coded to common groups of equipment eg. rope is in lime green. Rope hardware including descenders and lowering devices are in grey. Pulleys, ascenders, hauling kits and winches are in red. Software, slings and bags are in purple, safety/PPE is in green & Tools/Machinery are in Orange.

# ADVERTISERS

We might be biased, but generally speaking, our advertisers represent the very best of equipment supply and production in the very specialist sectors that we serve. The majority of companies advertising in these **BUYERSGUIDES** have been with us in the print-magazines for many years and in some cases many decades- these are not fly-by-night manufacturers and stockists, they are names you can trust. In a world full of cheap options and unknown brands- (especially on Amazon/AliBaba) and where it can be very difficult to spot great Chinese products from blatant Chinese or russian knock-offs, it is vital to know that your safety equipment can be trusted.

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# HARNESSTOOL CARRIERS

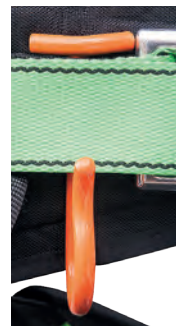
As the name suggests, these are supplementary hooks that are designed to clip onto your harness in a semi-permanent fashion and then easily stow your equipment. This is either as a general storage option for carabiners, hardware, slings etc. or, in the case of heavier duty hooks, for attaching and continually switching between being stowed and being used. We should be calling this Guide 'CARITOOLS' since that's what most people know them as but in contrast to a time when *Hoover* cornered the vacuum market so completely that they turned a noun into a verb, *Petzl* didn't stand unopposed for quite long enough. You have to be quick these days and although it may seem to arborists that *Petzl* had things their own way for many years, there were always competitors on the sport side with *Camp, CT, Singing Rock, Kong, Black Diamond* and the now discontinued *Mammut IceBreaker* and even this tandem hook (right) from *Simond*. There have also always been more industrial options. But it is arborists rather than rope access/rescue that have driven development and proliferation of harness carry hooks. Early arborist harnesses like the *Whillans* had (and have) steel, offset tool clips incorporated into their design and later, add-on steel hooks appeared like the French *Komet* and German *Treerunner*. *Protekt* of Poland, better known to arborists as '*TreeUp*' have the simplest of designs - something akin to a blunt, steel, meat-hook but they also have a more conventional plastic carabiner-style hook. More recently we have seen the *Shembiner* chainsaw hook and two of the alloy wizards - *DMM* and *Rock Exotica* introducing more complex carabiner-style models. All of these companies would probably moan about using *Petzl's* product name as a generic term but sometimes it's just easier. Don't forget, the plastic hooks are only rated to about 5kg/11 lb so you can't generally hang, for instance, a chainsaw off them. That normally requires the metal versions although *Petzl's* larger *Caritool* was originally sold by *Husqvarna* as a chainsaw holder so presumably some others will also cope. *CMI* took *Shem Kendrick's* idea for a chainsaw hook and ran with the *Shembiner*, slightly different to most of the models here because it's an open hook. More on this later. You sometimes hear comments that a *Caritool* or similar clip has broken - this will almost certainly be due to overloading and/or torquing - in other words, user-error! Of course, you could use practically any inverted carabiner as a tool attachment and especially a bent-gate snap carabiner but what sets ALL of these models apart is an adaptation to be used on webbing which will be some form of captive eye or just a stabilisation bar as with



Petzl's PRO version of the CARITOOOL has a nylon anti-snag shroud to the gate and includes an eye at the top for safety cord/lanyard to make sure you don't drop your kit just as you unhook it.



the *Treeup* hook model (right) which pushes through a narrow sewn eye with the T-bar sitting on top. Most models have a maximum webbing size they will fit and therefore harnesses that they won't fit. Some stockists actually list the harnesses their hook WILL fit but that's a bit too exhaustive for us and liable to change every few months so we've listed the maximum web size it will fit (in orange) in the dimensions column.



The *Petzl CARITOOOL* (above) is plastic (or more accurately, glass-reinforced plastic) and has changed just a bit from the first Guide with just the yellow all black with just the yellow anti-snag cover version rather than the original all-black. The *Evo* continues to be a sport model aimed t mountaineers but it does the same job and fixes to wider range of belt widths. *Courant's Large Honos* (above right) comes in a fetching blue, red or yellow (as does the small version) and is unusual in having a wire retaining loop on the webbing hook as well as a sliding plastic keeper on the gate that you can move down to act as a lock. The latest metal tool-holding incarnations are alloy and becoming quite complex with locking gates and screw-on belt attachment (Left). Some of the older models can still hold their own though and this *Treerunner* folding model (right) overcomes the problem of taking up space unnecessarily and unwanted hang-ups by folding flat to the harness when not in use. Some of the plastic models have '*Not Load Bearing*' emblazoned on them. Not surprising since they're plastic but so do the latest generation of metal carriers. This warning refers to the possibility of someone hooking their fadass directly onto one and trying to hang on it. Non-living loads like your tools are absolutely fine.





In their original, modified carabiner form, you have the sport climbing fraternity and ice climbers in particular to thank for this handy genre of tool clips intended to keep your rack lighter (and cheaper) and clip and unclip ice screws or chocks and cams (pro) quickly and easily. Consequently, a number of the models here are aimed at mountaineering but we've included them because they do the same job. You'll notice that a number of designs have a broad, top surface with a prominent lip above the gate, while others have a heavily ribbed top surface. This is for stacking items safely out of the way so that you can extract another item while still attached within the hook. This evolved from the sport requirement for racking multiple sizes of ice-screws and pro but it works for any multiple items like spare carabiners.

Ultimately, the highest strength and toughest items are the chainsaw hooks from *Treerunner/Protekt* and *Krok* (russian models currently sanctioned so not listed) and the latest generation of all-alloy models like *CMI's Shembiners*, *DMM's Vault*, *Rock Exotica's Transporter* and the newest model, *Notch's Swinger* (pic above-right) which

has a locking gate that opens outwards and inwards. (NB: the *Husqvarna* all metal hook was replaced by the interesting plastic-cased hook shown on the right aimed at forestry rather than arb and by a *CariHook* made by *Petzl*).

They're undoubtedly the most robust options, it's just a question of whether the extra cost, weight and bulk on your harness is preferable to the cheap and light plastic models. Many harnesses have sewn tabs specifically to

take a *Caritool* or other suitably sized carabiner and the iconic *Teufelburger TreeMotion* harnesses

are basically one big *Caritool* carrier. But as we've mentioned, the big difference between a standard carabiner and the models in this guide is that they are purpose-designed tool carriers with a stabilising element that keeps them firm and correctly oriented on ANY suitably sized harness accessory webbing. Most models have an integral keeper along the spine that clips over the webbing but others like the *Singing Rock Porter* (left), *CT Truck* and *Camp Hub*

have a simple straight, often flattened, spine with an add-on rubber 'keeper' that weighs about 4g if you're counting and enables the hook to fit most harness webbing more firmly. Be aware that no tool clip will fit ALL webbing, some will fit the now standard 45mm but not the older standard 50mm/2"



**Security Cord attachment eye.**  
Note that the holes in the Shembiner are actually for machining purposes but could equally function as cord attachment eyes for securing loose items.  
This Treehog model has a **webbing securing clip** and an **open web slot** so it could fit a wider belt than the recommended 45mm.

Be wary of larger metal hooks (in particular) extending proud of webbing on narrow waist bands. This *Singing Rock* harness has extra wide padding. Also ensure that you do NOT clip into load bearing webbing and cause personal injury in a fall. The *Shembiner* shown now has a back-plate version to prevent the hook rotating on the webbing

**Lanyard/Carabiner attachment eye.**  
Amazingly, *CMI* does not quote a WLL for the *Shembiner* models but expect a minimum of 20kg/44lb



webbing. One model, the *Petzl Caritool Evo* (right) has, as the name suggest, evolved since our last GUIDE and now has an elastic cord to fit the widest range of webbing in our guide. All of these dedicated tool hooks are designed to firmly grasp webbing and limit rotation of the hook when clipping or unclipping gear. The original *Caritool* has plastic barbs

on its web clip, the *Camp Hub* has a profiled and ribbed spine, the new *Courant Honos* has a retaining clip to 'lock' the webbing into the retainer as does the *Treehog TH1035* (top right) and the new *Edelrid SML3* (right). Some of the metal carriers are actually screwed onto your harness so they ain't going anywhere, actually, two plates are screwed together onto the accessory webbing rather than actually screwing into life-support webbing but you knew what we meant. This immobility is particularly important when you're hanging on with one hand while trying to clip or unclip vital equipment including your chainsaw. The best carriers need to be unobtrusive on the harness, easy to clip and unclip but also be absolutely

secure both in terms of the attachment to the harness and keeping the equipment safe when it's clipped in, no matter what mystical or vigorous manoeuvring you undertake on the rope. A lighter-duty plastic model will break more readily when overloaded so is less of a hang-up risk than the heavier-duty models which can carry a



# UPDATED Oct '24

small elephant. With this in mind, the very strong russian Krok model (right) has had the keeper on the nose removed. The gate will still close to keep your carried items safe but if loaded over 110kg or 150kg respectively for the two models will bend and release you. The CAMP Kilo too will release at 150kg in the event of a hang-up. On the other hand, if you've just cut your rope and are about to hurtle through the canopy to certain death, you might be glad of the open hook and strength of something like a *Shembiner* or Eyolf's Hake snagging a branch on the way down.

If you look at the Petzl *Caritool* and the *Courant Honos* in the title pictures you'll notice an eye in the top left corner and at the bottom, respectively and you'll also find this or some form of captive eye on other models like the *Treehog* and the *Recoil* hook which is more of a tool hanger. The eye is for attaching a cord or full size lanyard to your gear so that you don't immediately drop it as soon as you've taken it off the hook. In the case of the *Shembiner XL* left you have the best of all worlds because it has eyes you can tie cord into, a large eye at the bottom for clipping a chainsaw lanyard into and the hook itself with a large opening, therefore easy to drop your saw onto but it has a slight 'barb' to stop your saw falling off if you invert. The other steel chainsaw hooks are easier to clip into than to unclip, as is the case with all tool clips with a sprung gate, but that's on the valid assumption that you'll need to



stow the saw faster, having made a cut, than prior to the cut when you have the time to go through the fiddlier process of unhooking. Skylotec's *CT Hammer Lodge* (left) has a little plastic clip to hold the gate open should you prefer and the nose of the hook is nicely rounded so as not to snag anything on the way in or out.

In contrast, the *DMM Vault* (right) and *RE RE Transporter* (left) can lock closed if you prefer so that you won't lose kit regardless of the aerial gymnastics you perform. Note that the Vault hinges in the middle of the spine to fit webbing in from the top. The *Transporter* and *Vaults* are very much the top end of tool carriers with the *Transporter* and *Mini Vault* both bolt-equipped for

| IMAGES NOT TO SCALE<br>COSTS: Any £\$€ shown in burnt orange are currency conversions only and will not include shipping, import duty or tax.<br>Alu Alu = aluminium or aluminium Alloy |                            |  |   |                            |   |                           |                      |
|---|----------------------------|--|---|----------------------------|---|---------------------------|----------------------|
| MANUFACTURER  | BLACK DIAMOND              | BUCKINGHAM                               | BUCKINGHAM                                      | CAMP                       | CAMP  | CMI                       | CMI                  |
| MODEL VARIANT   | Ice Clipper                | 2402G                                    | BuckCarrier 2402B                               | Hub                        | Kilo  | Shembiner                 | Shembiner            |
| ORIGIN  |                            |  |   |                            |   |                           |                      |
| COST  | £9 \$10 €8                 | £8 \$9 €9                                | £44 \$54 €55                                    | £8 \$12 €10                | £31 \$43 €36  | £27 \$33 €31              | £37 \$46 €           |
| WEIGHT  | 35g<br>1.2oz               | 284g<br>10oz                             | 68g<br>2.4oz                                    | 36g<br>1.3oz               | 52g<br>1.8oz  | 47g<br>1.6oz              | 60g<br>2.15oz        |
| MAX LOAD  | 5kg<br>11lb                | 11-16kg<br>25-35lb*                      | 6.8kg<br>15lb                                   | 5kg<br>11lb                | 20kg<br>44lb  | n/a                       | n/a                  |
| GATE CLEARANCE  | 65mm<br>2.6"               | 23mm<br>0.9"                             | 10mm<br>0.4"                                    | 23mm<br>0.9"               | 25mm<br>1"  | 14mm<br>0.55"             | 31mm<br>1.22"        |
| DIMENSIONS height x width   | 105 x 50mm<br>4.1x2"       | 120 x 63mm<br>4.75 x 2.5"                | 114 x 45mm<br>4.5 x 1.75"                       | 116 x 58mm<br>4.6 x 2.3"   | 118 x 72mm<br>4.6 x 2.9"                                | 104 x 55mm<br>4.08 x 2.2" | 127 x 76mm<br>5 x 3" |
| FITS to WEB SIZE...   | ≥60mm<br>≥2.4"             | ≥50mm<br>≥2"                             | ≥50mm<br>≥2"                                    | ≥45mm<br>≥1.75"            | ≥45mm<br>≥1.75"   | ≥50mm<br>≥2"              | ≥50mm<br>≥2"         |
| STANDARDS LOCKING   | --                         | --                                       | --  | --                         | --  | --                        | --                   |
| MATERIAL FRAME GATE   | Plastic<br>Stainless Steel | Polymer<br>Polymer                       | Alu<br>Alu                                      | Plastic<br>Stainless Steel | AluStainless<br>Steel                                   | Alu                       | Alu                  |
| NOTES   |                            | *depending on whether the gate is closed | Comes with spacers. Can be secured with zip-tie | Rubber web keeper          | Releases at 150kg in event of hang up. fixes with bolts |                           |                      |
| WEBSITE   | blackdiamondequipment.com  | buckinghammfg.com                        | buckinghammfg.com                               | camp.it                    | camp.it   | cmigearusa.com            | cmigearusa.com       |

# HARNESSTOOL CARRIERS

a more secure, semi-permanent fixing to the harness. DMM's newish *Parking Lot* (pic-top) is not included here as it's not a hook/carrier by itself but it fixes to your harness and then the *Mini-Vault* or their U-shaped *Stowaway* bolts to it in various hole-positions and configurations. We have included *Grivel's CarryAbiner* even though it is a regular strength snap carabiner with an add on rubber keeper, the idea being that your tool carry hook can be used as a life-bearing carabiner should the need arise.

Good idea but we could include virtually every snap-gate carabiner in the world! ISC now has the *NESSIE* left, which is for managing lanyards rather than hardware and something else a little different is *Petzl's Interfast* (pic right) which fits any slotted harness and enables you to drop a bag or whatever onto the hook and release it by pushing in that yellow-edged button. The hole in the bottom is for attaching a leash to whatever you're hooking on the harness.



of 'Plastic'. While they are outwardly the same, nylon is a DuPont product with strict manufacturing procedures. **WLL** is Working Load Limit but it is often the case that this figure is decidedly lower than the figure that some quote as a SWL or Safe Working Load. We tend to use only WLL these days -we always thought that was the same as SWL but maybe not so it's best to err on the side of caution when it comes to load limits. We haven't quoted an MBS/MBL Minimum Breaking Strength which is quoted by some manufacturers, because these are all non-live-load carriers so if we put a much higher breaking figure some clown is bound to try and hang off it.

**GATE CLEARANCE:** is the physical space between the nose and the spine through which you can fit an item - those with a bent gate will tend to have a larger opening but some don't have a gate at all, being open hooks, so these are good for larger kit and chainsaws.

**FITS to WEB SIZE:** is the width (or height) of webbing that the carrier can be fitted to - those that simply slot over the top like Buckingham's Kermit green hook are not as limited as those like the Vault or Camp's Kilo that have a definite containment area. Rubber keepers are also a bit more forgiving of webbing width but on the whole, most are designed for 45mm/1.75" or 50mm/2".

**LOCKING:** mean that the carrier can be locked once you've loaded something in so that, no matter what, it ain't going anywhere. Some might also lock it when not in use as an anti-snap precaution.

## IN THE FOLLOWING TABLES:

**COSTS:** include local Tax/VAT, are **approximate and rounded up**.

**ORIGIN:** Is the country of the 'manufacturer' but they are not necessarily the actual manufacturer of this particular product. Where we know we have put a smaller inset flag to show where it's made if different from the host flag.

**MATERIALS:** Some manufacturers use the word 'nylon' instead

|      | CMI                                    | COURANT                                   | COURANT                                   | DMM                      | DMM                       | DMM                       | DMM                     | EDELRID                                    |
|------|--|---|---|--------------------------|---------------------------|---------------------------|-------------------------|--|
| XL   | Shembiner XLS                          | Honos sm                                  | Honos lg                                  | Mega Vault               | Vault Lock                | Vault Wire                | Micro Vault             | SM Clip                                    |
|      |  |   |   |                          |                           |                           |                         |  |
| Wt   | £55 \$70 €65                           | £7 \$9 €8                                 | £15 \$19 €17                              | £65 \$81 €75             | £45 \$57 €60              | £34 \$43 €45              | £20 \$24 €26            | £6 \$8 €7                                  |
| Wt   | 60g<br>4oz                             | 35g<br>1.2oz                              | 82g<br>2.9oz                              | 126g<br>4.5oz            | 72g<br>2.5oz              | 61g<br>2.15oz             | 22g<br>0.8oz            | 24g<br>0.85oz                              |
| WLL  | n/a                                    | 5kg<br>11lb                               | 15kg<br>33lb                              | 30kg<br>66lb             | 30kg<br>66lb              | 30kg<br>66lb              | 30kg<br>66lb            | 5kg<br>11lb                                |
| W    | 31mm<br>1.22"                          | 20mm<br>0.8"                              | 37mm<br>1.5"                              | 46mm<br>1.8"             | 20mm<br>0.8"              | 23mm<br>0.9"              | 12mm<br>0.5"            | 25mm<br>1"                                 |
| H    | 121 x 76mm<br>4.75 x 3"                | 112 x 65mm<br>4.4 x 2.6"                  | 150 x 92mm<br>6 x 3.6"                    | 147 x 88mm<br>5.8 x 3.5" | 111 x 56mm<br>4.37 x 2.2" | 111 x 56mm<br>4.37 x 2.2" | 68 x 35mm<br>2.7 x 1.4" | 85 x 58mm<br>3.35 x 2.3"                   |
| W    | ≥50mm<br>≥2"                           | ≥45mm<br>≥1.75"                           | ≥45mm<br>≥1.75"                           | ≥45mm<br>≥1.75"          | ≥45mm<br>≥1.75"           | ≥45mm<br>≥1.75"           | ≥45mm<br>≥1.75"         | ≤50mm<br>≤2"                               |
| Lock | --                                     | --  | ■   | ■                        | ■                         | --                        | ■                       | --   |
| M    | Alu                                    | Glass Fibre<br>Plastic<br>Stainless Steel | Glass Fibre<br>Plastic<br>Stainless Steel | Alu<br>Alu               | Alu<br>Alu                | Alu<br>Stainless Steel    | Alu<br>Alu              | Plastic<br>Stainless Steel                 |
| W    | Web attachment plate prevents rotation |   |   |                          |                           |                           | fixes with bolts        | Made from recycled rope. Rubber web keeper |
| URL  | cmigearusa.com                         | mycourant.com                             | mycourant.com                             | dmmwales.com             | dmmwales.com              | dmmwales.com              | dmmwales.com            | edelrid.com                                |

|  |   |  |   |   |  |   |  |
|--|---|--|---|---|--|---|--|
| <p>IMAGES NOT TO SCALE<br/>                     COSTS: Any £\$€ shown in burnt orange are currency conversions only and will not include shipping, import duty or tax.<br/>                     Alu Alu = aluminium or aluminium Alloy</p> |   |  |   |   |  |   |  |
| <b>MANUFACTURER</b>  | EDELRID                                 | EYOLF                                  | GRIVEL  | HONEYWELL                                     | HONEYWELL                                | HUSQVARNA                                 | HUSQVARNA  |
| <b>MODEL VARIANT</b>   | SM Clip 3R                              | Hake                                   | Carryabiner   | Chainsaw hook                                 | Ch'saw hook Lg                           | Carry Hook                                | Chainsaw Ho  |
| <b>ORIGIN</b>  |   |  |   |   |  |   |  |
| <b>COST</b>  | £8 \$11 €10                             | £15 \$18 €16                           | £13 \$19 €15  | £51 \$50 €49                                  | £40 \$50 €46                             | £15 \$18 €16                              | £12 \$17 €11   |
| <b>WEIGHT</b>  | 41g<br>1.45oz                           | 56g<br>2oz                             | 63g<br>2.2oz  | 260g<br>9.2oz                                 | 190g<br>6.7oz                            | 25g<br>0.9oz                              | 65g<br>2.3oz   |
| <b>MAX LOAD</b>  | 5kg<br>11lb                             | n/a                                    | 100kg*<br>220lb   | 20kg<br>44lb                                  | 20kg<br>44lb                             | 5kg<br>11lb                               | n/a  |
| <b>GATE CLEARANCE</b>  | 33mm<br>1.3"                            | 33mm<br>1.3"                           | 27mm<br>1.75"   | 50mm<br>2"                                    | 54mm<br>2.1"                             | 20mm<br>0.8"                              | 60mm<br>2.4"   |
| <b>DIMENSIONS</b> height x width   | 118 x 56mm<br>4.6 x 2.2"                | 110 x 43mm<br>4.3 x 1.7"               | 120 x 75mm<br>4.7 x 3"  | 160 x 67mm<br>6.3 x 2.6"                      | 192 x 110mm<br>7.5 x 4.3"                | 114 x 54mm<br>4.5 x 2.13"                 | 150 x 80mm<br>6 x 3"                                       |
| <b>FITS to WEB SIZE...</b>   | ≤95mm<br><3.7"                          | ≤80mm<br><3.15"                        | ≤45mm<br><1.75"   | 45mm<br>1.75"                                 | Any                                      | ≤45mm<br><1.75"                           | ≤80mm<br><3.15"  |
| <b>STANDARDS LOCKING</b>   | --                                      | --                                     | CE, UIAA -  | --  | --                                       | --  | --   |
| <b>MATERIAL FRAME GATE</b>   | Nylon<br>Stainless Steel                | Alu                                    | Hot-forged alu<br>Stainless Steel   | Alu<br>Alu                                    | Alu<br>Alu                               | Glass Fibre<br>Plastic<br>Stainless Steel | Plastic<br>Stainless Steel                                 |
| <b>NOTES</b>   | Web slot kept closed with rubber keeper | lanyard/accessory hook holes=7mm       | a fully rated carabiner modified as a tool carrier. *Max Load=10% of Gate-Open strength |   | slides into web loop via hook-nose first |   | Intended for forest rather than arb. All loop-hook version |
| <b>WEBSITE</b>   | edelrid.com                             | eyolf.ca                               | grivel.com  | sps.honeywell.com                             | sps.honeywell.com                        | husqvarna.com                             | husqvarna.com  |
| <p>IMAGES NOT TO SCALE<br/>                     COSTS: Any £\$€ shown in burnt orange are currency conversions only and will not include shipping, import duty or tax.<br/>                     Alu Alu = aluminium or aluminium Alloy</p> |   |  |   |   |  |   |  |
| <b>MANUFACTURER</b>  | PETZL                                   | PROTEKT                                | PROTEKT   | REECOIL                                       | ROCK EMPIRE                              | ROCK EXOTICA                              | ROCK EXOTICA   |
| <b>MODEL VARIANT</b>   | Interfast                               | TU300                                  | AY100   | Drill-Grab                                    | Helper                                   | Transporter                               | Transporter  |
| <b>ORIGIN</b>  |   |  |   |   |  |   |  |
| <b>COST</b>  | £ 12 \$15 €14                           | £4 \$6 €5                              | £4 \$6 €5   | £9 \$11 €11                                   | £5 \$6 €6                                | £85 \$81 €100                             | £94 \$90 €110  |
| <b>WEIGHT</b>  | 55g<br>1.9oz                            | 80g<br>2.8oz                           | 31g<br>1oz  | 40g<br>1.4oz                                  | 28g<br>1oz                               | 95g<br>3.4oz                              | 142g<br>5oz  |
| <b>MAX LOAD</b>  | 5kg<br>11lb                             | 50kg<br>110lb                          | 25kg<br>55lb  | Hook 5kg 11lb<br>Eye*3.5kg 7.7lb              | 5kg<br>1.1lb                             | 23kg<br>50 lb                             | 23kg<br>50 lb  |
| <b>GATE CLEARANCE</b>  | >6mm<br>>0.25"                          | 27mm<br>1"                             | 23mm<br>0.9"  | 45mm<br>1.75"                                 | 18mm<br>0.7"                             | 32mm<br>1.25"                             | 48mm<br>1.9"   |
| <b>DIMENSIONS</b> height x width   | 85 x 45mm<br>3.4 x 1.75"                | 112 x 50mm<br>4.4 x 2"                 | 110 x 50mm<br>4.3 x 2"  | 90 x 74mm<br>3.5 x 2.9"                       | 115 x 54mm<br>4.5 x 2.1"                 | 142 x 80mm<br>5.6 x 3.15"                 | 145 x 86mm<br>5.7 x 3.4"                                   |
| <b>FITS to WEB SIZE...</b>   | ≤60mm<br><2.4"                          | T=35mm 1.4" wide                       | ≤60mm<br><2.4"  | ≤45mm<br><1.75"                               | ≤45mm<br><1.75"                          | ≤50mm<br><2"                              | 145mm<br>5.7"  |
| <b>STANDARDS LOCKING</b>   | ANSI/ISEA ■                             | --                                     | --  | --  | --                                       | ■   | ■  |
| <b>MATERIAL FRAME GATE</b>   | Nylon<br>Nylon                          | Steel                                  | Plastic<br>Stainless Steel  | Plastic                                       | Plastic<br>Stainless Steel               | Alu<br>Alu                                | Alu<br>Alu   |
| <b>NOTES</b>   | hinged backplate traps belt webbing     | Top T-section retains hook within loop |   | * Lanyard eye for chainsaw or tool being used |  |   | 180kg MBS  |
| <b>WEBSITE</b>   | petzl.com                               | protekt.com                            | protekt.com   | recoil.com                                    | rockempire.com                           | rockexotica.com                           | rockexotica.com  |

# HARNESSTOOL CARRIERS

|   |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|
|   |  |  |  |  |  |  |  |
| <b>ISC</b>  | <b>KONG</b>                                    | <b>NLG</b>   | <b>NOTCH</b>   | <b>OMEGA PACIFIC</b>                           | <b>PETZL</b>                                       | <b>PETZL</b>   | <b>PETZL</b>                                       |
| <b>Nessie TC100</b>                                 | <b>Owl</b>                                     | <b>Airpark 101717</b>  | <b>Swinger</b>   | <b>Deputy+</b>                                 | <b>CARITOOL Sml</b>                                | <b>CARITOOL Lg</b>                                     | <b>CARITOOL Evo</b>                                |
|   |  |  |  |  |  |  |  |
| £24 \$30 €28  | £24 \$29 €27                                   | £24 \$29 €27   | £72 \$80 €100  | £30 \$36 €34                                   | £6 \$8 €7  | £14 \$20 €16   | £12 \$15 €14                                       |
| 52g<br>1.8oz  | 68g<br>2.4oz                                   | 45g<br>1.5oz   | 136g<br>4.8oz  | 108g<br>3.8oz                                  | 25g<br>0.9oz                                       | 75g<br>2.6oz   | 40g<br>1.4oz                                       |
| 10kg<br>22lb  | 10kg<br>22lb                                   | 10kg<br>22lb   | 20kg<br>44lb   | 22.7kg<br>50lb                                 | 5kg<br>11lb  | 15kg<br>33lb   | 5kg<br>11lb  |
| 13mm<br>½"  | 17mm<br>0.7"                                   | 55mm<br>2.1"   | 26mm<br>1.02"  | 26mm<br>1.02"                                  | 20mm<br>0.8"                                       | 45mm<br>1.75"  | 120mm<br>4.73"                                     |
| ?   | 172 x 92mm<br>6.8 x 3.6"                       | 100 x 60mm<br>4 x 2.4"   | 137 x 70mm<br>5.4 x 2.75"  | 116.3 x 65mm<br>4.57 x 2.55"                   | 114 x 54mm<br>4.5 x 2.13"                          | 142 x 80mm<br>5.6 x 3.15"                              | 146 x 74mm<br>5.75 x 2.9"                          |
| ≤50mm<br>≤2"  | Any  | ≤50mm<br>≤2"   | ≤50mm<br>≤2"   | ≤45mm<br>≤1.76"                                | ≤45mm<br>≤1.75"                                    | ≤45mm<br>≤1.75"  | Any  |
| --  | --   | --   | - ■  | --   | --   | --   | --   |
| <b>Polymer</b>                                      | <b>Alu<br/>Alu</b>                             | <b>Nylon</b>   | <b>Alu<br/>Alu/Stainless Steel</b>                                     | <b>Alu<br/>Alu</b>                             | <b>Glass Fibre<br/>Plastic<br/>Stainless Steel</b> | <b>GlassFibre Plastic<br/>GFP/<br/>Stainless Steel</b> | <b>Glass Fibre<br/>Plastic<br/>Stainless Steel</b> |
| For LANYARDS<br>Also Blue, Green or<br>Lime colours | Attaches to eyes/loops<br>with snap carabiners |  | Gate opens outwards<br>and inwards. Large<br>chainsaw eye              | + is a colour<br>variant. Cost<br>is \$10 more |  |  | Fixes with elastic cord                            |
| iscwales.com  | kong.it  | neverletgo.com   | notchequipment.com   | rocknrescue.com                                | petzl.com  | petzl.com  | petzl.com  |
|   |  |  |  |  |  |  |  |
| <b>SINGING ROCK</b>                                 | <b>SINGING ROCK</b>                            | <b>SKYLOTEC</b>  | <b>SKYLOTEC</b>  | <b>TREEHOG</b>                                 | <b>TREERUNNER</b>                                  | <b>TREERUNNER</b>                                      | <b>TREERUNNER</b>                                  |
| <b>Porter</b>                                       | <b>Porter XL</b>                               | <b>CT Hammer Lodge</b>   | <b>CT Truck</b>  | <b>TH1045</b>                                  | <b>ChSaw Folding</b>                               | <b>ChainSaw Hook</b>                                   | <b>ChSaw Steel</b>                                 |
|   |  |  |  |  |  |  |  |
| £7 \$12 €8  | £11 \$16 €14                                   | £10 \$13 €12   | £9 \$11 €10  | £11 \$14 €13                                   | £37 \$47 €43                                       | £34 \$42 €39   | £40 \$50 €46                                       |
| 32g<br>1.13oz                                       | 80g<br>2.8oz                                   | 19g<br>0.7oz   | 20g<br>0.7oz   | 31g<br>1oz                                     | 114g<br>4oz  | 260g<br>9.2oz  | 200g<br>7oz  |
| 5kg<br>11lb   | 20kg<br>44 lb                                  | 5kg<br>11lb  | 5kg<br>11lb  | 5kg<br>11 lb                                   | 20kg<br>44 lb                                      | 20kg<br>44 lb  | >20kg<br>>44 lb                                    |
| 23mm<br>0.9"  | 40mm<br>1.6"                                   | 25mm<br>1"   | 25mm<br>1"   | 23mm<br>0.9"                                   | 30mm<br>1.2"                                       | 50mm<br>2"   | 30mm<br>1.2"                                       |
| 112 x 53mm<br>4.4 x 2.1"                            | 143 x 86mm<br>5.6 x 3.4"                       | 101 x 43mm<br>4 x 1.8"   | 108 x 55mm<br>4.25 x 2.16"   | 110 x 50mm<br>4.3 x 2"                         | 126 x 70mm<br>5 x 2.75"                            | 190 x 120mm<br>7.5 x 4.7"                              | 96 x 58mm<br>3.78 x 2.3"                           |
| ≤75mm<br>3"   | ≤75mm<br>3"                                    | ≥45mm<br>>1.75"  | ≥45mm<br>>1.75"  | ≤50mm<br>2"                                    | ≤80mm<br>3.15"                                     | ≤80mm<br>≤3.15"  | ≤50mm<br>≤2"                                       |
| --  | --   | --   | --   | --   | --   | --   | --   |
| <b>Plastic<br/>Stainless Steel</b>                  | <b>Plastic<br/>Stainless Steel</b>             | <b>Nylon<br/>Nylon</b>   | <b>Nylon<br/>Stainless Steel</b>                                       | <b>Plastic<br/>Stainless Steel</b>             | <b>Alu<br/>Alu</b>                                 | <b>Alu<br/>Alu</b>                                     | <b>Alu<br/>Stainless Steel</b>                     |
| rubber web keeper                                   | 100kg MBS<br><b>New in 2024</b>                | rubber web keeper.<br>Climbing Technology (Italy)<br>owned by Skylotec | rubber web keeper.<br>Climbing Technology (Italy)<br>owned by Skylotec |  | can be fixed with bolts                            |  |  |
| singingrock.com                                     | singingrock.com                                | skylotec.com   | skylotec.com   | treehog.co.uk                                  | grube.de   | grube.de   | grube.de   |

**UPDATED** Oct '24

# MULTI-POINT ANCHOR/RIGGING PLATES

www.rescuemagazines.com



Rigging plates haven't changed much from our first Market Guide in **TECHNICAL RESCUE** over a dozen years ago. *SMC/Harken* now has the newest range with their *Origin* plates with angular holes rather than round. The *Origin TT* below is now branded only as Harken and is their answer to *RE's Bolt*. There are around four times more plates now thanks to three key changes. The first is that we're seeing more round, wheel-style plates; Canada's *Eyolf* were first (pic top) while *DMM* introduced a new concept with the more arb-oriented *Hub*, *ISC* have the *Halo* (title image) and *Kong*, *Grivel*, *SMC* and *CMI* all have circular plates. These are all slick looking wheel hubs and more will follow. Second, having identified a need for anchor/rig plates in their range, larger distributors have them made on their behalf by bulk manufacturers like *ISC* in Wales or one of the Italian companies or in China/Taiwan. Consequently you will recognise a lot of the same plates under different names, sometimes the same plate will be slightly customised, perhaps an extra eye or two or the shape changed a bit but they're essentially the same plates despite some odd differences in weight and size (we've mostly used the specifications listed by the name on the plate but if in doubt look for the source manufacturer). The other change is the number of Chinese manufacturers now quite adept at making climbing hardware. We've traditionally steered clear of including Chinese and Taiwanese manufacturers under their own name because of trademark/copyright/design infringement issues with copycat equipment flooding the market and not always to the best of standards. *Lixada / MagiDeal* for instance market a plate that is identical to the *ISC* range down to the odd shaped indents. But the Chinese and Taiwanese are just as capable as anyone else of making

high quality goods, it's the customer demand for cheaper options and reducing the spec of the equipment they're asking to be made that has been the problem. If you spec high, they'll make high-spec gear. It's refreshing to see that *Fusion* in California and *Beal Ropes* make no bones about the fact that their plates are made in Taiwan. So we've speculatively included *Anpen* from China but not yet others like *GM* or *Xinda* even though they are making very similar plates for better known brands. Remember that in our tables, the country of ORIGIN is not necessarily the country of manufacture - where we know - there's a small inset flag. Watch out for plates from theatrical rigging (which might be pretty good) and from bondage. We were almost caught out including one called a 'Boner' or something equally dubious that was stronger than most in this list!

The images in this introduction are NOT to scale but they are roughly to scale in the tables because there is a big difference in size, weight and cost between a small 4-hole plate and a giant 12-hole plate and especially with the 3D models which we discussed in more details later because there is still some confusion about so-called 3-D rigging.

## NOT INCLUDED IN THIS GUIDE

Originally only seen in rescue stretcher rigs, rigging rings are endemic in arb and we have **NOT** included them here even though you can attach multiple carabiners because it doesn't do much 'organising'. We also haven't included the excellent *X-Rigging* rings from David Driver or the 'textile' anchors like the *Notch Bone* (right) which are basically knot replacements



## Images in this introduction NOT to scale

www.arbclimber.com

to save you time rather than rigging organisers. There are many rigging organisers incorporated into carabiners like this *Grivel Vlad*, *Rock Exotica's* huge *Kootenay Carriage* knot-passing pulley and their more diminutive *Hydra*. We'll try to incorporate all of these into a later update but for the moment we're dealing with plates and shapes full of holes rather than as a secondary use on other products. Finally, we haven't included the so-called splicing plates (MSA pic left) but they could certainly be used as organiser plates despite their in-line characteristics which limits your options somewhat.



### PLATE DESIGN

The basic job of a rigging plate hasn't changed; tidying, organising and best of all ensuring correct directional loading but the rigging plate is so much more than simply an organiser for the anchor end of your rope systems. Originally, teams got their local metalworker to fabricate metal plates of all types, mainly stainless steel and alloy. These were cut to shape, drilled to accept carabiners and if you were lucky, deburred. They were mostly triangular, intended to have a number of ropes or webbing collected at one point which would then be securely anchored. My own team procured bearing plates uncannily similar to *DMM's Hub* (above right), which were heavy but served us well and I'm certain there were plenty of other home-grown innovations. The do-it-yourself approach was overtaken in the late 80's when *Russ Anderson*, *CMC*, *SMC* and *Rock Exotica* in particular started producing quality machined and anodised plates that could accept multiple anchor connections and redistribute them to several load and/or belay ropes. These were generally at the larger end of things but in the pocket-sized versions, *Rock Exotica* (rights later bought by *Petzl*) came up with a model that became the industry watch-word for rigging plates due to its shape- the *Paw* (title opposite) That particular paw design still exists as the *Tri-Rig* and *Penta* plate by *Rock Exotica* while the *Paw* name has been retained by *Petzl*. The original *Paw* was the forerunner of a whole raft of designs that used a large collection eye capable of accepting the largest of carabiners or maillons or multiples thereof. This presents a slight contradiction as the large eye may be overcrowded with carabiners causing a return to unruly and untidy rigging rather than preventing jamming of carabiners against each other. Some say that this particular design problem has been addressed with the tear-drop eye design which purports to prevent carabiner jamming but its hard to see how that stops you cramming in more metal than you should. In reality the teardrop makes clipping larger carabiners much easier than with a small hole. Individual holes on larger plates addresses the original problem of overcrowded hardware by increasing separation. Another thing that has changed is a move away from straight edged eyes intended just for carabiners and towards more rounded edges for direct tying of rope and webbing. This is



exemplified by the gentle curves of *Kong's Rally Bent* (right), *Skylotec's CT Cheese* or the *Shizll* plate (below right) or by the design complexities of *Rock Exotica* with their *RockStar* (titles opposite) and *DMM* with their *HUBs* (sml version above). The newest model, *CMC's Squid* (right) uses an element of the *Rockstar's* design, the yolk-shape, to produce an angled, 3-way attachment perfectly suited to the use of double devices. Some models are better suited to 3-dimensional rigging aimed primarily at arborists, a concept that baffles some so we have a separate text box later for some further explanation. At the less complex end of things the simple 4 or 5-hole mini plates like the *Petzl Paw* are still held by some users to be the ONLY size you need since anything more means your rigging is too complicated!

### LOADING

In this era of system redundancy, a dilemma faces users of rigging plates which are often treated as 'bombproof' with a number of collected rope systems terminating in one large eye. This means that if that one collection eye fails the whole system fails. In many cases the sturdiest stainless steel and 7075 T6 aircraft alloy plates probably are about as bombproof as things get but there's no accounting for metal fatigue and stress fractures and sheer bad luck so local or company protocols may mandate that rigging plates should always have a built-in bypass to provide redundancy. This can be the simple application of a sling running through some or all of the connected carabiners or on smaller plates an additional large carabiner can be clipped between the top and bottom carabiners (but ensuring that the plate is still taking all the load). Alternatively, *DMMs Bat Plates* can be bolted together to give you two plates in one and *Edelrid's Maggi* already is two plates bolted together - how bombproof do you want it?

One thing that is often overlooked is that the quoted Minimum Breaking Strength of, for instance 45kN, refers to any ONE eye acting as the main collection eye and it may ONLY refer to the main collection eye. So it doesn't mean that you can load ALL of the eyes to 45kN at the same time because clearly one



or more eyes needs to be connected to an anchor and would be overwhelmed once it's own capacity of 45kN is exceeded. You must treat that MBS figure as the maximum total load that can be **TRANSMITTED** through the plate **via the main collection eye** - therefore, in the 45kN example, if you had 6 eyes evenly connecting to ONE central collection eye, each of those eyes should only be loaded to 750 kg/1650 lbs or preferably less, or whatever combination totals around 4500kg/9900lbs. If you add another anchor connection to the collection eye (or to a separate eye if you have any spare), this calculation of input forces can virtually double providing the load is fairly evenly divided and certainly if the two anchors are equally loaded. *Edelrid's Master Plates* specify their smaller eyes with a maximum loading of 10kN but we would be surprised if that is the actual MBS rather than an indication of maximum *cumulative* loading.

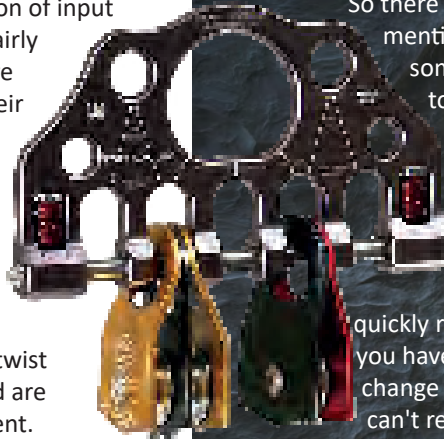
A key aspect of loading, and something the rigging plates were designed to assist with, is torquing of your carabiners ie. where they try to twist in-situ and apply uneven load to certain parts and are actually bent by contact with a stronger component. In reality it takes a hell of a lot to bend a carabiner but that's the action that is trying to take place and must be avoided at all costs because what actually happens is the weaker gate pins will fail or the nose may snap. A rigging plate spaces components out but they can still rotate in the plate's eye so you're never completely out of the woods, so to speak, unless you incorporate a swivel or an integrated swivel-pulley or swivel-carabiner. Careful selection of the rigging plate design suitable for your particular system is vital. *DMM* for instance use kidney-shaped eyes to allow 'sliding' and better load balance while *SMC/Harken* use elongated eyes for easier clipping. The smoothest edged plates can even be used as a belay plate. *Rock Exotica* took things to the ultimate with the *UFO*, a solid cube of holes enabling all four corners to be connected although we struggled to find the perfect alignment for a stretcher rig with our existing carabiners and had to purchase custom-shaped and fitting carabiners to avoid the very torquing we were using the *UFO* to avoid in the first place. *Rockstar* superseded the *UFO*.

**APPLICATIONS**

**1) MAIN ANCHOR**

Enables connection of all the various ropes and safeties and haul systems etc. into their own positions on the same collection point which can then be attached to one or several anchors.

This is where the largest of plates excel with a dozen or more eyes to utilise. The bigger plates have large indents to help reduce weight but some, like the now discontinued *Rock Exotica Se7en*, pushed these indents all the way through to create irregular holes that look as though they can be pushed into action using either webbing or very large carabiners. However,



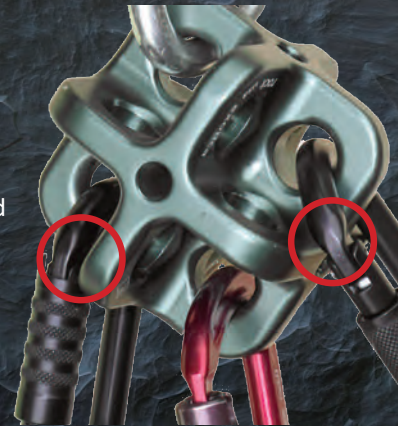
**ROCK EXOTICA**

Rock Thompson and his band of metal wizards deserve special mention because, along with *DMM* they have come up with rigging ideas that are well outside of the conventional box. These aren't necessarily the most applicable to arb but it's actually arb work and to some extent rope access that is pushing the technical boundaries of rigging rather than rescue.

So there are four 'plates' worthy of separate mention although the term 'plate', implying something rather flat, can only be applied to the Bolt. We were quite excited by the prospect of the **Bolt** with a removable stainless anchor pin (or bolt) meaning that you could load hardware like pulleys and cams directly without the need for a carabiner. However, having got our mitts on one we quickly realised that this was only a bonus once you have a set-up that you're never going to change while in use because you obviously can't remove any of the hardware that's placed directly on that pin/bolt once loaded.

In the case of pulleys you also can't add in rope unless you laboriously thread it from one end. So it does require a degree of pre-planning but if you get that right first time the Bolt does indeed save on carabiners, working space and can improve orientation of your hardware. This has, however spawned the new *SMC Origin TT* (pic title page) designed for twin tensioned rope (a rescue thing) which has a two-part bolt allowing at least one of the two sets of connections to be removed/added during work though you would need to be mindful of load balance.

The cubist **UFO** was discontinued a decade ago with the mantle taken up by its lighter cousin the **Rockstar** which enables connection of carabiners in all directions so they are truly 3-dimensional before you even apply a rope. The problem we had with the *UFO* in particular was the ease with which you could adversely torque a carabiner. In the picture on the right you can see how a simple 2-dimensional rigging option with 3-point loading on a single collection point can result in torquing of the carabiner at the points circled in red. In this case neither of the outer carabiners can be loaded directly downwards or indeed even at the angle they are now without applying unacceptable load near the nose of the carabiners. In the carabiner on the right even releasing the screwgate didn't alleviate the angle enough and in fact made it substantially weaker as it twisted on the nose pin when the screw might have taken at least some of the load. You really have to be on



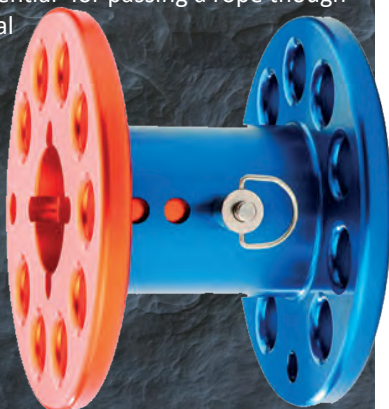


the ball when it comes to ensuring that they load correctly because before load is applied, each carabiner is loose and trying to go with gravity from a different part of the cube. It can be like herding cats to orientate multiple directions simultaneously. It is again, all about pre-planning and systematic loading rather than winging it, so the UFO wasn't really a 'rig-&-forget' tool. However, smart cookies that they are, R.E. introduced the Rockstar in 2013 to take over from the UFO and it has fewer 'walls' to impede the carabiner hang so there's less potential for torquing of the carabiners.



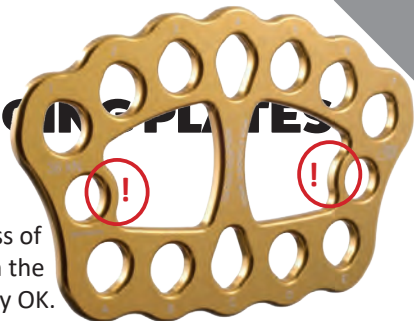
The largest offering in our list is the beautifully crafted AZORP and we don't just say that because it was designed by our US Rope Editor Reed Thorne. In Rock's hands Reed's original napkin design is again a work of art. It consists of two separate plates that pin together to form a giant cotton reel or rope drum-looking device. I'm not sure that it was part of Reed's original thinking (because this was intended as an accessory for a tripod head or monopod system) but 3D aficionados will already have spotted the potential for passing a rope through the spindle intended for metal

pole and having your own rope-festival going on. As a set of wheels, it will sit nicely on the ground still allowing access to most of the upper holes. At the very least if you stand it back on end, the bottom plate acts as a foot keeping the top plate off the floor so that your carabiners load nicely in free space rather than jammed against the ground. Finally, you can separate the two halves and have two entirely functional plates albeit with a round lump hanging out the middle of each. Having discussed this with Reed, he's quite keen to see you incorporating a short extension pole so that you can experiment with jamming between two trees with the AZORP rigged in the middle. If your rigging looks like the set-up below you're probably trying to do too much in one go! AZORP is available in the US & Canada through CMC RESCUE and worldwide via Rock Exotica stockists. Check out TECHNICAL RESCUE 71 for several pages of ideas using the AZORP.



## ANCHORS/RIGGING PLATES

be careful that such 'holes' are actually designed to take load. If they're surrounded by a thickness of material equal to or greater than the regular eyes then you're probably OK.



### 2) BRIDGE STRAP ORGANISER

Now a feature of many arb harnesses like this *Weaver Denali*, a small rigging plate attaches the bridge to the harness, waist belt and/or leg loops leaving one or two eyes for whatever takes your fancy.



### 3) MAIN HARNESS CONNECTION (PICK-OFF RIG)

Tidy up your personal attachments from your main hard-point or bridge with the smallest plates as these will provide separate connection points for attachment to your descender/ascender rig, pick-off (rescue) sling and/or pulley system, and most importantly will ensure that there is no 3-way loading of carabiners which has traditionally been a necessary evil of the standard pick-off rescue procedure. Mini plates are so small and light there is no reason for the lightest of climbing rigs not to have one. I have a harness from Swedish company *Actsafe* that actually already has a multi-eye rigging plate instead of a normal D-ring MHP so this may yet become more popular.

### 4) HIGHLINE/ZIPLINE 'TROLLEY' ORGANISER.

A plate makes a great trolley attachment for connecting pulleys to the main rope and pulleys, control lines to either side and your own array of connections beneath. *ISC's* photo in the titles shows what we mean by 'trolley organiser'. Of course some pulleys, notably the *Kootenay Carriage* and *DMM's 'Hitch Climber'* already incorporate rigging points into the cheeks which may negate the need for a separate plate.

### 5) HAUL SYSTEMS

A plate can give you better alignment of your prusik (if you are using it for progress capture) bypassing the top pulley and onto the rope. Quite often you see the prusik bent around the pulley block in an effort to connect back into the main supporting carabiner.

Your belay and redirect pulley(s) can also be better separated and provide more direct alignment with the load. Use swivels or swivel-integrated pulleys to ensure the carabiners or pulley eye aren't subjected to inappropriate torque loading during the haul.

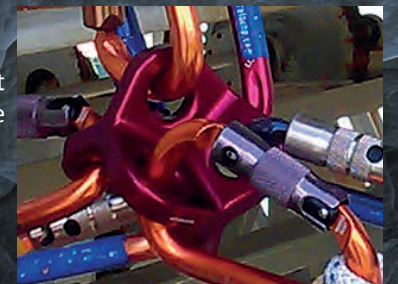


# 3-D RIGGING



Nothing to be afraid of here, 3-D rigging is simply the means to rig or deviate at 90 degrees to your anchor point(s) at the same time as your other ropes or connections continue in the usual directions away from the anchor. *DMM* and those cunning *Treemagineers* who, incidentally, are far too clever for their own good, started the 3D rigging 'trend' with the awesome *Hubs*. These were originally confusingly sized as a medium and large implying that there should be a small - maybe they always intended to create a smaller one but ran out of T7075 alloy because these are almost as bulky as those old steel bearing plates mentioned earlier. 2-dimensional rigging (an unorthodox example top-right) allows you to connect to an anchor at one end and then distribute out at the other end. You might change the angle that the connection comes into the plate but the loading is ultimately 2-dimensional, transmitted from front to back through the flat or flattish plate. You can rig 3-dimensionally through most standard plates but the contact edges are thin and loadings are outside of the norm which is why many of the plates listed in our tables don't have the '3-D' column ticked. What the **Hub** did was to provide the fattest, most smoothly rounded holes on the planet, in particular the central hole, to allow direct connection of a rope and webbing. In this case it allows the rope to pass straight through, in effect you thread

the *Hub* onto the rope which can then allow you to position the side loaded eyes wherever needed or redirect the ropes running through it as in the picture on the right. CNC milling and/or hot-forging of the eyes gives them this large, smooth radius and allows direct use of rope and webbing without the need for carabiners. Some 2-D plates are better suited to 3-D rigging than others for instance the *ISC Halo*, *SMC Vortex* and the *Grivel 9* which is concave or convex depending on which side you view it from. 3-D rigging as originally envisaged by *Treemagineers*, usually takes the form of the hub running along a rope and then rigging lines radiating out laterally to that. The centre eye has an enlarged lip for really smooth and high-strength rope-running and the external eyes can take carabiners or direct web connection. *Rock Exotica's* own take on things was an actual three-dimensional lump of rigging plate - the *UFO* and *Rockstar*. These require carabiner connection but again enable your ropes and webbing to fly off in all directions, 360 degrees and maintain an acceptable loading on all components (aside from the risk of torquing discussed previously) see pic below. Talking of torque, Canadian company *Eyolf* has the *SnoFlake L* and *Kong* have the *DiscoHub* as large, round multi-holed flat plates that could exhibit a torque problem on all but the outer eyes. Specialist 3D anchors like the *Hub* and *Rockstar* and *CMI's* new *Neptune* (above), can obviously still be used as a regular 2-dimensional rig-point but this is much easier with the flat *Hub* than it is with the *Rockstar* where you need to monitor the carabiner contact points.



torquing or 'unbalancing' the plate. A bit of see-sawing due to load coming on and off of various components is expected and fine but if torquing remains a problem (twisting under load) then simply add a swivel, there are now several excellent designs available. Also think about using load release straps like a *Mariners Hitch* for critical tensioned elements that might need to be slackened off independently of other components on your plate. Don't be afraid to invert the plate if it suits your purposes to improve directional loading. Nobody mandates that the concave face or the small eyes have to point towards the load or vice-versa - use whatever orientation best fits your system.

In the following tables, **£€ Prices shown in orange** are a currency conversion guide only. They do not take into account shipping and import duty etc. that will likely increase that price.

The **Smallest Dimension of the Largest Eye** refers to the largest round bar section that can fit because many of these are an odd shape or tapered.

**Alu = Aluminium Alloy**

## STANDARDS

A quick word about standards because European standards that are usually the 'go-to' for technical definitions and adherence to quality are in something of a state of flux. They now state that rigging plates are not fully covered by rigid and flexible anchor standards EN795 and 354 which is what most plates mean when they have a CE marked on it (although EN362 could apply to Bolt and OriginTT as they are openable). Consequently a 'temporary fix in 2018 was via a PPE directive PPE-R/11.114 version 1 that uses parts of EN 12275 and EN 365 as well as applicable parts of EN 795 and EN 354! I think we'll just put CE and leave that to the manufacturers and reputable stockists even though many will show a 'CE' mark that is not strictly accurate.

## CONCLUSIONS

Back to operational stuff and don't assume that any old rigging plate will suit your task - the chances are you'll have a set rig that seldom changes and you should be able to predetermine the number of top and bottom eyes you will need to negate



# ORIGIN TT SYNCHRONIZES TTRS DEVICES SO COMPLETELY, THEY FEEL CONJOINED.

The first time you rig an Origin TT rigging plate in a rope rescue system you will be reminded exactly why the first letter in TTRS is twin. This plate's two independent locking pins allow both multi-purpose devices to mount directly—without an interlocking carabiner. This links and coordinates their operation for a safer, more efficient system and a smoother ride for the person at the end of the line.

Most of us aren't called upon to do a high-angle rope rescue every week—or even every month. But the day will come. Why not be ready to rig the most fully-controlled, fully-redundant system when it does?



WATCH THE ORIGIN TT  
AT WORK.











[harken.com](https://harken.com)

images approximately to scale  
 £\$=Currency conversion only - no tax/shipping etc.  
 MBS/MBL Min Break Load approx 10x WLL Working Load Limit  
 LARGE EYES= largest round /shaped hole - NB: may be cosmetic!

|   |   | MODEL                             | COMPANY                      | ORIGIN  | COST                  | WEIGHT         | MATERIAL | PLA DEP     |
|---|---|-----------------------------------|------------------------------|---|-----------------------|----------------|----------|-------------|
|    |   | <b>B03</b>                        | <b>ANPEN</b>                 |    | £9*<br>\$10*<br>€10*  | 53g<br>1.9oz   | Alu      | 5m<br>0.2   |
|    |   | <b>B04</b>                        | <b>ANPEN</b>                 |    | £19*<br>\$22*<br>€21* | 210g<br>7.4oz  | Alu      | 8m<br>0.3   |
|    |   | <b>B05</b>                        | <b>ANPEN</b>                 |    | £31*<br>\$27*<br>€26* | 250g<br>8.8oz  | Alu      | 8m<br>0.3   |
|    |   | <b>B70</b>                        | <b>ANPEN</b>                 |    | £32*<br>\$39*<br>€37* | 230g<br>8.1oz  | Alu      | 10m<br>0.4  |
|    |   | <b>B80</b>                        | <b>ANPEN</b>                 |    | £27*<br>\$32*<br>€31* | 182g<br>6.4oz  | Alu      | 10m<br>0.4  |
|     |   | <b>B130</b>                       | <b>ANPEN</b>                 |    | £82*<br>\$99*<br>€94* | 452g<br>15.9oz | Alu      | 9.5m<br>0.4 |
|   |   | <b>THRP1</b>                      | <b>ARBORTEC/<br/>TREEHOG</b> |    | £17<br>\$21<br>€20    | 93g<br>3.3oz   | Alu      | 10m<br>0.4  |
|   |   | <b>THRP2</b>                      | <b>ARBORTEC/<br/>TREEHOG</b> |  | £30<br>\$37<br>€35    | 240g<br>8.5oz  | Alu      | 10m<br>0.4  |
|   |  | <b>THRP3</b>                      | <b>ARBORTEC/<br/>TREEHOG</b> |  | £50<br>\$65<br>€58    | 500g<br>1.1lb  | Alu      | 10m<br>0.4  |
|  |   | <b>RIG-IT 728<br/>AR03B-R+L</b>   | <b>AUSTRIALPIN</b>           |  | £50<br>\$65<br>€59    | 242g<br>8.5oz  | Alu      | 10m<br>0.4  |
|   |  | <b>RIG-IT 3-2-5<br/>AR05B-D+L</b> | <b>AUSTRIALPIN</b>           |  | £63<br>\$83<br>€75    | 358g<br>12.6oz | Alu      | 10m<br>0.4  |
|   |   | <b>RIG-IT 728<br/>AR08B-Y+L</b>   | <b>AUSTRIALPIN</b>           |  | £94<br>\$123<br>€112  | 644g<br>1.4lb  | Alu      | 10m<br>0.4  |
|   |  | <b>AirPort4</b>                   | <b>BEAL</b>                  |  | £31<br>\$38<br>€35    | 92g<br>3.25oz  | Alu      | 8m<br>0.3   |
|   |   | <b>AirPort8</b>                   | <b>BEAL</b>                  |  | £47<br>\$58<br>€54    | 188g<br>6.6oz  | Alu      | 10m<br>0.4  |
|   |  | <b>MultiAnchor5<br/>1269</b>      | <b>CAMP</b>                  |  | £43<br>\$53<br>€40    | 70g<br>2.5oz   | Alu      | 8m<br>0.3   |
|  |   | <b>MultiAnchor8<br/>126901</b>    | <b>CAMP</b>                  |  | £69<br>\$85<br>€70    | 245g<br>8.6oz  | Alu      | 12m<br>0.4  |
|   |  | <b>MultiAnchor12<br/>126902</b>   | <b>CAMP</b>                  |  | £105<br>\$130<br>€100 | 590g<br>1.3 lb | Alu      | 12m<br>0.4  |

# ANCHOR/RIGGING PLATES

| DEPTH | DIMENSIONS                 | STANDARDS    | MBS<br><small>approx 10x WWL</small> | MIN HOLE DIAM | SMALLEST DIMENSION OF LARGEST EYE | HOLES<br>LARGE EYE(S) | 3D | OTHER COLOURS   | NOTES   | WWW.           |
|-------|----------------------------|--------------|--------------------------------------|---------------|-----------------------------------|-----------------------|----|---|---|----------------|
| 2"    | 90 x 82mm<br>3.5 x 3.2"    | CE           | 40kN<br>8992 lbf                     | 20mm<br>0.75" | 30mm<br>1.2"                      | 3<br>+1               |    |    | * Price is retail FOB China so excludes shipping/import duty etc. | en.anpen.net   |
| 2"    | 156 x 121mm<br>6.1 x 4.8"  | CE           | 50kN<br>11240 lbf                    | 20mm<br>0.75" | 52mm<br>2"                        | 4<br>+1               |    |    | * Price is retail FOB China so excludes shipping/import duty etc. | en.anpen.net   |
| 2"    | 173 x 113mm<br>6.8 x 4.5"  | CE           | 50kN<br>11240 lbf                    | 20mm<br>0.75" | 40mm<br>1.6"                      | 5<br>+1               |    |    | * Price is retail FOB China so excludes shipping/import duty etc. | en.anpen.net   |
| 4"    | 158 x 100mm<br>6.25 x 3.9" | CE           | 45kN<br>10116lbs                     | 20mm<br>0.75" | 40mm<br>1.6"                      | 7<br>+1               |    |    | * Price is retail FOB China so excludes shipping/import duty etc. | en.anpen.net   |
| 4"    | 173 x 85mm<br>6.8 x 3.4"   | CE           | 45kN<br>10116lbs                     | 20mm<br>0.75" | 40mm<br>1.6"                      | 7<br>+1               |    |    | * Price is retail FOB China so excludes shipping/import duty etc. | en.anpen.net   |
| 4"    | 247 x 150mm<br>9.8 x 5.9"  | CE           | 45kN<br>10116lbs                     | 19mm<br>0.75" | 65mm<br>2.6"                      | 13<br>+2              |    |    | * Price is retail FOB China so excludes shipping/import duty etc. | en.anpen.net   |
| 4"    | 90 x 84mm<br>3.5 x 3.3"    | CE<br>NFPA-G | 36kN<br>809 lbf                      | 19mm<br>0.75" | 36mm<br>1.4"                      | 3<br>+1               |    |   |   | treehog.co.uk  |
| 4"    | 159 x 100mm<br>6.25 x 3.9" | CE           | 40kN<br>8993 lbf                     | 19mm<br>0.75" | 38mm<br>1.5"                      | 7<br>+1               |    |   |   | treehog.co.uk  |
| 4"    | 248 x 149mm<br>9.8 x 5.9"  | CE           | 50kN<br>11240 lbf                    | 19mm<br>0.75" | 66mm<br>2.6"                      | 13<br>+1              |    |   |   | treehog.co.uk  |
| 4"    | 140 x 126mm<br>5.5 x 5"    | CE<br>UIAA   | 60kN<br>13488lbf                     | 22mm<br>0.86" | 52mm<br>2"                        | 5<br>+1               |    |   |   | austrialpin.at |
| 4"    | 188 x 126mm<br>7.4 x 5"    | CE<br>UIAA   | 60kN<br>13488lbf                     | 22mm<br>0.86" | 52mm<br>2"                        | 9<br>+1               |    |  |   | austrialpin.at |
| 4"    | 328 x 126mm<br>13 x 5"     | CE<br>UIAA   | 60kN<br>13488lbf                     | 22mm<br>0.86" | 52mm<br>2"                        | 16<br>+1              |    |  |   | austrialpin.at |
| 2"    | 83 x 85mm<br>3.25 x 3.4"   | CE           | 45kN<br>10116 lbf                    | 20mm<br>0.75" | 30mm<br>1.2"                      | 3<br>+1               |    |   | Also branded as Edelweiss   | beal-pro.com   |
| 4"    | 174x85mm<br>6.8 x 3.4"     | CE           | 45kN<br>10116 lbf                    | 20mm<br>0.75" | 30mm<br>1.2"                      | 7<br>+1               |    |   |   | beal-pro.com   |
| 2"    | 93 x 72mm<br>3.6 x 2.8"    | CE<br>EAC    | 36kN<br>8093lbs                      | 19mm<br>0.75" | 19mm<br>0.75"                     | 5                     |    |   |   | camp.it        |
| 7"    | 149 x 86mm<br>5.8 x 3.3"   | CE<br>EAC    | 45kN<br>10116lbs                     | 19mm<br>0.75" | 19mm<br>0.75"                     | 8                     |    |   |   | camp.it        |
| 7"    | 227 x 128mm<br>8.9 x 5"    | CE<br>EAC    | 45kN<br>10116lbs                     | 19mm<br>0.75" | 19mm<br>0.75"                     | 12                    |    |   |   | camp.it        |

images approximately to scale  
 £/\$=Currency conversion only - no tax/shipping etc.  
 MBS/MBL Min Break Load approx 10x WLL Working Load Limit  
 LARGE EYES= largest round /shaped hole - NB: may be cosmetic!

|   |   | MODEL                                 | COMPANY  | ORIGIN  | COST                               | WEIGHT         | MATERIAL        | PLA DEP         |
|---|---|---------------------------------------|----------|---|------------------------------------|----------------|-----------------|-----------------|
|    |    | <b>Micro Anchor Plate</b><br>300623   | CMC      |    | £33<br>\$42<br>€38                 | 74g<br>2.6oz   | Alu             | 8.2n<br>0.3     |
|    |    | <b>Anchor Plate</b><br>30061          | CMC      |    | £61<br>\$79<br>€71                 | 204g<br>7.4oz  | Alu             | 6.7n<br>0.2     |
|    |    | <b>Anchor Plate</b><br>300615         | CMC      |    | £71<br>\$93<br>€83                 | 278g<br>9.8oz  | Stainless Steel | 3m<br>0.1       |
|     |    | <b>AZORP Arizona Omni Rigging Pod</b> | CMC      |    | £na/770*<br>\$343/650*<br>€na/896* | 1400g<br>3 lb  | 7075 Alloy      | 12n<br>0.4      |
|    |    | <b>SQUID</b>                          | CMC      |    | £120<br>\$149<br>€137              | 240g<br>8.5oz  | Alu             | 51n<br>2.0      |
|   |   | <b>RigPlat4</b>                       | CMI      |    | £37<br>\$48<br>€43                 | 91g<br>3.2oz   | Alu             | 9.5n<br>0.37    |
|  |   | <b>RigPlat1</b>                       | CMI      |   | £78<br>\$101<br>€90                | 190g<br>6.7oz  | Aircraft Alu    | 9.5n<br>0.37    |
|  |  | <b>RigPlat2</b>                       | CMI      |  | £83<br>\$108<br>€97                | 245g<br>8.6oz  | Stainless Steel | 3m<br>0.1       |
|  |  | <b>Maxi/RigPlat3</b>                  | CMI      |  | £104<br>\$136<br>€121              | 500g<br>1.1 lb | Aircraft Alu    | 9.5n<br>0.3     |
|  |  | <b>Neptune</b>                        | CMI      |  | £125<br>\$163<br>€145              | 363g<br>0.8lb  | Aircraft Alu    | 41n<br>1.62     |
|  |  | <b>Focus</b>                          | CONTERRA |  | £35<br>\$45<br>€40                 | 270g<br>9.5oz  | Alu             | 8.9n<br>0.3     |
|  |  | <b>Anchor Multiplier Small</b>        | COURANT  |  | £20<br>\$24<br>€22                 | 93g<br>3.3oz   | Alu             | 9.8n<br>0.3     |
|  |  | <b>Anchor Multiplier Med</b>          | COURANT  |  | £32<br>\$39<br>€37                 | 202g<br>7oz    | Alu             | 9.5n<br>0.3     |
|  |  | <b>Anchor Multiplier Large</b>        | COURANT  |  | £67<br>\$81<br>€76                 | 422g<br>1 lb   | Alu             | 10n<br>0.3      |
|  |  | <b>Hub Small</b>                      | DMM      |  | £131<br>\$160<br>€118              | 260g<br>9.2oz  | Alu             | *<br><20<br><0. |
|  |  | <b>Hub Large</b>                      | DMM      |  | £191<br>\$290<br>€240              | 550g<br>1.2 lb | Alu             | *<br><20<br><0. |

# ANCHOR/RIGGING PLATES

| DEPTH        | DIMENSIONS                  | STANDARDS                        | MBS<br><small>approx 10x WWL</small> | MIN HOLE DIAM | SMALLEST DIMENSION of LARGEST EYE | HOLES LARGE EYE(S) | 3D | OTHER COLOURS | NOTES  | WWW.                                     |
|--------------|-----------------------------|----------------------------------|--------------------------------------|---------------|-----------------------------------|--------------------|----|---------------|--|--|
| 25mm<br>2"   | 89 x 70mm<br>3.5 x 2.75"    | NFPA G                           | 46kN<br>10341lbf                     | 16mm<br>0.6"  | 25mm<br>1"                        | 3<br>+1            |    |               |  | cmcpro.com                               |
| 38mm<br>1.5" | 158 x 117mm<br>6.2 x 4.6"   | NFPA G                           | 45kN<br>10116lbf                     | 22mm<br>0.9"  | 51mm<br>2"                        | 4<br>+1            |    |               |  | cmcpro.com                               |
| 38mm<br>1.5" | 158 x 117mm<br>6.2 x 4.6"   | NFPA G                           | 43kN<br>9666lbf                      | 22mm<br>0.9"  | 51mm<br>2"                        | 4<br>+1            |    |               |  | cmcpro.com                               |
| 38mm<br>1.5" | 165 x >140mm<br>6.5 x >5.5" | NFPA G                           | 67kN<br>15062lbf                     | 22mm<br>0.9"  | 50mm<br>2"                        | 18<br>+1<br>+2     | ■  |               | \$650* =AZORP kit 2 rig plates/pins..<br>Cord and rope can be passed through central spindle.<br>Outer sleeve opening 60mm                   | cmcpro.com<br>(for North American Sales) |
| 38mm<br>1.5" | 104 x 84mm<br>4.1 x 3.3"    | CE<br>NFPA G*T                   | TBA                                  | TBA           | TBA                               | 3                  |    |               | New 2023 Model<br>* G+ certain configurations only   | cmcpro.com                               |
| 38mm<br>1.5" | 88 x 70mm<br>3.5 x 2.75"    | NO                               | 89kN<br>20007lb                      | 20mm<br>0.75" | 20mm<br>0.75"                     | 4                  |    |               |  | cmi-gear.com                             |
| 38mm<br>1.5" | 171 x 127mm<br>6.75 x 5"    | exceeds NFPA G but not certified | 57.8kN<br>13000lb                    | 23mm<br>0.9"  | 57mm<br>2.25"                     | 5<br>+1            |    |               |  | cmi-gear.com                             |
| 38mm<br>1.5" | 171 x 127mm<br>6.75 x 5"    | exceeds NFPA G but not certified | 57.8kN<br>13000lb                    | 23mm<br>0.9"  | 57mm<br>2.25"                     | 5<br>+1            |    |               |  | cmi-gear.com                             |
| 38mm<br>1.5" | 241 x 120mm<br>9.5 x 4.75"  | exceeds NFPA G but not certified | 57kN<br>13000lb                      | 20mm<br>0.75" | 57mm<br>2.5"                      | 11<br>+1<br>+1*    |    |               | * 1 x 3" webbing eye   | cmi-gear.com                             |
| 38mm<br>1.5" | 100mm<br>4"                 |                                  | 40.1kN<br>9000lbf                    | 14mm<br>0.55" | 30mm<br>1.2"                      | 6<br>+1            | ■  |               |  | cmi-gear.com                             |
| 38mm<br>1.5" | 152 x 121mm<br>6 x 4.75"    | NFPA G                           | 40kN<br>8993lbf                      | 24mm<br>0.95" | 30mm<br>1.2"                      | 6<br>+2            | ■  |               |  | conterra-inc.com                         |
| 38mm<br>1.5" | 91 x 84mm<br>3.5 x 3.3"     | CE<br>NFPA-G                     | 36kN<br>8093lbf                      | 20mm<br>3/4"  | 36mm<br>1.4"                      | 3<br>+1            |    | ■             | Individually marked  | mycourant.com                            |
| 38mm<br>1.5" | 166 x 108mm<br>6.5 x 4.25"  | CE<br>NFPA G                     | 40kN<br>8993lbf                      | 20mm<br>0.75" | 38mm<br>1.5"                      | 7<br>+1            |    | ■             | Individually marked  | mycourant.com                            |
| 38mm<br>1.5" | 249 x 150mm<br>9.8 x 5.9"   | CE<br>NFPA G                     | 45kN<br>10116lbf                     | 20mm<br>0.75" | 66mm<br>2.6"                      | 13<br>+1           |    |               | Individually marked  | mycourant.com                            |
| 38mm<br>1.5" | 119mm<br>4.7"               | CE<br>RFU 11.114 V1              | 45/80kN<br>10116 lbf<br>16186 lbf    | 16mm<br>0.63" | 24mm<br>0.94"                     | 4**<br>+1          | ■  | ■             | *Reduces to 10mm depth.<br>Individually marked.<br>80kN load = central eye.<br>** eyes for web/rope 45mm wide.<br>4x 6mm eyes aesthetic only | dmmprofessional.com                      |
| 38mm<br>1.5" | 169mm<br>6.6"               | CE<br>RFU 11.114 V1              | 150/45kN<br>10116lbf<br>33721lbf     | 19mm<br>0.75" | 48mm<br>1.9"                      | 4<br>+1<br>+4*     | ■  | ■             | * Plate thickness reduces to 10mm.<br>Individually marked.<br>80kN load = central eye.<br>* web eyes 43mm wide                               | dmmprofessional.com                      |
|              |                             |                                  |                                      |               |                                   |                    |    |               |  | expansion row                            |

images approximately to scale  
 £\$€=Currency conversion only - no tax/shipping etc.  
 MBS/MBL Min Break Load approx 10x WLL Working Load Limit  
 LARGE EYES= largest round /shaped hole - NB: may be cosmetic!

|   |   | MODEL             | COMPANY         | ORIGIN   | COST                | WEIGHT         | MATERIAL        | PLA DEP    |
|---|---|-------------------|-----------------|--|---------------------|----------------|-----------------|------------|
|    |    | X Small Bat Plate | DMM             |   | £30<br>\$38<br>€40  | 37g<br>1.3oz   | Alu             | 8m<br>0.3  |
|    |    | Small Bat Plate   | DMM             |   | £51<br>\$30<br>€65  | 159g<br>5.5oz  | Alu             | 10m<br>0.3 |
|     |    | Medium Bat Plate  | DMM             |   | £66<br>\$66<br>€85  | 247g<br>8.6oz  | Alu             | 10m<br>0.3 |
|     |    | Large Bat Plate   | DMM             | <br>     | £80<br>\$95<br>€104 | 322g<br>11.2oz | Alu             | 10m<br>0.3 |
|    |    | Maggi Rig         | EDELRID         | <br>     | £47<br>\$64<br>€60  | 140g<br>4.0oz  | Stainless Steel | 10m<br>0.3 |
|    |   | Mini Rig          | EDELRID         | <br>     | £22<br>\$25<br>€30  | 62g<br>2.2oz   | Alu             | 6m<br>0.2  |
|   |   | MasterRig II      | EDELRID         | <br>     | £68<br>\$86<br>€81  | 165g<br>5.8oz  | Alu             | 7m<br>0.2  |
|   |  | Hertz XS          | EDELWEISS       | <br> | £31<br>\$37<br>€35  | 36g<br>1.3oz   | Light Alloy     | 8m<br>0.3  |
|  |  | Hertz S           | EDELWEISS       | <br> | £31<br>\$37<br>€35  | 92g<br>3.25oz  | Alu             | 8m<br>0.3  |
|  |  | Hertz M           | EDELWEISS       | <br> | £47<br>\$57<br>€54  | 188g<br>6.6oz  | Alu             | 10m<br>0.4 |
|  |  | SnoFlake S        | EYOLF           |   | £27<br>\$32<br>€31  | 73g<br>0oz     | Alu             | 10m<br>0.4 |
|  |  | SnoFlake M        | EYOLF           |   | £43<br>\$52<br>€50  | 121g<br>0oz    | Alu             | 10m<br>0.4 |
|  |  | SnoFlake L        | EYOLF           | <br> | £59<br>\$71<br>€68  | 220g<br>7.8oz  | Alu             | 10m<br>0.4 |
|  |  | Little Foot       | FUSION CLIMBING | <br> | £16<br>\$17<br>€20  | 74g<br>2.6oz   | Alu             | 8m<br>0.3  |
|  |  | Big Foot          | FUSION CLIMBING |   | £25<br>\$19<br>€30  | 115g<br>4oz    | Alu             | 8m<br>0.3  |
|  |  | Vlad              | GRIVEL          |   | £33<br>\$40<br>€35  | 90g<br>3.2oz   | Alu             | -          |
|  |  | Tris              | GRIVEL          |   | £12<br>\$14<br>€13  | 39g<br>1.4oz   | Alu             | 10m<br>0.3 |



# ANCHOR/RIGGING PLATES

| PLATE THICKNESS | DIMENSIONS                | STANDARDS                 | MBS<br><small>approx 10x WWL</small> | MIN HOLE DIAM    | SMALLEST DIMENSION of LARGEST EYE | HOLES<br><b>LARGE EYE(S)</b> | 3D | OTHER COLOURS | NOTES  | WWW.                |
|-----------------|---------------------------|---------------------------|--------------------------------------|------------------|-----------------------------------|------------------------------|----|---------------|--|---------------------|
| 19mm<br>0.75"   | 62 x 62mm<br>2.4 x 2.4"   | CE<br>RFU 11.114 V1       | 36kN<br>8093lbf                      | 15mm<br>0.6"     | 17mm<br>0.7"                      | 3<br>+1                      |    | ■             | Individually marked.<br>Large eye 27mm wide  | dmmprofessional.com |
| 19mm<br>0.75"   | 129 x 95mm<br>5 x 3.7"    | CE<br>RFU 11.114 V1       | 60kN<br>13,200lbs                    | 19mm<br>0.75"    | 25mm<br>1"                        | 2<br>+2<br>+2*               |    | ■             | *2 bolt holes for connecting plates together.<br>Individually marked.<br>Large eye 40mm wide                                       | dmmprofessional.com |
| 19mm<br>0.75"   | 189 x 97mm<br>7.4 x 3.8"  | CE<br>RFU 11.114 V1       | 60kN<br>13,200lbs                    | 19mm<br>0.75"    | 25mm<br>1"                        | 6<br>+2<br>+2*               |    | ■             | *2 bolt holes for connecting plates. Individually marked.<br>Narrow plate profile for restrictive spaces.<br>Large eye 40mm wide   | dmmprofessional.com |
| 19mm<br>0.75"   | 249 x 99mm<br>9.8 x 3.9"  | CE<br>RFU 11.114 V1       | 60kN<br>13,200lbs                    | 19mm<br>0.75"    | 25mm<br>1"                        | 10<br>+2<br>+2*              |    | ■             | *2 bolt holes for connecting plates. Individually marked.<br>Narrower plate profile for restrictive spaces.<br>Large eye 40mm wide | dmmprofessional.com |
| 19mm<br>0.75"   | 60 x 60mm<br>2.4 x 2.42   | CE<br>CNB/P<br>11.114 pFE | 70kN<br>15,737lbf                    | 20mm<br>0.75"    | 20mm<br>0.75"                     | 4                            |    |               | two plates riveted together for maximum redundancy   | edelrid.de          |
| 19mm<br>0.75"   | 101 x 83mm<br>4 x 3.25"   | CE                        | 36kN<br>8093 lbf                     | 20mm<br>0.75"    | 30mm<br>1.2"                      | 3<br>+1                      |    |               | Hot-forged update of previous flat-plate design still available from some outlets  | edelrid.de          |
| 19mm<br>0.75"   | 149 x 98mm<br>5.9 x 3.9"  | CE                        | 50kN<br>11240lbf                     | 20mm<br>0.75"    | 30mm<br>1.2"                      | 7<br>+1                      |    |               | Hot-forged update of MasterRig I, a flat-plate design still available from some outlets  | edelrid.de          |
| 19mm<br>0.75"   | 62 x 61mm<br>2.4 x 2.4"   | CE                        | 36kN<br>8093 lbf                     | 15mm<br>0.6"     | 17mm<br>0.7"                      | 3<br>+1                      |    |               |  | edelweiss-ropes.com |
| 19mm<br>0.75"   | 83 x 85mm<br>3.25 x 3.4"  | CE                        | 45kN<br>10116 lbf                    | 20mm<br>0.75"    | 25mm<br>1"                        | 3<br>+1                      |    |               |  | edelweiss-ropes.com |
| 19mm<br>0.75"   | 174x85mm<br>6.8 x 3.4"    | CE                        | 45kN<br>10116 lbf                    | 20mm<br>0.75"    | 25mm<br>1"                        | 7<br>+1                      |    |               |  | edelweiss-ropes.com |
| 19mm<br>0.75"   | 90 x 70mm<br>3.5 x 2.75"  | CE                        | 36kN<br>8093lbf                      | 20mm<br>0.75"    | 20mm<br>0.75"                     | 4                            |    | ■             |  | eyolf.ca            |
| 19mm<br>0.75"   | 100mm<br>4"               | CE                        | 36kN<br>8093lbf                      | 20mm<br>0.75"    | 20mm<br>0.75"                     | 7                            |    | ■             |  | eyolf.ca            |
| 19mm<br>0.75"   | 145mm<br>5.7"             | CE                        | 36kN<br>8093lbf                      | 20mm<br>0.75"    | 20mm<br>0.75"                     | 13                           |    | ■             |  | eyolf.ca            |
| 19mm<br>0.75"   | 89 x 82mm<br>3.25 x 3.24" | CE                        | 30kN<br>6744lbf                      | 19.75mm<br>0.78" | 35.5mm<br>1.4"                    | 3<br>+1                      |    | ■             |  | fusionclimb.com     |
| 19mm<br>0.75"   | 152 x 120mm<br>6 x 4.7"   | CE                        | 40kN<br>8992 lbf                     | 23mm<br>0.9"     | 51mm<br>2"                        | 4<br>+1                      |    | ■             |  | fusionclimb.com     |
| 19mm<br>0.75"   | 120 x 82mm<br>4.7 x 3.2   | CE                        | 12*-30kN<br>6744lbf                  | 22mm<br>0.9"     | 22mm**<br>0.9"                    | 3<br>+1                      |    |               | *Minor axis - loading across the gate. Double gate with 15mm opening. **round bar capacity   | grivel.com          |
| 19mm<br>0.75"   | 60 x 60mm<br>2.4 x 2.4"   | CE                        | 29kN<br>6519 lbf                     | 19mm<br>0.75"    | 19mm<br>0.75"                     | 3                            |    | ■             |  | grivel.com          |

images approximately to scale  
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 MBS/MBL Min Break Load approx 10x WLL Working Load Limit  
 LARGE EYES= largest round /shaped hole - NB: may be cosmetic!

|   |  | MODEL                            | COMPANY | ORIGIN  | COST                  | WEIGHT         | MATERIAL                    | PLA DEP     |
|---|--|----------------------------------|---------|---|-----------------------|----------------|-----------------------------|-------------|
|    |  | Four                             | GRIVEL  |    | £14<br>\$17<br>€16    | 55g<br>1.9oz   | Alu                         | 10n<br>0.3  |
|    |  | Nine                             | GRIVEL  |    | £19<br>\$23<br>€22    | 149g<br>5.3oz  | Alu                         | 10n<br>0.3  |
|    |  | Shuttle                          | GRIVEL  |    | £19<br>\$18<br>€17    | 86g<br>3oz     | Alu                         | 10n<br>0.3  |
|     |  | Origin TT                        | HARKEN  |    | £270<br>\$250<br>€320 | 521g<br>18.4oz | Alu<br>& Stainless<br>Steel | 127<br>0.5  |
|    |  | Small Rigging Plate<br>RP300     | ISC     |    | £20<br>\$30<br>€22    | 93g<br>3.3oz   | Alu                         | 9.8<br>0.3  |
|    |  | Med Rigging Plate<br>RP310       | ISC     |    | £29<br>\$45<br>€37    | 202g<br>7oz    | Alu                         | 9.5<br>0.3  |
|   |  | Large Rigging Plate<br>RP320     | ISC     |    | £78<br>\$103<br>€93   | 422g<br>14.8oz | Alu                         | 10n<br>0.3  |
|   |  | Small Halo<br>RP302              | ISC     |  | £41<br>\$54<br>€49    | 118g<br>4.1oz  | Alu                         | 7.8<br>0.3  |
|  |  | Med Halo<br>RP303                | ISC     |  | £50<br>\$70<br>€80    | 221g<br>7.8oz  | Alu                         | 9.8<br>0.3  |
|  |  | Large Halo<br>RP304              | ISC     |  | £79<br>\$106<br>€94   | 337g<br>11.9oz | Alu                         | 12.8<br>0.5 |
|  |  | Tris<br><b>DISCONTINUED</b>      | KONG    |  | £26<br>\$34<br>€27    | 57g<br>2oz     | Alu                         | 4m<br>0.1   |
|  |  | 3-Rig                            | KONG    |  | £23<br>\$28<br>€26    | 95g<br>0oz     | Alu                         | 10n<br>.39  |
|  |  | 4-Rig                            | KONG    |  | £27<br>\$34<br>€32    | 150g<br>0oz    | Alu                         | 10n<br>0.3  |
|  |  | Poker<br><b>DISCONTINUED</b>     | KONG    |  | £30<br>\$37<br>€34    | 96g<br>3.4oz   | Alu                         | 4m<br>0.1   |
|  |  | PentaPlan<br><b>DISCONTINUED</b> | KONG    |  | £35<br>\$39<br>€33    | 106g<br>3.7oz  | Alu                         | 4m<br>0.1   |
|  |  | Full                             | KONG    |  | £34<br>\$42<br>€39    | 90g<br>3.2oz   | Alu                         | 10n<br>0.3  |
|  |  | Rally                            | KONG    |  | £38<br>\$40<br>€36    | 180g<br>0oz    | Alu                         | 10n<br>0.3  |

# ANCHOR/RIGGING PLATES

| DEPTH       | DIMENSIONS                 | STANDARDS            | MBS<br><small>approx 10x WWL</small> | MIN HOLE DIAM | SMALLEST DIMENSION of LARGEST EYE | HOLES<br>LARGE EYE(S) | 3D | OTHER COLOURS | NOTES  | WWW.                       |
|-------------|----------------------------|----------------------|--------------------------------------|---------------|-----------------------------------|-----------------------|----|---------------|--|----------------------------|
| 19mm<br>9"  | 79 x 59mm<br>3.1 x 2.3"    | CE                   | 30kN<br>6744 lbf                     | 19mm<br>0.75" | 19mm<br>0.75"                     | 4                     | ■  |               | Concave profile, Individually marked.  | grivel.com                 |
| 19mm<br>9"  | 104mm<br>4.1"              | CE                   | 30kN<br>6744 lbf                     | 19mm<br>0.75" | 25mm<br>1"                        | 8<br>+1               | ■  |               | Concave profile, Individually marked   | grivel.com                 |
| 19mm<br>9"  | 125 x 87mm<br>4.9 x 3.4"   | CE<br>UIAA           | 20kN<br>4496 lbf                     | 19mm<br>0.75" | 13mm<br>0.5"                      | 3<br>+1<br>+2*        | ■  |               | Also Belay/descender. Concave profile. 2 Rope slots for 7.3-13mm rope. Similar to Kong Full. Large eye 51mm long. Individually marked. | grivel.com                 |
| 19mm<br>5"  | 190x114mm<br>7.5 x 4.5"    | CE<br>NFPA G<br>UKCA | 45kN<br>10116lbf                     | n/a           | n/a                               | 4<br>+3               |    |               |  | harken.com/safetyandrescue |
| 19mm<br>8"  | 91 x 84mm<br>3.5 x 3.3"    | CE<br>NFPA-G         | 36kN<br>8093 lbf                     | 20mm<br>0.75" | 36mm<br>1.4"                      | 3<br>+1               |    |               | Individually marked.   | iscwales.com               |
| 19mm<br>7"  | 166 x 108mm<br>6.5 x 4.25" | CE<br>NFPA G         | 40kN<br>8993 lbf                     | 20mm<br>0.75" | 38mm<br>1.5"                      | 7<br>+1               |    |               | Individually marked.   | iscwales.com               |
| 19mm<br>9"  | 249 x 150mm<br>9.8 x 5.9"  | CE<br>NFPA G         | 45kN<br>10116 lbf                    | 20mm<br>0.75" | 66mm<br>2.6"                      | 13<br>+1              |    |               | Individually marked.   | iscwales.com               |
| 19mm<br>11" | 115mm<br>4.5"              | CE<br>NFPA G         | 40kN<br>8992 lbf                     | 20mm<br>0.75" | 29mm<br>1.14"                     | 6<br>+1               | ■  |               | Individually marked. Outer eyes are 27mm/1" wide   | iscwales.com               |
| 19mm<br>8"  | 144mm<br>5.72"             | CE<br>NFPA G         | 50kN<br>11240 lbf                    | 25mm<br>1"    | 39mm<br>1.5"                      | 6<br>+1               | ■  |               | Individually marked. Outer eyes are 36mm/1.4" wide   | iscwales.com               |
| 19mm<br>9"  | 165mm<br>6.5"              | CE<br>NFPA G         | 70kN<br>15736 lbf                    | 28mm<br>1.1"  | 52mm<br>2"                        | 6<br>+1               | ■  |               | Individually marked. Outer eyes are 39mm/1.5" wide   | iscwales.com               |
| 19mm<br>5"  | 89.5 x 75mm<br>3.5"        | CE                   | 30kN<br>6744 lbf                     | 20mm<br>0.75" | 24mm<br>0.95"                     | 3<br>+1               |    |               |  | kong.it                    |
| 19mm<br>9"  | 96 x 76mm<br>"             | CE                   | 36kN<br>8093 lbf                     | 20mm<br>0.75" | 24mm<br>0.95"                     | 3<br>+1               |    |               | Stronger version-replaced the Tris   | kong.it                    |
| 19mm<br>9"  | 125.5 x 90mm<br>"          | CE                   | 36kN<br>8093 lbf                     | 20mm<br>0.75" | 32mm<br>1.25"                     | 4<br>+1               |    |               | Stronger version-replaced the Poker  | kong.it                    |
| 19mm<br>5"  | 118 x 94mm<br>4.7 x 3.7"   | CE                   | 30kN<br>6744 lbf                     | 20mm<br>0.75" | 32mm<br>1.25"                     | 4<br>+1<br>+2*        |    |               | * 2x 22mm webbing eyes. Large eye 43mm wide  | kong.it                    |
| 19mm<br>5"  | 155 x 122mm<br>6.1 x 4.8"  | CE                   | 30kN<br>6744 lbf                     | 20mm<br>0.75" | 26mm<br>1"                        | 5<br>+1               |    |               | There was a 4-hole version of this weighing 74g, still available from some outlets. Large eye is 46mm high                             | kong.it                    |
| 19mm<br>9"  | 125 x 90mm<br>4.9 3.5"     | CE                   | 30kN<br>6744 lbf                     | 20mm<br>0.75" | 20mm<br>0.75"                     | 3<br>+1<br>+2*        | ■  | ■             | Also a fully capable belay plate/descender *Slots for single or double ropes 8-12mm Large eye 30mm wide                                | kong.it                    |
| 19mm<br>9"  | 160 x 56mm                 | CE                   | 36kN<br>8093 lbf                     | 20mm<br>0.75" | 20mm<br>0.75"                     | 10                    |    |               |  | kong.it                    |

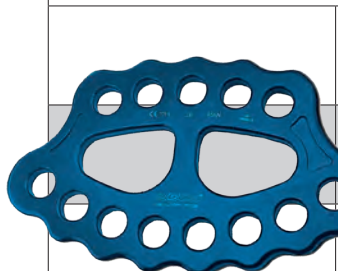




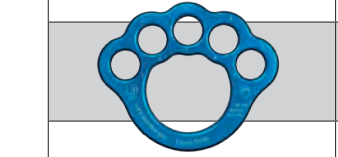


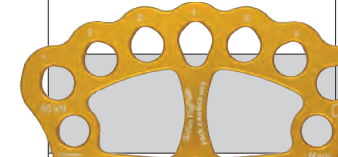

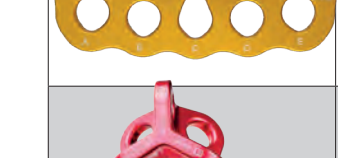



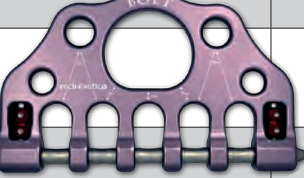


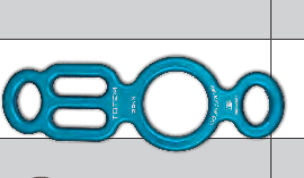


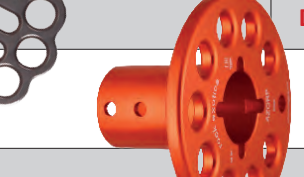





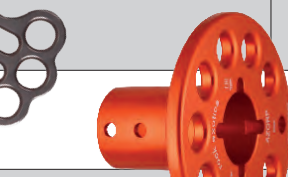














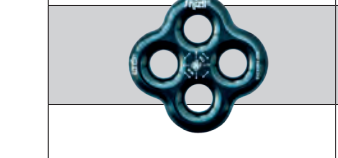

images approximately to scale  
 £€=Currency conversion only - no tax/shipping etc.  
 MBS/MBL Min Break Load approx 10x WLL Working Load Limit  
 LARGE EYES= largest round /shaped hole - NB: may be cosmetic!

|  |  | MODEL                      | COMPANY              | ORIGIN | COST                  | WEIGHT          | MATERIAL        | PLA DEP    |
|--|--|----------------------------|----------------------|--------|-----------------------|-----------------|-----------------|------------|
|  |  | Rally Bent                 | KONG                 |        | £24<br>\$36<br>€30    | 180g<br>0oz     | Alu             | 10n<br>0.3 |
|  |  | BigRig                     | KONG                 |        | £243<br>\$302<br>€280 | 1500g<br>0oz    | Alu             | 10n<br>0.3 |
|  |  | DiscoRig                   | KONG                 |        | £68<br>\$86<br>€74    | 390g<br>0oz     | Alu             | 10n<br>0.3 |
|  |  | 3 Hole<br>FA6003605        | KRATOS SAFETY        |        | £28<br>\$35<br>€32    | 53g<br>1.9oz    | Alu             | 6m<br>0.2  |
|  |  | 5-Hole<br>FA6003605        | KRATOS SAFETY        |        | £34<br>\$42<br>€40    | 210g<br>7.4oz   | Alu             | 7m<br>0.2  |
|  |  | Stretcher                  | MSA                  |        | £92<br>\$120<br>€107  | 330g<br>11.6oz  | Alu             | 8.6<br>0.3 |
|  |  | Stealth                    | MSA                  |        | £69<br>\$90<br>€81    | 250g<br>8.7oz   | Alu             | 8m<br>0.3  |
|  |  | Hec                        | ONBOARD SYSTEMS      |        | n/a                   | 1.75lb<br>0.8kg | Stainless Steel |            |
|  |  | Paw S                      | PETZL                |        | £26<br>\$32<br>€29    | 60g<br>2.1oz    | Alu             | 6m<br>0.2  |
|  |  | Paw M                      | PETZL                |        | £46<br>\$55<br>€54    | 210g<br>7.4oz   | Alu             | 6m<br>0.2  |
|  |  | Paw L                      | PETZL                |        | £72<br>\$83<br>€83    | 350g<br>12.3oz  | Alu             | 10n<br>.35 |
|  |  | RSI Anchor Plate<br>603210 | RESCUE SYSTEMS inc   |        | £55<br>\$71<br>€68    | 211g<br>8oz     | Alu             | 10n<br>.35 |
|  |  | Micro                      | RESCUE TECHNOLOGY    |        | £26<br>\$33<br>€30    | 93g<br>3.3oz    | Alu             | 9.8<br>0.3 |
|  |  | Tech.Rescue<br>603215      | RESCUE TECHNOLOGY    |        | £39<br>\$51<br>€50    | 202g<br>7oz     | Alu             | 9.5<br>0.3 |
|  |  | Magnum<br>603216           | RESCUE TECHNOLOGY    |        | £85<br>\$103<br>€92   | 422g<br>16oz    | Alu             | 10n<br>0.3 |
|  |  | RIT Rigging Plate          | RIT SAFETY SOLUTIONS |        | £44<br>\$53<br>€50    | n/a             | Alu             | 8m<br>0.3  |
|  |  | Anchor Plate 1:3           | ROCK EMPIRE          |        | £26<br>\$32<br>€30    | 73g<br>2.6oz    | Alu             | 6m<br>0.2  |

# ANCHOR/RIGGING PLATES

| DEPTH | DIMENSIONS                 | STANDARDS             | MBS<br><small>approx. 10x WWL</small> | MIN HOLE DIAM | SMALLEST DIMENSION of LARGEST EYE | HOLES<br>LARGE EYE(S)       | 3D | OTHER COLOURS | NOTES   | WWW.                   |
|-------|----------------------------|-----------------------|---------------------------------------|---------------|-----------------------------------|-----------------------------|----|---------------|---|------------------------|
| 9"    | 139.5 x 56mm               | CE                    | 36kN<br>8093 lbf                      | 20mm<br>0.75" | 20mm<br>0.75"                     | 10                          |    |               |   | kong.it                |
| 9"    | 295 x                      | CE                    | 36kN<br>8093 lbf                      | 20mm<br>0.75" | 50mm<br>2"                        | 5<br>8xoval<br>+1<br>+8bolt | ■  |               | Intended as an adjunct to Kong's tripod winch but will function anywhere as a rig plate and will fit 50mm scaffold tube | kong.it                |
| 9"    | 187mm                      | CE                    | 36kN<br>8093 lbf                      | 20mm<br>0.75" | 38mm<br>1.5"                      | 12<br>+5                    | ■  |               |   | kong.it                |
| 5"    | 103 x 83mm<br>4 x 3.25"    | CE<br>NFPA            | 36kN<br>8093 lbf                      | 19mm<br>0.75" | 25mm<br>1"                        | 3<br>+1                     |    |               |   | kratossafety.com       |
| 8"    | 149 x 98mm<br>5.9 x 3.8"   | CE<br>NFPA            | 45kN<br>10116 lbs                     | 19mm<br>0.75" | 27mm<br>1.1"                      | 7<br>+1                     |    |               |   | kratossafety.com       |
| 4"    | 254 x 95mm<br>10 x 3.75"   | NFPA G                | 54kN<br>12200lbs                      | 25mm<br>1"    | 25mm<br>1"                        | 10<br>+2*                   |    |               | * 2 accessory eyes  | msanet.com             |
| 2"    | 184 x 89mm<br>7.25 x 3.5"  | NFPA G                | 48kN<br>11000lbs                      | 22mm<br>0.8"  | 24mm<br>0.93"                     | 4<br>+1<br>+2*              |    |               | * 2 accessory eyes  | msanet.com             |
|       |                            | FAA                   | 3.56kN<br>800lbf                      |               |                                   | 6<br>+2                     |    |               | FAA   | onboardsystems.com     |
| 4"    | 96 x 75mm<br>3.8 x 2.95"   | CE,<br>NFPA G<br>UKCA | 36kN<br>8093lbf                       | 19mm<br>0.75" | 24mm<br>0.93"                     | 3<br>+1                     | ■  |               | Previous version also in red  | petzl.com              |
| 4"    | 160 x 90mm<br>6.3 x 3.5"   | CE,<br>NFPA G<br>UKCA | 36kN<br>8093 lbf                      | 19mm<br>0.75" | 35mm<br>1.4"                      | 7<br>+1                     | ■  |               | Individually marked. Large eye 40mm wide Previous version also in blue  | petzl.com              |
| 9"    | 221 x 120mm<br>8.7 x 4.7"  | NFPA G                | 36kN<br>8093 lbf                      | 19mm<br>0.75" | 35mm<br>1.4"                      | 12<br>+2                    | ■  |               | Individually marked. Voids not to be used   | petzl.com              |
| 9"    | 178 x 137mm<br>7 x 5.4"    | CE,<br>NFPA G<br>UKCA | 48kN<br>11000 lbf                     | 20mm<br>0.75" | 36mm<br>1.4"                      | 5<br>+1*                    | ■  |               | *+1 central slot - can be used as brake-plate for 1/2" rope   | petzl.com              |
| 8"    | 91 x 84mm<br>3.5 x 3.3"    | CE<br>NFPA-G          | 36kN<br>8093 lbf                      | 20mm<br>0.75" | 36mm<br>1.4"                      | 3<br>+1                     |    |               | Individually marked.  | rescuetech1.com        |
| 7"    | 166 x 108mm<br>6.5 x 4.25" | CE<br>NFPA G          | 40kN<br>8993 lbf                      | 20mm<br>0.75" | 38mm<br>1.5"                      | 7<br>+1                     |    |               | Individually marked.  | rescuetech1.com        |
| 9"    | 249 x 150mm<br>9.8 x 5.9"  | CE<br>NFPA G          | 45kN<br>10116 lbf                     | 20mm<br>0.75" | 66mm<br>2.6"                      | 13<br>+2                    |    |               | Individually marked. Large central eyes not intended for load   | rescuetech1.com        |
| 2"    | 121 x 83mm<br>4.75 x 3.25" | NFPA G                | 55kN<br>12365 lbf                     | 22mm<br>0.8"  | 25mm<br>1"                        | 3<br>+1                     |    |               | Apex eye is slightly larger at just over 25mm. Large eye is 35mm wide   | ritsafetysolutions.com |
| 4"    | 80 x 65mm<br>3.2 x 2.6"    | CE                    | 33kN<br>7419 lbf                      | 20mm<br>0.75" | 22mm<br>0.9"                      | 1<br>+3                     |    |               | Individually marked.  | rockempire.cz          |

images approximately to scale  
 £\$€=Currency conversion only - no tax/shipping etc.  
 MBS/MBL Min Break Load approx 10x WLL Working Load Limit  
 LARGE EYES= largest round /shaped hole - NB: may be cosmetic!

|  |   | MODEL                            | COMPANY                       | ORIGIN  | COST                  | WEIGHT          | MATERIAL              | PLA DEP      |
|--|---|----------------------------------|-------------------------------|---|-----------------------|-----------------|-----------------------|--------------|
|    |    | Anchor Plate 3:5                 | ROCK EMPIRE                   |    | £39<br>\$49<br>€46    | 240g<br>8.5oz   | Alu                   | 10r<br>0.3   |
|    |   | Anchor Plate 5:8                 | ROCK EMPIRE                   |    | £70<br>\$87<br>€82    | 500g<br>1.1 lb  | Alu                   | 10r<br>0.3   |
|    |    | Tri Rig RP1                      | ROCK EXOTICA                  |    | £20<br>\$34<br>€40    | 51g<br>1.8oz    | 7075 Alu              | 8.9r<br>0.3  |
|    |   | Penta Plate RP2                  | ROCK EXOTICA                  |    | £59<br>\$55<br>€63    | 108g<br>3.8oz   | 7075 Alu              | 8.9r<br>0.3  |
|   |    | V5 RP4<br><b>DISCONTINUED</b>    | ROCK EXOTICA                  |    | £55<br>\$67<br>€64    | 310g<br>10.9oz  | 7075 Alu              | 10r<br>0.3   |
|  |   | Se7en RP3                        | ROCK EXOTICA                  |    | £66<br>\$74<br>€95    | 376g<br>13.3oz  | 7075 Alu              | 9.7r<br>0.3  |
|  |  | Bolt RP5                         | ROCK EXOTICA                  |   | £124<br>\$155<br>€145 | 489g<br>1.07 lb | Alu + St<br>Steel pin | 12r<br>0.4   |
|  |  | Rock Star RP22                   | ROCK EXOTICA                  |  | £125<br>\$140<br>€178 | 209g<br>7.4oz   | Alu                   | 11.3r<br>0.4 |
|  |  | Totem F10                        | ROCK EXOTICA                  |  | £40<br>\$48<br>€45    | 128g<br>4.5oz   | Alu                   | 10r<br>0.3   |
|  |  | Totem CRT<br><b>DISCONTINUED</b> | ROCK EXOTICA/<br>RICH CARLSON |  | £40<br>\$48<br>€46    | 278g<br>9.8oz   | Alu                   | 12r<br>0.4   |
|  |  | AZORP                            | ROCK EXOTICA                  |  | £281<br>\$343<br>€897 | 1400g<br>3 lb   | 7075 Alu              | 12r<br>0.4   |
|  |   | SMALL RS015                      | SAR PRODUCTS                  |  | £20<br>>\$27<br>>€24  | 93g<br>3.3oz    | Alu                   | 9.8r<br>0.3  |
|  |  | MEDIUM RS016                     | SAR PRODUCTS                  |  | £29<br>\$38<br>€34    | 202g<br>7oz     | Alu                   | 9.5r<br>0.3  |
|  |   | LARGE RS017                      | SAR PRODUCTS                  |  | £61<br>\$80<br>€71    | 422g<br>14.8oz  | Alu                   | 10r<br>0.3   |
|  |  | SpiderPlate                      | SHIZLL                        |  | £30<br>\$40<br>€39    | 55g<br>1.9oz    | Alu                   | 10r<br>0.3   |
|  |   | Big Spider                       | SHIZLL                        |  | £40<br>\$65<br>€52    | 134g<br>4.7oz   | Alu                   | 14r<br>0.5   |

# ANCHOR/RIGGING PLATES

| PLATE THICKNESS | DIMENSIONS                  | STANDARDS               | MBS<br><small>approx 10x WWL</small> | MIN HOLE DIAM | SMALLEST DIMENSION of LARGEST EYE | HOLES LARGE EYE(S) | 3D | OTHER COLOURS | NOTES  | WWW.                             |
|-----------------|-----------------------------|-------------------------|--------------------------------------|---------------|-----------------------------------|--------------------|----|---------------|--|----------------------------------|
| 19mm<br>0.75"   | 159 x 100mm<br>6.25 x 3.9"  | CE                      | 40kN<br>8993 lbf                     | 20mm<br>0.75" | 38mm<br>1.5"                      | 7<br>+1            |    |               | Individually marked.   | rockempire.cz                    |
| 19mm<br>0.75"   | 248 x 149mm<br>9.8 x 5.9"   | CE                      | 50kN<br>11240lbf                     | 20mm<br>0.75" | 66mm<br>2.6"                      | 13<br>+2           |    |               | Individually marked.<br>Large central eyes not intended for load   | rockempire.cz                    |
| 15mm<br>0.5"    | 84 x 72mm<br>3.3 x 2.8"     | CE                      | 33kN<br>7419lbf                      | 19mm<br>0.75" | 25.4mm<br>1"                      | 3<br>+1            |    |               | All Rock Exotica plates are machined flat from oversized material  | rockexotica.com                  |
| 19mm<br>0.75"   | 123 x 101mm<br>4.9 x 4"     | CE<br>NFPA G            | 36kN<br>8093lbf                      | 19mm<br>0.75" | 57mm<br>2.25"                     | 5<br>+1            |    |               |  | rockexotica.com                  |
| 19mm<br>0.75"   | 197 x 149mm<br>7.8 x 5.9"   | CE<br>NFPA G            | 36kN<br>8093lbf                      | 25mm<br>1"    | 67mm<br>2.65"                     | 5<br>+1            |    |               | <b>DISCONTINUED</b><br>teardrop carabiner holes are 35mm long  | rockexotica.com                  |
| 17mm<br>0.67"   | 238 x 152mm<br>9.4 x 6"     | CE<br>NFPA G            | 36kN<br>8093lbf                      | 22mm<br>0.87" | 24mm<br>0.93"                     | 12*<br>+2<br>+2    | ■  |               | Original Large Rig-Plate.<br>*10 of the 12 are teardrop. Central large spaces are not intended for loading so Large Eye diameter is length of remaining 2 smaller eyes | rockexotica.com                  |
| 17mm<br>0.67"   | 203 x 127mm<br>8 x 5"       | NO                      | 36kN<br>8093lbf                      | 19mm<br>0.75" | 53mm<br>2.1"                      | 9<br>+1            |    |               | Stainless steel pin retained by sprung 'keepers' either end. Lower holes-18mm opening with 21mm interior space. Top 2 eyes 20.7mm/0.8"                                 | rockexotica.com                  |
| 15mm<br>0.5"    | 75 x 93mm<br>3 x 3.7"       | CE<br>NFPA G            | 36kN<br>8093lbf                      | 20mm<br>0.77" | 20mm<br>0.77"                     | 9                  | ■  |               | Rockstar and UFO are machined from a solid lump of alloy   | rockexotica.com                  |
| 19mm<br>0.75"   | 190 x 64mm<br>7.5 x 2.5"    | NO                      | 30kN<br>6744lbf                      | 18mm<br>0.72" | 44mm<br>1.7"                      | 2<br>+2*<br>+1     | ■  |               | *Accepts 10.5-13mm ropes for abseil/belay with carabiner adjunct. elliptical eyes 26 x 18mm  | rockexotica.com                  |
| 17mm<br>0.67"   | 216 x 121mm<br>8.5 x 4.8"   | NO                      | 36kN<br>8093lbf                      | 21mm<br>0.8"  | 48mm<br>1.9"                      | 3<br>+2*<br>+2     | ■  |               | <b>DISCONTINUED</b><br>*Accepts 10.5-13mm ropes. Two fabric/rope rigging bollards. Rich Carlson design.  | canyonsandcrag.com               |
| 17mm<br>0.67"   | 165 x >140mm<br>6.5 x >5.5" | NFPA G                  | 67kN<br>15062lbf                     | 22mm<br>0.9"  | 50mm<br>2"                        | 18<br>+1<br>+2     | ■  |               | So good it gets in twice. AZORP kit inc. two rig plates, pins and bag. Rope can be passed through central spindle. Outer sleeve opening 60mm                           | rockexotica.com<br>cmcrescue.com |
| 18mm<br>0.7"    | 91 x 84mm<br>3.5 x 3.3"     | CE<br>NFPA-G            | 36kN<br>8093lbf                      | 20mm<br>3/4"  | 36mm<br>1.4"                      | 3<br>+1            |    |               | Individually marked.   | sarproducts.com                  |
| 17mm<br>0.67"   | 166 x 108mm<br>6.5 x 4.25"  | CE<br>NFPA G            | 40kN<br>8993lbf                      | 20mm<br>3/4"  | 38mm<br>1.5"                      | 7<br>+1            |    |               | Individually marked.   | sarproducts.com                  |
| 19mm<br>0.75"   | 249 x 150mm<br>9.8 x 5.9"   | CE<br>NFPA G            | 45kN<br>10116lbf                     | 20mm<br>3/4"  | 66mm<br>2.6"                      | 13<br>+1           |    |               | Individually marked.   | sarproducts.com                  |
| 19mm<br>0.75"   | 58 x 58mm<br>2.3 x 2.3"     | Machinery Directive '06 | 50kN<br>11240lbf                     | 14mm<br>0.5"  | 14mm<br>0.5"                      | 4                  | ■  |               | Accepts 12-13mm rope. Individually marked.<br>*MBS equates to use with carabiners/webbing. Rope-only connection = 25kN   | shizll.com                       |
| 15mm<br>0.5"    | 76 x 76mm<br>3 x 3"         | Machinery Directive '06 | 100kN*<br>22480lbf                   | 17mm<br>0.7"  | 17mm<br>0.7"                      | 4                  | ■  |               | accepts 14-16mm rope. Individually marked.<br>*MBS equates to use with carabiners/webbing. Rope-only connection = 50kN   | Shizll.com                       |
|                 |                             |                         |                                      |               |                                   |                    |    |               |  | expansion row                    |

images approximately to scale  
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 MBS/MBL Min Break Load approx 10x WLL Working Load Limit  
 LARGE EYES= largest round /shaped hole - NB: may be cosmetic!

|   |   | MODEL              | COMPANY             | ORIGIN  | COST                | WEIGHT         | MATERIAL    | PLATE DEPT     |
|---|---|--------------------|---------------------|---|---------------------|----------------|-------------|----------------|
|   |    | Rigging Plate 1/3  | SINGING ROCK        |    | £38<br>\$30<br>€27  | 65g<br>2.3oz   | Alu         | 6mm<br>0.25"   |
|    |   | Rigging Plate 3/5  | SINGING ROCK        |    | £94<br>\$115<br>€72 | 145g<br>5.1oz  | Alu         | 8mm<br>0.31"   |
|   |    | Cheese Plate S     | SKYLOTEC            |    | £48<br>\$34<br>€55  | 75g<br>2.6oz   | Alu         | 6mm<br>0.25"   |
|    |   | Cheese Plate L     | SKYLOTEC            |    | £95<br>\$116<br>€90 | 160g<br>5.6oz  | Alu         | 7mm<br>0.28"   |
|   |    | Genesis            | SLACK-TECH          |    | £78<br>\$95<br>€90  | 304g<br>10.7oz | Alu         | 20mm<br>0.8"   |
|    |   | NFPA Mini          | SMC                 |    | £26<br>\$31<br>€30  | 79g<br>2.8oz   | Alu         | 9mm<br>0.35"   |
|   |   | Origin 5           | SMC                 |    | £27<br>\$33<br>€31  | 113g<br>4oz    | Alu         | 9.5mm<br>0.37" |
|   |   | NFPA Large         | SMC                 |  | £47<br>\$57<br>€54  | 323g<br>11.4oz | Alu         | 127mm<br>5.0"  |
|   |  | Origin 8           | SMC                 |  | £45<br>\$55<br>€52  | 264g<br>9.3oz  | Alu         | 127mm<br>5.0"  |
|  |   | Vector             | SMC                 |  | £39<br>\$47<br>€45  | 168g<br>5.9oz  | Alu         | 127mm<br>5.0"  |
|   |  | Tree Angel         | TREE CLIMBING JAPAN |  | £114<br>\$90<br>€85 | 420g<br>14.4oz | Alu         | 127mm<br>5.0"  |
|  |   | TF-CD404           | TREE-FORCE          |  | £25<br>\$35<br>€33  | 240g<br>8.5oz  | Alu         | 10mm<br>0.39"  |
|   |  | Mini Rigger 1012   | YATES               |  | £41<br>\$50<br>€47  | 130g<br>4.7oz  | 6061 T6 Alu | 10mm<br>0.39"  |
|  |   | Rescue Rigger 1015 | YATES               |  | £46<br>\$56<br>€53  | 243g<br>8.6oz  | 6061 T6 Alu | 10mm<br>0.39"  |
|   |   |                    |                     |   |                     |                |             |                |
|   |   |                    |                     |   |                     |                |             |                |
|   |   |                    |                     |   |                     |                |             |                |



# ANCHOR/RIGGING PLATES

| DEPTH | DIMENSIONS                  | STANDARDS            | MBS<br><small>approx 10x WWL</small> | MIN HOLE DIAM  | SMALLEST DIMENSION of LARGEST EYE | HOLES LARGE EYE(S) | 3D | OTHER COLOURS | NOTES   | WWW.                                   |
|-------|-----------------------------|----------------------|--------------------------------------|----------------|-----------------------------------|--------------------|----|---------------|---|--|
| 5"    | 100 x 82mm<br>4 x 3.25"     | CE                   | 36kN<br>8093lbf                      | 20mm<br>0.75"  | 26mm<br>1"                        | 3<br>+1            |    |               | Individually marked   | singingrock.com                        |
| 5"    | 153 x 88mm<br>6 x 3.5"      | CE                   | 50kN<br>11240lbf                     | 20mm<br>0.75"  | 26mm<br>1"                        | 7<br>+1            |    |               | Individually marked   | singingrock.com                        |
| 5"    | 103 x 83mm<br>4 x 3.25"     | CE                   | 36kN<br>8093lbf                      | 20mm<br>0.75"  | 30mm<br>1.2"                      | 3<br>+1            |    | ■             | Individually marked.<br><i>CLIMBING TECHNOLOGY</i> now owned by SKYLOTEC  | skylotec.com<br>climbingtechnology.com |
| 5"    | 149 x 98mm<br>5.9 x 3.8"    | CE                   | 45kN<br>10116lbs                     | 20mm<br>0.75"  | 30mm<br>1.2"                      | 7<br>+1            |    | ■             | Individually marked.<br><i>CLIMBING TECHNOLOGY</i> now owned by SKYLOTEC  | skylotec.com<br>climbingtechnology.com |
| 5"    | 152 x 122mm<br>6 x 4.8"     | No                   | 70kN<br>15736 lbf                    | 20mm<br>0.8"   | 40mm<br>1.57"                     | 3<br>+1<br>+3*     | ■  |               | * 3 Webbing eyes<br>Designed for Slack-lining/ Tight-rope walking!<br>Largest eye 42mm wide.  | slacklinetechnology.com                |
| 7"    | 75 x 95mm<br>3 x 3.7"       | NFPA "G"             | 36kN<br>8093 lbf                     | 19mm<br>0.74"  | 25mm<br>1"                        | 3<br>+1            |    | ■             | <b>DISCONTINUED</b><br>small eye height 27mm<br>Large eye height 30mm   | smcgear.com                            |
| 7"    | 104 x 84.9mm<br>4.1 x 3.3"  | CE<br>NFPA G<br>UKCA | 36kN<br>8093 lbf                     | 20mm<br>0.8"   | 25mm<br>1"                        | 3<br>+2            |    |               |   | smcgear.com                            |
| 7"    | 178 x 135mm<br>7 x 5.3"     | NFPA "G"             | 50kN<br>11240 lbf                    | 25mm<br>1"     | 57mm<br>2.25"                     | 5<br>+1            |    | ■             | <b>DISCONTINUED</b><br>individually numbered<br>small eye height 36mm   | smcgear.com                            |
| 7"    | 169 x 99mm<br>6.6 x 3.9"    | CE<br>NFPA G<br>UKCA | 50kN<br>11240 lbf                    | 20mm<br>0.8"   | 25mm<br>1"                        | 5<br>+3            |    |               |   | smcgear.com                            |
| 7"    | 105 x 116mm<br>4.15 x 4.16" | NFPA G               | 48kN<br>10791 lbf                    | 18mm<br>0.72"  | 46mm<br>1.8"                      | 6<br>+1            |    |               | <b>DISCONTINUED</b><br>individually numbered<br>Small eye width 31mm  | smcgear.com                            |
| 7"    | 240 x 150mm<br>9.5 x 6.875" | No                   | 90kN<br>20232 lbf                    | 13.5mm<br>0.5" | 43mm<br>1.7"                      | 8<br>+1<br>+4*     | ■  |               | Also branded for STEIN. Also used as a Knotless rigging device.<br>* 4 accessory cord holes<br>RRP shown can be as low as £75.<br>Individually numbered | steinworldwide.com                     |
| 9"    | 159 x 100mm<br>6.25 x 3.9"  | CE                   | 40kN<br>8993 lbf                     | 20mm<br>0.75"  | 38mm<br>1.5"                      | 7<br>+1            |    |               | Also a Small & large plate in this range - see Arbortec/Treehog THRP1 & 3 for spec  | tree-force.com                         |
| 8"    | 102 x 112mm<br>4 x 4.4"     | -                    | 45kN<br>10000 lbf                    | 19mm<br>0.75"  | 27mm<br>1.1"                      | 3<br>+1            |    |               | Previous ISC-made version discontinued  | yatesgear.com                          |
| 8"    | 165 x 108mm<br>6.5 x 4.25"  | -                    | 45kN<br>10000 lbf                    | 19mm<br>0.75"  | 27mm<br>1.1"                      | 7<br>+1            |    | ■             |   | yatesgear.com                          |
|       |                             |                      |                                      |                |                                   |                    |    |               | expansion row   |  |
|       |                             |                      |                                      |                |                                   |                    |    |               | expansion row   |  |
|       |                             |                      |                                      |                |                                   |                    |    |               | expansion row   |  |

**UPDATED** Jan '25

# SWIVELS

## for LIFE SUPPORT

The importance of swivels in modern rigging can be gauged by the fact that all major manufacturers have them in their range. Rock Exotica has long led the field with the first commercial rescue swivels and these days it still has the largest range. In fact Rock Exotica were the first to take the next logical step and incorporate a machined swivel into a machined pulley as well as directly into a carabiner thus eliminating one of the drawbacks of a swivel - increased system/ component lengths. An average swivel is 3-4 inches long and this adds unwanted length to something we would generally like to be as compact as possible. The introduction of Rock's *Swivabiner* range with either a swivel eye or an entire second carabiner incorporating a swivel was genius but surprisingly didn't set the world alight, at least not as much as it deserved. This was probably due to cost and because the humble swivel, by itself, is a compact and versatile item that is easily stowed, easily carried and is easily added to a harness D-ring or bridge, rig plate, anchor sling or stretcher rig.

Swivels are disproportionately tough; stronger in breaking strength than most of the carabiners they accommodate and some are considerably tougher in terms of taking abuse especially when machined from a solid block of alloy. However, don't forget that **the max strength shown does NOT equate to the max load that can be rotated/swivelled**; that is considerably lower, generally around 4-10kN and this is not a figure given by many. All except one are aluminium alloy with a stainless steel axle on which the two halves 'swivel' effortlessly with the help of a sealed set of ball bearings. Actually there was one model with bushings but this is the exception.

*Rock Exotica* has been one of the few to introduce an all-stainless steel model which withstands the kind of steel-on-steel abuse that some industrial rigging can inflict but is unlikely to occur in normal personal or rescue. Stainless steel swivels are not actually that unusual since the yachting world has been using them for years. of the larger eyes in this Guide. The triangular shaped swivels are more suited to single carabiners since they tend to load into the apex and additional carabiners tend to jam that apex carabiner. Some designs like the *R.E. Nano Swivel* are more obviously designed to take a single carabiner in one eye and multiples at the other end while the rounded profile of the *Petzl*, *DMM* and the new *SMC Reactor* models enable them to be attached directly to textile slings. Actually, most now have a textile friendly edge - only the more traditional models like *CMI's NFPA* and *CMC's Pro-Series* have more angular edges. The *SMC Reactor* also demonstrates the advantage of a larger eye - it can take the gate diameter of an ANSI rated Screwgate/locking carabiner. The majority in this list can take a regular 11mm bar carabiner gate but the industrial



requirements of ANSI requires a larger, stronger carabiner.

The key development in recent years has been the openable swivels. This was started (in rope access-related activities) by *Rock Exotica* with its swivel-shackle combinations where the swivel can attach directly to a device, bridge or eye rather than via a carabiner. Taking this concept a little further was, surprisingly, not *Rock Exotica* but *Edlerid's Conecto* which had eyes on each end that open like a clam-shell to accept tape, rope or hardware and are then secured with a bolt. Since our first GUIDE, *Petzl* and *DMM* have followed this trend and *Edlerid* have enlarged on the concept with their replacement model the *Cupid* while *CAMP* Italy went the whole hog with their *Enigma* swivel (opposite top) that is entirely 'break-apart' for integration into harness bridge and/or hardware and will also collapse down for easy stowage. *DMM* unfortunately had to recall their entire range of *Nexus* and *Focus* mini swivels in



Nov 2022 due to a manufacturing fault . As we've noted in our tables, these should be back shortly. But that glitch aside, the principle was for a range of hot-forged shackle and eye options within a diminutive milled frame just large enough to attach directly to most of the hardware currently used and in the case of the *Mini-Swivel* and *Focus*, with a plastic insert to hold the carabiner firmly. *Rock Exotica's Nano-Swivel* started the drive towards smaller but with *DMM's* recall, *Petzl* have stolen the show with their openable micro swivels.

A swivel's key advantage is in taking the twist out of ropes so they are particularly useful for long rope operations. On a stretcher rig plate they provide excellent freedom of movement to the attendant allowing easier rotational movement in tending to the casualty without the constant counter-rotation battle against the rope/sling and carabiner - for this reason swivels have become a standard harness fitting for many arborists and for tactical use where operators may need to rotate into a firing position without the risk of being 'torqued' back to forward-facing at an inopportune moment. Haul systems are an obvious application where the ability of the whole pulley system to rotate on the anchor can prevent twisted strands from increasing your input effort.

The most 'recent' innovations are from *CAMP* with the previously mentioned *Enigma* and their *Gyro* series with 1, 3 or 4 swivel eyes mounted on a common swivel housing and giving directional loading to individual carabiners without cramming a larger hole and minimising the chances for adverse torquing. This is pretty much the opposite of *Petzl* and *DMM's* efforts to shrink the swivel to the smallest sizes possible.

Swivels have evolved into an individual asset for direct attachments to hardware , rope/slings and harness bridges, not just for haul systems and anchoring so its uses are myriad..... don't leave home without one.

#### IN THE FOLLOWING TABLES:

**Max Eye diameter:** refers to the largest of the two (or more) eyes if they are different sizes usually the top eye. This figure may NOT be the same as the largest bar diameter of carabiner that can be accommodated - many are oval and some will accommodate more than one carabiner. Some we have measured to give a round-bar figure but some quote the max dimension - if the eye is round you'll know that you can get pretty much that same bar size through (make sure it's not too tight though or you will have problems with torque) . If the eye is an oval you'll have to limit your ambitions.

## LIFE SUPPORT SWIVELS

# ENFORCER

LOAD-CELL

Monitor and Record forces up to 20 kN

Communicates Wirelessly via Bluetooth to your iPhone

Compact & Portable

Weighs just 14 oz (397 gm) with batteries!



Monitor and graph in real-time or capture dynamic test data in .CSV file

\*App sold separately For use with iPhone 4S or newer

For more information please visit:

WWW. **rock exotica** .com

MADE IN USA

|                                  |   |                         |                           |                          |                                |                                      |                                      |                                      |
|----------------------------------|---|-------------------------|---------------------------|--------------------------|--------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| Images NOT to Scale              |   |                         |                           |                          |                                |                                      |                                      |                                      |
| <b>MANUFACTURER</b>              | ART   | BEAL                    | BLACK DIAMOND             | CAMP                     | CAMP                           | CAMP                                 | CAMP                                 | CAMP                                 |
| <b>MODEL VARIANT</b>             | Twister   | Twist-Air B             | Rotor Swivel              | Swivel<br>1393           | Enigma<br>3259                 | Gyro 1<br>3260                       | Gyro 3<br>2940                       | Gyro 4<br>3109                       |
| <b>ORIGIN</b>                    |   |                         |                           |                          |                                |                                      |                                      |                                      |
| <b>COST</b>                      | £51 \$70 €60  | £44 \$50 €48            | £65 \$0 €0                | £50 \$64 €60             | £104 \$180 €118                | £46 \$54 €52                         | £81 \$120 €95                        | £111 \$194 €126                      |
| <b>WEIGHT</b>                    | 58g<br>2oz  | 88g<br>3.1oz            | 83g<br>2.9oz              | 150g<br>5.3oz            | 116g<br>4.1oz                  | 76g<br>2.7oz                         | 155g<br>5.5oz                        | 265g<br>9.3oz                        |
| <b>MAX LOAD</b>                  | 25/28kN*<br>0lbf  | 22kN<br>4945lbf         | 26kN<br>5845lbf           | 35kN<br>7868lbf          | 23kN<br>5170lbf                | 25kN<br>0lbf                         | 26kN<br>5845lbf                      | 26kN<br>5845lbf                      |
| <b>LOWER/MAX EYE SIZE</b>        | 18mm<br>0.7"  | 18mm<br>0.7"            | 25mm<br>1"                | 23mm<br>0.9"             | 18-36mm<br>0.7"                | 10-16mm<br>0.4-0.6"                  | 10-16mm<br>0.4-0.6"                  | 10-16mm<br>0.4-0.6"                  |
| <b>DIMENSIONS</b> height x width | 78 x 30mm<br>3.1 x 1.2"                                     | 86 x 39mm<br>3.4 x 1.5" | 85 x 40mm<br>3.3 x 1.6"   | 110 x 55mm<br>4.3 x 2.1" | 100 x 51mm<br>4 x 2"           | 73 x 35mm<br>2.9 x 1.4"              | 80 x 90mm<br>3.2 x 3.5"              | 125 x 90mm<br>4.9 x 3.5"             |
| <b>BEARING/BUSHING</b>           | -   | -                       | -                         | -                        | -                              | Steel Ball/Socket                    | Steel Ball/Socket                    | Steel Ball/Socket                    |
| <b>OPENABLE</b>                  | -   | -                       | -                         | -                        | -                              | -                                    | -                                    | -                                    |
| <b>STANDARDS</b>                 | CE  | CE                      | CE                        | CE EAC                   | CE EAC ANSI                    | CE ANSI EAC                          | CE ANSI EAC                          | CE ANSI EAC                          |
| <b>MATERIAL</b>                  | Machined Alu  | Alu                     | Alu                       | Alu                      | Alu St Steel                   | Allu, Steel, St Steel                | Alu, Steel, St Steel                 | Alu, Steel, St Steel                 |
| <b>OTHER COLOURS/NOTES</b>       | *28kN max load, tested with 25kN. Does not twist under load |                         |                           |                          | Black. Collapsible, take-apart | plastic inserts for tighter 10mm fit | plastic inserts for tighter 10mm fit | plastic inserts for tighter 10mm fit |
| <b>WEBSITE</b>                   | climb-art.de  | beal-planet.com         | blackdiamondequipment.com | camp.it                  | camp.it                        | camp.it                              | camp.it                              | camp.it                              |

|                                  |                            |                         |                           |                                     |                      |                         |                         |                          |
|----------------------------------|----------------------------|-------------------------|---------------------------|-------------------------------------|----------------------|-------------------------|-------------------------|--------------------------|
| Images NOT to Scale              |                            |                         |                           |                                     |                      |                         |                         |                          |
| <b>MANUFACTURER</b>              | DMM                        | DMM                     | DMM                       | EDELRID                             | EDELRID              | EDELRID                 | EDELWEISS               | FIXE CLIMBING            |
| <b>MODEL VARIANT</b>             | Nexus Bow-D<br>SW470       | Nexus D-D<br>SW480      | Nexus Bow-Bow<br>SW490    | Cupid                               | Conecto              | Vortex                  | SWR                     | SW1<br>590               |
| <b>ORIGIN</b>                    |                            |                         |                           |                                     |                      |                         |                         |                          |
| <b>COST</b>                      | £86 \$120 €108             | £86 \$120 €108          | £86 \$120 €108            | £85 \$107 €90                       | £50 \$60 €63         | £52 \$62 €56            | £40 \$45 €45            | £30 \$0 €0               |
| <b>WEIGHT</b>                    | 103g<br>3.6oz              | 95g<br>3.4oz            | 110g<br>3.9oz             | 105g<br>3.7oz                       | 155g<br>5.5oz        | 88g<br>3.1oz            | 88g<br>3.1oz            | 154g<br>5.5oz            |
| <b>MAX LOAD</b>                  | 26kN<br>5845lbf            | 26kN<br>5845lbf         | 26kN<br>5845lbf           | 20kN<br>4496lbf                     | 15kN<br>3372lbf      | 22kN<br>4945lbf         | 22kN<br>4945lbf         | 30kN<br>6744lbf          |
| <b>LOWER/MAX EYE SIZE</b>        | 16 20-30mm<br>0.6 0.8-1.2" | 16mm<br>0.6"            | 20-30mm<br>0.8-1.2"       | 25mm<br>1"                          | 20mm<br>0.8"         | 18mm<br>0.7"            | 18mm<br>0.7"            | 23mm<br>0.9"             |
| <b>DIMENSIONS</b> height x width | 103 x 48mm<br>4 x 1.9"     | 97 x 35mm<br>3.8 x 1.4" | 108 x 48mm<br>4.25 x 1.9" | 95 x 50mm<br>3.7 x 2"               | 100 x 52mm<br>4 x 2" | 86 x 39mm<br>3.4 x 1.5" | 86 x 39mm<br>3.4 x 1.5" | 110 x 55mm<br>4.3 x 2.1" |
| <b>BEARING/BUSHING</b>           | -                          | -                       | -                         | -                                   | -                    | -                       | -                       | -                        |
| <b>OPENABLE</b>                  | -                          | -                       | -                         | -                                   | -                    | -                       | -                       | -                        |
| <b>STANDARDS</b>                 | CE                         | CE                      | CE                        | CE                                  | CE                   | CE                      | CE                      | CE                       |
| <b>MATERIAL</b>                  | Body Milled Alu            | Body Milled Alu         | Body Milled Alu           | Hot forged Alu                      | Hot forged Alu       | Alu                     | Alu                     | Alu                      |
| <b>OTHER COLOURS/NOTES</b>       | Black                      | Black                   | Black                     | Replaced Conecto. Gate opening=12mm | DISCONTINUED         |                         |                         |                          |
| <b>WEBSITE</b>                   | dmmwales.com               | dmmwales.com            | dmmwales.com              | edelrid.com                         | edelrid.com          | edelrid.com             | edelweiss-ropes.com     | fixeclimbing.com         |

COSTS: Any £/\$€ shown in burnt orange are currency conversions only and will not include shipping, import duty and tax

# LIFE SUPPORT SWIVELS

|  |   |   |   |   |   |  |   |   |   |
|--|---|---|---|---|---|--|---|---|---|
|     |    |    |    |    |    |    |    |    |    |
| <b>CMC/RE</b>  | <b>CMC/RE</b>   | <b>CMI</b>  | <b>CMI</b>  | <b>CONTERRA</b>   | <b>DMM</b>  | <b>DMM</b>   | <b>DMM</b>  | <b>DMM</b>  | <b>DMM</b>  |
| <b>Rescue</b>  | <b>ProSeries</b>  | <b>Rescue</b>   | <b>Cali Swivel2</b>   | <b>TiRadius</b>   | <b>Axis L</b>   | <b>Axis S</b>  | <b>Mini SW400</b>   | <b>Focus D SW440</b>  | <b>Focus Bow SW450</b>  |
|    |    |    |    |    |    |    |    |    |    |
| £71 \$86 €82   | £102 \$124 €117   | £101 \$122 €116   | £104 \$126 €119   | £119 \$145 €137   | £80 \$110 €100  | £70 \$95 €75   | £60 \$79 €64  | £75 \$110 €95   | £75 \$110 €95   |
| 125g<br>4.4oz  | 184g<br>6.5oz   | 159g<br>5.6oz   | 204g<br>7.2oz   | 83g<br>2.9oz  | 184g<br>6.5oz   | 117g<br>4.2oz  | 48g<br>1.7oz  | 64g<br>2.3oz  | 72g<br>2.5oz  |
| 36kN<br>8093lbf  | 36kN<br>8093lbf   | 40kN<br>9000lbf   | 43.6kN<br>9800lbf   | 38kN<br>8500lbf   | 50kN<br>11240lbf  | 36kN<br>8093lbf  | 26kN<br>5845lbf   | 26kN<br>5845lbf   | 26kN<br>5845lbf   |
| 25mm<br>1"   | 30mm<br>1.2"  | 30mm*<br>1.2"   | 20 18mm<br>0.8 0.7"   | 25mm<br>1"  | 20-38mm<br>0.8-1.1"   | 18-30mm<br>0.7-1.2"  | 16mm<br>0.6"  | 10-16 16mm<br>0.4-0.6"  | 10-16 20-30mm<br>0.4-0.6 0.8-1.2"   |
| 93 x 49mm<br>3.75x1.9"   | 114 x 50mm<br>4.5 x 2"  | 108 x 45mm<br>4.25 x 1.75"  | 100 x 76.2mm<br>4 x 3"  | 76.2 x 32mm<br>3 x 1.25"  | 96 x 60mm<br>3.8 x 2.4"   | 80 x 50mm<br>3.2 x 2"  | 66 x 32mm<br>2.6 x 1.3"   | 76.5 x 35mm<br>3 x 1.4"   | 82 x 48mm<br>3.2 x 1.9"   |
| -  | -   | -   | -   | -   | -   | -  | -   | -   | -   |
| NFPA   | NFPA  | NFPA  |   | NFPA  | CE  | CE   | CE  | CE  | CE  |
| Machined Alu   | Machined Alu  | Machined Alu  | Machined Alu  | Titanium  | Hot forged Alu  | Hot forged Alu   | Body Milled Alu   | Body Milled Alu   | Body Milled Alu   |
|  |   | *max bar size<br>20mm/0.8"  | Green/Silver.<br>Blue/Silver  |   | Black   | Black  | Black   | Black   | Black   |
| cmcpro.com   | cmcpro.com  | cmgearusa.com   | cmgearusa.com   | conterra-inc.com  | dmmwales.com  | dmmwales.com   | dmmwales.com  | dmmwales.com  | dmmwales.com  |
|   |  |  |  |  |  |  |  |  |  |
| <b>FUSION CLIMB</b>  | <b>FUSION CLIMB</b>   | <b>KONG</b>   | <b>IRUDEK</b>   | <b>PETZL</b>  | <b>PETZL</b>  | <b>PETZL</b>   | <b>PETZL</b>  | <b>PROTEKT</b>  | <b>ROCK EMPIRE</b>  |
| <b>Delta</b>   | <b>Oval</b>   | <b>Dancer</b>   | <b>Swiver</b>   | <b>Swivel S</b>   | <b>Swivel L P58-L</b>   | <b>Micro Swivel P58 XSO</b>  | <b>Open Swivel</b>  | <b>KR-200 210</b>   | <b>ZWB018</b>   |
|  |  |  |  |  |  |  |  |  |  |
| £50 \$56 €53   | £54 \$61 €56  | £55 \$80 €61  | £25 \$34 €29  | £64 \$69 €63  | £76 \$85 €80  | £58 \$69 €63   | £81 \$102 €85   | £27 \$37 €31  | £39 \$49 €46  |
| 170g<br>6oz  | 170g<br>6oz   | 160g<br>5.6oz   | 79g<br>2.8oz  | 95g<br>3.4oz  | 150g<br>5.3oz   | 75g<br>2.6oz   | 130g<br>4.6oz   | 157 167g<br>5.5 5.9oz   | 74.2g<br>2.6oz  |
| 36kN<br>8093lbf  | 36kN<br>8093lbf   | 42kN<br>9442lbf   | 35kN<br>7868lbf   | 23kN<br>5170lbf   | 36kN<br>8093lbf   | 26kN<br>5845lbf  | 23kN<br>5170lbf   | 30kN<br>6744lbf   | 30kN<br>6744lbf   |
| 30.5mm*<br>1.2"  | 31.75mm<br>1.25"  | 23mm<br>0.9"  | 21mm<br>0.8"  | 19 22mm<br>0.75 0.8"  | 27mm<br>1.2"  | 14 22mm<br>0.55 0.9"   | 23 29mm<br>0.9 1"   | 29-34mm*<br>1.1-1.3"  | 21mm<br>0.83"   |
| 10 x 54.7mm<br>4.3 x 2.15"   | 114 x 52mm<br>4.5 x 2"  | 113.5 x 54mm<br>4.5 x 2.1"  | 85 x 36mm<br>3.3 x 1.4"   | 82 x 45mm<br>3.2 x 1.6"   | 105 x 53mm<br>4.1 x 2.1"  | 76 x 45mm<br>3 x 1.8"  | 97 x 50mm<br>3.5 x 2"   | 113 x 54mm<br>4.5 x 2.1"  | 83 x 38mm<br>3.3 x 1.5"   |
| -  | -   | -   | -   | -   | -   | -  | -   | -   | -   |
| CE ANSI  | CE ANSI   | CE  | CE  | CE NFPA<br>EAC UKCA   | CE NFPA<br>EAC UKCA   | CE EAC UKCA  | CE EAC UKCA   | CE  | CE  |
| Alu  | Alu   | Alu   | Alu   | Alu   | Alu   | Alu  | Alu   | Alu   | Alu   |
| *max bar size<br>< 25mm/1"   |   |   |   | Black   |   | no bearings so<br>Does not rotate<br>once loaded                                     | 14mm gate   | *max bar size<br>23mm/0.9"  |   |
| fusionclimb.com  | fusionclimb.com   | kong.com  | irudek.com  | petzl.com   | petzl.com   | petzl.com  | petzl.com   | protekt.com   | rockempire.com  |

|                                  |                             |                           |                            |                          |                            |                                    |                               |  |  |
|----------------------------------|-----------------------------|---------------------------|----------------------------|--------------------------|----------------------------|------------------------------------|-------------------------------|--|--|
| Images NOT to Scale              |                             |                           |                            |                          |                            |                                    |                               |  |  |
| <b>MANUFACTURER</b>              | ROCK EXOTICA                |                           |                            |                          |                            |                                    |                               |  |  |
| <b>MODEL VARIANT</b>             | Shackle Swivel SS1          | Triangle S1L              | Rotator Round Large S2L    | Orbitor S3               | Nano Swivel S11            | Stainless Steel S2S-B              | SwivaEye C82 A                | SwivaBiner C81 A                       |  |
| <b>ORIGIN</b>                    |                             |                           |                            |                          |                            |                                    |                               |  |  |
| <b>COST</b>                      | £85 \$90 €104               | £65 \$75 €90              | £60 \$73 €90               | £77 \$73 €86             | £84 \$80 €98               | £156 \$190 €180                    | £110 \$99 €113                | £120 \$109 €125                        |  |
| <b>WEIGHT</b>                    | 163g<br>5.76oz              | 144g<br>5.1oz             | 127g<br>4.5oz              | 99g<br>3.5oz             | 57g<br>2oz                 | 227g<br>8oz                        | 137g<br>4.86oz                | 166g<br>5.9oz                          |  |
| <b>MAX LOAD</b>                  | 36kN<br>8093lbf             | 36kN<br>8093lbf           | 36kN<br>8093lbf            | 26kN<br>5845lbf          | 23kN<br>5170lbf            | 36kN<br>8093lbf                    | 30kN<br>0lbf                  | 30kN<br>6744lbf                        |  |
| <b>LOWER/MAX EYE SIZE</b>        | 19 24-30mm<br>0.75 0.9-1.2" | 26-30mm<br>1-1.2"         | 24-30mm<br>0.9-1.2"        | 20-28mm<br>0.8-1.1"      | 11 18-20mm<br>0.4 0.7-0.8" | 30mm<br>1.2"                       | 24-30 21mm*<br>0.95-1.2 0.84" | 24-30 24-30mm*<br>0.9-1.2 0.9-1.2"     |  |
| <b>DIMENSIONS</b> height x width | 97x 50mm<br>3.8 x 2"        | 108 x 50.8mm<br>4.24 x 2" | 97 x 50mm<br>3.8 x 2"      | 71 x 37mm<br>2.8 x 1.44" | 69 x 38mm<br>2.7x1.5"      | 94 x 51mm<br>3.7x 2"               | 138 x 66mm<br>5.42x 2.6"      | 185 x 66mm<br>7.3 x 2.6"               |  |
| <b>BEARING/BUSHING</b>           | ■                           | ■                         | ■                          | ■                        | ■                          | ■                                  | ■                             | ■                                      |  |
| <b>OPENABLE</b>                  | ■                           | -                         | -                          | -                        | -                          | -                                  | -                             | -                                      |  |
| <b>STANDARDS</b>                 | CE                          | -                         | CE                         | CE                       | CE                         | -                                  | CE                            | -                                      |  |
| <b>MATERIAL</b>                  | Machined Alu, Steel         | Machined Alu              | Machined Alu               | Machined Alu             | Machined Alu               | Stainless Steel                    | Machined Alu                  | Machined Alu                           |  |
| <b>OTHER COLOURS/NOTES</b>       |                             | DISCONTINUED              | Rotator Small discontinued |                          |                            | non-black S2S version discontinued | *Top eye figure =gate opening | *Top & bottom eye figure =gate opening |  |
| <b>WEBSITE</b>                   | rockexotica.com             | rockexotica.com           | rockexotica.com            | rockexotica.com          | rockexotica.com            | rockexotica.com                    | rockexotica.com               | rockexotica.com                        |  |

COSTS: Any £/\$€ shown in burnt orange are currency conversions only and will not include shipping, import duty and tax



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|  |   |   |   |   |   |  |                  |                  |                  |
|--|---|---|---|---|---|--|------------------|------------------|------------------|
|  |  |  |  |  |  |  | Expansion column | Expansion column | Expansion column |
| <b>OCK EXOTICA SINGING ROCK</b>  | <b>SKYLOTEC</b>   | <b>SKYLOTEC</b>   | <b>SKYLOTEC</b>   | <b>SKYLOTEC</b>   | <b>SMC</b>  | <b>SMC</b>   |                  |                  |                  |
| <b>Enforcer LC1</b>  | <b>Twister</b>  | <b>WIB H074</b>   | <b>CT Twister</b>   | <b>CT Twirl</b>   | <b>Reactor L</b>  | <b>Reactor S</b>   |                  |                  |                  |
|  |  |  |  |  |  |  |                  |                  |                  |
| £1050 \$1060 €1375   | £36 \$55 €38  | £44 \$50 €46  | £62 \$68 €65  | £70 \$76 €77  | £50 \$60 €57  | £41 \$50 €48   |                  |                  |                  |
| 400g*<br>14oz  | 88g<br>3.1oz  | 160g<br>5.7oz   | 80g<br>2.8oz  | 170g<br>6oz   | 136g<br>4.8oz   | 82g<br>2.9oz   |                  |                  |                  |
| 36kN*<br>8093lbf   | 22kN<br>4945lbf   | 40kN<br>8992lbf   | 24kN<br>5396lbf   | 36kN<br>8093lbf   | 40kN<br>8992lbf   | 40kN<br>8992lbf  |                  |                  |                  |
| 24-30mm<br>0.9-1.2"  | 18mm<br>0.7"  | 35mm*<br>1.3"   | 19-24mm<br>0.75-1"  | 26-30mm<br>1-1.2"   | 25mm<br>1"  | 14mm<br>0.55"  |                  |                  |                  |
| 103 x 53mm<br>8 x 2.1"   | 86 x 39mm<br>3.4 x 1.5"   | 110 x 50mm<br>4.3 x 2"  | 84 x 43mm<br>3.3 x 1.7"   | 116 x 53mm<br>4.6 x 2.1"  | 101 x 50mm<br>4 x 2"  | 67 x 83mm<br>3.3 x 2.64"   |                  |                  |                  |
| -  | -   | -   | -   | -   | -   | -  |                  |                  |                  |
| CE   | CE  | CE  | CE  | CE  | CE NFPA<br>UKCA   | CE NFPA<br>UKCA  |                  |                  |                  |
| Machined<br>Alu  | Alu   | Alu   | Hot forged<br>Alu   | Hot forged<br>Alu   | Forged<br>Alu   | Forged<br>Alu  |                  |                  |                  |
| *20kN max<br>reading.<br>*inc batteries  | 4kN swivelling<br>limit   | *max round bar size<br>23mm/0.9"  | Black<br>climbingtechnology.com   | *max round bar size<br>24mm/0.9"  |   |  |                  |                  |                  |
| ockexotica.com   | singingrock.com   | skylotec.com  | skylotec.com  | skylotec.com  | smcgear.com   | smcgear.com  |                  |                  |                  |



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# MULTISCENDERS HYBRID ASCENDER/DESCENDER MECHANICAL FRICTION DEVICES



This Guide deals with stand-alone hardware for ascending/descending/Work positioning and since its first publication in ARBCLIMBER#10 in 2017 the only real changes are the establishment of the *RopeRunner* (opposite) and *Akimbo* (above) as market leaders alongside the *Zig Zag* and *Richard Mumford's XF* version of the *Hitch Hiker*. The more traditional and modern equivalent systems utilise a prusik cord and some associated hardware like the *Hitch Climber*, *Rope Wrench*, *HitchHiker* etc. and proponents will say that these are better systems. They are certainly cheaper and generally lighter. *FTC* has introduced the *Freexion* below but it's *ISC* in Wales that has probably done most to enhance the *Kev Bingham's* original *Wrench* concept with various tether adjuncts enabling *SRS* working with their adjustable cam *Apex* and their *Squirrel* and *Chipmunk* tethers.

The systems on the right are typical of a current prusik system utilising either a *Bachmann's* or *Klemheist* or, in this case the highly favoured *Valdotain Tresse*. They have a *Rope Wrench* and *Apex* attached to stiffened 'tethers' and both are straddling a

*HitchClimber* pulley attached to your rope bridge or main hard-point connection. The *Wrench* diverts load away from the hitch and makes it easier to control as an *SRT/SRS* rather than *MRS/DdRT* system. The whole system is relatively inexpensive but it's quite an expansive set up and takes time to set up and/or change around relative to the subject of this Guide, multiscenders. Above is *Petzl's* answer to the *Wrench*, their's is called a *Chicane* and you can see how both options require the same amount of supporting kit and length items to create a more efficient ascent system. For a multiscender to be more efficient than simply foot-locking the rope around your boot **you'll need a foot and/or knee ascender** but at its most basic



level, the hardware we're talking about here is all that you attach to your harness. You can use it to get into the tree, get out of the tree and work around the tree while you're in the canopy.

Then there is the eternal question of *SRT/SRS* versus *DdRT/MRS*. *DdRT* uses two ends of the same rope and so gets a 2:1 advantage which makes taking in during ascent easier, it also makes descent mode more controllable. In contrast it could be said to be less efficient than *SRT* because you have to pull twice the amount of rope to move the same distance you do with *SRT*. Fight it out amongst yourselves. Some of these devices will do both *SRT* and *DdRT* admirably and the *Wrench* of course mitigates load in an *SRS* system to allow use of what would otherwise be *MRS* devices.

As a definition, 'Hybrid' is not strictly accurate as the term could equally be applied to a few other items of rope hardware like that fit more than one usage category like the *CMC MPD* as a descender/lowering/progress capture device or *SMC Advance HX* and *Petzl Traxions* as pulley/progress capture devices, but are in no way similar to the 'Hybrids' in this article which are used routinely as combination ascender/descenders and for work positioning. Even that definition is a little misleading because *Petzl's GriGri*, *Notch's Glide*, the *Taz Love* and indeed many autolocking descenders can be used for progress-capture and therefore as a make-shift ascender as well as descender and for work positioning due to their easy take-in of slack (slack-tending). But they won't tend slack automatically when you pull them up the rope. Nope, you are required to physically pull the tail/trail-rope through those devices as you ascend which is one of two things that sets them apart from multiscenders and you wouldn't use them in place of a prusik-hitch ascending system which is the Holy Grail that multiscenders aspire to. Not that it has ever been acceptable to descend at speed using unmitigated rope prusiks but that's what a lot of old-timers did (do?). The safer option is to switch to a dedicated ascender so really, the 'Holy Grail' is to effectively replace an ascender or prusik hitch system AND a descender with one device and these are more accurately described



## HYBRIDS/

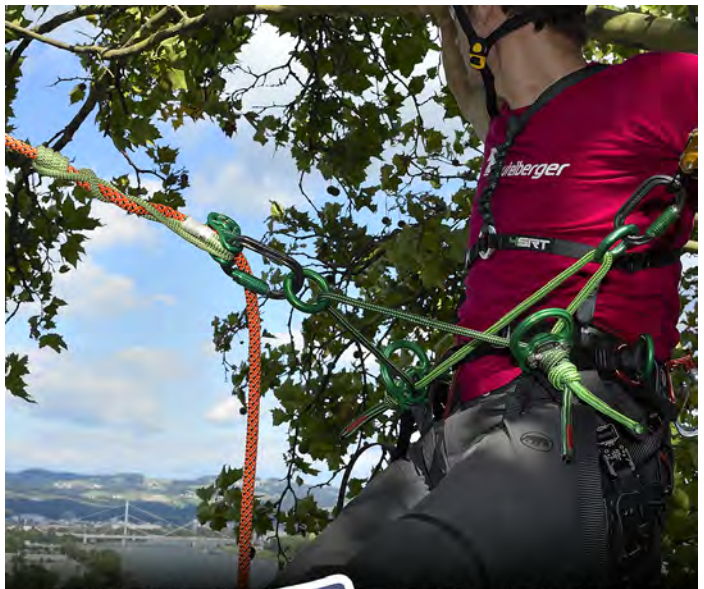
## MULTISCENDERS

as 'multiscenders'. Incidentally, it might seem like the concept of 'multiscenders' (with an 's') is new but we were discussing them in UK caving circles back in the early eighties. Not forgetting of course that pretty much everything we do in SRT, including the original commercial development of autolock descenders by *Petzl* with the *STOP*, stems from caving. However, the most recent crop of devices highlighted in this article may have more to do with the original *Jumars* than the *Stop* descender, take a look at the silver ascender above from an Iranian climbing group that credits this device as the fore-runner of the iconic yellow *Swiss Jumar* so is presumably from midway through the last century - does that chain link style grip look familiar?



*Innovation's XF* will go the same way but it hadn't really made much of an inroad between the original version of this article in 2017 and this 2023 update. As of 2023 the key three models are the *Petzl's ZigZag*, *Rope Runner* and the *Akimbo* with very worthy though less 'mass'-market models in the form of the *Unicender* and *ART's SpiderJack* and *LockJacks* representing the arb industries break out into dedicated technical rope hardware rather than borrowing from the rope access & rescue fields. Following in *ART's* footsteps the *ZigZag* has most closely followed doubled rope technique (DdRT) and the traditional functioning of a closed-loop/split-tail prusik systems. This is in contrast to the *Rope Runner* and *Akimbo* which are firmly SRT oriented. The *ZigZag* failed to achieve universal acceptance before these new kids on these block arrived and this was partly exacerbated by its inability to permit mid-rope attachment and to an early mishap and recall which spooked the market. It's fair to say that the *ZigZag* missed its original window which might have made it

In terms of development of the artificial prusik we should probably credit *ART* with that because their original *LockJack* has been around for a good many years. I remember picking one of the early versions up from the lads at Royal Kew Gardens Arb section back in the nineties and it's still hung in my workshop but it didn't look anything like the slick *SpiderJack 3.0* you see top-right. It has taken a long time between *Hubert Kowalewski's* first model and now to kick-start the development of 'artificial prusiks' and that has everything to do with the dramatic switch from traditional tree climbing methods with rope-on-rope systems to 'technical' climbing using an ever widening array of hardware and sophistication. Once companies from the technical ropes arena like *DMM*, *Petzl*, *Rock Exotica*, *ISC* etc. got involved, expansion and development mushroomed. And yet.... When you look at the hybrids in this Guide it's perhaps a little surprising that not only are there not many, but the majority, starting with *ART* but later typified by *Morgan Thompson's Unicender* and *Kev Bingham's RopeRunner* have been developed within the arb industry before being taken on by the metal wizards. Admittedly, in the case of the *Unicender*, which, for many years was the only such device available, it was an obvious and short route from *Morgan's* original idea to his namesake's company taking on development and production but nevertheless it was still an idea born outside of the rope access and rescue mainstream. *Kev Bingham's RopeRunner* is available in a US version made by *CMI* and the sumptuous *Pro* version by *Notch* and this has clearly become a popular contender to the *ZigZag* long with *Jamie Merrit's Akimbo* made by *Rock Exotica*. All have gone from garage prototype to an 'elite' level of production and perhaps *Gordon Svedberg's Bulldog* devices and *Climbing*



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as universally common in the arb world as the *GriGri* became in the sport climbing world.

All of the devices in this Guide appeal to the techies and repel the traditionalists. Techies are the shiny-metal fetishists who will always be happy to buy and experiment with anything new that weighs more than a traditional prusik and is...well....shiny. And for most of these devices you need to be a bit of a techie because they're not for beginners. Any thoughts of making life easier for those who weren't overly proficient with traditional methods could result in an early visit to the ER. Take a look at *Unicender's* various control functions in the pictures overleaf. Once you're used to them and especially if you've used a range of other technical devices it all comes together quite easily. Novices on the other hand should cut their teeth on rope prusik systems first and especially using the *Rope Wrench* which was Kev Bingham's revelation in diverting part of the load away from the knot (or indeed any compact multiscender) and making them much easier to control. Outside of Germany there has been a preponderance of 'chain-link' style devices since this is the primary way for metal to function in a similar way to a prusik. The *Unicender* is a chain link, *Zig-Zag* is a chain link, *RopeRunner* and *Bulldog Bone* are sideways chain-links and *Akimbo* is an alien chain link. The Germans on the other hand, in the guise of those complex metal artisans ART, have continued to evolve their original *RopeJack* which now looks every inch the most sophisticated device on the market as the *SpiderJack*. These might look intimidatingly complex but all four current ART DdRT devices are actually quite straightforward modifications to the *LockJack's* original locking mechanism enhanced by various handles and casings and *Dyneema* (in the case of *LockJack 2.1*). Their function is as smooth as their design curves, in fact, the slack tending on ART devices is so efficient that the latest variant, *SpiderJack3* has a secondary lock that you can engage (black handle in the pic on the previous page). This is not to prevent slippage, but to prevent rope take-in when moving around the canopy. Even without the weight of trail-rope beneath the *LockJack* it will self-tend so efficiently that you might be at your required work position and simply adjust your hips for comfort, only to find that *LockJack* has shortened more rope and put you slightly out of position! Hence the extra locking position - brilliant when you have to add a feature because your device is TOO efficient. *SpiderJack3* also added a pulley for more efficient redirection of the trail rope when limb-walking and was orientated to make it easier to use with left or right hand.

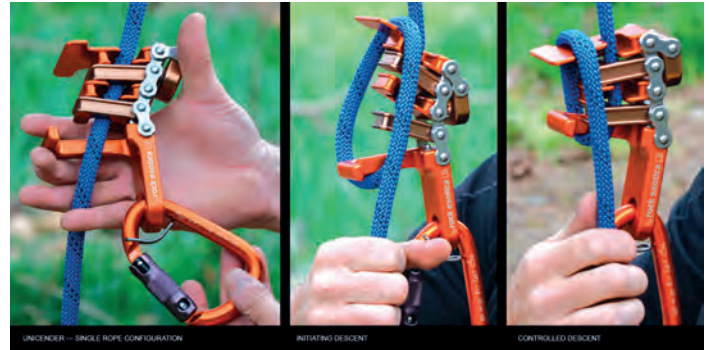
The one thing we can say for sure about ALL hybrid devices is that they must squeeze the rope between two metal elements somewhere along the line. Whether that's in a camming action, a simple squeeze or a moving chain link where the hole's alignment alters the friction, it means that there are varying degrees of friction within your system that also affect:

1) how well it functions as an ascender, and allied with this...

- 2) how efficient it is in NOT losing progress and efficiency to drop-back
- 3) how forgiving the start-stop function is
- 4) how easily it switches between modes



The ground-breaking *LockJacks* seemed to suffer more than others with wear to 'metal components' which, to be fair, can be replaced easily enough but in their second version they introduced that rather odd second rope-contact point made of wood (the brown section in the *SpiderJack2* picture left). It just shows that you can't beat natural materials and in this case the robust nature of a tough hardwood adds a second friction brake to mitigate wear on the original metal cam/pins. In fact, the wood is really the primary friction plate since it's the first contact point and climbers proficient with its use can apply



finite levels of friction such that spectacular fliers of dozens if not hundreds of feet are possible. Proficiency is the key to smooth starts on *LockJacks* but the *Zig Zag* and *Akimbo* have an action that seems to give much gentler transition from stopped to moving (in descent) mode. Certainly far smoother than the *Unicender* and *RopeRunner* which take more getting used to (although *Akimbo* can be far more difficult to adjust). This is not surprising with the *Zig-Zag* or *Lockjacks* since they are DdRT devices (unless the *ZigZag* is used with the *Chicane* SRT adjunct) but *Akimbo* functions this way on single rope which may yet become the favoured route in the arb industry. The *Akimbo* also exhibits minimal drop back in ascent mode, something the *Unicender* is also adept at but others struggle with. You can get used to working with drop-back but it's better when there isn't much.

**WARNING:** Unlike every other area of rope access & rescue, arborism generates a lot of home/garage modifications of existing products. Just like a car, ANY modification voids the warranty and any certification.

SEE ALSO **ARBCLIMBER** #21 for detailed discussion of Multiscenders in comparison with enhanced DdRT systems and SRT Descenders. **BUYERS GUIDE** to **ROPE EQPT** has Autolocking Descenders. NB: **ART devices** seem to have a wider variety of weights quoted for them than any other piece of hardware. The weights we show represent them actually having been weighed.



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\*Only use ropes approved by Rock Exotica. Consult user manual or website for details.




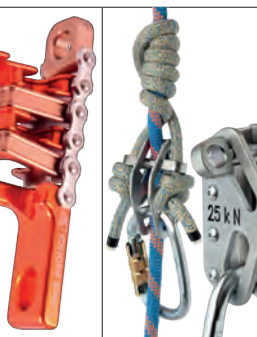

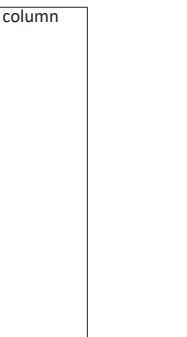



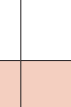

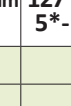
Patented



|                              |  |  |   |  |  |   |   |
|------------------------------|--|--|---|--|--|---|---|
| Images NOT to Scale          |  |  |   |  |  |   |   |
| <b>MANUFACTURER</b>          | ART  | ART  | ART   | ART  | CLIMBING INNOVATIONS   | CVI/ SINGING TREE                           | GORD SVEDB  |
| <b>MODEL VARIANT</b>         | Lockjack Basic (aka Sport)   | Lockjack 2 (swivel)  | SpyderJack 2.1 Dyneema  | SpyderJack 3   | HitchHiker XF  | Rope Runner                                 | Bulldog Adjustable  |
| <b>ORIGIN</b>                |  |  |   |  |  |   |   |
| <b>COST</b>                  | £246 \$410*€286  | £280 \$415 €315  | £267 \$395 €316   | £406 \$518 €425  | £248 \$300 €285  | £289 \$350 €333                             | £320 \$380  |
| <b>WEIGHT (System)</b>       | 268g<br>9.5oz  | 310g<br>11oz   | 281/241g<br>9.9oz/8.5oz   | 511g<br>1lb 1oz  | n/a  | 246g<br>8.67oz                              | 433g<br>14.4oz  |
| <b>MBS/MBL</b>               | 23kN<br>5170lbf  | 23kN<br>5170lbf  | 16kN<br>3597lbf   | 25kN*<br>5620lbf   | -  | 22.7kN<br>5103lbf                           | -   |
| <b>WLL (Specific Ropes)</b>  | 200kg<br>440lb   | 200kg<br>440lb   | 200kg<br>440lb  | 200kg<br>440lb   | <227kg*<br><500lb  | 125kg<br>275lb                              | <113kg<br><250lb  |
| <b>MINIMUM Rope Diameter</b> | 11mm<br>7/16"  | 11mm<br>7/16"  | 11mm<br>7/16"   | 11mm/12mm*<br>7/16"/1/2"   | 9mm<br>3/8"  | 11mm<br>7/16"                               | 10.5mm<br>7/16"   |
| <b>MAXIMUM Rope Diameter</b> | 13mm<br>1/2"   | 13mm<br>1/2"   | 13mm<br>1/2"  | 12mm/14mm*<br>1/2"/9/16"   | 14mm<br>9/16"  | 13mm<br>1/2"                                | 12mm<br>1/2"  |
| <b>HEIGHT (System)</b>       | 150/220*mm<br>6/8.7"   | 150/220mm<br>6/8.7"  | 127/89*mm<br>5/3.5"   | 195/93mm<br>7.6/3.6"   | 150/230mm<br>6/9"  | 160 mm<br>6.3"                              | 175mm<br>6.9"   |
| <b>SRT / SRS</b>             | -  | -  | -   | -  | ■  | ■   | ■   |
| <b>DRT /SRS</b>              | -  | -  | -   | -  | -  | -   | -   |
| <b>DdRT / MRS</b>            | ■  | ■  | ■   | ■  | ●  | ●   | ●   |
| <b>ASCEND</b>                | ■  | ■  | ■   | ■  | ■  | ■   | ■   |
| <b>DESCEND</b>               | ■  | ■  | ■   | ■  | ■  | ■   | ■   |
| <b>ADJUST FRICTION</b>       | ●  | ●  | ●   | ●  | ●  | ●   | -   |
| <b>MIDLINE ATTACH</b>        | ■  | ■  | -   | -  | ■  | ■   | ■   |
| <b>INTEGRAL SWIVEL</b>       | -  | ■  | -   | ■  | -  | -   | -   |
| <b>ATTACH to CHEST</b>       | ●  | ●  | -   | -  | ■  | ■   | ■   |
| <b>STANDARDS (System)</b>    | CE   | CE   | CE  | CE   | NO   | CE  | NO  |
| <b>FRAME MATERIAL</b>        | Alu  | Alu  | Alu   | Stainless Steel  | Alu/Steel  | Alu /Steel                                  | Alu/S   |
| <b>RECOMMENDED ROPES</b>     | *imported by VSG/ Sherril so price of basic vs swivel seems to be higher than £€ equivalent.             | *system=with rope & knob. Swivel carabiner eye. All components replaceable. Approved for two person load | *difficult to say what is length and what is width! Available with Dyneema extender allows for quick carabiner change - deduct approx 40g for Velcro version. £228/\$350/€280 | *difficult to say what is length and what is width! All wearing parts are replaceable. Approved for two person load. *supplied with 3 cams which need to be swapped in for different rope sizes. *NB some stockists quoting 23kN- ART manual states 25kN. Add approx10% for laser-cut of your logo | runs on 24 strand & Kernmantle, requires 8-10mm cord for climbing hitch 2 versions - with and without captive eye. Works 180to90° website address is: climbing-innovations.com | EN 1891 type A low stretch kernmantle ropes | The BD constantly and hard track of - @survey Treebuzz for info (out Japan) Image shows Japanese adjustable *via a tied |
| <b>NOTES</b>                 | *system=with rope & knob. Fixed carabiner eye. All components replaceable . Approved for two person load |  |   |  |  |   |   |
| <b>WEBSITE</b>               | climb-art.de   | climb-art.de   | climb-art.de  | climb-art.de   | see above  | cmigearusa.com                              | works-od  |

COSTS: £\$€ shown in burnt orange are currency conversions only & do not inc shipping, import duty or tax COST: Approx & inc local tax/VAT WLL: If no WLL is given by man

# MECHANICAL FRICTION DEVICES

|            |               |                                      |                                      |  |   |    | Expansion column | Expansion column |
|------------|--|---|---|--|--|---|------------------|------------------|
| BRAND      | <b>NOTCH</b>   | <b>PETZL</b>  | <b>PETZL</b>  | <b>ROCK EXOTICA</b>  | <b>ROCK EXOTICA</b>  | <b>ROPETEK</b>  |                  |                  |
| Model      | Rope Runner Pro  | Zig Zag   | Zig Zag Plus  | Akimbo   | Unicender  | HitchHiker 2  |                  |                  |
| Country    |               |                                      |                                      |   |   |    |                  |                  |
| Price      | £366   | £228 \$310 €205   | £270 \$370 €296   | £410 \$400 €490  | £408 \$400 €490  | £248 \$300 €285   |                  |                  |
| Weight     | 425g<br>15oz   | 365g<br>12.9oz  | 425g<br>15oz  | 261g<br>9.2oz  | 310g<br>10.9oz   | 275/545g<br>9.6oz/1.2lb   |                  |                  |
| Strength   | -  | -   | -   | 0kN<br>0lbf  | 31kN<br>6969lbf  | 25kN<br>5620lbf   |                  |                  |
| Max Load   | 140kg<br>308lbf  | 140kg<br>308lbf   | 140kg<br>308lbf   | 100/130kg<br>220/286lb   | <545kg*<br><1200lb   | <522kg*<br><1150lb  |                  |                  |
| Width      | 11mm<br>7/16"  | 11.5mm<br>7/16"   | 11.5mm<br>7/16"   | 11.5mm<br>7/16"  | 11mm<br>7/16"  | 11.5mm<br>7/16"   |                  |                  |
| Height     | 13mm<br>1/2"   | 13mm<br>1/2"  | 13mm<br>1/2"  | 13mm<br>1/2"   | 13mm<br>1/2"   | 13mm<br>1/2"  |                  |                  |
| Length     | 158mm<br>6.2"  | 115*-248/290mm<br>4.5*-7.9/"  | 127*258/300mm<br>5*-10.1/11.8"  | 85*-200mm<br>3.4*-7.9"   | 155mm<br>6.1"  | 105mm<br>4.15"  |                  |                  |
| Features   | ■  | ●*  | ●*  | ■  | ■  | ■   |                  |                  |
| Material   | -  | -   | -   | -  | -  | -   |                  |                  |
| Attachment | ●  | ■   | ■   | ●  | ■  | ●   |                  |                  |
| Adjustment | ■  | ■   | ■   | ■  | ■  | ■   |                  |                  |
| Other      | ■  | ■   | ■   | ■  | ■  | ■   |                  |                  |
| Additional | ●  | -   | -   | ●  | ■  | ●   |                  |                  |
| Notes      | ■  | -   | -   | ■  | ■  | ■   |                  |                  |
| Warnings   | -  | -   | ■   | -  | -  | -   |                  |                  |
| Compliance | ■  | ■   | ■   | ■  | ■  | ■   |                  |                  |
| CE Marking | CE   | CE ANSI   | CE ANSI   | CE   | CE   | NO  |                  |                  |
| Material   | Alu  | Alu/Steel   | Alu/Steel   | Alu  | Machined Alu   | Steel & Alu   |                  |                  |
| Notes      | DB is evolving to keep monitor for on or more side of n).<br>Shows the made version. cord loop | * height when in use<br>EN 1891 type A low stretch kernmantle ropes<br>* length with Chicane Cost=Add £168/\$193/€174 | * height when in use<br>EN 1891 type A low stretch kernmantle ropes<br>* length with Chicane Cost=Add £168/\$193/€174 | * height when in use<br>Check website for list of specific ropes to use            | *Load at which ropes slips thru<br>SRT Barrel attachment available to improve frictional adjustment.<br>Not officially sold in Europe. | *Load at which prusik slips<br>\$495 as system with cord.<br>24 strand and Kernmantle requires 8-10mm cord for climbing hitch<br>*Comes with steel carabiner.<br>Ropetek no longer supply cord but some stockists do. |                  |                  |
| Website    | notchequipment.com   | petzl.com   | petzl.com   | rockexotica.com  | rockexotica.com  | ropetek.com   |                  |                  |

Manufacturer we show a Max Load based on approx 10:1 safety ratio HYPHEN = NO or not applicable N/A = info Not Available/not given. ○ = OK but not ideal

# UPDATED Sept '24 AUTOLOCKING, 2-WAY LANYARD/ FLIPLINE AJUSTERS

## AKA ROPE SHORTENERS

For the purposes of tree work, we're defining a lanyard as connected to two load bearing elements of your harness (the Side-mounted D-Rings) but most will also function as a single attachment in the same way as a rappel/ascending rope anchored above the climber. The important words here are **'TWO-WAY'** because virtually any ascender and in particular rope grabs can and are used as lanyard adjusters but they will only allow you to extend the length of lanyard when your weight is taken off the device. They are ascenders-only, not descenders. You can check out one-way adjusting rope grabs in the separate guide to ROPE GRABS from page \_\_ or some of the Progress Capture Devices on page \_ will also function as lanyard adjusters as will some Mobile Fall Arresters (see our ROPE EQUIPMENT BUYERS GUIDE). This guide relates to technical hardware but you can of course use the various prusiks to do a very similar job at a fraction of the cost. *Teufelberger* introduced their *CE Lanyard (Hipstar Flex)* years ago when combination flipline/extended lanyards first started to appear and their rope/pulley/prusik combo subsequently led the market for quite some time but was fairly easy for others to copy and compete against. The rope itself is the key element and we would suggest that the specialist Aramid/Twaron/Technora ropes might be the best compromise between a wire-core and a regular rope in terms of abrasion resistance but these will all be personal choice. Remember though, none of these, even wire core, are cut-proof but clearly you stand a greater chance of survival with a wire core followed by the Aramid style fibre ropes followed by the thickest -ass rope you can find but the key lesson is to cut carefully and always have a back up. With that in mind, the longer rope lengths that make the type of two-way device we're dealing with in this guide so useful, means that you can use the tail as a second backup polestrap when moving up a spar or between trunks. The devices in this guide are really modified descenders or belay devices that will allow you to release rope (in SRT or doubled lanyard mode) in a controlled manner even when fully loaded - in effect you are performing a series of very short abseils/rappels whenever you adjust or increase the length out or simply pulling on the rope tail to take rope in. Consequently these can be used more for work positioning on longer rope lengths than simply a traditional, short pole-strap style lanyard - though they will do both jobs admirably. With the loaded descent capability they tend to be larger/bulkier than basic rope grabs.

You could also use a prusik as a two-way lanyard adjuster and any handled descender or indeed arborist-specific device like

ART's Ukrainian-supporting colours in their limited edition swivel positioner

www.rescuemagazines.com

the *Akimbo* and *RopeRunner* but we're talking 'handily-sized'. Actually the *Akimbo* is handily -sized but it seems a bit like entering a *Masarati* into a donkey derby! There is also the small matter that, technically, **to meet the European standard as a Lanyard Adjuster the side plates need to be fixed** which is why so many come with ready-installed lengths of rope/lanyard. For some devices that might normally have swivel plate access to loading the rope this can simply mean that the swivel plate is now bolted but you can unbolt it to apply a new lanyard. *Notch's Glide* for instance has an Allen Key bolt on the silver rope-chamber cover for changing rope and/or adjusting the cam face to better fit the rope.

Although many of these devices will function admirably on a single rope in the same way as any abseil/rappel device, the intention is for the rope to be doubled as it extends from one pole strap D-ring - passes around your anchor branch (or via a friction-saver) and back to your adjuster on the opposite pole-strap D-ring. With longer lengths of rope/lanyards the climber is able to limb-walk and manoeuvre around the work area with enhanced stability - think of a tripod and the stability afforded when compared to working away from the vertical line of a single point attachment

Flip-lines or pole-straps are shorter than the newer generation of working rope lanyards and may also have a wire core to prevent being cut through by your chainsaw. Standards for use on rope do not include wire-core rope which are effectively wire cable with a braided sheath allowing camming devices to work but not in the same way as they do on a fibre core rope which compresses under load and improves grip. In contrast a wire-core rope will only compress for the thickness of the braided sheath.

Some devices **NOT included** here that crop up in the Belay Devices Guide in the ROPE EQUIPMENT BUYERS GUIDE which you might otherwise expect to be included here include the *Mad Rock Lifeguard* and *Safeguard*, *Beal Birdy*, *Anpen P15* and *Edelweiss Kinetic* because they require a degree of dynamic

# ROPE SHORTENERS

arrest so are not truly hands-off auto-locking as required of a lanyard adjuster. The *GriGri* and *GriGriPlus* only because the *Grillon* is a more compact version, the russian *Ice Rock Gnome* and *Krok Fedor* because they're...well....russian and therefore persona non-grata during the current bizarre period of invasion of a neighbouring democracy. The *ISC D2* because, like the *Petzl GriGri* it's a little bulky compared to *ISC's* dedicated lanyard adjuster the *RAD*. We have left in the *Taz Lov2* because, although it is quite bulky, it is a true multi-role device. The *Trango Vergo* is a belay device and usually precluded because, like the *Birdy* etc. it requires a dynamic brake assist and therefore not truly auto-locking but the *Vergo* has a more positive brake override. It also only just made it due to its small diameter rope range (the reason many tactical and bailout devices also didn't make it in) but lanyard ropes can be anywhere between 10 and 13mm (½") so it's close enough.



*ART*, *Petzl* and *Notch Equipment* deserve special mention because they have bespoke products specifically engineered to be lanyard adjusters but of course, by default, this function makes them suitable for other tasks as you'll see in the list below. As usual *ART* have some beautifully over-engineered adjusters, one with a swivel, one without (top) which, like *Petzl's Zillon* opposite, are actually cut-down versions of their larger climbing device. *Notch Equipment* have the interesting *Glide* (right) specifically designed to fit easily in the hand and align with the direction of operation in a slimline (and swivelling) package. The rope access plate is removed with an Allen key. Finally *Petzl's* bespoke device is not the afore-mentioned *Zillon* but the smallest, cheapest, lightest and simplest device in our selection, the *Progress Adjust* (right). Sport climbers will recognise the principle of this as a camming frame that we see on some belay devices where the carabiner provides the spacer and the locking surface against which the rope is jammed by the frame. A little plastic accessory y helps to hold the carabiner in a set position rather than flopping around making it easier to clip.

The versatility of many of these adjusters as belay devices, descenders, progress capture and ascenders means that your humble adjustable lanyard can do so much:

- 1) Pole-Strap/Flip Line on a pole/trunk/spur
- 2) lateral Work positioning
- 3) vertical, single point work positioning
- 4) edge restraint (for access 7 rescue)
- 5) Quick-attach 2:1 tMA with device on target
- 6) Quick attach 3:1 tMA with device on self, pulley/link on target
- 7) Short Belay/lifeline
- 8) Ascent progression (ladder or via-ferrata style ascent)

## IN THE FOLLOWING TABLES:.....

**ORIGIN:** The main flag refers to the manufacturer's home country, but this may not be where the device is made. If we know, we show an inset flag. As we often mention, the figures in this Guide are verified by the manufacturer but you will see different spec on some supplier websites and for some manufacturers that have rebadged a model. No idea why!

**COST:** Prices are a rough guide only - it can vary due to exchange rates, taxes etc. and we usually round the price up. Chinese devices may need import duty added.

**WEIGHT:** for the individual device in black and including the lanyard in burnt orange.

**DIMENSIONS:** of the device itself This is mainly given as height or length by width with some quoting the depth (or thickness) of the device. If only one figure is given it will be the longest height or length. This should include the handle in stowed position but some may be quoting length with the handle extended or possibly not including the handle at all.

**MATERIALS:** **ALLOY** refers to **ALUMINIUM ALLOY** or **ALUMINUM ALLOY** unless otherwise shown. Note that many showing the handle as Alloy (alu) or Steel may also have a comfort cover of rubber or plastic etc. Others like the *Core* use the entire body of the descender as a lever style handle.

**MBL:** Minimum Breaking Loads is a complex area when you have multi-role devices and it is always best to read the manufacturers product instructions thoroughly to make sure that you really understand what your device is capable of.

Where a device actively squeezes the rope to perform its task the MBL may be more about the resilience of the rope in not breaking

**WLL: Working Load Limit** (Safe Working Load). Again, rarely used in sports devices. The **MINIMUM** indicates the lowest weight that will be able to descend or that you can lower. This can also be an indication of how easily rope will pull through the device but most will simply quote the standards requirement even if they can handle lower loads.

**MAXIMUM** figure for the larger rope in the device's range. This figure is not as

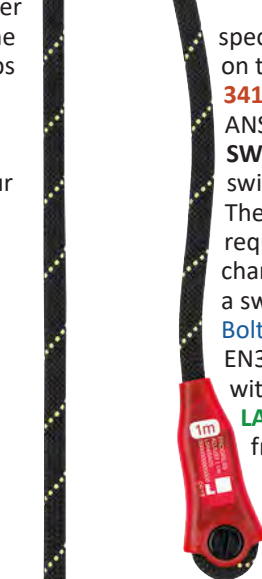
specific as an MBL and can vary depending on the standard, for instance ropes meeting **EN 341** often have a lower WLL than those meeting **ANSI** or **CSA**.

**SWIVEL FIXED/SWING/BOLTED:** Swivel refers to a swiveling carabiner attachment - most are fixed. The three side plate options are **fixed**= always requiring rope to be fed or the lanyard cannot be changed. **Swing**= swing plate/cam. The device has a swivel plate or cam for easy loading onto rope. **Bolted** side plates as per the requirements of **EN358** as a lanyard adjuster but can be unbolted with tools and time.

**LANYARD** Lanyard are the lengths available from this specific manufacturer - an asterisk indicates the length quoted in the **COST**.

**STANDARDS:** Aside from **EN567** as a rope 'clamp' requiring at least two actions to release the rope which all of these meet, the other relevant standards are

more complex and determined not so much by the device as by the rope you put in it. **EN12841:2006-C** Rope diameter 10.5mm-11.0mm Max weight 130kg. **EN15151-1:2012-6** Rope diam 9.9mm-11.3mm. **EN358:2018** (when used with specified Lanyard) Max weight 150kg. **EN795:2012-B** (when used with specified lanyard) 1-person load. **EN341:2011/2D** (with approved pre-threaded rope) 1x 200m Max weight 104kg- Min weight 40kg



|   |   |  |   |   |  |
|---|---|--|---|---|--|
| Images NOT to Scale   |   |  |   |   |  |
| <b>MANUFACTURER</b>   | <b>ABTECH</b>                                     | <b>ANPEN</b>                                       | <b>ART</b>  | <b>ART</b>  | <b>CAMP</b>  |
| <b>MODEL VARIANT</b>  | <b>ROPE RAT ABRAT</b>                             | <b>P15</b>   | <b>Positioner Basic</b>                           | <b>Positioner 2 Swivel</b>                        | <b>Druid Pro 2P654</b>                             |
| <b>ORIGIN</b>   |   |  |   |   |  |
| <b>COST (inc Tax) DEVICE-ONLY</b><br><b>Inc. Integral LANYARD</b> | -<br><b>£144* \$177 €165</b>                      | <b>£111 \$135* €125</b><br>-                       | <b>£103 \$165 €110</b><br>-                       | <b>£125 \$200 €140</b><br>-                       | <b>£135 \$220 €113</b><br>-                        |
| <b>WEIGHT exc lanyard</b>   | <b>346g</b><br><b>12.2oz</b>                      | <b>245g</b><br><b>8.6oz</b>                        | <b>175g</b><br><b>6.2oz</b>                       | <b>175g</b><br><b>6.2oz</b>                       | <b>280g</b><br><b>9.9oz</b>                        |
| <b>MAX LOAD- WLL MBS</b>  | <b>191kg 16kN</b><br><b>420lb 3597lbf</b>         | <b>250kg 16kN</b><br><b>551lb 3597lbf</b>          | <b>200kg 23kN</b><br><b>441lb 5170lbf</b>         | <b>200kg 23kN</b><br><b>441lb 5170lbf</b>         | <b>200kg 12kN</b><br><b>441lb 2697lbf</b>          |
| <b>ROPE RANGE Ø</b>   | <b>11mm</b><br><b>7/16"</b>                       | <b>9.5-11mm</b><br><b>3/8-7/16"</b>                | <b>11-13mm*</b><br><b>7/16 - 1/2"</b>             | <b>11-13mm*</b><br><b>7/16 - 1/2"</b>             | <b>10-11mm</b><br><b>3/8-7/16"</b>                 |
| <b>DIMENSIONS ht x w x depth</b>                                  | <b>114 x 73 x 24mm</b><br><b>4.5 x 2.9 x 0.9"</b> | <b>140 x 50mm</b><br><b>5.5 x 2"</b>               | <b>120 x 45 x 38mm</b><br><b>4.7 x 1.8 x 1.5"</b> | <b>135 x 45 x 38mm</b><br><b>5.3 x 1.8 x 1.5"</b> | <b>118 x 76 x 46mm</b><br><b>4.7 x 3 x 1.8"</b>    |
| <b>SWIVEL FIXED/SWING/BOLTED</b>                                  | - ■   | - ■  | - ■   | ■ ■   | ■ ■  |
| <b>LANYARDS RELEASE UNDER LOAD</b>                                | <b>2*/5/10m</b> ■                                 | ■  | ■   | ■   | ■  |
| <b>USES: PCD BELAY DESC ASC</b>                                   | -   | ■ ■ ■ ■  | ■ ■   | ■ ■   | ■ ■ ■ ■  |
| <b>FRAME CAM HANDLE</b>   | <b>Alu S.Steel Alu</b>                            | <b>Alu Alu Plastic</b>                             | <b>Alu Alu Alu</b>                                | <b>Alu Alu Alu</b>                                | <b>Alu S.Steel Alu</b>                             |
| <b>STANDARDS (with lanyard)</b>                                   | <b>CE ANSI</b>                                    | <b>GA494-2004</b>                                  | <b>CE ANSI</b>                                    | <b>CE ANSI</b>                                    | <b>CE</b>  |
| <b>OTHER COLOURS</b>  |   | ■  | -   | -   | -  |
| <b>NOTES</b>  | Rebranded by many companies                       | *FOB China   | *Change cam for wire core rope 12-13mm            | *Change cam for wire core rope 12-13mm            | Std Druid version has dbl                          |
| <b>WEBSITE</b>  | abtechsafety.com                                  | enanpen.com  | smcgear.com                                       | cmcpro.com  | camp.it  |
| IMAGES NOT to SCALE   |   |  |   |   |  |
| <b>MANUFACTURER</b>   | <b>NOTCH</b>                                      | <b>PETZL</b>                                       | <b>PETZL</b>                                      | <b>PETZL</b>                                      | <b>RnR</b>   |
| <b>MODEL VARIANT</b>  | <b>Glide 64055</b>                                | <b>GrillonPlus Grillon</b>                         | <b>Zillon</b>                                     | <b>Progress Adjust-I L044</b>                     | <b>Renegade P54</b>                                |
| <b>ORIGIN</b>   |   |  |   |   |  |
| <b>COST (inc Tax) DEVICE-ONLY</b><br><b>Inc. Integral LANYARD</b> | <b>£123 \$140 €131</b><br>-                       | -<br><b>£126 \$240 €155*</b>                       | -<br><b>£204 \$260* €209</b>                      | <b>£66 \$72 €66*</b><br>-                         | -<br><b>£123 \$150 €140</b>                        |
| <b>WEIGHT inc Lanyard</b>   | <b>206g</b><br><b>7oz</b>                         | <b>208g</b><br><b>7.3oz</b>                        | <b>570g</b><br><b>20oz</b>                        | <b>185g</b><br><b>5oz</b>                         | <b>140g</b><br><b>4.9oz</b>                        |
| <b>MAX LOAD- WLL MBS</b>  | <b>- 23kN</b><br><b>- 5170lbf</b>                 | <b>100-140kg n/a kN</b><br><b>220-309lb n/albf</b> | <b>150kg n/akN</b><br><b>330lb n/albf</b>         | <b>140kg n/akN</b><br><b>308lb n/albf</b>         | <b>509kg 23kN</b><br><b>1124lb 5170lbf</b>         |
| <b>ROPE RANGE Ø</b>   | <b>11-13mm*</b><br><b>7/16 - 1/2"</b>             | <b>11mm</b><br><b>7/16"</b>                        | <b>11mm</b><br><b>7/16"</b>                       | <b>11mm</b><br><b>7/16"</b>                       | <b>≤11mm</b><br><b>≤3/16"</b>                      |
| <b>DIMENSIONS ht x w x depth</b>                                  | <b>140 x 90 x 33mm</b><br><b>5.5 x 3.5 x 1.3"</b> | <b>105 x 63 x 42mm</b><br><b>4.2 x 2.5 x 1.65"</b> | <b>100+ x 35mm</b><br><b>4+ x 1.4"</b>            | <b>50 x 36mm</b><br><b>2 x 1.4"</b>               | <b>85.5 x 44 x 31mm</b><br><b>3.4 x 1.7 x 1.2"</b> |
| <b>SWIVEL FIXED/SWING/BOLTED</b>                                  | ■ ■   | - ■  | - ■   | - ■   | - ■  |
| <b>LANYARDS RELEASE UNDER LOAD</b>                                | ■   | <b>2*/3/4/5/10/15/20m</b> ■                        | <b>2.5*/4/5.5m</b> ■                              | <b>1*/2/3/4/5m</b> ●                              | <b>8', 12'</b> ■                                   |
| <b>USES: PCD BELAY DESC ASC</b>                                   | ● ●   | ● ■ ■ ■  | ■ ■ ■   | ●   | ● ●  |
| <b>FRAME CAM HANDLE</b>   | <b>Alu StSt Alu</b>                               | <b>Alu StSt Plastic</b>                            | <b>Alu StSt -</b>                                 | <b>Alu - -</b>                                    | <b>Alu Alu Alu</b>                                 |
| <b>STANDARDS (with lanyard)</b>                                   | <b>ASTM CE</b>                                    | <b>CE ANSI CSA EAC UKCA</b>                        | <b>CE</b>   | <b>CE ANSI CSA EAC UKCA</b>                       | <b>CE</b>  |
| <b>OTHER COLOURS</b>  | ■   | ■  | ■   | ■   | -  |
| <b>NOTES</b>  | 3 friction settings to cater for rope sizes       |  | *As a DdRT device                                 | can use dynamic rope                              |  |
| <b>WEBSITE</b>  | notchequipment.com                                | petzl.com  | petzl.com   | petzl.com   | rocknrescue.com                                    |





**UPDATED** Oct '24

# CARABINER PULLEYS

We're going to guess that the birth of the carabiner pulley was many, many years with climbers using a plastic wheel slipped onto an oval carabiner- something you can still do now but as a manufactured product it was maybe not until this century that a properly integrated sheave appeared. So it took a long time for the evolution of what you might think would be quite a straightforward design. But no, *DMM's Revolver* (green version right) with its diminutive friction reducing wheel kick started a drive towards a whole new genre of kit that was

gleefully taken up by *Petzl* with the first fully functioning pulley sheave integrated into the structure of the carabiner, the *RollClip*. The genre has latterly taken a more unusual direction with *Harken's Snatchet* (left) with a faceted sheave held onto an oval carabiner with a bolted plastic frame or 'cheeks'. The faceted version provides increased friction for lowering while their non-faceted version acts as a regular pulley in both directions. The intention of course is to provide hauling efficiency with less space and kit; instead of a carabiner length plus a pulley length you just have the carabiner length.

These things are perfect for creating a quick 2:1 or as part of a larger hauling system since they are as efficient as a fair quality pulley at 80-90%. They also have a slight advantage over a regular swing-cheek pulley that you

can insert the rope while the carabiner element is connected therefore negating the chance of dropping the pulley. The *Revolver* is less of a pulley and more of an efficient carabiner offering useful rapid redirection capabilities that create less drag than a carabiner alone but don't forget that redirects create high load and not all carabiner pulleys are up to this task. The newest addition is China's *Kailas* which produces bespoke, properly branded products and this is a slick, hot-forged option (Black version shown above).

## IN THE FOLLOWING TABLES:.....

**ORIGIN:** The main flag refers to the manufacturer's home country, but this may not be where the device is made. If we know, we show an inset flag.

**COST:** Prices are a rough guide only - it can vary due to exchange rates, taxes etc. and we usually round the price up. Chinese devices may need import duty added.

**WEIGHT:** for the individual item in its basic form

**DIMENSIONS:** Height/length by width

**MATERIALS:** **ALU** refers to **ALUMINIUM** or **ALUMINUM ALLOY**  
**StSt** = Stainless Steel and some are '**Steel**' = carbon steel

**MBS:** Minimum Breaking Strength for the **Minor Axis** which is across the width, **Major Axis** which is down the spine of the



carabiner and always the strongest direction of load and with the **Gate Open** which is usually the weakest because it allows the carabiner to bend away from its two ends.

**WLL: Working Load Limit** (specifically the pulley sheave

**ROPE Ø:** Any rope that will fit through the gate can be used but the pulley will only function to this diameter.

**SHEAVE Ø:** Diameter of wheel but may be the max or the min/tread diameter which are quite different figures. **Where we know the verified inner/tread Ø it is shown in italics.**

**GATE OPENING:** is the widest rope or bar that can pass through an open carabiner gate.

**EFFICIENCY:** IS how good the pulley axle (bearing or bushing) is at reducing friction - anything less than 100% is saving you effort whereas passing a rope over a standard carabiner would likely be well in excess of 120%.

**GATE LOCK:** is whether and how the gate is secured. **SNAP** has no locking action and can open if the gate is pushed against.

**SCREWg** is 'Screwgate' requiring the user to manually unwind and wind up the collar on the gate, failure to do so renders it a snap-gate.

**AUTO** means automatically locks on release of the locking collar. There is a spring action on the barrel which keeps the gate locked until you open the collar by twisting against the spring. A secondary and even third action may also be required involving pushing the collar up/downwards as well as twisting. We have not differentiated the 3 AUTO options.

**CAPTIVE EYE:** is a bar, as shown in the *Revolver Rig* above, that ensures that the rope cannot migrate off of the pulley sheave(s). Some of these can be an optional addition as with the *Petzl RollClips* but they do mean that rope has to be threaded rather than hot-loaded mid-rope.

**BECKET:** An unusual feature with these carabiner pulleys and at the time of writing only present on the *Revolver Rig* and slack-lining's *Rollex* where the becket is for tape not rope. Don't just assume that a gap beneath the sheaves can be used as a load-bearing becket - *RnR's Onyx* specifically states this in writing on its lower frame.

STANDARDS: for CE standards there are 3 that may be applicable: **EN12278** as a PULLEY ■

**EN12275** as a SPORT CONNECTOR/CLIP ■

and **EN362** as WORK CONNECTOR/CLIP ■

**EAC** covers Eastern Europe and Russia

**UIAA** covers mountaineering activities

**UKCA** is a superfluous addition/replacement to ENs for the UK.



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|  |   |   |   |   |   |   |
|--|---|---|---|---|---|---|
| <b>Images NOT to Scale</b><br><span style="color: purple;">■</span> EN12278 as a PULLEY<br><span style="color: orange;">■</span> EN12275 for SPORT<br><span style="color: blue;">■</span> EN362 for WORK<br>EAC=Eastern Europe/Russia<br>UIAA =mountaineering<br>UKCA=UK |  |  |  |  |  |  |
|  | <b>MANUFACTURER</b>   | <b>DMM</b>  | <b>DMM</b>  | <b>DMM</b>  | <b>DMM</b>  | <b>DMM</b>  |
| <b>MODEL VARIANT</b>   | Revolver Snap<br>A238   | Revolver SG<br>A272   | Revolver LockSafe<br>A277   | Revolver Kwikklok<br>A273   | Revolver Rig SG<br>A5821CB  | Revolver Rig<br>LockSafe A5871  |
| <b>ORIGIN</b>  |   |   |   |   |   |   |
| <b>COST (inc Tax/VAT)</b>  | £29 \$37 €33  | £31 \$48 €36  | £37 \$50 €49  | £34 \$43 €39  | £82 \$107 €91   | £85 \$107 €111  |
| <b>WEIGHT</b> min- max<br><small>(see gatelock colour-coding)</small>  | 51 g<br>1.8oz   | 63 g<br>2.2oz   | 70 g<br>2.4oz   | 69 g<br>2.4oz   | 196 g<br>6.9oz  | 203 g<br>7.2oz  |
| <b>MBS</b> Minor Axis<br>Major Axis<br>Gate Open   | 7kN 1573lbf<br>24kN 5395lbf<br>9kN 2023lbf  | 8kN 1798lbf<br>24kN 5395lbf<br>8kN 1798lbf  | 8kN 1798lbf<br>24kN 5395lbf<br>8kN 1798lbf  | 8kN 1798lbf<br>24kN 5395lbf<br>8kN 1798lbf  | 7kN 1574lbf<br>25kN 5620lbf<br>7kN 1574lbf  | 7kN 1574lbf<br>25kN 5620lbf<br>7kN 1574lbf  |
| <b>MIN-MAX ROPE Ø</b>  | <12.7mm ½"  | <12.7mm ½"  | <12.7mm ½"  | <12.7mm ½"  | 13mm ½"   | 13mm ½"   |
| <b>DIMENSIONS</b> ht x w x depth   | 103 x 59mm<br>3.6 x 2.4"  | 109 x 59mm<br>3.8 x 2.4"  | 109 x 60mm<br>3.8 x 2.4"  | 109 x 60mm<br>3.8 x 2.4"  | 161 x 76mm<br>6.3 x 3"  | 161 x 76mm<br>6.3 x 3"  |
| <b>SHEAVE Ø TREAD</b><br>GATE OPENING  | 12mm 0.47"<br>16mm 0.63"  | 12.7mm 0.5"<br>15mm 0.6"  | 12.7mm 0.5"<br>15mm 0.6"  | 12.7mm 0.5"<br>15mm 0.6"  | 24mm 0.95"<br>23mm 0.9"   | 24mm 0.95"<br>22mm 0.87"  |
| <b>PULLEY EFFICIENCY SWL</b>   | n/a   | n/a   | n/a   | n/a   | n/a   | n/a   |
| <b>GATELOCK- SNAP SCREW</b><br>Auto2 Auto3 Auto4 ACTIONS   | ■   | ■   | ■   | ■   | ■   | ■   |
| <b>CAPTIVE EYE BECKET</b>  | --  | --  | --  | --  | ■ ■   | ■ ■   |
| <b>MATERIAL: 'BINER SHEAVE</b>   | Alu Alu   | Alu Alu   | Alu Alu   | Alu Alu   | Alu Alu   | Alu Alu   |
| <b>STANDARDS</b>   | UIAA CE ■   | UIAA CE ■ ■   | UIAA CE ■ ■   | UIAA CE ■ ■   | CE ■ ■ ■  | CE ■ ■ ■  |
| <b>OTHER COLOURS</b>   | ■ ■   | ■   | ■   | ■   | ■   | ■   |
| <b>NOTES</b>   |   |   |   |   |   |   |
| <b>WEBSITE</b>   | dmmwales.com  | dmmwales.com  | dmmwales.com  | dmmwales.com  | dmmwales.com  | dmmwales.com  |

|  |   |   |   |   |   |   |
|--|---|---|---|---|---|---|
| <b>Images NOT to Scale</b><br><span style="color: purple;">■</span> EN12278 as a PULLEY<br><span style="color: orange;">■</span> EN12275 for SPORT<br><span style="color: blue;">■</span> EN362 for WORK<br>EAC=Eastern Europe/Russia<br>UIAA =mountaineering<br>UKCA=UK |  |  |  |  |  |  |
|  | <b>MANUFACTURER</b>   | <b>HARKEN</b>   | <b>HARKEN</b>   | <b>KAILAS</b>   | <b>LACD</b>   | <b>PETZL</b>  |
| <b>MODEL VARIANT</b>   | Snatchet<br>INSN65R   | Snatchet<br>INSN65  | Rota<br>EC202   | Trilock W<br>1242   | RollClip Snap<br>P74  | RollClip Triac<br>P74TL   |
| <b>ORIGIN</b>  |   |   |   |   |   |   |
| <b>COST (inc Tax/VAT)</b>  | £270 \$340 €315   | £228 \$286 €263   | £44 \$51 €46  | £35 \$49 €40  | £35 \$41 €46  | £40 \$52 €44  |
| <b>WEIGHT</b> min- max<br><small>(see gatelock colour-coding)</small>  | 178g<br>6.3oz   | 178g<br>6.3oz   | 121g<br>4.3oz   | 131g<br>4.6oz   | 69g<br>2.4oz  | 115g<br>4oz   |
| <b>MBS</b> Minor Axis<br>Major Axis<br>Gate Open   | 20kN 4496lbf<br>38kN 00lbf<br>16kN 1574lbf  | 20kN 4496lbf<br>38kN 00lbf<br>16kN 1574lbf  | 8kN 1798lbf<br>22kN 4946lbf<br>7kN 1574lbf  | 7kN 1574lbf<br>20kN 4496lbf<br>8kN 1798lbf  | 8kN 1798lbf<br>20kN 4496lbf<br>7kN 1574lbf  | 8kN 1798lbf<br>20kN 4496lbf<br>7kN 1574lbf  |
| <b>MIN-MAX ROPE Ø</b>  | 9-14mm ⅜-⅝"   | 9-14mm ⅜-⅝"   | 7-13mm ⅝-½"   | 7-13mm ⅝-½"   | 7-13mm ⅝-½"   | 7-13mm ⅝-½"   |
| <b>DIMENSIONS</b> ht x w x depth   | 146.5 x 72mm<br>5.8 x 2.8"  | 146.5 x 72mm<br>5.8 x 2.8"  | 112 x 73mm<br>5.8 x 2.8"  | 130 x 70mm<br>5.1 x 2.75"   | 109 x 60mm<br>4.3 x 2.4"  | 109 x 60mm<br>4.3 x 2.4"  |
| <b>SHEAVE Ø TREAD</b><br>GATE OPENING  | 65mm 2.6"<br>21mm 0.825"  | 65mm 2.6"<br>21mm 0.825"  | 25mm/1"<br>24mm/1"  | 18mm 0.7"<br>23mm 0.9"  | 18mm 0.7"<br>25mm 1"  | 18mm 0.7"<br>22mm 0.87"   |
| <b>PULLEY EFFICIENCY SWL</b>   | n/a 10kN  | n/a 10kN  | 85% 4kN   | n/a   | 85% 4kN   | 85% 4kN   |
| <b>GATELOCK- SNAP SCREW</b><br>Auto2 Auto3 Auto4 ACTIONS   | ■   | ■   | ■   | ■   | ■   | ■   |
| <b>CAPTIVE EYE BECKET</b>  | --  | --  | --  | --  | □   | □   |
| <b>MATERIAL: 'BINER SHEAVE</b>   | Steel StSt -  | Steel StSt  | Alu Alu   | Alu Alu   | Alu Alu   | Alu Alu   |
| <b>STANDARDS</b>   | CE ■ ANSI   | CE ■ ■ ANSI   | CE ■ ■ ■  | CE ■ ■ ■  | CE ■ ■ ■ EAC UKCA   | CE ■ ■ ■ EAC UK   |
| <b>OTHER COLOURS</b>   | ■   | ■   | ■ ■   | ■   | ■   | ■   |
| <b>NOTES</b>   | Ratchet version   | Non-Ratchet version   | Hot-forged, no snag nose  | DISCONTINUED?   |   |   |
| <b>WEBSITE</b>   | harkenindustrial.com  | harkenindustrial.com  | kailasgear.com  | lacd.de   | petzl.com   | petzl.com   |

# CARABINER PULLEYS

|                   |  |  |  |  |  |                                  | expansion column |
|--|--|--|--|--|--|----------------------------------|------------------|
| DMM  |  | DMM  |  | EDELRID                                    |  | EDELRID                          |                  |
| Revolver Rig Durolok A5841CB   |  | Revolver Rig SG Dbl A5822CB                |  | Revolver Rig LockSafe Dbl A5872CB          |  | Revolver Rig Durolok Dbl A5842CB |                  |
| Axiom Slider 54640   |  | Axiom 54640                                |  |  |  |                                  |                  |
| £87 \$110 €96  | £87 \$110 €96                              | £90 \$118 €122                             | £95 \$120 €111                             | £42 \$54 €50                               | £36 \$50 €43                               |                                  |                  |
| 213g<br>7.5oz  | 214g<br>7.5oz                              | 219g<br>7.7oz                              | 226g<br>8oz                                | 68g<br>2.4oz                               | 66g<br>2.3oz                               |                                  |                  |
| 7kN 1574lbf<br>25kN 5620lbf<br>7kN 1574lbf   | 7kN 1574lbf<br>25kN 5620lbf<br>7kN 1574lbf | 7kN 1574lbf<br>25kN 5620lbf<br>7kN 1574lbf | 7kN 1574lbf<br>25kN 5620lbf<br>7kN 1574lbf | 8kN 1798lbf<br>22kN 4945lbf<br>7kN 1574lbf | 8kN 1798lbf<br>22kN 4945lbf<br>7kN 1574lbf |                                  |                  |
| 13mm ½"  | 8mm ⅝"                                     | 8mm ⅝"                                     | 8mm ⅝"                                     | 13mm ½"                                    | 13mm ½"                                    |                                  |                  |
| 161 x 76mm<br>6.3 x 3"   | 161 x 76mm<br>6.3 x 3"                     | 161 x 76mm<br>6.3 x 3"                     | 161 x 76mm<br>6.3 x 3"                     | 125 x 65mm<br>4.9 x 2.6"                   | 125 x 65mm<br>4.9 x 2.6"                   |                                  |                  |
| 24mm 0.95"<br>20mm 0.8"  | 2x 25.7mm 1"<br>23mm 0.9"                  | 2x 25.7mm 1"<br>22mm 0.87"                 | 2x 25.7mm 1"<br>20mm 0.87"                 | 12mm 0.47"<br>15mm 0.6"                    | 12mm 0.47"<br>15mm 0.6"                    |                                  |                  |
| n/a  | n/a  | n/a  | n/a  | 86% 4kN                                    | 86% 4kN                                    |                                  |                  |
| ■  | ■  | ■  | ■  | ■  | ■  |                                  |                  |
| ■ ■  | ■ ■  | ■ ■  | ■ ■  | ■  | --   |                                  |                  |
| Alu Alu<br>CE ■ ■  | Alu Alu<br>CE ■ ■                          | Alu Alu<br>CE ■ ■                          | Alu Alu<br>CE ■ ■                          | Alu Alu<br>CE ■                            | Alu Alu<br>CE ■                            |                                  |                  |
| ■  | ■  | ■  | ■  | -  | ■  |                                  |                  |
| dmmwales.com   | dmmwales.com                               | dmmwales.com                               | dmmwales.com                               | edelrid.com                                | edelrid.com                                |                                  |                  |
|       |  |  |  |  |  |                                  | expansion column |
| PETZL  |  | PETZL                                      |  | RNR  |  | SPIDER SLACKLINES                |                  |
| TREERUNNER   |  |  |  |  |  |                                  |                  |
| RollClip Z SL P75SL  |  | RollClip Z Triact P75TL                    |  | Onyx RC049                                 |  | Rollex Highline SS 2P            |                  |
| Spin 64055   |  |  |  |  |  |                                  |                  |
| £36 \$48 €45   | £40 \$52 €46                               | £40 \$39 €46                               | £43 \$55 €50/75                            | £47 \$58 €53                               | £31 \$39 €35                               |                                  |                  |
| 105g<br>3.7oz  | 110g<br>3.9oz                              | 139g<br>4.9oz                              | 129g<br>4.6oz                              | 139g<br>4.9oz                              | 132g<br>4.7oz                              |                                  |                  |
| 8kN 1798lbf<br>20kN 4496lbf<br>7kN 1574lbf   | 8kN 1798lbf<br>20kN 4496lbf<br>7kN 1574lbf | 8kN 1798lbf<br>20kN 4496lbf<br>7kN 1574lbf | 8kN 1798lbf<br>20kN 4496lbf<br>7kN 1574lbf | 8kN 1798lbf<br>20kN 4496lbf<br>7kN 1574lbf | 7kN 1574lbf<br>20kN 4496lbf<br>8kN 1798lbf |                                  |                  |
| 7-13mm ⅜-½"  | 7-13mm ⅜-½"                                | 7-13mm ⅜-½"                                | web24-26mm0.9-1"                           | web24-26mm0.9-1"                           | 7-13mm ⅜-½"                                |                                  |                  |
| 109 x 60mm<br>4.3 x 2.4"   | 109 x 60mm<br>4.3 x 2.4"                   | n/a  | 130 x 67mm<br>5.1 x 2.6"                   | 130 x 67mm<br>5.1 x 2.6"                   | 130x73mm<br>5.1 x 2.9"                     |                                  |                  |
| 18mm 0.7"<br>21mm 0.825"   | 18mm 0.7"<br>20mm 0.8"                     | ?mm<br>?mm                                 | 27mm/1.1"<br>31mm/1.2"                     | 25mm/1"<br>24mm/1"                         | 21mm/1"<br>24mm/1"                         |                                  |                  |
| 85% 4kN  | 85% 4kN                                    | n/a 4kN                                    | n/a 4kN                                    | n/a 4kN                                    | n/a n/a                                    |                                  |                  |
| ■  | ■  | ■  | ■  | ■  | ■  |                                  |                  |
| □  | □  | --   | --   | --   | --   |                                  |                  |
| Alu Alu<br>CE ■ ■ ■ ■ EAC UKCA   | Alu Alu<br>CE ■ ■ ■ ■ EAC UKCA             | Alu Alu<br>-                               | Alu Alu<br>CE ■                            | Alu Alu<br>CE ■                            | Alu Alu<br>CE ■                            |                                  |                  |
| ■  | ■  | ■  | ■ ■ ■ ■                                    | ■ ■ ■ ■                                    | ■ ■ ■ ■                                    |                                  |                  |
| petzl.com  | petzl.com                                  | rocknrescue.com                            | spider-slacklines.com                      | spider-slacklines.com                      | grube.eu                                   |                                  |                  |

# PROGRESS CAPTURE PULLEYS



**P**rogress capture is a term uniquely related to hauling and effectively function ropes - allowing direction around then traps the rope that little or no complete or during the upwards and also ensure be released in an that require a arborist arsenal seen some favour cut branch or trunk. systems are nearly are in wilderness are most often in vertical orientation. The PCP or PCD (Device) can be used as part of a pulley system or by itself for material handling to hold load as you take in on the rope Pull on the rope and raise or pull in on your load, release and it is arrested by the cam. In more complex systems the PCP is incorporated into a mechanical advantage (MA) system offering upwards of 3:1 and most often 4 or 5:1 depending on how it is rigged with the PCP best incorporated at or near the first entry or last exit strand from the hauler. Functionally these would equally operate as belay devices keeping rope tight to the load during raising were it not for the fact that most use toothed cams and ARE NOT DESIGNED TO BE SHOCK LOADED as might occur during belay and definitely does occur when dropping a branch or section of timber. Nevertheless, one or two will function in both PCP and Belay modes because the camming action is more passive than the usual toothed cam and is mitigated by the gripping action of the sheave. CMC's new *Capto* (pic top) for instance has a faceted cam to limit force applied to the rope but, despite the name and looking the part with a pulley sheave and cam, it's not actually intended to be a full time 1:1

PCP but instead an additional device to increase the MA of your existing system. *Petzl* meanwhile do have full time 1:1 PCPs and have revamped and brought back the *Mini Traxion* and the *Pro Traxion*, the latter as part of their *SPIN* family with a meaty swivel (pic left) The *CMC MPD*, *Harken Clutch*, *ASAP RD2* and *Petzl Maestro* are examples of what are effectively descenders incorporating a pulley sheave/wheel hence their inclusion in this guide and they would function well with an ancillary device like the *Capto* to increase MA and progress-capture (eg. in place of the rope grab as shown at the top of p51). The majority of devices however, are designed to be used in one-direction for hauling such that release of the cam would result in dropping the load unless mitigated by incorporation of a descender or friction bollard, again this isn't the case with the *MPD*, *Clutch*, *RD2* and *Maestro* with their one-way pulley wheel and it's also not the case with one or two other, more conventional designs where the sheave only rotates in one direction like the 'D' version of the *Petzl Spin* swivel pulley.

One type of device we *haven't* included is the integrated load arresters typified by the *Rollgliss 350* (left) and *ISC RALF*. These are very much 'Devices' rather than 'pulleys' and are either part of a pre-rigged system or in *Cresto* and *Rollgliss's* case, are a self-contained unit that effectively functions as a PCD crossed with a capstan winch. The *RALF* and some *Rollgliss* models can be activated and released remotely while the complex capstan style models can deal with very heavy loads extremely well including multiple fall-arrests but are the size and cost of a small car. It's a fine line, but while we haven't included the *Ralf* we have included *CMC's CSR2* because it is anatomically similar to a pulley even though you could argue they function in a similar way to *Ralf* and the *350* with remote release/lock option. Since we first wrote this guide our three groups of product has expanded to 4 groups with the inclusion of the heaviest and most expensive options- double sheave PCPs:

## 1. WALLHAULERS

The first type we shall call **WALLHAULERS** after the original *Rock Exotica* model, later purchased by *Petzl* and subsequently discontinued when they developed their *PROTRAXION* range. The apparent reintroduction of the *Wallhauler* may be uncertified/unlicensed copies. In their simplest form these are a pulley bolted onto a basic hand ascender as seen in the *Kong Block Roll* and *Xindi/Reico* model by *Rock Empire*. These later evolved into a one piece housing typified by the *ISC model on the right*. *SRTE's models were swallowed up and discarded when they were bought by DB-Sala/Rollgliss* and then *3M* as the largest company in our sector but with by far the worse website and marketing! ). The ascender is part of the same single body of metal as the pulley and most offer double as well as single sheave options.

# PROGRESS CAPTURE PULLEYS

Consequently these are by far the largest and heaviest models but there are some diminutive options like the *CMi Micro*. Most, in fact all in this list, incorporate a double becket enabling them to be used as part of a larger MA system and some are only available as part of a full rope kit. Many come with cord (or you can add cord) for remote removal of the cam from the rope where the pulley system is rigged out of reach - this is common in rescue but not the norm in arb work.

## 2. INTEGRATED 'COMPACT' PCD

2) Next came the second group, we're calling *integrated compact* models. At the smallest end of things are the *Petzl Micro-Traxion* (above), *Skylotec/CT RollIN'lock*, *Edelrid Spoc*, *Kong Duck* (left) and the second newest model *CAMP's Turbolock* (left) where the 'pulley' and cam are effectively together in the same side cheeks or side plates as distinct from *Wallhaulers* which are two separate components even if they are con-joined. At the larger end is the *SMC HX* (right) and the *Petzl Pro Traxion* at around 300g they're a fraction the weight of a *Wallhauler* or *Descender* but over three times heavier than the *Micro-Traxion* (NB: the *Mini-Traxion* has been updated and reintroduced). While these are not three times stronger they are more geared to heavy duty and long-hauling and in fact the *Pro Traxion* has been overtaken in the 'humongous' category by its cousin the *Petzl Twin Release* which we'll discuss shortly. As pioneers of this genre *Petzl's* term '*Traxion*' is often used to describe all such devices ala '*Hoover*'. *SMC's Advance Tech HX* (right) is a slick, purpose designed progress capture pulley with double sheave and a single cam. It has a double becket meaning it too can be incorporated into an MA system but it is reasonably compact at 129mm/5" tall and is fully rescue-capable. Although they've now been out a few years both the *Traxions* and *HX* deserve praise as designs that weren't simply variations on a theme as most of the '*Wall-Hauler*' style are. Also new since the original guide are a couple of 'plumpers', *Petzl's* unimaginatively named *Twin-Release* and *Anpens'* even less imaginatively named '*Aluminum Universal Brake Double Pulley for rescue and high work*', (pic right) no really that is the product name - needless to say we've shortened it.

## 3. DESCENDER PCDs

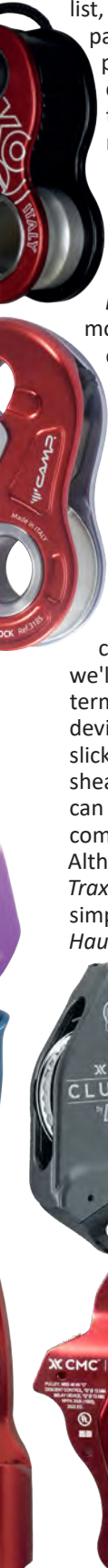
We originally listed these as *oddities* but with *CMC/Harken's Clutch* (left) and *ASAT's RD2* (right) joining *CMC's* original *MPD* (below-left) and *Petzl's Maestro* (shown above right in the hauling mode they can all perform) they have coalesced into this separate grouping as heavy-duty descenders /lowering devices with an integral rotating or partially rotating pulley sheave. None can be described as compact by any stretch of the imagination but they all function as heavy-duty progress capture pulleys as well as belay and lowering

devices. Until the *Twin-Release*, these were unique in being truly two-way in operation but the price you pay is that they are the heaviest and most expensive devices. Pulley efficiency on the descender-style devices, while very good for a hybrid, is definitely lower than *Petzl's* true pulley derivative the *Twin-Release*.

## 4. ODDITIES.

The final group of oddities starts with the aforementioned *Petzl Twin Release* (right) which we're starting a petition to rename to the *Walrus*. We call it that because it's big, flabby and unwieldy in the hand but in its true environment, is as sleek as a sea-lion....ish. Despite looking like the car that Homer Simpson designed, the function of this is a thing of wonderment - it's a swivelling, double sheave pulley with locking swing cheeks that not only has a camming action to hold a rope, it even has a fold-out handle to enable you to lower a heavy load and is especially efficient within a 4-5:1 system with a second pulley below. Close but with no lowering handle is *Anpens' Aluminum Universal Brake Double Pulley for rescue and high work* (where's that petition when you need it). This uses a swivel and a fixed becket with a toothed cam on one of the two sheaves. Next are the system components like *CMC's CSR<sup>2</sup>* which are intended to be the progress capture element of a two-pulleys system (as indeed is the *Twin-Release* if it didn't have a lowering handle). *Rock Exotica's Aztek* (right) is also normally part of a two-pulley system but we've included it because it is equipped with an anchor point specifically for a custom built prusik acting as the integrated progress capture via a customised prusik. There may well be other system components not sold separately. Incidentally, the *DMM RPM* (right) that we originally mentioned as being similar in function to the *Aztek* has been discontinued. This was a slick piece of kit, probably too slick for the size of market.

Also in this final grouping of 'oddities' were the Russian models which seem to have evolved in splendid isolation with some truly unique designs and names. These are primarily domestic to Russia and with their international pariah status requiring they not be included, that won't change any time soon but they're certainly interesting. The *Traction-Shackle* (right) for instance, uses a bollard for



the top attachment that allows direct attachment to a rigging plate or to a rope/sling stitched eye, bypassing the need for a carabiner something that the latest SMC APEX also does (albeit without being a PCD). These are all interesting ideas. There are a number of models in this list that can only be used for non-live loads so make sure you check the HUMAN-CAPABLE column if you are using your PCD for anything other than load-handling. Our go-to kit man Paul Witheridge, of several Mountain, Cave and Mines Rescue organisations has some useful pointers for selecting a PCP:

As you say [in your Tables key], users must never confuse the WLL of the pulley with the WLL when used as a progress capture device. The WLL when used with the cam actuated is always lower, sometimes much lower, because the applied load is attempting to drag the rope through the cam. There have been some nasty outcomes when this has been overlooked or misinterpreted.

- **Contrary to popular belief, positioning the cam contact face at the apex of the pulley is not automatically a bad thing.** People think that this is the area of highest stress on the rope because it is 'loaded on both sides'. In fact, the 'load' is actually shared rather than being on one strand (think of the pulley effect and mechanical advantage). Further, the rope at this point is under compression and the downward forces increase the frictional contact on the pulley face. Rope is more resilient under compression than in tension.

- **Good designs of swing cheek pulley or progress capture device use the forces applied to the attachment eye to create a mechanical lock, preventing the plate from moving when in use.** This may be by the side plate moving and the central axle being locked in a groove within that plate. For the highest efficiency, go for the largest diameter pulley wheel and a bearing with the lowest coefficient of friction. Pulleys are like spanners, the longer the distance from the centre (bolt) to the outside edge (hand) the better – it's a torque thing.

- **In general basic solid bushes although coping well with slow rotation speeds and high loads are nowhere near as efficient as ball raced bearings.** Single race bearings are good for medium speeds and loads, twin raced bearings cope with higher loads but can overheat at higher speeds (less space for lubricant and cooling air = quicker heat generation)

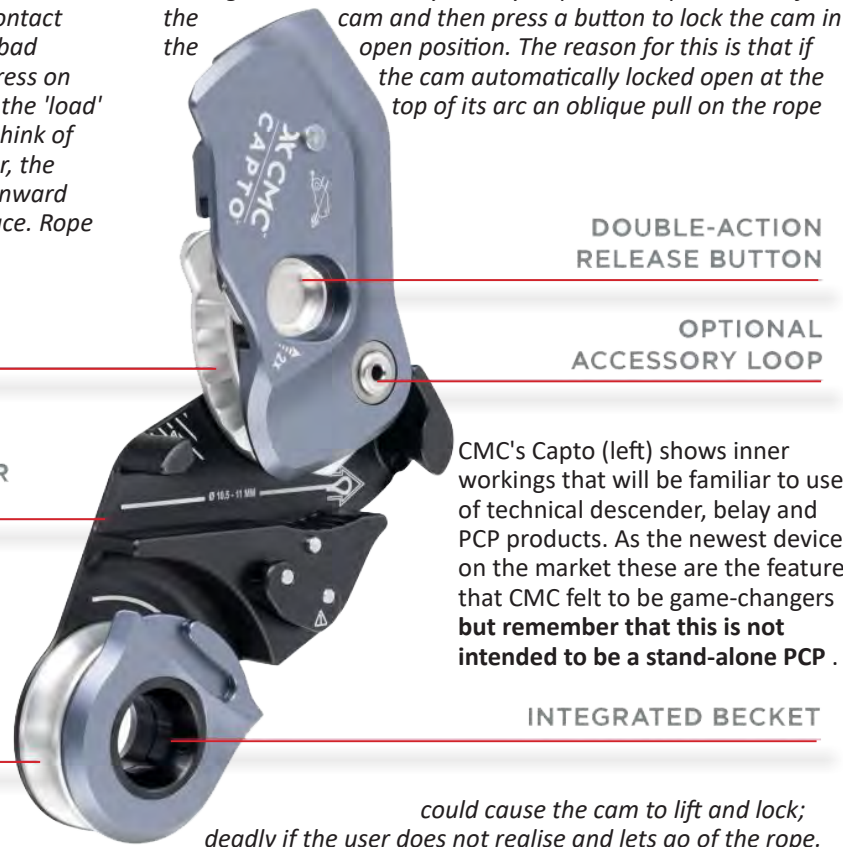
- **Physically small progress capture pulleys may not be as efficient, but they can be very versatile; the Swiss army knife of access equipment.** They can be a pulley, a hand ascender, a chest ascender, prevent load roll back on an inclined rope, used for simple kit bag hauling or contained in a mechanical advantage 'jigger' pulley system. Technicians have developed techniques for breaking into a tight line that rely on such devices (Spanish balancer technique)

- **NEVER use a progress capture pulley for life lining / self-lining / belaying unless the manufacturer specifically approves the use.** Although very commonly taught because of the ease of use, the risk of slack in the system and a subsequent dynamic fall onto the toothed cam can be sufficient to catastrophically damage the rope.

- **Some models of progress capture pulley require the side plate to be secured by fitting of a connector into the becket eye. Failure to do this can cause the side plate to swing open, releasing the rope. IF THE PRODUCT INSTRUCTIONS SAYS FIT A CONNECTOR, THEN FIT ONE!**

- **Some products allow the fitting of cam release cords. None of these will release the cam when loaded. All they allow is an unloaded cam to be remotely lifted clear of the rope. Cords are useful when operating out of reach of the device itself but still able to pull on the tail rope.**

- **Top quality designs seem to have unnecessarily fiddly locking mechanisms. They usually require the operator to lift the cam and then press a button to lock the cam in the open position. The reason for this is that if the cam automatically locked open at the top of its arc an oblique pull on the rope**



**FORCE-LIMITING V-GROOVE CAM**

**QUICK ACCESS FOR RAPID RIGGING**

**HIGH-EFFICIENCY PULLEY**

**DOUBLE-ACTION RELEASE BUTTON**

**OPTIONAL ACCESSORY LOOP**

CMC's Capto (left) shows inner workings that will be familiar to users of technical descender, belay and PCP products. As the newest device on the market these are the features that CMC felt to be game-changers **but remember that this is not intended to be a stand-alone PCP**.

could cause the cam to lift and lock; deadly if the user does not realise and lets go of the rope. Check what a product does before deciding to buy.

**INTEGRATED BECKET**

**IN THE FOLLOWING TABLES:.....**

**COST:** as always is rough guide only - it can vary due to exchange rates, taxes etc. Simple **Currency conversions are shown in orange** but do not include import duty, shipping and local taxes so are a very rough guide only.

**PULLEY SHEAVE/TREAD Ø DIAMETER** is the maximum to the outer edge of the wheel or TREAD is the true, inner dimension to the bottom of the curve.

**MBS/MBL as a pulley:** in burnt orange This figure is the minimum combined load that the pulley can withstand before failure. This figure should be halved for the actual load that can be lifted.



# PROGRESS CAPTURE PULLEYS

**MAX WLL of PC Cam** means the Maximum Working Load at the pulley cam interface, ie. when the rope is in arrest or hold mode. In PC mode, this breaking load is frequently defined as the limit of what the rope may withstand before being damaged by the cam. Why use the word 'MAX'? Because the manufacturer guarantees this figure as the minimum that will be achieved with the rope types described, but cannot confirm the device will reliably perform at loads above this figure. For this guide we're more interested in the progress capture capabilities than simply as a pulley. This figure is generally defined as the limit before the applied load overcomes the gripping force of the device and the rope slides through; or the limit before control of the load becomes unmanageable due to forces at the control handle or limits in braking efficiency. For NFPA models that don't technically have an MBS for capture cams, the cam interface requirement becomes relevant and must be at least 280kg for 'G' or 136kg for the lighter 'T' models, in practice this becomes the **WLL (normally quoted in kN as a unit of force rather than kg as a weight for SWL)**. On some products where a descender/belay function is incorporated, the **MBS or MBL as a PC** may also define the maximum load that can be held in a limited dynamic event (FF0.3) where the true applied force is significant. MBL's are a complex area and it is always best to read the manufacturers product instructions thoroughly to make sure that you really understand what your device is capable of.

**SAFE ROPE LOADING** There is no danger of dropping the device because it can remain attached while the rope is inserted

normally via a swing cheek and or hinged gate like the CAMP model above.

**HUMAN HAULING:** The manufacturer states that this device can be used for hauling a live load to the stated limits, not just material handling.

**SWIVEL EYE/BECKET for MA system use:** An attachment eye at one end to incorporate another pulley and create a Mechanical Advantage (MA) system

**ALSO USE AS:**

**PULLEY-only:** The device can be used as a stand-alone pulley by disengaging the cam. Some function well while others will prove cumbersome but can still function as a pulley.

**ASCENDER-only:** The device can be used as a stand-alone ascender - usually just the smaller models like the *Duck* and *RollnLock* shown as a solid black square ■. Those with an outline CIRCLE meaning OK but not ideal, ○ ○ ○ may require creative use (and in some cases only as a last resort) but still possible. The multi-role descenders for instance can all function as a pull-through ascender but it's cumbersome.

**STANDARDS:** NFPA is the US Fire-Rescue standard while ASTM covers industrial use (including arboriculture and forestry). In Europe there are at least two different functional requirements here - a standard for the **Pulley (EN 12278)** and one for the cam or **Ascender element (EN 567)**. In addition the multi-function devices will be certified as a **Descender (EN341)** mountaineering descenders) or **EN12841** (Rope Adjustment Systems). Those for non-human load adhere to the cover-all **Machinery** directive **2006/42/EC**. All CE devices are required to use EN1891 ropes.



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 USES: ●●● = OK but NOT IDEAL



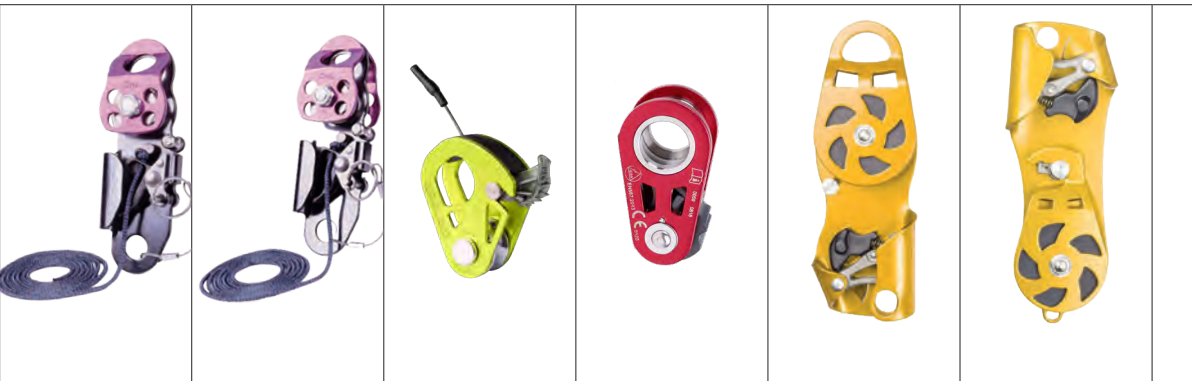
| MANUFACTURER   | ANPEN                                     |   | ANPEN   | ASAT/AT HEIGHT  | BEAL                                | CAMP   | CMC                                  |
|--|---|---|---|---|-------------------------------------|--|--------------------------------------|
| MODEL VARIANT  | Universal PSB U31                         | Universal PDB U32                         | RD2   | Tract Up  | Turbo Lock 3185                     | MPD Sml  |                                      |
| ORIGIN   |   |   |   |   |                                     |  |                                      |
| COST   | £106 \$130* €122                          | £118 \$145* €136                          | £386 \$474 €443                                 | £44 \$53 €46  | £110 \$185 €120                     | £950 \$890 €1083   | £950                                 |
| WEIGHT   | 270g<br>9.5oz                             | 462g<br>1lb                               | 790g<br>1.75lb                                  | 78g<br>2.75oz   | 198g<br>7oz                         | 1200g<br>2.6lb   |                                      |
| WLL MBS of pulley  | 5 28kN<br>1124 6295lbf                    | 5 28kN<br>1124 6295lbf                    | - 21kN<br>- 4720lbf                             | 2 4kN*<br>450 900lbf  | 5 23kN<br>1124 5171lbf              | - 44kN<br>- 9892lbf  |                                      |
| MAX WL MBS of PC Cam                                       | 186kg<br>409lb                            | 186kg<br>409lb                            | 140/200kg*<br>308/440lb                         | 204kg<br>450lb  | 255kg<br>562lb                      | 240kg<br>5.28lb  |                                      |
| MAX ROPE Ø   | 8-13mm<br>5/16-1/2"                       | 8-13mm<br>5/16-1/2"                       | 10.5-11mm<br>13/32-7/16"                        | 8-11mm<br>5/16-7/16"  | 8-13mm<br>5/16-1/2"                 | 11mm<br>7/16"  |                                      |
| SHEAVE/TREAD Ø   | 35/26mm<br>1.4/1"                         | 2x 35/26mm<br>1.4/1"                      | 53mm<br>2.1"                                    | 23mm<br>1"  | 41mm<br>1.6"                        | 50mm<br>2"   |                                      |
| DIMENSIONS<br><small>height/length x width x depth</small> | 115 x 51 x 39mm<br>4.5 x 2 x 1.5"         | 148 x 51 x 66mm<br>5.8 x 2 x 2.6"         | 160 x 140 x 60mm<br>6.3 x 5.5 x 2.4"            | 65x35mm<br>2.6x1.4"   | 106 x 58 x 27mm<br>4.2 x 2.3 x 1.1" | 190 x 140 x 84mm<br>7.4 x 5.5 x 3.3"   | 190 x 140 x 84mm<br>7.4 x 5.5 x 3.3" |
| BODY MATERIAL  | Alu                                       | Alu                                       | Alu   | Alu   | Alu                                 | Alu  | Alu                                  |
| SHEAVE MATERIAL  | Alu                                       | Alu                                       | Alu   | Alu   | Alu                                 | Alu  | Alu                                  |
| AXLE MATERIAL  | Stainless Steel                           | Stainless Steel                           | Stainless Steel                                 | Stainless Steel   | Stainless Steel                     | Stainless Steel  | Stainless Steel                      |
| CAM MATERIAL   | Steel                                     | Steel                                     | Faceted Cam                                     | Stainless Steel   | Stainless Steel                     | Faceted Sheave   | Faceted Sheave                       |
| PULLEY EFFICIENCY  | n/a                                       | n/a                                       | 88%   | n/a   | 95%                                 | n/a  | n/a                                  |
| MAIN EYE Ø   | 22mm<br>0.86"                             | 22mm<br>0.86"                             | 12mm<br>1/2"                                    | 19mm<br>0.75"   | 19mm<br>0.75"                       | 20mm<br>0.8"   | 20mm<br>0.8"                         |
| SECONDARY EYE Ø  | -   | 22mm<br>0.86"                             | 13mm<br>1/2"                                    | -   | 21mm<br>0.8"                        | 18mm<br>0.8"   | 18mm<br>0.8"                         |
| BEARING/BUSHING  | ■   | ■   | ■   | ■   | ■                                   | ■  | ■                                    |
| SWING CHEEK  | ■   | ■   | ■   | ■   | ■                                   | ■  | ■                                    |
| SAFE ROPE-LOADING  | -   | -   | ■   | -   | ■                                   | ■  | ■                                    |
| HUMAN-HAULING  | ■   | ■   | ■   | ■   | ■                                   | ■  | ■                                    |
| SWIVEL EYE BECKET  | ■   | ■ ■                                       | ■   | ■   | ■*                                  | ■  | ■                                    |
| ALSO USE as  | ■   | ■   | ● ● ●   | ■   | ■                                   | ● ● ●  | ● ● ●                                |
| STANDARDS: CE: PULLEY                                      | CE  | CE  | CE  | CE  | UIAA                                | NFPA*  | NFPA*                                |
| CE: ASCENDER ADJUST/                                       |   |   |   |   | CE                                  | CE CE CE**   | CE CE CE**                           |
| DESCENDER MACHINERY  |   |   |   |   |                                     |  |                                      |
| OTHER COLOURS  | -   | -   | ■   |   | ■                                   |  |                                      |
| NOTES  | *FOB China -Excludes shipping/import duty | *FOB China -Excludes shipping/import duty | *200kg under last resort rescue conditions only | *will also take flat webbing<br>* Load figures are with the cam engaged | *                                   | *11mm Certified as 'G' in 'T' in lowering/Belaying<br>**CE version not certified |                                      |
| WEBSITE  | en.anpen.com                              | en.anpen.com                              | asatsafe.com                                    | beal-planet.com   | camp.it                             | cmcpro.com   | cmcpro.com                           |

# PROGRESS CAPTURE PULLEYS



















| CMC   | CMC/HARKEN  | CMC/HARKEN  | CMC   | CMC  | CMC   | CMI   | CMI  |
|---|---|---|---|--|---|---|--|
| MPD Lg  | Clutch 11mm   | Clutch 13mm   | CSR <sup>2</sup>  | Capto 11   | Capto 13  | Uplift NFPA   | Lock Pulley  |
| -   | 335011  | 335013  | 300343  | 336011   | 336013  | 2940  | 2940   |
|   |   |   |   |  |   |   |  |
| \$890 €1083                                     | £720 \$750 €825   | £720 \$750 €825   | £561 \$689 €643   | £296 \$359 €341  | £296 \$359 €341   | £342 \$420 €392                                     | £161 \$200 €185  |
| 1200g<br>2.6lb                                  | 836g<br>1.84lb  | 816g<br>1.8lb   | 1100g<br>2.5lb  | 513g<br>1.13lb   | 508g<br>1.12lb  | 1200g<br>2.6lb                                      | 155g<br>2.6lb  |
| - 44kN<br>- 9892lbf                             | - 40kN<br>- 8992lbf   | - 40kN<br>- 8992lbf   | - 40kN<br>- 8992lbf   | - 36kN<br>- 8093lbf  | - 36kN<br>- 8093lbf   | 5.4 53kN<br>1200 12000lbf                           | - 8kN<br>- 1800lbf   |
| 280kg<br>617lb                                  | 272kg<br>600lb  | 272kg<br>600lb  | -<br>-  | *  | *   | 199kg<br>440lb                                      | 163kg<br>360lb   |
| 13mm<br>½"                                      | 10.5-11mm<br>⅞"   | 12.5-13mm<br>½"   | 11-13mm<br>⅞-½"   | 10.5-11mm<br>⅞"  | 12.5-13mm<br>½"   | 10-13mm<br>⅜-½"                                     | ≤13mm<br>≤½"   |
| 50mm<br>2"                                      | 50mm<br>2"  | 50mm<br>2"  | 2x 57mm*<br>2x 2.25"  | 50/45mm<br>2/1.77"   | 50/45mm<br>2/1.77"  | 2x 75/56mm<br>2x 3/2.2"                             | 38/25mm<br>1.5/1"  |
| 208 x 140 x 84mm<br>8.2 x 5.5 x 3.3"            | 208 x 112 x 47mm<br>8.2 x 4.4 x 1.9"                        | 208 x 112 x 47mm<br>8.2 x 4.4 x 1.9"                        | 156 x 114 x 84mm<br>6.1 x 4.5 x 3.3"  | 150 x 70 x 31mm<br>5.9 x 2.75 x 1.2"   | 150 x 70 x 31mm<br>5.9 x 2.75 x 1.2"  | 254 x 102 x 62mm<br>10 x 4 2.4"                     | 127 x 76 x 57mm<br>5 x 3 x 2.25"   |
| Alu<br>Alu<br>Stainless Steel<br>Faceted Sheave | Alu<br>Stainless Steel<br>Stainless Steel<br>Faceted Sheave | Alu<br>Stainless Steel<br>Stainless Steel<br>Faceted Sheave | Alu<br>Alu<br>Stainless Steel<br>Faceted Sheave*                                  | Alu<br>Alu<br>Stainless Steel<br>Faceted Sheave  | Alu<br>Alu<br>Stainless Steel<br>Faceted Sheave   | Alu<br>Alu<br>Stainless Steel<br>Steel              | Alu<br>Alu<br>Stainless Steel<br>Steel   |
| n/a   | n/a   | n/a   | n/a   | 91%  | 91%   | 184%  | n/a  |
| 20mm<br>0.8"                                    | 12mm<br>½"  | 12mm<br>½"  | 22mm<br>0.86"   | 3.9mm (for cord)<br>0.15"  | 3.9mm (for cord)<br>0.15"   | 25mm<br>1"  | 22mm<br>0.66"  |
| 18mm<br>0.8"                                    | 13mm<br>½"  | 13mm<br>½"  | -   | 18.4mm<br>0.7"   | 18.4mm<br>0.7"  | 25mm<br>1"  | -  |
| ■   | ■   | ■   | ■   | ■  | ■   | ■   | ■  |
| ■   | -   | -   | -   | ■  | ■   | -   | -  |
| ■   | ■   | ■   | -   | ■  | ■   | -   | ■  |
| ■   | ■   | ■   | ■   | ■  | ■   | ■   | ■  |
| ■   | ■   | ■   | ■   | ■  | ■   | ■   | -  |
| ●   | ●   | ●   | ■   | ■  | ■   | ■   | ■  |
| ■   | ■   | ■   | -   | ■  | ■   | -   | ■  |
| ■   | ■   | ■   | -   | ■  | ■   | -   | -  |
| NFPA<br>CE CE CE                                | ANSI NFPA<br>CE CE CE                                       | ANSI NFPA   | NFPA<br>CE CE CE**  | NFPA<br>CE CE CE   | NFPA  | NFPA*   |  |
|   |   |   |   |  |   |   |  |
| pulley mode but<br>ay mode.<br>in US.           |   |   | *2nd sheave is a deep<br>V-groove locking<br>sheave<br>**CE version not<br>in US. | NOT intended to<br>be a 1:1 PCP<br>*load applied to cam<br>automatically limited<br>but forced tested to<br>11.1kn/2500lbf | NOT intended to<br>be a 1:1 PCP.<br>*load applied to cam<br>automatically limited<br>but forced tested to<br>11.1kn/2500lbf | * exceeds NFPA<br>requirements but not<br>certified | NOT a true PCP -<br>Designed as a quick<br>means of reversal<br>during decent but<br>could be incorporated<br>into a haul system |
| cmcpro.com                                      | cmcpro.com  | cmcpro.com  | cmcpro.com  | cmcpro.com   | cmcpro.com  | cmigearusa.com                                      | cmigearusa.com   |

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 COSTS: Approx in tax. £\$€ shown in burnt orange are currency conversions only.  
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 WT: Device Only  
 STANDARDS: CE = EN 567, CE=Machinery Directive Only  
 PC = Progress Capture.  
 USES: ●●●=OK but NOT IDEAL



| MANUFACTURER              | CMI                                  | CMI                                  | EDELRID                            | EDELWEISS   | HEIGHTEC  | HEIGHTEC   |                                     |
|---------------------------|--------------------------------------|--------------------------------------|------------------------------------|---|---|--|-------------------------------------|
| MODEL VARIANT             | Micro Hauler<br>Micro S              | Micro Hauler DbI<br>Micro D          | Spoc<br>737430001380               | Micro B   | Cyclone<br>P201   | Hurricane<br>D431                                |                                     |
| ORIGIN                    |                                      |                                      |                                    |   |   |  |                                     |
| COST                      | £172 \$211 €197                      | £203 \$249 €233                      | £65 \$75 €70                       | £44 \$53 €46  | £151 \$186 €174   | £155 \$191 €178                                  | £15                                 |
| WEIGHT                    | 204g<br>7.2oz                        | 250g<br>8.8oz                        | 60g<br>2.1oz                       | 78g<br>2.75oz   | 340g<br>12oz  | 330g<br>11.6oz                                   |                                     |
| WLL MBS of pulley         | 6.2 31.1kN<br>1400 7000lbf           | 6.2 31.1kN<br>1400 7000lbf           | - 15kN<br>- 3372lbf                | 2 4kN*<br>450 900lbf  | 1 -kN*<br>225 -lbf  | 1 -kN*<br>225 -lbf                               |                                     |
| MAX WL MBS of PC Cam      | 318kg<br>700lb                       | 318kg<br>700lb                       | 4kN*<br>900lb                      | 204kg<br>450lb  | 100kg<br>200lb  | 204kg<br>450lb                                   |                                     |
| ROPE Ø                    | ≤13mm<br>≤½"                         | ≤13mm<br>≤½"                         | 7-11mm<br>¾-¾"                     | 8-11mm*<br>⅝-¾"   | 10.5-11mm<br>⅞"   | 10.5-11mm<br>⅞"                                  |                                     |
| SHEAVE/TREAD Ø            | 32mm<br>1.25"                        | 2x 32mm<br>2x 1.25"                  | 24/20mm<br>0.9/0.8"                | 23mm<br>1"  | 50mm<br>2"  | 50mm<br>2"                                       |                                     |
| DIMENSIONS height x width | 157 x 55 x 40mm<br>6.25 x 2.2 x 1.6" | 157 x 55 x 60mm<br>6.25 x 2.2 x 2.4" | 62 x 46 x 24mm<br>2.4 x 1.8 x 0.9" | 65x35mm<br>2.6x1.4"   | 210 x 80 x 30mm<br>8.3 x 3.2 x 1.2"   | 200 x 80 x 30mm<br>7.9 x 3.2 x 1.2"              | 200 x 80 x 30mm<br>7.9 x 3.2 x 1.2" |
| BODY MATERIAL             | Alu                                  | Alu                                  | Alu                                | Alu   | Alu   | Alu  | St                                  |
| SHEAVE MATERIAL           | Alu                                  | Alu                                  | Alu                                | Alu   | Nylon   | Nylon  | St                                  |
| AXLE MATERIAL             | Stainless Steel                      | Stainless Steel                      | Stainless Steel                    | Stainless Steel   | Stainless Steel   | Stainless Steel                                  | St                                  |
| CAM MATERIAL              | Steel                                | Steel                                | Stainless Steel                    | Stainless Steel   | Steel   | Steel  |                                     |
| PULLEY EFFICIENCY         | 84.1%                                | 84.1%                                | 92%                                | n/a   | n/a   | n/a  |                                     |
| TOP EYE Ø                 | 22mm<br>0.9"                         | 22mm<br>0.9"                         | 20mm<br>0.8"                       | 19mm<br>0.75"   | 0mm<br>0"   | 14mm<br>0.55"                                    |                                     |
| LOWER EYE Ø               | 16mm<br>0.6"                         | 16mm<br>0.6"                         | -                                  | -   | 14mm<br>0.55"   | 8mm<br>0.3"                                      |                                     |
| BEARING/BUSHING           | ■                                    | ■                                    | ■                                  | ■   | ■   | ■  |                                     |
| SWING CHEEK               | -                                    | -                                    | -                                  | ■   | ■   | ■  |                                     |
| SAFE ROPE LOADING         | -                                    | -                                    | -                                  | -   | -   | -  |                                     |
| HUMAN-HAULING             | ■                                    | ■                                    | ■                                  | ■   | NO  | NO   |                                     |
| SWIVEL EYE BECKET         | ■                                    | ■                                    | --                                 |   | ●   | ■  |                                     |
| USE as                    | ■                                    | ■                                    | ■                                  | ■   |   |  |                                     |
| PULLEY                    | ■                                    | ■                                    | ■                                  | ■   |   |  |                                     |
| ASCENDER                  | -                                    | -                                    | ■                                  | ■   |   |  |                                     |
| DESCENDER                 | -                                    | -                                    | -                                  | -   |   |  |                                     |
| STANDARDS                 |                                      |                                      |                                    |   |   |  |                                     |
| CE: PULLEY                | ANSI                                 | ANSI                                 | CE                                 | CE  | UKCA  | UKCA   |                                     |
| ASCENDER                  | CE                                   | CE                                   |                                    |   | CE  | CE   |                                     |
| DESCENDER                 |                                      |                                      |                                    |   |   |  |                                     |
| MACHINERY                 |                                      |                                      |                                    |   |   |  |                                     |
| OTHER COLOURS             |                                      |                                      |                                    |   |   |  |                                     |
| NOTES                     |                                      |                                      | * WLL with cam engaged             | *will also take flat webbing<br>* Load figures are with the cam engaged | * Material Handling Only, <b>not for human-hauling</b> . Stainless version discontinued | * Material Handling Only, not for human-hauling. |                                     |
| WEBSITE                   | cmigearusa.com                       | cmigearusa.com                       | edelrid.com                        | edelweiss-ropes.com   | heightec.com  | heightec.com                                     |                                     |

# PROGRESS CAPTURE PULLEYS

|   |   |  |   |   |  |  |  |
|---|---|--|---|---|--|--|--|
|  |        |                           |  |  |              |             |   |
| <b>HEIGHTEC</b>   | <b>HEIGHTEC</b>   | <b>HEIGHTEC</b>  | <b>ISC</b>  | <b>ISC</b>  | <b>ISC</b>   | <b>ISC</b>   | <b>KONG</b>  |
| <b>Hurricane Pro</b><br>D43   | <b>Tornado</b><br>D701  | <b>Twister</b><br>D71  | <b>PCP Single</b><br>RP702  | <b>PCP Double</b><br>RP703  | <b>PCP Single 1-Way</b><br>RP704   | <b>PCP Double 1-Way</b><br>RP705   | <b>Duck</b><br>3109  |
|  |        |                           |  |  |              |             |   |
| £55 <b>\$191</b> €178   | £245 <b>\$302</b> €282  | £45 <b>\$56</b> €52  | £158 <b>\$194</b> €180  | £198 <b>\$246</b> €200  | £176 <b>\$220</b> €205   | £192 <b>\$240</b> €220   | £50 <b>\$75</b> €58  |
| 330g<br>11.6oz  | 400g<br>14.1oz  | 300g<br>10.6oz   | 663g<br>1.5lb   | 905g<br>2lb   | 672g<br>1.5lb  | 905g<br>2lb  | 70g<br>2.5oz   |
| 1 -kN*<br>225 -lbf  | 0.5 -kN<br>112 -lbf   | 0.1 5.9kN<br>22 1323lbf  | - 40kN<br>- 8992lbf   | - 40kN<br>- 8992lbf   | - 30kN<br>- 6744lbf  | - 30kN<br>- 6744lbf  | 2.5 4kN*<br>562 880lbf   |
| 204kg<br>450lb  | 50kg<br>110lb   | 10kg<br>22lb   | 800kg<br>17631lb  | 800kg<br>17631lb  | 600kg<br>1322lb  | 600kg<br>1322lb  | 400kg<br>880lb   |
| 10.5-11mm<br>3/16"  | 10.5-12mm<br>3/16-15/32"  | 10.5-12mm<br>3/16-15/32"   | 10-13mm<br>3/8-1/2"   | 10-13mm<br>3/8-1/2"   | 10-13mm<br>3/8-1/2"  | 10-13mm<br>3/8-1/2"  | 8-13mm*<br>5/16-1/2"   |
| 50mm<br>2"  | 54mm<br>2.1"  | 40mm<br>1.6"   | 67mm<br>2.6"  | 2x 67mm<br>2x 2.6"  | 67/55mm<br>2.6/2.16"   | 2x 67/55mm<br>2x 2.6/2.16"   | 25mm<br>1"   |
| 130 x 80 x 30mm<br>5.1 x 3.2 x 1.2"   | 130 x 145mm<br>5.1 x 5.7"   | 110 x 80mm<br>4.3 x 3.2"   | 235 x 82 x 37mm<br>9.25 x 3.25 x 1.4"   | 235 x 82 x 63mm<br>9.25 x 3.25 x 2.5"   | 235 x 82 x 37mm<br>9.25 x 3.25 x 1.4"  | 235 x 82 x 63mm<br>9.25 x 3.25 x 2.5"  | 63x31mm<br>2.5x1.2   |
| Stainless Steel<br>Nylon<br>Stainless Steel<br>Steel                            | Alu<br>Nylon<br>Stainless Steel<br>No Toothed Cam                                       | Alu<br>Alu Alloy<br>Stainless Steel<br>No Toothed Cam  | Alu<br>Alu<br>Stainless Steel<br>Stainless Steel                                  | Alu<br>Stainless Steel<br>Stainless Steel<br>Stainless Steel                      | Alu<br>Alu<br>Stainless Steel<br>Stainless Steel   | Alu<br>Stainless Steel<br>Stainless Steel<br>Stainless Steel                                   | Alu<br>Alu<br>Stainless Steel<br>Steel   |
| n/a   | n/a   | n/a  | n/a   | n/a   | n/a  | n/a  | n/a  |
| 14mm<br>0.55"   | 12mm<br>0.5"  | 15mm<br>0.6"   | 30mm<br>1.2"  | 30mm<br>1.2"  | 30mm<br>1.2"   | 30mm<br>1.2"   | 18mm<br>0.7"   |
| 8mm<br>0.3"   | -   | -  | 20mm<br>08"   | 20mm<br>08"   | 20mm<br>08"  | 20mm<br>08"  | -  |
| ■   | ■   | ■  | ■   | ■   | ■  | ■  | ■  |
| ■   | ■   | ■  | ■   | ■   | ■  | ■  | ■  |
| -   | -   | -  | -   | -   | -  | -  | -  |
| ■   | NO  | NO   | ■   | ■   | ■  | ■  | ■  |
| ■   | --  | --   | ■   | ■   | ■  | ■  | -  |
| -   | -   | -  | ■   | ■   | ■  | ■  | ■  |
| -   | -   | -  | ■   | ■   | ■  | ■  | ■  |
| UKCA<br>CE  | UKCA<br>CE  | UKCA<br>CE   | UKCA NFPA ANSI<br>CE CE   | UKCA NFPA ANSI<br>CE CE   | UKCA NFPA ANSI<br>CE CE  | UKCA NFPA ANSI<br>CE CE  | CE   |
| heightec.com  | heightec.com  | heightec.com   | iscwales.com  | iscwales.com  | iscwales.com   | iscwales.com   | kong.it  |
| Can be used for human hauling   | One way sheave for lowering <b>light loads only</b> .<br>Stainless version discontinued | No toothed cam, fixed wheel load controller instead of sheave for lowering of <b>very light loads only</b> |   |   | one-way pulley sheave for increased friction on lowering hence the marginal use for descending | one-way pulley sheave for increased friction on lowering hence the marginal use for descending | * Load figures are with the cam engaged<br>* will also take webbing 10-15mm 3/8-3/4" |

**IMAGES NOT TO SCALE**  
 COSTS: Approx in tax. £€€ shown in burnt orange are currency conversions only.  
 N/A = info Not Available/not given  
 WT: Device Only  
 STANDARDS: CE = EN 567, CE=Machinery Directive Only  
 PC = Progress Capture.  
 USES: ●●●=OK but NOT IDEAL



| MANUFACTURER                            | KONG                             | KONG                             | KONG                                | PETZL                                | PETZL                                | PETZL                              | M  |
|---|----------------------------------|----------------------------------|-------------------------------------|--------------------------------------|--------------------------------------|------------------------------------|----|
| MODEL VARIANT                           | Block Roll<br>81800NO            | Block Roll Dbl<br>81801NO        | Futura MiniBlock<br>944             | Maestro Lg<br>IR0415                 | Maestro Sml<br>-                     | Jag Traxion<br>P51                 | M  |
| ORIGIN                                  |                                  |                                  |                                     |                                      |                                      |                                    |    |
| COST                                    | £108 \$160 €124                  | £145 \$210 €166                  | £130 \$170 €110                     | £504 \$600 €475                      | £504 \$600 €475                      | £106 \$121 €95                     | £  |
| WEIGHT                                  | 550g<br>1.2lb                    | 740g<br>1.6lb                    | 165g<br>0.36lb                      | 1100g<br>2.4lb                       | 1100g<br>2.4lb                       | 145g<br>5.1oz                      |    |
| WLL MBS of pulley                       | - 30kN<br>- 6744lbf              | - 30kN<br>- 6744lbf              | - 24kN<br>- 5395lbf                 | 9 36kN<br>2023 8093lbf               | 9 36kN<br>2023 8093lbf               | 6 16kN<br>1349 3372lbf             | 5  |
| MAX WL MBS of PC Cam                    | 500kg<br>1100lb                  | 500kg<br>1100lb                  | 400kg<br>880lb                      | 280kg<br>617lb                       | 250kg<br>551lb                       | 255kg<br>562lb                     |    |
| ROPE Ø                                  | 8-13mm<br>5/16-1/2"              | 8-13mm<br>5/16-1/2"              | 8-12mm<br>5/16-1/2"                 | 11.5-13mm<br>7/16-1/2"               | 10.5-11.5mm<br>3/8-7/16"             | 8-13mm<br>5/16-1/2"                |    |
| SHEAVE/TREAD Ø                          | 60/50.2mm<br>2.36/2"             | 2x 60/50.2mm<br>2x 2.36/2"       | 35mm<br>1.38"                       | 75mm<br>3"                           | 75mm<br>3"                           | 2x 33/27mm<br>2x 1.3/1"            |    |
| DIMENSIONS height x width               | 280 x 78 x 42mm<br>11 x 3 x 1.6" | 280 x 60 x 54mm<br>11 x 3 x 2.1" | 130 x 48 x 32mm<br>5.1 x 1.9 x 1.3" | 220 x 150 x 85mm<br>8.7 x 5.9 x 3.3" | 220 x 150 x 85mm<br>8.7 x 5.9 x 3.3" | 92 x 54 x 44mm<br>3.6 x 2.1 x 1.7" | 67 |
| BODY MATERIAL                           | Alu                              | Alu                              | Alu                                 | Alu                                  | Alu                                  | Alu                                |    |
| SHEAVE MATERIAL                         | Alu                              | Alu                              | Alu                                 | Stainless Steel                      | Stainless Steel                      | Alu                                |    |
| AXLE MATERIAL                           | Stainless Steel                  | Stainless Steel                  | Stainless Steel                     | Stainless Steel                      | Stainless Steel                      | Stainless Steel                    |    |
| CAM MATERIAL                            | Steel                            | Steel                            | Stainless Steel                     | No Toothed Cam                       | No Toothed Cam                       | Steel                              |    |
| PULLEY EFFICIENCY                       | n/a                              | n/a                              | n/a                                 | 95%                                  | 95%                                  | 91%                                |    |
| TOP EYE Ø                               | 13.5mm<br>0.5"                   | 13.5mm<br>0.5"                   | 15mm<br>0.6"                        | 30mm<br>1.2"                         | 30mm<br>1.2"                         | 20mm<br>0.75"                      |    |
| LOWER EYE Ø                             | 13.5mm<br>0.5"                   | 13.5mm<br>0.5"                   | 15mm<br>0.6"                        | 24mm<br>0.9"                         | 24mm<br>0.9"                         | 20mm<br>0.75"                      |    |
| BEARING/BUSHING                         | ■                                | ■                                | ■                                   | ■                                    | ■                                    | ■                                  |    |
| SWING CHEEK                             | ■                                | ■                                | ■                                   | ■                                    | ■                                    | ■                                  |    |
| SAFE ROPE-LOADING                       | ■                                | ■                                | -                                   | -                                    | -                                    | -                                  |    |
| HUMAN-HAULING                           | ■                                | ■                                | ■                                   | ■                                    | ■                                    | ■                                  |    |
| SWIVEL EYE BECKET                       | ●                                | ●                                | ■                                   | ■                                    | ■                                    | ■                                  |    |
| USE as                                  | ■                                | ■                                | ■                                   | ●                                    | ●                                    | ■                                  |    |
| PULLEY ASCENDER DESCENDER               | -                                | -                                | -                                   | ●                                    | ●                                    | ●                                  |    |
| STANDARDS                               | UIAA                             | UIAA                             | UIAA                                | NFPA-G EAC                           | NFPA-T EAC                           | UKCA NFPA                          |    |
| CE: PULLEY ASCENDER DESCENDER MACHINERY | CE CE                            | CE CE                            | CE CE                               | CE                                   | CE                                   | CE                                 |    |
| OTHER COLOURS                           |                                  |                                  |                                     |                                      |                                      |                                    |    |
| NOTES                                   |                                  |                                  |                                     |                                      |                                      |                                    |    |
| WEBSITE                                 | kong.it                          | kong.it                          | kong.it                             | petzl.com                            | petzl.com                            | petzl.com                          |    |

# PROGRESS CAPTURE PULLEYS



| PETZL                                  | PETZL  | PETZL   | PETZL  | PETZL  | RESCUE TECHNOLOGY                                  | RESCUE TECHNOLOGY  | ROCK EMPIRE                            |
|--|--|---|--|--|--|--|--|
| Micro Traxion P53                      | Mini Traxion P054                                  | Old Pro Traxion P51                                 | 2023 Pro Traxion P055                              | Twin Release 3109                                  | Extractor RP702                                    | Extractor RP703  | Self Blocking Pulley ZWP022            |
|  |  |   |  |  |  |  |  |
| £75 \$95 €85                           | £146 \$120 €110                                    | £130 \$164 €110                                     | £156 \$210 €159                                    | £362 \$440 €410                                    | £158 \$220 €170                                    | £198 \$260 €200  | £68 \$84 €77                           |
| 85g<br>3oz                             | 150g<br>5.3oz                                      | 265g<br>9.4oz                                       | 295g<br>1.76lb                                     | 800g<br>1.76lb                                     | 663g<br>1.5lb                                      | 905g<br>2lb  | 391g<br>13.8oz                         |
| 10kN 15kN<br>25lb 3372lbf              | 5 20kN<br>1125lb 4945lbf                           | 5 22kN<br>1125lb 4945lbf                            | 5 23kN<br>1125 5171lbf                             | 9 36kN<br>2023 8093lbf                             | - 40kN<br>- 8992lbf                                | - 40kN<br>- 8992lbf  | - 25kN<br>- 5620lbf                    |
| 255kg<br>562lb                         | 255 400kg<br>562 880lb                             | 255 400kg<br>562 880lb                              | 280kg<br>617lb                                     | 280kg<br>617lb                                     | 800kg<br>17631lb                                   | 800kg<br>17631lb   | 255 407kg<br>562 899lb                 |
| 8-11mm<br>5/16-3/16"                   | 7-11mm<br>3/32-7/16"                               | 8-13mm<br>5/16-1/2"                                 | 8-13mm<br>5/16-1/2"                                | 8-13mm<br>5/16-1/2"                                | 10-13mm<br>3/8-1/2"                                | 10-13mm<br>3/8-1/2"  | 8-13mm<br>5/16-1/2"                    |
| 33/27mm<br>1.3/1"                      | 32mm<br>1.3"                                       | 46/38mm<br>1.8/1.5"                                 | 46/38mm<br>1.8/1.5"                                | 2x 56 & 46/40 & 38*mm<br>2x 2.2 & 1.8/1.6 & 1.5"   | 67mm<br>2.6"                                       | 2x 67mm<br>2x 2.6"   | 56mm<br>2.2"                           |
| 90 x 53 x 24mm<br>3.6 x 2.1 x 1"       | 90 x 63 x 30mm<br>3.5 x 3.5 x 1.2"                 | 118 x 70 x 35mm<br>4.6 x 2.75 x 1.4"                | 155 x 78 x 37mm<br>6.1 x 3.1 x 1.5"                | 180 x 105 x 77mm<br>7 x 4.1 x 3"                   | 225 x 75 x 37mm<br>8.9 x 3 x 1.4"                  | 235 x 75 x 63mm<br>8.9 x 3 x 2.5"                            | 190 x 75 x 40mm<br>7.5 x 3 x 1.6"      |
| Alu<br>Alu<br>Stainless Steel<br>Steel | Alu<br>Stainless Steel<br>Stainless Steel<br>Steel | Alu<br>Stainless Steel<br>Stainless Steel<br>Steel  | Alu<br>Stainless Steel<br>Stainless Steel<br>Steel | Alu<br>Stainless Steel<br>Stainless Steel<br>Steel | Alu<br>Alu<br>Stainless Steel<br>Stainless Steel   | Alu<br>Stainless Steel<br>Stainless Steel<br>Stainless Steel | Alu<br>Alu<br>Stainless Steel<br>Steel |
| 91%                                    | 93%  | 95%   | 95%  | 95%  | n/a  | n/a  | n/a                                    |
| 20mm<br>0.75"                          | 18mm<br>0.7"                                       | 18mm<br>0.7"  | 26mm<br>1"   | 26mm<br>1"   | 30mm<br>1.2"                                       | 30mm<br>1.2"   | 22mm<br>0.9"                           |
| -                                      | 14mm<br>0.55"                                      | 14mm<br>0.55"                                       | 16mm<br>0.6"                                       | 16mm<br>0.6"                                       | 20mm<br>08"  | 20mm<br>08"  | -                                      |
| ■                                      | ■  | ■   | ■  | ■  | ■  | ■  | ■                                      |
| ■                                      | ■  | ■   | ■  | ■  | ■  | ■  | ■                                      |
| -                                      | ■  | -   | ■  | ■  | -  | -  | -                                      |
| ■                                      | ■  | ■   | ■  | ■  | ■  | ■  | NO                                     |
| -                                      | ■  | ■   | ■ ■  | ■ ■  | ■  | ■  | -                                      |
| ■ ■                                    | ■ ●  | ■ ●   | ■ ●  | ■ ●  | ■  | ■  | ■ ●                                    |
| -                                      | -  | -   | -  | ●  | -  | -  | -                                      |
| UKCA UIAA<br>CE                        | UKCA NFPA-T EAC<br>UIAA CE CE CE                   | UKCA NFPA-T EAC<br>CE CE CE                         | UKCA NFPA-T EAC<br>CE CE CE                        | NFPA-G<br>CE CE CE                                 | UKCA NFPA ANSI<br>CE CE                            | UKCA NFPA ANSI<br>CE CE                                      | CE*                                    |
| ■                                      | ■  | ■   | ■  | ■  |  |  |  |
| Nano Traxion discontinued              |  | DISCONTINUED<br>replaced by new swivel version P055 | Replaces P51                                       |  | Also available with one-way sheave - see ISC RP704 | Also available with one-way sheaves - see ISC RP705          |  |
| petzl.com                              | petzl.com  | petzl.com   | petzl.com  | petzl.com  | rescuetechn1.com                                   | rescuetechn1.com   | rockempire.com                         |



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 STANDARDS: CE = EN 567, CE=Machinery Directive Only  
 PC = Progress Capture.  
 USES: ●●●=OK but NOT IDEAL

| MANUFACTURER                     | ROCK EXOTICA   | ROCK N RESCUE                                 | RSI/YATES                          | RSI/YATES                         | SKEDCO                               | SKEDCO                                 |
|----------------------------------|--|---|------------------------------------|-----------------------------------|--------------------------------------|--|
| <b>MODEL VARIANT</b>             | Aztek P41  | Dbl Camming Pulley RPU001                     | Haul Safe D43                      | Haul Safe Dbl D701                | MicroHauler Dbl SK-710-M             | Rescue Hauler SK710                    |
| <b>ORIGIN</b>                    |  |   |                                    |                                   |                                      |  |
| <b>COST</b>                      | £105 \$127 €121  | £250 \$312 €287                               | £182 \$227 €210                    | £209 \$260 €240                   | £190 \$237 €220                      | £320 \$399 €367                        |
| <b>WEIGHT</b>                    | 210g<br>7.4oz  | 1200g<br>2.6lb                                | 680g<br>1.5lb                      | 725g<br>1.6lb                     | 250g<br>8.8oz                        | 1200g<br>2.6lb                         |
| <b>WLL MBS of pulley</b>         | 9* 36kN<br>2023 8093lbf  | 5.4 53kN<br>1200 12000lbf                     | - 44.5kN<br>- 10000lbf             | - 44.5kN<br>- 10000lbf            | 6.2 31.1kN<br>1400 7000lbf           | 5.4 53kN<br>1200 12000lbf              |
| <b>MAX WL MBS of PC Cam</b>      | 306kg**<br>674lb**   | 199kg<br>440lb                                | 455kg<br>1000lb                    | 455kg<br>1000lb                   | 318kg<br>700lb                       | 199kg<br>440lb                         |
| <b>MAX ROPE Ø</b>                | 8mm<br>5/16"   | ≤13mm<br>≤1/2"                                | 11-13mm<br>7/16-1/2"               | 11-13mm<br>7/16-1/2"              | ≤13mm<br>≤1/2"                       | ≤13mm<br>≤1/2"                         |
| <b>SHEAVE/TREAD Ø</b>            | 2x 36/28mm<br>2x 1.4/1.1"  | 2x 75/56mm<br>2x 3/2.2"                       | 55/45mm<br>2.1/1.8"                | 2x 55/45mm<br>2x 2.1/1.8"         | 2x 32mm<br>2x 1.25"                  | 2x 75/56mm<br>2x 3/2.2"                |
| <b>DIMENSIONS height x width</b> | 104 x 50mm<br>4.1 x 2"   | 267 x 108 x 64mm<br>10.5 x 4.25 x 2.5"        | 227x 78 x 36mm<br>8.9 x 3.5 x 1.4" | 227 x 78 x 78mm<br>8.9 x 3.1 3.1" | 157 x 55 x 60mm<br>6.25 x 2.2 x 2.4" | 267 x 108 x 64mm<br>10.5 x 4.25 x 2.5" |
| <b>BODY MATERIAL</b>             | Alu  | Alu   | Alu                                | Alu                               | Alu                                  | Alu                                    |
| <b>SHEAVE MATERIAL</b>           | Alu  | Alu   | Alu                                | Alu                               | Alu                                  | Alu                                    |
| <b>AXLE MATERIAL</b>             | Stainless Steel  | Stainless Steel                               | Stainless Steel                    | Stainless Steel                   | Stainless Steel                      | Stainless Steel                        |
| <b>CAM MATERIAL</b>              | prusik cord  | Steel   | Steel                              | Steel                             | Steel                                | Steel                                  |
| <b>PULLEY EFFICIENCY</b>         | >90%   | 184%  | n/a                                | n/a                               | 84.1%                                | 184%                                   |
| <b>TOP EYE Ø</b>                 | 24-30mm<br>1-1.2"  | 25mm<br>1"                                    | 22mm<br>0.9"                       | 22mm<br>0.9"                      | 22mm<br>0.9"                         | 25mm<br>1"                             |
| <b>LOWER EYE Ø</b>               | -  | 25mm<br>1"                                    | 20mm<br>0.8"                       | 20mm<br>0.8"                      | 16mm<br>0.6"                         | 25mm<br>1"                             |
| <b>BEARING/BUSHING</b>           | ■  | ■   | ■                                  | ■                                 | ■                                    | ■                                      |
| <b>SWING CHEEK</b>               | -  | -   | ■                                  | ■                                 | -                                    | -                                      |
| <b>SAFE ROPE-LOADING</b>         | -  | -   | -                                  | -                                 | -                                    | -                                      |
| <b>HUMAN-HAULING</b>             | ■  | ■   | ■                                  | ■                                 | ■                                    | ■                                      |
| <b>SWIVEL EYE BECKET</b>         | ■  | ■   | -                                  | -                                 | ■                                    | ■                                      |
| <b>USE as</b>                    | ■  | ■   | ■                                  | ■                                 | ■                                    | ■                                      |
| <b>PULLEY ASCENDER DESCENDER</b> | -<br>-   | -<br>-  | -<br>-                             | -<br>-                            | -<br>-                               | -<br>-                                 |
| <b>STANDARDS</b>                 | CE   | NFPA*   | CSA NFPA ANSI                      | CSA NFPA ANSI                     | ANSI CE                              | CE ANSI BERRY                          |
| <b>OTHER COLOURS</b>             |  |   |                                    |                                   |                                      |  |
| <b>NOTES</b>                     | *with top prusik.<br>**WLL for material handling is 510kg/1125lb | * exceeds NFPA requirements but not certified |                                    |                                   |                                      |  |
| <b>WEBSITE</b>                   | rockexotica.com  | rocknrescue.com                               | rescuystems.com                    | rescuystems.com                   | skedco.com                           | skedco.com                             |





**UPDATED** Jan '25

# PULLEYS

## for General Rope-Use

Pulleys 101 states that the Minimum Breaking Load or strength quoted for any pulley is the resultant total of input forces on the two, four or six stands of rope entering and leaving the pulley (depending on whether it is a single double or triple sheave pulley). That means that if the MBS is 20kN you can only input 10kN on each of 2 stands of rope NOT 20kN on each stand of rope. This is referred to as the **WLL or Working Load Limit** but is a straight 50% (or 33% in a triple sheave) of the MBS so **NOT** the same as the WLL we see on all other rope equipment which is a ratio of the MBS from 4:1 to 15:1 and therefore a much lower figure. This ratio varies depending on what the manufacturer or end-user determines is 'safe'. In rescue an ultra-safe ratio between 10:1 and 15:1 is used whereas the arb industry routinely uses 7:1. Divide the MBS by 7 or 10 or whatever your local protocols are to get the appropriate WLL. Not all quote WLL but figures shown in black in the WLLMBS row are those advocated by the manufacturer based on between 4 & 15:1 ratio not simply the 2:1 or 3:1 fractional loading stamped on the pulleys. You cannot simply look at the WLL of a pulley to see if it is stronger or weaker than another unless you know the ratio they are using. Also bear in mind that the actual force is on the main hole with the carabiner - **the max MBS does NOT relate to any secondary attachment eyes like the becket**, with the exception of the model shown above, these are invariably around **30-50% weaker** than the main eye as they are only intended to take partial load in a mechanical advantage system. Also remember that a double or triple sheave pulley is designed to be loaded across all sheaves not a single sheave pulley with one or two spare sheaves! You could use a central sheave on a triple to maintain balance but the load limit may be considerably less than is stamped on it. The strongest in this GUIDE is the *P3Ta* by *LRV8* of Sydney. This is a resurrection of our old mates *SRTe's P3* with a whopping 120kN MBS and WLL of 24kN more akin to an impact pulley. There are several different and distinct types of pulley used in rope-related activities- some of which have their own **separate GUIDES** within these **BUYERSGUIDES**:

- 1) **General Purpose Swivel Cheek Pulleys**
- 2) **General Purpose Fixed Cheek Pulleys**
- 3) **PMPs or Prusik Minding Pulleys**
- 4) **HitchClimbing Pulleys:** Unique to arborism. Developed for use in a Doubled rope 'prusik' hitch climbing system. Any small pulley with multiple top eyes is in this category.
- 5) **Swivel Pulleys (integral swivel and locking cheek)**
- 6) **Carabiner-Pulleys** a sheave is integrated into the carabiner - almost always lighter duty options.
- 7) **Stand-Alone Sheaves:** often using a shackle/carabiner



IMAGES NOT TO SCALE

as the axle.

8) **Progress Capture Pulleys** with an integral cam

9) **Carriage/Trolley Pulleys** for use on ziplines, tyroleans and cableways

10) **Tandem pulleys** - (a sub-set of 9) above) two pulley sheaves mounted

along the same rope-line but on separate axles within a frame (as distinct

from a double pulley where the sheaves are side by side on the same axle).

11) **Knot-Passing Pulleys**. Aka *Kootenay Carriage* and is a vast nylon sheave about a foot wide within a swivel frame with numerous attachment holes. Intended as a highline trolley where ropes have been joined and would therefore not fit through most regular trolleys.

12) **Impact Pulleys** ultra heavy-duty pulleys designed to arrest a falling load (section of tree). The top connection point is a solid pin or bollard rather than an eye in the pulley cheeks.

13) **Shear Load Pulleys**. Designed to divert load and impart friction in a lowering system with a non-rotating sheave

14) **All of the Above:** Well, not quite but *Rock Exotica/CMC's latest SwivaBiner* is about as close as we currently are to an all-round rope tool. *Rock Exotica* actually has a utility version of the *Omni-Block* that can take an impact load so if they married that to their *SwivaBiner* instead of this regular *Omni* and added a progress capture cam they would indeed be all the way there!

### IN THE FOLLOWING TABLES.....

**SHEAVE(WHEEL)/TREAD DIAMETER Ø:** The diameter of the wheel. **This can vary from the outer edge to the bottom of the rope channel (tread)and many companies do not state which figure they are using so there can be quite a difference. this figure gives you an idea of the overall size of pulley.** The smaller the wheel the greater the proportion of diameter would be lost in the rope channel ie. a 1" diameter sheave could lose 30% of that diameter when measured to the bottom of the rope channel (tread) whereas a 4" diameter sheave may only lose around 8% of the total diameter. On *Petzl's* micro-pulleys for instance, the same 20mm sheave is shown as 30mm on other models-with the same size sheave. Use as large a diameter as possible because the tighter the bend on the rope the more it impacts the strength of the rope. If you are able to use a 4" or greater sheave you would lose none of the rope's in-line strength. **We will update all pulleys to show which dimension is being used - any in green are verified as being the minimum or tread diameter.**

**PRUSIK TEND LOCK BECKET:** 'Pruslik tend' is more usually called **prusik-minding** and refers to the ability of the pulley to halt a prusik knot's upward slide on a moving rope rather than it disappear into the pulley wheel, the prusik then locks when the rope is released. This is achieved with a squaring and sometimes a slight inward curve on the bottom part of the pulley frame. Unlike a



# MAGNAPULLEYS



**ARS** Anderson Rescue Solutions



The Patented Magnapulleys offer a revolution in equipment flexibility, providing a Double Sheave Pulley that splits apart into two Single Sheave Pulleys.



*CE and UKCA  
Certified*

*Exceeds the NFPA  
Standard 1983 (2017  
ed) for Technical use.*

*Max Rope Diameter:  
1/2", 12.5mm*

*Sheave Diameter  
at Center: 1"*

*Double Pulley 3  
Sigma Strength  
Rating: 40kN*

*Single Pulley 3  
Sigma Strength  
Rating: 28kN*

Two sets provide the operator 2 Doubles, 1 Double and 2 Singles, or 4 Singles, drastically reducing the hardware necessary for work and rescue rope systems. This flexibility is a great advantage to small teams or teams who have to travel or climb a great distance to their work site (Mountain Rescue, Military/Tactical, Work at Height, Arborist, Etc.) and need to strip down their kit to the minimum.



|                                       |                  |                                    |                           |                            |                                |                                |                            |                              |
|---------------------------------------|------------------|------------------------------------|---------------------------|----------------------------|--------------------------------|--------------------------------|----------------------------|------------------------------|
| Images NOT to Scale                   | expansion column |                                    |                           |                            |                                |                                |                            |                              |
| <b>MANUFACTURER</b>                   |                  | ART                                | CMI                       | CMI                        | CMI                            | DMM                            | DMM                        | DMM                          |
| <b>MODEL VARIANT</b>                  |                  | Cocoan 5                           | RP141                     | RP151                      | MicroTrolley RP161RS           | HitchClimber Eccentric pul500  | Rigger pul400              | Rigger be pul410             |
| <b>ORIGIN</b>                         |                  |                                    |                           |                            |                                |                                |                            |                              |
| <b>COST</b> (inc Tax) Conversion-only |                  | £101 \$157 €108                    | £48 \$65 €52              | £46 \$62 €50               | £91 \$110 /114€105             | £65 \$90 €85                   | £65 \$90 €85               | £85 \$110                    |
| <b>WEIGHT</b>                         |                  | 177g<br>6.2oz                      | 44g<br>1.5oz              | 113g<br>4oz                | 204/226g<br>7.2/8oz            | 176g<br>6.2oz                  | 176g<br>6.2oz              | 198g<br>3.5oz                |
| <b>MAX LOAD- WLL MBS</b>              |                  | - 29kN<br>- 6520lbf                | 3.1 31.1kN<br>700 7000lbf | 3.1 31.1kN<br>700 7000lbf  | 8.8 44kN<br>1980 9900lbf       | 6 32kN<br>1349 6744lbf         | 8 40kN<br>1798 8992lbf     | 8 40kN<br>1798 8992lbf       |
| <b>MAX ROPE Ø</b>                     |                  | ≤14mm<br>≤5/16"                    | ≤12.7mm<br>≤1/2"          | ≤12.7mm<br>≤1/2"           | ≤13mm<br>≤1/2"                 | 7-14mm<br>5/16-9/16"           | 7-14mm<br>5/16-9/16"       | 7-14mm<br>5/16-9/16"         |
| <b>SHEAVE/TREAD Ø</b>                 |                  | 30mm<br>1.2"                       | 32mm<br>1.25"             | 32mm<br>1.25"              | 32mm<br>1.25"                  | 28mm<br>1.1"                   | 28mm<br>1.1"               | 28mm<br>1.1"                 |
| <b>DIMENSIONS</b> ht x w x depth      |                  | 90 x 42 x 36mm<br>3.5 x 1.6 x 1.4" | 76x70x51mm<br>2.8x2.75x2" | 102x76x51mm<br>3.75x2.8x2" | 114x50x32mm<br>4.5 x 2 x 1.25" | 96x76x44mm<br>3.8x2.8x1.7"     | 94x68x33mm<br>3.7x2.7x1.3" | 124x68x33mm<br>4.9 x2.7x1.3" |
| <b>PRUSIK TEND LOCK BECKET</b>        |                  | - - -                              | ■ - -                     | ■ - -                      | ■ - -                          | ■ - - -                        | ■ - -                      | ■ - -                        |
| <b>BUSHING BEARING PIN</b>            |                  | ■                                  | ■                         | ■                          | ■                              | ■                              | ■                          | ■                            |
| <b>CHEEKS - SWIVEL FIXED</b>          |                  | ■                                  | ■                         | ■                          | ■                              | ■                              | ■                          | ■                            |
| <b>EFFICIENCY</b>                     |                  |                                    |                           |                            |                                |                                |                            |                              |
| <b>CHEEK SHEAVE AXLE</b>              |                  | Alu Alu Alu                        | Alu Alu Alu               | Alu Alu Alu                | Alu Alu StSt                   | Alu Alu StSt                   | Alu Alu StSt               | Alu Alu                      |
| <b>STANDARDS</b>                      |                  | CE                                 | ANSI                      | ?                          | CE                             | CE                             | CE NFPA                    | CE NFPA                      |
| <b>OTHER COLOURS</b>                  |                  | -                                  | -                         | -                          | -                              | ■ ■ ■ ■                        | ■                          | ■                            |
| <b>NOTES</b>                          |                  | rope feeds directly onto top pin   |                           |                            | RS=removable axle/sheave       | For HitchClimber prusik system |                            |                              |
| <b>WEBSITE</b>                        |                  | climb-art.de                       | cmgearusa.com             | cmgearusa.com              | cmgearusa.com                  | dmmwales.com                   | dmmwales.com               | dmmwales.com                 |

regular round-bottom pulley, these can often stand on their flatter base. Some designs are more complex like the *CAMP Sphinx* with an extension to its frame and some like the *Omni* (see Swivel Pulley Guide) have a teardrop extension on one side.

**LOCK** refers to the locking of the pulley cheeks (or in the case of *ISC's* new *Ultralink*, the shackle arms) so that they cannot be swivelled open unless you undo the securing pin/bolt. This may be a bolt that requires a tool or it may be push-button. Button release is now common with the bigger, swivel pulleys like *Rock Exotica's Omni Pulleys*, *Petzl's Spins* and *SMC's Apex* but is also on the much smaller *ISC's Ultralink*. These requires no tools and is a hand action only but there are only the *Ultralinks* and *SMC's* swivel-less *Apex Direct* in the regular pulley selection. Of course, they're unusual in regular pulleys because the carabiner or connector you use to clip into virtually all regular pulleys, locks the cheeks and stops them swivelling. It is only on cheeks that can have the rope applied while the pulley is still connected to the anchor that we see the locking cheeks Bolt or screw release means that a tool, often an Allen Key, is required to open the cheeks in order to access the sheave for rope placement (or you could feed rope in from one end as if it were a fixed-cheek pulley). Again there are none in the current selection because these are all life-support pulleys - this feature is more commonly seen in engineering where a pulley is a machinery component that should not be undone except for maintenance. **BECKET** is a load-bearing bottom connection point - usually an obvious eye but it may be an extension of the frame as with the bottom of the *DMM Pinto* pulleys. The title

image shows the *RevolutionFR* from *Conterra* with a 'becket' eye through the middle (similar to some Impact Pulleys)- expect to see more of this. Note that you cannot load the joining bar beneath the sheave of some models unless it specifically says so.

**BUSH/BEARING/PIN** The efficiency part of a pulley that tries to minimize friction under load. Bushings are the grunts of the industry, able to take abuse but not quite as efficient as a bearing. Bearings are ball bearing or needle rods that rotate against each other under load. They require more care than a bushing but are more efficient. A PIN is a simple axle with no frictional assistance beyond you daring to add a blob of grease (nor recommended in life-support rope activities). These will be simple pulley sheaves with a shackle bar or a carabiner acting as the axle. However, one or two models, notably the *PulleyOne* by *AtHeight* and the *Ultralight* by *ISC* might appear to be simple pin (or carabiner axles) but they both have independent bearings so they are not simply a passive 'PIN'. Ball bearings and needle bearings are often shown simply as bearings and we may not have differentiated. Unless you are operating at extreme speed or extreme loads you are unlikely to notice the difference. Needle bearing are not quite as efficient as ball-bearings but they are able to take a higher load and even a bit of shock loading (not recommended) which ball bearings and are almost as robust as bushings. *CMI* use a lot of needle bearings which are effectively a pile of cylinders rotating against each other so the load is better spread than with the point-loaded (but friction-reducing) ball bearings. **EFFICIENCY**: is dictated by the quality of the bushing or

|                 | DMM                                  | ISC                                  | NOTCH                                | OMEGA PACIFIC                            | PROTEKT                                | ROCK EXOTICA                         | SINGING ROCK                         | SKYLOTEC                                 | expansion column |
|-----------------|--------------------------------------|--------------------------------------|--------------------------------------|--|--|--------------------------------------|--------------------------------------|--|------------------|
| Model           | HitchClimber Triple Attach pul100    | Phlotich RP282BRBS                   | Rook x                               | Octavia                                  | TREE UP TU 421                         | Hydra P4                             | Miky RK806                           | CT Orbiter A 2P665                       |                  |
| Country         |                                      |                                      |                                      |  |  |                                      |                                      |  |                  |
| Price           | £55 \$75 €65                         | £51 \$75 €60                         | £111 \$120 €154                      | £50 \$60 €57                             | £23 \$28 €26                           | £127 \$120 €134                      | £33 \$45 €38                         | £30 \$43 €35                             |                  |
| Weight          | 133g 4.7oz                           | 145g 5oz                             | 189g 6.7oz                           | 166g 5.85oz                              | 160g 5.6oz                             | 189g 6.7oz                           | 105g 3.7oz                           | 104g 3.7oz                               |                  |
| Strength        | 6 30kN 1349 6744lbf                  | - 30kN - 6744lbf                     | 2.8 28kN 629 6295lbf                 | - 32kN - 4945lbf                         | 5 25kN 1124 5620lbf                    | 5 28kN 1124 6295lbf                  | - 28kN - 6295lbf                     | 5 30kN 1124 6744lbf                      |                  |
| Sheave Diameter | ≤14mm <math>\leq \frac{1}{4}</math>" | ≤13mm <math>\leq \frac{1}{2}</math>" | ≤13mm <math>\leq \frac{1}{2}</math>" | 8-14mm $\frac{5}{16}$ - $\frac{9}{16}$ " | ≤13.5mm <math>\leq \frac{1}{2}</math>" | ≤13mm <math>\leq \frac{1}{2}</math>" | ≤13mm <math>\leq \frac{1}{2}</math>" | 8-13mm $\frac{5}{16}$ - $\frac{1}{2}$ "  |                  |
| Sheave Width    | 28mm 1.1"                            | 42/30mm 1.6/1.2"                     | 53mm 2.1"                            | 44/30mm 1.7/1.2"                         | 38mm 1.5"                              | 35/25mm 1.4/1"                       | 30mm 1.2"                            | 19mm 0.75"                               |                  |
| Dimensions      | 94x68x33mm 3.7x2.7x1.3"              | 97x69x34mm 3.8x2.7x1.3"              | 112x63.5x33mm 4.6 x 2.5 x 1.3"       | 94x69x31mm 3.7x2.7x1.2"                  | 90x70x37mm 3.5x2.75x1.5"               | 112x63.5x33mm 4.4x 2.5 x 1.3"        | 76x55x34mm 3x2.2x1.3"                | 71x58x32mm 2.8x2.3x1.3"                  |                  |
| Material        | Alu Alu StSt                         | Alu Alu StSt                         | Alu Alu StSt                         | Alu Alu StSt                             | Alu Alu Alu                            | Alu Alu StSt                         | Alu Alu StSt                         | Alu Alu StSt                             |                  |
| Standards       | CE                                   | CE UKCA                              | ANSI CE                              | CE                                       | CE                                     | CE                                   | CE                                   | CE                                       |                  |
| Notes           | For HitchClimber prusik system       | For HitchClimber prusik system       |                                      |  | Updated model'23                       |                                      |                                      | NB: this CT data differs from Skylotec's |                  |
| Website         | dmmwales.com                         | iscwales.com                         | notchequipment.com                   | omega-pacific.com                        | protekt.pl                             | rockexotica.com                      | singingrock.com                      | skylotec.com                             |                  |

bearing that is handling the load. Bearings are better for lower loads at higher speed while bushing are good for high loads at low speed. Note that efficiency will be multiplied beyond 100% by the number of sheaves.

**MATERIALS: CHEEK SHEAVE AXLE:** the cheeks/frame are in black while the sheave/wheel is shown in orange and the axle material in green. Any that purport to handle wire rope will be in stainless steel as the hardest wearing material while those looking to shed weight may have plastic (nylon, Delrin or Celcon) sheaves. Some axles shown as StSt for stainless steel may actually be steel or galvanised but not 'stainless'

**Aluminium or Aluminium Alloy = Alu**

**Stainless Steel = StSt**

**Zinc-Coated Steel = ZStl**

**STANDARDS:** As usual, you can't go far wrong with a bona-fide European CE or US NFPA mark (with EN12278 & NFPA requiring tamper-proof rivets) but there is also US ANSI (Industrial) and a number of country-specific standards. Because so many are, or were, designed for mountaineering, UIAA is also common. EAC is for eastern Europe and UKCA is a more recent UK introduction to reinvent the wheel and offer an alternative to the pan-European CE. Virtually pointless.

**OTHER COLOURS:** = Polished metal finish. Many have a black option which usually costs a little more. See **BLACK EQUIPMENT BUYERS GUIDE** for tactical personnel and film/stage riggers who need the black to blend into the background.... unless they're in snow.

**COSTS** shown are the full retail including VAT/tax and rounded up to the nearest whole figure.

Simple currency conversions are shown in orange. These are a rough guide only. They exclude import duty/shipping so the actual price will probably be much higher. Below is an extracted selection of arb-specific pulleys mostly for use with climbing hitches in Moving/Doubled Rope Systems (DdRT/MRS), some for redirect.

|                 | STEIN Skywalker                      | STEIN Skywalker Pro                  | TEUFELBERGER Glide-Hitch             |
|-----------------|--------------------------------------|--------------------------------------|--------------------------------------|
| Country         |                                      |                                      |                                      |
| Price           | £40 \$55 €48                         | £51 \$75 €60                         | £42 \$56 €47                         |
| Weight          | 100g 3.5oz                           | 145g 5oz                             | 125g 4.4oz                           |
| Strength        | - 36kN - 8093lbf                     | - 30kN - 6744lbf                     | 7 35kN 1574 7868lbf                  |
| Sheave Diameter | ≤13mm <math>\leq \frac{1}{2}</math>" | ≤13mm <math>\leq \frac{1}{2}</math>" | ≤13mm <math>\leq \frac{1}{2}</math>" |
| Sheave Width    | 38mm 1.5"                            | 42/30mm 1.6/1.2"                     | 28.5/17mm 1.1/0.7"                   |
| Dimensions      | 74x60x29mm 2x1.77x1.1"               | 97x69x34mm 3.8x2.7x1.3"              | 98x35x32mm 3.8x1.4x1.3"              |
| Material        | Alu Alu StSt                         | Alu Alu StSt                         | Alu Alu StSt                         |
| Standards       | CE                                   | CE UKCA                              | CE UIAA UKCA                         |
| Notes           |                                      | For HitchClimber prusik system       | For HitchClimber prusik system       |
| Website         | stein.com                            | stein.com                            | stein.com                            |

| Images NOT to Scale                   |                                |                              |                              |                                    |                                |                                       |                                       |                                  |
|---------------------------------------|--------------------------------|------------------------------|------------------------------|------------------------------------|--------------------------------|---------------------------------------|---------------------------------------|----------------------------------|
| <b>MANUFACTURER</b>                   | ALPIDEX                        | ANPEN                        | ANPEN                        | ANPEN                              | ANPEN                          | ARS<br>ANDERSON RESCUE SOLUTIONS      | ARS<br>ANDERSON RESCUE SOLUTIONS      | ARS<br>ANDERSON RESCUE SOLUTIONS |
| <b>MODEL VARIANT</b>                  | Mobile 107                     | U29                          | U28                          | U01                                | U02 2155                       | Magna Single                          | Magna Becket                          | Magna D                          |
| <b>ORIGIN</b>                         |                                |                              |                              |                                    |                                |                                       |                                       |                                  |
| <b>COST (inc Tax) Conversion-only</b> | £15 \$22 €16                   | £38 \$46 €45                 | £54 \$65 €62                 | £25 \$30 €29                       | £58 \$70 €66                   | £75 \$90 €86                          | £91 \$110 €104                        | £145 \$175                       |
| <b>WEIGHT</b>                         | 87g<br>3.1oz                   | 360g<br>12.7oz               | 407g<br>14.4oz               | 280g<br>9.9oz                      | 500g<br>17.6oz                 | 227g<br>8oz                           | 255g<br>9oz                           | 454g<br>16oz                     |
| <b>MAX LOAD- WLL MBS</b>              | - 20kN<br>- 4496lbf            | - 32kN<br>- 7195lbf          | - 32kN<br>- 7195lbf          | - 32kN<br>- 7195lbf                | - 32kN<br>- 7195lbf            | - 28kN<br>- 0lbf                      | - 26kN<br>- 5845lbf                   | - 40kN<br>- 8992                 |
| <b>MAX ROPE Ø</b>                     | ≤11mm<br>≤3/16"                | 8-13mm<br>5/16-1/2"          | 8-13mm<br>5/16-1/2"          | 8-13mm<br>5/16-1/2"                | 8-13mm<br>5/16-1/2"            | ≤11mm<br>≤3/16"                       | ≤11mm<br>≤3/16"                       | ≤11mm<br>≤3/16"                  |
| <b>SHEAVE/TREAD Ø</b>                 | 20mm<br>0.8"                   | 48mm<br>1.9"                 | 48mm<br>1.9"                 | 48mm<br>1.9"                       | 48mm<br>1.9"                   | 25mm<br>1"                            | 25mm<br>1"                            | 25mm<br>1"                       |
| <b>DIMENSIONS ht x w x depth</b>      | 72 x 40 x 28mm<br>2.8x1.6x1.1" | 110 x 73mm<br>4.3 x 2.9"     | 176 x 94mm<br>7 x 3.7"       | 121 x 82 x 36mm<br>4.7 x 3.2x 1.4" | 147x82x60mm<br>5.8 x 3.2x 2.4" | 76x63x26mm<br>3 x 2.5 x 1"            | 105x63x26mm<br>4.1 x 2.5 x 1"         | 76x63x51mm<br>3 x 2.5 x 2"       |
| <b>PRUSIK TEND LOCK BECKET</b>        | ---                            | ---                          | ---                          | ---                                | ---                            | ---                                   | ---                                   | ---                              |
| <b>BUSHING BEARING PIN</b>            | ■                              | ■                            | ■                            | ■                                  | ■                              | ■                                     | ■                                     | ■                                |
| <b>CHEEKS - SWIVEL FIXED</b>          | ■                              | ■                            | ■                            | ■                                  | ■                              | ■                                     | ■                                     | ■                                |
| <b>EFFICIENCY</b>                     | -                              | -                            | -                            | -                                  | -                              | -                                     | -                                     | -                                |
| <b>CHEEK SHEAVE AXLE</b>              | Alu Alu Alu                    | Alu Alu Alu                  | Alu Alu Alu                  | Alu Alu Alu                        | Alu Alu Alu                    | Alu Alu Alu                           | Alu Alu Alu                           | Alu Alu Alu                      |
| <b>STANDARDS</b>                      | CE                             | CE                           | CE                           | CE                                 | CE                             | CE UKCA                               | CE UKCA                               | CE UKCA                          |
| <b>OTHER COLOURS</b>                  |                                |                              |                              |                                    |                                | -                                     | -                                     | -                                |
| <b>NOTES</b>                          |                                |                              |                              |                                    |                                | Magnetic cheeks to form double sheave | Magnetic cheeks to form double sheave | Magnetic-car into single p       |
| <b>WEBSITE</b>                        | alpidex.com                    | en.anpen.net                 | en.anpen.net                 | en.anpen.net                       | en.anpen.net                   | andersonrescue.com                    | andersonrescue.com                    | andersonrescue.com               |
| Images NOT to Scale                   |                                |                              |                              |                                    |                                |                                       |                                       |                                  |
| <b>MANUFACTURER</b>                   | BEAL                           | BEAL                         | BEAL                         | BLACK DIAMOND                      | BLUEWATER                      | BLUEWATER                             | BLUEWATER                             | BLUEWATER                        |
| <b>MODEL VARIANT</b>                  | Trans'air 1B                   | Trans'air 2                  | Trans'air 2B                 | RP102D                             | Micro Pulley 61000             | Mini Pulley                           | Mini Dbl Pulley 610121                | Mini Dbl Pulley 610122           |
| <b>ORIGIN</b>                         |                                |                              |                              |                                    |                                |                                       |                                       |                                  |
| <b>COST (inc Tax) Conversion-only</b> | £39 \$46 €43                   | £46 \$61 €57                 | £63 \$77 €73                 | £25 \$25 €27                       | £39 \$15 €16                   | £44 \$22 €24                          | £57 \$28 €27                          | £59 \$30                         |
| <b>WEIGHT</b>                         | 280g<br>9.9oz                  | 475g<br>17oz                 | 500g<br>17.6oz               | 76g<br>2.7oz                       | 120g<br>4.2oz                  | 50g<br>1.8oz                          | 80g<br>2.8oz                          | 85g<br>3oz                       |
| <b>MAX LOAD- WLL MBS</b>              | 5 30kN<br>1125 6744lbf         | 10 30kN<br>2250 6744lbf      | 10 30kN<br>2250 6744lbf      | - 17kN<br>- 3822lbf                | - 22kN<br>- 2445lbf            | - 24kN<br>- 5396lbf                   | - 24kN<br>- 5396lbf                   | - 24kN<br>- 5396                 |
| <b>MAX ROPE Ø</b>                     | ≤16mm<br>≤5/8"                 | ≤16mm<br>≤5/8"               | ≤16mm<br>≤5/8"               | n/a<br>n/a                         | ≤13mm<br>1/2"                  | ≤8mm<br>≤3/16"                        | ≤8mm<br>≤3/16"                        | ≤8mm<br>≤3/16"                   |
| <b>SHEAVE/TREAD Ø</b>                 | 48mm<br>1.9"                   | 2x 48mm<br>2x 1.9"           | 2x 48mm<br>2x 1.9"           | n/a<br>n/a                         | 21mm<br>0.825"                 | 21mm<br>0.825"                        | 2x 21mm<br>2x 0.825"                  | 2x 21mm<br>2x 0.825"             |
| <b>DIMENSIONS ht x w x depth</b>      | 118x83x36mm<br>4.6x3.3x 1.4"   | 150x83x60mm<br>4.6x3.3x 2.4" | 150x83x60mm<br>4.6x3.3x 2.4" | n/a<br>n/a                         | 81x36mm<br>3.2x 1.4"           | 73x39x25mm<br>2.9x1.5x 0.9"           | 73 x 39mm<br>2.9 x 1.5"               | 91 x 39mm<br>3.6 x 1.5"          |
| <b>PRUSIK TEND LOCK BECKET</b>        | ---                            | ---                          | ---                          | ---                                | ---                            | ---                                   | ---                                   | ---                              |
| <b>BUSHING BEARING PIN</b>            | ■                              | ■                            | ■                            | ■                                  | ■                              | ■                                     | ■                                     | ■                                |
| <b>CHEEKS - SWIVEL FIXED</b>          | ■                              | ■                            | ■                            | ■                                  | ■                              | ■                                     | ■                                     | ■                                |
| <b>EFFICIENCY</b>                     | -                              | -                            | -                            | -                                  | -                              | -                                     | -                                     | -                                |
| <b>CHEEK SHEAVE AXLE</b>              | Alu Alu StSt                   | Alu Alu StSt                 | Alu Alu StSt                 | Alu Nylon Alu                      | Alu Alu ZStI                   | Alu Alu StSt                          | Alu Alu StSt                          | Alu Alu StSt                     |
| <b>STANDARDS</b>                      | CE UIAA                        | CE UIAA                      | CE UIA                       | CE                                 | CE UIAA                        | CE                                    | CE                                    | CE                               |
| <b>OTHER COLOURS</b>                  | -                              | -                            | -                            | -                                  | ■                              | -                                     | -                                     | -                                |
| <b>NOTES</b>                          |                                |                              |                              |                                    |                                |                                       |                                       |                                  |
| <b>WEBSITE</b>                        | beal-planet.com                | beal-planet.com              | beal-planet.com              | blackdiamond.com                   | bluewaterropes.com             | bluewaterropes.com                    | bluewaterropes.com                    | bluewaterropes.com               |

|   |   |                             |                                   |                               |                          |                                    |                                    |                                    |                                     |
|---|---|-----------------------------|-----------------------------------|-------------------------------|--------------------------|------------------------------------|------------------------------------|------------------------------------|-------------------------------------|
|   |   |                             |                                   |                               |                          |                                    |                                    |                                    |                                     |
| <b>ARS</b><br>ANDERSON RESCUE SOLUTIONS | <b>ART</b>                              | <b>ART</b>                  | <b>AT HEIGHT</b><br>JAMIMY DESIGN | <b>AUSTRIALPIN</b>            | <b>BEAL</b>              | <b>BEAL</b>                        | <b>BEAL</b>                        | <b>BEAL</b>                        |                                     |
| <b>Magna Double Becket</b>              | <b>Link 2</b>                           | <b>Turnbase PSA</b>         | <b>PulleyOne P36</b>              | <b>AL02B</b>                  | <b>Trans'air Mini</b>    | <b>Trans'air Fixe</b>              | <b>Trans'air FixeB</b>             | <b>Trans'air 1</b>                 |                                     |
|   |   |                             |                                   |                               |                          |                                    |                                    |                                    |                                     |
| £166                                    | £178 \$215 €204                         | £47 \$53 €50                | £73 \$88 €83                      | £92 \$105 €96                 | £11 \$15 €13             | £23 \$31 €29                       | £17 \$26 €24                       | £38 \$48 €45                       | £31 \$41 €38                        |
|   | 510g<br>18oz                            | 135g<br>4.8oz               | 160g<br>5.6oz                     | 140g<br>5oz                   | 48g<br>1.7oz             | 120g<br>4.2oz                      | 90g<br>3.2oz                       | 120g<br>4.2oz                      | 270g<br>9.5oz                       |
|   | - 40kN<br>- 8992lbf                     | - N/AkN<br>- N/Albf         | - 24kN<br>- 5396lbf               | - 36kN<br>- 8093lbf           | 4 15kN<br>899 3372lbf    | 5 20kN<br>1125 4496lbf             | 5 20kN<br>1125 4496lbf             | 5 20kN<br>1125 4496lbf             | 5 30kN<br>1125 6744lbf              |
|   | ≤11mm<br>≤1/8"                          | ≤14mm<br>≤5/16"             | ≤14mm<br>≤5/16"                   | ≤11.5mm<br>≤7/16"             | ≤12mm<br>≤1/2"           | ≤11mm<br>≤7/16"                    | ≤12mm<br>≤1/2"                     | ≤13mm<br>≤1/2"                     | ≤16mm<br>≤5/8"                      |
|   | 25mm<br>1"                              | 22mm<br>0.9"                | 27mm<br>1.1"                      | 50/42mm<br>2/1.6"             | 19mm<br>0.75"            | 28mm<br>1.1"                       | 20mm<br>0.8"                       | 28mm<br>1.1"                       | 48mm<br>1.9"                        |
|   | 105x63x53mm<br>0 x 2.5 x 2.1"           | 74 x 35mm<br>2.9 x 1.4"     | 115x48x38mm<br>4.5 x 1.9 x 1.5"   | 70x75x18mm<br>2.75 x 3 x 0.7" | 70 x 36mm<br>2.75 x 1.4" | 80 x 68 x 36mm<br>3.1 x 2.7 x 1.4" | 82 x 45 x 21mm<br>3.2 x 1.8 x 0.8" | 82 x 45 x 21mm<br>3.2 x 1.8 x 0.8" | 118 x 83 x 36mm<br>4.6 x 3.3 x 1.4" |
|   | ■ - ■                                   | ---                         | ■ - ■                             | ---                           | ■ - ■                    | ■ - ■                              | ■ - ■                              | ■ - ■                              | ■ - ■                               |
|   | ■                                       | ■                           | ■                                 | ■                             | ■                        | ■                                  | ■                                  | ■                                  | ■                                   |
|   | ■                                       | ■                           | ■                                 | ■                             | ■                        | ■                                  | ■                                  | ■                                  | ■                                   |
|   | -                                       | -                           | -                                 | -                             | -                        | -                                  | -                                  | -                                  | -                                   |
| <b>Alu</b>                              | <b>Alu Alu Alu</b>                      | <b>Stst Alu StSt</b>        | <b>Alu Alu Alu</b>                | <b>Alu Alu -</b>              | <b>Alu Polymer Alu</b>   | <b>Alu Alu StSt</b>                | <b>Alu Alu StSt</b>                | <b>Alu Alu StSt</b>                | <b>Alu Alu StSt</b>                 |
| <b>CE UKCA</b>                          | <b>CE UKCA</b>                          | <b>CE</b>                   | <b>CE</b>                         | <b>CE</b>                     | <b>CE</b>                | <b>CE UIAA</b>                     | <b>CE UIAA</b>                     | <b>CE UIAA</b>                     | <b>CE UIAA</b>                      |
|   | -                                       | -                           | -                                 | -                             | ■                        | -                                  | -                                  | -                                  | -                                   |
| divide pulleys                          | Magnetic-can divide into single pulleys | redirect for ART Rope Guide | inc. bridging spindle for becket  | Clip through axle             |                          |                                    |                                    |                                    |                                     |
| andersonrescue.com                      | andersonrescue.com                      | climb-art.de                | climb-art.de                      | atheightuk.com                | austrialpin.at           | beal-planet.com                    | beal-planet.com                    | beal-planet.com                    | beal-planet.com                     |
|   |   |                             |                                   |                               |                          |                                    |                                    |                                    |                                     |
| <b>CAMP</b>                             | <b>CAMP</b>                             | <b>CAMP</b>                 | <b>CAMP</b>                       | <b>CAMP</b>                   | <b>CAMP</b>              | <b>CAMP</b>                        | <b>CAMP</b>                        | <b>CAMP</b>                        |                                     |
| <b>Andry 0108</b>                       | <b>Sphinx 2152</b>                      | <b>Sphinx Pro 2153</b>      | <b>Tethys 2154</b>                | <b>Tethys Pro 2155</b>        | <b>Dryad 2156</b>        | <b>Dryad Pro 2157</b>              | <b>Naiad 2158</b>                  | <b>Naiad Pro 2159</b>              |                                     |
|   |   |                             |                                   |                               |                          |                                    |                                    |                                    |                                     |
| £29                                     | £11 \$14 €12                            | £28 \$30 €32                | £34 \$35 €40                      | £31 \$30 €35                  | £35 \$36 €40             | £49 \$48 €50                       | £58 \$60 €69                       | £49 \$60 €57                       | £69 \$70 €80                        |
|   | 100g<br>3.5oz                           | 95g<br>3.4oz                | 85g<br>3oz                        | 100g<br>3.5oz                 | 90g<br>3.2oz             | 170g<br>6oz                        | 155g<br>5.5oz                      | 280g<br>9.9oz                      | 300g<br>10.6oz                      |
|   | - 22kN<br>0 4945lbf                     | 4 24kN<br>899 5396lbf       | 6 25kN<br>- 5620lbf               | 4 24kN<br>899 5396lbf         | 6 25kN<br>- 5620lbf      | 4 24kN<br>899 5396lbf              | 7 26kN<br>1574 5845lbf             | 7 44kN<br>1574 9892lbf             | 10 46kN<br>0 10341lbf               |
|   | ≤12mm<br>≤ 1/2"                         | ≤13mm<br>≤1/2"              | ≤13mm<br>≤1/2"                    | ≤13mm<br>≤1/2"                | ≤13mm<br>≤1/2"           | ≤13mm<br>≤1/2"                     | ≤13mm<br>≤1/2"                     | ≤16mm<br>≤5/8"                     | ≤16mm<br>≤5/8"                      |
|   | 36/26mm<br>1.4/1"                       | 28mm<br>1.1"                | 28mm<br>1.1"                      | 28mm<br>1.1"                  | 28mm<br>1.1"             | 2x 28mm<br>2x 1.1"                 | 2x 28mm<br>2x 1.1"                 | 49mm<br>2"                         | 49mm<br>2"                          |
|   | 75 x 36 x 30mm<br>3 x 1.4 x 1.2"        | 86x50x29mm<br>3.4x2x1.1"    | 86x50x29mm<br>3.4x2x1.1"          | 78x61x29mm<br>3x2.4x1.1"      | 78x61x29mm<br>3x2.4x1.1" | 102x61x49mm<br>4x2.4x2"            | 102x61x49mm<br>4x2.4x2"            | 149x96x31mm<br>5.9x3.8x1.2"        | 149x96x31mm<br>5.9x3.8x1.2"         |
|   | ■ - ■                                   | ■ - ■                       | ■ - ■                             | ■ - ■                         | ■ - ■                    | ■ - ■                              | ■ - ■                              | ■ - ■                              | ■ - ■                               |
|   | ■                                       | ■                           | ■                                 | ■                             | ■                        | ■                                  | ■                                  | ■                                  | ■                                   |
|   | 70%                                     | 80%                         | 92%                               | 80%                           | 92%                      | 80%                                | 92%                                | 90%                                | 97%                                 |
| <b>StSt</b>                             | <b>ZStl Nylon ZSt</b>                   | <b>Alu Alu StSt</b>         | <b>Alu Alu StSt</b>               | <b>Alu Alu StSt</b>           | <b>Alu Alu StSt</b>      | <b>Alu Alu StSt</b>                | <b>Alu Alu StSt</b>                | <b>Alu Alu StSt</b>                | <b>Alu Alu StSt</b>                 |
| <b>CE</b>                               | <b>CE</b>                               | <b>CE EAC</b>               | <b>CE EAC</b>                     | <b>CE EAC</b>                 | <b>CE EAC</b>            | <b>CE EAC</b>                      | <b>CE EAC</b>                      | <b>CE EAC</b>                      | <b>CE EAC</b>                       |
|   | -                                       | ■                           | ■                                 | ■                             | -                        | -                                  | -                                  | -                                  | -                                   |
| designed for safety net tensioning      |   |                             |                                   |                               |                          |                                    |                                    |                                    |                                     |
| camp.it                                 | camp.it                                 | camp.it                     | camp.it                           | camp.it                       | camp.it                  | camp.it                            | camp.it                            | camp.it                            | camp.it                             |

|                                       |                               |                                    |                                    |  |                                      |                                    |                                       |                                  |
|---------------------------------------|-------------------------------|------------------------------------|------------------------------------|--|--------------------------------------|------------------------------------|---------------------------------------|----------------------------------|
| Images NOT to Scale                   |                               |                                    |                                    |  |                                      |                                    |                                       |                                  |
| <b>MANUFACTURER</b>                   | CAMP                          | CAMP                               | CMC                                | CMC                                    | CMC                                  | CMC                                | CMC                                   | CMC                              |
| <b>MODEL VARIANT</b>                  | Janus 2160                    | Janus Pro 2161                     | Protech single 300501              | Protech dbl 300502                     | HD2 300441                           | HD2 Double 300442                  | HD4 300461                            | Rescue s 300300                  |
| <b>ORIGIN</b>                         |                               |                                    |                                    |  |                                      |                                    |                                       |                                  |
| <b>COST</b> (inc Tax) Conversion-only | £65 \$80 €79                  | £77 \$100 €96                      | £58 \$71 €67                       | £93 \$115 €108                         | £149 \$184 €172                      | £202 \$249 €232                    | £234 \$289 €270                       | £0 \$0                           |
| <b>WEIGHT</b>                         | 405g<br>14.3oz                | 425g<br>15oz                       | 94g<br>3.3oz                       | 156g<br>5.5oz                          | 367g<br>13oz                         | 605g<br>1.3lb                      | 850g<br>1.9lb                         | 145g<br>5.1oz                    |
| <b>MAX LOAD- WLL MBS</b>              | 8 38kN<br>0 8543lbf           | 12 42kN<br>2698 9442lbf            | - 36kN<br>- 8093lbf                | - 36kN<br>- 8093lbf                    | - 50kN<br>- 11240lbf                 | - 50kN<br>- 11240lbf               | - 46kN<br>- 10341lbf                  | - 52kN<br>- 11690lbf             |
| <b>MAX ROPE Ø</b>                     | ≤16mm<br>≤5/8"                | ≤16mm<br>≤5/8"                     | ≤11mm<br>≤7/16"                    | ≤11mm<br>≤7/16"                        | ≤13mm<br>≤1/2"                       | ≤13mm<br>≤1/2"                     | ≤13mm<br>≤1/2"                        | ≤13mm<br>≤1/2"                   |
| <b>SHEAVE/TREAD Ø</b>                 | 2x 49mm<br>2"                 | 2x 49mm<br>2"                      | 25mm<br>1"                         | 2x 25mm<br>2x 1"                       | 65/57mm<br>2.6/2.2"                  | 2x 65/57mm<br>2x 2.6/2.2"          | 100/95mm<br>4/3.7"                    | 38mm<br>1.5"                     |
| <b>DIMENSIONS</b> ht x w x depth      | 147x100x54mm<br>5.8 x 4x 2.1" | 147x100x54mm<br>5.8 x 4x 2.1"      | 76 x 62 x 19mm<br>3 x 2.45 x 0.75" | 100 x 62 x 37mm<br>3.95 x 2.45 x 1.45" | 145 x 107 x 30mm<br>5.7 x 4.2 x 1.2" | 165 x 95 x 50mm<br>6.5 x 3.75 x 2" | 197 x 140 x 30mm<br>7.75 x 5.5 x 1.2" | 89 x 64 x 25mm<br>3.5 x 2.5 x 1" |
| <b>PRUSIK TEND LOCK BECKET</b>        |                               |                                    |                                    |  |                                      |                                    |                                       |                                  |
| <b>BUSHING BEARING PIN</b>            |                               |                                    |                                    |  |                                      |                                    |                                       |                                  |
| <b>CHEEKS - SWIVEL FIXED</b>          |                               |                                    |                                    |  |                                      |                                    |                                       |                                  |
| <b>EFFICIENCY</b>                     | 90%                           | 97%                                |                                    |  |                                      |                                    |                                       |                                  |
| <b>CHEEK SHEAVE AXLE</b>              | Alu Alu StSt                  | Alu Alu StSt                       | Alu Alu StSt                       | Alu Alu StSt                           | Alu Alu StSt                         | Alu Alu StSt                       | Alu Alu StSt                          | Alu Alu                          |
| <b>STANDARDS</b>                      | CE EAC                        | CE EAC                             | CE                                 | CE                                     | NFPA                                 | NFPA                               | NFPA                                  | NFPA                             |
| <b>OTHER COLOURS</b>                  |                               | -                                  | -                                  | -                                      | -                                    | -                                  | -                                     | -                                |
| <b>NOTES</b>                          |                               |                                    | machined alloy                     | machined alloy                         | Discontinued                         | Discontinued                       | Discontinued                          |                                  |
| <b>WEBSITE</b>                        | camp.it                       | camp.it                            | cmcprou.com                        | cmcprou.com                            | cmcprou.com                          | cmcprou.com                        | cmcprou.com                           | cmcprou.com                      |
| Images NOT to Scale                   |                               |                                    |                                    |  |                                      |                                    |                                       |                                  |
| <b>MANUFACTURER</b>                   | CMI                           | CMI                                | CMI                                | CMI                                    | CMI                                  | CMI                                | CMI                                   | CMI                              |
| <b>MODEL VARIANT</b>                  | RP104BB                       | RC104                              | RC105                              | RP105                                  | RP105D                               | RC106                              | RP106BB                               | RP106                            |
| <b>ORIGIN</b>                         |                               |                                    |                                    |  |                                      |                                    |                                       |                                  |
| <b>COST</b> (inc Tax) Conversion-only | £95 \$122 €0                  | £101 \$121 €113                    | £70 \$83 €78                       | £94 \$113 €106                         | £151 \$182 €170                      | £108 \$130 €122                    | £124 \$146 €158                       | £198 \$238                       |
| <b>WEIGHT</b>                         | 283g<br>10oz                  | 397g<br>14oz                       | 454g<br>1lb 0oz                    | 595g<br>1lb 5oz                        | 1049g<br>2lb 5oz                     | 490g<br>1lb 1oz                    | 612g<br>1lb 6oz                       | 1043g<br>1lb 5oz                 |
| <b>MAX LOAD- WLL MBS</b>              | 7.5 37.8kN<br>1700 8500lbf    | 7.5 37.8kN<br>1700 8500lbf         | 7.5 37.8kN<br>1700 8500lbf         | 14.2 71.2kN<br>3200 16000lbf           | 17.8 88.9kN<br>4000 20000lbf         | 7.5 37.8kN<br>1700 8500lbf         | 14.2 71.2kN<br>3200 16000lbf          | 17.8 88.9kN<br>4000 20000lbf     |
| <b>MAX ROPE Ø</b>                     | 16mm<br>5/8"                  | 16mm<br>5/8"                       | 16mm<br>5/8"                       | 16mm<br>5/8"                           | 16mm<br>5/8"                         | 16mm<br>5/8"                       | 16mm<br>5/8"                          | 16mm<br>5/8"                     |
| <b>SHEAVE/TREAD Ø</b>                 | 60mm<br>2.4"                  | 60mm<br>2.4"                       | 60mm<br>2.4"                       | 75mm<br>3"                             | 75mm<br>3"                           | 60mm<br>2.4"                       | 75mm<br>3"                            | 75mm<br>3"                       |
| <b>DIMENSIONS</b> ht x w x depth      | 108x83x25mm<br>4.25x3.25x1"   | 111x89x25mm<br>4.4 x 3.5 x 1"      | 152x83x25mm<br>6 x 3.25 x 1"       | 165x108x26mm<br>6.5 x 4.25 x 1"        | 184x108x50mm<br>7.25x4.25x2"         | 152x83x25mm<br>6 x 3.25 x 1"       | 165x108x26mm<br>6.5 x 4.25x1"         | 184x108x26mm<br>7.25x4.25x1"     |
| <b>PRUSIK TEND LOCK BECKET</b>        |                               |                                    |                                    |  |                                      |                                    |                                       |                                  |
| <b>BUSHING BEARING PIN</b>            |                               |                                    |                                    |  |                                      |                                    |                                       |                                  |
| <b>CHEEKS - SWIVEL FIXED</b>          |                               |                                    |                                    |  |                                      |                                    |                                       |                                  |
| <b>EFFICIENCY</b>                     | 95.6%                         | 95.6%                              | 91.4%                              | 92.1%                                  | n/a                                  | 95.6%                              | 94.1%                                 | 94.1%                            |
| <b>CHEEK SHEAVE AXLE</b>              | StSt Alu StSt                 | StSt Steel StSt                    | StSt Steel StSt                    | StSt Alu StSt                          | StSt Alu StSt                        | StSt Steel StSt                    | StSt Alu StSt                         | StSt Alu                         |
| <b>STANDARDS</b>                      | CE                            | CE                                 | CE                                 | CE                                     | CE                                   | CE                                 | CE                                    | CE                               |
| <b>OTHER COLOURS</b>                  | -                             | -                                  | -                                  | -                                      | -                                    | -                                  | -                                     | -                                |
| <b>NOTES</b>                          | * Needle Bearing              | wire cable-able<br>*needle bearing | Wire cable-able                    | bush                                   |                                      | wire cable-able<br>*needle bearing | *needle bearing                       |                                  |
| <b>WEBSITE</b>                        | cmigearusa.com                | cmigearusa.com                     | cmigearusa.com                     | cmigearusa.com                         | cmigearusa.com                       | cmigearusa.com                     | cmigearusa.com                        | cmigearusa.com                   |



|                 |                                     |                                     |                                   |                                     |                                   |                                   |                                     |                                     |  |
|-----------------|-------------------------------------|-------------------------------------|-----------------------------------|-------------------------------------|-----------------------------------|-----------------------------------|-------------------------------------|-------------------------------------|--|
|                 |                                     |                                     |                                   |                                     |                                   |                                   |                                     |                                     |  |
|                 | <b>CMC</b>                          | <b>CMI</b>                          | <b>CMI</b>                        | <b>CMI</b>                          | <b>CMI</b>                        | <b>CMI</b>                        | <b>CMI</b>                          | <b>CMI</b>                          | <b>CMI</b>   |
| Rescue db1      | Rescue db1                          | RP101                               | RP101                             | RP102                               | RP102D                            | RC102                             | RP103                               | RP103BB                             | RC103  |
|                 |                                     |                                     |                                   |                                     |                                   |                                   |                                     |                                     |  |
| £0              | £0 \$0 €0                           | £40 \$48 €46                        | £66 \$78 €76                      | £60 \$72 €68                        | £112 \$134 €125                   | £69 \$83 €78                      | £82 \$104 €97                       | £90 \$108 €100                      | £87 \$104 €97  |
| Weight          | 249g<br>8.8oz                       | 170g<br>6oz                         | 0g<br>0oz                         | 198g<br>7oz                         | 510g<br>1lb 2oz                   | 340g<br>12oz                      | 198g<br>7oz                         | 198g<br>7oz                         | 340g<br>12oz   |
| Strength        | - 45kN<br>- 10116lbf                | 5.3 26.7kN<br>1200 6000lbf          | 5.3 26.7kN<br>1200 6000lbf        | 5.3 26.7kN<br>1200 6000lbf          | 5.3 26.7kN<br>1200 6000lbf        | 5.3 26.7kN<br>1200 6000lbf        | 5.3 26.7kN<br>1200 6000lbf          | 5.3 26.7kN<br>1200 6000lbf          | 5.3 26.7kN<br>1200 6000lbf   |
| Sheave Diameter | ≤13mm<br>≤1/2"                      | ≤16mm<br>≤5/8"                      | ≤16mm<br>≤5/8"                    | ≤16mm<br>≤5/8"                      | ≤16mm<br>≤5/8"                    | ≤16mm<br>≤5/8"                    | ≤16mm<br>≤5/8"                      | ≤16mm<br>≤5/8"                      | ≤16mm<br>≤5/8"   |
| Pin Diameter    | 2x 38mm<br>2x 1.5"                  | 60mm<br>2.4"                        | 60mm<br>2.4"                      | 60mm<br>2.4"                        | 2x 60mm<br>2.4"                   | 60mm<br>2.4"                      | 60mm<br>2.4"                        | 60mm<br>2.4"                        | 60mm<br>2.4"   |
| Dimensions      | 117 x 64 x 43mm<br>4.6 x 2.5 x 1.7" | 108 x 83 x 25mm<br>4.25 x 3.25 x 1" | 165 x 89 x 25mm<br>6.5 x 3.5 x 1" | 108 x 83 x 25mm<br>4.25 x 3.25 x 1" | 165 x 89 x 25mm<br>6.5 x 3.5 x 1" | 111 x 89 x 25mm<br>4.4 x 3.5 x 1" | 108 x 83 x 25mm<br>4.25 x 3.25 x 1" | 108 x 83 x 25mm<br>4.25 x 3.25 x 1" | 111 x 89 x 25mm<br>4.4 x 3.5 x 1"  |
| Material        | Alu                                 | Alu                                 | Celcon                            | Celcon                              | Alu                               | Alu                               | Steel                               | Alu                                 | Alu  |
| CE Marking      | NFPA                                | -                                   | -                                 | -                                   | -                                 | -                                 | -                                   | -                                   | CE   |
| Notes           |                                     |                                     | Discontinued                      |                                     |                                   |                                   | * Needle Bearing                    |                                     | * Needle Bearing   |
| Website         | cmcpro.com                          | cmigearusa.com                      | cmigearusa.com                    | cmigearusa.com                      | cmigearusa.com                    | cmigearusa.com                    | cmigearusa.com                      | cmigearusa.com                      | cmigearusa.com   |
|                 |                                     |                                     |                                   |                                     |                                   |                                   |                                     |                                     | CMI PULLEYS NUMBERING<br>130,131, 145, 146,160,162 = Impact Blocks<br>139 & 143 = Trolleys.<br>141&151 =p64<br>No 128 or 150 |
|                 | <b>CMI</b>                          | <b>CMI</b>                          | <b>CMI</b>                        | <b>CMI</b>                          | <b>CMI</b>                        | <b>CMI</b>                        | <b>CMI</b>                          | <b>CMI</b>                          |  |
| RP107           | RP108BB                             | RP109                               | RP110                             | RP110                               | RP110D                            | RP111                             | RP112                               |                                     |  |
|                 |                                     |                                     |                                   |                                     |                                   |                                   |                                     |                                     |  |
| £222            | £100 \$120 €112                     | £132 \$159 €168                     | £37 \$44 €42                      | £37 \$45 €43                        | £48 \$58 €55                      | £61 \$74 €70                      | £65 \$79 €74                        | £100 \$121 €115                     |  |
| Weight          | 822g<br>1lb 13oz                    | 822g<br>1lb 13oz                    | 71g<br>2.4oz                      | 71g<br>2.5oz                        | 71g<br>2.4oz                      | 113g<br>4oz                       | 318g<br>11.2oz                      | 318g<br>11.2oz                      |  |
| Strength        | 14.2 71.2kN<br>3200 16000lbf        | 14.2 71.2kN<br>3200 16000lbf        | 6.2 31.1kN<br>1400 7000lbf        | 6.2 31.1kN<br>1400 7000lbf          | 6.2 31.1kN<br>1400 7000lbf        | 6.2 31.1kN<br>1400 7000lbf        | - 37.8kN<br>1700 8500lbf            | 7.5 37.8kN<br>1700 8500lbf          |  |
| Sheave Diameter | 16mm<br>5/8"                        | 16mm<br>5/8"                        | ≤12.7mm<br>≤1/2"                  | ≤12.7mm<br>≤1/2"                    | ≤12.7mm<br>≤1/2"                  | ≤12.7mm<br>≤1/2"                  | 16mm<br>5/8"                        | 16mm<br>5/8"                        |  |
| Pin Diameter    | 100mm<br>4"                         | 100mm<br>4"                         | 31mm<br>1.25"                     | 31mm<br>1.25"                       | 31mm<br>1.25"                     | 2x 31mm<br>1.25"                  | 60mm<br>2.4"                        | 60mm<br>2.4"                        |  |
| Dimensions      | 190x127x26mm<br>7.5 x 5 x 1"        | 190x127x26mm<br>7.5 x 5 x 1"        | 70x41x24mm<br>2.75x1.6x1"         | 70x41x24mm<br>2.75x1.6x1"           | 70x41x24mm<br>2.75x1.6x1"         | 89x41x46mm<br>3.5 x 1.6x1.8"      | 146x75x25mm<br>5.75 x 3 x 1"        | 152x83x25mm<br>6 x 3.25 x 1"        |  |
| Material        | StSt                                | StSt                                | Alu                               | Alu                                 | Alu                               | Alu                               | StSt                                | StSt                                |  |
| CE Marking      | -                                   | -                                   | CE                                | ANSI                                | ANSI                              | CE                                | CE                                  | CE                                  |  |
| Notes           |                                     | *needle bearing                     |                                   | Alu sheave version shown            | Alu sheave version shown          |                                   |                                     | *needle bearing                     |  |
| Website         | cmigearusa.com                      | cmigearusa.com                      | cmigearusa.com                    | cmigearusa.com                      | cmigearusa.com                    | cmigearusa.com                    | cmigearusa.com                      | cmigearusa.com                      |  |

|   |                               |                               |                               |                                   |                                |                               |   |   |
|---|-------------------------------|-------------------------------|-------------------------------|-----------------------------------|--------------------------------|-------------------------------|---|---|
| Images NOT to Scale                             |                               |                               |                               |                                   |                                |                               |   |   |
| <b>MANUFACTURER</b>                             | <b>CMI</b>                    | <b>CMI</b>                    | <b>CMI</b>                    | <b>CMI</b>                        | <b>CMI</b>                     | <b>CMI</b>                    | <b>CMI</b>                                | <b>CMI</b>                                |
| <b>MODEL VARIANT</b>                            | RP113                         | RP114                         | RP115                         | RP116                             | RP116BB                        | RP117NFPA                     | RP118NFPA                                 | RP118                                     |
| <b>ORIGIN</b>                                   |                               |                               |                               |                                   |                                |                               |   |   |
| <b>COST</b> (inc Tax) <i>Conversion-only</i>    | £20 \$24 €23                  | £46 \$56 €53                  | £38 \$46 €44                  | £44 \$53 €51                      | £48 \$65 €52                   | £48 \$65/88 €52               | £65 \$79/88 €74                           | £60 \$72                                  |
| <b>WEIGHT</b>                                   | 43g<br>1.5oz                  | 284g<br>10oz                  | 198g<br>7oz                   | 184g<br>6.5oz                     | 184g<br>6.5oz                  | 227g<br>8oz                   | 340g<br>12oz                              | 340g<br>12oz                              |
| <b>MAX LOAD- WLL MBS</b>                        | 4.5 22.2kN<br>1000 5000lbf    | 6.6 33.3kN<br>1500 7500lbf    | 6.6 33.3kN<br>1500 7500lbf    | 6.6 33.3kN<br>1500 7500lbf        | 6.6 33.3kN<br>1500 7500lbf     | 7.1 35.5kN<br>1600 8000lbf    | 7.1 35.5kN<br>1600 8000lbf                | 7.1 35.5kN<br>1600 8000lbf                |
| <b>MAX ROPE Ø</b>                               | ≤13mm<br>≤½"                  | ≤12.7mm<br>≤½"                | ≤12.7mm<br>≤½"                | ≤12.7mm<br>≤½"                    | ≤12.7mm<br>≤½"                 | ≤12.7mm<br>≤½"                | ≤12.7mm<br>≤½"                            | ≤12.7mm<br>≤½"                            |
| <b>SHEAVE/TREAD Ø</b>                           | 31mm<br>1.25"                 | 60mm<br>2.4"                  | 50mm<br>2"                    | 50mm<br>2"                        | 50mm<br>2"                     | 50mm<br>2"                    | 50mm<br>2"                                | 50mm<br>2"                                |
| <b>DIMENSIONS</b> <small>ht x w x depth</small> | 75x38x20mm<br>3 x 1.5 x 0.8"  | 127x 0x24mm<br>5 x 2.5 x 0.9" | 127x 0x24mm<br>5 x 2.5 x 0.9" | 127x 0x24mm<br>5 x 2.5 x 0.9"     | 127x 0x24mm<br>5 x 2.5 x 0.9"  | 127x 0x21mm<br>5 x 2.5 x 0.8" | 127x 0x21mm<br>5 x 2.5 x 0.8"             | 127x 0x21mm<br>5 x 2.5 x 0.8"             |
| <b>PRUSIK TEND LOCK BECKET</b>                  | ---                           | ---                           | ---                           | ---                               | ---                            | ---                           | ---                                       | ---                                       |
| <b>BUSHING BEARING PIN</b>                      | ■                             | ■                             | ■                             | ■*                                | ■                              | ■*                            | ■   | ■   |
| <b>CHEEKS - SWIVEL FIXED</b>                    | ■                             | ■                             | ■                             | ■                                 | ■                              | ■                             | ■   | ■   |
| <b>EFFICIENCY</b>                               | 86.4%                         | 89.2%                         | 89.2%                         | 90.6%                             | 90.6%                          | 90.6%                         | 89.2%                                     | 89.2%                                     |
| <b>CHEEK SHEAVE AXLE STANDARDS</b>              | Alu Nylon StSt<br>CE          | Alu StSt StSt<br>CE           | Alu Alu StSt<br>CE            | Alu Alu StSt                      | Alu Alu StSt                   | Alu Alu StSt                  | StSt Alu StSt<br>Exceeds NFPA but no cert | StSt Alu StSt<br>Exceeds NFPA but no cert |
| <b>OTHER COLOURS</b>                            | -                             | ■                             | -                             | -                                 | -                              | -                             | -   | -   |
| <b>NOTES</b>                                    |                               |                               |                               | *Needle Bearing                   |                                | *Needle Bearing               |   | Alloy sheave version of f                 |
| <b>WEBSITE</b>                                  | cmigearusa.com                | cmigearusa.com                | cmigearusa.com                | cmigearusa.com                    | cmigearusa.com                 | cmigearusa.com                | cmigearusa.com                            | cmigearusa.com                            |
| Images NOT to Scale                             |                               |                               |                               |                                   |                                |                               |   |   |
| <b>MANUFACTURER</b>                             | <b>CMI</b>                    | <b>CMI</b>                    | <b>CMI</b>                    | <b>CMI</b>                        | <b>CMI</b>                     | <b>CMI</b>                    | <b>CMI</b>                                | <b>CMI</b>                                |
| <b>MODEL VARIANT</b>                            | RP124NFPA                     | RP125                         | RP125NFPA                     | RP126                             | RP127                          | RP129NFPA                     | RP132                                     | RP133NFPA                                 |
| <b>ORIGIN</b>                                   |                               |                               |                               |                                   |                                |                               |   |   |
| <b>COST</b> (inc Tax) <i>Conversion-only</i>    | £208 \$250/320                | £240 \$288 €273               | £300 \$360 €341               | £67 \$81 €77                      | £112 \$134 €128                | £130 \$156 €148               | £79 \$95 €90                              | £130 \$156                                |
| <b>WEIGHT</b>                                   | 1792g<br>3lb 15oz             | 1792g<br>3lb 15oz             | 1792g<br>3lb 15oz             | 363g<br>12.8oz                    | 476g<br>16.8oz                 | 737g<br>1lb 10oz              | 397g<br>14oz                              | 737g<br>1lb 10oz                          |
| <b>MAX LOAD- WLL MBS</b>                        | 22.2 111.2kN<br>5000 25000lbf | 22.2 111.2kN<br>5000 25000lbf | 22.2 111.2kN<br>5000 25000lbf | - 44.5kN<br>- 10000lbf            | - 44.5kN<br>- 10000lbf         | 14.2 71kN<br>3200 16000lbf    | 7.1 35.5kN<br>1600 8000lbf                | 11.5 57kN<br>2600 13000lbf                |
| <b>MAX ROPE Ø</b>                               | ≤16mm<br>≤⅝"                  | ≤16mm<br>≤⅝"                  | ≤16mm<br>≤⅝"                  | ≤13mm<br>≤½"                      | ≤13mm<br>≤½"                   | ≤12.7mm<br>≤½"                | ≤12.7mm<br>≤½"                            | ≤12.7mm<br>≤½"                            |
| <b>SHEAVE/TREAD Ø</b>                           | 2x 100mm<br>2x 4"             | 2x 100mm<br>2x 4"             | 2x 100mm<br>2x 4"             | 51mm<br>2"                        | 2x 51mm<br>2x 2"               | 75mm<br>3"                    | 50mm<br>2"                                | 50mm<br>2"                                |
| <b>DIMENSIONS</b> <small>ht x w x depth</small> | 229x121x52mm<br>9 x 4.75 x 2" | 229x121x52mm<br>9 x 4.75 x 2" | 229x121x52mm<br>9 x 4.75 x 2" | 152x70x22mm<br>6 x 2.75 x 0.8"    | 152x70x22mm<br>6 x 2.75 x 0.8" | 172x132x22mm<br>6.75x5.2x0.8" | 127x100x31mm<br>5 x 4 x 1.2"              | 172x133x22mm<br>6.75x5.2x0.8"             |
| <b>PRUSIK TEND LOCK BECKET</b>                  | ■                             | ■                             | ■                             | ■                                 | ■                              | ■                             | ■   | ■   |
| <b>BUSHING BEARING PIN</b>                      | ■                             | ■*                            | ■*                            | ■                                 | ■                              | ■                             | ■   | ■   |
| <b>CHEEKS - SWIVEL FIXED</b>                    | ■                             | ■                             | ■                             | ■                                 | ■                              | ■                             | ■   | ■   |
| <b>EFFICIENCY</b>                               | -                             | -                             | -                             | -                                 | -                              | 91.7%                         | 90.7                                      | -   |
| <b>CHEEK SHEAVE AXLE STANDARDS</b>              | StSt Alu StSt<br>NFPA         | StSt Alu StSt<br>NFPA         | StSt Alu StSt<br>NFPA         | StSt Alu StSt                     | StSt StSt StSt                 | StSt Alu StSt<br>CE           | StSt Alu StSt<br>*                        | StSt Alu StSt<br>*                        |
| <b>OTHER COLOURS</b>                            | -                             | -                             | -                             | -                                 | -                              | -                             | -   | -   |
| <b>NOTES</b>                                    |                               | * Needle Bearing              | * Needle Bearing              | Intended as a ropes course pulley |                                |                               | *Not NFPA but exceeds test                | *Not NFPA but exceeds test                |
| <b>WEBSITE</b>                                  | cmigearusa.com                | cmigearusa.com                | cmigearusa.com                | cmigearusa.com                    | cmigearusa.com                 | cmigearusa.com                | cmigearusa.com                            | cmigearusa.com                            |



|             |   |  |  |  |  |  |  |  | Expansion Column |
|-------------|---|---|---|---|---|---|---|---|------------------|
|             | CMI   | CMI   | CMI   | CMI   | CMI   | CMI   | CMI   | CMI   |                  |
| Model       | RP119   | RP120   | RP120A  | RP121   | RP122NFPA   | RP122SS   | RP123NFPA   | RP123SS   |                  |
| Country     |  |  |  |  |  |  |  |  |                  |
| Price       | €68 £84 \$102 €97   | €90 \$108 €102  | £81 \$99 €94  | £19 \$22 €53  | £100 \$120/144  | £150 \$180 €0   | £126 \$134/151  | £166 \$200 €190   |                  |
| Weight      | 397g<br>14oz  | 589g<br>20.8oz  | 397g<br>14oz  | 284g<br>10oz  | 998g<br>2lb 4oz   | 998g<br>2lb 4oz   | 998g<br>2lb 4oz   | 1633g<br>3lb 10oz   |                  |
| Strength    | 5kN 1100lbf<br>9.7 48.9kN<br>2200 11000lbf  | 5kN 1100lbf<br>9.7 48.9kN<br>2200 11000lbf  | 5kN 1100lbf<br>9.7 48.9kN<br>2200 11000lbf  | 5kN 1100lbf<br>- 30.2kN<br>- 6800lbf  | 5kN 1100lbf<br>17.8 88.9kN<br>4000 20000lbf                                       | 5kN 1100lbf<br>17.8 88.9kN<br>4000 20000lbf                                       | 5kN 1100lbf<br>17.8 88.9kN<br>4000 20000lbf   | 5kN 1100lbf<br>17.8 88.9kN<br>4000 20000lbf   |                  |
| Dimensions  | ≤12.7mm<br>≤½"  | ≤12.7mm<br>≤½"  | ≤12.7mm<br>≤½"  | ≤16mm<br>≤⅝"  | ≤16mm<br>≤⅝"  | ≤16mm<br>≤⅝"  | ≤16mm<br>≤⅝"  | ≤16mm<br>≤⅝"  |                  |
| Mounting    | 2x 50mm<br>2x 2"  | 2x 50mm<br>2x 2"  | 2x 50mm<br>2x 2"  | 50mm<br>2"  | 100mm<br>4"   | 100mm<br>4"   | 100mm<br>4"   | 100mm<br>4"   |                  |
| Dimensions  | 165x66x37mm<br>6.5x2.6x 1.5"  | 165x66x37mm<br>6.5x2.6x 1.5"  | 165x66x37mm<br>6.5x2.6x 1.5"  | 140x108x31mm<br>5.5x4.25x1.2"   | 203x121x26mm<br>8 x 4.75 x 1"   | 203x121x26mm<br>8 x 4.75 x 1"   | 203x121x26mm<br>8 x 4.75 x 1"   | 203x121x26mm<br>8 x 4.75 x 1"   |                  |
| Material    | Alu   | Alu   | Alu   | Alu   | Alu   | Alu   | Alu   | Alu   |                  |
| Efficiency  | 185.7%  | 172.9%  | 172.9%  | 89.2%   | 92.3%   | 92.3%   | 95%   | 95%   |                  |
| Material    | StSt  | StSt Alu StSt   | StSt Alu StSt   | StSt Alu ZPS  | StSt Alu StSt   | StSt StSt StSt  | StSt Alu StSt   | StSt StSt StSt  |                  |
| Notes       | -   | -   | -   | -   | Exceeds NFPA but no cert  | -   | NFPA  | -   |                  |
| Accessories | * Needle Bearing  |   |   |   |   |   |   |   |                  |
| Website     | cmigearusa.com  | cmigearusa.com  | cmigearusa.com  | cmigearusa.com  | cmigearusa.com  | cmigearusa.com  | cmigearusa.com  | cmigearusa.com  |                  |

|             |   |  |  |  |  |  |  |  | Expansion Column |
|-------------|---|---|---|---|---|---|---|---|------------------|
|             | CMI   | CMI   | CMI   | CMI   | CMI   | CMI   | CMI   | CMI   |                  |
| Model       | RP134   | RP135   | RP137   | RP137D  | RP138   | RP140   | RP142   | RP144   |                  |
| Country     |  |  |  |  |  |  |  |  |                  |
| Price       | €210 \$306 €243   | €232 \$337 €268   | £49 \$66 €53  | £75 \$114 €85   | £93 \$134 €107  | £46 \$55 €53  | £19 \$22 €22  | £63 \$76 €73  |                  |
| Weight      | 2382g<br>3lb 4oz  | 2382g<br>3lb 4oz  | 91g<br>3.2oz  | 136g<br>4.8oz   | 1270g<br>2lb 13oz   | 91g<br>3.2oz  | 71g<br>2.5oz  | 85g<br>3oz  |                  |
| Strength    | 8kN 1800lbf<br>26.6 133kN<br>6000 30000lbf  | 8kN 1800lbf<br>26.6 133kN<br>6000 30000lbf  | 3.1 31.1kN<br>700 7000lbf   | 3.1 31.1kN<br>700 7000lbf   | 13.3 66.7kN<br>3000 15000lbf  | 3.1 31.1kN<br>700 7000lbf   | 18kN<br>800 4047lbf   | - 35.5kN<br>- 8000lbf   |                  |
| Dimensions  | ≤16mm<br>≤⅝"  | ≤16mm<br>≤⅝"  | ≤12.7mm<br>≤½"  | ≤12.7mm<br>≤½"  | ≤16mm<br>≤⅝"  | ≤12.7mm<br>≤½"  | ≤12.7mm<br>≤½"  | ≤12.7mm<br>≤½"  |                  |
| Mounting    | 3x 100mm<br>3x 4"   | 3x 100mm<br>3x 4"   | 32mm<br>1.25"   | 2x 32mm<br>2x 1.25"   | 100mm<br>4"   | 32mm<br>1.25"   | 32mm<br>1.25"   | 32mm<br>1.25"   |                  |
| Dimensions  | 203x121x72mm<br>8x4.75x2.8"   | 203x121x72mm<br>8x4.75x2.8"   | 76x70 x25mm<br>3 x 2.75 x 1"  | 95x70x45mm<br>3.75x2.75x1.8"  | 222x178x26mm<br>8.75 x7 x 1"  | 64 x 44.5mm<br>2.5 x 1.75"  | 70x48x20mm<br>2.75x1.9x08."   | 63x38mm<br>2.5x1.5"   |                  |
| Material    | Alu   | Alu   | Alu   | Alu   | Alu   | Alu   | Nylon   | Alu   |                  |
| Efficiency  | -   | -   | CE  | CE  | CE  | CE  | CE  | CE  |                  |
| Notes       | -   | -   | -   | -   | -   | -   | ■   | -   |                  |
| Accessories |   | * Needle Bearing  |   |   |   |   |   |   |                  |
| Website     | cmigearusa.com  | cmigearusa.com  | cmigearusa.com  | cmigearusa.com  | cmigearusa.com  | cmigearusa.com  | cmigearusa.com  | cmigearusa.com  |                  |

|  |                                      |                                      |                                |                                 |                            |                              |                                |   |
|--|--------------------------------------|--------------------------------------|--------------------------------|---------------------------------|----------------------------|------------------------------|--------------------------------|---|
| Images NOT to Scale                          |                                      |                                      |                                |                                 |                            |                              |                                |   |
| <b>MANUFACTURER</b>                          | CMI                                  | CMI                                  | CMI                            | CMI                             | CMI                        | CMI                          | CMI                            | CMI                                       |
| <b>MODEL VARIANT</b>                         | RP147                                | RP148                                | RP149                          | RP152                           | RP153                      | RP154                        | RP155                          | RP156                                     |
| <b>ORIGIN</b>                                |                                      |                                      |                                |                                 |                            |                              |                                |   |
| <b>COST</b> (inc Tax) <i>Conversion-only</i> | £107 \$130 €123                      | £107 \$130 €123                      | £117 \$142 €134                | £69 \$83 €79                    | £102 \$123 €117            | £90 \$110 €104               | £137 \$164 €155                | £48 \$65 €55                              |
| <b>WEIGHT</b>                                | 408g<br>14.4oz                       | 408g<br>14.4oz                       | 692g<br>1lb 9oz                | 199g<br>7oz                     | 340g<br>12oz               | 363g<br>12.8oz               | 635g<br>1lb 6.4oz              | 199g<br>7oz                               |
| <b>MAX LOAD- WLL MBS</b>                     | 12.4 62kN<br>2800 14000lbf           | 12.4 62kN<br>2800 14000lbf           | 14.2 71.2kN<br>3200 16000lbf   | 8.7 43kN<br>1960 9800lbf        | 12.4 62kN<br>2780 14000lbf | 8.8 44kN<br>1980 9900lbf     | 12.4 61kN<br>2780 13900lbf     | 5.8 28kN<br>1300 6500lbf                  |
| <b>MAX ROPE Ø</b>                            | ≤9mm cable<br>≤3/8" cable            | ≤12.7mm cable<br>≤1/2" cable         | 25mm<br>1"                     | ≤12.7mm<br>≤1/2"                | ≤12.7mm<br>≤1/2"           | ≤12.7mm<br>≤1/2"             | ≤12.7mm<br>≤1/2"               | ≤12.7mm<br>≤1/2"                          |
| <b>SHEAVE/TREAD Ø</b>                        | 50mm<br>2"                           | 50mm<br>2"                           | 70mm<br>2.75"                  | 51mm<br>2"                      | 2x 51mm<br>2x 2"           | 75mm<br>3"                   | 2x 75mm<br>2x 3"               | 51mm<br>2"                                |
| <b>DIMENSIONS</b> ht x w x depth             | 127x50x25mm<br>5 x 2 x 1"            | 127x50x25mm<br>5 x 2 x 1"            | 165x108x36mm<br>6.5x4.25x1.4"  | 100 x 75 x 23mm<br>4 x 3 x 0.9" | 127 x 76mm<br>5 x 3"       | 152x100x23mm<br>6 x 4 x 0.9" | 178 x 100x42mm<br>7 x 4 x 1.7" | 100x70x23mm<br>4 x 2.75x0.9"              |
| <b>PRUSIK TEND LOCK BECKET</b>               | ---                                  | ---                                  | ---                            | ■--                             | ■-■                        | ■--                          | ■-■                            | ---                                       |
| <b>BUSHING BEARING PIN</b>                   | ■                                    | ■                                    | ■                              | ■                               | ■                          | ■                            | ■                              | ■   |
| <b>CHEEKS - SWIVEL FIXED</b>                 | ■                                    | ■                                    | ■                              | ■                               | ■                          | ■                            | ■                              | ■   |
| <b>EFFICIENCY</b>                            | n/a                                  | n/a                                  | n/a                            | 93.3%                           | 93.3%                      | n/a                          | n/a                            | n/a                                       |
| <b>CHEEK SHEAVE AXLE</b>                     | StSt StSt StSt                       | StSt StSt StSt                       | StSt Alu StSt                  | Alu Alu StSt                    | Alu Alu StSt               | Alu Alu StSt                 | Alu Alu StSt                   | Alu Alu StSt                              |
| <b>STANDARDS</b>                             | CE                                   | CE                                   | CE                             | CE                              | CE                         | CE                           | CE                             | CE  |
| <b>OTHER COLOURS</b>                         | -                                    | -                                    | -                              | -                               | -                          | -                            | -                              | -   |
| <b>NOTES</b>                                 | cheek gap lets rope direct to sheave | cheek gap lets rope direct to sheave |                                |                                 |                            |                              |                                |   |
| <b>WEBSITE</b>                               | cmigearusa.com                       | cmigearusa.com                       | cmigearusa.com                 | cmigearusa.com                  | cmigearusa.com             | cmigearusa.com               | cmigearusa.com                 | cmigearusa.com                            |
| Images NOT to Scale                          |                                      |                                      |                                | expansion column                |                            |                              |                                |   |
| <b>MANUFACTURER</b>                          | CONTERRA                             | COURANT                              | COURANT                        |                                 | DMM                        | DMM                          | DMM                            | DMM                                       |
| <b>MODEL VARIANT</b>                         | Revolution FR RPF                    | Mova Eccentric                       | Orbit22                        |                                 | Polo pul600                | Pinto 2 pul110               | Pinto Rig 2PUL120              | Gyro pul230                               |
| <b>ORIGIN</b>                                |                                      |                                      |                                |                                 |                            |                              |                                |   |
| <b>COST</b> (inc Tax) <i>Conversion-only</i> | £74 \$90 €88                         | £16 \$25 €16                         | £12 \$17 €14                   |                                 | £55 \$67 €64               | £40 \$65 €50                 | £72 \$100 €80                  | £75 \$93 €100                             |
| <b>WEIGHT</b>                                | 188g<br>6.6oz                        | 85g<br>3.4oz                         | 110g<br>4.3oz                  |                                 | 17g<br>0.6oz               | 117g<br>4.1oz                | 222g<br>6.4oz                  | 225g<br>8.9oz                             |
| <b>MAX LOAD- WLL MBS</b>                     | - 38kN<br>- 8543lbf                  | - 20kN<br>- 4496lbf                  | - 22kN<br>- 4946lbf            |                                 | 15kN<br>3372lbf            | 10 50kN<br>2248 11240lbf     | 10 50kN<br>2248 11241lbf       | 10 50kN<br>2248 11241lbf                  |
| <b>MAX ROPE Ø</b>                            | 8-13mm<br>5/16-1/2"                  | ≤11mm<br>≤7/16"                      | ≤13mm<br>≤1/2"                 |                                 | 2-6mm<br>3/32-1/4"         | ≤14mm<br>≤9/16"              | ≤16mm<br>≤5/8"                 | ≤13mm<br>≤1/2"                            |
| <b>SHEAVE/TREAD Ø</b>                        | 50mm<br>2"                           | 20mm<br>0.8"                         | 21mm<br>0.825"                 |                                 | 18mm<br>0.7"               | 20.4mm<br>0.8"               | 28.7mm<br>1.13"                | 38mm<br>1.5"                              |
| <b>DIMENSIONS</b> ht x w x depth             | 190x102x51mm<br>7.5x3.75x2"          | 73 x 43 x 28mm<br>2.9 x 1.7 x 1.1"   | 85x44x29mm<br>3.4 x 1.7 x 1.1" |                                 | 48x23x12mm<br>1.9x0.9x0.5" | 95x45x32mm<br>3.7x1.8x1.3"   | 115x60x37mm<br>4.5x2.4x1.5"    | 97x68x31mm<br>3.8 x 2.7 x 1.1"            |
| <b>PRUSIK TEND LOCK BECKET</b>               | ■-■                                  | ---                                  | ---                            |                                 | ---                        | ■-■                          | ■-■                            | ---                                       |
| <b>BUSHING BEARING PIN</b>                   | ■                                    | ■                                    | ■                              |                                 | ■                          | ■                            | ■                              | ■   |
| <b>CHEEKS - SWIVEL FIXED</b>                 | ■                                    | ■                                    | ■                              |                                 | ■                          | ■                            | ■                              | ■   |
| <b>EFFICIENCY</b>                            | 184%                                 | n/a                                  | n/a                            |                                 | n/a                        | n/a                          | n/a                            | n/a                                       |
| <b>CHEEK SHEAVE AXLE</b>                     | Alu Alu StSt                         | Alu Alu Alu                          | Alu Alu StSt                   |                                 | Alu Alu StSt               | Alu Alu StSt                 | Alu Alu StSt                   | Alu Alu StSt                              |
| <b>STANDARDS</b>                             | NFPA                                 | CE                                   | CE                             |                                 | CE                         | CE NFPA                      | CE NFPA                        | CE  |
| <b>OTHER COLOURS</b>                         | -                                    | -                                    | -                              |                                 | ■                          | ■                            | ■                              | ■   |
| <b>NOTES</b>                                 | centre eye=becket                    |                                      |                                |                                 |                            | replaced Pinto in 2024       | replaced Rig in 2024           | originally for 12mm rope, uprated to 13mm |
| <b>WEBSITE</b>                               | cmigearusa.com                       | mycourant.com                        | mycourant.com                  |                                 | dmmwales.com               | dmmwales.com                 | dmmwales.com                   | dmmwales.com                              |

# PULLEYS

|                  |    |    |    |    |    |
|------------------|--|---|---|---|---|
|                  | CMI  | CMI   | CMI   | CMI   | CMI   |
|                  | RP157  | RP158   | RP159   | UP101   | UP102   |
|                  |    |    |    |    |    |
| Price            | £88 \$107 €101   | £118 \$142 €136   | £195 \$233 €224   | £156 \$187 €179   | £156 \$187 €179   |
| Weight           | 340g<br>12oz   | 709g<br>1lb 9oz   | 822g<br>2lb 13oz  | 737g<br>1lb 10oz  | 708g<br>1lb 9oz   |
| Strength         | 9.8 48kN<br>220011000lbf   | 7.1 35kN<br>1600 8000lbf  | 12 60kN<br>270013500lbf   | - 53.4kN<br>- 12000lbf  | - 53.4kN<br>- 12000lbf  |
| Dimensions       | ≤12.7mm<br>≤½"   | 16mm<br>⅝"  | 16mm<br>⅝"  | ≤12.7mm<br>≤½"  | ≤12.7mm<br>≤½"  |
| Other Dimensions | 2x 51mm<br>2x 2"   | 100mm<br>4"   | 2x 100mm<br>2x 4"   | 2x 75mm<br>2x 3"  | 2x 75mm<br>2x 3"  |
| Dimensions       | 140x70x43mm<br>5.5x2.75x1.7"   | 203x114x28mm<br>8 x 4.5 x 1.1"  | 229x114x54mm<br>9 x 4.5 x 2.1"  | 190x102x51mm<br>7.5x3.75x2"   | 152x102x51mm<br>5.75x3.75x2"  |
| Material         | Alu Alu StSt   | Alu Alu StSt  | Alu Alu StSt  | Alu Alu StSt  | Alu Alu StSt  |
| CE               | CE   | CE  | CE  | NFPA*   | NFPA*   |
| Website          | cmigearusa.com   | cmigearusa.com  | cmigearusa.com  | cmigearusa.com  | cmigearusa.com  |
|                  |  |  |  |  |  |
|                  | DMM  | DMM   | EDELRID   | EDELRID   | EDELRID   |
|                  | Gyro PM  | Gyro PM Twin  | Turn  | Easy  | Run Down  |
|                  | PUL231   | PUL241  | 71789   | 88906   | 88907   |
|                  |  |  |  |  |  |
| Price            | £75 \$93 €87   | £100 \$124 €140   | £26 \$33 €25  | £23 \$26 €20  | £51 \$64 €44  |
| Weight           | 234g<br>9.2oz  | 346g<br>13.6oz  | 94g<br>3.3oz  | 108g<br>3.8oz   | 200g<br>7oz   |
| Strength         | 10 50kN<br>224811241lbf  | 10 50kN<br>224811241lbf   | - 30kN<br>- 6744lbf   | - 30kN<br>- 6744lbf   | - 32kN<br>- 7194lbf   |
| Dimensions       | ≤13mm<br>≤½"   | ≤13mm<br>≤½"  | ≤13mm<br>≤½"  | ≤13mm<br>≤½"  | ≤13mm<br>≤½"  |
| Other Dimensions | 38mm<br>1.5"   | 2x 38mm<br>2x 1.5"  | 29mm<br>1.1"  | 29mm<br>1.1"  | 50mm<br>2"  |
| Dimensions       | 97x70x31mm<br>3.8 x 2.7 x 1.2"   | 125x70x52mm<br>4.9 x 2.7 x 2"   | 75x44x29mm<br>3 x 1.7 x 1.1"  | 85x44x29mm<br>3.4 x 1.7 x 1.1"  | 124x70x30mm<br>4.9 x 2.7 x 1.2"   |
| Material         | Alu Alu StSt   | Alu Alu StSt  | Alu Alu Alu   | Alu Alu Alu   | Alu Alu Alu   |
| CE               | CE   | CE  | CE  | CE  | CE  |
| Website          | dmmwales.com   | dmmwales.com  | edelrid.com   | edelrid.com   | edelrid.com   |



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|                                       |                                     |                                   |                                     |   |                                    |  |                                     |                                     |
|---------------------------------------|-------------------------------------|-----------------------------------|-------------------------------------|---|------------------------------------|--|-------------------------------------|-------------------------------------|
| Images NOT to Scale                   |                                     |                                   |                                     |   |                                    |  |                                     |                                     |
| <b>MANUFACTURER</b>                   | <b>EDELRID</b>                      | <b>EDELRID</b>                    | <b>EDELWEISS</b>                    | <b>EDELWEISS</b>                        | <b>EDELWEISS</b>                   | <b>EDELWEISS</b>                       | <b>EDELWEISS</b>                    | <b>EDELWEISS</b>                    |
| <b>MODEL VARIANT</b>                  | Roll Single                         | Roll Double                       | Rotor                               | Rotor 113R                              | Trafic 111                         | Trafic 116                             | Trafic 116R                         | Trafic 2                            |
| <b>ORIGIN</b>                         |                                     |                                   |                                     |   |                                    |  |                                     |                                     |
| <b>COST</b> (inc Tax) Conversion-only | £75 \$93 €73                        | £88 \$122 €110                    | £17 \$26 €24                        | £38 \$48 €45                            | £23 \$31 €29                       | £31 \$41 €38                           | £39 \$46 €43                        | £46 \$61                            |
| <b>WEIGHT</b>                         | 210g<br>7.4oz                       | 345g<br>12.2oz                    | 85g<br>3oz                          | 85g<br>3oz                              | 142g<br>5oz                        | 270g<br>9.5oz                          | 280g<br>9.9oz                       | 475g<br>17oz                        |
| <b>MAX LOAD- WLL MBS</b>              | - 32kN<br>- 7194lbf                 | - 50kN<br>- 11241lbf              | - 20kN<br>- 4496lbf                 | - 20kN<br>- 4496lbf                     | - 20kN<br>- 4496lbf                | 5 30kN<br>1124 6744lbf                 | 5 30kN<br>1124 6744lbf              | 5 30kN<br>1124 6744lbf              |
| <b>MAX ROPE Ø</b>                     | ≤13mm<br>≤½"                        | ≤13mm<br>≤½"                      | 8-12mm<br>≤⅜-⅞"                     | 8-13mm<br>≤⅜-½"                         | 8-11mm<br>≤⅜-⅞"                    | ≤16mm<br>≤⅝"                           | ≤16mm<br>≤⅝"                        | ≤16mm<br>≤⅝"                        |
| <b>SHEAVE/TREAD Ø</b>                 | 50mm<br>2"                          | 2x 50mm<br>2"                     | 20mm<br>08"                         | 28mm<br>1.1"                            | 28mm<br>1.1"                       | 48mm<br>1.9"                           | 48mm<br>1.9"                        | 2x 48mm<br>2x 1.9"                  |
| <b>DIMENSIONS</b> ht x w x depth      | 147 x 70 x 30mm<br>5.8 x 2.7 x 1.2" | 150 x 70 x 30mm<br>6 x 2.7 x 1.2" | 82 x 45 x 29mm<br>3.2 x 1.77 x 1.1" | 82 x 45 x 29mm<br>3.2 x 1.77 x 1.1"     | 80 x 68 x 36mm<br>3.1 x 2.7 x 1.4" | 118 x 83 x 36mm<br>4.6 x 3.3 x 1.4"    | 118 x 83 x 36mm<br>4.6 x 3.3 x 1.4" | 150 x 83 x 36mm<br>4.6 x 3.3 x 1.4" |
| <b>PRUSIK TEND LOCK BECKET</b>        | -- ■                                | -- ■                              | ---                                 | ---                                     | ---                                | ---                                    | ---                                 | -- ■                                |
| <b>BUSHING BEARING PIN</b>            | ■                                   | ■                                 | ■                                   | ■                                       | ■                                  | ■                                      | ■                                   | ■                                   |
| <b>CHEEKS - SWIVEL FIXED</b>          | ■                                   | ■                                 | ■                                   | ■                                       | ■                                  | ■                                      | ■                                   | ■                                   |
| <b>EFFICIENCY</b>                     | 96%                                 | 96%                               | n/a                                 | n/a                                     | n/a                                | n/a                                    | n/a                                 | n/a                                 |
| <b>CHEEK SHEAVE AXLE</b>              | Alu Alu Alu                         | Alu Alu Alu                       | Alu Alu Zstl                        | Alu Alu Zstl                            | Alu Alu Zstl                       | Alu Alu Zstl                           | Alu Alu Zstl                        | Alu Alu                             |
| <b>STANDARDS</b>                      | CE                                  | CE                                | CE                                  | CE                                      | CE UIAA                            | CE                                     | CE                                  | CE                                  |
| <b>OTHER COLOURS</b>                  | -                                   | -                                 |                                     |   |                                    |  |                                     |                                     |
| <b>NOTES</b>                          |                                     |                                   |                                     |   |                                    |  |                                     |                                     |
| <b>WEBSITE</b>                        | edelrid.com                         | edelrid.com                       | edelweiss-ropes.com                 | edelweiss-ropes.com                     | edelweiss-ropes.com                | edelweiss-ropes.com                    | edelweiss-ropes.com                 | edelweiss-ropes.com                 |
| Images NOT to Scale                   |                                     |                                   |                                     |   |                                    |  |                                     |                                     |
| <b>MANUFACTURER</b>                   | <b>HEIGHTEC</b>                     | <b>HEIGHTEC</b>                   | <b>HEIGHTEC</b>                     | <b>ISC</b>                              | <b>ISC</b>                         | <b>ISC</b>                             | <b>ISC</b>                          | <b>ISC</b>                          |
| <b>MODEL VARIANT</b>                  | PO1                                 | PO2                               | PO4                                 | UltraLink L                             | UltraLink S                        | Eiger Micro                            | Eiger sm                            | Eiger sm                            |
| <b>ORIGIN</b>                         |                                     |                                   |                                     |   |                                    |  |                                     |                                     |
| <b>COST</b> (inc Tax) Conversion-only | £15 \$18 €17                        | £52 \$65 €61                      | £67 \$84 €78                        | £48 \$70 €75                            | £48 \$70 €75                       | £20 \$21 €28                           | £24 \$36 €38                        | £35 \$46                            |
| <b>WEIGHT</b>                         | 90g<br>3.2oz                        | 174g<br>6.1oz                     | 282g<br>9.9oz                       | 218g*<br>7.7oz                          | 208g*<br>7.3oz                     | 92g<br>3.25oz                          | 87g<br>3oz                          | 153g<br>5oz                         |
| <b>MAX LOAD- WLL MBS</b>              | 2.6 26kN<br>0 5845lbf               | 3 30kN<br>674 6744lbf             | 3 30kN<br>674 6744lbf               | - 40kN<br>- 8992lbf                     | - 40kN<br>- 8992lbf                | 0 28kN<br>0 6294lbf                    | - 36kN<br>- 8093lbf                 | - 36kN<br>- 8093lbf                 |
| <b>MAX ROPE Ø</b>                     | ≤12mm<br>≤½"                        | ≤13mm<br>≤½"                      | ≤13mm<br>≤½"                        | ≤13mm<br>≤½"                            | ≤13mm<br>≤½"                       | ≤13mm<br>≤½"                           | ≤13mm<br>≤½"                        | ≤13mm<br>≤½"                        |
| <b>SHEAVE/TREAD Ø</b>                 | 21mm<br>0.825"                      | 50mm<br>2"                        | 50mm<br>2"                          | 32/21mm<br>1.2/0.8"                     | 32/21mm<br>1.2/0.8"                | 30/20mm<br>1.2/0.8"                    | 32/22mm<br>1.6/0.9"                 | 32/22mm<br>1.6/0.9"                 |
| <b>DIMENSIONS</b> ht x w x depth      | 82x45x29mm<br>3.2 x 1.77 x 1.1"     | 114x70x30mm<br>4.5 x 2.75 x 1.2"  | 114x70x30mm<br>4.5 x 2.75 x 1.2"    | 70x57x32mm*<br>2.75 x 2.3 x 1.3"        | 68x55x32mm*<br>2.65 x 2.1 x 1.3"   | 88x45x34mm<br>3.5 x 1.8 x 1.4"         | 74x45x32mm<br>3x1.75x1.3"           | 94x45x55mm<br>3.75 x 1.75 x 2.15"   |
| <b>PRUSIK TEND LOCK BECKET</b>        | ---                                 | ---                               | ---                                 | ■                                       | ■                                  | -- ■                                   | ---                                 | -- ■                                |
| <b>BUSHING BEARING PIN</b>            | ■                                   | ■                                 | ■                                   | ■                                       | ■                                  | ■                                      | ■                                   | ■                                   |
| <b>CHEEKS - SWIVEL FIXED</b>          | ■                                   | ■                                 | ■                                   | ■                                       | ■                                  | ■                                      | ■                                   | ■                                   |
| <b>EFFICIENCY</b>                     | n/a                                 | n/a                               | n/a                                 | n/a                                     | n/a                                | n/a                                    | n/a                                 | n/a                                 |
| <b>CHEEK SHEAVE AXLE</b>              | Alu Alu Zstl                        | Alu Nylon StSt                    | StStNylonStSt                       | StSt Alu StSt                           | StStl Alu StSt                     | Alu Alu StSt                           | Alu Alu StSt                        | Alu Alu                             |
| <b>STANDARDS</b>                      | CE                                  | CE                                | CE                                  | CE UKCA                                 | CE UKCA                            | CE UKCA                                | CE UKCA                             | CE UKCA                             |
| <b>OTHER COLOURS</b>                  |                                     |                                   |                                     |   |                                    | ■                                      |                                     |                                     |
| <b>NOTES</b>                          |                                     | PO3 discontinued                  |                                     | *with sheave<br>Nov'23 recall corrected | -<br>Nov'23 recall corrected       | bridge can be used as a textile becket |                                     |                                     |
| <b>WEBSITE</b>                        | heightec.com                        | heightec.com                      | heightec.com                        | iscwales.com                            | iscwales.com                       | iscwales.com                           | iscwales.com                        | iscwales.com                        |

| Image | Model                               | Weight         | Strength               | Dimensions            | Material                  | Country | Website             |
|-------|-------------------------------------|----------------|------------------------|-----------------------|---------------------------|---------|---------------------|
|       | <b>Edelweiss Traffic 216R</b><br>0  | 500g<br>17.6oz | 5 30kN<br>1124 6744lbf | ≤16mm<br>≤5/8"        | 2x 48mm<br>2x 1.9"        | France  | edelweiss-ropes.com |
|       | <b>Eyolf Katrol S P20</b>           | 66g<br>2.3oz   | - 15kN<br>- 3372lbf    | ≤11mm<br>≤7/16"       | 32/19mm<br>1.25/0.8"      | Canada  | eyolf.ca            |
|       | <b>Eyolf Katrol V P10</b>           | 88g<br>3.1oz   | - 30kN<br>- 6744lbf    | ≤11mm<br>≤7/16"       | 32/19mm<br>1.25/0.8"      | Canada  | eyolf.ca            |
|       | <b>Eyolf Katrol L P40</b>           | 258g<br>9.1oz  | - 36kN<br>- 8093lbf    | ≤13mm<br>≤1/2"        | 54/37mm<br>2.1"           | Canada  | eyolf.ca            |
|       | <b>Fixe Aux 746</b>                 | 91g<br>3.2oz   | - 20kN<br>- 4496lbf    | ≤13mm<br>≤1/2"        | 21mm<br>0.825"            | Spain   | fixeclimbing.com    |
|       | <b>Fusion Climb Micro 746</b>       | 142g<br>5oz    | - 20kN<br>- 4496lbf    | 8-11mm<br>≤3/16-7/16" | 28mm<br>1.1"              | USA     | fusionclimb.com     |
|       | <b>Fusion Climb Nuro 418</b>        | 85g<br>3oz     | - 20kN<br>- 4496lbf    | 8-12mm<br>≤3/16-7/16" | 28mm<br>1.1"              | USA     | fusionclimb.com     |
|       | <b>Fusion Climb Strux 8152</b>      | 280g<br>9.9oz  | 2 34kN<br>0 00lbf      | 9-14mm<br>3/8-9/16"   | 50mm<br>2"                | USA     | fusionclimb.com     |
|       | <b>Fusion Climb Secura Db1 8155</b> | 500g<br>17.6oz | 2 32kN<br>0 4945lbf    | 9-15mm<br>3/8-9/16"   | 50mm<br>2"                | USA     | fusionclimb.com     |
|       | <b>ISC Eiger Redirect RPO31</b>     | 124g<br>4oz    | - 30kN<br>- 6744lbf    | ≤13mm<br>≤1/2"        | 2x 32/22mm<br>2x 1.6/0.9" | UK      | iscwales.com        |
|       | <b>ISC Eiger m RPO32</b>            | 158g<br>6oz    | - 36kN<br>- 8093lbf    | ≤13mm<br>≤1/2"        | 50/42mm<br>2/1.65"        | UK      | iscwales.com        |
|       | <b>ISC Eiger m db1 RPO33</b>        | 284g<br>10oz   | - 36kN<br>- 8093lbf    | ≤13mm<br>≤1/2"        | 2x 50/42mm<br>2x 2/1.65"  | UK      | iscwales.com        |
|       | <b>ISC Eiger m db1 RPO34</b>        | 180g<br>6oz    | - 36kN<br>- 8093lbf    | ≤13mm<br>≤1/2"        | 50/42mm<br>2/1.65"        | UK      | iscwales.com        |
|       | <b>ISC Rope Wrench RP281</b>        | 76g<br>2.7oz   | - 36kN<br>- 8093lbf    | ≤13mm<br>≤1/2"        | 32/22mm<br>1.6/0.9"       | UK      | iscwales.com        |
|       | <b>ISC Prusik sm RPO60</b>          | 214g<br>8oz    | - 40kN<br>- 8992lbf    | ≤13mm<br>≤1/2"        | 50/42mm<br>2/1.65"        | UK      | iscwales.com        |
|       | <b>ISC Prusik sm RPO60</b>          | 396g<br>14oz   | - 40kN<br>- 8992lbf    | ≤13mm<br>≤1/2"        | 50/42mm<br>2/1.65"        | UK      | iscwales.com        |
|       | <b>ISC Prusik sm db1 RPO61</b>      | 340g<br>12oz   | - 40kN<br>- 8992lbf    | ≤13mm<br>≤1/2"        | 2x 50/42mm<br>2x 2/1.65"  | UK      | iscwales.com        |
|       | <b>ISC Prusik sm db1 RPO61</b>      | 674g<br>24oz   | - 40kN<br>- 8992lbf    | ≤13mm<br>≤1/2"        | 2x 50/42mm<br>2x 2/1.65"  | UK      | iscwales.com        |

|  |                                  |                                 |                                 |                                 |                                 |                                 |                                     |                                   |
|--|----------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-------------------------------------|-----------------------------------|
| Images NOT to Scale                          |                                  |                                 |                                 |                                 |                                 |                                 |                                     |                                   |
| <b>MANUFACTURER</b>                          | ISC                              | ISC                             | ISC                             | ISC                             | ISC                             | ISC                             | ISC                                 | ISC                               |
| <b>MODEL VARIANT</b>                         | Prusik m RP063                   | Prusik m RP063                  | Prusik m dbl RP064              | Prusik m dbl RP064              | Prusik m RP065                  | Prusik m RP065                  | Prusik lg RP066                     | Prusik lg RP066                   |
| <b>ORIGIN</b>                                |                                  |                                 |                                 |                                 |                                 |                                 |                                     |                                   |
| <b>COST</b> (inc Tax) <i>Conversion-only</i> | £50 \$65 €60                     | £55 \$81 €75                    | £66 \$108 €100                  | £92 \$140 €130                  | £53 \$78 €72                    | £63 \$93 €86                    | £52 \$66 €61                        | £67 \$96                          |
| <b>WEIGHT</b>                                | 280g<br>9.9oz                    | 584g<br>20.6oz                  | 555g<br>20oz                    | 1036g<br>37oz                   | 0g<br>0oz                       | 620g<br>22oz                    | 463g<br>1lb                         | 896g<br>2lb                       |
| <b>MAX LOAD- WLL MBS</b>                     | - 50kN<br>- 11240lbf             | - 50kN<br>- 11240lbf            | - 50kN<br>- 11240lbf            | - 50kN<br>- 11240lbf            | - 50kN<br>- 11240lbf            | - 50kN<br>- 11240lbf            | - 70kN<br>- 15736lbf                | - 50kN<br>- 11240lbf              |
| <b>MAX ROPE Ø</b>                            | ≤13mm<br>≤1/2"                   | ≤13mm<br>≤1/2"                  | ≤13mm<br>≤1/2"                  | ≤13mm<br>≤1/2"                  | ≤13mm<br>≤1/2"                  | ≤13mm<br>≤1/2"                  | ≤16mm<br>≤5/8"                      | ≤16mm<br>≤5/8"                    |
| <b>SHEAVE/TREAD Ø</b>                        | 50/42mm<br>2/1.65"               | 50/42mm<br>2/1.65"              | 2x 50/42mm<br>2x 2/1.65"        | 2x 50/42mm<br>2x 2/1.65"        | 50/42mm<br>2/1.65"              | 50/42mm<br>2/1.65"              | 67/55mm<br>2.6/2.16"                | 67/55mm<br>2.6/2.16"              |
| <b>DIMENSIONS</b> ht x w x depth             | 130x 88x35mm<br>5.1 x 3.5 x 1.4" | 130x88x35mm<br>5.1 x 3.5 x 1.4" | 158x88x58mm<br>6.2 x 3.5 x 2.3" | 158x88x58mm<br>6.2 x 3.5 x 2.3" | 157x88x34mm<br>6.1 x 3.5 x 1.4" | 157x88x34mm<br>6.1 x 3.5 x 1.4" | 156x105x37mm<br>6.1 x 4 x 1.47"     | 156x105x37mm<br>6.1 x 4.1 x 1.47" |
| <b>PRUSIK TEND LOCK BECKET</b>               | ---                              | ---                             | █-█                             | █-█                             | █-█                             | █-█                             | █-█                                 | █-█                               |
| <b>BUSHING BEARING PIN</b>                   | █                                | █                               | █                               | █                               | █                               | █                               | █                                   | █                                 |
| <b>CHEEKS - SWIVEL FIXED</b>                 | █                                | █                               | █                               | █                               | █                               | █                               | █                                   | █                                 |
| <b>EFFICIENCY</b>                            | n/a                              | n/a                             | n/a                             | n/a                             | n/a                             | n/a                             | n/a                                 | n/a                               |
| <b>CHEEK SHEAVE AXLE</b>                     | Alu Alu StSt                     | Alu StSt StSt                   | Alu Alu StSt                    | Alu Alu StSt                    | Alu Alu StSt                    | StSt StSt StSt                  | Alu Alu StSt                        | StSt StSt                         |
| <b>STANDARDS</b>                             | CE NFPA UKCA                     | CE NFPA UKCA                    | CE NFPA UKCA                    | CE NFPA UKCA                    | CE NFPA UKCA                    | CE NFPA UKCA                    | CE NFPA UKCA                        | CE NFPA UKCA                      |
| <b>OTHER COLOURS</b>                         | █                                | -                               | █                               | █                               | █                               | -                               | -                                   | -                                 |
| <b>NOTES</b>                                 |                                  |                                 |                                 |                                 |                                 |                                 | Bushing option same spec as bearing |                                   |
| <b>WEBSITE</b>                               | iscwales.com                     | iscwales.com                    | iscwales.com                    | iscwales.com                    | iscwales.com                    | iscwales.com                    | iscwales.com                        | iscwales.com                      |

|  |                              |                                     |                                       |                                     |                                     |                             |                       |                                  |
|--|------------------------------|-------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|-----------------------------|-----------------------|----------------------------------|
| Images NOT to Scale                          |                              |                                     |                                       |                                     |                                     |                             |                       |                                  |
| <b>MANUFACTURER</b>                          | KONG                         | KONG                                | KONG                                  | KONG                                | KONG                                | LRV8                        | NOTCH                 | OMEGA PA                         |
| <b>MODEL VARIANT</b>                         | Swing Steel 994              | Mini Twin Evo 0                     | Reflex 0                              | Extra-Roll 0                        | Twin 0                              | P3Ta                        | Micro P52             | Revo I                           |
| <b>ORIGIN</b>                                |                              |                                     |                                       |                                     |                                     |                             |                       |                                  |
| <b>COST</b> (inc Tax) <i>Conversion-only</i> | £23 \$30 €27                 | £61 \$87 €72                        | £64 \$0 €0                            | £47 \$68 €57                        | £60 \$87 €65                        | AU\$185 \$120               | £26 \$32 €31          | £14 \$16                         |
| <b>WEIGHT</b>                                | 162g<br>5.7oz                | 171g<br>60oz                        | 270g<br>9.5oz                         | 245g<br>8.6oz                       | 490g<br>1lb 1oz                     | 486g<br>19oz                | 73g<br>2.56oz         | 52g<br>1.83oz                    |
| <b>MAX LOAD- WLL MBS</b>                     | - 30kN<br>- 6744lbf          | - 32kN<br>- 7194lbf                 | - 26kN<br>- 5845lbf                   | - 30kN<br>- 6744lbf                 | - 50kN<br>- 11240lbf                | 24 120kN<br>539526977lbf    | - 31kN<br>- 6900lbf   | - 22kN<br>- 4945lbf              |
| <b>MAX ROPE Ø</b>                            | ≤11mm<br>≤7/16"              | ≤13mm<br>≤1/2"                      | ≤13mm<br>≤1/2"                        | ≤13mm<br>≤1/2"                      | ≤13mm<br>≤1/2"                      | 8-24mm<br>5/16-1"           | ≤12.9mm<br>≤1/2"      | ≤12.7mm<br>≤1/2"                 |
| <b>SHEAVE/TREAD Ø</b>                        | 40.5/27mm<br>1.6/1"          | 2x 35mm<br>2x 1.5"                  | 60mm<br>2.4"                          | 60mm<br>2.4"                        | 2x 60mm<br>2x 2.4"                  | 60/52mm<br>2.4/2"           | 33mm<br>1.3"          | 20mm<br>0.8"                     |
| <b>DIMENSIONS</b> ht x w x depth             | 77 x 52 x 26mm<br>3 x 2 x 1" | 106 x 62 x 47mm<br>4.2 x 2.4 x 1.9" | 154 x 80 x 29mm<br>6 x 3.1 x 1.1"     | 110 x 83 x 29mm<br>4.3 x 3.2 x 1.1" | 132 x 83 x 54mm<br>5.2 x 3.2 x 2.1" | 140x80x60mm<br>5.5x3.2x2.4" | 76 x 43mm<br>3 x 1.7" | 67 x 45 x 26mm<br>2.6 x 1.8 x 1" |
| <b>PRUSIK TEND LOCK BECKET</b>               | ---                          | █-█                                 | █-█*                                  | ---                                 | █-█                                 | ---                         | ---                   | █-█                              |
| <b>BUSHING BEARING PIN</b>                   | █                            | █                                   | █                                     | █                                   | █                                   | █                           | █                     | █                                |
| <b>CHEEKS - SWIVEL FIXED</b>                 | █                            | █                                   | █                                     | █                                   | █                                   | █                           | █                     | █                                |
| <b>EFFICIENCY</b>                            | 87%                          | 91%                                 | 96%                                   | 96%                                 | 96%                                 | -                           | n/a                   | n/a                              |
| <b>CHEEK SHEAVE AXLE</b>                     | AluNylonStSt                 | Alu Alu StSt                        | Alu Alu StSt                          | Alu Alu* StSt                       | Alu Alu StSt                        | Alu Alu StSt                | Alu Alu StSt          | AluNylon                         |
| <b>STANDARDS</b>                             | CE UIAA                      | CE UIAA                             | CE UIAA                               | CE EAC UIAA                         | CE UIAA                             | CE NFPA                     | ANSI                  | CE                               |
| <b>OTHER COLOURS</b>                         | █                            | █                                   | -                                     | █                                   | █                                   | █                           | █                     | -                                |
| <b>NOTES</b>                                 | PHASING OUT                  |                                     | *Fully load-bearing double ended eyes | *Nylon sheave option discontinued   |                                     | Remake of SRTe original     |                       |                                  |
| <b>WEBSITE</b>                               | kong.it                      | kong.it                             | kong.it                               | kong.it                             | kong.it                             | lrv8.com.au                 | notchequipment.com    | omega-pacific.com                |



|                        |                                     |                                |                                     |                                  |                                 |                                    |                                     |   |                              |
|------------------------|-------------------------------------|--------------------------------|-------------------------------------|----------------------------------|---------------------------------|------------------------------------|-------------------------------------|---|------------------------------|
|                        |                                     |                                |                                     |                                  |                                 |                                    |                                     |   |                              |
| <b>ISC</b>             | <b>ISC</b>                          | <b>ISC</b>                     | <b>ISC</b>                          | <b>ISC</b>                       | <b>ISC</b>                      | <b>KAILAS</b>                      | <b>KAILAS</b>                       | <b>KONG</b>                               | <b>KONG</b>                  |
| Prusik Ig dbl<br>RP067 | Prusik Ig dbl<br>RP067              | Prusik Ig dbl<br>RP067         | Prusik Ig<br>RP068                  | Prusik xl<br>RP069               | Double Rescue<br>RP700701       | Mini<br>K010613                    | Rescue<br>0                         | Turbo Roll<br>0                           | Swing<br>993N(P)             |
|                        |                                     |                                |                                     |                                  |                                 |                                    |                                     |   |                              |
| £89                    | £84 \$129 €120                      | £99 \$151 €140                 | £53 \$78 €72                        | £67 \$107 €99                    | £67 \$107 €99                   | £25 \$30 €29                       | £71 \$85 €79                        | £48 \$25 €24                              | £0 \$29 €23                  |
|                        | 818g<br>29oz                        | 1.62kg<br>3.6lb                | 477g<br>1lb1oz                      | 466g<br>16oz                     | 660g<br>23oz                    | 155g<br>5.5oz                      | 367g<br>13oz                        | 65g<br>2.3oz                              | 120g<br>4.2oz                |
|                        | - 70kN<br>- 15736lbf                | - 50kN<br>- 11240lbf           | - 70kN<br>- 15736lbf                | - 70kN<br>- 15736lbf             | - 3040kN<br>- 67448992lbf       | 8 28kN<br>17986295lbf              | 8 50kN<br>179811240lbf              | - 26kN<br>- 5845lbf                       | - 30kN<br>- 6744lbf          |
|                        | ≤16mm<br>≤5/8"                      | ≤16mm<br>≤5/8"                 | ≤16mm<br>≤5/8"                      | ≤20mm<br>≤3/4"                   | 10-13mm<br>25/64-1/2"           | ≤12mm<br>≤1/2"                     | 7-13mm<br>9/32-1/2"                 | ≤11mm<br>≤7/16"                           | ≤11mm<br>≤7/16"              |
|                        | 2x 67/55mm<br>2x 2.6/2.16"          | 2x 67/55mm<br>2x 2.6/2.16"     | 67/55mm<br>2.6/2.16"                | 80mm<br>3"                       | 2x 67/55mm<br>2x 2.6/2.16"      | 26mm<br>1"                         | 51mm<br>2"                          | 40.5/27mm<br>1.6/1"                       | 40.5/27mm<br>1.6/1"          |
|                        | 180x105x60mm<br>7 x 4.1 x 2.4"      | 203x106x60mm<br>8 x 4.2 x 2.4" | 180x105x35mm<br>7 x 4.1 x 1.4"      | 156x105x54mm<br>6.1 x 4.1 x 2.1" | 154 x 74 x 62mm<br>6 x 3 x 2.4" | 81 x 58 x 29mm<br>3.2 x 2.3 x 1.1" | 121 x 85 x 23mm<br>4.8 x 3.3 x 0.9" | 98 x 30 x 26mm<br>3.9 x 1.2 x 1"          | 77 x 52 x 26mm<br>3 x 2 x 1" |
|                        |                                     |                                |                                     |                                  |                                 |                                    |                                     |   |                              |
|                        |                                     |                                |                                     |                                  |                                 |                                    |                                     |   |                              |
|                        |                                     |                                |                                     |                                  |                                 |                                    |                                     |   |                              |
|                        | n/a                                 | n/a                            | n/a                                 | n/a                              | n/a                             | 94%                                | 94%                                 | 93%                                       | 87%                          |
| StSt                   | Alu Alu StSt                        | StSt StSt StSt                 | Alu Alu StSt                        | Alu Alu StSt                     | Alu StSt StSt                   | Alu Alu StSt                       | S.Steel Alu                         | Alu Nylon StSt                            | AluNylonStSt                 |
| UKCA                   | CE NFPA UKCA                        | CE NFPA UKCA                   | CE NFPA UKCA                        | CE NFPA UKCA                     | CE NFPA UKCA                    | CE UIAA                            | CE NFPA                             | CE EAC                                    | CE UIAA                      |
|                        |                                     |                                |                                     |                                  |                                 |                                    |                                     |   |                              |
|                        | Bushing option same spec as bearing |                                | Bushing option same spec as bearing |                                  | 700=1-way sheave                |                                    |                                     | alloy red side plate version discontinued | Polished model=\$21          |
| com                    | iscwales.com                        | iscwales.com                   | iscwales.com                        | iscwales.com                     | iscwales.com                    | kailasgear.com                     | kailasgear.com                      | kong.it                                   | kong.it                      |

|                     |                         |                                   |                                    |
|---------------------|-------------------------|-----------------------------------|------------------------------------|
|                     |                         |                                   |                                    |
| <b>PACIFIC</b>      | <b>PALM</b>             | <b>PETZL</b>                      | <b>PETZL</b>                       |
| Whitewater<br>12602 | Mobile<br>PO3           | Fixe<br>PO5                       | Oscillante<br>PO2                  |
|                     |                         |                                   |                                    |
| £15                 | £35 \$32 €31            | £22 \$28 €25                      | £23 \$32 €24                       |
|                     | 90g<br>3.2oz            | 75g<br>2.6oz                      | 90g<br>3.2oz                       |
|                     | 5 30kN<br>1124 6744lbf  | 5 15kN<br>1124 3372lbf            | 5 23kN<br>1124 5171lbf             |
|                     | ≤11mm<br>≤7/16"         | 7-13mm<br>9/32-1/2"               | 7-13mm<br>9/32-1/2"                |
|                     | 21mm<br>0.8"            | 21mm<br>0.8"                      | 25mm<br>1"                         |
|                     | 75 x 63mm<br>3 x 2.5"   | 64 x46 x29mm<br>2.5 x 1.8 x 1.15" | 76 x 44 x 29mm<br>3 x 1.75 x 1.15" |
|                     |                         |                                   |                                    |
|                     |                         |                                   |                                    |
|                     | n/a                     | 71%                               | 71%                                |
| StSt                | Alu Alu Alu             | Alu Alu StSt                      | Alu Alu StSt                       |
| UKCA                | CE UIAA UKCA            | CE UIAA UKCA                      | CE UKCA                            |
|                     |                         |                                   |                                    |
|                     |                         |                                   | Emergency pulley                   |
| com                 | palmequipementurope.com | petzl.com                         | petzl.com                          |

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|  |                                  |                                |                                    |  |                                     |                                     |                                   |                                       |
|--|----------------------------------|--------------------------------|------------------------------------|--|-------------------------------------|-------------------------------------|-----------------------------------|---------------------------------------|
| Images NOT to Scale                          |                                  |                                |                                    |  |                                     |                                     |                                   |                                       |
| <b>MANUFACTURER</b>                          | PETZL                            | PETZL                          | PETZL                              | PETZL                                    | PETZL                               | PETZL                               | PETZL                             | PROCLI                                |
| <b>MODEL VARIANT</b>                         | Partner P52                      | Mini P59                       | Gemini P66                         | Jag P45                                  | Rescue P50                          | Minder P60                          | Twin P65                          | USR-PFB                               |
| <b>ORIGIN</b>                                |                                  |                                |                                    |  |                                     |                                     |                                   |                                       |
| <b>COST</b> (inc Tax) <i>Conversion-only</i> | £37 \$55 €38                     | £48 \$65 €52                   | £86 \$95 €94                       | £64 \$90 €55                             | £56 \$68 €60                        | £72 \$80 €70                        | £116 \$194 €125                   | £13 \$16                              |
| <b>WEIGHT</b>                                | 56g<br>2oz                       | 80g<br>2.8oz                   | 135g<br>4.8oz                      | 120g<br>4.2oz                            | 185g<br>6.5oz                       | 295g<br>10.4oz                      | 450g<br>15.8oz                    | 85g<br>3.5oz                          |
| <b>MAX LOAD- WLL MBS</b>                     | 4 15kN<br>899 3372lbf            | 5 23kN<br>1124 5171lbf         | 6 23kN<br>1349 5171lbf             | 6 22kN<br>1349 4945lbf                   | 8 36kN<br>1798 8093lbf              | 8 35kN<br>1798 7868lbf              | 8 35kN<br>1798 7868lbf            | - 22kN<br>- 4945lbf                   |
| <b>MAX ROPE Ø</b>                            | 7-11mm<br>9/32-7/16"             | 7-11mm<br>9/32-7/16"           | 7-11mm<br>9/32-7/16"               | 8-11mm<br>5/16-7/16"                     | 7-13mm<br>9/32-1/2"                 | 7-13mm<br>9/32-1/2"                 | 7-13mm<br>9/32-1/2"               | ≤13mm<br>≤1/2"                        |
| <b>SHEAVE/TREAD Ø</b>                        | 25mm<br>1"                       | 25mm<br>1"                     | 2x 25mm<br>1"                      | 2x 28mm<br>1.1"                          | 46/38mm<br>1.8/1.5"                 | 51mm<br>2"                          | 2x 51mm<br>2"                     | 32/21mm<br>1.25/0.8"                  |
| <b>DIMENSIONS</b> ht x w x depth             | 68 x 47 x 26mm<br>2.7 x 1.9 x 1" | 78 x 60 x 25mm<br>3 x 2.4 x 1" | 96 x 60 x 43mm<br>5.5 x 3.5 x 1.7" | 70 x 40 x 44mm<br>2.75 x 1.6 x 1.7"      | 96 x 70 x 32mm<br>3.8 x 2.75 x 1.3" | 124 x 90 x 31mm<br>4.9 x 3.5 x 1.2" | 143 x 90 x 51mm<br>5.6 x 3.5 x 2" | 80.5 x 44 x 32mm<br>3.2 x 1.7 x 1.25" |
| <b>PRUSIK TEND LOCK BECKET</b>               | ---                              | ■ --                           | ■ - ■                              | ---                                      | ---                                 | ■ --                                | ■ - ■                             | ---                                   |
| <b>BUSHING BEARING PIN</b>                   | ■                                | ■                              | ■                                  | ■  | ■                                   | ■                                   | ■                                 | ■                                     |
| <b>CHEEKS - SWIVEL FIXED</b>                 | ■                                | ■                              | ■                                  | ■  | ■                                   | ■                                   | ■                                 | ■                                     |
| <b>EFFICIENCY</b>                            | 91%                              | 91%                            | 91%                                | 91%                                      | 95%                                 | 97%                                 | 97%                               | n/a                                   |
| <b>CHEEK SHEAVE AXLE</b>                     | Alu Alu Alu                      | Alu Alu Alu                    | Alu Alu Alu                        | Alu Alu Alu                              | Alu Alu Alu                         | Alu Alu Alu                         | Alu Alu Alu                       | Alu Alu                               |
| <b>STANDARDS</b>                             | CE UIAA UKCA                     | CE                             | CE NFPA                            | CE NFPA                                  | CENFPAUIAAUKCA                      | CE NFPA                             | CE NFPA                           | CE UIAA                               |
| <b>OTHER COLOURS</b>                         | ■                                | -                              | -                                  | -  | ■                                   | -                                   | -                                 | -                                     |
| <b>NOTES</b>                                 |                                  |                                |                                    | designed to be part of Jag mini-haul kit |                                     |                                     |                                   |                                       |
| <b>WEBSITE</b>                               | petzl.com                        | petzl.com                      | petzl.com                          | petzl.com                                | petzl.com                           | petzl.com                           | petzl.com                         | usrigging.com                         |
| Images NOT to Scale                          |                                  |                                |                                    |  |                                     |                                     |                                   |                                       |
| <b>MANUFACTURER</b>                          | RNR                              | RNR                            | RNR                                | RNR                                      | RNR                                 | RNR                                 | RNR                               | RNR                                   |
| <b>MODEL VARIANT</b>                         | Poseidon PMP 2"                  | Poseidon PMP 2" Double         | Poseidon PMP 3"                    | Poseidon PMP 3" Double                   | Poseidon 2"                         | Poseidon 2" Double                  | Poseidon 4"                       | Poseidon 4" Double                    |
| <b>ORIGIN</b>                                |                                  |                                |                                    |  |                                     |                                     |                                   |                                       |
| <b>COST</b> (inc Tax) <i>Conversion-only</i> | £63 \$77 €72                     | £75 \$92 €86                   | £67 \$82 €77                       | £99 \$122 €114                           | £39 \$48 €45                        | £64 \$78 €73                        | £86 \$106 €99                     | £141 \$174                            |
| <b>WEIGHT</b>                                | 210g<br>7.4oz                    | 354g<br>12.5oz                 | 374g<br>13.2oz                     | 652g<br>1.44lb                           | 204g<br>7.2oz                       | 340g<br>12oz                        | 703g<br>1.55lb                    | 1270g<br>2.8lb                        |
| <b>MAX LOAD- WLL MBS</b>                     | - 43kN<br>- 9800lbf              | - 62kN<br>- 1400lbf            | - 44kN<br>- 9900lbf                | - 61kN<br>- 13900lbf                     | - 28.9kN<br>- 6500lbf               | - 40kN<br>- 1100lbf                 | - 35.6kN<br>- 8000lbf             | - 60kN<br>- 13500lbf                  |
| <b>MAX ROPE Ø</b>                            | ≤13mm<br>≤1/2"                   | ≤13mm<br>≤1/2"                 | ≤13mm<br>≤1/2"                     | ≤13mm<br>≤1/2"                           | ≤13mm<br>≤1/2"                      | ≤13mm<br>≤1/2"                      | ≤16mm<br>≤5/8"                    | ≤16mm<br>≤5/8"                        |
| <b>SHEAVE/TREAD Ø</b>                        | 50mm<br>2"                       | 2x 50mm<br>2x 2"               | 75mm<br>3"                         | 2x 75mm<br>2x 3"                         | 50mm<br>2"                          | 2x 50mm<br>2x 2"                    | 100mm<br>4"                       | 2x 100mm<br>2x 4"                     |
| <b>DIMENSIONS</b> ht x w x depth             | 100 x 23mm<br>4 x 3 x 0.9"       | 127 x 76mm<br>5 x 3"           | 152x100x23mm<br>6 x 4 x 0.9"       | 178 x 100mm<br>7 x 4"                    | 100x70x23mm<br>4 x 2.75x0.9"        | 140x70x43mm<br>5.5x2.75x1.7"        | 203x114x28mm<br>8 x 4.5 x 1.1"    | 229x114x51mm<br>9 x 4.5 x 2"          |
| <b>PRUSIK TEND LOCK BECKET</b>               | ■ --                             | ■ - ■                          | ■ --                               | ■ - ■                                    | ---                                 | - - ■                               | ---                               | ■ - ■                                 |
| <b>BUSHING BEARING PIN</b>                   | ■                                | ■                              | ■                                  | ■  | ■                                   | ■                                   | ■                                 | ■                                     |
| <b>CHEEKS - SWIVEL FIXED</b>                 | ■                                | ■                              | ■                                  | ■  | ■                                   | ■                                   | ■                                 | ■                                     |
| <b>EFFICIENCY</b>                            | n/a                              | n/a                            | n/a                                | n/a                                      | n/a                                 | n/a                                 | n/a                               | n/a                                   |
| <b>CHEEK SHEAVE AXLE</b>                     | Alu Alu StSt                     | Alu Alu StSt                   | Alu Alu StSt                       | Alu Alu StSt                             | Alu Alu StSt                        | Alu Alu StSt                        | Alu Alu StSt                      | Alu Alu                               |
| <b>STANDARDS</b>                             | -                                | -                              | -                                  | -  | -                                   | -                                   | -                                 | -                                     |
| <b>OTHER COLOURS</b>                         | -                                | -                              | -                                  | -  | -                                   | -                                   | -                                 | -                                     |
| <b>NOTES</b>                                 |                                  |                                |                                    |  |                                     |                                     |                                   |                                       |
| <b>WEBSITE</b>                               | rocknarbor.com                   | rocknarbor.com                 | rocknarbor.com                     | rocknarbor.com                           | rocknarbor.com                      | rocknarbor.com                      | rocknarbor.com                    | rocknarbor.com                        |

|            |                                    |  |                                      |                                     |                                     |                                     |                                    |                                    |                                       | expansion column       |
|------------|------------------------------------|--|--------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|------------------------------------|------------------------------------|---------------------------------------|------------------------|
| Model      | PROCLIMB                           | PROCLIMB                               | PROCLIMB                             | PROCLIMB                            | PROTEKT                             | PROTEKT                             | PROTEKT                            | PROTEKT                            | PROTEKT                               |                        |
| Material   | USR-PMS-AU                         | USR-PSW-AU                             | USR-PTW-AU                           | TREE UP TU 420                      | TREE UP TU 430                      | TREE UP TU 431                      | TREE UP TU 440                     | TREE UP PL 101                     |                                       |                        |
| Country    |                                    |  |                                      |                                     |                                     |                                     |                                    |                                    |                                       |                        |
| Price      | €15                                | £13 \$16 €15                           | £13 \$35 €15                         | £13 \$45 €15                        | €26 \$33 €30                        | €34 \$42 €39                        | €40 \$49 €45                       | €83 \$101 €95                      | €78 \$52 €48                          |                        |
| Weight     | 130g<br>5.1oz                      | 247g<br>8.7oz                          | 425g<br>15oz                         | 120g<br>4.2oz                       | 257g<br>9oz                         | 470g<br>16.6oz                      | 153g<br>5.4oz                      | 450g<br>15.8oz                     |                                       |                        |
| Strength   | - 20kN<br>- 4496lbf                | 5 30kN<br>1124 6744lbf                 | 5 30kN<br>1124 6744lbf               | 5 25kN<br>1124 5620lbf              | 6 30kN<br>1349 6744lbf              | 6 30kN<br>1349 6744lbf              | 5 25kN<br>1124 5620lbf             | 5 30kN<br>1124 6744lbf             |                                       |                        |
| Dimensions | ≤11mm<br>≤3/16"                    | ≤16mm<br>≤5/8"                         | ≤16mm<br>≤5/8"                       | ≤13.5mm<br>≤1/2"                    | ≤15mm<br>≤5/8"                      | ≤15mm<br>≤5/8"                      | ≤10mm<br>≤25/64"                   | 8-12mm*<br>5/16-1/2"               |                                       |                        |
| Webbing    | 37/25mm<br>1.5/1"                  | 30.5mm*<br>1.2"                        | 2x 30.5mm*<br>2x 1.2"                | 34/24mm<br>1.3/0.9"                 | 60mm<br>2.4"                        | 2x 60mm<br>2x 2.4"                  | 30/22mm<br>1.2/0.9"                | 108mm<br>4.25"                     |                                       |                        |
| Size       | 80 x 57 x 33mm<br>3.2 x 2.2 x 1.3" | 121 x 82 x 30.5mm*<br>4.8 x 3.2 x 1.2" | 143 x 82 x 57mm*<br>5.6 x 3.2 x 2.1" | 86 x 44 x 40mm<br>3.4 x 1.7 x 1.6"  | 122 x 80 x 38mm<br>4.8 x 3.1 x 1.5" | 162 x 80 x 63mm<br>6.4 x 3.1 x 2.5" | 85 x 40 x 39mm<br>3.3 x 1.6 x 1.6" | 133 x 128 x 56mm<br>5.2 x 5 x 2.2" |                                       |                        |
| Color      | ---                                | ---                                    | ---                                  | ---                                 | ---                                 | ---                                 | ---                                | ---                                |                                       |                        |
| Material   | n/a                                | n/a                                    | n/a                                  | n/a                                 | n/a                                 | n/a                                 | n/a                                | n/a                                |                                       |                        |
| Standards  | Alu Alu StSt                       | Alu Alu StSt                           | Alu Alu StSt                         | Alu Alu StSt                        | Alu Alu StSt                        | Alu Alu StSt                        | Alu Alu StSt                       | Alu Nylon StSt                     |                                       |                        |
| Approvals  | CE UIAA                            | CE* UIAA                               | CE* UIAA                             | CE                                  | CE                                  | CE                                  | CE                                 | CE                                 |                                       |                        |
| Notes      | -                                  | *Spec does not match scaling.          | *Spec does not match scaling.        | Updated model '23                   |                                     |                                     | <21mm Webbing on hidden load pin   | *or 6mm cable                      |                                       |                        |
| Website    | usrigging.com                      | usrigging.com                          | usrigging.com                        | protekt.pl                          | protekt.pl                          | protekt.pl                          | protekt.pl                         | protekt.pl                         |                                       |                        |
|            |                                    |  |                                      |                                     |                                     |                                     |                                    |                                    |                                       |                        |
| Model      | RNR                                | ROCK EMPIRE                            | ROCK EMPIRE                          | ROCK EMPIRE                         | ROCK EMPIRE                         | ROCK EXOTICA                        | ROCK EXOTICA                       | ROCK EXOTICA                       | ROCK EXOTICA                          |                        |
| Material   | Poseidon 3" Companion DbI          | Mini ZWP018                            | Small SS ZWP121                      | Big ZWP119                          | Big Double ZWP121                   | 1.1" Mini P21                       | 1.1" Mini DbI P21D                 | 1.5" Rescue P22                    | 1.5" Rescue DbI P22D                  |                        |
| Country    |                                    |  |                                      |                                     |                                     |                                     |                                    |                                    |                                       |                        |
| Price      | €163                               | £113 \$139 €130                        | €24 \$31 €28                         | €20 \$25 €23                        | €41 \$51 €47                        | €72 \$89 €83                        | €55 \$68 €64                       | €93 \$115 €108                     | €61 \$75 €70                          | €106 \$130 €122        |
| Weight     | 737g<br>1lb 10oz                   | 88g<br>3.5oz                           | 130g<br>5.1oz                        | 250g<br>9.8oz                       | 440g<br>17.3oz                      | 83g<br>2.9oz                        | 141g<br>5oz                        | 144g<br>5.1oz                      | 254g<br>9oz                           |                        |
| Strength   | - 53.4kN<br>- 12000lbf             | - 24kN<br>- 5395lbf                    | - 20kN<br>- 4496lbf                  | 8 36kN<br>1798 8093lbf              | 8 36kN<br>1798 8093lbf              | 5 30kN<br>1124 6744lbf              | 8 36kN<br>1798 8093lbf             | 8 36kN<br>1798 8093lbf             | 8 36kN<br>1798 8093lbf                | 8 36kN<br>1798 8093lbf |
| Dimensions | ≤12.7mm<br>≤1/2"                   | ≤12mm<br>≤1/2"                         | ≤11mm<br>≤7/16"                      | ≤13mm<br>≤1/2"                      | ≤13mm<br>≤1/2"                      | ≤11mm<br>≤7/16"                     | ≤11mm<br>≤7/16"                    | ≤13mm<br>≤1/2"                     | ≤13mm<br>≤1/2"                        | ≤13mm<br>≤1/2"         |
| Webbing    | 2x 75mm<br>2x 3"                   | 21mm<br>0.825"                         | 37/25mm<br>1.5/1"                    | 50mm<br>1.9"                        | 2x 33mm<br>2x 1.3"                  | 28mm<br>1.1"                        | 2x 28mm<br>2x 1.1"                 | 38mm<br>1.5"                       | 2x 38mm<br>2x 1.5"                    |                        |
| Size       | 190x102x51mm<br>7.5x3.75x2"        | 82x45x29mm<br>3.2x1.77x1.1"            | 80 x 57 x 33mm<br>3.2 x 2.2 x 1.3"   | 117 x 82 x 35mm<br>4.6 x 3.2 x 1.3" | 107 x 80 x 35mm<br>4.2 x 3.1 x 1.4" | 76 x 62 x 19mm<br>3 x 2.45 x 0.75"  | 100 x 62 x 37mm<br>3.95x2.45x1.45" | 89 x 64 x 23mm<br>3.5 x 2.5 x 0.9" | 117 x 64 x 43mm<br>4.6 x 2.5 x 1.7"   |                        |
| Color      | ---                                | ---                                    | ---                                  | ---                                 | ---                                 | ---                                 | ---                                | ---                                | ---                                   |                        |
| Material   | 184%                               | n/a                                    | n/a                                  | n/a                                 | n/a                                 | n/a                                 | n/a                                | n/a                                | n/a                                   |                        |
| Standards  | Alu Alu StSt                       | Alu Alu ZstI                           | Alu Alu StSt                         | Alu Alu StSt                        | Alu StSt StSt                       | Alu Alu StSt                        | Alu Alu StSt                       | Alu Alu StSt                       | Alu Alu StSt                          |                        |
| Approvals  | NFPA*                              | CE                                     | CE UIAA                              | CE UIAA                             | CE UIAA                             | CE UIAA                             | CE UIAA                            | CE UIAA                            | CE UIAA                               |                        |
| Notes      | -                                  | -                                      | -                                    | -                                   | -                                   | -                                   | -                                  | -                                  | -                                     |                        |
| Material   | *Not NFPA but exceeds test         |  |                                      |                                     |                                     | Machined alloy                      | Machined alloy                     | Machined alloy                     | Machined alloy. 2" model discontinued |                        |
| Website    | rocknarbon.com                     | rockempire.cz                          | rockempire.cz                        | rockempire.cz                       | rockempire.cz                       | rockexotica.com                     | rockexotica.com                    | rockexotica.com                    | rockexotica.com                       |                        |

|                                       |                                     |                                     |                                     |                                   |                                    |                                      |                                     |                                     |       |
|---------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-----------------------------------|------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|-------|
| Images NOT to Scale                   |                                     |                                     |                                     |                                   |                                    |                                      |                                     |                                     |       |
| <b>MANUFACTURER</b>                   | SINGING ROCK                        |                                     | SINGING ROCK                        |                                   | SKEDCO                             |                                      | SKEDCO                              |                                     | SKYLO |
| <b>MODEL VARIANT</b>                  | Small<br>RK800                      | Extra<br>RK801                      | Extra+<br>RK808                     | Twin<br>RK802                     | Micro Dbl<br>712M                  | 3" Double<br>711                     | 3" Double Bck<br>712                | CT Orb<br>2P66                      |       |
| <b>ORIGIN</b>                         |                                     |                                     |                                     |                                   |                                    |                                      |                                     |                                     |       |
| <b>COST (inc Tax) Conversion-only</b> | £20 \$30 €30                        | £37 \$50 €33                        | £44 \$55 €40                        | £64 \$90 €72                      | £58 \$71 €67                       | £145 \$178 €167                      | £145 \$178 €167                     | £55 \$71                            |       |
| <b>WEIGHT</b>                         | 92g<br>3.3oz                        | 257g<br>9.5oz                       | 276g<br>9.7oz                       | 421g<br>14.9oz                    | 113g<br>4oz                        | 708g<br>1lb 9oz                      | 737g<br>1lb 10oz                    | 180g<br>6.4oz                       |       |
| <b>MAX LOAD- WLL MBS</b>              | - 22kN<br>- 4946lbf                 | 6 32kN<br>1349 7194lbf              | 6 32kN<br>1349 7194lbf              | 6 32kN<br>1349 7194lbf            | 6.2 31.1kN<br>1400 7000lbf         | - 53.4kN<br>- 12000lbf               | - 53.4kN<br>- 12000lbf              | 8kN 3<br>1798 71                    |       |
| <b>MAX ROPE Ø</b>                     | ≤13mm<br><1/2"                      | ≤13mm<br><1/2"                      | ≤13mm<br><1/2"                      | ≤13mm<br><1/2"                    | ≤12.7mm<br><1/2"                   | ≤12.7mm<br><1/2"                     | ≤12.7mm<br><1/2"                    | ≤13mm<br><1/2"                      |       |
| <b>SHEAVE/TREAD Ø</b>                 | 29mm<br>1.1"                        | 56mm<br>2.2"                        | 56mm<br>2.2"                        | 2x 56mm<br>2x 2.2"                | 32mm<br>1.25"                      | 2x 75mm<br>2x 3"                     | 2x 75mm<br>2x 3"                    | 19mm<br>0.75"                       |       |
| <b>DIMENSIONS ht x w x depth</b>      | 76 x 44 x 34mm<br>3 x 1.7 x 1.3"    | 117 x 88 x 28mm<br>4.6 x 3.5 x 1."  | 146 x 88 x 33mm<br>5.7 x 3.5 1.3"   | 141 x 88 x 54mm<br>0 x 3.5 x 2.1" | 89 x 41 x 46mm<br>3.5 x 1.6 x 1.8" | 152 x 102 x 51mm<br>5.75 x 3.75 x 2" | 190 x 102 x 51mm<br>7.5 x 3.75 x 2" | 110 x 70 x 30mm<br>4.3 x 2.7 x 1.2" |       |
| <b>PRUSIK TEND LOCK BECKET</b>        | - - -                               | - -                                 | - -                                 | - -                               | - -                                | - - -                                | - -                                 | - - -                               |       |
| <b>BUSHING BEARING PIN</b>            | ■                                   | ■                                   | ■                                   | ■                                 | ■                                  | ■                                    | ■                                   | ■                                   |       |
| <b>CHEEKS - SWIVEL FIXED</b>          | ■                                   | ■                                   | ■                                   | ■                                 | ■                                  | ■                                    | ■                                   | ■                                   |       |
| <b>EFFICIENCY</b>                     | 81%                                 | 94%                                 | 94%                                 | 94%                               | 133.6%                             | 184%                                 | 184%                                | 96%                                 |       |
| <b>CHEEK SHEAVE AXLE</b>              | Alu Alu StSt                        | Alu Alu StSt                        | Alu Alu StSt                        | Alu Alu StSt                      | AluAluAlu                          | Alu Alu StSt                         | Alu Alu StSt                        | Alu Alu                             |       |
| <b>STANDARDS</b>                      | CE                                  | CE                                  | CE                                  | CE                                | ANSI                               | NFPA*                                | NFPA*                               | CE UI                               |       |
| <b>OTHER COLOURS</b>                  | ■                                   | ■                                   | ■                                   | ■                                 | -                                  | -                                    | -                                   | -                                   |       |
| <b>NOTES</b>                          |                                     |                                     |                                     |                                   |                                    | *Not NFPA but exceeds test           | *Not NFPA but exceeds test          |                                     |       |
| <b>WEBSITE</b>                        | singingrock.com                     | singingrock.com                     | singingrock.com                     | singingrock.com                   | skedco.com                         | skedco.com                           | skedco.com                          | skylotec.com                        |       |
| Images NOT to Scale                   |                                     |                                     |                                     | expansion column                  |                                    |                                      |                                     |                                     |       |
| <b>MANUFACTURER</b>                   | SKYLOTEC                            |                                     |                                     |                                   | SMC                                |                                      | SMC                                 |                                     | SMC   |
| <b>MODEL VARIANT</b>                  | Pollux                              | Castor                              | Castor Dbl                          |                                   | Apex Direct 1.1<br>16501           | Apex Direct 1.5<br>165110            | CRX Crevasse<br>RP030               | Tiny Re<br>RP03                     |       |
| <b>ORIGIN</b>                         |                                     |                                     |                                     |                                   |                                    |                                      |                                     |                                     |       |
| <b>COST (inc Tax) Conversion-only</b> | £80 \$104 €97                       | £75 \$120 €111                      | £78 \$125 €116                      |                                   | £93 \$85 €79                       | £97 \$89 €83                         | £17 \$20 €19                        | £37 \$45                            |       |
| <b>WEIGHT</b>                         | 290g<br>10.2oz                      | 310g<br>10.9oz                      | 540g<br>19oz                        |                                   | 122g<br>4.3oz                      | 208g<br>7.3oz                        | 52g<br>1.8oz                        | 66g<br>2.3oz                        |       |
| <b>MAX LOAD- WLL MBS</b>              | - 36kN<br>- 8093lbf                 | - 36kN<br>- 8093lbf                 | - 48kN<br>- 10791lbf                |                                   | 6 24kN<br>1349 5395lbf             | 9.5 38kN<br>2136 8543lbf             | - 22kN<br>- 4946lbf                 | - 26kN<br>- 5843lbf                 |       |
| <b>MAX ROPE Ø</b>                     | ≤13mm<br><1/2"                      | ≤13mm<br><1/2"                      | ≤14mm<br><9/16"                     |                                   | ≤13mm<br><1/2"                     | ≤13mm<br><1/2"                       | ≤13mm<br><1/2"                      | ≤13mm<br><1/2"                      |       |
| <b>SHEAVE/TREAD Ø</b>                 | 64/51mm<br>2.5/2"                   | 64/51mm<br>2.5/2"                   | 2x 64/51mm<br>2x 2.5/2"             |                                   | 38/28mm<br>1.5/1.1"                | 50/38mm<br>2/1.5"                    | 30mm<br>1.2"                        | 30mm<br>1.2"                        |       |
| <b>DIMENSIONS ht x w x depth</b>      | 130 x 80 x 35mm<br>5.1 x 3.1 x 1.4" | 170 x 80 x 35mm<br>6.7 x 3.1 x 1.4" | 170 x 80 x 60mm<br>6.7 x 3.1 x 2.4" |                                   | 72 x 60 x 28mm<br>2.8 x 2.3 x 1.1" | 97 x 74 x 28mm<br>3.8 x 2.9 x 1.1"   | 69 x 45 x 25mm<br>2.7 x 1.75 x 1"   | 75 x 45 x 30mm<br>3 x 1.75 x 1.2"   |       |
| <b>PRUSIK TEND LOCK BECKET</b>        | - - -                               | - -                                 | - -                                 |                                   | ■ -                                | ■ -                                  | ■ - -                               | - - -                               |       |
| <b>BUSHING BEARING PIN</b>            | ■                                   | ■                                   | ■                                   |                                   | ■                                  | ■                                    | ■                                   | ■                                   |       |
| <b>CHEEKS - SWIVEL FIXED</b>          | ■                                   | ■                                   | ■                                   |                                   | ■                                  | ■                                    | ■                                   | ■                                   |       |
| <b>EFFICIENCY</b>                     | -                                   | -                                   | -                                   |                                   | -                                  | -                                    | -                                   | -                                   |       |
| <b>CHEEK SHEAVE AXLE</b>              | Alu Alu StSt                        | Alu Alu StSt                        | Alu Alu StSt                        |                                   | Alu Alu StSt                       | Alu Alu StSt                         | AluDelrin StSt                      | Alu Alu                             |       |
| <b>STANDARDS</b>                      | CE                                  | CE                                  | CE                                  |                                   | CE UKCA                            | CE UKCA                              | CE                                  | CE                                  |       |
| <b>OTHER COLOURS</b>                  | ■                                   | ■                                   | ■                                   |                                   | -                                  | -                                    | ■                                   | -                                   |       |
| <b>NOTES</b>                          |                                     |                                     |                                     |                                   | See Also Swivel Pulleys            | See Also Swivel Pulleys              |                                     |                                     |       |
| <b>WEBSITE</b>                        | skylotec.com                        | skylotec.com                        | skylotec.com                        |                                   | smcgear.com                        | smcgear.com                          | smcgear.com                         | smcgear.com                         |       |

|   |                                     |                                     |                                     |                                     |                                    |                                   |                                     |                                 |                 |
|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|------------------------------------|-----------------------------------|-------------------------------------|---------------------------------|-----------------|
|   |                                     |                                     |                                     |                                     |                                    |                                   |                                     |                                 |                 |
| <b>SKYLOTEC</b>                           | <b>SKYLOTEC</b>                     | <b>SKYLOTEC</b>                     | <b>SKYLOTEC</b>                     | <b>SKYLOTEC</b>                     | <b>SKYLOTEC</b>                    | <b>SKYLOTEC</b>                   | <b>SKYLOTEC</b>                     | <b>SKYLOTEC</b>                 | <b>SKYLOTEC</b> |
| CT Dual<br>2P668                          | CT Orbiter M<br>2P664               | CT Orbiter L<br>2P666               | CT Orbiter H<br>2P667               | CT Up Roll<br>2P671                 | CT Orbiter F<br>2P663              | CT Orbiter D<br>2P661             | CT Orbiter T<br>2P662               | Darios                          |                 |
| €67                                       | €26 \$30 €20                        | €18 \$30 €21                        | €94 \$116 €99                       | €99 \$121 €113                      | €52 \$65 €58                       | €22 \$30 €23                      | €66 \$82 €74                        | €84 \$104 €99                   | €72 \$89 €82    |
| 123g<br>4.3oz                             | 90g<br>3.2oz                        | 445g<br>15.7oz                      | 465g<br>16.4oz                      | 115g<br>4oz                         | 100g<br>3.5oz                      | 215g<br>7.6oz                     | 310g<br>10.9oz                      | 100g<br>3.5oz                   |                 |
| 5 30kN<br>1124 6744lbf                    | 5 30kN<br>1124 6744lbf              | 12kN 45kN<br>269810116lbf           | 12kN 45kN<br>269810116lbf           | 5 30kN<br>1124 6744lbf              | 5 30kN<br>1124 6744lbf             | 8kN 32kN<br>1798 7194lbf          | 12kN 50kN<br>269811240lbf           | - 30kN<br>- 6744lbf             |                 |
| <13mm<br><1/2"                            | <13mm<br><1/2"                      | <13mm<br><1/2"                      | <13mm<br><1/2"                      | 8-11mm<br>3/16-3/16"                | <13mm<br><1/2"                     | <13mm<br><1/2"                    | <13mm<br><1/2"                      | <14mm<br><9/16"                 |                 |
| 2x 19mm<br>2x 0.75"                       | 19mm<br>0.75"                       | 3x 39mm<br>3x 1.5"                  | 3x 39mm<br>3x 1.5"                  | 2x 25mm<br>1 x 1"                   | 39mm<br>1.5"                       | 39mm<br>1.5"                      | 2x 39mm<br>2x 1.5"                  | 44mm<br>1.7"                    |                 |
| 73 x 49 x 52mm<br>2.9 x 2 x 2"            | 73 x 48 x 29mm<br>2.9 x 1.9 x 1.1"  | 108 x 70 x 78mm<br>4.2 x 2.7 x 3.1" | 139 x 70 x 78mm<br>5.5 x 2.7 x 3.1" | 89x36x44mm<br>3.5x1.4x1.7"          | 85x48x29mm<br>3.3x1.9x1.1"         | 140x70x32mm<br>5.5x2.7x 1.3"      | 137x70x55mm<br>5.4x2.7x2.2"         | 85 x 50 x 32mm<br>3.3 x2x 1.25" |                 |
| 80%                                       | 80%                                 | 96%                                 | 96%                                 | 90%                                 | 80%                                | 96%                               | 96%                                 | -                               |                 |
| Alu Alu StSt                              | Alu Alu StSt                        | Alu Alu StSt                        | Alu Alu StSt                        | Alu Alu StSt                        | Alu Alu StSt                       | Alu Alu StSt                      | Alu Alu StSt                        | Alu Alu StSt                    | Alu Alu StSt    |
| CE  | CE UIAA                             | CE UIAA                             | CE UIAA                             | CE UIAA                             | CE                                 | CE UIAA                           | CE UIAA                             | CE UIAA                         | CE              |
|   |                                     |                                     | Discontinued                        |                                     | designed for 'UP'<br>pulley system |                                   |                                     |                                 |                 |
| skylotec.com                              | skylotec.com                        | skylotec.com                        | dimbingtechnology.com               | dimbingtechnology.com               | dimbingtechnology.com              | dimbingtechnology.com             | dimbingtechnology.com               | dimbingtechnology.com           | skylotec.com    |
|   |                                     |                                     |                                     |                                     |                                    |                                   |                                     |                                 |                 |
| <b>SMC</b>                                | <b>SMC</b>                          | <b>SMC</b>                          | <b>SMC</b>                          | <b>SMC</b>                          | <b>SMC</b>                         | <b>SMC</b>                        | <b>SMC</b>                          | <b>SMC</b>                      |                 |
| Adv Tech Mate<br>DbI NFPA154801           | JR (Jigger Rescue)<br>1590          | JRB (with Becket)<br>15970          | Micro<br>15300                      | Micro Double<br>15305               | Swiftwater<br>147000               | 2" PMP<br>NFPA1527                | 2" PMP DbI<br>NFPA1528              |                                 |                 |
| €85 \$105 €98                             | €32 \$39 €37                        | €35 \$43 €41                        | €32 \$39 €37                        | €85 \$105 €98                       | €47 \$58 €55                       | €65 \$80 €75                      | €105 \$130 €122                     |                                 |                 |
| 154g<br>5.44oz                            | 89g<br>3.2oz                        | 94g<br>3.3oz                        | 99g<br>3.5oz                        | 164g<br>5.8oz                       | 170g<br>6oz                        | 179g<br>6.3oz                     | 295g<br>10.4oz                      |                                 |                 |
| - 34kN<br>- 7644lbf                       | - 22kN<br>- 4946lbf                 | - 22kN<br>- 4946lbf                 | - 22kN<br>- 4946lbf                 | - 40kN<br>- 8992lbf                 | - 34kN<br>- 7644lbf                | - 36kN<br>- 8093lbf               | - 46kN<br>- 10341lbf                |                                 |                 |
| 7-12.5mm<br>3/32-1/2"                     | <9mm<br><3/8"                       | <9mm<br><3/8"                       | <13mm<br><1/2"                      | <13mm<br><1/2"                      | <13mm<br><1/2"                     | <13mm<br><1/2"                    | <13mm<br><1/2"                      |                                 |                 |
| 2x 35mm<br>2x 1.37"                       | 2x 30mm<br>2x 1.2"                  | 2x 30mm<br>2x 1.2"                  | 35mm<br>1.37"                       | 2x 35mm<br>2x 1.37"                 | 50mm<br>2"                         | 50mm<br>2"                        | 2x 50mm<br>2x 2"                    |                                 |                 |
| 75 x 61 x 46mm<br>3 x 2.4 x 1.8"          | 72 x 45 x 40mm<br>2.8 x 1.75 x 1.5" | 91 x 45 x 40mm<br>3.6 x 1.75 x 1.5" | 95 x 65 x 28mm<br>3.75 x 2.5 x 1.1" | 118 x 65 x28mm<br>4.65 x 2.5 x 1.1" | 100 x 75 x 32mm<br>4 x 3 x 1.25"   | 101 x 74 x 35mm<br>4 x 2.9 x 1.4" | 130 x 74 x 56mm<br>5.1 x 2.9 x 2.2" |                                 |                 |
|   |                                     |                                     |                                     |                                     |                                    |                                   |                                     |                                 |                 |
|   |                                     |                                     |                                     |                                     |                                    |                                   |                                     |                                 |                 |
|   |                                     |                                     |                                     |                                     |                                    |                                   |                                     |                                 |                 |
|   |                                     |                                     |                                     |                                     |                                    |                                   |                                     |                                 |                 |
| Alu Alu StSt                              | AluNylonStSt                        | AluNylonStSt                        | Alu Alu Alu                         | Alu Alu Alu                         | Alu Alu Alu                        | Alu Alu Alu                       | Alu Alu Alu                         | Alu Alu Alu                     |                 |
| NFPA                                      | UIAA                                | UIAA                                | NFPA                                | NFPA                                | UIAA                               | NFPA                              | NFPA                                | NFPA                            |                 |
|   |                                     |                                     |                                     |                                     |                                    |                                   |                                     |                                 |                 |
| Intended as part of<br>AdvanceTech HX Kit |                                     |                                     |                                     |                                     |                                    |                                   |                                     |                                 |                 |
| smcgear.com                               | smcgear.com                         | smcgear.com                         | smcgear.com                         | smcgear.com                         | smcgear.com                        | smcgear.com                       | smcgear.com                         | smcgear.com                     |                 |

|                                       |                                     |                                     |                                      |                                      |                                     |                                       |                         |
|---------------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|--------------------------------------|-------------------------------------|---------------------------------------|-------------------------|
| Images NOT to Scale                   |                                     |                                     |                                      |                                      |                                     |                                       |                         |
| <b>MANUFACTURER</b>                   | <b>SMC</b>                          | <b>SMC</b>                          | <b>SMC</b>                           | <b>SMC</b>                           | <b>SMC</b>                          | <b>SMC</b>                            | <b>SPIDER</b>           |
| <b>MODEL VARIANT</b>                  | 2" RussAnderson<br>NFPA1500         | 2" RussAnderson<br>NFPA1505         | 3" PMP<br>RP281                      | 3" PMP Dbl<br>NFPA1505               | 3" RA Single<br>NFPS1510            | 4" RA Double<br>NFPA1570 <sup>5</sup> | Highline                |
| <b>ORIGIN</b>                         |                                     |                                     |                                      |                                      |                                     |                                       |                         |
| <b>COST (inc Tax) Conversion-only</b> | <b>£71 \$87 €82</b>                 | <b>£50 \$61 €57</b>                 | <b>£96 \$117 €110</b>                | <b>£142 \$174 €163</b>               | <b>£89 \$109 €102</b>               | <b>£200 \$245 €230</b>                | <b>£31 \$38 €35</b>     |
| <b>WEIGHT</b>                         | 244g<br>8.6oz                       | 244g<br>8.6oz                       | 354g<br>12.5oz                       | 590g<br>20.8oz                       | 454g<br>16oz                        | 1142g<br>40.3oz                       | 91g<br>3.2oz            |
| <b>MAX LOAD- WLL MBS</b>              | - 29kN<br>- 6520lbf                 | - 29kN<br>- 6520lbf                 | - 38kN<br>- 8543lbf                  | - 48kN<br>- 10791lbf                 | - 51kN<br>- 11465lbf                | - 63kN<br>- 14163lbf                  | 4 20kN<br>899 4497lbf   |
| <b>MAX ROPE Ø</b>                     | <13mm<br><½"                        | <13mm<br><½"                        | <13mm<br><½"                         | <13mm<br><½"                         | <13mm<br><½"                        | <16mm<br><¾"                          | 24-26mmWEB<br>1-1.1"WEB |
| <b>SHEAVE/TREAD Ø</b>                 | 50mm<br>2"                          | 50mm<br>2"                          | 75mm<br>3"                           | 2x 75mm<br>2x 3"                     | 75mm<br>3"                          | 2x 100mm<br>2x 4"                     | 25mm<br>1"              |
| <b>DIMENSIONS ht x w x depth</b>      | 117 x 63 x 36mm<br>4.6 x 2.5 x 1.4" | 117 x 63 x 36mm<br>4.6 x 2.5 x 1.4" | 149 x 106 x 35mm<br>5.8 x 4.2 x 1.4" | 180 x 106 x 56mm<br>7.1 x 4.2 x 2.2" | 168 x 91 x 38mm<br>6.6 x 3.6 x 1.5" | 252 x 117 x 61mm<br>9.9 x 4.6 x 2.4"  | 79 x 44mm<br>3.1 x 1.7" |
| <b>PRUSIK TEND LOCK BECKET</b>        | ---                                 | ---                                 | ■--                                  | ■-■                                  | ---                                 | --■                                   | ---                     |
| <b>BUSHING BEARING PIN</b>            | ■                                   | ■                                   | ■                                    | ■                                    | ■                                   | ■ ■ ■                                 | ■                       |
| <b>CHEEKS - SWIVEL FIXED</b>          | ■                                   | ■                                   | ■                                    | ■                                    | ■                                   | ■                                     | ■                       |
| <b>EFFICIENCY</b>                     | -                                   | -                                   | -                                    | -                                    | -                                   | -                                     | -                       |
| <b>CHEEK SHEAVE AXLE</b>              | StSt Alu StSt                       | StSt Alu StSt                       | Alu Alu Alu                          | Alu Alu Alu                          | StSt Alu StSt                       | StSt Alu StSt                         | Alu Alu StSt            |
| <b>STANDARDS</b>                      | NFPA                                | NFPA                                | NFPA                                 | NFPA                                 | NFPA                                | NFPA                                  | NOT PPE                 |
| <b>OTHER COLOURS</b>                  | -                                   | -                                   | -                                    | -                                    | -                                   | -                                     | ■                       |
| <b>NOTES</b>                          |                                     |                                     |                                      |                                      |                                     |                                       | Load transport only     |
| <b>WEBSITE</b>                        | smcgear.com                         | smcgear.com                         | smcgear.com                          | smcgear.com                          | smcgear.com                         | smcgear.com                           | spider-slacklines.com   |

|                                       |                                  |                                   |                                    |                         |                         |                                     |                  |
|---------------------------------------|----------------------------------|-----------------------------------|------------------------------------|-------------------------|-------------------------|-------------------------------------|------------------|
| Images NOT to Scale                   |                                  |                                   |                                    |                         |                         |                                     | Expansion Column |
| <b>MANUFACTURER</b>                   | <b>STEIN</b>                     | <b>TRANGO</b>                     | <b>TREEHOG</b>                     | <b>TREERUNNER</b>       | <b>TREERUNNER</b>       | <b>TREERUNNER</b>                   |                  |
| <b>MODEL VARIANT</b>                  | Rope Wrench<br>Pulley -          | Rock Prodigy                      | Fixed Pulley<br>THPUL1             | Fixed Pulley<br>71-248  | Small Pulley<br>71-247  | Large Pulley<br>71-993              |                  |
| <b>ORIGIN</b>                         |                                  |                                   |                                    |                         |                         |                                     |                  |
| <b>COST (inc Tax) Conversion-only</b> | <b>£21 \$26 €25</b>              | <b>£13 \$15 €14</b>               | <b>£20 \$25 €23</b>                | <b>£15 \$19 €17</b>     | <b>£14 \$18 €16</b>     | <b>£22 \$39 €36</b>                 |                  |
| <b>WEIGHT</b>                         | 76g<br>2.7oz                     | 91g<br>3.2oz                      | 91g<br>3.2oz                       | 110g<br>3.9oz           | 116g<br>4oz             | 285g<br>10oz                        |                  |
| <b>MAX LOAD- WLL MBS</b>              | - 36kN<br>- 8093lbf              | - 26kN<br>- 5845lbf               | - 22kN<br>- 4946lbf                | - 20kN<br>- 4497lbf     | - 20kN<br>- 4497lbf     | 6 42kN<br>1349 6744lbf              |                  |
| <b>MAX ROPE Ø</b>                     | <13mm<br><½"                     | <12mm<br><½"                      | <13mm<br><½"                       | <12mm<br><½"            | <12mm<br><½"            | <15mm<br><¾"                        |                  |
| <b>SHEAVE/TREAD Ø</b>                 | 32/22mm<br>1.6/0.9"              | 24/17mm<br>0.9/0.7"               | 21mm<br>0.825"                     | 40/35mm<br>1.6/1.4"     | 40/35mm<br>1.6/1.4"     | 60mm<br>2.4"                        |                  |
| <b>DIMENSIONS ht x w x depth</b>      | 75 x 45 x 32mm<br>3x 1.75 x 1.3" | 57 x 35x 30mm<br>2.3 x 1.3 x 1.2" | 57 x 58 x 32mm<br>2.3 x 2.7 x 1.3" | 82 x 35mm<br>3.1 x 1.4" | 80 x 56mm<br>3.1 x 2.2" | 122 x 82 x 38mm<br>4.8 x 3.1 x 1.5" |                  |
| <b>PRUSIK TEND LOCK BECKET</b>        | ---                              | ---                               | ---                                | --●                     | ■--                     | ---                                 |                  |
| <b>BUSHING BEARING PIN</b>            | ■                                | ■                                 | ■                                  | ■                       | ■                       | ■                                   |                  |
| <b>CHEEKS - SWIVEL FIXED</b>          | ■                                | ■                                 | ■                                  | ■                       | ■                       | ■                                   |                  |
| <b>EFFICIENCY</b>                     | n/a                              | -                                 | -                                  | n/a                     | n/a                     | n/a                                 |                  |
| <b>CHEEK SHEAVE AXLE</b>              | Alu Alu Alu                      | Alu Alu StSt                      | Alu Alu StSt                       | Alu Alu StSt            | Alu Alu StSt            | Alu Alu StSt                        |                  |
| <b>STANDARDS</b>                      | CE UKCA                          | CE                                | CE                                 | CE                      | CE                      | CE                                  |                  |
| <b>OTHER COLOURS</b>                  | ■                                | -                                 | -                                  | -                       | -                       | -                                   |                  |
| <b>NOTES</b>                          | won't rotate >200kg<br>load      |                                   |                                    |                         |                         |                                     |                  |
| <b>WEBSITE</b>                        | stein.com                        | trango.com                        | treehog.co.uk                      | grube.eu                | grube.eu                | grube.eu                            |                  |

# TANDEM PULLEYS

## for Zip-Lines

Tandem pulleys have sheaves that are in-line rather than side-by-side as we see with MA system pulleys. Most of these can be used to create MA systems but their rigid, wide profile make them impracticable. There are a number of other devices in the 'TROLLEY/CARRIAGES GUIDE in **ROPE EQUIPMENT BUYERSGUIDE**. In-line tandem pulleys were originally for tyrolean traverses in mountaineering. Now, arborists use them on high-load zip or speed lines to move branches and wood away from the tree. In the burgeoning field of high-ropes, activity/play areas use them for high speed zip-lines and in rescue they are used to access or evacuate. In arb they are used only for material handling and not as often as they could be in favour of simpler and cheaper single pulleys or just sliding carabiners. Nevertheless, we have included Tandems in this **ARBORIST BUYERSGUIDE** for those shifting heavy wood sections or seeking a better load spread on a more efficient pulley combination, many of which have steel sheaves intended for wire cables but with the benefit of very high wear resistance if using a rope. All of these models can take multiple attachments in the main eye to allow for two control lines as well as the load itself to be clipped in. Some have separate control line eyes like the CMI and ISC models

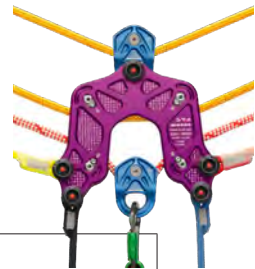


**UPDATED Jan '25**






















or more complex basal eyes like the *Petzl Reeve*, *SMC Shuttles* and *CMI LHT* for use with a separate rigging plate. Several have a top eye to allow connection to a redundant system (second or safety zip-line) which is rarely the case for arborists using it for material handling unless it is a higher risk, higher load removal. Many of these

designs are variations on the *Petzl Tandem* which has been around for decades for mountaineering and is a design that has barely changed. Most use bearings instead of bushings because high-speed efficiency is the name of the game rather than any degree of dynamic absorbency which can be achieved by the zip-line rope itself which, although tensioned, is often of significant enough length to absorb the necessary impact load 'dropped' on it though this should obviously be kept to a minimum. Most speed-lines are low-load, high speed affairs where multiple branches can be shifted out of the canopy using the now familiar speed-line kits with multiple pre-sewn slings with carabiners. Tandem pulleys are for more serious, high-load rigging using 13mm/½" low stretch rope.

Of particular mention is the *Petzl Reeve*, a solid, simple, mid-line attachable trolley utilising the *Spin* pulleys. Far from simple and nowhere near as aesthetically pleasing as the *Reeve* is *DMM's Keanu* (right), a complex, modular frame with tandem sheaves but the ability to alter/add sheaves and control lines and a rig-plate as per the *CMiHD* above. Note that some 'CE' adherence may be to the new Adventure Parks standard rather than the work & rescue standards we are used to.





























| Images NOT to Scale                   |                                     |                                     |  |                                      |                                     |
|---------------------------------------|-------------------------------------|-------------------------------------|--|--------------------------------------|-------------------------------------|
| <b>MANUFACTURER</b>                   | <b>ALPIDEX</b>                      | <b>BEAL</b>                         | <b>CMI</b>   | <b>CMI</b>                           | <b>CMI</b>                          |
| <b>MODEL VARIANT</b>                  | Tandem 2P654                        | Trans'air Twin B                    | Trolley HD (+ Plate)   | Velocity Micro ½ %                   | Rapid Transit                       |
| <b>ORIGIN</b>                         |                                     |                                     |  |                                      |                                     |
| <b>COST (inc Tax) Conversion-only</b> | £39 \$0 €37                         | £66 \$70 €66                        | £270 \$327*€311  | £135 \$163 €156                      | £231 \$280 €266                     |
| <b>WEIGHT</b>                         | 280g<br>9.9oz                       | 290g<br>13.8oz                      | 1.9kg*<br>2.4lb*   | 368/397g<br>13/14oz                  | 648g<br>1lb 6oz                     |
| <b>MAX LOAD- WLL MBS</b>              | 10 20kN<br>2248 4497lbf             | 8 30kN<br>1798 6744lbf              | - 62.3kN<br>- 14000lbf                                       | - 62.3kN<br>- 14000lbf               | - 62.3kN<br>- 14000lbf              |
| <b>MAX ROPE CABLE Ø</b>               | 13 12mm<br>½ ½"                     | ≤13 12mm<br>≤½ ½"                   | ≤16mm<br>≤¾"   | ≤12.7 12.7-16mm<br>≤½ ½-¾"           | 9-12.7mm<br>¾-½"                    |
| <b>SHEAVE/TREAD Ø</b>                 | 2x 27mm<br>2x 1.1"                  | 2x 27mm<br>2x 1.1"                  | 2x 75mm<br>2x 3"   | 2x 38mm<br>2x 1.5"                   | 2x 50mm<br>2x 2"                    |
| <b>DIMENSIONS ht x w x depth</b>      | 83 x 108 x 28mm<br>3.3 x 4.2 x 1.1" | 108 x 78 x 36mm<br>4.3 x 3.1 x 1.4" | 75 x 127 x 26*mm<br>9.5 x 6 x 1"                             | 75 x 127x23/27*mm<br>3 x 5 x.09/1.1" | 142 x 95x26.8*mm<br>5.6 x 3.75 x 1" |
| <b>BUSHING BEARING PIN</b>            | ■                                   | ■                                   | ■  | ■                                    | ■                                   |
| <b>CHEEKS - SWIVEL FIXED</b>          | ■                                   | ■                                   | ■  | ■                                    | ■                                   |
| <b>EFFICIENCY</b>                     | ?                                   | ?                                   | n/a  | n/a                                  | n/a                                 |
| <b>CHEEK SHEAVE AXLE</b>              | Alu StSt StSt                       | Alu StSt StSt                       | Alu Alu StSt   | StSt StSt StSt                       | StSt StSt StSt                      |
| <b>STANDARDS</b>                      | CE                                  | CE                                  | CE   | CE                                   | CE                                  |
| <b>MAX SPEED</b>                      | -                                   | 33mph 15m/s                         | 60mph 27m/s  | 60mph 27m/s                          | 90mph 40m/s                         |
| <b>NOTES</b>                          | 7 Colour options                    |                                     | *Exc mandatory use of CMI Maxi-Plate attached to bottom pins | depth does not include bolt *heads   | depth does not include bolt *heads  |
| <b>WEBSITE</b>                        | alpindex.com                        | beal-planet.com                     | cmigear.com  | cmigear.com                          | cmigear.com                         |

|                                       |   |  |  |   |   |   |
|---------------------------------------|---|--|--|---|---|---|
|                                       |    |             |    |    |    |    |
| <b>MANUFACTURER</b>                   | <b>CMI</b>  | <b>CAMP</b>  | <b>CAMP</b>  | <b>DMM</b>  | <b>EDELRID</b>  | <b>EDELRID</b>  |
| <b>MODEL VARIANT</b>                  | Trolley 1/2   | Wing2  | Flyte 3121   | Keanu TR400   | Rail 71791  |   |
| <b>ORIGIN</b>                         |    |             |     |    |    |   |
| <b>COST (inc Tax) Conversion-only</b> | £231 \$280 €266   | £121 \$160 €138  | £0 \$150 €82   | £550 \$700 €650   | £70 \$87 €80  | £55   |
| <b>WEIGHT</b>                         | 648g<br>1lb 6oz   | 347g<br>12.2oz   | 280g<br>9.9oz  | 1698g<br>3lb 12oz   | 290g<br>13.8oz  |   |
| <b>MAX LOAD- WLL MBS</b>              | - 62.3kN<br>- 14000lbf  | 6 15kN<br>1349 3372lbf   | 10 20kN<br>2248 4497lbf  | 10 50kN<br>2248 11240lbf  | 0 25kN<br>0 5620lbf   | 179   |
| <b>MAX ROPE CABLE Ø</b>               | 9-12.7mm 16mm<br>3/8-1/2" 5/8"  | ≤13 12mm<br>≤1/2 1/2"  | ≤13 12mm<br>≤1/2 1/2"  | ≤13 12mm<br>≤1/2 1/2"   | ≤13 12mm<br>≤1/2 1/2"   | ≤1  |
| <b>SHEAVE/TREAD Ø</b>                 | 2x 50mm<br>2x 2"  | 2x 26mm<br>2x 1"   | 2x 27mm<br>2x 1.1"   | 2x 38mm<br>2x 1.5"  | 2x 28mm<br>2x 1.1"  | 2x  |
| <b>DIMENSIONS ht x w x depth</b>      | 165 x 152 x 24*mm<br>6.5 x 6 x 1"   | 125 x 75 x 30mm<br>5 x 3 x 1.2"  | 83 x 108 x 28mm<br>3.3 x 4.2 x 1.1"  | 250 x 220 x 40mm<br>9.8 x 8.7 x 1.6"  | 0 x 0mm<br>0 x 0"   | 78 x 1<br>3.1 x   |
| <b>BUSHING BEARING PIN</b>            | ■   | ■  | ■  | ■   | ■   |   |
| <b>CHEEKS - SWIVEL FIXED</b>          | ■   | ■  | ■  | ■   | ■   |   |
| <b>EFFICIENCY</b>                     | n/a   | n/a  | n/a  | n/a   | 90%   |   |
| <b>CHEEK SHEAVE AXLE</b>              | StSt StSt StSt  | Alu StSt StSt  | Alu StSt StSt  | Alu Alu StSt  | Alu StSt StSt   | Alu   |
| <b>STANDARDS</b>                      | CE  | CE   | CE   | CE  | CE  |   |
| <b>MAX SPEED</b>                      | 90mph 40m/s   | 45mph 20m/s  | 45mph 20m/s  | -   | -   | 33m   |
| <b>NOTES</b>                          | depth does not include bolt*heads   | DISCONTINUED<br>Sprung gate. Hooks each end are to store backups during travel               |  | Also in Purple. Modular sheaves, pins and rig plate                                   |   |   |
| <b>WEBSITE</b>                        | cmigear.com   | camp.it  | camp.it  | dmmwales.com  | edelrid.com   | edel  |
| <b>Images NOT to Scale</b>            |  |           |  |  |  |  |
| <b>MANUFACTURER</b>                   | <b>KONG</b>   | <b>KONG</b>  | <b>PETZL</b>   | <b>PETZL</b>  | <b>PETZL</b>  | <b>PETZL</b>  |
| <b>MODEL VARIANT</b>                  | MegaZip 91200N00KK  | Zip Evo Hook 826040400KK 826050400KK   | Tandem P21   | Tandem Speed P21 SPE  | Reeve P21 SPE   | Tree-Up   |
| <b>ORIGIN</b>                         |   |           |   |  |  |   |
| <b>COST (inc Tax) Conversion-only</b> | £250 \$289 €285   | £106 \$125 €120  | £46 \$85 €43   | £64 \$100 €73   | £180 \$220 €207   | £40   |
| <b>WEIGHT</b>                         | 1310g<br>2lb 14oz   | 440 470g<br>15.5 16.6 oz   | 195g<br>6.9oz  | 270g<br>9.5oz   | 650g<br>1lb 7oz   |   |
| <b>MAX LOAD- WLL MBS</b>              | - 21kN<br>- 4721lbf   | - 22kN<br>- 5000lbf  | 10 24kN<br>2248 5395lbf  | 10 24kN<br>2248 5395lbf   | - 36kN<br>- 8093lbf   | 4<br>107  |
| <b>MAX ROPE CABLE Ø</b>               | 12-16mm<br>1/2-5/8"   | ≤13mm<br>≤1/2"   | ≤13mm<br>≤1/2"   | ≤13 13mm<br>1/2 1/2"  | 7-13mm<br>5/32- 1/2"  | ≤   |
| <b>SHEAVE/TREAD Ø</b>                 | 2x 55mm<br>2x 2.16"   | 2x 40mm<br>2x 1.6"   | 2x 21mm<br>2x 0.8"   | 2x 27.5mm<br>2x 1.1"  | 2x 38mm<br>2x 1.5"  | 2x<br>2   |
| <b>DIMENSIONS ht x w x depth</b>      | 200 x 215 x 35mm<br>7.9 x 8.5 x 1.4"  | 200 x 170 x 35mm<br>7.9 x 6.7 x 1.4"   | 75 x 108 x 32mm<br>3 x 4.2 x 1.25"   | 75 x 108 x 32mm<br>3 x 4.2 x 1.25"  | 132 x 195mm<br>5.2 x 7.7"   | 90 x 10<br>35.4   |
| <b>BUSHING BEARING PIN</b>            | ■   | ■  | ■  | ■   | ■   |   |
| <b>CHEEKS - SWIVEL FIXED</b>          | ■   | ■  | ■  | ■   | ■   |   |
| <b>EFFICIENCY</b>                     | n/a   | 95%  | 71%  | 95%   | 95%   |   |
| <b>CHEEK SHEAVE AXLE</b>              | Alu Steel StSt  | Alu StSt StSt  | Alu Alu StSt   | Alu StSt StSt   | Alu StSt StSt   | Alu   |
| <b>STANDARDS</b>                      | CE  | CE   | CE UIAA UKCA   | CE UIAA UKCA  | CE NFPA UKCA  |   |
| <b>MAX SPEED mph m/s</b>              |   |  | 22mph 10m/s  | 89mph 20m/s   |   |   |
| <b>NOTES</b>                          |   | Sprung safety gate for sheaves. Hook version (shown) avoids safety backup wear on wire cable |  |   |   |   |
| <b>WEBSITE</b>                        | kong.it   | kong.it  | petzl.com  | petzl.com   | petzl.com   | pr  |



# TANDEM PULLEYS/TROLLEYS

www.arbclimber.com

|   |   |  |  |  |   |   |
|---|---|--|--|--|---|---|
|    |    |                                   |                                   |                                |    |  |
| <b>ELWEISS</b>  | <b>FIXE</b>   | <b>FUSION CLIMB</b>  | <b>FUSION CLIMB</b>  | <b>ISC</b>   | <b>KAILAS</b>   | <b>KONG</b>   |
|   | DB2 Cable<br>418  | Advent GT Tactical<br>FP-8160-SS-SILBLK  | Tesa Speed<br>FP-8154-7-BLU  | ZipSpeed<br>RP075  | Trolley Double  | Pamir Fast<br>94600(4/N)401KK   |
|     |    |                                   |                                   |                                 |    |  |
| £68 €38   | £75 \$92 €86  | £73 \$89 €84   | £52 \$63 €59   | £0 \$0 €0  | £105 \$130 €120   | £80 \$100 €90   |
| 290g<br>13.8oz  | 291g<br>10.3oz  | 765g<br>1lb 11oz   | 311g<br>11oz   | 875g<br>1lb 14oz   | 372g<br>13.1oz  | 365g<br>12.9oz  |
| 8 30kN<br>8 6744lbf   | 10 20kN<br>2248 4497lbf   | - 50kN<br>- 11240lbf   | 10 24kN<br>2248 5395lbf  | - 40kN<br>- 8992lbf  | 12 26kN<br>2697 5845lbf   | 8 30kN<br>1798 6744lbf  |
| 13 12mm<br><math>\leq \frac{1}{2}</math>  | <math>\leq 13</math> 12mm<br><math>< \frac{1}{2}</math>                             | 9-13 8-12mm<br><math>\frac{3}{8}</math>-<math>\frac{1}{2}</math> <math>\frac{1}{4}</math>-<math>\frac{1}{2}</math> | 9-13 8-12mm<br><math>\frac{3}{8}</math>-<math>\frac{1}{2}</math> <math>\frac{1}{4}</math>-<math>\frac{1}{2}</math> | <math>\leq 13,16</math> & 20mm<br><math>< \frac{1}{2}</math> <math>\frac{3}{8}</math> & <math>\frac{1}{4}</math> | <math>\leq 13</math> 12mm<br><math>< \frac{1}{2}</math>                               | <math>\leq 13</math> 13mm<br><math>< \frac{1}{2}</math>                             |
| 2x 27mm<br>2x 1.1"  | 2x 27mm<br>2x 1.1"  | 2x 50/40mm<br>2x 2/1.6"  | 2x 35/27mm<br>2x 1.4/1.1"  | 2x 50/75mm<br>2x 2/3"  | 2x 28mm<br>2x 1.1"  | 2x 37mm<br>2x 1.5"  |
| 108 x 36mm<br>4.3 x 1.4"  | 83 x 108 x 28mm<br>3.3 x 4.2 x 1.1"   | 100 x 168 x 39mm<br>3.9 x 6.6 x 1.5"   | 78.5 x 108 x 27mm<br>3.1 x 4.25 x 1.1"   | 111x206x31mm<br>4.4 x 8.1 x 1.2"   | 87 x 104 x 31mm<br>3.4 x 4.1 x 1.2"   | 86.5 x 113 x 29mm<br>3.4 x 4.5 x 1.1"   |
| ■   | ■   | ■  | ■  | ■  | ■   | ■   |
| n/a   | n/a   | n/a  | n/a  | n/a  | n/a   | n/a   |
| StSt StSt<br>CE   | Alu StSt StSt<br>CE   | StSt Alu StSt<br>CE  | Alu Alu StSt<br>CE ANSI  | Alu StSt StSt<br>CE  | Alu Alu StSt<br>CE  | Alu StSt StSt<br>CE   |
| 15mph   | -   |  | 89mph 20m/s  | 69mph 30.8m/s  |   | -   |
|   |   | Tactical version=Black   |  | Also available with 13&16mm<br>cable sheaves & 75mm/3"<br>rope sheaves   |   | Top-cap=finger protector.<br>Also available in Blue                                 |
| weisscom  | fixeclimbing.com  | fusionclimb.com  | fusionclimb.com  | iscwales.com   | kailas.com  | kong.it   |
|  |  |                                 |                                 |                              |  |   |
| <b>ROTEKT</b>   | <b>ROCK EMPIRE</b>  | <b>SINGING ROCK</b>  | <b>SKYLOTEC</b>  | <b>SMC</b>   | <b>SMC</b>  |   |
| Dbl Transport<br>CD101  | Tandem<br>ZWP120  | Tandem<br>RK803  | CT Duetto<br>2P654   | Shuttle<br>156302  | Shuttle Extreme<br>156304   |   |
|   |  |                                 |                                 |                               |  |   |
| £50 €46   | £78 \$97 €90  | £65 \$76 €71   | £66 \$75 €64   | £58 \$69 €65   | £105 \$128 €120   |   |
| 250g<br>8.8oz   | 280g<br>9.9oz   | 290g<br>10.2oz   | 290g<br>13.8oz   | 162g<br>5.7oz  | 227g<br>8oz   |   |
| 8 24kN<br>9 5395lbf   | - 20kN<br>- 4496lbf   | 5 25kN<br>1124 5620lbf   | 10 25kN<br>2248 5620lbf  | - 26kN<br>- 5845lbf  | - 26kN<br>- 5845lbf   |   |
| 13 13mm<br><math>\leq \frac{1}{2}</math>  | <math>\leq 13</math> 12mm<br><math>< \frac{1}{2}</math>                             | <math>\leq 13</math> 12mm<br><math>< \frac{1}{2}</math>  | <math>\leq 13</math> 12mm<br><math>< \frac{1}{2}</math>  | <math>\leq 13</math> 13mm<br><math>< \frac{1}{2}</math>  | <math>\leq 13</math> 13mm<br><math>< \frac{1}{2}</math>                               |   |
| 2x 28mm<br>2x 1.1"  | 2x 27mm<br>2x 1.1"  | 2x 28mm<br>2x 1.1"   | 2x 27mm<br>2x 1.1"   | 2x 35mm<br>2x 1.37"  | 2x 35mm<br>2x 1.37"   |   |
| 103 x 36.5mm<br>4 x 1.4"  | 83 x 108 x 28mm<br>3.3 x 4.2 x 1.1"   | 80 x 101mm<br>31.4 x 4"  | 80 x 100 x 33mm<br>3.2 x 3.9 x 1.3"  | 82 x 108 x 27mm<br>3.2 x 4.25 x 1.1"   | 82 x 108 x 27mm<br>3.2 x 4.25 x 1.1"  |   |
| ■   | ■   | ■  | ■  | ■  | ■   |   |
| n/a   | n/a   | n/a  | 90%  | n/a  | n/a   |   |
| StSt StSt<br>CE   | Alu StSt StSt   | Alu StSt StSt  | Alu StSt StSt<br>CE  | Alu StSt StSt  | Alu StSt StSt   |   |
|   |   |  | -  | -  | -   |   |
|   |   |  |  |  | Replaceable bearings.<br>For high volume jobs   |   |
| rotekt.pl   | rockempire.com  | singingrock.com  | skylotec.com   | smcgear.com  | smcgear.com   |   |

**UPDATED Oct '24**

# SWIVEL PULLEYS

## & CARABINER/PULLEYSWIVELS

Yachting was the first to use swivel pulleys, indeed pulley development in general has been led by the various maritime industries but it took the genius of *Rock Exotica* to once again cross the design divide into life-critical tasking in 2005 with the *OmniBlock* which quickly found a home in an arb industry that was now keen to embrace all things metal and shiny. *Rock Exotica* not only married a rescue-spec swivel eye with a pulley they also added a locking button to the swing-cheek making this super-safe as well as super-tough being machined out of a single block of aircraft alloy. They had the field to themselves for a few years and produced (produce) for large players like *CMC* with the US-only NFPA version but once *Petzl* introduced their *Spin* series the gloves seemed to be off and swivel pulleys and latterly carabiner/swivel pulleys are appearing more and more and they're doing so with interesting variations on some elements of the *OmniBlock* design.

The ultimate in *Swiss-Army Knife* optimism is the *SwivaBiner* also from *RockExotica/CMC* where a full size carabiner sits on top of a swivel, on top of a pulley. The carabiner takes the place of the swivel eye which usually requires you to clip in a carabiner making the whole assembly longer so the *Swivabiner* is saving some space and the whole assembly is replacing 3 separate items. Not sure that the three separate items wouldn't be more useful but the *Swivabiners* are pretty flash

none-the less. We've used a *SwivaEye* (which is the 'biner and swivel bit minus the pulley) since *Rock* invented them and it has been a real workhorse in all kinds of weird and wonderful situations that it was never intended for. *Petzl* have followed the single carabiner-swivel concept with their own variation using their 'Open' swivel. This does allow connection to other 'closed' components as a carabiner does but only with the more time-consuming job of removing an Allen bolt. It is however, considerably smaller than a carabiner and only barely larger than a closed swivel. (see pic comparison right) The logical extension of the *Swiv-A-Biner* pulley concept is of course, to have two pulleys on a swivel - so double blocks with a bucket completes the carabiner-swivel series nicely with *Rock Exotica* and their proxy series by *CMC* still having this particular field to themselves.



Where *RockExotica*, *Petzl* and *CMC* swivel their cheeks on the central axle, *SMC* decided to buck the trend and have their swivel on a pin at the top. The centre is the cheek release; a sprung, push button requiring 90 degree rotation of the button before pushing it in to release the side plate. *Petzl*'s *Spins* all have a red warning flash to indicate that the side plate is not properly locked (pic above)

The *OmniBlock* and its competitors have tended to be at the larger and certainly bulkier end of the scale but once again *Rock Exotica* led the way with a more diminutive swivel pulley when they produced Reed Thorne's baby, the *AZTEK* mini pulley system using mini *OmniBlocks* where the swivel is almost as large as the pulley. This was subsequently taken up by *CMC*'s *MicroTrolley* (right) which is actually even smaller albeit as a single rather than double sheave. *Rock Exotica* have since brought out a model specifically aimed at arborists. The *Hydra* (below-right) is their swivelling variation of the *Hitchclimber*



### IN THE FOLLOWING TABLES.....

See the Pulleys Introduction on page 62 for the same key to these tables.

Sheave Diameters in green are verified as the minimum/tread diameter - others may be the max or outer diameter - we will update as we get the data

- Alu = Aluminium or Aluminium Alloy
- StSt = Stainless Steel but may simply be galvanised steel in a few cases or....
- Zstl = Zinc plated steel



# OMNI 2.0" DOUBLE

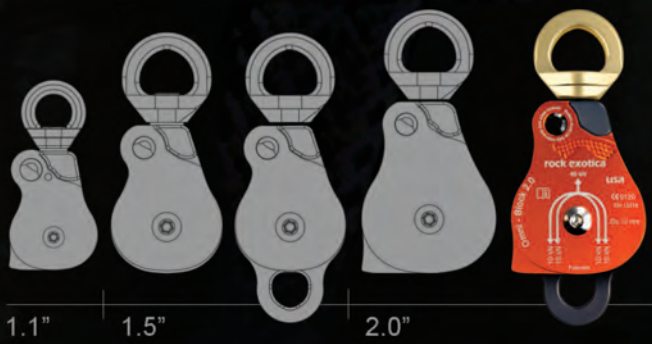
- Install and remove rope while still connected to the anchor.
- Sideplate locks with two-stage, double-catch safety mechanism.



- Integrated swivel allows pulley to orient while reducing gain.
- Connect, install and remove rope with one hand.
- CNC machined for optimal weight & strength.



## THE NEWEST OF THE OMNI FAMILY

















Available in single or double sheave versions, from 1.1" up to 2.0" sheave diameter.



|                                       |  |  |  |  |   |                                       |
|---------------------------------------|--|--|--|--|---|---------------------------------------|
| Images NOT to Scale                   |  |  |  |  |   |                                       |
| <b>MANUFACTURER</b>                   | <b>CMC</b>                               | <b>CMC</b>                               | <b>CMC</b>                               | <b>CMC</b>                               | <b>CMC</b>                                    | <b>CMC</b>                            |
| <b>MODEL VARIANT</b>                  | 1.1 PMP Single<br>300434                 | 1.1 PMP Double<br>300433                 | 1.5 PMP Single SS<br>300430              | 1.5 Single<br>300431                     | 1.5 Double<br>300432                          | 2.0 PMP Single<br>300437              |
| <b>ORIGIN</b>                         |  |  |  |  |   |                                       |
| <b>COST</b> (inc Tax) Conversion-only | - \$95 -                                 | - \$123 -                                | - \$139 -                                | - \$105 -                                | - \$155 -                                     | - \$130 -                             |
| <b>WEIGHT</b>                         | 140g<br>4.9oz                            | 245g<br>8.6oz                            | 331g<br>11.7oz                           | 260g<br>9.2oz                            | 411g<br>14.5oz                                | 348g<br>12.3oz                        |
| <b>MAX LOAD- WLL MBS</b>              | 5 22kN<br>1124 4946lbf                   | 7.25 22kN<br>1630 4946lbf                | 8 36kN<br>1798 8093lbf                   | 8 36kN<br>1798 8093lbf                   | 8 36kN<br>1798 8093lbf                        | 8 36kN<br>1798 8093lbf                |
| <b>ROPE Ø</b>                         | ≤13mm<br>≤½"                             | ≤13mm<br>≤½"                             | ≤13mm<br>≤½"                             | ≤13mm<br>≤½"                             | ≤13mm<br>≤½"                                  | ≤13mm<br>≤½"                          |
| <b>SHEAVE/TREAD Ø</b>                 | 36/28mm<br>1.4/1.1"                      | 2x 36/28mm<br>2x 1.4/1.1"                | 48/38mm<br>1.9/1.5"                      | 48/38mm<br>1.9/1.5"                      | 2x 48/38mm<br>2x 1.9/1.5"                     | 60/51mm<br>2.4/2"                     |
| <b>DIMENSIONS</b> ht x w x depth      | 112 x 51 x 30mm<br>4.4 x 2 x 1.2"        | 135 x 51 x 53mm<br>5.3 x 2 x 2"          | 135 x 64 x 32mm<br>6.3 x 2.5 x 1.3"      | 135 x 64 x 32mm<br>5.3 x 2.5 x 1.3"      | 160 x 64 x 57mm<br>6.3 x 2.5 x 2.3"           | 148 x 76 x 32mm<br>5.8 x 3 x 1.3"     |
| <b>PRUSIK TEND LOCK BECKET</b>        |  |  |  |  |   |                                       |
| <b>BUSHING BEARING PIN</b>            |  |  |  |  |   |                                       |
| <b>CHEEKS - SWIVEL FIXED</b>          |  |  |  |  |   |                                       |
| <b>EFFICIENCY</b>                     | >90%                                     | >90%                                     | >90%                                     | >90%                                     | >90%  | >93%                                  |
| <b>CHEEK SHEAVE AXLE</b>              | Alu Alu Alu                              | Alu Alu Alu                              | Alu StSteel Alu                          | Alu Alu Alu                              | Alu Alu Alu                                   | Alu Alu Alu                           |
| <b>STANDARDS</b>                      | NFPA                                     | NFPA                                     | NFPA                                     | NFPA                                     | NFPA  | NFPA                                  |
| <b>OTHER COLOURS</b>                  | -  | -  | -  | -  | -   | -                                     |
| <b>NOTES</b>                          |  |  | *steel cable≤12mm                        |  |   |                                       |
| <b>WEBSITE</b>                        | cmcpro.com                               | cmcpro.com                               | cmcpro.com                               | cmcpro.com                               | cmcpro.com                                    | cmcpro.com                            |
| Images NOT to Scale                   |  |  |  |  |   |                                       |
| <b>MANUFACTURER</b>                   | <b>PETZL</b>                             | <b>PETZL</b>                             | <b>PETZL</b>                             | <b>PETZL</b>                             | <b>PETZL</b>                                  | <b>ROCK EXOTICA</b>                   |
| <b>MODEL VARIANT</b>                  | Spin S1<br>S1                            | Spin S1 Open<br>2P654                    | Spin L1<br>L1                            | Spin L2 dbl<br>L2D                       | Spin L1D 1-way<br>L1D                         | Hydra<br>P4                           |
| <b>ORIGIN</b>                         |  |  |  |  |   |                                       |
| <b>COST</b> (inc Tax) Conversion-only | £60 \$72 €66                             | £65 \$75 €70                             | £114 \$110 €100                          | £162 \$175 €160                          | £186 \$205 €190                               | £127 \$120 €131                       |
| <b>WEIGHT</b>                         | 145g<br>5.1oz                            | 0g<br>0oz                                | 290g<br>10.2oz                           | 480g<br>1lb 9oz                          | 425g<br>15oz                                  | 189g<br>6.7oz                         |
| <b>MAX LOAD- WLL MBS</b>              | 5 23kN<br>1124 8093lbf                   | 5 23kN<br>1124 8093lbf                   | 6 36kN<br>1348 8093lbf                   | 6 36kN<br>1348 8093lbf                   | 6 36kN<br>1348 8093lbf                        | 5 28kN<br>1124 6295lbf                |
| <b>ROPE Ø</b>                         | 7-11mm<br>½-¾"                           | 7-11mm<br>½-¾"                           | 8-13mm<br>¼-½"                           | 8-13mm<br>¼-½"                           | 8-13mm<br>¼-½"                                | ≤13mm<br>≤½"                          |
| <b>SHEAVE/TREAD Ø</b>                 | 25mm<br>1"                               | 25mm<br>1"                               | 50/38mm<br>2/1.5"                        | 2x 50/38mm<br>2x 2/1.5"                  | 60/45mm<br>2.4/1.8"                           | 35/25mm<br>1.4/1"                     |
| <b>DIMENSIONS</b> ht x w x depth      | 103x48x33mm<br>4 x 1.9 x 1.3"            | 105x48x33mm<br>4.1 x 1.9 x 1.3"          | 150x70 x 32mm<br>5.9 x 2.75 x 1.25"      | 180 x 70 x 70mm<br>7 x 2.75 x 2.75"      | 150 x 74 x 32mm<br>5.9 x 2.9 x 1.25"          | 112 x 63.5 x 33mm<br>4.4 x 2.5 x 1.3" |
| <b>PRUSIK TEND LOCK BECKET</b>        |  |  |  |  |   |                                       |
| <b>BUSHING BEARING PIN</b>            |  |  |  |  |   |                                       |
| <b>CHEEKS - SWIVEL FIXED</b>          |  |  |  |  |   |                                       |
| <b>EFFICIENCY</b>                     | 91%                                      | 91%                                      | 95%                                      | 95%                                      | 93% one-way                                   | >90%                                  |
| <b>CHEEK SHEAVE AXLE</b>              | Alu StSt StSt                            | Alu StSt StSt                            | Alu StSt StSt                            | Alu StSt StSt                            | Alu StSt StSt                                 | Alu Alu StSt                          |
| <b>STANDARDS</b>                      | CE NFPA UKCA UIAA                        | CE NFPA UKCA                             | CE NFPA UKCA                             | CE NFPA UKCA                             | CE NFPA UKCA                                  | CE                                    |
| <b>OTHER COLOURS</b>                  |  |  |  |  |   |                                       |
| <b>NOTES</b>                          | red warning mark if sheave is not locked | red warning mark if sheave is not locked | red warning mark if sheave is not locked | Red warning mark if sheave is not locked | Integrated progress capture cam.*=faceted cam |                                       |
| <b>WEBSITE</b>                        | petzl.com                                | petzl.com                                | petzl.com                                | petzl.com                                | petzl.com                                     | rockexotica.com                       |

# SWIVEL PULLEYS

|               |    |    |     |     |    |    |    |
|---------------|--|---|---|---|--|---|---|
| Brand         | <b>CMC</b>   | <b>CMC</b>  | <b>CMC</b>  | <b>CMC</b>  | <b>CMI</b>   | <b>NOTCH</b>  | <b>PETZL</b>  |
| Model         | <b>2.0 PMP Double</b><br>300438  | <b>2.6 PMP Single</b><br>300436   | <b>1.1 PMP SwivaBiner</b><br>300435   | <b>1.1 PMP SwivaBiner</b><br>300439   | <b>MicroTrolley</b><br>RP161RS   | <b>Rook</b><br>x  | <b>Twin Release</b>   |
| Country       |  |   |   |   |  |   |   |
| Price         | - \$195 -  | - \$225 -   | - \$125 -   | - \$155 -   | £91 \$110/114 €105   | £111 \$120 €114   | £362 \$440 €410   |
| Weight        | 591g<br>20.9oz   | 850g<br>29.9oz  | 200g<br>7oz   | 298g<br>11oz  | 204/226g<br>7.2/8oz  | 189g<br>6.7oz   | 800g<br>1lb 12oz  |
| Strength      | 10 40kN<br>2248 8992lbf  | 20 70kN<br>4496 15737lbf  | - 22kN<br>- 4946lbf   | - 22kN<br>- 4946lbf   | 8.8 44kN<br>1980 9900lbf   | 2.8 28kN<br>629 6295lbf   | 9 36kN<br>2023 8093lbf  |
| Opening       | ≤13mm<br>≤½"   | ≤13mm<br>≤½"  | ≤13mm<br>≤½"  | ≤13mm<br>≤½"  | ≤13mm<br>≤½"   | ≤13mm<br>≤½"  | 8-13mm<br>¾-½"  |
| Dimensions    | 2x 60/51mm<br>2x 2.4/2"  | 75/66mm<br>2.95/2.6"  | 36/28mm<br>1.4/1.1"   | 2x 36/28mm<br>2x 1.4/1.1"   | 32mm<br>1.25"  | 53mm<br>2.1"  | 2x56&46/40&38*mm<br>2x2.2&1.8/1.6&1.5"  |
| Size          | 180 x 76 x 57mm<br>7 x 3 x 2.3"  | 191 x 92.5 x 42mm<br>7.5 x 3.6 x 1.6"   | 168 x 51 x 30mm<br>6.6 x 2 x 1.2"   | 195 x 51 x 53mm<br>7.7 x 2 x 2"   | 114 x 50 x 32mm<br>4.5 x 2 x 1.25"   | 112 x 63.5 x 33mm<br>4.6 x 2.5"   | 180 x 105 x 77mm<br>7 x 4.1 x 3"  |
| Features      |  |   |   |   |  |   |   |
| Efficiency    | >93%   | >90%  | >90%  | >90%  |  | >90%  | 95%   |
| Material      | Alu Alu Alu  | Alu Alu Alu   | Alu Alu Alu   | Alu Alu Alu   | Alu Alu StSt   | Alu Alu StSt  | Alu StSt StSt   |
| Certification | NFPA   | NFPA  | NFPA  | NFPA  | CE   | ANSI CE   | CE NFPA ANSI UKCA   |
| Notes         |  |   |   |   | RS=removable axle/sheave   |   | Integrated progress capture cam.*=faceted cam   |
| Website       | cmcpro.com   | cmcpro.com  | cmcpro.com  | cmcpro.com  | cmigearusa.com   | notchequipment.com  | petzl.com   |
|               |  |  |  |  |  |  |  |
| Brand         | <b>RE / CMC</b>  | <b>ROCK EXOTICA</b>   | <b>ROCK EXOTICA</b>   | <b>ROCK EXOTICA</b>   | <b>ROCK EXOTICA</b>  | <b>ROCK EXOTICA</b>   | <b>ROCK EXOTICA</b>   |
| Model         | <b>AZTEK</b><br>P41 / 300321   | <b>Omni Block 1.1</b><br>P54  | <b>Omni Block 1.1 dbi</b><br>P54D   | <b>Omni Block 1.5</b><br>P51  | <b>Omni Block 1.5 SS</b><br>P51 SS   | <b>Omni Block 1.5</b><br>P51 SH   | <b>Omni Block 1.5 dbi</b><br>P51 D  |
| Country       |  |   |   |   |  |   |   |
| Price         | £105 \$127 €121  | £110 \$98 €122  | £150 \$135 €162   | £122 \$105 €142   | £100 \$90 €87  | £122 \$105 €142   | £150 \$160 €190   |
| Weight        | 226g<br>7.9oz  | 140g<br>4.9oz   | 245g<br>8.6oz   | 260g<br>9.2oz   | 303g<br>10.7oz   | 303g<br>10.7oz  | 411g<br>14.5oz  |
| Strength      | 9 36kN<br>2023 8093lbf   | 5 23kN<br>1124 4946lbf  | 7.25 30kN<br>1630 6744lbf   | 8 36kN<br>1798 8093lbf  | 8 36kN<br>1798 8093lbf   | 8 36kN<br>1798 8093lbf  | 8 36kN<br>1798 8093lbf  |
| Opening       | 8mm<br>⅝"  | ≤13mm<br>≤½"  | ≤13mm<br>≤½"  | ≤13mm<br>≤½"  | ≤13mm<br>≤½"   | ≤13mm<br>≤½"  | ≤13mm<br>≤½"  |
| Dimensions    | 2x 36/28mm<br>2x 1.4/1.1"  | 36/28mm<br>1.4/1.1"   | 2x 36/28mm<br>2x 1.4/1.1"   | 48/38mm<br>1.9/1.5"   | 48/38mm<br>1.9/1.5"  | 48/38mm<br>1.9/1.5"   | 2x 48/38mm<br>2x 1.9/1.5"   |
| Size          | 104 x 50mm<br>4.1 x 2"   | 112 x 51x 30mm<br>4.4 x 2 x 1.2"  | 135 x 51 x 53mm<br>5.3 x 2 x 2"   | 135 x 64 x 32mm<br>5.3 x 2.5 x 1.3"   | 135 x 64 x 32mm<br>5.3 x 2.5 x 1.3"  | 135 x 64 x 33mm<br>6.3 x 2.5 x 1.3"   | 160 x 64 x 58mm<br>6.3 x 2.5 x 2.3"   |
| Features      |  |   |   |   |  |   |   |
| Efficiency    | >90%   | >90%  | >90%  | >90%  | >90%   | >90%  | >90%  |
| Material      | Alu Alu Alu  | Alu Alu Alu   | Alu Alu Alu   | Alu Alu Alu   | Alu StSteel Alu  | Alu Alu Alu   | Alu Alu Alu   |
| Certification | CE NFPA  | CE  | CE  | CE  | CE   | CE  | CE  |
| Notes         | grey= quick release pin<br>orange=side becket screw                                |   |   |   |  | DISCONTINUED  |   |
| Website       | rockexotica.com  | rockexotica.com   | rockexotica.com   | rockexotica.com   | rockexotica.com  | rockexotica.com   | rockexotica.com   |

# UPDATED Oct '24

|  |                                   |                               |                                       |                                   |                                 |
|--|-----------------------------------|-------------------------------|---------------------------------------|-----------------------------------|---------------------------------|
| Images NOT to Scale                          |                                   |                               |                                       |                                   |                                 |
| <b>MANUFACTURER</b>                          | <b>ROCK EXOTICA</b>               |                               |                                       |                                   |                                 |
| <b>MODEL VARIANT</b>                         | Omni Block 2 P53                  | Omni Block 2 dbl P53 D        | Omni Block 2.6 P55                    | 1.1 Swivabiner P54 SB B           | 1.1 Swivabiner dbl P54D SB B    |
| <b>ORIGIN</b>                                |                                   |                               |                                       |                                   |                                 |
| <b>COST</b> (inc Tax) <i>Conversion-only</i> | £150 \$134 €162                   | £225 \$200 €263               | £256 \$235 €223                       | £135 \$137 €150                   | £190 \$170 €220                 |
| <b>WEIGHT</b>                                | 348g<br>12.3oz                    | 591g<br>20.9oz                | 850g<br>29.9oz                        | 140g<br>4.9oz                     | 300g<br>10.5oz                  |
| <b>MAX LOAD- WLL MBS</b>                     | 8 36kN<br>1798 8093lbf            | 10 40kN<br>0lbf               | 20 80kN<br>4496 17984lbf              | 5 23kN<br>1124 5170lbf            | 7 28kN<br>1573 6295lbf          |
| <b>MAX ROPE Ø</b>                            | ≤13mm<br>≤½"                      | ≤13mm<br>≤½"                  | ≤13mm<br>≤½"                          | ≤13mm<br>≤½"                      | ≤13mm<br>≤½"                    |
| <b>SHEAVE/TREAD Ø</b>                        | 60/51mm<br>2.4/2"                 | 2x 60/51mm<br>2x 2.4/2"       | 75/66mm<br>2.95/2.6"                  | 36/28mm<br>1.4/1.1"               | 2x 36/28mm<br>2x 1.4/1.1"       |
| <b>DIMENSIONS</b> ht x w x depth             | 148 x 76 x 32mm<br>5.8 x 3 x 1.3" | 180 x 76 x 57mm<br>7 x 3 2.3" | 191 x 92.5 x 42mm<br>7.5 x 3.6 x 1.6" | 168 x 51 x 30mm<br>6.6 x 2 x 1.2" | 195 x 51 x 53mm<br>7.7 x 2 x 2" |
| <b>PRUSIK TEND LOCK BECKET</b>               |                                   |                               |                                       |                                   |                                 |
| <b>BUSHING BEARING PIN</b>                   |                                   |                               |                                       |                                   |                                 |
| <b>CHEEKS - SWIVEL FIXED</b>                 |                                   |                               |                                       |                                   |                                 |
| <b>EFFICIENCY</b>                            | >90%                              |                               |                                       |                                   |                                 |
| <b>CHEEK SHEAVE AXLE</b>                     | Alu Alu Alu                       |                               |                                       |                                   |                                 |
| <b>STANDARDS</b>                             | CE                                |                               |                                       |                                   |                                 |
| <b>OTHER COLOURS</b>                         |                                   |                               |                                       |                                   |                                 |
| <b>NOTES</b>                                 |                                   |                               |                                       |                                   |                                 |
| <b>WEBSITE</b>                               | rockexotica.com                   |                               |                                       |                                   |                                 |

|  |                                       |                                  |   |                                      |                                     |
|--|---------------------------------------|----------------------------------|---|--------------------------------------|-------------------------------------|
| Images NOT to Scale                          |                                       |                                  |   |                                      |                                     |
| <b>MANUFACTURER</b>                          | <b>ROCK EXOTICA</b>                   |                                  | <b>SMC</b>                              | <b>SMC</b>                           | <b>SMC</b>                          |
| <b>MODEL VARIANT</b>                         | Material Handling Omni 2.6 MHP55      | Material Handling Omni 4.5 MHP58 | Apex 1.1 165020                         | Apex 1.5 165120                      | Apex 1.5 dbl 165130                 |
| <b>ORIGIN</b>                                |                                       |                                  |   |                                      |                                     |
| <b>COST</b> (inc Tax) <i>Conversion-only</i> | £207 \$250 €238                       | £392 \$475 €451                  | £82 \$99 €94                            | £87 \$105 €100                       | £140 \$169 €161                     |
| <b>WEIGHT</b>                                | 850g<br>29.9oz                        | 2.65kg<br>5.8lb                  | 190g<br>6.7oz                           | 306g<br>10.8oz                       | 478g<br>16.9oz                      |
| <b>MAX LOAD- WLL MBS</b>                     | 20 100kN<br>4500 22500lbf             | 26.6 133.4kN<br>6000 30000lbf    | 3 12kN<br>674 2697lbf                   | 9.5 38kN<br>2135 8542lbf             | 9.5 38kN<br>2135 8542lbf            |
| <b>MAX ROPE Ø</b>                            | 9-13mm<br>¾-½"                        | 9-19mm<br>¾-¾"                   | ≤13mm<br>≤½"                            | ≤13mm<br>≤½"                         | ≤13mm<br>≤½"                        |
| <b>SHEAVE/TREAD Ø</b>                        | 75/66mm<br>2.95/2.6"                  | 114/95mm<br>4.5/3.75"            | 28mm<br>1.1"                            | 38mm<br>1.5"                         | 2x 38mm<br>2x 1.5"                  |
| <b>DIMENSIONS</b> ht x w x depth             | 191 x 92.5 x 37mm<br>7.5 x 3.6 x 1.5" | 0 x 0mm<br>0 x 0"                | 121 x 59.4 x 29mm<br>4.75 x 2.3 x 1.13" | 150 x 74 x 29mm<br>5.9 x 2.9 x 1.13" | 171 x 74 x 58mm<br>6.7 x 2.9 x 2.3" |
| <b>PRUSIK TEND LOCK BECKET</b>               |                                       |                                  |   |                                      |                                     |
| <b>BUSHING BEARING PIN</b>                   |                                       |                                  |   |                                      |                                     |
| <b>CHEEKS - SWIVEL FIXED</b>                 |                                       |                                  |   |                                      |                                     |
| <b>EFFICIENCY</b>                            | >90%                                  |                                  |   |                                      |                                     |
| <b>CHEEK SHEAVE AXLE</b>                     | Alu Alu Alu                           |                                  | Alu Alu StSt                            | Alu Alu StSt                         | Alu Alu StSt                        |
| <b>STANDARDS</b>                             | ASME                                  |                                  | CE NFPA UKCA                            | CE NFPA UKCA                         | CE NFPA UKCA                        |
| <b>OTHER COLOURS</b>                         |                                       |                                  |   |                                      |                                     |
| <b>NOTES</b>                                 | non-human loads                       |                                  |   |                                      |                                     |
| <b>WEBSITE</b>                               | rockexotica.com                       |                                  | smcgear.com                             | smcgear.com                          | smcgear.com                         |

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# IMPACT PULLEYS

aka RIGGING BLOCKS &

# DISMANTLING PULLEYS



ABOVE Left to right- approximately to scale: DMM Large Impact Block, ISC 3/4" medium and 5/8" small and DMM XS Impact Block. Top right (NOT to scale) the DMM Small Impact Block. Note the hollow spindle on the DMM which is also seen in the Arbortec and TreeUp models. This is for 3D rigging allowing a rope to pass through and redirect or reposition the pulley in free space away from the trunk or to allow a clear route past an obstruction post-arrest. Interestingly, in the TreeUp models the full screw closure is slightly weaker, or perhaps we should say less-strong than their identical pulley with a sprung half turn closure similar to the blue and red ISC pulleys above. ISC's newest model is shown top-right as the series 200 RP248 - the smallest of 3 sizes in a sleek new design.

Seldom do we see such a diversity of names or category titles for one product as we do for these heavyweights. Are they blocks or pulleys and are they snatch, impact, rigging or just plain ol' arborist? We're going to go with 'IMPACT' as a true description for what sets them apart from regular pulleys and the term PULLEY because that too is a more accurate modern description. I bet we still intersperse this article with 'Block' out of habit and because even DMM still use the term. But 'Block' is really an archaic term from days of huge wooden ships with giant canvas sails that were so heavy they could only be raised with the mechanical advantage afforded by a set of 'blocks' These didn't necessarily have moving sheaves, they might just have had a shiny wooden bar over which the rope ran with somewhat less efficiency than it would over a moving wheel. Nevertheless, with rope running over a couple of sets of such 'blocks' replete with shiny wood or proper revolving wooden wheels there was mechanical advantage enough to make hauling far easier than it would have been with a single rope from hand to load. So, 'PULLEYS' it is. You'll normally find Impact Pulleys separated from 'Climbing' gear in the catalogues and instead listed under the 'Rigging' sections but this too is a little misleading because virtually any large pulley can be used for rigging in the true sense of attaching and securing stuff to stuff for the purposes of doing stuff. The term 'ARBORIST' is a fair one because it's arborists rather than any other rope access area that has driven development of this hardware genre and the remarkable DMM Arborist Rigging Blocks that turned them from ugly, cast lumps into works of art. This guide is for pulleys

that are specifically designed to have heavy lumps of wood dropped on them as a first line of arrest before being lowered to the ground, hence the term 'Impact'. It's this heavily abusive task that normally mandates that an impact pulley uses bushing rather than bearings because although bearings are more efficient due to there being less surface contact they don't like shock loading because the steel ball-bearing or 'needles' are effectively point-loaded and rammed into the inner face of the bearing housing and each other during impact. Nevertheless, needle may trump ball-bearings for this particular task with their longer contact area. You can of course use any of the IMPACT PULLEYS for regular rigging tasks but not only are they generally bigger and heavier, they may not be quite as efficient for regular high-speed rope running tasks as bearing pulleys, that's if you can even tell the difference.

### WHAT DOES IT DO?

There are no hard and fast rules as to how best to utilise an impact pulley, there are numerous anchorage options and configurations and it is always best to minimise shock load by rigging above the cut so that the load can be tensioned and initially held rather than dropped. However, with no other options, the worst case scenario, in terms of highest loads is 'negative blocking/rigging' where the section being cut falls onto an anchor rigged below the cut-line, in climbing terms virtually a factor 2 fall. Current consensus is to anchor the impact pulley (or pulleys if using twin lowering), just below the intended cut using a large diameter anchor rope with a spliced eye, often called a 'dead-eye' sling but generically a topping or anchor strop because some are webbing. The eye is looped over the top anchor spindle/bollard on the pulley and then wrapped around the target tree in a tensionless or releasable hitch. The lowering rope runs through an anchored lowering device or deviation at the base of the tree, runs up to and through the impact pulley and is then tied to the section or branch to be dropped ensuring that it doesn't interfere with your intended cutting path and doesn't subsequently deflect towards the climber's feet/legs when it arrests the load. This is where a good ground crew will arrest with a degree of dynamic absorbency and downwards movement of the load to mitigate the shock loading at the top which can be severe enough to shake the climber off his stance. The arresting/ lowering rope has to be tough, it has to be low stretch rather than dynamic which may be too elastic to arrest within an acceptable distance but with enough stretch to happily absorb the impact without having the characteristic of a wire cable. Rigging regs suggest the topping or anchor strop that attaches to the top spindle should be twice the capacity of the



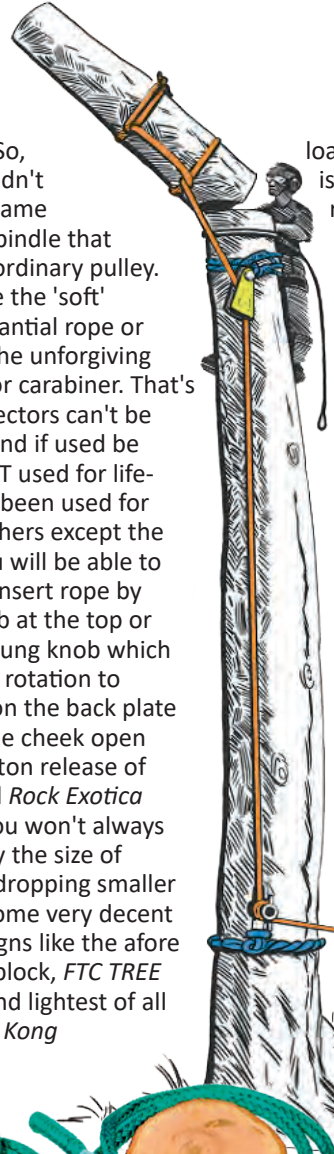


main rigging rope. So, if the sheer bulk hadn't already given the game away it's this top spindle that tells you this is no ordinary pulley. It's designed to take the 'soft' anchorage of a substantial rope or a sling in preference to the unforgiving fixed curves of a shackle or carabiner. That's not to say that hard connectors can't be used but it is best not to and if used be sure your connector is NOT used for life-support activity once it's been used for impact-rigging. For all others except the *Straightpoint* model, you will be able to open the side cheeks to insert rope by either unscrewing the knob at the top or some, like *ISC*, have a sprung knob which you turn a quarter or half rotation to release from a 'keyhole' on the back plate and then simply swivel the cheek open or there's the push-button release of the *ArbPro*, *Kong* and *Rock Exotica* models. Of course you won't always need to have a pulley the size of walrus if you're only dropping smaller sections so there are some very decent smaller and/or lighter designs like the aforementioned *OxBlock*, the *ISC Mini* block, *FTC TREE Mini Eclipse 2*, *ArbPro/CT Grizzly* and lightest of all the *CMI Mini Arborist Block*. Neither the *Kong Alby* or the *OxBlock* is a true impact pulley but they can handle light loads.

**NON-ARBORIST BLOCKS**

There are many 'Impact Blocks' sold for use with 4-WD vehicles and they look pretty tough but the nature of their construction with steel sheaves for use with wire rope and steel cheeks isn't very forgiving on the rest of your gear. One of the off-road pulleys is called an *ARB 9000* but it doesn't mean 'arborist', it's the name is derived from the owners initials. In truth, many of these would probably do the job you want but is 'probably' good enough? Go for the blocks in this Guide that are marketed specifically to arborists and you won't go far wrong.

*ISC* produce a **shear reduction pulley (SHP)** (below) which we haven't included in this Guide since it's not intended for the arborist market but you may want to know more about it because there ARE situations where this might be handy. It has all the appearance of a regular stainless steel cheek impact block . That's not a slip of the tongue, this actually is 'block' because the sheave is fixed and if it doesn't rotate it's certainly not a 'pulley' . The idea is to impart friction rather than minimise it as a pulley does so you can see where this might actually be applicable to a dynamic arrest situation? It's not unlike the *Notch AFB* (far right) in this regard but minus the extra-wrap options. However, the *AFB* is NOT designed for negative rigging impact



loads. Back to the *SHP* and its top bobbin is designed to take a long Maillon Rapide rather than a rope so is narrower in diameter than those on normal impact pulleys. More recently we have seen the introduction of *Rock Exotica's Downrigger* (right) which is a cross between an impact block and a swivel pulley with a one-way sheave for increased friction on lowering. We will have a separate guide for this type of shear reduction device because, thanks to *ISC* there are quite a few. This is not an impact block for large timber sections with only 300lbs of working load to work with but it will function nicely for smaller sections and branches.

**CONSTRUCTION CAST VERSUS FORGED.**

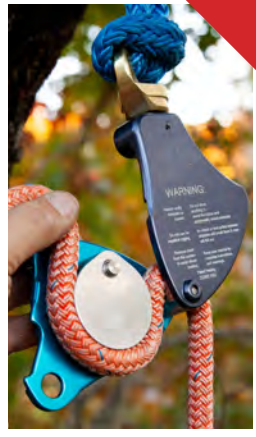
Originally, impact blocks were cast, a process where molten metal is poured into a mould. This has subsequently been largely replaced by hot and cold forging where, in the case of hot-forging, the metal is heated and then beaten into submission in the required shape, often with strategic placement of metal pushed into reinforced areas



that need it most. You can tell the forged models, as exemplified by *DMM* blocks, by their exceptionally smooth curves as this comparison of a cast and forged version of the same *ISC* pulley (above) shows. Forging is stronger and more forgiving than more 'brittle' casting. The edges of forged pulleys are a decent thickness and nicely rounded so they're very rope-friendly and in an impact you don't have to worry so much if your rope comes off-line.

**PLATE** - on the other hand has relatively sharp edges so you need to be careful that the rope feeds in and out properly and doesn't cross the plate. These are much easier and cheaper to produce than forged and they're plenty strong enough but they're again not as forgiving as forged models. They're not 'sharp' in the knife-edge sense but being hard and thin and maybe with some burrs if they're not looked after properly they can seem that way to a rope impacting the edge at several hundred pounds/kilos of force. The *Kong Alby* (top left) and *ISC SHP* (left) and *Flame* pulley on the next page are examples of plate construction.

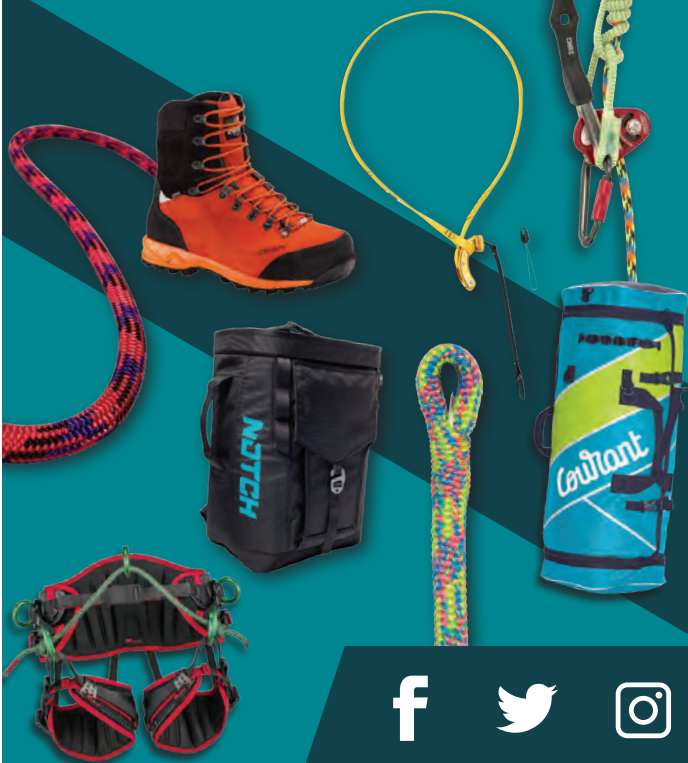
**MILLED** produces the strongest metal per ounce because it is a single, solid block that has bits shaved and drilled and milled off of it until you're left with the desired shape. In fact it's not necessarily stronger because heat treating strengthens metals but there are less likely to be imperfections in such a process which is often undertaken by a robotic process that should be exactly the same each time. *Rock Exotica* are the masters of milled products and we originally had one of their



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## UPDATED Oct '23

material-handling pulleys listed together with *Buckingham's OxBlock* which they also make (see next paragraph) but, like the new *R.E. Downrigger*, with a swivel rather than rigid bollard as the anchor point, these sail too close to the wind for the kind of abuse meted out in impact loading, so the two RE 'material-handling' models (right) and *Downrigger* and other sheer reduction pulleys will get their own guide and in the meantime are included in the **Swivel Pulley Guide** on page 86.



ISC has a colour coding for their various sheaves and anchor bollards - all anchors are red and sheaves are: Grey for 1/2", Orange for 5/8", Green for 3/4". Not entirely sure why they didn't simply colour-code the main side cheeks for the rope size instead of just the sheaves so that any Blue ISC pulley is for half inch, any red is for 7/16"/11mm etc? Currently a Blue ISC pulley could be a 3/4" or a 5/8" until or unless you notice whether it's a green or orange sheave. These multi-coloured *Arbortec/TreeUp* pulleys (top-right) aren't colour-coded for size or strength either, they're just prettier.

### SOMETHING DIFFERENT

We mentioned the *Rock Exotica*-made *OxBlock* from *Buckingham* and the more delicate nature of a swivel for impact loading but this is also available with a shackle so we have included it. It is described as by *Buckingham* as a 'snatch-block' replacement with additional friction so will inevitably be used for impact loads but is not really designed for dynamic loading so make sure you stay below 2250 lb of force. It has ball bearings which is generally an indicator for lower impact loading. The idea of the extended shape is to wrap the trail rope around the spine of the carabiner-looking section at the bottom.



The name '*OxBlock*' stands out as one of only three named devices in our entire list. And we do like names rather than numbers and codes. First prize goes to *Climbing Technology* for their *Grizzly*, a name so good I might buy one just because it's called '*Grizzly*'. ISC has the aptly named *Flame* although we're hoping it just refers to the appearance of the holes in the cheeks and not an indication of the state of your rope after using the pulley. The other one is *Kong's Alby* which I'm not so sure about because I have an Uncle called *Alby* and I don't like to think of dropping huge lumps of wood on his face but we still salute the use of a name and not a code.

Talking of ISC's *Flame* (left) this is one you also see a variant of rebadged for *Stein*. It's a stainless steel plate construction but it has had a series of 'flame'-shaped cut outs which reduces weight and may inadvertently aid cooling - or maybe that was part of the cunning plan all along. *Climbing Technology* is now owned and rebranded by *Skylotec* so it's now the *Skylotec CT's Grizzly*. This and *ArbPro's AP-RB01* has a few strategically placed holes as well and one of those even acts as a second stage release for the push-button opening.





*StraightPoint* in conjunction with *DMM* produce perhaps the most useful 'odddity' with an 80KN impact pulley with built-in load cell monitor (right) that sends data to your phone or other wi-fi device. What could be more useful in such high-stress loading with all the implications of rope and equipment

damage than knowing what you've actually dropped. It's often the case that the first chunk is your indicator for everything that follows because you've had a sighter of the approximate load per foot but this device gives you an exact figure, time after time so that pretty soon you and your crew will become the world's top experts at predicting wood weight. What's more, just to add to this extra safety, the readings can be taken from a range of 700m/2300ft so you can stand at a very safe distance if you don't trust your climber's rigging skills. The only necessary drawback with this design is that the cheeks are fixed so rope has to be fed through and it's large and costs quite a lot. So much so that it's like a state secret but worth it if you can afford it.

#### IN THE FOLLOWING TABLES:

£\$€ prices in burnt orange are a currency conversion only (no tax/duty/shipping)

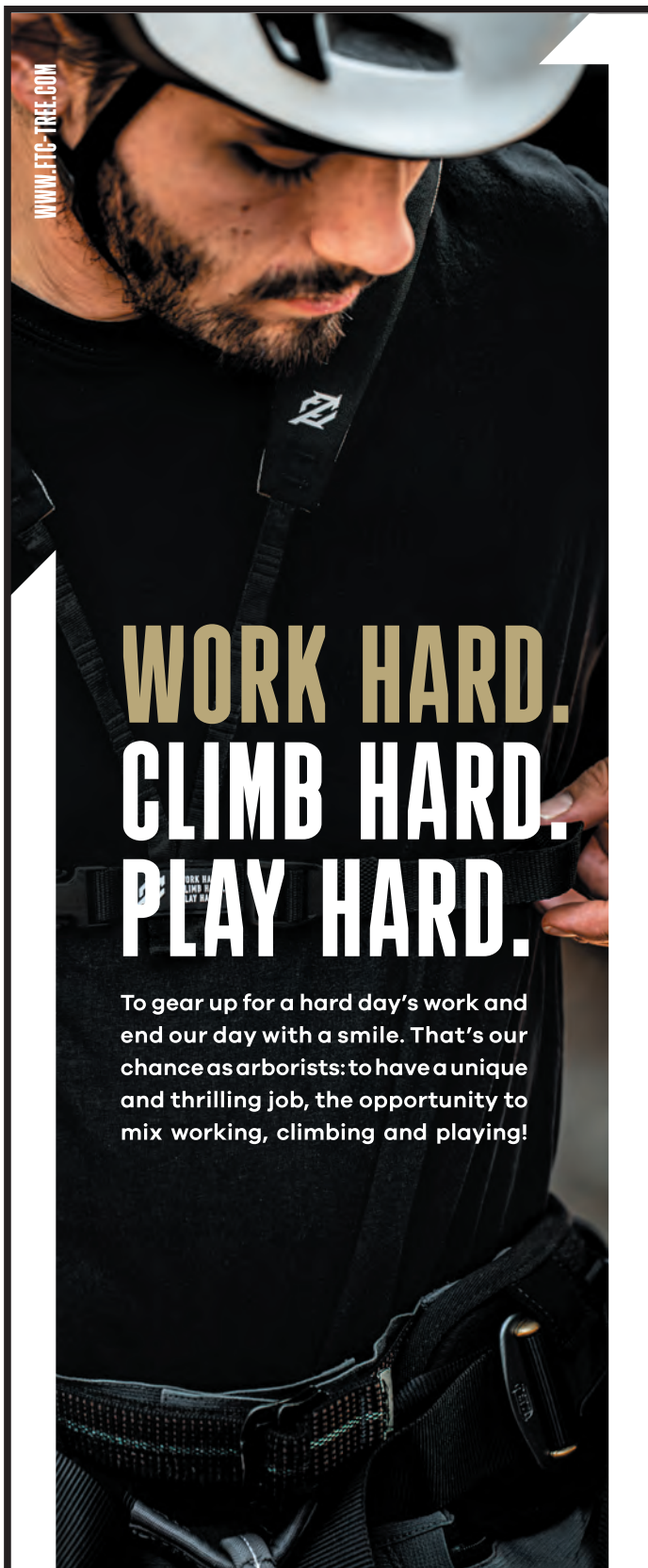
Needle bearings have a solid black box ■ in the BEARING column, ball-bearings have an outline box □.

Some of the 'depth/thickness' figures may or may not include the release button. Despite the obvious bulk of some release knobs some give depth as just the body of the pulley!

We've converted all MBS figures to force instead of mass - KiloNewtons and Lb Force to indicate the absolute maximum impact force that can (or can't) be sustained and switched all Working Load Limit figures to mass in Kg and lbs to give a better indication of the physical maximum weight of your lump of wood before you inflict it on the impact pulley given that there is some leeway with 7:1 up to 10:1 safety ratio to allow for the conversion back to force which would be a little higher than the figure we've shown for WLL mass. CMI give their own WLL mass but we've converted their original MBS mass to force.

In the STANDARDS column the CE generally refers to the Machinery Directive which is NOT applicable to PPE. At the risk of stating the obvious, don't forget that the **WLL Working Load Limit** on the main sheave is the cumulative total of load on *each* side of the rope as it enters and exits the sheave.

**TOP ANCHOR WIDTH** is the distance between side plates so is the physical width that a rope or webbing can fit into. **TOP SHEAVE DIAMETER** refers to the top bollard or sheave and is the 'height' rather than the previous width.




























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| <p><b>IMAGES NOT TO SCALE</b><br/> <b>COST:</b> Approx &amp; inc local tax/<br/>                 VAT <b>£\$€ prices in burnt orange</b><br/> <b>are a currency conversion</b><br/> <b>only (no tax/duty/shipping)</b><br/> <b>HYPHEN-</b> = not applicable<br/> <b>N/A</b> = info Not Available/not given<br/> <b>MAX ANCHOR WIDTH</b> is the<br/>                 max rope or webbing you can fit<br/>                 on the top thimble</p> |  |                                |    |    |    |    |  |
| <b>SPECIFICATIONS</b>  | <b>MANUFACTURER</b>  | <b>ARBORTEC</b>   | <b>ARBORTEC</b>   | <b>ARBPRO</b>  | <b>BUCKINGHAM</b>   | <b>CMI</b>  | <b>CMI</b>  |
|  | <b>MODEL VARIANT</b>   | <b>Treehog</b><br>TH2040  | <b>Treehog</b><br>TH2050  | <b>AP-RB01</b><br>-  | <b>OxBlock</b><br>PM5062(clevis)  | <b>Mini Arb Block</b><br>RP162  | <b>Small Arb B</b><br>RP160   |
|  | <b>ORIGIN</b>  |                                |    |   |    |    |  |
|  | <b>COST</b>  | <b>£190 \$236 €220</b>  | <b>£190 \$236 €220</b>  | <b>£131 \$162 €151</b>   | <b>£600 \$745 €695</b>  | <b>£137 \$169 €158</b>  | <b>£198 \$358 €</b>   |
|  | <b>WEIGHT</b>  | 1.36kg<br>2.86lb  | 1.4kg<br>3lb  | 880g<br>1.94lb   | 1.4kg<br>2.86lb   | 450g<br>1lb   | 1.3kg<br>2.95lb   |
|  | <b>MBS of Pulley</b>   | 100kN<br>22,481lbf  | 100kN<br>22,481lbf  | 80kN<br>17,985lbf  | 44kN<br>10,000lb  | 97kN<br>21,900lbf   | 227kN<br>51,000lb   |
|  | <b>WLL</b>   | 2039kg<br>4496lb  | 2039kg<br>4496lb  | 1600kg<br>3527lb   | 1100kg<br>2425lb  | 1422kg<br>3128lb  | 3312kg<br>7286 lb   |
|  | <b>MAX ROPE Ø</b>  | 18mm<br><3/4"   | 18mm<br><3/4"   | 15mm<br>5/16"  | 16mm<br>5/8"  | 12.7mm<br>1/2"  | 19mm<br>3/4"  |
|  | <b>TOP ANCHOR WIDTH</b>  | 18mm<br><3/4"   | 18mm<br><3/4"   | 20mm<br>3/4"   | 22mm<br>0.9"  | 22mm<br>0.9"  | 28mm<br>1 1/8"  |
|  | <b>HEIGHT</b>  | 175mm / 6.9"  | 175mm / 6.9"  | 185mm / 7.3"   | 260mm / 10.2"   | 102mm / 4"  | 140mm / 5.5"  |
|  | <b>WIDTH</b>   | 105mm / 4.1"  | 105mm / 4.1"  | 95mm / 3.7"  | 65mm / 2.6"   | 57mm / 2.25"  | 76mm / 3"   |
|  | <b>DEPTH</b>   | 50mm / 2"   | 50mm / 2"   | 35mm / 1.4"  | 50mm / 2"   | 45mm / 1.75"  | 70mm / 2.75"  |
|  | <b>CHEEK MATERIAL</b>  | Alu   | Alu   | Alu  | Alu   | Stainless Steel   | Alu   |
|  | <b>SHEAVE MATERIAL</b>   | Alu   | Alu   | Alu  | Alu   | Nylon   | Nylon   |
|  | <b>AXLE MATERIAL</b>   | Stainless Steel   | Stainless Steel   | Stainless Steel  | Stainless Steel   | Stainless Steel   | Stainless Steel   |
|  | <b>CONSTRUCTION</b>  | Forged  | Forged  | Plate  | Milled  | Milled  | Milled  |
| <b>BEARING/BUSHING</b>   | ■  | ■   | ■   | ■  | ■   | ■   |   |
| <b>BUTTON</b>  | -  | -   | ■   | ■  | -   | -   |   |
| <b>SPRUNG</b>  | -  | -   | ■   | ■  | -   | ■   |   |
| <b>SCREW</b>   | ■  | ■   | -   | -  | ■   | -   |   |
| <b>STANDARDS</b>   | ANSI CE  | ANSI CE   |   | CE   |   |   |   |
| <b>OTHER CHEEK COLOURS</b>   |                               |                              |   | ■  |   |   |   |
| <b>TOP SHEAVE COLOUR</b>   |                               |                              |  | -  |  |  |   |
| <b>MAIN SHEAVE COLOUR</b>  |                               |                              |  |   |  |  |   |
| <b>NOTES</b>   | Solid spindle/axle.<br>30kg lanyard eye.<br>Sprung, half-turn cheek<br>release. Full-turn screw<br>cheek release | 20mm spindle hole.<br>30kg lanyard eye.<br>Sprung, half-turn<br>cheek release. Full-turn<br>screw cheek release | <b>LIGHT IMPACT LOADS</b><br><b>ONLY</b><br>Gold anchor eye                         | <b>LIGHT IMPACT LOADS</b><br><b>ONLY</b><br>Carb spine=Friction<br>post. . Spec for CLEVIS<br>version - Swivel eye<br>option |   |   |   |
| <b>WEBSITE</b>   | treehog.com  | treehog.com   | arbpro.com  | buckinghammfg.com  | cmigearusa.com  | cmigearusa.com  |   |

|               |  |  |  |  |   |   | expansion column |
|---------------|--|--|--|--|---|---|------------------|
|               | CMI                                    | CMI                                    | CMI                                    | CMI                                    | DMM                                     | DMM   |                  |
| Block         | 5/8" Rig Block<br>RP130                | 3/4" Rig Block<br>RP131                | 3/4" Rig Block<br>RP145                | 1" Rig Block<br>RP146                  | XS Arb Impact<br>P201                   | S Arb Impact<br>P201                        |                  |
|               |  |  |  |  |   |   |                  |
| Price         | £229<br>\$177 \$218 €205               | £279 \$345 €322                        | £134 \$166 €155                        | £401 \$497 €464                        | £330 \$450 €399                         | £290 \$400 €339                             |                  |
| Weight        | 1.04kg<br>2.3lb                        | 2.5kg<br>5.6lb                         | 1.66kg<br>3.65lb                       | 2.3kg<br>6.6lb                         | 0.78kg<br>1.72lb                        | 1.86kg<br>4.1lb                             |                  |
| Strength      | 125kN<br>28000 lbf                     | 178kN<br>40,000lbf                     | 125kN<br>28,000lb                      | 302kN<br>68,000lbf                     | 100kN<br>22,480lbf                      | 200kN<br>44,961lbf                          |                  |
| Capacity      | 1818kg<br>4000 lb                      | 2597kg<br>5714lb                       | 1818kg<br>4000lb                       | 6169kg<br>13600lb                      | 2039kg<br>4496lb                        | 4078kg<br>8992lb                            |                  |
| Eye Size      | 16mm<br>5/8"                           | 19mm<br>3/4"                           | 19mm<br>3/4"                           | 25mm<br>1"                             | 16mm<br>5/8"                            | 16mm<br>5/8"                                |                  |
| Eye Length    | 19mm<br>3/4"                           | 25mm<br>1"                             | 25mm<br>1"                             | 28mm<br>1 1/8"                         | 20mm<br>3/4"                            | 22mm<br>0.9"                                |                  |
| Eye Width     | 165mm / 6.5"                           | 178mm / 7"                             | 165mm / 6.5"                           | 235mm / 9.25"                          | 137mm / 5.4"                            | 180mm / 7"                                  |                  |
| Eye Depth     | 102mm / 4"                             | 127mm / 5"                             | 102mm / 4"                             | 152mm / 6"                             | 82mm / 3.3"                             | 100mm / 4"                                  |                  |
| Eye Thickness | 45mm / 1.75"                           | 63mm / 2.5"                            | 63mm / 2.5"                            | 76mm / 3"                              | 55mm / 2.2"                             | 80mm / 3.15"                                |                  |
| Material      | Alu<br>Alu<br>Stainless Steel<br>Plate | Alu<br>Alu<br>Stainless Steel<br>Plate | Alu<br>Alu<br>Stainless Steel<br>Plate | Alu<br>Alu<br>Stainless Steel<br>Plate | Alu<br>Alu<br>Stainless Steel<br>Milled | Alu<br>Alu<br>Stainless Steel<br>Hot Forged |                  |
| Features      | ■                                      | ■                                      | ■                                      | ■                                      | ■                                       | ■   |                  |
| Notes         | -                                      | -                                      | -                                      | -                                      | -                                       | -   |                  |
| Notes         | ■                                      | ■                                      | ■                                      | □                                      | ■                                       | ■   |                  |
| Notes         |  |  |  |  | CE                                      | CE  |                  |
| Notes         | ■                                      | ■                                      | ■                                      | ■                                      | ■                                       | ■   |                  |
| Notes         | ■                                      | ■                                      | ■                                      | ■                                      | ■                                       | ■   |                  |
| Notes         |  |  |  | cotter-pin locking<br>closure          | 10mm Hollow spindle/<br>axle            | Solid spindle/axle                          |                  |
| Website       | cmigearusa.com                         | cmigearusa.com                         | cmigearusa.com                         | cmigearusa.com                         | dmmwales.com                            | dmmwales.com                                |                  |

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**COST:** Approx & inc local tax/  
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 only (no tax/duty/shipping)  
**HYPHEN-** = not applicable  
**N/A** = info Not Available/not given  
**MAX ANCHOR WIDTH** is the  
 max rope or webbing you can fit  
 on the top thimble



|                            |  |   |   |  |   |   |  |
|----------------------------|--|---|---|--|---|---|--|
| <b>SPECIFICATIONS</b>      | <b>MANUFACTURER</b>  | <b>DMM</b>                                  | <b>FTC TREE</b>                             | <b>FTC TREE</b>                        | <b>ISC</b>                              | <b>ISC</b>                              | <b>ISC</b>                                     |
|                            | <b>MODEL VARIANT</b>   | L Arb Impact                                | Mlni Eclipses 2                             | Eclipse 3                              | 1/2" Compact/Mini Block<br>RP048        | 1/2" Rig Block<br>RP051                 | 5/8" Small Block<br>RP162                      |
|                            | <b>ORIGIN</b>  |   |   |  |   |   |  |
|                            | <b>COST</b>  | £450 \$650 €569                             | £139 \$172 €160                             | £184 \$228 €212                        | £105 \$201 €149                         | £168 \$220 €199                         | £168 \$220 €199                                |
|                            | <b>WEIGHT</b>  | 3.47kg<br>7.6lb                             | 650g<br>1.43lb                              | 1.04kg<br>2.3lb                        | 490g<br>1.08lb                          | 1.54kg<br>3.4lb                         | 1.49kg<br>3.3lb                                |
|                            | <b>MBS of Pulley</b>   | 300kN<br>67,443 lbf                         | 100kN<br>22,480 lbf                         | 150kN<br>33,721 lbf                    | 85kN<br>18,000 lbf                      | 100kN<br>22,480 lbf                     | 100kN<br>22,480 lbf                            |
|                            | <b>WLL</b>   | 6118kg<br>13488lb                           | 2039kg<br>4496lb                            | 3059kg<br>6744lb                       | 1700kg<br>3748lb                        | 2039kg<br>4496lb                        | 2039kg<br>4496lb                               |
|                            | <b>MAX ROPE Ø</b>  | 20mm<br>3/4"                                | 16mm<br>5/8"                                | 18mm<br><3/4"                          | 13mm<br>1/2"                            | 13mm<br>1/2"                            | 16mm<br>5/8"                                   |
|                            | <b>TOP ANCHOR WIDTH</b>  | 27mm<br>1.06"                               | 24mm<br><1"                                 | 26mm<br>1"                             | 16mm<br>5/8"                            | 19mm<br>3/4"                            | 25mm<br>1"                                     |
|                            | <b>HEIGHT</b>  | 225mm / 8.85"                               | 189mm / 7.4"                                | 189mm / 7.4"                           | 125mm / 4.9"                            | 190mm / 7.5"                            | 190mm / 7.5"                                   |
|                            | <b>WIDTH</b>   | 120mm / 4.7"                                | 65mm / 2.6"                                 | 93mm / 3.7"                            | 76mm / 3"                               | 99mm / 3.9"                             | 99mm / 3.9"                                    |
|                            | <b>DEPTH</b>   | 97mm / 3.82"                                | 65mm / 2.6"                                 | 65mm / 2.6"                            | 75mm / 3"                               | 108mm / 4.25"                           | 108mm / 4.25"                                  |
|                            | <b>CHEEK MATERIAL</b><br><b>SHEAVE MATERIAL</b><br><b>AXLE MATERIAL</b><br><b>CONSTRUCTION</b> | Alu<br>Alu<br>Stainless Steel<br>Hot Forged | Alu<br>Alu<br>Stainless Steel<br>Plate      | Alu<br>Alu<br>Stainless Steel<br>Plate | Alu<br>Alu<br>Stainless Steel<br>Forged | Alu<br>Alu<br>Stainless Steel<br>Forged | Stainless S<br>Nylon<br>Stainless S<br>Forged* |
|                            | <b>CHEEK RELEASE</b>   | <b>BEARING/BUSHING</b>                      | ■   | ■                                      | ■                                       | ■                                       | ■  |
| <b>BUTTON</b>              |  | -   | -   | -                                      | -                                       | -                                       | -  |
| <b>SPRUNG</b>              |  | -   | -   | -                                      | ■                                       | ■                                       | ■  |
| <b>SCREW</b>               |  | ■   | ■   | ■                                      | -                                       | -                                       | -  |
| <b>STANDARDS</b>           |  | ANSI CE                                     | CE  | CE                                     | CE                                      | CE                                      | CE   |
| <b>OTHER CHEEK COLOURS</b> |  |   |   |  | ■                                       |   |  |
| <b>TOP SHEAVE COLOUR</b>   |  | ■   | ■   | ■                                      | ■                                       | ■                                       | ■  |
| <b>MAIN SHEAVE COLOUR</b>  | ■  | ■   | ■   | ■                                      | ■                                       | ■                                       |  |
| <b>NOTES</b>               | Hollow spindle/axle  | Dyneema lanyard to prevent locking pin loss | Dyneema lanyard to prevent locking pin loss | Red Anchor bollard Phasing out         |   | *Older version cast                     |  |
| <b>WEBSITE</b>             | dmmwales.com   | ftc-tree.com                                | ftc-tree.com                                | iscwales.com                           | iscwales.com                            | iscwales.com                            |  |

|  |   |   |   |   |  |   |   |
|--|---|---|---|---|--|---|---|
|  |   |  |  |  |  |  |  |
|  | <b>ISC</b>  | <b>ISC</b>  | <b>ISC</b>  | <b>ISC</b>  | <b>ISC</b>   | <b>ISC</b>  | <b>ISC</b>  |
| <b>Rig</b>   | <b>5/8" Med Rig Block</b><br>RP054  | <b>5/8" Flame</b><br>RP056  | <b>3/4" Med Rig Block</b><br>RP055  | <b>3/4" Large Rig Block</b><br>RP057  | <b>200-Series Compact</b><br>RP248   | <b>200-Series Small</b><br>RP251  | <b>200-Series Med</b><br>R255   |
|  |  |  |  |  |  |  |  |
| <b>Price</b>   | <b>£198</b>   | <b>£132 \$171 €162</b>  | <b>£153 \$270 €244</b>  | <b>£198 \$300 €280</b>  | <b>£175 \$240 €205</b>   | <b>£210 \$300 €249</b>  | <b>£240 \$340 €282</b>  |
| <b>Weight</b>  | 2.16kg<br>4.75lb  | 1.64kg<br>3.6lb   | 2.3kg<br>5.1lb  | 2.3kg<br>5.1lb  | 0.61kg<br>1.3lb  | 2.3kg<br>5.1lb  | 2.7kg<br>5.9lb  |
| <b>Strength</b>  | 150kN<br>33,721lbf  | 100kN<br>22,480lbf  | 150kN<br>33,721lbf  | 200kN<br>44,962lbf  | 100kN<br>22,480lbf   | 250kN<br>67,422lbf  | 300kN<br>67,443lbf  |
| <b>Capacity</b>  | 3312kg<br>7286 lb   | 2039kg<br>4496lb  | 3059kg<br>6744lb  | 4078kg<br>8992lb  | 2039kg<br>4496lb   | 5099kg<br>11240lb   | 6118kg<br>13488lb   |
| <b>Width</b>   | 16mm<br>5/8"  | 16mm<br>5/8"  | 19mm<br>3/4"  | 19mm<br>3/4"  | 14mm<br>9/16"  | 16mm<br>5/8"  | 20mm<br>3/4"  |
| <b>Height</b>  | 25mm<br>1"  | 25mm<br>1"  | 29mm<br>1.25"   | 29mm<br>1.25"   | 16mm<br>5/8"   | 25mm<br>1"  |   |
| <b>Length</b>  | 230mm / 9"  | 182mm / 7.2"  | 230mm / 9"  | 300mm / 11.8"   | 125mm / 4.9"   | 178mm / 7"  | 222mm / 8.7"  |
| <b>Eye Diameter</b>  | 124mm / 4.9"  | 99mm / 3.9"   | 124mm / 4.9"  | 158mm / 6.2"  | 69mm / 2.7"  | 99mm / 4"   | 123mm / 4.8"  |
| <b>Eye Spacing</b>   | 108mm / 4.25"   | 57mm / 2.25"  | 108mm / 4.25"   | *108mm / 4.25"  | 65mm / 2.6"  | 93mm / 3.7"   | 93mm / 3.7"   |
| <b>Material</b>  | Alu<br>Nylon<br>Stainless Steel<br>Forged*  | Alu<br>Alu<br>Stainless Steel<br>Plate  | Alu<br>Alu<br>Stainless Steel<br>Forged   | Alu<br>Alu<br>Stainless Steel<br>Cast   | Alu<br>Alu<br>Stainless Steel<br>Hot Forged  | Alu<br>Alu<br>Stainless Steel<br>Hot Forged   | Alu<br>Alu<br>Stainless Steel<br>Hot Forged   |
| <b>CE Marking</b>  | ■   | ■   | ■   | ■   | ■  | ■   | ■   |
| <b>UKCA Marking</b>  | -   | -   | -   | -   | ■  | ■   | ■   |
| <b>Other Certifications</b>  | ■   | -   | ■   | ■   | ■  | ■   | ■   |
| <b>Additional Info</b>   | -   | ■   | -   | -   | -  | -   | -   |
| <b>Country of Origin</b>   | CE  | CE  | CE  | CE  | CE UKCA  | CE UKCA   | CE UKCA   |
| <b>Color Options</b>   | ■<br>■  | ■<br>■  | ■<br>■  | ■<br>■  | ■<br>■   | ■<br>■  | ■<br>■  |
| <b>Notes</b>   | *Older versions are cast  |   | *Older versions are cast  | *Depth exc sprung release.  |  |   |   |
| <b>Website</b>   | iscwales.com  | iscwales.com  | iscwales.com  | iscwales.com  | iscwales.com   | iscwales.com  | iscwales.com  |

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**MAX ANCHOR WIDTH** is the  
 max rope or webbing you can fit  
 on the top thimble



|                            | MANUFACTURER                  | ISC   | KONG  | NOTCH  | NOTCH                         | NOTCH  | SKYLOTEC           |
|----------------------------|-------------------------------|---|---|--|-------------------------------|--|--------------------|
|                            | <b>MODEL VARIANT</b>          | 200-Series Large<br>RP257                               | Alby  | 1/2" Block   | 5/8" Block                    | 3/4" Block   | CT Grizzly<br>H279 |
|                            | <b>ORIGIN</b>                 |   |   |  |                               |  |                    |
|                            | <b>COST</b>                   | £444 \$560 €513   | £134 \$170 €100   | £0 \$160 €0  | £0 \$220 €0                   | £217 \$250 €0                                      | £160 - €160        |
| <b>SPECIFICATIONS</b>      | <b>WEIGHT</b>                 | 5kg<br>11lb   | 1.15kg<br>3.05lb  | 0.45kg<br>1lb  | 1.4kg<br>3.1 lb               | 1.55kg<br>3.49lb                                   | 914g<br>2lb        |
|                            | <b>MBS of Pulley</b>          | 380kN<br>85,257lbf                                      | 50kN<br>11,240lbf   | 100kN<br>22481lbf  | 125kN<br>28101lbf             | 150kN<br>33,720 lbf                                | 80kN<br>17,985lbf  |
|                            | <b>WLL</b>                    | 7600kg<br>17085lb                                       | 700kg*<br>1543lb*   | 2039kg<br>4496lb   | 2549kg<br>5620lb              | 3059kg<br>6744lb                                   | 1600kg<br>3527lb   |
|                            | <b>MAX ROPE Ø main sheave</b> | 26mm<br>1"  | 26mm<br>1"  | 13mm<br>½"   | 16mm<br>⅝"                    | 19mm<br>¾"   | 15mm<br>⅝"         |
|                            | <b>TOP ANCHOR WIDTH</b>       | 32mm<br>1¼"   | 28mm<br>1.1"  | 16mm<br>⅝"   | 25mm<br>1"                    | 29mm<br>1⅝"  | 20mm<br>¾"         |
|                            | <b>HEIGHT</b>                 | 283mm / 11.1"   | 236mm / 9.25"   | 118mm / 4.7"   | 158mm / 6.2"                  | 176mm / 7"   | 185mm / 7.3"       |
|                            | <b>WIDTH</b>                  | 156mm / 6.15"   | 124mm / 5"  | 68mm / 2.7"  | 87mm / 3.4"                   | 101mm / 4"   | 95mm / 3.7"        |
|                            | <b>DEPTH</b>                  | 95mm / 3.7"   | 38.5mm / 1.5"   | *62mm / 2.4"   | *74mm / 3"                    | *78mm / 3"   | 35mm / 1.4"        |
|                            | <b>CHEEK MATERIAL</b>         | Alu   | Alu   | Alu  | Alu                           | Alu  | Alu                |
|                            | <b>SHEAVE MATERIAL</b>        | Alu   | Alu   | Alu  | Alu                           | Alu  | Alu                |
| <b>AXLE MATERIAL</b>       | Stainless Steel               | Stainless Steel   | Stainless Steel   | Stainless Steel  | Stainless Steel               | Stainless Steel                                    |                    |
| <b>CONSTRUCTION</b>        | Hot Forged                    | Plate   | Hot Forged  | Hot Forged   | Hot Forged                    | Plate  |                    |
| <b>CHEEK RELEASE</b>       | <b>BEARING/BUSHING</b>        | ■   | ■   | ■  | ■                             | ■  | ■                  |
|                            | <b>BUTTON</b>                 | -   | -   | -  | -                             | -  | ■                  |
|                            | <b>SPRUNG</b>                 | -   | -   | -  | ■                             | ■  | ■                  |
|                            | <b>SCREW</b>                  | ■   | ■   | ■  | -                             | -  | -                  |
|                            | <b>STANDARDS</b>              | CE UKCA   |   | CE   | CE                            | CE   |                    |
| <b>OTHER CHEEK COLOURS</b> |                               |   |   |  |                               |  |                    |
| <b>TOP SHEAVE COLOUR</b>   |                               |   |   |  |                               |  |                    |
| <b>MAIN SHEAVE COLOUR</b>  |                               |   |   |  |                               |  |                    |
| <b>NOTES</b>               | Hollow spindle/axle           | <b>LIGHT IMPACT LOADS ONLY</b><br>Older version is red. | Dyneema lanyard to prevent locking pin loss.<br>*exc bolt head of approx 0.6" | Red Anchor bollard Phasing out.<br>*exc bolt head of approx 0.6" | *exc bolt head of approx 0.6" | <b>LIGHT IMPACT LOADS ONLY</b><br>Not available in |                    |
| <b>WEBSITE</b>             | iscwales.com                  | kong.it   | notchequipment.com  | notchequipment.com   | notchequipment.com            | skylotec.co  |                    |



|                 |   |   |  |  |  |   |                  |
|-----------------|---|---|--|--|--|---|------------------|
|                 |     |                  |             |             |    |    | expansion column |
| <b>C</b>        | <b>STEIN</b>  | <b>STRAIGHTPOINT</b>  | <b>TREEUP (PROTEKT)</b>  | <b>TREEUP (PROTEKT)</b>  | <b>TREEUP (PROTEKT)</b>  | <b>TREEUP (PROTEKT)</b>   |                  |
| <b>Model</b>    | SS-1H6056   | LOAD CELL Impact Block RP054  | Small TU400 TU401  | Small TU402 TU403  | Large TU404 TU405  | Large TU406 TU407   |                  |
| <b>Flag</b>     |    |                  |             |             |    |    |                  |
| <b>Price</b>    | £144 \$179 €165   | £3600 >\$5000 €4163   | £116 \$0 €132  | £0 \$150 €0  | £168 \$220 €192  | £168 \$220 €192   |                  |
| <b>Weight</b>   | 1.55kg<br>3.49lb  | 6kg<br>13.2lb   | 1.36kg<br>2.86lb   | 1.4kg<br>3lb   | 2.3kg<br>5lb   | 2.5kg<br>5.5 lb   |                  |
| <b>Strength</b> | 100kN<br>22480lbf   | 60kN<br>13,488 lbf  | 100kN<br>22,481 lbf  | 100kN<br>22,481 lbf  | 100/125kN<br>22481/28101lbf  | 100/125kN<br>22481/28101lbf   |                  |
| <b>Capacity</b> | 2039kg<br>4496lb  | 1224kg<br>2698 lb   | 2039kg<br>4496lb   | 2039kg<br>4496lb   | 2039/2549kg<br>4496/5620 lb  | 2039/2549kg<br>4496/5620 lb   |                  |
| <b>Spindle</b>  | 16mm<br>5/8"  | 20mm<br>3/4"  | 18mm<br><3/4"  | 18mm<br><3/4"  | <30mm<br><1.2"   | <30mm<br><1.2"  |                  |
| <b>Width</b>    | 25mm<br>1"  | 20mm<br>3/4"  | 18mm<br><3/4"  | 18mm<br><3/4"  | <30mm<br><1.2"   | <30mm<br><1.2"  |                  |
| <b>Height</b>   | 182mm / 7.1"  | 348mm / 13.7"   | 176mm / 6.9"   | 176mm / 6.9"   | 238mm / 9.4"   | 238mm / 9.4"  |                  |
| <b>Depth</b>    | 100mm / 3.9"  | 131mm / 5.16"   | 96mm / 4.1"  | 96mm / 4.1"  | 85mm / 3.4"  | 85mm / 3.4"   |                  |
| <b>Width</b>    | 37mm / 1.45"  | 89mm / 3.5"   | 81mm / 3.46"   | 81mm / 3.46"   | 115mm / 4.5"   | 115mm / 4.5"  |                  |
| <b>Material</b> | Alu<br>Alu<br>Stainless Steel<br>Plate  | Alu<br>StSteel<br>Stainless Steel<br>Milled   | Alu<br>Alu<br>Stainless Steel<br>Forged  | Alu<br>Alu<br>Stainless Steel<br>Forged  | Alu<br>Alu<br>Stainless Steel<br>Forged  | Alu<br>Alu<br>Stainless Steel<br>Forged   |                  |
| <b>Color</b>    | ■   | ■   | ■  | ■  | ■  | ■   |                  |
| <b>Release</b>  | -   | -   | -  | -  | -  | ■   |                  |
| <b>Lock</b>     | ■   | ■   | -  | ■  | ■  | ■   |                  |
| <b>Other</b>    | -   | -   | ■  | -  | -  | -   |                  |
| <b>CE</b>       | CE  | CE  | CE   | CE   | CE   | CE  |                  |
| <b>Options</b>  |   |   |           |           |  |  |                  |
| <b>Other</b>    |  |                |           |           |   |  |                  |
| <b>Other</b>    |  |                |           |           |   |  |                  |
| <b>Notes</b>    | Discontinued as STEIN but still available   | Made by DMM. Integral wireless load cell monitor. Top screw-bolt to allow anchor sling attachment | 20mm Hollow with option of half-turn or full unscrew release (401/403) Sold in the US as ESA | 20mm Hollow with option of half-turn or full unscrew release (401/403) Sold in the US as ESA | 30mm Hollow with option of half-turn or full unscrew release (405).                  | Solid spindle each with option of half-turn or full unscrew release (407).            |                  |
| <b>Website</b>  | steinworldwide.com  | straightpoint.com   | protekt.pl   | protekt.pl   | protekt.pl   | protekt.pl  |                  |

# NON-HANDLED ASCENDERS & LEVER CAMS

**CHEST ASCENDERS  
HAND ASCENDERS  
ROPE GRABS  
EMERGENCY ASCENDERS**

Last time we thanked Mountaineers for the handled ascenders but the chest ascender in the form of *Petzl's Croll* and the rope grab or lever-cam ascender in the form of the *Gibbs* are firmly back in the cavers' camp having first appeared as manufactured products in the 60s and 70s. We'll cover lever-cams on page 120 as a separate development because they are rarely used as rope climbing ascenders by arborists and instead used in secondary systems and for hauling. It must be clearly stated at the outset, that we consider ANY toothed cam ascender, which is necessarily aggressive in order to grip even a wet or icy rope during ascending, to be best used ONLY for ascending/rope climbing. That's why the second part of this guide has *rope grabs* like the *Petzl Rescuender*(2) and *CMC Ascender*(7) and with a range of uses while these hand and chest ascenders don't. The risk of imparting shock load or much higher loads than you might intend when using them as a back up or a haul-cam is great and potentially catastrophic. This can even be the case in something as seemingly benign as a flip-line because you could slip and fall onto it but this is admittedly unlikely to do much more than damage the sheath. Nevertheless, a more forgiving smooth or ribbed cam wouldn't and is a better choice. This does not alter the fact that with good management you could easily use most of these devices and especially the six 'emergency' ascenders we've included for all of the uses shown in the rope grab/lever cam guide. But we wouldn't want to recommend ANY of those other uses in this first part - it's up to you to decide if you're OK to use toothed cams as lanyard adjusters or haul cams etc. When you ascend you regularly generate 2kN of load simply because of the 'bounce' and dynamic activity of moving so it wouldn't take much of a harsh sit-back to start pushing 4 or 5kN. If you can generate such forces in ascending, anything more in activities that can or do accumulate extra force is likely to be too close for comfort so why take the chance? Ascenders for ascending because they grip all kinds of rope in all kinds of conditions and rope grabs with their more rope-friendly cams for all the other jobs (including ascending in most cases!).

Petzl Croll 1975



Petzl Croll Lg 2025



Clog 1960s



(Clog)/ISC RP229 2025



Clog/Wild Country 2023

Gibbs 1965



Gibbs 2023

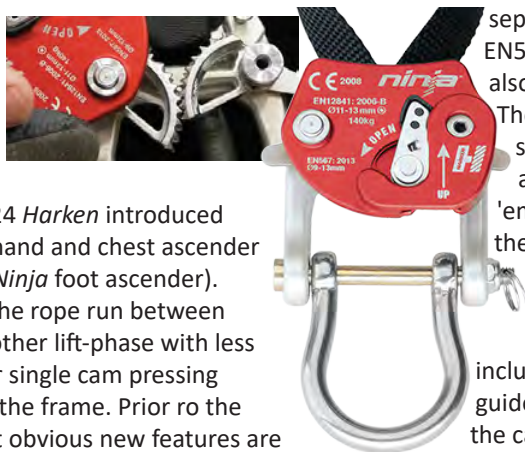


## HISTORY

While the most basic of hand ascenders existed from the 60's, in the form of devices like Denny Moorehouse's 'Clogger' hand ascender, *Petzl's* first entry into the rope ascender market wasn't until 1975 with *Croll* chest ascender. This was a direct evolution of the mountaineering Jumar rather than handle-less *Clogger* and was intended, by inventor Dressler, to be specifically for use in caving. Fernand Petzl had been one of the world's leading cavers since the 30's and was already producing kit like caving ladders, mountaineering bivi platforms and of course his revolutionary electric headlamps, but it was actually other luminaries of the 60's like Moorhouse, Dressler, Jusi and Marbach who came up with ascender and descender designs which Fernand Petzl was able to refine and bring to production before beginning his own prolific rope hardware inventing. The *Croll* was designed to sit flatter against the chest, with a top eye that angles backwards and a bottom eye that extends around the curve of the channel to allow the harness carabiner to sit flat. Chest ascenders are connected between the sit harness and chest harness so as to limit rotation during ascent and therefore be more efficient for climbing. It was a design quickly taken up by the *Kong Cam Clean* (1) and these two models remain largely unchanged in design to this day. The silver *Croll* opposite from Doc Storrick's collection is one of the earliest, probably from 1975/76 because it has the F. PETZL stamp rather than simply PETZL but you can see from the modern *Kong Cam Clean* (1) from 2023 and a plethora of similar models in these tables, that the traditional design of the *Croll* is still a market leader. Incidentally, *ISC* went away from the *Clog*-style ascender and instead concentrate on lever-cam rope grabs. As a sign of the times, the red model shown opposite is not actually made by *ISC*.

## MODERN DESIGN

That's not to say there haven't been developments and improvements in cam design and safety. In 2024 *Harken* introduced their *Ninja* double cam hand and chest ascender (a modification of their *Ninja* foot ascender). *Harken* say that having the rope run between two cams means a smoother lift-phase with less resistance than a regular single cam pressing against a flat surface on the frame. Prior to the *Ninja*, perhaps the most obvious new features are *CAMP's* rollers on their *Turbo-Chest* (3 -of which more later), and the incorporation of a swivel-eye in the Czech, *Rock Empire Chest Up* (4) and *Skylotec's Get Up* (5). *Skylotec's* is a 180° integral shackle bolted to the frame while *Rock Empire's* is a 360° swivel incorporated 'within' the frame with the addition of a bolt-on retainer. It will be interesting to see how this stands up to prolonged wear. All four of these models and a few others also exhibit the modern trend towards a 'tab' on the safety cam to enable easier manipulation of the cam for large or gloved hands. If you're looking for something different, these and *Kong's Futura Body* (9) with it's diminutive size and angled



and twisted bottom eye along with *Beal/Edelweiss's Hold-Up/B16* (6) with their extraneous eye or the similarly extruded *Kalias Chest-Up* model might be worth a look. What's with the preponderance of 'Up'-named models these days?

## EXCLUSIONS

We have NOT included in this Guide, Fall arresters like the *Rockers, UAscend, CAMP Lift* etc. even though they will function well as an ascender because we have to draw the line somewhere and, in reality, we were to include ALL devices that can function as an ascender that would include all cam descenders and hybrids! We have also not included the larger dedicated Progress Capture Devices like the *Petzl ProTraxion* or *SMC Advanced HX*, but we have included smaller 'emergency' ascenders which include smaller PCDs like the *Kong Duck* (8), *Edelrid Spoc* and *CT RollnLock*. The *Petzl 'Traxion'* family and all other Progress Capture Pulleys have a separate guide and all meet EN567 as an ascender (while also functioning as a pulley). The *Wild Country Ropeman* style mini ascenders are all considered to be 'emergency' ascenders but they do function well across a variety of tasks. The ultimate emergency ascenders, the *Petzl Tibloc* and *Skylotec Ringo* are included in the second part of this guide because they load directly through the cam rather than the frame. We haven't included the heavy-duty fall-arrest 'grabs' like the original *Altochute* or *Stickrun*. These are intended to run up AND down even though they are superficially very similar to lever cam ascenders like the *Gibbs* and *Rescuecender*. Where there's any doubt we've simply gone for those aimed at climbers rather than industry.

If we leave out the *CAMP TURBO CHEST* for now, the difference between a CHEST and HAND/BASIC ascender is pretty much just the orientation of the



## UPDATED Jan '25

attachment eyes which extend 'around-the-corner' on the chest versions to enable it to sit flat on the chest. But there can be other subtle differences. The two *Petzl* models here show this well - the Hand or Basic ascender on the left is designed to be grasped in the palm of the hand and has a 'comfort' grip on the shoulder. The *Croll* on right is *Petzl's* smaller model with a reinforced cam-enclosure to improve wear. [NB: an early report from Italian and UK cavers indicating that the reinforcement wear could cause rope damage was investigated and dealt with- see Emag#28]. The cam safeties are different because the hand is in a different position on each during use. Both clip onto the frame out of way during rope installation (CAM-PARK in our tables). The new crop of swivel versions mentioned earlier are labelled as 'chest' ascenders by the manufacturer but can easily be used for all of the same purposes as hand/basic ascenders bearing in mind the reservations we expressed earlier about overloading toothed cams:

- Progress Capture in haul systems
- Lanyard/Flip line/Rope length adjusters
- Top Ascender
- Self Belay/Fall Arrest (maybe but beware!)

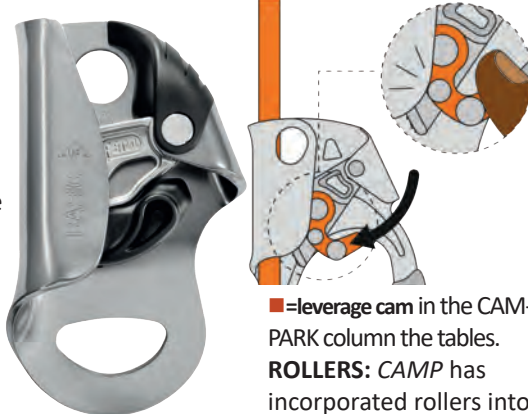
### OTHER FEATURES...

**TOP EYE:** That obvious top eye can serve the same purpose it did on the handled models but for chest ascenders it is a specific chest harness attachment point, so, the other uses are:

- 1) to clip a carabiner around the rope thus ensuring the ascender cannot detach completely
- 2) as a hauling aid or to anchor for hauling - in this function the little man symbol or 'UP' arrows should be upside down!

**SAFETY CATCH:** If the safety catch clicks to the disengaged position too easily during use you could be in for a scary drop. You never downclimb by releasing the cam via the safety catch and should instead press or 'thumb' the actual cam where sideways and/or downward pressure from your thumb or finger on the cam itself is enough to release the rope but will then enable it to re-engage the second you removed your thumb. For this reason some cams have a more pronounced bottom edge while others have an opening or additional material to facilitate better thumb purchase. The latest ascender range from *Edelrid* (right) makes sure you can't miss the safety!

**RELEASABLE CAM UNDER LOAD:** Climbing Technology now has an additional pillar on their safety catch which, in the event of a rope or debris-jam halting your progress, or for safer downclimbing, acts as a pivot-post to provide leverage against the frame and force the cam off the rope. This takes some force if the cam is under load so cannot be released by accident. We have previously seen this on *Krok* ascenders and will crop up on others but we're told it's a patented *CT* design. Shown as



■ =leverage cam in the CAM-PARK column the tables.

**ROLLERS:** *CAMP* has incorporated rollers into their excellent *Turbo-Chest* (above & right). This isn't a new idea, roller-boxes were used in caving systems back in the 60's and 70's as a separate chest or waist attachment to improve rope glide and climbing efficiency but not integrated into the ascender itself. This helps keeps the rope and cam in line during twisting and manoeuvring which otherwise creates unequal loading and stresses along the length of the cam enclosure. The top roller can also function as a deviation pulley during hauling (right).

### CHINESE & RUSSIAN MANUFACTURE

China is a continual problem for us because, in between counterfeits, so many prominent companies (even manufacturers) in the access and rescue sectors buy in Chinese products to rebadge as their own. We have only recently included Chinese companies under their own names because some have transparent and comprehensive websites and can be contacted for information, most notably *Anpen* and *Kailas*. But no sooner had we included *Xinda* products in our magazines than they were seriously called out by trading standards in the US and Europe for having helmets mislabelled as meeting standards that they absolutely did not. We can be fairly sure that European companies rebadging products have satisfied themselves of standards adherence but we remain a little bit sceptical because companies like *Lixada*, *Magideal*, *GM*, *New Doar*, *SUT*, *Camnal*, *Lepard*, *Tupa* and *Yundxi* are difficult to pin down or tell their products apart. You **will** find models on *Amazon* etc that look identical but have different specification. We can only quote the data supplied to us but we often double-check by scaling the image. We've included *Anpen* and cautiously included *SOB*, *Xinda* and *SE Peak* but **don't** take that as an endorsement. *SE Peak* is a German brand used by Shanghai's *Liedell* and maybe also Taiwan's *NalHon* which seems to have identical products! We haven't included *Camnal*/*Lixada's* *Camp Turbo* look-a-like or *NalHon's* '*CMI Ropewalker*'. We usually include *Kailas* but their hand ascender seems to be discontinued even though they have expanded their range of handled ascenders. Unlike *Anpen* etc. *Kailas* only seem to make their own products which seem well specified with unique features, some of their hot-forged products even incorporate the *Kailas* name so they're not 'rebadging' these things. They have a comprehensive website but more geared to outdoor soft products. We had to delete Taiwanese company *Adela* for lack of data and responses. It's even harder to track down Russian companies which often develop their own unique and interesting products but unfortunately also make close copies. As do *KROK* which we would have stuck with as the sole



Russian entry because they have a comprehensive website and answer emails but they're currently sanctioned until they get a less despotic government that stops invading neighbouring democratic countries.

### ARBORIST USE of ASCENDERS/CAMS

It has to be said that the use of chest ascenders and hand ascenders in particular is currently quite limited amongst arborists. Most arborists use either a hybrid system with a descender/ascender like the *ZigZag*, *Akimbo*, *SpiderJack* or *Roperunner* or a *hitchclimbing* knot system. If they are used, chest/hand ascenders are most often a third ascender set up on the harness between a foot and/or knee ascender below and a handled ascender above. Competition climbers are regular users as they look for increased speed and efficiency between point A and point B with no pesky tree work to undertake in between but most arborists prefer a system which allows much greater upper-body manoeuvrability. However, a chest ascender worn between the sit and chest harness can be a useful reserve or intermittent item even if it is not the primary system and not always connected to the rope. If it's on your harness it's out of the way and can be attached temporarily for long entry climbs but released from the main rope during canopy work.

Some folk prefer a non-handled ascender as their top ascender instead of the much bulkier handled models and old-hands in particular like the ease of movement of the ascender afforded by simply grasping the frame rather than inserting into a handle particularly with gloved hands. However, for rope climbing, the hand or basic ascenders are most often seen as a knee or floating cam between a foot ascender and the chest and/or top (handled) ascender.



While the four types of ascender we are describing here are largely interchangeable for all tasks, some are better at one or more tasks than others. Chest ascenders, by definition are best used directly attached to your harness but most, if not all can still do what the hand and lever-cam ascenders can. The commonest uses for all ascenders and rope grabs are:

- Ascending/Rope-climbing
- Self-belay/back-up during climbing and this is a use that may increase if two-rope systems are mandated NB: this is largely for dedicated fall-arresters but also smooth cam and some ribbed cam devices - **there are huge risks to using toothed cams for self-belay even where it is implied or stated as an acceptable use for any given device**
- lanyard & flip-line/pole strap rope length adjustment
- direct hauling and progress capture in a haul /raising system *but monitor your input forces and loads carefully.*

The key proviso to all that we have written so far and will write in the Lever-Cam/Rope Grab section is that **any ascender with teeth is best used for ascending-only because it will cut into and maybe sever the rope if over-loaded.** Some Rope grabs will too but are more often designed to slip at around 4 or 5kN, toothed ascenders will rarely slip unless they're stripping rope!



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**IN THE FOLLOWING TABLES:**

**ORIGIN:**

The country selling the product but this is not always the same as the country of manufacture. Where we know, there is an inset flag to show where it is made.

**COST:** approximate, rounded up and inclusive of local taxes which are generally from 10% and more often 20% in Europe. Often priced much lower locally or online.

**WEIGHT:** for a single ascender/cam without a carabiner

**DIMENSIONS:** Width x Height x Depth/thickness but this last one is not always given - the depth is dictated by the cam enclosure but in lever cams this is also increased by the length of the axle pin which may have a locking nut or spring-release mechanism (pip-pin). Even for hand and chest ascenders the depth may vary from reality if the quoted measurements don't include protruding rivet heads etc.

**MATERIALS:** When we say 'Alu' we mean Aluminium Alloy unless otherwise specified. These are practically all alloy so we've differentiated the construction rather than the material. Most are shown as 'Stamped' meaning that a flat plate of metal is cut to shape then forcibly stamped and rolled into form. Extrusion forces heated metal through a die to create the shape, hot-forged too takes heated metal and forces it into shape like a smithy making a sword or horseshoe. Milled takes a solid lump of alloy and carves/mills it away to create the desired shape, like a sculpture.

**STANDARDS:** for CE these fall into two categories EN 567 (rope clamp Ø 8 - 11mm) for sport use and EN 12841 B (rope adjustment device Ø 10-13mm ) for professional use. Unlike the handled ascenders which generically met EN567 with a few meeting EN12841-B, this Guide includes lever-cam 'ascenders' meeting a wider range so we have to be more specific than simply using 'CE' as a coverall for the applicable European standards. EN567 (ascenders) is still the most common standard in this list but is generally for ropes up to 13mm rather than the original 11mm sport limit. EN12841 for rope adjusters takes in ascenders (-B) hybrids and descenders (C) and fall arrest devices (A) which can all act as ascenders. These require a slightly larger diameter rope so the lower limit is higher - usually around 10mm rather than 8mm. The Mini PCD's may also have EN12278 for pulleys. UIAA is the mountaineering standard with some enhanced testing and EAC applies to Russia and its southern satellite states. Lever cam rope grabs have further standards listed separately.

**ROPE DIAM RANGE:** It is best to always use the millimetre sizes in ALL of our MARKET GUIDES because the fractional inch equivalents are less specific. 1/2" for instance can be anywhere from 12 to 13mm. Fatter ropes make progress harder but too thin a rope can be positively dangerous as it can jam between the cam and enclosure. ***It's best to ignore the lowest and highest rope diameter claims.*** Remember that a rope will often get fatter with age so if it was a tight fit with a new rope it may become too large with use and stress the cam enclosure if heavily loaded. The rope range quoted uses the lower limit for EN567 up to the sometimes higher limit for EN12841- B. More often than not EN12841-B starts at 10mm rather than 8mm.

**WLL(SWL):** is the weight of person actually climbing or the weight that can be pulled/hailed before either the rope begins to tear or the cam enclosure unfolds. A small button or 'crease' in the frame on most models stops the cam from flipping upwards under high load if the cam enclosure starts to unfold/bend resulting in an unstoppable downward slide- this is why both ascenders in a Texas-rig-style, two-ascender system, should have direct connection to the harness. Having just a foot ascender doesn't constitute a safe back-up, it's really a third ascender to improve climbing efficiency because if your top ascender were to fail/slip/be accidentally removed, the foot ascender is unlikely to hold you upright unless you had spookily anticipated the precise moment of top-ascender failure! Some WLL figures quoted are suspiciously high and are more likely simply to be an extrapolation of the MBS. Where we see 4kN quoted it is likely to be a re-interpretation of EN567's requirement for a 4kN load to be held at 5 different spots along a fixed rope of minimum and maximum diameters within the ascenders rope range. Most will quote a WLL based entirely on the standards they have met even though their actual capability may be much higher - 100kg for EN567 or 120/140kg for EN12841-B etc.

The **MBS** figure is largely irrelevant as it refers to the strength of the frame, or to be more exact, the ascender's connection eye(s) and even this will vary with rope size. 4kN is usually the lower limit for what may range up to and beyond 12kN for larger rope. For lever cams there is no end-to-end connection and an MBS is often not given because the rope will slip through or perhaps fail before the cam enclosure. If you were to use the framed ascenders as a carabiner or a link in a hauling system rather than as the means to exert the pull this might come into play as you try to stretch the frame end to end, otherwise, for operational use, don't worry about it because the failure mode, if you overload the ascender, will be the cam or the rope, probably the rope.

**(Bottom) EYE DIAM:** Not necessarily the actual size of connector/carabiner you can get into the bottom eye. Round eyes tend to be a true diameter in which case your carabiner/ bar would need to be slightly smaller than this figure.

**CAM-PARK:** This applies to virtually all handled ascenders and is the ability to hold the cam off the rope completely, generally by clipping the safety catch onto the opposite part of the frame. This facilitates easier rope installation/removal.

■='leverage cam' extra post to release cam under load see p104

**ANTI CAM-INVERT:** This is now a custom-incorporated pinch in the frame material or a 'knob' to stop the cam rotating too far and releasing out of the top of the frame under high load. This was originally mitigated by clipping a carabiner through the top eye and is still used as such by many.

**COLOURS:** the colour of the frame or cam enclosure. Different model colour options are separated by a comma. A forward slash/ indicates two (or more) colours on one model which, for Rope Grabs may be a cam-colour. Unlike the handled ascenders, there are not many left AND right hand models. Left-hand model colours are shown in burnt orange. ***See the lever-cam section for further, different data headings.***

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images approximately to scale  
**COST:** Approx & inc local tax/VAT  
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**WLL:** Max Load based on approx 10:1 of MBS  
**/Pin:** .00mm, length of the bolt/pin  
**USES:** ●=OK but not ideal  
 ■=Leverage Cam (see p104)

|  | MODEL                   | COMPANY              | ORIGIN | COST<br><small>Currency conversion</small> | WEIGHT        | DIMENSIONS<br>Width x Height<br>x Depth | STANDARD                   |
|--|-------------------------|----------------------|--------|--|---------------|---|----------------------------|
|  | Explorer Chest Retrofit | 3M/DBI SALA/ROLLGLIS |        | \$185<br>A\$182                            | 170g<br>6oz   | 104 x 65mm<br>4 x 2.6"                  | EN567<br>NFPA<br>AS/NZS448 |
|  | Olymp                   | ALPIDEX              |        | £32<br>\$40<br>€36                         | 154g<br>5.4oz | 100 x 78 x 33mm<br>4 x 3 x 1.3"         | EN567<br>UIAA              |
|  | A12                     | ANPEN                |        | £40<br>\$49*<br>€46                        | 163g<br>5.8oz | 121 x 76mm<br>4.7 x 3"                  | EN567                      |
|  | Hold Up                 | BEAL                 |        | £40<br>\$52<br>€54                         | 90g<br>3.2oz  | 82 x 74 x 59mm<br>3.2 x 2.9 x 2.3"      | EN567<br>EN12841           |
|  | Solo 2                  | CAMP                 |        | £60<br>\$90<br>€75                         | 95g<br>3.4oz  | 95 x 57 x 24mm<br>3.7 x 2.2 x 0.9"      | EN567<br>EN12841<br>UIAA   |
|  | TurboChest              | CAMP                 |        | £85<br>\$90<br>€102                        | 110g<br>3.9oz | 94 x 59 x 39mm<br>3.7 x 2.3 x 1.5"      | EN567<br>EN12841<br>UIAA   |
|  | Nahuel 2019             | CLIMAX               |        | £34<br>\$34<br>€31                         | 165g<br>5.8oz | 118 x 80 x 35mm<br>4.6 x 3.1 x 1.4"     | EN567                      |
|  | Nahuel 2020             | CLIMAX               |        | £36<br>\$36<br>€33                         | 122g<br>4.3oz | 110 x 68mm<br>4.3 x 2.5"                | EN567<br>EN12841           |
|  | Evo Chest               | COURANT              |        | £39<br>\$48<br>€47                         | 130g<br>4.6oz | 105 x 74 x 23mm<br>4.1 x 2.9 x 0.9"     | EN567                      |
|  | Chest Ascender          | CYPHER               |        | £61<br>\$75<br>\$70                        | 147g<br>5.2oz | 105 x 74 x 23mm<br>4.1 x 2.9 x 0.9"     | EN567<br>EN12841           |
|  | Uni Cruiser             | EDELRID              |        | £60<br>\$80<br>€57                         | 126g<br>4.4oz | 106 x 65 x 32mm<br>4.1 x 2.6 x 1.2"     | EN567<br>EN12841           |
|  | Chest Cruiser           | EDELRID              |        | £57<br>\$75<br>€55                         | 162g<br>5.7oz | 80 x 65 x 40mm<br>3.2 x 2.6 x 1.6"      | EN567<br>EN12841           |





# HAND & CHEST ASCENDERS

| MODEL | MATERIALS<br>ALLOY SHELL<br>CAM | CAM | ROPE<br>DIAM<br>RANGE   | WLL/<br>MBS                         | (Bottom)<br>EYE<br>DIAM | CAM-PARK | ANTI-CAM<br>INVERT | SERIAL NO | HAND/<br>BASIC | CHEST/<br>offset | LEFT<br>COLOURS | RIGHT<br>COLOURS | NOTES  | WWW.                |
|-------|---------------------------------|-----|-------------------------|-------------------------------------|-------------------------|----------|--------------------|-----------|----------------|------------------|-----------------|------------------|--|---------------------|
| 38    | Extruded Alu<br>Stainless Steel |     | 11*-13mm<br>7/16 - 1/2" | 300kg<br>661lbf<br>7.9kn<br>1776lbf | 15mm<br>0.6"            | ■        | -                  | ■         | -              | ■                | ■               | -                | Was SRTe. Still sold but this and std model <b>discontinued</b> by 3M. Top 'eye' is for webbing. *Prod-Info states 10.5mm but 11mm is printed on the device. | 3m.com.au           |
|       | Stamped Alu<br>Stainless Steel  |     | 8-13mm<br>5/16 - 1/2"   | 4kN<br>900lbf                       | 18mm<br>0.7"            | ■        | ■                  | -         | -              | ■                | ■               | ■                |  | alpidex.com         |
|       | Stamped Alu<br>Alu              |     | 8-13mm<br>5/16 - 1/2"   | 5kN<br>1124lbf                      | 20mm<br>0.8"            | ■        | ■                  | ■         | -              | ■                | ■               | ■                | Also a 12AA model but details are sketchy! *FOB China  | en.anpen.net        |
| B     | Extruded Alu<br>Stainless Steel |     | 8-13mm<br>5/16 - 1/2"   | 100kg<br>220lb                      | *15mm<br>0.6"           | ■        | ■                  | ■         | -              | ■                | ■               | -                | *15x18mm<br>See also <i>Beal Tract Up</i> in PCP guide   | pro.beal-planet.com |
| B     | Stamped Alu<br>Hardened Steel   |     | 8-13mm<br>5/16 - 1/2"   | 140kg<br>308lb                      | 14mm<br>0.5?"           | ■        | -                  | ■         | ■              | -                | -               | ■                |  | camp.it             |
| B     | Stamped Alu<br>Hardened Steel   |     | 8-13mm<br>5/16 - 1/2"   | 120kg<br>265lb                      | 16mm*<br>0.6"           | ■        | -                  | ■         | -              | ■                | ■               | ■                | Equipped with two patented rollers for a smooth interface with the rope. *17x16mm  | camp.it             |
|       | Stamped Alu<br>Stainless Steel  |     | 8-13mm<br>5/16 - 1/2"   | 100kg<br>220lb<br>4kN<br>900lbf     | 19mm<br>0.8"            | ■        | ■                  | -         | -              | ■                | ■               | -                | Also rebadged from chinese original as Lapard, GM Climbing, Xinda, Epic Peak, Vento, NTR, Rock Empire etc.   | productosclimax.com |
| B     | Stamped Alu<br>Stainless Steel  |     | 8-13mm<br>5/16 - 1/2"   | 100kg<br>220lb<br>4kN<br>900lbf     | *15mm<br>0.6"           | ■        | ■                  | ■         | ■              | -                | -               | ■                | *29x15mm   | productosclimax.com |
|       | Stamped Alu<br>Stainless Steel  |     | 10-13mm<br>3/8 - 1/2"   | 100kg<br>220lb<br>6kN<br>1349lbf    | 19mm<br>0.75"           | ■        | ■                  | ■         | -              | ■                | ■               | ■                | ■=leverage cam   | mycourant.com       |
| B     | Stamped Alu<br>Stainless Steel  |     | 8-13mm<br>5/16 - 1/2"   | 140kg<br>308lb                      | 19mm<br>0.75"           | ■        | ■                  | -         | -              | ■                | ■               | ■                | ■=leverage cam   | cypherclimbing.com  |
| B     | Stamped Alu<br>Stainless Steel  |     | 8-13mm<br>5/16 - 1/2"   | 150kg<br>331lb                      | 31x20mm<br>1.2x0.8"     | ■        | ■                  | -         | ■              | ■                | ■               | ■                | Modular ascender, can be integrated into Chest Cruiser plate (becomes the Chest Cruiser)   | edelrid.de          |
| B     | Stamped Alu<br>Stainless Steel  |     | 8-13mm<br>5/16 - 1/2"   | 150kg<br>331lb                      | 29x5mm<br>1.1x0.2"      | ■        | ■                  | -         | -              | ■                | ■               | ■                | Component of Uni Cruiser. Modular ascender with adapter for various harnesses. Comes with webbing.   | edelrid.de          |

images approximately to scale  
**COST:** Approx & inc local tax/VAT  
**CURRENCY CONVERSION ONLY.** \* FOB China  
**WLL:** Max Load based on approx 10:1 of MBS  
**/Pin:00mm,** length of the bolt/pin  
**USES:** ●=OK but not ideal  
 ■=Leverage Cam (see p104)

| MODEL  | COMPANY                   | ORIGIN   | COST<br>Currency<br>conversion | WEIGHT        | DIMENSIONS<br>Width x Height<br>x Depth | STANDARDS                 |
|--|---------------------------|--|--------------------------------|---------------|---|---------------------------|
| <br>BS16                  | EDELWEISS                 |    | £40<br>\$52<br>€54             | 160g<br>5.6oz | 82 x 74 x 59mm<br>3.2 x 2.9 x 2.3"      | EN567<br>EN12841B         |
| <br>InduVentral<br>W51630 | FIXE                      |    | £42<br>\$53<br>€48             | 190g<br>6.7oz | 120 x 80 x 32mm<br>4.7 x 3.1 x 1.2"     | EN567<br>EN12841B         |
| <br>Ninja<br>Ninja        | HARKEN                    |    | £150<br>\$190<br>€174          | 272g<br>9.6oz | 121 x 76 x 37.5mm<br>4.75 x 3 x 1.5"    | EN567<br>EN12841B         |
| <br>Compact<br>D41        | HEIGHTEC                  |    | £51<br>\$72<br>€60             | 160g<br>5.6oz | 115 x 75 x 23mm<br>4.5 x 3 x 0.9"       | EN567<br>EN12841B         |
| <br>Sync<br>D44          | HEIGHTEC                  |    | £56<br>\$70<br>€65             | 140g<br>4.9oz | 95 x 75 x 25mm<br>3.7 x 3 x 1"          | EN567<br>EN12841B         |
| <br>Twist<br>D42         | HEIGHTEC/<br>PMI          |  | £50<br>\$75<br>€55             | 150g<br>5.3oz | 105 x 70 x 35mm<br>4.1 x 2.75 x 1.4"    | EN567<br>EN12841B         |
| <br>Cam Clean           | HONEYWELL<br>MILLER/KOMET |  | £99<br>\$123<br>€114           | 150g<br>5.3oz | 115 x 78 x 40mm<br>4.5 x 3 x 1.6"       | EN567<br>EN12841B<br>NFPA |
| <br>RP229               | ISC                       |  | £51<br>\$82<br>€59             | 130g<br>4.6oz | 116 x 75 x 24mm<br>4.6 x 3 x 1"         | EN567                     |



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# HAND & CHEST ASCENDERS





















| MATERIALS<br>ALLOY SHELL<br>CAM        | CAM | ROPE<br>DIAM<br>RANGE     | WLL/<br>MBS                       | (Bottom)<br>EYE<br>DIAM | CAM-PARK | ANTI-CAM<br>INVERT | SERIAL<br>NO | HAND/<br>BASIC | CHEST/<br>offset | LEFT<br>COLOURS | RIGHT<br>COLOURS | NOTES  | WWW.                |
|--|-----|---------------------------|-----------------------------------|-------------------------|----------|--------------------|--------------|----------------|------------------|-----------------|------------------|--|---------------------|
| Extruded Alu<br>Stainless Steel<br>CAM |     | 8-13mm<br>5/16 - 1/2"     | 100kg<br>220lb                    | *15mm<br>0.6"           | ■        | ■                  | ■            | -              | ■                | ■               |                  | *15x18mm   | edelweiss-ropes.com |
| Stamped Alu<br>Alu                     |     | 8-12mm<br>5/16 - <1/2"    | 100kg<br>220lb<br>4kN<br>900lbf   | 20mm<br>0.8"            | ■        | ■                  | ■            | -              | ■                | ■               |                  | Also Fixe 'Dome' model<br>with no anti-cam invert which<br>is the same model as Climax<br>Nahuel   | fixeclimbing.com    |
| Stamped Alu<br>Cast Steel              |     | 9-13mm<br>3/8 - 1/2"      | 140kg<br>308lb                    | >35mm<br>>1.4"          | -        | -                  |              | ■              | ■                | ■               | ■                | Two cams - one either side of<br>the rope. Use as chest and<br>hand ascender.<br>Has 2 release triggers to make<br>down-climbing easier. | harken.com          |
| Stamped Alu<br>Hardened Steel          |     | 9-13mm<br>3/8 - 1/2"      | 100kg<br>220lb                    | 15mm<br>0.6"            | ■        | ■                  | ■            | ■              | -                |                 | ■                |  | heightec.com        |
| Stamped Alu<br>Hardened Steel          |     | 10.5-12mm<br>7/16 - <1/2" | 100kg<br>220lb                    | *<50mm<br><2"           | ■        | ■                  | ■            | -              | ■                | ■               |                  | *Fixes direct to chest harness<br>webbing but can still be<br>detached. Only sold with chest<br>harness.                                 | heightec.com        |
| Stamped Alu<br>Hardened Steel          |     | 10-13mm<br>3/8 - 1/2"     | 100kg<br>220lb                    | 16mm<br>0.6"            | ■        | ■                  | ■            | -              | ■                | ■               |                  |  | heightec.com        |
| Stamped Alu<br>Hardened Steel          |     | 8-13mm<br>5/16 - 1/2"     | 100kg<br>220lb<br>5kN<br>1124lbf  | *17mm<br>0.7"           | ■        | -                  | -            | -              | ■                | ■               | ■                | *17 x 21 mm<br>Good luck finding this-see<br>Kong for original model!  | honeywellsafety.com |
| Stamped Alu<br>Stainless Steel         |     | 9-13mm<br>3/8 - 1/2"      | 140kg<br>308lb<br>2.5kN<br>562lbf | *17mm<br>0.7"           | ■        | -                  | ■            | -              | ■                |                 |                  | Also rebadged by Checkmate,<br>Stein, WestfallPro and others.<br>*17 x 21 mm   | iscwales.com        |

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**WLL:** Max Load based on approx 10:1 of MBS  
**/Pin:00mm,** length of the bolt/pin  
**USES:** ●=OK but not ideal  
 ■=Leverage Cam (see p104)

|   | MODEL                            | COMPANY              | ORIGIN   | COST<br><small>Currency conversion</small> | WEIGHT        | DIMENSIONS<br>Width x Height x Depth | STANDARDS                                  |         |
|---|----------------------------------|----------------------|--|--|---------------|--------------------------------------|--|---------|
|    | <b>Chest-Up</b>                  | <b>KAILAS</b>        |    | <b>£101</b><br><b>\$125</b><br><b>€116</b> | 106g<br>3.7oz | 97 x 66 x 31mm<br>3.8 x 2.6 x 1.2"   | EN567                                      | S       |
|    | <b>Cam Clean</b><br>82400        | <b>KONG</b>          |    | <b>£55</b><br><b>\$76</b><br><b>€55</b>    | 150g<br>5.3oz | 115 x 78 x 40mm<br>4.5 x 3 x 1.6"    | EN567<br>EN12841B<br>UIAA                  | S<br>Ha |
|    | <b>Futura Body</b><br>94200      | <b>KONG</b>          |    | <b>£68</b><br><b>\$90</b><br><b>€69</b>    | 80g<br>2.8oz  | 82 x 48 x 35mm<br>3.2 x 1.9 x 1.4"   | NFPA-L<br>EN567<br>EN12841B<br>UIAA<br>EAC | E<br>Ha |
|    | <b>Modular</b><br>875            | <b>KONG</b>          |    | <b>£42</b><br><b>\$68</b><br><b>€44</b>    | 170g<br>6oz   | 114 x78 x25mm<br>4.5 x 3 x 1"        | NFPA-L<br>EN567<br>UIAA                    | S<br>Ha |
|   | <b>Ventral</b><br>FA7001500      | <b>KRATOS SAFETY</b> |    | <b>£51</b><br><b>\$64</b><br><b>€55</b>    | 160g<br>5.6oz | 115 x 75 x 21mm<br>4.5 x 3 x 0.8"    | EN567                                      | S       |
|  | <b>Basic</b><br>B18BAA           | <b>PETZL</b>         |  | <b>£53</b><br><b>\$88</b><br><b>€55</b>    | 85g<br>3oz    | 104 x 64 x 30mm<br>4 x 2.5 x 1.2"    | EN567<br>EN12841B<br>UIAA<br>EAC           | S<br>S  |
|  | <b>Croll-S</b><br>B16BAA         | <b>PETZL</b>         |  | <b>£53</b><br><b>\$88</b><br><b>€55</b>    | 83g<br>2.9oz  | 97 x 58 x30mm<br>3.8 x 2.3 x 1.2"    | NFPA<br>EN567<br>EN12841B<br>UIAA, EAC     | S<br>S  |
|  | <b>Croll-L</b><br>B016AA00       | <b>PETZL</b>         |  | <b>£53</b><br><b>\$88</b><br><b>€55</b>    | 140g<br>4.9oz | 110 x 70 x 30mm<br>4.3 x 2.75 x 1.2" | NFPA<br>EN567<br>EN12841B<br>UIAA, EAC     | S<br>S  |
|  | <b>UltraLight</b><br>CD201L/202L | <b>PROTEKT</b>       |  | <b>£31</b><br><b>\$38</b><br><b>€35</b>    | 135g<br>4.8oz | 110 x75 x 30mm<br>4.4 x 3 x 1.1"     | EN567                                      | S       |
|  | <b>TREEUP</b><br>CD201/202       | <b>PROTEKT</b>       |  | <b>£35</b><br><b>\$43</b><br><b>€40</b>    | 220g<br>7.8oz | 134 x 86 x 28mm<br>5.3 x 3.4 x 1.1"  | EN567                                      | E       |











# HAND/CHEST ASCENDERS

| MATERIALS<br>ALLOY SHELL<br>CAM | CAM   | ROPE<br>DIAM<br>RANGE   | WLL/<br>MBS                      | (Bottom)<br>EYE<br>DIAM | CAM-PARK | ANTI-CAM<br>INVERT | SERIAL<br>NO | HAND/<br>BASIC | CHEST/<br>offset | COLOURS<br>LEFT | COLOURS<br>RIGHT | NOTES  | WWW.             |
|---------------------------------|---|-------------------------|----------------------------------|-------------------------|----------|--------------------|--------------|----------------|------------------|-----------------|------------------|--|------------------|
| Milled Alu<br>Stainless Steel   |    | 8-13mm<br>5/16 - 1/2"   | 140kg<br>308lb                   | 20mm<br>0.8"            | ■        | ■                  | -            | -              | ■                | ■               |                  | Discontinued but some still available from Russo-Asian stockists               | Kailasgear.com   |
| Stamped Alu<br>Hardened Steel   |    | 8-13mm<br>5/16 - 1/2"   | 100kg<br>220lb<br>5kN<br>1124lbf | *17mm<br>0.7"           | ■        | -                  | -            | -              | ■                | ■<br>■          |                  | *17 x 21 mm  | kong.it          |
| Extruded Alu<br>Hardened Steel  |    | 9-12mm<br>3/8 - < 1/2"  | 100kg<br>220lb                   | *15mm<br>0.6"           | ■        | ■                  | ■            | -              | ■                | ■               |                  | *Lower eye is twisted and angles backward and measures 18 x 15 mm              | kong.it          |
| Stamped Alu<br>Hardened Steel   |    | 11-13mm<br>7/16 - 1/2"  | 100kg<br>220lb                   | 14mm<br>0.55"           | ■        | ■                  | -            | ■              | -                | ■<br>■          | ■<br>■           | Being Phased Out.<br>can be retrofitted to Kong winches and with a handle etc. | kong.it          |
| Stamped Alu<br>Alu              |   | 10-12mm<br>3/8 - < 1/2" | 4kN<br>899lbf<br>15kN<br>1686lbf | 13mm<br>0.5"            | ■        | -                  | -            | ■              | ■                |                 | ■                |  | kratossafety.com |
| Stamped Alu<br>Stainless Steel  |  | 8-11mm<br>5/16 - 7/16"  | 140kg<br>308 lb                  | 16mm*<br>0.6"           | ■        | -                  | ■            | ■              | -                |                 | ■                | *28 x 16mm   | petzl.com        |
| Stamped Alu<br>Stainless Steel  |  | 8-11mm<br>5/16 - 7/16"  | 140kg<br>308 lb                  | 22mm<br>0.9"            | ■        | -                  | ■            | -              | ■                | ■               |                  | stainless steel wear resistant plate fitted                                    | petzl.com        |
| Stamped Alu<br>Stainless Steel  |  | 8-13mm<br>5/16 - 1/2"   | 140kg<br>308 lb                  | 22mm<br>0.9"            | ■        | -                  | ■            | -              | ■                | ■               |                  |  | petzl.com        |
| Stamped Alu<br>Steel            |  | 8-12mm<br>5/16 - < 1/2" | 4kN<br>899lbf                    | 21mm*<br>0.8"           | ■        | -                  | -            | -              | ■                | ■               | ■                | 21.8x23mm<br>Also badged as Proverti   | protekt.pl       |
| Extruded Alu<br>Steel           |  | 8-13mm<br>5/16 - 1/2"   | 100kg<br>220 lb                  | 20mm*<br>0.8"           | ■        | -                  | -            | ■              | -                | ■               | ■                | *27x20mm<br>Also badged (made by?) GT  | protekt.pl       |
|                                 |   |                         |                                  |                         |          |                    |              |                |                  |                 |                  |  | Expansion Row    |
|                                 |   |                         |                                  |                         |          |                    |              |                |                  |                 |                  |  | Expansion Row    |

images approximately to scale  
**COST:** Approx & inc local tax/VAT  
**CURRENCY CONVERSION ONLY.** \* FOB China  
**WLL:** Max Load based on approx 10% of M  
**/Pin:** 00mm, length of the bolt/pin  
**USES:** ●=OK but not ideal  
 ■=Leverage Cam (see p104)

|   | MODEL                   | COMPANY   | ORIGIN   | COST<br><small>Currency conversion</small> | WEIGHT         | DIMENSIONS<br>Width x Height<br>x Depth | STANDARDS                 |
|---|-------------------------|---|--|--|----------------|---|---------------------------|
|    | Chest Up<br>ZWB019      | ROCK EMPIRE                                       |    | €54<br>\$67<br>€61                         | 118g<br>4.2oz  | 99 x 62 x 30mm<br>3.9 x 2.4 x 1.2"      | EN567<br>EN12841B         |
|    | Chest                   | ROCK EMPIRE                                       |    | £48<br>\$59<br>€54                         | 163g<br>5.7oz  | 118 x 78 x 32mm<br>4.6 x 2.8 x 1.2"     | EN567                     |
|    | Chest<br>SA-208         | S.E.PEAK<br>Shanghai Leidell<br>Ind Co Ltd/NalHon |    | £36<br>\$46<br>€33                         | 150g*<br>5.3oz | 104 x 75mm<br>4.1 x 2.9"                | EN567(?)                  |
|    | Chest                   | S-TEC   |    | £38<br>\$48<br>€44                         | 160g<br>5.6oz  | 118x80x30mm<br>4.6x3.1x1.2"             | EN567                     |
|   | Chest Croll<br>RA009    | SAR PRODUCTS                                      |   | £54<br>\$69<br>€63                         | 130g<br>4.6oz  | 105x74x23mm<br>4.1x2.9x0.9"             | EN567<br>EN12841B<br>UIAA |
|  | Cam Clean               | SINGING ROCK                                      |  | £47<br>\$65<br>€54                         | 125g<br>4.4oz  | 100x70x35mm<br>4x2.75x1.4"              | EN567<br>EN12841B         |
|  | Chest<br>(AC30)         | SKYLOTEC  |  | £45<br>\$60<br>€57                         | 140g<br>4.9oz  | 118x79x30mm<br>4.6x3.1x1.2"             | EN567<br>EN12841B<br>UIAA |
|  | CT Chest<br>Ascender +  | SKYLOTEC  |  | £45<br>\$70<br>€53                         | 147g<br>5.2oz  | 105 x 74 x 23mm<br>4.1 x 1.9 x 0.9"     | EN567<br>EN12841B<br>UIAA |
|  | CT Chest<br>Ascender HC | SKYLOTEC  |  | £47<br>\$70<br>€55                         | 147g<br>5.2oz  | 105 x 74 x 23mm<br>4.1 x 2.9 x 0.9"     | EN567<br>EN12841B<br>UIAA |
|  | CT Ascender<br>Simple + | SKYLOTEC  |  | £42<br>\$54<br>€48                         | 150g<br>5.3oz  | 110 x 74 x 23mm<br>4.3 x 2.9 x 0.9"     | EN567<br>EN12841B<br>UIAA |

# HAND & CHEST ASCENDERS

| MATERIALS<br>ALLOY SHELL<br>CAM | CAM   | ROPE<br>DIAM<br>RANGE  | WLL/<br>MBS                        | (Bottom)<br>EYE<br>DIAM | CAM-PARK | ANTI-CAM<br>INVERT | SERIAL<br>NO | HAND/<br>BASIC | CHEST/<br>offset | LEFT<br>COLOURS | RIGHT<br>COLOURS | NOTES  | WWW.                                      |
|---------------------------------|---|------------------------|------------------------------------|-------------------------|----------|--------------------|--------------|----------------|------------------|-----------------|------------------|--|---|
| Hot-Forged Alu<br>Alu           |    | 8-11mm<br>5/16 - 7/16" | 4kN<br>899lbf                      | 16mm<br>0.6"            | ■        | ■                  | -            | ■              | ■                | ■<br>■          |                  | Swivel eye   | rockempire.cz                             |
| Stamped Alu<br>Stainless Steel  |    | 8-13mm<br>5/16 - 1/2"  | 4kN<br>899lbf                      | 19mm*<br>0.75"          | ■        | -                  | -            | ■              | ■                | ■               |                  | <b>DISCONTINUED</b> by RE but also rebadged from Chinese original as Lapard, GM Climbing, Xinda, Epic Peak, Vento, NTR, etc.*23x19.5mm | rockempire.cz                             |
| Stamped Alu<br>Stainless Steel  |    | 8-13mm<br>5/16 - 1/2"  | 100kg<br>220lb<br>4kN<br>900lbf    | *15mm<br>0.6"           | ■        | ■                  | ■            | -              | ■                | ■<br>■<br>■     |                  | Upgrade from S-206 *29x15mm Also listed as 130g? See SE.Peak notes on p155   | sepeak.net<br>(often difficult to access) |
| Stamped Alu<br>Stainless Steel  |    | 8-12mm<br>5/16 - <1/2" | 4kN<br>899lbf<br>20kN<br>4496lbf   | 19mm<br>0.75"           | ■        | -                  | -            | -              | ■                | ■               |                  | Variation of the Rock Empire model above.  | safetecbr.com.br                          |
| Stamped Alu<br>Stainless Steel  |   | 8-13mm<br>5/16 - 1/2"  | 100kg<br>220 lb                    | 19mm<br>0.75"           | ■        | ■                  | ■            | -              | ■                | ■               |                  | ■=leverage cam   | sar-products.com                          |
| Stamped Alu<br>Stainless Steel  |  | 8-13mm<br>5/16 - 1/2"  | 120kg<br>265 lb<br>12kN<br>2697lbf | 19mm<br>0.75"           | ■        | -                  | ■            | -              | ■                | ■               |                  | Updated model. Safety catch has a secondary trigger to allow safer cam-release for short downclimbs                                    | singingrock.com                           |
| Stamped Alu<br>Alu              |  | 9-13mm<br>3/8-1/2"     | 4kN<br>899lbf<br>14kN<br>3147lbf   | 13mm<br>0.5"            | ■        | -                  | ■            | -              | ■                | ■<br>■          |                  | Skylotec Germany owns Anthon Slovenia. Anthon brand-name being phased out  | skylotec.com<br>(anthon.si)               |
| Stamped Alu<br>Stainless Steel  |  | 8-13mm<br>5/16 - 1/2"  | 140kg<br>308lb                     | 19mm<br>0.75"           | ■        | ■                  | ■            | -              | ■                | ■               |                  | Also rebadged by others inc 'Borlack'. Listed as 'Evo' by some stockists<br>■=leverage cam   | skylotec.com<br>climbingtechnology.com    |
| Stamped Alu<br>Stainless Steel* |  | 8-13mm<br>5/16 - 1/2"  | 140kg<br>308lb                     | 19mm<br>0.75"           | ■        | ■                  | ■            | -              | ■                | ■               |                  | *HC= Hard-coated shell for improved abrasion resistance.<br>■=leverage cam   | skylotec.com<br>climbingtechnology.com    |
| Stamped Alu<br>Stainless Steel  |  | 8-13mm<br>5/16 - 1/2"  | 140kg<br>308lb                     | 19mm<br>0.75"           | ■        | ■                  | ■            | ■              | -                | ■               |                  | ■=leverage cam   | skylotec.com<br>climbingtechnology.com    |
|                                 |   |                        |                                    |                         |          |                    |              |                |                  |                 |                  |  | Expansion Row                             |
|                                 |   |                        |                                    |                         |          |                    |              |                |                  |                 |                  |  | Expansion Row                             |

images approximately to scale  
**COST:** Approx & inc local tax/VAT  
**CURRENCY CONVERSION ONLY.** \* FOB China  
**WLL:** Max Load based on approx 10:1 of MBS  
**/Pin:** 00mm, length of the bolt/pin  
**USES:** ●=OK but not ideal  
 ■=Leverage Cam (see p104)

| MODEL |  | COMPANY                      | ORIGIN | COST<br><small>Currency conversion</small> | WEIGHT        | DIMENSIONS<br>Width x Height<br>x Depth | STANDARDS                 |         |
|-------|--|------------------------------|--------|--|---------------|---|---------------------------|---------|
|       |  | SKYLOTEC<br>(ANTHRON)        |        | £62<br>\$70<br>€67                         | 150g<br>5.3oz | 104 x 75 x 30mm<br>4.1 x 3 x 1.2"       | EN567<br>EN12841B<br>UIAA | S       |
|       |  | SKYLOTEC                     |        | £101<br>\$125<br>€115                      | 123g<br>4.3oz | 129 x 122 x 66mm<br>5 x 4.8 x 2.6"      | EN567<br>EN12841B         | S       |
|       |  | SOB                          |        | £59<br>\$74<br>€67                         | 138g<br>4.9oz | 107 x 80 x 30mm<br>4.2 x 3.2 x 1.2"     | EN567<br>EN12841B         | S       |
|       |  | STEIN                        |        | £42<br>\$53<br>€49                         | 130g<br>4.6oz | 116 x 75 x 24mm<br>4.6 x 3 x 1"         | EN567                     | S<br>St |
|       |  | US CLIMB                     |        | £61<br>\$75<br>€70                         | 159g<br>5.6oz | 101 x 88 x 33mm<br>4 x 3.5 x 1.3"       | EN567<br>UIAA             | S       |
|       |  | WILD COUNTRY                 |        | £60<br>\$75<br>€68                         | 62g<br>2.2oz  | 55 x 36 x 31mm<br>2.1 x 1.4 x 1.2"      | EN567<br>UIAA             | Ho      |
|       |  | WILD COUNTRY                 |        | £65<br>\$81<br>€75                         | 92g<br>3.25oz | 55 x 36 x 31mm<br>2.1 x 1.4 x 1.2"      | EN567<br>UIAA             | Ho<br>S |
|       |  | XINDA<br>(BINFEN<br>OUTDOOR) |        | £22<br>\$27*<br>€25                        | 112g<br>3.9oz | 102 x 72 x 32mm<br>4 x 2.8 x 1.3"       | EN567<br>UIAA             | S<br>S  |
|       |  | XINDA<br>(BINFEN<br>OUTDOOR) |        | £18<br>\$22*<br>€21                        | 150g<br>5.3oz | 115 x 75mm<br>4.5 x 3"                  | EN567                     | S<br>S  |
|       |  | XINDA<br>(BINFEN<br>OUTDOOR) |        | £21<br>\$26*<br>€24                        | 150g<br>5.3oz | 115 x 95mm<br>4.5 x 3.7"                | EN567                     | S       |



# HAND & CHEST ASCENDERS

| MATERIALS<br>ALLOY SHELL<br>CAM   | CAM | ROPE<br>DIAM<br>RANGE | WLL/<br>MBS                       | (Bottom)<br>EYE<br>DIAM | CAM-PARK | ANTI-CAM<br>INVERT | SERIAL<br>NO | HAND/<br>BASIC | CHEST/<br>offset | LEFT<br>COLOURS | RIGHT<br>COLOURS | NOTES   | WWW.                             |
|-----------------------------------|-----|-----------------------|-----------------------------------|-------------------------|----------|--------------------|--------------|----------------|------------------|-----------------|------------------|---|----------------------------------|
| Stamped Alu<br>Alu                |     | 9-13mm<br>3/8-1/2"    | 4kN<br>899lbf<br>14kN<br>3147lbf  | 13mm<br>0.5"            | ■        | ■                  | ■            | ■              | ■                |                 | ■                | Skylotec Germany owns Anthron Slovenia. Anthron brand-name being phased out. Also rebadged by 'Skalt' | skylotec.com<br>(anthon.si)      |
| Stamped Alu<br>Alu                |     | 8-13mm<br>5/16 -1/2"  | 140kg<br>308 lb                   | 13mm<br>0.5"            | ■        | -                  | -            | ■              | ■                |                 | ■                | Integral shackle-eye  | skylotec.com<br>(anthon.si)      |
| Stamped Alu<br>Alu                |     | 10-13mm<br>3/8 -1/2"  | 100kg<br>220 lb<br>4kN<br>899lbf  | 21mm<br>0.8"            | ■        | ■                  | -            | -              | ■                | ■               |                  | Updated version still listed by SOB as 120g? Verify certification                                     | cnsob.com                        |
| Stamped Alu<br>Stainless Steel    |     | 9-13mm<br>3/8 -1/2"   | 140kg<br>308lb<br>2.5kN<br>562lbf | *17mm<br>0.7"           | ■        | -                  | ■            | -              | ■                | ■               |                  | Also rebadged by Checkmate, WestfallPro and others. *17 x 21 mm                                       | steinworldwide.com               |
| Stamped Alu<br>Alu                |     | 8-13mm<br>5/16 -1/2"  | 4kN<br>899lbf                     | 18mm<br>0.7"            | ■        | ■                  | -            | -              | ■                | ■               |                  |   | usclimb.com<br>climbclean.com.br |
| Hot-Forged Alu<br>Alu             |     | 10-13mm<br>3/8 -1/2"  | 400kg<br>880lbf                   | 13mm<br>0.5"            | ■        | -                  | -            | ■              | -                |                 | ■                |   | wildcountry.com                  |
| Hot-Forged Alu<br>Stainless Steel |     | 8-13mm<br>5/16 -1/2"  | 400kg<br>880lbf                   | 13mm<br>0.5"            | ■        | -                  | -            | ■              | -                |                 | ■                | There was also a Ropeman mk3, narrower than the mk1/2 but was discontinued                            | wildcountry.com                  |
| Stamped Alu<br>Stainless Steel    |     | 8-13mm<br>5/16 -1/2"  | 150kg<br>331lb                    | 20mm<br>0.8"            | ■        | -                  | -            | ■              | ■                | ■               | ■                | Fold-down safety catch keeps it out of the way. Hardened frame coating                                | xindaoutdoor.com                 |
| Stamped Alu<br>Stainless Steel    |     | 8-13mm<br>5/16 -1/2"  | 150kg<br>331lb                    | 20mm<br>0.8"            | ■        | -                  | -            | -              | ■                | ■               | ■                | No hardened coat - regular anodizing  | xindaoutdoor.com                 |
| Stamped Alu<br>Steel              |     | 8-13mm<br>5/16 -1/2"  | 150kg<br>331lb                    | 20mm<br>0.8"            | ■        | -                  | -            | -              | ■                | ■               | ■                | Hardened frame coating & enhanced safety catch ■ allows release when jammed. See CT models            | xindaoutdoor.com                 |
|                                   |     |                       |                                   |                         |          |                    |              |                |                  |                 |                  |   | Expansion Row                    |
|                                   |     |                       |                                   |                         |          |                    |              |                |                  |                 |                  |   | Expansion Row                    |



# PETZL TREE CARE SOLUTIONS

The job of an arborist is like no other. Accessing and moving through the branches of a tree requires unique skills, techniques and equipment. Petzl provides class leading equipment solutions so that teams like Canopée Verticale and Libert'Tree, shown here pruning a tree in Annecy, France, can be highly efficient in their work.



A tree care solution that includes a STRATO VENT helmet with a nape protector and VIZEN MESH face shield, EJECT friction saver, SEQUOIA harness, ZIGZAG PLUS and FLOW 11.6 mm rope. [petzl.com](http://petzl.com)



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# LEVER CAM ROPE GRABS



all-steel construction, often having tandem cams (rather than the single cam in this guide) and being the size and weight of a small planet. Such mobile fall-arresters often require a very specific rope brand and model and are not certified to operate on anything else. Not all are steel, the *Buck 5004T* Rope Grab (right) is alloy but **we have not included any of these industrial-specific mobile fall arresters**. If you are tempted, because your mate in the power company gave you one, it would flag up to rival companies that you don't have the most appropriate gear for the job. Over the years and particularly thanks to the arb industry, the term 'rope grab' has come to mean any cam-&- shell device which 'grabs' and holds a rope. This is despite the fact that it would be a fatal mistake to think that all devices now called a rope grab can act as a fall arrest device. It is in fact, far better to assume that NO Rope grab can be used for fall-arrest unless it specifically says so in the instructions or meets EN 353-2 for mobile fall arresters.

A lever-cam rope grab comprises a cam 'shell' or frame (which is basically a rope channel) and a pivoting cam with a connection eye that, when loaded, rotates onto the rope and squeezes it between the cam and the frame. The frame may have a 'relief' channel or scalloping which allows part of the rope to escape the cam-frame squeeze-point which might otherwise result in complete severing of the rope if overloaded. Most cams are cast or milled aluminium with a hardened coating to prevent undue wear. They have transverse ribs and ridges running across the face of the cam to increase grip on the rope without the aggression of teeth which is why they are generally more suited to high-loads and hauling.

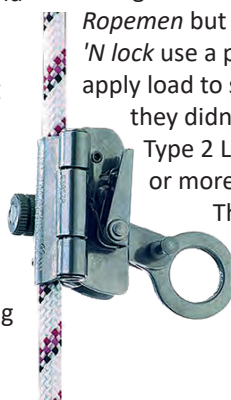
Very distinctive in appearance, this group of 'ascenders' is more often called 'rope grabs' these days. Despite their origin as ascenders, lever cams are not often used as ascenders for progressive ascent of a fixed rope except in caving. Instead they are mostly used in tree work for:

- **Haul-Cam and Progress capture** in haul systems. NB: Progress-capture only requires it to hold the weight being hauled but a haul-cam can be subjected to many times the actual load because of the input forces of the haulers and the mechanical advantage of the system which inevitably adds friction to the effort. Consider using a load cell to monitor your input forces and loads.
- **Flipline/Pole-Strap, Lanyard or rope length adjuster** which will never load the cam beyond your single bodyweight and often not even that since the arborist only leans against the strap rather than hanging on it. Unless you slip.
- **Work positioning/safety** - which might include ascending and fall arrest. This will/may take full bodyweight in a vertical system and could take a small shock load in the event of a slip or primary system failure.

The term 'Rope grabs' was originally used for industrial fall arresters like the *Komet Altochute/StickRun* (right), some of which function and look like a knobbly *Gibbs*-style ascender but are usually quite obviously different thanks to mostly being

These devices are further defined and distinguished from regular frame ascenders, by the guru of hardware Doc Storrick, as type 1 and type 2 Lever Cams because the cam is levered against the rope directly via your loading rather than indirectly via the frame as with a standard ascender. Indeed, it's Storrick that first took issue with some companies calling their devices a rope grab when it was clearly a type 1 Lever Ascender! I think he's now firmly lost that battle but it doesn't mean he wasn't right to raise the point in the early days. Within this category there are a sub-section of mini, emergency ascenders like the *Petzl Tiblock* and *Skylotec Ringo* which are technically not type 1 lever cams but they work by directly loading the cam as a single component with the body so it's close enough for us. The original mini ascenders were of course the *Wild Country Ropemen* but these and the *Kong Duck* and *Skylotec/CT Roll 'N lock* use a pivoting cam and it's the frame you initially apply load to so would be in with Basic/Hand Ascenders if they didn't have their own guide to PCs.

Type 2 Levers are where a completely smooth 'cam' or more accurately 'bar' is loaded against the rope. The frame itself further pivots to create further contact with the rope at the top. The *Petzl Shunt* (7) is the original proponent of this design and having once ruled the rope access



# ROPE GRABS



world it is now largely confined to the sports catalogue. See Emag#22 for discussion of the *Shunt's* revised capabilities as of 2011. Despite the multi-roles it had when first introduced, the *Shunt* is now sold only as an abseil/rappel backup device. However, it can obviously still function as an ascender. Uniquely in this Guide, the *Shunt* can operate on two ropes but had slippage issues at moderate to high loads which needed to be mitigated or accounted for in your rigging or system set-up. The *Shunt's* baton was taken up by the *Brazilian Safetec Duck* (6) and *Enforcer* models. Unlike a type 1 lever cam, the frame on a type 2 can be rotated by hand against the force of the pivot to lessen the holding force. Not something you would necessarily want to do much but it better demonstrates the difference between type 1 and type 2 lever cams.

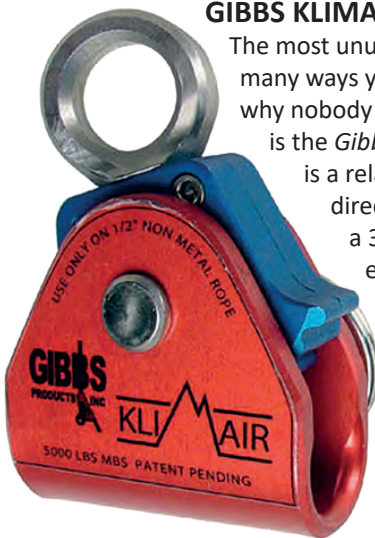
The granddaddy of all manufactured lever-cam ascenders is the *Gibbs* (2). This was introduced in 1965 by brothers Charles and Peter Gibbs, Charles the inventor, Peter the manufacturer but both were prominent cavers. They were soon adopted by mountaineers and then by rescue for a whole range of applications that they weren't necessarily designed for. In the latter part of the last century their use in rescue tailed off in favour of other emerging devices because some high load applications caused the cam to severely damage, if not sever the rope. That's why you see all the non-sport models with a 'NOT FOR SELF BELAY' inscription. In European standards terms this can be a little confusing because EN567 for ascenders/rope clamps defines 'self-belay' as a constituent requirement for any ascender to meet, not because it is a fall-arrest device in the sense of the afore-mentioned EN353-2 standard, but because the climber may slip or accidentally release an ascender during climbing and fall back onto it - we would probably call that fall-arrest but UIAA defines it as self-belay. Despite this being more of a user-problem in terms of using the correct *Gibbs* for the correct application, the *Gibbs* was eventually swamped by competitors, most notably *Rock Exotica's Rescucender* (5). We considered this to be the finest lever-cam ascender on the market at that time and *CMC's Ascender* (4) obviously shares some ancestry. Prolific ascender-makers *CMI* introduced their renowned hardened cams to an extensive lever-cam range of *RopeWalkers* which are quite striking in appearance (1) and have sold well into the arborist industry with tough stainless steel models. *Rescucenders* were eventually bought by *Petzl* who discontinued the original design (5) but continue to work some magic with the design producing perhaps the most complex *Rescucender* model to date. (3).

Back to *Gibbs* devices which never went away and having expanded their range in the 1980s and 90s to take in rescue-sized ropes from 1/2" to 3/4" they began to find new markets in treework and rope access in the early 2000s as well as continuing to service traditional caving, mountaineering and rescue. Key differences between models are shell material - alloy or stainless steel, rope capacity, whether the device is detachable via a spring pin or bolted and needs to be fed and whether it is has free running or sprung cams or both. The former relies on loading the cam to hold rope position while the sprung cam automatically pushes the cam



onto the rope so that it holds position even with no load. The heavier-duty models have thicker shells and greater clearance for increased rope diameter variations as well as high load applications. *Gibbs* are an iconic design in the rope industries little changed in over 50 years and still recognisable in many models with their webbing cam/release pin attachments. They continue to rank as by far the largest range of lever-cam rope grabs in the world with 11 models which seem to alter in some way on a frustratingly regular basis, always the way with genius inventors!

**GIBBS KLIMAIR**



The most unusual model and in many ways you have to wonder why nobody else ran with this, is the *Gibbs Klimair*. This is a relatively small bi-directional model with a 360 degree swivel eye and removable axle-pin. Instead of mounting the cam eccentrically so that the cam will only allow rope to feed in one direction like every other lever-cam, the *Klimair* has it centrally mounted like a see-

saw, able to pivot both ways with ribs along the entire quadrant to grip the rope in either direction but missing in the middle section so as to allow rope to run through. This is most often used on flielines/lanyards/pole-straps where you might otherwise use a small prusik cord as that is also bi-directional. A double rope length with a hook on both ends enables you to create two flielines on the same lanyard, usually called a 2-in-1 utilising a 2-way prusik. You can bypass branches while remaining attached at all times by throwing the tail around the trunk above the branch and clipping back to your harness side-D while your lower pole strap is still connected. Take your weight in on the top rope long enough to release the bottom eye and slide the prusik/*Klimair* up the rope until it can take your weight again. You are never fully disconnected and the *Klimair* is able to take load one way as the lower strap and then the opposite way on the upper strap. Despite loading both ways the cam will slide when de-weighted with the cam either centrally positioned or you thumb the cam against the direction of travel. The *Klimair* is the only rope grab from this guide also listed in the lanyard adjuster/rope shortener guide

Don't be fooled by the delineation of Gibbs models into Sport, Rescue and Arborist models. Arborists usage will cross into all three Gibbs Categories so, apart from the *Klimair* and bolted models intended more for flip lines/lanyards, use the data in the tables to decide which model best suits your requirements.

**CAM RETENTION**

For novices, the most confusing thing about a lever cam device apart from the *Gibbs Klimair* is making sure that when you disconnect the cam to insert the rope, you put it back the right way up! The cam and locking pin are always connected to the shell in some way so that you can't lose them, either by a wire, webbing or small chain. Of these, the stiffer wires which act as springs to hold the cams positions on the rope, tend also to orient the cam the right way. But not always. If there's enough wire/cord/tape you will be able to accidentally flip the cam upside down as in this ISC demonstration (right).

*Petzl's* re-imagining of the *Rescuecender* (3) uses a retractable, solid connection which only allows you to reconnect the cam the correct way up.



As just mentioned, the wire loop you see on most cams not only keeps the cam connected, it also acts as a



spring to maintain enough load on the cam to hold it in position on the rope when not loaded. With no spring, the cam is effectively free-running and this means it doesn't have to be manually moved down a rope as it will slide when it is not loaded. This mode of operation is a consequence of its use as a back-up device when climbing/abseiling. The fact that a device has a free-running function implies that it is suitable for fall-arrest but this is not a wise assumption with any camming device - check suitability.



By far the commonest connection for removable cams is a pip-pin or push-pin as in the *USClimb* and *SE Peak* (rebadged as *Lixada*) models above.

Earlier we mentioned the sprung and free-running options with some models allowing both options in the one device so we'll use the *Gibbs* usage description for converting a sprung cam to a free-running cam to also serve as instruction on the push



# ROPE GRABS

www.arbclimber.co.uk



pin and before that, *Lixada's* rebadged SE Peak model has a useful visual guide and you can see how the stiff wire on the cam helps keep it properly oriented so you don't put it back upside down although that's always possible.



### GIBBS Pin-use & sprung to free-running conversion

*Assembly:* Depress button on pin and pull pin out until cam swings free.

*Place Ascender on rope and align holes in cam and shell.*

*Depress button and insert pin.*

*Convert to Free Running Mode:*

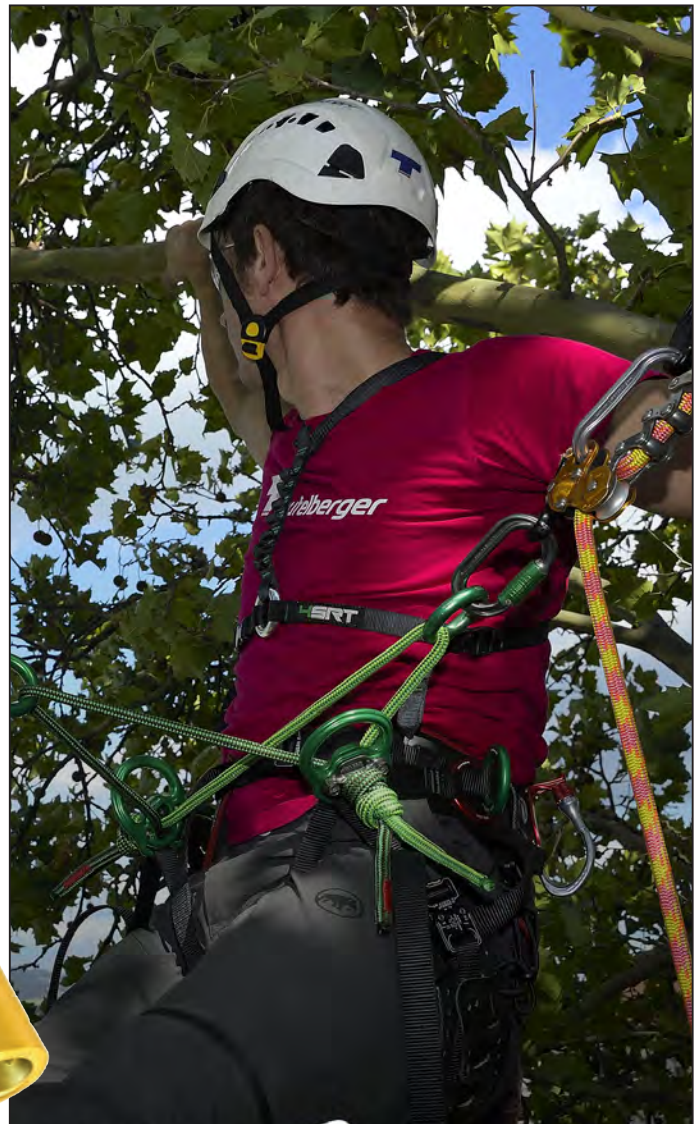
*Remove the small screw in the black or white spring cover. The spring will rotate freely.*

*Do not remove the screw in the cam. Do not try to remove the spring.*

*Reconvert to Spring Loading: Hold cam down and re-insert screw in spring cover.*



Our all-time favourite (and that's very subjective) *Rock Exotica Rescuer* shown on page 121 used a fixed sprung pin to keep the cam pin in place similar to the *PMI Grip* (8). While there was definitely no risk of losing that and it protruded far less than a large pip or push-pin it does represent an extra action since there is still a removable pin acting as an axle. Hugh Banner's *HB* cams (which we managed to bend the eyes of in testing) are no longer with us but the *SMC/PMI Grip* is an evolution of those models with the same sprung pin retention and gentle body-curves. Aside from the many *Gibbs* models, the models we see the most in 2020 are the *CM1 Ropewalkers* (1) discussed earlier and the *ISC RP Grabs* (9) adopted by a number of other manufacturers/distributors like *Stein* and *Courant* because they're well made and there's often no point in reinventing the wheel.



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**CAM EYE MODIFICATIONS**

We've already mentioned the *Gibbs Klimair* with its (so far) unique swiveling eye but there are some with a fixed eye that has been rotated 90 degrees to the norm. *Rock Exotica* have their *RockGrabs 90* (pic bottom), while the *BuckGrab* (inset bottom) was the first to patent the 90 degree eye. The reason for the offset is to help the device lie flat



**CHINESE & RUSSIAN**  
As always we have to add a proviso about Chinese and Russian manufacture. The Chinese continue to increase their ranges in any given market sector of the rope access market by supplying an off-the-shelf and often extremely

and in the same plane as the connecting carabiner.



well made product that can be rebranded. But not always 'well-made' and not always with appropriate standards despite the markings on the product. In fact, *Lixada's AZW031* grab which is the same as *Xinda's XD-Q9666* was omitted because its picture had EN341 stamped on it which is a descender standard; that may be a typo but it doesn't inspire confidence. We've seen other ascenders with a carabiner (connector) standard printed on them. *Xinda* also annoyed us a while back with some ridiculously poor safety helmets that clearly didn't meet their labelled standards and this has again made us wary of their products but, as we see with their chest ascender they do have some unique designs. We haven't included their *Gibbs* look-a-like under their name but Spanish company *Climax* sells it as the *Otto* so it has been included because we should be able to trust their certification since they would need to meet EU standards as a member of the EU.

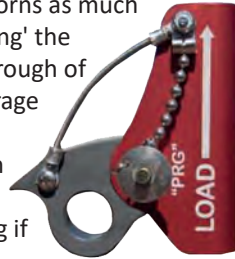
This negates the need for a twisted shackle used by some including the arborist in the image above but it does mean they may apply cross-gate loading if you try to use a standard carabiner in conventional ascending mode. Adverse **torque on the carabiner and cam-eye is something to look out for with the relatively 'thick' profile of many lever cams.**



Something else you may notice on one or two cams is an extra horn emanating from the carabiner eye as part of the cam assembly. This has been adopted by *Petzl* on the *MicroGrab* pictured left as a much bigger feature than on one of the original innovators, Jerry Smith's now discontinued *PRG* (right) from 2008.

*ProClimb's* uniquely rubber-covered-333 (pic inset top), the *Russian Krok* and both Chinese *Xinda/Lixada* models also have these horns as much larger features. It makes 'thumbing' the cam for downward movement or pulling through of rope a little easier thanks to increased leverage and a larger surface contact area. This is particularly useful when adjusting length on a pole-strap or lanyard, when resetting the haul ready for another pull or downclimbing if ascending.

*ProClimb's* uniquely rubber-covered-333 (pic inset top), the *Russian Krok* and both Chinese *Xinda/Lixada* models also have these horns as much



**IN THE FOLLOWING TABLES additional to the notes on page 98.....**

**FOR ALL ASCENDERS & GRABS, THE OPTIMUM ROPE SIZE IS IN THE MIDDLE OF THEIR QUOTED ROPE RANGE ESPECIALLY FOR HIGH LOADS**

**DIMENSIONS**

As usual this is **HEIGHT** by **WIDTH** by **DEPTH** (**SPAN** measured from **SIDE-to-SIDE**) but not everyone quotes the depth/thickness. The terms width and depth can be a bit confusing because they are interchangeable. For our purposes, the width is measured from the back edge of the cam shell to the front of the carabiner eye. The Depth we renamed **SPAN** and is the side-to-side measurement as you look at the cam-face. Some manufacturers may just be quoting the cam enclosure without any bolt-heads. We have therefore given two figures in many cases - the first is just the cam enclosure/frame without any pins or bolts and the second figure in **burnt orange** is the length of the bolt or pin eg. 26/**67**mm which is always more than just the cam enclosure. Some, like the *Rock Exotica* models (pic left) don't have any bolt heads; the bolt is flush to the frame and kept in place by a locking pin through the frame. Height can also be an optical illusion because we expect this be the greater figure but some are wider than they are tall - the *ISC 203/209* for instance is 20mm wider than it is high.





## STANDARDS

Once again, some of the load figures are artificially low because they simply reflect the standards requirements NOT the actual capabilities. It is the European standards that best define the capabilities of different types of ascender/cam although the US NFPA does at least narrow your options to ONLY the most applicable available to North American rescue users which is often a great indicator of tough gear for arborists.

- EN353-2 - Mobile Fall Arrest
- EN358 - Lanyard adjuster
- EN12841 typeB - Industrial ascender
- EN567 - Sport Ascender
- EN365 - Generic PPE Fall Protection

**EN12841 type B** - and **EN567** are ascender standards but EN567 is just for sport/climbing ascenders and does NOT include a fall test. However, this doesn't necessarily mean that EN567 ascenders are less applicable to arborists because the fall test for EN12841-B incorporates a 'dynamic lanyard' or shock absorber which is routinely used in rope access but not yet (if ever) by arborists. Despite being an 'ascender' standard some devices like the *Rock Exotica Rockgrabs* tested to EN567 are NOT intended to be used as ascenders.

**EN365** is a generic standard for fall arrest PPE maintenance and marking etc. so most rope grabs would meet it and is rarely quoted other than in paperwork.

Many of these lever cams are shown as meeting only one or two of these specific standards and we often find that devices of pretty much the same design and load rating show different standards - this is almost certainly down to the market that the manufacturer sees for the device rather than the actual capabilities. There's no doubt that most EN353 and 358 models without an offset eye would function adequately as ascenders. However, in these days of litigation you may need to prove it is 'Fit-for-Purpose' if a device doesn't show your required standard. One thing to note, as with hand and chest ascenders is that the minimum and maximum rope diameters quoted should largely be avoided except for special purposes. Thinner rope may tend to slip more readily and larger ropes may be damaged more easily under high load.

## FIXED & DETACHABLE

Very few, if any rope grab cams are truly fixed - they will all detach but here we use 'FIXED' to describe a bolt requiring tools to dismantle and 'DETACHABLE' to describe a spring-release pin easily removed by hand.

## USES

**LANYARD ADJUST** is LENGTH ADJUSTING for longer lanyards or FLIP LINE/POLE STRAP. Any camming device, whether it's an ascender or a descender or both, will function as a length adjuster on a lanyard or flip line. Here we are primarily concerned with flip-lines/pole straps because the longer work positioning lanyards use length adjusters which pay-out under load AND take in. Ascenders/rope grabs only take-in unless you fully release the cam which is dangerous, so are best suited to short lengths on your pole strap around the main trunk. Many arborists use their longer lanyards as a pole strap but bespoke



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fliplines often have a wire core to resist being cut in what is a high risk place to be during cutting.

Just to reiterate, every ascender or rope grab within this category will function as a polestrap/flipline adjuster but some are more compact and some simply do it better. We listed the bolted models with an orange box as MOST appropriate because they are more compact than pip-pin models. The *Fusion Puma* model below clearly shows how a sprung pin or pip-pin can virtually double the width of the device. Bolted devices fed onto the rope or flipline can't subsequently be accidentally removed from the rope or reconnected incorrectly. If you're on a budget that might be seen as a disadvantage because you can't multi-task your kit! Nevertheless the more compact rope grabs are far better in this role than, for instance, a huge-great handled ascender, they're easier to feed through more rope and they usually have a ribbed cam rather than teeth so are kinder on your rope and again rope is more easily paid out without continually 'catching' or snagging on the teeth. Those devices designed primarily as flip-line adjusters/rope shorteners, are also at the least expensive end of the spectrum. That's not to say they're not well made but if it costs less than \$50 it's probably not what you want as a critical component for hauling or ascending.



one of their many devices is NOT to be used for self belay though they don't make the distinction between ascending and self-belay - see our notes below. Also on hauling, if you're creating a haul system from components it is easier to do this with a detachable

rather than fixed cam where the rope needs to be fed through the device or you have to unbolt it.

**ASCENDER:** This is a tricky one because any camming device can be used to ascend but not all are suitable. Ascending requires the device to be loaded with a single bodyweight with careful weight transfer to an anchored rope with *no shock load*. However, some, like the offset-eye models by *Rock Exotica* and *Buckingham*, specifically *preclude* ascending because their eyes are more susceptible to carabiner torquing. Two instances when shock-load can occur are.....

1) when you sit back down or load an ascender you have just moved and do it too harshly - you may even 'fall' back onto it during reset instead of a controlled loading. This creates increased shock or impact force at the cam-rope interface and will be exacerbated when you are fatigued.

2) Failure of one of two cams being used or one fails to grip properly and slips down the rope or you accidentally remove it from the rope. In any of these cases you may 'fall' onto the second ascender applying a shock load that might be similar to SELF BELAYING described below. This obviously isn't intended and isn't the ascending perfection that ascenders/grabs prefer but virtually all can cope well enough.

**HAUL:** hauling includes two distinct tasks for cams -

1) **HAULING**, as with the *Rescuender* above in a simple 3:1 pulley system. This is where the cam moves with the rope, physically grasping the rope while the mechanical advantage or pulley system pulls it in, usually with the help of ground-crew pulling the end of the rope.

2) **PROGRESS CAPTURE DEVICE (PCD)** where the cam is in a fixed position so it doesn't move while rope is pulled through during hauling but then holds the load when the haul system stops taking in for rest or if the rope were to be accidentally released. It stops you losing the rope and losing the progress made during hauling. Haul cams may be subjected to much higher forces than the progress capture cam. These days there are a number of dedicated PCD's with integrated pulleys like the Petzl Traxion and larger more complex models like the SMC Advanced Tech HX. These negate the need to use a separate cam as a PCD and are called **PCPs**, most being usable as a stand-alone pulley. Smaller PCDs that function as ascenders as per EN567 have been included in the PCP Guide since they load via the frame as well as the cam but they are designed specifically to be used as part of a pulley system rather than for ascending, indeed, most of them can operate just as a pulley with the cam detached. Again, hauling is a rather arbitrary category since ALL ascending devices will haul up to their given load ratings. However, some, like the *Gibbs*, have reinforced cam-shells to better cope with high CONSTANT loads. That strength does not translate to dynamic loading though. *Gibbs* are at pains to point out when

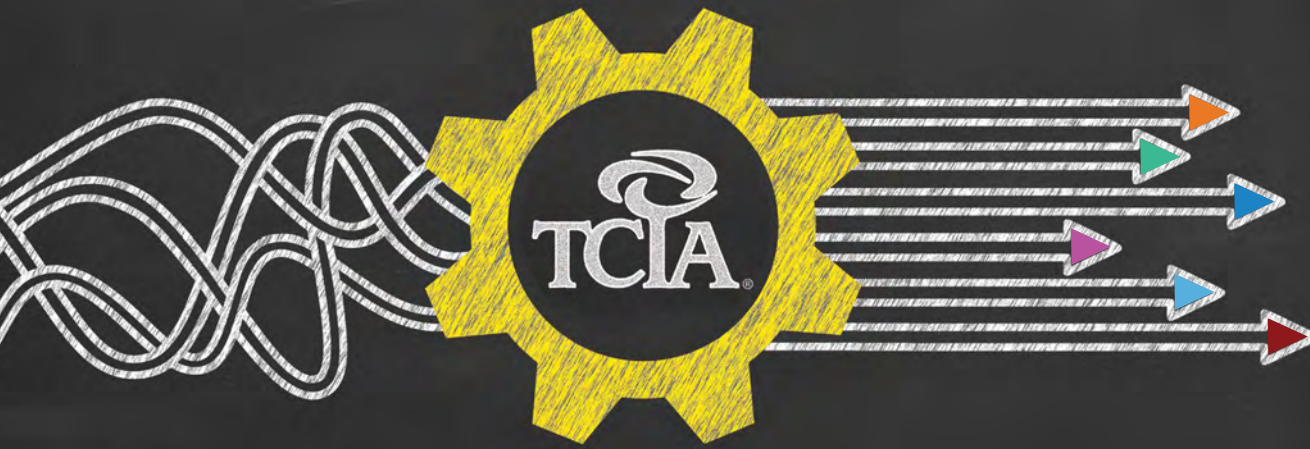


Fusion Climbing's Puma shows the rope channel that stops the cam from completely severing a rope if overloaded

**SELF BELAY** differs from ASCENDING in that the device is intended to follow you up the rope (or you move it up manually) while you are climbing and it will arrest you should you fall. There is often a period of climbing when slack develops between you and the cam and if you fall, the cam will be shock loaded albeit mitigated by stretch in the rope above the device which will absorb a lot of the impact. Nevertheless, this is NOT a mode of use that many ascender manufacturers would recommend or even imply. Following self-belay accidents on *Gibbs SPORTS* ascenders, *Gibbs* placed stern warnings on their devices and added devices to

their range more suited to higher loadings but still NOT self belay. Industrial climbers mitigate this with shock absorbers and some in this list mandate a shock absorber if being used for self belay/fall arrest. The *Climax Otto* is interesting; it's clearly a copy of the *Gibbs* but it comes with a short sling attachment which negates inappropriate torque on a carabiner and is intended primarily as a fall arrester. *Rescuetech1* sell the *Gibbs* with their own short sling attached but not for fall arrest. Don't say we didn't warn you about this whole fall-arrest/self-belay subject. **Double-check your devices suitability.**

Special thanks to Paul Witheridge



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**WLL:** Max Load based on approx 10:1 of MBS  
**/Pin:** 00mm, length of the bolt/pin  
**USES:** ●=OK but not ideal  
 ■=Best Suited to this use

|   | MODEL<br>Product Code                   | COMPANY            | ORIGIN   | COST                  | WEIGHT                     | DIMENSIONS<br>Width x Height x<br>Span-Frame/Pin           | STANDARDS      |
|---|---|--------------------|--|-----------------------|----------------------------|--|----------------|
|    | <b>Rescue Rope Grab</b><br>5000032      | <b>3M DBI-SALA</b> |    | £88<br>\$110<br>€101  | 374g<br>13.2oz             | 98x90x44/ <b>62mm</b><br>3.8x3.5x1.75/ <b>2.4"</b>         | EN567          |
|     | <b>Rescue Grab</b><br>RG10              | <b>AT HEIGHT</b>   |    | £80<br>\$82<br>€149   | 375g<br>13.2oz             | 100 x 100 x 44/ <b>82mm</b><br>3.9 x 3.9 x 3/ <b>3.2"</b>  | EN567          |
|    | <b>Hold Up</b>                          | <b>ATN</b>         |    | £80<br>\$99<br>€92    | 295g<br>10.4oz             | 88 x 90 x 44mm<br>3.5 x 3.5 x 1.7"                         | -              |
|    | <b>BuckGrab</b><br>5004b<br>5004BQ4     | <b>BUCKINGHAM</b>  |    | £117<br>\$145<br>€134 | 172g<br>6oz                | 70 x 73 x 32/ <b>42mm</b><br>2.8 x 2.9 x 1.25/ <b>1.7"</b> | ASTM           |
|    | <b>Otto</b>                             | <b>CLIMAX</b>      |    | £62<br>\$78<br>€62    | 281g<br>9.9oz<br>exc sling | 104 x 78 x 28/ <b>65mm</b><br>4 x 3.1 x 1.1/ <b>2.6"</b>   | *EN353-2       |
|    | <b>Ascender</b>                         | <b>CMC</b>         |  | £83<br>\$103<br>€95   | 252g<br>8.8oz              | 114 x 76 x 25/ <b>58mm</b><br>4.5 x 3x1/ <b>2.3"</b>       | NFPA T/G       |
|   | <b>Ropewalker Aluminum</b><br>NPWRAL    | <b>CMI</b>         |  | £93<br>\$115<br>€106  | 200g<br>7oz                | 102 x 76 x 19/ <b>57mm</b><br>4 x 3 x 0.75/ <b>2.25"</b>   | -              |
|  | <b>Ropewalker Stainless</b><br>RPWRSS   | <b>CMI</b>         |  | £102<br>\$127<br>€117 | 312g<br>11oz               | 102 x 76x19x <b>57mm</b><br>4x3x0.75x <b>2.25"</b>         | -              |
|  | <b>Arborist Ropewalker</b><br>NPWRALARB | <b>CMI</b>         |  | £89<br>\$111<br>€102  | 198g<br>7oz                | 102 x 76 x 19/ <b>38mm</b><br>4x3 x 0.75 x <b>1.5"</b>     | -              |
|  | <b>Rescue Rope Grab</b>                 | <b>CRESTO</b>      |  | £120<br>\$147<br>€135 | 374g<br>13.2oz             | 98 x 98 x 44/ <b>78mm</b><br>3.9 x 3.9 x 1.75/ <b>3.3"</b> | EN567          |
|  | <b>Puma Grab II 12mm</b>                | <b>FUSION</b>      |  | n/a                   | 335g<br>11.8oz             | 113x99x <b>63mm</b><br>4.4x3.9x <b>2.5"</b>                | EN567<br>ANSZI |
|  | <b>Puma Grab II 16mm</b>                | <b>FUSION</b>      |  | n/a                   | 300g*<br>10.6oz            | 113x99x <b>63mm</b><br>4.4x3.9x <b>2.5"</b>                | EN567<br>ANSI  |













# ROPE GRABS

| MATERIALS SHELL CAM                | CAM | ROPE DIAM RANGE                    | WLL/ MBS        | EYE DIAM      | FIXED | DETACHABLE | SERIAL NO. | LANYARD ADJUST | HAUL | ASCENDER | FALL ARREST | OTHER COLOURS | NOTES  | WWW.                |
|------------------------------------|-----|------------------------------------|-----------------|---------------|-------|------------|------------|----------------|------|----------|-------------|---------------|--|---------------------|
| Alu<br>Alu                         |     | 8-16mm<br>5/16 - 5/8"<br><30mm web | 600kg<br>1320lb | 18mm<br>0.7"  | -     | ■          | -          | ○              | ■    | ■        | -           |               |  | 3m.beratertool.de   |
| Alu<br>Alu                         |     | 8-16mm*<br>5/16 - 5/8"             | 140kg<br>309lb  | 22mm<br>0.9"  | ■     | ■          | ■          | ○              | ■    | ■        | -           |               | *or 20-30mm webbing or 4-5mm wire cable  | atheightuk.com      |
| Stainless Steel<br>Stainless Steel |     | 9-16mm<br>3/8 - 5/8"               | n/a             | 17mm*<br>0.7" | -     | ■          | -          | -              | -    | ■        | -           |               | A CMI made sailors' device for mast climbing in a marine environment. #Original version in aluminium *shackle - may vary                 | atninc.com          |
| Alu<br>Alu                         |     | 12.7mm<br>1/2"                     | n/a             | 16mm<br>0.6"  | ■     | -          | -          | ■              | -    | ○        | -           |               | 5004BQ4= Bolt has a split ring option. 90° offset eliminates the need for a locking twisted clevis                                       | buckinghammfg.com   |
| Alu<br>Alu                         |     | 8-12mm<br>5/16 - <1/2"             | 15kN<br>3372lbf | 18mm<br>0.7"  | -     | ■          | -          | -              | -    | ■        | ■           |               | *This is the Chinese 'GM Climbing' model and clearly a Gibbs copy but sold in Europe. by Climax with the extension sling for fall-arrest | productosclimax.com |
| Alu<br>Alu                         |     | 11-13mm<br>7/16 - 1/2"             | *5kN<br>1124lbf | 25mm<br>1"    | -     | ■          | ■          | ■              | ■    | ■        | -           |               | *MBS for 11mm MBS=11kN for 13mm  | cmcpro.com          |
| Alu<br>Hardened Steel              |     | 11-16mm<br>7/16 - 5/8"             | 33kN<br>7500lbf | 25mm<br>1"    | -     | ■          | -          | ■              | ■    | ■        | -           |               | Wired Pip-pin  | cmigearusa.com      |
| Stainless Steel<br>Hardened Steel  |     | 9-16mm<br>3/8 - 5/8"               | 33kN<br>7500lbf | 25mm<br>1"    | -     | ■          | -          | ■              | ■    | ■        | -           |               | Hard-coated cam with lifetime warranty   | cmigearusa.com      |
| Alu<br>Hardened Steel              |     | 11-16mm<br>7/16 - 5/8"             | 33kN<br>7500lbf | 25mm<br>1"    | ■     | -          | -          | ■              | ■    | ■        | -           |               | Stainless Bolt secures cam closed for lanyard use  | cmigearusa.com      |
| Alu<br>Alu                         |     | 8-16mm*<br>5/16 - 5/8"             | 600kg<br>1320lb | 22mm<br>0.9"  | -     | ■          | ■          | ■              | ■    | ■        | ■           |               | NB: intended primarily for use in rescue hauling hence the arrow opposite to ascending direction. Also fits webbing 21-32mm wide         | cresto.com          |
| Alu<br>Alu                         |     | 7-12mm<br>9/32 - <1/2"             | 23kN<br>5170lbf | 24mm<br>1"    | -     | ■          | -          | -              | ■    | ■        | -           |               | DISCONTINUED   | fusionclimb.com     |
| Alu<br>Alu                         |     | 12-16mm<br>1/2 - 5/8"              | 23kN<br>5170lbf | 24mm<br>1"    | -     | ■          | -          | -              | ■    | ■        | ■           | ■             | DISCONTINUED<br>*Larger rope version is lighter because more shell has been removed to fit 16mm rope                                     | fusionclimb.com     |

images approximately to scale  
**COST:** Approx & inc local tax/VAT  
**CURRENCY CONVERSION ONLY.** \* FOB China  
**WLL:** Max Load based on approx 10:1 of MBS  
**/Pin:** 00mm, length of the bolt/pin  
**USES:** ●=OK but not ideal  
 ■=Best Suited to this use

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|---|---|-------------------------|----------------|--|-----------------------|----------------|--|----------|
|    |    | Sport #1                | GIBBS PRODUCTS |    | £50<br>\$62<br>€57    | 195g<br>6.9oz  | 104 x 76 x 63mm<br>4 x 3 x 2.5"                  | -        |
|    |    | Sport #2                | GIBBS PRODUCTS |    | £50<br>\$62<br>€57    | 200g<br>7oz    | 104 x 76 x 63mm<br>4 x 3 x 2.5"                  | -        |
|   |    | Rescue #3               | GIBBS PRODUCTS |    | £65<br>\$80<br>€74    | 236g<br>8.5oz  | 104 x 76 x 28/63mm<br>4 x 3 x 1.1/2.5"           | ANSI     |
|    |  | Rescue/<br>Arborist #3B | GIBBS PRODUCTS |  | £61<br>\$75<br>€67    | 230g<br>11.6oz | 104 x 76 x 28/56mm<br>4 x 3 x 1.1/2.1"           | ANSI     |
|    |  | Rescue #3S              | GIBBS PRODUCTS |  | £61<br>\$75<br>€67    | 331g<br>11.7oz | 104 x 76 x 28/63mm<br>4 x 3 x 1.1/2.5"           | ANSI     |
|    |  | Rescue #3SF             | GIBBS PRODUCTS |  | £61<br>\$75<br>€67    | 331g<br>11.7oz | 104 x 76 x 28/63mm<br>4 x 3 x 1.1/2.5"           | ANSI     |
|    |  | Arborist #3SB           | GIBBS PRODUCTS |  | £61<br>\$75<br>€67    | 320g<br>11.3oz | 104 x 76 x 28/56mm<br>4 x 3 x 1.1/2.1"           | ANSI     |
|  |  | Rescue/<br>Arborist #4  | GIBBS PRODUCTS |  | £66<br>\$81<br>€75    | 310g<br>10.9oz | 104 x 90 x 30/63mm<br>4 x 3 x 1.2/2.5"           | ANSI     |
|  |  | Rescue/<br>Arborist #4S | GIBBS PRODUCTS |  | £66<br>\$81<br>€75    | 425g<br>15oz   | 104 x 92 x 30/63mm<br>4 x 3.6 x 1.2/2.5"         | ANSI     |
|  |  | Arborist #4SB           | GIBBS PRODUCTS |  | £66<br>\$81<br>€75    | 414g<br>14.6oz | 104 x 92 x 30/56mm<br>4 x 3.6 x 1.2/2.1"         | ANSI     |
|  |  | Arborist Klimair B      | GIBBS PRODUCTS |  | £105<br>\$110<br>€103 | 156g<br>5.5oz  | 75 x 50 x 23/32mm<br>3 x 2 x 1/1.2"              | ANSI     |
|  |  | Mini Ropegrab<br>RP203  | ISC            |  | £62<br>\$85<br>€71    | 176g<br>6.2oz  | 65 x 85 x 32/40mm<br>2.6 x 3.4 x 1.3/1.6"        | EN353-2  |

# ROPE GRABS








| MATERIALS SHELL CAM    | CAM   | ROPE DIAM RANGE      | WLL/ MBS                          | EYE DIAM      | FIXED | DETACHABLE | SERIAL NO. | LANWARD ADJUST | HAUL | ASCENDER | FALL ARREST | OTHER COLOURS | NOTES   | WWW.              |
|------------------------|---|----------------------|-----------------------------------|---------------|-------|------------|------------|----------------|------|----------|-------------|---------------|---|-------------------|
| Alu<br>Alu             |    | 11-13mm<br>7/16-1/2" | 11.3kN<br>2550lb                  | 17mm<br>0.67" | -     | ■          | -          | ○              | ○    | ■        | -           |               | single-person load only. Free-running only, no spring option  | gibbsproducts.com |
| Alu<br>Alu             |    | 11-13mm<br>7/16-1/2" | 11.3kN<br>2550lb                  | 17mm<br>0.67" | -     | ■          | -          | ○              | ○    | ■        | -           |               | spring can be removed   | gibbsproducts.com |
| Alu<br>Alu             |    | 11-13mm<br>7/16-1/2" | 22.24kN<br>5000lb                 | 17mm<br>0.67" | -     | ■          | -          | ○              | ■    | ■        | -           |               | spring can be removed   | gibbsproducts.com |
| Alu<br>Alu             |    | 11-13mm<br>7/16-1/2" | 24.02kN<br>5400lb                 | 17mm<br>0.67" | ■     | -          | -          | ■              | ■    | ○        | -           |               | spring can be removed   | gibbsproducts.com |
| Alu<br>Alu             |   | 11-13mm<br>7/16-1/2" | 24.02kN<br>5400lb                 | 17mm<br>0.67" | -     | ■          | -          | ○              | ■    | ■        | -           |               | also called ~3SS and previously called #2SS! spring can be removed  | gibbsproducts.com |
| Alu<br>Alu             |  | 11-13mm<br>7/16-1/2" | 24.02kN<br>5400lb                 | 17mm<br>0.67" | -     | ■          | -          | ○              | ■    | ■        | -           |               | Free-running only - no spring option  | gibbsproducts.com |
| Stainless Steel<br>Alu |  | 11-13mm<br>7/16-1/2" | 24.02kN<br>5400lb                 | 17mm<br>0.67" | ■     | -          | -          | ■              | ○    | ○        | -           |               | spring can be removed   | gibbsproducts.com |
| Alu<br>Alu             |  | 14-19mm<br>5/8-3/4"  | 25kN<br>5650lb                    | 17mm<br>0.67" | -     | ■          | -          | ○              | ■    | ■        | -           |               | #4B (bolted) appears to be discontinued but is an easy retrofit. spring can be removed                            | gibbsproducts.com |
| Stainless Steel<br>Alu |  | 14-19mm<br>9/16-3/4" | 25kN<br>5650lb                    | 17mm<br>0.67" | -     | ■          | -          | ○              | ■    | ■        | -           |               | spring can be removed   | gibbsproducts.com |
| Stainless Steel<br>Alu |  | 14-19mm<br>9/16-3/4" | 25kN<br>5650lb                    | 17mm<br>0.67" | ■     | -          | -          | ■              | ○    | ○        | -           |               | Alloy case version still available from stockists. spring can be removed  | gibbsproducts.com |
| Alu<br>Alu             |  | 11-13mm<br>7/16-1/2" | 22.24kN<br>5000lb                 | 17mm<br>0.67" | ■     | □          | -          | ■              | ■    | ■        | -           |               | Two-way device with swivel. Can run in either direction- locks when loaded. Also available as removable pin model | gibbsproducts.com |
| Alu<br>Alu             |  | 10-13mm<br>3/8-1/2"  | 140kg<br>308lb<br>2.5kN<br>562lbf | 19mm<br>0.75" | ■     | -          | ■          | ■              | ○    | □        | -           |               | Also rebadged by Yates  | iscwales.com      |

images approximately to scale  
**COST:** Approx & inc local tax/VAT  
**CURRENCY CONVERSION ONLY.** \* FOB China  
**WLL:** Max Load based on approx 10:1 of MBS  
**/Pin:** 00mm, length of the bolt/pin  
**USES:** ●=OK but not ideal  
**■**=Best Suited to this use

|   | MODEL<br>Product Code                       | COMPANY                   | ORIGIN   | COST                  | WEIGHT         | DIMENSIONS<br>Width x Height x<br>Span-Frame/ <b>Pin</b>     | STANDARD                           |
|---|---|---------------------------|--|-----------------------|----------------|--|------------------------------------|
|    | <b>Mini Ropegrab</b><br>RP209               | ISC                       |    | £65<br>\$94<br>€82    | 180g<br>6.4oz  | 65 x 85 x 32/ <b>62</b> mm<br>2.6 x 3.4 x 1.3/ <b>2.4</b> "  | EN353-2                            |
|    | <b>Ropegrab</b><br>RP205                    | ISC                       |    | £67<br>\$93<br>€85    | 302g<br>10.6oz | 99 x 98 x 40/ <b>67</b> mm<br>3.9 x 3.9 x 1.6/ <b>2.6</b> "  | EN567                              |
|    | <b>Ropegrab</b><br>RP204                    | ISC                       |    | £62<br>\$79<br>€72    | 299g<br>10.6oz | 99 x 98 x 40/ <b>46</b> mm<br>3.9 x 3.9 x 1.6/ <b>1.8</b> "  | EN567                              |
|    | FA2010300B                                  | KRATOS<br>SAFETY          |    | £67*<br>\$85*<br>€77* | 176g<br>6.2oz  | 62 x 85 x 28/ <b>60</b> mm<br>2.5 x 3.4 x 1.1/ <b>2.4</b> "  | EN353-2<br>EN358                   |
|   | <b>Tibloc 2</b>                             | PETZL                     |    | £32<br>\$48<br>€37    | 35g<br>1.2oz   | 55 x 39 x 22mm<br>2.2 x 1.5 x 0.9"                           | EN567<br>UIAA<br>EAC               |
|   | <b>MicroGrab</b>                            | PETZL                     |  | £84<br>\$80<br>€85    | 150g<br>5.3oz  | 76 x 84 x 36mm<br>3 x 3.4 x 1.4"                             | EN567<br>NFPA-T<br>EAC             |
|  | <b>Rescuecender</b>                         | PETZL                     |  | £96<br>\$110<br>€97   | 260g<br>9oz    | 110 x 82 x 36mm<br>4.3 x 3.2 x 1.4"                          | EN567<br>EN12841B<br>NFPA-T<br>EAC |
|  | <b>Shunt</b>                                | PETZL                     |  | £63<br>\$85<br>€66    | 188g<br>6.6oz  | 110 x 80 x 55mm<br>4.3 x 3.2 x 2.2"                          | UIAA                               |
|  | <b>Grip</b>                                 | PMI                       |  | £70<br>\$86<br>€79    | 190g<br>6.7oz  | 98 x 74 x 35/ <b>47</b> mm<br>3.9 x 2.9 x 1.4/ <b>1.85</b> " | NFPA<br>Berry-<br>Compliant        |
|   | <b>Better-Grab2</b><br>USR-MRG-333          | PRO CLIMB<br>(US RIGGING) |  | £48<br>\$60<br>€55    | 249g<br>8.7oz  | 71 x 90 x 40mm<br>2.8 x 2.5 x 1.6"                           | ANSI                               |
|  | <b>Alu Mini<br/>RopeGrab</b><br>USR-MRG-200 | PRO CLIMB<br>(US RIGGING) |  | £33<br>\$40<br>€37    | 312g<br>11oz   | 74x65x30/ <b>40</b> mm<br>2.9x2.6x1.2/ <b>1.6</b> "          | ANSI                               |






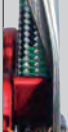







# ROPE GRABS

| MATERIALS SHELL CAM           | CAM   | ROPE DIAM RANGE              | WLL/ MBS                                 | EYE DIAM             | FIXED | DETACHABLE | SERIAL NO. | LANWARD ADJUST | HAUL | ASCENDER | FALL ARREST | OTHER COLOURS | NOTES  | WWW.             |
|-------------------------------|---|------------------------------|--|----------------------|-------|------------|------------|----------------|------|----------|-------------|---------------|--|------------------|
| Alu<br>Alu                    |    | 10.5-13mm<br>3/8-1/2"        | 140kg<br>308lb<br>2.5kN<br>562lbf        | 19mm<br>0.75"        | -     | ■          | ■          | ■              | ■    | ■        | ■           |               | RP201 R-Clip version discontinued. After Nov2017 cord used to retain the pin instead of wire       | iscwales.com     |
| Alu<br>Alu                    |    | 14-16mm<br>9/16-5/8"         | 140kg<br>308lb<br>2.5kN<br>562lbf        | 24mm<br>0.9"         | -     | ■          | ■          | ■              | ■    | ■        | -           |               | RP206 R-Clip version discontinued. After Nov2017 cord is used to retain the pin instead of wire    | iscwales.com     |
| Alu<br>Alu                    |    | 14-16mm<br>9/16-5/8"         | 140kg<br>308lb<br>2.5kN<br>562lbf        | 24mm<br>0.9"         | ■     | -          | ■          | ■              | ○    | ○        | -           |               |  | iscwales.com     |
| Alu<br>Alu                    |    | 11mm<br>7/16"                | 15kN<br>3372lbf                          | 17mm<br>0.6"         | -     | ■          | -          | ■              | ■    | -        | ■           | ■             | *Price includes captive-eye steel carabiner  | kratossafety.com |
| Stainless Steel               |   | 8-11mm<br>5/16 - 7/16"       | 140kg<br>308lb<br>4kN<br>899lbf          | 10-12mm*<br>0.4-0.5" | -     | ■          | ■          | ○              | ○    | ○        | -           |               | Emergency ascender/hauling device<br>*minimum and maximum carabiner bar size to use, not eye diam. | petzl.com        |
| Alu<br>Alu                    |  | 8-13mm<br>5/16 - 1/2"        | 140kg<br>308lb<br>5kN<br>1124lbf         | 16mm<br>0.6"         | ■     | -          | ■          | ■              | ○    | ○        | ■           |               |  | petzl.com        |
| Alu<br>Alu                    |  | 9-13mm<br>3/8-1/2"           | 140kg<br>308lb<br>5kN<br>1124lbf         | 20mm<br>0.8"         | -     | ■          | ■          | ■              | ■    | ■        | -           |               | Red 'unlocked' warning indicator shows when cam is not properly secured                            | petzl.com        |
| Alu<br>Alu                    |  | 8*/10-11mm<br>5/16*3/8-7/16" | #1-8kN<br>225-1800lbf<br>20kN<br>4496lbf | 16mm<br>0.6"         | -     | ■          | ■          | ○              | -    | ○        | ■           |               | *double ropes >8mm<br>Single ropes > 10mm<br># rope dependent                                      | petzl.com        |
| Alu<br>Alu                    |  | 10-13mm<br>3/8-1/2"          | 5kN<br>1124lbf<br>(3Sigma)               | 18mm<br>0.7"         | -     | ■          | ■          | ■              | ■    | ■        | -           |               | Co-Produced with SMC   | pmirope.com      |
| StainlessSteel /Rubber<br>Alu |  | *11-16mm<br>*7/16-5/8"       | 24.02kN<br>5400lbf                       | 16mm<br>0.6"         | □     | ■          | -          | ■              | ■    | -        | -           |               | Rubber coated frame.<br>*min wire core flip-line=13mm,1/2"<br>300 model discontinued               | usrigging.com    |
| Alu<br>Alu                    |  | *11-16mm<br>*7/16-5/8"       | 24.02kN<br>5400lbf                       | 16mm<br>0.6"         | ■     | -          | -          | ■              | ○    | -        | -           |               | *min wire core flip-line=13mm,1/2"   | usrigging.com    |

images approximately to scale  
 COST: Approx & inc local tax/VAT  
 CURRENCY CONVERSION ONLY. \* FOB China  
 WLL: Max Load based on approx of MBS  
 /Pin:00mm, length of the bolt/pin  
 USES: ●=OK but not ideal  
 ■=Best Suited to this use

| MODEL<br>Product Code   | COMPANY                      | ORIGIN  | COST  | WEIGHT                            | DIMENSIONS<br>Width x Height x<br>Span-Frame/Pin | STANDARD                      |
|---|------------------------------|---|---|-----------------------------------|--|-------------------------------|
|       | RG4-90                       | ROCK EXOTICA                                      | <br>£90<br>\$108<br>€103    | 227g<br>8oz                       | 60 x 73 x 32mm<br>2.4 x 2.9 x 1.3"               | EN567                         |
|       | RG2-90                       | ROCK EXOTICA                                      | <br>£84<br>\$98<br>€112     | 142g<br>5oz                       | 60 x 73 x 32mm<br>2.4 x 2.9 x 1.3"               | EN567<br>ANSI                 |
|       | RG2                          | ROCK EXOTICA                                      | <br>£78<br>\$88<br>€112     | 142g<br>5oz                       | 66 x 98 x 35mm<br>2.6 x 3.9 x 1.4"               | EN567                         |
|      | S-008/009                    | S.E.PEAK<br>Shanghai Leidell<br>Ind Co Ltd/NalHon | <br>£77<br>\$50<br>€88      | 180g<br>6.4oz                     | 85 x 77 x 28/62mm<br>3.4 x 3 x 1.1/2.4"          | EN353-2<br>EN358              |
|      | S-010/011                    | S.E.PEAK<br>Shanghai Leidell<br>Ind Co Ltd/NalHon | <br>£77<br>\$50<br>€88      | 172g<br>6oz                       | 85 x 77 x 28/41mm<br>3.4 x 3 x 1.1/1.6"          | ANSI                          |
|      | Duck R<br>T02<br>*T02L       | SAFETEC   | <br>£126<br>\$178<br>€144 | 258g<br>9.1oz<br>*325g<br>11.5oz  | 97 x 73 x 41mm<br>3.9 x 3 x 1.6"                 | EN12841A                      |
|    | Enforcer<br>T03L<br>T03H*    | SAFETEC   | <br>£138<br>\$198<br>€167 | 305g<br>10.7oz<br>*390g<br>13.7oz | 86 x 76 x 42mm<br>3.9 x 3 x 1.6"                 | EN12841A<br>ANSI<br>NBR<br>CA |
|   | Ringo                        | SKYLOTEC  | <br>£54<br>\$87<br>€63    | 52g<br>1.8oz                      | 70 x 40 x 18mm<br>2.7 x 1.6 x 0.7mm              | -                             |
|   | Rope Adjuster<br>1540RB-Bolt | SL TECH   | <br>£27<br>\$33<br>€31    | 181g<br>6.4oz                     | 62 x 85 x 28/40mm<br>2.5 x 3.4 x 1.1/1.6"        | EN353-2<br>EN358              |
|    | Grip                         | SMC   | <br>£73<br>\$90<br>€83    | 190g<br>6.7oz                     | 98x74x35/47mm<br>3.9x2.9x1.4/1.85"               | NFPA                          |

| MATERIALS SHELL CAM                           | CAM   | ROPE DIAM RANGE         | WLL/ MBS                        | EYE DIAM         | FIXED | DETACHABLE | SERIAL NO. | LANYARD ADJUST | HAUL | ASCENDER | FALL ARREST | OTHER COLOURS | NOTES  | WWW.               |
|---|---|-------------------------|---------------------------------|------------------|-------|------------|------------|----------------|------|----------|-------------|---------------|--|--------------------|
| Alu<br>Alu                                    |    | 13.5-16mm<br>1/2-5/8"   | 140kg<br>308lb<br>4kN<br>899lbf | 15.8mm<br>0.625" | ■     | -          | ■          | ■              | ■    | -        | -           |               | 90° offset eye. Despite being EN567 this is NOT intended for ascending because of carabiner torque   | rockexotica.com    |
| Alu<br>Alu                                    |    | 9-13mm<br>3/8-1/2"      | 140kg<br>308lb<br>4kN<br>899lbf | 15.8mm<br>0.625" | ■     | -          | ■          | ■              | ■    | -        | -           |               | 90° offset eye. Despite being EN567 this is NOT intended for ascending because of carabiner torque   | rockexotica.com    |
| Alu<br>Alu                                    |    | 9-13mm<br>3/8-1/2"      | 140kg<br>308lb<br>4kN<br>899lbf | 15.8mm<br>0.625" | ■     | -          | ■          | ■              | ■    | -        | -           |               | Despite being EN567 this is NOT intended for ascending because of carabiner torque   | rockexotica.com    |
| Alu<br>Alu                                    |    | 11-13mm<br>7/16-1/2"    | 15kN<br>3372lbf                 | 16mm<br>0.6"     | -     | ■          | -          | ■              | -    | -        | ■           | ■             | same or similar models 'badged' as Lixada, Side-Up, NTR-Jiangsu, Yundxi etc. S-009=Bolted version  | en.sepeak.net      |
| Alu<br>Alu                                    |   | 11-13mm<br>7/16-1/2"    | 15kN<br>3372lbf                 | 16mm<br>0.6"     | ■     | -          | -          | ■              | -    | ○        | -           |               | 90° Offset eye. S-011 = Sprung pin version -   | en.sepeak.net      |
| Alu<br>Alu or<br>*Stainless Steel             |  | 10.5-11mm<br>7/16"      | 100kg<br>220lb                  | 19mm<br>0.75"    | -     | ■          | ■          | ■              | -    | ○        | ■           |               | Tested to 200kg for rescue at FF:0 or less<br>* Stainless Steel cam is silver, (alu is red)  | safetecbr.com.br   |
| Stainless Steel<br>Alu or<br>*Stainless Steel |  | 10.5-12mm<br>7/16-<1/2" | 200kg#<br>440lb                 | 19mm<br>0.75"    | ■     | -          | ■          | -              | ■    | ■        | ■           |               | * Stainless Steel cam is silver, (alu is red). #Heavy duty - specifically designed for rescue loads. =cam-rop interface in profile                         | safetecbr.com.br   |
| Stainless Steel<br>Stainless Steel            |  | 8-13mm<br>5/16 -1/2"    | -                               | 10mm<br>0.4"     | -     | ■          | -          | -              | ■    | ○        | -           |               | Emergency Ascender/hauling device. Note Skylotec also has 'Ergograbs' only sold as part of fliplines   | skylotec.com       |
| Alu<br>Alu                                    |  | 11mm<br>7/16"           | 15kN<br>3372lbf                 | 17mm<br>0.6"     | ■     | -          | ■          | ■              | ■    | -        | ■           |               | Also a second model with offset lever-cam eye but not enough details  | securitelandry.com |
| Alu<br>Alu                                    |  | 10-12.5mm<br>3/8-1/2"   | 5kN<br>1124lbf<br>(3Sigma)      | 18mm<br>0.7"     | -     | ■          | ■          | ■              | ■    | ■        | -           |               | Co-Produced with PMI   | smcgear.com        |
|   |   |                         |                                 |                  |       |            |            |                |      |          |             |               | Expansion Row  |                    |
|   |   |                         |                                 |                  |       |            |            |                |      |          |             |               | Expansion Row  |                    |

images approximately to scale  
**COST:** Approx & inc local tax/VAT  
**CURRENCY CONVERSION ONLY.** \* FOB China  
**WLL:** Max Load based on approx 10:1 of MBS  
**/Pin:00mm, length of the bolt**  
**USES:** ●=OK but not ideal  
 ■=Best Suited to this use

| MODEL<br>Product Code   |  | COMPANY                       | ORIGIN   | COST                | WEIGHT         | DIMENSIONS<br>Width x Height x<br>Span-Frame/ <b>Pin</b> | STANDARD         |
|---|--|-------------------------------|--|---------------------|----------------|--|------------------|
|    | <b>Climb Right<br/>Fixed Pin Rope<br/>Grab</b><br>85528      | SPYDER<br>MANUFACTURING       |    | £65<br>\$80<br>€74  | 195g<br>6.85oz | 76x70x32/45mm<br>3x2.75x1.25/1.75"                       | ANSI             |
|    | <b>Climb Right<br/>Fixed Pin Rope<br/>Grab Mini</b><br>85568 | SPYDER<br>MANUFACTURING       |    | £62<br>\$76<br>€70  | 166g<br>5.85oz | 64x69x32/45mm<br>2.5x2.7x1.25/1.75"                      | ANSI             |
|    | <b>Climb Right<br/>Rope Grab</b><br>85538                    | SPYDER<br>MANUFACTURING       |    | £73<br>\$90<br>€83  | 207g<br>7.3oz  | 76x70x32/65mm<br>3x2.75x1.25/2.5"                        | ANSI             |
|    | <b>Climb Right<br/>Rope Grab<br/>Mini</b><br>85578           | SPYDER<br>MANUFACTURING       |    | £68<br>\$84<br>€77  | 179g<br>6.3oz  | 64x69x32/65mm<br>2.5x2.7x1.25/2.5"                       | ANSI             |
|   | <b>Rope Grab</b>   | STEIN                         |    | £54<br>\$83<br>€60  | 176g<br>6.2oz  | 65x85x26/40mm<br>2.6x3.4x1/1.6"                          | EN353-2<br>EN567 |
|   | <b>MiniRope<br/>Grab</b>                                     | STEIN                         |  | £48<br>\$75<br>€55  | 166g<br>5.85oz | 64x69x32/45mm<br>2.5x2.7x1.25/1.75"                      | EN353<br>UKCA    |
|  | <b>THRG1</b>   | TREEHOG/<br>ARBOTEC           |  | £45<br>\$60<br>€49  | 180g<br>6.4oz  | 85 x 45 x 22/40mm<br>3.4 x 1.8 x 1/1.6"                  | EN 567           |
|  | <b>THRG2</b>   | TREEHOG/<br>ARBOTEC           |  | £58<br>\$71<br>€64  | 175g<br>6.2oz  | 85 x 45 x 22/60mm<br>3.4 x 1.8 x 1/2.4"                  | EN 567           |
|  | <b>Block</b>   | US CLIMB                      |  | £66<br>\$82<br>€75  | 176g<br>6.2oz  | 85 x 45 x 26/62mm<br>3.4 x 1.8 x 1/2.4"                  | EN 567           |
|  | <b>Block2</b><br>UC1219                                      | US CLIMB                      |  | £83<br>\$103<br>€94 | 374g<br>13.2oz | 98 x 90 x 44/62mm<br>3.8 x 3.5 x 1.75/2.4"               | EN567            |
|  | <b>XD-Q9666</b>  | XINDA<br>(BINGFEN<br>OUTDOOR) |  | £44<br>\$55<br>€49  | 239g<br>8.4oz  | 105 x 85mm<br>4.1 x 3.3"                                 | n/a              |

| MATERIALS SHELL CAM | CAM   | ROPE DIAM RANGE             | WLL/ MBS                          | EYE DIAM      | FIXED | DETACHABLE | SERIAL NO. | LANYARD ADJUST | HAUL | ASCENDER | FALL ARREST | OTHER COLOURS | NOTES  | WWW.                             |
|---------------------|---|-----------------------------|-----------------------------------|---------------|-------|------------|------------|----------------|------|----------|-------------|---------------|--|----------------------------------|
| Alu<br>Alu          |    | 12.7-16mm<br>½-⅝"           | 178kg<br>350lb                    | 19mm<br>0.75" | ■     | -          | ■          | ■              | ■    | -        | -           |               |  | spyderman.com                    |
| Alu<br>Alu          |    | 10-12.7mm<br>⅜-½"           | 178kg<br>350lb                    | 19mm<br>0.75" | ■     | -          | ■          | ■              | ■    | -        | -           |               |  | spyderman.com                    |
| Alu<br>Alu          |    | 12.7-16mm<br>½-⅝"           | 178kg<br>350lb                    | 19mm<br>0.75" | -     | ■          | ■          | ■              | ■    | -        | -           |               |  | spyderman.com                    |
| Alu<br>Alu          |    | 10-12.7mm<br>⅜-½"           | 178kg<br>350lb                    | 19mm<br>0.75" | -     | ■          | ■          | ■              | ■    | -        | -           |               |  | spyderman.com                    |
| Alu<br>Alu          |   | 10-13mm<br>⅜-½"             | 140kg<br>308lb<br>2.5kN<br>562lbf | 19mm<br>0.75" | ■     | -          | ■          | ■              | ○    | ○        | ■           |               |  | steinworldwide.com               |
| Alu<br>Alu          |  | 11-13mm<br>⅞-½"             | 100kg<br>220lb                    | 19mm<br>0.75" | ■     | -          | -          | ■              | ○    | ○        | -           |               |  | steinworldwide.com               |
| Alu<br>Alu          |  | 9-13mm<br>⅜-½"              | 15kN<br>3372lbf                   | 18mm<br>0.7"  | ■     | -          | ■          | ■              | ○    | ■        | -           |               |  | treehog.co.uk                    |
| Alu<br>Alu          |  | 9-13mm<br>⅜-½"              | 15kN<br>3372lbf                   | 18mm<br>0.7"  | -     | ■          | ■          | ○              | ■    | ■        | -           |               | DISCONTINUED   | treehog.co.uk                    |
| Alu<br>Alu          |  | 9-13mm<br>⅜-½"              | 15kN<br>3372lbf                   | 18mm<br>0.7"  | -     | ■          | -          | ○              | ■    | ■        | ■           |               |  | usclimb.com<br>climbclean.com.br |
| Alu<br>Alu          |  | 8-16mm<br>⅝-⅝"<br><30mm web | 600kg<br>1320lb                   | 18mm<br>0.7"  | -     | ■          | -          | ○              | ■    | ■        | -           |               | Larger device which runs on 30mm webbing as well as rope | usclimb.com<br>climbclean.com.br |
| Alu<br>Alu          |  | 8-12mm<br>⅝-⅞"              | 15kN<br>3372lbf                   | 16mm<br>0.6"  | ■     | -          | -          | ■              | ○    | -        | ■           |               | * excludes duty/import taxes & shipping                  | xindaoutdoor.com                 |
|                     |   |                             |                                   |               |       |            |            |                |      |          |             |               |  | Expansion Row                    |



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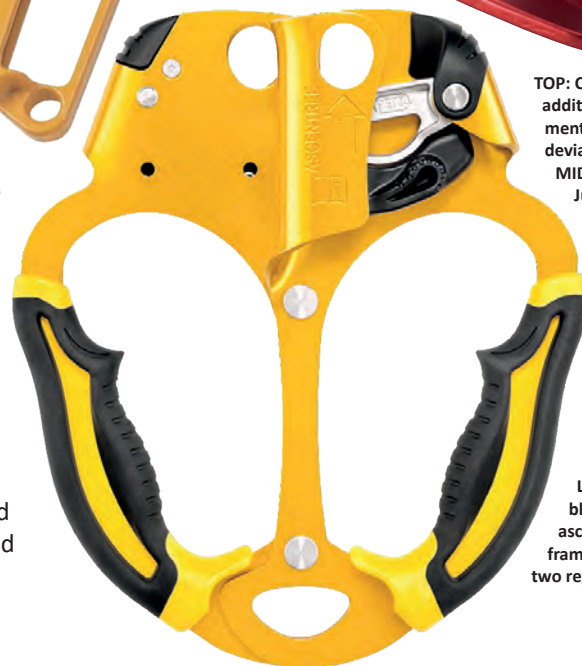
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# HANDLED ASCENDERS

Usually for the history of SRT development, it wasn't the cavers we have to thank for handled ascenders it's mountaineers; this time in the guise of the mythical Swiss *Jumar*. Ascender development actually stems from a handled version before being pared down to the hand, chest and foot variants. *Jumar* was years ahead of its time and is a design that wouldn't look out of place today (inset pic right). The original versions from the 60's were grey but after some failures resulting from weakness in the bottom eye and subsequently the frame when the eye was removed, this evolved into the much tougher, vivid yellow signature colour of the so-called *Jumar 79* after its year of introduction. This became my first handled ascender and they served me well for a decade even while experimenting with others. *Jumar* cornered the market to such an extent that they did a 'Hoover' and turned themselves into a verb, to *Jumar* or *Jumaring* as a more precise description of using a mechanical device to climb a rope. 'Ascending' has become the modern generic term but this could equally describe my Great Grandad taking 3 days to get up a flight of stairs. *Swiss-Rescue* continued to produce a newer version of the *Jumar* and fountain-of-all-knowledge Doc Storricks has a double rope version but I'm not sure if this is a home-made conversion since it uses a single bolt through the middle of two handles (pic opposite) but we couldn't find any contacts or details on *Swiss Rescue/Pewatec's* website so we're guessing they're no longer produced. If they are still produced someone needs to have a word about their marketing, it sucks but it's clear that this model shares a lot of ancestry with *Protekt's Proverti* you're interested. Next on the icon list was the 'Clog', another Denny Moorhouse invention and the first of the plate metal rather than cast and extruded models. He incorporated a wider hand opening to better fit a gloved hand and an ergonomic plastic grip. I'm not entirely sure that the *Jumar* can have pre-dated the *Clog* by much since this too was born in the 60's and carried on until '85 when *ClogWales* was bought by *Wild Country*. Denny then continued the good fight with *ISC* and its own iconic modern ascenders. I used both *Jumars* and *Clogs* for a few years with the *Jumar* hand profile being considerably smaller than the *Clog*. Both *Kong* and *Petzl* launched into the fray in the 80's, *Kong* with some revolutionary ideas including their 'Cam Clean' chest and hand ascenders and *Petzl* with their market-leading handled *Expedition* ascender. I was, by then, an avid *Petzl Stop* user but I bypassed the *Petzl Expedition* in favour of *CMI's Ultrascenders* and then to *SRTe's Explorer* (now *3M/Sala* and may be discontinued) both of which I used throughout the 90s and noughties. Both are ultra hard-wearing, heavy duty ascenders. Not that I'm overweight and likely to tax a standard ascender (at least not back then) but we often pushed the envelope beyond their design and certified loading so it was just more



TOP: CAMP TurboHand Pro with additional guide/eye reinforcement at the bottom and rope deviation roller at the top.  
MIDDLE: The original Swiss Jumar but this very model is still on the Australian 3M/DBI Sala website rebadged as a Rollgliss 'rope-gripping handle'! Opposite Page: Top-The spacious CMI Expedition Twin. Below that is the modern version of a Jumar (doubled in this case) by Swiss Rescue but may already be discontinued.  
LEFT: Petzl Ascendree double handled, double cam ascender with custom-built frame as distinct from bolting two regular ascenders together.

prudent to go with the highest strength options. I haven't yet changed from my trusty *SRTe* system but I do like the *CAMP Turbo* model pictured here and will probably make a last kit-switch to those for what's likely to be my last set of gear before I start trying to beat Great Grandad's stair-ascending record.

## IT'S ALL ABOUT TECHNIQUE

The traditional, and most basic ascending system, pioneered in mountaineering is often called a *Jumar* system later modified into the *Texas Rig*. The *Texas Rig* uses two handled ascenders (or two bootlaces if you're James Bond). One will be attached to a footloop via a length of rope or webbing a few feet long, the other will be attached direct to the sit section of your harness. There should also be a web or rope link between the footloop ascender and the harness as a backup safety in the event of failure or slippage on the harness ascender. In contrast, true *Jumaring* as used by mountaineers was seen by many to be an etrier (tape ladder) attached to each ascender - it might look cumbersome but it gives a great range of options.

If we put aside double rope ascenders discussed separately overleaf, most arborists currently use a single handled ascender together with a foot ascender (or floating knee system) and/or a chest ascender. Chest ascenders are the more common rope access and caving system while foot ascenders are



more common in arb work. Many will use a hybrid auto-locking descender as a second ascender; it creates more drag than a regular ascender but allows rapid changeover from ascent to descent when manoeuvring around a canopy. Whichever system you use, there is one important scientific principal to consider - centre of gravity. If you sit on the floor with your feet out in front of you and you try to stand up what do you do first? On a Saturday night you might simply try to lunge your backside and upper body upwards while your feet are still out in front and wonder why you've smacked unceremoniously back down (everyone else will know why). On a work day, you would bring you feet inwards and as far under your backside as possible before attempting to stand. Foot ascenders can mitigate some degree of poor technique but on the whole, smoothness of progress and conservation of effort is best when you get your centre of gravity right over your feet and you have smooth upward progress of the ascenders WITHOUT pulling the handle out at an angle - keep them straight or they will catch and stall your progress. Everyone should first learn to ascend with a basic Jumar or Texas system because if you can do that efficiently every other ascending system is a piece of cake. On the other hand, if you only ever ascend on something like a full Mitchell 3-phase system with top ascender, chest roller, knee-cam, foot ascender and weird bits of elastic you might come a cropper if you ever need to do a James Bond and use your bootlaces to escape certain death. Don't say we didn't warn you.

### OTHER HANDLED ASCENDER FEATURES

That obvious top eye has traditionally been used to clip a carabiner serving three purposes:

- 1) an added safety to stop the cam enclosure 'unfurling' allowing the cam to invert under high load but these days mitigated by other design features
- 2) to clip a carabiner around the rope thus ensuring the



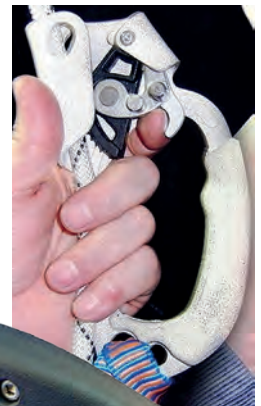
## HANDLED ASCENDERS

ascender cannot detach completely 3) as a hauling aid or to anchor for use in a haul system.

Otherwise, a sprung safety catch now stops the cam from opening wide enough to release the rope. The catch can also be disengaged and parked (CAM-PARK in our tables) by clipping open on the cam enclosure to make it easier to get on and off the rope. However, if it clicks to the disengaged position too easily during use you could be in for a scary drop. You rarely downclimb by releasing the safety catch and should instead press or 'thumb' the cam where sideways and/or downward pressure from your thumb or finger on the cam itself is enough to release the rope but it will then re-engage the second cam if you removed your thumb. For this reason some cams have a more pronounced bottom edge while others have an opening or additional material to facilitate better thumb purchase. The pic above right shows *Black Diamond's Index* with a cam that can be 'thumbed' from both sides; thumb in the normal way and your index finger on the back face, hence the name.



Even more unusual is a supremely Russian answer to a problem you didn't even know existed- what to do when you want to downclimb but are using a right handed ascender as a left handed ascender.....add an extra curved hook thingy to allow you to push the cam off the rope with your trigger-finger. This picture also shows the traditional tie off for webbing by larks-footing the bottom eye(s) as mentioned below.



The *CMI Twin* (pic right) has a pip-pin keeping the cam from opening until you depress the end of the



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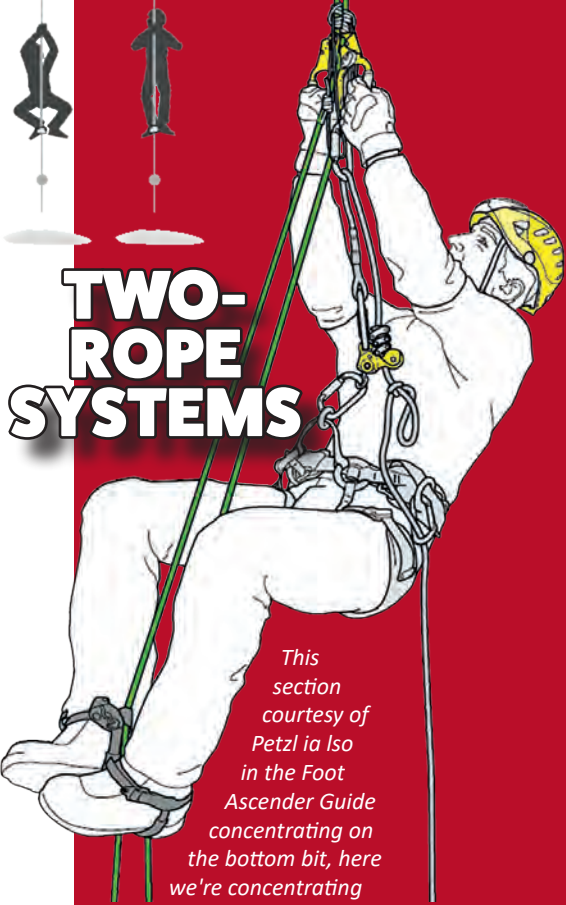
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# TWO-ROPE SYSTEMS

This section courtesy of Petzl ia Iso in the Foot Ascender Guide concentrating on the bottom bit, here we're concentrating on the top bit.....With

the modern emphasis on safety using double ropes, this system, courtesy of Petzl, uses con-joined hand ascenders (backed up with prusiks and attached to the ZigZag for easy direction reversal) and a pair of foot ascenders in a conventional sit-stand method which could become the norm or it may remain on the peripheries of systems actually being used. This system helps complicate the DRT/DdRT and SRT/MRS discussion elsewhere in this issue (as it was in issue 13) because it could be that this climber is on a Double Rope or DdRT where the rope is simply looped over a branch or through a ring(s) on a cambium saver. Or it could be a Double Rope or DRT using two separately anchored ropes. Of course if you really want to get fussy this could be the same rope with two terminations tied in the middle and attached to the same or two separate anchors - does that make it Single Rope Technique because it's one rope and if it's DdRT isn't that defined as MRS or Moving Rope System in the new terminology? But this one is Stationary? In fact, if this is a doubled rope that isn't tied off and the foot ascenders are con-joined in the old inch-worm style, the rope will indeed be stationary. But if two separate foot ascenders are used , a DdRT rope NOT anchored at the top will actually move a little with each step with some small degree of mechanical advantage - so back to an MRS then? My head still hurts from the last time we mentioned all this.



pin and remove it while the *Kong Trender* (pic left) has a carabine hook attached to a short wire to similarly stop the cam disengaging. On both these models, the pin/carbine hook are in addition to the normal cam safety catch that you see on other ascenders and the *Kong* even has a debris trap above the cams so these

seem like quite extraordinary measures. I can't remember if these were on the very first versions and one wonders if there was unintentional cam opening on the first versions that prompted installation of these backups? Nevertheless, for arborists and the greater risk of debris from above opening or jamming the cam, these are reassuring extra measures.

The holes at the bottom are for a carabiner or *Maillon* and usually connect to a footloop. There is often a second hole which can be used to attach a cowstail which would otherwise need to be clipped into the carabiner in a single-hole ascender. In the original *Jumar* designs webbing was wrapped around the frame rather than trusting to a single eye which, in early stamped models was also pretty thin and not so nicely finished as the modern stamping affords. Nevertheless there is no doubt that if you were connecting direct to webbing the strongest option would be the extruded frame models with their wide cross-section rather than the thin plate of a stamped frame. The old *SRTe Explorer* (now *SALA/Rollglis* and unfortunately virtually gone from the market) had a reinforcing ring on one of its two bottom eyes. This not only strengthens the eye and prevents wear, it also makes the eye more textile-friendly for those connecting their foot loop or cow's-tail direct to the ascender without a *Maillon*/carabiner. The extra material around the eye on the *CAMP TurboHandPro* shown in our titles is a stainless rope guide but has a secondary function as reinforcement of the eye; this model also has a roller to allow deviated rope-entry (left) when inverting the ascender as a haul cam. This picture also nicely illustrates the other main use for the bottom eye we were just discussing.



## CHINESE & RUSSIAN MANUFACTURE

Hard to track down and verify are most Russian companies though we have kept *KROK* in. Like Israel they often develop their own incredibly unique and interesting products but unfortunately also copy competitor products far too closely. Currently Russia is a sanctioned state so you couldn't buy their stuff even if you wanted it but there may come a time when their current bizarre dictatorship collapses or is overthrown and they return to a normal democratic state. China is an ongoing problem for us because so many prominent companies in the access and rescue sectors buy in Chinese products to rebadge as their own. We have only recently started including Chinese companies under their own names because some have transparent and comprehensive website and can be contacted for information most notably *Anpen*, *ASAT*. But no sooner had we included *Xinda* products in a previous guide than they were seriously called out by trading standards in the US and Europe for having helmets that were virtually ALL mislabelled as meeting standards that they absolutely did not and it doesn't get any more dangerous than that. In this GUIDE we can be fairly sure that the companies have satisfied themselves of the quality and standards adherence but we remain a little bit sceptical because companies like *Lixada*, *Magideal*, *GM*, *New Doar*, *SOB* and *Xinda* are difficult to track down. We've cautiously included the *Xinda* model because it is well spec'd but don't take that as an endorsement.

# HANDLES & ERGONOMICS

Given the amount of load you'll be applying to the handle it's important that this fits nicely in the hand even with a glove on; provides appropriate grip and remains comfortable when you apply load for a sustained period. The first thing you'll need to ascertain is whether your hand will actually fit comfortably in the gap provided. You will see a number of models with quite prominent finger indents rather than a uniformly round handle grip. Compare the *Climbing Technology* and *ISC* handles above right with the more conventional *Black Diamond* handle above Left.. If they fit your hand then these will offer both comfort and enhanced purchase and efficiency, particularly noticeable when pushing up when you're tiring. The top protrusion is the most pronounced feature on many models and acts in a similar fashion to the hilt of a sword; it stops your hand sliding up the handle and has your index and middle fingers nestled

either side as per the picture on the left. However, in true Goldilocks tradition, if your hand is a little too large or too small these prominent ridges can be uncomfortable. Try

the grip in your stockist - some may even give you the opportunity to apply some weight on rope which is worth doing and comparing. Just because a handle has no Loch Ness monster curves doesn't necessarily mean it's not as good. Many purists will swear by the cleaner lines of a smooth handle and in the case of the *BD Index* top-left, the black inner face is a more tactile material than simply a smooth plastic so they might argue that they provide just as much grip as the green *ISC* handle above, just in a different way.

Other quirkiness in handles comes from *Beal/Edelweiss's HandsUp/A16* (left) which carries on where *Kong's* now discontinued *ProCave* (right) started with a 'shelf' to allow your second hand to be used on the same ascender hence there is no left hand version.

*Black Diamond's* now discontinued *N-Force* (top-right) had a pivotal attachment to the cam at the top and bottom of the handle. This was another innovation first used by *Kong* in the early eighties and then dispensed with so it's odd that *BD* felt it had enough merit to make a return



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but it does impart a proportionally higher load on the rope so that means it will grip all kinds of rope well but equally may mean you have to be more careful about imparting a shock load as the forces will multiply at the cam-rope interface. This may explain why it is no longer made? Inadvertent force is something you have to beware of with all toothed cams but this could be something as seemingly benign as sitting back too hard on reset.

*Grivel's A&D* (right) has a built in brake bar rack allowing you to use a carabiner as the brake bar to create a descender making quite sure that your cam is in the locked-the-hell-outa-the-way mode. This would certainly be the quickest changeover option but is clearly aimed at mountaineers rather than arb or industry. However, if you had to have a handled ascender, it's useful to have one that could do this.

*Climbing Technology* have their double ascender mentioned opposite but they also have the *QuickRoll* (below-right) which is their Quick Up ascender with an integrated pulley. (*KROK* have one too but we haven't included it, they're lucky we included the *DoubleCam* given how close both models are to both *CT originals*!) This is for immediate creation of a mechanical advantage system when added to a descender or a pulley. The pulley itself isn't rated for human loading in the same way as the rest of the ascender even though it takes up to a creditable 2kN loading. You really have to treat it as a separate entity that doesn't improve personal safety because it's doing a different job - like a vanity mirror in your vehicle's sun-visor - it doesn't get mentioned in the NCAP safety-in-a-crash ratings but it's handy for checking your hair.

Yet another one from *Kong* - they certainly don't sit around procrastinating do they - is the *Futura* which is one of the smallest designs on the market because it has an external handle unlike every other model in this guide which has an enclosed frame. This means the size of hand is not limited in any way but has also allowed *Kong* to give you a swap-out handle with different finger sizing for a better fit. .

# DOUBLES

You could create your own double rope ascender quite easily by gerry-rigging two handled ascenders back-to-back with some strong cable-ties and a couple of carabiners. Since there is no specific standard for a double rope descender and your two single ascenders are still operating in their certified role this might, unusually, contravene any standards or safety issues. With a carabiner or maillon linking the two at the bottom they cannot separate and a sturdy cable-tie or two can withstand any tendency to slide apart if one is loaded while the other isn't. Some companies have pretty much done just this but they have at least used bolts and rivets that are absolutely secure.

So a commercially available double ascender can mean one of four things:

- double cams on an otherwise single handled ascender like the *Miller/Komet* (left) and *CMI* models below left
- Double cams with two handles which are two con-joined ascenders like the six examples far right, four of which are side-by-side and intended ONLY to be used with 2 ropes. The *Petzl* and *Fusion* use custom frames rather than a joining bracket.
- Single cam on a double handle like the *CMI Expedition* and *KROK* on the right. These are unique and are really a fully grown version of what the *Beal Hands Up* and *Kong Caver* aimed with their extra shelf for your second hand.

It is more unusual for both *CMI* and *Komet* (above left), in the new guise of *Honeywell*, to have opted for double cams on a single handed ascender. *CMI's Twin* has the ability to move both cams with one 'trigger' finger via a split ring which seems a little bit of an afterthought in terms of design but does nevertheless do the trick. Both of the Italian

models have opted to have a debris shield on top of the cams - this is to stop ingress of hard material or vegetation that might stop the cams from closing properly - a possibly catastrophic scenario. Odd that this isn't found on EVERY ascender since all have this same failure potential and particularly during tree



The top eye mentioned earlier as a means of stopping cam inversion and for clipping the ascender to the rope so that it cannot completely detach is still present though unlikely to be necessary if you have two opposing cams engaged simultaneously. However this eye can also be used to anchor the

ascender when used as part of a haul system or to haul it up or along a rope during reset. The Ascender standard EN567 is carried out on single rope so it's a little misleading in terms of the side-by-side models (top 4 pics above)intended to be used on two ropes at all times whereas the back-to-back models can still be used more easily as single rope ascenders. Petzl had this to say about the CE listed in theirs (and CT's) entry: *the Ascentree is not EN567 or 12841 as Petzl do not consider that ascenders used on a 'doubled rope' can fall within the current EN standards. These standards are written for devices used on a single rope, which is clearly not how they are used. To test on a single rope would not be representative and could give false data. Petzl have carried out their own testing in realistic scenarios and offer the product knowing that it has an appropriate level of performance for the techniques illustrated in the product instructions.*



**IN THE FOLLOWING TABLES:**

**ORIGIN:** The country selling the product but this is not always the same as the country of manufacture. Where we know, there is an inset flag to show where it is made. You will be able to spot a number of rebadged items in these tables. as usual there are two or three key Chinese companies that make for several US and European companies.

**COST:** approximate, rounded up and inclusive of local taxes which are generally from 10% and more often 20% in Europe

**WEIGHT:** for a single ascender except the double versions obviously which still count as a single ascender

**DIMENSIONS:** Width x Height x Depth/thickness but this last one is not always given - the thickest part will generally be the cam enclosure but occasionally it may be the handle if it is moulded into something akin to a joystick handle on one of those stuffed toy grabbing cranes at an amusement arcade. Also note that this figure can vary from reality of they don't include protruding rivet heads etc.

**MATERIALS:** When we say 'Alloy' we mean Aluminium Alloy unless otherwise specified.

**STANDARDS:** for CE these fall into two categories EN567 is the main ascender standard to which all single rope models in this list meet and shown as 'CE'. This is the also standard that the rope diameter ranges meet - usually 8-13mm. There is also EN12841 type B for rope adjusters which also takes in a number of hybrid and descent/fall arrest devices and this requires a slightly larger diameter rope as the lower limit - usually around 10mm. Some of these ascenders meet that standard but a handled/toothed ascender really only has two jobs - ascending and pulling!

**ROPE DIAM RANGE:** It is best to always use the millimetre sizes in ALL of our MARKET GUIDES because the fractional inch equivalents are just too widely spaced. 1/2" for instance can be anywhere from 12 to 13mm. Fatter ropes make progress harder but too thin a rope can be positively dangerous as it can jam between the cam and enclosure. It's best to ignore the lowest and highest rope diameter claims. Remember that a rope will only get fatter with age so if it was a tight fit with a new rope it may become too large with use and stress the cam enclosure if heavily loaded. The rope range quoted for any models meeting CE is based on EN567; other uses meeting EN12841- B will require a rope that is at least 2mm larger in diameter.

**WLL:** is the weight of person actually climbing or the weight that can be pulled/hailed before either the rope begins to tear or the cam enclosure unfolds. This was a problem with early stamped models and is now mitigated by a small button or 'crease' in the frame which stops the cam from flipping upwards under high load resulting in an unstoppable downward slide - on that ascender at least - this is why some systems like the Texas Rig, tie the second ascender to the first ascender via a harness tie-in. Incidentally, Skylotec/Anthron and the Russian KROK quote 15, 20 and 18kN (the KROK website figures are different to model images) as a breaking strength of the frame and 4kN as a Working Load Limit which

presumably DOES NOT account for rope failure. *Some of these ascenders list a Working Load Limit of 100kg/220lb which is probably simply a nod to minimum standards requirements but, for a fully kitted climber is way too low for operational requirements in a work/rescue environment. These have a huge safety margin to the actual MBS but you could still have insurance problems if something goes wrong and you are deemed to be applying, let's say a 120kg load to an ascender showing 100kg as the working load limit?*

The **MBS** figure is largely irrelevant as it refers to the strength of the frame, or to be more exact the eyes at each end. If you were to use the frame as a carabiner or a link in a hauling system rather than as the means to exert the pull this might come into play as you try to stretch the frame end to end, otherwise, for operational use, don't worry about it because the failure mode if you overload the ascender will be the cam or the rope, probably the rope. For those that meet EN12841-B there is a minimum 100kg requirement so this might be the figure quoted for WLL here even though it may be capable of a higher working load.

**CAM-PARK:** This applies to virtually all handled ascenders and is the ability to hold the cam off the rope completely, generally by clipping the safety catch onto the opposite part of the frame.

**ANTI CAM-INVERT:** This is now a custom-incorporated button or pinch of frame material to stop the cam releasing out of the top of the frame under high load. This was originally mitigated by clipping a carabiner through the top eye and is still used as such by many.

**TWIN ROPES ONLY:** The double ascenders that use two single rope ascenders connected side by side to facilitate twin rope working are imbalanced if you only use one rope and are designed specifically to be used on two ropes simultaneously at all times. You can use just one rope but it's cumbersome and the ascender will tend to fall to the unweighted side when you take your hand off it.

**DOUBLE ROPES:** The ability to operate on two ropes simultaneously. Those ascenders without a black square in the TWIN-ONLY column will operate just as easily on one rope, they're just a little heavier and bulkier than usual.

**COLOURS:** different model colours are separated by a comma. A forward slash/ indicates two (or more) colours on one model. Most companies make their left hand and right hand in two specific colours and for a while we thought the original Petzl colour scheme of Gold for right, Blue for left, might become an industry wide norm. But no, it's now a veritable rainbow of colours, usually with a different colour for each but some use the same colour and many offer just black for both left and right for the tactical and theatre markets. The left hand ascender colour is shown in burnt orange.

**IMAGES NOT TO SCALE**  
**COST:** Approx & inc local tax/VAT  
**Prices in £/\$/€= Currency Conversion ONLY**  
**WLL:** May be Max Load based on approx 10:1  
**N/A:** info Not Available/not given  
**COLOURS** =Body colour.

|   | MODEL                          | COMPANY                      | ORIGIN  | COST                    | WEIGHT                           | DIMENSIONS<br>Width x Height<br>x Depth |
|---|--------------------------------|------------------------------|---|-------------------------|----------------------------------|---|
|    | Explorator                     | 3M/<br>DBI SALA/<br>ROLLGLIS |    | £117<br>\$127<br>A\$200 | 386g<br>13.6oz                   | 212 x 88 x 30mm<br>8.3 x 3.5 x 1.2"     |
|    | Move Up                        | ALPIDEX                      |    | £31<br>\$39<br>€35      | 240g<br>8.5oz                    | 205 x 103 x 27mm<br>8 x 4.2 x 1.1"      |
|    | A11/A10<br>(A14)               | ANPEN                        |    | £70<br>\$86<br>€80      | 136g<br>4.8oz<br>(210g<br>7.4oz) | 205 x 93mm<br>8 x 3.7"                  |
|    | HA-R/L                         | AT HEIGHT                    |    | £52<br>\$90<br>€77      | 225g<br>7.9oz                    | 205 x 101mm<br>8 x 3.7"                 |
|   | Hands Up                       | BEAL                         |  | £63<br>\$79<br>€72      | 265g<br>9.3oz                    | 235 x 110 x 35mm<br>9.25 x 4.3 x 1.4"   |
|  | Index                          | BLACK<br>DIAMOND             |  | £80<br>\$85<br>€91      | 200g<br>7oz                      | 188 x 90 x 28mm<br>7.4 x 3.5 x 1.1"     |
|  | Turbohand                      | CAMP                         |  | £52<br>\$90<br>€77      | 185g<br>6.5oz                    | 185 x 95 x 22mm<br>7.3 x 3.7 x 0.9"     |
|  | Turbohand-<br>Pro              | CAMP                         |  | £97<br>\$120<br>€102    | 198g<br>7oz                      | 185 x 95 x 22mm<br>7.3 x 3.7 x 0.9"     |
|  | Expedition<br>EXPASC           | CMI                          |  | £107<br>\$123<br>€112   | 273g<br>10oz                     | 208 x 106 x 35mm<br>8.2 x 4.2 x 1.4"    |
|  | Ultrascender<br>ULT01R         | CMI                          |  | £102<br>\$136<br>€125   | 270g<br>9.5oz                    | 188 x 76 x 29mm<br>7.4 x 3 x 1.12"      |
|  | Mini<br>Ultrascender<br>ULT502 | CMI                          |  | £88<br>\$79<br>€73      | 170g<br>6oz                      | 127 x 76 x 29mm<br>5 x 3 x 1.12"        |

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| MATERIALS<br>SHELL<br>CAM<br>GRIP          | CAM | STANDARDS           | ROPE<br>DIAM<br>RANGE      | WLL/<br>MBS       | TOP EYE<br>BOTTOM<br>EYE   | CAM -PARK | ANTI CAM-<br>INVERT | COLOURS<br>LEFT | COLOURS<br>RIGHT | NOTES  | WWW.                      |
|--|-----|---------------------|----------------------------|-------------------|----------------------------|-----------|---------------------|-----------------|------------------|--|---------------------------|
| Extruded Alu<br>Stainless Steel<br>Plastic |     | CE<br>NFPA<br>AS/NZ | 10.5-13mm<br>1 3/32 - 1/2" | 600kg*<br>1323lbf | 00mm<br>00"<br>00mm<br>00" | ■         | ■                   | ■<br>■          | ■<br>■           | NB: Originally also a 16mm version in red. Previously SRTE and may be <b>DISCONTINUED</b> . *600kg is to cam-failure | 3m.com.au                 |
| Stamped Alu<br>Steel<br>Plastic/Rubber     |     | CE                  | 8-13mm<br>5/16 - 1/2"      | 120kg<br>265lb    | 00mm<br>00"<br>00mm<br>00" | ■         | ■                   | ■               | ■                |  | alpidex.com               |
| Stamped Alu<br>Steel<br>Plastic/Rubber     |     | CE                  | 8-13mm<br>5/16 - 1/2"      | 5kN<br>1124lbf    | 00mm<br>00"<br>00mm<br>00" | ■         | ■                   | ■<br>■          | ■<br>■           | A14=More substantial handle and plastic covered cam release  | en.anpen.net              |
| Stamped Alu<br>Steel<br>Rubber             |     | CE                  | 9-13mm<br>3/8 - 1/2"       | 100kg<br>220lb    | 00mm<br>00"<br>00mm<br>00" | ■         | ■                   | ■               | ■                |  | atheightuk.com            |
|  |     |                     |                            |                   | 00mm<br>00"<br>00mm<br>00" |           |                     |                 |                  |  | Expansion row             |
| Stamped Alu<br>Steel<br>Rubber             |     | CE                  | 8-13mm<br>5/16 - 1/2"      | 100kg<br>220lb    | 00mm<br>00"<br>00mm<br>00" | ■         | ■                   | *               | ■                | *single ascender only, not a pair. Comfort grip on cam enclosure when gripped with second hand                       | pro.beal-planet.com       |
| Stamped Alu<br>Steel<br>Plastic/Rubber     | n/a | CE                  | 8-13mm<br>5/16 - 1/2"      | n/a               | 00mm<br>00"<br>00mm<br>00" | ■         |                     | ■               | ■                | previous models grey   | blackdiamondequipment.com |
| Stamped Alu<br>Hardened Steel<br>Rubber    |     | CE<br>EAC           | 8-13mm<br>5/16 - 1/2"      | 120kg<br>265lb    | 00mm<br>00"<br>00mm<br>00" | ■         |                     | ■<br>■          | ■<br>■           |  | camp.it                   |
| Stamped Alu<br>Hardened Steel<br>Rubber    |     | CE<br>EAC           | 8-13mm<br>5/16 - 1/2"      | 120kg<br>265lb    | 00mm<br>00"<br>00mm<br>00" | ■         |                     | ■<br>■          | ■<br>■           |  | camp.it                   |
| Stamped Alu<br>Hardened Steel<br>Plastic   |     | NFPA*               | 9-16mm<br>3/8 - 5/8"       | 17.8kN<br>4000lbf | 00mm<br>00"<br>00mm<br>00" | ■         | ■                   | ■               | ■                | Hard-coated cam with lifetime warranty, *Also an NFPA version available +\$10  | cmigearusa.com            |
| Extruded Alu<br>Hardened Steel<br>Rubber   |     | NFPA*               | 9-16mm<br>3/8 - 5/8"       | 20.4kN<br>4600lbf | 00mm<br>00"<br>00mm<br>00" | ■         |                     | ■<br>■          | ■<br>■           | Hard-coated cam with lifetime warranty *NFPA version +\$10   | cmigearusa.com            |
| Extruded Alu<br>Hardened Steel<br>None     |     | NFPA*               | 9-16mm<br>3/8 - 5/8"       | 20.4kN<br>4600lbf | 00mm<br>00"<br>00mm<br>00" | ■         |                     | ■<br>■          | ■<br>■           | Hard-coated cam with lifetime warranty *NFPA version +\$10   | cmigearusa.com            |

**IMAGES NOT TO SCALE**  
**COST:** Approx & inc local tax/VAT  
 Prices in £/\$/€ = Currency Conversion  
**WLL:** May be Max Load based on application  
**N/A:** info Not Available/not given

|   | MODEL                          | COMPANY                   | ORIGIN  | COST                  | WEIGHT        | DIMENSIONS<br>Width x Height<br>x Depth |
|---|--------------------------------|---------------------------|---|-----------------------|---------------|---|
|    | Hand Cruiser                   | EDELRID                   |    | £54<br>\$85<br>€65    | 201g<br>7.1oz | 188 x 103 x 34mm<br>7.4 x 4 x 1.3"      |
|    | AS16                           | EDELWEISS                 |    | £57<br>\$70<br>€48    | 240g<br>8.5oz | 235 x 110 x 35mm<br>9.25 x 4.3 x 1.4"   |
|    | Capitan/<br>(Capitan Industry) | FIXE                      |    | £38<br>\$65<br>€42    | 270g<br>9.5oz | 200 x 90 x 35mm<br>7.9 x 3.5 x 1.4"     |
|    | Beklim<br>(Voltron)            | FUSION                    |    | £54<br>\$65<br>€60    | 175g<br>6.2oz | 191 x 89 x 27mm<br>7.6 x 3.6 x 1"       |
|   | A1                             | GRIVEL                    |    | £47<br>\$70<br>€49    | 247g<br>8.7oz | 203 x 98 x 35mm<br>8 x 3.9 x 1.4"       |
|   | A&D                            | GRIVEL                    |  | £59<br>\$80<br>€54    | 261g<br>9.2oz | 203 x 98 x 35mm<br>8 x 3.9 x 1.4"       |
|  | Pulsar<br>D40                  | HEIGHTEC                  |  | £51<br>\$84<br>€76    | 240g<br>8.5oz | 195 x 91 x 29mm<br>7.7 x 3.6 x 1.1"     |
|  | Single                         | HONEYWELL<br>MILLER/KOMET |  | £99<br>\$123<br>€98   | 225g<br>7.9oz | 193 x 90 x 25mm<br>7.6 x 3.5 x 1"       |
|  | RP220                          | ISC                       |  | £93<br>\$105<br>€95   | 130g<br>4.6oz | 218 x 82 x 32mm<br>8.6 x 3.2 x 1.3"     |
|  | RP221<br>Ultrasafe             | ISC                       |  | £105<br>\$110<br>€100 | 183g<br>6.5oz | 218 x 82 x 32mm<br>8.6 x 3.2 x 1.3"     |



Eyes being added in '25

# HANDLED ASCENDERS

| MATERIALS<br>SHELL<br>CAM<br>GRIP        | CAM | STANDARDS  | ROPE<br>DIAM<br>RANGE  | WLL/<br>MBS                        | TOP EYE<br>BOTTOM<br>EYE                           | CAM -PARK | ANTI CAM-<br>INVERT | COLOURS<br>LEFT | COLOURS<br>RIGHT | NOTES  | WWW.                |
|--|-----|------------|------------------------|------------------------------------|--|-----------|---------------------|-----------------|------------------|--|---------------------|
| Stamped Alu<br>Stainless Steel<br>Rubber |     | CE<br>UIAA | 8-13mm<br>5/16 -1/2"   | 140kg<br>308lb                     | 43 x 21mm<br>1.7 x 0.8"<br>35 x 15mm<br>1.8 x 0.6" | ■         | ■                   | ■               | ■                |  | edelrid.de          |
| Stamped Alu<br>Hardened Steel<br>Plastic |     | CE         | 8-13mm<br>5/16 -1/2"   | 100kg<br>220lb                     | 00mm<br>00"<br>00mm<br>00"                         | ■         | ■                   |                 | ■                | single ascender only, not a pair.  | edelweiss-ropes.com |
| Stamped Alu<br>Steel<br>Rubber           |     | CE<br>UIAA | 8-12mm<br>5/16 -1/2"   | 20kN<br>2039lbf                    | 00mm<br>00"<br>00mm<br>00"                         | ■         | ■                   | ■               | ■                | As far as we can tell, the Industry has a slightly different cam and cam safety - less aggressive teeth perhaps? | fixeclimbing.com    |
| Stamped Alu<br>Steel<br>Plastic          |     | CE         | 8-13mm<br>5/16 -1/2"   | 2kN<br>450lbf<br>100kg<br>220lb    | 15mm<br>0.6"<br>26 x 16mm<br>1 x 0.6"              | ■         | ■                   | ■               | ■                | NB: carbon Fibre pattern not actually made of carbon-fibre.  | fusionclimb.com     |
| Stamped Alu<br>Steel<br>Plastic          |     | CE<br>UIAA | 8.3-13mm<br>5/16 -1/2" | 20kN<br>2039lbf                    | 00mm<br>00"<br>00mm<br>00"                         | ■         | -                   | ■               | ■                |  | grivel.com          |
| Stamped Alu<br>Steel<br>Plastic          |     | CE<br>UIAA | 8.3-13mm<br>5/16 -1/2" | n/a                                | 00mm<br>00"<br>00mm<br>00"                         | ■         | -                   | ■               | ■                | Ropes from 7.3-13mm for descent  | grivel.com          |
| Stamped Alu<br>Hardened Steel<br>Nylon   |     | CE         | 9-13mm<br>3/8 -1/2"    | 100kg<br>220lb                     | 15mm<br>0.6"<br>15mm<br>0.6"                       | ■         | ■                   | ■               | ■                |  | heightec.com        |
| Stamped Alu<br>Hardened Steel<br>Plastic |     | CE<br>NFPA | 8-13mm<br>5/16 -1/2"   | 100kg<br>220lb<br>5kN<br>1124lbf   | 00mm<br>00"<br>00mm<br>00"                         | ■         | ■                   | ■               | ■                |  | honeywellsafety.com |
| Extruded Alu<br>HardenedSteel<br>Plastic |     | CE         | 9-13mm<br>3/8 -1/2"    | 140kg<br>308 lb<br>2.5kN<br>562lbf | 00mm<br>00"<br>00mm<br>00"                         | ■         | -                   | ■               | ■                |  | iscwales.com        |
| Extruded Alu<br>HardenedSteel<br>Plastic |     | CE         | 9-13mm<br>3/8 -1/2"    | 140kg<br>308lb<br>2.5kN<br>562lbf  | 00mm<br>00"<br>00mm<br>00"                         | ■         | ■                   | ■               | ■                | Ultrasafe version has cam arc restriction/Anti-cam-invert pin  | iscwales.com        |
|  |     |            |                        |                                    |  |           |                     |                 |                  |  | Expansion Row       |
|  |     |            |                        |                                    |  |           |                     |                 |                  |  | Expansion Row       |

| <p><b>IMAGES NOT TO SCALE</b><br/> <b>COST:</b> Approx &amp; inc local tax/VAT<br/> <b>Prices in £/\$/€= Currency Conversion ONLY</b><br/> <b>WLL:</b> May be <b>Max Load</b> based on approx 10:1 ratio<br/> <b>N/A:</b> info Not Available/not given<br/> <b>COLOURS</b> =Body colour.</p> | MODEL                                   | COMPANY          | ORIGIN  | COST                | WEIGHT        | DIMENSIONS<br>Width x Height<br>x Depth |
|--|---|------------------|---|---------------------|---------------|---|
|   | Futura Hand/<br>Futura Hand<br>Tactical | KONG             |    | £70<br>\$85<br>€75  | 125g<br>4.4oz | 140 x 88 x 24mm<br>5.5 x 3.5 x 1"       |
|   | Lift/<br>Lift Tactical                  | KONG             |    | £49<br>\$72<br>€51  | 225g<br>7.9oz | 193 x 90 x 25mm<br>7.6 x 3.5 x 1"       |
|   | FA 70 003 00<br>FA 70 002 00            | KRATOS<br>SAFETY |    | £82<br>\$102<br>€60 | 220g<br>7.8oz | 206 x 95.5 x 35mm<br>8.1 x 3.8 x 1.4"   |
|    | Ascension                               | PETZL            |    | £58<br>\$100<br>€66 | 165g<br>5.8oz | 190 x 90 x 26mm<br>7.5 x 3.5 x 1"       |
|   | Proverti<br>CD211/212                   | PROTEKT          |    | £37<br>\$46<br>€42  | 280g<br>9.9oz | 207x100x28mm<br>8.1x3.9x1.1"            |
|   | Ultralight<br>CD211L/212L               | PROTEKT          |  | £40<br>\$50<br>€45  | 205g<br>7.2oz | 190 x 93 x 24mm<br>7.5 x 3.7 x 1"       |
|   | RE Ascender                             | ROCK EMPIRE      |  | £48<br>\$60<br>€54  | 220g<br>7.8oz | 203 x 98 x 35mm<br>8 x 3.9 x 1.4"       |
|   | Clean Cam                               | SAR PRODUCTS     |  | £60<br>\$82<br>€75  | 216g<br>7.6oz | 189 x 90 x 32mm<br>7.5 x 3.5 x 1.3"     |



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# HANDLED ASCENDERS

| MATERIALS SHELL<br>CAM<br>GRIP                   | CAM | STANDARDS         | ROPE DIAM RANGE         | WLL/<br>MBS                        | TOP EYE<br>BOTTOM<br>EYE   | CAM -PARK | ANTI CAM-<br>INVERT | COLOURS<br>LEFT | COLOURS<br>RIGHT | NOTES  | WWW.             |
|--|-----|-------------------|-------------------------|------------------------------------|----------------------------|-----------|---------------------|-----------------|------------------|--|------------------|
| Extruded Alu<br>HardenedSteel<br>Rubber          |     | CE                | 8-13mm<br>5/16 - 1/2"   | n/a                                | 00mm<br>00"<br>00mm<br>00" | ■         | ■                   | ■<br>■          | ■<br>■           | two different sized grips available  | kong.it          |
| Stamped Alu<br>HardenedSteel<br>Plastic          |     | CE<br>NFPA        | 8-13mm<br>5/16 - 1/2"   | 100kg<br>220 lb<br>5kN<br>1124 lbf | 00mm<br>00"<br>00mm<br>00" | ■         | ■                   | ■<br>■<br>■     | ■<br>■<br>■      |  | kong.it          |
| Stamped Alu<br>Steel<br>Plastic                  |     | CE                | 10-12mm<br>25/64 - 1/2" | 20kN<br>2039 lbf                   | 00mm<br>00"<br>00mm<br>00" | ■         | -                   | ■               | ■                | 002=Black<br>003 = Green   | kratossafety.com |
| Stamped Alu<br>Stainless Steel<br>Plastic/Rubber |     | CE<br>EAC<br>NFPA | 8-13mm<br>5/16 - 1/2"   | 140kg<br>308 lb                    | 00mm<br>00"<br>00mm<br>00" | ■         | -                   | ■               | ■<br>■           | All -black version is two or three £\$€ more   | petzl.com        |
| Extruded Alu<br>Steel<br>Plastic                 |     | CE<br>UIAA        | 9-13mm<br>3/8 - 1/2"    |                                    | 00mm<br>00"<br>00mm<br>00" | ■         | -                   | ■               | ■                | Older right hand models were blue. Proverti is a wholly owned subsidiary of Protekt                                | protekt.pl       |
| Stamped Alu<br>Steel<br>Plastic                  |     | CE                | 8-13mm<br>5/16 - 1/2"   | 100kg<br>220 lb                    | 00mm<br>00"<br>00mm<br>00" | ■         | ■                   | ■               | ■                |  | protekt.pl       |
| Stamped Alu<br>Steel<br>Plastic                  |     | CE                | 8-12mm<br>5/16 - 1/2"   | 4kN<br>899lbf                      | 00mm<br>00"<br>00mm<br>00" | ■         | ■                   | ■               | ■                | <b>Discontinued</b><br>by RE but many rebadged versions inc Lixada, GM, Newdoar, Climbtech, Xinda, Grivel and Fixe | rockempire.cz    |
| Stamped Alu<br>Stainless Steel<br>Soft Nylon     |     | CE<br>UIAA        | 8-13mm<br>5/16 - 1/2"   | 140kg<br>308lb                     | 00mm<br>00"<br>00mm<br>00" | ■         | ■                   | ■               | ■<br>■           |  | sar-products.com |

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|--|---|---------------|--------------------------------|---|-----------------------|---------------|---|
|   |    | SA203         | S.E.PEAK                       |    | £37<br>\$45<br>€42    | 184g<br>6.5oz | 191 x 89 x 27mm<br>7.6 x 3.6 x 1"       |
|   |    | Lift          | SINGING ROCK                   |    | £59<br>\$70<br>€59    | 190g<br>6.7oz | 192 x 90 x 34mm<br>7.6 x 3.5 x 1.3"     |
|    |   | Lift Fix      | SKYLOTEC<br>(ANTHRON)          |   | £62<br>\$70<br>€67    | 216g<br>7.6oz | 203 x 91 x 34mm<br>8 x 3.6 x 1.3"       |
|   |  | CT Quick'Up+  | SKYLOTEC                       |  | £66<br>\$82<br>€75    | 215g<br>7.6oz | 190 x 90 x 33mm<br>7.5 x 3.5 x 1.3"     |
|   |  | CT Quick Roll | SKYLOTEC                       |  | £101<br>\$120<br>€110 | 255g<br>9oz   | 190 x 95 x 35mm<br>7.5 x 3.7 x 1.4"     |
|   |  | RB17          | SOB                            |  | £28<br>\$34*<br>€32   | 210g<br>2.4oz | 200 x 90 x 26mm<br>7.9 x 3.5 x 1"       |
|   |  | Jumar         | SWISS RESCUE/<br>PEWATEC       |  | n/a                   | 250g<br>8.8oz | 183 x 85 x 28mm<br>7.3 x 3.3 x 1.1"     |
|   |  | Passport      | TRANGO                         |  | £53<br>\$65<br>€60    | 219g<br>7.4oz | 194 x 86 x 27mm<br>7.6 x 3.3 x 1"       |
|   |  | 71-257/8      | TREERUNNER                     |  | £41<br>\$44<br>€40    | 200g<br>7oz   | 190 x 90 x 25mm<br>7.5 x 3.7 x 1"       |
|   |  | H-SS02        | XINDA<br>(BINGFENG<br>OUTDDOR) |  | £53<br>\$65<br>€60    | 210g<br>7.7oz | 190 x 90 x 25mm<br>7.5 x 3.7 x 1"       |

Eyes being added in '25

# HANDLED ASCENDERS

| MATERIALS SHELL<br>CAM<br>GRIP                    | CAM | STANDARDS  | ROPE DIAM RANGE      | WLL/<br>MBS                         | TOP EYE<br>BOTTOM EYE                 | CAM -PARK | ANTI CAM-<br>INVERT | COLOURS LEFT | COLOURS RIGHT | NOTES   | WWW.                                      |
|---|-----|------------|----------------------|-------------------------------------|---------------------------------------|-----------|---------------------|--------------|---------------|---|---|
| Stamped Alu<br>Stainless Steel<br>Plastic         |     | CE         | 8-13mm<br>5/16 -1/2" | 2kN<br>450lbf<br>140kg<br>308lb     | 15mm<br>0.6"<br>26 x 16mm<br>1 x 0.6" | ■         | ■                   | ■<br>■<br>■  | ■<br>■<br>■   |   | sepeak.net<br>(often difficult to access) |
| Stamped Alu<br>Stainless Steel<br>Plastic         |     | CE<br>UIAA | 8-13mm<br>5/16 -1/2" | 120kg<br>265 lb<br>12kN<br>2698 lbf | 00mm<br>00"<br>00mm<br>00"            | ■         | -                   | ■            | ■             |   | singingrock.com                           |
| Stamped Alu<br>Steel<br>Rubber 'cork'<br>compound |     | CE<br>NFPA | 9-13mm<br>3/8-1/2"   | 4kN<br>899lbf<br>18kN<br>4047 lbf   | 00mm<br>00"<br>00mm<br>00"            | ■         | ■                   |              | ■<br>■        | Skylotec Germany owns<br>Anthon Slovenia  | skylotec.com                              |
| Stamped Alu<br>Steel<br>Plastic/Rubber            |     | CE         | 8-13mm<br>5/16 -1/2" | 140kg<br>308lb                      | 00mm<br>00"<br>00mm<br>00"            | ■         | ■                   | ■            | ■             |   | climbingtechnology.com                    |
| Stamped Alu<br>Steel<br>Plastic/Rubber            |     | CE         | 8-13mm<br>5/16 -1/2" | 140kg<br>308lb                      | 00mm<br>00"<br>00mm<br>00"            | ■         | ■                   | ■            | ■             |   | climbingtechnology.com                    |
| Stamped Alu<br>Steel<br>Plastic                   |     | CE         | 8-13mm<br>5/16 -1/2" | 100kg<br>220lb                      | 00mm<br>00"<br>00mm<br>00"            | ■         | ■                   | ■            | ■             | optimum rope=10-13mm<br>[arborists reported cam-<br>rope interface problems<br>with the SOB foot ascender<br>- beware!] | chinasob.com                              |
| Extruded Alu<br>Steel<br>Plastic                  |     | CE*        | 9-13mm<br>3/8-1/2"   |                                     | 00mm<br>00"<br>00mm<br>00"            | ■         | -                   | ■            | ■             | DISCONTINUED?   | swiss-rescue.de                           |
| Stamped Alu<br>Steel<br>Plastic                   |     | CE         | 8-13mm<br>5/16 -1/2" | 4kN<br>899lbf                       | 15mm<br>0.6"<br>14mm<br>0.6"          | ■         | ■                   | ■            | ■             | purple Left colour<br>discontinued  | trango.com                                |
| Stamped Alu<br>Steel<br>Plastic                   |     | CE         | 8-13mm<br>5/16 -1/2" | 100kg<br>220lb                      | 00mm<br>00"<br>00mm<br>00"            | ■         | ■                   | ■            | ■             |   | grube.de                                  |
| Stamped Alu<br>StainlessSteel<br>Rubber           |     | CE<br>UIAA | 8-12mm<br>5/16 -1/2" | 150kg<br>3lb                        | 00mm<br>00"<br>00mm<br>00"            | ■         | -                   | ■<br>■<br>■  | ■<br>■<br>■   |   | xindaoutdoor.com                          |
|   |     |            |                      |                                     |                                       |           |                     |              |               |   | Expansion Row                             |
|   |     |            |                      |                                     |                                       |           |                     |              |               |   | Expansion Row                             |

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**Prices in £/\$= Currency Conversion**  
**WLL:** May be Max Load based on 1 ratio  
**N/A:** info Not Available/not given  
**COLOURS** =Body colour.

|   | MODEL              | COMPANY                   | ORIGIN  | COST                  | WEIGHT         | DIMENSIONS<br>Width x Height<br>x Depth |
|---|--------------------|---------------------------|---|-----------------------|----------------|---|
|    | A10 AB             | ANPEN                     |    | £107<br>\$130<br>€120 | 540g<br>19.4oz | 205 x 155mm<br>8 x 6.1"                 |
|     | Expedition Double  | CMI                       |    | £172<br>\$213<br>€196 | 369g<br>13oz   | 208 x 178 x 35mm<br>8 x 7 x 1.4"        |
|    | Expedition Twin    | CMI                       |    | £211<br>\$258<br>€237 | 432g<br>15oz   | 208x106x51mm<br>8.2x4.2x2"              |
|   | Double             | HONEYWELL<br>MILLER/KOMET |    | £150<br>\$186<br>€170 | 550g<br>19.4oz | 220x180x50mm<br>8.7x7x2"                |
|   | Trender            | KONG                      |   | £180<br>\$240<br>€205 | 550g<br>19.4oz | 220x180x50mm<br>8.7x7x2"                |
|  | Ascentree          | PETZL                     |  | £132<br>\$250<br>€175 | 330g<br>11.6oz | 190x175x51mm<br>7.5x6.9x2"              |
|  | SA-205D            | S.E.PEAK                  |  | £78<br>\$97<br>€88    | 390g<br>13.7oz | 195 x 165 x 50mm<br>7.7 x 6.5 x 2"      |
|   | CT<br>QuickArbor H | SKYLOTEC                  |  | £125<br>\$200<br>€165 | 500g<br>17.6oz | 160x220mm<br>6.3x8.7"                   |
|   |                    |                           |   |                       |                |   |
|   |                    |                           |   |                       |                |   |

## STANDARDS

Once again, some of the load figures are artificially low because they simply reflect the standards requirements NOT the actual capabilities. It is the European standards that best define the capabilities of different types of ascender/cam although the US NFPA does at least narrow your options to ONLY the most applicable available to North American rescue users which is often a great indicator of tough gear for arborists.

- EN353-2 - Mobile Fall Arrest
- EN358 - Lanyard adjuster
- EN12841 typeB - Industrial ascender
- EN567 - Sport Ascender
- EN365 - Generic PPE Fall Protection

**EN12841 type B** - and **EN567** are ascender standards but EN567 is just for sport/climbing ascenders and does NOT include a fall test. However, this doesn't necessarily mean that EN567 ascenders are less applicable to arborists because the fall test for EN12841-B incorporates a 'dynamic lanyard' or shock absorber which is routinely used in rope access but not yet (if ever) by arborists. Despite being an 'ascender' standard some devices like the *Rock Exotica Rockgrabs* tested to EN567 are NOT intended to be used as ascenders.

**EN365** is a generic standard for fall arrest PPE maintenance and marking etc. so most rope grabs would meet it and is rarely quoted other than in paperwork.

Many of these lever cams are shown as meeting only one or two of these specific standards and we often find that devices of pretty much the same design and load rating show different standards - this is almost certainly down to the market that the manufacturer sees for the device rather than the actual capabilities. There's no doubt that most EN353 and 358 models without an offset eye would function adequately as ascenders. However, in these days of litigation you may need to prove it is 'Fit-for-Purpose' if a device doesn't show your required standard. One thing to note, as with hand and chest ascenders is that the minimum and maximum rope diameters quoted should largely be avoided except for special purposes. Thinner rope may tend to slip more readily and larger ropes may be damaged more easily under high load.

## FIXED & DETACHABLE

Very few, if any rope grab cams are truly fixed - they will all detach but here we use 'FIXED' to describe a bolt requiring tools to dismantle and 'DETACHABLE' to describe a spring-release pin easily removed by hand.

## USES

**LAD** meaning LENGTH ADJUSTING DEVICE for longer lanyards or **FLIP LINE/POLE STRAP**. Any camming device, whether it's an ascender or a descender or both, will function as a length adjuster on a lanyard or flip line. Here we are primarily concerned with flip-lines/pole straps because the longer work positioning lanyards use length adjusters which pay-out under load AND take in. Ascenders/rope grabs only take-in unless you fully release the cam which is dangerous, so are best suited to short lengths on your pole strap around the main trunk. Many arborists use their longer lanyards as a pole strap but bespoke



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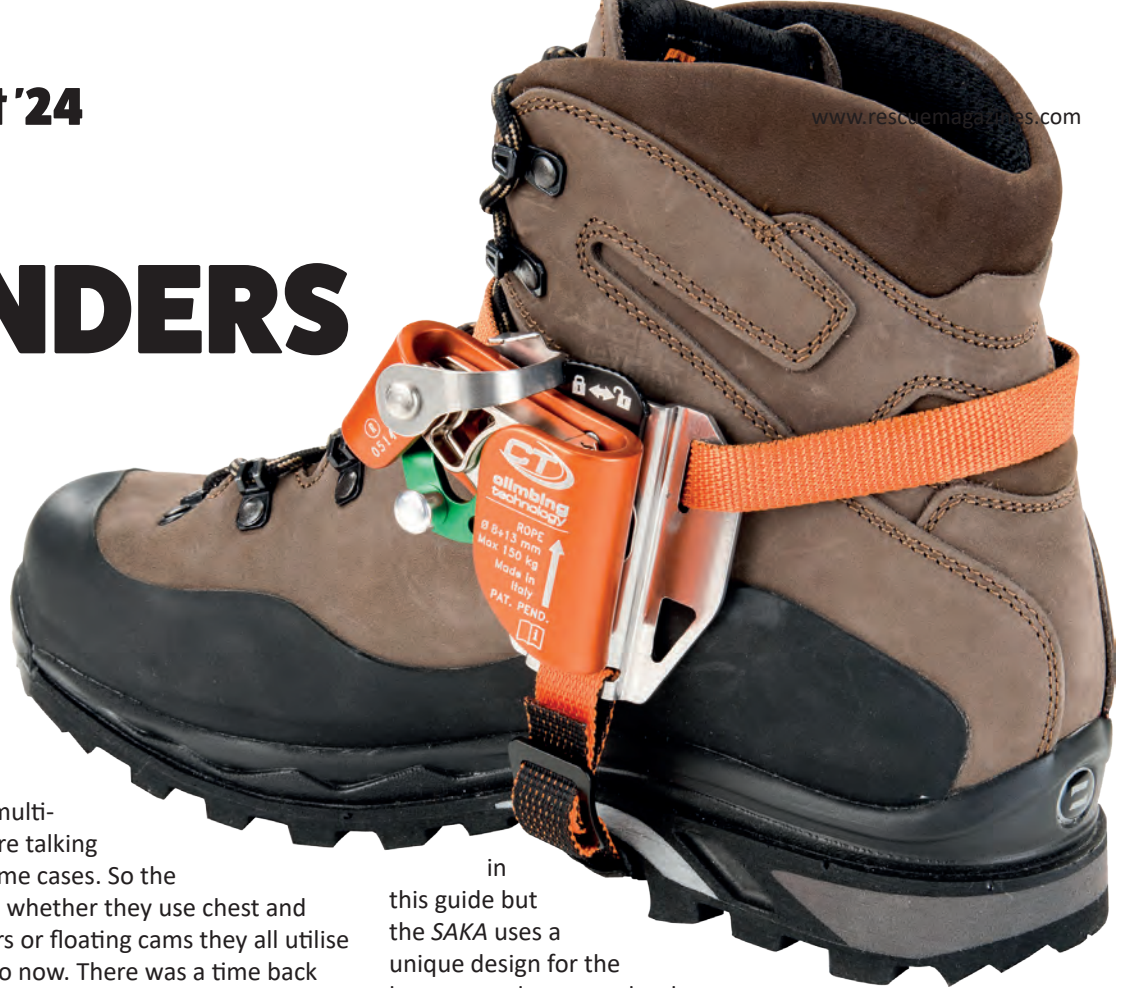
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**UPDATED** Sept '24

# FOOT ASCENDERS

Once again we have cavers to thank for inventing a genre of hardware that has only recently been pushed on to the next level of development by the impetus of arborists. Rope walking systems were developed for long single and multi-pitch ascents in caving and we're talking well over a thousand feet in some cases. So the systems had to be efficient and whether they use chest and knee combinations, chest rollers or floating cams they all utilise a foot ascender. At least they do now. There was a time back in the dark ages of 70s caving before dedicated foot ascenders when the venerable *Jumar* hand ascender - perhaps the original mechanical ascender and the reason many still use the term 'Jumaring' generically - was unceremoniously strapped to a metal bar in a kind of double stirrup formation known as a *Mar-Bar*. This was used in a sit-stand or inchworm ascending method in combination with a top ascender. It had largely seen its day by the eighties but oddly was revived for a time by *Buckingham* using *CMI Ultrascenders* and sold to arborists. It does have the advantage of being an incredibly simple and forgiving technique if all you want to do is get from point A to point B in a vertical straight line and it may well still be used to good effect by some arborists and cavers. But for the most part the *Mar-Bar* was superseded by a dedicated foot ascender which strapped to the boot with a web harness. But not always as a simple cam with a minimalist cam enclosure. I remember using a French design for a while in the early nineties, or thereabouts, that had a metal platform angling under the boot sole. This was 'bent' at right angles from the rest of the cam frame and sat snugly in front of the heel offering decent support. It's not a million miles away from an arborist spur/gaff and it's a little surprising that a similar design doesn't still exist. Probably an engineering issue with that bent heel section flexing too much and eventually cracking? Instead we now have a whole host of cams-with-boot-harness and their latest guise as direct-to-boot mounts or direct-to-spur/gaff mounts. Concurrently with foot ascenders has been the development of 'floating' cam systems at the knee like *HAAS* and *SAKA* where one leg may have a proprietary foot ascender while the other has a modified chest or foot ascender located at the knee and connected to a foot loop with a semi-rigid strap.. We haven't included these knee ascenders



in this guide but the *SAKA* uses a unique design for the knee ascender so maybe that will end up being modified as new brand of foot ascender rather than use the *Skylotec/CT* model as they do now. All of these latter designs have been uniquely developed by and for arborists so it's nice to be giving something back to the cavers who don't generally have enough of a market share to drive sophisticated development.

This isn't an instructional article on how to climb so we do assume a basic knowledge of climbing using a foot ascender(s). But just to clarify the basics, the current norm for arb-work climbing is a foot ascender married to your 'descent' system to capture progress. As you stand up on the foot ascender (straighten your leg) you pull the tail rope through your descender/hybrid device, sit back/load your device and start again but not as slowly as this sentence took to write. Efficiency can be improved using an additional ascender, chest ascender etc. and various drag attachments to help self tail (pull slack rope through your devices.) The more efficient and quicker ascent systems may not include a descent-capable device at all since this causes increased friction. Now the foot ascender and its associated systems are all about efficiency. Efficiency in terms of using less energy, increasing speed and not being limited to a simple straight line ascent before having to switch equipment. Foot ascenders are the start point for most current arb systems. Arborists want to be able to get into and move around the canopy so foot ascenders also became smaller and less obtrusive. The *Petzl Pantin* was, for a long time, the market leader until it had issues with rope's falling out when the cam jammed open but its back now and hunting for top spot against a whole load of other models. Some retain the simplicity of the earliest models with a simple eye to clip a carabiner and



stop the cam opening during ascent and releasing your rope and some are a lot more technical like the *Camp Turbo* with its integral rollers and the *Notch Jet-Step* with its double cams, of which, more later. Most designs now have a safety cam to prevent rope coming out and some, like the *ISC Stryder* take this to a new level by having a release knob long enough to be kicked on and off with your boot - no more pesky bending to engage or disengage.



And then came bolt-on models. These will directly attach to either your boot or your spurs/spikes/gaffs. These have advantages over a webbing harness of NOT coming loose during work and being quicker and easier to put on and take off. In the case of spikes, some, like the *KiwiKlimbers* above, are semi-permanently bolted on- not that you can't take them off but it requires tools and isn't the intention so when you're not using the ascender - it's still there. Luckily it's not very obtrusive and remains the sturdiest of all foot ascender options. Latterly

## FOOT ASCENDERS

*CAMP* have joined the spike party with their *TurboSpike*. The *CT* model has an intermediate mounting plate (right) between the spike and the ascender (left) which is designed to resist the rotational forces that you would get when applying weight during the 'stand' phase. Again, a little bulky but it needs to be to provide a firm fix.

The midway option between direct attachment and harness attachment is a harness with an intermediate plate (right) . This seems a little superfluous, after all, you could just attach a *CT* foot ascender directly to the harness but this plate has a considerably smaller profile than the ascender so the ability to remove the ascender leaving just the plate means you can leave the harness on your boot with less concerns of hindrance hile walking or driving. Finally for this genre you could buy the plate separately and bolt it on to your own boots but don't come crying to us when the side of your boots rip out. We're guessing that *ArbPro* and *CT* have firm grounds to choose the specific boots they have to take a plate or lug fixing not to mention plenty of testing.

### IT'S ALL ABOUT TECHNIQUE

All ascenders require good technique to operate efficiently and foot ascenders are no exception. You might think that having the ascender strapped to your foot absolves you of the need to do anything but 'walk' up the rope with an exaggerated high knee action. But you'll quickly find out that poor technique, poor posture and fatigue can all cause you to align the rope to

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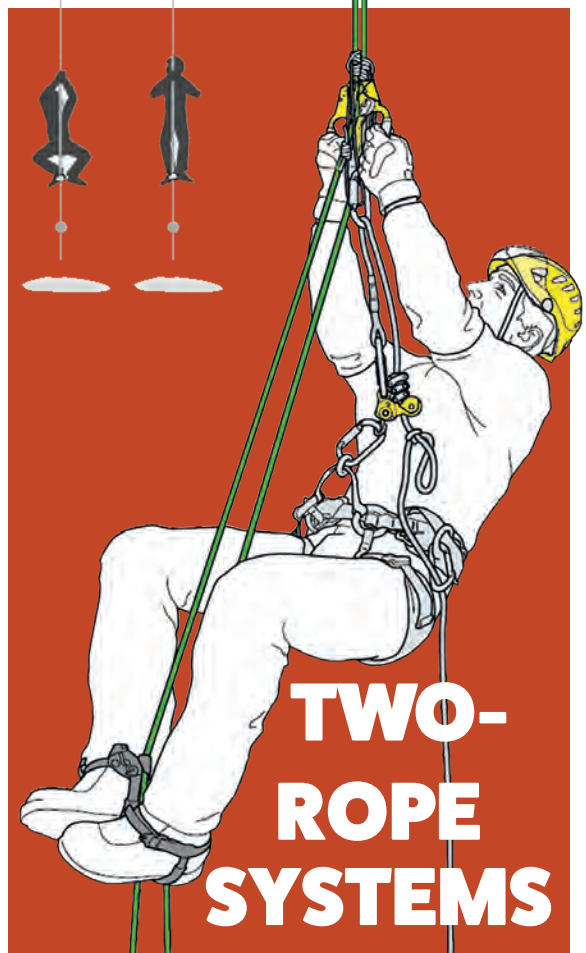
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the cam badly and either increase drag or decrease traction. In fact, if you angle your foot enough some cams may not engage at all and your foot could slip until the correct angle is regained. Some climbers in other rope work sectors take advantage of this anomaly to be able to reposition downwards, something that would normally require you to release the cam and keep it clear of the rope for the duration of the downward movement. Slight angling of the cam and indeed the entire ascender is why many have a specific left and right and the tendency to drag the cam or inadvertently jam it open is why you need to stick to the prescribed cam orientation as well as aspire to good technique. The trick is to figure out how your particular cam wants to work. Some cams are more aggressive than others particularly European models that evolved from caving or mountaineering where wet, muddy and icy ropes need to be contended with. *Petzl, Camp, Kong* and *CT* all tend to have quite aggressive teeth and these will bite through ice and mud but can catch the threads of larger weave arb ropes. *ISC* and *CMI* cams are less aggressive teeth patterns, slightly broader and shorter while the *Ninja* and *Jet-Step* uses rope-friendly ribs. Notice how the *Petzl* cam (above right) has a mud/water ejecting slot and more downward facing teeth while the *ISC* cam's (right) are more perpendicular and slightly multi-directional, this probably makes it more forgiving of poor directional loading but you can see how it might clog and freeze more easily in snow and ice.



While performance on specific ropes will vary and durability over time will vary, one thing you can say about the majority of these designs is that they are quite similar - you can't really get too far away from a toothed or ribbed cam and a metal cam enclosure albeit that some are rolled /stamped sheet metal while one or two are much bulkier but stronger milled or extruded alloy. **Some have an extended cam release knob that enables you to use your foot to 'kick' off the cam but this can also be a snag hazard if you're not used to it.** The majority are anodized, one or two like the *Russian Krok* and *CMI* are powder-coated. The cam lock/unlock is a feature that differs from model to model with some dispensing with it altogether in favour of the original, rather cumbersome carabiner eye while others have both. Two models that do stand out however are the *Notch Jet-Step* and *Harken Ninja* (below), basically the same kit, different colour. They have two cams but are quite specifically for a single rope with the rope sandwiched between the two cams instead of against a cam enclosure wall. The silver section at the top is a rope guide. This is the only ascender in our list to have a ribbed instead of toothed cam and the manufacturer claims this will grip wet, muddy and icy ropes. Certainly there's less to clog up and trap debris and ribbed cams are well tried and tested by such rope-industry giants as *Rock Exotica* and *Gibbs*. This sandwich-style cam design might be familiar to yachtsmen and indeed its pedigree is *Harken* so quality is pretty much assured. It has a lighter spring than normal



## TWO-ROPE SYSTEMS

Above: With the modern emphasis on safety using double ropes this system from Petzl using con-joined hand ascenders and a pair of foot ascenders in a conventional sit-stand method could become the norm or it may remain on the peripheries of systems actually being used. This system helps complicate the DRT/DdRT and SRT/MRS discussion elsewhere in this issue because it could be that this climber is on a Doubled Rope or DdRT where the rope is simply looped over a branch or through a ring(s) on a cambium saver. Or it could be a Double Rope or DRT using two separately anchored ropes.

Of course if you really want to get fussy this could be the same rope with two terminations tied in the middle and attached to the same or two separate anchors - does that make it Single Rope Technique because it's one rope and if it's DdRT isn't that defined as MRS or Moving Rope System in the new terminology? But this one is Stationary? In fact, if this is a doubled rope that isn't tied off and the foot ascenders are con-joined in the old inch-worm style, the rope will indeed be stationary. But if two separate foot ascenders are used, a DdRT rope NOT anchored at the top will actually move a little with each step with some small degree of mechanical advantage - so back to an MRS then? My head hurts.

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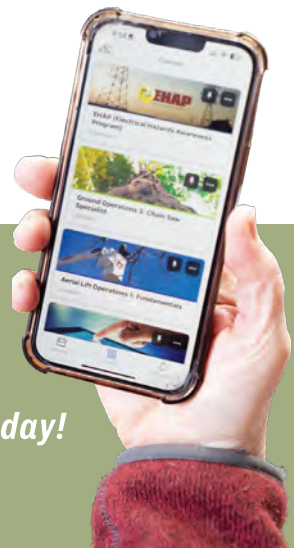
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so self-tending of an unloaded tail of rope is a little easier (ie. doesn't try to drag unloaded rope as you raise your foot).

**SUMMARY OF FOOT ASCENDER TYPES:**

**1) BOOT HARNESS FOOT ASCENDER**

The majority of models in our list come with a pre-threaded and stitched webbing harness. Some have fixed elements particularly the stirrup section that goes under the sole but most adjust both around the boot and under the boot.



**ASCENDER (for single rope)**

Aside from the Edelrid Cruisers these are the two newest arrivals, the virtually identical *Notch Jet Step* in green and the *Harken Ninja* in red. They have a dual cam arrangement providing grip to both sides of a **single rope** strand. A rope guide above ensures that the rope runs through the middle of the cams. Grip should be the best but they are bulkier than many might like. Definitely worth investigating.

**single**

**rope**



**2) DIRECT TO BOOT ASCENDER**

ArbPro have pioneered this one with the *Cervino Wood Quickstep* able to have the ArbPro foot ascender directly connected to lugs without the need for a web harness/strapping. Currently this is the only such model.



In the following TABLES, Foot ascenders ARE NOT PPE so the usual life safety **STANDARDS** don't apply.

We've used the term '**MAX LOAD**' rather than the more usual WLL or SWL because the manufacturers have used differing terms but this is the Working load limit not MBS.

'**ANTI CAM-INVERT**' refers to a cam restraint or cam safety at the top &/or bottom that stops it opening wide enough to release the rope.

**CRAB EYE** is a carabiner hole which can act as safety catch with a crab clipped in.

**CAM-PARK** means the cam can be locked in the open position so as not to contact the rope.

**3) INTERMEDIATE BOOT-PLATE ASCENDER**

This can be fixed directly to the boot, effectively giving you the same as 2) above except with a little more bulk but most often the plate will be attached to a web harness/strapping and you attach the ascender to that. The big advantage of a harness-with-plate is that the ascender can be removed without having to take the entire harness off your boot so you can walk around or drive unhindered.



**4) DIRECT TO SPUR/GAFF ASCENDER**

Your climbing spikes are already a bulky item so what's a few extra ounces/grams? Directly fixed ascenders make this whole assembly a versatile option and there's no chance of inefficiency caused by a slackening web harness.

Currently three options; KiwiKlimbers are directly bolted while CT use an intermediate plate and CAMP uses a strap and bolts (right).



**4) DOUBLE CAM**



**KNEE-CAM SYSTEMS**

*Something of an adjunct to foot ascenders, but one of the still rising systems so it deserves a separate mention, is the floating knee cam exemplified by Michael Frankhauser's HAAS (Velox version pictured) and Richard Mumford's SAKA (far right). Nothing new about the concept of a floating knee cam because, as we've mentioned on numerous occasions we've been using similar systems in caving since well into the last century and ironically the original caving ascender-maker Petzl have now entered the fray with their own system. The difference with the HAAS/SAKA is incorporation of bungy/elastication and stiffening to improve the operation. Basically this might replace the foot ascender if you're using your regular descent device or one leg might use a conventional foot ascender while the other leg uses this knee cam attached to a stiffened tether with a foot loop on the end. The knee cam has a clip or elastic bungy on top clipped to your harness which allows variable step length and drags the cam up to help capture progress while you move the foot ascender up or tend the trail rope through your descent or hybrid device. There seems to be some bizarre patent issues going on at the moment between the Weaver owned HAAS and SAKA with the SAKA drawing the short straw. It's hard to see how a concept that is simply a modification of something that's been around for decades, albeit with a useful improvement, can lay claim to a broad patent that stops further development by others. Perhaps Padgett and Smith should have patented the original floating knee cam concept back in the 1980s!*





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 DEPTH: = material thickness WLL/Max Load: If not given  
 by manufacturer we use Max Load as 10:1 safety ratio  
 COLOURS: =Body colour =Option  
 ○●● = OK BUT NOT IDEAL












































































|  | MODEL                         | COMPANY      | ORIGIN | COST  | WT<br><i>inc strap</i>           | SHELL           | CAM                |
|--|-------------------------------|--------------|--------|---|----------------------------------|-----------------|--------------------|
|  | A13                           | ANPEN        |        | £41<br>\$50<br>€46                          | 136g<br>4.8oz<br>170g<br>6oz     | Stamped<br>Alu  | Cast<br>Steel      |
|  | QuickStep                     | ARBPRO       |        | £85<br>\$106<br>€95                         | 130g<br>4.6oz                    | Stamped<br>Alu  | Cast<br>Steel      |
|  | Turbo-Foot Evo<br>Turbo Spike | CAMP         |        | £81<br>\$105<br>\$99<br>€131<br>€92<br>€110 | 97g<br>3.4oz<br>135g<br>4.8oz    | Stamped<br>Alu  | Cast<br>Steel      |
|  | Foot<br>Ascender              | CMI          |        | £90<br>\$110<br>€102                        | 320g<br>11.2oz<br>324g<br>11.4oz | Extruded<br>Alu | Cast<br>Steel      |
|  | Foot<br>Cruiser               | EDELRID      |        | £55<br>\$83<br>€60                          | 142g<br>5oz<br>160g<br>5.6oz     | Stamped<br>Alu  | Cast<br>Steel      |
|  | Tree<br>Cruiser               | EDELRID      |        | £65<br>\$93<br>€65                          | 134g<br>4.7oz                    | Stamped<br>Alu  | Cast<br>Steel      |
|  | Ninja                         | HARKEN       |        | £102<br>\$114<br>€112                       | 136g<br>4.8oz<br>177g<br>6.2oz   | Stamped<br>Alu  | Cast<br>Steel      |
|  | Stryder<br>RP227X             | ISC          |        | £51<br>\$87<br>€80                          | 130g<br>4.6oz<br>202g<br>7.1oz   | Stamped<br>Alu  | Stainless<br>Steel |
|  | Spikescender 2                | KIWI KLIMBER |        | £152<br>\$188<br>€173                       | n/a                              | Alu             | Titanium           |
|  | Futura                        | KONG         |        | £59<br>\$90<br>€67                          | 72g<br>2.5oz<br>130g<br>4.6oz    | Stamped<br>Alu  | Stainless<br>Steel |

| DIMENSIONS<br>Width x Height<br>x Depth | ROPE<br>DIAM<br>RANGE     | MBS              | MAX<br>LOAD    | RIGHT<br>LEFT | Anti Cam<br>Invert | Carabiner<br>Eye | Cam<br>Park | Inc Foot<br>Harness | Fits to<br>Spurs | Fits to<br>Boot Plate | LEFT<br>COLOURS  | RIGHT<br>COLOURS | NOTES   | WWW.             |
|---|---------------------------|------------------|----------------|---------------|--------------------|------------------|-------------|---------------------|------------------|-----------------------|------------------|------------------|---|------------------|
| 72 x 51mm<br>2.8 x 2"                   | 8-13mm<br>5/16 - 1/2"     | 4.9kN<br>1102lbf | 140kg<br>308lb | ■<br>■        | -                  | ■                | ■           | ■                   | -                | -                     | ■                | ■                |   | en.anpen.net     |
| 83 x 65mm<br>3.3 x 2.6"                 | 8-13mm<br>5/16 - 1/2"     | -                | 150kg<br>330lb | ■<br>■        | ■                  | -                | ■           | □                   | ■                | ■                     | ■                | ■                | Fits direct to ArbPro QuickStep Boots with adapter plate or separate adapter for spurs (\$60) or universal web boot harness   | arbpro.it        |
| 67 x 69 x 25mm<br>2.6 x 2.7 x 1"        | 8-13mm<br>5/16 - 1/2"     | -                | 150kg<br>330lb | ■<br>■        | ■                  | ■                | ■           | ■                   | ■                | -                     | ■                | ■                | Non-Evo version precludes the safety lock. Rollers in the rope channel reduce friction. <b>Turbo Spike</b> version fits direct to Distal spikes                                       | camp.it          |
| 80 x 56 x 32mm<br>3.1 x 2.2 x 1.3"      | 9-16mm<br>3/8 - 5/8"      | 3.5kN<br>800lbf  | -              | ■<br>■        | ■                  | -                | ■           | -                   | -                | -                     | ■                | ■                | ANSI<br>Hard-coated cam   | cmigear.com      |
| 82 x 62 x 37mm<br>3.3 x 2.6"            | 8-13mm<br>5/16 - 1/2"     | -                | -              | ■<br>■        | ■                  | ■                | ■           | ■                   | -                | -                     | ■                | ■                | green cam safety cover is removable   | edelrid.com      |
| 127 x 80 x 45mm<br>5 x 3.2 x 1.8"       | 8-13mm<br>5/16 - 1/2"     | -                | -              | ■<br>■        | ■                  | -                | ■           | -                   | ■                | -                     | ■                | ■                | Fits to the Edelrid Talon Spurs green cam safety cover is removable   | edelrid.com      |
| 83 x 74 x 27mm<br>3.3 x 3 x 1.1"        | 8-13mm<br>5/16 - 1/2"     | -                | 150kg<br>330lb | ■<br>■        | -                  | -                | -           | ■                   | -                | -                     | ■                | ■                | Rope guide above cams   | harken.com       |
| 75 x 52 x 28mm<br>3 x 2 x 1.1"          | 8-13mm<br>5/16 - 1/2"     | 2.5kN<br>562lbf  | 140kg<br>308lb | ■<br>■        | ■                  | -                | ■           | ■                   | -                | -                     | ■                | ■                | Extended (removable) cam safety allows kick-release of cam  | iscwales.com     |
| 75 x 36 x 74mm<br>3 x 1.4 x 3"          | 10-12.5mm<br>25/64 - 1/2" | 6kN<br>1348lbf   | 150kg<br>331lb | ■<br>■        | ■                  | -                | -           | -                   | ■                | -                     | ■<br>■<br>■<br>■ | ■                | Versions Can be retro-fitted to KK Carbons or Distel / Gecko, Notch, Buck, Baslin Stein, Climbright & Edelrid spurs/gaffs. Cam safety is a 'button that can be pushed in to load rope | kiwiklimbers.com |
| 78 x 57 x 25mm<br>3.1 x 2.2 x 1"        | 8-13mm<br>5/16 - 1/2"     | -                | 150kg<br>330lb | ■<br>■        | -                  | ■                | -           | ■                   | -                | -                     | ■                | ■                | metal boot stirrup prevents torsional rotation-greater efficiency   | kong.it          |

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 DEPTH: = material thickness WLL/Max Load: If not given  
 by manufacturer we use Max Load as 10:1 safety ratio  
 COLOURS: =Body colour =Option  
 ○● = OK BUT NOT IDEAL

|  | MODEL                    | COMPANY         | ORIGIN | COST                 | WT<br>inc strap                | SHELL          | CAM                |  |
|--|--------------------------|-----------------|--------|----------------------|--------------------------------|----------------|--------------------|--|
|  | Jet-Step                 | NOTCH EQUIPMENT |        | £91<br>\$110<br>€110 | 136g<br>4.8oz<br>195g<br>6.9oz | Stamped<br>Alu | Plated<br>Steel    |  |
|  | Pantin<br>BO2CL/RA       | PETZL           |        | £60<br>\$85<br>€63   | 55g<br>1.9oz<br>85g<br>3oz     | Stamped<br>Alu | Stainless<br>Steel |  |
|  | Foot Lift<br>RK807BX0L/P | SINGING ROCK    |        | £47<br>\$60<br>€52   | 120g<br>4.2oz<br>161g<br>5.6oz | Stamped<br>Alu | Cast<br>Steel      |  |
|  | CT Quick Step<br>A       | SKYLOTEC        |        | £65<br>\$85<br>€74   | 130g<br>4.6oz<br>165g<br>5.8oz | Stamped<br>Alu | Stainless<br>Steel |  |
|  | CT Quick Step<br>S       | SKYLOTEC        |        | £62<br>\$80<br>€66   | 125g<br>4.4oz<br>155g<br>5.5oz | Stamped<br>Alu | Stainless<br>Steel |  |
|  | CT Quick Tree            | SKYLOTEC        |        | £64<br>\$84<br>€69   | 130g<br>4.6oz                  | Stamped<br>Alu | Stainless<br>Steel |  |
|  | Django                   | STEIN           |        | £63<br>\$113<br>€75  | 130g<br>4.6oz<br>198g<br>7oz   | Stamped<br>Alu | Stainless<br>Steel |  |
|  | SA207                    | S.E PEAK        |        | £30<br>\$36*<br>€33  | 115g<br>4oz<br>156g<br>5.5oz   | Stamped<br>Alu | Cast<br>Steel      |  |
|  | SUT                      | SUNTEK          |        | £28<br>\$33*<br>€31  | 84g<br>3oz<br>116g<br>4.1oz    | Stamped<br>Alu | Cast<br>Steel      |  |
|  | Pro Foot<br>Ascender     | XINDA/<br>SOB   |        | £0<br>\$0<br>€0      | 90g<br>3.2oz<br>135g<br>4.7oz  | Stamped<br>Alu | Cast<br>Steel      |  |



| DIMENSIONS<br>Width x Height<br>x Depth | ROPE<br>DIAM<br>RANGE | MBS              | MAX<br>LOAD    | RIGHT   | LEFT  | Anti Cam Invert   | Carabiner Eye   | Cam Park   | Inc Foot Harness  | Fits to Spurs   | Fits to Boot Plate | COLOURS<br>LEFT   | COLOURS<br>RIGHT   | NOTES  | WWW.               |
|---|-----------------------|------------------|----------------|---|---|---|---|--|---|---|--------------------|---|--|--|--------------------|
| 80 x 73 x 27mm<br>3.2 x 3 x 1.1"        | 8-13mm<br>5/16 - 1/2" |                  | 152kg<br>337lb | -   | -   | -   | -   | <br>     |    | -   | -                  |    |   | Rope guide above cams  | notchequipment.com |
| 64 x 45 x 23mm<br>2.5 x 1.8 x 0.9"      | 8-13mm<br>5/16 - 1/2" |                  | 150kg<br>331lb |  * | -   |  * | -   | <br>     |    | -   | -                  |    |   | <i>Pantin</i> is now on perhaps its 3rd or 4th variant.<br>*optional plastic Safety catch screws into cam to provide rope safety and cam-off option (£6) | petzl.com          |
| 72 x 54 x 30mm<br>2.8 x 2.1 x 1.2"      | 8-13mm<br>5/16 - 1/2" |                  | 120kg<br>264lb |    | -   |    | -   | <br>     |    | -   | -                  |    |   | Stainless steel back plate   | singingrock.com    |
| 73 x 51 x 27mm<br>3.3 x 2.6 x 1.1"      | 8-13mm<br>5/16 - 1/2" |                  | 150kg<br>331lb |    | -   |    | -   | <br>     |    | -   | -                  |    |   | Speleo version 'S' is 10g lighter with harness   | Skylotec.com       |
| 73 x 51 x 27mm<br>3.3 x 2.6 x 1.1"      | 8-13mm<br>5/16 - 1/2" |                  | 150kg<br>331lb |  | -   | -   | -   | <br> |  | -   | -                  |    |   | Same as QSA but is a Cover's minimalist version with no safety catch   | Skylotec.com       |
| 73 x 65 32mm<br>3.3 x 2.6 1.3"          | 8-13mm<br>5/16 - 1/2" |                  | 150kg<br>331lb |  | -   |  | -   | <br> |  |  | -                  |    |   | Has an integrated back plate for mounting to adapter. Requires separate adapter for spurs (\$60/€45) or harness for boots (\$26/€24)                     | skylotec.com       |
| 75 x 52 x 25mm<br>3 x 2 x 1"            | 8-13mm<br>5/16 - 1/2" | 2.5kN<br>562 lbf | 140kg<br>308lb | -   | -   |  | -   | <br> |  | -   | -                  | <br>  | <br> | Made by ISC Wales<br>Extended (removable) cam safety allows kick-release of cam  | steinworldwide.com |
| 73 x 47 x 27mm<br>2.9 x 1.85 x 1.1"     | 8-13mm<br>5/16 - 1/2" |                  | 140kg<br>308lb | -   |  |  |  | <br> |  | -   | -                  | <br><br> |  | *FOB China   | n/a                |
| 64 x 70 x 24mm<br>2.5 x 2.8 x 1"        | 8-13mm<br>5/16 - 1/2" |                  | 150kg<br>330lb |  |  |  |  | <br> |  | -   | -                  |    |   | BEWARE: This copy of a CAMP Turbo may list a CE but foot ascenders DO NOT comply with PPE standards.<br>*FOB China                                       | n/a                |
| 75 x 47 x 25mm<br>3 x 1.85 x 1"         | 8-13mm<br>5/16 - 1/2" |                  | 150kg<br>331lb | -   |  | -   | -   | <br> |  | -   | -                  | <br><br> | <br> | *FOB China<br>One of many Chinese models with the same design under under various names, New Doar, Camnal & Wildken                                      | xindaoutdoor.com   |

UPDATED Mar '25

# FIXED & FLYING BOLLARDS

## for LOWERING

Tricky to know what to call this product guide as there are so many different terms. We're looking at two types of heavy duty lowering devices and since they both have a cylinder of metal at their core we've gone with bollard rather than capstan. The lighter option is typified by the *Port-A-Wrap* as a metal tube with some rope tie-off or control posts and one or two eyes with which to secure it to the base of a tree. Since this may be rigged so as to sit a few inches or even a few feet away from the tree it is termed 'FLYING' 'FLYING CAPSTAN' or 'FLOATING'. The *RC200* in this picture (below) is actually rigged as a fixed bollard as all *Port-A-Wraps* can be with a *Whoopie* sling and some creative rigging. The term 'BOLLARD' is used universally to describe a static metal tube of material with a smooth surface around which rope can be wrapped to increase friction and arrest and hold a load or the rope can be unwrapped to decrease friction and begin lowering a load. This could be interchanged with 'CAPSTAN' or

'WINDLASS' but to be more accurate these involve rotation rather than being static. Back to a static bollard and a good ground crew will estimate the number of wraps relevant to the load being held/lowered and this will be hand-held or tied off initially and then slowly released through a gloved hand to provide the required speed of lowering. Only when you are new to a device or the load has been underestimated will you need to alter the initial lowering set-up by adding or removing entire wraps otherwise the lowering work can be achieved by taking off a locking loop and then altering the contact angle between rope and pins as the rope feeds through your gloved hands. In fact, a skilled ground crew can add a degree of force mitigation to alleviate impact forces to the climber by allowing some run-through to create a more dynamic arrest than a dead-stop.

The same function applies to our second and heavier option which is a

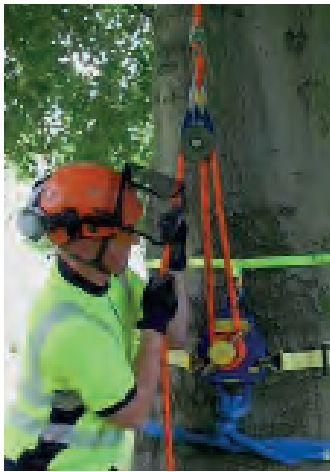


Just to be clear, this guide does NOT include any rotating capstan/drum style fixed winches like the *GRC*, *Hobbs* or *Harken* devices, they are in the separate **GUIDE to Hand Winches**. The tables in this guide are ONLY devices which perform heavy-duty arrest and lowering not raising and in fact the job of arresting heavy loads is generally left to Impact blocks rigged closer to the load, (as in our diagram from *Wesspur* above), which are only then lowered on the kinds of devices listed in this article. Some of the fixed bollards in this guide can be retro-fitted with a winch to make raising easier (pic right), this is indicated by the 'WINCH-ADAPT' column. None of the devices listed in this GUIDE includes a winch or raising option in the price and data but most can be retro-fitted with at least a rope & pulley raising system by attaching it to the top eye as can be seen in the





# LOWERING BOLLARDS



picture on the left showing the same Stein model

but instead of a winch we have a 2:1 mechanical advantage pulley incorporated to assist with raising or tensioning. One model, the *Transformeur* (right) from *FTC TREE* in France, is a fully modular system allowing one or two bollards to be fixed

to a back plate and then a winch to also be added. This is possibly the most versatile system we have yet seen although it's not cheap at €3500 for the complete system including bombproof case, ratchets and straps, winch, 2x bollards (which can be used independently) and a back plate with replaceable rubber feet. You can buy each component separately starting with just one bollard and building on that so it may well cover just about every scenario you can come up with.



Thor in the US for long lowers/raises, to create a 4" diameter *Thor Tube*. This was about two feet long and was rigged as a flying anchor (through the tube itself) to give us the maximum strength of

rope possible for heavy arrest and lowering so I suppose it was a giant version of a *Port-A-Wrap*. So giant, that if we still had it today we'd probably be arrested for manufacturing a pipe bomb. But the principle is the same and wrapping your rope around the widest diameter smooth surface possible will always offer the maximum residual rope strength and be the simplest option for lowering a heavy weight whether it incorporates a manufactured device or a Eucalyptus trunk. The main reason for switching to bespoke devices is continuity of performance and minimising damage to either the target tree or an adjacent tree. *HexaRope's Hexarig* below is the latest model providing a whopping 4.7" diameter tube in machined aircraft alloy so there are no welds. Aluminium is lighter but steel and stainless steel in particular are tougher even

## AUTO-LOCKING LOWERING DEVICES

One key type of 'Flying/Floating' lowering device NOT included here because the sheave or 'drum' rotates is an alternative you may also want to consider. It's the now tried and trusted *CMC MPD*. This should never be as robust as any of the bollards in this guide because it has mechanically interfacing components but with a working load limit of round 4000kg/ 8800lb which is limited by the becket MBS of 29kN rather than the wheel, it can deal with the vast majority of daily jobs. It has the added advantage of being easily incorporated into a more efficient raising system than the bollards would offer and it's quite compact. Just don't look too closely at the price (several hundred Dollars), that's why the boss insists on you sticking with a *Port-A-Wrap*.



## PORT-A-WRAPS

The term *Port-A-Wrap* is, of course a product name that has come to describe this whole genre. Indeed, most of the companies making and selling them actually use '*Port-A-Wrap*' in the name so somebody at *Buckingham* must have slipped up on patent or trade name registering. The concept is simple and comes from the ancient art of wrapping rope around the tree's trunk or a branch to provide enough friction to arrest and lower a branch, section or entire trunk. As a manufactured device though, this concept probably has mountain rescue to thank because I'm pretty sure the tube style lowering device was in play back in the 50's and 60's at least. We're not laying claim to anything but in the late 80's we adapted the idea of the *Thor Anchor*, a metal 'tree' substitute bolted to Mt.

if the aluminium is coated. Mud is the killer. Heavy woods like Eucalyptus will seriously tax your metal especially in sandy/sandstone areas where the ropes will pick up abrasive particles and you will find wear points that will accelerate renewal which is why this *Hexarig* can have the tube reversed when it starts to show wear.

Aside from the obvious tube of metal there are posts sprouting from the main cylinder/tube for redirecting and tying off the lowering rope s well as anchor eyes top and bottom. *WesSpur's* neat size comparison at the top shows the difference between the mini and the X-large *Buckingham* models. We call them flying or floating rather than fixed but in reality the basal tie off tends to be so firm as to be akin to a fixed system but it will function remote from the target tree if required. One of the two eyes on the standard offset oval models is used to anchor it to the tree (usually the longest eye) while the other eye can have a hauling system attached or you



can make the device truly fixed by using that to anchor it as well. The friction posts act as redirects allowing the ground crew to stand well away from the danger (drop) zone and still control the arrest and lower.



### PINS, POSTS & GUIDES

The forward posts are for redirect and tie-off so that you can lock off the load and move away. On some bollards you'll notice the posts have additional 'T' pins through them, often removable. These stop the rope from coming off the redirect or lock-off posts. However, there will be times when you may actually want to flick the rope off the pin to adjust lowering

tension while standing clear of the drop-zone, hence the ability to remove some of them as with this German Obilasser model (above).

Posts at the rear of the cylinders are primarily rope-guides and on some models are curved or bent while on larger models there are dedicated open 'hook' style guides which allow the rope to pass easily into them. Both the post and the hook will guide the vertical section of rope onto the rear of the bollard and stop it sliding forward on the cylinder, potentially overlaying other strands and causing the rope to jam and impede rope progress. Hook-style guides

are most clearly seen in this *Courant Hulk* guide (left and in the *Treerunner* model (left) with top guides on the left and the right depending on which side of the drum you want the rope to enter. Note that the rear pin also acts as a rope guide to stop the rope sliding forward. *Port-A-Wraps* too have a post or two set at the rear of the tube which stops the rope sliding off the back of the cylinder. Still another style of *Port-A-Wrap* exemplified by the *Stein RC1000* and the now discontinued and oddly asymmetric *ISC* models (large version shown below) has closed eyes which can be used as rope guides by connecting a carabiner into the eye and then the rope - make sure the carabiner gate is facing outwards towards the ground crew.

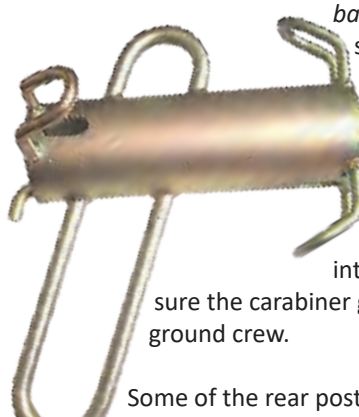
Some of the rear posts are shaped or bent to more safely

guide the rope upwards or into the bollard but, as with straight posts which will also function as redirects, we have listed them as 'rope guides' in our columns. ie. a standard *Port-A-Wrap* will have 2 friction posts and 1 rope guide which could also be deemed a third friction or redirect post. In the case of the larger *Stein* models the difference in function between the four available posts is blurred as the rear two are set proportionally further forward than most models so they operate more as friction/redirect posts than rear rope guides. We listed them as friction posts but they will direct rope upwards at the rear albeit at more of an angle than most.

### ODDITIES.....

**Courant Hulk** (above) Talking of posts and rope guides, the aptly named *Courant Hulk* doesn't actually have any conventional tie-off or redirect posts but it does have three shaped rope guides to vary the rope exit position and therefore the friction imparted by the 4 bollards. The *Hulk* is truly unique in this selection because it has taken the cylinder/tube or bollard, cut it into four slices and bolted them back onto the backing frame. Where others have the rope wrapped a few times around the bollard this has a single pass around each section as it would if the cylinder were a whole bollard! The bollards, or more accurately in this case, non-revolving sheaves, can be rotated to a new fixed position so that wear is spread more evenly around the bollard otherwise it would be the same area receiving wear each use while other areas of the drum get none at all. Once worn you can simply buy replacement sheave.

**Notch Aerial Friction Brake:** This one has been discontinued by Notch but could yet get picked up by someone else. It was very familiar to us as a rescue belay device which is why it's equally good for the high impact loading of tree work. This is effectively a fixed sheave pulley with a round-edged square in place of the usual 'cylinder' and separator posts emanating from the top edge. It opens in the same way as an impact pulley by swivelling the front plate around allowing you to add two or three rope wraps around the squarish spindle.



# LOWERING BOLLARDS

Details for this are in our original Guide to Bollards in **ARBCLIMBER** issue 14

**Jail Brake:** The Jail Brake (right) is a wildly different design to standard 'bobbins' and has been around for a few years so is well tested and is also based on a principle we're familiar with from rescue - the friction created by weaving rope through bars like a Rack or captive eyes like the *Whaletail* and *Goldtail*, albeit that the *Jail Brake* is 3 or 4 times larger. *CMI* now produces the *Goldtail* as a descender but we may well include it in this guide if *CMI* think it's appropriate - it's certainly up to the task because we were using one for light impact lowering 35 years ago. The *Jail Brake's* have huge heat sink at almost 2 feet long for the 7R&HD versions with the latter (pic right) able to handle twice the load at 2272kg/5000lb with many friction variations.

## McDermott Crown Brake

In the midst of all this sometimes sophisticated equipment is the assumption that you have sufficient and sufficiently experienced ground crew to operate these devices. Smaller owner-operators in particular will be familiar with having to run lowering operations from the crown while ground crew wrestle large limbs to a suitable landing point. Jim McDermott came up with a device he anchored with him near the cutting point using the top double 'T' bar and maybe the stabilising bar inside the cylinder. The lowering rope is then threaded through the holes and tied off during cutting. Once arrested the climber does the lowering. You might wonder why you couldn't simply use a smaller *Port-a-Wrap* (although this isn't a small device). Well, you could but the *MCB* is directional in that rope can only exit on the down/underside of the cylinder. We're guessing the top eyes are enclosed to ensure the rope doesn't jump out during untended arrest. This was sold by *Wesspur* but now seems discontinued.

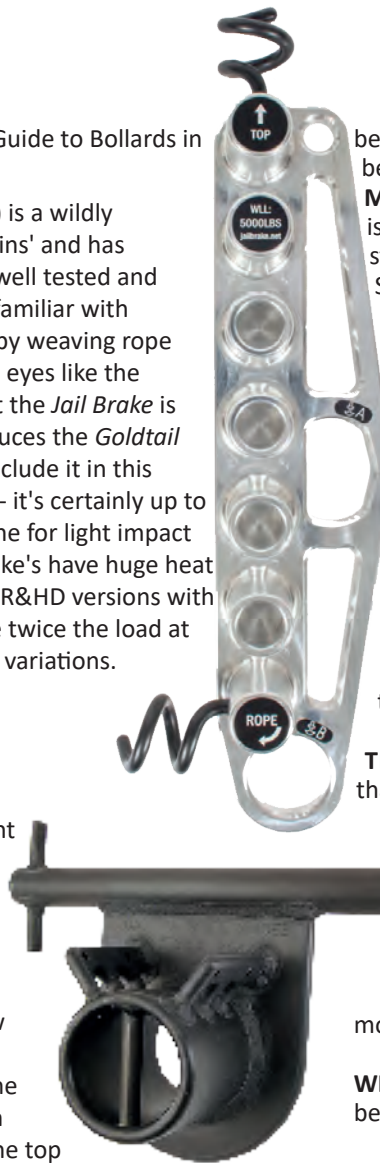
## IN THE FOLLOWING TABLES:.....

**COST:** Approximate. Includes local taxes but can vary due to exchange rates, other taxes etc. We generally round up the cost to the nearest Pound£, US Dollar\$ or Euro€

**ORIGIN:** Is the country of the company selling the item which is not necessarily the same as the origin of the product itself since so many items are 're-badged'. Where we know the manufacturing origin is different here is an inset flag.

**MAX DIMENSIONS:** Usually the height (inc top eye) and the width but in some cases, like *Port-a-Wraps*, it will be the depth of the cylinder and that may also be case for some fixed bollards.

**MAX ROPE DIAMETER** Given by the manufacturer. This should



be dictated by the diameter of the cylinder maximising the bend radius but also by the gap at the rear rope guide. **MBS** and **WLL** - is the Maximum Breaking Strength. This figure isn't given by everyone in the arb sector, many preferring to stick with a Working Load Limit or Safe Working Load WLL/SWL. However, you could work this figure back to a maximum breaking strength by multiplying the WLL by 7 the usual safety ratio in the arb sector although *ProClimb* quote 5:1, *Buckingham* have the *Port-a-Wrap III* Medium with a 6:1 ratio and the XL with a 10:1 ratio. We list the MBS in units of force as KiloNewtons and Pounds Force and WLL in terms of weight as Kilograms and Lbs but they are broadly comparable figures ie. 50kN isn't quite 5000kg, it's 5099kg, close enough for you to be able to work out the load limits are and stay well clear of them.

A solid black square ■ in the **Anchor Strap** column indicates that the device comes complete with the necessary strapping (whether you want it or not!) An outline square □ in the **Anchor Strap** column indicates that bespoke strapping is available as an option.

**TRUNK GRIPS** refers to hard/aggressive teeth or serrations that bite into the bark to find a purchase.

**RUBBER BARK PROTECTION** refers to protective feet or in the case of *Port-a-Wraps*, a rubber cap to protect bark from damage during lowering operations.

**ANCHOR STRAP:** some companies supply their device with anchor straps, often ratchet straps for the larger models and *whoopie* slings for the smaller *Port-a-Wraps*.

**WINCH ADAPT:** a black square here means that the device can be retrofitted with a winch.

**TIE-OFF/CONTROL POSTS:** The number of posts available to maintain wraps on the cylinder and redirect the entry rope to allow the ground to stand in the safest position for lowering eg. not directly beneath the limb/section being cut. This does NOT include the rear-most posts which are listed under **ROPE GUIDES**. **ROPE GUIDES** will also include specific hook-style guides which you can see in each products picture.

**TOP/BOTTOM ANCHOR EYE** refers to a load bearing eye located on the the top for clipping in a raising/tensioning system or on the bottom as an ancillary anchor point, often for a *Whoopie* sling style anchor.

Among the models we haven't included in our tables is the *Obermeier Forst Technik* model mentioned earlier because details are so scant. We have not included the Russian brand *KROK* because they're russian and face a copyright issue with one of their models (not shown) but the bulk of their equipment looks pretty unique. We haven't included another prolific russian brand *VTT* but they have at least 4 devices including a fixed bollard with a detachable handle for pre-tensioning which looks like a smaller version of the *Stein Dual* model. More on these in a post-war update once russia returns to its senses. As mentioned before, the *Notch AFB* and *McDermott Crown Brake* appear to be discontinued but if that subsequently changes we will update this guide.




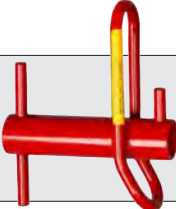



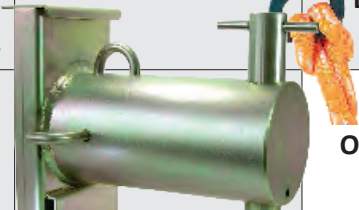

Images Apprimatey to Scale

COST: Approx & inc Tax/VAT

£€ - Currency Conversion Only

MAX DIMENSIONS: usually height x width but depth of tube if that's greater

WLL/Max Load: normally based on 7:1 to 10:1 of the MBS. N/A: info Not Available/not given

|   |   | MODEL                            | COMPANY    | ORIGIN  | COST inc tax          | WEIGHT exc straps | MATERIALS   | DI       |
|---|---|----------------------------------|------------|---|-----------------------|-------------------|---|----------|
|     |    | AL3                              | ARBPRO     |    | £455<br>\$530<br>€495 | n/a               | Aluminium   | 31<br>1  |
|   |   | AL2                              | ARBPRO     |    | £560<br>\$680<br>€637 | 10kg<br>22lb      | Aluminium   | 33       |
|   |    | Mini Bollard                     | ART        |    | £234<br>\$286<br>€268 | 2.6kg<br>5.7lb    | Stainless Steel   | 30<br>1  |
|    |   | Port-A-Wrap Mini/Rescue Mini 601 | BUCKINGHAM |    | £160<br>\$210<br>€170 | 0.9kg<br>2lb      | Nickel-plated Steel   | 14<br>5  |
|   |   | Port-A-Wrap III Medium 601       | BUCKINGHAM |  | £190<br>\$225<br>€220 | 1.8kg<br>4lb      | Nickel-plated Steel   | 18       |
|  |   | Port-A-Wrap III Large            | BUCKINGHAM |  | £200<br>\$243<br>€240 | 3.2kg<br>7lb      | Nickel-plated Steel   | 24<br>9  |
|   |  | Port-A-Wrap XL                   | BUCKINGHAM |  | £300<br>\$350<br>€350 | 8.3kg<br>18lb     | Nickel-plated Steel   | 33<br>:  |
|   |   | LCD                              | CMI        |  | £660<br>\$657<br>€775 | 7.66kg<br>16.9lb  | Stainless Steel   | 305<br>1 |
|   |  | Hulk                             | COURANT    |  | £310<br>\$399<br>€352 | 4.3kg<br>9.5lb    | Alloy Bollards<br>Stainless Steel posts, HT & Coated Steel Back Plate | 30<br>1  |
|  |   | Rigging Bollard Silver           | FREWORKER  |  | £222<br>\$312<br>€292 | 7.1kg<br>15.6lb   | Stainless Steel   | 30<br>1  |
|   |  | Obilasser                        | FREWORKER  |  | £354<br>\$465<br>€405 | 8.55kg<br>18.9lb  | Galvanised Steel,<br>Stainless pins                                   | 30       |

| MAX MENSIONS                    | BOLLARD Ø       | MAX ROPE Ø     | MBS                | WLL (Max Working Load) | FLYING | FIXED | TRUNK GRIPS | RUBBER BARK PROTECTION | ANCHOR STRAP | WINCH ADAPT | TIE-OFF/ CONTROL POSTS | ROPE GUIDES | TOP/BOTTOM ANCHOR EYE | NOTES  | WWW.              |
|---------------------------------|-----------------|----------------|--------------------|------------------------|--------|-------|-------------|------------------------|--------------|-------------|------------------------|-------------|-----------------------|--|-------------------|
| 100 x 155mm<br>2.2 x 6.1"       | 100mm<br>4"     | 19mm<br>3/4"   | -                  | n/a                    | -      | ■     | -           | ■                      | ■            | -           | 4                      | 2           | ■                     |  | arbpro.it         |
| 133 x 355mm<br>13 x 14"         | 150mm<br>6"     | 25.4mm<br>1"   | 3.5kN<br>16534 lbf | 1200kg<br>2645 lb*     | -      | ■     | -           | ■                      | -            | -           | 4                      | 2           | ■                     | * WLL 1500kg without rubber feet   | arbpro.it         |
| 100 x 206mm<br>1.8 x 8.1"       | 90mm<br>3.5"    | 14mm<br>9/16"  | -                  | 1000kg<br>2204lb       | -      | ■     | ■           | -                      | -            | -           | 2                      | 2           | ■                     |  | climb-art.de      |
| 100 x 165mm<br>3.5" x 6.5"      | 33.5mm<br>1.32" | 12.7mm<br>1/2" | 31kN<br>7000 lbf   | 450kg<br>1000lb        | ■      | -     | -           | -                      | -            | -           | 2                      | 1           | ■                     | Price is for polished. Black powder-coated also available Red with integral Tenex rope for RESCUE = \$250. | buckinghammfg.com |
| 104 x 228mm<br>7.25 x 9"        | 48mm<br>1.9"    | 16mm<br>5/8"   | 53kN<br>12000lbf   | 907kg<br>2000lb        | ■      | -     | -           | -                      | -            | -           | 2                      | 1           | ■                     | Also available as black powder-coated  | buckinghammfg.com |
| 101 x 280mm<br>9.5" x 11"       | 61mm<br>2.4"    | 18mm<br>3/4"   | 53kN<br>12000lbf   | 907kg<br>2000lb        | ■      | -     | -           | -                      | -            | -           | 2                      | 1           | ■                     | Also branded as 'ArborMax 601LN'   | buckinghammfg.com |
| 130 x 55mm<br>13" x 14"         | 89mm<br>3.5"    | 22mm<br>7/8"   | 6.7kN<br>60000lbf  | 2720kg<br>6000lb       | ■      | -     | -           | -                      | -            | -           | 2                      | 1           | ■                     |  | buckinghammfg.com |
| 100 x 305 x 15mm<br>2 x 12 x 6" | ?               | 19mm<br>3/4"   | -                  | 2720kg<br>6000lb       | -      | ■     | -           | -                      | ■            | -           | 4                      | 2           | ■                     | LCD=Lowering Control Device  | cmigearusa.com    |
| 100 x 330mm<br>11.8 x 13"       | 60mm<br>2.36"   | 14mm<br>9/16"  | 25kN<br>5620lbf    | 500kg<br>1102lb        | ■      | -     | -           | -                      | -            | -           | -                      | 3           | ■                     | Sheaves/bollards can be rotated to even out wear or replaced   | mycourant.com     |
| 100 x 160mm<br>1.8 x 6.3"       | 112mm<br>4.4"   | 16mm<br>5/8"   | -                  | 500kg<br>1102lb        | -      | ■     | -           | -                      | □            | -           | 2                      | 2           | ■                     |  | freeworker.de     |
| 105 x 160mm<br>12 x 6.3"        | 140mm<br>5.5"   | 19mm<br>3/4"   | -                  | 1400kg<br>3086lb       | -      | ■     | -           | -                      | □            | -           | 2                      | 2           | ■                     | Removable pins   | freeworker.de     |




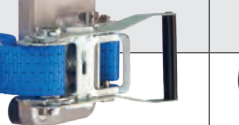





























Images Apprimately to Scale

COST: Approx & inc Tax/VAT

£\$€ - Currency Conversion Only

MAX DIMENSIONS: usually height x width but depth of tube if that's greater

WLL/Max Load: normally based on 7:1 to 10:1 of the MBS. N/A: info Not Available/not given

|   |   | MODEL                       | COMPANY                | ORIGIN  | COST inc tax                    | WEIGHT exc straps | MATERIALS               | DI        |
|---|---|-----------------------------|------------------------|---|---------------------------------|-------------------|-------------------------|-----------|
|    |    | Micro                       | FTC TREE               |    | £336<br>£400<br>€385            | 1.7kg<br>3.75lb   | Aluminium               | 22<br>8   |
|    |    | Mini                        | FTC TREE               |    | £540<br><b>\$706</b><br>€620    | 3.6kg<br>7.9lb    | Aluminium               | 34<br>1   |
|    |    | Flying Capstan<br>H2611     | HARKIE                 |    | £149<br><b>\$195</b><br>\$163   | 1.92kg<br>4.2 lb  | Galvanised Steel        | 26<br>1   |
|   |   | Heavy Duty Capstan<br>H2621 | HARKIE                 |    | £302<br><b>\$395</b><br>\$346   | 6.45kg<br>14.2 lb | Galvanised Steel        | 33<br>13  |
|  |  | Hexarig<br>HX02648          | HEXAROPE               |  | £1300<br><b>\$1680</b><br>€1320 | 5.9kg<br>13 lb    | Machined Alu<br>7075-T6 | 25<br>13  |
|  |  | AbseilPoller                | HOLZZANGEN (DONHAUSER) |  | £90<br><b>\$115</b><br>€105     | 8kg<br>17.6lb     | Powder-coated Steel     | 28<br>1   |
|  |  | Jail Brake 5R               | JAIL BRAKE             |  | £382<br><b>\$499</b><br>€455    | 2.7kg<br>6lb      | A356 Alloy              | 431<br>17 |
|  |  | Jail Brake 7R               | JAIL BRAKE             |  | £500<br>\$599<br>€635           | 3.6kg<br>8lb      | A356 Alloy              | 559<br>22 |
|  |  | Jail Brake HD               | JAIL BRAKE             |  | £611<br>\$799<br>€728           | 3.6kg<br>8lb      | 6061 Aluminium          | 559<br>22 |
|  |  | Port-A-Wrap Medium          | NOTCH                  |  | £169<br>\$208<br>€195           | 1.9kg<br>4.25lb   | Stainless Steel         | 17<br>1   |
|  |  | Port-A-Wrap Large           | NOTCH                  |  | £185<br>\$230<br>€215           | 3.3kg<br>7.25lb   | Stainless Steel         | 23<br>9   |



# LOWERING BOLLARDS

| MAX DIMENSIONS                  | BOLLARD Ø     | MAX ROPE Ø    | MBS                | WLL (Max Working Load) | FLYING | FIXED | TRUNK GRIPS | RUBBER BARK PROTECTION | ANCHOR STRAP | WINCH ADAPT | TIE-OFF/ CONTROL POSTS | ROPE GUIDES | TOP/BOTTOM ANCHOR EYE | NOTES   | WWW.               |
|---------------------------------|---------------|---------------|--------------------|------------------------|--------|-------|-------------|------------------------|--------------|-------------|------------------------|-------------|-----------------------|---|--------------------|
| 4 x 163mm<br>3.8 x 6.4"         | 75mm<br>3"    | 14mm<br>9/16" | 36.2kN<br>8819 lbf | 800kg<br>1764lbf       |        | ■     |             | ■                      | ■            |             | 2                      | 2           | ■<br>■                | Comes with storage box and 9m ratchet strap   | ftc-tree.com       |
| 100 x 120mm<br>3.2 x 4.7"       | 100mm<br>4"   | 16mm<br>5/8"  | 49kN<br>11023lbf   | 1000kg<br>2204lbf      |        | ■     |             | ■                      | ■            |             | 2                      | 2           | ■                     | Comes with storage box and 9m ratchet strap   | ftc-tree.com       |
| 75 x 230mm<br>10.4 x 9"         | 75mm<br>3"    | 14mm<br>9/16" | 50kN<br>11240lbf   | 1000kg<br>2204lb       | ■      |       |             | ■                      |              |             | 3                      |             | ■<br>■                | Comes with storage bag  | harkieglobal.com   |
| 75 x 300mm<br>3.2 x 11.8"       | 75mm<br>3"    | 14mm<br>9/16" | 50kN<br>11240lbf   | 1000kg<br>2204lb       |        | ■     | ■           |                        | ■            |             | 4                      | 1           | ■                     | Comes with storage bag  | harkieglobal.com   |
| 100 x 180mm<br>3.2 x 11.8"      | 120mm<br>4.7" | 14mm<br>9/16" | 75kN<br>16860lbf   | 1500kg<br>3300lb       |        | ■     |             | ■                      | ■            |             | 4                      | 2           | ■                     | Comes with storage case and ratchet straps. No welds/weakpoints. Air vents for cooling. Main bollard reversible to spread wear. | hexarope.com       |
| 100 x 230mm<br>11 x 9"          | 102mm<br>4"   | 19mm<br>3/4"  | -                  | 2000kg<br>4408lbf      |        | ■     | ■           |                        | □            |             | 4                      | 2           | ■                     | direct from manufacturer  | holzlangen.de      |
| 102 x 102 x 114<br>4 x 4 x 4.5" | 38mm<br>1.5"  | 19mm<br>3/4"  | 36kN<br>8267lbf    | 750kg<br>1500lb        | ■      | -     | -           | -                      | -            | -           | 5*                     | 2           | ■<br>■                | *Note the 'Bollards' are effectively acting as tie-off/Control posts.   | jailbrake.net      |
| 102 x 102 x 114<br>4 x 4 x 4.5" | 38mm<br>1.5"  | 19mm<br>3/4"  | 55kN<br>12522lbf   | 1136kg<br>2500lb       | ■      | -     | -           | -                      | -            | -           | 7*                     | 2           | ■<br>■                | *Note the 'Bollards' are effectively acting as tie-off/Control posts.   | jailbrake.net      |
| 102 x 102 x 114<br>4 x 4 x 4.5" | 38mm<br>1.5"  | 19mm<br>3/4"  | 111kN<br>25000lbf  | 2272kg<br>5000lb       | ■      | -     | -           | -                      | -            | -           | 7*                     | 2           | ■<br>■                | Solid, machined block of aluminium.<br>*Note the 'Bollards' are effectively acting as tie-off/Control posts.                    | jailbrake.net      |
| 108 x 236mm<br>7 x 9.3"         | 40mm<br>1.6"  | 14mm<br>9/16" | 88.9kN<br>20000lbf | 897kg<br>1978lb        | ■      |       |             | ■                      |              |             | 2                      | 1           | ■<br>■                | Tree protection cap on tube-end   | notchequipment.com |
| 104 x 287mm<br>4.2 x 11.3"      | 61mm<br>2.4"  | 19mm<br>3/4"  | 88.9kN<br>20000lbf | 897kg<br>1978lb        | ■      |       |             | ■                      |              |             | 2                      | 1           | ■<br>■                | Tree protection cap on tube-end   | notchequipment.com |

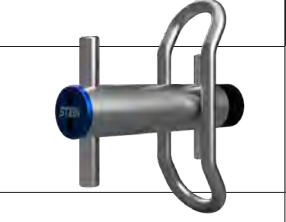












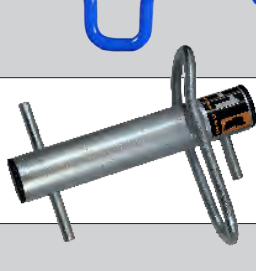


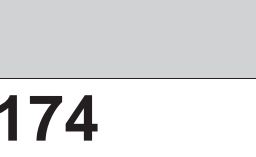






Images Apprimately to Scale

COST: Approx & inc Tax/VAT

£\$€ - Currency Conversion Only





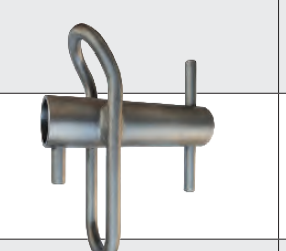


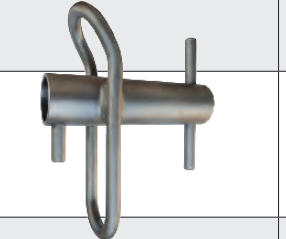

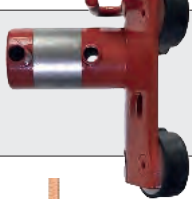


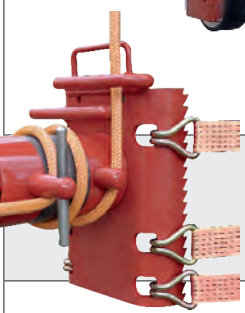


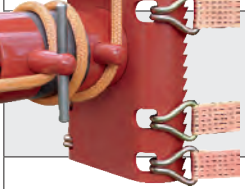
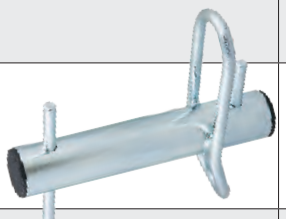


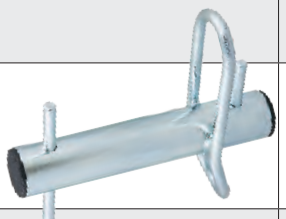




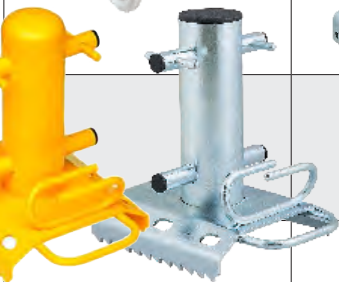


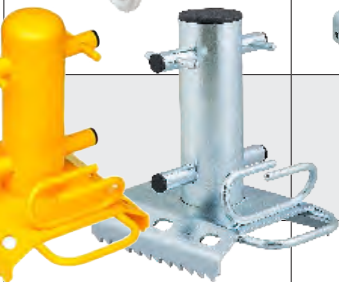


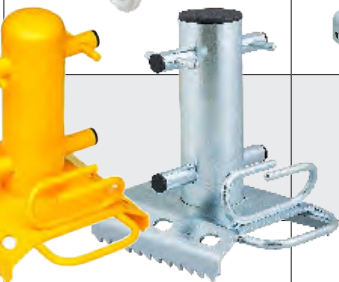


MAX DIMENSIONS: usually height x width but depth of tube if that's greater

WLL/Max Load: normally based on 7:1 to 10:1 of the MBS N/A: info Not Available/not given

|   |   | MODEL                           | COMPANY | ORIGIN  | COST inc tax             | WEIGHT exc straps | MATERIALS                    | DI       |
|---|---|---------------------------------|---------|---|--------------------------|-------------------|------------------------------|----------|
|    |    | Floating Friction Device LD750  | STEIN   |    | £162<br>\$212<br>€00     | 3.6kg<br>7.9lb    | Aluminium                    | 22<br>8  |
|    |   | Floating Friction Device LD1000 | STEIN   |    | £198<br>\$260<br>€000    | 3.6kg<br>7.9lb    | Aluminium                    | 24<br>9  |
|   |  | Floating Friction Device LD1250 | STEIN   |    | £234<br>\$307<br>€280    | 4.4kg<br>9.75lb   | Aluminium                    | 24<br>9  |
|  |  | RC1000                          | STEIN   |    | £240<br>\$200*<br>€287   | 3.6kg<br>7.9lb    | Plated Steel                 | 24<br>9  |
|  |  | RC2000                          | STEIN   |   | £282<br>\$240*<br>€337   | 6.2kg<br>13.7lb   | Plated Steel                 | 28<br>13 |
|  |  | RC2001                          | STEIN   |  | £450<br>\$560<br>€537    | 5.8kg<br>12.8lb   | Plated & powder-coated Steel | 18<br>7  |
|  |  | RC(W)3001                       | STEIN   |  | £660<br>\$930<br>€787    | 13.3kg<br>29lb    | Plated & powder-coated Steel | 27<br>10 |
|  |  | RC(W)3002                       | STEIN   |  | £1020<br>\$1095<br>€1216 | 26kg<br>57.3lb    | Plated & powder-coated Steel | 41<br>18 |
|  |  | SMB1000                         | STEIN   |  | £298<br>\$399<br>€356    | 4.4kg<br>9.7lb    | Plated & powder-coated Steel | 31<br>14 |
|  |  | TH LD1                          | TREEHOG |  | £126<br>\$165<br>€151    | 1.92kg<br>4.2lb   | Galvanised Steel             | 26<br>12 |
|  |  | TH LD2                          | TREEHOG |  | £300<br>\$395<br>€358    | 7.3kg<br>16lb     | Galvanised Steel             | 37<br>14 |

# LOWERING BOLLARDS

| MAX MENSIONS               | BOLLARD Ø     | MAX ROPE Ø | MBS              | WLL (Max Working Load) | FLYING | FIXED | TRUNK GRIPS | RUBBER BARK PROTECTION | ANCHOR STRAP | WINCH ADAPT | TIE-OFF/ CONTROL POSTS | ROPE GUIDES | TOP/BOTTOM ANCHOR EYE | NOTES   | WWW.               |
|----------------------------|---------------|------------|------------------|------------------------|--------|-------|-------------|------------------------|--------------|-------------|------------------------|-------------|-----------------------|---|--------------------|
| 100 x 250mm<br>3.7 x 9.8"  | 51mm<br>2"    | 13mm<br>½" | -                | 750kg<br>1653lb        | ■      | ■     | ■           | ■                      | ■            | ■           | 2                      | 2           | ■<br>■                | Inc removable / replaceable protection rubber cap<br>Steel version (Inverta-Wrap) discontinued    | steinworldwide.com |
| 150 x 300mm<br>4.7 x 11.8" | 61mm<br>2.4"  | 14mm<br>⅝" | -                | 1000kg<br>2204lb       | ■      | ■     | ■           | ■                      | ■            | ■           | 2                      | 2           | ■<br>■                | Inc removable / replaceable protection rubber cap   | steinworldwide.com |
| 150 x 300mm<br>4.7 x 11.8" | 74mm<br>2.9"  | 16mm<br>⅝" | -                | 1250kg<br>2755lb       | ■      | ■     | ■           | ■                      | ■            | ■           | 2                      | 2           | ■<br>■                | Inc removable / replaceable protection rubber cap   | steinworldwide.com |
| 150 x 300mm<br>4.7 x 11.8" | 61mm<br>2.4"  | 14mm<br>⅝" | -                | 1000kg<br>2204lb       | ■      | ■     | ■           | ■                      | ■            | ■           | 2                      | 1           | ■<br>■                | US\$ price less than GB£  | steinworldwide.com |
| 150 x 370mm<br>4.7 x 14.6" | 76mm<br>3"    | 16mm<br>⅝" | -                | 2000kg<br>4409lb       | ■      | ■     | ■           | ■                      | ■            | ■           | 4                      | 1           | ■<br>■                | US\$ price less than GB£  | steinworldwide.com |
| 150 x 325mm<br>4.7 x 12.8" | 76mm<br>3"    | 16mm<br>⅝" | -                | 2000kg<br>4409lb       | ■      | ■     | ■           | ■                      | ■            | ■           | 4                      | ■           | ■<br>■                |   | steinworldwide.com |
| 150 x 480mm<br>4.8 x 18.9" | 115mm<br>4.5" | 19mm<br>¾" | -                | 3000kg<br>6614lb       | ■      | ■     | ■           | ■                      | ■            | ■           | 4                      | ■           | ■<br>■                | (W) refers to winch capable adaption, this is otherwise the same model previously listed as 'RC'. | steinworldwide.com |
| 150 x 480mm<br>4.8 x 18.9" | 115mm<br>4.5" | 19mm<br>¾" | -                | 3000kg<br>6614lb       | ■      | ■     | ■           | ■                      | ■            | ■           | 8                      | ■           | ■<br>■                | Winch piggybacks to lowering line temporarily bypassing (not replacing) the lowering bollard.     | steinworldwide.com |
| 150 x 210mm<br>4.7 x 8.3"  | 73mm<br>2.9"  | 14mm<br>⅝" | -                | 1000kg<br>2204lb       | ■      | ■     | ■           | ■                      | ■            | ■           | 4                      | 1           | ■<br>■                | (W) refers to winch capable adaption, this is otherwise the same model previously listed as 'RC'. | steinworldwide.com |
| 150 x 230mm<br>4.7 x 9"    | 75mm<br>3"    | 12mm<br>½" | 30kN<br>6744lbf  | 600kg<br>1323lb        | ■      | ■     | ■           | ■                      | ■            | ■           | 2                      | 1           | ■<br>■                | Comes in zip-up canvas bag  | arbortec.com       |
| 150 x 385mm<br>4.6 x 15.2" | 75mm<br>3"    | 14mm<br>⅝" | 50kN<br>11240lbf | 1000kg<br>2204lb       | ■      | ■     | ■           | ■                      | ■            | ■           | 2                      | 4           | ■                     | comes in PVC pack   | arbortec.com       |

| <p><b>Images Apprimately to Scale</b><br/>                     COST: Approx &amp; inc Tax/VAT<br/>                     £\$€ - Currency Conversion Only<br/>                     MAX DIMENSIONS: usually height x width but depth of tube if that's greater<br/>                     WLL/Max Load: normally based on 7:1 to 10:1 of the MBS N/A: info Not Available/not given</p> |   | MODEL                   | COMPANY          | ORIGIN  | COST inc tax           | WEIGHT exc straps | MATERIALS           | DI       |
|--|---|-------------------------|------------------|---|------------------------|-------------------|---------------------|----------|
|   |    | TH LD3                  | TREEHOG          |    | £305<br>\$400<br>\$365 | 6.45kg<br>14.2lb  | Galvanised Steel    | 33<br>13 |
|   |    | TH LD5 3.0T             | TREEHOG          |    | £440<br>\$540<br>€505  | 5.8kg<br>12.8lb   | Stainless Steel     | 25<br>9  |
|    |    | Port-A-Wrap (71-817)    | TREERUNNER       |    | £195<br>\$236<br>€220  | 2.6kg<br>5.7lb    | Stainless Steel     | 25<br>9  |
|    |   | P500 (71-879)           | TREERUNNER       |    | £280<br>\$321<br>€335  | 5.8kg<br>12.8lb   | Powder-coated Steel | 32<br>1  |
|   |   | Poller Classic (71-818) | TREERUNNER       |  | £255<br>\$334<br>€310  | 9.1kg<br>20lb     | Powder-coated Steel | 30<br>1  |
|    |  | P3000 (71-877)          | TREERUNNER       |  | £455<br>\$595<br>€459  | 16kg<br>35.3lb    | Powder-coated Steel | 47<br>1  |
|    |  | Port-A-Wrap TU200       | TREEUP (PROTEKT) |  | £115<br>\$150<br>€138  | 1.92kg<br>4.2lb   | Galvanised Steel    | 26       |
|    |  | Port-A-Wrap TU201       | TREEUP (PROTEKT) |  | £105<br>\$137<br>€125  | 2.32kg<br>5.1lb   | Stainless Steel     | 26<br>10 |
|    |  | Port-A-Wrap TU100       | TREEUP (PROTEKT) |  | £274<br>\$336<br>€315  | 7.3kg<br>16lb     | Galvanised Steel    | 37<br>14 |
|    |  | Port-A-Wrap TU110       | TREEUP (PROTEKT) |  | £254<br>\$312<br>€291  | 6.45kg<br>14.2lb  | Galvanised Steel    | 33<br>13 |
|    |  | Ultralight TU101        | TREEUP (PROTEKT) |  | £367<br>\$450<br>€421  | 5.8kg<br>12.8lb   | Stainless Steel     | 25<br>9  |

| MAX DIMENSIONS             | BOLLARD Ø      | MAX ROPE Ø    | MBS                | WLL (Max Working Load) | FLYING | FIXED | TRUNK GRIPS | RUBBER BARK PROTECTION | ANCHOR STRAP | WINCH ADAPT | TIE-OFF/ CONTROL POSTS | ROPE GUIDES | TOP/BOTTOM ANCHOR EYE | NOTES  | WWW.         |
|----------------------------|----------------|---------------|--------------------|------------------------|--------|-------|-------------|------------------------|--------------|-------------|------------------------|-------------|-----------------------|--|--------------|
| 155 x 300mm<br>6.1 x 11.8" | 75mm<br>3"     | 14mm<br>9/16" | 50kN<br>11240lbf   | 1000kg<br>2204lb       |        | ■     | ■           | ■                      |              |             | 2                      | 3           | ■                     | May be discontinued comes in PVC pack  | arbortec.com |
| 150 x 200mm<br>5.9 x 7.9"  | 75mm<br>3"     | 14mm<br>9/16" | 150kN<br>33721lbf  | 3000kg<br>6614lb       |        | ■     |             | ■                      | ■            |             | 2                      | 3*          | ■                     | *Top anchor eye is designated as a rope guide by manufacturer. Comes in PVC pack | arbortec.com |
| 150 x 310mm<br>5.8 x 12.2" | 60mm<br>2.36"  | 18mm<br>3/4"  | -                  | 1000kg<br>2204lb       | ■      |       |             |                        |              |             | 3                      |             | ■<br>■                |  | grube.de     |
| 150 x 220mm<br>5.8 x 8.7"  | 76mm<br>3"     | 16mm<br>5/8"  | -                  | 500kg<br>1102lb        |        | ■     |             | ■                      | □            |             | 4                      | 2           | ■<br>■                |  | grube.de     |
| 150 x 380mm<br>5.8 x 14.9" | 76mm<br>3"     | 16mm<br>5/5"  | -                  | 500kg<br>1102lb        |        | ■     |             |                        | □            |             | 3                      | 2           | ■                     |  | grube.de     |
| 170 x 380mm<br>6.5 x 14.9" | 140mm<br>5.5"  | 20mm<br>3/4"  | -                  | 3000kg<br>6613lb       |        | ■     | ■           |                        | □            |             | 4                      | 2           | ■                     |  | grube.de     |
| 155 x 230mm<br>6.1 x 9"    | 75mm<br>3"     | 14mm<br>9/16" | 50kN<br>11240lbf   | 1000kg<br>2204lb       | ■      |       |             | ■                      |              |             | 3                      |             | ■<br>■                | Comes with storage bag Also available in Yellow.                                 | treeup.pl    |
| 150 x 282mm<br>5.9 x 11.1" | 108mm<br>4.25" | 20mm<br>3/4"  | 50kN<br>11240lbf   | 1000kg<br>2204lb       | ■      |       |             | ■                      |              |             | 3                      |             | ■<br>■                |  | treeup.pl    |
| 170 x 385mm<br>6.6 x 15.1" | 75mm<br>3"     | 14mm<br>9/16" | 50kN<br>11240lbf   | 1500kg<br>3306lb       |        | ■     |             | ■                      | ■            |             | 4                      | 1           | ■                     | Comes with storage bag. Also available in Yellow with dome-top capstan           | treeup.pl    |
| 155 x 300mm<br>6.1 x 11.8" | 75mm<br>3"     | 14mm<br>9/16" | 50kN<br>11240lbf   | 1500kg<br>3306lb       |        | ■     | ■           | ■                      |              |             | 4                      | 1           | ■                     | Comes with storage bag. Also available in Yellow with dome-top capstan.          | treeup.pl    |
| 150 x 200mm<br>5.9 x 7.9"  | 75mm<br>3"     | 14mm<br>9/16" | 150kN<br>33721 lbf | 3000kg<br>6613lb       |        | ■     |             | ■                      | ■            |             | 4                      | 1*          | ■                     | *Top anchor eye is designated as a rope guide by manufacturer (with carabiner?)  | treeup.pl    |

**UPDATED** Mar '25

# HAND-POWERED ROPE WINCHES

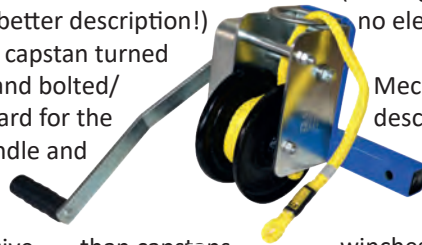
including **COMBINATION WINCH/BOLLARDS**



**H**andled winches that use ROPE instead of wire cable, do a similar job of lowering to the static bollards we covered in the last MARKET GUIDE and are of two distinct types:

**1) CAPSTAN WINCHES** which are cotton-reel'-shaped bollards stolen from yachting via the market leader, Harken Industrial shown in the picture on the left. They often have a lovely shiny surface around which several wraps of rope can absorb friction and lower some substantial weights to the ground in a controlled manner. Specific arborist models have a longer drum able to use more wraps and/or larger ropes. In the case of the ubiquitous Harken 46 model, it will take 5 wraps of half inch rope.

**2) HAND WINCHES** (for want of a better description!) which are basically the gearing of a capstan turned sideways into a flat metal housing and bolted/pinned above a standard static bollard for the purposes of PULLING rope via a handle and an appropriate number of wraps rather than just lowering. These are less efficient but far less expensive than capstans.



The difference between a winch and a static bollard as we featured in last issue's GUIDE is that they have a handle and



On the left is the original arborist winch with steel back plate, the Hobbs which is still going strong after nearly 40 years in the form of the H2 version [pic courtesy of Blair's Arborist Eqpt in MD] while on the right is an engineered alloy model from Italy using a modular back plate and yachting quality capstan together with guides and a cam above that have evolved to meet the specific needs of arborists.

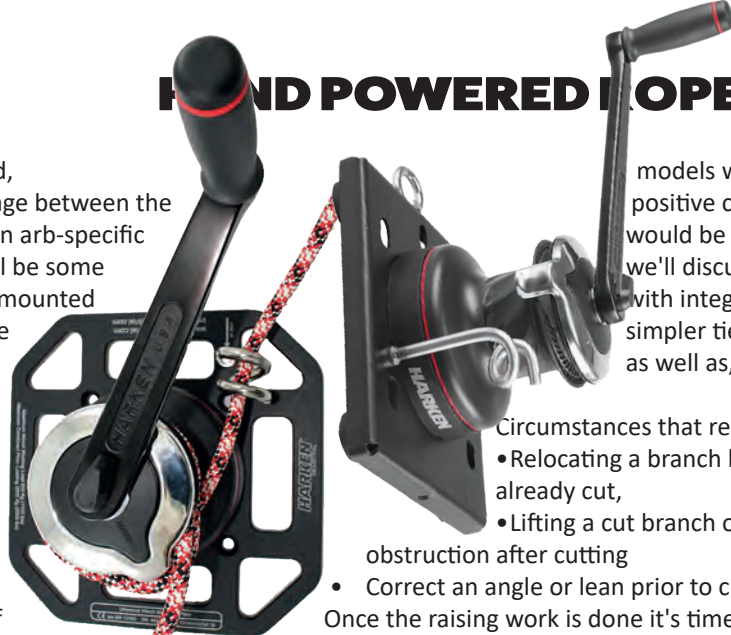
some cogs connected to the capstan to offer varying degrees of mechanical advantage allowing you to lift heavy weights as well as lower. This GUIDE focuses only on manual devices but you may obviously wish to consider powered winches - battery in particular seems to be the way things are going and prices aren't actually a lot different, in fact, many are considerably cheaper than some of these finely engineered models with their Harken Capstans fit for a millionaire's yacht. The clincher will often be the sheer brute competence and reliability of manually operated winches, no fuel/power to worry about, no inadvertent application of power when you didn't want it (bearing in mind that most don't have protective clutches) and no electronics to go wrong on a cold or hot day.

Mechanical advantage, in the case of capstan winches, is described by the gear ratio or alternatively by the power ratio which both relate to the movement of a gearing mechanism when compared to the distance the load is raised. More on this later. There are many capstan winches covering every industry and one or two rescue models but they are mostly NOT applicable to arborist work purely because they can't be adequately mounted to a trunk for a stable lowering and raising position.

Specific arborist models were pioneered by Ed Hobbs in 1980 with the novel idea of mounting a capstan to a base-plate and side-mounting it to a tree trunk using ratchet straps. Ratchet straps were part of the original idea rather than simply tensioned rope and this continues to be the simplest, fastest and most secure option. That first Hobbs design had a bespoke straight handle rather than the modern yacht-evolved modified Z-shape. The Hobbs also demonstrate the key arborist requirement which is a quite specifically designed backing plate able to grip the trunk and remain in a stable position during winching or lowering. These days rubber pads are used to protect the bark and with a much broader backing plate and heavier securing straps they tend not to have the serrated teeth we discussed in the Bollards guide. In this Guide we have also included a rescue model from Skyhook and Harken's own model (opposite-top) which both have universal back plates designed to fit, amongst other things, telegraph poles which is as difficult as it gets because it's much easier to get a secure purchase on a broader trunk, especially if you can cut a level mount into the trunk. Aside from FTC TREE's fine Italian Antal winch, the Harken capstan is a common theme for most of the capstan winches in this GUIDE which is testament to the quality and reverence within the industry. The *Protekt Tree Up* model

# HAND POWERED ROPE WINCHES

which we think has been discontinued, ( right) for instance was a clear marriage between the slick Harken capstan and Protekt's own arb-specific base plate with rubber feet. There will be some die-hards who swear by their vehicle mounted drum winch for various aspects of tree work, but....different animal entirely, different skill-set and vast scope for failure. Were we discussing winches with the sole job of pulling we could probably include virtually anything including the multitude of drum winches and even the venerable Tirfor winch which invariably uses wire cable and will do a sterling job of pulling over leaners. They would all do this from an anchor point far away from the target tree and often with direct connection to the load rather than via a redirect.



models with an altogether more positive cam which, in yachting, would be a jamming cleat which we'll discuss shortly, while those with integral bollards can use their simpler tie-off posts instead of, or as well as, the cleat or cams.

Circumstances that require raising include

- Relocating a branch being cut or that is already cut,
- Lifting a cut branch or trunk over an

obstruction after cutting

- Correct an angle or lean prior to cutting

Once the raising work is done it's time to lock off the load and prepare for lowering. This may use those integral camming cleats we mentioned or the tie-off posts but remember that a cam would require you to take load off before it will release the rope for lowering so you're either going to need that winch again to take in enough rope to release the cam or you might have one like the ArbPro pictured above or the ATD on the right and left which have a small handle on the cam to release the cam and transfer load to your lowering bollard/capstan which you will have taken in firmly.

## RAISING & LOWERING

The style of winch we're discussing could still be said to take some of the skills necessity out of the hands of ground crew; no setting up of pulley systems, no tying of knots even. It will always be secured to the base of a tree so as long as your crew can pick a good site (not too close to the ground and not directly in an impact area), you're sorted. The winch will almost always be attached to the target tree or very close to it and the rope (NOT WIRE CABLE) will be redirected to the load branch or trunk section via a snatch or impact block/pulley. The ground

crew stand to one side when lowering in the same way as the static bollards and use a handle to wind the bejesus out of the rope when raising. Because the loads can be quite high you must ensure that you are adequately capturing the progress you make after the manic winding. Capstans generally have their own progress capture (called **Self-Tailing** or, more appropriately, **CAPTIVE self-tailing** which is a pair of gripping 'lips' at the top of the capstan which will hold the rope if you have enough turns to absorb the weight. You can see this most clearly in the Sterling Rope ad a few pages on where the Harken capstan is shown in profile with the two gripping surfaces and the silver coloured rope guide and



in the GRCS pic overleaf. This works best on the largest rope in the winch's range and may be augmented or replaced in some

Tie-off posts are the same as you always have with a bollard, a few sturdy wraps and a strong hand grasp as you gently unwrap until the load comes on and remains manageable. With capstan winches this then becomes a self-tailing action where several wraps wound around the shiny surface allow one person to hold the load and gently run the rope through gloved hands to lower. *FTC TREE* provide these handy figures for the load holding ability of a new 12mm rope when wrapped around their mini-bollard with the operator(s) feeling a weight/resistance on the rope of around 30-40kg/67-90lb:

|                    |                                      |
|--------------------|--------------------------------------|
| <b>3/4 turn</b>    | <b>= 75 daN / 77kg / 169 lb</b>      |
| <b>1 3/4 turns</b> | <b>= 200 daN / 204kg / 450 lb</b>    |
| <b>2 3/4 turn</b>  | <b>= 470 daN / 479kg / 1057 lb</b>   |
| <b>3 3/4 turn</b>  | <b>= 1000 daN / 1020kg / 2248 lb</b> |

For the lowering function we can pretty much use exactly the same description as we did for fixed-location static bollards last time and add in the new winch stuff, how's this for lazy.....: *After flying and fixed or static bollards our third and heaviest lowering option is a winch with a large ROTATING DRUM driven by a crank handle. The winch is mounted (bolted, pinned or welded) to a backing plate with the whole assembly anchored firmly to the tree's trunk with ratchet straps. Many have rubber feet or the option of rubber feet to protect the bark from inevitable damage during tensioning and arrest/lowering. You need to have a fairly level surface to sit the back plate on so that it can't rock under load and loosen its retaining straps. Interestingly, a number of models quote a lower WLL with rubber feet than without, probably due to compression forces on the rubber and pushing the plate further out from the trunk, so it's fair to assume that the same should be the case for ANY model with the option of rubber feet. Nevertheless a solid flat surface is best so for dismantling jobs you would be able to*

## UPDATED Mar '25

cut a flat section into the bark with your chainsaw. Alternatively, for dismantling operations or if you don't like the client, there are plates with teeth or serrations which dig into the bark to provide a firm fixing though we haven't seen this with winches which all have flat back plates. Once you add raising into any equation the forces multiply considerably because there's a whole load of friction to take into account that you don't have with lowering. This is why the Working Load Limit is higher for the capstan or bollard in lowering than it is for the capstan and/or cleat in raising and then you may also need to reduce the load in your calculation for rubber feet depending on what the manufacturer has quoted.

It won't have escaped your notice that, not only are these systems quite expensive, they're also pretty big and heavy. So much so, that you could be into back-injury' territory if you didn't lift it into place correctly. Were it not for the fact that the biggest and heaviest systems like the GRCS (below & now owned by Harken), come in two, three or four separate parts - usually the back plate, the capstan, a handle/windlass, and a cleat and/or a lowering bollard. Notable exceptions to the comment on being heavy are the more rescue oriented models from Skyhook and Harken Industrial and the newest winch on the market the ODSK Elephant (inset below-right) all of which are less than 10kg/22 lbs. Well, OK, Krok's heavy duty steel Ilya and Tree-Up's TU120 were also very close at 10.2kg each but otherwise, the rest in this list are pretty heavy. Jeez.

Note that our figures are for the Capstan/winch version NOT the interchangeable rigging bollard (where there is one) unless specifically listed as such. Rope capacity diameters for instance, are often a couple of mil larger for the bollard than they are for the capstan. A noticeable exception to this is the FTC TREE Transformeur (advert opposite) which might sound very heavy at 43kg but that includes two, count 'em, two bollards AND the winch on the same assembly all of which can be



removed from the plate as required - you could for instance have just one bollard on the back plate or none at all and the weight would go down accordingly. The Stein 3002 also offers two bollards but these are fixed so the basic weight of the unit is quite high at 42kg but the 15kg winch attachment is easily separated.

### GEAR RATIO versus POWER RATIO :

We're listing this as **MA** or **MECHANICAL ADVANTAGE** which correlates to the Power ratio. While the actual gear ratio on, for instance a Harken winch may be 2:1 and 6:1 as it is on the Rigger 500, this actually translates to the much higher 'Power' ratio of 13:1 and 40:1. You calculate the 'Power' ratio by dividing the handle length by the **Drum Radius** (not diameter) and multiplying that by the gear ratio. Not sure how that works if you choose to measure the handle in millimetres? This power ratio figure is obviously starkly different to the gear ratio so make sure you are talking the same language when comparing 'Ratios' . For two speed winches the low ratio winding direction is often one way, while the higher ratio is in the opposite winding direction. This gearing principle is the same throughout the world of mechanical devices from watches to cars - you drive a small cog which engages with a bigger cog, maybe several cogs with the effect that the shorter revolutions of the small cog causes you to wind quite furiously while it engages teeth to teeth with the larger cog rotating much more slowly which in turn may be engaging and driving even larger cogs until it connects with the thing being driven, in this case a heavy load. There's always a trade off in effort and in this case its an increased number of turns to achieve the same aim. In capstans, the cogs sit horizontally in the larger section of the 'cotton reel' in the base. In the case of arborist methodology, this means they sit vertically but in the capstan's original yachting mode it would be sat flat to the deck winding horizontally. The flat, drum winches that attach to the top of some bollard devices like the Stein models, are oriented, and intended to be used, vertically.

### DRILL ADAPTERS

Where the handle is detachable it is often possible to use a power drill and adapter to drive the winch. Harken winches in particular have a universal star-shaped bit (pic-top) that will fit any drill and any Harken winch. This saves on what can be a manic winding action in high ratio. You can use the drill to do most of the donkey work and then switch back to hand-winding for finite control when you need it. This adaptation came from yachting because of the repetition and from rescue because extremely long raises might be needed in the mountains (picture opposite), certainly far higher than we ever see in arb work but in an environment where time literally is money, it can speed up the job no end on consecutive raises and lowerings. If you have the spare cash after having stumped



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**FTC TREE** 

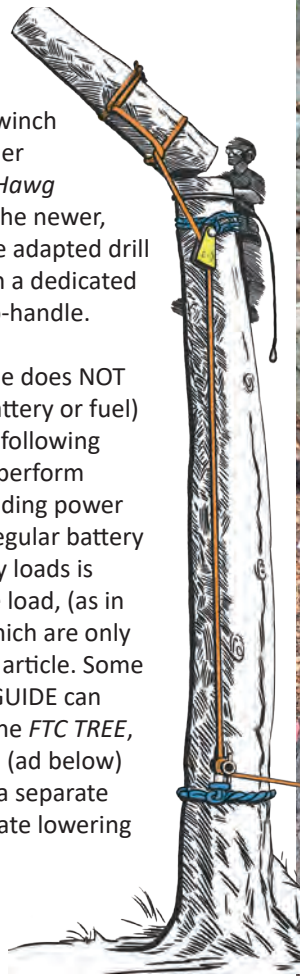
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up four figures for your winch system you might consider Milwaukee's \$300 Hole Hawk (opposite-top) which is the newer, ergonomic version of the adapted drill shown opposite but with a dedicated right angle head and top-handle.

Just to be clear, this guide does NOT include any powered (battery or fuel) winches, they are in the following

GUIDE The tables in this Guide are devices which perform heavy-duty lowering and raising using manual winding power albeit that some can augment this action with a regular battery power drill. The job of dynamically arresting heavy loads is generally left to Impact blocks rigged closer to the load, (as in our diagram on the right courtesy of *Wesspur*), which are only then lowered on the kinds of devices listed in this article. Some of the fixed bollards we included in the previous GUIDE can be retro-fitted with a drum winch for raising like the *FTC TREE*, *Stein* and *KROK* models. *Stein* (top) and *FTC TREE* (ad below) are unique in this selection because they can use a separate winching rope allowing you to rig up to two separate lowering ropes AND a raising rope at the same time.



In this picture from Skyhook you can tell that this is a wilderness rescuer rather than arborist! The winch is secured to a small diameter pine without the optional Universal plate attachment to sit it more snugly to the trunk so it's vital that there is no lateral load to destabilise the placement-hence the redirect above and below which align the tail rope and the loaded rope more vertically. The winch operator is using a powered adapter to do the work while the capstan self-tails for progress capture with an ancillary PCD in the form of a prusik on the entry rope. We'll pretend this is all an effort to rescue an injured arborist. Skyhook bought up all 300 of the now discontinued but highly sought after 40.2sta original capstans for their Classic model while the Skyhook Lightweight uses the 40.2Sta Radial. However, a lot of rescue winches don't see much use, are far better looked after than most Arb winches and certainly don't see the same level of abuse so if you get the chance to buy a second-hand winch from a rescue agency- do it.



weak-point. Don't forget to factor in that your load may start out in a controlled lower but end up in freefall should an operator or component fail.

A key factor in positioning your winch offset to the load is the fact that the operator will need to stand directly adjacent to the winch to wind the handle and so could be in the danger/drop zone. Also bear in mind that raising adds forces to the system that make it a more dangerous operation with greater scope for component failure at the rigging or even the rope itself than lowering imparts. When lowering, the operator will typically stand a minimum of 6ft-2m from the lowering device, often much more and will ALWAYS wear gloves.

## SAFE OPERATING TECHNIQUE

The standard bollard devices are solid lumps of metal that you are very unlikely to damage in a controlled lowering even if it gets sideswiped by the section being lowered. However, a winch has extraneous components that are much more susceptible to damage - the handle for instance if left in and the side cheeks on a drum winch or the top lip and control surfaces on a capstan. These are expensive as well so it's best to ensure that you position it so that it is offset and the lowered section comes down to one side. In the case of the *ATD* and the *Smartwinch* (above), the integral bollard provides a protective shroud for the capstan but if the handle is in place on either the capstan or, in this case, the web tensioner, this would still be a

Good technique requires the operators to use the appropriate number of wraps to hold the load and when arresting a falling branch or section to do so dynamically allowing enough rope to run though gloved hands so that impact forces are minimised. If the load comes to a sudden arrest because you've wrapped too many turns around the bollard or capstan the impact forces will magnify considerably and could adversely affect ANY of the components including the rope and the winch if that is being used is a lowering bollard.

Ensure that the wraps are regular and do not over-lap or override each other - this can make your job harder at best and can be extremely dangerous at worst. Some of the *Harken* winches have moulded diagonal grooves which help guide each turn of rope in the right place.

# HAND POWERED ROPE WINCHES

## IN THE FOLLOWING TABLES:.....

**COST:** Approximate. Includes local taxes but can vary due to exchange rates, other taxes etc. We generally round up the cost to the nearest Pound£, US Dollar\$ or Euro€ **Simple currency conversions are shown in orange** for reference - they are lower than the actual price because it does not take into account import duty, shipping or tax.

**ORIGIN:** Is the country of the company selling the item, not necessarily the same as the origin of the product itself which is shown as an inset flag where we know.

**MAX DIMENSIONS:** Height and the width of the base plate but in some cases, a third figure will be the depth of the winch or bollard. These should be excluding handle but we think some of the submitted figures have strayed!

**CAPSTAN DIAMETER:** The wider the sheave on a pulley the more residual strength is available in the rope - it's all about avoiding tight radius bends and it's the same with a winch, the wider the capstan diameter the better it is for your rope - The magic figure is 4"/100mm, this is the diameter at which you will lose virtually NO strength in your rope due to bending fibres.

**MA RATIO:** Mechanical Advantage expressed as a ratio. As already discussed this is the input power to ultimate drive that you create rather than the gearing ratio of the cogs. Invariably a figure on quality capstans around the 40:1 mark in high ratio and around 12:1 or low ratio. We have rounded the figures because to be accurate the Harken 46 is 11.7:1 & 46.5:1 not 12:1 and 46:1 as we have shown.

**MAX ROPE DIAMETER:** Given by the manufacturer. This should be dictated by the diameter of the cylinder maximising the bend radius and the number of wraps you can fit but also by the gap at the rear rope guide. Oddly, many of these DO NOT correspond to the capstan manufacturer's own recommended diameters. In some cases this may be because they are quoting the bollard capacity rather than the capstan (for winches that have both options).

**MBS and WLL:** ... is the Maximum Breaking Strength and in the case of all these winches refers to the LOWERING mode NOT RAISING mode which would be considerably less and best factored into your calculations using the maximum Working Load (WLL) for raising shown in orange in the WLL column. MBS isn't given by everyone in the arb sector, many preferring to stick with a Working Load Limit or Safe Working Load WLL/SWL because it's often dictated by the webbing rather than the actual device (like the *Hobbs*). We list the MBS in units of force as KiloNewtons and Pounds Force and WLL in terms of weight as Kilograms and Lbs but they are broadly comparable figures ie. 50kN isn't quite 5000kg, it's 5099kg, close enough for you to be able to work out the load limits and stay well clear of them. These figures are for NON-HUMAN LOADS. CE standards require a separate rating for rescue/human-riding which is just over half of the WLL of these winches. However, it is quite obvious that none of these winches has a problem with the physical weight of a casualty, it's just a question of being tested to specific standards which the rescue winches in this list would additionally need to adhere to.



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**MODULAR:** means that the base plate can be separated from the winch and/or bollard =the majority of models in this guide.

**ANCHOR STRAPS:** A solid black square ■ indicates that the device comes complete with the necessary strapping (whether you want it or not!). An outline square □ indicates that bespoke strapping is available as an option.

**TRUNK GRIPS** Hard/aggressive teeth or serrations that bite into the bark to find a purchase- shown as a black square ■

**RUBBER BARK PROTECTION:** refers to protective feet to protect bark from damage during lowering operations. None of the models here appears to offer teeth/serrations in the same way as some of the static bollards did but virtually all of those with rubber pads can have them removed to leave you with the basic metal plate which, of course, is stronger than with rubber feet but you are more likely to damage the bark.

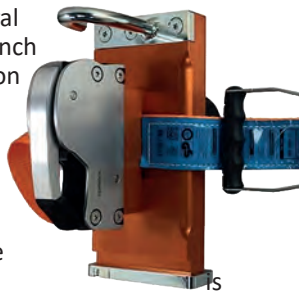
**TIE-OFF/CONTROL POSTS:** Refers ONLY to bollards rather than the winch and is only relevant here for models that have an integrated bollard like the *Smartwinch* or where the bollard is attached to the plate simultaneously with the winch as with the *Transformeur*. Such posts help to maintain wraps on the cylinder and direct the entry rope to allow the ground to stand in the safest position for lowering eg. not directly beneath the limb/section being cut.

### PROGRESS CAPTURE - SELF-TAIL / CAM / RATCHET

A black square ■ indicates an integral 'jamming' action on the top of the winch drum called self-tailing and common on *Harken* models.

An orange square ■ indicates an add-on camming option like this from *ArbPro* Italy and the black one below from *ATD*.

A Green square ■ indicates a simple ratchet cam where a cog-like wheel stopped from going backwards by some form of 'catch'. This is typical on the *Stein* models.



**ROPE GUIDES:** Also known as **FAIRLEADS**. This includes specific hook-style guides and spiral pig-tails which make sure the rope enters and leave the winch drum in the correct alignment.



**TOP/BOTTOM ANCHOR EYE:** refers to a load bearing eye located on the top for clipping in a raising/tensioning system or on the bottom as an ancillary anchor point, often for a *Whoopie* sling style anchor.

Among the models we haven't included in our tables is the *Harken 200 Riggers Winch* because the base plate is too small for arb work - it is intended as a portable light-load-lifting/hauling winch for remote deployment. Krok are omitted but in the hope that russia returns to sanity at some point and rejoins the normal world so we can again list Krok and we have precluded another russian brand *VTT* for lack of contacts rather than sanctions on russia - they have a model with a detachable handle for pre-tensioning which looks like a smaller version of the *Stein Dual* model.



A classic example of where raising is necessary prior to lowering. This is *ODSK's Elephant winch* from Japan using the ubiquitous *Harken* capstan and an alloy frame with a trio of unique, machined rope guides which double as friction posts. In this picture the winch is secured to a standing tree used as the anchor from which to raise a feller that is entangled in its branches. This is storm damage from a busy year of typhoons in 2018 and you have little say on where the tree ends up. On another day (with that impact block above the winch), this could have been a congested work area in which a cut section has to be 'unpicked' from an adjacent tree and raised, using the winch, before it can be lowered. It may be an optical illusion but doesn't it look like the ratchet strap on the winch is squeezing the life out of that trunk?



## PRECISION CONTROL

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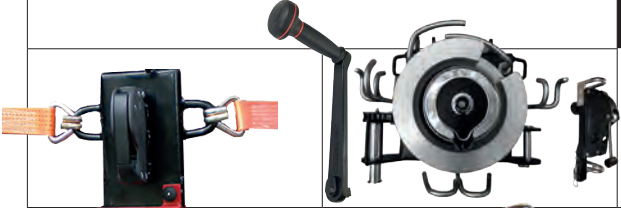






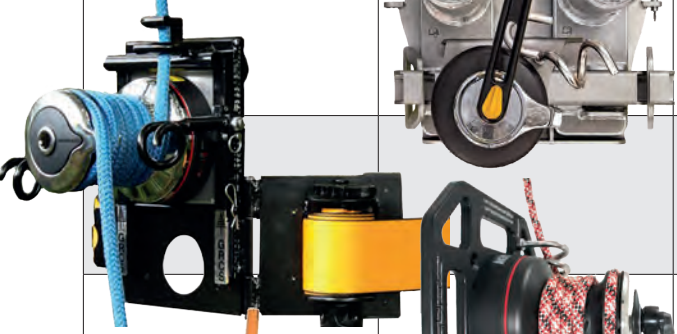



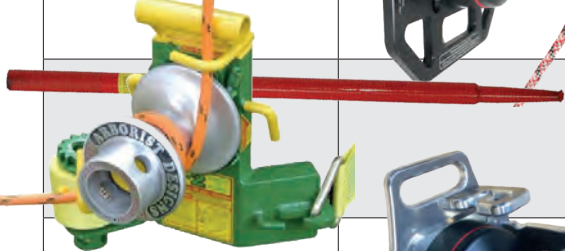



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Winch 500 Kit

Kit comes with the winch mounted  
on the plate. Also includes  
254 mm aluminum SpeedGrip  
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IMAGES NOT TO SCALE  
 COST: Approx & inc VAT/Taxes £\$€=Currency conversion  
 MAX DIMENSIONS: height x width x Depth  
 MBS: In lowering mode.  
 WLL/Max Load: normally based on 7:1 - 10:1 of the MBS.  
 N/A info Not Available/not given

| MODEL   | COMPANY                   | HARKEN TYPE | ORIGIN  | COST inc tax<br>\$€ Currency conversion only | WEIGHT exc straps | MATERIALS<br>BASE PLATE<br>CAPSTAN |
|---|---------------------------|-------------|---|--|-------------------|------------------------------------|
|     | ARBOTEAM                  | 46          |    | £4255<br>\$5525<br>€4873                     | 30.3kg<br>67lb    | Steel<br>Aluminium                 |
|     | ARBPRO                    | 40          |    | £2223<br>\$2910<br>€2500                     | 21.3kg<br>47lb    | Steel<br>Stainless Steel           |
|    | ARBPRO                    | 46          |    | £3176<br>\$4154<br>€3570                     | 26kg<br>57lb      | Alloy<br>Alloy                     |
|    | CPR INNOVATIONS BV        | 46          |    | £3180<br>\$3885<br>€3640                     | 23kg<br>51lb      | Stainless Steel<br>Stainless Steel |
|   | FTC TREE                  | -           |  | £3775<br>\$4610<br>€4320                     | 43kg<br>95lb      | Alloy<br>Stainless Steel           |
|   | HARKEN                    | 46          |  | £2890<br>\$3500<br>€3285                     | 38.5kg<br>85lb    | Alloy & Steel<br>Stainless Steel   |
|  | HARKEN                    | 40          |  | £1850<br>\$2150<br>€2200                     | 7kg<br>15.4lb     | Alloy<br>Aluminium                 |
|   | K&R Products              | -           |  | £2386<br>\$2520<br>€2735                     | 26.3kg<br>58lb    | Steel<br>Aluminium                 |
|  | ODSK/<br>TAKASHI<br>OSAKA | 40          |  | £1074<br>\$2210<br>€2032<br>¥330000          | 7.6kg<br>16.75lb  | Alloy<br>Aluminium                 |

# HAND POWERED ROPE WINCHES


| MAX DIMENSIONS exc handle          | CAPSTAN Ø             | MA RATIOS      | CAPSTAN ROPE Ø       | MBS                 | WLL Max Load for RAISING LOWERING     | MODULAR | RUBBER TRUNK GRIPS | ANCHOR STRAP | includes BOLLARD | SELF-TAILCAM/RATCHET | PROGRESS CAPTURE | TIE-OFF/ CONTROL POSTS | ROPE GUIDES | TOP/BOTTOM ANCHOR EYE | NOTES   | www.                         |
|------------------------------------|-----------------------|----------------|----------------------|---------------------|---------------------------------------|---------|--------------------|--------------|------------------|----------------------|------------------|------------------------|-------------|-----------------------|---|------------------------------|
| 370x330mm<br>14.5 x 13"            | 100mm<br>3.9"         | 12:1<br>46:1   | 14-16mm<br>9/16-5/8" | -                   | 1300kg*<br>2866lb<br>2000kg<br>4400lb | ☐       |                    | 1            | ☐                | ■                    | ■                |                        | 7           | ■                     | * WLL for hard securing of back plate. Rubber mounting max= 800kg. Cost inc carbon-plastic Case | arboteam.it<br>freeworker.de |
| 300x250mm<br>12 x 10"              | 140mm<br>5.5"         | 13.5:1<br>40:1 | 12-14mm<br>1/2-9/16" | 48kN<br>10791 lbf   | 800kg<br>1764lb<br>1000kg<br>2200lb   | ■       | ■                  | 3            | ■                | ■                    | ■                |                        | 2           | ■                     | MBS is when used with optional cam.<br>140mm diam Bollard weighs 11kg                           | arbpro.it                    |
| 350x250mm<br>14 x 10"              | 150mm<br>5.9"         | 12:1<br>46:1   | 12-19mm<br>1/2-3/4"  | 73.5kN<br>16535 lbf | 1200kg<br>2645lb<br>1500kg<br>3306lb  | ■       | ■                  | 3            | ■                | ■                    | ■                |                        | 4           | ■                     | MBS is when used with optional cam.<br>150mm diam Bollard weighs 5kg                            | arbpro.it                    |
| 350x250mm<br>14 x 10"              | 101mm<br>4"           | 12:1<br>46:1   | 8-14mm<br>5/16-9/16" | 70kN<br>15736 lbf   | 1300kg<br>2866 lb<br>700kg<br>1575 lb | ☐       | ■                  | 1            | ☐                |                      |                  | 2                      | 3           | ■                     | Integral bollard protects capsatn. Straps are tightenend using the riht- hand webbing pin.      | cprinnovations.com           |
| 370 x 370mm<br>18 x 14.5"          | 93mm<br>3.7"          | 20:1<br>43:1   | 10-16mm<br>3/8-5/8"  | 100kN<br>22481 lbf  | 816kg<br>1798lb<br>2040kg<br>4500lb   | ■       | ■                  | 2            | ■                | ■                    | ■                | 0-4                    | 2-6         | ■                     | All components can be purchased separately. Model shown includes 2x Bollards and case.          | ftc-tree.com                 |
| 300x230x250mm<br>14.1 x 9 x 10"    | 100mm<br>3.9"         | 12:1<br>46:1   | <19mm<br><3/4"       | 91.6kN<br>20592 lbf | 907kg<br>2000lb<br>1360kg<br>3000lb   | ■       | ■                  | ■            | ■                | ■                    | ■                |                        | 3           | ■                     | NB: Now owned by Harken. Base plate is hinged for greater stability on a curved surface.        | harken.com                   |
| 300x290x369mm<br>14 x 11.4 x 14.5" | 80mm<br>3.5"          | 13.5:1<br>40:1 | 8-12mm<br>5/16-1/2"  | 25kN<br>5620 lbf    | 500kg<br>1102lb                       |         |                    |              |                  |                      | ■                |                        | 1           | ■                     | Also available is a smaller, lighter Rigger 200 but not marketed to arborists                   | harken.com                   |
| 3436x236mm<br>19 x 19 x 9.3"       | *75-<br>152mm<br>3-6" | 16:1           | 12-19mm<br>1/2-3/4"  | >89kN<br>>20000 lbf | 1360kg<br>3000lb                      |         | ■                  | ■            | ☐                | ■                    | ■                | 1                      | 2           | ■                     | The original arborist lowering device with raising capability. *Has a highly tapered capstan    | blairsae.com                 |
| 290x250x240mm<br>11.4 x 10 x 9.5"  | 80mm<br>3.5"          | 13.5<br>40:1   | 12mm<br>1/2"         | >40kN<br>>8992 lbf  | 400kg<br>881lb                        |         | ■                  | ■            |                  |                      | ■                | 3*                     | 3*          | ■                     | Guides designed as "hyperbars that double as tie-off posts                                      | works-odsk.jp                |
| Expansion Row                      |                       |                |                      |                     |                                       |         |                    |              |                  |                      |                  |                        |             |                       |   |                              |

IMAGES NOT TO SCALE  
 COST: Approx & inc VAT/Taxes £\$€=Currency conversion  
 MAX DIMENSIONS: height x width x Depth  
 MBS: In lowering mode.  
 WLL/Max Load: normally based on 7:1 - 10:1 of the MBS.  
 N/A info Not Available/not given

|   | MODEL                         | COMPANY | HARKENN TYPE | ORIGIN  | COST inc tax<br>£\$€ Currency conversion only | WEIGHT exc straps | MATERIALS<br>BASE PLATE<br>CAPSTAN |
|---|-------------------------------|---------|--------------|---|---|-------------------|------------------------------------|
|  | Classic/Basic                 | SKYHOOK | 40           |  | £3135<br>\$3950<br>€3610                      | 9.3kg<br>20.5 lb  | Alloy<br>Aluminium                 |
|   | Lightweight/<br>Multi-Mission | SKYHOOK | 40           |  | £3045<br>\$3840<br>€3510                      | 7.9kg<br>17.5 lb  | Alloy<br>Aluminium                 |
|   | RCW3001                       | STEIN   | -            |  | £1078<br>\$1400<br>€1350                      | 29kg<br>64 lb     | Steel<br>Steel                     |
|  | RCW3002                       | STEIN   | -            |  | £1415<br>\$1730<br>€1625                      | 41.7kg<br>92 lb   | Steel<br>Steel                     |



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# HAND POWERED ROPE WINCHES

| MAX DIMENSIONS exc handle      | CAPSTAN Ø      | MA RATIOS      | CAPSTAN ROPE Ø       | MBS | WLL Max Load for RAISING LOWERING     | MODULAR | RUBBER TRUNK GRIPS | ANCHOR STRAP | includes BOLLARD | SELF-TAIL (CAM RATCHET) | TIE-OFF/ PROGRESS CAPTURE | ROPE GUIDES | TOP/BOTTOM ANCHOR EYE | NOTES  | www.               |
|--------------------------------|----------------|----------------|----------------------|-----|---------------------------------------|---------|--------------------|--------------|------------------|-------------------------|---------------------------|-------------|-----------------------|--|--------------------|
| 8x254x235mm<br>10 x 10 x 9.25" | 80mm<br>3.5"   | 13.5:1<br>40:1 | 11-13mm<br>7/16-1/2" | -   | 500kg<br>1100 lb                      | ■       |                    |              |                  | ■                       |                           | 1           | ■                     | Price includes (and requires) 'Universal' back plate for efficient attachment to trunks.   | skyhookrescue.com  |
| ?                              | 80mm<br>3.5"   | 13.5:1<br>40:1 | 11-13mm<br>7/16-1/2" | -   | 500kg<br>1100 lb                      | ■       |                    |              |                  | ■                       |                           | 1           | ■                     | Lightweight shown attached to accessory H-plate. Bottom anchor eyes on guide roller frame. | skyhookrescue.com  |
| 275xmm<br>11 "                 | 115mm*<br>4.5" | 5.4:1          | 8mm<br>5/16"         | -   | 681kg<br>1501 lb<br>3000kg<br>6614 lb | ■       |                    | ■            | □                | ■                       | 2                         | 2           | ■                     | * No capstan - this is the Bollard diameter. Winch has separate 8mm raising rope           | steinworldwide.com |
| 365xmm<br>14.4 x "             | 115mm*<br>4.5" | 5.4:1          | 8mm<br>5/16"         | -   | 681kg<br>1501 lb<br>3000kg<br>6614 lb | ■       |                    | ■            | □                | ■                       | 2<br>x2                   | 2<br>x2     | ■                     | * No capstan - this is the Bollard diameter. Winch has separate 8mm raising rope           | steinworldwide.com |



# POWERED ROPE WINCHES/ASCENDERS (no wire-rope winches)

## Independently anchored, fibre rope winches

A few years ago powered rope winches might only have consisted of a handful of small petrol/gas powered models that were effectively a chainsaw or brushcutter engine attached to a capstan. Now, we not only have a wider range of specifically designed petrol capstan winches like the Portable Winch Co. range, we also have a whole heap of battery powered models that use a rotating grip or jaw instead of a capstan. All such models can use any length of rope within their operating limits - often limited by temperature in the case of battery power. We need to say straight away that the number of battery winches is artificially bolstered by the meteoric rise of powered ascenders because they can all be used for ascending a rope AND as a conventional but light-duty winch because it's the same job - hauling a weight on a rope. There is really only one dedicated battery rope winch of note, the PCW3000-Li, the rest are either wire-rope models which we'll discuss shortly, or powered ascenders that can be used as a winch, dragging a suitably sized rope through its cleated circular 'jaw' instead of around a large capstan while fixed to an anchor. Within the battery genre there are now several models that would very rarely make it

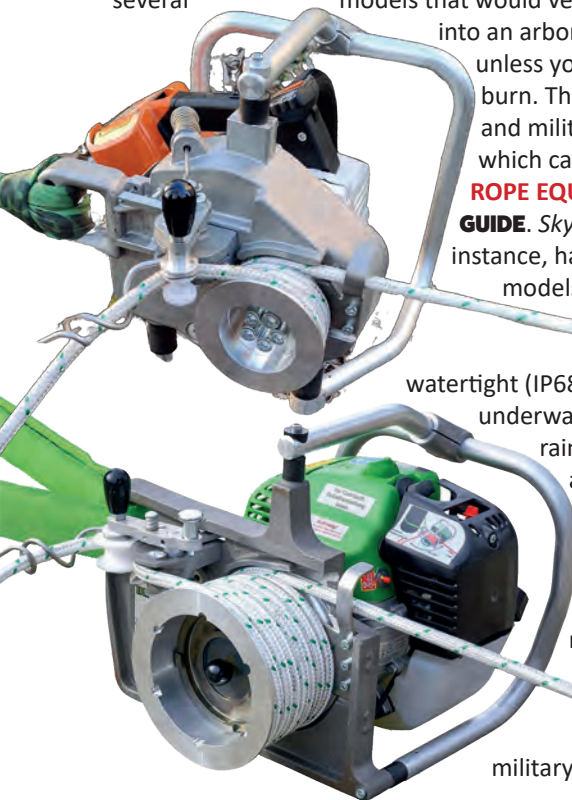
into an arborist inventory at all unless you have money to burn. These are the rescue and military spec models which can be found in the **ROPE EQUIPMENT BUYERS GUIDE**. Skylotec/Actsafte for instance, has 5 or 6 military models including a SEAL model which is completely watertight (IP68), even operating underwater. So, while heavy rain is no hindrance to any winch, whether petrol or battery, they do have saturation limits which these overtly military model don't. Skylotec have balanced these overtly military models with their

new utility ICX model using the Husqvarana battery platform and therefore of particular interest to arborists.

We must stress once more, that **battery powered ascenders used as winches have a very much lower load capacity than petrol/gas/battery dedicated winches.**

Powered ascenders will NOT drag logs across the ground because the actual load will vary so wildly as it snags on differing substrates and obstructions. Powered ascenders are for more precise hauling operations either within the tree or on a highline/zipline where your rigging skills can mitigate the loads to within required margins. Taking a winch into the canopy to anchor it would be unheard of if weren't for the fact that you may have already used it to ascend into the canopy instead of having to haul it into position as a dead-weight. But when grunt is the primary requirement, a dedicated winch, whether gas or battery, will have, on average, around 7 or 8 times MORE hauling power than a battery-powered ascender and can cope just fine with dragging heavy weights through the forest. One last thing to consider is operating temperature. Petrol/gas can do weird things in extreme cold and extreme heat but you deal with it all the time with your chainsaws so a winch just demands the same care and attention and will function OK in extreme temperatures. Those of you who have switched to battery chainsaws and work in very low or very high temperatures will have noticed that they are not so forgiving. Power drops off below freezing (that's 0 degrees centigrade not the Fahrenheit scale which freezes at 32 degrees and boils at some other unmemorable number). You may see as much as a 15% power reduction. The same is true of high temperatures with a similar percentage reduction. A good rule of thumb is that if it's a comfortable temperature for you to work in, it will be comfortable for battery powered tools. Take it as a reason to tell the boss it's too hot or too cold to be working safely if your battery tools are playing up.

Powered winches are generally employed to do a different job to the manually operated capstan winches. The manual capstans allow for precise taking in of slack over small distances during limb removal, to take in slack in preparation for a cut and to arrest the fall of cut sections in conjunction with a suitable snatch block before lowering your branch or



ABOVE: Germany's Grube/Eder 1800 model and above it their new 1200 battery version using a readily available Stihl36v battery. Note the black knob on the left is sprung or sometimes screw-threaded and is to allow installation of the rope into a redirect. The knob inside the capstan allows it to be changed or replaced. TOP RIGHT: Canada's Portable Winch Co. has a battery model, the PCW3000-Li, using a Briggs&Stratten/Cramer 82v battery.

# POWERED ROPE WINCHES/ASCENDERS

trunk section to the ground in a controlled manner. Powered winches on the other hand are generally in it for the long-haul, literally. They're for repetitive lifting and dragging or where speed is important or for winching/hauling long distances. Battery models do offer more precise handling with variable speeds from 0 to Way-too-fast, so skilled operators can quickly learn to use them as easily as a manual capstan and probably get the job done a lot faster. However, don't forget that a number of the manual capstans and in particular any that use a *Harken* capstan can use a power-drill attachment for winding instead of the handle and this too would speed up the job. Petrol/gas powered winches mostly use a full capstan around which you wind a number of turns of rope as in the *Grube* model opposite while battery powered ascenders use a single turn of rope grasped within a jaw-like 'cog'. The multi-wrapped capstan offers conventional lowering where more turns = more friction but the battery ascenders use reverse drive of the motor to enable lowering so this is not a design function for heavy loads and they most certainly should NOT be subjected to any kind of shock load, something you might get away with on a manual capstan winch though still not recommended. If the loads are within lowering limits, some battery ascenders actually recharge during lowering so if you have a mixed bag of lowering and raising you can get extended battery life from a powered ascender which otherwise has considerably less longevity than a liquid-fuel driven winch.

## CAPTIVE DRUM WIRE & ROPE WINCHES

It's ironic that an article on winches doesn't include the world's biggest name in winches, *WARN*. Warn Industries concentrates on vehicle-mounted, wire rope winches. It does have two models that might be useful for arborists because they use rope; the battery driven *Pullzall* and the 500lb Drill winch. Both have integrated wire or synthetic rope on a captive drum but only have a very short working length UNLESS you piggyback it to another rope system to give you the reach you require to get to the target tree, branch or section. Your working range will still be fairly limited since it is only what is wound onto the internal drum. The *Pullzall* (pic below right) has 15ft of wire or fibre rope. Its pull capacity is 1000lb@5.6ft/min but it will only do this for about 150ft on a full charge. Of more use to arborists is *Docma's* L55 series using 80m of 5mm rope/cord. This sounds like a very small diameter but it can haul up to 1260kg assuming NO friction and, as with all pulleys, more if you add a 2:1. The 2 *Docma* models are currently the only captive rope on drum models that we have included and are intended more for forestry but can be carried in their own back-pack.



This next section on pulling, raising and lowering has some of the same info as the manual capstan winch GUIDE except where there are differences when using electric or petrol/gas power.



Main Pic: Acstafe's Powered ascenders, whether petrol like this PMX or the battery-driven ACX (inset), can operate as 'light-duty' winches as well as moving a human load up or down a rope by direct attachment.  
 Right: The Japanese *Kenzi* models are not yet available outside of Japan but the AWAH KZ2 below is. These are smaller than others as a consequence of using an electric drill to do the work something we've seen in rescue with the *Skyhook* listed in our manual winches Guide. This means that your 'motor' is a readily available and considerably cheaper alternative to a bespoke battery. Right: the Chinese AWAH drill-powered ascender.



As with manual capstan winches, some powered winches can be anchored directly to the target tree and remotely controlled using the tail of the rope but it's an expensive bit of kit if you hit it with a log!



The diagram above, courtesy of Eder Maschinbau, shows a typical pulling/dragging operation where the pulley on the load significantly reduces the load experienced by all of the components which would otherwise be overloaded at 3.6tonnes. The load is never halved by the travelling pulley, to do that it would need to be 100% efficient with no friction and the second anchor would have to be rigged so that it was directly in line with main anchor.

**PULLING, RAISING & LOWERING**

The terms 'Pulling' and 'Raising' are both the same and different. For the purposes of this article, pulling implies horizontal 'dragging' of the target tree, either to assist in felling it by pulling against its angle of lean or an opposing wind force or to physically drag it across the ground from the felling site to the vehicle or log-stack as in the diagram on the left. Raising also requires the rope to be 'pulled' but the load will invariably be off the ground and were it not connected to the winch would freefall to the ground. Circumstances that require raising include:

- Relocating a branch being cut or that is already cut,
- Lifting a cut branch or trunk over an obstruction after cutting
- Correct an angle of lean on branches or sections that are off the ground on the target tree, prior to cutting

Once the raising work is done it's time to lock off the load and prepare for lowering. This may use those an integral cam, some form of tie-off post for the raising rope or in the case of powered ascenders the rope is permanently grasped and a direction change from raise to lower in initiated by the flip of a switch or button. Remember that a cam would require you to take load off before it will release the rope for lowering so you're either going to need that winch again to take in enough rope to release the cam or you might piggyback a small pulley system to allow the load transfer. Tie-off posts are the same as you always have with a bollard, a few sturdy wraps and a strong

hand grasp as you gently unwrap until the load comes on and remains manageable. With capstan winches this then becomes a self-tailing action where several wraps wound around the shiny surface allow one person to hold the load and gently run the rope through gloved hands to lower. *FTC TREE* provide these handy figures for the load holding ability of a new 12mm rope when wrapped around their 100mm mini-bollard with the operator(s) feeling a weight/resistance on the rope of around 30-40kg/67-90lb:

|                    |                                      |
|--------------------|--------------------------------------|
| <b>3/4 turn</b>    | <b>= 75 daN / 77kg / 169 lb</b>      |
| <b>1 3/4 turns</b> | <b>= 200 daN / 204kg / 450 lb</b>    |
| <b>2 3/4 turn</b>  | <b>= 470 daN / 479kg / 1057 lb</b>   |
| <b>3 3/4 turn</b>  | <b>= 1000 daN / 1020kg / 2248 lb</b> |

The styles of winch we're discussing could still be said to take some of the skills necessity out of the hands of ground crew; no setting up of pulley systems, not even knot-tying and the powered ascender style of winch doesn't even require the 'feel' of tension on the trail rope for expert control - you just press the trigger/button/throttle and raise or lower away. Your winch will always be secured to the base of a tree, a vehicle or other suitable anchor. Unlike a manual capstan designed primarily as a lowering device that can do a bit of raising, powered winches are designed for raising/pulling with a bit of lowering. They are therefore not generally connected to the target tree but rather an appropriate anchor adjacent the target tree. If used for lowering cut sections/branches, the rope (NOT WIRE CABLE) will be redirected to the load branch or trunk section via a snatch or impact block/pulley. Powered winches often have a built in redirect and sturdy rope guides. If you look at the main title picture you can see that the rope is entering the capstan at a 90 degree angle thanks to the pulley redirect and spring-like rope guide but this entry angle can often be adjusted as required. One of the reasons that some petrol/gas-powered winches are not used on their side, attached to the target tree, is the fuel and maybe oil feed which may have a tendency to spill or not flow efficiently. However engines like the Honda GX35 and 50 are designed to work in any orientation (like a chainsaw) as are most, if not all, of the winches in this GUIDE. The *Grube/Eder 500* also shown on the title page has rubber-lined feet and anchor eyes that specifically allow it to be attached to the target tree in the same was as the manual capstans. The *PCH1000* has an optional rigid mounting plate that anchors to the target tree or anchor tree/pole keeping the winch levelled while providing an integral redirect.

Instead of winding manically on a handle when raising or pulling, the powered winch operator has only to use a throttle, trigger or button to initiate movement. However, there are two things to note

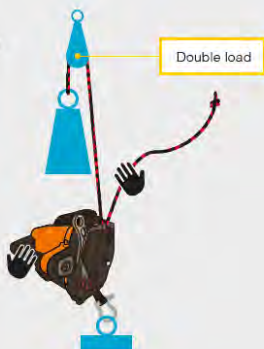
- 1) make sure that you take in slack and initiate lift with the trigger/throttle in a controlled manner not like a teenager over-revving a motorcycle and wheelying up the road as if he meant to do it.
- 2) Just as you do with a descender, maintain contact and control of the trail rope as it enters/exits the capstan or drum/grip. This also means ensuring the correct number of wraps if it's a capstan and ensuring that there are no kinks or knots in the

# POWERED ROPE WINCHES/ASCENDERS

**Top-rigged**  
Basic setup



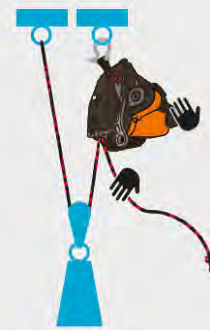
**Bottom-rigged**  
Basic setup



**Running Ascender**  
Expert use only



**Pulley**  
Expert use only



ABOVE: All of these options for anchoring a powered ascender can be applied to a dedicated winch, whether battery or petrol/gas powered. However, petrol/gas models shown below in Portable Winch Co.'s diagrams, are primarily designed to be used on or near the ground in a horizontal orientation. You could therefore look at the Actsafe diagrams above as if rigged horizontally as well as vertically. The principle of halving the load (theoretically) using a pulley on the load, holds true for all types of winch/powered ascender. Remember, this halves the load to the winch but requires twice as much rope and takes twice as long to take in than direct connection to the load. More importantly it SIGNIFICANTLY increases the load at the pulley and deviation anchor.


rope to jam things up - a powered device is far, far less forgiving than a manual winch in this respect, in fact prospectively, catastrophically so.

## WHAT COULD POSSIBLY GO WRONG?

The rope could snap! Most winches have no mechanical clutch mechanism to mitigate the powerful pulling action should a jam occur. Most will cut out if loaded to the maximum or overloaded but that's not much consolation with the more powerful models. For capstan models your rope handling skills around the capstan are therefore important. You should have hold of the trail rope at all times and have enough wraps on the


drum so that if you release tension on the rope the wraps will start to run under load. This acts as your safety 'clutch' should the load jam or be heavier than expected and heavier than your safety margins were anticipating. As you take in on the trail rope, it tightens the wraps on the drum causing it to grip and start taking in. If it slips continuously you need an extra wrap.

Clearly, you cannot allow a knot or kink to enter the winch or capstan from either direction. If you see or feel a potential obstruction in the rope you will need to immediately stop taking in and ensure the load remains secured if it is off the ground. You may need to employ a secondary, manual pulley




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### Battery Powered Ascenders

ASAT powered ascenders are cost-effective devices for where battery capacity is important but at an affordable price point. A key safety feature is that they are bi-directional so the rope can be fitted in any direction.



### ACE 22 Personal Device

ACE22 is a compact lightweight 'personal' device, weighing 11kg. It has an expected battery life of 350m general use @ 140kg load and a maximum rated load of 180kg. It features a remote control function including two-way communication.

### ACE 24 Rescue / Rigging Device

ACE24 is a heavy duty 'rescue / rigging' device, weighing 18kg. It has an expected battery life of 700m general use @ 140kg load and a maximum rated load of 260kg. It features a remote control function.



system to hold the load in order to clear an obstruction between the capstan or rope grip and the load. Of course, if you were using the winch to correct a felling angle, then tension needed to be maintained throughout and any necessity to stop taking in could be disastrous. Should have checked the rope thoroughly before starting the winch!

Many winches are supplied with an anchor sling and some, like the *Portable Winch Co.*, have two swivel hooks spaced across the front of the winch instead of the single attachment eye that most have. This demands that you DO NOT take an extra 'wrap' of the sling around the anchor (2.right) because, once loaded you may end up with only one leg of the sling and therefore one hook, taking the load and the winch being off-centre in terms of rope feed.

Pulling can look the same as raising except in one key element - progress-capture. Two models from *Portable Winch Co.* (*PCH1000* and *PCH2000*) quote two different figures; one for pulling and one for raising. Here is why; when pulling a load horizontally, the engine has the chance to ramp

up to its maximum capacity and therefore pull heavier weights. Whereas, when raising a load from mid air, the engine has to provide all its power at this very instant in order to keep raising the load. Those two lifting winches are equipped with a progress-capture cam that is integrated into their frame. It is designed to hold the load during resetting or if the tail of the rope has been accidentally released. In this last case, there will necessarily be an aggressive compressing action from the progress-capture, which can weaken the rope, but at least, the load and workers will be safe.

### CHAINSAW WINCH ADAPTERS

Unlike the drill adapters mentioned earlier which could help drive many of the manual rope capstan winches instead of using the handle, only one winch utilises a full-time drill and that is a wire-rope model from *Warn* with 227kg/500lb capacity using 30ft of cable and is not included here. There are some, like the *Simpson CS-CW* that is a winching unit powered by your chainsaw, as long as that chainsaw has a 3/8" drive sprocket and is less than 57cc. It weighs only 4kg/9lb not surprisingly, since it doesn't have an engine, and costs around \$700. So it's not a massive saving over some of the less expensive winches in our list but if you're dragging wood in remote areas and already have to carry a chainsaw it makes your overall travel weight much less.



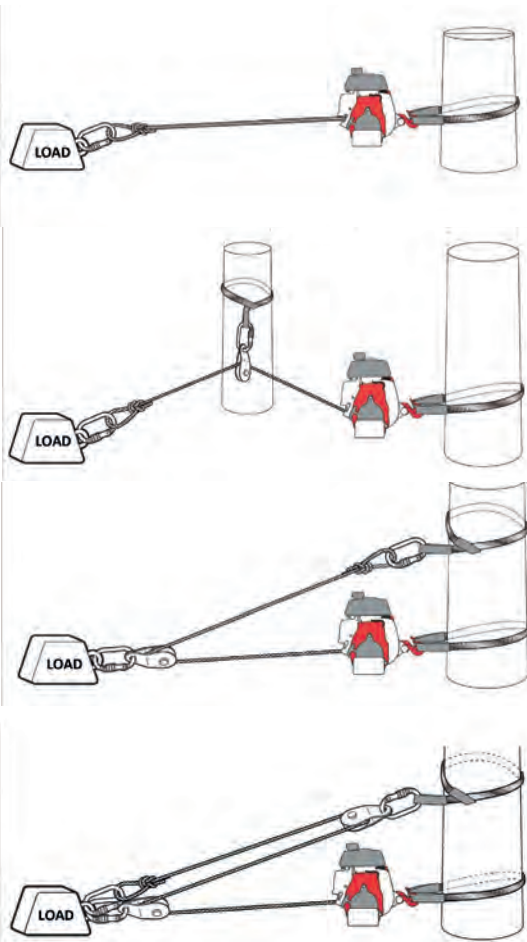
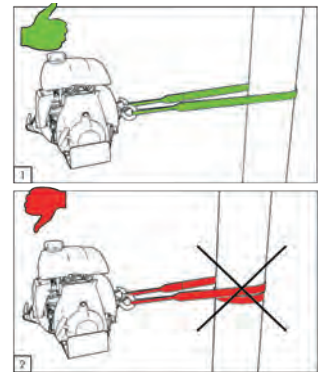
### SAFE OPERATING TECHNIQUE

The standard bollard devices are solid lumps of metal that you are very unlikely to damage in a controlled lowering even if it gets side-swiped by the section being lowered. However, a winch has extraneous components that are much more susceptible to damage - the fuel tank or battery and switches/triggers for instance. These are expensive as well so it's best to ensure that you position it so that the winch is offset and the lowered section comes down to one side. Don't forget to factor in that your load may start out in a controlled lower but end up in freefall should an operator or component fail.

A key factor in positioning your winch offset to the load, is the fact that the operator may need to stand directly adjacent to the winch to control it and so could be in the danger/drop zone. Also bear in mind that raising adds forces to the system that make it a more dangerous operation with greater scope for component failure at the rigging or even the rope itself than lowering imparts. When lowering, the operator will typically stand a minimum of 6ft-2m from the winch, often much more and will ALWAYS wear gloves. In the case of electric ascenders there is often a remote control option and this really can mitigate a lot of the hazards in handling heavy loads.

Good technique requires the operators to use the appropriate number of wraps to hold the load and when lowering too fast, to reduce speed dynamically allowing enough rope to run through gloved hands so that impact forces are negated. If the load comes to a sudden arrest because you've wrapped too many turns around the capstan the impact forces will magnify considerably and could adversely affect ANY of the components including the rope and the winch.

Ensure that the wraps are regular and do not over-lap or override each other - this can make your job harder at best and can be extremely dangerous at worst. Some capstans have moulded diagonal grooves which help guide each turn of rope in the right place.



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# POWERED ASCENDERS

Powered ascenders like the *Skylotec/Actsafe*, *Ronin*, *Ropetek* and *Eder* models can revolutionise your tree work, they not only get you up and down much more efficiently and with minimal effort, they can all be used as light-duty winches which you can anchor and control from the canopy if necessary. **For full discussion of Powered Ascenders see ROPE EQPT BUYERS GUIDE.**

On the *Ronin* model (left) you can see the obvious anchor eyes top and bottom which can be used to anchor the device before pulling rope through or paying out/lowering under power. This is a key difference between powered ascenders and capstan winches, capstans take in under power and lower by hand, whereas ascenders maintain grip on the rope and power both ways. As always with battery power there is no noise or fumes during operation and control is much more finite enabling a skilled operator to tweak lifting and lowering operations within fine margins. None of them are as powerful as petrol/gas winches however and none should be used for dragging because of the excessive spikes in load that can occur. Bravely in the face of

the battery onslaught, German winch company *EDER* followed *Skylotec/Actsafe* and *RopeTek* in creating a gas/petrol powered human-riding ascender, the *Power Climber* that now has a battery model that, usefully for arborists, uses *Stihl AP* batteries. Stealing a march on *Eder* was *Skylotec/Actsafe's* *ICX* ascender (pic bottom left) a co-development with *Husqvarna* using their battery platform which, like the *Stihl* platform, is used for pro chainsaws, blowers, trimmers etc. making even wider use of your specific battery. This seems like the obvious way to go rather than bespoke batteries that only fit the powered ascender and are not readily available from your local hardware store. The *ICX* also has powered, rather than just inertia, descent.

We have included ONLY models costing less than (approx) £15K/\$20K. Our Guide to Power Ascenders in the **ROPE EQPT BUYERS GUIDE** includes many other models and variants with higher load capacities, greater water ingress protection and in some cases reversible, aimed at rescue and military/govt agencies. They include *Atlas Devices* (which we had previously included in the first version of this Guide in **ARBCLIMBER#16** but they haven't yet brought out a model aimed at the utility market) and more of the *KOPARS* South Korean range that is interesting if not rather 'boxy'.

The *Kenz* models mentioned on page 191 were new for 2023/24 and use a regular (quality brand) power drill as the driver. Currently only available in Japan but watch this space. The similar Chinese model by *AWAH* reviewed in **TECHNICALRESCUE #84** proved to be very good and has now been added to our tables.

*Ronin* has a smaller, integrated battery model, the *TL*, with less range than the *Lift* but smaller and lighter and they also have a new materials-handling model not for humans which stands out in its white livery (Inset pic far top-left).

Finally there are four Chinese ranges - *ASAT* we are familiar with as a rope equipment manufacturer, *Petro Steel* - not so much. They appear to be an agri-chemical company with fingers in many mechanical pies but these are decidedly affordable if not a little too good to be true. However as a portable winch rather than for life-support - they may be worth investigating. The more capable *Mode* model seems to have some connection with *Petro-steel* but there is some litigation on copyright infringement going on. **BOTH CAPSTAN AND ASCENDER STYLE WINCHES REQUIRE THE TRAIL/TAILOPE TO BE CONTROLLED IN-THE-HAND AT ALL TIMES DURING RAISING AND LOWERING.**





**IN THE FOLLOWING TABLES:.....**

**COST:** Including at least one battery unless stated otherwise. Prices are approximate, include VAT @20% &/or US State Sales Tax. We generally round up the cost to the nearest Pound£, US Dollar\$ or Euro€. **£\$€ in orange is a currency conversion only.**  
**ORIGIN:** Is the parent company - an inset flat may indicate the manufacturer's country if different but we don't always know.  
**WEIGHT:** Includes battery unless otherwise indicated but **does not include fuel** for petrol/gas models.

**MAX DIMENSIONS CAPSTAN DIAMETER:** Height by width by depth but not necessarily in that order! **For the capstan,** it's all about avoiding tight radius bends and the wider the capstan diameter the better it is for your rope. The magic figure is 4"/100mm, this is the diameter at which you will lose virtually NO strength in your rope due to bending fibres.

**SOUND LEVEL (LWA):** Liquid-fuel engines have similar sound levels to chainsaws and the levels quoted may not be the maximum depending on the work the engine is subjected to and its age and efficiency. Figured quoted are for new engines. However, battery power is different because there is literally NO NOISE when it's not working (ie. it does not idle like a petrol engine) and even when it does work the maximum noise is considerably less than an engine. So low in fact that most manufacturers don't even give a noise level in their stats.

**ROPE DIAMETER:** Given by the manufacturer as range but the optimum size is often in the middle. Some require a specific type and/or brand of rope. As we are now seeing with descenders this is the only way to be specific about the performance specifications quoted.

**WLL & HAUL (ASCEND) SPEED:** This is for a single rope in direct contact with the load with the speed shown with maximum load. Both figures will be affected by using a 2:1 or travelling pulley rig, speeds will effectively be halved and loads will be doubled but only in a perfect, frictionless world. **Speeds will also be altered using different size capstans.** Hauling rope in is the same whether you're dragging a log, lifting a branch or ascending the rope. The difference is in the degree of interference that might increase load and severely reduce the speed and load figures quoted. Dragging along the ground obviously imparts a lot more friction than a person ascending the rope. Similarly a little more friction is imparted with every deviation of the rope, this might be quite efficient over a bearing pulley or quite inefficient directly over a branch.

**SPEEDS/VARIABLE:** Most capstan winches have one set speed. This can be altered by gripping the rope or changing the capstan diameter but some have 2 speeds and battery powered winches using a 'trigger' or throttle can have finite control from zero to top speed so that you can make smooth starts/restarts

**HUMAN-RIDING:** Obviously all powered ascenders are intended for human transport but despite their increased capacity only very few winches are suitably certified.

**POWERED ASCENDERS** are listed separately but with the same parameters as the regular winches apart from extra battery information, **CONTROLLED DESCENT SPEED** and **RESCUE-CAPABLE** in terms of a two-person load. It's fair to say that in a dire emergency you could do the maths on the max load on any winch and decide if it's worth the risk Winches have **PROGRESS CAPTURE** to indicate some form of rope cam at the rope entry point preventing drop back during hauling and/or at end of hauling operation - something **POWER ASCENDERS** all have.

**LOWERING:** ■ = manual control with a capstan, ■ = Lowering under power as a reverse of ascending/hauling.









ABOVE-LEFT: By far the cheapest alternative for powered ascending and/or winching is a stand-alone one-way ratchet hauling pulley that accepts a regular high-power drill onto its drive axle to provide a powered ascending capability. See TR84 for review of the AWAH Z2. Previous Page: Ronin's Lift was the first to try and make powered ascenders available to the masses with smaller, well priced devices. above: Ronin's Non HEC Lift for material handling rather than

human transport  
 Now Skylotec's Actsafe iCX (pic-below) and the EderPowerClimber (pic bottom) are fighting back with models that use 'off-the-shelf' Stihl and Husqvarna batteries used in professional grade chainsaws, blowers and power tools.





# POWERED ROPE WINCHES/ASCENDERS

|   |   |   |   |
|---|---|---|---|
| <p><b>Images NOT to Scale</b></p> <p><b>COSTS:</b> Approx &amp; inc local tax/VAT £\$€ shown in <b>burnt orange</b> are currency conversions only &amp; do not inc shipping, import duty or tax</p> <p><b>WLL:</b> If no WLL is given by manufacturer we show a <b>Max Load</b> based on approx 10:1 safety ratio</p> <p><b>N/A</b> = info Not Available/not given.</p> <p>● = OK but not ideal</p> <p>□ □ □ = Option</p> |                            |                           |    |
| <b>MANUFACTURER</b>   | <b>ASAT</b>   | <b>ASAT</b>   | <b>AWAH</b>   |
| <b>MODEL VARIANT</b>  | <b>ACE24</b>  | <b>ACE22</b>  | <b>Z2 Z2R</b><br>EPC130   |
| <b>ORIGIN</b>   |                            |                            |    |
| <b>COST</b>   | £5680 \$9400 €8945  | £7000 \$8500 €8085  | £1200 \$1500 €1400  |
| <b>POWER BATTERY PETROL/GAS</b>   | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/>   |
| <b>WEIGHT inc battery/fuel</b>  | 18 3.4kg<br>39.6 7.5lb  | 10.5 2kg<br>32 4.4lb  | 2.34 2.37kg<br>5.2 5.2lb  |
| <b>BATTERY ONLY</b>   |   |   |   |
| <b>MATERIAL RESCUE WINCH</b>  | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> - <input checked="" type="checkbox"/>   |
| <b>STOP/GO CONTROL</b>  | Dial  | Dial  | Throttle  |
| <b>WLL (Overload cut-out)</b>   | 260kg<br>572lb  | 180kg<br>396lb  | 130kg<br>286lb  |
| <b>DIMENSIONS</b>   | 30x23x35cm<br>11.8 x 9.1 x 13.8"<br>n/a   | 26x16x24cm<br>10 x 6.3 x 9.4"<br>n/a  | 17 x 10.6 x 10cm<br>6.7 x 4.2 x 4"<br>20 x 10.6 x 10cm<br>8 x 4.2 x 4"<br>Any Hi-powered Drill  |
| <b>BATTERY ONLY</b>   |   |   |   |
| <b>Specfic/Any Rope Ø</b>   | 11mm EN1891A<br>7/16" EN1891A   | 11-12mm<br>7/16"  | 9-11mm<br>3/8-7/16"   |
| <b>RANGE on 1 charge/tank</b>   | 300m 984ft*   | 400m 1312ft*  | 200m 656ft  |
| <b>ASCENT SPEED</b>   | 0-30 m/min<br>0-98.4ft/m  | 0-30 m/min<br>0-98.4ft/m  | 0-60* m/min<br>0-196ft/min  |
| <b>Metres/feet/minute</b>   |   |   |   |
| <b>DESCENT SPEED</b>  | 0-40m<br>0-98.4ft/m   | 0-40min<br>0-131ft/m  | 30-120 m/min*<br>98-328 ft/min  |
| <b>Metres/feet/minute</b>   |   |   |   |
| <b>ENGINE/BATTERY POWER</b>   | 48v Lithium<br>7.5Ah  | 44v Lithium<br>5Ah  | not inc eg. M18 18v Lithium ion<br>5-12Ah   |
| <b>BATTERY</b>  |   |   |   |
| <b>RECHARGE TIME ON DESCENT</b>   | 60min <input checked="" type="checkbox"/>   | <60min <input checked="" type="checkbox"/>  | eg M18 <40min   |
| <b>REMOTE APP CONTROL RANGE</b>   | <input type="checkbox"/> 150m 492ft -   | <input type="checkbox"/> 150m 492ft -   | -   |
| <b>ON-BOARD CHARGE STATUS</b>   | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/>   | <input type="checkbox"/>  |
| <b>ANCHOR TOP BOTTOM</b>  | 1 1   | 1 1   | 1 0 / 1 1*  |
| <b>NOISE/SOUND LEVELS</b>   | 70dB  | 70dB  | ? dB  |
| <b>EMERGENCY IMPACT STOP</b>  | <input checked="" type="checkbox"/> -   | <input checked="" type="checkbox"/> -   | - -   |
| <b>NO-POWER DESCEND</b>   | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/>   |
| <b>TEMP RANGE °C/°F</b>   | -30to60°C -10to120°F  | -20to60°C -4to120°F   | -15to45°C 5to113°F  |
| <b>IP RATING</b>  | 56 -  | 54 -  | drill dependant   |
| <b>FEATURES</b>   |   |   |   |
| <b>MID/ END ROPE FEED</b>   | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/>   |
| <b>WARRANTY GOVT ONLY</b>   | 6-12months  | 6-12months  | 12months  |
| <b>CARRY CASE c/w ROPE</b>  | <input checked="" type="checkbox"/> <input type="checkbox"/>  | <input checked="" type="checkbox"/> <input type="checkbox"/>  | - <input checked="" type="checkbox"/>   |
| <b>STANDARDS</b>  |   |   | XF494-2004 Fire-Rescue China  |
| <b>NOTES</b>  | *@150kg NB: Combination of ascent and descent increases duration to 700m/2296ft                             | *@120kg NB: Combination of ascent and descent increases duration to 400m/1312ft                             | Excludes power drill. Figures here relate to use of the Milwaukee M18<br>*Does not power-down-manual descent only<br>*A22R= rescue version with bucket<br><b>New 3Z version to be added</b> |
| <b>WEBSITE</b>  | asatsafe.com  | asatsafe.com  |   |

Images NOT to Scale

**COSTS:** Approx & inc local tax/VAT £\$€ shown in burnt orange are currency conversions only & do not inc shipping, import duty or tax

**WLL:** If no WLL is given by manufacturer we show a **Max Load** based on approx 10:1 safety ratio

N/A = info Not Available/not given.

● = OK but not ideal

□ □ □ = Option



| MANUFACTURER                         | EDER   | EDER   | EDER   | HA                               |
|--------------------------------------|--|--|--|----------------------------------|
| MODEL VARIANT                        | PowerClimber EPC130  | PowerClimber EPC240  | PowerClimber EPC240-11B  | Lokhead PWR5-                    |
| ORIGIN                               |  |  |  |                                  |
| COST                                 | £3560 <del>\$4325</del> €4100  | £3960 <del>\$4850</del> €4570  | £4500 <del>\$5750</del> €5205  | £4550 \$                         |
| POWER BATTERY/PETROL/GAS             | ■  | ■  | ■  |                                  |
| WEIGHT inc battery/fuel BATTERY ONLY | 11.2kg<br>24.6lb   | 10.3kg<br>22.7lb   | 10.5 1.77kg<br>23.1 3.9lb  | 1<br>2                           |
| MATERIAL RESCUE/WINCH                | ■ - ■  | ■ ■ ■  | ■ ■ ■  | ■                                |
| STOP/GO CONTROL                      | Throttle   | Throttle   | Throttle   | T                                |
| WLL (Overload cut-out)               | 130kg<br>286lb   | 240kg<br>528lb   | 240kg<br>528lb   | 2<br>(                           |
| DIMENSIONS BATTERY-ONLY              | 36 x 30 x 27cm<br>14.1 x 11.8 x 10.6"  | 39 x 30 x 28cm<br>15.4 x 11.8 x 11"  | 30 x 40 x 30cm<br>11.8 x 15.75 x 11.8"   | 55.8 x 4<br>23 x 1               |
| Specific/Any Rope Ø                  | 11-12.9mm<br>7/16-1/2"   | 11-12.9mm<br>7/16-1/2"   | 11-mm<br>1/2"  | 10-<br>5/8"                      |
| RANGE on 1 charge/tank               | 240m   | 240m   | TBA  | 600m                             |
| ASCENT SPEED Metres/feet/minute      | 0-30* m/min<br>0-98ft/min  | 0-24-36* m/min<br>0-78-118ft/min   | 0--36* m/min<br>0-118ft/min  | 0-11<br>0-36                     |
| DESCENT SPEED Metres/feet/minute     | 18m/min<br>59ft/min  | 18m/min<br>59ft/min  | 18m/min<br>59ft/min  | 0-1<br>0-4                       |
| ENGINE/BATTERY POWER                 | Honda GX50 2stroke<br>47.9cc / 2Hp   | Kawasaki TJ53 2stroke<br>53.2cc / 2.68Hp   | 36v Stihl<br>AP300S 7.2Ah or AP500 8.8Ah   | Honda G<br>3                     |
| BATTERY RECHARGE TIME ON DESCENT     | -  | -  | 75-150mins   |                                  |
| BATTERY REMOTE APP CONTROL RANGE     | -  | -  | -  |                                  |
| BATTERY ON-BOARD CHARGE STATUS       | -  | -  | ■  |                                  |
| ANCHOR TOP BOTTOM                    | 1 1  | 1 1  | 1 1  |                                  |
| NOISE/SOUND LEVELS                   | 97dB   | >97dB  | 104dB  | 81.3                             |
| EMERGENCY IMPACT STOP                | - -  | - -  | TBA  |                                  |
| NO-POWER DESCEND                     | ■  | ■  | ■  |                                  |
| TEMP RANGE °C/°F                     | -20to40°C -4to104°F  | -20to40°C -4to104°F  | -10to50°C -10to120°F   | -5to40°                          |
| IP RATING                            | 55   | 55   | >X4  |                                  |
| MID/ END ROPE FEED                   | ■  | ■  | ■  |                                  |
| WARRANTY GOVT ONLY                   | 12months   | 12months   | 24months (batteries)   | 24                               |
| CARRY CASE c/w ROPE                  | - ■  | - ■  | - ■  |                                  |
| STANDARDS                            |  |  |  |                                  |
| NOTES                                | *36m/min@130kg<br>Supplied with 100m<br>Beal 11 or 12.9mm rope<br>+£300 for 12.9mm | RESCUE-capable version<br>*36m/min@130kg<br>Supplied with 100m<br>Beal 11 or 12.9mm rope<br>+£300 for 12.9mm | RESCUE-capable version<br>*36m/min@130kg<br>Supplied with 100m<br>Beal 11 or 12.9mm rope<br>+£300 for 12.9mm | Also Powersea<br>and extension p |
| WEBSITE                              | edertools.com grube.de   | edertools.com grube.de   | edertools.com grube.de   | harkenin                         |

# POWERED ROPE WINCHES/ASCENDERS
























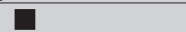



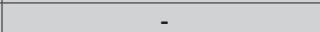




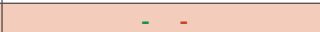















| <b>HARKEN</b>                                  | <b>HARKEN</b>  | <b>K1PARS</b>   | <b>MODE</b>                                      | <b>PETRO STEEL</b>  |
|--|--|---|--|---|
| Power Hauler G.COMPACT                         | Lokhead Power Hauler PWR5-B.COMPACT  | KEA-HB-W1/S1  | Spider Pro                                       | Pesco Smart Spider PS120-11   |
|  |  |   |  |   |
| £5750 €5250                                    | £5690 \$7175 €6560   | n/a   | £5995 \$7300 €6950                               | £865 \$1050 €1000   |
| 13.5kg<br>29.8lb                               | 21.6 3.6kg<br>47.5 7.9lb   | 13.5/13kg<br>29.7/28.6lb  | 14.3 00kg<br>31.5 00lb                           | 12.5kg integral<br>27.5lb integral  |
| Trigger  | long-Trigger & lever*  | Throttle  | Throttle   | Rocker Button   |
| 273kg<br>600lb                                 | 300kg<br>661lb   | 250/120kg<br>551/264lb  | 200kg<br>440lb                                   | ≤ 140kg<br>309lb  |
| 17.7 x 36.4cm<br>7.0 x 14.3"                   | 41.7 x 53.8 x 36.4cm<br>16.4 x 21.2 x 14.3"<br>24 x 13.4 x 9.3cm<br>9.5 x 5.3 x 3.7" | 45 x 24 x 30cm<br>17.7 x 9.5 x 12"  | 33x 26.5x 26.7cm<br>13x10.4x10.5"<br>00cm<br>00" | 37x25.5 x 27.5cm<br>14.6x10x10.8"<br>integral                                 |
| 12.7mm<br>1/2"                                 | 10-12.7mm<br>3/16-1/2"   | 10-12.7mm<br>3/16-1/2"  | 10.5-13mm typeA<br>3/16-1/2"                     | 12-14mm<br>1/2-3/16"  |
| 1968ft*  | 550m 1804ft*   | 600/550m 1968/1804ft*   | 330m 1082ft*                                     | 600m 787ft*   |
| 0-15m/min<br>0-49ft/min                        | 0-13.5m/min<br>0-44.3ft/min  | 0-13.5m/min<br>0-44.3ft/min   | ≤22m/min<br>72ft/min                             | ≤11m/min<br>≤36ft/min   |
| 14m/min<br>46ft/min                            | 0-14m/min<br>0-46ft/min  | 0-72m/min<br>0-236ft/min  | 37m/min<br>121ft/min                             | 11m/min<br>36ft/min   |
| GX35 4stroke<br>35.8cc                         | 50.4v Lithium ion<br>9Ah   | Honda GX35 4stroke<br>35.8cc  | 36v Lithium-ion<br>5Ah                           | 36v Lithium-ion<br>20Ah   |
| -  | 270min   | -   | 150min   | 240-360min  |
| -  | -  | □100m/328ft* -  | 100m/328ft                                       | -   |
| 1 1  | 1 1  | 1 1   | 1 1  | - 1   |
| 83/96.2dB                                      | 80/90dB  | 81.3/96.2dB   | >97dB  | n/a   |
| -  | -  | -   | -  | -   |
| C 23to104°F                                    | -10to50°C -10to120°F   | -5to40°C 23to104°F  | -20to50°C -4to122°F                              | -20to50°C -4to122°F   |
| 55   | 54   | 55  | 54   | N/A   |
| months   | 24months   | n/a   | n/a  | n/a   |
| -  | -  | -   | -  | -   |
| t version with a seat<br>post for human-riding | Also Powerseat version with a seat<br>and extension post for human-riding            | S1=speed version<br>*@100kg/328lb<br>*Hybrid device with electronic<br>interface -optional remote control.<br>See ROPE EQPT BUYERS GUIDE for<br>K1PARS battery models | *@90kg/198lb                                     | *@90kg/198lb<br>Inc. 20m x14mm rope(order longer<br>lengths), remote control, |
| industrial.com                                 | harkenindustrial.com   | k1pars.co.kr  | modepowerascender.com                            | smart-spider.com  |

**Images NOT to Scale**  
**COSTS:** Approx & inc local tax/VAT £\$€ shown in **burnt orange** are currency conversions only & do not inc shipping, import duty or tax  
**WLL:** If no WLL is given by manufacturer we show a **Max Load** based on approx 10:1 safety ratio  
**N/A** = info Not Available/not given.  
 ● = OK but not ideal  
 □ □ □ = Option



| MANUFACTURER                     | PETRO STEEL   | ROPETEK  | RONIN   | R  |
|----------------------------------|---|--|---|--|
| MODEL VARIANT                    | Pesco Smart Spider PSJ120-8   | Wraptor HD   | Lift PN2805-11  | Titan  |
| ORIGIN                           |   |  |   |  |
| COST                             | £825 \$1000 €950  | £3032 \$3200 €3500   | £3960 \$3830 €4565  | £3050 \$   |
| POWER BATTERY/PETROL/GAS         | ■   | ■  | ■   | ■  |
| WEIGHT inc battery               | 11.5kg integral   | 10.9kg -   | 11 2.7kg  | 8.6  |
| BATTERY ONLY                     | 27.5lb integral   | 24lb -   | 24 6lb  | 1  |
| MATERIAL RESCUE/WINCH            | ■ - ■   | ■ - ■  | ■ ■ ■   | ■  |
| STOP/GO CONTROL                  | Rocker Button   | Throttle   | Thumbwheel  | Thur   |
| WLL                              | ≤ 120kg<br>265lb  | 141kg<br>310lb   | 182kg(272kg-2-person) 400lb<br>(600lb-rescue-only)  | 182kg(272k<br>(600lb-  |
| DIMENSIONS BATTERY-ONLY          | 37 x 25.5 x 27.5cm<br>14.6 x 10 x 10.8"<br>integral   | 41 x 26 x 22cm<br>16.1 x 10.2 x 9"<br>-  | 39 x 34 x 28.8 cm<br>15.4 x 13.4 x 11.4"<br>24.4 x 11.4 x 9.9cm<br>9.6 x 4.5 x 3.9"   | 29.8 x 3<br>11.75 x<br>24.4 x<br>9.6 x                       |
| Specific/Any Rope Ø              | 12-14mm<br>½-¾"   | 11-16mm<br>¾-5/8"  | 11.5-13mm<br>¾-½"   | 11.<br>7"  |
| RANGE on 1 charge/tank           | 500m 787ft*   | approx 227m 500ft  | 244m 800ft* or 15mins   | 244  |
| ASCENT SPEED Metres/feet/minute  | <8/min<br>≤26ft/min   | 0-30m/min<br>0-100ft/min   | 0-27.4m/min<br>0-90ft/min   | 0-2<br>0-9   |
| DESCENT SPEED Metres/feet/minute | 8/min<br>26ft/min   | 18m/min<br>59ft/min  | 0-45.7m/min<br>0-150ft/min  | 0-6<br>0-1   |
| ENGINE/BATTERY POWER             | 36v Lithium-ion<br>15Ah   | Honda GX35 4stroke<br>35.8cc   | 28v Lithium-ion<br>3.5Ah  | 48v Li   |
| RECHARGE TIME ON DESCENT         | N/A   | -  | 90min   | 1  |
| REMOTE APP CONTROL RANGE         | ■ -   | -  | 91m/300ft -   | 91m  |
| ON-BOARD CHARGE STATUS           | ■   | -  | ■   | ■  |
| ANCHOR TOP BOTTOM                | - 1   | 1 1  | 1 1   | 1  |
| NOISE/SOUND LEVELS               | n/a   | 89dB   | n/a   | n/a  |
| EMERGENCY IMPACT STOP            | ■ ■   | - -  | - -   | - -  |
| NO-POWER DESCEND                 | ■   | ■  | ■   | ■  |
| TEMP RANGE °C/°F                 | -20to50°C -4to122°F   | -20to40°C -4to104°F  | -20to49°C -4to120°F   | -20to49  |
| IP RATING                        | N/A   | 56 -   | 54 -  | 54   |
| MID/ END ROPE FEED               | ■   | ■  | ■   | ■  |
| WARRANTY GOVT ONLY               | n/a   | n/a  | 12months  | 12   |
| CARRY CASE c/w ROPE              | - ■   | - ■*   | ■ □   | ■  |
| STANDARDS                        |   | -  | CE ANSI   | C  |
| NOTES                            | *@90kg/198lb<br>Inc. 20m x14mm rope(order longer lengths), remote control,<br>NB: may also be a #7 version? | HD=Steel instead of alloy on high wear components plus rollers and bushings on fairlead.Cost+45%!<br>*Comes with 59m/150ft of rope for US orders only.<br>Price inc CMI Ropewalker | *+800ft descent @91kg/200lb Hot-swap batteries \$380 ea.<br>Price includes wireless remote control, battery, charger, hard case w/foam.<br>MBS >2272kg/5000lb | *+800ft descen<br>swap bat<br>Hands-<br>MBS >2<br>*EMI: Elec |
| WEBSITE                          | smart-spider.com  | ropetek.com  | roninpowerascender.com  | roninpowe  |

# POWERED ROPE WINCHES/ASCENDERS

|  |   |  |  |   |
|--|---|--|--|---|
|             |    |               |    |    |
| <b>RONIN</b>   | <b>RONIN</b>  | <b>SKYLOTEC</b>  | <b>SKYLOTEC</b>  | <b>SKYLOTEC</b>   |
| Non-HC Lift (TL)   | Non-HC Lift   | Actsafe ACX<br>POA-001   | Actsafe ICX<br>POA-030   | Actsafe PMX<br>POA-006  |
|             |    |               |    |    |
| \$4735 €3512   | £3960 \$3830 €4565  | £15320 \$22780 €14450  | £6750 \$8550 €7865   | £9200 \$11200 €8650   |
|             |    |               |    |    |
| 5 2.3kg<br>9 5lb   | 11 3kg<br>24 6.6lb  | 13 2.5kg<br>28.9 5.5lb   | 7.4 1.31kg<br>16.3 2.9lb   | 21kg -<br>28.7lb -  |
|             |    |               |    |    |
| Thumbwheel   | Thumbwheel  | Throttle   | Thumbwheel   | Throttle  |
| (2-person) 400lb<br>(rescue-only)  | 182kg(272kg-2-person) 400lb<br>(600lb-rescue-only)  | 200kg<br>440lb   | 185kg<br>407lb   | 250kg<br>551lb  |
| 4.3 x 28.6cm<br>13.5 x 11.25"<br>11.4 x 9.9cm<br>4.5 x 3.9"                                | 39 x 34 x 28.8 cm<br>15.4 x 13.4 x 11.4"<br>24.4 x 11.4 x 9.9cm<br>9.6 x 4.5 x 3.9"   | 33 x 28 x 27cm<br>13 x 11 x 11"<br>30 x 12 x 11cm<br>12 x 4.7 x 4.3"                           | 25.5 x 24.9 x 21.7cm<br>10 x 9.8 x 8.5"<br>11.6 x 13.2 x 9.8cm<br>4.6 x 5.2 x 3.8"   | 49 x 29 x 28cm<br>19.3 x 11.4 x 11.1"<br>-  |
| 5-13mm<br>7/16-1/2"  | 11.5-13mm<br>7/16-1/2"  | 11mm<br>7/16"  | 11mm<br>7/16"  | 11-12.9mm<br>7/16-1/2"  |
| 200m 800ft*  | 244m 800ft*   | 200m 656ft*  | 230m 754ft*  | 750m 2460ft   |
| 0-7.4m/min<br>0-24ft/min   | 0-27.4m/min<br>0-90ft/min   | 0-24m/min<br>0-78ft/min  | 0-24m/min<br>0-78ft/min  | 1-17m/min<br>3.3-56ft/min   |
| 0-8m/min<br>0-26ft/min   | 0-68m/min<br>0-150ft/min  | 0-25m/min<br>0-82ft/min  | 1-24m/min<br>3.3-78ft/min  | 1-18m/min<br>3.3-59ft/min   |
| Lithium-ion<br>3Ah   | 28v Lithium-ion<br>3.5Ah  | 56.1v Lithium<br>n/a Ah  | Husqvarna 36v Lithium<br>5.2Ah   | Honda GX35 4stroke<br>35.8cc  |
| 20min  | 120min  | 90min       | 80/90min -   | -   |
| 100m/300ft* -  | 91m/300ft -   | 150m 492ft  |   | -   |
|           |    |             |    |  |
| 1 1  | 1 1   | 1 1  | - 1  | 1 1   |
| n/a  | n/a   | 76dB   | n/a  | 89dB  |
|           |    |             |    |  |
|           |    |             |    |  |
| °C -4to120°F   | -20to49°C -4to120°F   | -20to40°C -4to104°F  | -10to40°C 14to104°F  | -20to40°C -4to104°F   |
| 54 -   | 54 -  | 55   | 55   | 56  |
|           |    |             |    |  |
| 12months   | 12months  | 12months -   | 12months -   | 12months  |
|           |    |             |    |  |
| ANSI   | CE  | CE ANSI  | CE   | CE  |
| Weight @91kg/200lb Hot-batteries \$470 ea. Free braking. 272kg/5000lb Electronic shielding | Material handling only - Can perform human-lifting but certified and marked as material only. Inc 2x batteries MBS >2272kg/5000lb | Replacement battery £3212/\$3900/€2100 * @100kg optional rechargeable driver as power source   | Uses 'off-the-shelf' Husqvarna BLi200 batteries * @100kg *not-load-rated for a rescue load but can use remote control to carry out single person rescue. | *@100kg/220lb   |
| powerascender.com  | roninpowerascender.com  | skylotec.com   | skylotec.com   | skylotec.com  |



# POWER ASCENDERS - FOR PROFESSIONALS.

ActSafe Power Ascenders are an ingenious combination of a high-capacity rope winch in a compact, lightweight and user-friendly design. They simply redefine the possibilities for working in vertical environments.

[skylotec.com](http://skylotec.com)



More Information



## ActSafe PMX

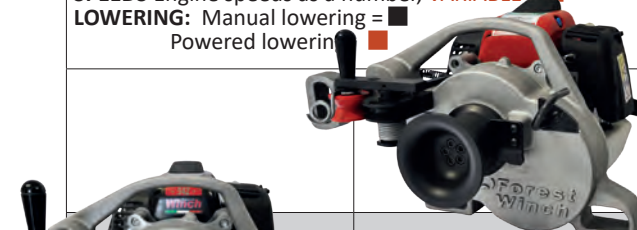





















- working load limit (WLL) of 250 kg
- 17 m / min at 100 kg
- suitable for 11 mm ropes



## ActSafe ACX

- simplifies and accelerates work on complex or difficult to access structures
- power-saving use
- remote control up to 150m

**IMAGES NOT TO SCALE**  
**COST:** Approx & inc VAT/Taxes  
 height x width x Depth  
**WLL/PULL SPEED:** Direct to load-No Mechanical advantage  
**SPEEDS** Engine speeds as a number, **VARIABLE** = ■  
**LOWERING:** Manual lowering = ■  
 Powered lowering = ■

|  | MODEL                             | COMPANY     | ORIGIN  | COST<br>inc tax<br><br>currency<br>conversion<br>only | WT                | MAX<br>DIMENSIONS<br>CAPSTAN                              |
|--|-----------------------------------|-------------|---|---|-------------------|---|
|    | VF80 Bolt                         | DOCMA       |    | £1380<br>\$1783<br>€1500                              | 10.5kg<br>23lb    | 346 x 350 x 253mm<br>13.6 x 13.8 x 10"<br>65mm<br>2.56"   |
|    | VF105 Red Iron                    | DOCMA       |    | £1500<br>\$1938<br>€1615                              | 10.5kg<br>23lb    | 346 x 350 x 253mm<br>13.6 x 13.8 x 10"<br>65mm<br>2.56"   |
|    | VF900-4 Nippon                    | DOCMA       |    | £1500<br>\$1850<br>€1695                              | 10.85kg<br>24lb   | 350 x 350 x 290 mm<br>13.8 x 13.8 x 11.4"<br>51mm<br>2"   |
|    | VF155 Auto                        | DOCMA       |    | £1780<br>\$2120<br>€2060                              | 25kg<br>51.4lb    | 595 x 360 x 360cm<br>3.4 x 14.2 x 14.2"                   |
|   | VF155 Auto-4                      | DOCMA       |   | £2150<br>\$2600<br>€2463                              | 25.35kg<br>55.8lb | 595 x 385 x 360cm<br>3.4 x 15.1 x 14.2"                   |
|  | Manual Ultralight VF155           | DOCMA       |  | £1600<br>\$2000<br>€1850                              | 20.5kg<br>55lb    | 560 x 360 x 360cm<br>22 x 14.2 x 14.2"                    |
|  | Nordforest 400 Powerwinch 400     | EDER /GRUBE |  | £1554<br>\$1900<br>€1450                              | 13kg<br>28.7lb    | 340x420x350mm<br>13.4x16.5x13.8"<br>51mm<br>2"            |
|  | Nordforest 400-1 Powerwinch 400-1 | EDER /GRUBE |  | £1254<br>\$1792<br>€1600                              | 13kg<br>28.7lb    | 370 x 330 x 340mm<br>14.6 x 13 x 13.4"<br>80mm<br>3.15"   |
|  | Powerwinch 500                    | EDER        |  | £1512<br>\$1792<br>€1600                              | 8.5kg<br>18.7lb   | 330 x 290 x 360mm<br>13 x 11.4 x 14"<br>65mm<br>2.56"     |
|  | Powerwinch 1200                   | EDER        |  | £1554<br>\$1792<br>€1600                              | 13kg<br>28.6lb    | 370 x 330 x 340mm<br>14.5 x 13 x 13.4"<br>80mm<br>3.15"   |
|  | Powerwinch 1200 B                 | EDER        |  | £1800<br>\$2000<br>€1850                              | 13kg<br>28.6lb    | 400 x 308 x 340mm<br>15.7 x 12.1 x 13.4"<br>80mm<br>3.15" |








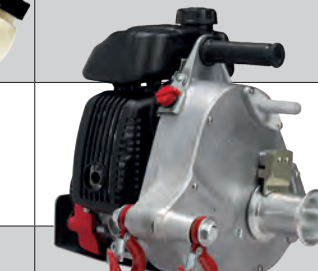







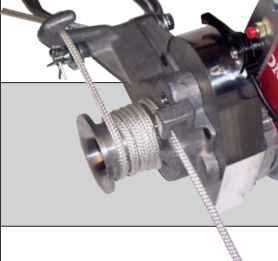









**NOTES** COST: Approx & inc VAT/Taxes height x width x Depth WLL/HAUL SPEED: Direct to load - No Mechanical advantage



# POWERED ROPE WINCHES

| POWER SOURCE<br>BATTERY<br>PETROL/GAS                | ROPE<br>Ø                | MAX<br>SOUND<br>LEVEL | IP   | STANDARDS | WLL<br>PULL SPEED<br>Both =Max<br>for direct single line pull<br>no-drag | SPEEDS/<br>VARIABLE | REMOTE<br>CONTROL | HUMAN-<br>RIDING | PROGRESS<br>CAPTURE | LOWERING | DURATION<br>&<br>NOTES   | WWW.                             |
|--|--------------------------|-----------------------|------|-----------|--|---------------------|-------------------|------------------|---------------------|----------|--|----------------------------------|
| Al-Ko Solo<br>2-stroke<br>50.8cc                     | 10-12mm<br>3/8-1/2"      | 112db                 | IP44 | CE        | 815kg 26m/min<br>1797lb 85ft/min   | 1                   | -                 | -                | -                   | ■        | thermal treatments to extend component life: adaptable acceleration and braking from the operator. | docma.it                         |
| Al-Ko Solo<br>2-stroke<br>50.8cc                     | 10-12mm<br>3/8-1/2"      | 112dB                 | IP44 | CE        | 1050kg 20m/min<br>2315lb 66ft/min  | 1                   | -                 | -                | -                   | ■        | thermal treatments to extend component life: adaptable acceleration and braking from the operator. | docma.it                         |
| Honda GX50<br>4-stroke<br>48cc                       | 10-12mm<br>3/8-1/2"      | 98dB                  | IP44 | CE        | 865kg 14m/min<br>1907lb 46ft/min   | 1                   | -                 | -                | -                   | ■        | thermal treatments to extend component life: adaptable acceleration and braking from the operator. | docma.it                         |
| Al-Ko Solo<br>2-stroke<br>50.8cc                     | 80m/262ft<br>5mm<br>1/4" | 112dB                 | IP44 | CE        | 1485kg 20m/min<br>3267lb 59ft/min  | 1                   | -                 | -                | -                   | -        | Automatic rope rewind when unloaded  | docma.it                         |
| Honda GX50<br>4-stroke<br>48cc                       | 80m/262ft<br>5mm<br>1/4" | 105dB                 | IP44 | CE        | 1260kg 19m/min<br>2772lb 59ft/min  | 1                   | -                 | -                | -                   | -        | Automatic rope rewind when unloaded  | docma.it                         |
| Al-Ko Solo<br>2-stroke<br>50.8cc                     | 80m/262ft<br>5mm<br>1/4" | 112dB                 | IP44 | CE        | 1485kg 20m/min<br>3267lb 59ft/min  | 1                   | -                 | -                | -                   | -        |  | docma.it                         |
| Kawaski TJ53<br>2-stroke<br>65cc                     | 8-10mm<br>5/16-3/8"      | 115dB                 | IP44 | CE        | 400kg 29m/min<br>882lb 95ft/min  | 1                   | -                 | -                | -                   | ■        | <b>DISCONTINUED</b><br>still available while stocks last   | eder-maschinenbau.de<br>grube.de |
| Active 6.5<br>2-stroke<br>3.3 KW /4.5 HP             | 8-10mm<br>5/16-3/8"      | 115dB                 | IP44 | CE        | 400kg 40m/min<br>882l 131ft/min  | 1                   | -                 | -                | -                   | ■        |  | eder-maschinenbau.de<br>grube.de |
| Honda GX35<br>4-Stroke<br>35.8cc<br>1KW / 1.3HP      | 8-12mm<br>5/16-1/2"      | 106dB                 | IP44 | CE        | 500kg 12m/min<br>1102lb 40ft/min   | 1                   | -                 | -                | -                   | ■        | Rubber grip feet allow direct tree attachment  | eder-maschinenbau.de<br>grube.de |
| Active 6.5<br>2-stroke<br>62cc<br>3.3KW / 4.5 HP     | 8-10mm<br>5/16-3/8"      | 115dB                 | IP44 | CE        | 1200kg 14m/min<br>2646lb 46ft/min  | 1                   | -                 | -                | -                   | ■        |  | eder-maschinenbau.de<br>grube.de |
| 36v Li-ion<br>Stihl Battery<br>7.2 or 8.8Ah<br>1.7kW | 8-10mm<br>5/16-3/8"      | n/a                   | IPX4 | CE        | 1200kg 13m/min<br>2646lb 42ft/min  | 1                   | -                 | -                | -                   | ■        |  | eder-maschinenbau.de<br>grube.de |

pulleys. SPEEDS Engine speeds as a number, VARIABLE = ■ LOWERING: Manual lowering = □ Powered lowering = ■ N/A info Not Available/not given

| <p><b>IMAGES NOT TO SCALE</b><br/> <b>COST:</b> Approx &amp; inc VAT/Taxes<br/>                     height x width x Depth<br/> <b>WLL/PULL SPEED:</b> Direct to load-No Mechanical advantage<br/> <b>SPEEDS</b> Engine speeds as a number, <b>VARIABLE</b> = ■<br/> <b>LOWERING:</b> Manual lowering = ■<br/>                     Powered lowering = ■</p> |   | MODEL                             | COMPANY               | ORIGIN  | COST<br>inc tax<br><br>currency<br>conversion<br>only | WT                      | MAX<br>DIMENSIONS<br>CAPSTAN   |
|---|---|-----------------------------------|-----------------------|---|---|-------------------------|--|
|    |    | Nordforest/<br>Powerwinch<br>1800 | EDER<br>/GRUBE        |    | £2394<br>\$2860<br>€2550                              | 14kg<br>30.1lb          | 385 x 365 x 325mm<br>15.15 x 14.4 x 12.8"<br>130mm<br>5.12"                |
|   |    | PCW3000                           | PORTABLE<br>WINCH CO. |    | £1559<br>\$1460*<br>>€1300                            | 9.5kg<br>20lb           | 350 x 289 x 261mm<br>13.8 x 11.4 x 10.3"<br>76mm<br>3"                     |
|   |   | PCW3000-Li                        | PORTABLE<br>WINCH CO. |    | £1320<br>\$1540*<br>>€1373                            | 9.5kg<br>21lb           | 308 x 316 x 309mm<br>12.1 x 12.4 x 12.2"<br>76mm<br>3"                     |
|   |  | PCW4000                           | PORTABLE<br>WINCH CO. |    | £2159<br>\$1950*<br>>€2150                            | 12kg<br>26.5lb          | 420 x 300 x 285mm<br>16.5 x 11.75 x 11.25"<br>76mm<br>3"                   |
|   |  | PCW5000                           | PORTABLE<br>WINCH CO. |   | £2400<br>\$1800*<br>>€1605                            | 16kg<br>35lb            | 371 x 366 x 366mm<br>14.6 x 14.4 x 14.4"<br>57mm or 85mm<br>2.25" or 3.35" |
|   |  | PCW5000 HS<br>(High Speed)        | PORTABLE<br>WINCH CO. |  | £2711<br>\$2000<br>€3130                              | 16kg<br>35lb            | 371 x 366 x 366mm<br>14.6 x 14.4 x 14.4"<br>57mm or 85mm<br>2.25" or 3.35" |
|   |  | PCH1000                           | PORTABLE<br>WINCH CO. |  | £3600<br>\$2900<br>\$2975                             | 19kg<br>42lb            | 505 x 366 x 366mm<br>20x14.4x14.4"<br>57mm or 85mm<br>2.25" or 3.35"       |
|   |  | CH2000                            | PORTABLE<br>WINCH CO. |  | £4600<br>\$3700<br>€5300                              | 34.5kg<br>76lb          | 560 x 483 x 356mm<br>22 x 19 x 14"<br>108mm<br>4.25"                       |
|   |  | SP1-CW                            | SIMPSON               |  | £990<br>\$1200<br>€1150                               | 8.2kg<br>18lb           | 305 x 380 x 205mm<br>12 x 15 x 12"<br>64mm<br>2.5"                         |
|   |  | SP2-CW                            | SIMPSON               |  | £1100<br>\$1300<br>€1250                              | 8.2kg<br>18lb           | 305 x 380 x 205mm<br>12 x 15 x 12"<br>64mm<br>2.5"                         |
|   |  | CS-CW                             | SIMPSON               |  | £660<br>\$800<br>€760                                 | 4.1kg<br>9lb<br>+ Chsaw | 178 x 203 x 127mm<br>7 x 8 x 5"<br>+ size of saw<br>64mm<br>2.5"           |

NOTES N/A info N

# POWERED ROPE WINCHES

| POWER SOURCE<br>BATTERY<br>PETROL/GAS                  | ROPE<br>Ø       | MAX SOUND LEVEL    | IP                 | STANDARDS         | WLL<br>PULL SPEED<br>Both =Max<br>for direct single line pull<br>no-drag | SPEEDS/<br>VARIABLE | REMOTE CONTROL | HUMAN-RIDING | PROGRESS CAPTURE | LOWERING | DURATION & NOTES  | WWW.                             |
|--|-----------------|--------------------|--------------------|-------------------|--|---------------------|----------------|--------------|------------------|----------|---|----------------------------------|
| Active 6.5<br>2-stroke<br>62cc<br>4.5 HP               | 12-14mm<br>½-¾" | 115dB              | IP44               | CE                | 1800kg@12m/min<br>3968lb@79ft/min  | 2                   | -              | -            | -                | ■        | 2-speeds also<br>900kg@24m/min  | eder-maschinenbau.de<br>grube.de |
| Honda GX35<br>4-Stroke<br>35.8cc                       | 10mm*<br>¾"     | 108dB              | IP44               | CE                | 700kg 10m/min<br>1543 lb 33ft/min  | 1                   | -              | -            | -                | ■        | *10mm / 3/8" rope ensures that 3 to 4 wraps are possible. With a 12mm fewer wraps are possible. *price inc 50m rope & rigging eqpt.                   | portablewinch.com                |
| 80/82v Li-ion<br>Battery<br>1KW                        | 10mm*<br>¾"     | n/a                | IPX3               | CE                | 1000kg 11.6m/min<br>2200 lb 38ft/min                                     | 3                   | -              | -            | -                | ■        | *10mm = 3 to 4 wraps are possible. 12-16mm = fewer wraps. Uses Briggs&Stratton or Cramer batteries. *price inc 50m rope & rigging eqpt.               | portablewinch.com                |
| Honda GHX50<br>4-stroke<br>50cc                        | 10mm*<br>¾"     | 105dB              | IP44               | CE                | 1000kg 13.4m/min<br>2200 lb 44ft/min                                     |                     | -              | -            | ■                | ■        | Improved Integral Progress Capture Cam on '23 model. *10mm/ 3/8" rope = 3 to 4 wraps possible. 12mm= fewer wraps. *price inc 50m rope & rigging eqpt. | portablewinch.com                |
| Honda GHX50<br>4-stroke<br>50cc                        | 10-13mm<br>¾-½" | 105dB              | IP44               | CE                | 1000kg 12m/min<br>2200 lb 40ft/min                                       | 2*                  | -              | -            | -                | ■        | * price inc 50m rope & rigging eqpt. Optional 85mm capstan increases speed to 18m/min / 60ft/min  | portablewinch.com                |
| Honda GHX50<br>4-stroke<br>50cc                        | 10-13mm<br>¾-½" | 105dB              | IP44               | CE                | 350kg 36m/min<br>771 lb 118ft/min  | 2*                  | -              | -            | -                | ■        | \$2119 with rope/rigging kit. Optional 85mm capstan increases speed to 18m/min / 60ft/min   | portablewinch.com                |
| Honda GHX50<br>4-stroke<br>50cc                        | 12-13mm<br>½"   | 105dB              | IP44               | CE<br>M3<br>(ISO) | 775kg 12m/min<br>1710lb 40ft/min<br>LIFT 250kg/550lb*                    | 2*                  | -              | -            | ■                | ■        | Certified for INDUSTRIAL use<br>Optional 85mm capstan increases speed to 18m/min / 60ft/min   | portablewinch.com                |
| Honda GX160<br>4-stroke<br>160cc                       | 12-13mm<br>½"   | 100dB              | IP44               | CE<br>M3<br>(ISO) | 1150kg 20m/min<br>2535lb 66ft/min<br>LIFT 450kg/992lb                    | 1                   | -              | -            | ■                | ■        | Certified for INDUSTRIAL use<br>M3 is an industrial rating from M1toM6 indicating the hours of use versus the degree of loading                       | portablewinch.com                |
| Honda GX35<br>4-Stroke<br>35.8cc                       | 8-10mm<br>⅝-¾"  | 108dB              | IP44               | -                 | 907kg 6.7m/min<br>2000lb 22ft/min  |                     | -              | -            | -                | ■        | Same as SP2-CW with GX35 motor.<br>5 year warranty  | capstanropewinch.com             |
| Honda GX50<br>4-Stroke<br>50cc                         | 8/10mm<br>⅝-¾"  | 105dB              | IP44               | -                 | 1088kg 6.7m/min<br>2398lb 22ft/min                                       |                     | -              | -            | -                | ■        | Same as SP1-CW with GX50 motor.<br>5 year warranty  | capstanropewinch.com             |
| Battery or<br>Petrol/gas<br>chainsaw<br>less than 57cc | 8-10mm<br>⅝-¾"  | Depends on<br>CSaw | Depends on<br>CSaw | -                 | 1136kg 7.6m/min<br>2500lb 25ft/min                                       | ■                   | -              | -            | -                | ■        | Attaches to your chainsaw via a 3/8" drive sprocket.<br>5 year warranty   | capstanropewinch.com             |

ot Available/not given

# MINI HAULING KITS >2.5kg/5lb

Casualty Pulley System or *CPS* is a term we've used since the early 1980's but we don't lay claim to it or to the concept - that was primarily down to Dave Allport, then of *Troll Safety Equipment* in the UK. He came up with a combination of tiny yachting pulleys, a hand ascender and small diameter cord that gave you a mini package you could stow on your harness and upon reaching a rope-stranded casualty you could clip on and raise or de-weight their system sufficient to perform a pick-off rescue. Dave may have been more ornery than Yosemite Sam but back then he was often ahead of the game and we bought the first *CPS* model and swore by it for years. Testament to its longevity is that the *Troll* offspring, *SAR Products* sells a virtually unchanged product (pic top right) as did *Troll's* latter day owners *Miller/Daloz* (now *Honeywell Miller*) but we haven't included that because none of the components are theirs and their websites are even harder to get any sense from than *3M's*!

We messed about with the *CPS* through the 80s and 90s - made it smaller by replacing the *Kong Cam Clean* ascender with a *Wild Country Ropeman* - one of those tiny cam-only ascenders, we made it longer using miles of cord or whatever we could squeeze in and still attach to our harness, and eventually swapped out the nylon sheave yachting pulleys for the smallest triple and double alloy pulleys available at that time - I think it was *SRTe* (became *3M/DB Sala* but discontinued along with most of *SRTe's* excellent range). The reason we swapped them was of course because we'd started using it for more and more tasks and eventually overloaded the nylon sheaves, warping them. Heavier duty pulleys were no bad thing

but until recently they lacked the integral progress capture of those original yachting pulleys with their simple 'V' notch into which you jam the cord. *CAMP's Oyssa* represents the latest in yacht pulleys in stark contrast to their reinventing of the traditional ratchet-strap with the *GRAVITY* (right). They've taken the bold step of having a self-contained kit using a steel ratchet to provide up to 73cm of lift on a 3to4:1 ratchet cam- simple, strong and cheap. Meanwhile, *Harken* have arrived on the scene as reputed producers of high quality yacht pulleys and winches with their access-specific *Wingman* (above) with alloy sheaves and swivels. *SRTe's* original *MiniHaul* miniaturized a 'WallHauler' style integral cam but it was still pretty bulky. *ISC* and *Mammut* went one better with custom-designed mini integral cams while the *Bluewater/SMC* model and the iconic *Aztek* (ad opposite) took a simpler approach and use a prusik cord for progress capture but this can increase drag during hauling. For a while *DMM* had the very slick *RPM* which featured modular sheaves that you can swap from single to doubles but they were too slick for the market which wasn't prepared to pay for it. This Guide considers only the smaller pulley systems less than 5lb/2.5kg and generally a 2m/6'7" deployed length. There will therefore

be a fine line between some full size rescue pulley systems with short rope lengths like the *SMC HX* and larger 'mini' systems with extra rope like the *Stein* kit. *Protekt* has 2 kits but neither can be described as 'mini'. We will add larger 'team' kits in a later guide but on the whole, these 'mini' kits should be easily hung off your harness. You should **always have some form of redundant safety when hauling.**

The smallest cord/rope diameter will invariably be the smallest and lightest kits but *Edelrid's KAA* (left) is so far unique in using 25mm/1" webbing instead of cord enabling use of a broad cam as a PCD and an innovative lowering handle. those with an add-on cam, like the *SAR Products* (right), rather than an integrated-cam, can reduce the package weight by fitting a smaller cam or prusik. Even with 4mm cord, a mini pulley system has far more uses than just the originally envisaged rescue pick-off aid. It can be used for self-rescue, tension zip lines, take temporary load for repositioning of anchors, shift heavy weights, provide adjustable guys for shelters or aerials etc. and in storm work can help stabilise or counter the lean of a branch or tree although this will cross over into full size pulley systems so you would need to know your limits. *Skylotec/Climbing Technology* quote the efficiency of their *Lifty 6* as 79% while *Petzl* and *Edelrid* quote 91% for the *Jag* and *KAA*. That has a lot to do with the quality of the bushings or bearing and of the sheaves. Generally speaking, alloy sheaves on stainless bearings will be the most efficient but they will also be the heaviest and most expensive relative to size. If you want the smallest lightest system you'll need something like the *SAR Products CPS* with cord and nylon marine pulleys (the original diminutive *Mammut Rescyou* has been discontinued following a recall). If you want ultra-heavy duty you'll want something like the *CT Lifty* (if *Skylotec* keep it in their range), the *Aztek* system in any of its various guises or perhaps *CAMPS* webbing & ratchet cam *GRAVITY*. If you want compact, special purpose systems it will probably be the *Edelrid KAA* or *ISC Haulerbiner* and for perhaps the best compact all-rounder, the *Petzl Jag* with full strength alloy sheaves.

With the exception of *SAR Products* which is included in this Guide because Dave Allport effectively re-invented mini-hoists for rescue, everyone else is here because they manufacture at least one or more components. In the case of *PMI* and *Bluewater*, they make the rope but not the hardware so you could presumably put these together yourselves from components. Nevertheless, these are all top-end manufacturers who you can trust to produce a kit with all the necessary individual certification and quality as a package. This means you don't need to write your own risk assessments or list components that are 'fit-for-purpose' because they will underwrite the whole kit. No specific standards for these but where CE is listed it will be because EN358 covers PPE as a work positioning/restraint device or there's the European Machinery Directive for non-human lifting. NB: The retracted length often includes the carabiners/maillons. The 2m *Petzl Jag* for instance is 34cm but without carabiners is only 20cm.



**rock exotica**  
GEAR FOR THE Z AXIS

# AZTEK | SYSTEM

- Switches from a simple 4:1 (with a change of direction) to a simple 5:1.
- Color-coded asymmetrical prusiks are rope friendly and can be released under light tension.
- Use AZTEK for pick off, load release hitch, high-directional guylines, litter attendant tether, litter scoop, edge restraint and much more.
- AZTEK System length ranges from just 9" to over 13'.
- Features high-efficiency ball bearings and machined aluminum parts.

AZTEK Kit includes:  
AZTEK PULLEYS  
6mm PRUSIKS (2)  
50' 8mm STATIC CORD  
44" 6mm PURCELL PRUSIK CORD  
PRO OR STANDARD BAG

COLOR CODED



EDGE RESTRAINT



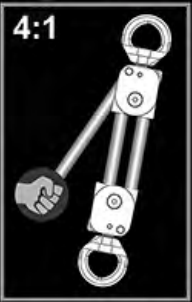
LOW TENSION RELEASE



50' CORD LENGTH



SWIVEL CONNECTION



The AZTEK kit can be configured as a 4:1, 5:1 or 12:1 with the use of an additional pulley.

MIN LENGTH  
9" (22.8cm)

< WIDE RANGE OF OPERATION >

MAX LENGTH  
13' (4m)



EDGE RESTRAINT

**Images NOT to Scale**

**COST:** INC local taxes/VAT .

£\$€ shown in burnt orange are currency conversions only & do not inc shipping, import duty or tax

**KIT:** CE = Captive Eye,

PC = Progress Capture

**WWL** Working Load Limit.

Safety ratios vary from 5:1 to 15:1 so MBS not quoted so much, instead... **BREAK LOAD** is an approximate failure load NOT a 'minimum' due to multiple components

**INTENDED MA=** most pulley systems can be flipped to pull upwards so a 3:1 can become a 4:1 etc. but integrated cam locations can make this impractical.



| MANUFACTURER                        | 3M/DB SALA   | BLUEWATER   | CAMP   | CAMP   | CMC  | EDELRID   | H                       |
|-------------------------------------|--|---|--|--|--|---|-------------------------|
| <b>MODEL VARIANT</b>                | Rollgis Micro-Haul 8701...                                   | Mini Haul ?   | Oyssa ?  | Gravity Rescue Ratchet 3122  | Aztek Pro Series 500104  | KAA 881320800170  | 4:1 Pu                  |
| <b>ORIGIN</b>                       |  |   |  |  |  |   |                         |
| <b>COST (inc Tax/VAT)</b>           | £720 \$900 €823  | £200 \$247 €227   | £190 \$230 €215  | £54 \$70 €55   | £390 \$489 €447  | £200 \$250 €220   | -                       |
| <b>WEIGHT (for min size option)</b> | 2.2kg 4.8lb  | 1.1kg 2.35lb  | 370g 13.1oz  | 720g 1lb 9oz   | 2.3kg 5lb  | 500g 5lb  |                         |
| <b>MAX LOAD- SWL MBS</b>            | 300kg 8kN 661lb 1798lbf                                      | -kg 13.3kN -lb 2990lbf  | 120kg 7kN 264lb 1574lbf  | 120kg 22kN 264lb 1574lbf   | 800kg 36kN 1760lb 8093lbf  | 600kg 22kN 1323lb 4947lbf                                       | 200kg 9kN 440lb 1960lbf |
| <b>DEPLOYED LENGTH options</b>      | 2m 6'7"  | 8m 27"  | 1m 3.28'   | 1.1m 3'7"  | 3.5m 12'   | 0.8/1.5/4m 3'3"/4'9"/15'9"                                      |                         |
| <b>POUCH/RETRACTED SIZE</b>         | 36 x 16cm 14 x 7"  | 23 x 13 x 13cm 9 x 5 x 5"   | 14 x 10 x 7cm 5.5 x 4 x 2.75"  | 37cm 14.6"   | 24 x 15 x 10cm 9.5 x 6 x 4"  | 20 x 7.6 x 7.5cm 8 x 3 x 3"                                     |                         |
| <b>ROPE/CORD LENGTH/ Ø</b>          | 14m/46' 8mm 5/16"  | 35m/115' 8mm 5/16"  | 7.6m/25' 4mm <3/16"  | 1.1m/ 3'7" 33mm Plystr Web 1.3"  | 15m/50' 8mm 3/16"  | 4m/13' 25mm webbing 1" webbing                                  |                         |
| <b>SHEAVE (WHEEL) Ø</b>             | Alu 3x 0mm 3x 0"   | Alu 2x 30mm 2x 1.2"   | Nylon 3x 20mm 3x 0.8"  | none (Steel ratchet)   | Alu 2x 28mm 2x 1.1"  | Nylon 2x 26mm 2x 1.1"   | 2x 2x                   |
| <b>STORAGE/ DEPLOYMENT BAG</b>      |  |   |  | none   |  |   |                         |
| <b>FIXED SWIVEL CHEEKS</b>          | ■  | ■   | ■  | none   | ■  |   |                         |
| <b>PC CAM PRUSIK</b>                | ■  | ■   | ■  | none   | ■  |   |                         |
| <b>BUSHING BEARING PIN</b>          | ■  | ■   |  | none   | ■  |   |                         |
| <b>MA EFFICIENCY</b>                | 6:1  | 4:1   | 6:1  | >3:1<5:1   | 4:1 5:1 80%  | 4:1 5:1 91%   |                         |
| <b>STANDARDS</b>                    | CE NFPA  |   |  | CE EAC   |  | CE  |                         |
| <b>INCLUDED ITEMS</b>               | <b>DISCONTINUED</b> Various rope connection hardware options | 1x 6mm Maillon, 2x double pulleys, 2x auto carabiners, 1x sewn prusik Pouch | 2x triple pulleys with integrated cleat, 2x 4mm Maillons, 7.6m cord, pouch | 73cm of lift using a ratchet cam giving between 3:1 and 5:1 of advantage - greater with less web wound on. | 2x swivel pulleys, 2x sewn prusiks, 15m/50ft CMC Aztek cord, pouch | webbing, Mesh, Pouch, Top assembly with handle, Bottom assembly | 443 DR                  |
| <b>NOTES</b>                        |  |   |  |  |  |   |                         |
| <b>WEBSITE</b>                      | capitalsafety.com  | bluewaterropes.com  | camp.it  | camp.it  | cmcrecue.com   | edelrid.com   | harker.com              |

# MINI HAULING KITS



| HARKEN                         | HARKEN                           | HEIGHTEC  | HEIGHTEC                        | ISC  | KONG  | KONG  | KONG  |
|--------------------------------|----------------------------------|---|---------------------------------|--|---|---|---|
| Purchase System<br>N2624/6M    | Wingman<br>IN404                 | Hexan<br>UP15   | Vantage<br>P10                  | HaulerBiner<br>HB165.2   | Maxi-Hoist#4<br>20800   | Mini-Hoist#7<br>208001  | Hop (Hoist#5)<br>20820  |
|                                |                                  |   |                                 |  |   |   |   |
| £410 -*                        | £570 \$525 €580                  | £232 \$291 €267   | £214 \$268 €245                 | £204 \$320 €0  | £312 \$494 €272   | £288 \$328 €243   | £342 \$430 €392   |
| 2.3kg<br>5lb                   | 2kg<br>4.4lb                     | 700g<br>1lb 9oz   | 750g<br>1lb 11oz                | 650g<br>1lb 7oz  | 1820g<br>4lb  | 680g<br>1.5lb   | 1.22kg<br>2lb 11oz  |
| 100kg 10kN<br>5lb 2248lbf      | 300kg 45kN<br>675lb 10115lbf     | 150kg 25kN<br>337lb 5620lbf   | 140kg 14kN<br>308 3147lbf       | 140kg 16kN<br>308 3500lbf  | 140kg -kN<br>310lb -lbf   | 300kg 5.9kN<br>661lb 1322lbf  | 140kg 4kN<br>310lb 899lbf   |
| 2m<br>6'7"                     | 3.5m<br>12'                      | 2m<br>6'7"  | 1/1.5/2/5m<br>33"/49"/67"/16'3" | 1.05/1.65/3m<br>3'5"/5'4"/9'10"  | 4m<br>13'   | 1.15m<br>3.9'   | 1/2m<br>3.28'/6'7"  |
| 35cm<br>13.75"                 | 20.3" 38x33cm<br>8" 15x13"       | n/a   | n/a                             | 32cm<br>11.8"  | 55cm<br>21.6"   | 30cm<br>11.8"   | 32/34cm<br>11.8/13.4"   |
| 15m/50'<br>8mm<br>5/16"        | 15m/50'<br>8mm<br>5/16"          | 15m/50'<br>5mm<br>3/16"   | 4m/13'<br>8mm<br>5/16"          | 15m/50'<br>6mm<br>1/4"   | 15m/50'<br>10mm<br>25/64"   | 6.5m/21'<br>5mm<br>3/16"  | 15m/50'<br>10mm<br>25/64"   |
| Delrin<br>57/35mm<br>2.25/1.4" | Alu<br>2x 46/33mm<br>2x 1.8/1.3" | Nylon<br>2x 20mm<br>2x 0.8"   | Alu<br>2x n/a<br>2x n/a         | Nylon<br>3x 20mm<br>3x 0.8"  | Alu<br>2x 35mm<br>2x 1.38"  | Nylon<br>2x 34mm<br>2x 1.34"  | Alu<br>40.5 & 35mm<br>1.6 & 1.38"   |
| none                           |                                  |   | none                            |  | none  | none  |   |
| ■                              | ■                                | ■   | ■                               | ■  | ■   | ■   | ■   |
| ■                              | ■                                | ■   | ■                               | ■  | ■   | ■   | ■   |
| ■                              | ■                                | ■   | ■                               | ■  | ■   | ■   | ■   |
| 4:1 5:1                        | 4:1 5:1                          | 6:1   | 4:1 5:1                         | 6:1 7:1  | 4:1 5:1   | 6:1 7:1   | 4:1 5:1   |
| CE                             | NFPA CE UKCA                     | CE  | CE UKCA                         | CE   | CE  | -   | CE  |
| *USA-ONLY<br>RPS Discontinued  |                                  | 2x Alloy S/g carabiners<br>1x Triple nylon pulley<br>1x Triple sheave/ cleat<br>Pouch | Cut resistant sheath.<br>cord,  | Also rebadged by<br>STERLING ROPE as<br>Mini-Hauler and<br>Raise&Rescue Elite kit.<br>Cord,<br>2x Triple pulley-carabi-<br>ners, mesh, pouch | Rope<br>2x Twin Evo dbl Pulleys,<br>1x Cam, 2 carabiners,<br>1x maillon | Cord<br>1 dbl pulley,<br>1xtriple pulley with cam,<br>2x carabiners | Rope<br>1x Turbo Roll pulley<br>1x Futura Miniblock<br>1x Mini Twin Evo dbl pulley<br>2x Maillons |
| harkenindustrial.com           | harkenindustrial.com             | heightec.com  | heightec.com                    | iscwales.com   | kong.it   | kong.it   | kong.it   |

**Images NOT to Scale**

**COST:** INC local taxes/VAT .  
**£\$€** shown in burnt orange are currency conversions only & do not inc shipping, import duty or tax  
**KIT:** CE = Captive Eye, PC = Progress Capture  
**WWL** Working Load Limit.  
 Safety ratios vary from 5:1 to 15:1 so MBS not quoted so much, instead....**BREAK LOAD** is an approximate failure load NOT a 'minimum' due to multiple components  
**INTENDED MA=** most pulley systems can be flipped to pull upwards so a 3:1 can become a 4:1 etc. but integrated cam locations can make this impractical.



| MANUFACTURER                                  | LYON EQUIPMENT  | PETZL  | PMI/SMC   | PMI/SMC   | ROCK EXOTICA  | SAR PRODUCTS   | PR                                |
|---|---|--|---|---|---|--|-----------------------------------|
| <b>MODEL VARIANT</b>                          | Cas. Pick-Off Hoist<br>LCH  | Jag<br>P044AA..00..01..02  | Adv-Tech Haul System<br>KT36158   | Jr Haul System<br>KT36128   | Aztek Pro<br>P41  | Casualty Pulley System P0001   | Rescue System                     |
| <b>ORIGIN</b>                                 |   |  |   |   |   |  |                                   |
| <b>COST</b> (for min size option)             | £319 \$417 €380   | £232 \$370 €230  | £581 \$721 €696   | £281 \$348 €336   | £541 \$440 €590   | £252 \$330 €301  |                                   |
| <b>WEIGHT</b> (for min size option)           | 450g<br>1lb   | 610g<br>1lb 5.5oz  | 1.43kg<br>3lb 2.4oz   | 840g<br>1lb 14oz  | 2.3kg<br>5lb  | 866g<br>1lb 15oz   |                                   |
| <b>MAX LOAD- SWL MBS</b>                      | 150kg 9kN<br>330lb 2023lbf  | 600kg 16kN<br>1323lb 3597lbf   | - 34kN<br>- 7643lbf   | - 34kN<br>- 7643lbf   | 800kg 36kN<br>1760lb 8093lbf  | 150kg 9kN<br>330lb 2023lbf   | 150kg 9kN<br>330lb 2023lbf        |
| <b>DEPLOYED LENGTH</b> <small>options</small> | 1.3m<br>4.2'  | 1/2/5m<br>3'3"/6'7"/16'3"  | 2m<br>6'7"  | 2m<br>6'7"  | 4m<br>13'   | 2m<br>6'7"   | 2m<br>6'7"                        |
| <b>POUCH/RETRACTED SIZE</b>                   | 21cm<br>8.25"   | 34 cm<br>12.5"   | 36 x 16cm<br>14 x 7"  | 30 x 16cm<br>12 x 7"  | 24cm<br>9.52"   | 20 x 16 x 7cm<br>8 x 6.25 x 7.25"  | 20 x 16 x 7cm<br>8 x 6.25 x 7.25" |
| <b>ROPE/CORD LENGTH/ Ø</b>                    | 9m/30'<br>4mm<br><3/16"   | 7.5m/25'<br>8mm<br>3/16"   | 10m/33'<br>9mm<br>3/8"  | 10m/33'<br>7mm<br>3/32"   | 15m/50'<br>8mm<br>3/16"   | 15m/50'<br>6mm<br>1/4"   | 15m/50'<br>6mm<br>1/4"            |
| <b>SHEAVE (WHEEL) Ø</b>                       | Nylon<br>2x 20mm<br>2x 0.8"   | Alu<br>2x 25mm<br>2x 1"  | Alu<br>2x 35mm<br>2x 1.37"  | Alu<br>2x 35mm<br>2x 1.37"  | Alu<br>2x 28mm<br>2x 1.1"   | Nylon<br>2x 20mm<br>2x 0.8"  | Nylon<br>2x 20mm<br>2x 0.8"       |
| <b>STORAGE/ DEPLOYMENT BAG</b>                |   |  |   |   |   |  |                                   |
| <b>FIXED SWIVEL CHEEKS</b>                    | ■   | ■  | ■   | ■   | ■   | ■  | ■                                 |
| <b>PC CAM PRUSIK</b>                          | ■   | ■  | ■   | ■   | ■   | ■  | ■                                 |
| <b>BUSHING BEARING PIN</b>                    | ■   | ■  | ■   | ■   | ■   | ■  | ■                                 |
| <b>MA EFFICIENCY</b>                          | 6:1   | 4:1 5:1  | 4:1 5:1   | 4:1 5:1   | 4:1 5:1 80%   | 6:1  |                                   |
| <b>STANDARDS</b>                              | CE  | CE UKCA EAC  | BERRY   | BERRY   | CE  |  |                                   |
| <b>INCLUDED ITEMS</b>                         | <b>DISCONTINUED</b><br>Ascender, cord,<br>2x snap carabine hooks,<br>2x triple pulleys,<br>integrated pouch | 91% Efficiency<br>Jag Traxion PC pulley,<br>dbl pulley,<br>2 x Auto Carabiners<br>mesh cover<br>integrated pouch<br>Also full size rescue kits | HX PC pulley,<br>Dbl pulley,<br>5mm Maillon<br>2x carabiners,<br>3m release cord, pouch.<br>Can use 7-12mm rope | 2 SMC JRB dbl pulleys,<br>2x carabiners,<br>Prusik hitch<br>Maillon, 2m 5mm cord<br>Pouch | 2x Omni pulleys,<br>2x prusiks,<br>AZTEK cord,<br>6mm travel restraint,<br>Bag, | Ascender, cord,<br>2x maillons,<br>2x triple pulleys<br>pouch, carabiner | 1x<br>1x<br>2x                    |
| <b>NOTES</b>                                  |   |  |   |   |   |  |                                   |
| <b>WEBSITE</b>                                | lyon.co.uk  | petzl.com  | pmirope.com   | pmirope.com   | rockexotica.com   | sarproducts.com  | sarp                              |



|     |    |       |    |   |         |   |   |
|---|--|---|--|---|---|---|---|
|   |   |    |   |    |    |    |    |
|    |   |    |   |    |    |    |    |
| n/a   | £588 \$600 €547  | £237 \$296 €252   | £335 \$366 €325  | £365 \$386 €355   | £270 \$440 €310   | £319 \$390 €359   | £526 \$650 €630   |
| 2kg<br>4lb 6oz  | 950g<br>2lb 1oz  | 850g<br>1lb 15oz  | 1.72kg<br>3lb 12oz   | 2.3kg<br>5lb  | 3kg<br>6lb 10oz   | 1.54kg<br>3lb 6oz   | 1.72kg<br>3lb 13oz  |
| 150kg 9kN<br>0lb 2023lbf  | 400kg 18kN<br>880lb 4046lbf  | 400kg 18kN<br>880lb 4046lbf   | 160kg 16.3kN<br>352lb 3664lbf  | 240kg 24.5kN<br>528lb 5507lbf   | 240kg 22.5kN<br>528lb 5507lbf   | 0 22kN<br>0 5058lbf   | 800kg 36kN<br>1760lb 8093lbf  |
| 10m<br>33'  | 4m<br>13'  | 1/2 /5m<br>3'3"/6'7"/16'3"  | 2/5m<br>6'7"/16'3"   | 2m<br>6'7"  | 2m<br>6'7"  | 2m<br>6'7"  | 2m<br>6'7"  |
| 10 x 20cm<br>5.75 x 8"  | 35cm<br>13.7"  | 34cm<br>12.5"   | 24 x 26 x 12cm<br>9.5 x 10 x 4.7"  | 24 x 26 x 12cm<br>9.5 x 10 x 4.7"   | 38cm<br>15"   | 14 x 23 x 2.7cm<br>5.5 x 9x5"   | 24cm<br>9.52"   |
| 10m/100'<br>8mm<br>5/16"  | 23m/75'<br>8mm<br>5/16"  | 10m/33'<br>8mm<br>5/16"   | 10m/33'<br>9.5mm<br>3/8"   | 15m/50'<br>9.5mm<br>3/8"  | 25m/82'<br>12mm<br>1/2"   | 15m/50'<br>8mm<br>5/16"   | 15m/50'<br>8mm<br>5/16"   |
| Nylon<br>2x 51mm<br>2x 2"   | Nylon<br>2x 22mm<br>2x 0.9"  | Alu<br>2x 25mm<br>2x 1"   | Alu<br>2x 39mm<br>2x 1.5"  | Alu<br>3x 39mm<br>3x 1.5"   | Alu<br>2x 50mm<br>3x 2"   | Alu<br>2x 28mm<br>2x 1.1"   | Alu<br>2x 28mm<br>2x 1.1"   |
|  |                                       |  |   |   |  |    |    |
| ■   | ■  | ■   | ■  | ■   | ■   | ■   | ■   |
| ■   | ■  | ■   | ■  | ■   | ■   | ■   | ■   |
| ■   | ■  | ■   | ■  | ■   | ■   | ■   | ■   |
| 3:1 4:1   | 6:1  | 4:1 5:1 80%   | 4:1 86%  | 6:1   | 4:1 5:1   | 4:1 5:1   | 4:1 5:1 80%   |
|   | CE   | CE  | CE   | CE  | CE  |   |   |
| Cord, pouch,<br>tandem pulley,<br>single pulley,<br>2 CE carabiners               | Cord, pouch,<br>1x triple pulley<br>with cam,<br>2x CE carabiners<br>Bag<br>NB: 3:1 (SET-302-40)<br>is not a mini system | Dbl & PC cam pulley,<br>2x Oval CE Carabiners<br>Pouch.<br>climbingtechnology.com   | Being Phased out?<br>Cord, PC cam,<br>Maillon,<br>2x Double pulleys,<br>2x CE Carabiners<br>Pouch.<br>climbingtechnology.com | Being Phased out?<br>Rope, Separate PC Cam,<br>Maillon, 2xTriple pulleys,<br>2xCE carabiners,<br>pouch.<br>climbingtechnology.com | Rope<br>2x ISC RPO64 pulleys<br>1x Stein sewn hitch<br>Bag                            | 2x Dryad double pulleys<br>50ft rope with sewn eye,<br>2xAutolock Carabiners,<br>1x sewn prusik,<br>1x6mmMaillon<br>Aztek t pouch | 2x Omni pulleys,<br>2x prusiks,<br>AZTEK cord,<br>(Arbor version lacks the<br>6mm travel restraint),<br>Waist pouch,<br>3xCarabiners (2=CE) |
| products.com  | skylotec.com   | skylotec.com  | skylotec.com   | skylotec.com  | steininternational.com  | sterlingrope.com  | sterlingrope.com  |

**UPDATED Feb '25**

**ARBORIST 10.5-13.5mm**

# CLIMBING ROPES

**NB: PRICES BEING UPDATED Q1 '25**

There was a time, mostly in the last century, when a climbing rope for tree work meant 12mm, 3-strand nylon....white when new, grey as old underpants once used a bit and quite elastic compared to modern ropes, in fact 'climbing' ropes can be a misleading term because for the entire sport and industrial sectors, climbing means dynamic (shock-absorbing following multiple FF2 falls) whereas these are mostly low stretch that should aim to stay below FFO. We are seeing a move towards calling the kernmantle SRT ropes 'access' ropes as distinct from climbing implying that SRT/SRS is starting to be differentiated from 'climbing'.

Back to the old days and if you were posher, you might stump up for the less elastic multiplait rope (8 strand) ...also white, maybe with a red or blue fleck if you lived in Monaco or the Hamptons. These days, most of that old laid stuff has been given to the Orang Utan enclosure at the local Zoo and instead the tree world is at the forefront of producing ropes so bright they make your eyes bleed. You can still buy 3-strand as an arborist rope but in the main, arborists now have three distinct choices at the top-end of climbing ropes:

- DOUBLE BRAID (DB) also known as BRAID on BRAID,
- 12,16, 20 & 24 STRAND BRAID
- KERNMANTLE (KM).

As usual, metric gives us a much better defined size than imperial with its overly long and imprecise measurements where 7/16" can be anything from 10.5 to 11.7mm. Climbing ropes are around 11mm (7/16") to 13mm (1/2") with a modern trend towards 11.7-11.8mm ropes specifically designed for use in hybrid (descender/ascender) hardware which we'll discuss shortly. There are some ropes listed as 'suitable for climbing arborists' at 10mm and even 9mm but they're too thin for most devices, difficult to handle and more for special tasks like zip lines so, for the purposes of this guide we've only included **10.5 to 13.5mm** ropes but **we will expand this to include 10mm**.

If you don't want to use your climbing rope for a zipline and rigging ropes are too big, take a look at our guide to low stretch kernmantles for SRT that are also suitable for highlines in the

**ROPE EQUIPMENT BUYERSGUIDE**

## USES

Simply put, uses are..... climbing up, in and around a tree.... and perhaps ziplines and rigging if you didn't have any rigging line or have more money than sense. There is a lot of nonsense talked about the relative merits of braided ropes as compared to kernmantle with some making the rather ludicrous statement that arb ropes have to be tougher than rock/mountain climbing ropes because they're being used in trees. I can assure you that there ain't no amount of tree contact that is going to be more



L to R: Petzl Flow, Edelrid Woodpecker, C.A.M.P Frazon (new in '24), Cousin Atrax, Sterling Scion, Edelrid X-P\*<sup>e</sup>

aggressive than a 90 degree concrete, granite or sandstone edge; wood and bark is, in contrast, a walk in the park for most static kernmantle ropes. In fact the toughest rope in this guide is probably the Sterling Tech12, with Technora sheath. Largely aimed at special forces operations, their cut resistance (and heat-resistance) is of particular use to arborists. Virtually every kernmantle rope in our **ROPE EQUIPMENT BUYERSGUIDE** could have been in this guide to Arborist Climbing Ropes but we'll stick to only those kernmantles actively marketed to arborists. Of course this does mean that companies are free to interpret what is and isn't suitable - Bluewater for instance, have most of their ropes listed while Petzl only has two despite having several other ropes that are just as suitable as many that are listed in this GUIDE. The difference is in the handling and knot-tying characteristics since kernmantle is often far stiffer than braided ropes. But not that stiff. I remember reading an article on arborist ropes a few years back that mentioned something about not being able to tie knots in kernmantle which will come as a huge shock to the rope access and rescue community. It also pointed out correctly that Kevlar ropes don't fare too well when bent over a tight radius but don't let that colour your perception of the modern Aramid and Twaron mixed fibre ropes which are much more capable and are daily being bent over small descender cams, carabiners and pulley wheels. The key differences are that KM static and low stretch ropes tend to be less dynamic than braided. This is better when you're ascending and descending when 'bounce' equates to inefficiency but it's not so forgiving in a fall. Otherwise it comes down to personal preference and historical allegiances. We have a differentiation in these tables between SRT (SRS\*) and DdRT (MRS) and the manufacturers have dutifully ticked one or the other but this is somewhat misleading because any of the more flexible kernmantles can (and are) used in a doubled (DdRT) or moving rope system (MRS). With the exception of the really hard wearing ropes like *HTP*, *KMIII Max*, *Patron Plus* (not included) and *PMI MaxWear I* would have ticked all other kernmantles as DdRT and SRT. The same cannot be said for

\*The tree industry has implemented a more technically accurate acronym for SRT & DRT or Single/Double Rope Technique. The terms SRS Stationary Rope System and then SRWP Stationary Rope Work Positioning have been introduced and gallantly lauded by industry hierarchy and training establishments but once you start fiddling with replacement acronyms you know you're on the slippery road back to calling it SRT! MRS is Moving Rope System, which used to be DdRT or Doubled Ropes. These are laudable changes but SRT is so engrained in the wider sport and professional rope access & rescue communities that it's always going to be around.

some braided ropes which are very much softer and not all take to SRT (or more particularly the hardware involved) so kindly. Try ropes, try your mate's ropes and if they let you, try in the shop but remember, it's a personal thing so one person's brilliant will be another person's rubbish.

**ROPE DIAMETER** can be a contradiction because not only do quoted diameters often vary by a couple of mm either side even before load is applied, but a number of manufacturers seem to have lost their calculators or they are simply rounding the figures off so that you may see a 1/2" rope given as anywhere between 12mm and 13mm when in fact, to be precise it should be 12.7mm. We have quoted most figures as per the manufacturers' spec but if they only list one we've given the conversion figure as well. The key difference for arborists in choosing an 11mm/ 7/16th (or perhaps even a 10mm) over a 1/2" rope is in how it feels in the hand and how it operates in modern devices like pulleys, descenders, ascenders and with prusiks etc. Some brands like *Edelrid*, *Mammut*, *Tendon* and *Marlow* use the runner thread to readily identify diameter so that 9mm would be one marker thread, two threads would be 10 or 10.5mm, three threads is 11mm and four threads is 12mm. This isn't uniform throughout the industry so you cannot simply assume that any 3-marker thread rope is 11mm but within those ranges that adopt this marking it makes life easier, particularly where there could be a difference in standards between two similar sized ropes which could adversely affect your legal position in the event of an accident. Generally speaking, 12 to 16 strand ropes are soft and knobblier than a 24 to 48 strand rope which is smoother and operates well in hardware.

**CONSTRUCTION:** At the risk of going back to basics just a bit too far, we had better recap exactly what differentiates a kernmantle from a double braid and a static from a low stretch rope and how they differ from your mum's washing line. If they don't differ from your mum's washing line you need to upgrade your life insurance policy. Traditionally rope has been constructed by twisting bundles of fibre together - **LAI D ROPE**. Laid rope is like Rapunzel's hair - pre-twisted strands of fibre (or hair) make a larger bundle of fibre which can then be spiralled or braided so that it forms an interlocking spiral of rope (or hair) fibres. You can see all the 'workings' of a laid rope, you can push stuff through the middle of a laid rope and, in the case of the industry standard **3-STRAND** Nylon, you can cut or contaminate all of your load-bearing fibres because they're all exposed. Oh, and it's quite an elastic rope because all the fibres are spiralled so in any given linear inch of rope there is actually 2 inches of rope (or whatever the figure happens to be)

## ARBORIST CLIMBING ROPES

wrapped up in those twists. Variations on 3-strand include **MULTIPLAIT (Solid Braid)** in which some of the bundles are plaited in one direction and others the opposite way - this circumvents the unfortunate inclination of a spiralled rope to want to twist back to its virginal, parallel state. All of the more complex designs attempt to balance the direction of spiralled fibres so that they no longer have the inclination to untwist - this is known as an S-twist and a Z-twist. The next step up from 3-strand and multiplait is to cover all those exposed fibres with a sheath • **BRAIDED** rope. Typically in yachting and your mum's washing line this may be simply to protect the core or even just to add colour to an otherwise bland rope - people with large boats like to colour-coordinate - don't mistake these ropes for a working arb rope - they are NOT the same. In the arb world and in our tables, braided ropes are differentiated by the number of plaits in their weave (also known as 'bobbins' or 'carriers' as we have referred to it in our tables) - either 12, 16 or 24 with 12 and 16-strand covers bearing most of the load. Most, if not all 24-strands are found in our next class of rope; the Double Braids. The outer cover may be woven tighter or looser depending on how you want it to handle with tighter weaves giving a stiffer, more durable rope and looser weave an easier knot tying and handling rope.

**BRAID-on-BRAID** or **DOUBLE BRAID** are best sellers in the arb industry (or at least the favourites since the best sellers may well still be an industrial bulk purchaser taking several hundred miles of 3-strand). These ropes are either the 16-strand or equally highly coloured 24-strand double braids. Double braids have a woven outer cover and a woven inner which shares the load. In fact, in some cases the sheath and the core are more or less the same thing so you will see sheath percentages in these tables at up to 80% of the total load bearing capacity of the rope.

**KERNMANTLE** has a single, load-bearing, tightly woven sheath covering and comes from the German for KERN meaning core and MANTLE meaning sheath. A woven protective sheath covers a core of twisted/plaited multiple (separate) fibres. Broadly speaking we talk of static ropes as having a parallel bundle core and dynamic rope as having a spiralled core although even static ropes will have some spiralled fibres and bundles. The latest rope from Marlow is the Typhoon (right) at 12.2mm with a 16-plait sheath over a multi-twisted core so technically it's a kernmantle with the handling of a double braid.

The job of the sheath is to protect the core from abrasion and heat damage and traditionally this meant that three-quarters or so of the rope's total load bearing capacity remained intact within the core while the sheath took a pummeling. Over the years this has changed somewhat so that sheaths now often constitute around 40% of the total rope strength making them A) an even more vital load-bearing element than they traditionally have been and B) a huge influence on the handling characteristics of the rope. It used to be that a soft, easily tied rope wasn't so good at withstanding abuse and you needed something like the Sterling HTP with its iron bar-like characteristics to withstand a sharp granite edge or to highline



the Grand Canyon. Nowadays, it's not so clear cut but manufacturers are always striving to make a rope with the best handling, easiest knot tying and able to take whatever abuse you throw at it. The sheath carrier, plait or bobbin count on more flexible Kernmantles tends to be the higher numbers, typically 40-48 while stiffer, more abrasion resistant ropes will be around 32 or 24 but in reality it's again not that clear-cut - best to go to your local store and fondle the rope for yourself. If you really want to go all out in the bombproof stakes there's a rope by *Tendon (Lanex)* that has stainless steel fibres as part of its sheath to prevent it being cut. This is a bit of a departure from the more usual Kevlar-Aramid-type fibres and an interesting concept for law enforcement and a possibility for arborists wielding a chainsaw. It is not marketed in any way as an arborist rope by *Tendon* but if you can put up with the stiffer handling and increased cost we see no reason why you can't have a more cut-resistant rope. It's not as heavy as you might expect at only a couple of grams per metre more than Aramid.



Low profile eyes like this Teufelberger DrenaLINE are designed to be able to pass through of thread-thru hardware like the Petzl ZigZag.

## UNIFIED & BONDED SHEATH/CORE ROPES

This is the integration of some core fibres of kernmantle into the weave of the sheath. This is not an attempt to share load but rather to eliminate one of the drawbacks of a separate sheath; slippage, creep or milking which can be exacerbated by a prusik or the cams of a descender squeezing and bunching the sheath as it is pulled through under load. This remains a preoccupation for arborists as braided ropes are generally more susceptible to milking. Kernmantles are now mostly pre-shrunk to help eliminate milking which annoyed cavers used to soaking their new ropes in the bath in an effort to shrink the sheath onto the core and have an excuse not to have a bath themselves. Some ropes have the sheath bonded or glued to the core or, in the case of Arbor-Access, the sheath strands are partially woven into the fibres of the core so that it can no longer move differentially when subjected to high loads using compressing cam hardware. Ropes like *Meetic* from *Courant*, *Link-Tec* from *Edelrid*, *Platinum* from *Teufelberger/New England* and *Unicore* from *Beal & PMI* are examples. Cost is higher but if you've had problems with sheath slippage this could be the answer but remember that, while this construction can limit milking and may improve durability, there will be some downsides otherwise ALL ropes would be made this way - some ropes may exhibit 'dimpling' under excessive load or the bonding agent may eventually flake off but they are worth a look.

## 11.4-11.8 Ropes for Hybrid Devices

The best range for hybrid hardware is from 11.4mm or 9/20" to 11.8mm or 15/32" - let's just call it 0.46". This is give or take a mm or two because there are 11.2 and 11.9 ropes that work well. You might have noticed that virtually all of the new climbing ropes in the past few years have been within this

magic diameter band. We had the *Cousin Trestec 11.6mm Atrax* on the cover of issue 10 in 2016 and our last three reviews have been the 11.7 & 11.8mm *Teufelberger DrenaLINE & Xstatic*, *FTC TREE's 11.7mm Argiope* (now *Evo* and *Edelrid's 11.7 Woodpecker*. This sounds European driven but the writing was on the wall several years back when *Sterling*, *Bluewater* and *New England Ropes/Teufelberger* started to produce 11.5mm ropes for the access and rescue markets to bridge the gap between the standard 11mm and the US Fire service requirement for heavier duty 13mm ropes. You'd think that might be 12mm since it's smack in the middle but it still needed to be accessible to the plethora of technical hardware without stepping up to completely different models necessary for the 13mm ropes. Ditto arborists who, in the past decade, have seen a steady shift from prussic systems to hardware-based systems. After

a generation of using 12mm 1/2" ropes, the switch to SRT/SRS, which most suited 11mm ropes, led to a similar realisation that the crossover hardware from rescue and access didn't really like the much fatter and softer traditional arb ropes but equally most arborists don't really want 10.5mm 'string'. What they wanted was something that would work for BOTH and the 11.7/11.8mm diameters fit that bill. *Yale* immediately stepped up with their 11.7mm *XTC24* ropes and simultaneously kicked off (or joined) an odd trend among US arb rope manufacturers to produce the same rope as if each colour is a different model. Not sure if that's genius or annoying. *Teufelberger* has just the one *Tachyon* in 5 different colourways while *Yale*, *Samson*, and *All Gear* have what looks like several options for an 11.7mm rope but it's the one model in different colours. These ropes all have the advantage of being the diameter that most future hardware will be designed for (give or take a few mm).

Most of these new hybrid-compatible ropes are intended specifically to be used with hardware - that means some form of constant camming or compressing of the rope which can cause ropes with a looser or coarser braid (sheath) to milk so that you can end up with a whole load of sheath hanging off the end of your rope or a concertina effect as the extra sheath runs up against an end termination. Tighter braids will grip the core more firmly and be less inclined to milk but this is virtually always at the expense of handling and knotability - they're simply stiffer. It's worth noting that the use of sewn terminations is for anchoring only, they're not designed to be used as an end-stop termination to stop you abseiling off the end. Most will be fine but you'll notice that the softer, smaller eyes like *Petzl FLOW* and *Teufelberger's spLIFE FTC TREE's SlimTECH*, *Courant's Japora*, *Cousin's Atrax* and *Edelrid's Woodpecker* shown in the titles are actively designed to go through devices so they're no use as an end-stop! This ability to feed a spliced end through a device like the *Petzl ZigZag* may just influence the design of future devices which might otherwise have avoided the threading option in favour of more complicated opening systems. The *ZigZag* probably



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has the smallest rope-path so if your rope can get through this it might be quicker to thread mid-line attachable devices like *Akimbo*, *Unicender* and *RopeRunner* than fiddling about opening them. In the rope images on these intro pages you can see the differences in bulk between the high-strength sewn eyes like the Sterling Scion in blue and the *Teufelberger drenaline* shown above threaded through a *Petzl ZgZag*. *FTC TREE's* second type of splice on *Argiope* (title pic) is sealed beneath a protective black plastic cover which protects the rope marking and helps differentiate the two ends of a double spliced rope. Perhaps the most unusual termination is on *Edelrid's Woodpecker* which is basically a length of webbing sewn onto the rope with a gap at the top for an eye. This has a quoted minimum breaking load of 15kN and *Edelrid* say it is the lowest bulk yet available. Genius.

## DEFINITIONS & TABLE CATEGORIES

**MATERIALS** for arb ropes tend to be the opposite of the rest of the rope industry in that polyester is the dominant material with nylon only getting a look-in because of the increase in kernmantle sales. Nylon or Polyamide has good strength to weight ratio and shock absorption, doesn't melt at too low a temperature (around 460° F or 238° C), can operate in wet and ice (albeit at reduced capacity) and is pretty robust when it comes to being dragged over rough edges. Polyester can withstand abuse from Nylon's nemesis acid which doesn't tend to be a consideration for arborists but it's also a bit tougher than nylon, has a slightly higher melting point (around 480° F or 249° C) and retains more strength when wet. There are some other specialist materials used in rope manufacture - principal amongst these is Aramid/Kevlar/Technora/ Twaron - all variations on the ballistic material theme that can make a rope extremely tough and highly resistant to heat, bullets and chainsaws. Well actually just heat really, bullets go round and chainsaws think about it for a bit longer than with standard ropes and then go straight through the middle. But these toughened ropes certainly have potential and *Sterling* ropes obviously think so since they have 2 or 3 such ropes in their arborist line-up. Since you can't tell a polyester from a nylon just by looking at it some manufacturers like PMI use special marking to denote material - in PMI's case 'barber-pole' sheath runners denote nylon and a cross-pattern denotes polyester content, this is a simple idea that we would like to see adopted more widely. *Teufelberger's* Platinum is currently Green for polyester and blue for nylon with both of their orange Access-Abor ropes being polyester.

**MBL is Minimum Breaking Load** (or MBS -Minimum Breaking Strength) and this may be given in kiloNewtons (kN), kilograms (kg), pounds (lbs) or lbs of force (lbf). The units of force are kN and lbf but they pretty much equate to the more recognisable kg and lb. For some reason a lot of arborist ropes are quoted with an **average strength** rather than the minimum strength. This is a figure you'll rarely see us quote in ARBCLIMBER unless we really have to because it's a misleading figure that should never have become standard use. An average is NOT the worst-case scenario figure - the rope could and by definition, has, failed at a lower figure. When dealing with life-

support equipment base your calculations on the **minimum** that it will fail (Minimum Breaking Load) and you won't go far wrong but don't forget that even that figure is when the rope is dry, brand new and in a straight line with no bends in it. Some only quote a figure for spliced rope which we can assume will be less than similar rope quoting an in-line strength. Also, double-check with the manufacturer because we come across an awful lot of distributors with different strength figures for the same rope largely because it's not clear whether they are quoting Average or Minimum Breaking Load. We've included the European favourite of breaking strength in a figure 8 knot an indication of the strength reduction of tied knots over sewn or spliced terminations which retain much greater strength. For instance *Courant's Komora* rope has an MBL of 30kN in a straight line with no bends but with a splice this figure drops to 19 kN. That's often still better than around 15kN with a tied Expect MBL to reduce by at least 10% when spliced.

## ELONGATION/STRETCH

We often see (and use) the terms 'Low-stretch' and 'static' ropes interchangeably but there is technically a difference between 'Static' which the US Cordage Institute describes as having 6% elongation at 10% MBS and 'Semi-static' which has between 6 and 10% stretch at 10% MBS. Arborists didn't take much notice of such terminology until there started to be more crossover with kernmantle access and rescue ropes but it's still not a defining term even though elongation percentages should be. We're showing up to four figures (when given) for elongation or stretch. The first is the industry standard degree of stretch at 10% of the minimum breaking load. This is some harsh treatment and would rarely concern a climbing rope unless you're huge, it's more for rigging ropes being subjected to high loads and, even worse, dynamic loads. The second figure in blue used mostly in Europe is for Static Elongation at 50 to 150kg loading over a set time period. The third figure in burnt orange is the US norm for stretch at 136kg/300lbs and this is much more indicative of a climber's body mass. Finally we've included the US ANSI Z133 driven figure of 540lb in green, not because we necessarily agree that arborists have put on a lot of weight over Christmas but because the operating weight of a climber has generally increased substantially in recent years with all the hardware, full body harnesses, chainsaw protective clothing and even helmets, a *Protos* with accessories is a helluva lot heavier than a 1970's builder's helmet. In rescue, we've increased our figure for a rescue load twice in the last 30 years as average bodyweights and kit increased so 245kg/540lbf could well be the kind of weight that a working arborist might attain when wet and fully kitted but a competition or recreational climber very rarely would!

In Europe, the use of a sub-13mm/ 1/2" rope is nothing new, in fact 1/2" and above was unusual with 12mm being closer to an Arborist norm. In the US this has become such a measure of the minimum that the US standard ANSI specifically states that any arb rope UNDER 1/2" require specialist training before use! That means ALL of the hybrid-specialised ropes. A case of standards not keeping up with developments? Equally the NFPA standard lists rope to within 0.5mm which is why you see such a discrepancy in the definition of a 7/16" rope - some 11mm



# ARBORIST CLIMBING ROPES

can be listed as anything from 10.8 to 11.6. *BWII* ropes comply with the updated ANSI Z359.15 standard for a single anchored lifeline which you would think is a definition that could be applied to arb ropes. A whole can o'worms we don't want to open right now!

## IN THE FOLLOWING TABLES.....:

The data in these tables is always ridiculously difficult to compile because there is so much conflicting information even within the same company with catalogues or websites saying one thing and the stockists saying another. In the end we've had the various companies sign off their own listings but even so there's a lot of data not given for some of our entries, the best we can do is tell you the ropes exist! Some of the data we list in our rescue titles is not listed here - the US tends not to quote the NUMBER OF FALLS or a KNOTTED BREAKING STRENGTH. The latter because of the arb preference for sewn or spliced terminations. Surprisingly these are often weaker than the knotted figure. *Teufelberger's sPLIFE* is stronger than the *Slaice* it replaced which, for instance, came in at 16.5kN on the 35kN *drenAline* but 18kN in a knot. The advantage of any splice is much lower bulk than a knot and many can be fed through hardware but there can still be a significant strength loss. The number of Factor 1 falls is rarely quoted in arb so we've omitted it but it can be a telling figure. A large number of falls may mean the rope is more elastic which is obviously safer in a fall but increases 'bounce' during ascending and is generally less abrasion resistant.

**COST:** Some manufacturers do not give a retail price, in which case we list an approximate retail price based on their key distributors. Not all ropes are sold by the metre invariably because of pre-sewn/spliced eyes so they are sold in set lengths. We've used the cost of the shortest length sold, added 10% and rounded up to get a price. By-the-metre/foot, is the most expensive way to buy rope so these may not be exact but they give you a rough idea. Prices are per metre and **per foot** as an additional US \$Dollar figure. All prices **EXCLUDE Splices/ Sewn eyes** which add around £15/\$20/€17 unless otherwise stated. We usually round the prices up but if it seems a little precise it will be a manufacturers stated retail cost. We also now show a straight currency conversion in **burnt-orange** £\$€ - this NOT an accurate cost because it precludes import duty and bulk shipping but it again gives you a rough idea for comparison. If the cost is *not* shown in burnt orange it means it is actually sold for that price in either the US, Europe or the UK. We will update and upgrade (accuracy) of prices throughout the year to try and keep pace with any larger fluctuations.

**WEIGHT:** This is the WEIGHT or MASS per metre and per 100feet. We have made conversions based on a linear mass density conversion rounded to one decimal place (we occasionally sneak in two if it's .25 for a quarter).

**MATERIALS:** Arborist ropes tend to be primarily Polyester sheath with a polyester or nylon core. Nylon is referred to in Europe as *polyamide* because Nylon is Dupont's trade name and differentiated by some as such or as Nylon 66 or Perlon. Polyester reduces stretch in the sheath and increases durability to some extent. Nylon absorbs more water than Polyester but is stronger when wet and provides more elasticity so it's often

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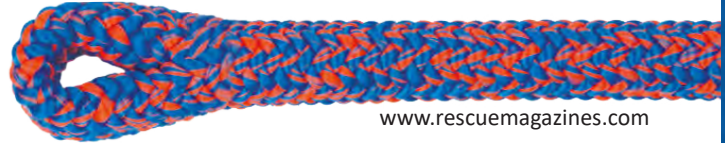
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used for the core material.

**EASE of TYING** is really 'FLEXIBILITY' and should more correctly be defined as the '*coefficient of knotability as a ratio of 1.1 times the rope diameter*' but we couldn't fit that in the header. It refers to deformation of a rope in an overhand knot subjected to a 10kg load but is basically how easy it is to tie a knot. This is again not quoted by everyone but ranges from 0.6 for the easiest to tie to 1.1 for the hardest. Ropes closer to 1 hold their shape well, work well in mechanical devices and are easier to untie. However, we're not sure how much notice to take since the *Argiope* at 1. is far easier to tie than *DrenalINE* at 0.6? *SherrillTree* offer a different guide with a 1 to10 scale where 10 is excellent knotability - this is shown in **burnt orange**.

**NUMBER OF FALLS:** This is a category more commonly seen in dynamic ropes but none of these lower-stretch ropes are truly static - they will all stretch to some degree and some provide an indication of the number of factor 1 falls your rope can take before it needs to be retired because the elasticity is compromised.

**SHEATH CONSTRUCTION:** This is expressed as the number of carriers/threads used to construct the outer 'jacket' or braid. The lower the number, the more flexible the rope will be. Most of the ropes in this category are 24-braid and are **DB** or double braids meaning the core package (comprised of multiple bundles of fibres) has its own woven sheath. The core bundles can be separate from each and parallel or twisted together in a plait or braid. Kernmantle (**KM**) is technically any rope with a sheath over a separate core but is more usually a single 32 or 48 carrier sheath over parallel core fibres with less stretch than traditional arb ropes. One manufacturer describes a *Double Braid Kernmantle* which we would term **DB** rather than **KM**.

**SPLICEABLE:** indicates whether the rope can be self spliced or hand-spliced shown as black square ■, whether it is available with a pre-spiced eye ■ or a sewn eye ■.

**SUITABLE FOR:.....**

**HYBRID HARDWARE** indicates a particular suitability for use with hybrids and descenders beyond the norm for all these ropes. This means 1) that it will fit key devices 2) that the sheath won't milk or bunch under compression 3) that the rope stays quite round and doesn't 'squash' and 4) it maintains these attributes through its life. NB: **ALL of the ropes in this GUIDE can be used for abseiling, ascending, hauling and even ziplines** but some do it better than others and with greater safety margins eg. **toothed ascenders are best with 32-48 carriers rather than the knobblier 12-16 carriers**. Equally, all can be used for climbing using Stationary or Moving ropes but again with varying degrees of effectiveness.

Many splices and compact sewn eyes can be **FED THROUGH HARDWARE** but there's a significant strength loss.

**SRT/SRS/DRT & DdRT/MRS:** generally speaking Single

and Double Rope Technique (now called SRS- Stationary Rope Systems) require low stretch rope for which kernmantle semi-static and static ropes are perfect. The more supple 32 and 24 strand double braid can also do that job well but are better suited to Doubled Rope Technique (Moving Rope Systems) than most Kernmantle ropes are.

**STANDARDS:** CE and **ANSI** pretty much cover the arb market in Europe and USA but some ropes crossing over from rescue may also have an **NFPA** rating. CE in this case is EN1891 and divided into class A and B ropes. While the physical diameter of rope can be the same (8.5-16mm), class A ropes have a higher MBL at min-22kN compared to 18kN for class B but class B can have less sheath slippage at 15mm compared to 30mm for a class A so this can make a class B preferable with some hardware. Class A will tend to be tougher and stronger but class B can be just as good, if not better if you take good care of it. 15kN is a minimum for knot/splice/sewn strength so where quoted may not be the max strength of that particular rope, just the minimum to meet the standard. **ANSI Z133 requires climbing ropes to be ½" but it does accept 11mm 7/16" for arborist 'trained in the use' of this thinner rope.** The 'newly' defined ANSI Z359.15 Single Anchor Lifeline standard may now also be relevant to SRT/SRS applications in arb. The **CI & BERRY** designations are unique to the USA and are not standards as much as compliance to the **US Cordage Institute** and **military** requirements for 100% home produced ropes. These are not mandated for arborists but since many of these ropes cross over to other sectors we have started to list them.

**SHRINKAGE** in water. Some ropes are pre-shrunk or use fibres that won't shrink which is not necessarily the same as thermo-stabilised or 'heat-set' rope although that process will help reduce overall shrinkage. Untreated Nylon does 'retract' a little unless factory pre-shrunk. This harks back to the days when the first thing you did with a new rope was chuck it in the bath overnight. This figure is not the same as Sheath Slippage which is where the sheath 'milks' some extra length in relation to the core and ends up with a dubious looking end. The ropes listed in the '**HYBRID HARDWARE**' column will specifically NOT do this.

**SHEATH %.** This is the opposite to CORE percentage so we haven't bothered listing both - do the math(s). The higher the sheath percentage the stiffer the rope. It will therefore usually have a much higher initial resistance to abrasion over an edge or sheath creep under high loads from a camming device. Most arb ropes used a much coarser braid, in fact a braid covering a braided core hence Double Braid and this is anything from 12 and 16 to 24. More recently, as SRT/SRS took hold, the Kernmantle norms for 32 carrier sheaths has provided greater abrasion resistance and inhibits ingress of dirt and debris with its tighter weave. Traditional arb constructions provide a much softer feel and easy knot tying and though less abrasion resistant, trees are far more forgiving than rock, metal and concrete.

NB: **MODEL NAMES** often differentiate the colour options - eg. **ALL GEAR & YALE** ropes - each named rope denotes a specific colour and only that colour.







# PMI ROPE:

## WHERE TECHNICAL EXCELLENCE MEETS DAILY SAFETY

PMIROPE.COM



### Advantage Helmet

**THINK SAFETY.  
THINK ADVANTAGE**

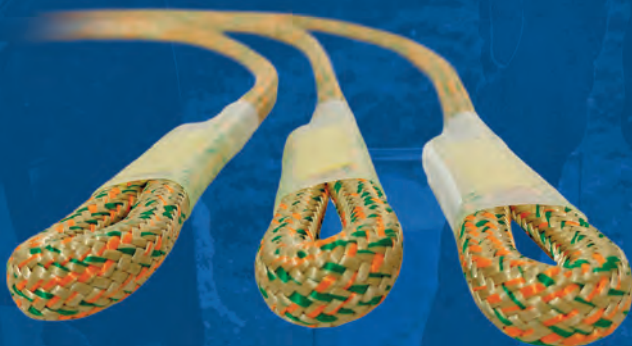
Kevlar® head protection  
Choice of different colors  
ANSI Z89.1 TYPE 1, CLASS G (2200V)  
TYPE 1 & 2, EN 397, NFPA 1951



### Extreme Pro Rope

**TOP-TIER TERMINATION:  
CRAFTED FOR THE PROS**

Unicore® technology  
MBS: 42.9 kN (9644 lbf)  
Core - 100% Nylon 6.6  
Sheath - 100% Polyester



### Eye and Eye Prusik

**BUILT FOR HIGH-LOAD  
PRECISION AND EASE**

Eye MBS: 14.2 kN (3192 lbf)  
Basket MBS: 27.6 kN (6204 lbf)  
Technora/polyester sheath






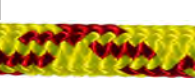







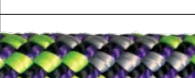










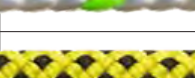



### Rope Tech Gloves

**A PERFECT FIT FOR EVERY GRIP**

Ultra-lightweight design: 0.221 lbs  
7 sizes: XXS, XS, S, M, L, XL, XXL  
Materials: synthetic leather, cowhide, spandex



























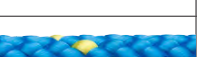

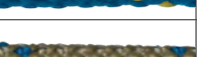

IMAGES NOT TO SCALE  
 COST: excludes eyes unless specified in NOTES.  
 INCLUDES local taxes/VAT.  
 £/\$/€=Currency Conversion  
 If not sold by m/ft, price is shortest length x10% & rounded up.  
 ●=OK but not ideal  
 DB=Double Braid  
 KM=Kernmantle  
 Tying 10=hardest to tie

|  | MODEL<br>Product Code  | COMPANY            | ORIGIN  | COST<br>per Metre<br>/3.28ft<br>US\$ per<br>Foot | Ø<br>mm<br>Inches" | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE | STANDARDS | NUMBER OF FALLS<br>EASE OF TYING<br>Sherrill Rating | SHEATH<br>OUTER STRANDS | SPICEABLE<br>PRE-SPICED<br>PRE-SEWN |
|--|--|--------------------|---|--|--------------------|--------------------------|------------------------------|-----------|---|-------------------------|-------------------------------------|
|    | <b>Arborist 32str KM</b><br>Crossfire  | ALLGEAR            |    | £2.75<br>\$3.44<br>\$1.05<br>€3.15               | 11<br>7/16"        | 89g<br>6.1lb             | Polyester<br>Nylon           | ANSI      |   | 32<br>KM                | ■                                   |
|    | <b>Arborist 32str KM</b><br>Finish Line,<br>Blue Finish-Line,<br>Red Finish Line,                    | ALLGEAR            |    | £2.90<br>\$3.60<br>\$1.10<br>€3.30               | 11<br>7/16"        | 89g<br>6.1lb             | Polyester<br>Nylon           | ANSI      |   | 32<br>KM                | ■                                   |
|    | <b>Arborist 32str KM</b><br>Tower Line   | ALLGEAR            |    | £2.90<br>\$3.60<br>\$1.10<br>€3.30               | 11<br>7/16"        | 89g<br>6.1lb             | Polyester<br>Polyester       | ANSI      |   | 32<br>KM                | ■                                   |
|    | <b>Arborist 24str*</b><br>Rocketline, Ramborista<br>Purple Haze, Blue Craze,<br>CherryBomb, Sunburst | ALLGEAR            |    | £3.40<br>\$4.25<br>\$1.30<br>€3.90               | 11.2<br>7/16"      | 89g<br>6.1lb             | Polyester<br>Polyester       | ANSI      |   | 24/12<br>DB             | ■ ■                                 |
|    | <b>Arborist 24str*</b><br>CherryBomb2,<br>Inferno, BlueCraze2,<br>MardiGras2, Atlas                  | ALLGEAR            |    | £4.30<br>\$5.40<br>\$1.65<br>€4.95               | 11.8<br>15/32"     | 89g<br>6.1lb             | Polyester<br>Polyester       | ANSI      | -   | 24/12<br>DB             | ■ ■ ■                               |
|    | <b>Arborist 32str KM</b><br>TowerLine  | ALLGEAR            |    | £2.90<br>\$3.62<br>\$1.10<br>€3.30               | 12.7<br>1/2"       | 99g<br>6.7lb             | Polyester<br>Polyester       | ANSI      |   | 32<br>KM                | ■                                   |
|   | <b>Arborist 24str*</b><br>Neolite II,<br>SafetyLite II   | ALLGEAR            |   | £3.05<br>\$3.85<br>\$1.18<br>€3.50               | 12.7<br>1/2"       | 112g<br>7.5lb            | Polyester<br>Polyester       | ANSI      |   | 24<br>DB                | ■ ■                                 |
|  | <b>Arborist 16str*</b><br>Bazooka,<br>Neolite, SafetyLite  | ALLGEAR            |  | £3.25<br>\$4.10<br>\$1.25<br>€3.75               | 12.7<br>1/2"       | 112g<br>7.5lb            | Polyester<br>Nylon           | ANSI      |   | 16                      | ■ ■ ■                               |
|  | <b>Arborist 12str*</b><br>Forestry Pro Glo,<br>Forestry Pro  | ALLGEAR            |  | £3.10<br>\$3.90<br>\$1.20<br>€3.60               | 12.7<br>1/2"       | 109g<br>7.3lb            | Polyester<br>Polyester       | ANSI      |   | 12                      | ■ ■ ■                               |
|  | <b>Endurance</b><br>Aya, LuckyLine   | ATLANTIC<br>BRAIDS |  | £2.70<br>\$3.10<br>\$1.00<br>€3.10               | 11.1<br>7/16"      | 89g<br>6lb               | Polyester<br>Nylon           | n/a       |   | 32<br>KM                | ■                                   |
|  | <b>GripFlex-24</b>   | ATLANTIC<br>BRAIDS |  | £2.70<br>\$3.10<br>\$1.00<br>€3.10               | 11.7<br>29/64"     | 98g<br>6.6lb             | Polyester<br>Polyester       | ANSI      | 0.37  | 24<br>DB                | ■ ■                                 |
|  | <b>Antidote</b><br>Fusion, Fury, Formula   | ATLANTIC<br>BRAIDS |  | £2.35<br>\$2.95<br>\$0.90<br>€2.70               | 11.8<br>1/2"       | n/a                      | Polyester<br>Polyester       | n/a       |   | 24<br>DB                | ■                                   |
|  | <b>GripFlex-16</b>   | ATLANTIC<br>BRAIDS |  | £2.80<br>\$3.40<br>\$1.10<br>€3.30               | 12.7<br>1/2"       | 112g<br>7.5lb            | Polyester<br>Nylon           | n/a       |   | 16                      | ■                                   |
|  | <b>Endurance</b>   | ATLANTIC<br>BRAIDS |  | £2.70<br>\$3.10<br>\$1.00<br>€3.10               | 12.7<br>1/2"       | 118g<br>7.9lb            | Polyester<br>Nylon           | n/a       |   | 32<br>KM                | ■                                   |
|  | <b>GripFlex-12</b>   | ATLANTIC<br>BRAIDS |  | £2.70<br>\$3.10<br>\$1.00<br>€3.10               | 13<br>1/2"         | 134g<br>9lb              | Polyester<br>Polyester       | n/a       |   | 12                      | ■                                   |
|  | <b>Dynastat</b>  | BEAL               |  | £2.40<br>\$3.10<br>\$1.00<br>€2.75               | 10.5<br>13/32"     | 75g<br>5lb               | Nylon<br>Nylon/Vectran       | CE A*     | 0.82  | 16<br>KM                | ■                                   |






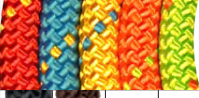

# ARBORIST CLIMBING ROPES

| SUITABLE FOR                |                 |                  | MINIMUM BREAKING LOAD/STRENGTH                       |  | SHRINKAGE % | SHEATH SLIPPAGE (MILKING) % | ELONGATION % | SHEATH % | OTHER COLOURS   |                  |  |  | NOTES              | WWW. |
|-----------------------------|-----------------|------------------|--|--|-------------|-----------------------------|--------------|----------|---|------------------|--|--|--------------------|------|
| EYE CANTHREAD THRU HARDWARE | HYBRID HARDWARE | SRT/SRS MRS/DdRT | MBL MINIMUM Break Load<br>Spliced<br>Sewn<br>Knotted | ABL AVERAGE Break Load<br>Spliced<br>Sewn<br>Knotted |             |                             |              |          | @10% MBS<br>@50-150 kg<br>@300L B/136K<br>@540 lb/245kg | [Color swatches] |  |  |                    |      |
| -                           | -               | ■                | 35.2kN<br>7920lbf                                    | 39.1kN<br>8800lbf                                    |             | 15%                         |              |          |   |                  |  | Model names equates to colour options.   | allgearinc.com     |      |
| -                           | -               | ■                | 31.2kN<br>7020lbf                                    | 39.1kN<br>7800lbf                                    |             | 3%                          |              |          |   |                  |  | *Model names equates to colour options.  | allgearinc.com     |      |
| -                           | -               | ■                | 27.2kN<br>6120lbf                                    | 30.3kN<br>6800lbf                                    |             | 3%                          |              |          |   |                  |  | *Model names equates to colour options.  | allgearinc.com     |      |
| ■                           | -               | ■                | -  | 28kN<br>6300lbf                                      |             | 3%                          |              |          |   |                  |  | *Model names equates to colour options.  | allgearinc.com     |      |
| ■                           | ■               | ■                | -  | 29.8kN<br>6700lbf                                    | -           | 4.9%                        | -            |          |   |                  |  | *Model names equates to colour options. Atlas discontinued                                 | allgearinc.com     |      |
| -                           | -               | ■                | 32.8kN<br>7380lbf                                    | 26.7kN<br>8200lbf                                    |             | 3%                          |              |          |   |                  |  |  | allgearinc.com     |      |
| -                           | ■               | ■                | -  | 34.7kN<br>7800lbf                                    |             | n/a                         |              |          |   |                  |  | *Model names equates to colour options.  | allgearinc.com     |      |
| -                           | -               | ■                | 33.4kN<br>7500lbf                                    | 40.9kN<br>9200lbf                                    |             | 3%                          |              |          |   |                  |  | *Model names equates to colour options.  | allgearinc.com     |      |
| -                           | -               | ■                | 29.2kN<br>6570lbf                                    | 36.5kN<br>7300lbf                                    |             | 3%                          |              |          |   |                  |  | *Model names equates to colour options.  | allgearinc.com     |      |
| -                           | ■               | ■                | 37.5kN<br>8300lbf                                    | 4000kg<br>8800lb                                     |             | 7%                          |              |          |   |                  |  |  | atlanticbraids.com |      |
| -                           | -               | ■                | -  | 30.5kN<br>6850lbf<br>27.5kN<br>6180lbf               | 0.4%        | 2.3%                        | 45%          |          |   |                  |  |  | atlanticbraids.com |      |
| -                           | -               | ■                | 31.1kN<br>7000lbf                                    | 5170kg<br>11400lb                                    |             | n/a                         | n/a          |          |   |                  |  | Status being established Seems widely available but not listed by ATL - Also 11.1 & 12.7mm | atlanticbraids.com |      |
| -                           | -               | ■                | -  | 40.9kN<br>9200lbf                                    |             | n/a                         | n/a          |          |   |                  |  |  | atlanticbraids.com |      |
| -                           | -               | ■                | 48kN<br>10600lbf                                     | 5170kg<br>11400lb                                    |             | 7%                          | n/a          |          |   |                  |  |  | atlanticbraids.com |      |
| -                           | -               | ■                | -  | 3040kg<br>6700lb                                     |             | n/a                         | n/a          |          |   |                  |  |  | atlanticbraids.com |      |
| -                           | -               | ■                | 25kN<br>6744lbf<br>16/19kN<br>3597/4271lbf           | -  | 0%          | 0.8%                        | 2%           | 44%      |   |                  |  | DISCONTINUED<br>*Conforms to Semi-static (EN1891) and Dynamic (EN892) Standards            | bealplanet.com     |      |

IMAGES NOT TO SCALE  
 COST: excludes eyes unless specified in NOTES.  
 INCLUDES local taxes/VAT.  
 £\$€=Currency Conversion  
 If not sold by m/ft, price is shortest length x10% & rounded up.  
 ●=OK but not ideal  
 DB=Double Braid  
 KM=Kernmantle  
 Tying 10=hardest to tie

| MODEL<br>Product Code  | COMPANY   | ORIGIN  | COST<br>per Metre<br>/3.28ft<br>US\$ per<br>Foot | Ø<br>mm<br>Inches" | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE    | STANDARDS            | NUMBER OF FALLS<br>BASE OF TYING<br>Sherrill Rating | SHEATH<br>OUTER STRANDS | SPICEABLE<br>PRE-SPICED<br>PRE-SEWN |
|--|-----------|---|--|--------------------|--------------------------|---------------------------------|----------------------|---|-------------------------|-------------------------------------|
|  Industrial              | BEAL      |    | £3.60<br>\$3.20<br>\$1.15<br>€2.90*              | 11mm<br>7/16"      | 74g<br>5lb               | Polyester<br>Nylon              | CE A                 | -   | 32<br>KM                | ■                                   |
|  Biloba                  | BEAL      |    | £3.60<br>\$4.50<br>\$1.35<br>€4.10               | 11.5mm<br>7/16"    | 89g<br>6 lb              | Polyester<br>Nylon              | CE A                 | -   | DB                      | ■                                   |
|  Ginko                   | BEAL      |    | £3.55<br>\$4.50<br>\$1.40<br>€4.10               | 12mm<br>1/2"       | 92g<br>6.1lb             | Polyester<br>Nylon              | CE A                 | -   | DB                      | ■                                   |
|  Bonsai                  | BEAL      |    | £3.75<br>\$4.75<br>\$1.55<br>€4.30               | 13mm<br>1/2"       | 100g<br>7.3lb            | Polyester<br>Polyester          | CE A<br>ANSI         | -   | DB                      | ■                                   |
|  Baobab                  | BEAL      |    | £4.75<br>\$6.00<br>\$1.85<br>€5.45               | 13.5mm<br>1/2"     | 89g<br>6 lb              | Polyester<br>Nylon              | CE A                 | -   | DB                      | ■                                   |
|  Armortech               | BLUEWATER |    | £6.75<br>\$8.50<br>\$2.60<br>€7.80               | 10.5mm<br>27/64"   | 76g<br>5.1lb             | Technora/<br>Polyester<br>Nylon | ANSI                 | -   | 32<br>KM                | ■                                   |
|  Assaultline/<br>BWII+  | BLUEWATER |   | £3.35<br>\$4.20<br>\$1.28<br>€3.85               | 10.5mm<br>27/64"   | 78g<br>5.2lb             | Polyester<br>Nylon              | CE A<br>NFPA         | -   | 32<br>KM                | ■                                   |
|  Protac                | BLUEWATER |  | £3.35<br>\$4.22<br>\$1.30<br>€3.85               | 10.5mm<br>27/64"   | 72g<br>4.8lb             | Polyester<br>Nylon              | CE B                 | -   | 32<br>KM                | -                                   |
|  SpecStatic            | BLUEWATER |  | £3.25<br>\$4.10<br>\$1.25<br>€3.75               | 10.5mm<br>27/64"   | 88g<br>6 lb              | Polyester<br>Polyester          | NFPA<br>ANSI         | -   | 32<br>KM                | -                                   |
|  Armortech             | BLUEWATER |  | £6.80<br>\$8.60<br>\$2.70<br>€7.85               | 11mm<br>7/16"      | 91g<br>6lb               | Technora/<br>Polyester<br>Nylon | ANSI                 | -   | 32<br>KM                | ■                                   |
|  DGR                   | BLUEWATER |  | £3.10<br>\$3.90<br>\$1.20<br>€3.60               | 11mm<br>7/16"      | 85g<br>5.7lb             | Polyester<br>Nylon              | NFPA<br>ANSI         | -   | KM                      | -                                   |
|  Pro G                 | BLUEWATER |  | £3.70<br>\$4.65<br>\$1.42<br>€4.25               | 11mm<br>7/16"      | 92g<br>6.2lb             | Polyester<br>Nylon              | NFPA                 | -   | 48<br>KM                | -                                   |
|  Protac                | BLUEWATER |  | £3.50<br>\$4.40<br>\$1.35<br>€4.05               | 11mm<br>7/16"      | 80g<br>5.44lb            | Polyester<br>Nylon              | CE A<br>NFPA<br>UIAA | -   | 32<br>KM                | -                                   |
|  Safeline              | BLUEWATER |  | £3.76<br>\$4.75<br>\$1.45<br>€4.35               | 11mm<br>7/16"      | 88g<br>5.86lb            | Polyester<br>Nylon              | CE A<br>NFPA<br>UIAA | -   | 16<br>KM                | ■                                   |
|  Assaultline/<br>BWII+ | BLUEWATER |  | £3.00<br>\$3.80<br>\$1.15<br>€3.50               | 11.4mm<br>7/16"    | 89g<br>6.1lb             | Polyester<br>Nylon              | CE A<br>NFPA<br>UIAA | -   | 32<br>KM                | ■                                   |

# ARBORIST CLIMBING ROPES

| SUITABLE FOR                 |                 | MINIMUM BREAKING LOAD/STRENGTH                       |  | SHRINKAGE % | SHEATH SLIPPAGE (MILKING) % | ELONGATION %   |          | OTHER COLOURS   | NOTES   | WWW.               |
|------------------------------|-----------------|--|--|-------------|-----------------------------|--|----------|---|---|--------------------|
| EYE CAN THREAD THRU HARDWARE | HYBRID HARDWARE | MBL MINIMUM Break Load<br>Spliced<br>Sewn<br>Knotted | ABL AVERAGE Break Load<br>Spliced<br>Sewn<br>Knotted |             |                             | @10% MBS<br>@50-150 kg<br>@300lb/136k<br>@540 lb/245kg | SHEATH % |   |   |                    |
| -                            | ■               | 34kN<br>7643lbf<br>19.5/24kN<br>4384/5395lbf         | -  | 1.1%        | 0.8%                        | 2.1%   | 36%      |   | Also 10.5 & 12mm versions - see Rope Eqpt BUYERS GUIDE. White costs 4% less                       | bealplanet.com     |
| ■                            | ■               | 30.3kN<br>6812lbf<br>18/18kN<br>4047/4047lbf         | -  | 2.8%        | 0                           | 3.8%   | 44%      |   |   | bealplanet.com     |
| -                            | -               | 27kN<br>7399lbf<br>16/22kN<br>3597/4945lbf           | -  | 2.8%        | 0                           | 4%   | 69%      |   | sheath & core bonded  | bealplanet.com     |
| -                            | -               | 34kN<br>7643lbf<br>18/25kN<br>4047/5620lbf           | -  | 4.5%        | 0                           | 4.2%   | 61%      |   | sheath & core bonded  | bealplanet.com     |
| -                            | ■               | 30kN<br>6744lbf<br>19/23kN<br>4271/5171lbf           | -  | 2%          | 0                           | 5%   | 82%      |   | Unicore Rope, sheath and core bonded. <b>Discontinued?</b>  | bealplanet.com     |
| -                            | ■               | 35.5kN<br>8000lbf                                    | -  | 0%          | -                           | 3.2%   | 48%*     |   | Teflon-coated, double sheath-+core sheath. Technora over polyester sheathed nylon Up to 934 deg F | bluewaterropes.com |
| -                            | ■               | 28.9kN<br>6500lbf                                    | -  | -           | -                           | 3.8%   | -        |   |   | bluewaterropes.com |
| -                            | ■               | 31.5kN<br>7081lbf                                    | -  | -           | -                           | 3.1%   | 50%      |  |   | bluewaterropes.com |
| -                            | ■               | 27.1kN<br>6092lbf                                    | -  | -           | -                           | 2.6%   | 47%      |   | Specially designed for mechanical devices   | bluewaterropes.com |
| -                            | ■               | 37.1kN<br>8331lbf                                    | -  | 0%          | -                           | 3.6%   | 53%*     |   | Teflon-coated, double sheath-+core sheath. Technora over polyester sheathed nylon Up to 934 deg F | bluewaterropes.com |
| -                            | ■               | 33.5kN<br>7541lbf                                    | -  | -           | -                           | 3.4%   | 48%      |  |   | bluewaterropes.com |
| -                            | ■               | 40.5kN<br>9107lbf                                    | -  | -           | -                           | 3.1%   | 42%      |  |   | bluewaterropes.com |
| -                            | ■               | 35.2kN<br>7913lbf                                    | -  | -           | -                           | 1.2%   | 51.6%    |  |   | bluewaterropes.com |
| -                            | ■               | 35.9kN<br>8061lbf                                    | -  | -           | -                           | 2.7%   | 46%      |  |   | bluewaterropes.com |
| -                            | ■               | 32.9kN<br>7399lbf                                    | -  | 1.9%        | -                           | 2.9%   | 53%      |  |   | bluewaterropes.com |

IMAGES NOT TO SCALE  
 COST: excludes eyes unless specified in NOTES.  
 INCLUDES local taxes/VAT.  
 £\$=Currency Conversion  
 If not sold by m/ft, price is shortest length x10% & rounded up.  
 ●=OK but not ideal  
 DB=Double Braid  
 KM=Kernmantle  
 Tying 10=hardest to tie


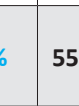

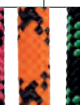
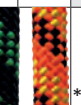
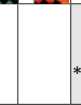

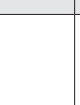
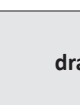

|  | MODEL<br>Product Code   | COMPANY              | ORIGIN  | COST<br>per Metre<br>/3.28ft<br>US\$ per<br>Foot | Ø<br>mm<br>Inches" | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE    | STANDARDS                    | NUMBER OF FALLS<br>Ease of Tying<br>Sherrill Rating | SHEATH<br>OUTER STRANDS | SPICEABLE<br>PRE-SEWN |
|--|---|----------------------|---|--|--------------------|--------------------------|---------------------------------|------------------------------|---|-------------------------|-----------------------|
|    | Armortech   | BLUEWATER            |    | £7.55<br>\$9.50<br>\$2.90<br>€8.70               | 11.5mm<br>7/16"    | 97g<br>6.55lb            | Technora/<br>Polyester<br>Nylon | ANSI                         | -   | 32<br>KM                | ■                     |
|    | Technora Assaultline  | BLUEWATER            |    | £3.25<br>\$4.05<br>\$1.20<br>€3.70               | 11.5mm<br>7/16"    | 92g<br>6.2lb             | Technora<br>Polyester           | NFPA                         | -   | 32<br>KM                | ■                     |
|    | SpecStatic  | BLUEWATER            |    | £3.45<br>\$4.35<br>\$1.35<br>€4.00               | 11.5mm<br>7/16"    | 100g<br>7.3lb            | Polyester<br>Polyester          | NFPA<br>ANSI                 | -   | 32<br>KM                | -                     |
|    | Armortech   | BLUEWATER            |    | £8.75<br>\$11.00<br>\$3.50<br>€10.00             | 12mm<br>1/2"       | 98g<br>6.55lb            | Technora/<br>Polyester<br>Nylon | ANSI                         | -   | 32<br>KM                | ■                     |
|    | Safeline<br>White Safeline  | BLUEWATER            |    | £4.35<br>\$5.50*<br>\$1.70*<br>€5.05             | 12.5mm<br>1/2"     | 108g<br>8.21lb           | Polyester<br>Nylon              | CE A<br>NFPA<br>ANSI<br>UIAA | -   | 16<br>KM                | ■                     |
|    | Protac  | BLUEWATER            |    | £4.05<br>\$5.10<br>\$1.60<br>€4.70               | 13mm<br>1/2"       | 114g<br>8.41lb           | Polyester<br>Nylon              | CE A<br>NFPA<br>UIAA         | -   | 32<br>KM                | -                     |
|   | Armortech   | BLUEWATER            |   | £9.10<br>\$11.50<br>\$3.60<br>€10.50             | 13mm<br>1/2"       | 127g<br>8.51lb           | Technora/<br>Polyester<br>Nylon | NFPA<br>ANSI                 | -   | 32<br>KM                | ■                     |
|  | Assaultline/<br>BWII+   | BLUEWATER            |  | £3.05<br>\$3.80<br>\$1.15<br>€3.50               | 13mm<br>1/2"       | 89g<br>6.1lb             | Polyester<br>Nylon              | CE A<br>NFPA                 | -   | 32<br>KM                | ■                     |
|  | SpecStatic  | BLUEWATER            |  | £4.00<br>\$5.00<br>\$1.55<br>€4.60               | 13mm<br>1/2"       | 137g<br>10.1lb           | Polyester<br>Polyester          | NFPA<br>ANSI                 | -   | 32<br>KM                | -                     |
|  | Arbor Boss 24   | BUCCANEER<br>ROPE CO |  | n/a  | 11mm<br>7/16"      | 92g<br>6.2lb             | Polyester<br>Polyester          | -                            | -   | 24<br>DB                | -                     |
|  | Arbor Boss 16<br>O-Glow, Blue Thunder,<br>Black Thunder, Red Thunder,<br>Patriot, Green&Ylw | BUCCANEER<br>ROPE CO |  | £2.00<br>\$2.50<br>\$0.75<br>€2.30               | 12mm<br>1/2"       | 112g<br>7.5lb            | Polyester<br>Polyester          | -                            | -   | 16<br>DB                | -                     |
|  | Arbor Boss 12   | BUCCANEER<br>ROPE CO |  | n/a  | 12mm<br>1/2"       | 112g<br>7.5lb            | Polyester<br>Polyester          | CI                           | -   | 12<br>DB                | -                     |
|  | Frazen<br>2817  | CAMP                 |  | £00<br>\$00<br>\$00<br>€00                       | 12.2mm<br>1/2"     | 105g<br>7.5lb            |                                 |                              | <5  |                         |                       |
|  | Bulwark Safety X<br>Semi-Static   | COASTLINE<br>CORDAGE |  | £2.25<br>\$2.80<br>\$0.85<br>€2.60               | 11mm<br>7/16"      | 82g<br>5.5lb             | Polyester<br>Nylon              | NFPA                         | -   | 32<br>KM                | -                     |
|  | Bulwark Safety X<br>Semi-Static   | COASTLINE<br>CORDAGE |  | n/a  | 12mm<br>1/2"       | 98g<br>6.7lb             | Polyester<br>Nylon              | NFPA                         | -   | 32<br>KM                | -                     |
|  | Rebel   | COURANT              |  | £2.40<br>\$3.90<br>\$1.20<br>€2.75               | 11mm<br>7/16"      | 88g<br>5.9lb             | Polyester<br>Nylon              | NFPA<br>ANSI                 | 1.18  | 32<br>KM                | -                     |

| SUITABLE FOR                |                 |                  | MINIMUM BREAKING LOAD/STRENGTH                       |  | SHRINKAGE % | SHEATH SLIPPAGE (MILKING) % | ELONGATION % | SHEATH % | OTHER COLOURS | NOTES  | WWW.               |
|-----------------------------|-----------------|------------------|--|--|-------------|-----------------------------|--------------|----------|---------------|--|--------------------|
| EYE CANTHREAD THRU HARDWARE | HYBRID HARDWARE | SRT/SRS MRS/DdRT | MBL MINIMUM Break Load<br>Spliced<br>Sewn<br>Knotted | ABL AVERAGE Break Load<br>Spliced<br>Sewn<br>Knotted |             |                             |              |          |               |  |                    |
| -                           | ■               | ■                | 32.1kN<br>7216lbf                                    | -  | 0%          | -                           | 1.9%         | 53%*     |               | Teflon-coated, double sheath- <sup>*</sup> core sheath=39.4%. Technora over polyester sheathed nylon Up to 934 deg F | bluewaterropes.com |
| -                           | ■               | ■                | 40 kN<br>8993lbf                                     | -  | -           | -                           | 2.8%         | 53%      |               | highly abrasion-resistant. Black=military only   | bluewaterropes.com |
| -                           | ■               | ■                | 35.1kN<br>7891lbf                                    | -  | -           | -                           | 1.2%         | 41%      |               | Very low elongation, not for MRS/DdRT. Suited to ziplines.   | bluewaterropes.com |
| -                           | ■               | ■                | 32kN<br>7223lbf                                      | -  | 0%          | -                           | 5.3%         | 53%*     |               | Teflon-coated, double sheath- <sup>*</sup> core sheath=39.4%. Technora over polyester sheathed nylon Up to 934 deg F | bluewaterropes.com |
| -                           | -               | ■                | 44.4kN<br>9983lbf                                    | -  | -           | -                           | 2.2%         | 45%      |               | *White with red or blue thread is a whopping 20% cheaper than these figures  | bluewaterropes.com |
| -                           | -               | -                | 43.4kN<br>9840lbf                                    | -  | -           | -                           | 2%           | 46%      |               |  | bluewaterropes.com |
| -                           | ■               | ■                | 49.8kN<br>11203lbf                                   | -  | 0%          | -                           | 2.5%         | 53%*     |               | Teflon-coatd, double sheath- <sup>*</sup> core sheath=39.4%. Technora over polyester sheathed nylon Up to 934 deg F  | bluewaterropes.com |
| -                           | ■               | ■                | 44.4kN<br>10000lbf                                   | -  | 1.9%        | -                           | 3.8%         | 53%      |               |  | bluewaterropes.com |
| -                           | ■               | ■                | 47.5kN<br>10677lbf                                   | -  | -           | -                           | 1%           | 39%      |               | Very low elongation, not for MRS/DdRT. Suited to ziplines.   | bluewaterropes.com |
| -                           | ■               | ■                | -  | 16kN<br>3600lbf                                      | -           | -                           | -            | -        |               |  | bucrope.com        |
| -                           | -               | ■                | -  | 31.1kN<br>7000lbf                                    | -           | -                           | -            | -        |               | also available as 5/8" 16mm see rigging ropes  | bucrope.com        |
| -                           | -               | ■                | -  | 29.8kN<br>6700lbf                                    | -           | -                           | -            | -        |               | also available as 5/8" 16mm see rigging ropes  | bucrope.com        |
| -                           | -               | -                |  |  | 0.2         | -                           | 2.4%         | -        |               |  | camp.it            |
| -                           | ■               | ■                | 37.92kN<br>8294lbf                                   | -  | -           | -                           | 2%           | -        |               | note that 2 different spec sheets exist for these ropes with different spec.   | coastlinegroup.ca  |
| -                           | ■               | ■                | 49.56kN<br>10927lbf                                  | -  | -           | -                           | n/a          | -        |               | note that 2 different spec sheets exist for these ropes with different spec  | coastlinegroup.ca  |
| -                           | ■               | ■                | 33kN<br>7419lbf<br>23kN<br>5171lbf                   | -  | 2.2%        | 0                           | 2.5%         | 41%      |               |  | cordescourant.com  |

IMAGES NOT TO SCALE  
 COST: excludes eyes unless specified in NOTES.  
 INCLUDES local taxes/VAT.  
 €/\$=Currency Conversion  
 If not sold by m/ft, price is shortest length x10% & rounded up.  
 ●=OK but not ideal  
 DB=Double Braid  
 KM=Kernmantle  
 Tying 10=hardest to tie



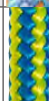















|  | MODEL<br>Product Code       | COMPANY       | ORIGIN  | COST<br>per Metre<br>/3.28ft<br>US\$ per Foot | Ø<br>mm<br>Inches" | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE | STANDARDS    | NUMBER OF FALLS<br>EASE OF TYING<br>Sherrill Rating | SHEATH<br>OUTER STRANDS | SPLICABLE<br>PRE-SEWN |
|--|-----------------------------|---------------|---|---|--------------------|--------------------------|------------------------------|--------------|---|-------------------------|-----------------------|
|    | Squir v2                    | COURANT       |    | £2.20<br>\$3.77<br>\$1.15<br>€2.82            | 11.5mm<br>7/16"    | 91g<br>6.1lb             | Polyester<br>Nylon           | CE A         | 0.74  | 32<br>KM                | -                     |
|    | Komora                      | COURANT       |    | £4.25<br>\$6.00<br>\$1.83<br>€4.90            | 11.7mm<br>7/16"    | 94g<br>6.3lb             | Polyester<br>Nylon           | CE A         | 0.82  | 16                      | ■                     |
|    | Kalimba                     | COURANT       |    | £5.00<br>\$6.20<br>\$1.90<br>€5.60            | 11.9mm<br>29/64"   | 100g<br>6.7lb            | Polyester<br>Nylon           | CE A<br>ANSI | 0.6   | 24<br>DB                | ■                     |
|    | Kanopa                      | COURANT       |    | £4.40<br>\$5.55<br>\$1.70<br>€5.05            | 12.1mm<br>1/2"     | 103g<br>6.2lb            | Polyester<br>Nylon           | CE A         | 0.87  | 16                      | ■<br>■                |
|    | Rush                        | COUSIN-TRETEC |    | £2.05<br>\$2.60<br>\$0.80<br>€2.30            | 11mm<br>7/16"      | 74g<br>5lb               | Nylon<br>Nylon               | CE A         | 1.1   | 32<br>KM                | ■                     |
|    | Atrax                       | COUSIN-TRETEC |    | £3.65<br>\$4.75<br>\$1.45<br>€4.75            | 11.6mm<br>7/16"    | 102g<br>6.9lb            | Polyester<br>Polyester       | CE A         | 1.03  | 24<br>DB                | ■<br>■                |
|  | Black Widow                 | COUSIN-TRETEC |  | £4.25<br>\$5.40<br>\$1.65<br>€4.55            | 12.2mm<br>1/2"     | 105g<br>7lb              | Polyester<br>Polyester       | CE A         | 0.7   | 16<br>DB                | ■                     |
|  | Lignum                      | COUSIN-TRETEC |  | £4.10<br>\$5.50<br>\$1.70<br>€4.60            | 12.5mm<br>1/2"     | 115g<br>7.7lb            | Polyester<br>Polyester       | CE A         | 0.9   | 24<br>DB                | ■                     |
|  | Response LSK                | DONAGHYS      |  | £2.30<br>\$3.10<br>\$0.95<br>€2.75            | 11mm*<br>7/16"     | 91g<br>6.1lb             | Polyester<br>Nylon           | CE A<br>ANSI | 1.18  | 32<br>KM                | -                     |
|  | Response XT                 | DONAGHYS      |  | n/a   | 11mm*<br>7/16"     | 91g<br>6.1lb             | Nylon<br>Nylon               | CE A<br>ANSI | 1.18  | 32<br>KM                | -                     |
|  | Cougar Arbor Access         | DONAGHYS      |  | £3.40<br>\$4.40<br>\$1.35<br>€3.80            | 11.7mm<br>29/64"   | 93g<br>6.25lb            | Polyester<br>Polyester       | CE A<br>ANSI | 10  | 24<br>DB                | ■<br>■                |
|  | NRG                         | DONAGHYS      |  | £3.40<br>\$4.40<br>\$1.35<br>€3.80            | 12mm<br>1/2"       | 108g<br>7.2lb            | Nylon<br>Nylon               | CE A<br>ANSI | -   | 24<br>KM                | -                     |
|  | Tango StatX<br>Yellow, Blue | DPRAYER       |  | £3.00<br>\$3.60<br>\$1.10<br>€3.30            | 11.5mm<br>7/16"    | 100g<br>6.7lb            | Polyester<br>Nylon           | CE A         | 0.74  | 32<br>KM                | ■                     |
|  | Tango Vision<br>Fox, Flash  | DPRAYER       |  | £3.10<br>\$3.90<br>\$1.20<br>€3.50            | 12.8mm<br>1/2"     | 104g<br>7lb              | Polyester<br>Nylon           | CE A         | -   | 16                      | ■                     |
|  | Tango Ergo<br>Brasil        | DPRAYER       |  | £3.30<br>\$4.20<br>\$1.30<br>€3.80            | 13.5mm<br>33/64"   | 106g<br>7.1lb            | Polyester<br>Nylon           | CE A         | -   | 24<br>DB                | ■                     |
|  | PowerStatic II              | EDELRID       |  | £3.20<br>\$4.10<br>\$1.25<br>€3.30            | 11mm<br>7/16"      | 81g<br>5.4lb             | Nylon<br>Nylon               | CE A         | 0.9   | 24<br>KM                | ■                     |



| SUITABLE FOR                 |                 |                  | MINIMUM BREAKING LOAD/STRENGTH                       |  | SHRINKAGE % | SHEATH SLIPPAGE (MILKING) % | ELONGATION %                                  |       | SHEATH %  | OTHER COLOURS  | NOTES   | WWW.               |
|------------------------------|-----------------|------------------|--|--|-------------|-----------------------------|---|-------|---|--|---|--------------------|
| EYE CAN THREAD THRU HARDWARE | HYBRID HARDWARE | SRT/SRS MRS/DkRT | MBL MINIMUM Break Load<br>Spliced<br>Sewn<br>Knotted | ABL AVERAGE Break Load<br>Spliced<br>Sewn<br>Knotted |             |                             | @10% MBS @50-150 kg @300Lb/136k @540 lb/245kg |       |   |  |   |                    |
| -                            | ■               | ■                | 30kN<br>6744lbf<br>21kN<br>4721lbf                   | -  | 2.7%        | 0                           | 2%  | 43%   |      |  | Pink Dragon version is a limited edition for breast Cancer Awareness  | cordescourant.com  |
| ■                            | ■               | ■                | 30kN<br>6744lbf<br>19kN<br>4271lbf                   | -  | 1%          | 0                           | 2.5%  | 68%   |   |  | most don't sell with a splice eye which adds around \$20/£15. Some stockist list as 11.8mm                              | cordescourant.com  |
| ■                            | ■               | ■                | 35kN<br>7868kN<br>23kN<br>5171lbf                    | -  | 1%          | 0.1%                        | 1.8%  | 57%   |   |  |   | cordescourant.com  |
| ■                            | -               | ■                | 31kN<br>6969lbf<br>23.5kN<br>5283lbf                 | -  | 2.8%        | 0.4%                        | 2.8%  | 67%   |   |  | Captive rope marker within splice.<br>Japora/Ozora discontinued   | cordescourant.com  |
| -                            | ■               | ■                | 34.1kN<br>7666lbf<br>>15kN<br>3372lbf                | -  | 2.5%        | 0.3%                        | 1.8%  | 39%   |   |  |   | cousin-trestec.com |
| ■                            | ■               | ■                | 30.7kN<br>6902lbf<br>>15kN<br>3372lbf                | -  | 0.5%        | 0                           | 2.8%  | 55%   |      |  |   | cousin-trestec.com |
| ■                            | -               | ■                | 30.1kN<br>6767lbf<br>>15kN<br>3372lbf                | -  | 0.2%        | 0                           | 2.4%  | 58.8% |   |  |   | cousin-trestec.com |
| ■                            | ■               | ■                | 34.6kN<br>7778lbf<br>>15kN<br>3372lbf                | -  | 0.1%        | 0                           | 3.1%  | 61.6% |    |  | Lignum red is a <i>Freeworker</i> (germany)special  | cousin-trestec.com |
| -                            | ■               | ■                | 31.9kN<br>7171lbf<br>>15kN<br>3372lbf                | 34.3kN<br>7711lbf                                    | 0.3%        | 2.6%                        | 3.2%  | 51%   |    |  | 'Response LSK' name also used by 2 competitors. Also in black, white with yellow/blue fleck<br>*Actual test diam=11.4mm | donaghys.com       |
| -                            | ■               | ■                | 31.9kN<br>7171lbf<br>>15kN<br>3372lbf                | 34.3kN<br>7711lbf                                    | -           | -                           | 3.2%  | 51%   |   |  | XT uses heat-set Nylon core.<br>*Actual test diam=11.4mm  | donaghys.com       |
| ■                            | ■               | ■                | 28kN<br>6300lbf                                      | -  | 1.5%        | 0                           | <3.0%   | n/a   |  |  |   | donaghys.com       |
| ■                            | ■               | ■                | 35.2kN<br>7868lbf                                    | -  | -           | -                           | -   | n/a   |   |  |   | donaghys.com       |
| -                            | ■               | ■                | 46.4kN<br>10431lb                                    | -  | 2.7%        | 0                           | 1.2%  | 43%   |  |  |   | drayer.de          |
| -                            | ■               | ■                | 36kN<br>8093lb                                       | -  | -           | -                           | 2.2%  | n/a   |  |  |   | drayer.de          |
| -                            | -               | ■                | 36.7kN<br>8260lbf                                    | -  | -           | -                           | <2.2%   | n/a   |   |  |   | drayer.de          |
| -                            | -               | ■                | 29kN<br>6520lbf<br>17kN<br>3822lbf                   | -  | 0.2%        | -                           | 4.3%  | 61%   |  |  | Thermo-shield coating.  | edelrid.de         |

IMAGES NOT TO SCALE  
 COST: excludes eyes unless specified in NOTES.  
 INCLUDES local taxes/VAT.  
 €\$€=Currency Conversion  
 If not sold by m/ft, price is shortest length x10% & rounded up.  
 ●=OK but not ideal  
 DB=Double Braid  
 KM=Kernmantle  
 Tying 10=hardest to tie





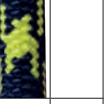


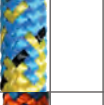



|  | MODEL<br>Product Code                  | COMPANY           | ORIGIN  | COST<br>per Metre<br>/3.28ft<br>US\$ per Foot | Ø<br>mm<br>Inches"                        | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE | STANDARDS    | NUMBER OF FALLS<br>EASE OF TYING<br>Sherrill Rating | SHEATH<br>OUTER STRANDS | SPICEABLE<br>PRE-SEWN |
|--|--|-------------------|---|---|---|--------------------------|------------------------------|--------------|---|-------------------------|-----------------------|
|    | Woodpecker                             | EDELRID           |    | £4.90<br>\$5.90<br>\$1.80<br>€5.55            | 11.7mm<br><sup>29</sup> / <sub>64</sub> " | 95g<br>6.3lb             | Polyester<br>Nylon           | CE A<br>ANSI | 1.0   | 24<br>KM                | ■                     |
|    | Bucco                                  | EDELRID           |    | £3.50<br>\$4.40<br>\$1.35<br>€4.00            | 11.8mm<br><sup>15</sup> / <sub>32</sub> " | 96g<br>6.4lb             | Polyester<br>Nylon           | CE A<br>ANSI | -   | 32<br>KM                | ■                     |
|    | X-P*E<br>Bahamas, Aruba,<br>Seychelles | EDELRID           |    | £3.75<br>\$3.90<br>\$1.20<br>€4.30            | 12.3mm<br>½"                              | 118g<br>7.9lb            | Polyester<br>Polyester       | CE A         | 0.8<br>10   | 16                      | ■                     |
|    | Jacamar                                | EDELRID           |    | £4.60<br>\$6.30<br>\$1.95<br>€5.70            | 12.5mm<br>½"                              | 108g<br>7.2lb            | Polyester<br>Nylon           | CE A<br>ANSI | -   | 24<br>DB                | ■                     |
|    | Silva-Tex 24 Light                     | ENGLISH<br>BRAIDS |    | n/a   | 10.5mm<br><sup>13</sup> / <sub>32</sub> " | 79g<br>5.3lb             | Nylon<br>Nylon               | CE A         | -   | 24<br>KM                | -                     |
|   | Silva-Tex 24                           | ENGLISH<br>BRAIDS |   | £3.55<br>\$4.50<br>\$1.40<br>€4.05            | 11.5mm<br><sup>7</sup> / <sub>16</sub> "  | 93g<br>6.2lb             | Polyester<br>Nylon           | CE A         | 0.9   | 24<br>DB                | ■<br>■                |
|  | Silva-Tex 16                           | ENGLISH<br>BRAIDS |  | n/a   | 12.4mm<br>½"                              | 131g<br>8.8lb            | Polyester<br>Polyester       | CE A         | -   | 16<br>KM                | -                     |
|  | Silva-Tex 16HD                         | ENGLISH<br>BRAIDS |  | n/a   | 12.7mm<br>½"                              | 114g<br>7.7lb            | Polyester<br>Nylon           | CE A         | -   | 16<br>KM                | -                     |
|  | Argiope Evo<br>Blue, Berry             | FTC TREE          |  | £4.05<br>\$5.15<br>\$1.60<br>€4.65            | 11.7mm<br><sup>29</sup> / <sub>64</sub> " | 103g<br>6.9lb            | Polyester<br>Polyester       | CE A         | 0.7   | 16                      | ■<br>■                |
|  | Nigma                                  | FTC TREE          |  | £3.20<br>\$4.00<br>\$1.25<br>€3.60            | 12mm<br>½"                                | 105g<br>7lb              | Polyester<br>Polyester       | CE A         | 1   | 24<br>DB                | ■<br>■                |
|  | Argiope<br>Acid                        | FTC TREE          |  | £4.50<br>\$5.50<br>\$1.70<br>€5.00            | 12.1mm<br>½"                              | 104g<br>7lb              | Polyester<br>Nylon           | CE A         | 0.87  | 16                      | ■<br>■                |
|  | GeoStatic NE                           | GLEISTEIN         |  | £2.40<br>\$3.00<br>\$1.00<br>€2.70            | 10.5mm<br><sup>13</sup> / <sub>32</sub> " | 67g<br>4.5lb             | Polyester<br>Polyester       | CE A         | -   | 32<br>KM                | ■                     |
|  | GeoArbor Lizard<br>Golden Viper        | GLEISTEIN         |  | £2.70<br>\$3.50<br>\$1.10<br>€3.10            | 11mm<br><sup>7</sup> / <sub>16</sub> "    | 82g<br>5.5lb             |                              | CE A         | -   | DB                      | ■                     |
|  | GeoArbor Twin                          | GLEISTEIN         |  | £4.00<br>\$5.00<br>\$1.55<br>€4.50            | 12mm<br>½"                                | 90g<br>6lb               | Nylon<br>Nylon               | CE A         | -   | 24<br>DB                | -                     |
|  | GeoTwin Gemini X                       | GLEISTEIN         |  | £5.20<br>\$6.55<br>\$1.85<br>€6.00            | 12mm<br>½"                                | 100g<br>6.7lb            | Polyester<br>Polyester       | CE A         | -   | 24<br>DB                | ■<br>■                |
|  | GeoArbor Cougar<br>Cobia, Barracuda    | GLEISTEIN         |  | £4.75<br>\$5.90<br>\$1.85<br>€5.35            | 12mm<br>½"                                | 88g<br>5.9lb             | Polyester<br>Polyester       | CE A         | -   | 16<br>KM                | ■<br>■                |

| SUITABLE FOR                 |                 |                  | MINIMUM BREAKING LOAD/STRENGTH                       |  | SHRINKAGE % | SHEATH SLIPPAGE (MILKING) % | ELONGATION %<br>@10% MBS<br>@50-150 kg<br>@300LB/136K<br>@540 lb/245kg | SHEATH % | OTHER COLOURS  | NOTES   | WWW.              |
|------------------------------|-----------------|------------------|--|--|-------------|-----------------------------|--|----------|--|---|-------------------|
| EYE CAN THREAD THRU HARDWARE | HYBRID HARDWARE | SRT/SRS MRS/DdRT | MBL MINIMUM Break Load<br>Spliced<br>Sewn<br>Knotted | ABL AVERAGE Break Load<br>Spliced<br>Sewn<br>Knotted |             |                             |  |          |  |   |                   |
| ■                            | ■               | ■ ■              | 25kN<br>5620lbf<br>16kN<br>3597lbf                   | -  | 0           | -                           | 2.1%   | 55%      |   | Web-eye termination is virtually the same diameter as rope.                               | edelrid.de        |
| -                            | ■               | ■                | 40kN<br>8992lbf<br>22kN<br>4946lbf                   | -  | 0.8%        | -                           | 1.9%   | 47%      |   | Made from recycled yarn   | edelrid.de        |
| -                            | -               | ■                | 25kN<br>5620lbf<br>23/16kN<br>5171/3597lbf           | -  | -           | -                           | 2.2%   | 65%      |     | red/yelw is 'highlight' a Freeworker exclusive colour                                     | edelrid.de        |
| -                            | -               | ■                | 33kN<br>7400lbf<br>18.9kN<br>4249lbf                 | -  | 1.2%        | -                           | 2.4%   | 56%      |  | Sheath is 100% recycled material  | edelrid.de        |
| -                            | -               | ■ ■              | 22.4kN<br>5036lbf                                    | -  | 2.5%        | -                           | -  | -        |   |   | englishbraids.com |
| ■                            | -               | ■ ■              | 31.6kN<br>7104lbf<br>25.6kN<br>5755lbf               | -  | 2.5%        | -                           | 2.8%   | 49%      |   | Model sometimes listed by stockists as 11.7   | englishbraids.com |
| -                            | -               | ■                | 30.4kN<br>2960lbf<br>24.1kN<br>5418lbf               | -  | 0           | -                           | -  | -        |    |   | englishbraids.com |
| -                            | -               | ■ ■              | 37.4kN<br>8408lbf<br>25.4kN<br>5710lbf               | -  | 0           | -                           | -  | -        |    |   | englishbraids.com |
| ■                            | ■               | ■ ■              | 28.9kN<br>6497lbf<br>22.12kN<br>4973lbf              | -  | 1%          | 0%                          | 2.8%   | 68%      |   | Original Berry colour discontinued. Evo replaces previous version which had nylon core    | ftc-tree.com      |
| ■                            | ■               | ■ ■              | 35kN<br>7868lbf<br>21.9kN<br>4923lbf                 | -  | 1.4%        | 0%                          | 3.4%   | 55.7%    |  |   | ftc-tree.com      |
| -                            | -               | ■                | 34kN<br>7643lbf<br>15kN<br>3372lbf                   | -  | 2.8%        | 0.4%                        | 2.4%   | 67%      |  |   | ftc-tree.com      |
| -                            | -               | ■                | 28.8kN<br>6474lbf<br>15kN<br>3372lbf                 | -  | 0.6%        | 0%                          | 2.9%   | 56.3%    |  |   | gleistein.com     |
| ■                            | -               | -                | 33kN<br>7419lbf                                      | -  | 1.5%        | 4.5%                        | 4.3%   | 54%      |  | Has water-repellant treatment   | gleistein.com     |
| -                            | -               | ■                | 34.2kN<br>7693lbf                                    | -  | 1.6%        | 0%                          | 3.4%   | 52%      |  |   | gleistein.com     |
| -                            | -               | ■                | 32kN<br>7194lbf<br>30.6kN<br>6879lbf                 | -  | -           | -                           | 2%   | -        |     | Sport version (yachting) has mottled sheath - black mixed with red, blue, green or white. | gleistein.com     |
| -                            | -               | ■                | 29.4kN<br>6609lbf                                    | -  | 1.7%        | 0%                          | 2.6%   | 69%      |    | Cobia and Barracuda appear to be discontinued?  | gleistein.com     |

IMAGES NOT TO SCALE  
 COST: excludes eyes unless specified in NOTES.  
 INCLUDES local taxes/VAT.  
 £/\$=Currency Conversion  
 If not sold by m/ft, price is shortest length x10% & rounded up.  
 ●=OK but not ideal  
 DB=Double Braid  
 KM=Kernmantle  
 Tying 10=hardest to tie

| MODEL<br>Product Code  | COMPANY         | ORIGIN  | COST<br>per Metre<br>/3.28ft<br>US\$ per Foot | Ø<br>mm<br>Inches" | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE | STANDARDS            | NUMBER OF FALLS<br>EASE OF TYING<br>Sherrill Rating | SHEATH<br>OUTER STRANDS | SPLICABLE<br>PRE-SEWN |
|--|-----------------|---|---|--------------------|--------------------------|------------------------------|----------------------|---|-------------------------|-----------------------|
|  Trojan                  | HARKIE          |    | £3.15<br>\$4.00<br>\$1.25<br>€3.65            | 11.7mm<br>29/64"   | 105g<br>7lb              | Polyester<br>Polyester       | CE A                 | -   | 24<br>DB                | ■                     |
|  Warrior                 | HARKIE          |    | £3.15<br>\$4.00<br>\$1.25<br>€3.65            | 12mm<br>1/2"       | 109g<br>7.3lb            | Polyester<br>Polyester       | CE A                 | -   | 16                      | ■                     |
|  Climbing Rope           | HUSQVARNA       |    | £7.00*<br>\$8.90<br>\$2.71<br>€8.10           | 11.5mm<br>7/16"    | 94g<br>6.3lb             | Polyester<br>Nylon           | CE A<br>ANSI         | -   | 24<br>DB                | ■<br>■                |
|  Climbing Rope           | HUSQVARNA       |    | £5.10<br>\$6.60<br>\$2.00<br>€6.00            | 11.8mm<br>15/32"   | 96.5g<br>6.5lb           | Polyester<br>Nylon           | CE A<br>ANSI         | -   | 32<br>KM                | ■                     |
|  Stryka                  | HUSQVARNA       |    | £4.50<br>\$5.50<br>\$1.70<br>€5.10            | 11.5mm<br>7/16"    | 92.4g<br>6.2lb           | Polyester<br>Nylon           | CE A<br>ANSI         |   | 24<br>DB                | ■                     |
|  Kalix                   | HUSQVARNA       |    | £4.75<br>\$6.00<br>\$1.85<br>€5.50            | 12.9mm<br>1/2"     | 118g<br>7.9lb            | Polyester<br>Nylon           | CE A<br>ANSI         |   | 16                      | ■                     |
|  Safe Nordic            | LIROS           |   | £2.40<br>\$3.50<br>\$1.10<br>€2.75            | 11.5mm<br>7/16"    | 80g<br>5.4lb             | Nylon<br>Nylon               | CE A                 | 1   | 32<br>DB                | ■                     |
|  Safe Plus             | LIROS           |  | £3.25<br>\$4.00<br>\$1.25<br>€3.50            | 11.5mm<br>7/16"    | 100g<br>6.7lb            | Polyester<br>Nylon           | CE A                 | -   | 32<br>DB                | ■                     |
|  Safe Vision<br>(Reef) | LIROS           |  | £3.70<br>\$4.65<br>\$1.45<br>€4.25            | 11.8mm<br>15/32"   | 82g<br>5.5lb             | Polyester<br>Nylon           | CE A                 | 0.7   | 24<br>DB                | ■<br>■<br>■           |
|  Safe Vision           | LIROS           |  | £4.50<br>\$5.50<br>\$1.70<br>€5.00            | 12.8mm<br>1/2"     | 102g<br>6.8lb            | Polyester<br>Nylon           | CE A                 |   | 24<br>DB                | ■<br>■<br>■           |
|  Maverick              | MARLOW<br>ROPES |  | £6.00<br>\$7.50<br>\$2.30<br>€7.00            | 11.5mm<br>7/16"    | 93g<br>0lb               | Polyester<br>Nylon           | CE A<br>UKCA         | -<br>-  | 24<br>KM                | ■<br>■                |
|  Vega                  | MARLOW<br>ROPES |  | £3.10<br>\$4.50<br>\$1.40<br>€3.60            | 11.7mm<br>29/64"   | 101g<br>6.8lb            | Polyester<br>Polyester       | CE B<br>UKCA         | 0.9<br>10   | 24<br>KM                | ■<br>■<br>■           |
|  Venom                 | MARLOW<br>ROPES |  | £3.55<br>\$4.90<br>\$1.50<br>€4.10            | 11.8mm<br>15/32"   | 89.7g<br>6lb             | Nylon<br>Nylon               | CE A<br>UKCA         | 0.6   | 24<br>DB                | ■<br>■<br>■           |
|  Vesper                | MARLOW<br>ROPES |  | £4.45<br>\$5.60<br>\$1.70<br>€5.10            | 11.8mm<br>15/32"   | 107.9g<br>7.2lb          | Polyester<br>Polyester       | CE A<br>UKCA         | 1.0   | 24<br>DB                | ■<br>■<br>■           |
|  Typhoon               | MARLOW<br>ROPES |  | £TBA<br>\$TBA<br>\$TBA<br>€TBA                | 12.2mm<br>1/2"     | 110g<br>7.2lb            | Polyester<br>Polyester       | CE A<br>UKCA         |   | 16<br>KM                | ■<br>■                |
|  Gecko2<br>Blue Ocean* | MARLOW<br>ROPES |  | £4.55<br>\$5.75<br>\$1.80<br>€5.30            | 13mm<br>1/2"       | 125.4g<br>8.4lb          | Polyester<br>Polyester       | CE A<br>UKCA<br>ANSI | 0.8   | 16                      | ■<br>■<br>■           |














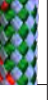


# ARBORIST CLIMBING ROPES

| SUITABLE FOR                 |                 |                  | MINIMUM BREAKING LOAD/STRENGTH                       |  | SHRINKAGE % | SHEATH SLIPPAGE (MILKING) % | ELONGATION %<br>@10% MBS<br>@50-150 kg<br>@300LB/136K<br>@540 lb/245kg | SHEATH % | OTHER COLOURS   | NOTES  | WWW.             |
|------------------------------|-----------------|------------------|--|--|-------------|-----------------------------|--|----------|---|--|------------------|
| EYE CAN THREAD THRU HARDWARE | HYBRID HARDWARE | SRT/SRS MRS/DdRT | MBL MINIMUM Break Load<br>Spliced<br>Sewn<br>Knotted | ABL AVERAGE Break Load<br>Spliced<br>Sewn<br>Knotted |             |                             |  |          |   |  |                  |
| ■                            | -               | ■ ■              | 28.8kN<br>6474lbf<br>15kN<br>3372lbf                 | -  | 0.6%        | 0                           | 2.9%   | 56.3%    |    |  | harkieglobal.com |
| ■                            | -               | ■ ■              | 27.7kN<br>6227lbf<br>15kN<br>3372lbf                 | -  | 0.35%       | 0                           | 2.6%   | 60%      |    |  | harkieglobal.com |
| -                            | ■               | ■ ■              | 24kN<br>5395lbf<br>18/18kN<br>4047/4047lbf           | -  | <5%         | -                           | 2.2%   | 58%      |    | *price includes one spliced eye - not available without                        | husqvarna.com    |
| -                            | ■               | ■ ■              | 35kN<br>7868lbf<br>18/20kN<br>4047/4496lbf           | -  | -           | -                           | 2.3%   | 42%      |    |  | husqvarna.com    |
| -                            | ■               | ■ ■              |  | 34kN<br>7643lbf                                      | -           | -                           | 3.8%   | -        |   |  | husqvarna.com    |
| -                            | -               | ■                | 36.7kN<br>8260lbf<br>24kN<br>5395lbf                 | 28.9kN<br>6497lbf                                    | -           | -                           | 4.6%   | -        |   |  | husqvarna.com    |
| -                            | ■               | ■ ■              | 34kN<br>7643lbf<br>22kN<br>4946lbf                   | -  | -           | 0%                          | 3.8%   | 46%      |   |  | liros.com        |
| -                            | ■               | ■ ■              | 46.4kN<br>10431lbf                                   | -  | -           | -                           | 1.5%   | 54%      |  | may be discontinued?   | liros.com        |
| -                            | ■               | ■ ■              | 37kN<br>8318lbf<br>29/24kN<br>6520/5395lbf           | -  | -           | -                           | 2.5%   | 54%      |   | Branded as 'Reef' by Honey Brothers UK. Listed as 12mm by some                 | liros.com        |
| -                            | -               | ■ ■              | 45kN<br>10116lbf<br>33/30kN<br>7400/6744lbf          | -  | -           | -                           | 2.2%   | 51%      |   | Listed as 13mm by some   | liros.com        |
| ■                            | ■               | ■ ■              | 35kN<br>7868lbf<br>18.8/22.9kN<br>4226/5148lbf       | 35.7kN<br>8025lbf<br>23.3kN<br>5148lbf               | 0           | -                           | 2.5%   | 52%      |  | New for 2024   | marlowropes.com  |
| -                            | ■               | ■ ■              | -  | 36.8kN<br>8273lbf<br>18.9/20.6kN<br>4249/6755lbf     | 0           | -                           | 1.2%   | 55.6%    |  | ABL Sewn=<br>27.8kN 6250 lbf   | marlowropes.com  |
| ■                            | ■               | ■ ■              | -  | 33.5kN<br>7531lbf<br>17.7/26.2kN<br>3979/5890lbf     | 4.5%        | 0                           | 3.7%   | 42%      |  | ABL Sewn=<br>28.3kN 6362 lbf   | marlowropes.com  |
| ■                            | ■               | ■ ■              | -  | 20.7kN<br>4654lbf<br>16.4/20.3kN<br>3686/4563lbf     | 0           | -                           | 2.2%   | 52%      |  | ABL Sewn=<br>24.9kN 5597 lbf<br>Electric pink is a RockNRRescue (USA) special. | marlowropes.com  |
| ■                            | ■               | ■                | 32.8kN<br>7868lbf<br>19.1/22.9kN<br>4293/5148lbf     | 20.7kN<br>4654lbf                                    |             |                             | 1.5%   | 76%      |  | New for 2024   | marlowropes.com  |
| ■                            | -               | ■                | -  | 32.1kN<br>7216lbf<br>18.4/28.3kN<br>4136/6362lbf     | 0           | 0                           | 1.5%   | 73%      |  | *Uses recycled blue-Ocean yarn<br>ABL Sewn=<br>27kN 6069 lbf                   | marlowropes.com  |








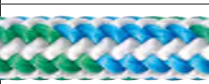


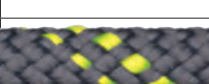

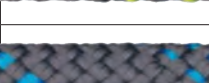





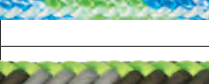









IMAGES NOT TO SCALE  
 COST: excludes eyes unless specified in NOTES.  
 INCLUDES local taxes/VAT.  
 €/\$=Currency Conversion  
 If not sold by m/ft, price is shortest length x10% & rounded up.  
 ●=OK but not ideal  
 DB=Double Braid  
 KM=Kernmantle  
 Tying 10=hardest to tie

|  | MODEL<br>Product Code        | COMPANY      | ORIGIN  | COST<br>per Metre<br>/3.28ft<br>US\$ per Foot | Ø<br>mm<br>Inches" | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE | STANDARDS                     | NUMBER OF FALLS<br>EASE OF TYING<br>Sherrill Rating | SHEATH<br>OUTER STRANDS | SPLICABLE<br>PRE-SPICED<br>PRE-SEWN |
|--|------------------------------|--------------|---|---|--------------------|--------------------------|------------------------------|-------------------------------|---|-------------------------|-------------------------------------|
|    | Dragon                       | NOTCH        |    | £3.40<br>\$4.25<br>\$1.30<br>€3.90            | 11.1mm<br>7/16"    | 81g<br>5.4lb             | Polyester<br>Nylon           |                               | 5   | 32<br>KM                |                                     |
|    | Banshee                      | NOTCH        |    | £3.30<br>\$4.00*<br>\$1.25*<br>€3.75          | 11.7mm<br>7/16"    | 95g<br>6.4lb             | Polyester<br>Nylon           | -                             | 10  | 24<br>DB                | ■<br>■                              |
|    | Ogre                         | NOTCH        |    | £3.25<br>\$3.95<br>\$1.20<br>€3.70            | 12mm<br>1/2"       | 113g<br>7.6lb            | Polyester<br>Polyester       |                               | 9   | 12<br>KM*               | ■<br>■                              |
|    | Sasquatch                    | NOTCH        |    | £2.50<br>\$3.00<br>\$1.00<br>€2.80            | 12.8mm<br>1/2"     | 112g<br>7.5lb            | Polyester<br>Nylon           |                               | 9   | 16                      | ■<br>■                              |
|    | Response LSK                 | NOVABRAID    |    | n/a   | 11.7mm<br>29/64"   | 107g<br>7.2lb            | Polyester<br>Nylon           | CE A<br>ANSI                  | -   | 48<br>KM                | ■                                   |
|    | Arborist 24<br>Yellow Jacket | PELICAN ROPE |    | £3.30<br>\$4.00<br>\$1.20<br>€3.75            | 11mm<br>7/16"      | 83.5g*<br>5.6lb          | Polyester<br>Nylon           |                               |   | 24                      | ■<br>■                              |
|   | Arborist Pro                 | PELICAN ROPE |   | £3.60<br>\$4.40<br>\$1.35<br>€4.10            | 11.8mm<br>15/32"   | 119g<br>8lb              | Polyester<br>Nylon           |                               |   | 24                      | ■                                   |
|  | Tree Viper                   | PELICAN ROPE |  | £3.80<br>\$3.45<br>\$1.05<br>€3.25            | 11.8mm<br>15/32"   | 84.8g<br>5.7lb           | Polyester<br>Nylon           | CE A<br>ANSI                  | -   | 24                      | ■<br>■                              |
|  | Arborist 16                  | PELICAN ROPE |  | £3.10<br>\$3.75<br>\$1.15<br>€3.50            | 12.7mm<br>1/2"     | 125g<br>8.4lb            | Polyester<br>Nylon           |                               |   | 16                      | ■<br>■                              |
|  | FLOW (mk2)                   | PETZL        |  | £4.30*<br>\$5.35<br>\$1.65<br>€5.30           | 11.8mm<br>15/32"   | 103g<br>6.8lb            | Polyester<br>Polyester       | CE A<br>ANSI                  | -   | 24<br>DB                | ■<br>■                              |
|  | CONTROL (mk2)                | PETZL        |  | £4.10<br>\$5.00*<br>\$1.65*<br>\$5.70         | 12.5mm<br>1/2"     | 115g<br>7.7lb            | Polyester<br>Polyester       | CE A<br>ANSI                  | -   | 24<br>DB                | ■<br>■                              |
|  | Access Pro                   | PMI          |  | £3.40<br>\$4.15<br>\$1.30<br>€3.90            | 11mm<br>7/16"      | 84g<br>5.6lb             | Polyester<br>Nylon           | CE A<br>NFPA                  | 1.1   | 32<br>KM                |                                     |
|  | EZ Bend 11                   | PMI          |  | £3.30<br>\$4.00<br>\$1.25<br>€3.75            | 11mm<br>7/16"      | 80g<br>5.4lb             | Nylon<br>Nylon               | CE A<br>NFPA<br>ANSI<br>BERRY | 0.9   | 16<br>KM                |                                     |
|  | Extreme Pro                  | PMI          |  | £3.30<br>\$4.00<br>\$1.25<br>€3.75            | 11mm<br>7/16"      | 100g<br>6.7lb            | Polyester<br>Nylon           | ANSI<br>NFPA                  |   | 32<br>KM                | ■                                   |
|  | Patriot                      | PMI          |  | £4.20<br>\$5.20<br>\$1.60<br>€4.85            | 11mm<br>7/16"      | 80g<br>5.4lb             | Nylon<br>Nylon               | CE A<br>NFPA<br>ANSI<br>BERRY | 0.9   | 16<br>KM                | -                                   |
|  | Isostatic 11.5               | PMI          |  | £4.00<br>\$4.50<br>\$1.40<br>€4.20            | 11.5mm<br>7/16"    | 96g<br>6.4lb             | Polyester<br>Polyester       | ANSI<br>NFPA                  |   | 32<br>KM                | -                                   |

# ARBORIST CLIMBING ROPES

| SUITABLE FOR                 |                 |                  | MINIMUM BREAKING LOAD/STRENGTH                       |  | SHRINKAGE % | SHEATH SLIPPAGE (MILKING) % | ELONGATION %   |          | OTHER COLOURS   |   |   |  | NOTES   | WWW.               |
|------------------------------|-----------------|------------------|--|--|-------------|-----------------------------|--|----------|---|---|---|--|---|--------------------|
| EYE CAN THREAD THRU HARDWARE | HYBRID HARDWARE | SRT/SRS MRS/DIRT | MBL MINIMUM Break Load<br>Spliced<br>Sewn<br>Knotted | ABL AVERAGE Break Load<br>Spliced<br>Sewn<br>Knotted |             |                             | @10% MBS<br>@50-150 kg<br>@300Lb/136k<br>@540 lb/245kg | SHEATH % |   |   |   |  |   |                    |
|                              | ■               | ■                | 39.1kN<br>8800lbf                                    | -  | -           | -                           | 1.6%   | 51%      |   |   |   |  | Notch transitioning ropes back to Sterling  | notchequipment.com |
| ■                            | -               | ■                | 37.1kN<br>8340lbf<br>28kN<br>6300lbf                 | -  | -           | -                           | 2.1%   | 54%      |   |   |   |  | Semi-reflective Gold fleck thread.<br>Notch transitioning ropes back to Sterling                    | notchequipment.com |
|                              |                 | ■                | 29.8kN<br>6700lbf                                    | -  | -           | -                           | 1.6%   | 98%      |   |   |   |  | *Not a conventional kernmantle but is unusual in being a 12-braid sheath over a parallel fibre core | notchequipment.com |
| ■                            |                 | ■                | 35kN<br>7868lbf                                      | -  | -           | -                           | 3.4%   | 72%      |    |   |   |  | Notch transitioning ropes back to Sterling  | notchequipment.com |
| -                            | ■               | ■                | 23.86kN<br>5360lb<br>43.6kN<br>9801lbf               | -  | -           | -                           | 2.8%   | -        |   |   |   |  | 'Response LSK' is a name used by two other companies. Also 11& 10.5mm see Rope Eqt-BUYERSGUIDE      | novabraid.com      |
| -                            | -               | ■                | 31.1k<br>7000lbf<br>24kN<br>5400lbf                  | -  | -           | -                           | 5%   | -        |   |   |   |  | *conflicting wt data on some sites & data sheets  | pelicanrope.com    |
| ■                            | ■               | ■                | 31kN<br>7000lbf<br>24kN<br>5400lbf                   | -  | -           | 0                           | -  | -        |   |   |   |  |   | pelicanrope.com    |
| ■                            | ■               | ■                | -  | 28kN<br>6300lb                                       | -           | -                           | -  | -        |   |   |   |  |   | pelicanrope.com    |
| -                            | -               | ■                | 32.4k<br>7150lbf<br>24kN<br>5400lbf                  | -  | -           | -                           | -  | -        |  |  |  |  |   | pelicanrope.com    |
| ■                            | ■               | ■                | 27kN<br>6000lbf<br>15/15kN<br>3372/3372lbf           | -  | -           | -                           | 2.7%   | 53%      |  |   |   |  | *Only available with eye Mk1=11.6mm, mk2=Better compatibility with ZigZag                           | petzl.com          |
| ■                            | ■               | ■                | 30kN<br>6744lb-<br>f15/19kN<br>3372/4271lbf          | -  | -           | -                           | 3.1%   | 62%      |  |   |   |  | *Only available with eye(s) FF 0.3 Impact force 5.2kN. 8x FF1 falls                                 | petzl.com          |
| -                            | -               | ■                | 31.1kN<br>7000lbf                                    | -  | 1.8%        | 1.6%                        | 7.2%<br>3.4%<br>5.8%                                   | 49.7%    |   |   |   |  |   | pmirope.com        |
| -                            | ■               | ■                | 32.7kN<br>7209lbf                                    | -  | 3.2%        | -                           | 3.4-4.4%<br>1.6%                                       | 50.4%    |  |  |  |  | Also solid blue and solid red (no fleck)  | pmirope.com        |
| -                            | ■               | ■                | 42.9kN<br>9644lbf                                    | -  | 2%          | 0                           | 4.7%<br>1.3%   | -        |  |  |  |  | intertwined sheath & core   | pmirope.com        |
| -                            | ■               | ■                | 32.7kN<br>7209lbf                                    | -  | 3.2%        | 0.1%                        | 3.9%   | 50.4%    |  |   |   |  | variant of EZ Bend  | pmirope.com        |
| -                            | ■               | ■                | 32.8kN<br>7388lbf                                    | -  | -           | 0                           | 1.44-2.2%<br>1%  | -        |  |   |   |  |   | pmirope.com        |






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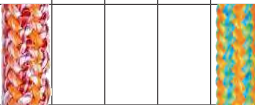


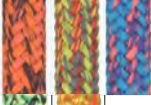
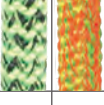


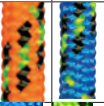

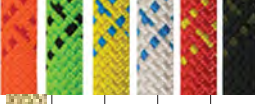


|  | MODEL<br>Product Code  | COMPANY     | ORIGIN  | COST<br>per Metre<br>/3.28ft<br>US\$ per Foot | Ø<br>mm<br>Inches"          | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE    | STANDARDS             | NUMBER OF FALLS<br>EASE OF TYING<br>Sherrill Rating | SHEATH<br>OUTER STRANDS | SPLICABLE<br>PRE-SEWN |
|--|--|-------------|---|---|-----------------------------|--------------------------|---------------------------------|-----------------------|---|-------------------------|-----------------------|
|    | <b>EZ Bend 12.5</b>  | PMI         |    | £4.30<br>\$5.30<br>\$1.65<br>€5.00            | 12.5mm<br>½"                | 107g<br>12.74lb          | Nylon<br>Nylon                  | CE CI<br>ANSI<br>NFPA | -   | 16<br>KM                | -                     |
|    | <b>Isostatic 13</b>  | PMI         |    | £4.75<br>\$6.00<br>\$1.80<br>€5.55            | 13mm<br>½"                  | 125g<br>8.4lb            | Polyester<br>Polyester          | ANSI<br>NFPA          | -   | 32<br>KM                | -                     |
|    | <b>Mercury CE</b>  | SAMSON ROPE |    | £3.00<br>\$3.75<br>\$1.15<br>€3.50            | 11mm<br>⅞"                  | 89g<br>6lb               | Polyester<br>Nylon              | CE A                  | 8   | 32<br>KM                | -                     |
|    | <b>V-24</b><br>Cool, Hot                                     | SAMSON ROPE |    | £3.00<br>\$3.75<br>\$1.15<br>€3.50            | 11mm<br>⅞"                  | 85g<br>5.9lb             | Polyester<br>Nylon              | CE B                  | -   | 24<br>DB                | ■<br>■                |
|    | <b>Velocity</b><br>Cool, Hot<br>Velocity SD*                 | SAMSON ROPE |    | £3.20<br>\$3.95<br>\$1.20<br>€3.65            | 11mm<br>⅞"                  | 83g<br>5.6lb             | Polyester<br>Nylon              | CE A                  | 10  | 24<br>DB                | -                     |
|    | <b>Predator</b><br>Predator-X                                | SAMSON ROPE |    | £3.40<br>\$4.25<br>\$1.35<br>€3.90            | 11mm<br>⅞"                  | 83.5g<br>5.6lb           | Polyester<br>Nylon              | -                     | -   | 24<br>DB                | ■<br>■                |
|   | <b>HyperStatic</b>   | SAMSON ROPE |   | £2.70<br>\$3.60<br>\$1.10<br>€3.30            | 11.3mm<br>⅞"                | 106g<br>7.1lb            | Polyester<br>Polyester          | -                     | -   | 32<br>KM                | -                     |
|  | <b>HyperStatic</b>   | SAMSON ROPE |  | £2.90<br>\$3.65<br>\$1.15<br>€3.35            | 11.7mm<br>⅞ <sub>64</sub> " | 106g<br>7.1lb            | Polyester<br>Polyester          | -                     | -   | 32<br>KM                | -                     |
|  | <b>Hyperclimb</b><br>Hot,Cool                                | SAMSON ROPE |  | £2.70<br>\$3.30<br>\$1.00<br>€3.10            | 11.7mm<br>⅞ <sub>64</sub> " | 97g<br>6.5lb             | Polyester<br>Polyester          | -                     | -   | 24<br>DB                | -                     |
|  | <b>Voyager</b><br>Voyager SD*<br>Cool, Tangent               | SAMSON ROPE |  | £3.65<br>\$4.45<br>\$1.35<br>€4.00            | 11.8mm<br>⅞ <sub>32</sub> " | 97g<br>6.5lb             | Polyester<br>Nylon              | -                     | 10  | 24<br>DB                | ■<br>■<br>■           |
|  | <b>ArborFreak</b><br>ArborFreak SD*<br>Pine, Danube, Redwood | SAMSON ROPE |  | £3.10<br>\$3.90<br>\$1.20<br>€3.30            | 12mm<br>½"                  | 115g<br>7.7lb            | Polyprop/<br>Polyester<br>Nylon | -                     | -   | 16                      | ■<br>■                |
|  | <b>V-24</b><br>Cool, Hot                                     | SAMSON ROPE |  | £3.25<br>\$4.05<br>\$1.30<br>€3.75            | 12mm<br>½"                  | 100g<br>6.7lb            | Polyester<br>Nylon              | CE A                  | -   | 24<br>DB                | ■<br>■                |
|  | <b>True...</b><br>Blue, White                                | SAMSON ROPE |  | £2.65<br>\$3.30<br>\$1.00<br>€3.05            | 12mm<br>½"                  | 131g<br>8.8lb            | Polyester<br>-                  | -                     | -   | 12                      | -                     |
|  | <b>Arbor-Plex</b><br>Ascender                                | SAMSON ROPE |  | £2.10<br>\$2.55<br>\$0.80<br>€2.35            | 12mm<br>½"                  | 101g<br>6.88lb           | Polyprop/<br>Polyester<br>-     | -                     | -   | 12                      | -                     |
|  | <b>Ascender</b>  | SAMSON ROPE |  | £2.65<br>\$3.30<br>\$1.00<br>€3.05            | 12mm<br>⅞ <sub>32</sub> "   | 109g<br>7.3lb            | Polyester<br>Nylon              | -                     | 10  | 16                      | ■<br>■<br>■           |





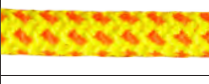
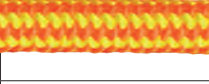

| SUITABLE FOR                 |                 |                  | MINIMUM BREAKING LOAD/STRENGTH                       |  | SHRINKAGE % | SHEATH SLIPPAGE (MILKING) % | ELONGATION %      | SHEATH % | OTHER COLOURS | NOTES   | WWW.   |
|------------------------------|-----------------|------------------|--|--|-------------|-----------------------------|-------------------|----------|---------------|---|--|
| EYE CAN THREAD THRU HARDWARE | HYBRID HARDWARE | SRT/SRS MRS/DkRT | MBL MINIMUM Break Load<br>Spliced<br>Sewn<br>Knotted | ABL AVERAGE Break Load<br>Spliced<br>Sewn<br>Knotted |             |                             |                   |          |               |   |  |
| -                            | -               | ■                | -  | -  | -           | -                           | -                 | -        |               | Also in solid black   | <a href="http://pmirope.com">pmirope.com</a>       |
| -                            | -               | ■                | 45.9kN<br>10319lbf                                   | -  | -           | 0                           | 1.44-2.2%<br>1.2% | -        |               |   | <a href="http://pmirope.com">pmirope.com</a>       |
| -                            | ■               | ■                | 38.25kN<br>8600lbf                                   | -  | -           | -                           | 3.7%              | -        |               | Heat stabilised nylon core  | <a href="http://samsonrope.com">samsonrope.com</a> |
| -                            | ■               | ■                | 28kN<br>6294lb                                       | -  | -           | -                           | 2.9%              | -        |               | CE=Unspliced only   | <a href="http://samsonrope.com">samsonrope.com</a> |
| -                            | ■               | ■                | -  | 33kN<br>7400lb<br>27kN<br>6000lb                     | -           | -                           | 3%                | -        |               | *with DRY treatment to restrict water uptake.   | <a href="http://samsonrope.com">samsonrope.com</a> |
| -                            | ■               | ■                | -  | 27kN<br>6000lb                                       | -           | -                           | 2.1%              | -        |               |   | <a href="http://samsonrope.com">samsonrope.com</a> |
| -                            | ■               | ■                | 28.5kN<br>6400lb                                     | -  | -           | -                           | 1.2%              | -        |               | Very tough, low stretch rope more suited for rescue or ziplines                           | <a href="http://samsonrope.com">samsonrope.com</a> |
| -                            | ■               | ■                | -  | 30.25kN<br>6800lb                                    | -           | -                           | 1.2%              | -        |               | Very tough, low stretch rope more suited for rescue or ziplines                           | <a href="http://samsonrope.com">samsonrope.com</a> |
| -                            | ■               | ■                | 32kN<br>7193lbf                                      | 28.9kN<br>6500lbf                                    | -           | -                           | 1.6%<br>1.3%      | 50%      |               | Sold by Bartlett as the green Antidote.   | <a href="http://samsonrope.com">samsonrope.com</a> |
| ■                            | ■               | ■                | 43kN<br>9667lbf                                      | 41.8kN<br>9400lbf<br>36kN<br>8000lbf                 | -           | *                           | 3%<br>1.99%       | 50%      |               | Sold by Bartlett as the green Bio-Hazard.<br>*with DRY treatment to restrict water uptake | <a href="http://samsonrope.com">samsonrope.com</a> |
| -                            | -               | ■                | -  | 36.28kN<br>8157lbf                                   | -           | -                           | 3%                | -        |               | *with DRY treatment to restrict water uptake.<br>Replaced ARBORMASTER                     | <a href="http://samsonrope.com">samsonrope.com</a> |
| -                            | ■               | ■                | 32kN<br>7193lbf                                      | -  | -           | -                           | 2.9%              | -        |               | CE=Unspliced only<br>*there is a slight difference between kg/lb and KN/lbf               | <a href="http://samsonrope.com">samsonrope.com</a> |
| -                            | -               | ■                | 32.5kN<br>7306lbf                                    | -  | -           | -                           | 2.6%              | -        |               |   | <a href="http://samsonrope.com">samsonrope.com</a> |
| -                            | -               | ■                | 32kN<br>7100lbf                                      | -  | -           | -                           | 3%                | -        |               | Ascender has 50% green fleck \$1/ft   | <a href="http://samsonrope.com">samsonrope.com</a> |
| -                            | -               | ■                | -  | 29kN<br>6800lbf                                      | -           | -                           | 2.1%              | -        |               |   | <a href="http://samsonrope.com">samsonrope.com</a> |

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 KM=Kernmantle  
 Tying 10=hardest to tie

|  | MODEL<br>Product Code                         | COMPANY                      | ORIGIN  | COST<br>per Metre<br>/3.28ft<br>US\$ per Foot | Ø<br>mm<br>Inches" | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE  | STANDARDS            | NUMBER OF FALLS<br>EASE OF TYING<br>Sherrill Rating | SHEATH<br>OUTER STRANDS | SPICEABLE<br>PRE-SEWN |
|--|---|------------------------------|---|---|--------------------|--------------------------|-------------------------------|----------------------|---|-------------------------|-----------------------|
|    | Hyperstatic                                   | SAMSON ROPE                  |    | £4.00<br>\$5.00<br>\$1.54<br>€4.60            | 12.5mm<br>½"       | 121g<br>8.1lb            | Polyester<br>Polyester        | -                    | -   | 32<br>KM                | -                     |
|    | Vortex<br>Vortex SD*                          | SAMSON ROPE                  |    | £3.40<br>\$4.25<br>\$1.30<br>€3.90            | 12.7mm<br>½"       | 113g<br>7.6lb<br>7.9lb   | Polyester<br>Nylon            | -                    | 10  | 24<br>DB                | ■<br>■                |
|    | V-16<br>Hot,Cool                              | SAMSON ROPE                  |    | £3.40<br>\$4.25<br>\$1.30<br>€3.90            | 12.8mm<br>½"       | 110g<br>7.4lb            | Polyester<br>Nylon            | CE A                 | -   | 16                      | -                     |
|    | V-24<br>Cool, Hot                             | SAMSON ROPE                  |    | n/a   | 13mm<br>½"         | 112g<br>7.5lb            | Polyester<br>Nylon            | CE A                 | -   | 24<br>DB                | ■<br>■                |
|    | PREDATOR<br>PREDATOR-X                        | SAMSON ROPE                  |    | n/a   | 13mm<br>½"         | 119g<br>8lb              | Polyester<br>Nylon            | -                    | -   | 24<br>DB                | ■<br>■                |
|    | IVY<br>Silver Ivy, Tango Ivy,<br>Midnight Ivy | SAMSON ROPE<br>SHERRILL TREE |    | £3.05<br>\$3.80<br>\$1.15<br>€3.50            | 11.7mm<br>½"       | 102g<br>6.8lb            | Polyester<br>Polyester        | -                    | 10  | 24<br>DB                | ■<br>■                |
|  | Tilia<br>L0460                                | SINGING ROCK                 |  | £4.00<br>\$4.40<br>\$1.35<br>€3.95            | 11.5mm<br>⅞"       | 90g<br>6lb               | Polyester<br>Nylon            | CE A<br>UIAA         | -   | KM                      | ■<br>■                |
|  | Cougar LSK                                    | SOUTHERN<br>ROPES            |  | £1.55<br>\$2.00<br>\$0.60<br>€1.80            | 11.7mm<br>⅞"       | 93g<br>6.25lb            | Polyester<br>Polyester        | CE A<br>ANSI         | 10  | 24<br>DB                | ■<br>■                |
|  | HTP<br>addiction                              | STERLING                     |  | £4.00<br>\$4.75<br>\$1.45<br>€4.60            | 11mm<br>⅞"         | 97g<br>6.5lb             | Polyester<br>Polyester        | ANSI<br>NFPA         | 8   | 32<br>KM                | ■                     |
|  | Work Pro                                      | STERLING                     |  | £3.90<br>\$4.60<br>\$1.45<br>€4.50            | 11mm<br>⅞"         | 83.5g<br>5.6lb           | Polyester<br>Nylon            | CE A<br>ANSI<br>NFPA | 8   | KM                      | -                     |
|  | TriTech                                       | STERLING                     |  | £11.00<br>\$13.10<br>\$4.00<br>€12.00         | 11mm<br>⅞"         | 96g*<br>6.5lb            | Technora/<br>Spectra<br>Nylon | CE A<br>ANSI<br>NFPA | -   | KM                      | ■                     |
|  | Scion Arbor                                   | STERLING                     |  | £3.60<br>\$4.75<br>\$1.45<br>€4.50            | 11.5mm<br>⅞"       | 91g<br>6.2lb             | Polyester<br>Nylon            | CE A<br>ANSI         | 10  | 24<br>DB                | ■<br>■                |
|  | Work Pro                                      | STERLING                     |  | £4.40<br>\$5.40*<br>\$1.65*<br>€5.10          | 12.5mm<br>½"       | 110g<br>7.4lb            | Polyester<br>Nylon            | CE A<br>ANSI<br>NFPA | 7   | KM                      | -                     |
|  | HTP   | STERLING                     |  | £4.95<br>\$6.10*<br>\$1.90*<br>€5.75          | 12.5mm<br>½"       | 119g<br>8lb              | Polyester<br>Polyester        | ANSI<br>NFPA         | -   | 32<br>KM                | ■                     |
|  | Tech HTP 11                                   | STERLING                     |  | £8.50<br>\$10.00<br>\$3.30<br>€9.85           | 11mm<br>⅞"         | 88g<br>5.9lb             | Technora<br>Nylon             | CE A<br>NFPA         | -   | 32<br>KM                | -                     |
|  | Scion Arbor                                   | STERLING                     |  | £4.20<br>\$5.30<br>\$1.60<br>€4.90            | 12.5mm<br>½"       | 107g<br>7.2lb            | Polyester<br>Nylon            | CE A<br>ANSI         | 10  | 24<br>DB                | ■<br>■                |

| SUITABLE FOR                 |                 |                  | MINIMUM BREAKING LOAD/STRENGTH                       |  | SHRINKAGE % | SHEATH SLIPPAGE (MILKING) % | ELONGATION %       | SHEATH % | OTHER COLOURS  | NOTES  | WWW.                               |
|------------------------------|-----------------|------------------|--|--|-------------|-----------------------------|--------------------|----------|--|--|------------------------------------|
| EYE CAN THREAD THRU HARDWARE | HYBRID HARDWARE | SRT/SRS MRS/DdRT | MBL MINIMUM Break Load<br>Spliced<br>Sewn<br>Knotted | ABL AVERAGE Break Load<br>Spliced<br>Sewn<br>Knotted |             |                             |                    |          |  |  |                                    |
| -                            | ■               | ■                | 32kN<br>7200lbf                                      | -  | -           | -                           | -                  |          |  |  | samsonrope.com                     |
| -                            | -               | ■ ■              | 46kN<br>10341lbf                                     | 36kN<br>8000lbf                                      | -           | -                           | 3%                 | -        |    | *with DRY treatment to restrict water uptake   | samsonrope.com                     |
| -                            | ■               | ■ ■              | 36kN<br>8093lbf                                      | -  | -           | -                           | 3%                 | -        |     |  | samsonrope.com                     |
| -                            | ■               | ■                | -  | 33kN<br>7418lbf                                      | -           | -                           | 2.9%               | -        |     | CE=Unspliced only  | samsonrope.com                     |
| -                            | ■               | ■                | -  | 36.5kN<br>8200lbf                                    | -           | -                           | 2.1%               | -        |     |  | samsonrope.com                     |
| -                            | -               | ■ ■              | 29kN<br>6520lbf                                      | -  | -           | -                           | 1.3%               | -        |    |  | samsonrope.com<br>sherrilltree.com |
| ■                            | ■               | ■ ■              | 30kN<br>6744lbf<br>18/15kN<br>4047/3372lbf           | -  | 1%          | 0.5%                        | 3%                 | -        |  |  | singingrock.com                    |
| ■                            | ■               | ■                | 28kN<br>6300lbf                                      | -  | 1.5%        | 0                           | <3.0%              | -        |  | See also ROPE EQPT BUYERS GUIDE for Response LSK ropes   | southernropes.com                  |
| -                            | ■               | ■                | 30.5kN<br>6856b                                      | -  | -           | -                           | 3.4%<br>1.9%       | -        |  | Also available in White with black fleck. Addiction=special colour   | sterlingrope.com                   |
| -                            | -               | ■ ■              | 36kN<br>8092lbf                                      | -  | -           | 0.9%                        | 3.6%               | -        |  |  | sterlingrope.com                   |
| -                            | -               | ■                | 37kN<br>8140lbf<br>24.1kN<br>5418lb                  | -  | -           | 0.9%                        | 2.8%<br>1.9%       | -        |  | cut-resistant twin sheath- for lanyard climbing/ flip-lines rather than full length climbing rope. *approx | sterlingrope.com                   |
| ■                            | ■               | ■ ■              | 30kN<br>6744lbf<br>25.5kN<br>5732lbf                 | -  | 3.8%        | 0.3%                        | 3.8%<br>1.5%<br>4% | -        |   |  | sterlingrope.com                   |
| -                            | ■               | ■ ■              | 45kN<br>10116lbf                                     | -  | -           | -                           | 2.2%               | -        |  | *white rope= less 8%   | sterlingrope.com                   |
| -                            | -               | ■                | 40.4kN<br>9081lb                                     | -  | -           | -                           | 2.6%<br>1.1%       | -        |  | *white rope= less 8%   | sterlingrope.com                   |
| -                            | ■               | ■ ■              | 40.1kN<br>9014lbf                                    | -  | -           | -                           | 3.6%               | -        |   | Cut & heat resistant   | sterlingrope.com                   |
| ■                            | ■               | ■ ■              | 32kN<br>7193lbf<br>27.2kN<br>5732lbf                 | -  | -           | 0.5%                        | 4.2%<br>1.7%       | -        |   | Element=DISCONTINUED   | sterlingrope.com                   |

IMAGES NOT TO SCALE  
 COST: excludes eyes unless specified in NOTES.  
 INCLUDES local taxes/VAT.  
 €/\$=Currency Conversion  
 If not sold by m/ft, price is shortest length x10% & rounded up.  
 ●=OK but not ideal  
 DB=Double Braid  
 KM=Kernmantle  
 Tying 10=hardest to tie

| MODEL<br>Product Code  | COMPANY           | ORIGIN  | COST<br>per Metre<br>/3.28ft<br>US\$ per<br>Foot | Ø<br>mm<br>Inches" | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE | STANDARDS | NUMBER OF FALLS<br>EASE OF TYING<br>Sherrill Rating | SHEATH<br>OUTER STRANDS | SPICEABLE<br>PRE-SPICED<br>PRE-SEWN |
|--|-------------------|---|--|--------------------|--------------------------|------------------------------|-----------|---|-------------------------|-------------------------------------|
|  <b>ACR-24</b><br>Acuda, Mantra, Outback | STEIN             |  | £4.40<br>\$5.50<br>\$1.75<br>€5.10               | 11.7mm<br>29/64"   | 98g<br>6.6lb             | Polyester<br>Nylon           | CE A      | -   | 24<br>DB                | ■<br>■                              |
|  <b>ACR-16</b><br>Scorpius, Utility      | STEIN             |  | £5.45<br>\$6.75<br>\$2.05<br>€6.35               | 12.4mm<br>1/2"     | 98g*<br>6.6lb            | Polyester<br>Polyester       | CE A      | -   | 16<br>KM                | ■<br>■                              |
|  <b>Timber Evo</b>                       | TENDON<br>(LANEX) |  | £2.70<br>\$3.60<br>\$1.15<br>€3.20               | 11mm<br>7/16"      | 88g<br>5.91b             | Polyester<br>Nylon           | CE A      | -   | 24<br>DB                | ■<br>■                              |
|  <b>Timber Evo</b>                       | TENDON<br>(LANEX) |  | £2.80<br>\$3.55<br>\$1.10<br>€3.25               | 11.5mm<br>7/16"    | 90g<br>6lb               | Polyester<br>Nylon           | CE A      | -   | 24<br>DB                | ■<br>■                              |
|  <b>Timber Evo</b>                       | TENDON<br>(LANEX) |  | £3.80<br>\$4.85<br>\$1.50<br>€4.40               | 12.5mm<br>1/2"     | 104g<br>7 lb             | Polyester<br>Nylon           | CE A      | -   | 24<br>DB                | ■<br>■                              |

**CANADIAN OWNED & OPERATED**  
 FAMILY BUSINESS, FREE CANADIAN SHIPPING ON ORDERS OVER \$300\*





**ARBORIST SUPPLY CO. INC.** EST. 1992

**ARBORISTSUPPLY.CA**



\*free shipping not valid on overweight/oversize items, some terms & conditions apply

| SUITABLE FOR                 |                 | MINIMUM BREAKING LOAD/STRENGTH                       |  | SHRINKAGE % | SHEATH SLIPPAGE (MILKING) % | ELONGATION %<br>@10% MBS<br>@50-150 kg<br>@300Lb/136k<br>@540 lb/245kg | SHEATH % | OTHER COLOURS   | NOTES  | WWW.               |
|------------------------------|-----------------|--|--|-------------|-----------------------------|--|----------|---|--|--------------------|
| EYE CAN THREAD THRU HARDWARE | HYBRID HARDWARE | MBL MINIMUM Break Load<br>Spliced<br>Sewn<br>Knotted | ABL AVERAGE Break Load<br>Spliced<br>Sewn<br>Knotted |             |                             |  |          |   |  |                    |
| ■                            | ■               | >22kN<br>4946lbf<br>15/15kN<br>3372/3372lbf          | -  | -           | -                           | -  | -        |  | MBL Sewn=<br>15kN 3372lbf  | steinworldwide.com |
| ■                            | -               | 25kN<br>5620lbf<br>15/15kN<br>3372/3372lbf           | -  | -           | -                           | -  | -        |  | * 12.4mm 16 braid =same wt as 11.7mm 24DB<br>MBL Sewn=<br>15kN 3372lbf | steinworldwide.com |
| -                            | -               | 30kN<br>6744lbf                                      | 18kN<br>4047lbf                                      | 0.7%        | 0                           | 3.1%   | 57%      |   | Embedded RFID chip   | mytendon.com       |
| -                            | ■               | 30kN<br>6744lbf                                      | 18kN<br>4047lbf                                      | 1%          | -                           | 3%   | 54%      |   | Evo replaced the original 'Timber green'<br>Embedded RFID chip         | mytendon.com       |
| -                            | -               | 39kN<br>8598lbf                                      | 22kN<br>4946lbf                                      | 0.6%        | 0                           | 3%   | 48%      |   | Embedded RFID chip   | mytendon.com       |
|                              |                 |  |  |             |                             |  |          |   |  | expansion row      |
|                              |                 |  |  |             |                             |  |          |   |  | expansion row      |





## GO MAVERICK

WITH OUR NEXT GEN 11.5MM CLIMBING LINE  
NYLON CORE & POLYESTER COVER  
LOW PROFILE SEWN EYE







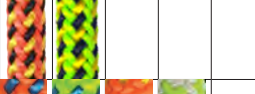
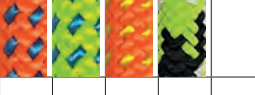






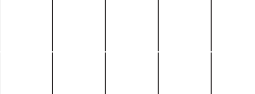

SCAN HERE TO WIN A MAVERICK:



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 If not sold by m/ft, price is shortest length x10% & rounded up.  
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|  | MODEL<br>Product Code  | COMPANY                | ORIGIN  | COST<br>per Metre<br>/3.28ft<br>US\$ per<br>Foot | Ø<br>mm<br>Inches" | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE     | STANDARDS    | NUMBER OF FALLS<br>EASE OF TYING<br>Sherrill Rating | SHEATH<br>OUTER STRANDS | SPICEABLE<br>PRE-SEWED |
|--|--|------------------------|---|--|--------------------|--------------------------|----------------------------------|--------------|---|-------------------------|------------------------|
|    | <b>KMIII</b><br><b>KMII Max</b>                                  | TEUFELBERGER<br>/MAXIM |    | £3.60<br>\$4.40<br>\$1.35*<br>€4.15              | 10.5mm<br>13/32"   | 84g<br>5.65lb            | Polyester<br>Nylon               | CE A<br>NFPA | 7   | 32<br>KM                |                        |
|    | <b>Platinum</b><br><b>Arbor Access</b>                           | TEUFELBERGER           |    | £4.50<br>\$7.00<br>\$2.15<br>€5.75               | 10.5mm<br>13/32"   | 78g<br>5.2lb             | Polyester<br>Nylon               | CE A         | 0.80  | 32<br>KM                | ■                      |
|    | <b>Chameleon</b>   | TEUFELBERGER           |    | £2.40<br>\$3.20<br>\$1.00<br>€2.80               | 10.5mm<br>13/32"   | 72g<br>4.84lb            | Nylon<br>Nylon                   | CE A         |   | 32<br>KM                | -                      |
|    | <b>Chameleon</b>   | TEUFELBERGER           |    | £2.60<br>\$3.40<br>\$1.10<br>€3.10               | 11mm<br>7/16"      | 75g<br>5.04lb            | Nylon<br>Nylon                   | CE A         |   | 32<br>KM                | -                      |
|    | <b>Patron Tree Access</b>  | TEUFELBERGER           |    | £2.65<br>\$3.40<br>\$1.10<br>€3.00               | 11mm<br>7/16"      | 75g<br>5.04lb            | Nylon<br>Nylon                   | CE A         | 0.51  | 32<br>KM                |                        |
|    | <b>KMIII</b><br><b>KMII Max</b>                                  | TEUFELBERGER<br>/MAXIM |   | £4.25<br>\$4.90<br>\$1.50*<br>€4.75              | 11mm<br>7/16"      | 91g<br>6.12lb            | Polyester<br>Nylon               | CE A<br>NFPA |   | 32<br>KM                |                        |
|  | <b>Fly</b><br>Firefly, Dragonfly                                 | TEUFELBERGER           |  | £5.20<br>\$5.30<br>\$1.60<br>€6.00               | 11.1mm<br>7/16"    | 87g<br>5.9lb             | Polyester<br>Nylon               | CE A<br>ANSI | 0.5<br>10   | 24<br>KM                | ■<br>■                 |
|  | <b>Tachyon</b><br>Ash,Lava Surge,                                | TEUFELBERGER           |  | £3.80<br>\$4.90<br>\$1.50<br>€4.50               | 11.5mm             | 94g<br>6.3lb             | Polyester<br>Nylon/<br>Polyester | CE A<br>ANSI | 0.64<br>10  | 24<br>DB                | ■<br>■                 |
|  | <b>Xstatic</b>   | TEUFELBERGER           |  | £3.80<br>\$4.90<br>\$1.50<br>€4.50               | 11.7mm<br>29/64"   | 105.6g<br>7.1lb          | Polyester<br>Nylon               | CE A<br>ANSI | 6   | 32<br>KM                | ■                      |
|  | <b>drenaLINE*</b>  | TEUFELBERGER           |  | £3.50<br>\$4.55<br>\$1.40<br>€4.75               | 11.8mm<br>15/32"   | 96.5g<br>6.5lb           | Polyester<br>Nylon               | CE A<br>ANSI | 0.8<br>7  | 32<br>KM                | ■                      |
|  | <b>Arbor Elite</b>   | TEUFELBERGER           |  | £3.90<br>\$5.00<br>\$1.55<br>€4.55               | 12.7mm<br>1/2"     | 105.6g<br>7.1lb          | Polyester<br>Nylon               | CE A         | 0.56  | 16                      | -                      |
|  | <b>Braided Safety Blue</b><br>Ultra Vee, Hi Vee,<br>T-Vee, White | TEUFELBERGER           |  | £4.35<br>\$5.80<br>\$1.80<br>€5.30               | 12.7mm<br>1/2"     | 105.6g<br>7.1lb          | Polyester<br>Nylon               | ANSI         | 0.56<br>10  | 16                      | ■                      |
|  | <b>KMIII</b><br><b>KMII Max</b>                                  | TEUFELBERGER<br>/MAXIM |  | £4.50<br>\$5.55<br>\$1.75*<br>€5.10              | 12.7/13mm<br>1/2"  | 117.5g<br>7.9lb          | Polyester<br>Nylon               | CE A<br>NFPA | -   | 32<br>KM                | -                      |
|  | <b>Nebula/<br/>Liana</b>   | TREEHOG<br>BY ARBORTEC |  | £5.05<br>\$6.40<br>\$1.95<br>€5.90               | 11.8mm<br>15/32"   | 96.5g<br>6.5lb           | Polyester<br>Nylon               | CE A         | 0.8<br>7  | 32<br>KM                | ■                      |
|  | <b>Static Climbing</b>   | TREERUNNER<br>(GRUBE)  |  | £3.00<br>\$4.00<br>\$1.25<br>€3.40               | 11mm<br>7/16"      | 80g<br>5.4lb             | Polyester<br>Nylon               | CE A         | -   | 32<br>KM                | -                      |
|  | <b>Safe +</b>  | TREERUNNER<br>(GRUBE)  |  | £2.75<br>\$3.50<br>\$1.10<br>€3.15               | 11.5mm<br>7/16"    | 100g<br>6.7lb            | Polyester<br>Nylon               | CE A         | 1.1   | 24<br>DB                | -                      |




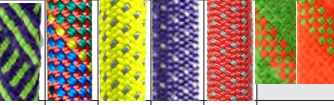








# ARBORIST CLIMBING ROPES

| SUITABLE FOR                 |                 | MINIMUM BREAKING LOAD/STRENGTH                   |                        | SHRINKAGE % | SHEATH SLIPPAGE (MILKING) % | ELONGATION % | SHEATH % | OTHER COLOURS  | NOTES  | WWW.             |
|------------------------------|-----------------|--|------------------------|-------------|-----------------------------|--------------|----------|--|--|------------------|
| EYE/CAN/THREAD THRU HARDWARE | HYBRID HARDWARE | MBL MINIMUM Break Load                           | ABL AVERAGE Break Load |             |                             |              |          |  |  |                  |
| -                            | -               | 32.1kN<br>7215lbf                                | -                      | <5%         | -                           | 1.6%<br>1.4% | 48%      |    | KMIII Max has tighter, low friction sheath for improved descent.<br>*White=\$1.25/ft                             | teufelberger.com |
| -                            | ■               | 28kN<br>6290lbf<br>23/15kN<br>5170/3372lbf       | -                      | <5%         | 0                           | 2%           | -        |    | intertwined sheath & core.<br>'Escalator'=discontinued   | teufelberger.com |
| -                            | -               | 32kN<br>7190lbf<br>18/26kN<br>4047/5845lbf       | -                      | 4%          | -                           | 3%           | 46%      |    | Same colours for both rope diameters. Ropes use recycled unused rope   | teufelberger.com |
| -                            | -               | 33kN<br>7415lbf<br>18/27kN<br>4047/6069lbf       | -                      | 4%          | -                           | 3%           | 35%      |    | Same colours for both rope diameters. Ropes use recycled unused rope   | teufelberger.com |
| -                            | -               | 32kN<br>7300lbf<br>18/27kN<br>4047/6069lbf       | -                      | <5%         | -                           | 3%           | -        |    |  | teufelberger.com |
| -                            | -               | 33.3kN<br>7485lbf<br>30.85kN<br>6935lbf          | -                      | <5%         | -                           | 1.8%<br>2.2% | 45%      |   | KMIII Max has tighter, low friction sheath for improved descent.<br>*White=\$1.45/ft                             | teufelberger.com |
| ■                            | ■               | 26.8kN<br>6035lbf<br>15/15kN<br>3370/3372lbf     | -                      | <5%         | -                           | 1.6%<br>3%   | 57%      |  |  | teufelberger.com |
| -                            | ■               | 24.45kN<br>5497lbf<br>21.85/24kN<br>4912/5395lbf | -                      | 0.3%        | -                           | 2.2%         | 58%      |  | Double Braid rope.<br>Soft handling.   | teufelberger.com |
| ■                            | ■               | 32kN<br>7194lbf<br>17kN<br>3820lbf               | -                      | <5%         | -                           | 1.4%<br>1.5% | 54%      |  |  | teufelberger.com |
| ■                            | ■               | 35kN<br>7868lbf<br>18/16.5kN<br>4047/3709lbf     | -                      | <5%         | -                           | 2.3%<br>2.3% | 58%      |  | *+Limited edition colours & some unique to stockists: 'Pink', 'Red', 'Jungle' & 'HBROS' & CHARITY-LINE (€4.50/m) | teufelberger.com |
| -                            | -               | 25.8kN<br>5800lbf<br>23.5/24kN<br>5290/5400lbf   | -                      | -           | -                           | 3%           | 79%      |  |  | teufelberger.com |
| -                            | -               | 25.8kN<br>5800lbf<br>23.5kN<br>5290lbf           | -                      | <5%         | -                           | 3%           | 82%      |  | Blue core shows through when sheath is abraded   | teufelberger.com |
| -                            | -               | 43.4kN<br>9730lbf<br>36.8kN<br>8265lbf           | -                      | <5%         | -                           | 1.8%<br>1.4% | 47%      |  | KMIII Max has tighter, low friction sheath for improved descent.<br>*White=\$1.50/ft                             | teufelberger.com |
| ■                            | ■               | 35kN<br>7868lbf<br>18/16.5kN<br>4047/3709lbf     | -                      | <5%         | -                           | 2.3%<br>2.3% | 58%      |  |  | treehog.com      |
| -                            | ■               | 39kN<br>8767lbf                                  | -                      | -           | -                           | 2.8%         | -        |  |  | grube.de         |
| -                            | ■               | 22kN<br>4946lbf                                  | 46kN<br>10341lbf       | 1.7%        | -                           | 1.5%         | 46%      |  |  | grube.de         |

IMAGES NOT TO SCALE  
 COST: excludes eyes unless specified in NOTES.  
 INCLUDES local taxes/VAT.  
 €/\$=Currency Conversion  
 If not sold by m/ft, price is shortest length x10% & rounded up.  
 ●=OK but not ideal  
 DB=Double Braid  
 KM=Kernmantle  
 Tying 10=hardest to tie

|  | MODEL<br>Product Code  | COMPANY               | ORIGIN  | COST<br>per Metre<br>/3.28ft<br>US\$ per<br>Foot | Ø<br>mm<br>Inches" | WEIGHT<br>g/m<br>lb/100'     | MATERIALS:<br>SHEATH<br>CORE    | STANDARDS    | NUMBER OF FALLS<br>EASE OF TYING<br>Sherrill Rating | SHEATH<br>OUTER STRANDS | SPICEABLE<br>PRE-SEWN |
|--|--|-----------------------|---|--|--------------------|------------------------------|---------------------------------|--------------|---|-------------------------|-----------------------|
|    | <b>SafeVision</b>  | TREERUNNER<br>(GRUBE) |    | £3.90<br>\$4.45<br>\$1.35<br>€4.15               | 11.8mm<br>15/32"   | 82g<br>5.5lb                 | Polyester<br>Nylon              | CE A         | 0.6   | 24<br>DB                | ■                     |
|    | <b>Picus</b>   | TREERUNNER<br>(GRUBE) |    | £3.60<br>\$5.00<br>\$1.55<br>€4.45               | 11.8mm<br>15/32"   | 96.5g<br>6.5lb               | Polyester<br>Nylon              | CE A         | 0.8   | 32<br>KM                | ■                     |
|    | <b>Static Climbing</b>   | TREERUNNER<br>(GRUBE) |    | £3.00<br>\$3.75<br>\$1.20<br>€3.40               | 12mm<br>1/2"       | 80g<br>5.4lb                 | Polyester<br>Nylon              | CE A         |   | 32<br>KM                | -                     |
|    | <b>Climbing</b>  | TREERUNNER<br>(GRUBE) |    | £4.25<br>\$5.40<br>\$1.70<br>€4.85               | 12mm<br>1/2"       | 117g<br>7.8lb                | Polyester<br>Nylon              | CE A         |   | 24<br>DB                | ■                     |
|    | <b>XTC-48</b><br>R.I.N.G.  | YALE<br>CORDAGE       |    | £14.00<br>\$16.00<br>\$5.00<br>€15.00            | 10.5mm<br>13/32"   | 92.5g<br>6.2lb               | Polyester/<br>Technora<br>Nylon | ANSI         |   | 48<br>DB                | ■                     |
|    | <b>XTC-24-CE</b><br>Blaze, Bandit  | YALE<br>CORDAGE       |    | £4.50<br>\$3.50<br>\$1.10<br>€5.20               | 11mm<br>7/16"      | 89g<br>6lb                   | Polyester<br>Nylon              | CE B<br>ANSI | 10  | 24<br>DB                | ■                     |
|   | <b>XTC-48</b><br>Kernmaster Phantom x2,<br>Explore, Scandere x3,<br>Kernmaster Code x2 | YALE<br>CORDAGE       |   | £4.40<br>\$4.20<br>\$1.30<br>€5.10               | 11mm<br>7/16"      | 82/97g<br>5.5/6.5lb          | Polyester<br>Nylon              | ANSI         |   | 48<br>KM                | ■                     |
|  | <b>XTC-48</b><br>BiFrost   | YALE<br>CORDAGE       |  | £3.10<br>\$3.85<br>\$1.20<br>€3.55               | 11mm<br>7/16"      | 90g<br>6.1lb                 | Polyester<br>Polyester          | ANSI         |   | 48<br>KM                | ■                     |
|  | <b>XTC-48</b><br>R.I.N.G.  | YALE<br>CORDAGE       |  | £15.00<br>\$18.50<br>\$6.00<br>€17.00            | 11.5mm<br>7/16"    | 92.5g<br>6.2lb               | Polyester/<br>Technora<br>Nylon | ANSI         |   | 48<br>DB                | ■                     |
|  | <b>XTC-24</b><br>Xylem,<br>ArborMax Gator/Flame  | YALE<br>CORDAGE       |  | £4.65<br>\$4.10<br>\$1.25<br>€4.60               | 11.7mm<br>29/64"   | 97g<br>6.5lb                 | Polyester<br>Polyester          | ANSI         | 10  | 24<br>DB                | ■                     |
|  | <b>XTC-24</b><br>Blue Moon, Focus, Prism,<br>Arrow Frog,                               | YALE<br>CORDAGE       |  | £4.65<br>\$4.10<br>\$1.25<br>€4.60               | 11.7mm<br>29/64"   | 97g<br>6.5lb                 | Polyester<br>Polyester          | ANSI         | 10  | 24<br>DB                | ■                     |
|  | <b>XTC-24-CE</b><br>Sunburst, BlueTongue,<br>Calamine, Energize                        | YALE<br>CORDAGE       |  | £4.65<br>\$4.10<br>\$1.25<br>€4.60               | 11.7mm<br>29/64"   | 97g<br>6.5lb                 | Polyester<br>Nylon              | CE A<br>ANSI | 10  | 24<br>DB                | ■                     |
|  | <b>XTC-24-CE</b><br>Imori  | YALE<br>CORDAGE       |  | £3.10<br>\$3.90<br>\$1.20<br>€4.00               | 12mm<br>1/2"       | 105g<br>7lb                  | Polyester<br>Nylon              | CE A<br>ANSI |   | 24<br>DB                | ■                     |
|  | <b>XTC-48</b><br>Kernmaster Phantom x2,<br>Explore, Scandere x3,<br>Kernmaster Code x2 | YALE<br>CORDAGE       |  | £4.50<br>\$4.50<br>\$1.40<br>€5.20               | 13mm<br>1/2"       | 113g<br>7.6lb                | Polyester<br>Nylon              | CE A<br>ANSI |   | 48<br>KM                | ■                     |
|  | <b>XTC-16</b><br>Fire, Spearmint, Plus<br>Poseidon, Salamander                         | YALE<br>CORDAGE       |  | £3.00<br>\$3.75<br>\$1.15<br>€4.05               | 13mm<br>1/2"       | 112g<br>7.5lb                | Polyester<br>Nylon              | CE A<br>ANSI | 10  | 16                      | ■                     |
|  | <b>XTC-12</b><br>Buzzline  | YALE<br>CORDAGE       |  | £2.10<br>\$2.60<br>\$0.80<br>€2.40               | 13mm<br>1/2"       | 100g<br>6.7lb<br>123g<br>8lb | Polyester                       | CE B<br>ANSI | 8   | 12                      | ■                     |



| SUITABLE FOR    |                 |                  | MINIMUM BREAKING LOAD/STRENGTH                       |  | SHRINKAGE % | SHEATH SLIPPAGE (MILKING) % | ELONGATION % | SHEATH % | OTHER COLOURS  | NOTES  | WWW.            |
|-----------------|-----------------|------------------|--|--|-------------|-----------------------------|--------------|----------|--|--|-----------------|
| THRILL HARDWARE | HYBRID HARDWARE | SRT/SRS MRS/DORT | MBL MINIMUM Break Load<br>Spliced<br>Sewn<br>Knotted | ABL AVERAGE Break Load<br>Spliced<br>Sewn<br>Knotted |             |                             |              |          |  |  |                 |
| -               | ■               | ■                | 37kN<br>8318lbf<br>22kN<br>4946lbf                   |  | 2.5%        |                             | 2.5%         | 54%      |  |  | grube.de        |
| ■               | ■               | ■                | 35kN<br>7868lbf<br>18/16.5kN<br>4047/3709lbf         |  | <5%         |                             | 2.3%<br>2.3% | 58%      |  |  | grube.de        |
| -               | ■               | ■                | 39kN<br>8767lbf                                      |  |             |                             | 2.8%         |          |  |  | grube.de        |
| ■               | ■               | ■                | 34.5kN<br>7755lbf                                    |  |             |                             | 2%           |          |     | Tornado discontinued   | grube.de        |
| -               | ■               | ■                | 30kN<br>6730lbf                                      |  |             |                             | 2.4%         |          |     | Red inner braid highlights wear through the outer sheath                                   | yalecordage.com |
| -               | ■               | ■                | 25kN<br>5600lbf                                      |  |             |                             | 2.2%         |          |     | CE = slightly more elongation than ANSI so better suited to MRS than SRS                   | yalecordage.com |
| -               | ■               | ■                | 31.6kN<br>7104lbf                                    |  |             |                             | 3%           |          |   | Scandere uses higher tenacity sheath   | yalecordage.com |
| -               | ■               | ■                | 30kN<br>6760lbf                                      |  |             |                             | 1.5%         |          |  |  | yalecordage.com |
| -               | ■               | ■                | 30kN<br>6730lbf                                      |  |             |                             | 2.4%         |          |   | Red inner braid highlights wear through the outer sheath                                   | yalecordage.com |
| -               | ■               | ■                | 29.5kN<br>6600lbf                                    |  | -           | 0                           | 1.4%         | -        |   | ANSI versions of XTC. Xylem for Pacific NW region. Arbormax Gator/Flame unique to Baileys. | yalecordage.com |
| -               | ■               | ■                | 29.5kN<br>6600lbf                                    |  | -           | 0                           | 1.4%         | -        |   | ANSI versions of XTC. Arbormax Gator/Flame unique to Baileys.                              | yalecordage.com |
| -               | ■               | ■                | 29.5kN<br>6600lbf                                    |  | -           | 0                           | 1.4%         | -        |   | CE version of XTC Hedera, Poison Ivy, Poison Hivy, Neon Ivy discontinued                   | yalecordage.com |
| -               | ■               | ■                | 28kN<br>6200lbf                                      |  |             |                             | 2%           |          |   | CE =slightly more elongation than ANSI . Texturised surface makes feel larger              | yalecordage.com |
| ■               | -               | ■                | 36kN<br>7920lbf                                      | 40kN<br>8800lbf                                      |             |                             | 3%           |          |  | Scandere uses higher tenacity sheath   | yalecordage.com |
| -               | -               | ■                | 28kN<br>6200lbf                                      |  |             |                             | 1.4%         |          |  | Fire, Posoidon & Salamander around 10% dearer eg.€4.40                                     | yalecordage.com |
| -               | -               | ■                | 26.7kN<br>6000lbf<br>33kN<br>7400lbf                 |  |             |                             | 1.5%         |          |   | Single (hollow) braid with no core   | yalecordage.com |

**UPDATED** Sept '24

# ARBORIST 12-18mm 1/2-3/4" Braided/MultiPlait RIGGING/ LOWERING ROPES

Also known as Bull ropes. We haven't included traditional 3-strand laid ropes - there are just too many and they do not have the same strength, handling and durability of a braided or even multiplait rope but they are a lot cheaper due to simpler construction and lack of colour options. We have a separate guide to high tenacity winch lines which are super-static, many of which can be used for general rigging. We have tried to include entire size ranges of the 'coloured' ropes where possible which might be 5 or even 6 sizes in some cases. Where the number of sizes offered is much larger, which is often the case with the simpler, cheaper white and solid colour multi-plaits, we have limited entries to a maximum of four mid-range ropes that are the 4 commonest sizes offered by European manufacturers:

**12mm, 14mm 16mm and 18mm 1/2", 5/16" 5/8" and 3/4"**

this gives a reasonable comparison across all brands but we have also included a column to indicate the number and range of other ropes in each series or family of ropes.

Lowering rope or Bull rope is often distinguished from rigging ropes in the USA but are interchangeable terms in other countries so we have differentiated between three distinct 'rigging' activities in the tables. General 'rigging' and 'static lowering' require pretty much the same characteristics - low stretch and robust sheath whereas 'impact lowering' where the rope arrests a free-falling load, requires a greater degree of dynamic absorbency which can be achieved by the rope's own construction being more elastic or by judicious use of dynamic shock absorbency at the impact block and basal lowering devices - usually requiring a skilled ground crew:

- **CLIMBING** Some ropes can be used for both climbing and rigging and/or impact lowering **BUT only use for one or the other**, once a rope has been used for rigging and/or impact lowering it **SHOULD NOT BE USED** for CLIMBING. We have only listed climbing as a use if it is specifically listed as such by the manufacturer. Most rigging ropes are NOT PPE (for climbing).

- **STATIC RIGGING** 1) **ZIPLINES/Speedlines** very low stretch, where the branches and wood needs to be moved to a precise location away from the tree usually because of an obstruction or structure below or to make onward removal easier. **Most winch lines in our separate guide suit static rigging tasks.**

- 2) **Restraint or directional CONTROL** lines where no impact force is applied and low stretch is again an advantage because you are trying to stop the tree falling in a certain direction.

- **LOWERING** lowering of a static load where no impact force has been applied and in technical rope terms a fall factor 0 has been applied eg. the rope is rigged **and tensioned** above the load so that it only has to contend with stretch caused by the load itself, not shock or impact force of an arrested falling load. Lowering can impart high frictional loading around branches if cambium/friction savers are not used.

All three of these activities often utilise technical hardware which the gnarlier ropes don't run so smoothly through hence a circle for 'OK but not ideal' in some 'Rigging' columns in the tables.

- **IMPACT LOWERING /NEGATIVE RIGGING** where larger diameter

- rope (usually >16mm 5/8" rope)

is initially used as a fall arrest rope because the arrest point is below the cut rather than above it, typically when **sectioning down larger timber. The rope will be subjected to a shock load** as it arrests the weight of the falling timber. The amount of **shock imparted on the rope is determined by the length of rope available to arrest the falling section and the type of deviation hardware.** In climbing this is known as a fall factor

and is given as a fraction of 0, or between 0 and 2 where Fall Factor 2 is the worst case scenario and the highest figure you can 'achieve'. FFO is the usual situation in limb removal where the rope is anchored (or more usually deviated) above the limb and slack taken in so that when you cut the limb it doesn't actually 'fall' anywhere as much as 'stretch away' from the cut. It is always preferable to minimise the impact force, ie. make sure there is virtually no slack between the snatch block and the load but this is much more difficult when sectioning a trunk with no high directional anchor. Instead, the rope (if one is used at all) has to be anchored or deviated beneath the cut. In which case the section will fall a certain distance before being arrested and this will impart shock load. However, since most rigging has the section deviated through an impact or snatch block below the cut and controlled from ground level there is plenty of rope to help absorb the shock. The ground crew can also impart more absorbency by allowing a small amount of run (through gloved hands) before halting the fall of the load ie. dynamic braking.

Lowering ropes are often the poor relation to climbing ropes because they're generally less technical in construction and cheaper. But in fact many arb climbing ropes can be classed as 'utility' or multi-use and may be used as rigging OR climbing ropes, the *Beal Bonsai* and *All Gear's Forestry Pro* for instance. However, **the same rope should NEVER be used for both activities interchangeably.** Don't forget that virtually ALL static abseil ropes whether or not they are marketed to arborists will perform all rigging and static lowering jobs adequately but they will NOT take kindly to impact lowering where a degree of dynamic absorbency is preferable.

Many arborists will rightly treat their arb climbing rope like a fine piece of art taking ridiculous amounts of time to choose it, studying all the data and spec and other peoples reviews



until eventually buying some garishly coloured or conversely ultra camouflaged beauty that replaces your loved one on the comfy chair in front of the TV. But when it comes to rigging and lowering ropes it sometimes seems that any old rubbish will do, got an old climbing rope that you're not using anymore, excellent, I'll have that for lowering and rigging. But hold on there, if you're not happy that it's safe enough to climb on why would it be good enough for rigging? - the loads are much higher, the rope is working much harder and moving around and through tight jams a lot more and it gets thrown in the back of the truck with the wood chips and chainsaws while the pristine looking climbing rope sits up front and gets taken indoors to spend quality time with the family. It's not right is it.

Without wishing to bleat on too much, Dynamic or impact loading is the key thing to consider with rigging or lowering rope. Whenever you apply any load the rope will stretch to some degree and your rope remembers what you've done to it. Cast your mind back to when you first bought those chewing gum grey coloured underpants - they were firm and tight weren't they.

Now after a year or seven of use they're so loose you need a belt to keep them up unless, like me you've expanded your stomach to accommodate the slackening of elastic. Your rope is broadly similar, its elasticity will reduce with age and over-use so that at some point you'll drop a section of timber on it and it will simply snap. Don't forget that ALL loading will stretch the rope fibres. If your rope is more static in construction (more parallel fibres) it will be even less receptive to shock loading and may fail earlier than the equivalent cabled (spiraled) construction.

**ELONGATION.** Is measured differently in Europe to North America but we have tried to be consistent with elongation at 10% of MBL where possible. Otherwise it is difficult to compare. If the rope is too elastic, your load would hit the ground before its fall is arrested. Not elastic enough and it may simply snap. This useful description (box above) from *Yale Cordage* should make your brain hurt but set you on the right track. For lowering and rigging tasks like ziplines, if you exclude the ultra low-stretch Dyneema etc. winch ropes (covered in a later guide) the toughest ropes are often the biggest ropes and by biggest we mean fat. But it's not quite as simple as choosing a rope thick enough to moor the *Titanic* just because it's going to last the longest. You've got to be able to afford to buy it, have a truck big enough to carry it and the manpower at the job site

**Example 1** – We will use 5/8 diameter Yale Double Esterlon line rigged into a tree with a block in such a way that 25 ft. of line is required to arrest a 500 lb section of trunk falling 5 ft. From the Double Esterlon specification table and energy graph we will need its weight of 13.7 lbs/100 ft or .137 lbs/ft, its green working energy absorption maximum of 544 ft lb per lb of rope in use, and its maximum recommended working load of 3,400 lbs. First, we calculate the ft lbs of energy needed to arrest the 500 lb trunk section falling 5 ft. The simple equation of the weight multiplied by the fall will get the result within 1%, so.....

- 500 lb x 5 ft = 2,500 ft lbs.

Next, we calculate the lines energy absorption capacity for a 25 foot length

- 25 ft x 544 ft/lb x .137 lb/ft = 1863 ft lbs.

From these two calculations we can see that in this scenario the maximum recommended energy absorption is exceeded by 637 ft lbs or 34% (2500 ft lbs / 1863 ft lbs). We can also estimate the load reached in the line multiplying the maximum recommended working load by 1.34% or

- 3400 x 1.34 = 4,556 lbs.

To illustrate the importance of energy capacity of ropes we will take a look at using a high energy absorption line.

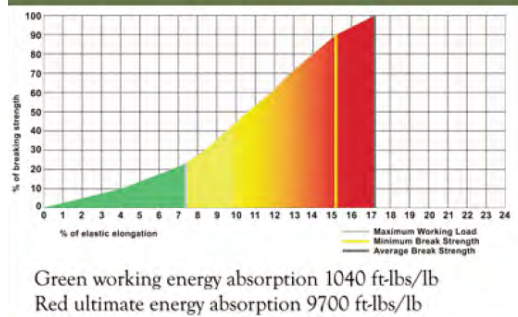
**Example 2** – We will substitute a 5/8 diameter Yale Polydyne. Same diameter, but very different energy capacity. Doing the same calculations with Polydyne's physicals we get the following:

- 500 lb x 5 ft. = 2,500 ft lbs, required

- 25 ft x 1040 ft/lb x .133 lb/ft = 3,458 ft lbs. capacity

In this case, we have reserve energy absorbing capacity of 958 ft lbs and the peak load in the line is estimated at:

- (2500/3458) x 3600 lbs = 2,602 lbs.



The more area in the stress strain graphs (green working and red ultimate) the higher the ropes ability to absorb dynamic loads.

## RIGGING ROPES

strong enough to move it to the tree. And then you've actually got to get it up the tree and weave it around all those fiddly crotches, pulleys and lowering devices. So maybe you're better off compromising some strength and girth for weight and flexibility. And if you're out of cash perhaps you will use that old climbing rope as a lowering rope after all but be really, really careful about how you use it and what size wood you load it with. Whatever else you skimp on, including the kid's education, don't skimp on that lowering rope. If it fails when you drop a big lump on it or are zip- lining a section over that conservatory you can kiss your insurance no-claims record and your reputation goodbye. And if you're really unlucky you may also need to deal with an injured colleague, customer, or worst still the customer's prize chihuahua. See, not worth skimping is it?

**ROPE DIAMETER:** Climbing ropes tend to be quite restrictive in range of diameters in order to facilitate easy handling and operation through dedicated pulleys and hardware. Around 11, 12 or 13mm (7/16"-1/2"). Rigging rope on the other hand can be anything from 5mm 3/16" to 64+mm 2 1/2". Most arborists choose a general rigging rope of moderate diameter - 12, 13 or 14mm (1/2"-9/16") and a 'biggun' they bring out for heavy jobs of around 18/19mm to 25mm (3/4"-1") give or take

a few mil or eighths. There is rigging and lowering hardware that is diameter- specific like snatch/Impact blocks/pulleys and Portawrap style lowering devices but they are far more forgiving of varying diameters than some of the technical climbing hardware. As for the true diameter of your rope, if there were some discrepancies between the manufacturers' description and what your ruler or calipers measures for climbing ropes, imagine what differences there will be in ropes ranging from 5mm to 64mm in diameter! Suffice to say that we can only quote the dimensions we're given but expect to find some half inch ropes (12.7mm) that are closer to 5/16" or even 5/8" (14 or 15mm) and expect this to enlarge over the age of the rope except for sections of rope that have been stretched to death. If your rope has sections that are thinner than when you bought it think about getting that moth-infested wallet out again.

**MATERIALS** for rigging ropes follow pretty much the same pattern as they do for climbing ropes with polyester as the dominant material. Polyester can withstand more abuse than nylon, resists acid better, has a slightly higher melting point (around 480° F or 249°C) and retains more strength when wet. Polyester dominates rigging ropes even though nylon has greater elasticity for the shock absorbency necessary for what we have called Impact lowering. **TREATED FIBRES** crops up with many of these ropes, normally as a surface



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coating that improves abrasion resistance (Marlow quote  $\leq 30\%$  improvement) and water resistance. Most indicate that they will last the lifetime of your rope but don't hold your breath. Modern treatments are far superior to the coatings we had in the early days but anything that gets abraded for a living is going to wear off sooner or later.

**HMPE** (AKA UHMWPE & HPPE) crops up as a core material - it stands for High Modulus Polyethylene and is a super-strong, super static material (like Dyneema) that we see most in winch line. There are several other dual constructions generally with a polyester sheath and a nylon core to give an abrasion resistant outer and a more elastic core.

**MBL** is Minimum Breaking Load (or MBS -Minimum Breaking Strength). For lowering ropes that are going to be subjected to shock loading, the units of force KiloNewtons (roughly 1kN to 100kg and LB-Force (same as LBs) are more appropriate but for ease of calculations you can still simply think of them in terms of kg or lbs of mass. Working Load Limit (WLL) is a more appropriate figure for lowering ropes than it is for climbing rope which should only ever be carrying a single bodyweight and associated equipment. Rigging and lowering ropes in contrast may be carrying anything from a light branch to a half ton section of timber (or more!) and when you also factor in impact force there is good reason to have a figure for the maximum (static) weight that can be put on the rope. This figure will be a percentage of the Minimum Breaking Load and this varies with industry and manufacturer. It is usually a ratio between 5 and-12:1 for industrial applications or between 10:1 and 15:1 for life support applications. The tree industry seems to have settled on around 7:1 for non-life support activities. We have given the companies' quoted **WLL** if it's available or 7:1 if one is not quoted but if in doubt - simply apply your company's own required safety ratio to the MBL (not to the ABL or Average which is often an artificially higher figure) and remember that for dynamic or impact loads you will need to do some more complex calculations as we discussed earlier to determine whether your rope will actually be able to take the load your putting on it. Static load is radically different to the peak load caused when arresting a falling load.

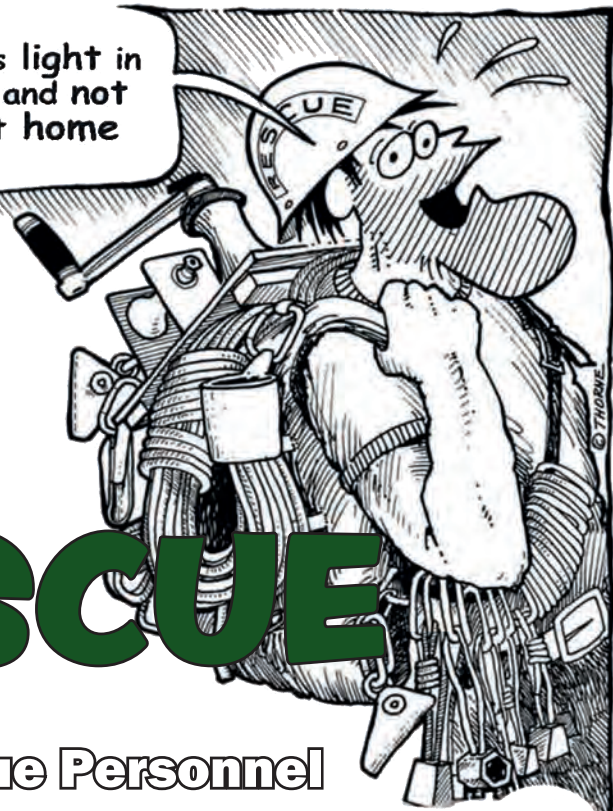
**COLOURS:** rigging ropes tend to colour coordinate diameters to colours rather than having multiple colours under the same diameter as we see in climbing ropes. Very few offer colour options beyond a specific colour for a specific diameter plus maybe white/no colour.

We haven't given a **FLEXIBILITY** figure this time because the quality of handling is not as essential for rigging as it is for climbing when smaller diameter ropes have to interface with equally smaller proportioned hardware, prusiks and climbing systems. That's not to say that you want an iron re-bar of a rope for rigging and lowering but proportionally speaking the larger diameter ropes have more than enough working flex and tend not to stiffen like some climbing ropes.

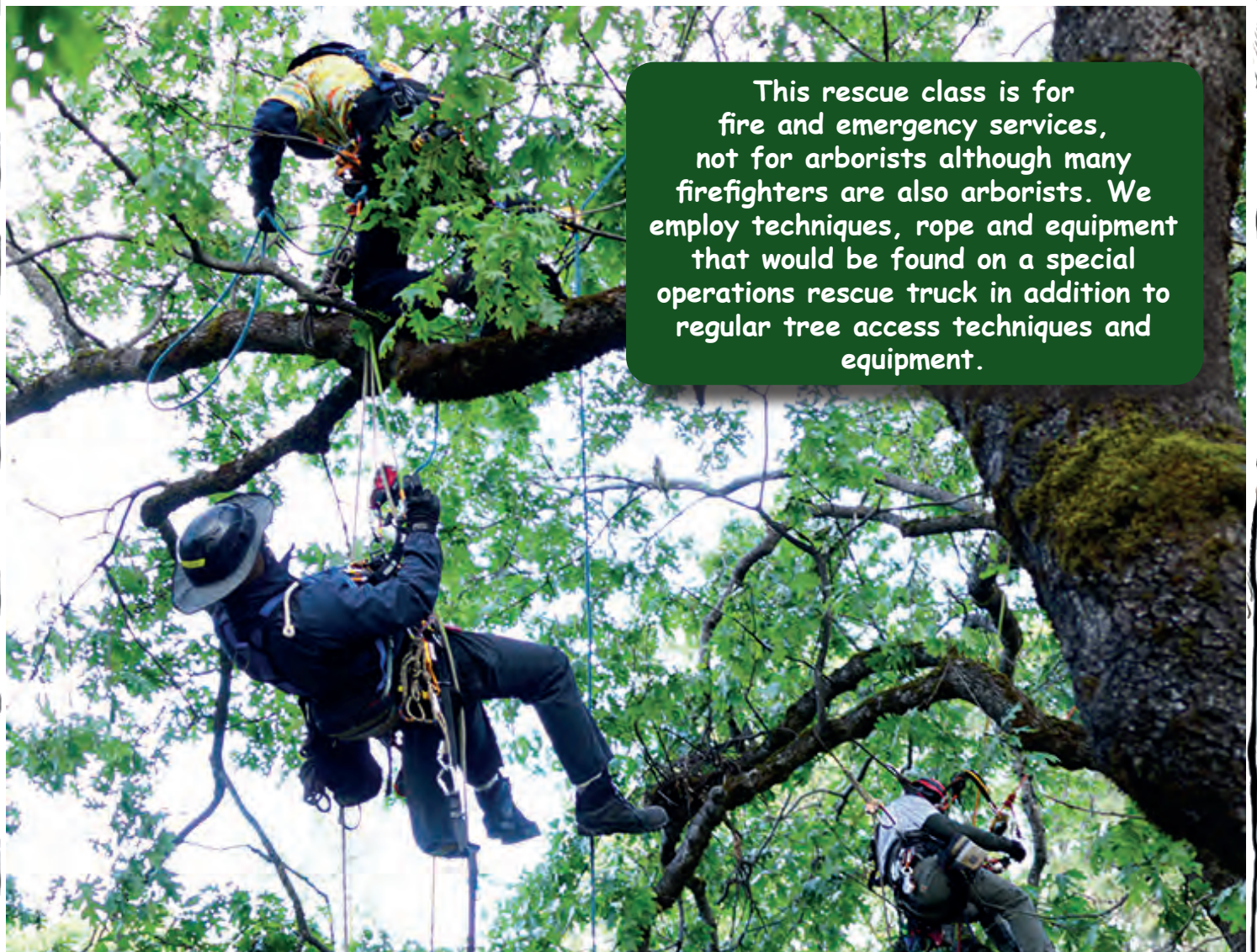
The **STANDARDS** column could have been omitted from this set of tables since rigging and lowering doesn't come under personal protective standards but there is the European Machinery Directive EU 2006/42/EC which does cover some rigging ropes but this is largely applied to crane and hoist ropes. Those arb climbing ropes which are utilitarian enough to be included here with a marker in the 'Climbing' column will meet EN1891 for life support rope.

# Ropes That **RESCUE** ©Ltd.

Knowledge is light in  
the rucksack and not  
easily left at home















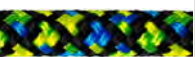





















## COMPREHENSIVE BOTTOM-UP **TREE RESCUE** workshops for Rescue Personnel



This rescue class is for fire and emergency services, not for arborists although many firefighters are also arborists. We employ techniques, rope and equipment that would be found on a special operations rescue truck in addition to regular tree access techniques and equipment.

[www.ropesthatrescue.com](http://www.ropesthatrescue.com)













Images NOT to Scale  
 ~ = Approximate  
 £\$€ = Currency Conversion  
 Cost exc eyes, inc VAT/Tax  
 DB=Double Braid,  
 KM=KernMantle/Single Braid  
 HB=Hollow Braid  
 DS=Double Strand  
 ☐=Option.  
 ●=OK but not ideal

|  | MODEL & Ø<br>VARIANT             | COMPANY  | ORIGIN  | COST<br>per Metre<br>/3.28ft<br>US\$ per Foot<br>Currency conversion only | Ø<br>mm<br>Inches" | Other<br>Ø<br>in series | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE |
|--|----------------------------------|----------|---|---|--------------------|-------------------------|--------------------------|------------------------------|
|    | Husky .5                         | ALLGEAR  |    | £3.10 \$3.70 \$1.15 €3.70   | 13mm<br>½"         | -                       | 127g<br>8.5lb            | Polyester<br>Nylon           |
|    | Husky I                          | ALLGEAR  |    | £4.00 \$4.60 \$1.45 €4.70   | 14mm<br>⅝"         | -                       | 164g<br>11lb             | Polyester<br>Nylon           |
|    | Husky II                         | ALLGEAR  |    | £5.00 \$5.20 \$1.65 €5.50   | 16mm<br>⅝"         | -                       | 209g<br>14lb             | Polyester<br>Nylon           |
|    | Husky III                        | ALLGEAR  |    | £6.00 \$6.55 \$2.00 €7.00   | 19mm<br>¾"         | -                       | 246g<br>16.5lb           | Polyester<br>Nylon           |
|    | Husky IV                         | ALLGEAR  |    | £8.50 \$10.40 \$3.20 €10.30   | 22mm<br>⅞"         | -                       | 395g<br>26.5lb           | Polyester<br>Nylon           |
|    | Husky V                          | ALLGEAR  |    | £9.75 \$11.60 \$3.60 €12.00   | 25mm<br>1"         | -                       | 574g<br>38.5lb           | Polyester<br>Nylon           |
|   | Husky Multi-Pro<br>Raging Blue   | ALLGEAR  |   | £3.60 \$4.50 \$1.40 €4.30   | 13mm<br>½"         | -                       | 127g<br>8.5lb            | Polyester<br>Nylon           |
|  | Husky Multi-Pro<br>Raging Red    | ALLGEAR  |  | £5.40 \$6.50 \$2.05 €6.30   | 16mm<br>⅝"         | -                       | 188g<br>12.6lb           | Polyester<br>Nylon           |
|  | Husky Multi-Pro<br>Raging Orange | ALLGEAR  |  | £6.55 \$8.50 \$2.65 €7.90   | 19mm<br>¾"         | -                       | 209g<br>14lb             | Polyester<br>Nylon           |
|  | Forestry Pro                     | ALLGEAR  |  | £2.90 \$3.60 \$1.10 €3.40   | 13mm<br>½"         | -                       | 87g<br>5.8lb             | Polyester<br>Polyester       |
|  | Forestry Pro                     | ALLGEAR  |  | £3.15 \$3.90 \$1.20 €3.70   | 16mm<br>⅝"         | -                       | 177g<br>11.85lb          | Polyester<br>Polyester       |
|  | Forestry Pro                     | ALLGEAR  |  | £4.70 \$5.85 \$1.80 €5.50   | 19mm<br>¾"         | -                       | 239g<br>16lb             | Polyester<br>Polyester       |
|  | Wonder Rope                      | ALLGEAR  |  | £2.60 \$3.25 \$1.00 €3.00   | 12.7<br>½"         | -                       | 91g<br>6.1lb             | Polyester<br>Polyester       |
|  | Wonder Rope                      | ALLGEAR  |  | £3.90 \$4.90 \$1.50 €4.55   | 16mm<br>⅝"         | -                       | 177g<br>11.9lb           | Polyester<br>Polyester       |
|  | PRO FORCE                        | ALL GEAR |  | £6.05 \$7.65 \$2.35 €7.10   | 13mm<br>½"         | -                       | 112g<br>7.5lb            | Polyester<br>HMPE            |
|  | PRO FORCE                        | ALL GEAR |  | £7.10 \$9.00 \$2.75 €8.35   | 14mm<br>⅝"         | -                       | 157g<br>10.5lb           | Polyester<br>HMPE            |
|  | PRO FORCE                        | ALL GEAR |  | £12.00 \$15.00 \$4.60 €14.00  | 16mm<br>⅝"         | -                       | 194g<br>13lb             | Polyester<br>HMPE            |

# ARBORIST RIGGING ROPES

| TYPE | SHEATH<br>BRAID /PLAIT | LIFE SUPPORT STAND-ARDS<br>(only for multi-role ropes) | HAND SPLICEABLE<br>PRE-SPICED<br>PRE-SEWN | SUITABLE FOR |          |              |                | MINIMUM/AVERAGE BREAKING LOAD/STRENGTH       |  |                                    | ELONGATION<br><br>@10% MBS<br>@30% MBS<br>@50% MBS<br>@300lb/1.36kg<br>@540 lbf/2.45kg | OTHER COLOURS | NOTES  | WWW.           |
|------|------------------------|--|---|--------------|----------|--------------|----------------|--|--|------------------------------------|--|---------------|--|----------------|
|      |                        |  |   | CLIMBING     | LOWERING | IMPACT LOWER | STATIC RIGGING | MBL<br>Minimum Break Load<br>Spliced<br>Sewn | ABL<br>Average Break Load<br>Spliced<br>Sewn | WLL<br>Spliced<br>Sewn<br>*Average |  |               |  |                |
| ■    | DB                     |  | ■ ■                                       | -            | ■        | ■            | ●              |  | 46.7kN<br>10500lbf                           | 2100lb<br>1890lb                   | 7%   |               |  | allgearinc.com |
| ■    | DB                     |  | ■ ■                                       | -            | ■        | ■            | ●              |  | 62.2kN<br>14000lbf                           | 2800lb<br>2520lb                   | 7%   |               |  | allgearinc.com |
| ■    | DB                     |  | ■ ■                                       | -            | ■        | ■            | ●              |  | 86kN<br>19500lbf                             | 3900lb<br>3510lb                   | 7%   |               |  | allgearinc.com |
| ■    | DB                     |  | ■ ■                                       | -            | ■        | ■            | ●              |  | 102kN<br>23000lbf                            | 4600lb<br>4140lb                   | 7%   |               |  | allgearinc.com |
| ■    | DB                     |  | ■ ■                                       | -            | ■        | ■            | ●              |  | 142kN<br>32000lbf                            | 6400lb<br>5760lb                   | 7%   |               |  | allgearinc.com |
| ■    | DB                     |  | ■ ■                                       | -            | ■        | ■            | ●              |  | 169kN<br>38000lbf                            | 7600lb<br>6840lb                   | 7%   |               |  | allgearinc.com |
| ■    | DB                     |  | ■ ■                                       | -            | ■        | ■            | ●              |  | 46kN<br>10500lbf                             | 2100lb<br>1890lb                   | 7%   |               |  | allgearinc.com |
| ■    | DB                     |  | ■ ■                                       | -            | ■        | ■            | ●              |  | 86kN<br>19500lbf                             | 3900lb<br>3510lb                   | 7%   |               |  | allgearinc.com |
| ■    | DB                     |  | ■ ■                                       | -            | ■        | ■            | ●              |  | 102kN<br>23000lbf                            | 4600lb<br>4140lb                   | 7%   |               |  | allgearinc.com |
| -    | 12 KM                  |  |   | ■            | ■        | ■            | ■              |  | 32kN<br>7300lbf                              |                                    |  |               | red/ylw version still sold by some stockists | allgearinc.com |
| -    | 12 KM                  |  |   | -            | ■        | ■            | ■              |  | 48kN<br>11000lbf                             |                                    |  |               |  | allgearinc.com |
| -    | 12 KM                  |  |   | -            | ■        | ■            | ■              |  | 80kN<br>18000lbf                             |                                    |  |               |  | allgearinc.com |
| ■    | 12 KM                  |  | ■   | -            | ■        | ■            | ■              |  | 32kN<br>7300lbf                              |                                    |  |               |  | allgearinc.com |
| ■    | 12 KM                  |  | ■   | -            | ■        | ■            | ■              |  | 48kN<br>11000lbf                             |                                    |  |               |  | allgearinc.com |
| ■    | DB                     |  | ■   | -            | ■        | -            | ■              |  | 82kN<br>18500lbf                             | 3700lb<br>3300lb                   | 0.5%<br>1%   |               |  | allgearinc.com |
| ■    | DB                     |  | ■   | -            | ■        | -            | ■              |  | 95kN<br>21500lbf                             | 4300lb<br>3870lb                   | 0.5%<br>1%   |               |  | allgearinc.com |
| ■    | DB                     |  | ■   | -            | ■        | -            | ■              |  | 137kN<br>31000lbf                            | 6200lb<br>5580lb                   | 0.5%<br>1%   |               |  | allgearinc.com |
|      |                        |  |   |              |          |              |                |  |  |                                    |  |               |  | expansion Row  |

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 DB=Double Braid,  
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 ☐=Option.  
 ●=OK but not ideal

|  | MODEL & Ø<br>VARIANT   | COMPANY         | ORIGIN  | COST<br>per Metre<br>/3.28ft<br>US\$ per Foot<br>Currency conversion only | Ø<br>mm<br>Inches" | Other<br>Ø<br>in series            | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE |
|--|------------------------|-----------------|---|---|--------------------|------------------------------------|--------------------------|------------------------------|
|    | Husky-12 Multi Pro 9.5 | ALL GEAR        |    | £5.70 \$7.20 \$2.20 €6.65   | 9.5mm<br>3/8"      | -                                  | 120g<br>8lb              | Polyester<br>-               |
|    | Husky-12 Multi Pro 13  | ALL GEAR        |    | £6.75 \$8.50 \$2.60 €7.80   | 13mm<br>1/2"       | -                                  | 120g<br>8lb              | Polyester<br>-               |
|    | Husky-12 Multi Pro 16  | ALL GEAR        |    | £8.40 \$10.60 \$3.25 €9.75  | 16mm<br>5/8"       | -                                  | 228g<br>15.3lb           | Polyester<br>-               |
|    | Husky-12 Multi Pro 19  | ALL GEAR        |    | £14.25 \$18.00 \$5.50 €17.00  | 19mm<br>3/4"       | -                                  | 249g<br>16.7lb           | Polyester<br>-               |
|    | Husky-12 Multi Pro 25  | ALL GEAR        |    | £29.00 \$37.00 \$11.40 €34.00   | 25mm<br>1"         | -                                  | 358g<br>24lb             | Polyester<br>-               |
|    | Husky-12 9.5           | ALL GEAR        |    | £2.30 \$2.95 \$0.90 €2.70   | 9.5mm<br>3/8"      | -                                  | 70g<br>4.7lb             | Polyester<br>-               |
|   | Husky-12 13            | ALL GEAR        |   | £3.00 \$3.70 \$1.15 €3.40   | 13mm<br>1/2"       | -                                  | 120g<br>8lb              | Polyester<br>-               |
|  | Husky-12 16            | ALL GEAR        |  | £4.40 \$5.50 \$1.70 €5.05   | 16mm<br>5/8"       | -                                  | 209g<br>14lb             | Polyester<br>-               |
|  | Husky-12 19            | ALL GEAR        |  | £5.75 \$7.00 \$2.15 €6.45   | 19mm<br>3/4"       | -                                  | 228g<br>15.3lb           | Polyester<br>-               |
|  | Husky-12 25            | ALL GEAR        |  | £7.10 \$9.00 \$2.75 €8.25   | 25mm<br>1"         | -                                  | 408g<br>27.3lb           | Polyester<br>-               |
|  | AB-Double (Barb) 13    | ATLANTIC BRAIDS |  | £2.85 \$3.60 \$1.10 €3.30   | 13mm<br>1/2"       | -                                  | 115g<br>8lb              | Polyester<br>Polyester       |
|  | AB-Double (Barb) 14    | ATLANTIC BRAIDS |  | £3.25 \$4.10 \$1.25 €3.75   | 14mm<br>9/16"      | -                                  | 155g<br>11lb             | Polyester<br>Polyester       |
|  | AB-Double (Barb) 16    | ATLANTIC BRAIDS |  | £3.50 \$4.40 \$1.35 €4.05   | 16mm<br>5/8"       | -                                  | 200g<br>13.5lb           | Polyester<br>Polyester       |
|  | AB-Double (Barb) 19    | ATLANTIC BRAIDS |  | £5.15 \$6.50 \$2.00 €6.00   | 19mm<br>3/4"       | -                                  | 260g<br>17.8lb           | Polyester<br>Polyester       |
|  | AB-Double (Barb) 22    | ATLANTIC BRAIDS |  | £7.75 \$9.80 \$3.00 €9.00   | 22mm<br>7/8"       | -                                  | 390g<br>26lb             | Polyester<br>Polyester       |
|  | AB-Double Nylon 13     | ATLANTIC BRAIDS |  | N/A   | 13mm<br>1/2"       | 18 sizes<br>6.5-64mm<br>1/4-2 1/2" | 97g<br>6.5lb             | Nylon<br>Nylon               |
|  | AB-Double Nylon 14     | ATLANTIC BRAIDS |  | N/A   | 14mm<br>9/16"      | 18 sizes<br>6.5-64mm<br>1/4-2 1/2" | 142g<br>9.5lb            | Nylon<br>Nylon               |
|  | AB-Double Nylon 16     | ATLANTIC BRAIDS |  | N/A   | 16mm<br>5/8"       | 18 sizes<br>6.5-64mm<br>1/4-2 1/2" | 180g<br>12lb             | Nylon<br>Nylon               |



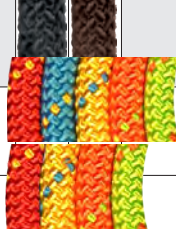
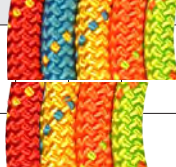

# ARBORIST RIGGING ROPES

| CONSTRUCTION | SHEATH / BRAID / PLAINT | LIFE SUPPORT STANDARDS (only for multi-role ropes) | HAND SPICEABLE PRE-SPICED PRE-SEWN | SUITABLE FOR |          |              | MINIMUM/AVERAGE BREAKING LOAD/STRENGTH |  |  | WLL<br>Spliced<br>Sewn<br>*Average | ELONGATION<br><br>@10% MBS<br>@30% MBS<br>@50% MBS<br>@300lbf/136kg<br>@540 lbf/245kg | OTHER COLOURS | NOTES                                   | WWW.                                    |                |
|--------------|-------------------------|--|------------------------------------|--------------|----------|--------------|--|--|--|------------------------------------|---|---------------|---|---|----------------|
|              |                         |  |                                    | CLIMBING     | LOWERING | IMPACT LOWER | STATIC RIGGING                         | MBL<br>Minimum Break Load<br>Spliced<br>Sewn | ABL<br>Average Break Load<br>Spliced<br>Sewn |                                    |   |               |   |   |                |
| ■            | 12 HB                   |  | ■ ■                                | -            | ■        | ■            | ■                                      |  | 26.7kN<br>6000lbf                            | -                                  | 4%  |               |   | allgearinc.com                          |                |
| ■            | 12 HB                   |  | ■ ■                                | -            | ■        | ■            | ■                                      |  | 49kN<br>11000lbf                             | -                                  | 4%  |               |   | allgearinc.com                          |                |
| ■            | 12 HB                   |  | ■ ■                                | -            | ■        | ■            | ■                                      |  | 71.2kN<br>16000lbf                           | -                                  | 4%  |               |   | allgearinc.com                          |                |
| ■            | 12 HB                   |  | ■ ■                                | -            | ■        | ■            | ■                                      |  | 93.4kN<br>21000lbf                           | -                                  | 4%  |               |   | allgearinc.com                          |                |
| ■            | 12 HB                   |  | ■ ■                                | -            | ■        | ■            | ■                                      |  | 142kN<br>32000lbf                            | -                                  | 4%  |               |   | allgearinc.com                          |                |
| ■            | 12 HB                   |  | ■                                  | -            | ■        | ■            | -                                      |  | 26.7kN<br>6000lbf                            | -                                  | 7%  |               | Used mainly for various types of slings | allgearinc.com                          |                |
| ■            | 12 HB                   |  | ■                                  | -            | ■        | ■            | -                                      |  | 49kN<br>11000lbf                             | -                                  | 7%  |               | Used mainly for various types of slings | allgearinc.com                          |                |
| ■            | 12 HB                   |  | ■                                  | -            | ■        | ■            | -                                      |  | 71kN<br>16000lbf                             | -                                  | 7%  |               | Used mainly for various types of slings | allgearinc.com                          |                |
| ■            | 12 HB                   |  | ■                                  | -            | ■        | ■            | -                                      |  | 93.4kN<br>21000lbf                           | -                                  | 7%  |               | Used mainly for various types of slings | allgearinc.com                          |                |
| ■            | 12 HB                   |  | ■                                  | -            | ■        | ■            | -                                      |  | 32.9kN<br>7399lbf                            | 178kN<br>40000lbf                  | -   | 7%            |   | Used mainly for various types of slings | allgearinc.com |
| □            | DB                      |  | ■                                  | -            | ■        | -            | ■                                      |  | 40.5kN<br>9095lbf                            | 47.6 kN<br>10700lbf                | -   |               |   | atlanticbraids.com                      |                |
| □            | DB                      |  | ■                                  | -            | ■        | -            | ■                                      |  | 50.3 kN<br>11300lbf                          | 59.2 kN<br>13300lbf                | -   |               |   | atlanticbraids.com                      |                |
| □            | DB                      |  | ■                                  | -            | ■        | -            | ■                                      |  | 70kN<br>15725lbf                             | 82.3kN<br>18500lbf                 | -   |               |   | atlanticbraids.com                      |                |
| □            | DB                      |  | ■                                  | -            | ■        | -            | ■                                      |  | 76.4kN<br>17170lbf                           | 89.9kN<br>20200lbf                 | -   |               |   | atlanticbraids.com                      |                |
| □            | DB                      |  | ■                                  | -            | ■        | -            | ■                                      |  | 109.3kN<br>24565lbf                          | 128.6kN<br>28900lbf                | -   |               |   | atlanticbraids.com                      |                |
| □            | DB                      |  | ■                                  | -            | ■        | ■            |  |  | 36.9kN<br>8300lbf                            | -                                  |   | Yellow fleck  | atlanticbraids.com                      |   |                |
| □            | DB                      |  | ■                                  | -            | ■        | ■            |  |  | 52kN<br>11700lbf                             | -                                  |   | Yellow fleck  | atlanticbraids.com                      |   |                |
| □            | DB                      |  | ■                                  | -            | ■        | ■            |  |  | 67.6kN<br>15200lbf                           | -                                  |   | Yellow fleck  | atlanticbraids.com                      |   |                |



















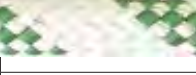

















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 ☐=Option.  
 ●=OK but not ideal

|  | MODEL & Ø<br>VARIANT | COMPANY           | ORIGIN | COST<br>per Metre<br>/3.28ft<br>US\$ per Foot<br>Currency conversion only | Ø<br>mm<br>Inches" | Other<br>Ø<br>in series       | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE |
|--|----------------------|-------------------|--------|---|--------------------|-------------------------------|--------------------------|------------------------------|
|  | AB-Double Nylon 19   | ATLANTIC BRAIDS   |        | N/A   | 19mm<br>¾"         | 18 sizes<br>6.5-64mm<br>¼-2½" | 202g<br>13.6lb           | Nylon<br>Nylon               |
|  | AB-Double Poly 13    | ATLANTIC BRAIDS   |        | N/A   | 13mm<br>½"         | 19 sizes<br>5-64mm<br>¼-2½"   | 128g<br>8.6lb            | Polyester<br>Polyester       |
|  | AB-Double Poly 14    | ATLANTIC BRAIDS   |        | N/A   | 14mm<br>⅞"         | 19 sizes<br>5-64mm<br>¼-2½"   | 155g<br>11lb             | Polyester<br>Polyester       |
|  | AB-Double Poly 16    | ATLANTIC BRAIDS   |        | N/A   | 16mm<br>⅝"         | 19 sizes<br>5-64mm<br>¼-2½"   | 207g<br>13.9lb           | Polyester<br>Polyester       |
|  | AB-Double Poly 19    | ATLANTIC BRAIDS   |        | N/A   | 19mm<br>¾"         | 19 sizes<br>5-64mm<br>¼-2½"   | 260g<br>17.8lb           | Polyester<br>Polyester       |
|  | Bonsai 13<br>BCSE13  | BEAL              |        | £3.95 \$5.20 \$1.60 €4.70   | 13mm<br>½"         | -                             | 98g<br>6.6lb             | Nylon<br>Nylon               |
|  | BWII+ 13             | BLUEWATER ROPES   |        | £3.95 \$4.85 \$1.50 €4.55   | 13mm<br>½"         | 5 sizes<br>8-13mm<br>⅜-½"     | 124g<br>9.1lb            | Polyester<br>Nylon           |
|  | Safeline 12.5        | BLUEWATER ROPES   |        | £4.45 \$5.45 \$1.70 €5.15   | 12.5mm<br>½"       | 4 sizes<br>9-15.5mm<br>⅜-⅝"   | 108g<br>8.2lb            | Polyester<br>Nylon           |
|  | Safeline 15.5        | BLUEWATER ROPES   |        | £6.25 \$7.70 \$2.45 €7.25   | 15.5mm<br>⅝"       | 4 sizes<br>9-15.5mm<br>⅜-⅝"   | 164g<br>12.02lb          | Polyester<br>Nylon           |
|  | Power Pull 12        | BUCCANEER ROPE CO |        | n/a   | 12mm<br>½"         | -                             | 119g<br>8lb              | Polyester<br>Polyester       |
|  | Power Pull 14        | BUCCANEER ROPE CO |        | £3.15 \$4.00 \$1.25 €3.65   | 14mm<br>⅞"         | -                             | 157g<br>10.5lb           | Polyester<br>Polyester       |
|  | Power Pull 16        | BUCCANEER ROPE CO |        | £3.95 \$5.00 \$1.55 €4.50   | 16mm<br>⅝"         | -                             | 201g<br>13.5lb           | Polyester<br>Polyester       |
|  | Power Pull 18        | BUCCANEER ROPE CO |        | n/a   | 18mm<br>¾"         | -                             | 276g<br>18.5lb           | Polyester<br>Polyester       |
|  | Tiger 12             | BUCCANEER ROPE CO |        | n/a   | 12mm<br>½"         | 8 sizes<br>6-25mm<br>¼-1"     | 119g<br>8lb              | Polyester<br>Polyester       |
|  | Tiger 14             | BUCCANEER ROPE CO |        | n/a   | 14mm<br>⅞"         | 8 sizes<br>6-25mm<br>¼-1"     | 151g<br>10.1lb           | Polyester<br>Polyester       |
|  | Tiger 16             | BUCCANEER ROPE CO |        | n/a   | 16mm<br>⅝"         | 8 sizes<br>6-25mm<br>¼-1"     | 188g<br>12.6lb           | Polyester<br>Polyester       |
|  | Tiger 18             | BUCCANEER ROPE CO |        | n/a   | 18mm<br>¾"         | 8 sizes<br>6-25mm<br>¼-1"     | 268g<br>18lb             | Polyester<br>Polyester       |

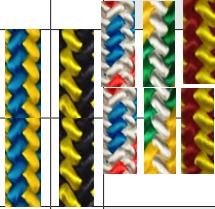

# ARBORIST RIGGING ROPES

| ION | TREATED FIBRES<br>BONDED SHEATH | SHEATH<br>BRAID /PLAIT       | LIFE SUPPORT STAND-<br>ARDS<br>(only for multi-role<br>ropes) | HAND SPICEABLE<br>PRE-SEWN | SUITABLE FOR |          |              |                | MINIMUM/AVERAGE BREAKING LOAD/STRENGTH          |   |                                    | ELONGATION  |  | OTHER<br>COLOURS  | NOTES              | WWW. |
|-----|---------------------------------|------------------------------|---|----------------------------|--------------|----------|--------------|----------------|---|---|------------------------------------|---|--|---|--------------------|------|
|     |                                 |                              |   |                            | CLIMBING     | LOWERING | IMPACT LOWER | STATIC RIGGING | MBL<br>Minimum<br>Break Load<br>Spliced<br>Sewn | ABL<br>Average<br>Break Load<br>Spliced<br>Sewn | WLL<br>Spliced<br>Sewn<br>*Average | @10% MBS<br>@30% MBS<br>@50% MBS<br>@300lbf/136kg<br>@540 lbf/245kg |  |   |                    |      |
| □   | DB                              |                              | ■   | ■                          | -            | ■        | ■            | -              |   | 101.8kN<br>22890lbf                             | -                                  |   |  | Yellow fleck  | atlanticbraids.com |      |
| □   | DB                              |                              | ■   | ■                          | -            | ■        | ■            | ■              | 44kN<br>10000lbf                                | 52kN<br>11750lbf                                | -                                  |   |  | Green fleck   | atlanticbraids.com |      |
| □   | DB                              |                              | ■   | ■                          | -            | ■        | ■            | ■              |   | 59kN<br>13293lbf                                | -                                  |   |  | Green fleck   | atlanticbraids.com |      |
| □   | DB                              |                              | ■   | ■                          | -            | ■        | ■            | ■              | 69kN<br>15725lbf                                | 82kN<br>18500lbf                                |                                    |   |  | Green fleck   | atlanticbraids.com |      |
| □   | DB                              |                              | ■   | ■                          | -            | ■        | ■            | ■              | 76kN<br>17170lbf                                | 89kN<br>20200lbf                                |                                    |   |  | Green fleck   | atlanticbraids.com |      |
|     | KM                              | CE-A                         | ■   | ■                          | ■            | ■        | ■            | ■              | 34kN<br>6743lbf                                 |   | 25kN<br>5620lbf                    | 4.2%  |  |   | beal-planet.com    |      |
|     | 32<br>KM                        | CE A<br>NFPA                 | ■   | ●                          | ■            | -        | ■            | ■              | 44.4kN<br>9983lbf                               |   |                                    | 3.9%  |   |   | bluewaterropes.com |      |
|     | 16<br>KM                        | CE A<br>NFPA<br>ANSI<br>UIAA | ■   | ●                          | ■            | -        | ■            | ■              | 44.4kN<br>9983lbf                               |   |                                    | 2.2%  |  | White rope is<br>slightly cheaper   | bluewaterropes.com |      |
|     | 16<br>KM                        | NFPA                         | ■   | ●                          | ■            | -        | ■            | ■              | 58.9kN<br>13237lbf                              |   |                                    | 1.6%  |  |   | bluewaterropes.com |      |
| ■   | DB                              |                              | ■   | ■                          | ●            | ■        | ■            | ■              | -   | 43.6kN<br>9800lbf                               |                                    |   |  |   | bucrope.com        |      |
| ■   | DB                              |                              | ■   | ■                          | ●            | ■        | ■            | ■              | -   | 57.8kN<br>13000lbf                              |                                    |   |  |   | bucrope.com        |      |
| ■   | DB                              |                              | ■   | ■                          | ●            | ■        | ■            | ■              | -   | 73.8kN<br>16600lbf                              |                                    |   |  |   | bucrope.com        |      |
| ■   | DB                              |                              | ■   | ■                          | ●            | ■        | ■            | ■              | -   | 82.3kN<br>18500lbf                              |                                    |   |  |   | bucrope.com        |      |
|     |                                 |                              | ■   | ■                          | ■            | ■        | ■            | ■              | -   | 44.5kN<br>10000lbf                              |                                    |   |  |   | bucrope.com        |      |
|     |                                 |                              | ■   | ■                          | ■            | ■        | ■            | ■              | -   | 66.7kN<br>15000lbf                              |                                    |   |  | very difficult to<br>find any Buccaneer<br>ropes. stocked by<br>very few arb stores | bucrope.com        |      |
|     |                                 |                              | ■   | ■                          | ■            | ■        | ■            | ■              | -   | 80kN<br>18000lbf                                |                                    |   |  |   | bucrope.com        |      |
|     |                                 | CE                           | ■   | ■                          | ■            | ■        | ■            | ■              | -   | 106.7kN<br>24000lbf                             |                                    |   |  |   | bucrope.com        |      |

Images NOT to Scale  
 ~ = Approximate  
 £\$€ = Currency Conversion  
 Cost exc eyes, inc VAT/Tax  
 DB=Double Braid,  
 KM=KernMantle/Single Braid  
 HB=Hollow Braid  
 DS=Double Strand  
 ☐=Option.  
 ●=OK but not ideal

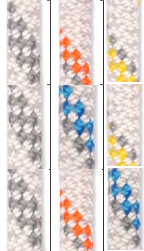
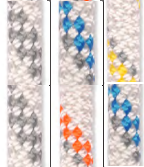
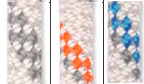
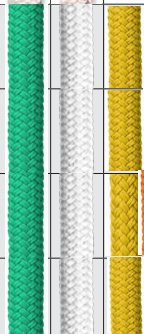
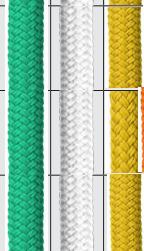
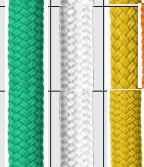
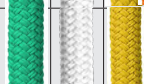



|  |                                |                   |   |                           |                         |                                |                              | CONSTRUCT              |
|--|--------------------------------|-------------------|---|---------------------------|-------------------------|--------------------------------|------------------------------|------------------------|
| MODEL & Ø<br>VARIANT   | COMPANY                        | ORIGIN            | COST<br>per Metre<br>/3.28ft<br>US\$ per Foot<br>Currency conversion only           | Ø<br>mm<br>Inches"        | Other<br>Ø<br>in series | WEIGHT<br>g/m<br>lb/100'       | MATERIALS:<br>SHEATH<br>CORE |                        |
|    | Tiger Plus 12                  | BUCCANEER ROPE CO |    | n/a                       | 12mm<br>½"              | 10 sizes<br>6-30mm<br>¼-1¼"    | 119g<br>8lb                  | Polyester<br>HMPE      |
|    | Tiger Plus 14                  | BUCCANEER ROPE CO |    | n/a                       | 14mm<br>⅝"              | 10 sizes<br>6-30mm<br>¼-1¼"    | 151g<br>10.1lb               | Polyester<br>HMPE      |
|    | Tiger Plus 16                  | BUCCANEER ROPE CO |    | n/a                       | 16mm<br>⅝"              | 10 sizes<br>6-30mm<br>¼-1¼"    | 188g<br>12.6lb               | Polyester<br>HMPE      |
|    | Tiger Plus 18                  | BUCCANEER ROPE CO |    | n/a                       | 18mm<br>¾"              | 10 sizes<br>6-30mm<br>¼-1¼"    | 268g<br>18lb                 | Polyester<br>HMPE      |
|    | Arbor Boss 16 12               | BUCCANEER ROPE CO |    | £2.00 \$2.50 \$0.75 €2.30 | 12mm<br>½"              | -                              | 112g<br>7.5lb                | Polyester<br>Polyester |
|    | Arbor Boss 16 16               | BUCCANEER ROPE CO |    | n/a                       | 16mm<br>⅝"              | -                              | 161g<br>10.8lb               | Polyester<br>Polyester |
|   | Bulwark SafetyX<br>Semi-Static | COASTLINE CORDAGE |   | n/a                       | 12.5mm<br>½"            | 4 sizes<br>8- 12.5mm<br>⅜-½"   | 98g<br>6.7lb                 | Polyester<br>Nylon     |
|  | Bulwark SafetyX<br>Static      | COASTLINE CORDAGE |  | n/a                       | 12.5mm<br>½"            | 3 sizes<br>9.5- 12.5mm<br>⅜-½" | 112g<br>6.6lb                | Polyester<br>Polyester |
|  | Cortex 12<br>790               | COUSIN-TRETEC     |  | £2.95 \$3.55 \$1.10 €3.30 | 12mm<br>½"              | -                              | 108g<br>7.2lb                | Polyester<br>Polyester |
|  | Cortex 14<br>790               | COUSIN-TRETEC     |  | £3.40 \$4.10 \$1.30 €3.80 | 14mm<br>⅝"              | -                              | 154g<br>10.3lb               | Polyester<br>Polyester |
|  | Cortex 16<br>790               | COUSIN-TRETEC     |  | £3.75 \$4.70 \$1.50 €4.30 | 16mm<br>⅝"              | -                              | 202g<br>13.5lb               | Polyester<br>Polyester |
|  | Lowering BraidLine 12          | COUSIN-TRETEC     |  | £3.30 \$4.10 \$1.30 €3.80 | 12mm<br>½"              | 14 sizes<br>6-32mm<br>¼ -1 ¼"  | 105g<br>7lb                  | Polyester<br>Polyester |
|  | Lowering BraidLine 14          | COUSIN-TRETEC     |  | £4.35 \$5.40 \$1.65 €5.00 | 14mm<br>⅝"              | 14 sizes<br>6-32mm<br>¼ -1 ¼"  | 136g<br>9.1lb                | Polyester<br>Polyester |
|  | Lowering BraidLine 16          | COUSIN-TRETEC     |  | £5.50 \$6.80 \$2.10 €6.30 | 16mm<br>⅝"              | 14 sizes<br>6-32mm<br>¼ -1 ¼"  | 178g<br>11.9lb               | Polyester<br>Polyester |
|  | Lowering BraidLine 18          | COUSIN-TRETEC     |  | £6.90 \$9.00 \$2.80 €8.00 | 18mm<br>¾"              | 14 sizes<br>6-32mm<br>¼ -1 ¼"  | 237g<br>15.9lb               | Polyester<br>Polyester |
|  | Maona 12                       | COURANT           |  | £2.10 \$2.50 \$0.76 €2.20 | 12mm<br>½"              | -                              | 112g<br>7.5lb                | Polyester<br>Polyester |
|  | Maona 14                       | COURANT           |  | £2.45 \$3.30 \$1.00 €3.00 | 14mm<br>⅝"              | -                              | 149g<br>10lb                 | Polyester<br>Polyester |
|  | Maona 16                       | COURANT           |  | £2.70 \$3.75 \$1.15 €3.25 | 16mm<br>⅝"              | -                              | 184g<br>12.3lb               | Polyester<br>Polyester |

# ARBORIST RIGGING ROPES





| CONSTRUCTION | SHEATH<br>BRAID /PLAIT | LIFE SUPPORT STANDARDS (only for multi-role ropes) | HAND SPLICEABLE<br>PRE-SPICED<br>PRE-SEWN | SUITABLE FOR |          |              |                | MINIMUM/AVERAGE BREAKING LOAD/STRENGTH       |  |                                    | ELONGATION<br><br>@10% MBS<br>@30% MBS<br>@50% MBS<br>@300lbf/136kg<br>@540 lbf/245kg | OTHER COLOURS  | NOTES  | WWW.               |
|--------------|------------------------|--|---|--------------|----------|--------------|----------------|--|--|------------------------------------|---|--|--|--------------------|
|              |                        |  |   | CLIMBING     | LOWERING | IMPACT LOWER | STATIC RIGGING | MBL<br>Minimum Break Load<br>Spliced<br>Sewn | ABL<br>Average Break Load<br>Spliced<br>Sewn | WLL<br>Spliced<br>Sewn<br>*Average |   |  |  |                    |
|              | ?                      |  | ■   | -            | ■        | -            | ■              | 36.5kN<br>8205lbf                            | 85.4kN<br>19200lbf                           |                                    |   |  |  | bucrope.com        |
|              | ?                      |  | ■   | -            | ■        | -            | ■              | 47kN<br>10566lbf                             |  |                                    |   |  | very difficult to find any Buccaneer ropes. stocked by very few arb stores | bucrope.com        |
|              | ?                      |  | ■   | -            | ■        | -            | ■              | 59kN<br>13263lbf                             | 149.5kN<br>33600lbf                          |                                    |   |  |  | bucrope.com        |
|              | ?                      |  | ■   | -            | ■        | -            | ■              | ?  | 195.7kN<br>44000lbf                          |                                    |   |  |  | bucrope.com        |
|              | 16 DB                  |  | -   | ■            | ●        | ●            | ●              |  | 31.1kN<br>7000lbf                            |                                    |   |    |  | bucrope.com        |
|              | 16 DB                  |  | -   | ●            | ■        | ■            | ●              |  | 44.5kN<br>10000lbf                           |                                    |   |  |  | bucrope.com        |
|              | 32 KM                  | NFPA   | -   | ●            | ■        | ●            | ■              | 22kN<br>4956lbf                              |  | 7.7kN<br>1724lbf                   | 2%  |  |  | coastlinegroup.ca  |
|              | 32 KM                  | NFPA   | -   | ●            | ■        | -            | ■              | 44kN<br>9862lbf                              |  |                                    | 1.8%  |  |  | coastlinegroup.ca  |
|              | 32 KM                  |  | -   | ●            | ■        | -            | ■              | 36.5kN<br>8205lbf                            |  |                                    |   |  |  | cousin-trestec.com |
|              | 32 KM                  |  | -   | ●            | ■        | -            | ■              | 47kN<br>10566lbf                             |  |                                    |   |  |  | cousin-trestec.com |
|              | 32 KM                  |  | -   | ●            | ■        | -            | ■              | 59kN<br>13263lbf                             |  |                                    |   |  |  | cousin-trestec.com |
|              | 16 DB                  |  | ■   | ●            | ■        | ■            | ●              | 29kN<br>6519lbf                              |  |                                    |   |  |  | cousin-trestec.com |
|              | 16 DB                  |  | ■   | ●            | ■        | ■            | ●              | 44kN<br>9891lbf                              |  |                                    |   |  |  | cousin-trestec.com |
|              | 16 DB                  |  | ■   | ●            | ■        | ■            | ●              | 59kN<br>13263lbf                             |  |                                    |   |  |  | cousin-trestec.com |
|              | 16 DB                  |  | ■   | ●            | ■        | ■            | ●              | 78kN<br>17535lbf                             |  |                                    |   |  |  | cousin-trestec.com |
|              | 24 DB                  |  | ■   | -            | ■        | ■            | ■              | 37/40kN<br>8300/<br>8999lbf                  |  | 5.7kN<br>1281lbf                   |   |  |  | mycourant.com      |
|              | 24 DB                  |  | ■   | -            | ■        | ■            | ■              | 48/52kN<br>10800/<br>11700lbf                |  | 7.4kN<br>1660lbf                   |   |  |  | mycourant.com      |
|              | 24 DB                  |  | ■   | -            | ■        | ■            | ■              | 62/68kN<br>14000/<br>152000lbf               |  | 9.85kN<br>2201lbf                  |   |  |  | mycourant.com      |

| Images NOT to Scale<br>~ = Approximate   | MODEL & Ø<br>VARIANT         | COMPANY           | ORIGIN  | COST<br>per Metre<br>/3.28ft<br>US\$ per Foot<br>Currency conversion only | Ø<br>mm<br>Inches" | Other<br>Ø<br>in series        | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE |
|--|------------------------------|-------------------|---|---|--------------------|--------------------------------|--------------------------|------------------------------|
|    | AKA 12<br>MHD..ABC...        | COURANT           |    | £2.10 \$2.50 \$0.76 €2.20   | 12mm<br>½"         | -                              | 126g<br>8.44lb           | Polyester<br>Polyester       |
|    | AKA 14<br>MXD..ALC...        | COURANT           |    | £2.10 \$2.50 \$0.76 €2.20   | 12mm<br>½"         | -                              | 162g<br>10.85lb          | Polyester<br>Polyester       |
|    | AKA 16<br>MYD..ACC...        | COURANT           |    | £2.10 \$2.50 \$0.76 €2.20   | 12mm<br>½"         | -                              | 192g<br>12.8lb           | Polyester<br>Polyester       |
|    | AKA 18<br>MZD..AGC...        | COURANT           |    | £2.10 \$2.50 \$0.76 €2.20   | 12mm<br>½"         | -                              | 232g<br>15.5lb           | Polyester<br>Polyester       |
|  | SLR StableBraid 12           | DONAGHYS          |    | £000 \$000 \$000 €000   | 12mm<br>½"         | -                              | 122g<br>8.2lb            | Polyester<br>Polyester       |
|  | SLR StableBraid 14           | DONAGHYS          |    | £000 \$000 \$000 €000   | 14mm<br>⅝"         | -                              | 164g<br>11lb             | Polyester<br>Polyester       |
|  | SLR StableBraid 16           | DONAGHYS          |    | £000 \$000 \$000 €000   | 16mm<br>⅝"         | -                              | 208g<br>13.95lb          | Polyester<br>Polyester       |
|  | Rhino 14<br>(Yachtmaster XS) | DONAGHYS          |   | £000 \$000 \$000 €2.46  | 14mm<br>⅝"         | -                              | ~150g<br>~10lb           | Polyester<br>Polyester       |
|  | Rhino 16<br>(Yachtmaster XS) | DONAGHYS          |  | £000 \$000 \$000 €2.95  | 16mm<br>⅝"         | -                              | 0g<br>0lb                | Polyester<br>Polyester       |
|  | Euro Rig 12                  | ENGLISH<br>BRAIDS |  | £000 \$000 \$000 €000   | 12mm<br>½"         | -                              | 0g<br>0lb                | Polyester<br>Polyester       |
|  | Euro Rig 14                  | ENGLISH<br>BRAIDS |  | £000 \$000 \$000 €000   | 14mm<br>⅝"         | -                              | 0g<br>0lb                | Polyester<br>Polyester       |
|  | Euro Rig 16                  | ENGLISH<br>BRAIDS |  | £000 \$000 \$000 €000   | 16mm<br>⅝"         | -                              | 0g<br>0lb                | Polyester<br>Polyester       |
|  | Rig Tex 24 12                | ENGLISH<br>BRAIDS |  | £4.80 \$5.00 \$1.55 €4.70   | 12mm<br>½"         | 7 sizes<br>10 - 24mm<br>⅜ - ⅞" | 117g<br>7.8lb            | Polyester<br>Polyester       |
|  | Rig Tex 24 14                | ENGLISH<br>BRAIDS |  | £5.60 \$6.90 \$2.20 €6.50   | 14mm<br>⅝"         | 7 sizes<br>10 - 24mm<br>⅜ - ⅞" | 156g<br>10.5lb           | Polyester<br>Polyester       |
|  | Rig Tex 24 16                | ENGLISH<br>BRAIDS |  | £7.15 \$8.85 \$2.80 €8.30   | 16mm<br>⅝"         | 7 sizes<br>10 - 24mm<br>⅜ - ⅞" | 195g<br>13lb             | Polyester<br>Polyester       |
|  | Rig Tex 24 18                | ENGLISH<br>BRAIDS |  | £000 \$000 \$000 €000   | 18mm<br>¾"         | 7 sizes<br>10 - 24mm<br>⅜ - ⅞" | 234g<br>15.7lb           | Polyester<br>Polyester       |
|  | Rig Tex 12 12                | ENGLISH<br>BRAIDS |  | £000 \$000 \$000 €000   | 12mm<br>½"         | -                              | 0g<br>0lb                | Polyester<br>-               |
|  | Rig Tex 12 14                | ENGLISH<br>BRAIDS |  | £000 \$000 \$000 €000   | 16mm<br>⅝"         | -                              | 0g<br>0lb                | Polyester<br>-               |
|  | Rig Tex 12 16                | ENGLISH<br>BRAIDS |  | £000 \$000 \$000 €000   | 20mm<br>¾"         | -                              | 0g<br>0lb                | Polyester<br>-               |

# ARBORIST RIGGING ROPES

| CONSTRUCTION | SHEATH BRAID / PLAIT | LIFE SUPPORT STANDARDS (only for multi-role ropes) | HAND SPLICEABLE PRE-SEWN | SUITABLE FOR |          |              | MINIMUM/AVERAGE BREAKING LOAD/STRENGTH |                                     |                                     | ELONGATION        | OTHER COLOURS  | NOTES      | WWW.              |
|--------------|----------------------|--|--------------------------|--------------|----------|--------------|--|-------------------------------------|-------------------------------------|-------------------|--|------------|-------------------|
|              |                      |  |                          | CLIMBING     | LOWERING | IMPACT LOWER | STATIC RIGGING                         | MBL Minimum Break Load Spliced Sewn | ABL Average Break Load Spliced Sewn |                   |  |            |                   |
|              | 24 DB                |  | ■                        | -            | ■        | ■            | ■                                      | 35/38kN<br>7868/<br>8542lbf         |                                     | 5.4kN<br>1213lbf  |  | Sheath=54% | mycourant.com     |
|              | 24 DB                |  | ■                        | -            | ■        | ■            | ■                                      | 45/48kN<br>10116/<br>10790lbf       |                                     | 6.85kN<br>1539lbf |  | Sheath=54% | mycourant.com     |
|              | 24 DB                |  | ■                        | -            | ■        | ■            | ■                                      | 55/58kN<br>12364/<br>3038lbf        |                                     | 8.28kN<br>1861lbf |  | Sheath=49% | mycourant.com     |
|              | 24 DB                |  | ■                        | -            | ■        | ■            | ■                                      | 65/68kN<br>14612/<br>15287lbf       |                                     | 9.71kN<br>2182lbf |  | Sheath=46% | mycourant.com     |
|              | - DB                 |  |                          | -            | ■        | ●            | ■                                      | 35kN<br>7866lbf                     |                                     |                   |  |            | donaghys.com      |
|              | - DB                 |  |                          | -            | ■        | ●            | ■                                      | 44.2kN<br>9936lbf                   |                                     |                   |  |            | donaghys.com      |
|              | - DB                 |  |                          | -            | ■        | ●            | ■                                      | 55kN<br>12300lbf                    |                                     |                   |  |            | donaghys.com      |
|              | 24 DB                |  | ■                        | -            | ■        | -            | ■                                      | -                                   | 41.2kN<br>9259lbf                   |                   |  |            | donaghys.com      |
|              | 24 DB                |  | ■                        | -            | ■        | -            | ■                                      | -                                   | 61.78kN<br>9259lbf                  |                   |  |            | donaghys.com      |
|              | 32 KM                |  |                          | -            | ■        | ■            | ■                                      | 40.2kN<br>9040lbf                   | 36.3kN<br>8100lbf                   | 2.4%              |  |            | englishbraids.com |
|              | 32 KM                |  |                          | -            | ■        | ■            | ■                                      | 48.5kN<br>10900lbf                  | 43.7kN<br>9800lbf                   | 2.4%              |  |            | englishbraids.com |
|              | 32 KM                |  |                          | -            | ■        | ■            | ■                                      | 55.9kN<br>12560lbf                  | 49.8kN<br>11100lbf                  | 2.4%              |  |            | englishbraids.com |
|              | 24 DB                | CE   |                          | -            | ■        | ■            | ●                                      | 43kN<br>9666lbf                     |                                     | 5%                |  |            | englishbraids.com |
|              | 24 DB                | CE   |                          | -            | ■        | ■            | ●                                      | 60kN<br>13488lbf                    |                                     | 5%                |  |            | englishbraids.com |
|              | 24 DB                | CE   |                          | -            | ■        | ■            | ●                                      | 72.5kN<br>16298kN                   |                                     | 5%                |  |            | englishbraids.com |
|              | 24 DB                | CE   |                          | -            | ■        | ■            | ●                                      | 75kN<br>16860kN                     |                                     | 5%                |  |            | englishbraids.com |
| ■            | 12 HB                | CE   |                          | -            | ■        | ■            | ●                                      |                                     |                                     |                   |  |            | englishbraids.com |
| ■            | 12 HB                | CE   |                          | -            | ■        | ■            | ●                                      |                                     |                                     |                   |  |            | englishbraids.com |
| ■            | 12 HB                | CE   |                          | -            | ■        | ■            | ●                                      |                                     |                                     |                   |  |            | englishbraids.com |

Images NOT to Scale  
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 Cost exc eyes, inc VAT/Tax  
 DB=Double Braid,  
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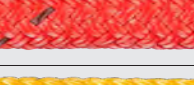



















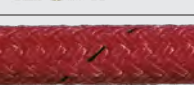

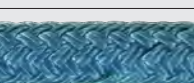



|  | MODEL & Ø<br>VARIANT  | COMPANY   | ORIGIN  | COST<br>per Metre<br>/3.28ft<br>US\$ per Foot<br>Currency conversion only | Ø<br>mm<br>Inches" | Other<br>Ø<br>in series | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE |
|--|-----------------------|-----------|---|---|--------------------|-------------------------|--------------------------|------------------------------|
|    | Anaconda 12           | FTC TREE  |    | £4.60 \$5.35 \$1.65 €4.85   | 12mm<br>½"         | -                       | 125g<br>8.4lb            | Polyester<br>Polyester       |
|    | Anaconda 14           | FTC TREE  |    | £5.25 \$6.65 \$2.10 €5.55   | 14mm<br>⅝"         | -                       | 175g<br>11.7lb           | Polyester<br>Polyester       |
|    | Anaconda 16           | FTC TREE  |    | £7.25 \$8.80 \$2.70 €7.30   | 16mm<br>⅝"         | -                       | 225g<br>15.1lb           | Polyester<br>Polyester       |
|    | Anaconda 18           | FTC TREE  |    | £8.15 \$10.30 \$3.15 €8.60  | 18mm<br>¾"         | -                       | 335g<br>22.4lb           | Polyester<br>Polyester       |
|    | Katuali 10            | FTC TREE  |    | £1.70 \$2.20 \$0.65 €1.80   | 10mm<br>⅜"         | -                       | 86g<br>5.7lb             | Polyester<br>Polyester       |
|    | Katuali 12            | FTC TREE  |    | £1.90 \$2.35 \$0.75 €2.00   | 12mm<br>½"         | -                       | 119g<br>8lb              | Polyester<br>Polyester       |
|    | Katuali 14            | FTC TREE  |    | £2.35 \$3.10 \$0.95 €2.50   | 14mm<br>⅝"         | -                       | 153g<br>10.2lb           | Polyester<br>Polyester       |
|  | Katuali 16            | FTC TREE  |  | £2.80 \$3.55 \$1.10 €2.95   | 16mm<br>⅝"         | -                       | 203g<br>13.6lb           | Polyester<br>Polyester       |
|  | Katuali 18            | FTC TREE  |  | £3.30 \$4.00 \$1.25 €3.45   | 18mm<br>¾"         | -                       | 256g<br>17.2lb           | Polyester<br>Polyester       |
|  | Light Red 16          | GLEISTEIN |  | £2.95 \$3.25 \$1.00 €3.05   | 12mm<br>½"         | -                       | 83g<br>5.6lb             | Polyester<br>Polyester       |
|  | Heavy Green 16        | GLEISTEIN |  | £4.95 \$5.35 \$1.65 €5.00   | 16mm<br>⅝"         | -                       | 170g<br>11.4lb           | Polyester<br>Polyester       |
|  | HeftyFlex 13<br>H2521 | HARKIE    |  | £3.55 \$4.50 \$1.40 €4.20   | 13mm<br>½"         | -                       | n/a                      | ?                            |
|  | HeftyFlex 16          | HARKIE    |  | £4.26 \$5.20 \$1.60 €5.00   | 16mm<br>⅝"         | -                       | n/a                      | ?                            |
|  | HeftyFlex 19          | HARKIE    |  | £6.10 \$8.60 \$2.65 €7.15   | 19mm<br>¾"         | -                       | n/a                      | ?                            |
|  | Safe Arb 12           | LIROS     |  | £2.35 \$3.00 \$1.00 €2.70   | 12mm<br>½"         | -                       | 125g<br>8.4lb            | Polyester<br>Polyester       |
|  | Safe Arb 14           | LIROS     |  | £3.25 \$4.05 \$1.25 €3.80   | 14mm<br>⅝"         | -                       | 175g<br>11.7lb           | Polyester<br>Polyester       |
|  | Safe Arb 16           | LIROS     |  | £4.00 \$5.00 \$1.55 €5.30   | 16mm<br>⅝"         | -                       | 225g<br>15.1lb           | Polyester<br>Polyester       |
|  | Safe Arb 18           | LIROS     |  | £6.85 \$8.50 \$2.70 €8.10   | 18mm<br>¾"         | -                       | 335g<br>22.1lb           | Polyester<br>Polyester       |



# ARBORIST RIGGING ROPES

| TYPE | SHEATH<br>BRAID /PLAIT | LIFE SUPPORT STAND-ARDS<br>(only for multi-role ropes) | HAND SPLICEABLE<br>PRE-SPICED<br>PRE-SEWN | SUITABLE FOR |          |              | MINIMUM/AVERAGE BREAKING LOAD/STRENGTH |  |  | ELONGATION<br><br>@10% MBS<br>@30% MBS<br>@50% MBS<br>@300lbf/136kg<br>@540 lbf/245kg | OTHER COLOURS | NOTES | WWW.             |
|------|------------------------|--|---|--------------|----------|--------------|--|--|--|---|---------------|-------|------------------|
|      |                        |  |   | CLIMBING     | LOWERING | IMPACT LOWER | STATIC RIGGING                         | MBL<br>Minimum Break Load<br>Spliced<br>Sewn | ABL<br>Average Break Load<br>Spliced<br>Sewn |   |               |       |                  |
| ■    | 20 DB                  | CE   | ■ ■                                       | -            | ■        | ■            | ●                                      | 45kN<br>10116lbf                             |  | 6.4kN<br>1438lbf  | 6.5%          |       | ftc-tree.com     |
| ■    | 20 DB                  | CE   | ■ ■                                       | -            | ■        | ■            | ●                                      | 55kN<br>12364lbf                             |  | 7.8kN<br>1753lbf  |               |       | ftc-tree.com     |
| ■    | 20 DB                  | CE   | ■ ■                                       | -            | ■        | ■            | ●                                      | 67kN<br>15062lbf                             |  | 9,5kN<br>2136lbf  |               |       | ftc-tree.com     |
| ■    | 20 DB                  | CE   | ■ ■                                       | -            | ■        | ■            | ●                                      | 76kN<br>17085lbf                             |  | 11kN<br>2473lbf   |               |       | ftc-tree.com     |
|      | 16 DB                  | CE   | ■ ■                                       | -            | ■        | ■            | ■                                      | 29 30kN<br>6520lbf<br>6744lbf                |  | 4.1 4.3kN<br>922lbf<br>967lbf   |               |       | ftc-tree.com     |
|      | 16 DB                  | CE   | ■ ■                                       | -            | ■        | ■            | ■                                      | 40 42kN<br>8992lbf<br>9442lbf                |  | 5.7 6kN<br>1281lbf<br>1348lbf   |               |       | ftc-tree.com     |
|      | 16 DB                  | CE   | ■ ■                                       | -            | ■        | ■            | ■                                      | 52 55kN<br>11690lbf<br>12365lbf              |  | 7.4 7.8kN<br>1663lbf<br>1799lbf   |               |       | ftc-tree.com     |
|      | 16 DB                  | CE   | ■ ■                                       | -            | ■        | ■            | ■                                      | 70 72kN<br>15737lbf<br>16186lbf              |  | 10 10kN<br>2248lbf<br>2248lbf   |               |       | ftc-tree.com     |
|      | 16 DB                  | CE   | ■ ■                                       | -            | ■        | -            | ■                                      | 78 86kN<br>17535lbf<br>19333lbf              |  | 11 12.2kN<br>2742lbf<br>2697lbf   |               |       | ftc-tree.com     |
|      | 24 DB                  | CE   | ■ ■                                       | -            | ■        | ■            | ●                                      | 33kN<br>7418lb                               |  |   | 4.3%          |       | gleistein.com    |
|      | 24 DB                  | CE   | ■ ■                                       | -            | ■        | ■            | ■                                      | 67.7/75.2kN<br>15219lbf<br>16905lb           |  |   | 2.5%          |       | gleistein.com    |
| ■    | ?                      |  | ■ ■                                       | -            | ■        | ■            | ■                                      | 45kN<br>10116lbf                             |  |   |               |       | harkieglobal.com |
| ■    | ?                      |  | ■ ■                                       | -            | ■        | ■            | ■                                      | 70kN<br>15736lbf                             |  |   |               |       | harkieglobal.com |
| ■    | ?                      |  | ■ ■                                       | -            | ■        | ■            | ■                                      | 85kN<br>19108lbf                             |  |   |               |       | harkieglobal.com |
| ■    | 20 DB                  |  | ■   | -            | ■        | ■            | ●                                      | 45kN<br>10116lbf                             |  |   |               |       | liros.com        |
| ■    | 20 DB                  |  | ■   | -            | ■        | ■            | ●                                      | 55kN<br>12364lbf                             |  |   |               |       | liros.com        |
| ■    | 20 DB                  |  | ■   | -            | ■        | ■            | ●                                      | 67kN<br>15062lbf                             |  |   |               |       | liros.com        |
| ■    | 20 DB                  |  | ■   | -            | ■        | ■            | ●                                      | 76kN<br>17085lbf                             |  |   |               |       | liros.com        |

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 DB=Double Braid,  
 KM=KernMantle/Single Braid  
 HB=Hollow Braid  
 DS=Double Strand  
 ☐=Option.  
 ●=OK but not ideal

|  | MODEL & Ø<br>VARIANT | COMPANY      | ORIGIN  | COST<br>per Metre<br>/3.28ft<br>US\$ per Foot<br>Currency conversion only | Ø<br>mm<br>Inches" | Other<br>Ø<br>in series    | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE |
|--|----------------------|--------------|---|---|--------------------|----------------------------|--------------------------|------------------------------|
|    | Draco 12             | MARLOW       |    | £2.20 \$2.70 <b>\$2.70</b> €2.60  | 12mm<br>½"         |                            | 100.6g<br>6.75lb         | Polyester<br>Polyester       |
|    | Draco 14             | MARLOW       |    | £2.45 \$300 <b>\$3.00</b> €3.00   | 14mm<br>⅝"         |                            | 130.4g<br>8.74lb         | Polyester<br>Polyester       |
|    | Draco 16             | MARLOW       |    | £3.10 \$3.85 <b>\$3.85</b> €3.70  | 16mm<br>⅝"         |                            | 197g<br>13.21lb          | Polyester<br>Polyester       |
|    | Raptor Rigging 12    | MARLOW       |    | £3.90 \$4.85 <b>\$1.50</b> €4.60  | 12mm<br>½"         |                            | 111g<br>7.44lb           | Polyester<br>Polyester       |
|    | Raptor Rigging 14    | MARLOW       |    | £4.20 \$5.25 <b>\$1.65</b> €5.00  | 14mm<br>⅝"         |                            | 156g<br>10.43lb          | Polyester<br>Polyester       |
|    | Raptor Rigging 16    | MARLOW       |    | £5.35 \$6.65 <b>\$2.05</b> €6.30  | 16mm<br>⅝"         |                            | 193g<br>12.94lb          | Polyester<br>Polyester       |
|   | Raptor Rigging 18    | MARLOW       |   | £6.55 \$8.15 <b>\$2.50</b> €7.70  | 18mm<br>¾"         |                            | 232g<br>15.54lb          | Polyester<br>Polyester       |
|  | Marlowbraid 12       | MARLOW       |  | £4.20 \$5.25 <b>\$1.65</b> €5.00  | 12mm<br>½"         | 10 sizes<br>6-24mm<br>¼-⅜" | 100g<br>6.71lb           | Polyester<br>Polyester       |
|  | Marlowbraid 14       | MARLOW       |  | £5.95 \$7.40 <b>\$2.30</b> €7.00  | 14mm<br>⅝"         | 10 sizes<br>6-24mm<br>¼-⅜" | 145g<br>9.72lb           | Polyester<br>Polyester       |
|  | Marlowbraid 16       | MARLOW       |  | £8.10 \$10.10 <b>\$3.10</b> €9.50   | 16mm<br>⅝"         | 10 sizes<br>6-24mm<br>¼-⅜" | 190g<br>12.74lb          | Polyester<br>Polyester       |
|  | Marlowbraid 18       | MARLOW       |  | £9.10 \$11.35 <b>\$3.50</b> €10.65  | 18mm<br>¾"         | 10 sizes<br>6-24mm<br>¼-⅜" | 235g<br>15.76lb          | Polyester<br>Polyester       |
|  | Doublebraid 12       | MARLOW       |  | £4.10 \$5.40 <b>\$1.65</b> €4.90  | 12mm<br>½"         | 7 sizes<br>6-18mm<br>¼-¾"  | 111g<br>7.44lb           | Polyester<br>Polyester       |
|  | Doublebraid 14       | MARLOW       |  | £6.10 \$8.00 <b>\$2.45</b> €7.30  | 14mm<br>⅝"         | 7 sizes<br>6-18mm<br>¼-¾"  | 156g<br>10.43lb          | Polyester<br>Polyester       |
|  | Doublebraid 16       | MARLOW       |  | £7.80 \$10.20 <b>\$3.10</b> €9.30   | 16mm<br>⅝"         | 7 sizes<br>6-18mm<br>¼-¾"  | 193g<br>12.94lb          | Polyester<br>Polyester       |
|  | Doublebraid 18       | MARLOW       |  | £8.30 \$11.00 <b>\$3.40</b> €9.90   | 18mm<br>¾"         | 7 sizes<br>6-18mm<br>¼-¾"  | 232g<br>15.54lb          | Polyester<br>Polyester       |
|  | The Ape 12           | PELICAN ROPE |  | £2.25 \$2.80 <b>\$0.85</b> €2.60  | 12mm<br>½"         | -                          | 137g<br>9.2lb            | Polyester<br>Polyester       |
|  | The Ape 14           | PELICAN ROPE |  | £2.80 \$3.50 <b>\$1.08</b> €3.25  | 14mm<br>⅝"         | -                          | 157g<br>10.5lb           | Polyester<br>Polyester       |
|  | The Ape 16           | PELICAN ROPE |  | £3.10 \$3.90 <b>\$1.20</b> €3.60  | 16mm<br>⅝"         | -                          | 204g<br>13.7lb           | Polyester<br>Polyester       |

# ARBORIST RIGGING ROPES

| CONSTRUCTION | SHEATH<br>BRAID / PLAIT | LIFE SUPPORT STANDARDS<br>(only for multi-role ropes) | HAND SPLICEABLE<br>PRE-SPICED<br>PRE-SEWN | SUITABLE FOR |          |              |                | MINIMUM/AVERAGE BREAKING LOAD/STRENGTH       |  |                                    | ELONGATION  |   | OTHER COLOURS | NOTES | WWW.            |
|--------------|-------------------------|---|---|--------------|----------|--------------|----------------|--|--|------------------------------------|---|---|---------------|-------|-----------------|
|              |                         |   |   | CLIMBING     | LOWERING | IMPACT LOWER | STATIC RIGGING | MBL<br>Minimum Break Load<br>Spliced<br>Sewn | ABL<br>Average Break Load<br>Spliced<br>Sewn | WLL<br>Spliced<br>Sewn<br>*Average | @10% MBS<br>@30% MBS<br>@50% MBS<br>@300lbf/136kg<br>@540 lbf/245kg |   |               |       |                 |
|              | 16 DB                   |   | ■   | -            | ■        | ●            | ■              | 35.2kN<br>7914lbf                            | 38.4kN<br>8619lbf                            |                                    |   |   |               |       | marlowropes.com |
|              | 16 DB                   |   | ■   | -            | ■        | ●            | ■              | 49.4kN<br>11102lbf                           | 54.9kN<br>12337lbf                           |                                    |   |   |               |       | marlowropes.com |
|              | 16 DB                   |   | ■   | -            | ■        | ●            | ■              | 74.1kN<br>16645lbf                           | 81.9kN<br>18408lbf                           |                                    |   |   |               |       | marlowropes.com |
| ■            | 24 DB                   |   | ■ ■                                       | -            | ■        | ●            | ■              | 38.7 43kN<br>9650lbf                         | 42 46.7kN<br>10500lbf                        | 5.5kN*<br>1240lbf*                 | 5% 1.7%   |   |               |       | marlowropes.com |
| ■            | 24 DB                   |   | ■ ■                                       | -            | ■        | ●            | ■              | 49.1 54.6kN<br>12300lbf                      | 53.5 59.4kN<br>13300lbf                      | 7kN*<br>1590lbf*                   | 5% 1.7%   |   |               |       | marlowropes.com |
| ■            | 24 DB                   |   | ■ ■                                       | -            | ■        | ●            | ■              | 58.8 65.3kN<br>14700lbf                      | 63.8 70.9kN<br>15900lbf                      | 8.4kN*<br>1890lbf*                 | 5% 1.7%   |   |               |       | marlowropes.com |
| ■            | 24 DB                   |   | ■ ■                                       | -            | ■        | ●            | ■              | 64.3 71.4kN<br>16000lbf                      | 69.8 77.6kN<br>17400lbf                      | 9.2kN*<br>2060lbf*                 | 5% 1.7%   |  |               |       | marlowropes.com |
| -            | 16                      |   | ■   | -            | ■        | -            | ■              | 40.2kN<br>9007lbf                            | 43.7kN<br>9790lbf                            |                                    |   |   |               |       | marlowropes.com |
| -            | 16                      |   | ■   | -            | ■        | -            | ■              | 49.3kN<br>11051lbf                           | 53.6kN<br>12012lbf                           |                                    |   |   |               |       | marlowropes.com |
| -            | 16                      |   | ■   | -            | ■        | -            | ■              | 65.2kN<br>14630lbf                           | 72.8kN<br>16324lbf                           |                                    |   |   |               |       | marlowropes.com |
| -            | 16                      |   | ■   | -            | ■        | -            | ■              | 92kN<br>20625lbf                             | 100kN<br>22419lbf                            |                                    |   |   |               |       | marlowropes.com |
| -            | 24 DB                   |   | ■ ■                                       | -            | ■        | ■            | ■              | 43kN<br>9650lbf                              | 46.7kN<br>10500lbf                           |                                    |   |   |               |       | marlowropes.com |
| -            | 24 DB                   |   | ■ ■                                       | -            | ■        | ■            | ■              | 54.6kN<br>12300lbf                           | 59.4kN<br>13300lbf                           |                                    |   |   |               |       | marlowropes.com |
| -            | 24 DB                   |   | ■ ■                                       | -            | ■        | ■            | ■              | 65.3kN<br>14700lbf                           | 70.9kN<br>15900lbf                           |                                    |   |   |               |       | marlowropes.com |
|              | 24 DB                   |   | ■ ■                                       | -            | ■        | ■            | ■              | 71.4kN<br>16000lbf                           | 77.6kN<br>17400lbf                           |                                    |   |   |               |       | marlowropes.com |
| ■            | DB                      |   | ■ ■                                       | -            | ■        | ●            | ■              | 48.9kN<br>11000lbf                           |  |                                    |   |   |               |       | pelicanrope.com |
| ■            | DB                      |   | ■ ■                                       | -            | ■        | ●            | ■              | 62.3kN<br>14000lbf                           |  |                                    |   |   |               |       | pelicanrope.com |
| ■            | DB                      |   | ■ ■                                       | -            | ■        | ●            | ■              | 75.6kN<br>17000lbf                           |  |                                    |   |   |               |       | pelicanrope.com |







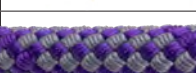





















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 ☐=Option.  
 ●=OK but not ideal

|  | MODEL & Ø<br>VARIANT                  | COMPANY      | ORIGIN | COST<br>per Metre<br>/3.28ft<br>US\$ per Foot<br>Currency conversion only | Ø<br>mm<br>Inches" | Other<br>Ø<br>in series      | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE |
|--|---------------------------------------|--------------|--------|---|--------------------|------------------------------|--------------------------|------------------------------|
|  | The Ape 18                            | PELICAN ROPE |        | £3.90 \$4.90 \$1.50 €4.55   | 18mm<br>¾"         | -                            | 271g<br>18.2lb           | Polyester<br>Polyester       |
|  | The Ape 25                            | PELICAN ROPE |        | £7.25 \$9.15 \$2.80 €8.45   | 25mm<br>1"         | -                            | 529g<br>35.5lb           | Polyester<br>Polyester       |
|  | Matador 12                            | PELICAN ROPE |        | £2.65 \$3.40 \$1.05 €3.15   | 12mm<br>½"         |                              | 116g<br>7.8lb            | Polyester<br>Nylon           |
|  | Matador 14                            | PELICAN ROPE |        | £3.15 \$3.95 \$1.21 €3.65   | 14mm<br>⅞"         |                              | 172g<br>11.55lb          | Polyester<br>Nylon           |
|  | Matador 16                            | PELICAN ROPE |        | £3.90 \$4.90 \$1.50 €4.55   | 16mm<br>⅝"         |                              | 293g<br>19.65lb          | Polyester<br>Nylon           |
|  | Matador 18                            | PELICAN ROPE |        | £5.00 \$6.35 \$1.95 €5.90   | 18mm<br>¾"         |                              | 385g<br>25.8lb           | Polyester<br>Nylon           |
|  | Access Pro 11                         | PMI          |        | £2.20 \$2.70 \$0.85 €2.55   | 11mm<br>⅞"         | -                            | 84g<br>5.6lb             | Polyester<br>Nylon           |
|  | Hudson CI Pro<br>EZ Bend 11           | PMI          |        | £3.70 \$4.20 \$1.30 €3.95   | 11mm<br>⅞"         | 5 sizes<br>9-16mm<br>⅜-⅝"    | 80g<br>5.4lb             | Nylon<br>Nylon               |
|  | Hudson CI Pro<br>EZ Bend 12.5         | PMI          |        | £4.30 \$5.30 \$1.65 €5.00   | 12.5mm<br>½"       | 5 sizes<br>9-16mm<br>⅜-⅝"    | 104g<br>7lb              | Nylon<br>Nylon               |
|  | Hudson CI Pro<br>EZ Bend Unicore 12.5 | PMI          |        | £4.30 \$5.30 \$1.65 €5.00   | 12.5mm<br>½"       | 2 sizes<br>11-12.5mm<br>⅞-½" | 107g<br>7.2lb            | Nylon<br>Nylon               |
|  | Hudson CI Pro<br>EZ Bend 16           | PMI          |        | £5.30 \$6.60 \$2.00 €5.00   | 16mm<br>⅝"         | 5 sizes<br>9-16mm<br>⅜-⅝"    | 145g<br>10.3lb           | Nylon<br>Nylon               |
|  | Hudson CI Pro<br>Max Wear/Pit Rope 11 | PMI          |        | £2.90 \$3.60 \$1.15 €3.40   | 11mm<br>⅞"         | 4 sizes<br>9-12.5mm<br>⅜-½"  | 83.46g<br>5.6lb          | Nylon<br>Nylon               |
|  | Extreme Pro<br>Unicore 11             | PMI          |        | £3.15 \$3.90 \$1.25 €3.65   | 11mm<br>⅞"         | 2 sizes<br>11-12.5mm<br>⅞-½" | 100g<br>6.7lb            | Polyester<br>Nylon           |
|  | Extreme Plus<br>Unicore 12.5          | PMI          |        | £3.50 \$4.20 \$1.30 €3.95   | 12.5mm<br>½"       | 2 sizes<br>11-12.5mm<br>⅞-½" | 113g<br>7.6lb            | Polyester<br>Nylon           |
|  | Opus 11                               | PMI          |        | £1.90 \$2.35 \$0.75 €2.20   | 11mm<br>⅞"         | -                            | 85g<br>5.7lb             | Nylon<br>Nylon               |
|  | Dura-Shield<br>General Use 12.5       | PMI          |        | £10.50 \$13.10 \$4.00 €12.30  | 12.5mm<br>½"       | 3 sizes<br>8-12.5mm<br>⅞-½"  | 110.9g<br>7.43lb         | Technora<br>Nylon            |
|  | Isostatic 11.5                        | PMI          |        | £4.85 \$6.00 \$1.80 €4.55   | 11.5mm<br>⅞"       | -                            | 96g<br>6.4lb             | Polyester<br>Polyester       |
|  | Isostatic 13                          | PMI          |        | £4.85 \$6.00 \$1.80 €4.55   | 13mm<br>½"         | -                            | 125g<br>8.4lb            | Polyester<br>Polyester       |





# ARBORIST RIGGING ROPES

| CON | SHEATH<br>BRAID /PLAIT | LIFE SUPPORT STAND-ARDS (only for multi-role ropes) | HAND SPLICEABLE PRE-SPICED PRE-SEWN | SUITABLE FOR |          |              | MINIMUM/AVERAGE BREAKING LOAD/STRENGTH |  |  | ELONGATION<br>@10% MBS<br>@30% MBS<br>@50% MBS<br>@300lbf/136kg<br>@540 lbf/245kg | OTHER COLOURS | NOTES   | WWW.            |
|-----|------------------------|---|-------------------------------------|--------------|----------|--------------|--|--|--|---|---------------|---|-----------------|
|     |                        |   |                                     | CLIMBING     | LOWERING | IMPACT LOWER | STATIC RIGGING                         | MBL<br>Minimum Break Load<br>Spliced<br>Sewn | ABL<br>Average Break Load<br>Spliced<br>Sewn |   |               |   |                 |
| ■   | DB                     |   | ■ ■                                 | -            | ■        | ●            | ■                                      | 35kN<br>21000lbf                             |  |   |               |   | pelicanrope.com |
| ■   | DB                     |   | ■ ■                                 | -            | ■        | ●            | ■                                      | 52kN<br>40000lbf                             |  |   |               |   | pelicanrope.com |
| ■   | DB                     |   | ■                                   | -            | ■        | ■            | ■                                      | 44.5kN<br>10000lbf                           |  |   |               |   | pelicanrope.com |
| ■   | DB                     |   | ■                                   | -            | ■        | ■            | ■                                      | 54.3kN<br>12200lbf                           |  |   |               |   | pelicanrope.com |
| ■   | DB                     |   | ■                                   | -            | ■        | ■            | ■                                      | 71.1kN<br>16000lbf                           |  |   |               |   | pelicanrope.com |
| ■   | DB                     |   | ■                                   | -            | ■        | ■            | ■                                      | 11.2kN<br>25000lbf                           |  |   |               |   | pelicanrope.com |
| -   | 32 KM                  | CI CE A<br>NFPA-T                                   |                                     | ■            | ■        | ●            | ■                                      | 27kN<br>6066lbf                              |  | -<br>3%   |               |   | pmirope.com     |
| -   | 16 KM                  | CI. CE A<br>NFPA-T<br>ANSI<br>BERRY                 |                                     | ■            | ■        | ●            | ■                                      | 33.3kN<br>7480lbf                            |  | -<br>1%   |               |   | pmirope.com     |
| -   | 16 KM                  | CI. CE A<br>ANSI<br>NFPA-G                          |                                     | ■            | ■        | ●            | ■                                      | 45.1kN<br>10145lbf                           |  | -<br>1%   |               | Also in reflective, solid blue, black, red & OD               | pmirope.com     |
| ■   | 16 KM                  | CI. CE A<br>ANSI<br>NFPA-G                          |                                     | ■            | ■        | ●            | ■                                      | 44.5kN<br>10009lbf                           |  | 3-4.4%<br>0.7%  |               | CI=Classic Old Glory (shown) may cost more                    | pmirope.com     |
| -   | 16 KM                  | CI CE A<br>NFPA-G                                   | ■                                   | ●            | ■        | ●            | ■                                      | 69.1kN<br>16330lbf                           |  | 3.6-4.8%<br>0.3%  |               | Blue&Ylw colours=\$.2.30/ft                                   | pmirope.com     |
| -   | 16 KM                  | CI.<br>NFPA-T                                       |                                     | ●            | ■        | ●            | ■                                      | 32.4kN<br>7291lbf                            |  | -<br>1.5%   |               | Pit rope =White stiffer than EZbend. data yet for 5mm version | pmirope.com     |
| ■   | 16 KM                  | CI<br>NFPA-T<br>ANSI<br>BERRY                       |                                     | ■            | ■        | ●            | ■                                      | 42.3kN<br>9521lbf                            |  | -<br>1.7%   |               |   | pmirope.com     |
| ■   | 16 KM                  | ANSI.<br>NFPA-G                                     |                                     | ■            | ■        | ●            | ■                                      | 46.4kN<br>10431lbf                           |  | -<br>1.3%   |               |   | pmirope.com     |
| -   | 40 KM                  | CI CE A<br>ANSI<br>NFPA-T                           |                                     | ■            | ■        | ●            | ■                                      | 30.6kN<br>6871lbf                            |  | -<br>2.9%   |               |   | pmirope.com     |
| -   | 32 KM                  | CI<br>NFPA  |                                     | ■            | ■        | ■            | ■                                      | 34.3kN<br>7703lbf                            |  | 8.8%<br>2.5%  |               | Cut resistant sheath  | pmirope.com     |
| -   | 32 KM                  | ANSI<br>NFPA-T                                      |                                     | ●            | ■        | -            | ■                                      | 32.2kN<br>7239lbf                            |  | 1.44-2.2%<br>0.9%   |               | Unicore =sheath bonded to core                                | pmirope.com     |
| -   | 32 KM                  | ANSI<br>NFPA-T                                      |                                     | ●            | ■        | -            | ■                                      | 44.2kN<br>9944lbf                            |  | 1.44-2.2%<br>2.1%   |               | Unicore =sheath bonded to core                                | pmirope.com     |

Images NOT to Scale  
 ~ = Approximate  
 £\$€ = Currency Conversion  
 Cost exc eyes, inc VAT/Tax  
 DB=Double Braid,  
 KM=KernMantle/Single Braid  
 HB=Hollow Braid  
 DS=Double Strand  
 ☐=Option.  
 ●=OK but not ideal

|  |              |   |   |                    |                              |                          |                              |  | CONSTRUCT |
|--|--------------|---|---|--------------------|------------------------------|--------------------------|------------------------------|--|-----------|
| MODEL & Ø<br>VARIANT   | COMPANY      | ORIGIN  | COST<br>per Metre<br>/3.28ft<br>US\$ per Foot<br>Currency conversion only | Ø<br>mm<br>Inches" | Other<br>Ø<br>in series      | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE |  |           |
|  Mountain Ape 12.7   | ROCK'N ARBOR |    | £2.40 \$2.95 \$0.90 €0.00   | 12.7mm<br>½"       | -                            | 115g<br>8lb              | Polyester<br>Polyester       |  |           |
|  Mountain Ape 14     | ROCK'N ARBOR |    | £3.10 \$3.80 \$1.16 €0.00   | 14mm<br>⅝"         | -                            | 155g<br>11lb             | Polyester<br>Polyester       |  |           |
|  Mountain Ape 16     | ROCK'N ARBOR |    | £3.60 \$4.45 \$1.36 €4.20   | 16mm<br>⅝"         | -                            | 200g<br>13.5lb           | Polyester<br>Polyester       |  |           |
|  Amethyst 12         | ROCK'N ARBOR |    | £2.65 \$3.25 \$1.00 €3.10   | 12mm<br>½"         | -                            | 103g<br>6.9lb            | Polyester<br>Polyester       |  |           |
|  Amethyst 16         | ROCK'N ARBOR |    | £4.65 \$5.70 \$1.76 €5.35   | 16mm<br>⅝"         | -                            | 0g<br>0lb                | Polyester<br>Polyester       |  |           |
|  Arbor Plex 12       | SAMSON       |    | £2.00 \$2.45 \$0.80 €2.30   | 12mm<br>½"         | 3 sizes<br>12.7-18mm<br>½-¾" | 101g<br>6.8lb            | Polyprop/<br>Polyester<br>-  |  |           |
|  Arbor Plex 16       | SAMSON       |    | £2.90 \$3.60 \$1.10 €2.75   | 16mm<br>⅝"         | 3 sizes<br>12.7-18mm<br>½-¾" | 179g<br>12lb             | Polyprop/<br>Polyester<br>-  |  |           |
|  Arbor Plex 18      | SAMSON       |  | £4.15 \$5.15 \$1.60 €4.85   | 18mm<br>¾"         | 3 sizes<br>12.7-18mm<br>½-¾" | 241g<br>16.2lb           | Polyprop/<br>Polyester<br>-  |  |           |
|  Nystron Coated 12 | SAMSON       |  | £3.00 \$3.70 \$1.15 €3.50   | 12mm<br>½"         | 13 sizes<br>9-48mm<br>⅜-2"   | 121g*<br>8lb             | Polyester<br>Nylon           |  |           |
|  Nystron Coated 14 | SAMSON       |  | £3.70 \$4.55 \$1.40 €4.30   | 14mm<br>⅝"         | 13 sizes<br>9-48mm<br>⅜-2"   | 156g*<br>10.5lb          | Polyester<br>Nylon           |  |           |
|  Nystron Coated 16 | SAMSON       |  | £4.30 \$5.35 \$1.65 €5.05   | 16mm<br>⅝"         | 13 sizes<br>9-48mm<br>⅜-2"   | 196g*<br>13.2lb          | Polyester<br>Nylon           |  |           |
|  Nystron Coated 18 | SAMSON       |  | £5.50 \$6.80 \$2.10 €6.40   | 18mm<br>¾"         | 13 sizes<br>9-48mm<br>⅜-2"   | 270g*<br>18.1lb          | Polyester<br>Nylon           |  |           |
|  StableBraid 12    | SAMSON       |  | £2.75 \$3.40 \$1.05 €3.20   | 12mm<br>½"         | 16 sizes<br>6-24mm<br>¼-1¾"  | 122g<br>8.2lb            | Polyester<br>Polyester       |  |           |
|  StableBraid 14    | SAMSON       |  | £3.15 \$3.90 \$1.20 €3.70   | 14mm<br>⅝"         | 16 sizes<br>6-24mm<br>¼-1¾"  | 164g<br>11lb             | Polyester<br>Polyester       |  |           |
|  StableBraid 16    | SAMSON       |  | £3.85 \$4.75 \$1.45 €4.45   | 16mm<br>⅝"         | 16 sizes<br>6-24mm<br>¼-1¾"  | 208g<br>14lb             | Polyester<br>Polyester       |  |           |
|  StableBraid 18    | SAMSON       |  | £4.90 \$6.05 \$1.85 €5.70   | 18mm<br>¾"         | 16 sizes<br>6-24mm<br>¼-1¾"  | 268g<br>18lb             | Polyester<br>Polyester       |  |           |
|  True Blue         | SAMSON       |  | £2.75 \$3.40 \$1.05 €3.20   | 12mm<br>½"         |                              | 131g<br>8.8lb            | Polyester<br>-               |  |           |
|  Tech HTP 11       | STERLING     |  | £8.90 \$11.00 \$3.40 €10.35   | 11mm<br>⅞"         | -                            | 95g<br>6.4lb             | Technora<br>Polyester        |  |           |

# ARBORIST RIGGING ROPES








| CON | SHEATH<br>BRAID /PLAIT | LIFE SUPPORT STANDARDS<br>(only for multi-role ropes) | HAND SPliceABLE<br>PRE-SPliced<br>PRE-SEWn | SUITABLE FOR |          |              |                | MINIMUM/AVERAGE BREAKING LOAD/STRENGTH       |  |                                    | ELONGATION<br><br>@10% MBS<br>@30% MBS<br>@50% MBS<br>@300lbf/136kg<br>@540 lbf/245kg | OTHER COLOURS   | NOTES            | WWW. |
|-----|------------------------|---|--|--------------|----------|--------------|----------------|--|--|------------------------------------|---|---|------------------|------|
|     |                        |   |  | CLIMBING     | LOWERING | IMPACT LOWER | STATIC RIGGING | MBL<br>Minimum Break Load<br>Spliced<br>Sewn | ABL<br>Average Break Load<br>Spliced<br>Sewn | WLL<br>Spliced<br>Sewn<br>*Average |   |   |                  |      |
| □   | DB                     |   | ■  | -            | ■        | -            | ■              | 40.5kN<br>9095lbf                            | 47.6 kN<br>10700lbf                          |                                    |   |   | rocknarbor.com   |      |
| □   | DB                     |   | ■  | -            | ■        | -            | ■              | 50.3 kN<br>11300lbf                          | 59.2 kN<br>13300lbf                          |                                    |   |   | rocknarbor.com   |      |
| □   | DB                     |   | ■  | -            | ■        | -            | ■              | 70kN<br>15725lbf                             | 82.3kN<br>18500lbf                           |                                    |   |   | rocknarbor.com   |      |
| -   | DB                     |   |  | ●            | ■        | ●            | ■              |  | 39kN<br>8767lbf                              |                                    |   | Overload indicated by misaligned diagonal threads.  | rocknarbor.com   |      |
| -   | 12 HB                  |   | ■  | ●            | ■        | ■            | ●              | 71kN<br>16000lbf                             |  |                                    |   |   | rocknarbor.com   |      |
| -   | 12 HB                  |   | ■  | ●            | ■        | ■            | ●              | 23.5kN<br>5291lbf                            | 26.6kN<br>6000lbf                            | 5.3kN<br>1200lbf                   | 3%  |   | samsonrope.com   |      |
| -   | 12 HB                  |   | ■  | ●            | ■        | ■            | ●              |  | 40kN<br>9000lbf                              | 8kN<br>1800lbf                     | 3%  |   | samsonrope.com   |      |
| -   | 12 HB                  |   | ■  | ●            | ■        | ■            | ●              |  | 53kN<br>12000lbf                             | 10.6kN<br>2400lbf                  | 3%  |   | samsonrope.com   |      |
| ■   | DB                     |   | ■  | -            | ■        | ■            | ●              | 39.5kN<br>8900lbf                            | 46.7kN<br>10500lbf                           |                                    | 2.4%  |  *Wt with coating                                       | samsonrope.com   |      |
| ■   | DB                     |   | ■  | -            | ■        | ■            | ●              | 49.8kN<br>11200lbf                           | 58.7kN<br>13200lbf                           |                                    | 2.4%  |  *Wt with coating                                      | samsonrope.com   |      |
| ■   | DB                     |   | ■  | -            | ■        | ■            | ●              | 61.8kN<br>13900lbf                           | 72.5kN<br>16300lbf                           |                                    | 2.4%  |  *Wt with coating                                      | samsonrope.com   |      |
| ■   | DB                     |   | ■  | -            | ■        | ■            | ●              | 87kN<br>19600lbf                             | 10.2kN<br>2300lbf                            |                                    | 2.4%  |  *Wt with coating                                      | samsonrope.com   |      |
| □   | DB                     |   | ■  | -            | ■        | -            | ■              | 39kN<br>8800lbf                              | 46kN<br>10400lbf                             |                                    | 1.1   |   | samsonrope.com   |      |
| □   | DB                     |   | ■  | -            | ■        | -            | ■              | 50kN<br>11300lbf                             | 59kN<br>13300lbf                             |                                    | 1.1   |    | samsonrope.com   |      |
| □   | DB                     |   | ■  | -            | ■        | -            | ■              | 61kN<br>13900lbf                             | 72kN<br>16300lbf                             |                                    | 1.1   |    | samsonrope.com   |      |
| □   | DB                     |   | ■  | -            | ■        | -            | ■              | 76kN<br>17300lbf                             | 90kN<br>20400lbf                             |                                    | 1.1   |    | samsonrope.com   |      |
| -   | 12 HB                  |   | ■  | ■            | ●        | -            | ■              |  | 32kN<br>7300lbf                              | 3.2kN<br>730lbf                    | 2.6%  |   | samsonrope.com   |      |
| -   | 32 KM                  | NFPA ANSI   |  | ●            | ■        | -            | ■              | 36kN<br>8090lbf                              |  |                                    | 2.1%  |  Super-tough, cut & heat resistant tactical/rescue rope | sterlingrope.com |      |

Images NOT to Scale  
 ~ = Approximate  
 £/\$ = Currency Conversion  
 Cost exc eyes, inc VAT/Tax  
 DB=Double Braid,  
 KM=KernMantle/Single Braid  
 HB=Hollow Braid  
 DS=Double Strand  
 ☐=Option.  
 ●=OK but not ideal






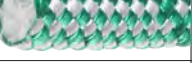

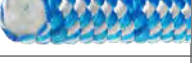

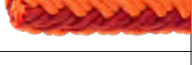

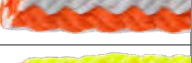


















|  | MODEL & Ø<br>VARIANT | COMPANY  | ORIGIN  | COST<br>per Metre<br>/3.28ft<br>US\$ per Foot<br>Currency conversion only | Ø<br>mm<br>Inches" | Other<br>Ø<br>in series            | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE |
|--|----------------------|----------|---|---|--------------------|------------------------------------|--------------------------|------------------------------|
|    | Tech 11              | STERLING |    | £8.50 \$10.00 \$3.30 €9.85  | 11mm<br>7/16"      | -                                  | 88g<br>5.9lb             | Technora<br>Nylon            |
|    | Atlas 13             | STERLING |    | £3.90 \$4.90 \$1.50 €4.55   | 13mm<br>1/2"       | -                                  | 118g<br>7.9lb            | Polyester<br>Nylon           |
|    | Atlas 14             | STERLING |    | £4.45 \$5.60 \$1.75 €5.20   | 14mm<br>9/16"      | -                                  | 133g<br>8.9lb            | Polyester<br>Nylon           |
|    | Atlas 16             | STERLING |    | £5.30 \$6.70 \$2.05 €6.20   | 16mm<br>5/8"       | -                                  | 202g<br>13.5lb           | Polyester<br>Nylon           |
|    | Atlas 18             | STERLING |    | £6.80 \$8.40 \$2.60 €7.90   | 18mm<br>3/4"       | -                                  | 258kN<br>17.3lb          | Polyester<br>Nylon           |
|    | Kraken 13            | STERLING |    | £2.70 \$3.30 \$1.10 €3.10   | 12mm<br>1/2"       | 5 sizes<br>13-22mm<br>3/8-7/8"     | 130g<br>8.7lb            | Polyester<br>Polyester       |
|   | Kraken 14            | STERLING |   | £3.20 \$3.95 \$1.25 €3.70   | 14.3mm<br>9/16"    | 5 sizes<br>13-22mm<br>3/8-7/8"     | 173g<br>11.6lb           | Polyester<br>Polyester       |
|  | Kraken 17            | STERLING |  | £3.90 \$4.80 \$1.50 €4.50   | 17mm<br>5/8"       | 5 sizes<br>13-22mm<br>3/8-7/8"     | 221g<br>14.8lb           | Polyester<br>Polyester       |
|  | Kraken 19            | STERLING |  | £4.75 \$5.85 \$1.80 €5.50   | 19.1mm<br>3/4"     | 5 sizes<br>13-22mm<br>3/8-7/8"     | 275g<br>18.4lb           | Polyester<br>Polyester       |
|  | HTP (Rig) 11         | STERLING |  | £4.00 \$4.75 \$1.45 €4.60   | 11mm<br>7/16"      | 5 sizes<br>9-16mm<br>3/8-5/8"      | 97g<br>6.5lb             | Polyester<br>Polyester       |
|  | HTP (Rig) 12         | STERLING |  | £4.95 \$6.10 \$1.90 €5.75   | 12.5mm<br>1/2"     | 5 sizes<br>9-16mm<br>3/8-5/8"      | 119g<br>8lb              | Polyester<br>Polyester       |
|  | HTP (Rig) 16         | STERLING |  | £5.35 \$6.50 \$2.10 €6.20   | 16mm<br>5/8"       | 5 sizes<br>9-16mm<br>3/8-5/8"      | 186g<br>12.5lb           | Polyester<br>Polyester       |
|  | Omega 12             | STEIN    |  | £3.05 \$3.75 \$1.20 €3.55   | 12mm<br>1/2"       | -                                  |                          | Polyester<br>Nylon           |
|  | Omega 14             | STEIN    |  | £4.35 \$5.40 \$1.65 €5.05   | 14mm<br>9/16"      | -                                  |                          | Polyester<br>Nylon           |
|  | Omega 16             | STEIN    |  | £4.90 \$6.10 \$1.90 €5.70   | 16mm<br>5/8"       | -                                  |                          | Polyester<br>Nylon           |
|  | Omega 20             | STEIN    |  | £7.65 \$9.85 \$3.00 €9.25   | 20mm<br>3/4"       | -                                  |                          | Polyester<br>Nylon           |
|  | Timber Evo 12.5      | TENDON   |  | £3.60 \$4.50 \$1.45 €4.15   | 12.5mm<br>1/2"     | 3 sizes<br>11-12.5mm<br>1/4-1 3/4" | 104g<br>7lb              | Polyester<br>Nylon           |
|  | Timber 15            | TENDON   |  | £4.50 \$5.20 \$1.60 €4.80   | 15mm<br>5/8"       | -                                  | 174g<br>11.7lb           | Polyester<br>Nylon           |



# ARBORIST RIGGING ROPES

| TYPE | SIZE  | STANDARDS | HAND SPICEABLE<br>PRE-SPICED<br>PRE-SEWN | SUITABLE FOR |          |              |                | MINIMUM/AVERAGE BREAKING LOAD/STRENGTH       |  |                                    | ELONGATION   | OTHER COLOURS  | NOTES  | WWW.                   |
|------|-------|-----------|--|--------------|----------|--------------|----------------|--|--|------------------------------------|--------------|--|--|------------------------|
|      |       |           |  | CLIMBING     | LOWERING | IMPACT LOWER | STATIC RIGGING | MBL<br>Minimum Break Load<br>Spliced<br>Sewn | ABL<br>Average Break Load<br>Spliced<br>Sewn | WLL<br>Spliced<br>Sewn<br>*Average |              |  |  |                        |
| -    | 32 KM | NFPA ANSI |  | ■            | ■        | ●            | ■              | 40.1kN<br>9014lbf                            |  |                                    | 3.6%         |    | cut & heat resistant<br>greater stretch than<br>HTP rope | sterlingrope.com       |
| -    | 32 DB |           | ■ ■                                      | -            | ■        | ■            | ■              | 48kN<br>10800lbf<br>40kN<br>9000lbf          | 51kN<br>11500lbf                             |                                    | 0.9%<br>4.1% |  |  | sterlingrope.com       |
| -    | 32 DB | ANSI      | ■ ■                                      | -            | ■        | ■            | ■              | 61.2kN<br>18000lbf<br>49kN<br>11050lbf       | 61kN<br>13750lbf                             |                                    | 0.8%<br>4.5% |    |  | sterlingrope.com       |
| -    | 32 DB |           | ■ ■                                      | -            | ■        | ■            | ■              | 80kN<br>18000lbf<br>67.8kN<br>15250lbf       | 86.3kN<br>19400lbf                           |                                    | 0.4%<br>4.5% |  |  | sterlingrope.com       |
| -    | 32 DB |           | ■ ■                                      | -            | ■        | ■            | ■              | 80.7kN<br>18147lbf                           | 100kN<br>22480lbf                            |                                    | 0.3%<br>4.3% |  |  | sterlingrope.com       |
| ■    | 24    |           | ■ ■                                      | -            | ■        | ●            | ■              | 47.9kN<br>10750lbf                           | 56.4kN<br>12650lbf                           | 5.6kN<br>1265lbf                   | 1.8%         |  | Previously sold as<br><i>Notch Kraken</i>                | sterlingrope.com       |
| ■    | 24    |           | ■ ■                                      | -            | ■        | ●            | ■              | 56.6kN<br>12700lbf                           | 66.4kN<br>14900lbf                           | 6.6kN<br>1490lbf                   | 1.8%         |  |  | sterlingrope.com       |
| ■    | 24    |           | ■ ■                                      | -            | ■        | ●            | ■              | 70kN<br>15700lbf                             | 82.5kN<br>18500lbf                           | 8.2kN<br>1850lbf                   | 1.8%         |  |  | sterlingrope.com       |
| ■    | 24    |           | ■ ■                                      | -            | ■        | ●            | ■              | 29.2kN<br>20000lbf                           | 104.8kN<br>23500lbf                          | 10.5kN<br>2350lbf                  | 1.8%         |  |  | sterlingrope.com       |
| -    | 32 DB | ANSI NFPA | ■  | ●            | ■        | -            | ●              | 30.5kN<br>6856lbf                            |  | 6.1kN<br>1371lbf                   | 4%           |  |  | sterlingrope.com       |
| -    | 32 DB | ANSI NFPA | ■  | ●            | ■        | -            | ■              | 40.4kN<br>9081lbf                            |  | 8.1kN<br>1820lbf                   | 2%           |  |  | sterlingrope.com       |
| -    | 32 DB | NFPA      | ■  | -            | ■        | -            | ■              | 57.8kN<br>12993lbf                           | 53kN<br>12000lbf                             | 11.6kN<br>2495lbf                  | 2.8%         |  | 'RIG'=HTP in Black/<br>Pink and White/<br>Pink           | sterlingrope.com       |
|      | 32 KM |           | ■ ■                                      | ●            | ■        | ■            | ■              | 34.4kN<br>7738lbf                            | 36.3kN<br>8160lbf                            |                                    | 2.4%         |  | May also be 10mm<br>version with red<br>fleck            | steininternational.com |
|      | 32 KM |           | ■ ■                                      | -            | ■        | ■            | ■              | 48.5kN<br>10900lbf                           | 43.7kN<br>9824lbf                            |                                    | 2.4%         |  |  | steininternational.com |
|      | 32 KM |           | ■ ■                                      | -            | ■        | ■            | ■              | 55.9kN<br>12560lbf                           | 49.8kN<br>11195lbf                           |                                    | 2.4%         |  |  | steininternational.com |
|      | 32 KM |           | ■ ■                                      | -            | ■        | ■            | ■              | 75.5kN<br>16950lbf                           | 68.6kN<br>15421lbf                           |                                    | 2.4%         |  |  | steininternational.com |
|      | 24 DB | CE A      |  | ■            | ■        | ■            | ●              | 39kN<br>8598lbf                              |  |                                    | 3%           |  | Embedded RFID chip                                       | mytendon.com           |
|      | 24 DB | CE A      |  | -            | ■        | ■            | ■              | 61kN<br>13713lb                              |  |                                    |              |  |  | mytendon.com           |



































Images NOT to Scale  
 ~ = Approximate  
 £\$€ = Currency Conversion  
 Cost exc eyes, inc VAT/Tax  
 DB=Double Braid,  
 KM=KernMantle/Single Braid  
 HB=Hollow Braid  
 DS=Double Strand  
 ☐=Option.  
 ●=OK but not ideal

|   | MODEL & Ø<br>VARIANT | COMPANY      | ORIGIN  | COST<br>per Metre<br>/3.28ft<br>US\$ per Foot<br>Currency conversion only | Ø<br>mm<br>Inches" | Other<br>Ø<br>in series        | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE |
|---|----------------------|--------------|---|---|--------------------|--------------------------------|--------------------------|------------------------------|
|    | Sirius 12            | TEUFELBERGER |    | €2.35 \$3.50 \$1.00 €3.10   | 12mm<br>½"         |                                | 103g<br>6.92lb           | Polyester<br>Polyester       |
|    | Sirius 14            | TEUFELBERGER |    | €2.85 \$4.25 \$1.25 €3.80   | 14mm<br>⅝"         |                                | 151g<br>10.15lb          | Polyester<br>Polyester       |
|    | Sirius 16            | TEUFELBERGER |    | €3.25 \$5.10 \$1.50 €4.20   | 16mm<br>⅝"         |                                | 185g<br>12.43lb          | Polyester<br>Polyester       |
|    | Sirius 18            | TEUFELBERGER |    | €6.45 \$8.15 \$1.80 €7.50   | 15.9mm<br>⅝"       |                                | 227g<br>15.26lb          | Polyester<br>Polyester       |
|    | Sirius 20            | TEUFELBERGER |    | €7.65 \$9.65 \$2.05 €8.90   | 19.1mm<br>⅜"       |                                | 285g<br>19.16lb          | Polyester<br>Polyester       |
|    | tREX 11              | TEUFELBERGER |    | €4.20 \$5.00 \$1.55 €4.80   | 11.1mm<br>⅞"       | 6 sizes<br>9.5-22mm<br>⅜-⅞"    | 98.2g<br>6.6lb           | Polyester<br>-               |
|   | tREX 13              | TEUFELBERGER |  | €4.95 \$5.90 \$1.80 €5.55   | 12.7mm<br>½"       | 6 sizes<br>9.5-22mm<br>⅜-⅞"    | 129.4g<br>8.7lb          | Polyester<br>-               |
|  | tREX 16              | TEUFELBERGER |  | €6.75 \$7.50 \$2.30 €7.15   | 15.9mm<br>⅝"       | 6 sizes<br>9.5-22mm<br>⅜-⅞"    | 203.8g<br>13.7lb         | Polyester<br>-               |
|  | tREX 19              | TEUFELBERGER |  | €8.00 \$9.50 \$2.95 €8.35   | 19.1mm<br>⅜"       | 6 sizes<br>9.5-22mm<br>⅜-⅞"    | 267.8g<br>18lb           | Polyester<br>-               |
|  | Sta-Set              | TEUFELBERGER |  | €4.95 \$5.30 \$1.65 €5.75   | 12.7mm<br>½"       | 6 sizes<br>12.7-25.4mm<br>½-1" | 150g<br>10.1lb           | Polyester<br>Polyester       |
|  | Sta-Set              | TEUFELBERGER |  | €5.50 \$5.75 \$1.75 €6.40   | 14.3mm<br>⅝"       | 6 sizes<br>12.7-25.4mm<br>½-1" | 177g<br>11.9lb           | Polyester<br>Polyester       |
|  | Sta-Set              | TEUFELBERGER |  | €5.00 \$6.00 \$1.85 €5.80   | 15.9mm<br>⅝"       | 6 sizes<br>12.7-25.4mm<br>½-1" | 253g<br>17lb             | Polyester<br>Polyester       |
|  | Sta-Set              | TEUFELBERGER |  | €5.95 \$6.50 \$2.00 €6.90   | 19.1mm<br>⅜"       | 6 sizes<br>12.7-25.4mm<br>½-1" | 352.6g<br>23.7lb         | Polyester<br>Polyester       |
|  | Double Esterlon      | YALE CORDAGE |  | €3.50 \$3.20 \$1.00 €4.10   | 13mm<br>½"         | 9 sizes<br>6-24mm<br>¼-1½"     | 122g<br>7.8lbs           | Polyester<br>Polyester       |
|  | Double Esterlon      | YALE CORDAGE |  | €4.00 \$4.20 \$1.30 €4.65   | 14mm<br>⅝"         | 9 sizes<br>6-24mm<br>¼-1½"     | 164g<br>9.6lb            | Polyester<br>Polyester       |
|  | Double Esterlon      | YALE CORDAGE |  | €5.40 \$5.20 \$1.60 €6.25   | 16mm<br>⅝"         | 9 sizes<br>6-24mm<br>¼-1½"     | 208g<br>13.7lb           | Polyester<br>Polyester       |
|  | Double Esterlon      | YALE CORDAGE |  | €5.80 \$6.20 \$1.90 €6.75   | 19mm<br>¾"         | 9 sizes<br>6-24mm<br>¼-1½"     | 268g<br>16.7lb           | Polyester<br>Polyester       |

# ARBORIST RIGGING ROPES

| CONSTRUCTION | SHEATH BRAID / PLAINT | LIFE SUPPORT STANDARDS (only for multi-role ropes) | HAND SPICEABLE PRE-SPICED SEWN | SUITABLE FOR |          |              |                | MINIMUM/AVERAGE BREAKING LOAD/STRENGTH       |  |                                    | ELONGATION<br>@10% MBS<br>@30% MBS<br>@50% MBS<br>@300lbf/136kg<br>@540 lbf/245kg | OTHER COLOURS | NOTES                                 | WWW.             |
|--------------|-----------------------|--|--------------------------------|--------------|----------|--------------|----------------|--|--|------------------------------------|---|---------------|---------------------------------------|------------------|
|              |                       |  |                                | CLIMBING     | LOWERING | IMPACT LOWER | STATIC RIGGING | MBL<br>Minimum Break Load<br>Spliced<br>Sewn | ABL<br>Average Break Load<br>Spliced<br>Sewn | WLL<br>Spliced<br>Sewn<br>*Average |   |               |                                       |                  |
| ■            | 32 DB                 | CE   | ■ ■                            | ●            | ■        | ■            | ■              | 30 35kN<br>6740lbf<br>7860lbf                |  |                                    |   |               |                                       | teufelberger.com |
| ■            | 32 DB                 | CE   | ■ ■                            | ●            | ■        | ■            | ■              | 44.2 52kN<br>9930lbf<br>11680lbf             |  |                                    |   |               |                                       | teufelberger.com |
| ■            | 32 DB                 | CE   | ■ ■                            | ●            | ■        | ■            | ■              | 53.5 63kN<br>12000lbf<br>14160lbf            |  |                                    |   |               |                                       | teufelberger.com |
| ■            | 32 DB                 | CE   | ■ ■                            | ●            | ●        | ■            | ■              | 65.4 66kN<br>14700lbf<br>17300lbf            |  |                                    |   |               | designed primarily for whoopie slings | teufelberger.com |
| ■            | 32 DB                 | CE   | ■ ■                            | ●            | ●        | ■            | ■              | 91kN<br>20500lbf                             |  |                                    |   |               | designed primarily for whoopie slings | teufelberger.com |
| ■            | 12 HB                 |  | ■ ■                            | -            | ■        | ■            | ■              | 30 34kN<br>6740lbf<br>7640lbf                |  |                                    |   |               |                                       | teufelberger.com |
| ■            | 12 HB                 |  | ■ ■                            | -            | ■        | ■            | ■              | 39 44kN<br>8765lbf<br>9890lbf                |  |                                    |   |               |                                       | teufelberger.com |
| ■            | 12 HB                 |  | ■ ■                            | -            | ■        | ■            | ■              | 59 66kN<br>13260lbf<br>14835lbf              |  |                                    |   |               |                                       | teufelberger.com |
| ■            | 12 HB                 |  | ■ ■                            | -            | ■        | ■            | ■              | 81 91kN<br>18205lbf<br>20455lbf              |  |                                    |   |               |                                       | teufelberger.com |
| ■            | 24 DB                 |  | ■ ■                            | -            | ■        | ■            | ■              | 32 37kN<br>7190lbf<br>8310lbf                |  |                                    |   |               |                                       | teufelberger.com |
| ■            | 24 DB                 |  | ■ ■                            | -            | ■        | ■            | ■              | 47 42.2kN<br>10566lbf<br>9500lbf             |  |                                    |   |               |                                       | teufelberger.com |
| ■            | 24 DB                 |  | ■ ■                            | -            | ■        | ■            | ■              | 55 65kN<br>12360lbf<br>14610lbf              |  |                                    |   |               |                                       | teufelberger.com |
| ■            | 24 DB                 |  | ■ ■                            | -            | ■        | ■            | ■              | 74 87kN<br>16630lbf<br>19550lbf              |  |                                    |   |               |                                       | teufelberger.com |
| □            | 24 DB                 |  | ■ ■                            | -            | ■        | ■            | ■              | 43kN<br>9720lbf                              | 48kN<br>10800lbf                             | 9kN<br>2160lbf                     |   |               |                                       | yalecordage.com  |
| □            | 24 DB                 |  | ■ ■                            | -            | ■        | ■            | ■              | 53kN<br>11961lbf                             | 59kN<br>13290lbf                             | 11kN<br>2658lbf                    |   |               |                                       | yalecordage.com  |
| □            | 24 DB                 |  | ■ ■                            | -            | ■        | ■            | ■              | 68kN<br>15300lbf                             | 75kN<br>17000lbf                             | 15kN<br>3400lbf                    |   |               |                                       | yalecordage.com  |
| □            | 24 DB                 |  | ■ ■                            | -            | ■        | ■            | ■              | 83kN<br>18720lbf                             | 92kN<br>20800lbf                             | 18kN<br>4160lbf                    |   |               |                                       | yalecordage.com  |

Images NOT to Scale  
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 £\$€ = Currency Conversion  
 Cost exc eyes, inc VAT/Tax  
 DB=Double Braid,  
 KM=KernMantle/Single Braid  
 HB=Hollow Braid  
 DS=Double Strand  
 ☐=Option.  
 ●=OK but not ideal

|  | MODEL & Ø<br>VARIANT | COMPANY      | ORIGIN  | COST<br>per Metre<br>/3.28ft<br>US\$ per Foot<br>Currency conversion only | Ø<br>mm<br>Inches" | Other<br>Ø<br>in series          | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE |
|--|----------------------|--------------|---|---|--------------------|----------------------------------|--------------------------|------------------------------|
|    | Optimus 10           | YALE CORDAGE |    | £4.75 \$6.00 \$1.80 €5.55   | 10mm<br>3/16"      | -                                | 00g<br>4lb               | Polyester<br>-               |
|    | Optimus 13           | YALE CORDAGE |    | £3.10 \$3.90 \$1.20 €3.60   | 13mm<br>1/2"       | -                                | 00g<br>9.2lb             | Polyester<br>-               |
|    | Optimus 16           | YALE CORDAGE |    | £3.90 \$4.90 \$1.50 €4.55   | 16mm<br>5/8"       | -                                | 00g<br>11.7lb            | Polyester<br>-               |
|    | Optimus 19           | YALE CORDAGE |    | £5.20 \$6.55 \$2.00 €6.05   | 19mm<br>3/4"       | -                                | 00g<br>16lb              | Polyester<br>-               |
|    | Optimus 22           | YALE CORDAGE |    | £4.75 \$6.00 \$1.80 €5.55   | 22mm<br>7/8"       | -                                | 00g<br>25lb              | Polyester<br>-               |
|    | Polydyne 12          | YALE CORDAGE |    | £3.10 \$3.90 \$1.20 €3.60   | 12mm<br>1/2"       | 14 sizes<br>6-36mm<br>1/4-1 1/2" | 113g<br>7.6lb            | Polyester<br>Nylon           |
|    | Polydyne 14          | YALE CORDAGE |    | £4.15 \$5.25 \$1.60 €4.85   | 14mm<br>9/16"      | 14 sizes<br>6-36mm<br>1/4-1 1/2" | 144g<br>9.7lb            | Polyester<br>Nylon           |
|  | Polydyne 16          | YALE CORDAGE |  | £4.65 \$5.90 \$1.80 €5.45   | 16mm<br>5/8"       | 14 sizes<br>6-36mm<br>1/4-1 1/2" | 198g<br>13.3lb           | Polyester<br>Nylon           |
|  | Polydyne 18          | YALE CORDAGE |  | £5.95 \$7.50 \$2.30 €6.95   | 18mm<br>3/4"       | 14 sizes<br>6-36mm<br>1/4-1 1/2" | 250g<br>16.8lb           | Polyester<br>Nylon           |
|  | Portland Braid 13    | YALE CORDAGE |  | £4.00 \$4.90 \$1.50 €4.60   | 13mm<br>1/2"       | 18 sizes<br>6-63mm<br>1/4-2 3/8" | 118g<br>7.9lb            | Polyester<br>Polyester       |
|  | Portland Braid 14    | YALE CORDAGE |  | £4.60 \$5.65 \$1.75 €5.30   | 14mm<br>9/16"      | 18 sizes<br>6-63mm<br>1/4-2 3/8" | 149g<br>10lb             | Polyester<br>Polyester       |
|  | Portland Braid 16    | YALE CORDAGE |  | £5.10 \$6.45 \$2.00 €5.95   | 16mm<br>5/8"       | 18 sizes<br>6-63mm<br>1/4-2 3/8" | 194g<br>13lb             | Polyester<br>Polyester       |
|  | Portland Braid 18    | YALE CORDAGE |  | £6.00 \$7.60 \$2.35 €7.00   | 19mm<br>3/4"       | 18 sizes<br>6-63mm<br>1/4-2 3/8" | 244g<br>16.4lb           | Polyester<br>Polyester       |
|  | Yalex 13             | YALE CORDAGE |  | £2.60 \$3.20 \$1.00 €3.00   | 13mm<br>1/2"       | 17 sizes<br>6-50mm<br>1/4-2"     | 125g<br>0lb              | Polyester<br>-               |
|  | Yalex 14             | YALE CORDAGE |  | £2.95 \$3.60 \$1.10 €3.40   | 14mm<br>9/16"      | 17 sizes<br>6-50mm<br>1/4-2"     | 153g<br>0lb              | Polyester<br>-               |
|  | Yalex 16             | YALE CORDAGE |  | £3.40 \$4.20 \$1.30 €3.95   | 16mm<br>5/8"       | 17 sizes<br>6-50mm<br>1/4-2"     | 173g<br>0lb              | Polyester<br>-               |
|  | Yalex 18             | YALE CORDAGE |  | £4.75 \$6.00 \$1.80 €5.55   | 19mm<br>3/4"       | 17 sizes<br>6-50mm<br>1/4-2"     | 231g<br>0lb              | Polyester<br>-               |

# ARBORIST RIGGING ROPES

| CONSTRUCTION | SHEATH<br>BRAID / PLAIT | LIFE SUPPORT STANDARDS (only for multi-role ropes) | HAND SPLICEABLE PRE-SPICED PRE-SEWN | SUITABLE FOR |          |              |                | MINIMUM/AVERAGE BREAKING LOAD/STRENGTH       |  |                                    | ELONGATION<br><br>@10% MBS<br>@30% MBS<br>@50% MBS<br>@300lbf/136kg<br>@540 lbf/245kg | OTHER COLOURS | NOTES | WWW.            |
|--------------|-------------------------|--|-------------------------------------|--------------|----------|--------------|----------------|--|--|------------------------------------|---|---------------|-------|-----------------|
|              |                         |  |                                     | CLIMBING     | LOWERING | IMPACT LOWER | STATIC RIGGING | MBL<br>Minimum Break Load<br>Spliced<br>Sewn | ABL<br>Average Break Load<br>Spliced<br>Sewn | WLL<br>Spliced<br>Sewn<br>*Average |   |               |       |                 |
| ■            | 12 HB                   |  | ■                                   | ●            | ■        | -            | ■              | 24kN<br>5400lbf                              | 26.7kN<br>6000lbf                            | 5.3kN<br>1200lbf                   | 1%  |               |       | yalecordage.com |
| ■            | 12 HB                   |  | ■                                   | -            | ■        | -            | ■              | 54kN<br>12150lbf                             | 60kN<br>13500lbf                             | 12kN<br>2700lbf                    | 1%  |               |       | yalecordage.com |
| ■            | 12 HB                   |  | ■                                   | -            | ■        | -            | ■              | 00kN<br>17100lbf                             | 00kN<br>19000lbf                             | 17kN<br>3800lbf                    | 1%  |               |       | yalecordage.com |
| ■            | 12 HB                   |  | ■                                   | -            | ■        | -            | ■              | 100kN<br>22500lbf                            | 111.2kN<br>25000lbf                          | 22.2kN<br>5000lbf                  | 1%  |               |       | yalecordage.com |
| ■            | 12 HB                   |  | ■                                   | -            | ■        | -            | ■              | 144.1kN<br>32400lbf                          | 160.1kN<br>36000lbf                          | 32kN<br>7200lbf                    | 1%  |               |       | yalecordage.com |
|              | 24 DB                   |  | ■ ■                                 | -            | ■        | ■            | -              | 44kN<br>9900lbf                              | 49kN<br>11000lbf                             | 9.8kN<br>2200lbf                   | 3%  |               |       | yalecordage.com |
|              | 24 DB                   |  | ■ ■                                 | -            | ■        | ■            | -              | 60kN<br>13500lbf                             | 66.7kN<br>15000lbf                           | 13.3kN<br>3000lbf                  | 3%  |               |       | yalecordage.com |
|              | 24 DB                   |  | ■ ■                                 | -            | ■        | ■            | -              | 75.7kN<br>17010lbf                           | 84kN<br>18900lbf                             | 17kN<br>3780lbf                    | 3%  |               |       | yalecordage.com |
|              | 24 DB                   |  | ■ ■                                 | -            | ■        | ■            | -              | 104kN<br>23400lbf                            | 115.7kN<br>26000lbf                          | 23.1kN<br>5200lbf                  | 3%  |               |       | yalecordage.com |
| □            | 32 DB                   |  |                                     | -            | ■        | -            | ■              | 44.5kN<br>10000lbf                           | 40kN<br>9000lbf                              | 8.9kN<br>2000lbf                   | 1.1%  |               |       | yalecordage.com |
| □            | 32 DB                   |  |                                     | -            | ■        | -            | ■              | 55.4kN<br>12450lbf                           | 49.8kN<br>11205lbf                           | 11kN<br>2490lbf                    | 1.1%  |               |       | yalecordage.com |
| □            | 32 DB                   |  |                                     | -            | ■        | -            | ■              | 67.5kN<br>15180lbf                           | 60.8kN<br>13662lbf                           | 13.5kN<br>3036lbf                  | 1.1%  |               |       | yalecordage.com |
| □            | 32 DB                   |  |                                     | -            | ■        | -            | ■              | 84kN<br>18900lbf                             | 75.7kN<br>17010lbf                           | 16.8kN<br>3780lbf                  | 1.1%  |               |       | yalecordage.com |
| ■            | 12 HB                   |  | ■                                   | -            | ■        | -            | ■              | 61.5kN<br>13833lbf                           | 68.4kN<br>15370lbf                           | 13.7kN<br>3074lbf                  | 1%  |               |       | yalecordage.com |
| ■            | 12 HB                   |  | ■                                   | -            | ■        | -            | ■              | 75.5kN<br>16974lbf                           | 83.4kN<br>18860lbf                           | 16.8kN<br>3772lbf                  | 1%  |               |       | yalecordage.com |
| ■            | 12 SB                   |  | ■                                   | -            | ■        | -            | ■              | 83.7kN<br>18810lbf                           | 93kN<br>20900lbf                             | 18.6kN<br>4180lbf                  | 1%  |               |       | yalecordage.com |
| ■            | 12 HB                   |  | ■                                   | -            | ■        | -            | ■              | 108kN<br>24300lbf                            | 120.1kN<br>27000lbf                          | 24kN<br>5400lbf                    | 1%  |               |       | yalecordage.com |

**UPDATED** Oct '24

**ARBORIST climbing**

# PRUSIK/HITCH CORD

**NB: PRICES BEING UPDATED Q3 '24**

Probably the most misspelled word in climbing history the prusik is a hitch used for ascending, arresting and positioning. For many, the term 'Prusik' is just generic and these are now often referred to as Hitch cords because the hitch actually being used could be any number of variants:

- Klemheist
- Schwabisch
- Valdotrain Tresse
- Blakes Hitch
- Distal Hitch
- Michoacan
- Machard Tresse
- Tautline Hitch
- Bachman

They are often referred to as a 'knot' but are a hitch because they only function properly when loaded. With no weight applied they can be easily slid up or down a rope with holding power determined by the number of 'wraps' as well as the strength and relative diameters of the cord and main rope. It's highly likely that some type of grabbing hitch has been in use for centuries but since there is no firm evidence, its modern introduction is credited to mountaineer Karl Prusik in 1931. Although it was introduced as an ascending knot on climbing rope it has been used in arborism (has that term taken off yet?) from the get-go. In rescue it is most often used as a fall arrest hitch and for progress capture in pulley systems so tends to require at least three wraps rather than the traditional two wraps. Arborists too seem to have settled on three wraps as the norm but personal preference and applied or potential loadings will have a bearing on how many wraps you decide to use along with some trial and error to ensure that it actually works for your particular application.

Your climbing hitch is now more likely to have a sewn or spliced eye at each end than be a traditional circular loop. When buying your own lengths you either splice your eyes/loop or join the ends with a double or triple fisherman's. A number of cords are ONLY available as manufactured lengths rather than off the roll. Pre-made lengths can be anywhere between 13cm/5" to well over a metre/3ft. The average for an eye to/& eye length is around 75cm/30". There isn't actually a specific standard for arborist prusik cord even though it is considered to be PPE and should be CE marked in Europe so the closest appropriate standards are either for accessory cord (EN564 which has to



be less than 10mm or it's classed as a rope), slings (EN566) or maybe even EN354 which is fall arrest lanyards that don't incorporate an energy absorbing element so are more accurately restraint/work positioning which could describe hitch cord. If they meet any of these as a cord or sewn/spliced item they are marked with a CE in our tables. Some manufacturers including Liros and Donaghys would prefer you opt for sewn items that meet EN566 (slings). 'Prusik cord' may infer its use as an ascending hitch like the Bluewater Dynamic Prusik below, but, not only are there plenty of other friction hitches in common use, there are a host of other applications including pulley systems, control lines and rigging. The traditional prusik hitch is created by wrapping a loop of cord through itself after passing (or wrapping) it around a standing rope. It is made using cord or small diameter rope that has been formed into an endless loop/sling or an eye-to-eye or double-ended sling. Some, including

Jeff Jepson, also refer to these as 'double eye split tails'. It is generally preferable for

hitch cord to be smaller in diameter than the rope onto which it is operating. However, in the arborist world, double eye or eye-to-eye or eye & eye slings are often used on like-sized ropes. In the old days it used to be like-sized laid rope on laid rope instead of the present day kernmantle or braided ropes and some still swear by this. Most eyes have moved towards stitched/sewn as the strongest option but they are much bulkier than a spliced eye.

When considering diameters remember that for climbing, arborists will only ever be using their personal hitch with a single bodyweight whereas in rigging, emergency use and rescue use the prusik may be loaded far beyond a single bodyweight. Consequently, optimum load-holding is essential and this usually requires more wraps and optimum combinations of cord to main rope in terms of diameter and materials. These factors will vary from rope to rope and even with rope colours as dyes and coatings affect the load-holding ability of different combinations. Test your own combination of rope type and diameters before using in anger.

## MATERIALS & CORD PROPERTIES

The cord used to create a hitch has evolved over the years into a specialist item and it's no longer acceptable to grab any old scrap from your chainsaw's discarded pull-cord to create a hitch. Tales of mountaineers and escaping pilots improvising with their boot laces will spur you on to continue what you were about to try because your cord is loads thicker than a bootlace but take it from me, some bone-fide hitch cord with 'prusik/hitch cord' written on the label will be much, much safer and easier to use. And don't think that all climber's accessory cord will do. They are often indistinguishable from dedicated prusik cord but with regular nylon sheath and core their

capacity to withstand the heat build up and wear associated with protracted rope-on rope contact will quickly show in your rope and in your wallet. There is no question that the strongest hitch cord is that which contains the specialist fibres and their derivatives - Aramid/Kevlar/Technora, Spectra/Dyneema and Vectran etc. Not only do they improve wear and heat resistance they also withstand chemical and acid contamination far, far better than standard polyester and in particular, nylon. Heat resistance for Technora (800F) and Vectran (620F) is much greater than Nylon (420F) and Polyester (480F) but it is a lot more expensive. Some cords in this list are over **£12./\$16** a metre while the cheapest (non-heat resistant) cord is around **99p/\$1.50 /m**. Back when you only saw Kevlar on sailing yachts we were often warned to avoid them because they were weak when knotted ie.. their strength reduced considerably when bent around a tight radius.

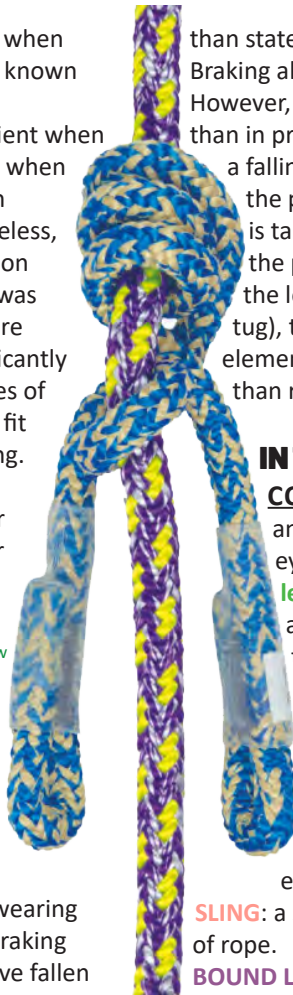
Nothing new there - all rope is significantly weaker when wrapped around a tight radius and we have always known that the knot is a particular weak point. But there was talk of the fibres not being very resilient when it came to a regular bending cycle. Quite surprising when you consider how much stronger these fibres are in tensile than a regular nylon and polyester. Nevertheless, testing 20 years ago indicated that strength reduction in a knot using Aramid, Spectra and Vectran fibres was indeed greater than in equivalent nylon and we were all a bit wary. Luckily, things have progressed significantly and with all manufacturers now using cunning mixes of specialist fibres and testing to ensure that they are fit for purpose we're all a lot happier and more trusting. In fact, the bigger problem might now be that the specialist fibre cords are actually tougher than your main rope and it is therefore your main rope rather than your prusik that is more likely to fail in the event of a high load 'dynamic event'.

## BRAKING

We have differentiated use into CLIMBING, BRAKING and HEAT RESISTANCE. All of the cords listed can be used for climbing/ascending in the usual way and of course the myriad of nylon climber accessory cords not listed here may also work adequately. However, as already mentioned, protracted professional use demands a more hardwearing construction and this is particularly the case with braking operations. Traditional braking actions that may have fallen to prusiks are now invariably handled by specialist hardware like Porta Wraps or descenders so the kind of dynamic load arrest that still sees prusiks being used in Rescue for secondary belaying actions are not widely used by arborists. But they are used and nothing stresses your cords and ropes like trying to slow or stop a moving heavy weight by gripping a rope with another rope. There is significant heat build up whenever rope

**Be wary of holding onto your prusik cord too long - it takes more abuse than any other part of your safety equipment and you may be lucky to still have even 50% of its original strength when you finally retire it!**

Right: FTC TREE's Phoenix cord has now been replaced by the Neon and Argon



rubs across rope such as occurs in regular prusiking/ascending and this will ALWAYS cause melting and degradation of surface rope fibres to some degree. For rock climbers or mountaineers using prusiks relatively infrequently and/or over short distances this heat build up and wear is not too much of a concern but for arborists spending all day sliding a prusik hitch up and down a rope, wear can be significant. This is part of the reason that in the pre-technical ropes era most prusiks were composed of the same 12mm (1/2") 3-strand or multiplait as the main rope. In contrast, tougher, modern prusiks are ideally around 60%

the diameter of the rope they are braking on eg. 6mm cord on 9-10mm rope, 7mm cord on 10-10.5mm rope, 8mm cord on 11mm rope and 9mm cord on 12mm or 1/2" rope.

NB: the EN standard for accessory cord only records whole figures - some cord may be 0.5mm larger

than stated. Braking also refers to progress capture in pulley systems. However, the loading in a pulley system is significantly less than in prusiks used on a rope connected directly to a load or a falling load in the case of belaying. Depending on where the prusik is located in a pulley system, most of the load is taken in the first two or three lengths of rope between the pulleys so that by the time the prusik kicks in to hold the load (while you reset your pulley system for another tug), the load is three, four or five times less. So this element of 'Braking' rarely, if ever loads the prusik more than regular climbing activities.

## IN THE FOLLOWING TABLES:

**COST** is given per metre or US\$ per foot in brackets and for manufactured eye to eye lengths (or sling if eye to eye is not an option). **A length in green has a length-specific weight also indicated in green.** Costs are usually the full retail price so you can often expect to pay less. To tie your own prusik loop you'll need double the ultimate length plus about 60cm/2ft for knots.

**OFF-REEL:** available in long lengths off the reel

**1xEYE:** Has one sewn or spliced eye on one end only

**2xEYES:** or EYEtoEYE or SPLIT-TAIL had an eye at each end of a single length of rope/cord.

**SLING:** a spliced or more usually sewn joint in an endless loop of rope.

**BOUND LOOP:** An endless sling with a sewn joint but with a movable collar or plastic sleeve that can constrict the eye size at one end to help keep it tight on its connector.

**•DIAMETER:** rope diameter conversions from inches to millimetres are a minefield with every company quoting something different because they are generally rounding down or rounding up. There are of course, precise conversion figures for each size (mm x 0.03937 = inches) but some of them don't

really roll off the tongue as you can see from the table below so if you notice a difference in our tables it might be where the manufacturer has converted differently and since we don't know whether they are working from inches or millimetres it's best to quote what they quote even though it means we may have both 9 and 10mm for instance quoted as being 3/8" - so long as you know that it isn't our poor mathematics. In reality 3/8" is closest to 9.5mm so it could quite reasonably be used for both 9 and 10mm ropes. Where only metric OR imperial is quoted you can check our handy conversion table.

A solid circle ● in the 'SUITABLE FOR' columns indicates that the cord is not totally suited to that role but it's OK. In the case of the HEAT-RESIST column you will only see the solid square for cord that is either predominantly sheathed in Technora or similar specialist fibre or there are such fibres mixed into not only the sheath but also the core. Any cord with a circle in this column will still be a very good bet for durability but those with a solid square will be the best in terms of heat-resistance. Don't forget though, this feature alone might not be your key requirement - you may be after a lighter more supple rope or simply less expensive as an initial outlay.

**CONSTRUCTION:** we show **KM** for Kernmantle, **DB** for Double Braid and **HB** for Hollow Braid or simply the thread count for some single braid cords. It used to be the case that Hollowbraid ropes were the weakest and least heat-resistant of cords but with the advent of Aramid/Technora and Dyneema fibres there are now a number of hollowbraids that are as tough as wire rope! We have generally only shown cords that are actively marketed as arborist cord but there are a number of specialist cords used by firefighters and rescuers that cross the divide if you've got the

spondooleys. You can already see from this list how many have incorporated fibres that were once the sole domain of fire-retardant ropes and these are not only heat-resistant they are extremely abrasion-resistant. However, they are virtually always a mixture of fibres because by themselves, some materials don't exhibit all of the necessary properties - for instance Kevlar has traditionally performed poorly in a knot and along with Dyneema couldn't be dyed so colours were introduced using an additional nylon or polyester thread. Where there are two fibres in the construction, The higher proportion fiber is listed first

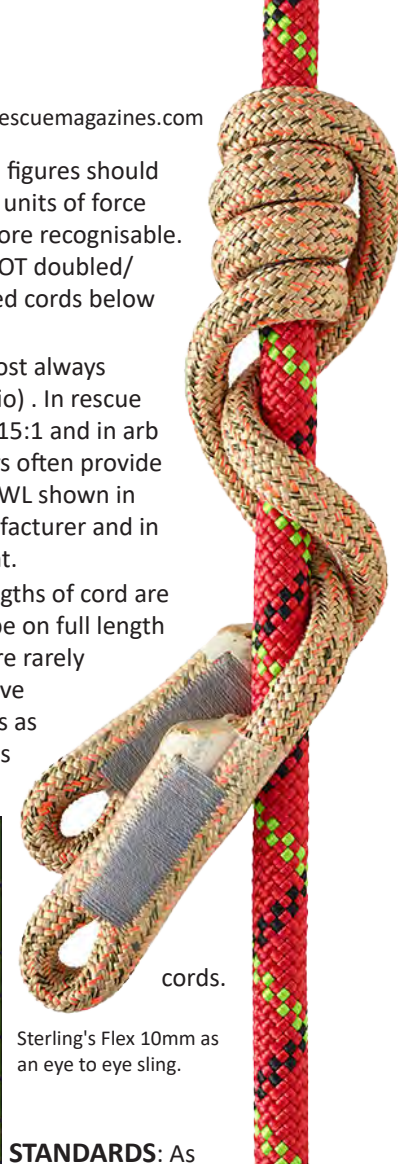
**MBL/ABL:** As with all rope, some manufacturers only quote Average Breaking Load or ABL shown in **burnt orange**. We use the Minimum Breaking Load or MBL (or MBS where S

=Strength) shown in black. These figures should more accurately be kN and lbf as units of force but the kg and lb equivalent is more recognisable. Figures are for tensile strength NOT doubled/basket. NB: We have NOT included cords below 8kN/800kg/1800 lb in strength.

**SWL** or safe working load is almost always between 4 & 15% (4:1 to 15:1 ratio) . In rescue it tends to be between 10:1 and 15:1 and in arb circles is often 7:1. Manufacturers often provide their own interpretation so the SWL shown in black is that quoted by the manufacturer and in **burnt orange** is the 7:1 equivalent.

**ELONGATION** for such short lengths of cord are not the consideration they may be on full length climbing and rigging ropes and are rarely quoted by manufacturers. We have therefore not included this unless as a special note such as Bluewater's dynamic rather than low-stretch

| TRUE DIAMETER CONVERSIONS |                |                           |                     |
|---------------------------|----------------|---------------------------|---------------------|
| mm                        | Precise inches | Closest Specific Fraction | Generic Fraction    |
| 5                         | 0.1969"        | 13/64                     | 3/16                |
| 6                         | 0.2362"        | 15/64"                    | just under 1/4"     |
| 6.5                       | 0.25"          | 1/4"                      | 1/4"                |
| 7                         | 0.2756"        | 9/32"                     | just over 1/4"      |
| 7.5                       | 0.2952"        | 19/64"                    | even more than 1/4" |
| 8                         | 0.315"         | 5/16"                     | 5/16"               |
| 9                         | 0.3543"        | 23/64"                    | just under 3/8"     |
| 9.5                       | 0.375"         | 3/8"                      | 3/8"                |
| 10                        | 0.3937"        | 25/64"                    | just over 3/8"      |
| 11                        | 0.4331"        | 7/16"                     | 7/16"               |
| 12                        | 0.4724"        | 15/32                     | just under 1/2"     |
| 12.7                      | 0.4999"        | 1/2"                      | 1/2"                |
| 13                        | 0.5118"        | 33/64"                    | just over 1/2"      |



cords.

Sterling's Flex 10mm as an eye to eye sling.

**STANDARDS:** As usual there are several at play with the more specific European **CE** standards - EN 354 as a lanyard **EN 566** as a climbing sling and **EN 795 Type B** as portable anchor 'device'. Not yet a specific standard as prusik cord!? We've just left it as CE certified in black.

CI, BERRY, ANSI and NFPA are all US 'standards' or compliance. **BERRY** is related to sourcing of all materials in the manufacture of the product and is most often associated with military products. **CI** is Cordage Institute and is a 'prestige' mark. **NFPA** is for the Fire-Rescue industry but is useful to the work sector because it demands high load capabilities. Quite expensive to attain though so unless the arb company also caters to rescue it may not be worth the cost. **ANSI** is the US industrial standard and more broadly applied than CE but in our sector indicates suitability to arborist work. **UKCA** is a UK-only pseudo standard as a separation from European CE and **EAC** pertains to eastern Europe and Russia. UIAA is the original rope-equipment prestige mark and relates to mountaineering equipment . **We have not included the many rigging prusiks not certified for life-support/climbing activities.**





Introducing

# 11mm Pro-G

Strong - Supple - Predictable

BlueWater's 11mm NFPA-G rated low elongation line features:

- < 48 carrier sheath
- < Designed to run well in all devices
- < Whopping 9,447 lbf. published tensile strength
- < Polyester sheath with Nylon core
- < Available in 2 highly visible contrasting colors

|                   |                    |
|-------------------|--------------------|
| Diameter:         | 11mm               |
| Tensile Strength: | 9,447 lbf. (42 kN) |
| Grams Per Meter:  | 93                 |

Elongation




|                    |
|--------------------|
| @ 300 lbf. = 2.6%  |
| @ 600 lbf. = 4.7%  |
| @ 1000 lbf. = 6.8% |



209 Lovvorn Rd, Carrollton, GA 30117  
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[www.BlueWaterRopes.com](http://www.BlueWaterRopes.com)  
email: [Info@BlueWaterRopes.com](mailto:Info@BlueWaterRopes.com)

| Images NOT to Scale  | MODEL                | COMPANY   | ORIGIN  | COST<br>per Metre<br>/3.28ft<br>US\$ per<br>Foot | STATE<br>OFF-REEL<br>1x EYE<br>2xEYES<br>SLING<br>BOUND<br>LOOP   | EYE to EYE COSTS   |                |                 | SIZE<br>Ø<br>mm | WEIGHT<br>g/m<br>lb/100'<br>ITEM |  |
|--|----------------------|-----------|---|--|---|--|----------------|-----------------|-----------------|----------------------------------|--|
|  |                      |           |   |  |   | COST<br>MANUFACTURED LENGTHS<br>£\$€ = Currency Conversion ONLY<br>Specific Item Weight            |                |                 |                 |                                  |  |
|    | Friction 8           | ALLGEAR   |    | £5.15<br>\$6.55<br>\$2.00<br>€5.95               |       | 66cm/26" £22 \$28 €25<br>71cm/28" £23 \$29 €26<br>76cm/30" £24 \$30 €27<br>81cm/32" £25 \$31 €28   | 8mm<br>5/16"   | 120g<br>8lb     | Poly            |                                  |  |
|    | Friction 10          | ALLGEAR   |    | £5.35<br>\$6.80<br>\$2.10<br>€6.15               |       | 66cm/26" £24 \$30 €27<br>71cm/28" £25 \$31 €28<br>76cm/30" £26 \$32 €29<br>81cm/32" £27 \$35 €30   | 10mm<br>25/64" | 149g<br>10lb    | Poly            |                                  |  |
|    | TVP 8                | ALLGEAR   |    | £6.50<br>\$8.20<br>\$2.50<br>€7.50               |       | 66cm/26" £30 \$38 €35<br>71cm/28" £31 \$39 €36<br>81cm/32" £33 \$42 €38                            | 8mm<br>5/16"   | 89g<br>6.1lb    | Tech            |                                  |  |
|    | TVP 9.5              | ALLGEAR   |    | £7.50<br>\$9.50<br>\$3.00<br>€8.50               |       | 66cm/26" £31 \$39 €36<br>81cm/32" £36 \$45 €41   | 9.5mm<br>3/8"  | 116g<br>7.8lb   | Tech            |                                  |  |
|    | Prusik 8             | ALLGEAR   |    | £6.50<br>\$8.10<br>\$2.50<br>€7.40               |    | -  | 8mm<br>5/16"   | 42g<br>2.8lb    | Tw              |                                  |  |
|    | XS cord 9<br>XS9.1   | ARBPRO    |    | £4.30<br>\$7.90<br>\$2.40<br>€8.25               |       | 50cm/20" £26 \$32 €29<br>60cm/24" £27 \$33 €30<br>70cm/28" £28 \$34 €31<br>120cm/47" £31 \$39 €35  | 9.1mm<br>3/8"  | 65g<br>4.4lb    | Pol             |                                  |  |
|  | Volcano 8<br>BV08    | BEAL      |  | -<br>-<br>-<br>-                                 |    | 70cm/28" £35 \$40 €34<br>90cm/35" £36 \$42 €35   | 8mm<br>5/16"   | 70g<br>2.5oz    | Poly            |                                  |  |
|  | Volcano 10<br>BV10   | BEAL      |  | -<br>-<br>-<br>-                                 |    | 70cm/28" £37 \$44 €36<br>90cm/35" £38 \$46 €37   | 10mm<br>25/64" | n/a             | Poly            |                                  |  |
|  | Volcano 12<br>BV12   | BEAL      |  | -<br>-<br>-<br>-                                 |    | 70cm/28" £40 \$48 €39<br>90cm/35" £42 \$50 €41   | 12mm<br>1/2"   | n/a             | Poly            |                                  |  |
|  | Hybrid 7.5           | BLUEWATER |  | £1.00<br>\$4.00<br>\$1.25<br>€1.15               |    | -  | 7.5mm<br>5/16" | 40g<br>2.7lb    | Tech            |                                  |  |
|  | VT 7                 | BLUEWATER |  | -<br>-<br>-<br>-                                 |    | 84cm/33" £27 \$30 €29  | 7mm<br>9/32"   | 98g<br>3.5oz    |                 |                                  |  |
|  | VT 8                 | BLUEWATER |  | -<br>-<br>-<br>-                                 |    | 84cm/33" £31 \$30/34 €33   | 8mm<br>5/16"   | n/a             |                 |                                  |  |
|  | Dynamic Prusik 6.5   | BLUEWATER |  | £1.60<br>\$2.00<br>\$0.65<br>€1.80               |   | 28cm/11" £11 \$13 €12<br>51cm/20" £11 \$14 €13<br>112cm/44" £13 \$16 €15<br>173cm/68" £13 \$17 €16 | 6.5mm<br>1/4"  | 26.3g<br>1oz    |                 |                                  |  |
|  | Dynamic Prusik 7     | BLUEWATER |  | £1.80<br>\$2.25<br>\$0.70<br>€2.05               |   | 46cm/18" £13 \$16 €15<br>61cm/24" £13 \$17 €16<br>173cm/68" £17 \$21 €20                           | 7mm<br>9/32"   | 35g<br>1.24oz   |                 |                                  |  |
|  | Dynamic Prusik 8     | BLUEWATER |  | £1.95<br>\$2.45<br>\$0.75<br>€2.25               |   | 46cm/18" £12 \$15 €14<br>61cm/24" £15 \$18 €17<br>76cm/30" £16 \$20 €19                            | 8mm<br>5/16"   | 39g<br>1.4oz    |                 |                                  |  |
|  | Prusik 6<br>293011/2 | CMC       |  | £2.05<br>\$2.60<br>\$0.80<br>€2.35               |    | -  | 6mm<br>1/4"    | 27.9g<br>1.87lb |                 |                                  |  |








COST: £\$€ = Currency Conversion ONLY excludes eyes unless specified in NOTES. INCLUDES local taxes/VAT, Some are not so

| CONSTRUCTION                   |                           |  | STANDARDS | SUITABLE FOR |         |             | MINIMUM BREAKING LOAD                           |   | SWL/WLL                            | OTHER COLOURS   | NOTES                        | WWW.               |
|--------------------------------|---------------------------|--|-----------|--------------|---------|-------------|---|---|------------------------------------|---|------------------------------|--------------------|
| MATERIALS:<br>SHEATH<br>CORE   | SHEATH<br>BRAID/<br>PLAIT | HAND SPLICEABLE<br>PRE-SPLICED<br>PRE-SEWN | STANDARDS | CLIMBING     | BRAKING | HEAT RESIST | MBL<br>Minimum<br>Break Load<br>Spliced<br>Sewn | ABL<br>Average<br>Break Load<br>Spliced<br>Sewn | WLL<br>Spliced<br>Sewn<br>*Average |   |                              |                    |
| ester/Technora<br>Vectran      | DB                        | ■  | ANSI      | ■            | ■       | ■           | -   | 24kN<br>5400lbf                                 | 186kg<br>410lb                     |    |                              | allgearinc.com     |
| ester/Technora<br>Vectran      | DB                        | ■  | ANSI      | ■            | ■       | ■           | -   | 28kN<br>6300lbf                                 | 186kg<br>410lb                     |    |                              | allgearinc.com     |
| Technora/Vectran/<br>Polyester | 16                        | ■<br>■                                     | ANSI      | ■            | ■       | ■           | -   | 27.5kN<br>6200lbf                               | 281kg<br>620lb                     |   |                              | allgearinc.com     |
| Technora/Vectran/<br>Polyester | 12                        | ■<br>■                                     | ANSI      | ■            | ■       | ■           | -   | 44.48kN<br>10000lbf                             | 454kg<br>1000lb                    |   |                              | allgearinc.com     |
| Polyester<br>Aramid (Kevlar)   | 32<br>KM                  | ■<br>■                                     | ANSI      | ■            | ■       | ●           | 24kN<br>5400lbf                                 |   | 245kg<br>540lb                     |   |                              | allgearinc.com     |
| Polyester/Kevlar<br>Polyester  | 24<br>DB                  | ■<br>■                                     | ANSI      | ■            | ■       | ●           | 22kN<br>4945lbf                                 |   | 230kg<br>506lb                     |   | also 65, 75, 80 &<br>85cm    | arbpro.it          |
| Polyester/Aramid<br>Nylon      | KM                        | ■  | ANSI      | ■            | ■       | ●           | 18kN<br>4046lbf                                 |   |                                    |   |                              | bealplanet.com     |
| Polyester/Aramid<br>Nylon      | KM                        | ■  | ANSI      | ■            | ■       | ●           | 22kN<br>4945lbf                                 |   |                                    |   |                              | bealplanet.com     |
| Polyester/Aramid<br>Nylon      | KM                        | ■  | ANSI      | ■            | ■       | ●           | 18kN<br>4046lbf                                 |   |                                    |   |                              | bealplanet.com     |
| Technora/Polyester<br>Nylon    | 32<br>KM                  | ■  | NFPA      | ■            | ■       |             | 19.7kN<br>4428lbf                               |   |                                    |   |                              | bluewaterropes.com |
| Technora<br>Polyester          | 24<br>DB                  | ■<br>■                                     | ANSI      | ■            | ■       | ■           | 11.12kN<br>2500lbf                              |   |                                    |   |                              | bluewaterropes.com |
| Technora<br>Polyester          | 24<br>DB                  | ■<br>■                                     | ANSI      | ■            | ■       | ■           | 19.5kN<br>4400lbf                               |   |                                    |   | black=\$34                   | bluewaterropes.com |
| Nylon<br>Nylon                 | 32<br>KM                  | ■  | -         | ■            | ■       |             | 12.4 9.3kN<br>2800lbf<br>2100lbf                |   |                                    |   | 19.4% elongation<br>@300lbs  | bluewaterropes.com |
| Nylon<br>Nylon                 | 32<br>KM                  | ■  | -         | ■            | ■       |             | 17.7 10.4kN<br>4000lbf<br>2360lbf               |   |                                    |   | 17.9% elongation<br>@300lbs  | bluewaterropes.com |
| Nylon<br>Nylon                 | 32<br>KM                  | ■  | -         | ■            | ■       |             | 17.7 11.1kN<br>4000lbf<br>2500lbf               |   |                                    |   | 19.8% elongation<br>@ 300lbs | bluewaterropes.com |
| Polyester<br>Polyester         | 12                        | ■  | -         | ■            | ■       |             | 8kN<br>1798lbf                                  |   |                                    |  |                              | cmcpro.com         |

Weight shown in kg/lb, price shown is a proportion of shortest length x10% & rounded up. SHEATH: DB=Double Braid, KM=KernMantle

| Images NOT to Scale | MODEL  | COMPANY       | ORIGIN | COST   | STATE  | EYE to EYE COSTS  |  |  | SIZE                                   | WEIGHT                           |                     |              |
|---------------------|--|---------------|--------|--|--|---|--|--|--|----------------------------------|---------------------|--------------|
|                     |  |               |        | COST per Metre /3.28ft<br>US\$ per Foot<br>€2.70 | OFF-REEL<br>1x EYE<br>2xEYES<br>SLING<br>BOUND<br>LOOP | COST<br>MANUFACTURED LENGTHS<br>£\$€ = Currency Conversion ONLY<br>Specific Item Weight |  |  | Ø<br>mm                                | WEIGHT<br>g/m<br>lb/100'<br>ITEM |                     |              |
|                     | <b>Prusik 7</b><br>293017/37                       | CMC           |        | £2.40<br>\$2.95<br>\$0.90<br>€2.70               | ■  | -   | -                                      | -  | 7mm<br>5/32"                           | 75g<br>5lb                       | N                   |              |
|                     | <b>Prusik 8</b><br>293018/38                       | CMC           |        | £3.30<br>\$2.70<br>\$1.00<br>€2.70               | ■  | -   | -                                      | -  | 8mm<br>5/16"                           | 74g<br>5lb                       |                     |              |
|                     | <b>Prusik 9</b><br>293039                          | CMC           |        | £2.95<br>\$3.75<br>\$1.15<br>€3.40               | ■  | -   | -                                      | -  | 9mm<br>3/8"                            | 89g<br>6.1lb                     |                     |              |
|                     | <b>Aztek Prusik 6</b><br>295001/2/12               | CMC           |        | -<br>-<br>-                                      | ■  | 22.8cm/9"<br>106.6cm/42"  | £00<br>£00                             | \$16<br>\$24                                 | €00<br>€00                             | 6mm<br>1/4"                      | 55.8g<br>0oz        |              |
|                     | <b>Sewn/Bound Loop Prusik</b><br>293083/86/383/386 | CMC           |        | -<br>-<br>-                                      | ■  | 46cm/18"<br>63.5cm/25"  | £00<br>£00                             | \$21<br>\$21                                 | €00<br>€00                             |                                  | 48/62g<br>1.7/2.2oz |              |
|                     | <b>Phoenix 8</b>                                   | COURANT       |        | £0<br>\$4.85<br>\$1.49<br>€0                     | ■  | 65cm/00"<br>70cm/00"<br>75cm/00"<br>80cm/00"<br>85cm/00"<br>90cm/00"                    | £00<br>£00<br>£00<br>£00<br>£00<br>£00 | \$00<br>\$00<br>\$00<br>\$00<br>\$00<br>\$00 | €00<br>€00<br>€00<br>€00<br>€00<br>€00 | 8mm<br>5/16"                     | 0g<br>0lb           | Poly         |
|                     | <b>Phoenix Elipse 8</b><br>1of2                    | COURANT       |        | -<br>-<br>-                                      | ■  | 40cm/00"<br>60cm/00"<br>80cm/00"  | £00<br>£00<br>£00                      | \$00<br>\$00<br>\$00                         | €00<br>€00<br>€00                      | 8mm<br>5/16"                     | 0g<br>0lb           | Poly         |
|                     | <b>Phoenix Elipse 8</b><br>2of2                    | COURANT       |        | -<br>-<br>-                                      | ■  | 120cm/00"<br>150cm/00"<br>200cm/00"   | £00<br>£00<br>£00                      | \$00<br>\$00<br>\$00                         | €00<br>€00<br>€00                      | 8mm<br>5/16"                     | 0g<br>0lb           | Poly         |
|                     | <b>Phoenix 10</b>                                  | COURANT       |        | £0<br>\$5.50<br>\$1.70<br>€0                     | ■  | 65cm/00"<br>70cm/00"<br>75cm/00"<br>80cm/00"<br>85cm/00"<br>90cm/00"                    | £00<br>£00<br>£00<br>£00<br>£00<br>£00 | \$00<br>\$00<br>\$00<br>\$00<br>\$00<br>\$00 | €00<br>€00<br>€00<br>€00<br>€00<br>€00 | 10mm<br>25/64"                   | 0g<br>0lb           | Poly         |
|                     | <b>Armadillo 10</b><br>CT2277                      | COUSIN-TRETEC |        | £6.15<br>\$7.80<br>\$2.45<br>€7.05               | ■  | 70cm/28"<br>90cm/35"  | £00<br>£00                             | \$00<br>\$00                                 | €00<br>€00                             | 10mm<br>5/16"                    | 59g<br>3.9lb        | Poly         |
|                     | <b>Armor-Prus Poly 8</b>                           | DONAGHYS      |        | £0<br>\$11.40<br>\$3.50<br>€0                    | ■  | 70cm/28"<br>90cm/35"  | £00<br>£00                             | \$00<br>\$00                                 | €39<br>€41                             | 8mm<br>5/16"                     | 69g<br>4.6lb        | Poly         |
|                     | <b>Armor-Prus Poly 10</b>                          | DONAGHYS      |        | £0<br>\$0<br>\$0<br>€0                           | ■  | 00cm/00"<br>00cm/00"  | £00<br>£00                             | \$00<br>\$00                                 | €00<br>€00                             | 10mm<br>25/64"                   | 78g<br>5.25lb       | Poly         |
|                     | <b>Armor-Prus Performance 8</b>                    | DONAGHYS      |        | £0<br>\$13.00<br>\$4.00<br>€0                    | ■  | 00cm/00"<br>00cm/00"  | £00<br>£00                             | \$00<br>\$00                                 | €00<br>€00                             | 8mm<br>5/16"                     | 69g<br>4.6lb        | Poly<br>UH   |
|                     | <b>Armor-Prus Performance 10</b>                   | DONAGHYS      |        | £0<br>\$16.40<br>\$5.00<br>€0                    | ■  | 00cm/00"<br>00cm/00"  | £00<br>£00                             | \$00<br>\$00                                 | €00<br>€00                             | 10mm<br>25/64"                   | 78g<br>5.25lb       | Poly<br>UH   |
|                     | <b>Tibor Loop 8</b><br>8820804/5/602000            | EDELRID       |        | £0<br>\$9.65<br>\$2.95<br>€0                     | ■  | 40cm/00"<br>50cm/00"<br>60cm/00"  | £00<br>£00<br>£00                      | \$00<br>\$00<br>\$00                         | €00<br>€00<br>€00                      | 8mm<br>5/16"                     | 0g<br>0lb           | Poly<br>Poly |

**COST:** £\$€ = Currency Conversion ONLY excludes eyes unless specified in NOTES. INCLUDES local taxes/VAT, Some are not so

| CONSTRUCTION                         |                           |   | STANDARDS   | SUITABLE FOR |         |             | MINIMUM BREAKING LOAD                           |   | SWL/WLL                            | OTHER COLOURS   |  |  | NOTES  | WWW.                          |
|--------------------------------------|---------------------------|---|---|--------------|---------|-------------|---|---|------------------------------------|---|--|--|--|-------------------------------|
| MATERIALS:<br>SHEATH<br>CORE         | SHEATH<br>BRAID/<br>PLAIT | HAND SPLICEABLE<br>PRE-SPICED<br>PRE-SEWN | STANDARDS   | CLIMBING     | BRAKING | HEAT RESIST | MBL<br>Minimum<br>Break Load<br>Spliced<br>Sewn | ABL<br>Average<br>Break Load<br>Spliced<br>Sewn | WLL<br>Spliced<br>Sewn<br>*Average |   |  |  |  |                               |
| Nylon<br>Nylon/Vectran               | 16<br>KM                  | ■   | -   | ■            | ■       | ■           | 8kN<br>1798lbf                                  |   | 0kg<br>0lb                         |    |  |  |  | cmcpro.com                    |
| Polyester<br>Nylon                   | 32<br>KM                  | ■   | -   | ■            | ■       |             | 14kN<br>3147lbf                                 |   | 0kg<br>0lb                         |    |  |  |  | cmcpro.com                    |
| Polyester<br>Nylon                   | 32<br>KM                  | ■   | ANSI  | ■            | ■       |             | 15kN<br>3372lbf                                 |   | 0kg<br>0lb                         |    |  |  |  | cmcpro.com                    |
| Nylon<br>Nylon                       | 24<br>KM                  | ■   | CE  | ■            | ■       |             | 13kN<br>2922lbf                                 |   | 0kg<br>0lb                         |   |  |  | 42"=blue only  | cmcpro.com                    |
|                                      |                           | ■   |  | ■            | ■       |             | 20kN<br>4496lbf                                 |   | 0kg<br>0lb                         |    |  |  | 18"=Red<br>25"=Green   | cmcpro.com                    |
| Polyester/Aramid<br>Nylon            | 24<br>DB                  | ■   | CE  | ■            | ■       | ●           | 24kN<br>5280lbf                                 |   | 0kg<br>0lb                         |   |  |  |  | vertical-living.mycourant.com |
| Polyester/Aramid<br>Nylon            | 24<br>DB                  | ■   | CE  | ■            | ■       | ●           | 24kN<br>5280lbf                                 |   | 0kg<br>0lb                         |  |  |  | Colour coded lengths<br>40cm-Black<br>60cm-Orange<br>80cm- Blue  | vertical-living.mycourant.com |
| Polyester/Aramid<br>Nylon            | 24<br>DB                  | ■   | CE  | ■            | ■       | ●           | 24kN<br>5280lbf                                 |   | 0kg<br>0lb                         |  |  |  | Colour coded lengths<br>120cm-Green<br>150cm-Red<br>200cm- Black | vertical-living.mycourant.com |
| Polyester/Aramid<br>Nylon            | 16<br>DB                  | ■   | CE  | ■            | ■       | ●           | 28kN<br>6160lbf                                 |   | 0kg<br>0lb                         |   |  |  |  | vertical-living.mycourant.com |
| Polyester/Technora<br>Nylon          | 32<br>DB                  | ■   | CE  | ■            | ■       | ●           | 22kN<br>4945lbf                                 |   | 0kg<br>0lb                         |   |  |  | 0.76 knotability   | bealplanet.com                |
| Polyester/Technora<br>Polyester      | DB                        | ■<br>■                                    | ANSI  | ■            | ■       | ●           | 23kN<br>0lbf                                    |   | 0kg<br>0lb                         |   |  |  |  | bealplanet.com                |
| Polyester/Technora<br>Polyester      | DB                        | ■<br>■                                    | ?   | ■            | ■       | ●           | 32kN<br>0lbf                                    |   | 0kg<br>0lb                         |   |  |  |  | bluewaterropes.com            |
| Polyester/Technora<br>MwPE/Kevlar    | DB                        | ■<br>■                                    | ANSI  | ■            | ■       | ■           | 28kN<br>6160lbf                                 |   | 0kg<br>0lb                         |   |  |  |  | bluewaterropes.com            |
| Polyester/Technora<br>MwPE/Kevlar    | DB                        | ■<br>■                                    | ?   | ■            | ■       | ■           | 43kN<br>0lbf                                    |   | 0kg<br>0lb                         |   |  |  |  | bluewaterropes.com            |
| Polyester/Aramid<br>Polyester/Aramid | 16<br>KM                  | ■   | CE<br>ANSI  | ■            | ■       | ■           | 18kN<br>4840lbf                                 |   | 0kg<br>0lb                         |   |  |  |  | edelrid.com                   |

Weight shown in kg/m, price shown is a proportion of shortest length x10% & rounded up. SHEATH: DB=Double Braid, KM=KernMantle

| Images NOT to Scale  | MODEL                                    | COMPANY        | ORIGIN  | COST<br>per Metre<br>/3.28ft<br>US\$ per<br>Foot | STATE<br>OFF-REEL<br>1x EYE<br>2xEYES<br>SLING<br>BOUND<br>LOOP                     | EYE to EYE COSTS   |                |                 | SIZE<br>Ø<br>mm | WEIGHT<br>g/m<br>lb/100'<br>ITEM |  |
|--|--|----------------|---|--|---|--|----------------|-----------------|-----------------|----------------------------------|--|
|  |  |                |   |  |   | COST<br>MANUFACTURED LENGTHS<br>£\$€ = Currency Conversion ONLY<br>Specific Item Weight  |                |                 |                 |                                  |  |
|    | <b>Tibor 8 Open</b><br>882070702000      | EDELRID        |    | £0<br>\$9.65<br>\$2.95<br>€0                     |    | 70cm/00" £00 \$00 €00<br>75cm/00" £00 \$00 €00<br>80cm/00" £00 \$00 €00<br>85cm/00" £00 \$00 €00<br>90cm/00" £00 \$00 €00  | 8mm<br>5/16"   | 0g<br>0lb       | Poly<br>Poly    |                                  |  |
|    | <b>Tibor 10 Loop</b><br>8820804/5/602000 | EDELRID        |    | -<br>-<br>-                                      |    | 60cm/00" £00 \$00 €00<br>70cm/00" £00 \$00 €00   | 10mm<br>25/64" | 0g<br>0lb       | Poly<br>Poly    |                                  |  |
|    | <b>Tibor 10 Open</b><br>882070702000     | EDELRID        |    | -<br>-<br>-                                      |    | 80cm/00" £00 \$00 €00<br>90cm/00" £00 \$00 €00   | 10mm<br>25/64" | 0g<br>0lb       | Poly<br>Poly    |                                  |  |
|    | <b>Silva Prusik 9</b>                    | ENGLISH BRAIDS |    |  |   |  | 9mm<br>3/8"    | 66.7g<br>0lb    |                 |                                  |  |
|    | <b>Prusik Pro 8</b>                      | ENGLISH BRAIDS |    |  |   |  | 8mm<br>5/16"   | 44.8g<br>0lb    |                 |                                  |  |
|    | <b>Argon 8</b>                           | FTC TREE       |    | £6.00<br>\$8.00<br>\$2.50<br>€6.85               |    | 70cm/28" £26 \$33 €29<br>90cm/35" £26 \$33 €29   | 8mm<br>5/16"   | 47g<br>1.7oz    | Tech            |                                  |  |
|   | <b>Néon 10</b>                           | FTC TREE       |   | -<br>-<br>-                                      |   | 70cm/28" £28 \$36 €32<br>90cm/35" £28 \$36 €32   | 10mm<br>25/64" | 68g<br>2.4oz    | Tech            |                                  |  |
|  | <b>Inco 10</b>                           | GLEISTEIN      |  | -<br>-<br>-                                      |  | 70cm/28" £00 \$00 €00<br>80cm/31" £00 \$00 €00<br>90cm/35" £00 \$00 €00<br>100cm/39" £00 \$00 €00  | 10mm<br>25/64" |                 | Poly            |                                  |  |
|  | <b>Timber 8</b>                          | LANEX (TENDON) |  | £0<br>\$3.90<br>\$1.20<br>€0                     |  | 80cm/31" £00 \$00 €00<br>100cm/39" £00 \$00 €00<br>120cm/47" £00 \$00 €00  | 8mm<br>5/16"   | 54.3g<br>3.65lb | Poly            |                                  |  |
|  | <b>Timber 10</b>                         | LANEX (TENDON) |  | £0<br>\$5.00<br>\$1.55<br>€0                     |  |  | 10mm<br>25/64" | 73g             | Poly            |                                  |  |
|  | <b>Safe Prusik 8/<br/>Runner 8</b>       | LIROS          |  | £0<br>\$0<br>\$0<br>€0                           |  | 60cm/24" £16 \$22 €20<br>75cm/30" £24 \$32 €29<br>80cm/31" £00 \$00 €00<br>90cm/35" £25 \$33 €30<br>100cm/39" £00 \$00 €00<br>110cm/43" £00 \$00 €00<br>120cm/47" £00 \$00 €00 | 8mm<br>5/16"   |                 | Poly            |                                  |  |
|  | <b>Safe Prusik XTR 9<br/>1of2</b>        | LIROS          |  | £0<br>\$0<br>\$0<br>€0                           |  | 60cm/24" £16 \$00 €00<br>70cm/28" £00 \$00 €00<br>80cm/31" £00 \$00 €00<br>90cm/35" £00 \$00 €00<br>100cm/39" £00 \$00 €00<br>110cm/43" £00 \$00 €00<br>120cm/47" £00 \$00 €00 | 9mm<br>3/8"    | 52g<br>3.5lb    | Poly<br>Dym     |                                  |  |
|  | <b>Safe Prusik 9.1</b>                   | LIROS          |  | £0<br>\$0<br>\$0<br>€0                           |  | 60cm/24" £00 \$00 €00<br>75cm/30" £26 \$34 €31<br>80cm/31" £00 \$00 €00<br>90cm/35" £27 \$36 €33<br>100cm/39" £00 \$00 €00<br>110cm/43" £00 \$00 €00<br>120cm/47" £00 \$00 €00 | 9.1mm<br>3/8"  |                 | Pol             |                                  |  |
|  | <b>Safe Prusik 10</b>                    | LIROS          |  | £0<br>\$0<br>\$0<br>€0                           |  | 60cm/24" £00 \$00 €00<br>70cm/28" £00 \$00 €00<br>80cm/31" £00 \$00 €00<br>90cm/35" £00 \$00 €00<br>100cm/39" £00 \$00 €00<br>110cm/43" £00 \$00 €00                           | 10mm<br>25/64" |                 | Pol             |                                  |  |

COST: £\$€ = Currency Conversion ONLY excludes eyes unless specified in NOTES. INCLUDES local taxes/VAT. Some are not so




| CONSTRUCTION                         |                           |   | STANDARDS  | SUITABLE FOR |         |             | MINIMUM BREAKING LOAD                           |   | SWL/WLL                            | OTHER COLOURS |  |  | NOTES   | WWW.              |
|--------------------------------------|---------------------------|---|------------|--------------|---------|-------------|---|---|------------------------------------|---------------|--|--|---|-------------------|
| MATERIALS:<br>SHEATH<br>CORE         | SHEATH<br>BRAID/<br>PLAIT | HAND SPLICEABLE<br>PRE-SPICED<br>PRE-SEWN | STANDARDS  | CLIMBING     | BRAKING | HEAT RESIST | MBL<br>Minimum<br>Break Load<br>Spliced<br>Sewn | ABL<br>Average<br>Break Load<br>Spliced<br>Sewn | WLL<br>Spliced<br>Sewn<br>*Average |               |  |  |   |                   |
| Polyester/Aramid<br>Polyester/Aramid | 16<br>KM                  | ■   | CE<br>ANSI | ■            | ■       | ■           | 18kN<br>4840lbf                                 |   | 0kg<br>0lb                         |               |  |  |   | edelrid.com       |
| Polyester/Aramid<br>Polyester/Aramid | 16<br>KM                  | ■   | CE<br>ANSI | ■            | ■       | ■           | 22kN<br>4945lbf                                 |   | 0kg<br>0lb                         |               |  |  |   | edelrid.com       |
| Polyester/Aramid<br>Polyester/Aramid | 16<br>KM                  | ■   | CE<br>ANSI | ■            | ■       | ■           | 18kN<br>4840lbf                                 |   | 0kg<br>0lb                         |               |  |  |   | edelrid.com       |
|                                      |                           |   |            |              |         |             |   |   |                                    |               |  |  |   | englishbraids.com |
|                                      |                           | ■   | CE         |              |         |             | 31.4kN  |   |                                    |               |  |  |   | englishbraids.com |
| Technora/Polyster<br>Nylon           | 32<br>KM                  | ■   | CE         | ■            | ■       | ●           | 18kN<br>4840lbf                                 |   |                                    |               |  |  | 75,80,85 & 110cm<br>available soon.<br>Phoenix Discontinued | ftc-tree.com      |
| Technora/Polyster<br>Nylon           | 16                        | ■   | CE         | ■            | ■       | ●           | 18kN<br>4840lbf                                 |   |                                    |               |  |  | 75,80,85 & 110cm<br>available soon.<br>Phoenix Discontinued | ftc-tree.com      |
| Polyester/Technora<br>Polyester      | 24                        | ■   | CE         |              |         |             |   |   |                                    |               |  |  |   | gleistein.com     |
| Polyester/Technora<br>Polyester      | KM                        | ■   | CE         | ■            | ■       | ●           | 22kN<br>4945lbf                                 |   |                                    |               |  |  |   | mytendon.com      |
| Polyester/Technora<br>Polyester      | KM                        | ■   | ■          | ■            | ■       | ●           |   |   |                                    |               |  |  |   | mytendon.com      |
| Polyester/Aramid<br>Polyester        | 20                        | ■   | CE         | ■            | ■       | ●           | 24kN<br>5390lbf                                 |   |                                    |               |  |  |   | liros.com         |
| Polyester/Aramid<br>Technora/Aramid  | 24                        | ■   | CE         | ■            | ■       | ■           | 23kN<br>5156lbf                                 |   |                                    |               |  |  |   | liros.com         |
| Polyester/Aramid<br>Polyester        | 20                        | ■   | CE         | ■            | ■       | ●           | 28.6kN<br>6424lbf                               |   |                                    |               |  |  |   | liros.com         |
| Polyester/Aramid<br>Polyester        | 20                        | ■   | CE         | ■            | ■       | ●           | 22.2kN<br>4998lbf                               |   |                                    |               |  |  |   | liros.com         |

Weight shown in kg/lb, price shown is a proportion of shortest length x10% & rounded up. SHEATH: DB=Double Braid, KM=KernMantle

| Images NOT to Scale  | MODEL  | COMPANY         | ORIGIN  | COST<br>per Metre<br>/3.28ft<br>US\$ per<br>Foot | STATE<br>OFF-REEL<br>1x EYE<br>2xEYES<br>SLING<br>BOUND<br>LOOP                     | EYE to EYE COSTS  |  |  | SIZE<br>Ø<br>mm                        | WEIGHT<br>g/m<br>lb/100'<br>ITEM | MATERIAL                       |              |
|--|--|-----------------|---|--|---|---|--|--|--|----------------------------------|--------------------------------|--------------|
|  |  |                 |   |  |   | COST<br>MANUFACTURED LENGTHS<br>£\$€ = Currency Conversion ONLY<br>Specific Item Weight |  |  |  |                                  |                                |              |
|    | <b>Viper 8</b><br>KE1230/31<br>WKE010/1/2          | MARLOW ROPE     |    | -<br>-<br>-                                      |    | 50cm/20"<br>60cm/24"<br>70cm/28"  | €00<br>€00<br>€00                      | €00<br>€00<br>€00                            | €00<br>€00<br>€00                      | 8mm<br>5/16"                     | 56.9g<br>3.80lb                | Poly<br>Po   |
|    | <b>Viper II 8</b><br>KE1230/31<br>WKE250/1/2/3/4/5 | MARLOW ROPE     |    | -<br>-<br>-                                      |    | 50cm/20"<br>60cm/24"<br>70cm/28"<br>80cm/31"<br>90cm/35"<br>100cm/39"                   | €00<br>€00<br>€00<br>€00<br>€00<br>€00 | \$00<br>\$00<br>\$00<br>\$00<br>\$00<br>\$00 | €00<br>€00<br>€00<br>€00<br>€00<br>€00 | 8mm<br>5/16"                     | 49.9g<br>3.3lb                 | Poly         |
|    | <b>Boa 9</b><br>KE0352/4                           | MARLOW ROPE     |    | £2.40<br>\$3.20<br>\$1.00<br>€2.90               |    | 50cm/20"<br>60cm/24"<br>70cm/28"  | €00<br>€00<br>€00                      | €00<br>€00<br>€00                            | €00<br>€00<br>€00                      | 9mm<br>3/8"                      | 66g<br>4.4lb                   |              |
|    | <b>Boa 9 Blue Ocean*</b><br>KE0379/80              | MARLOW ROPE     |    | -<br>-<br>-                                      |    | 50cm/20"<br>60cm/24"<br>70cm/28"  | €00<br>€00<br>€00                      | €00<br>€00<br>€00                            | €00<br>€00<br>€00                      | 9mm<br>3/8"                      | 65.5g<br>4.4lb                 | Poly<br>Poly |
|    | <b>Wrap Star 8.1</b>                               | NOTCH EQUIPMENT |    | £10.55<br>\$13.10<br>\$4.00<br>€12.35            |    | 70cm/28"<br>76cm/30"<br>81cm/32"  | £22<br>£22<br>£22                      | \$27<br>\$27<br>\$27                         | €26<br>€26<br>€26                      | 9.1mm<br>3/8"                    | 55.2g<br>3.7lb                 | Poly         |
|    | <b>Wrap Star 10.1</b>                              | NOTCH EQUIPMENT |    | £10.55<br>\$13.10<br>\$4.00<br>€12.35            |    | 70cm/28"<br>76cm/30"<br>81cm/32"  | £22<br>£22<br>£22                      | \$27<br>\$27<br>\$27                         | €26<br>€26<br>€26                      | 10.1mm<br>25/64"                 | 60g<br>4lb                     | Poly         |
|   | <b>Bulldog 8</b>                                   | PELICAN ROPE    |   | -<br>-<br>-                                      |  | 71cm/28"<br>76cm/30"<br>81cm/32"  | £20<br>£22<br>£32                      | \$24<br>\$27<br>\$39                         | €23<br>€26<br>€37                      | 8mm<br>5/16"                     |                                | Poly         |
|  | <b>Bulldog 10</b>                                  | PELICAN ROPE    |  | -<br>-<br>-                                      |  | 71cm/28"<br>76cm/30"<br>81cm/32"<br>86cm/34"  | £25<br>£26<br>£28<br>£29               | \$30<br>\$32<br>\$34<br>\$35                 | €29<br>€31<br>€32<br>€33               | 10mm<br>25/64"                   |                                | Poly         |
|  | <b>Technora Prusik 6</b>                           | PELICAN ROPE    |  | -<br>-<br>-                                      |  | -   | -                                      | -  | -                                      | 6mm<br>1/4"                      | 33.7g<br>2.2lb                 |              |
|  | <b>Technora Prusik 8.7</b>                         | PELICAN ROPE    |  | -<br>-<br>-                                      |  | 71cm/28"<br>76cm/30"<br>81cm/32"  | £30<br>£33<br>£35                      | \$37<br>\$40<br>\$43                         | €35<br>€38<br>€41                      | 8.7mm<br>11/32"                  | 56.5g<br>3.8lb                 |              |
|  | <b>Segment 8</b>                                   | PETZL           |  | -<br>-<br>-                                      |  |   |  |  |  | 8mm<br>5/16"                     | 43g<br>2.8lb                   |              |
|  | <b>Prusik 7</b><br>single or double stitch         | PMI             |  | £1.65<br>\$2.00<br>\$0.65<br>€1.90               |  | 48cm/19"<br>66cm/26"<br>86cm/34"<br>173cm/68"   | £12-20<br>£14-20<br>£15-20<br>£20      | \$15-25<br>\$17-25<br>\$18-25<br>\$24-25     | €14-24<br>€13-24<br>€17-24<br>€23-24   | 7mm<br>9/32"                     | 58g<br>3.9lb                   |              |
|  | <b>Prusik 8</b><br>single or double stitch         | PMI             |  | £2.00<br>\$2.45<br>\$0.75<br>€2.35               |  | 40cm/16"<br>50cm/20"<br>56cm/22"<br>66cm/26"  | £13-20<br>£13-20<br>£13-20<br>£13-20   | \$16-25<br>\$16-25<br>\$16-25<br>\$16-25     | €15-24<br>€15-24<br>€15-24<br>€15-24   | 8mm<br>5/16"                     | 39g<br>5.1 lb<br>75g<br>2.48oz |              |
|  | <b>Lumi-Line 7</b><br>CC070UG                      | PMI             |  | £2.45<br>\$3.00<br>\$0.95<br>€2.85               |  | 640cm/25'   | £14                                    | \$17   | €16                                    | 7mm<br>9/32"                     | 29g<br>3.9lb<br>189g<br>6.7oz  |              |
|  | <b>Eye &amp; Eye VT 8</b>                          | PMI             |  | -<br>-<br>-                                      |  | 66cm/26"<br>71cm/28"<br>84cm/33"  | £20<br>£20<br>£22                      | \$24<br>\$25<br>\$27                         | €23<br>€24<br>€26                      | 8mm<br>5/16"                     | ?<br>?                         | Poly<br>Poly |
|  | <b>Tuff Cord 7</b>                                 | PMI             |  | £2.65<br>\$3.30<br>\$1.05<br>€3.15               |  |   |  |  |  | 7mm<br>9/32"                     | 38g<br>10.86lb                 |              |

COST: £\$€ = Currency Conversion ONLY excludes eyes unless specified in NOTES. INCLUDES local taxes/VAT, Some are not so



| CONSTRUCTION                           |                           |   | STANDARDS          | SUITABLE FOR |         |             | MINIMUM BREAKING LOAD                           |   | SWL/WLL                            | OTHER COLOURS |   |   | NOTES  | WWW.               |
|--|---------------------------|---|--------------------|--------------|---------|-------------|---|---|------------------------------------|---------------|---|---|--|--------------------|
| MATERIALS:<br>SHEATH<br>CORE           | SHEATH<br>BRAID/<br>PLAIT | HAND-SPLICABLE<br>PRE-SPliced<br>PRE-SEWN | STANDARDS          | CLIMBING     | BRAKING | HEAT RESIST | MBL<br>Minimum<br>Break Load<br>Spliced<br>Sewn | ABL<br>Average<br>Break Load<br>Spliced<br>Sewn | WLL<br>Spliced<br>Sewn<br>*Average |               |   |   |  |                    |
| Polyester/Vectran<br>Polypropylene     | 24                        | ■   | CE<br>UKCA         | ■            | ■       | ●           |   | 20.3N<br>4563lbf<br>27.2kN<br>6107lbf           |                                    |               |   |   |  | marlowropes.com    |
| Polyester/Vectran<br>Vectran           | 24                        | ■   | CE<br>UKCA         | ■            | ■       | ●           |   | 38.16kN<br>8578lbf<br>27.4kN<br>6159lbf         |                                    |               |   |   |  | marlowropes.com    |
| Polyester<br>Polyester                 | 16                        | ■   | CE<br>UKCA         | ■            | ●       |             |   | 25.4kN<br>5710lbf<br>27.4kN<br>6159lbf          |                                    |               |   |   |  | marlowropes.com    |
| Polyester (rPET)*<br>Polyester (rPET)* | 16                        | ■   | CE<br>UKCA         | ■            | ●       |             |   | 26kN<br>5842lbf<br>27.4kN<br>6159lbf            |                                    |               |   | *Blue Ocean made from recycled polyester (rPET) |  | marlowropes.com    |
| Polyester/Technora<br>HMPE             | 24<br>DB                  | ■   |                    | ■            | ■       | ●           | 5560lbf   |   |                                    |               |   |   | See also ROPE LOGIC for 9.1mm version of Wrap Star   | notchequipment.com |
| Polyester/Technora<br>HMPE             | 24<br>DB                  | ■   |                    | ■            | ■       | ●           | 6023lbf   |   |                                    |               |   |   | same price as 8.1  | notchequipment.com |
| Polyester/Technora<br>Technora         | KM                        | ■   |                    | ■            | ■       | ■           | 5400lbf   |   |                                    |               |   |   |  | pelicanrope.com    |
| Polyester/Technora<br>Nylon            | KM                        | ■   |                    | ■            | ■       | ●           |   |   |                                    |               |   |   |  | pelicanrope.com    |
| Technora<br>Nylon                      |                           |   |                    | ■            | ■       | ■           | 2900lbf   |   |                                    |               |   |   |  | pelicanrope.com    |
| Technora<br>Nylon                      |                           | ■   |                    | ■            | ■       | ■           | 6000lbf   |   |                                    |               |   |   | Also available as Hip-Prusik Lanyard with integral hook /carabiner options                       | pelicanrope.com    |
| Polyester<br>Nylon                     | 32<br>KM                  | ■   | CE<br>NFPA<br>UKCA | ■            | ●       |             | 13.5kN  |   |                                    |               |   |   |  | petzl.com          |
| Nylon<br>Nylon                         | KM                        | ■   | UIAA               | ■            | ●       |             | 10.7kN<br>2405lbf                               |   |                                    |               |  |   | Both versions are bound slings but Single stitch is more supple, easier to pack down             | pmirope.com        |
| Nylon<br>Nylon                         | KM                        | ■   | UIAA               | ■            | ●       |             | 20kN<br>4496lbf                                 |   |                                    |               |  |   | Both versions are bound slings but Single stitch is more supple, easier to pack down             | pmirope.com        |
| Nylon<br>Nylon                         | KM                        |   | UIAA               | ■            | ●       |             | 10.7kN<br>2405lbf                               |   |                                    |               |   |   | Will glow in the dark for up to 10hrs after exposure to strong light source. 25' sewn cordelette | pmirope.com        |
| Polyester/Technora<br>PP/Dyneema       | 32<br>KM                  | ■   |                    | ■            | ■       | ■           |   | 14.2kN<br>3192lbf                               |                                    |               |   |   |  | pmirope.com        |
| Nylon<br>Nylon                         | KM                        |   | CI                 | ■            | ■       |             | 11kN<br>2473lbf                                 |   |                                    |               |  |   | Suoeer-tight sheath over lower stretch core 5.1%@300lb   | pmirope.com        |





















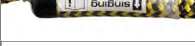





Weight shown in kg/m, price shown is a proportion of shortest length x10% & rounded up. SHEATH: DB=Double Braid, KM=KernMantle

| Images NOT to Scale  | MODEL         | COMPANY                     | ORIGIN  | COST                                    | STATE   | EYE to EYE COSTS  |                |                | SIZE         | WEIGHT                        |  |
|--|---------------|-----------------------------|---|---|---|---|----------------|----------------|--------------|-------------------------------|--|
|  |               |                             |   | COST per Metre /3.28ft<br>US\$ per Foot | OFF-REEL<br>1x EYE<br>2xEYES<br>SLING<br>BOUND<br>LOOP                              | COST<br>MANUFACTURED LENGTHS<br>€/\$ = Currency Conversion ONLY<br>Specific Item Weight                                   |                |                | Ø mm         | WEIGHT g/m<br>lb/100'<br>ITEM |  |
|    | ArmorPrus 8   | ROPE LOGIC/<br>DONAGHYS     |    | \$10.20<br>\$13.00<br>\$4.00<br>€11.80  |    | 60cm/24" €24 \$30 €28<br>70cm/28" €24 \$30 €28<br>76cm/30" €24 \$30 €28<br>81cm/32" €24 \$30 €28                          | 8mm<br>5/16"   | 69g<br>4.6lb   | Poly<br>UH   |                               |  |
|    | ArmorPrus 10  | ROPE LOGIC/<br>DONAGHYS     |    | \$12.90<br>\$16.40<br>\$5.00<br>€14.85  |    | 70cm/28" €26 \$33 €30<br>76cm/30" €26 \$33 €30<br>81cm/32" €26 \$33 €30<br>90cm/35" €26 \$33 €30                          | 10mm<br>25/64" | 78g<br>5.25lb  | Poly<br>UH   |                               |  |
|    | EpiCORD 8     | ROPE LOGIC/<br>TEUFELBERGER |    | -<br>-<br>-                             |    | 60cm/24" €24 \$31 €28<br>70cm/28" €25 \$32 €29<br>76cm/30" €26 \$33 €30<br>81cm/32" €27 \$34 €31                          | 9.3mm<br>3/8"  | n/a            | Poly<br>Tech |                               |  |
|    | EpiCORD 10    | ROPE LOGIC/<br>TEUFELBERGER |    | -<br>-<br>-                             |    | 70cm/28" €27 \$34 €31<br>76cm/30" €27 \$34 €31<br>81cm/32" €27 \$34 €31   | 10mm<br>25/64" | n/a            | Poly<br>Tech |                               |  |
|    | Ocean 8       | ROPE LOGIC/<br>TEUFELBERGER |    | -<br>-<br>-                             |    | 60cm/24" €23 \$28 €26<br>70cm/28" €23 \$28 €26<br>76cm/30" €23 \$28 €26<br>81cm/32" €23 \$28 €26                          | 8mm<br>5/16"   | n/a            | Poly         |                               |  |
|    | Ocean 10      | ROPE LOGIC/<br>TEUFELBERGER |    | -<br>-<br>-                             |    | 60cm/24" €33 \$42 €38<br>70cm/28" €33 \$42 €38<br>76cm/30" €33 \$42 €38<br>81cm/32" €33 \$42 €38                          | 10mm<br>25/64" | n/a            | Poly         |                               |  |
|   | Bee Line 8    | ROPE LOGIC/<br>YALE         |   | -<br>-<br>-                             |   | 60cm/24" €19 \$24 €22<br>66cm/26" €19 \$24 €22<br>70cm/28" €19 \$24 €22<br>76cm/30" €19 \$24 €22<br>81cm/32" €19 \$24 €22 | 8mm<br>5/16"   | n/a            | Tech         |                               |  |
|  | Bee Line 10   | ROPE LOGIC/<br>YALE         |  | -<br>-<br>-                             |  | 76cm/30" €30 \$38 €35   | 10mm<br>25/64" | n/a            | Tech         |                               |  |
|  | Veritas 8     | ROPE LOGIC/<br>YALE         |  | -<br>-<br>-                             |  | 70cm/28" €22 \$27 €25<br>76cm/30" €22 \$27 €25<br>81cm/32" €22 \$27 €25   | 8mm<br>5/16"   | n/a            | Tech         |                               |  |
|  | Veritas 10    | ROPE LOGIC/<br>YALE         |  | -<br>-<br>-                             |  | 70cm/28" €22 \$27 €25<br>76cm/30" €22 \$27 €25<br>81cm/32" €22 \$27 €25   | 9mm<br>3/8"    | n/a            | Tech         |                               |  |
|  | HRC 8         | ROPE LOGIC/<br>TEUFELBERGER |  | -<br>-<br>-                             |  | 60cm/24" €23 \$28 €26<br>70cm/28" €23 \$28 €26<br>76cm/30" €23 \$28 €26<br>81cm/32" €23 \$28 €26                          | 8mm<br>5/16"   | n/a            | Tech         |                               |  |
|  | Flex 8        | ROPE LOGIC/<br>STERLING     |  | -<br>-<br>-                             |  | 70cm/28" €20 \$25 €23<br>76cm/30" €20 \$25 €23<br>81cm/32" €20 \$25 €23   | 8mm<br>5/16"   | n/a            | Poly         |                               |  |
|  | RIT 9         | ROPE LOGIC/<br>STERLING     |  | -<br>-<br>-                             |  | 70cm/28" €20 \$25 €23<br>76cm/30" €20 \$25 €23<br>81cm/32" €20 \$25 €23   | 9mm<br>3/8"    | n/a            |              |                               |  |
|  | IceTail 8     | ROPE LOGIC/<br>SAMSON       |  | -<br>-<br>-                             |  | 66cm/26" €19 \$24 €22<br>70cm/28" €19 \$24 €22<br>76cm/30" €19 \$24 €22<br>86cm/34" €19 \$24 €22                          | 8mm<br>5/16"   | n/a            | Poly         |                               |  |
|  | Wrap Star 9.1 | ROPE LOGIC/<br>NOTCH        |  | -<br>-<br>-                             |  | 70cm/28" €23 \$29 €27<br>76cm/30" €23 \$29 €27<br>81cm/32" €23 \$29 €27   | 9.1mm<br>3/8"  | 55.2g<br>3.7lb | Poly         |                               |  |

COST: €/\$ = Currency Conversion ONLY excludes eyes unless specified in NOTES. INCLUDES local taxes/VAT, Some are not so

| CONSTRUCTION                   |                           |  | STANDARDS | SUITABLE FOR |         |             | MINIMUM BREAKING LOAD                           |   | SWL/WLL                            | OTHER COLOURS |  |  | NOTES   | WWW.          |
|--------------------------------|---------------------------|--|-----------|--------------|---------|-------------|---|---|------------------------------------|---------------|--|--|---|---------------|
| MATERIALS:<br>SHEATH<br>CORE   | SHEATH<br>BRAID/<br>PLAIT | HAND SPICEABLE<br>PRE-SPICED<br>PRE-SEWN | STANDARDS | CLIMBING     | BRAKING | HEAT RESIST | MBL<br>Minimum<br>Break Load<br>Spliced<br>Sewn | ABL<br>Average<br>Break Load<br>Spliced<br>Sewn | WLL<br>Spliced<br>Sewn<br>*Average |               |  |  |   |               |
| ester/Technora<br>MwPE/Kevlar  | DB                        | ■<br>■                                   | ANSI      | ■            | ■       | ■           |   | 28kN<br>6160lbf                                 |                                    |               |  |  | Also available with pre-attached ISC ring                             | ropelogic.com |
| ester/Technora<br>MwPE/Kevlar  | DB                        | ■<br>■                                   | ANSI      | ■            | ■       | ■           |   | 43kN<br>9400lbf                                 |                                    |               |  |  |   | ropelogic.com |
| ester/Technora<br>nora/Dyneema | 32<br>KM                  | ■  | ANSI      | ■            | ■       | ■           | 24kN<br>5395lbf                                 |   |                                    |               |  |  |   | ropelogic.com |
| ester/Technora<br>nora/Dyneema | 32<br>KM                  | ■<br>■                                   | ANSI      | ■            | ■       | ■           | 40.8kN<br>9172lbf                               |   |                                    |               |  |  |   | ropelogic.com |
| ester/Aramid<br>Polyester      | 32<br>KM                  | ■<br>■                                   |           | ■            | ■       | ●           | 18kn<br>4046lbf                                 |   |                                    |               |  |  |   | ropelogic.com |
| ester/Aramid<br>Polyester      | 32<br>KM                  | ■<br>■                                   |           | ■            | ■       | ●           | 25kn<br>5620lbf                                 |   |                                    |               |  |  | Spliced version shown   | ropelogic.com |
| nora/Polyester<br>Vectran      |                           | ■<br>■                                   |           | ■            | ■       | ■           | 24kN<br>5400lbf                                 | 35.5kN<br>8000lbf                               | 362kg<br>800lbf                    |               |  |  | also available as 'Old-School' version                                | ropelogic.com |
| nora/Polyester<br>Vectran      |                           | ■<br>■                                   |           | ■            | ■       | ■           |   | 48.9kN<br>11000lbf                              | 498kg<br>1100lbf                   |               |  |  |   | ropelogic.com |
| nora/Polyester<br>Polyester    |                           | ■<br>■                                   |           | ■            | ■       | ●           | 24kN<br>5400lbf                                 |   | 2.4kN<br>540lbf                    |               |  |  | Uses recycled polyester fibres so colours vary                        | ropelogic.com |
| nora/Polyester<br>Polyester    |                           | ■<br>■                                   |           | ■            | ■       | ●           | 23.2kN<br>5220lbf                               |   |                                    |               |  |  | spliced version shown. Uses recycled polyester fibres so colours vary | ropelogic.com |
| nora/Nomex<br>Vectran          |                           | ■<br>■                                   |           | ■            | ■       | ■           | 26.7kN<br>6000lbf                               | 20kN<br>4500lbf                                 |                                    |               |  |  | spliced version shown   | ropelogic.com |
| ester/Technora<br>Polyester    |                           | ■  |           | ■            | ■       | ●           | 24.1kN<br>5418lbf                               |   |                                    |               |  |  |   | ropelogic.com |
| Twaron<br>Polyester            |                           | ■  |           | ■            | ■       | ●           | 31kN<br>6968lbf                                 |   |                                    |               |  |  |   | ropelogic.com |
| ester/Aramid<br>-              |                           | ■  |           | ■            | ■       | ●           |   | 39.1kN<br>8500lbf                               | 3.1kN<br>880lbf                    |               |  |  |   | ropelogic.com |
| ester/Technora<br>HMPE         | 24<br>DB                  | ■  |           | ■            | ■       | ●           | 24.4kN<br>5500lbf                               |   |                                    |               |  |  |   | ropelogic.com |






















ld by m/ft, price shown is a proportion of shortest length x10% & rounded up. SHEATH: DB=Double Braid, KM=KernMantle

| Images NOT to Scale  | MODEL                  | COMPANY        | ORIGIN  | COST                                    |   | STATE | EYE to EYE COSTS  |  |  | SIZE<br>Ø<br>mm | WEIGHT<br>g/m<br>lb/100'<br>ITEM |            |
|--|------------------------|----------------|---|---|---|-------|---|--|--|-----------------|----------------------------------|------------|
|  |                        |                |   | COST per Metre /3.28ft<br>US\$ per Foot | OFF-REEL<br>1x EYE<br>2xEYES<br>SLING<br>BOUND LOOP |       | COST<br>MANUFACTURED LENGTHS<br>£\$€ = Currency Conversion ONLY<br>Specific Item Weight           |  |  |                 |                                  |            |
|    | Prusik Cord 9          | SAMSON         |    | £2.35<br>\$2.95<br>\$0.90<br>€2.70      | ■   |       |   |  |  | 9mm<br>3/8"     | 61g<br>4.1lb                     |            |
|    | Bail Out 8             | SAMSON         |    | £10.75<br>\$8.20<br>\$2.50<br>€7.75     | ■ ■ ■   |       |   |  |  | 8mm<br>5/16"    | 0g<br>3lb                        | Ara<br>Ara |
|    | Bail Out XL 9          | SAMSON         |    | £8.50<br>\$11.00<br>\$3.50<br>€10.00    | ■   |       |   |  |  | 9mm<br>3/8"     | 0g<br>4.2lb                      | Ara<br>Ara |
|    | UltraTech 8            | SAMSON         |    | £0<br>\$0<br>\$0<br>€0                  | ■ ■   |       |   |  |  | 8mm<br>5/16"    | 60g<br>4lb                       | Tech       |
|    | UltraTech 9            | SAMSON         |    | £5.40<br>\$7.00<br>\$2.20<br>€6.40      | ■ ■   |       |   |  |  | 9mm<br>3/8"     | 68g<br>4.6lb                     | Tech       |
|    | Ice Tail 8             | SAMSON         |    | £11.00<br>\$13.25<br>\$4.00<br>€12.00   | ■ ■   |       | 60cm/24" £24 \$31 €29<br>70cm/28" £22 \$28 €26<br>76cm/30" £22 \$28 €26<br>81cm/32" £22 \$28 €26  |  |  | 8mm<br>5/16"    | 46g<br>3.1lb                     | Pol        |
|   | Timber 8<br>W2608      | SINGING ROCK   |   | -<br>-<br>-                             | ■   |       | 75cm/30" £00 \$00 €00<br>80cm/31" £00 \$00 €00<br>85cm/33" £00 \$00 €00<br>100cm/39" £00 \$00 €00 |  |  | 8mm<br>5/16"    | 54.3g<br>3.65lb                  | Poly       |
|  | Timber 8<br>W2601R085  | SINGING ROCK   |  | -<br>-<br>-                             | ■   |       | 38cm/15" £00 \$00 €00   |  |  | 8mm<br>5/16"    | 48g<br>1.7oz                     | Poly       |
|  | Timber 10<br>W2610     | SINGING ROCK   |  | -<br>-<br>-                             | ■   |       | 80cm/31" £00 \$00 €00<br>85cm/33" £00 \$00 €00<br>90cm/35" £00 \$00 €00<br>100cm/39" £00 \$00 €00 |  |  | 10mm<br>25/64"  | 73g                              | Poly       |
|  | Timber 10<br>W2602Y085 | SINGING ROCK   |  | -<br>-<br>-                             | ■   |       | 38cm/15" £00 \$00 €00   |  |  | 10mm<br>25/64"  | 70g<br>2.5oz                     | Poly       |
|  | Prusik Braid 6         | SOUTHERN ROPES |  | £0<br>\$0<br>\$0<br>€0                  | ■   |       |   |  |  | 6mm<br>1/4"     |                                  |            |
|  | Prusik Braid 7         | SOUTHERN ROPES |  | £0<br>\$0<br>\$0<br>€0                  | ■   |       |   |  |  | 7mm<br>9/32"    |                                  |            |
|  | Prusik Braid 8         | SOUTHERN ROPES |  | £0<br>\$0<br>\$0<br>€0                  | ■   |       |   |  |  | 8mm<br>5/16"    |                                  |            |

COST: £\$€ = Currency Conversion ONLY excludes eyes unless specified in NOTES. INCLUDES local taxes/VAT, Some are not so

| CONSTRUCTION                     |                           |  | STANDARDS | SUITABLE FOR |         |             | MINIMUM BREAKING LOAD                           |   | SWL/WLL                            | OTHER COLOURS |  |                    | NOTES | WWW.              |
|----------------------------------|---------------------------|--|-----------|--------------|---------|-------------|---|---|------------------------------------|---------------|--|--------------------|-------|-------------------|
| MATERIALS:<br>SHEATH<br>CORE     | SHEATH<br>BRAID/<br>PLAIT | HAND SPICEABLE<br>PRE-SPICED<br>PRE-SEWN | STANDARDS | CLIMBING     | BRAKING | HEAT RESIST | MBL<br>Minimum<br>Break Load<br>Spliced<br>Sewn | ABL<br>Average<br>Break Load<br>Spliced<br>Sewn | WLL<br>Spliced<br>Sewn<br>*Average |               |  |                    |       |                   |
| Polyester<br>Polyester           | DB                        | ■  |           | ■            | ●       |             |   | 23kN<br>5000lbf                                 | 1.9kN<br>430lbf                    |               |  |                    |       | samsonrope.com    |
| mid (Technora)<br>mid (Technora) | DB                        |  |           | ■            | ■       | ■           |   | 19kN<br>4200lbf                                 |                                    |               |  |                    |       | samsonrope.com    |
| mid (Technora)<br>mid (Technora) | DB                        | ■  |           | ■            | ■       | ■           |   | 24kN<br>5300lbf                                 |                                    |               |  |                    |       | samsonrope.com    |
| Polyester<br>nnora (Aramid)      | DB                        | ■ ■                                      |           | ■            | ■       | ●           |   | 35kN<br>7800lbf                                 |                                    |               |  |                    |       | samsonrope.com    |
| Polyester<br>nnora (Aramid)      | DB                        | ■ ■                                      |           | ■            | ■       | ●           |   | 45kN<br>10000lbf                                |                                    |               |  |                    |       | samsonrope.com    |
| Polyester/Aramid<br>-            | 12<br>SB                  | ■ ■ ■                                    | ANSI      | ■            | ■       | ■           |   | 39.1kN<br>8500lbf                               | 3.1kN<br>880lbf                    |               |  |                    |       | samsonrope.com    |
| Polyester/Technora<br>Polyester  | KM                        | ■  | CE        | ■            | ■       | ●           | 18kN<br>4046lbf                                 |   |                                    |               |  |                    |       | singingrock.com   |
| Polyester/Technora<br>Polyester  | KM                        | ■  | CE        | ■            | ■       | ●           | 18kN<br>4046lbf                                 |   |                                    |               |  |                    |       | singingrock.com   |
| Polyester/Technora<br>Polyester  | KM                        | ■  | CE        | ■            | ■       | ●           | 20kN<br>4496lbf                                 |   |                                    |               |  |                    |       | singingrock.com   |
| Polyester/Technora<br>Polyester  | KM                        | ■  | CE        | ■            | ■       | ●           | 18kN<br>4046lbf                                 |   |                                    |               |  |                    |       | singingrock.com   |
| Polyester<br>Polyester           | DB                        |  |           | ■            | ■       |             | 7kN<br>1573lbf                                  |   |                                    |               |  | 5mm also available |       | southernropes.com |
| Polyester<br>Polyester           | DB                        |  |           | ■            | ■       |             | 9.5kN<br>2137lbf                                |   |                                    |               |  | 5mm also available |       | southernropes.com |
| Polyester<br>Polyester           | DB                        |  |           | ■            | ■       |             | 12.5kN<br>2823lbf                               |   |                                    |               |  | 5mm also available |       | southernropes.com |
|                                  |                           |  |           |              |         |             |   |   |                                    |               |  |                    |       |                   |
|                                  |                           |  |           |              |         |             |   |   |                                    |               |  |                    |       |                   |
|                                  |                           |  |           |              |         |             |   |   |                                    |               |  |                    |       |                   |

Sold by m/ft, price shown is a proportion of shortest length x10% & rounded up. SHEATH: DB=Double Braid, KM=KernMantle

| Images NOT to Scale   | MODEL                    | COMPANY  | ORIGIN   | COST<br>per Metre /3.28ft<br>US\$ per Foot | STATE<br>OFF-REEL<br>1x EYE<br>2xEYES<br>SLING<br>BOUND LOOP                       | EYE to EYE COSTS  |                              |                          | SIZE           | WEIGHT                           |
|---|--------------------------|----------|--|--|--|---|------------------------------|--------------------------|----------------|----------------------------------|
|   |                          |          |  |  |  | COST<br>MANUFACTURED LENGTHS<br>£\$€ = Currency Conversion ONLY<br>Specific Item Weight |                              |                          | ∅<br>mm        | WEIGHT<br>g/m<br>lb/100'<br>ITEM |
|   | Copious Atol 9           | STEIN    |   | £2.77<br>\$3.77<br>\$1.15<br>€3.30         |   | 50cm/20" £18<br>65cm/26" £18<br>70cm/28" £22<br>75cm/30" £22                            | \$28<br>\$28<br>\$31<br>\$31 | €22<br>€22<br>€27<br>€27 | 9mm<br>3/8"    |                                  |
|   | Copious Bee Line 10      | STEIN    |   | -<br>-<br>-                                |   | 75cm/30" £30<br>85cm/33" £30  | \$33<br>\$33                 | €36<br>€36               | 10mm<br>25/64" |                                  |
|   | Copious A-Tec 9          | STEIN    |   | -<br>-<br>-                                |   | 65cm/26" £24<br>70cm/28" £24<br>75cm/30" £24<br>85cm/33" £24                            | \$33<br>\$33<br>\$33<br>\$33 | €29<br>€29<br>€29<br>€29 | 9mm<br>3/8"    |                                  |
|   | Copious P-Tec 9          | STEIN    |   | -<br>-<br>-                                |   | 75cm/30" £24<br>85cm/33" £24  | \$33<br>\$33                 | €21<br>€21               | 9mm<br>3/8"    | Poly                             |
|   | HollowBlock2 6.8<br>HOLB | STERLING |   | £5.00<br>\$6.50<br>\$2.00<br>€6.00         |   | 34cm/13.5" £20<br>48cm/19" £21  | \$25<br>\$26                 | €23<br>€24               | 6.8mm<br>9/32" | 1.8lb                            |
|   | RIT 8                    | STERLING |   | -<br>-<br>-                                |   | 60cm/24" £24<br>70cm/28" £22<br>76cm/30" £22<br>81cm/32" £22                            | \$31<br>\$28<br>\$28<br>\$28 | €29<br>€22<br>€22<br>€22 | 8mm<br>5/16"   |                                  |
|  | RIT 9                    | STERLING |  | £5.80<br>\$7.50<br>\$2.60<br>€6.90         |  | 70cm/28" £26<br>76cm/30" £26<br>81cm/32" £26<br>91cm/36" £26                            | \$34<br>\$34<br>\$34<br>\$34 | €31<br>€31<br>€31<br>€31 | 9mm<br>3/8"    | 4.2lb                            |

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| CONSTRUCTION                    |                           |  | STANDARDS | SUITABLE FOR |         |             | MINIMUM BREAKING LOAD                           |   | SWL/WLL                            | OTHER COLOURS   |  |   | NOTES            | WWW.               |
|---------------------------------|---------------------------|--|-----------|--------------|---------|-------------|---|---|------------------------------------|---|--|---|------------------|--------------------|
| MATERIALS:<br>SHEATH<br>CORE    | SHEATH<br>BRAID/<br>PLAIT | HAND SPICEABLE<br>PRE-SPICED<br>PRE-SEWN | STANDARDS | CLIMBING     | BRAKING | HEAT RESIST | MBL<br>Minimum<br>Break Load<br>Spliced<br>Sewn | ABL<br>Average<br>Break Load<br>Spliced<br>Sewn | WLL<br>Spliced<br>Sewn<br>*Average |   |  |   |                  |                    |
| Polyester<br>Polyester          | 16<br>SB                  | ■ ■ ■                                    | CE        | ■            | ■       |             |   | 22.5kN  |                                    |   |  |   |                  | steinworldwide.com |
|                                 |                           |  |           | ■            | ■       | ■           |   |   |                                    |   |  |   |                  | steinworldwide.com |
| Polyester<br>Polyester          | 24<br>DB                  | ■  | CE        | ■            | ■       |             |   |   |                                    |   |  |   |                  | steinworldwide.com |
| Polyester/Technora<br>Polyester | 24<br>DB                  | ■  | CE        | ■            | ■       | ●           |   |   |                                    |   |  |   |                  | steinworldwide.com |
| Twaron<br>-                     | HB                        | ■ ■                                      |           | ■            | ■       | ■           | 14 18.4kN<br>3147lbf<br>4136lb                  |   | 1.4kN<br>314lbf                    |  |  | Off the reel as <i>RIT 900</i>                  | sterlingrope.com |                    |
| Twaron<br>Polyester             | HB                        | ■ ■                                      |           | ■            | ■       | ■           |   |   |                                    |   |  |   |                  | sterlingrope.com   |
| Twaron<br>Polyester             | HB                        | ■  | ANSI      | ■            | ■       | ■           | 31kN<br>6968lbf                                 |   |                                    |   |  | Off the reel as <i>RIT Response Search Rope</i> | sterlingrope.com |                    |



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




































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|--|---------------------|--------------|---|--|---|---|-----------------|-----------------|-----------------|----------------------------------|--|
|  |                     |              |   |  |   | COST<br>MANUFACTURED LENGTHS<br>£\$€ = Currency Conversion ONLY<br>Specific Item Weight   |                 |                 |                 |                                  |  |
|    | Flex 8              | STERLING     |    | \$5.50<br>\$7.00<br>\$2.60<br>€6.50              |    | 70cm/28" £25 \$32 €29<br>76cm/30" £25 \$32 €29<br>81cm/32" £25 \$32 €29   | 8mm<br>5/16"    |                 |                 | Poly                             |  |
|    | Flex 10             | STERLING     |    | -<br>-<br>-<br>-                                 |    | 70cm/28" £26 \$33 €30<br>76cm/30" £26 \$33 €30<br>81cm/32" £26 \$33 €30   | 8mm<br>5/16"    |                 |                 | Poly                             |  |
|    | HRC 8               | TEUFELBERGER |    | -<br>-<br>-<br>-                                 |    | 60cm/24" £23 \$28 €26<br>70cm/28" £23 \$28 €26<br>76cm/30" £23 \$28 €26<br>81cm/32" £23 \$28 €26  | 8mm<br>5/16"    | 49.1g<br>3.3lb  |                 | Tech                             |  |
|    | EPI 8               | TEUFELBERGER |    | £9.30<br>\$11.80<br>\$3.60<br>€11.10             |    | 70cm/28" £22 \$27 €25<br>76cm/30" £22 \$27 €25<br>81cm/32" £22 \$27 €25   | 8mm<br>5/16"    | 52.1g<br>3.5lb  |                 | Poly<br>Tech                     |  |
|    | EPI 9.3             | TEUFELBERGER |    | £11.00<br>\$14.00<br>\$4.25<br>€13.00            |    | 70cm/28" £22 \$27 €25<br>76cm/30" £22 \$27 €25<br>81cm/32" £22 \$27 €25   | 9.3mm<br>11/32" | 59.5g<br>4lb    |                 | Poly<br>Tech                     |  |
|    | EPI 10              | TEUFELBERGER |    | £11.50<br>\$15.00<br>\$4.40<br>€14.00            |    | 70cm/28" £20 \$25 €23<br>76cm/30" £20 \$25 €23<br>81cm/32" £20 \$25 €23   | 10mm<br>25/64"  | 62.5g<br>4.2lb  |                 | Poly<br>Tech                     |  |
|   | Ocean 8             | TEUFELBERGER |   | £7.75<br>\$5.70<br>\$1.75<br>€5.20               |   | 60cm/24" £28 \$24 €22<br>66cm/26" £19 \$24 €22<br>70cm/28" £20 \$25 €23<br>76cm/30" £20 \$25 €23<br>81cm/32" £20 \$25 €23<br>90cm/35" £28 - - | 8mm<br>5/16"    | 50.1g<br>3.37lb |                 | Poly                             |  |
|  | Ocean 10            | TEUFELBERGER |  | £4.80<br>\$6.30<br>\$1.95<br>€5.75               |  | 66cm/26" £19 \$24 €22<br>70cm/28" £19 \$24 €22<br>76cm/30" £19 \$24 €22<br>81cm/32" £19 \$24 €22  | 10mm<br>25/64"  | 72.1g<br>4.75lb |                 | Poly                             |  |
|  | Sirius 8            | TEUFELBERGER |  | £1.20<br>\$1.60<br>\$0.55<br>€1.50               |  | 50cm/20" £18 \$23 €21<br>60cm/24" £18 \$23 €21<br>70cm/28" £18 \$23 €21   | 8mm<br>5/16"    | 50g<br>3.36lb   |                 |                                  |  |
|  | Sirius 10           | TEUFELBERGER |  | £0<br>\$0<br>\$0<br>€0                           |  |   | 10mm<br>25/64"  | 71g<br>4.77lb   |                 |                                  |  |
|  | TH1154              | TREEHOG      |  | £2.25<br>\$3.00<br>\$0.95<br>€2.70               |  | 50cm/20" £18 \$23 €21<br>60cm/24" £18 \$23 €21<br>70cm/28" £18 \$23 €21   | 10mm<br>25/64"  | 72g<br>4.7lb    |                 | Poly                             |  |
|  | Bee line 10 Poly    | YALE         |  | £6.00<br>\$7.90<br>\$2.40<br>€7.20               |  |   | 10mm<br>25/64"  | 72g<br>4.8lb    |                 | Tech                             |  |
|  | Bee Line 8 Vectran  | YALE         |  | £6.50<br>\$7.45<br>\$2.26<br>€6.80               |  |   | 8mm<br>5/16"    | 55g<br>3.7lb    |                 | Tech                             |  |
|  | Bee Line 10 Vectran | YALE         |  | £6.90<br>\$8.50<br>\$2.60<br>€7.75               |  |   | 10mm<br>25/64"  | 71g<br>4.8lb    |                 | Tech                             |  |
|  | Veritas 8           | YALE         |  | £5.00<br>\$6.50<br>\$2.00<br>€6.00               |  |   | 8mm<br>5/16"    |                 |                 | Tech                             |  |
|  | Veritas 10          | YALE         |  | -  |  | 70cm/28" £24 \$30 €28<br>76cm/30" £24 \$30 €28<br>81cm/32" £24 \$30 €28   | 10mm<br>25/64"  |                 |                 | Tech                             |  |



| CONSTRUCTION                    |                           |  | STANDARDS | SUITABLE FOR |         |             | MINIMUM BREAKING LOAD                           |   | SWL/WLL                            | OTHER COLOURS |  |  | NOTES  | WWW.             |
|---------------------------------|---------------------------|--|-----------|--------------|---------|-------------|---|---|------------------------------------|---------------|--|--|--|------------------|
| MATERIALS:<br>SHEATH<br>CORE    | SHEATH<br>BRAID/<br>PLAIT | HAND SPICEABLE<br>PRE-SPICED<br>PRE-SEWN | STANDARDS | CLIMBING     | BRAKING | HEAT RESIST | MBL<br>Minimum<br>Break Load<br>Spliced<br>Sewn | ABL<br>Average<br>Break Load<br>Spliced<br>Sewn | WLL<br>Spliced<br>Sewn<br>*Average |               |  |  |  |                  |
| Technora/Polyester              |                           | ■  |           | ■            | ■       | ■           | 24.1kN<br>5418lbf                               |   |                                    |               |  |  |  | sterlingrope.com |
| Technora/Polyester              |                           | ■  | ANSI      | ■            | ■       | ■           | 39kN<br>8767lbf                                 | 24.1kN<br>5418lbf                               |                                    |               |  |  |  | sterlingrope.com |
| Technora/Nomex<br>Vectran       | KM                        | ■ ■                                      | ANSI      | ■            | ■       | ■           | 26.7kN<br>6000lbf                               | 20kN<br>4500lbf                                 |                                    |               |  |  |  | teufelberger.com |
| Technora/Technora<br>Dyneema    | 32<br>KM                  | ■  | ANSI      | ■            | ■       | ■           | 24kN<br>5395lbf                                 |   |                                    |               |  |  |  | teufelberger.com |
| Technora/Technora<br>Dyneema    | 32<br>KM                  | ■ ■ ■                                    | ANSI      | ■            | ■       | ■           | 32.5kN<br>7305lbf                               |   | 3.42kN<br>770lbf                   |               |  |  | *Sherrill-34.2kN?                                | teufelberger.com |
| Technora/Technora<br>Dyneema    | 32<br>KM                  | ■ ■ ■                                    | ANSI      | ■            | ■       | ■           | 40.8kN*<br>9170lbf                              |   | 4.32kN<br>972lbf                   |               |  |  | *Sherrill-43kN?                                  | teufelberger.com |
| Polyester/Aramid<br>Polyester   | 32*<br>KM                 | ■  | CE ANSI   | ■            | ■       | ●           | 22kN<br>4945lbf                                 |   | 2.2kN<br>500lbf                    |               |  |  | *Sherrill-24str?                                 | teufelberger.com |
| Polyester/Aramid<br>Polyester   | 32<br>KM                  | ■  | ANSI      | ■            | ■       | ●           | 32.9kN<br>7400lbf                               |   | 3.2kN<br>7400lbf                   |               |  |  |  | teufelberger.com |
| Polyester<br>Polyester          | 32<br>KM                  |  | CE ANSI   | ■            | ■       |             | 14.4kN<br>3235lbf                               |   |                                    |               |   |  |  | teufelberger.com |
| Polyester<br>Polyester          | 32<br>KM                  |  | ANSI      | ■            | ■       |             | 24kN<br>5395lbf                                 |   |                                    |               |  |  |  | teufelberger.com |
| Polyester/Aramid<br>Polyester   | 32<br>KM                  | ■  | CE        | ■            | ■       | ●           | 32.9kN<br>7400lbf                               |   | 170kg<br>374lb                     |               |  |  |  | treehog.co.uk    |
| Technora/Polyester<br>Polyester |                           | ■ ■ ■                                    |           | ■            | ■       | ■           |   | ?kN<br>?lbf                                     | ?lbf                               |               |  |  | Black version cost more                          | yalecordage.com  |
| Technora/Polyester<br>Vectran   |                           | ■ ■ ■                                    |           | ■            | ■       | ■           | 24kN<br>5400lbf                                 | 35.5kN<br>8000lbf                               | 362kg<br>800lbf                    |               |   |  | Black version cost more                          | yalecordage.com  |
| Technora/Polyester<br>Vectran   |                           | ■ ■ ■                                    |           | ■            | ■       | ■           |   | 48.9kN<br>11000lbf                              | 498kg<br>1100lbf                   |               |   |  | Black version cost more                          | yalecordage.com  |
| Technora/Polyester<br>Polyester | 24<br>DB                  | ■ ■ ■                                    |           | ■            | ■       | ●           | 24kN<br>5400lbf                                 |   | 2.4kN<br>540lbf                    |               |  |  | Uses random lengths of<br>coloured 5KD polyester | yalecordage.com  |
| Technora/Polyester<br>Polyester | 24<br>DB                  | ■ ■ ■                                    |           | ■            | ■       | ●           |   |   |                                    |               |  |  | Uses random lengths of<br>coloured 5KD polyester | yalecordage.com  |

**UPDATED** Feb '25

# ARBORIST SIT HARNESSSES

**with Bridge and/or Sit Strap****Non-bridge SRT harnesses being added in Q4 2024**

**2024:** Harnesses was the first GUIDE we had in ARBCLIMBER in issue 1, written in 2011, published in 2012 and in the intervening 12 or 13 years it is amazing just how many things haven't changed. There have been many new harnesses and updates of course and some have dropped off the production schedules altogether although, even more amazingly the *Whillans T* from the 70s that we mentioned in the original intro is still being sold! So we thought it would be useful to run our original text and insert update text (in this burnt orange colour) where necessary. We don't have room for both sets of images but again the majority that we used to illustrate the introduction in issue 1 are harnesses that are still familiar today - the *Teufelberger Tree Motion*, *Petzl Sequoia*, *Buckingham Ergo*, *CAMP Access* and the widely rebadged *Protekt TH* models. You may need to keep reminding yourself that the text in black is over a decade old. Where a term or date has been updated from the original we have shown the changed word(s) in orange as well as all updated 2024 text. All images are of models available at the start of 2025.

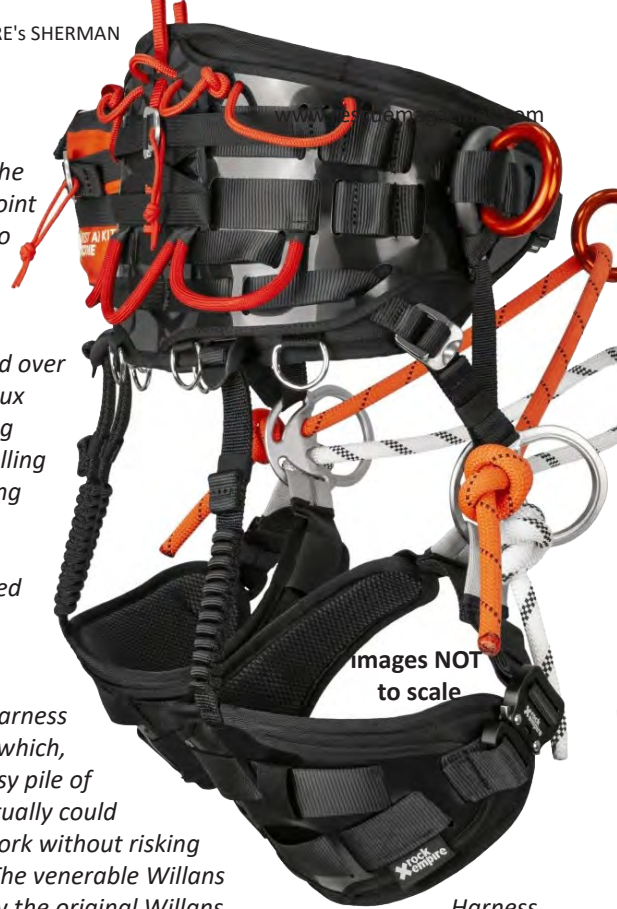
**2011:** In the US, the type of harness we're looking at in this guide is still more commonly described as a 'saddle' with the term 'harness' often reserved for lightweight, full-body, fall-arrest harnesses. To avoid any misunderstandings we refer to all webbing, load-support harnesses, whether they be sit, full body or sit-strap harness as .....harnesses.

Do you remember the original Whillans harness? If you do, you're probably from the UK and probably getting on a bit. Don Whillans, bless him, was a god in the mountaineering world and his Troll Whillans harness was, throughout the seventies and early eighties, the pinnacle of climbing harness design. As a mountaineer myself I felt that my trusty Whillans was just the thing for tree work since the Whillans was already a renowned brand. Imagine my consternation on discovering that not only did I have the wrong Mr Whillans but that my version had a wicked, and I do mean wicked, central tie-in eye that came up between your legs [rather than having round leg-loops] and consequently had the very uncomfortable tendency to trap a testicle or two (if you were male) and didn't tie into the two attachment eyes emanating from the top of the waist belt. It was also not very forgiving if you were in an unusual position and in arbwork an 'unusual' position is the norm. So, far from the mountains where Don Whillans plied his trade another Whillans, Major 'Dumbo' Willans without the 'h' developed, amongst many other things the Willans tree harness which had a sit (or butt) strap that coddled the buttocks like a leg loop never could, at least not in those days. The sit strap eyes

then formed the central hardpoint and hey-presto your testicles could breathe again.

Having glossed over my harness faux pas by insisting that I was trialling mountaineering gear for tree surgery I was mighty relieved when Troll produced their full body Manchester harness with sit strap which, though a messy pile of webbing, I actually could use for tree work without risking sterilisation. The venerable Willans is still made by the original Willans

Manufacturing company founded by 'Dumbo' in 1972 and now in its RW59 or T22 guise. But it now has lots of competition because by the mid nineties several climbing and industrial harness manufacturers had realised that they were missing a trick not catering for the tree industry and started producing arborist harnesses that combined the best features of the original Willans with the original Whillans. Well, OK maybe not the original Whillans but a modern mountaineering harness with all its gear attachments and padded, safely fitting leg-loops etc. Of course the Willans didn't have the field to itself because the standard for most arborists, especially in the US



Images NOT to scale

Harness



BUYERSGUIDES Arborist Equipment

# ARBORIST SIT HARNESSSES



was (and still is) the part-leather 'saddle' as exemplified by the Buckingham, Weaver and Bashlin Classic saddles and still made by these same companies for their traditional clientele (Weaver pin & hole belts shown on the right) alongside their more modern designs but there's no doubt that both Weaver and Buckingham continue to design 'out of the box' to cater specifically for the US market but all are moving more towards Euro-style technical leg-loop harnesses. The Weaver Denali for instance has water buffalo leather and an unusual double waist belt arrangement utilising 4 roll bar buckles in addition to the central AustriAlpin Cobra buckle. On the right are three of Weaver's current product range, the insets are traditional leather saddles with pin & hole belt and leg loops while the main image is their latest model, the Stratus. This is particularly interesting because it not only follows the trend in North America towards technical leg-loop harnesses, this particular model is clearly a much lighter and trimmed down harness with minimalist webbing at the front but huge padded areas on the back of the legs and waist belt where they are needed when load is applied. It uses simplified lightweight rings for the 'pole-strap D-rings' and a minimalist multi-ring (4-hole rigging plate) as the bridge union.

## THE FLOATING (SUSPENSION) BRIDGE

With any single-central hardpoint harness, as soon as you manoeuvre off the vertical you are fighting both the pendulum effect of the rope and the restriction of the harness giving a forced rather than balletic, transitional action. In the mid to late nineties a veritable revolution in arborist harnesses saw the introduction of the floating bridge also known back then as a glide or butterfly strap which connects two widely spaced eyes or rings. A round ring or D-ring can slide the width of this bridge allowing a huge amount of lateral rotation of the hips in continued comfort. If you compare the three Weaver harnesses on the right you will notice that there are three very different tie-in options. The top harness



Back to some traditional designs sold in the US and the Weaver harness above integrates sit-strap D-rings into the leg loops while the version below has joined the two ends to create a single bridge and then slides the D-rings along its length. Contrast these with their latest designs the Stratus (top) and the Denali

## UPDATED Feb'25

is Weaver's Stratus with the now common rope bridge, in this case tied off with a double fisherman's knot. Most modern harnesses allow you to add a second bridge to give redundancy and/or quick access to a different length bridge. This is often tied into one end of the first bridge with a Fisherman's so that it looks like you have a quadruple Fisherman's on the same rope ends. (see inset pic above of Edelrid's Tree Rex). You can do the same on the other end or have the two ends separated so that you can more easily adjust the length on one or both. Some use a single rope length that is doubled using a girth hitch on one end and a Fisherman's on the other. The two D-Rings on a length of unusually wide webbing is an early (and still popular) design for use with the Split Tail System but most harnesses

now use a much narrower double layer of webbing or rope for the bridge. This is always connected to D-ring or shackle unions between both the leg loop risers and the waist belt and ensures that the meaty thighs as well as padded waist are each sharing some of the load some of the time.

As you can probably guess, this design has very much taken a back-seat though there are still a number of US models and the venerable old UK Willans offering the D-rings on a sit-strap arrangement. Instead, virtually all modern harnesses have made the bridge union into an attachment eye for both the bridge or multiple bridges and additional SRT (SRS), DRT (MRS) and lanyard attachments. The use of double lanyards in particular has become the norm since the first article making use of both side D's and bridge union eyes or D-rings as can be seen in the Vega harness above. The sit-strap style connection has been sidelined because of its restrictive loading forcing the legs together instead of being able to stretch and reach as demanded by modern arb gymnastics but it's interesting to note that the prominent bridge union D-rings like Petzl's SRT version of the Sequoia enable the same use as that traditional sit-strap design.

A component we are seeing more and more is the openable ring which can be used as a sliding bridge ring but with

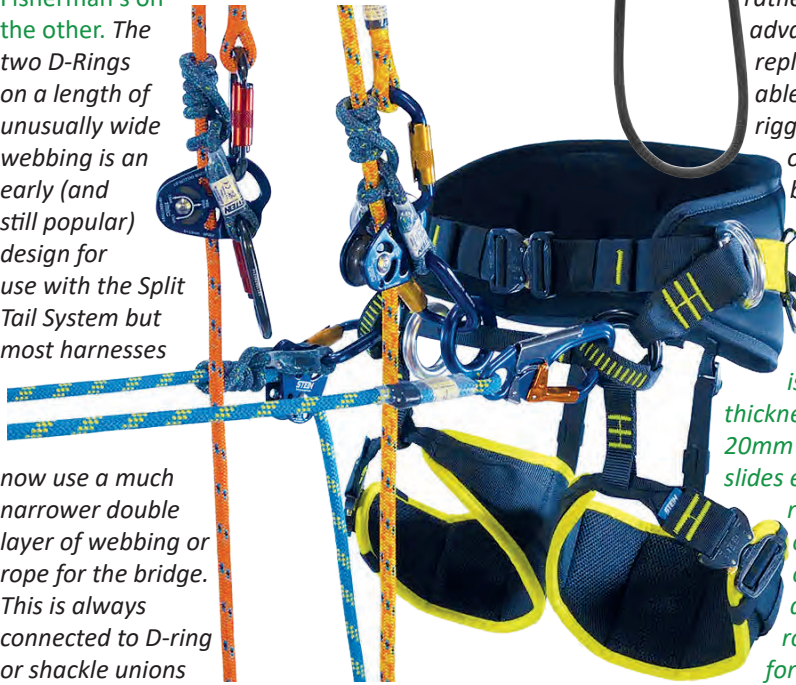
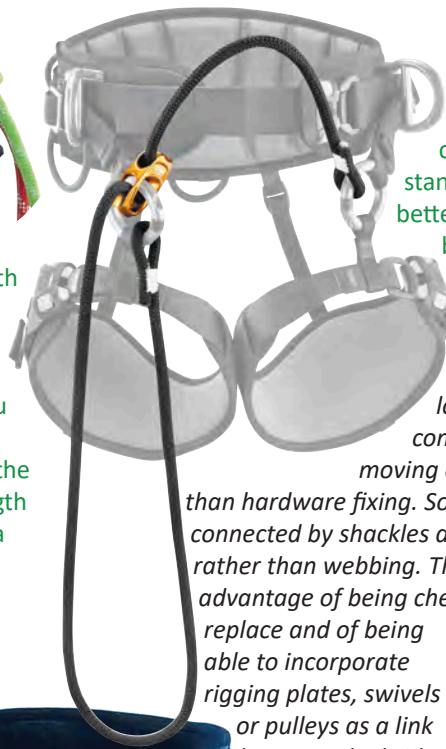
increased cost over a standard ring is better used at the bridge union for multi-directional loading as distinct from the more traditional shackle.

This is Courant's version, Odin.

The bridge on all harnesses receives a lot of wear, much more than any other component since it has a continually moving connection and is a textile rather

than hardware fixing. Some are user-replaceable as they are connected by shackles and some use a tied length of rope rather than webbing. This has the enormous advantage of being cheap and easy to replace and of being able to incorporate rigging plates, swivels or pulleys as a link between the bridge and your main line(s).

Of course, these things will also work well enough on webbing which is often double thickness and around 20mm wide so hardware slides easily on it. Those using rope bridges offer you the option of simply replacing the bridge with your own and tying off with a fisherman's each end. Indeed since the first article it is common for the harness to come with a tied rope bridge or even two bridges offering different lengths for different systems and for double lanyard working. Many still offer a bespoke sewn end or special termination rope bridges like Petzl who also offer an optional adjustable length bridge shown on the left. We have already mentioned the Edelrid adjustment option using a small aramid prusik. Another interesting design is the Komet or Miller/Sperian Morpho. This harness (right) has placed the bridge shackles into a captive eye created by twisting the leg loop-to-waist belt riser into a kind of figure 8. This allows you to adjust the position of the bridge up towards the waist or down towards the legs. The Morpho is still available and this form of dual-usage bridge union has evolved to become the norm with more and more harnesses unifying the leg riser adjustment with a bridge length adjustment tied back to the waistbelt instead of the Morpho's ingenious but less adjustable twisted length of webbing. Its use of a shackle was also ahead of its time though present on the Polish Protekta models rebadged by a number of arb companies. This is still seen on some models and on others has evolved into 'multi-rings' which are large D-rings with a number of additional eyes for tying in your rope bridge(es). Still others are making more and more use of openable rings like Petzl, Edelrid and Courant and these can be bridge unions, bridge rings or even Side D's or side O's would be more accurate.



## SIT-COMFORT

Whether you use a wide sit strap, (a bosun's chair/batten seat) or you use individual leg loops in the climbing style is largely a matter of personal preference. Virtually all harnesses now offer both, but some leg loops are intended to be primarily loaded like the Ergovation and Tree MOTION harnesses and some are simply a safety back up like the Willans and the Petzl Swing variant of the Sequoia (Petzl now has just the two Sequoia models - regular and SRT versions but both can accommodate the rigid Petzl bosuns seat). The latter is an interesting design that doesn't appear to compromise the size/width of the leg-loop webbing while integrating the sit strap. The original sit-strap-only harnesses did, and do, have the distinct disadvantage of squeezing your legs together and limiting your movement dexterity in the canopy, they also had an alarming safety drawback in that you could fall through it if the sit strap is not properly in place and you don't have a Bluto-style barrel chest. A more common problem was that of falling out of it if you inverted. Leg loops therefore became the norm to improve safety but many arborists still insisted on the extra perceived comfort of the sit strap because it spreads the load across a wider area and tends to support higher up the thighs or even up to the buttocks. A trend adopted by Harkie and Komet and shown on the Dragon is an enhanced support leg loop which extends like a fore-sail further up the thigh and acts as a kind of 'bucket'-seat this was exemplified by New Tribe with their ProGear2 harness and then all of their later harnesses like the Onyx which is still available while stocks last but New Tribe ceased trading from January 2023 after owner and rec-climbing pioneer Sophia Sparks decided to take a well-earned retirement. The Courant Koala has elasticated loops in its leg loops that allows very simple insertion of a wooden bosun's chair, which can be fixed using webbing with buckles.

## BELT HARDWARE

A high proportion of aerial tree work requires you to lean into the harness while restrained by the rope or pole strap rather than supported in it vertically and this latter function is common to all arb harnesses. Pole strap D-rings are mounted on each side of the waist band and allow connection of a pole strap or cinching rope that goes around the trunk and clips into each ring. Climbers can either lean against the pole strap/flip line using spikes for purchase or stand on a branch or platform.



## Edelrid's TREE REX

and the new **TREERAPTOR** that came out in March 2024, have a number of interesting features that serve to illustrate modern trends in arb harnesses and in some cases has yet to make it onto other designs. The first aid or trauma kit, which, like so many now is stowed around the back and could be tricky to access in a dire emergency so Edelrid have installed a quick-release on the front - that small yellow toggle above the bridge union. This pulls the first aid kit off its mounts but remains attached via a length of thin webbing and a retaining eye for that toggle.

You can easily access the contents but to detach the kit altogether you simply rotate the toggle and push it through the eye. On the bridge there is a prusik cord length adjuster connected through 2 of the 6 eyes on their comprehensive Bridge union plate. This is simply a shortener NOT a means to connect the bridge rope(s) which will ALWAYS be tie with a double Fishermen's on BOTH ends. If you were to use the prusik as as the attachment there is a chance your bridge ring could slide down to contact the prusik and not only allow your bridge to inadvertently increase in length but perhaps release altogether. Edelrid advise using the prusik adjuster on one bridge but have the ring around both rope bridges simultaneously to negate accidental release of the prusik. While we're on this prusik it has another fairly unique feature - it's a 6 mm Aramid so it's super-tough and can instead of a prusik be run as a backup bridge if you wanted to run with a single full size rope bridge. In the event you cut into your bridge this thin back-up offers you a good chance of survival but doesn't bulk up your front working area. On the rear is a grey coloured, reinforced eye that is rated for fall-restraint NOT fall arrest - it's a means to limit your ability to fall over an edge if working at height although many are utilising that huge strength as their chainsaw attachment point! The TREEREX also has an embedded RFID chip, something that, as of 2023 was in around 10% of harnesses but will likely be in virtually all life-safety equipment by the end of 2024. The huge number of gear attachment points started by the Teufelberger Tree Motion range with its myriad of eyelets and carried on by the likes of Husqvarna has been modified on the TREEREX as small sewn web loops (eyes) capable of holding a small gear carabiner or to thread cord for a customized gear rack ala rock climbing harnesses of the 1980's. Finally the rope has a wear indicator thread in red to really show up when it's time to renew your bridge, however a white core to any coloured sheath would count as a wear indicator for rope bridges.

In fig 10 the use of a flip line enables this arborist to lean away from the cut while his mainline provides essential safety back up and further enhances his balance. Note that using an intermediate swivel allows plenty of rotation without applying torquing pressure which might destabilise your stance. Pole strap D-rings in themselves are not intended for full abseil/rappel loading but they do lend themselves to side-loaded work positioning despite manufacturers comments to the contrary. In rescue we have seen the advent of side-Ds that fold back flush to the waist-belt when not in use and in arb-work this is a particularly useful feature in avoiding snagging while



harness and not necessarily able to be used on other sit harnesses and secondly 'tool suspenders' are NOT necessarily load bearing though confusingly some are. They are an American product intended to support your sit harness if you have a narrow waist or to help transfer the equipment load from your harness to the shoulders. The fact that the vast majority of arborists insist on a sit-only harness is partly a question of taste and function since mobility is essential but full bodies can restrict movement and increase snag hazards. However, as with all roping activities at height there are times when a chest section can be a life-saver.... literally .... and it can certainly assist in difficult cuts or rigging locations that require prolonged inversion.

climbing/descending or getting out of the way of a falling section. The most recent and prolific change to harness hardware is use of the Austrianpin style Cobra buckle - this is a push-clip design. It requires the top and bottom of the buckle to be depressed at the same time in order to release and is therefore a very safe design. Variations of this include Petzl's two stage release where a button is depressed for initial release then a hook arrangement has to be manually unhooked to fully separate. Since the first

### MORE SIT COMFORT

padding on the waist belt, sit strap and leg loops has become progressively more pronounced as our asses have evolved from leathery old saddle thumpers to soft, pudgy, lazy boy recliner occupants. but it's safe to say that the days of the unpadded leather belt have been waning for some considerable time and padding is like a Friday night beer, the more you have the more you want and you don't care how embarrassing it gets. To be fair, modern padding no longer entails stuffing your mum's pillow between you and the hard, rough belt or sit-strap. Now it is mostly all about thermo-moulding that puts the padding into neat little sections just where you want them without adding unduly to the bulk and weight and allowing the belt to bend without bunching up the padding. That's not to say that you can't still find the odd sprung mattress sewn to the waist belt and that these aren't actually still more comfortable but it does now clearly differentiate a modern harness. Another feature that has increased in size, apart from some of your bellies, which is the lumbar section of the waist belt. This is the physical width of load bearing webbing, not necessarily padding. This gradual widening is not unique to the arb world, we first saw a radical change in the size of the back section of waist belts when CMC Rescue brought out their Instructor harnesses in the last century and many now emulate that. You only have to spend some quality time manoeuvring around a tree to realise that efficient padding and a wide support belt make life much more bearable on a protracted job. Teufelberger's TreeMOTION recognised this trend and is currently the widest lumbar section of all Arb Harnesses but you can be sure that others will follow.

GUIDE, the Cobra style quick-release buckle has become the commonest means of securing the waist belt and leg loops. We have termed this design as Fast-Clip and they all require two buttons to be depressed to release. Many use the Cobra original (shown in our tables as AA Cobra) but there are now branded alternatives from the likes of ISC and Skylotec's Oktalock as well as many unbranded versions which we have termed 'Fast-Clip'.

### CHEST HARNESSES

You may notice that none of the harnesses in the tables later in this article feature a chest harness or chest section. This transforms a sit harness into a full body harness capable of being used for SRT-style ascending with a Croll or frog-rig and as mentioned earlier, of meeting the EN361 safety standards because it makes the harness much safer in a vertical fall but importantly for arborists, not necessarily in a 'swinging' or pendulum fall. Nevertheless this perception of safety has caused full body harnesses to be mandatory in some organisations.

We have therefore included a row to show which models have some form of integration for a purpose-built chest harness or top section and this will, more often than not, correlate with EN361 even if the model hasn't gone through the test process necessary to obtain that standard. Two words of warning though, firstly some chest harnesses like the Courant and Petzl models shown here are dedicated to the fittings on their

And indeed they did though many have stuck with strategic widening and padding rather than super-sizing the waist and leg loops. Singing Rock's Arbo Master in the ad opposite for instance has kept things simple but greatly widened the very rear of the waist and leg loops without carrying the width on all the way round. It became obvious very early on that when loaded the front parts of the waist and leg loops are pulled away from the body and don't need the same degree of comfort width or padding.

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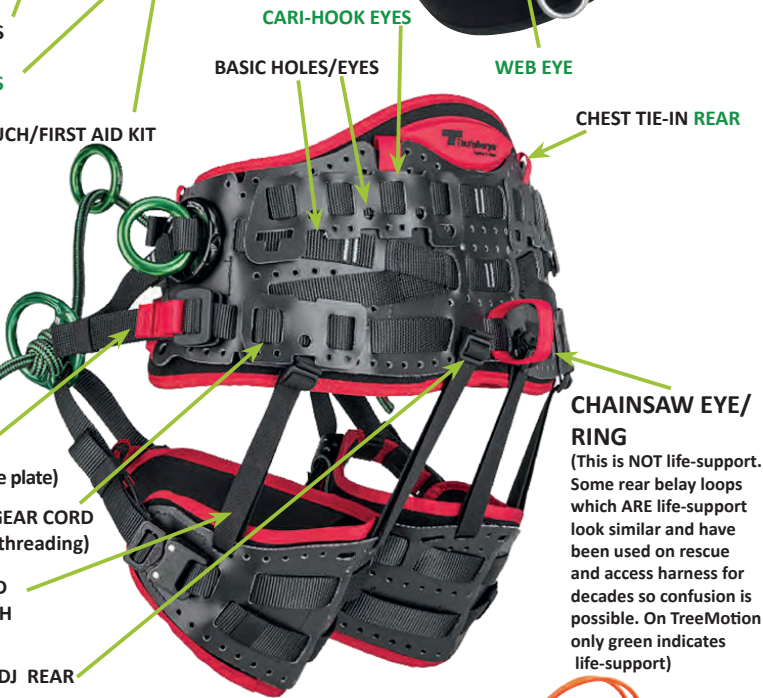
**UPDATED Feb '25**

**FEMALE HARNESSSES**

There are two harnesses in this guide that are specifically designed for women. What? the third decade of the 21st century and we're still only peripherally catering to 51% of the population? Is it pink? Nope, did you know that in Victorian times pink was for boys and blue was for girls? Apart from Bo Hammerstein, Female



- GEAR LOOPS
- BASIC RINGS
- ATTACH POUCH/FIRST AID KIT
- CHAINSAW HOOK
- BRIDGELENGTH ADJ
- BRIDGE UNION (4-hole plate)
- CUSTOM GEAR CORD (eyes for threading)
- ELASTICATED REAR ATTACH
- LEG RISER ADJ REAR



**CHAINSAW EYE/RING**  
(This is NOT life-support. Some rear belay loops which ARE life-support look similar and have been used on rescue and access harness for decades so confusion is possible. On TreeMotion only green indicates life-support)

arborists don't need a variation based only on pink, they need better ergonomics. Recreational climbing and mountaineering have had 'female' designs since the 1980's but usually only in terms of sizing. Prolific harness designer Sophia Sparks of New Tribe, as a tree climber of many decades, also never saw the need for a gender-specific harness but this may well have been because loadings are primarily vertical. With a noticeable increase in female arborists in just the last 10 years the different needs of modern gymnastic arborism has highlighted some ergonomic inefficiencies in the standard leg-loop designs. The *Simarghu Gemini* incorporates an additional set of pelvic straps that cross to the inside of the usual leg risers to alter the way load is applied. In the vertical plane it's still the leg loop taking the load but when you move into more horizontal (pole-strap) and diagonal (limb-walking) modes as well as rotational leaning, the pelvic strps give much better support between the lower abdomen and groin. Now defunct UK manufacturer *ChampionGear* also used these additional pelvic straps in their female version. Neither harness is/was available in pink. However, we have seen no new developments since the *Simarghu Gemini* harness.

**GEAR STORAGE (see separate GUIDE)**

This is a very personal thing as it is in all harness oriented trades; you've got all those carabiners, pulleys, slings, tethers, flip-lines, ascenders, prusiks, first aid kit, pruning saw, chainsaw etc. to think about. Many harnesses come with a good array of gear loops and the ability to add more yourself as well as attachment points for tool clips like the *Petzl CariTool (EVO version right)* which spawned a host of similar resin and alloy, carabiner-syle hooks. These include *Courant*, *CT*, *Edelrid* and *Protekt* but also more complex metal alloy wizardry from *Rock Exotica (TransPorter shown below)* & *C.A.M.P. CMI* now produce the *Shembiner* which is a simple but extremely robust and easy to use chainsaw hook while *Buckingham* went down the even simpler route of a resin clothes-peg style clip. *DMM* have embraced the concept of organising gear more than most with three sizes of their *Vault* carabiner as well as fold-flat clips and their *Parking Lot* adapter plate for fixing all kinds of hardware in the orientation to suit you. Some harnesses like the *TreeMotion*, *Husqvarna* and *DMM Kinisi*, give you an infinite range of





connection and carrying options, as you might expect of just about the most arb-engineered harnesses on the market. Some like the Weaver Cougar, Edelrid TREEREX, DMM Kinisi, TreeMotion Pro & Essential (but NOT the original TreeMotion) have a rear belay loop in high vis red which is a fully load-bearing connection on which you could hang though it is more useful as a work restraint attachment but don't confuse a non-load bearing gear or suspender loop with this or there will be dire consequences and not for the first time.

There are basically 5 types of gear attachment:

- the rock climbing harness style gear loop which can take a whole line of carabiners, hardware and software. This might be rigid and stand proud for easier clipping (as indicated in our tables) or hang more conventionally flush with the harness.
- the metal ring or eyelet which, in a larger size, may be used for connecting your chainsaw, but we now see a number of smaller rings positioned around the waist and even on the leg-loops for attaching gear. None of these are live-load-bearing and are always in standard silver whereas life-support rings are often (though not always anodized to avoid confusion).
- the integrated metal clip or hook often with a sprung gate and with a larger load capacity to carry the weight of a chainsaw - this is usually situated around the very back of the harness.
- the webbing, leather or plastic 'slot' which will hold a carabiner or Caritool which in turn gives you more space into which gear can be clipped. Most harnesses now cater for such Carritool hooks and these have the gate clearance and load capacity to be used for a chainsaw so many in our tables do not show an entry in the dedicated Chainsaw Eye/Hook row since the Carritools enable you to position your chainsaw exactly where you want it.
- Smaller web eyelets on some harnesses which are just large enough for a small carabiner or a cord. The eyelets restrict movement of a gear carabiner and are ideal for attaching a snap gate carabiner into which you can quickly clip pretty much anything. If you use a bent gate rather than straight gate carabiner you can also take advantage of the original rock-climbing purpose which is rapid location and 'capture' of whatever you need to clip but conversely, beware of trailing your rope across the gate. Individual web eyes are also good for direct attachment of accessory bags like throwlines and first aid kits or for attaching cord and making more gear loops. The Edge harness from Sherrill Tree and the Edelrid Tree Magic (initially replaced by the Tree Core and now by the TREEREX) maximise use of wide gear loops making pretty much the entire width of the waist belt a clippable area so there should never be any excuse for fumbling. However, bear in mind that if you overload a gear loop with too many carabiners full of ascenders, descenders, pulleys flip-lines etc. it can become difficult to locate let alone unclip your required item - good management is key....now go and tidy your bedroom.

Some folk prefer to climb 'clean' with little or no attachments other than an integral metal clip for the chainsaw while others are ready for an assault on the North face of the Eiger.

The TreeMotion sparked a move towards both customisable gear attachments and LOADS of gear attachments. In Teufelberger's case they were sensible enough to realise that having such a complex range of options needed improved

## ARBORIST SIT HARNESS

organisation so they colour-coded their integral attachments points as GREEN for primary life-support (bridge, side-D's and Bridge Union Rings) and red for secondary life support or more accurately, restraint and chest harness attachment points. Nevertheless, many harnesses using black as their base material on the waist belt would benefit from better contrast colouring even allowing for the fact that you are meant to customise your own attachment points using the various holes and eyes BEFORE you start climbing. The ArbPro Tree Access3 above and its 'parent' the CAMP Tree Access Evo have used contrast colours on their gear loops and webbing eyes that greatly clarify where to clip - compare these to the Sherrill Tree Edge and the Notch Sentinel. Both are predominantly black with black fittings.



### STANDARDS

Leg loops are also the only way your harness will meet certain relevant safety standards like Europe's EN (European Norms) and the US's ANSI. In fact the numerically challenging ANSI A10.14-1991 quoted here by some manufacturers was withdrawn a few years ago in favour of a 2004 version but that too is a far more generic standard relating to a number of components in addition to the harness. But I think you'll find ANSI Z359.0 and it's numerous offspring are starting to cover things. EN813 on the other hand is quite specific in its requirement for a sit harness to maintain a 100kg mass safely upright after a 2m free fall on a 1m lanyard and for its load-bearing components to withstand a 15kN pulling force for 3 minutes, fairly easy for many it has to be said. That's if a manufacturer is inclined enough towards the European market to go through the expensive procedures required to acquire EN certification. Virtually all of the models in this guide could meet both EN358 and EN813 even if they don't say so. 'Standards' is actually a whole 'nuther article but since we're on the subject you won't see EN361 quoted in the following tables because that's a fall-arrest standard requiring the addition of a chest harness to pass the drop test. Many of these harnesses have the option of a chest harness which is vital for some SRT systems and would thus meet the requirements of EN361.

EN358 refers to the ability of the side D-rings to act in a work positioning role and to also not impart more than 15kN of force to your dainty waist after a 1m fall -always assuming that, even after all those doughnuts you still only weigh 100kg or 220lbs. ASTM F887 is for personal climbing equipment and is a useful and detailed standard which includes a section specific to harnesses rather than being generic. EAC is for eastern Europe.

### CHINESE HARNESSES

We have not included any because we cannot yet verify the certification. They often mention CE certification but there's nothing to stop them saying this when it isn't true - it is up to the importer. So, none are included here despite the fact that one or two appear to have decent components and stitching. Expect to see properly certified, rebadged models soon.

**IN THE FOLLOWING TABLES:**

....we have shown most harnesses from the front and the back. Prices are for the specific version listed and normally shown in the currency of the country of origin. Some models, have so many variants that we would need an entire Market Guide just to list their range. Similarly, so many older designs are still popular that they remain in production but we have only shown key, generally padded, legloop harnesses.

Prices and weight etc, are for the base model with standard features NOT options. Any feature that is an option is shown as an outline squares

**ORIGIN:** The manufacturer's country but not always where it's made in which case, if we know, there is an inset flag.

**COST:** approximate, rounded up and inclusive of local taxes which are generally 20% in Europe. Costs are the Recommended Retail Price and can often be found for less at your stockist. Prices in orange are a currency conversion only (as of Feb 2025) not necessarily the selling price because they do not include import costs and duty.

**CHEST HARNESS:** None of these harnesses includes a chest harness. If the same company supplies a chest harness it will be shown as

**NB:** suspenders NOT for life-support but will stop you coming out when inverted. **ATTACH PTS(Points):** Not always necessary. Integrated attachment points for a chest harness- or suspenders, usually rings or sewn loops on the top edge which can also be used as gear attachment points.

**BUCKLES:** The specific type of buckle used for the waist and leg-loops. Many use the quick attach/release AustriAlpin Cobra as the gold standard but if they are a similar principle but unbranded we have called them 'Fast-Clip'. ISC has its own version and Petzl has a bespoke hook and push-fit combination buckle. Some US harnesses use a traditional pin & hole waist belt but these are not directly attached to.

**BRIDGE TYPE:** The number and type of bridge which will be rope or webbing or a double layer of webbing - some are stitched into place but most are **REPLACEABLE** referring to the ability to self-replace once worn.

**BRIDGE LENGTHS** If a bridge is tied rope it will be **ADJUSTABLE** but some that have a sewn termination like the Petzl or ArbPro model opposite, can also be self-replaced so there may still be a green square in the above row. Webbing is always sewn so not adjustable for length but may still be replaceable.

**CONNECTION TO BRIDGE:** The attachment method from your bridge to your climbing/descending system as supplied with the harness. May be an optional purchase from the same manufacturer (shown as an outline square) or you can simply attach direct with a carabiner, but most are a ring(s)

**BRIDGE UNION: is the means by which the bridge is secured to the harness - this may be a rigging plate, shackle or ring offering additional bridge attachment points or it may be sewn in and fixed though that is unusual these days. LENGTH ADJ:** refers to the ability to alter the distance between the bridge union and the sides of the harness, in essence, to tighten the bridge.

**SRT D-RING EYE REAR BELAY:** a centrally mounted D-ring or **WEB EYE** that is fully load-bearing and often used for SRT/SRS or as an ascender rig attachment point. Occasionally there may also be a load-bearing **belay** loop or sewn eye on the **REAR** but in arborist harnesses these are too easily confused chainsaw eyes that are not load bearing in terms of human weight..

**POLE STRAP D's:** large, load-bearing D-rings mounted on each side for attachment of pole-straps/flip-lines or lanyards. Many will **FOLD FLAT** to the waist to stop being snagged while working but this can also hinder clipping in.

**GEAR LOOPS:** are wide, integral attachment loops, often stiffened and together with **SEWN EYES** for attaching gear carabiners are generally rated to around 5kg each -

**CUSTOM GEAR CORD EYES:** are usually smaller than the sewn eyes mentioned above but can be one and the same if sufficiently spaced. They may be sewn loops or punched eyes capable of around 1-5kg loading on each eye.

**BASIC HOLES/EYES:** smaller attachment points for small accessory carabiners, may simply be a hole or t-shape

punched in the waist belt. **RINGS** may be metal or reinforced plastic(resin) usually rated from 1 to 10kg but those intended as chainsaw lanyard eyes may be stronger.

**CARI-HOOK CARI-HOOK EYES:** We've modified the Petzl trade name for a specialist tool carrying 'carabiner' (Cari-Tool) simply because its a good description and the only way we could get to fit! This could equally be called a Carry Hook or Tool Carabiner but it does refer specifically to the carabiner style hooks which can also be used for chainsaw attachment. **CARI-HOOK EYE** refers to slots or pouches in the webbing into which a Cari-Tool type hook can be slotted and are a strong option most often capable of taking a chainsaw. **CHAINSAW EYE/RING HOOK:** A dedicated higher load capacity webbing eye or ring or a hook typically able to hold 15-30kg/33-66lb but the CariTool style hooks take the place of a dedicated chainsaw ring or hook on most modern designs and many standard rings or sewn eyes can also do the job as they're often used as a chainsaw lanyard attachment point but verify the load capacity first.

**WAIST PADDING SWAMI:** All of these harnesses are padded so they will all have a black square but then a description which is basically mesh lined, single sheet foam or thermo-form foam which looks segmented and ensures the harness padding doesn't bunch up and stays firm. **SWAMI** is a second inner belt sometimes elasticated, that holds your harness on while you adjust the main load bearing waist buckles.

**ATTACH POUCH/FIRST AID:** Adjustable strapping, eyes or elasticated cord, normally on the centre-top of the rear waist belt, to attach a first aid pouch (or anything other equipment you want to hand but a first aid kit is essential).

**WAIST BELT PADDING HEIGHT:** The width of the waist belt webbing - usually less than 2"/50mm. The max height of the padding is shown in orange and is not the same all the way round - most padding tapers from the back of the waist to quite low at the front. **WAIST ADJUST:** The method of adjustment of the waist belt based on the position of the buckles. Some are centrally mounted, most are on one side and you pull the end of the webbing then stow the loose end, some have a buckle on each side and you pull both sides simultaneously (or alternately as you wiggle your hips).

**LEGS LOOP HEIGHT PADDING:** As above except on the leg loops **ELASTICATED REAR RISER:** There is a  if the straps connecting the back of the leg loops to the waist section are elasticated rather than normal webbing. Also refer to ....

**LEG RISER ADJ REAR:** The Rear leg loop straps on the back of the harness can be adjusted for length and may also be elasticated (see above). **FRONT** The Leg riser at the front connecting the leg loops to the bridge union or direct to the waist belt can be adjusted for length -many will have bridge adjustment which secondarily affects the leg loop position but not a separate leg loop adjustment.

**RFID CHIP:** The harness has an embedded chip which can be read by a reader to provide inspection or inventory details.

**WEAR INDICATE:** Primarily Pertaining to the bridge and indicates a warning colour showing through when the bridge becomes worn and needs replacement. In reality, most rope bridges have a white core and coloured sheath so will ALL have wear indication!





















**FIRST AID TRAUMAKIT:** Indicates that this manufacturer supplies (or can supply as an option  ) a first aid kit and/or a trauma kit - a **trauma** kit includes a CAT (Combat Application Tourniquet) and Cellox or similar clot-forming dressing/sachet.

**SIT STRAP BOSUNS CHAIR (Batten seat):** A sit strap is a continuous fabric strip that replaces or augments the leg loops. It can be integral to leg loop or run around to the front of the harnesses and be connected into via rings/D-rings. a Bosun's Chair is similarly a support eat but is stiffened/reinforced or may simply be a covered plank of wood. These also connect to the load support elements at the front of the harness and may have their own additional accessory loops/hooks/pouches. None in this list are integral, any shown are options-only.

**OTHER SRT MODELS:** This company has non-bridge models that will be noted in this row in Q1 2025

| IMAGES NOT TO SCALE<br>FITTINGS and ACCESSORIES SHOWN<br>MAY BE AN ADDITIONAL COST              |    |
|---|----|
| <b>KEY:</b>   |    |
| <b>COST:</b> Approx, inc local tax/VAT  |    |
| £\$€=currency conversion only   |    |
| <b>OPTION=</b> <input type="checkbox"/> or <input type="checkbox"/> or <input type="checkbox"/> |    |
| <b>N/A:</b> info Not Given  |    |
| <b>STANDARDS:</b> EN358 = <input type="checkbox"/>  |    |
| EN813= <input type="checkbox"/> ANSI Z133= <input type="checkbox"/>                             |    |
| ASTMF887= <input type="checkbox"/> CANADA= <input type="checkbox"/>                             |    |
| AUS/NZ = <input type="checkbox"/> EAC = <input type="checkbox"/>                                |    |
| <b>MANUFACTURER</b>   |    |
| <b>MODEL VARIANT</b>  |    |
| <b>ORIGIN</b>   |    |
| <b>COST</b> inc VAT/tax conv-only   |    |
| <b>WEIGHT</b>   |    |
| <b>MAX LOAD</b>   |    |
| <b>WAIST SIZES</b>  | 2  |
| <b>LEG SIZES</b>  | 3  |
| <b>STANDARDS</b>  |    |
| <b>CHEST HARNESS</b> <b>ATTACH PTS</b>  |    |
| <b>BUCKLES</b> <b>WAIST/LEGS</b>  |    |
| <b>BRIDGE TYPE</b> <b>REPLACEABLE</b>   |    |
| <b>BRIDGE LENGTHS</b> <b>ADJUSTABLE</b>   |    |
| <b>CONNECTION to BRIDGE</b>   |    |
| <b>BRIDGE UNION</b> <b>LENGTH ADJ</b>   |    |
| <b>SRT D-RING/EYE</b> <b>REAR BELAY</b>   |    |
| <b>POLE STRAP D's</b> <b>FOLD FLAT</b>  |    |
| <b>GEAR ATTACH</b>  |    |
| <b>GEAR LOOPS</b> <b>SEWN EYES</b>  |    |
| <b>CUSTOM GEAR CORD EYES</b>  |    |
| <b>BASIC HOLES/EYES</b> <b>RINGS</b>  |    |
| <b>CARI-HOOK</b> <b>CARI-HOOK EYES</b>  |    |
| <b>CHAINSAW EYE/RING</b> <b>HOOK</b>  |    |
| <b>ATTACH POUCH/FIRST AID</b>   |    |
| <b>WAIST</b>  |    |
| <b>WAIST PADDING</b> <b>SWAMI</b>   |    |
| <b>WAIST BELT WEBBING</b> <b>PADDING</b>  |    |
| <b>WAIST ADJUST</b>   |    |
| <b>LEG</b>  |    |
| <b>LEG LOOP HEIGHT</b> <b>PADDING</b>   |    |
| <b>ELASTICATED REAR</b> <b>LEG RISER</b>  |    |
| <b>LEG RISER ADJ</b> <b>REAR</b> <b>FRONT</b>   |    |
| <b>EXTRAS</b>   |    |
| <b>RFID CHIP</b> <b>WEAR INDICATE</b>   |    |
| <b>FIRST AID</b> <b>TRAUMA KIT</b>  |    |
| <b>SIT STRAP</b> <b>BOSUNS CHAIR</b>  |    |
| <b>OTHER SRT MODELS</b>   |    |
| <b>NOTES</b>  | *2 |
| <b>WEBSITE</b>  |    |

# ARBORIST SIT HARNESSES

|                  |                       |                         |    |                 |
|--|--|--|--|--|
| <b>ARB PRO</b>   | <b>BASHLIN</b>   | <b>BASHLIN</b>   | <b>BUCKINGHAM</b>  | <b>BUCKINGHAM</b>  |
| <b>Tree Access 3.0</b>   | <b>639 BBL 640 BBL</b>   | <b>639 BBS 640 BBS</b>   | <b>Agility<sup>1480</sup></b>  | <b>BuckTree Alto Verde</b>   |
|                  |                       |                         |    |                 |
| £295 \$356 €341  | £323 \$360 \$402 €385  | £323 \$360 \$402 €385  | £685-760 \$867-962 €830-920  | £525-690 \$662-870 €634-832  |
| 1.96-2.03kg/4.3-5.5lb  | 2.3-2.6kg/5.15-5.75lb  | 2.4-2.7kg/5.2-5.9lb  | 2.5kg/5.5lb  | 2.3kg/5lb  |
| 140kg/310lb  | 159kg / 350lb  | 159kg / 350lb  | 159kg / 350lb  | 159kg / 350lb  |
| sizes 80-140cm/31.5-55"  | 5 sizes 71-112cm/28-44"  | 5 sizes 71-112cm/28-44"  | 5 sizes 61-112cm/24-44"  | 4 sizes 71-112cm/28-44"  |
| sizes 50-75cm/19.7-29.5"   | 5 sizes 40-101cm/16-40"  | 5 sizes 40-109cm/16-43"  | n/a  | n/a  |
|                  |                       |                         |    |                 |
|                 | - -  | - -  |   | - -  |
| STS Fast-Clip  | Pin&Hole/Fast-Clip   | Pin&Hole/DbIBack   | ISC Fast-Clip  | Fast-Clip  |
| 20mm Webbing  | Fixed 44mm Webbing  | Integrated sit strap  | Sewn segmented Rope   | Tied Rope     |
| 25/30cm       | 30cm/12"            | 51cm/20"              | 30cm/12"    | 30cm/12"      |
| Sliding Ring   | 2x Sliding AlloySteel D-Rings  | 2x Fixed AlloySteel D-Rings  | Sliding Ring   | Sliding Ring   |
| Shackle       | Sewn/Fixed          | Sewn/Fixed            | 4-hole + D-ring plate   | 4-hole plate  |
| -  -          | - - -  | - - -  | - - -  | - - -  |
|               |                     |                       |   |               |
| 8 4+2*   | - -  | - -  | 3 4  | 8 1  |
| -  | -  | -  | -  | -  |
| - 2  | - 2(sliding)   | - 2(sliding)   | - 4  | - 2  |
| - -  | 4* (sliding) -   | 4* (sliding) -   |  4  |  4            |
|  -            | - 2 (sliding)  | - 2 (sliding)  | -   | - 2 x 6.8kg/15lb   |
|               | -  | -  |   |               |
| Thermo-Form -  | Mesh/Foam           | Mesh/Foam             | Mesh/Foam -  | Thermo-Form   |
| 44mm/1.75" 19cm/7.5"   | 44mm/1.75" 20.3cm/8"   | 44mm/1.75" 20.3cm/8"   | 45mm/1.75" 25.4cm/10"  | 45mm/1.75" 17.8cm/7"   |
| Double Sided   | Central  | Central  | 1x Front + 2x side   | Central  |
| 33mm/1.5" 14cm/5.5"  | 44mm/2" 10cm/4"  | 44mm/2" 10cm/4"  | 25mm/1" 17.8cm/7"  | 45mm/1.75" 17.8cm/7"   |
| -  | -  | -  |   |               |
|  -            | - -  | - -  |   | -             |
| -             | - -  | - -  | - -  | - -  |
| - -  | - -  | - -  | -   | -             |
| -             | - -  |  -                    | - -  | - -  |
| -  | -  | -  | -  | -  |
| sewn load-bearing eyes on bridge union shackle   | 639 orange stitch=Alu<br>*Not designated eyes but 4 to 8 Carri-Hooks can be installed on belt          | 640 white stitch=Steel<br>*Not designated eyes but 4 to 8 Carri-Hooks can be installed on belt           | Bridge can be clipped into or length adjusted via separated sewn 'eyes' along its length.<br>Hook&Loop on all web tails  |  |
| arbpro.it  | bashlin.com  | bashlin.com  | buckinghammfg.com  | buckinghammfg.com  |

**IMAGES NOT TO SCALE**  
 FITTINGS and ACCESSORIES  
 SHOWN MAY BE AN ADDITIONAL  
 COST

**KEY:**

**COST:** Approx, inc local tax/VAT

£\$€=currency conversion only

**OPTION=**  or  or

**N/A:** info Not Given

**STANDARDS:** EN358 =

EN813=  ANSI Z133=

ASTMF887=  CANADA=

AUS/NZ =  EAC =



|                                   | <b>BUCKINGHAM</b>                                 | <b>BUCKINGHAM</b>   | <b>BUCKINGHAM</b>  | <b>BUCKINGHAM</b>  |
|-----------------------------------|---|---|--|--|
| <b>MANUFACTURER</b>               | <b>BUCKINGHAM</b>                                 | <b>BUCKINGHAM</b>   | <b>BUCKINGHAM</b>  | <b>BUCKINGHAM</b>  |
| <b>MODEL VARIANT</b>              | <b>Buck Craft</b> 17911                           | <b>Ergovation SRT</b> 16906/ 2/4  | <b>ErgoLite</b> 17906 J17906   | <b>Ergo Pro</b> 17905  |
| <b>ORIGIN</b>                     |   |   |  |  |
| <b>COST inc VAT/tax conv-only</b> | £390 \$487 €449                                   | £802 \$1001 \$1240 €923   | £754 \$942 €869  | £651 \$813 €750  |
| <b>WEIGHT</b>                     | 2.1kg/4.6lb                                       | 2.95kg/6.5lb <b>6.8lb</b>   | 2.3kg/5.1lb  | 2.6kg/5.8lb  |
| <b>MAX LOAD</b>                   | 159kg / 350lb                                     | 140kg/310lb   | 159kg / 350lb  | 159kg / 350lb  |
| <b>WAIST SIZES</b>                | 4 sizes 71-112cm/28-44"                           | 4 sizes 71-112cm/28-44"   | 4 sizes 71-112cm/28-44"  | 4 sizes 71-112cm/28-44"                                      |
| <b>LEG SIZES</b>                  | n/a   | n/a   | n/a  | n/a  |
| <b>STANDARDS</b>                  | <input type="checkbox"/>                          | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>  | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/>                                     |
| <b>CHEST HARNESS ATTACH PTS</b>   | <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>                          | <input type="checkbox"/> <input type="checkbox"/>            |
| <b>BUCKLES WAIST/LEGS</b>         | AA Cobra Fast-Clip                                | Fast-Clip   | Fast-Clip  | Double D   |
| <b>BRIDGE TYPE REPLACEABLE</b>    | 2x 3/8" Tied Ropes <input type="checkbox"/>       | 7/16" Tied Rope (6 other options) <input type="checkbox"/>  | Jacketed Rope <input type="checkbox"/>                                     | 11mm Tied Rope <input type="checkbox"/>                      |
| <b>BRIDGE LENGTHS ADJUSTABLE</b>  | 102cm/40" <input type="checkbox"/>                | 44cm/17.25" <input type="checkbox"/>  | 30cm/12" <b>no</b>   | n/a <input type="checkbox"/>                                 |
| <b>CONNECTION to BRIDGE</b>       | Sliding Ring                                      | Sliding Ring (6 other options)  | -  | Sliding Ring   |
| <b>BRIDGE UNION LENGTH ADJ</b>    | 3-hole+D-ring plate <input type="checkbox"/>      | 3-hole plate <input type="checkbox"/>   | Shackle <input type="checkbox"/>   | 4-hole plate <input type="checkbox"/>                        |
| <b>SRT D-RING/EYE REAR BELAY</b>  | - - -   | - <input type="checkbox"/> -  | - - -  | - <input type="checkbox"/> <input type="checkbox"/>          |
| <b>POLE STRAP D's FOLD FLAT</b>   | <input type="checkbox"/>                          | <input type="checkbox"/>  | <input checked="" type="checkbox"/> *                                      | <input type="checkbox"/>                                     |
| <b>GEAR ATTACH</b>                |   |   |  |  |
| <b>GEAR LOOPS SEWN EYES</b>       | 3 -   | 6 <b>3*</b>   | 5 <b>1</b>   | 4 -  |
| <b>CUSTOM GEAR CORD EYES</b>      | -   | -   | -  | -  |
| <b>BASIC HOLES/EYES RINGS</b>     | - <b>2 (+2 waist attach rings)</b>                | - -   | - <b>2</b>   | - <b>2</b>   |
| <b>CARI-HOOK CARI-HOOK EYES</b>   | <input type="checkbox"/> <b>2</b>                 | <input type="checkbox"/> -  | <input type="checkbox"/> <b>4 +8 on seat</b>                               | - <b>4</b>   |
| <b>CHAINSAW EYE/RINGHOOK</b>      | - <b>2 x6.8kg/15lb</b>                            | - -   | - -  | - <input type="checkbox"/>                                   |
| <b>ATTACH POUCH/FIRST AID</b>     | <input checked="" type="checkbox"/>               | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>                          |
| <b>WAIST</b>                      |   |   |  |  |
| <b>WAIST PADDING SWAMI</b>        | Thermo-Form -                                     | Drilex foam <input type="checkbox"/>  | Drilex foam <input type="checkbox"/>                                       | Drilex foam <input type="checkbox"/>                         |
| <b>WAIST BELT WEBBING PADDING</b> | 45mm/1.75" <b>20.3cm/8"</b>                       | 45mm/1.75" <b>22.9cm/9"</b>   | 45mm/1.75" <b>19cm/7.5"</b>  | 45mm/1.75" <b>17.5cm/7"</b>                                  |
| <b>WAIST ADJUST</b>               | Central(ish)                                      | Central +2 side   | Central +2 side  | 2x side  |
| <b>LEG</b>                        |   |   |  |  |
| <b>LEG LOOP HEIGHT PADDING</b>    | 45mm/1.75" <b>12cm/5"</b>                         | 45mm/1.75" <b>15cm/6"</b>   | 45mm/1.75" <b>15cm/6"</b>  | 45mm/1.75" <b>14cm/5.5"</b>                                  |
| <b>ELASTICATED REAR LEG RISER</b> | -   | -   | -  | -  |
| <b>LEG RISER ADJ REAR FRONT</b>   | <input checked="" type="checkbox"/> -             | <input checked="" type="checkbox"/> -   | <input checked="" type="checkbox"/> -                                      | <input checked="" type="checkbox"/> <input type="checkbox"/> |
| <b>EXTRAS</b>                     |   |   |  |  |
| <b>RFID CHIP WEAR INDICATE</b>    | - -   | - -   | - -  | - -  |
| <b>FIRST AID TRAUMA KIT</b>       | - <input type="checkbox"/>                        | - <input type="checkbox"/>  | - <input type="checkbox"/>   | - <input type="checkbox"/>                                   |
| <b>SIT STRAP BOSUNS CHAIR</b>     | - -   | - <input type="checkbox"/>  | - <input type="checkbox"/>   | - -  |
| <b>OTHER SRT MODELS</b>           | -   | -   | -  | -  |
| <b>NOTES</b>                      | Lightest Buckingham Arb Harness                   | Waist padding can be removed. SRT version uses a bridge conversion strap. *1 sewn eye (intended for the chest harness)+2 eyes on legs | *additional Smaller side-D on each side connects to the bridge union.      |  |
| <b>WEBSITE</b>                    | buckinghammfg.com                                 | buckinghammfg.com   | buckinghammfg.com  | buckinghammfg.com  |

|   |   |
|---|---|
|   |   |
| <b>BUCKINGHAM</b>   | <b>BUCKINGHAM</b>   |
| <b>Master 5.0</b> 1490 1490T                                  | <b>Navigator</b> 1470   |
|   |   |
| £460 \$574 <b>\$771</b> €530                                  | £539 \$673 €621   |
| 2.3kg/5.05lb  | 2.8kg/6.15lb  |
| 159kg / 350lb   | 159kg / 350lb   |
| 4 sizes 71-112cm/28-44"                                       | 4 sizes 71-112cm/28-44"                                       |
| n/a   | n/a   |
|   |   |
|   |   |
| Fast-Clip <b>Pin&amp;Hole</b>                                 | AA Cobra Fast-Clip  |
| Sewn Dyneema Tape   | 2xTied Ropes  |
| n/a <b>no</b>   | 102cm/40"   |
| Sliding Ring  | Sliding Ring  |
| Sewn eyes   | 3-hole plate  |
| - 4*x  -  | - 4x  -   |
|   |   |
| 4 <b>2 (on legs)</b>  | 4 -   |
| -   | -   |
| - 7   | - 6   |
| - 4   | - 4   |
| 2 x 2 x6.8kg/15lb   | - 2 x6.8kg/15lb   |
|   |   |
| Drilex foam -   | Thermo-form -   |
| 25mm/1" <b>17.5cm/7"</b>                                      | 45mm/1.75" <b>20.3cm/8"</b>                                   |
| 2x side   | 1x Side   |
| 45mm/1.75" <b>10cm/4"</b>                                     | 45mm/1.75" <b>15cm/6"</b>                                     |
|   |   |
| -   | -   |
| - -   | - -   |
| -  -  | -  -  |
| - -   | - -   |
| -   | -   |
| *DRT & SRT soft eyes for various work and positioning options | *DRT & SRT soft eyes for various work and positioning options |
| buckinghammfg.com   | buckinghammfg.com   |




**SEQUOIA** New 2023 versions

When on the move, always travel first class.


Seat harness for tree care  
Ascending, moving through the tree, hanging, cutting, the SEQUOIA harness provides maximum comfort thanks to an extra-wide, semi-rigid and padded waistbelt, and large adjustable padded leg loops. The practical adjustments as well as the ability to easily carry and organize tools on the waistbelt make this harness an ergonomic masterpiece. Enhance with a wide range of accessories, including a seat harness and shoulder straps... www.petzl.com/SEQUOIA



Access the inaccessible



**EYOLF**  
TECHNICAL CLIMBING EQUIPMENT  
#WEGETYOUTHERE



Looking for a multifunctional harness?  
Our Viking Gen5 with rope bridge is the solution.

[www.EYOLF.ca](http://www.EYOLF.ca)

**IMAGES NOT TO SCALE**  
**FITTINGS and ACCESSORIES SHOWN**  
**MAY BE AN ADDITIONAL COST**

**KEY:**

**COST:** Approx, inc local tax/VAT  
 £\$€=currency conversion only

**OPTION=**  or  or

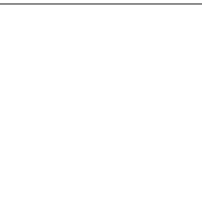
**N/A:** info Not Given

**STANDARDS:** EN358 =

EN813=  ANSI Z133=







































































ASTMF887=  CANADA=

AUS/NZ =  EAC =



|                     | MANUFACTURER                      | CAMP  | CAMP  | CLIMAX  | COURANT  |
|---------------------|-----------------------------------|---|---|---|--|
|                     | <b>MODEL VARIANT</b>              | Tree Access Evo   | Tree Access ST <small>(was ANSI)</small>  | Atlas Tree Basic                                  | Koala  |
|                     | <b>ORIGIN</b>                     |   |   |   |  |
|                     | <b>COST inc VAT/tax conv-only</b> | £315 \$420 €380   | £374 \$450 €420   | £140 \$174 €169                                   | £333 \$543 €372  |
|                     | <b>WEIGHT</b>                     | 1.96-2.03kg/4.3-5.5lb   | 2.23kg / 4.9lb  | 1.52kg/3.3lb                                      | 1.5-1.7kg/ 3.3-3.74lb  |
|                     | <b>MAX LOAD</b>                   | 140kg/310lb   | 140kg/310lb   | 140kg/310lb                                       | 150kg/330lb  |
|                     | <b>WAIST SIZES</b>                | 2 sizes 80-135cm/31-53"   | 2 sizes 80-135cm/31-53"   | 1 size 80-127cm/31-50"                            | 3 sizes 60-120cm/23-47"  |
|                     | <b>LEG SIZES</b>                  | 2 sizes 50-75cm/20-30"  | 2 sizes 50-75cm/20-30"  | 1 size 65-80cm/25-31"                             | 3 sizes 55-100cm/21-39"  |
|                     | <b>STANDARDS</b>                  | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/>                                      |
| <b>LIFE SUPPORT</b> | <b>CHEST HARNESS ATTACH PTS</b>   | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/>                                      |
|                     | <b>BUCKLES WAIST/LEGS</b>         | 3-Bar/STS Fast-Clip   | 3-Bar/STS Fast-Clip   | Fast-Clips  | AA Cobra Fast Clips  |
|                     | <b>BRIDGE TYPE REPLACEABLE</b>    | Sewn Jacketed Rope <input type="checkbox"/>   | *2xSewn Jacketed Ropes <input type="checkbox"/>   | Jacketed webbing <input type="checkbox"/>         | Sewn Rope <input type="checkbox"/>   |
|                     | <b>BRIDGE LENGTHS ADJUSTABLE</b>  | 25/30* 32/37/42cm <input type="checkbox"/>  | 25/30* 32/37/42cm <input type="checkbox"/>  | n/a <input type="checkbox"/>                      | 1 or 2x 25/30/35cm <input type="checkbox"/>  |
|                     | <b>CONNECTION to BRIDGE</b>       | Sliding Ring  | Sliding Ring  | Sliding Ring                                      | Sliding Ring   |
|                     | <b>BRIDGE UNION LENGTH ADJ</b>    | Shackles+ Rope eyes <input type="checkbox"/>  | Shackles+ Rope eyes <input type="checkbox"/>  | Rings   | Openable Rings <input type="checkbox"/>  |
|                     | <b>SRT D-RING/EYE REAR BELAY</b>  | - <input type="checkbox"/> -  | <input type="checkbox"/> <input type="checkbox"/> -   | - <input type="checkbox"/> +swivel -              | - - -  |
|                     | <b>POLE STRAP D's FOLD FLAT</b>   | <input type="checkbox"/>  | <input type="checkbox"/>  | <input type="checkbox"/>                          | <input type="checkbox"/>   |
|                     | <b>GEAR LOOPS SEWN EYES</b>       | 8* 4  | 8* 1  | 3   | 8 x10kg 4  |
|                     | <b>CUSTOM GEAR CORD EYES</b>      | -   | -   | -   | -  |
| <b>GEAR ATTACH</b>  | <b>BASIC HOLES/EYES RINGS</b>     | - 2*  | - -   | - -   | - -  |
|                     | <b>CARI-HOOK CARI-HOOK EYES</b>   | <input type="checkbox"/> 6  | <input type="checkbox"/> 6  | - -   | <input type="checkbox"/> 4 x15kg   |
|                     | <b>CHAINSAW EYE/RINGHOOK</b>      | - -   | 1 x15kg   | - -   | - -  |
|                     | <b>ATTACH POUCH/FIRST AID</b>     | <input type="checkbox"/>  | <input type="checkbox"/>  | -   | <input type="checkbox"/>   |
|                     | <b>WAIST PADDING SWAMI</b>        | Mesh/Foam -   | Mesh/Foam -   | Mesh/Foam -                                       | Thermo-form -  |
| <b>WAIST</b>        | <b>WAIST BELT WEBBING PADDING</b> | 44mm/1.75" 19cm/7.5"  | 44mm/1.75" 19cm/7.5"  | 45mm/1.75" 15cm/6"                                | 45mm/1.75" 19cm/7.5"   |
|                     | <b>WAIST ADJUST</b>               | Double Sided  | Double Sided  | Double Sided                                      | Central+both sides   |
|                     | <b>LEG LOOP HEIGHT PADDING</b>    | 33mm/1.5" 14cm/5.5"   | 44mm/1.75" 14cm/5.5"  | 45mm/1.75" 10cm/4"                                | 25mm/1" 18cm/7.25"   |
| <b>LEG</b>          | <b>ELASTICATED REAR LEG RISER</b> | -   | -   | <input type="checkbox"/>                          | <input type="checkbox"/>   |
|                     | <b>LEG RISER ADJ REAR FRONT</b>   | <input type="checkbox"/> -  | <input type="checkbox"/> -  | <input type="checkbox"/> -                        | <input type="checkbox"/> <input type="checkbox"/>                                      |
|                     | <b>RFID CHIP WEAR INDICATE</b>    | <input type="checkbox"/> -  | <input type="checkbox"/> -  | - -   | - <input type="checkbox"/> (bridge rope)   |
| <b>EXTRAS</b>       | <b>FIRST AID TRAUMA KIT</b>       | <input type="checkbox"/> -  | <input type="checkbox"/> -  | <input type="checkbox"/> -                        | <input type="checkbox"/>   |
|                     | <b>SIT STRAP BOSUNS CHAIR</b>     | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>   | - <input type="checkbox"/>                        | - <input type="checkbox"/>   |
|                     | <b>OTHER SRT MODELS</b>           | <input type="checkbox"/>  | <input type="checkbox"/>  | <input type="checkbox"/>                          | <input type="checkbox"/>   |
|                     | <b>NOTES</b>                      | *inc 2 small loops<br>*Metal rings are on leg loops web* or 10.5mm Rope bridge                      | *bridge is 10.5mm rope &/or web* & can have 3-way swivel<br>*2 gear loops are on leg loops          | Comes with integral swivel on SRT eye             | 2 of the gear loops are on the leg loops. Primary & secondary bridges (Milo) available |
|                     | <b>WEBSITE</b>                    | camp.it   | camp.it   | productosclimax.com                               | mycourant.com  |

# ARBORIST SIT HARNESSSES

|    |   |                   |                         |   |
|---|---|---|--|---|
| DMM   | DRAGON ARB  | DRAAYER/HABERKORN   | DRAAYER/HABERKORN  | EDELRID   |
| Kinisi Max Pro  | Dragon 2 TH030B   | TREE AUSTRIA 3.2  | TREE AUSTRIA Pro   | Tree Rex Triple Lock  |
|    |    |                  |                        |    |
| £650 \$580 €770 €760  | £215 \$270 €260   | £357 \$466 €430   | £400 \$500 €480  | £354 \$425 €406   |
| 2.4-3kg/5.5-6.6lb   | 2.6kg/5.7lb   | 1.9kg/4.2lb   | 1.75kg/3.9lb   | 1.4-1.6kg/3-3.5lb   |
| 150kg/330lb   | 100kg/220lb   | 150kg/330lb   | 150kg/330lb  | 150kg/330lb   |
| 3 sizes 65-123cm/25-48"   | 2 sizes 66-96cm 26-38"  | 3 sizes 77-135cm/30-53"   | 3 sizes 77-135cm/30-53"  | 2 sizes 68-121cm/26-47"   |
| 3 sizes 44-73cm/17-29"  | 2 sizes 59-69cm 23-27"  | n/a   | n/a  | 2 sizes 50-72cm/20-29"  |
|   |    |                  |                        |    |
|   | - -   |                 |                       |   |
| AA Cobra Fast-Clip  | Fast-Clip   | AA Cobra Fast-Clips   | AA Cobra Fast-Clips  | Edelrid Hook&Fast-Clips   |
| 1or2 Tied&Sewn Rope    | Sewn 20mm Webbing    | Sewn 20mm Web  | 1or2 Sewn 20mm Web  | 2x Tied Ropes    |
| 123/180cm Cam-   | 25/30/35cm no   | 23/25/30cm no   | 23/25/30cm no  | 145cm/57"    |
| Sliding Ring2   | Sliding Ring  | Sliding Ring  | 1or2 Sliding Ring(s)   | Sliding Ring  |
| 2x Hole + D plates   | Shackles  | Shackles+ web eyes  | Openable rings+web eyes  | 6-hole+D-ring Plates   |
| - -    | - - -   | - - -   | - - -  | -   |
|    |    |                |                     |    |
| - -   | 3 -   | 4 14  | 4 x5kg 14 x5kg   | 4x 25kg -   |
|  many!   | -   |                |  x 10kg              |  x 10kg  |
| 14 +2 on legs -   | - -   | - 4   | - 2 x5kg   | 14x 25kg  |
| - 11  |  2to4  | - 4   | - 4 x5kg   |  6*  |
| 1 x35kg   | -   |                | - -  | - -   |
|    | -   |                |                     |    |
| Thermo-form    | Mesh/Foam   | Mesh/ Foam -  | Mesh/Foam -  | Mesh/ Foam -  |
| 25mm/1" 23cm/9"   | 44mm/1.75" 20cm/7.9"  | 45mm/1.75" 20cm/7.9"  | 45mm/1.75" 20cm/7.9"   | 28mm/1.1" 20cm/7.9"   |
| 1x Central  | 1x Central  | Central+both sides  | Single Side  | Both sides  |
| 25mm/1" 14.5cm/5.7"   | 44mm/1.75" 15cm/6"  | 45mm/1.75" 24m/9.4"   | 45mm/1.75" 12cm/5"   | 28mm/1.1" 16cm/6.3"   |
|    |    |                |                     |    |
|   |   |  -             |  -                  |     |
| - -   | - -   | - -   | - -  |     |
| - -   |  -   | - -   | - -  |    |
| -    |  -   | -              | -                   | - -   |
| -   | -   | -   | -  |    |
| Max Bridge adjusts via twin-cams<br>PRO bridge is knotted (and cheaper).<br>Most components replaceable.  |   |   |  | *Can be purchased without SRT insert. Primary bridge adjusts via prusic (included). *2 on legs  |
| dmmwales.com  | buxttons.net/dragon   | drayer.de   | drayer.de  | edelrid.com   |

**IMAGES NOT TO SCALE**  
 FITTINGS and ACCESSORIES SHOWN  
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**KEY:**

**COST:** Approx, inc local tax/VAT  
 £/\$/€=currency conversion only

**OPTION=**  or  or

**N/A:** info Not Given

**STANDARDS:** EN358 =

EN813=  ANSI Z133=

ASTMF887=  CANADA=

AUS/NZ =  EAC =



|                                 | MANUFACTURER                      | EDELRID   | HARKIE  | HONEYWELL/KOMET  | HONEYWELL/KOMET   |     |
|---------------------------------|-----------------------------------|---|---|--|---|-----|
|                                 | <b>MODEL VARIANT</b>              | TreeRaptor  | Ascend A1   | Butterfly II   | DragonFly II  |     |
|                                 | <b>ORIGIN</b>                     |   |   |  |   |     |
|                                 | <b>COST inc VAT/tax conv-only</b> | £330 \$420 €350   | £253 \$315 €305                                   | £275 \$432 €347  | £350 \$436 €422   |     |
|                                 | <b>WEIGHT</b>                     | 1.5kg/3.3lb   | 1.94kg/4.3lb                                      | 2.3kg/5lb  | 2.35kg/5lb  |     |
|                                 | <b>MAX LOAD</b>                   | 150kg/330lb   | 100kg/220lb                                       | 140kg / 308lb  | 140kg / 308lb   |     |
|                                 | <b>WAIST SIZES</b>                | 2 sizes 68-121cm/26-47"   | 3 sizes 75-132cm/30-52"                           | 3 sizes 76-138cm/28-54"  | 3 sizes 76-138cm/28-54"   |     |
|                                 | <b>LEG SIZES</b>                  | 2 sizes 50-72cm/20-29"  | 3 sizes 40-100cm/16-39"                           | 3 sizes 40-100cm/16-39"  | 3 sizes 40-100cm/16-39"   |     |
|                                 | <b>STANDARDS</b>                  | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>                    |     |
| <b>LIFE ATTACH</b>              | <b>CHEST HARNESS ATTACH PTS</b>   | <input type="checkbox"/> -  | - -   | <input type="checkbox"/> -   | <input type="checkbox"/> -  |     |
|                                 | <b>BUCKLES WAIST/LEGS</b>         | Edelrid Buckles   | AA Cobra Fast Clip                                | Fast Clip  | Fast Clip   |     |
|                                 | <b>BRIDGE TYPE REPLACEABLE</b>    | 2x Tied Ropes <input type="checkbox"/>  | Dbl Web <input type="checkbox"/>                  | Webbing <input type="checkbox"/>   | Webbing <input type="checkbox"/>  |     |
|                                 | <b>BRIDGE LENGTHS ADJUSTABLE</b>  | 110cm/44" no  | 25/30/35cm no                                     | 25/30/35cm/ no   | 25/30/35cm no   |     |
|                                 | <b>CONNECTION to BRIDGE</b>       | Sliding Ring  | 2x Sliding Rings                                  | Sliding Ring   | -   |     |
|                                 | <b>BRIDGE UNION LENGTH ADJ</b>    | 3-hole+D-ring Plates <input type="checkbox"/>   | Shackle -   | Shackle <input type="checkbox"/>   | Shackle <input type="checkbox"/>  |     |
|                                 | <b>SRT D-RING/EYE REAR BELAY</b>  | - - <input type="checkbox"/>  | - - -   | - - -  | - - -   |     |
|                                 | <b>POLE STRAP D's FOLD FLAT</b>   | <input type="checkbox"/>  | <input type="checkbox"/>                          | <input type="checkbox"/>   | <input type="checkbox"/>  |     |
|                                 | <b>GEAR ATTACH</b>                | <b>GEAR LOOPS SEWN EYES</b>   | 4x 25kg -   | 3 -  | 4 -   | 4 - |
|                                 | <b>CUSTOM GEAR CORD EYES</b>      | <input type="checkbox"/> x 10kg   | -   | -  | -   |     |
| <b>BASIC HOLES/EYES RINGS</b>   | 3x 10kg                           | - -   | - 2   | - 2  |   |     |
| <b>CARI-HOOK CARI-HOOK EYES</b> | <input type="checkbox"/> 2-4*     | 1x L Caritool 2   | - 2   | - 2  |   |     |
| <b>CHAINSAW EYE/RINGHOOK</b>    | - -                               | - -   | - <input type="checkbox"/>                        | - <input type="checkbox"/>   |   |     |
| <b>ATTACH POUCH/FIRST AID</b>   | <input type="checkbox"/>          | -   | -   | -  |   |     |
| <b>WAIST</b>                    | <b>WAIST PADDING SWAMI</b>        | Mesh/ Foam -  | Mesh/Foam -                                       | Thermo-form -  | Thermo-form -   |     |
|                                 | <b>WAIST BELT WEBBING PADDING</b> | 45mm/1.75" 20cm/7.9"  | 45mm/1.75" 20cm/7.9"                              | 45mm/1.75" 17.5cm/7"   | 45mm/1.75" 17.5cm/7"  |     |
|                                 | <b>WAIST ADJUST</b>               | Centre  | Central   | Single Side  | Single Side   |     |
| <b>LEG</b>                      | <b>LEG LOOP HEIGHT PADDING</b>    | 28mm/1.1" 15cm/5.9"   | 45mm/1.75" 23.5cm/9.25"                           | 45mm/1.75" 15cm/6"   | 45mm/1.75" 15cm/6"  |     |
|                                 | <b>ELASTICATED REAR LEG RISER</b> | <input type="checkbox"/>  | <input type="checkbox"/>                          | <input type="checkbox"/>   | -   |     |
|                                 | <b>LEG RISER ADJ REAR FRONT</b>   | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/>                          | <input type="checkbox"/> -  |     |
| <b>EXTRAS</b>                   | <b>RFID CHIP WEAR INDICATE</b>    | <input type="checkbox"/> <input type="checkbox"/>   | - -   | - -  | - -   |     |
|                                 | <b>FIRST AID TRAUMA KIT</b>       | <input type="checkbox"/>  | <input type="checkbox"/> <input type="checkbox"/> | - -  | - -   |     |
|                                 | <b>SIT STRAP BOSUNS CHAIR</b>     | - -   | - -   | - -  | <input type="checkbox"/>  |     |
|                                 | <b>OTHER SRT MODELS</b>           | <input type="checkbox"/>  | -   | -  | -   |     |
|                                 | <b>NOTES</b>                      | COMING MARCH 2024<br>*2 on legs   | DISCONTINUED.<br>Hi-Viz panels on leg loops       |  | Integrated sit strap version of the Butterfly, interchangeable with the Butterfly's leg-loops |     |
| <b>WEBSITE</b>                  | edelrid.com                       | harkieglobal.com  | sps.honeywell.com                                 | sps.honeywell.com  |   |     |





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**OPTION=**  or  or

**N/A:** info Not Given

**STANDARDS:** EN358 =

EN813=  ANSI Z133=














































ASTMF887=  CANADA=

AUS/NZ =  EAC =



|                                   | NOTCH  | NOTCH   | PETZL  | PETZL  |
|-----------------------------------|--|---|--|--|
| <b>MANUFACTURER</b>               | NOTCH  | NOTCH   | PETZL  | PETZL  |
| <b>MODEL VARIANT</b>              | Sentinel   | Catalyst  | Sequoia  | Sequoia SRT  |
| <b>ORIGIN</b>                     |  |   |  |  |
| <b>COST inc VAT/tax conv-only</b> | £415 \$450 €540  | £415 \$450 €540   | £365 \$450 €386  | £389 \$520 €440  |
| <b>WEIGHT</b>                     | 1.8-2kg/4.1-4.2lb  | 2.1kg/4.7lb   | 1.48-1.6kg/3.26-3.5lb  | 1.58-1.7kg/3.5-3.75lb  |
| <b>MAX LOAD</b>                   | 140kg/308lb  | 140kg/308lb   | 140kg/308lb  | 140kg/308lb  |
| <b>WAIST SIZES</b>                | 2 sizes 71-112cm/28-44"  | 2 sizes 80-132cm/31-52"   | 3 sizes 65-120cm/25-47"  | 3 sizes 65-120cm/25-47"  |
| <b>LEG SIZES</b>                  | 2 sizes 58-94cm/23-37"   | 2 sizes 60-82cm/23-32"  | 3 sizes 44-65cm/17-26"   | 3 sizes 44-65cm/17-26"   |
| <b>STANDARDS</b>                  | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> +UKCA | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> +UKCA |
| <b>CHEST HARNESS ATTACH PTS</b>   | <input type="checkbox"/> -   | <input type="checkbox"/> -  | <input type="checkbox"/> -   | <input type="checkbox"/> <input type="checkbox"/>                                |
| <b>BUCKLES WAIST/LEGS</b>         | Hooked Fast Clip   | Fast Clip   | Petzl FAST & FAST LT+  | Petzl DblBack & FAST LT+   |
| <b>BRIDGE TYPE REPLACEABLE</b>    | 1x Tied Rope <input type="checkbox"/>                                      | 1x Tied Rope <input type="checkbox"/>   | 1 or 2 Sewn Rope <input type="checkbox"/>  | 1 or 2 Sewn Rope <input type="checkbox"/>  |
| <b>BRIDGE LENGTHS ADJUSTABLE</b>  | 24/27" <input type="checkbox"/>  | 24/27" <input type="checkbox"/>   | 25/30/35cm no  | 25/30/35cm no  |
| <b>CONNECTION to BRIDGE</b>       | Sliding Ring   | Sliding Ring (wear indicator)   | *  | *  |
| <b>BRIDGE UNION LENGTH ADJ</b>    | 3 hole Rig-Plates  | 3 hole Rig-Plates   | 2 holes +D-ring Plates <input type="checkbox"/>                                  | 2 holes +D-ring Plates <input type="checkbox"/>                                  |
| <b>SRT D-RING/EYE REAR BELAY</b>  | - - -  | - - -   | - - -  | - <input type="checkbox"/> -   |
| <b>POLE STRAP D's FOLD FLAT</b>   | <input type="checkbox"/>   | <input type="checkbox"/>  | <input type="checkbox"/>   | <input type="checkbox"/>   |
| <b>GEAR ATTACH</b>                |  |   |  |  |
| <b>GEAR LOOPS SEWN EYES</b>       | 8 1  | 4 2 (above each side-D)   | 9 2  | 9 2  |
| <b>CUSTOM GEAR CORD EYES</b>      | -  | -   | -  | -  |
| <b>BASIC HOLES/EYES RINGS</b>     | - 2  | - -   | - -  | - -  |
| <b>CARI-HOOK CARI-HOOK EYES</b>   | - 4  | - 2   | <input type="checkbox"/> 5   | <input type="checkbox"/> 5   |
| <b>CHAINSAW EYE/RINGHOOK</b>      | - <input type="checkbox"/>   | <input type="checkbox"/> -  | - -  | - -  |
| <b>ATTACH POUCH/FIRST AID</b>     | <input type="checkbox"/>   | <input type="checkbox"/>  | <input type="checkbox"/>   | <input type="checkbox"/>   |
| <b>WAIST</b>                      |  |   |  |  |
| <b>WAIST PADDING SWAMI</b>        | Mesh/Foam <input type="checkbox"/>   | Thermo-form -   | Thermo-form -  | Thermo-form -  |
| <b>WAIST BELT WEBBING PADDING</b> | 45mm/1.75" 20cm/7.9"   | 45mm/1.75" 18cm/7"  | 44mm/1.75" 19cm/7.5"   | 44mm/1.75" 19cm/7.5"   |
| <b>WAIST ADJUST</b>               | 1x Side  | 1x Side   | 1x Side  | double sided   |
| <b>LEG</b>                        |  |   |  |  |
| <b>LEG LOOP HEIGHT PADDING</b>    | 25mm/1" 14.5cm/5.6"  | 25mm/1" 15cm/6"   | 25mm/1" 16cm/6.3"  | 25mm/1" 16cm/6.3"  |
| <b>ELASTICATED REAR LEG RISER</b> | <input type="checkbox"/>   | <input type="checkbox"/>  | <input type="checkbox"/>   | <input type="checkbox"/>   |
| <b>LEG RISER ADJ REAR FRONT</b>   | <input type="checkbox"/> -   | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> -   | <input type="checkbox"/> -   |
| <b>EXTRAS</b>                     |  |   |  |  |
| <b>RFID CHIP WEAR INDICATE</b>    | - <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>   | - -  | - -  |
| <b>FIRST AID TRAUMA KIT</b>       | - -  | - -   | - -  | - -  |
| <b>SIT STRAP BOSUNS CHAIR</b>     | - -  | - -   | - <input type="checkbox"/>   | - <input type="checkbox"/>   |
| <b>OTHER SRT MODELS</b>           | -  | -   | <input type="checkbox"/>   | <input type="checkbox"/>   |
| <b>NOTES</b>                      | Also Black/Lime Green.<br>Chainsaw hook can be moved to either side.       | NEW in 2024.<br>Bridge ring has wear indicator  | * Option Ring or Swivel<br>180cm Adjustable bridge option                        | * Option Ring or Swivel<br>180cm Adjustable bridge option                        |
| <b>WEBSITE</b>                    | notchequipment.com   | notchequipment.com  | Petzl.com  | Petzl.com  |

# ARBORIST SIT HARNESSES

|  |  |   |   |  |
|--|--|---|---|--|
|                    |                 |                  |                                   |                     |
|                   |                 |                 |                                  |  |
| <b>PROTEKT</b>   | <b>PROTEKT</b>   | <b>PROTEKT</b>  | <b>R-EASY CLIMBER</b>   | <b>ROCK EMPIRE</b>   |
| <b>Tree Up</b> TH-020  | <b>Tree Up</b> TH-030mX  | <b>Tree Up</b> TH-050mX   | <b>Fox</b> <b>Fox Leather</b>   | <b>Sherman</b>   |
|                   |                 |                  |                                  |                     |
| £140 \$175 €170  | £190 \$240 €230  | £190 \$240 €230   | £309 \$385 €354 €384  | £266 \$346 €316  |
| 1.45kg/3.2lb   | 1.94kg/4.3lb   | 2.6kg/5.7lb   | 1.6kg/3.5lb 1.7kg/3.7lb   | 1.88-1.95kg/4.1-4.3lb  |
| 100kg/220lb  | 140kg/308lb  | 140kg/308lb   | 140kg/308lb   | 140kg/308lb  |
| 3 sizes 75-132cm/30-52"  | 4 sizes 75-150cm/ 30-59"   | 4 sizes 75-150cm/ 30-59"  | 3 sizes 65-120cm/25-47"   | 2 sizes 71-120cm/28-47.2"  |
| 3 sizes 40-90cm/16-35"   | 4 sizes 40-100cm/16-39"  | 4 sizes 40-100cm/16-39"   | 3 sizes 44-65cm/17-26"  | 2 sizes 50-80cm/19.6-31.5"   |
|                   |                 |                  |                                  |                     |
| <input type="checkbox"/> -   | <input type="checkbox"/> -   | <input type="checkbox"/> -  | - -   | - -  |
| AA Cobra Fast Clip   | AA Cobra Fast Clip   | AA Cobra Fast Clip  | Fast Clip   | Fast-Clip  |
| Double 20mmWeb  | 20mm Webbing  | 20mm Webbing   | 1/2 Sewn Rope(s)               | 2x 11mmTied Rope  |
| 25/30/35cm no  | 25/30/35cm no  | 25/30/35cm no   | 25/30/35cm no   | 130cm/51"         |
| Sliding Ring   | Sliding Ring   | Sliding Ring  | Sliding Ring  | Sliding Ring   |
| Shackles   | Shackles   | Shackles  | Openable rings  | 3 hole Plates     |
| - - -  | - - -  | - - -   | - - -   | - - -  |
|                 |               |                |                                |                   |
| - 3  | - 3  | - 3   | 11*   | 7 3  |
| -  | -  | -   | -   | 5  |
| - -  | - -  | - -   | - -   | - 4  |
| <input type="checkbox"/> 2to4  | <input type="checkbox"/> 2to4  | <input type="checkbox"/> 2to4   | - 6   | <input type="checkbox"/> 2   |
| -  | -  | -   | - -   | - -  |
| -  | -  | -   |                                | -  |
| Mesh/Foam -  | Mesh/Foam -  | Mesh/Foam -   | Thermo-form -   | Mesh/Foam -  |
| 45mm/1.75" 20cm/7.9"   | 45mm/1.75" 20cm/7.9"   | 44mm/1.75" 20cm/7.9"  | 45mm/1.75" 20cm/7.9"  | 4x30mm/4x1.25" 22cm/8.7"   |
| Central  | Central  | Central   | 1x Side   | 1x Side  |
| 45mm/1.75" 23.5cm/9.25"  | 44mm/1.75" 23.5cm/9.25"  | 44mm/1.75" 23.5cm/9.25"   | 25-45mm/1-1.75" 16cm/6.3"   | 2x20mm/2x0.8" 15.5cm/6.1"  |
|                 |               |                |                                |                   |
|                 |               |                |                                |                   |
| - -  | - -  | - -   | - -   | - -  |
| - -  | - -  | - -   | - -   | <input type="checkbox"/> -   |
|                 |               |                | - -   | - -  |
| Bridge attachment webbing length adjusted via rear buckle  | Bridge attachment webbing length adjusted via rear buckle. Replaced X & 030                      | Integrated sit-strap. Bridge attachment webbing length adjusted via rear buckle. Replaced X & 050 | Leather version=belt and leg loop outers are LEATHER. *5 "loops" are separated sections of one cord. 2 on leg loops | NEW in 2024  |
| protekt.pl   | protekt.pl   | protekt.pl  | r-eshop.com   | rockempire.com   |

**IMAGES NOT TO SCALE**  
 FITTINGS and ACCESSORIES SHOWN  
 MAY BE AN ADDITIONAL COST

**KEY:**

**COST:** Approx, inc local tax/VAT  
 £\$€=currency conversion only

**OPTION=**  or  or

**N/A:** info Not Given

**STANDARDS:** EN358 =


























EN813=  ANSI Z133=

ASTMF887=  CANADA=

AUS/NZ =  EAC =



|                                   | ROCK EMPIRE                                       | SHERRILL TREE                            | SIMARGHU  | SIMARGHU   |
|-----------------------------------|---|--|---|--|
| <b>MANUFACTURER</b>               | ROCK EMPIRE                                       | SHERRILL TREE                            | SIMARGHU  | SIMARGHU   |
| <b>MODEL VARIANT</b>              | Skill Tree  | Edge II                                  | Fire - Male   | Gemini - Female  |
| <b>ORIGIN</b>                     |   |  |   |  |
| <b>COST inc VAT/tax conv-only</b> | £220 \$275 €250                                   | £385 \$480-510 €465                      | £380 \$480 €460   | £380 \$480 €460  |
| <b>WEIGHT</b>                     | 1.79kg/3.94lb                                     | 1.9kg/4.2lb                              | 2.5-2.6kg/5.5-5.7lb   | 2.3kg/5lb  |
| <b>MAX LOAD</b>                   | 140kg/308lb                                       | 159kg/350lb                              | 140kg/308lb   | 140kg/308lb  |
| <b>WAIST SIZES</b>                | 2 sizes 70-130cm/27-51"                           | 4 sizes 71-112cm/28-44"                  | 2 sizes 69-107cm/27-42"   | 1 size 66-86cm/26-34"  |
| <b>LEG SIZES</b>                  | 2 sizes 54-80cm/21-31.5"                          | n/a                                      | 1 size 43-69cm/17-27"   | 1 size 43-69cm/17-27"  |
| <b>STANDARDS</b>                  | <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/>                 | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>  |
| <b>CHEST HARNESS ATTACH PTS</b>   | - -   | - -                                      | <input type="checkbox"/> -  | <input type="checkbox"/> -   |
| <b>BUCKLES WAIST/LEGS</b>         | Fast-Clip   | AA Cobra Fast Clip                       | Fast-Clip   | Fast-Clip  |
| <b>BRIDGE TYPE REPLACEABLE</b>    | 1x 11mm Tied Rope <input type="checkbox"/>        | 1x Tied Rope <input type="checkbox"/>    | 1x Tied Rope <input type="checkbox"/>   | 1x Tied Rope <input type="checkbox"/>  |
| <b>BRIDGE LENGTHS ADJUSTABLE</b>  | 130cm/51" <input type="checkbox"/>                | 102cm/40" <input type="checkbox"/>       | 130cm/51" <input type="checkbox"/>  | 130cm/51" <input type="checkbox"/>   |
| <b>CONNECTION to BRIDGE</b>       | Sliding Ring                                      | Sliding Ring                             | Sliding Ring  | Sliding Ring   |
| <b>BRIDGE UNION LENGTH ADJ</b>    | 2 hole Plates <input type="checkbox"/>            | 3 holes +D-ring <input type="checkbox"/> | 3 holes +D-ring <input type="checkbox"/>  | 3 holes +D-ring <input type="checkbox"/>   |
| <b>SRT D-RING/EYE REAR BELAY</b>  | - - -   | - - -                                    | - - -   | - - -  |
| <b>POLE STRAP D's FOLD FLAT</b>   | <input type="checkbox"/>                          | <input type="checkbox"/>                 | 2x pairs <input type="checkbox"/>   | <input type="checkbox"/>   |
| <b>GEAR ATTACH</b>                |   |  |   |  |
| <b>GEAR LOOPS SEWN EYES</b>       | 6 2   | 5 3                                      | 4 2   | 2 2  |
| <b>CUSTOM GEAR CORD EYES</b>      | -   | -  | -   | -  |
| <b>BASIC HOLES/EYES RINGS</b>     | - 2   | - 2                                      | - -   | - -  |
| <b>CARI-HOOK CARI-HOOK EYES</b>   | <input type="checkbox"/> 11                       | - 4                                      | - 2   | - 4  |
| <b>CHAINSAW EYE/RINGHOOK</b>      | - -   | - -                                      | <input type="checkbox"/>  | <input type="checkbox"/>   |
| <b>ATTACH POUCH/FIRST AID</b>     | -   | <input type="checkbox"/>                 | <input type="checkbox"/>  | <input type="checkbox"/>   |
| <b>WAIST</b>                      |   |  |   |  |
| <b>WAIST PADDING SWAMI</b>        | Mesh/Foam -                                       | Mesh/Foam -                              | Thermo-form -   | Thermo-form -  |
| <b>WAIST BELT WEBBING PADDING</b> | 44+30mm/1.25" 17.5cm/7"                           | 45mm/1.75" 20cm/7.9"                     | 45mm/1.75" 20cm/7.9"  | 45mm/1.75" 20cm/7.9"   |
| <b>WAIST ADJUST</b>               | 1x Side   | 1x Side                                  | 1x Central  | 1x Central   |
| <b>LEG</b>                        |   |  |   |  |
| <b>LEG LOOP HEIGHT PADDING</b>    | 44mm/1.75" 12.5cm/5.5"                            | 25mm/1" 14.6cm/5.7"                      | 25mm/1" 14.6cm/5.7"   | 25mm/1" 14.6cm/5.7"  |
| <b>ELASTICATED REAR LEG RISER</b> | -   | <input type="checkbox"/>                 | -   | -  |
| <b>LEG RISER ADJ REAR FRONT</b>   | <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> -               | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>  |
| <b>EXTRAS</b>                     |   |  |   |  |
| <b>RFID CHIP WEAR INDICATE</b>    | - -   | - -                                      | <input type="checkbox"/> -  | <input type="checkbox"/> -   |
| <b>FIRST AID TRAUMA KIT</b>       | - -   | - -                                      | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>  |
| <b>SIT STRAP BOSUNS CHAIR</b>     | - -   | - -                                      | - -   | - -  |
| <b>OTHER SRT MODELS</b>           | <input type="checkbox"/>                          | -  | -   | -  |
| <b>NOTES</b>                      |   | Also in Black/Blue                       | The smaller size has the same gear attach options as the Gemini. Bridge union adjust via buckle on waist-rear | Has two additional pelvis straps waist to legs. Bridge union adjust buckle on waist-rear |
| <b>WEBSITE</b>                    | rockempire.com                                    | sherrilltree.com                         | simarghu.com  | simarghu.com   |

|             |                          |    |
|-------------|--|---|
|             | <b>SINGING ROCK</b>  | <b>SKYLOTEC</b>   |
|             | <b>Arbo Master</b>   | <b>Ignite Arb</b>   |
|             |                         |    |
|             | £270 \$340 €310  | £415 \$520 €476   |
|             | 1.7kg/3.7lb  | 2.47-3.48kg/5.4-7.7lb   |
|             | 120kg/264lb  | 150kg/330lb   |
| "           | 2 sizes 65-130cm/25-51"  | 2 sizes 60-125cm/24-49"   |
| "           | 2 sizes 45-75cm/18-29"   | 2 sizes 60-85cm/24-33"  |
|             |                         |    |
|             | <input type="checkbox"/> -   | <input type="checkbox"/> -  |
|             | Fast-Clip  | Fast-Clip   |
|             | 2x Tied Ropes         | Sewn Webbing   |
|             | 130cm/51"             | 20/25/30cm <b>no</b>  |
|             | Sliding Ring   | Sliding Ring  |
|             | 1 hole +D-ring Plate  | Inverted D-Ring    |
|             | - - -  | - - -   |
|             |                       |    |
|             | 4 x5kg 2 x5kg  | 6 4   |
|             |  x5kg                 | -   |
|             | - 2 x10kg  | - -   |
|             | <input type="checkbox"/> 6   | <input type="checkbox"/> 6  |
|             | 1 x35kg  |    |
|             |                       |    |
|             | Mesh/Foam -  | Thermo-form -   |
| "           | 40mm/1.5" 20cm/8"  | 44mm/1.75" 22cm/8.7"  |
|             | Single Side  | Single Side   |
| "           | 40mm/1.5" 15cm/6"  | 44mm/1.75" 15.5cm/6.1"  |
|             |                       |   |
|             |  -                    |   |
|             | - -  | - -   |
|             | <input type="checkbox"/> -   | <input type="checkbox"/> -  |
|             | - -  | - <input type="checkbox"/>  |
|             |                       |    |
| from st via | additional neoprene pouch on leg loops for small items   | Replaced the celebrated Kolibri   |
|             | singingrock.com  | Skylotec.com  |

# VERTICAL FREEDOM

by **EDELRID** 

NEW

## TREEREX II

Comfortable tree-care harness with variety of rope bridge configurations.



Compatible with VECTOR CHEST X and Y.



3D Vent technology and wide semi-rigid padding for hanging comfort and breathability.

Integrated bungee tool.



New, large, angled D-rings for enhanced freedom of movement.



Integrated NFC transponder for simplified documentation.

NOW IN 3 SIZES

Discover me!



**IMAGES NOT TO SCALE**  
**FITTINGS and ACCESSORIES SHOWN**  
**MAY BE AN ADDITIONAL COST**

**KEY:**

**COST:** Approx, inc local tax/VAT  
 £/\$/€=currency conversion only

**OPTION=**  or  or

**N/A:** info Not Given

**STANDARDS:** EN358 =

EN813=  ANSI Z133=
























ASTMF887=  CANADA=

AUS/NZ =  EAC =



|                      | MANUFACTURER                      | STEIN   | TEUFELBERGER  | TEUFELBERGER  | TREE HOG  |
|----------------------|-----------------------------------|---|---|---|---|
|                      | <b>MODEL VARIANT</b>              | Vega Plus VS2   | TreeMOTION Essential  | TreeMOTION Pro  | Razorback TH5000  |
|                      | <b>ORIGIN</b>                     |   |   |   |   |
|                      | <b>COST inc VAT/tax conv-only</b> | £431 \$595 €520   | £356 \$500 €440   | £472 \$625 €582   | £270 \$340 €325   |
|                      | <b>WEIGHT</b>                     | 1.9kg/4.2lb   | 2kg/2.2lb   | 2.3kg/5lb   | 2.5kg/5.5lb   |
|                      | <b>MAX LOAD</b>                   | 150kg/330lb   | 150kg/330lb   | 150kg/330lb   | 100kg/220lb   |
|                      | <b>WAIST SIZES</b>                | 3 sizes 76-98cm/  | 3 sizes 69-129cm/27-50"   | 3 sizes 69-129cm/27-50"   | 3 sizes 76-140cm/26-52"   |
|                      | <b>LEG SIZES</b>                  | N/A   | 3 sizes 38-87cm/15-34"  | 3 sizes 38-87cm/15-34"  | 3 sizes 50-90cm/20-35"  |
|                      | <b>STANDARDS</b>                  | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> + UKCA | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/>                                       |
| <b>LIFE CRITICAL</b> | <b>CHEST HARNESS ATTACH PTS</b>   | - -   | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>   | - -   |
|                      | <b>BUCKLES WAIST/LEGS</b>         | AA Cobra Fast-Clip  | Small Double Ds   | AA Cobra Fast-Clip  | Fast-Clip   |
|                      | <b>BRIDGE TYPE REPLACEABLE</b>    | Sewn 20mm Webbing <input type="checkbox"/>  | 1or2 Tied or sewn Rope <input type="checkbox"/>   | 1or2 Tied or sewn Rope <input type="checkbox"/>   | Sewn 20mm Webbing <input type="checkbox"/>  |
|                      | <b>BRIDGE LENGTHS ADJUSTABLE</b>  | 25/30/35cm no   | 123/180cm 40/45/50cm <input type="checkbox"/>   | 123/180cm 40/45/50cm <input type="checkbox"/>   | 25/30/35cm no   |
|                      | <b>CONNECTION to BRIDGE</b>       | 2x Sliding Rings  | Sliding Ring  | Sliding Ring  | 2x Sliding Rings  |
|                      | <b>BRIDGE UNION LENGTH ADJ</b>    | Openable Ring -   | 2x Hole + D plates <input type="checkbox"/>   | 2x Hole + D plates <input type="checkbox"/>   | Shackles  |
|                      | <b>SRT D-RING/EYE REAR BELAY</b>  | - - -   | - - -   | - - -   | - - -   |
|                      | <b>POLE STRAP D's FOLD FLAT</b>   | <input type="checkbox"/>  | <input type="checkbox"/>  | <input type="checkbox"/>  | <input type="checkbox"/>  |
|                      | <b>GEAR LOOPS SEWN EYES</b>       | 3 8 +2 on Leg Loops   | - -   | - -   | 3 -   |
|                      | <b>CUSTOM GEAR CORD EYES</b>      | <input type="checkbox"/>  | <input type="checkbox"/>  | <input type="checkbox"/>  | -   |
| <b>GEAR ATTACH</b>   | <b>BASIC HOLES/EYES RINGS</b>     | - 2   | 14 -  | 14 -  | - -   |
|                      | <b>CARI-HOOK CARI-HOOK EYES</b>   | - ?   | - 12  | - 12  | <input type="checkbox"/> 2to4   |
|                      | <b>CHAINSAW EYE/RINGHOOK</b>      | <input type="checkbox"/>  | <input type="checkbox"/>  | <input type="checkbox"/>  | -   |
|                      | <b>ATTACH POUCH/FIRST AID</b>     | <input type="checkbox"/>  | <input type="checkbox"/>  | <input type="checkbox"/>  | -   |
|                      | <b>WAIST PADDING SWAMI</b>        | Mesh/Foam -   | Mesh/Foam -   | Thermo-form <input type="checkbox"/>  | Mesh/Foam -   |
| <b>WAIST</b>         | <b>WAIST BELT WEBBING PADDING</b> | 45mm/1.75" 20cm/8"  | 25mm/1" 23cm/9"   | 25mm/1" 23cm/9"   | 44mm/1.75" 20cm/7.9"  |
|                      | <b>WAIST ADJUST</b>               | Double Central  | 1x Central  | 1x Central  | 1x Central  |
|                      | <b>LEG LOOP HEIGHT PADDING</b>    | 45mm/1.75" 15cm/6"  | 25mm/1" 14.5cm/5.7"   | 25mm/1" 14.5cm/5.7"   | 44mm/1.75" 23.5cm/9.25"   |
| <b>LEG</b>           | <b>ELASTICATED REAR LEG RISER</b> | <input type="checkbox"/>  | <input type="checkbox"/>  | <input type="checkbox"/>  | <input type="checkbox"/>  |
|                      | <b>LEG RISER ADJ REAR FRONT</b>   | <input type="checkbox"/> -  | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>   | <input type="checkbox"/> <input type="checkbox"/>                                       |
|                      | <b>RFID CHIP WEAR INDICATE</b>    | -   | - -   | - -   | - -   |
| <b>EXTRAS</b>        | <b>FIRST AID TRAUMA KIT</b>       | -   | - -   | - -   | <input type="checkbox"/> -  |
|                      | <b>SIT STRAP BOSUNS CHAIR</b>     | - -   | - -   | - -   | - -   |
|                      | <b>OTHER SRT MODELS</b>           | -   | -   | -   | -   |
|                      | <b>NOTES</b>                      |   | Virtually all components replaceable. Openable side ring for replacement of hip/leg webbing   | Virtually all components replaceable. Openable side ring for replacement of hip/leg webbing   | Bridge union length adjusted via rear buckle. Updating late 2023. Also with yellow trim |
|                      | <b>WEBSITE</b>                    | steinworldwide.com  | teufelberger.com  | teufelberger.com  | treehog.co.uk   |

# ARBORIST SIT HARNESSES

|   |   |   |   |   |
|---|---|---|---|---|
|                       |        |                      |                       |                      |
| <b>TREE HOG</b>   | <b>TREE RUNNER</b>  | <b>WEAVER</b>   | <b>WEAVER</b>   | <b>WEAVER</b>   |
| <b>TH7000</b>   | <b>Tree Rider</b>   | <b>Denali</b>   | <b>Stratus 08100</b>  | <b>WLC-790</b>  |
|                      |        |                      |                      |                      |
| £300 \$380 €360   | £270 \$340 €320   | £417 \$520 €495   | £361 \$450 €430   | £420 \$523 €501   |
| 2.6kg/5.7lb   | 1.53kg / 3.4lb  | 2.95kg/6.5lbs   | 2kg /4.5lbs   | 3.63kg/8lbs   |
| 100kg/220lb   | 140kg/308lb   | 140kg/308lb   | 140kg/308lb   | 140kg/308lb   |
| 3 sizes 76-140cm/26-52"   | 3 sizes 65-115cm/26-45"   | 1 size 26-48"   | 3 sizes 28-46"  | 4 sizes 30-48"  |
| 3 sizes 50-90cm/20-35"  | 3 sizes 55-80cm/21.6-31.5"  | 61cm/ <24"  | 51-86cm/20-34"  | 61cm/ <24"  |
|                      |        |                      |                      |                      |
| - -   |       |                     |                     |                     |
| Fast-Clip   | AA Cobra Fast-Clip  | AA Cobra Fast-Clip/Rollbar  | ISC Fast-Clip   | Pin&Hole/Fast-Clip  |
| Sewn 20mm Webbing  | 50mm Webbing <b>no</b>  | Double Rope        | Tied Rope          | Tied Doubled Rope  |
| 25/30/35cm <b>no</b>  | Fixed 50mm Web <b>no</b>  | 35cm/14"           | 35cm/14"           | 35cm/14"           |
| 2x Sliding Rings  | Sliding D-Ring  | Sliding Ring  | -   | -   |
| Shackles  | sewn-fixed  | 4-hole Rig plates  | 4-hole Rig plates  | 4-hole Rig plates  |
| - - -   | -2x  | - - -   | - - -   | - - -   |
|                    |      |                    |                    |                    |
| 3 -   | 2 (Dyneema) -   | - 6*  | 3 - *18 + 6 on legs   | 2 -   |
| -   | 4   | - 2   | -   | -   |
| - -   | - 6   | - 2   | - 4   | - 6   |
|  2to4              | - 2   | - 4   | - (use the 24 sewn eyes)  | - 2   |
| -   | -   | -   | -   | 2 2   |
| -   | -   |                    |                    |                    |
| Mesh/Foam -   | Moulded Foam -  | Moulded Air-Flex Foam -   | Reinforced Mesh/Foam -  | Memory Foam -   |
| 44mm/1.75" 20cm/7.9"  | 50mm/2" 20cm/7.9"   | Dbl-50mm/2" 23cm/9"   | 25mm/1" 23cm/9"   | 50mm/2" 23cm/9"   |
| 1x Central  | 1x Side   | 1x Central + 4x side adj  | 1x Central  | 1x Side   |
| 44mm/1.75" 23.5cm/9.25"   | 50mm/2" 8.5cm/3.4"  | 50mm/2" 17.8cm/7"   | 25mm/1" 23cm/9"   | 50mm/2" 10cm/4"   |
|                    |      |                    |                    |                    |
|                    | -    |                    |                    |                    |
| - -   | - -   | -                  | - -   | - -   |
|  -                 | - -   |  -                 |  -                 |  -                 |
|                    | - -   | - -   | - -   | -                  |
| -   | -   | -   | -   | -   |
| Bridge union length adjusted via rear buckle. TH7000 has an integrated sit-strap. Updating late 2023  |   | *arranged as a daisy chain  | *arranged as daisy chains   | Also in all-black   |
| treehog.co.uk   | grube.eu  | weaverarborist.com  | weaverarborist.com  | weaverarborist.com  |

**IMAGES NOT TO SCALE**  
 FITTINGS and ACCESSORIES SHOWN  
 MAY BE AN ADDITIONAL COST

**KEY:**

**COST:** Approx, inc local tax/VAT  
 £\$€=currency conversion only

**OPTION=** or or

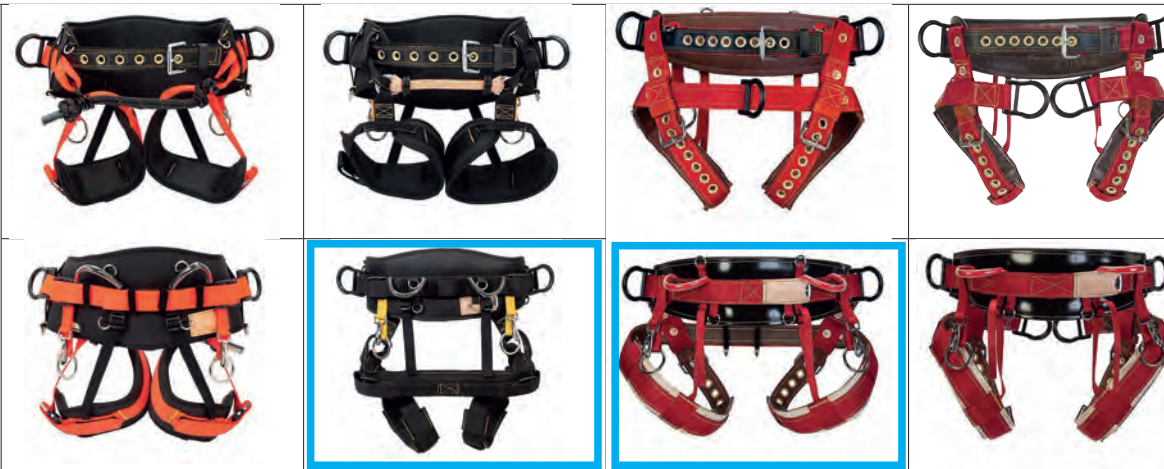
**N/A:** info Not Given

**STANDARDS:** EN358 =

EN813=  ANSI Z133=

















ASTMF887=  CANADA=

AUS/NZ =  EAC =



|                                   | WEAVER  | WEAVER  | WEAVER  | WEAVER  |
|-----------------------------------|---|---|---|---|
| <b>MANUFACTURER</b>               | WEAVER  | WEAVER  | WEAVER  | WEAVER  |
| <b>MODEL VARIANT</b>              | WLC-760   | WLC-700 730   | WLC-530 560   | WLC-500   |
| <b>ORIGIN</b>                     |   |   |   |   |
| <b>COST inc VAT/tax conv-only</b> | £362 \$451 €431   | £297 \$370 \$410 €354   | £242 \$302 \$305 €290   | £237 \$295 €282   |
| <b>WEIGHT</b>                     | 3.2kg/7lb   | 3.63kg/8lbs   | 2.72kg/6lbs   | 2.72kg/6lbs   |
| <b>MAX LOAD</b>                   | 140kg/308lb   | 140kg/310lb   | 140kg/310lb   | 140kg/310lb   |
| <b>WAIST SIZES</b>                | 5 sizes 66-122cm/26-48"   | 5 sizes 66-122cm/26-48"   | 4 sizes 76-122cm/30-48"   | 4 sizes 76-122cm/30-48"   |
| <b>LEG SIZES</b>                  | 61cm/<24"   | 61cm/<24"   | 51-68cm/20-27"  | 41-61cm/16-24"  |
| <b>STANDARDS</b>                  | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>                     | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>                 |
| <b>CHEST HARNESS ATTACH PTS</b>   | <input type="checkbox"/> <input checked="" type="checkbox"/>            | <input type="checkbox"/> -  | <input type="checkbox"/> <input checked="" type="checkbox"/>                                | <input type="checkbox"/> <input checked="" type="checkbox"/>                            |
| <b>BUCKLES WAIST/LEGS</b>         | Pin&Hole/Fast-Clip  | Pin&Hole/Fast-Clip  | Pin&Hole  | Pin&Hole  |
| <b>BRIDGE TYPE REPLACEABLE</b>    | Tied Doubled Rope <input checked="" type="checkbox"/>                   | Web-covered rope <input checked="" type="checkbox"/>                    | Fixed 50mm Webbing <input checked="" type="checkbox"/>                                      | Integrated sit strap <input checked="" type="checkbox"/>                                |
| <b>BRIDGE LENGTHS ADJUSTABLE</b>  | 35cm/14" <input checked="" type="checkbox"/>                            | 25cm/10" <input checked="" type="checkbox"/>                            | 12" <input checked="" type="checkbox"/>   | - -   |
| <b>CONNECTION to BRIDGE</b>       | -   | -   | 1 (2)x Sliding D-Rings  | 2x fixed D-Rings  |
| <b>BRIDGE UNION LENGTH ADJ</b>    | 4-hole Rig plates <input checked="" type="checkbox"/>                   | ISC Al ring <input checked="" type="checkbox"/>                         | Sewn <input checked="" type="checkbox"/>  | Sewn <input checked="" type="checkbox"/>  |
| <b>SRT D-RING/EYE REAR BELAY</b>  | - - -   | - - -   | - - -   | - - -   |
| <b>POLE STRAP D's FOLD FLAT</b>   | <input checked="" type="checkbox"/>                                     | <input checked="" type="checkbox"/>                                     | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/>   |
| <b>GEAR ATTACH</b>                |   |   |   |   |
| <b>GEAR LOOPS SEWN EYES</b>       | 2 -   | 2 -   | 2 -   | 2 -   |
| <b>CUSTOM GEAR CORD EYES</b>      | -   | -   | -   | -   |
| <b>BASIC HOLES/EYES RINGS</b>     | - 6   | - 6   | - 6   | - 6   |
| <b>CARI-HOOK CARI-HOOK EYES</b>   | - 2   | - 2   | - 2   | - 2   |
| <b>CHAINSAW EYE/RINGHOOK</b>      | 2 2   | 2 2   | 2 2   | 2 2   |
| <b>ATTACH POUCH/FIRST AID</b>     | <input checked="" type="checkbox"/>                                     | <input checked="" type="checkbox"/>                                     | <input checked="" type="checkbox"/> *   | <input checked="" type="checkbox"/> *   |
| <b>WAIST</b>                      |   |   |   |   |
| <b>WAIST PADDING SWAMI</b>        | Memory Foam -   | Memory Foam -   | Leather/Memory Foam -   | Leather/Memory Foam -   |
| <b>WAIST BELT WEBBING PADDING</b> | 50mm/2" 23cm/9"   | 50mm/2" 17.8cm/7"   | 50mm/2" 15.2cm/6"   | 50mm/2" 15.2cm/6"   |
| <b>WAIST ADJUST</b>               | 1x Side   | 1x Side   | 1x Side   | 1x Side   |
| <b>LEG</b>                        |   |   |   |   |
| <b>LEG LOOP HEIGHT PADDING</b>    | 50mm/2" 10cm/4"   | 50mm/2" 10cm/4"   | 50mm/2" 7.6cm/3"  | 50mm/2" 7.6cm/3"  |
| <b>ELASTICATED REAR LEG RISER</b> | <input checked="" type="checkbox"/>                                     | <input checked="" type="checkbox"/>                                     | -   | -   |
| <b>LEG RISER ADJ REAR FRONT</b>   | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> -   | <input checked="" type="checkbox"/> -   |
| <b>EXTRAS</b>                     |   |   |   |   |
| <b>RFID CHIP WEAR INDICATE</b>    | - -   | - <input checked="" type="checkbox"/>                                   | - -   | - -   |
| <b>FIRST AID TRAUMA KIT</b>       | <input type="checkbox"/> -  | <input type="checkbox"/> -  | <input type="checkbox"/> -  | <input type="checkbox"/> -  |
| <b>SIT STRAP BOSUNS CHAIR</b>     | - -   | - <input checked="" type="checkbox"/>                                   | - -   | - -   |
| <b>OTHER SRT MODELS</b>           | -   | -   | -   | -   |
| <b>NOTES</b>                      | Endura braid rope bridge.<br>Also in all-black                          | the 730 has an integrated sit strap                                     | WLC-560 has two sliding D-Rings<br>WLC530 has one.<br>£ cost increases with size of harness | £ cost increases with size of harness<br>*2 of the rings are intended for p<br>storage. |
| <b>WEBSITE</b>                    | weaverarborist.com  | weaverarborist.com  | weaverarborist.com  | weaverarborist.com  |



|   |   |
|---|---|
|           |      |
|           |      |
| <b>WEAVER</b>   | <b>WILLANS</b>  |
| <b>WLC-330</b>  | <b>T22/2 WP</b>   |
|          |      |
| £225 \$280 €268   | £210 \$262 €250   |
| 2.72kg/6lbs   | 4kg/8.8lb   |
| 140kg/310lb   | n/a   |
| 5 sizes 66-122cm/26-48"   | 3 sizes 61-142cm/24-56"   |
| n/a   | n/a   |
|          |      |
|         | NO  |
| Pin&Hole  | Fast-Clip+Roll-bar buckle   |
| Fixed 50mm Webbing <b>no</b>  | Integrated sit strap <b>no</b>  |
| 12" <b>no</b>   | - -   |
| Sliding D-Ring  | 2x fixed D-Rings  |
| Sewn <b>no</b>  | Sewn <b>no</b>  |
| - - -   | - - -   |
|        |    |
| 2 -   | - -   |
| -   | -   |
| - 5   | - 4   |
| - 2   | - -   |
| 2 2   | - -   |
|        | -   |
| Leather/Foam -  | Basic -   |
| 50mm/2" 15.2cm/6"   | 50mm/2" 12cm/5" 28cm/11"  |
| 1x Side   | 1x Side adjust  |
| 50mm/2" <b>None</b>   | 50mm/2" <b>NO</b>   |
| -   | -   |
|        | -  |
| - -   | -   |
|        | - -   |
| - -   |    |
| -   | -   |
| £ cost increases with size of harness.<br>*2 of the rings are intended for pouch stowage. | <b>WP</b> version has reinforced wider padding on the waist than standard version     |
| weaverarborist.com  | willansltd.co.uk  |



Tree care harness  
for professionals

# ARBO MASTER



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www.singingrock.com

**UPDATED Feb '25**

# ARBORIST CLIMBING HELMETS

Fully or partly meeting **EN12492** (mountaineering) and/or **ANSI z89.1 type 2** or **EN397 (industrial) & ANSI type 1** with additional side-impact & lateral deformation tests & accept Eye & Ear protection

This GUIDE does not cover general forestry/ground work helmets (generally ANSI type 1 and/or EN397) unless they also function as a climbing helmet (ANSI type2/EN12492) and in fact, as we'll see, this whole genre is tricky to reconcile even between European standards let alone between European and North American standards. For instance there are ANSI type 1 and EN397 helmets that have top-only impact tests but may also test for side impact and/or lateral deformation. All-around impact tests and/or lateral deformation are the minimum guarantee of protection we want to see for climbers as an addition to just top impact. EN397 and ANSI Type 1 by themselves are not enough to get in this GUIDE because working at height is NOT the same as Climbing, HOWEVER, there are two helmets in this GUIDE from Kong and CT that don't meet our criterion, at least not on paper, but others in their range do and they specifically state these models as being suitable for climbers/climbing arborists so we have highlighted these with a red 'no' in the EN12492/Lateral tests column. Depending on the type of worksite, OSHA defines working at height as 4, 6 or 8 feet off the ground - that could be a 4-rung stepladder!

The technical specifics of visors and ear defenders are not included here as they would each need their own GUIDE. We have a full GUIDE to Climbing and Multi-Role Helmets in the **PPE & CASEVAC** and **USAR/EXTRICATION BUYERSGUIDES** for competition and recreational climbers and arb inspectors these would be useful GUIDES to check out. In this GUIDE for climbing arborists using chainsaws, handsaws and other power equipment however, we are specifically looking at helmets that meet climbing standards and can provide eye and hearing protection often sold under the banner of 'Combination' helmets. That means various types of visors to protect from wood chips and dust and protection of the ears from the potentially damaging sound of a petrol/gas chainsaw but these days is just as likely to incorporate a communications system. Pretty much all such work helmets can be used as stand-alone climbing helmets simply by removing the click-on ear defenders and visor mounts or the visor may stow within the helmet shell. Ear defenders can be swung back onto the helmet shell when not needed as the arborist in this image obviously feels is the case in using a battery powered saw, although, it has to be said, that even electric saws have a sustained level of noise all the while you're pressing the trigger. We'll get to the details of fixtures and fittings later, we



www.rescuemagazines.com

New in 2025 is Edelrid's multi-role helmets the Tectum and Tectum Air (pic left)

first need to discuss the various structural and design differences between helmets. In tree work we can differentiate three work types:

- 1) **GROUND-CREW/CHIPPER** (ANSI type1/EN397)
- 2) **WORK At HEIGHT** eg. Cherry picker (ANSI type1/EN397)
- 3) **CLIMBING** (on-rope) (ANSI Type 1-2/EN12492)
  - 3a) Recreational Climbing/Competitions/Inspections
  - 3b) Climbing and use of a saw/

chainsaw

- 3c) Climbing & working around electricity (ANSI/EN397 + side-impact and/or Lateral Deformations tests)

Some helmets are specifically designed and marketed towards arborists while others are modified sport or industrial helmets that are coincidentally useful for arborists. Some elements of climbing-specific standards do not take into account the need for arborists to work around electricity, especially for post-storm work so there are many overtly industrial climbing helmets without vents here that meet dielectric standards but are not actively aimed at arborists - CT's *Aries* for example as compared to their *Aries Tree* and *X Arbor*. The key difference between a climbing and a ground-work helmet is that climbers need all around impact protection (rather than just on the top) and a stronger chin strap to ensure the helmet stays on your head. Competition climbers don't need the associated safety

accessories although a headtorch and flip-up goggle visor can be useful. All three of these groups can use the non-accessorised climbing helmets in **WSAR** magazine #11's GUIDE.

**'Working At Height' is NOT the same as 'Climbing'**

## US & EUROPEAN STANDARDS

Unfortunately, as with most products, there is no fully international safety

standard. Europe and North America have competing and slightly different standards and requirements that requires most manufacturers to produce a different version for each regional market - ANSI in the US and EN in Europe and most Pacific countries. There is much greater emphasis in the US on working around electricity because of the way the utilities are structured and the sheer number of damaging storms. ANSI z89.1 Type1&2 helmets have the higher strength chin strap and are class 1 for top-only impact or class 2 for all-around impact. **This GUIDE only includes ANSI Class 1/EN397 helmets if they are also tested for lateral impact and/or deformation (LD).** LD is an addition to EN397 that tests the resistance to 'squeezing' of the sides of the helmet but not as relevant as side, rear and front *impact* tests. ANSI also specifies electrical conductivity as Class C, G or E which we'll come to shortly.

ANSI does not delineate the chin strap strength for ground and climbing as the European standards do. Consequently North

American arborists could choose either the mountaineering (EN12492) or industrial (EN397)-standard helmets because their shells are virtually identical. This is also true in Europe given that arborists may need an unvented EN397 helmet that doesn't conduct electricity and negates the vent aspect of EN12492. There are three key differences between EN397 and EN12492 helmets which are otherwise identical: EN397 requires less vent area, a chin strap that releases at a much lower load (15- 25daN) and clearance between the shell and the cradle that doesn't allow for any lining in direct contact with the shell. It uses a 5kg test load from 1metre above which must exert no more than 5kN of force to the head whereas climbing helmets use a 5kg mass falling 2metres but exerting no more than 10kN to the head and of course, they include impact loading to the side, front and rear of the shell. Vent size must be less than 4.5cm<sup>2</sup> of total shell area for EN397 whereas for climbing it needs to be well ventilated in excess of 4cm<sup>2</sup> of area. However, that does mean there is crossover if a shell has between 4 and 4.5cm<sup>2</sup> of vent area - that would meet both standards.

### ELECTRICAL CONDUCTIVITY

ANSI specifies three electrical conductivity classes: Class G, (General) hard hats are rated for 2,200 volts. Class E (Electrical) hard hats are rated for 20,000 volts and Class C (Conductive) hard hats offer little or no electrical protection. Electricity protective helmets are NOT vented or are minimally vented and this directly contradicts the main climbing helmet standard in Europe EN12492 which requires a certain area of vents for airflow. ANSI class E precludes vents and G has smaller vents than for C-type helmets. Utility arborists and anyone tasked with a job near power cables will need a helmet that will NOT conduct electricity to your head. In practice this means no vents and more clearance between the shell and your head. Many climbers will think that ventilation is a must-have to keep the head cooler in hot weather and during heavy work and this is a requirement of the EN12492 climbing standard. But an electrical arc will kill you quicker so if storm and/or utility work is on your radar you may well need both options. For US ANSI standards this is covered by class G and E helmets where class E rated for 20,000 volts is for high tension pylon style cables (E & HT in our tables) and the General 2,200v rating will see you though all domestic-feed power lines. In Europe this is covered primarily by EN50365 but this is only for lower voltage systems up to 1000v Ac or 1500Vdc and can be as low as the 440vAC that we have listed as **LT** so is less stringent than ANSI class G. Many EN50365 helmets also comply with ANSI G so are actually higher rated than their EN50365 adherence implies. Some helmets like *CAMP's Ares* and *Petzl's Vertex* have closable vents and can meet EN50365 though some only meet this electrical-protection standard if used on the ground like *JSP's Evo5*. The similarly equipped *Petzl Stratos* fails on non-conductivity because there is not enough clearance between the head and the shell.

### CHIN STRAPS

And then there's chin strap strength which in climbing helmets requires it to keep the helmet in place during a fall and when resisting an impact. Industrial helmets in Europe, which often include 'arborist' models, requires the chin strap to separate or break at less than 25daN because, oddly, it is felt that there is a greater risk of being strangled if the helmet gets hung up on an obstruction during work. You would think that those at

PETZL STRATO  
Vent Hi-Viz



## CLIMBING HELMETS



STIHL Advance X

the greatest risk of hang-up would be arborists and yet they are specifically mandated towards EN12492 helmets with high-strength chin straps and NOT EN397's breakaway straps. This is because the helmet needs to stay on AFTER an impact/fall because the climber may well still be exposed at height and can't afford to have the helmet detach completely. It would be interesting to know how often a fall that results in being hung up by the helmet strap such that you are strangled to death has occurred versus being hit on the head because your helmet has come off after an impact from the first piece of falling debris or branch? A number of manufacturers like *Petzl* and *Uvex* provide both types of chin strap which can be swapped in and out but this might still result in falling foul of local protocols if you had the wrong one on. While it's impossible to meet both standards at the same time, the helmet as a 'package' is able to meet both EN397 and EN12492 and these helmets are often called 'hybrids', not to be confused with 'hybrid' as a type of helmet construction. Many more helmets, especially outside of Europe, will meet the impact resistance (including sharp-object penetration) requirements of EN12492 but not necessarily the chin strap requirement. It's a strange dilemma since we're not at all convinced of the validity of a lower strength breakaway chin strap for climbers. *Heightec's Duon* and *JSP's EVO* series have gone some way to solving this dilemma by using a chin-strap buckle that adjusts between weak and strong. The enhanced EN14052 standard that requires better top, side and frontal impact tests for industrial helmets effectively mimics EN12492 impact testing but has the lower strength EN397 chinstrap so climbing helmets will rarely be fully EN14052 compliant and vice versa. This standard is far from widely adopted so only relatively few including *Kask*, and *Team Wendy* have it.

### HELMET CONSTRUCTION

in the fourth quarter of the last century, sport climbers were progressing from very round, glass-fibre, water melon-style helmets with a foam lining and a chin strap to plastic ovals with a spider-web cradle and a chin strap. Meanwhile, arborists were just about progressing from a plastic building site helmet to a plastic building site helmet with a chin strap. Some of us wore certified climbing helmets with accessories but it wasn't until this century that arborists really began to see the need for a 'proper' climbing helmet that was firm and comfortable in all orientations that a climber might find him/herself in, able to withstand impacts from multiple directions (ANSI Class 2) not just from the top (as ANSI Class 1 requires) and also able to take all the safety trimmings necessary for chainsaw use. By

**UPDATED Feb '25**

1



2



- 1 Hard Shell
- 2 Hard-Shell Hybrid
- 3 Soft Shell (not shown)
- 4 Hybrid (hard shell-In-Mold)
- 5 In-Mold (In-Mould)

4



5



2010 virtually all climbing helmet manufacturers producing high quality mountaineering helmets were also producing a more 'industrial' version able to be fitted with visors and ear defenders for both the rope access and arborist markets. Europe mostly embraced the climbing helmet model with arborist helmets from the likes of *Petzl*, *Kask*, *Edelrid*, *Kong*, *CT* and *C.A.M.P.* while North America continued to develop the site-helmet theme incorporating a peak (primarily driven by the ANSI helmet standard requiring a peak) from companies like *Klein Tools*, *Americana*, *3M*, *PMI*, *Studson* and imports from *Pacific* and *JSP*. This has led to many Arb stockists in North America majoring on European models which, in turn, has caused some European manufacturers to ensure that their helmets either meet both ANSI and EN standards like *Petzl* or they have two versions, one meeting EN and one meeting ANSI standards, like *Kask*. Also this century we saw perhaps the biggest driver in arborist helmet evolution, the *Protos* Helmets by Austrian Forestry giant *Pfanner*. The *Protos* was the first to fully integrate eye and ear protection into the one shell but and is renown for its vast range of colours, designs

for climbing it became clear that helmet linings had to be improved. The answer initially was to keep the glass fibre shell and increase the clearance between the head and the shell. Building site helmets had something of an answer with their adjustable plastic head band and concentric plastic 'spokes' joined at the crown but more comfort was needed and this included improving ventilation or airflow to the head which was otherwise encased in a hot and sweaty goldfish bowl. Enter the age of substantial sized air vents and a webbing cradle initially riveted around the shell and with an inch or two of clearance between the top of your head and the inner shell. In the event of a lump of wood hitting the top, the shell can deform to absorb some impact before the shell reached your crown. This allowed superior materials to creep into helmet production - lighter, stronger and more resilient to wear than glass-fibre, mostly plastics, thermoplastics and polymer mixes. The next couple of decades saw various combinations of hard-shell plastics that deformed to absorb impact and cradles that tried their best to keep your crown clear of the shell. Some shells began to re-incorporate fibres into the plastics to improve durability, not quite back to the traditional glass-fibre days and certainly a feature of the more robust shells. Meanwhile, some cradles were replaced by a full 'cap' or dome of polystyrene instead of webbing straps to improve comfort, all the while making the helmet lower in profile than the original pimble-on-your-head like the *Joe Brown* and original *Edelrid Ultralight*. Carbon fibre came and went and still appears every now and then but perhaps the most obvious modern change has been more extensive use of EPS (Expanded Polystyrene) and latterly the slightly denser EPP (Expanded Polypropylene) leading to three new classes of helmet in addition to the existing hard-shells. Good luck differentiating some of the 'hybrids' from some of the 'in-Molds'. For arborists we only really have to worry about Hard-Shells and Hard Shell Hybrids. Again difficult to tell apart. They both have a full dome of material - mostly ABS and ABS/Polycarbonate (as dictated by EN397) but basic Hard Shell has a web cradle with internal clearance (often with a small insert of polystyrene in the crown while the hybrid has a much more expansive 'lining' of expanded foam/polystyrene. Hard shell is the traditional design with a web cradle and/or small EPS crown insert in a full ABS or polycarbonate shell. A few that are more suited to rescue but are sold by some arb stockists like *Pacific* use a kevlar reinforced composite so are renown for being tough but are fairly heavy and not cheap. What looks like polystyrene is now carefully crafted as EPS and EPP and is used as a shell liner in addition to a mesh in place of the traditional web cradle. EPP and EPS are very light, they insulate and are soft allowing thicker cross-sections to absorb



Ukraine-colours version of Protos

and customizations. The version on the right for instance is a Ukraine Special edition with money from every sale donated by *Pfanner* and the stockist (in this case *Honey Brothers* in the UK) to Ukraine charities having to cope with devastation caused to civilians and civilian infrastructure by the 2022 invasion by Russia.

Back to past history and after an initial flirtation with motorcycle helmets

### North America vs European

Only one of these three helmets is available to European climbers - spot the differences? These first two are the *Spire* without vents and the *Elevation* intended for North America-only. The bottom helmet is the *Spire Vent* for Europe.

The *Spire Vent* adheres to EN12492 while the *Spire* and *Elevation* adhere to ANSI z89.1 Type 1 Class C and E respectively but with extra Lateral Deformation tests for both. You'll find this same North American/European differentiation with many of the key brands *Stihl*, *Petzl*, *Kask*, *MSA* etc. and while some are fully compliant across both sets of standards most are only partially compliant. If you take electricity out of the equation the choice of European climbing helmets is huge in comparison to their US-counterparts and US stockists obviously agree since they all sell far more EN-compliant helmets to arborists than they do than ANSI.

# CLIMBING HELMET

impact well. It can be shaped to fit pretty much anything you like allowing intricate designs to improve air flow, follow the shell contours, cut around ears and extend down at the nape all while allowing enough deformation/compression to absorb impact and protect your head. The initial problem with these materials is durability - as an outer shell it's a weak material when it comes to resisting having chunks knocked or scraped out of it, which is one reason you don't see many as arborist helmets.

## MIPS & KOROYD

Of special mention in helmet construction is the MIPS enhanced head protection we see most often in ski-helmets that code-share as climbing helmets. **MIPS** stands for **M**ulti-directional **I**mpact **P**rotection **S**ystem and is basically a licensed element to helmet linings from the Swedish inventors that limits rotational impact because the special liner allows the head to rotate within the shell. Companies basically buy in the MIPS expertise in helmet safety and incorporate it into their helmet designs like the *Centurion Nexus MIPS* on the left (yellow section) . It's a bit like clothing manufacturers adding *GoreTex* as a key and prestigious feature. One of the newest helmets on the market is the US *Studson* helmet which purports to have merged the best of sport helmets with industrial to produce a sleek and well featured model. It uses a similar system to MIPS called *Brainshield* made by *Shield-X*. The *Studson* also uses another safety addition which is the *Koroyd* honeycomb liner most notably used by *Pfanner* in their *Protos* and by New Zealand's *Zero Height Safety* in their *Pinnacle*



series. *Koroyd* crumples on impact to absorb far more energy than a solid liner or web cradle.

## VISORS

It used to be that a helmet visor was a dark wire mesh that occluded vision by about 30% but didn't 'occlude' dust at all - just the larger particulates and chips most likely to damage your eyes. Back in the 80's when some colleagues were mocking my use of SRT systems for tree work I also got some stick for having a clear plastic visor instead of the standard mesh; this was probably acetate back then rather than the much harder-wearing polycarbonate visors we mostly see today. The advantages as I saw it were that the clear visor kept out water and dust and gave me much, much better visibility especially since mine didn't have a frame - it was a bit like the hospital covid masks. The downside was that it scratched easily and with no reinforcing frame you had to look after it a bit more and it fogged up in certain weather. This latter problem is why the modern goggle-style visor have found favour over full 'square' visors- you're not breathing your heated, foetid fumes on it all day long and even if you were, most have anti-fog and anti-scratch treatments to prolong their usable life in the tree. Goggle-visors have therefore become the standard eyewear protection in most modern arborist helmets, practically to the exclusion of full face 'square' visors which are largely the domain of ground crew and those tending the chipper. Many of the goggles supplied directly by the helmet manufacturer have unique sizing and fittings for that helmet - *Climbing Technology* for instance has a different visor for their *X-Arbor* than to their *Aries Tree*. However, the vast majority of helmets in this GUIDE have the 30mm Uni or



## FLASH ACCESS



Comfortable and durable professional protective helmet designed for rope access and other work at height activities.

Weight: 455 g • 16.05 oz  
CE (LD, 440V a.c., -30°C)

[www.singingrock.com](http://www.singingrock.com)



Euro slot that will take industry standard ear-defenders and visor mounts so you can supplement the goggles to some of these with an additional full/half size visor or mesh visor. Some of the images show the helmet with a visor that doesn't necessarily come from that helmet manufacturer and has to be purchased separately. Refer to the UNI-SLOT column to ensure that the helmet can be retro-fitted with various other general-market visors and ear defenders. High quality, anti-fog/anti-scratch goggle-visors can be as much as, if not more expensive than the helmet itself at between £/\$20 and £/\$100+. You can also get full visors with an integral curved chin or as a quadrant-shaped attachment (for clear and mesh) to help stop debris blowing up under the visor. Those that stow inside the shell are obviously better protected but some like Petzl do also offer visor guards for externally stowed visors to protect from damage.

## EAR DEFENDERS

Sometimes called ear-muffs, this is another area where the climbers helmet may vary from ground-crew/chipper team helmets because the chipper is a lot noisier than a tree-chainsaw and especially a battery saw. It's not quite as simple as using the greater noise insulation of a 31SNR ear defender over a climbing standard 26SNR (SNR=Single Number Rating and is equivalent to the percentage noise that is absorbed and therefore not making it through to your delicate ear holes) because a climber may need to have at least some background hearing to be aware of any hazard warnings. Although the same could be said for ground-crew since they're more likely to get a branch on the head. That's why an **alarm whistle** is a useful item to carry and only use in the event of a hazard to life because it will cut through any ear defender's noise baffle.

The ear defender market is dominated by *MSA*, *Sordin*, *Sperian* and *3M Peltor* and these can have an independent head band so that you can use them under *any* helmet or, more usually they will be directly mounted to the helmet as a detachable element often in conjunction with the visor mount. Whether it's a visor or ear defenders, you need to ensure that it fits the helmet properly because so-called universal slots and fixings only need to be a half a millimetre out and there will be play in the mount. A uni-slot (in Europe a standard *Euro-slot* is 30mm wide) allows visor and ear defender mounts to simply push in and click into place. Some, like *Petzl* have their own system called *Easy-Clip* which means that *Petzl* accessories will only fit *Petzl* helmets although the helmets themselves will take other *Euro-slot* accessories and some like *Husqvarna* are even more confusing because they have accessories that will fit some in their helmet range but not others at least not without an adaptor but that pretty cheap at just a few quid/bucks. There are also helmet designs that don't suit certain accessories - peaks will block visors and side brims/flares similarly stop ear defenders from fitting to your ear properly. As with visors you'll pay for the better quality and hearing protection is also something worth preserving expect an average of £40/\$55 rising to £/\$100+ for high end models.

## INTEGRAL HELMET FEATURES

**VENTS** This is one of the two key features that differentiates a climbing arborist's helmet from an industrial helmet or ground-worker's helmet. Aside from utility climbers working around electricity, climbers mostly want vents to help cool the head when working hard. But it would be nice to have the option so helmets like *Petzl's* Vent models, *CAMP's* Ares and *Pfanner's* Protos have the useful provision of a sliding vent that



can be closed. Others have separated vent covers that you can push into place to provide a closed shell. Industrial helmets tend not to be vented at all in order to adhere to additional electrical conductivity and molten metal ingress requirements. Vents may be comprised of a few large openings like *Petzl's Vertex*. or many smaller ones. Some have mesh covering the vents (shown as ● in our tables) so that air gets through but not much else because the disadvantage of larger openings is the possibility of twigs and stones getting in. In some models this risk is countered by offsetting the internal lining to partially occlude the opening. Helmets with only minimal vents are indicated by ◆ in the tables.

Some helmets have a small rubber D or ring on the chin strap which is for carrying your helmet on your harness or the outside of a pack. We always simply clipped around the chinstrap or yoke section but this method ensures you don't inadvertently stress and damage the buckle or any stitching.

### SIZE ADJUSTMENT

There are three main options for adjusting the fit of a helmet: Headband, Chin Strap and what we'll call the Yoke Union. The first two are self-explanatory but the yoke union is where the chin strap meets the Y-shaped helmet attachments and there is often a plastic buckle here that can adjust the chin strap forward and backwards in relation to the shell. The headband is generally padded for comfort and sweat retention and often detachable and washable. It needs to fit snugly around your head and, together with the chin-strap, ensures the helmet won't fall off or tip forwards/backwards when you look up or down. Originally, tightening was achieved with a simple belt-style pin and hole adjustment later modified to much safer and lower profile plastic lugs on one end of the headband pushing into a set of holes in the other end, what we have called Slide Adjust and indicated by a ■ in the tables. We did see *Velcro* for a time but that quickly evolved back to a more substantial lug and hole or zip-tie/cable-tie style ridges of plastic. This gave rise to the idea of using a knob, cog or dial to drive the two sections over each other and lock into place wherever you stopped the ratcheting. These ratchet adjusters were originally seen only on fire-rescue and industrial helmets and it was decades before they started to appear on climbing helmets. This may have been because they were perceived to be too heavy or because the knob was deemed a hindrance or even a hazard to the back of the head in the event of a fall. Either way, ratchet adjust cogs/wheels have now well and truly evolved into the design of virtually all climbing helmets in this GUIDE and shown in our tables as ■. If you work in cold climates you will need to ensure that the headband sizing and internal clearance is sufficient to allow wearing a balaclava or fleece head-covering and that this is close-fitting with no extraneous buttons and lumps that can affect impact forces. Unlike sport climbing helmets, 'female-specific' versions of arborist helmets are much rarer - this is usually perceived as being pink/magenta or having a cut-out for a pony-tail or having a smaller head-size though there are plenty of males to which all three of these options might apply. ArbClimber#22 showed our own local celebrity climber Jo Hedger wearing Husqvarna's helmet with enough size adjustment to be well-fitting and with a 'pony-tail' cut-out (pic left).

### MULTI-ROLE HELMETS



## CLIMBING HELMETS

Arborist climbing helmets pretty much ARE multi-role helmets as exemplified by the *Pfanner Protos* and even this non-climbing, forestry helmet (above) from Husqvarna shows the way things will go with their very nifty rechargeable HL1200

1200Lumen light mounted on it. But in this case we mean **certified for a range of other uses**. For those undertaking tree work as part of a wider remit that encompasses either rescue, forestry, ATV driving, firefighting or shooting people, there are multi-role helmets where one model fulfils a number of different activities. At present that means it's bigger, heavier and more expensive but that will change. Military style 'rails' allow attachment of cameras, night vision, laser-pointers as well as more regular headlamps using a slot-in adapter and we will see rails catch on more in civilian rope activities rather than just military or law enforcement but it's a rare beast at the moment.



### CONCLUSIONS

Ultimately, ALL of the helmets in this GUIDE are suitable as an arborist climbing helmet but aside from weight, cost and comfort (which is subjective) the key decision is on standards and whether you need to work near electricity. Don't forget that **'Working At Height' is NOT the same as 'Climbing'**. Fitting plumbing or electrical cables on the upper floors of a high rise construction is working at height but is quite unlike hanging off a rope. For climbing, arborists should be choosing a helmet tested for impact and/or deformation to the top, sides and front/back of the shell and preferably with the higher strength chin strap >50daN, which will stay on in the event of a big fall or impact - this being more important and more likely than the industrial/ground-helmet 'concern' of being hung up such that you might be strangled. Some offer both options in the same helmet such as *Petzl*, *Heightec* & *JSP* and we will see more of this because, for electrical work, you need to juggle with EN397's conflicting chin-strap strength requirement and internal head clearance and lack of vent openings. **Climbers must take note of their helmet's specific standards because some look exactly like climbing helmets but only meet top-impact (ANSI class1/EN397) standards** like the *Stihl's X-Ergo*, *Klein Tools*, *Defender Safety's H1CH* and the *Milwaukee's Bolt* which are therefore not included in this GUIDE. The *CAMP Ares Air Pro* and *Kong Spin* which might otherwise seem to be the perfect climber's helmets only meet EN397 but are specifically marketed as climbers helmets so we have included them with a red flag in the EN12492/Lateral column.



For pure climbing It is likely that we will see more military rail- style models creeping into arborism if only because some arborists will think it looks cool. The lighter 'foam' hybrids and in-mold climbing helmets that you can find in WILDERNESS SAR#11's HELMET GUIDE only get one mention here (*Kong's Leaf*) because they are far less robust than the hard shell and hard shell hybrid helmets but they do still have a place for

tree climbing, competitions and inspections as we saw on the cover of ARBCLIMBER#21 with the Edelrid Salathe which would otherwise not be considered a typical arborist helmet. *Kong's Leaf* however, takes ear defenders and visors and is easily the lightest in this GUIDE.

There is again no overt Chinese representation here as they continue to be difficult to extract details from and to blatantly copy identifiable models but they can and do produce quality models including companies like *Portwest* so we will see more Chinese own-branding in future.

### IN THE FOLLOWING TABLES:.....

The figures in this Guide are verified by the manufacturer but you often see different spec on some supplier websites and for rebadged models. No idea why!

**ORIGIN:** The main flag refers to the manufacturer's home country, this may not be where the helmet is made. If we know, we show an inset flag.

**COST:** Recommended Retail Price. Often sold for less so a rough guide only - varies due to exchange rates, taxes etc. and we usually round the price up. In the UK, helmets have no VAT when purchased for personal use. **Prices in £\$€ are currency conversion only** with no bulk shipping or import duty etc.

The price in black is for a bare helmet. The price in green is for a basic combo or kit as supplied by that specific manufacturer so it varies with visor and ear defender type

**WEIGHT:** for the bare helmet MINUS any accessories. As a rough guide, add 3/450g for ear defenders, 160-250g for a mesh visor, 250g+ for a full clear visor & 100g+ for goggle visors.

**STANDARDS:** ■ =full compliance, ◆ ◆ =partial compliance - the type of chin-strap and lateral deformation tests will generally be the cause of partial compliance - eg. the shell will be to

EN397 to allow for electrical protection with additional lateral deformation tests and a chinstrap to EN12492.

✗ **EN50396 ELECTRICAL INSULATION** (in addition to indications under ANSI - C, G & E) where EN50396 =<1000vAC, **LT** = Low Tension domestic/<440vAC and **HT**=High Tension/>1500vDC. A ■ indicates **LT** <440vAC as a max voltage but is also an addition to EN397 so may not have the ■ denoting EN50396 **CSA / AUSNZ/ EAC:** Specific **Canadian**, Australian/New Zealand And **Russian/East European** industrial standards but **CSA** mainly follows ANSI while AS/NZ mainly follows EN standards.

**ANSIZ89.1:** North American industrial standard - Type 2 has all around impact protection but many Type 1 have additional lateral impact and/or deformation testing to better suit climbers needs as indicated in the **EN12492/+Lateral column**.

ANSI is defined by 3 classes of electrical conductivity **C, G & E**. **BS/EN14052:** an enhancement of EN357 for impact tests with top, side, front and rear impact tests but seems to be largely ignored by most manufacturers.

**(BS)EN397** Industrial-oriented standard - shells may be the same general structure as an EN12492 shell but vents may be less or absent altogether and the chin strap must be able to detach/break at **15-25daN** (effectively <25kg of force) to avoid the risk of strangulation in a hang-up. Associated requirements for electrical resistance precludes the use of sizeable vents.

**(BS)EN12492/+Lateral:** Climbing Specific helmets with Lateral (side/front/rear) impact or deformation (LD) testing and vents greater than 4cm<sup>2</sup> of the shell area. Chin strap retention should be **greater than 50 daN (50kg)** loading for 2minutes. **+LD** = additional Lateral Deformation (not impact) tests supplementing EN357 and ANSI type1 top impact tests indicated by an orange diamond ◆



more info



# CLIMBING HELMETS

**MATERIALS:** PP=Polypropylene (for the outer shell and some components). EPS=Expanded Polystyrene (especially for the shell liner). EPP=Expanded Polypropylene (especially for the crown insert). ABS= Acrylonitrile Butadiene Styrene (thermoplastic polymer) for the outer shell.

**UNI-SLOTS/RAILS:** Goggles/visors and ear protection are as supplied by the specific company - ANY helmet with a black square ■ in the UNI-SLOTS column can have visor/goggle/ear defenders fitted from any other manufacturer. 30mm slots in Europe ('Euro-Slots') & similar 1" in North America but double check for a firm fit. **RAILS** are military style (Picatinny) attachment points for lighting, cameras, night-vision etc.

**EYE PROTECTION:** **INT**=Internal (Integrated) -the goggle-visor and/or 'square' visor stow INSIDE the shell not outside.

**GOGGLE/VISOR:** Simply indicates the colour of polycarbonate goggles and/or visors available from this manufacturer - Clear, Smoked/tinted or mirror.

**VENTS CLOSE / MESH:** Many of these helmets have obvious air holes (vents) in the shells shown as a black square ■ but some have less than others, particularly the more industrial oriented helmets. Those with minimal vents are shown with a black diamond ◆. **CLOSABLE** vents are shown as a magenta square ■ and if these are separate push-in covers there will be an asterisk and a note to that affect. Those that are permanently open but have a **MESH** cover to restrict the ingress of twigs and debris are shown as a magenta circle ●.

**ID/LOGO REFLECT:** Customised decals are available from some manufacturers while other helmets may have a specific ID badge area which might simply be a clean, flat

rectangular area or may be a plastic housing allowing an ID to be slid in. If it is a standard feature it will be shown as ■ if it is an option it will be a black outline square. **Reflective decals** are standard on one or two indicated by ■ but most provide them as an option shown as an orange outline square □.

**NAPEGUARD UV:** A shroud that comes down from the rear of the helmet shell and down to your shoulders. This helps stop wood chippings, dust and water from going down your neck. Almost always an option rather than standard.

**UV** is a UV indicator on the helmet. Most helmets will be retired due to sheer abuse and unsightliness years after its purchase, which may be significantly reduced. One thing you can keep an eye on is UV exposure which is a silent helmet killer also largely ignored by most. We are now seeing red UV indicators embedded into the rear like this *Stihl Advance X-Climb* to tell you exactly when it's seen its fair share of damaging UV rays (it changes colour, in this case it bleaches white).

**LAMP CLIPS BRKT** where **BRKT** refers to *an elastic retainer or a solid bracket* at the front or rear of the helmet

**COLOURS** different colour options are shown as the main colour with trim or secondary colours shown in the box outline.

One model, the Sovos S3200 (left) uses a clip on shell to alter the colour from the basic white.



# KONG USA





















# SPIN

Images NOT to scale  
 Visors etc. are example of what can be fitted  
 not necessarily what is supplied  
**COST:** Approx. **Inc** local tax/no VAT  
 in UK £\$€=Currency Conversion Only  
**STANDARDS:** ◆◆◆◆=partial adherenc  
**VENTS:** ■=closable ●=mesh ◆=minimal EAR:  
 ◆= Will fit most accessories but check  
 □□□= OPTION  
**VARIANT= blue**  
 or ◆◆ if it's an option

|  |  | MODEL<br>Variant/<br>AKA                                    | COMPANY          | ORIGIN | COST<br>BARE<br>HELMET<br>COMBO<br>inc Tax<br>£\$€ currency<br>conversion only | WEIGHT<br>(BARE<br>HELMET)       | SIZES  | CONSTRUCTION<br>SHELL<br>INNER<br>STRAPS/HEADBAND  |
|--|--|---|------------------|--------|--|----------------------------------|--|--|
|  |  | Ares<br>0747<br>Ares MIPS<br>3258                           | C.A.M.P.         |        | £70<br>\$110<br>€76<br>N/A   | 475g<br>16.8oz<br>500g<br>17.6oz | 54-62cm<br>21.3-24.4"                          | HARD SHELL<br>ABS/Polycarbonate<br>HD EPS<br>Nylon |
|  |  | Ares Air<br>0748<br>Ares Air Plus<br>2641                   | C.A.M.P.         |        | £70<br>\$110<br>€76  | 475g<br>16.8oz<br>480g<br>16.9oz | 54-62cm<br>21.3-24.4"                          | HARD SHELL<br>ABS/Polycarbonate<br>HD EPS<br>Nylon |
|  |  | Ares Air Pro<br>2643  | C.A.M.P.         |        | £70<br>\$110<br>€76  | 480g<br>16.9oz                   | 54-62cm<br>21.3-24.4"                          | HARD SHELL<br>ABS/Polycarbonate<br>HD EPS<br>Nylon |
|  |  | Armour Pro<br>2644  | C.A.M.P.         |        | £50<br>\$80<br>€58   | 360g<br>12.7oz                   | 54-62cm<br>21.3-24.4"                          | HARD SHELL HYBRID<br>ABS<br>HD EPS<br>Nylon        |
|  |  | Skylor Plus<br>0209   | C.A.M.P.         |        | £40<br>\$60<br>€50   | 495g<br>17.5oz                   | 55-62cm<br>21.7-24.4"                          | HARD SHELL<br>ABS<br>HD EPS<br>Polyester           |
|  |  | Nexus<br>Heightmaster<br>Extreme MIPS                       | CENTURION        |        | £54<br>\$75<br>€75<br>£110   | 378-505g<br>553g                 | 53-63cm<br>20.9-24.8"                          | HARD SHELL<br>ABS<br>EPS<br>Terylene/LDPE          |
|  |  | Serius Height<br>Work                                       | EDELRID          |        | £115<br>€60<br>\$100   | 469g                             | 54-64cm<br>21.3-25.2"                          | HARD SHELL<br>ABS<br>EPS<br>Polyester              |
|  |  | Tectum  | EDELRID          |        | £TBA<br>€TBA<br>\$TBA  | TBA                              | 54-64cm<br>21.3-25.2"                          | HARD SHELL<br>ABS<br>EPS<br>Polyester              |
|  |  | Tectum Air  | EDELRID          |        | £TBA<br>€TBA<br>\$TBA  | TBA                              | 54-64cm<br>21.3-25.2"                          | HARD SHELL<br>ABS<br>EPS<br>Polyester              |
|  |  | Manta 4<br>MH4 Forestry<br>Tactical Extreme<br>MH4 Tactical | FUTURE<br>SAFETY |        | £114<br>£143<br>£83<br>\$220<br>€150   | 500g<br>17oz<br>670g<br>23.6oz   | 53-62cm<br>20.9-24.4"<br>63-65cm<br>24.8-25.6" | HARD SHELL HYBRID<br>ABS<br>EPP<br>Polyester/Nylon |

| TEMP RANGE °C °F         | STANDARDS  |     |                |                | EYE PRO            |                    |             | Goggle Visor   |                | EAR   | FEATURES |        |                 |                  | CRADLE          |               | CHIN            |                 | COLOURS | NOTES | WEBSITE |  |  |                    |
|--------------------------|------------|-----|----------------|----------------|--------------------|--------------------|-------------|----------------|----------------|-------|----------|--------|-----------------|------------------|-----------------|---------------|-----------------|-----------------|---------|-------|---------|--|--|--------------------|
|                          | ANSI 289.1 | CGE | CSA AUS/NZ EAC | EN14052 / UKCA | EN397 (Industrial) | EN12492 / +Lateral | GOGGLES INT | FULL VISOR INT | MESH VISOR INT | CLEAR | SMOKED   | MIRROR | UNI SLOTS/RAILS | VENTS CLOSE/MESH | ID/LOGO REFLECT | NAPE GUARD UV | LAMP CLIPS BRKT | SLIDECOG ADJUST |         |       |         | REPLACE PADDING                          | <25dan Release   | >50dan Release     |
| -20<br>-4<br>+50<br>122  | ■          | ■   | ■              | ■              | ■                  | ◆                  | ■           | ■              | ■              | ■     | ■        | ■      | no              | ■                | ■               | 4             | ■               | ■               | ■       | ■     | ■       | ■ ■ ■ ■<br>■ ■ ■ ■<br>■ ■ ■ ■<br>■ ■ ■ ■ | *+ Lateral deformation tests<br>■ MIPS not yet EAC<br>MIPS version has enhanced anti-rotational head cradle.<br>■ Only Red, White or Yellow<br>Has NFC Track/ID tag                | camp.it            |
| -20<br>-4<br>+50<br>122  | ■          | ■   | ■              | ■              | ◆                  | ■                  | ■           | ■              | ■              | ■     | ■        | ■      | ■               | ■                | ■               | 4             | ■               | ■               | ■       | ■     | ■       | ■ ■ ■ ■<br>■ ■ ■ ■<br>■ ■ ■ ■<br>■ ■ ■ ■ | ■ PLUS was originally called Ares Air ANSI.<br>Has NFC Track/ID tag  | camp.it            |
| -20<br>-4<br>+50<br>122  | ■          | ■   | ■              | ■              | ■                  | no                 | ■           | ■              | ■              | ■     | ■        | ■      | ■               | ■                | ■               | 4             | ■               | ■               | ■       | ■     | ■       | ■ ■ ■ ■<br>■ ■ ■ ■<br>■ ■ ■ ■<br>■ ■ ■ ■ | Same construction as Ares and listed as suitable for rope climbing but only has EN397 certification/additional tests.<br>Has NFC Track/ID tag.                                     | camp.it            |
| -20<br>-4<br>+50<br>122  | ■          | ■   | ■              | ■              | ◆                  | ◆                  | ■           | ■              | ■              | ■     | ■        | ■      | ■               | ■                | ■               | 4             | ■               | ■               | ■       | ■     | ■       | ■ ■ ■ ■<br>■ ■ ■ ■<br>■ ■ ■ ■<br>■ ■ ■ ■ | Mesh visor is outsourced.<br>Has NFC Track/ID tag  | camp.it            |
| -20<br>-4<br>+50<br>122  | ■          | ■   | ■              | ■              | ■                  | ◆                  | ■           | ■              | ■              | ■     | ■        | ■      | no              | ■                | ■               | 4             | ■               | ■               | ■       | ■     | ■       | ■ ■ ■ ■<br>■ ■ ■ ■<br>■ ■ ■ ■<br>■ ■ ■ ■ | Mesh visor is outsourced.<br>Has NFC Track/ID tag  | camp.it            |
| -40                      | ■          | ■   | ■              | ■              | ◆                  | ◆                  | ■           | ■              | ■              | ■     | ■        | ■      | ■               | ■                | ■               | 4             | ■               | ■               | ■       | ■     | ■       | ■ ■ ■ ■<br>■ ■ ■ ■<br>■ ■ ■ ■<br>■ ■ ■ ■ | *Internal goggle option (shown) needs to be pre-installed. *Also full cold-weather hood system & cooling pads. *Also Hi-Viz yellow and Hi-Viz Orange                               | centurionsafety.eu |
| -30<br>-22<br>+50<br>122 | ■          | ■   | ■              | ■              | ◆                  | ◆                  | ■           | ■              | ■              | ■     | ■        | ■      | no              | ■                | ■               | 4             | ■               | ■               | ■       | ■     | ■       | ■ ■ ■ ■<br>■ ■ ■ ■<br>■ ■ ■ ■<br>■ ■ ■ ■ | Edelrid now supply visors & ear defenders but Serious takes all standard accessories.<br>Includes a set of replacement padding   | edelrid.com        |
| -30<br>-22<br>+50<br>122 | ■          | ■   | ■              | ■              | ◆                  | ◆                  | ■           | ■              | ■              | ■     | ■        | ■      | no              | ■                | ■               | 4             | ■               | ■               | ■       | ■     | ■       | ■ ■ ■ ■<br>■ ■ ■ ■<br>■ ■ ■ ■<br>■ ■ ■ ■ | NEW in 2025<br>Accessories inc. front sun brim, full sun brim, visor protector.  | edelrid.com        |
| -30<br>-22<br>+50<br>122 | ■          | ■   | ■              | ■              | ◆                  | ◆                  | ■           | ■              | ■              | ■     | ■        | ■      | ■               | ■                | ■               | 4             | ■               | ■               | ■       | ■     | ■       | ■ ■ ■ ■<br>■ ■ ■ ■<br>■ ■ ■ ■<br>■ ■ ■ ■ | NEW in 2025<br>Accessories inc. front sun brim, full sun brim, visor protector.  | edelrid.com        |
|                          | ■          | ■   | ■              | ■              | ■                  | ■                  | ■           | ■              | ■              | ■     | ■        | ■      | ■               | ■                | ■               | 2<br>1        | ■               | ■               | ■       | ■     | ■       | ■ ■ ■ ■<br>■ ■ ■ ■<br>■ ■ ■ ■<br>■ ■ ■ ■ | Standards for Forestry also include FS/ATV1 Quad/ATV for military include NFPA, Marine, firefighting, & Technical Rescue<br>*COLOURS: Forestry also navy blue. Military=Black only | future-safety.com  |

Images NOT to scale  
 Vectors etc. are example of what can be fitted  
 not necessarily what is supplied  
**COST:** Approx. **Inc** local tax/no VAT  
 in UK £\$€=Currency Conversion Only  
**STANDARDS:** ◆◆◆◆= partial adherenc  
**VENTS:** ■=closable ●=mesh ◆=minimal EAR:  
 ◆= Will fit most accessories but check  
 □□□= OPTION  
**VARIANT=** blue or □◆

|   |  | MODEL<br>Variant/<br>AKA   | COMPANY   | ORIGIN  | COST<br>BARE<br>HELMET<br>COMBO<br>inc Tax<br>£\$€ currency<br>conversion only | WEIGHT<br>(BARE<br>HELMET)        | SIZES   | CONSTRUCTION<br>SHELL<br>INNER<br>STRAPS/HEADBAND          |
|---|--|--|-----------|---|--|-----------------------------------|---|--|
|    |  | Duon Air<br>MH02<br>Duon (unvented)<br>MH02                                  | HEIGHTEC  |    | £83<br>£80<br>\$104<br>€96   | 350g<br>12.3oz<br>550g            | 52-66cm<br>20.7-26"                                 | HARD SHELL<br>ABS<br>Polyester Web-only<br>Polyester/Nylon |
|     |  | Elevation  | HUSQVARNA |    | £121<br>\$170<br>€160  | 450g<br>15.9oz                    | 51-62cm<br>20-24.4"                                 | HARD SHELL HYBRID<br>ABS<br>EPS<br>Nylon/Nylon             |
|    |  | Spire  | HUSQVARNA |    | £121<br>\$170<br>€160  | 470g<br>16.6oz                    | 52-63cm<br>20.7-24.8"                               | HARD SHELL HYBRID<br>Polypropylene<br>EPS<br>Nylon/Nylon   |
|    |  | Spire Vent<br>Spire Vent X   | HUSQVARNA |    | £135<br>£180<br>\$170<br>€126  | 470g<br>16.6oz                    | 52-63cm<br>20.7-24.8"                               | HARD SHELL HYBRID<br>Polypropylene<br>EPS<br>Nylon/Nylon   |
|   |  | EVO 5  | JSP       |  | £79<br>\$101<br>€95  | 480g<br>16.9oz                    | 53-64cm<br>21-25"                                   | HARD SHELL<br>ABS<br>EPP<br>Polyester/HDPE                 |
|  |  | EVO (ASCEND)<br>Vista Shield<br>Vista Lens                                   | JSP       |  | £110<br>\$136<br>€130  | 415g<br>14.6oz                    | 53-64cm<br>21-25"                                   | HARD SHELL<br>ABS<br>EPP<br>Polyester/HDPE                 |
|  |  | EVO Lite<br>Skyworker<br>AJS260  | JSP       |  | £32<br>\$41<br>€38   | 382g<br>13.5oz                    | 53-64cm<br>21-25"                                   | HARD SHELL<br>ABS<br>EPP<br>Polyester/HDPE                 |
|  |  | Superplasma PL<br>WHE00108/109-201<br>Superplasma AQ<br>WHE00104/105         | KASK      |  | £86<br>\$130<br>€80  | 420g<br>14.8oz<br>390g<br>13.75oz | 51-62 <sup>63</sup> cm<br>20-24.4 <sup>24.8</sup> " | HARD SHELL HYBRID<br>Polypropylene<br>EPS<br>Nylon/Nylon   |
|  |  | Superplasma HD<br>WHE00036/37<br>Superplasma HP<br>/HP Visor<br>WHE00106/107 | KASK      |  | £105<br>\$130<br>€120  | 450g<br>13.3oz                    | 51-62 <sup>63</sup> cm<br>20-24.4 <sup>24.8</sup> " | HARD SHELL HYBRID<br>ABS<br>EPS<br>Nylon/Nylon             |
|  |  | Primero (EN)<br>WHE00111/12<br>Primero Air (EN)<br>WHE00113/24               | KASK      |  | £70<br>£86<br>\$90<br>€80<br>€95   | 460g<br>13.3oz                    | 52-63cm<br>20.7-24.8"                               | HARD SHELL HYBRID<br>Polypropylene<br>EPS<br>Nylon/Nylon   |

| TEMP RANGE °C °F         | STANDARDS  |     |                |                | EYE PRO            |                    |             | Goggle Visor   |                | EAR   | FEATURES |        |                 |                 | CRADLE          | CHIN          |                 | COLOURS | NOTES | WEBSITE |                 |  |                 |
|--------------------------|------------|-----|----------------|----------------|--------------------|--------------------|-------------|----------------|----------------|-------|----------|--------|-----------------|-----------------|-----------------|---------------|-----------------|---------|-------|---------|-----------------|--|-----------------|
|                          | ANSI 289.1 | CGE | CSA AUS/NZ EAC | EN14052 / UKCA | EN397 (Industrial) | EN12492 / +Lateral | GOGGLES INT | FULL VISOR INT | MESH VISOR INT | CLEAR | SMOKED   | MIRROR | UNI SLOTS/RAILS | VENTSCLOSE/MESH | ID/LOGO REFLECT | NAPE GUARD UV | LAMP CLIPS BRKT |         |       |         | SLIDECOG ADJUST | REPLACE PADDING  | <25dan Release  |
| -30<br>-22<br>+50<br>122 | -          | -   | -              | -              | *                  | *                  | ■           | -              | ■              | -     | -        | ■      | ■               | ■               | -               | 4             | ■               | ■       | ■     | ■       | ■               | *the same chin strap buckle can be switched between hi & low strength to fully or partially meet both standards.   | heightec.com    |
| -30<br>-22<br>+50<br>122 | -          | -   | -              | -              | -                  | ◆                  | ■           | -              | ■              | ■     | ■        | ■      | ■               | ■               | -               | 4             | ■               | ■       | -     | ■       | ■               | adaptor needed for Husqvarna ear defenders on Elevation.   | husqvarna.com   |
| -30<br>-22<br>+50<br>122 | -          | -   | -              | -              | -                  | ◆                  | ■           | -              | ■              | ■     | ■        | ■      | ■               | ■               | -               | -             | ■               | ■       | -     | ■       | ■               | adaptor needed for Husqvarna ear defenders on Spire. Spire Vent=EN model in Grey Spire=unvented ANSI model in Orange   | husqvarna.com   |
| -30<br>-22<br>+50<br>122 | -          | -   | -              | -              | -                  | ■                  | ■           | ■              | ■              | ■     | ■        | ■      | ■               | ■               | -               | 4             | ■               | ■       | -     | ■       | ■               | ear defender adaptor shown on Spire Vent is standard on Spire Vent X Spire VentX=EN model in Grey Spire=ANSI model in Orange   | husqvarna.com   |
| -40                      | -          | -   | -              | -              | ◆*                 | ■*                 | ■           | ■              | ■              | ■     | ■        | ■      | ■               | ■               | ■               | ■             | ■               | ■       | ■     | ■       | ■               | *chin strap 'switches' from high to low strength to meet both standards.*Only meets 50365 when used on the ground. Optional Evospec goggles store internally but not the same as the Vista models. | jspssafety.com  |
| -40                      | -          | -   | -              | -              | ◆*                 | ■*                 | ■           | ■              | ■              | ■     | ■        | ■      | ■               | ■               | ■               | ■             | ■               | ■       | ■     | ■       | ■               | Branded as 'Ascend in USA. CR2 versions have hi-viz reflective as standard add \$12. *chin strap has a 'switch' to change from hi to low strength to meet both standards.                          | jspssafety.com  |
| -40                      | -          | -   | -              | -              | ◆                  | ■                  | ■           | ■              | ■              | ■     | ■        | ■      | ■               | ■               | ■               | ■             | ■               | ■       | ■     | ■       | ■               | *meets some EN397 impact requirements. NB: EvoLite Forestry is not a climbing helmet   | jspssafety.com  |
| -30<br>-22<br>+50<br>122 | -          | -   | -              | -              | ■                  | ◆                  | ■           | ■              | ■              | ■     | ■        | ■      | ■               | ■               | ■               | 5             | ■               | ■       | -     | ■       | ■               | *Also in Hi-Viz + ■ (Lime EU) with fluorescent shell, luminous clips,reflective decals -add10% to cost. AQ= EU-Only EN12492 version Aluminium mesh vent guards..                                   | kask-safety.com |
| -30<br>-22<br>+50<br>122 | -          | -   | -              | -              | ■                  | ◆                  | ■           | ■              | ■              | ■     | ■        | ■      | ■               | ■               | ■               | 5             | ■               | ■       | -     | ■       | ■               | *Also in Hi-Viz + ■ (Lime US) with fluorescent shell, luminous clips,reflective decals-add10% to cost. HP= EU-only, NOT ANSI. White, Yellow or Red HP VISOR has Hi-Viz decals & goggles.           | kask-safety.com |
| -30<br>-22<br>+50<br>122 | -          | -   | -              | -              | ■                  | ◆                  | ■           | ■              | ■              | ■     | ■        | ■      | ■               | ■               | ■               | 4<br>2        | ■               | ■       | -     | ■       | ■               | *Also in Hi-Viz (+Air=fluro Yellow) with fluorescent shell, luminous clips,reflective decals -add10% to cost. AIR is vented version of Primero   | kask-safety.com |

Images NOT to scale  
 Visors etc. are example of what can be fitted not necessarily what is supplied  
 COST: Approx. Inc. local tax/no VAT in UK  
 £/\$/€=Currency Conversion Only  
 STANDARDS: ◆◆◆= partial adherence  
 VENTS: ■=closable ●=mesh ◆=minimal  
 EAR: ◆= Will fit most accessories but check  
 □= OPTION  
 VARIANT in blue  
 or ○ if it's an option

|  |  | MODEL<br>Variant/<br>AKA                                       | COMPANY | ORIGIN | COST<br>BARE<br>HELMET<br>COMBO<br>inc Tax<br>£/\$/€ currency<br>conversion only | WEIGHT<br>(BARE<br>HELMET)       | SIZES                 | CONSTRUCTION<br>SHELL<br>INNER<br>STRAPS/HEADBAND        |
|--|--|--|---------|--------|--|----------------------------------|-----------------------|--|
|  |  | PrimeroPL<br>WHE00115/16                                       | KASK    |        | £70<br>\$90<br>€80   | 420g<br>14.8oz                   | 52-63cm<br>20.7-24.8" | HARD SHELL HYBRID<br>Polypropylene<br>EPS<br>Nylon/Nylon |
|  |  | Primero (US)<br>WHE00117/18<br>Primero Air (US)<br>WHE00119/20 | KASK    |        | £107<br>\$135<br>\$150<br>€125   | 460g<br>13.3oz<br>430g<br>15.2oz | Universal             | HARD SHELL HYBRID<br>Polypropylene<br>EPS<br>Nylon/Nylon |
|  |  | Zenith X<br>WHE00073/4/7                                       | KASK    |        | £90<br>\$135<br>\$330<br>€102  | 490g<br>17.3oz                   | 52-63cm<br>20.7-24.8" | HARD SHELL HYBRID<br>Polypropylene<br>EPS<br>Nylon/Nylon |
|  |  | Zenith X Air<br>WHE00075/6/8<br>Zenith X PL<br>WHE00079/80/81  | KASK    |        | £100<br>£115<br>\$150<br>\$330<br>€103   | 490g<br>17.3oz                   | 52-63cm<br>20.7-24.8" | HARD SHELL HYBRID<br>Polypropylene<br>EPS<br>Nylon/Nylon |
|  |  | Zenith X2 Air<br>WHE00099/100<br>Zenith X2<br>WHE00097/98      | KASK    |        | \$154<br>\$150   | 470g<br>16.6oz<br>460g<br>16.1oz | 52-63cm<br>20.7-24.8" | HARD SHELL HYBRID<br>Polypropylene<br>EPS<br>Nylon/Nylon |
|  |  | Leaf<br>997002.....  | KONG    |        | £100<br>\$139<br>€130  | 230g<br>8.1oz                    | 54-61cm<br>21.3-24"   | IN-MOLD<br>polycarbonate<br>EPS<br>Nylon/Nylon           |
|  |  | Mouse<br>(Sport/Tactical)<br>99716.....                        | KONG    |        | £62<br>£116<br>\$95<br>€64   | 380g<br>13.4oz                   | 52-64cm<br>20.7-25.2" | HARD SHELL<br>ABS<br>Web/EPS<br>Polyester                |
|  |  | Spin<br>99720.....   | KONG    |        | £60<br>\$85<br>€70   | 385g<br>13oz                     | 52-62cm<br>20.7-24.4" | HARD SHELL<br>ABS<br>EPS/Web/Foam<br>Polyester           |

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| TEMP RANGE °C<br>°F                   | STANDARDS         |                   |                   |                       |                       | EYE PRO        |                   |                   | Goggle | Visor  | EAR    | FEATURES            |                   |                    |                  | CRADLE             | CHIN                |                    | COLOURS | NOTES | WEBSITE |  |                   |
|---------------------------------------|-------------------|-------------------|-------------------|-----------------------|-----------------------|----------------|-------------------|-------------------|--------|--------|--------|---------------------|-------------------|--------------------|------------------|--------------------|---------------------|--------------------|---------|-------|---------|--|-------------------|
|                                       | ANSI 289.1<br>CGE | CSA AUS/NZ<br>EAC | EN14052 /<br>UKCA | EN397<br>(Industrial) | EN12492 /<br>+Lateral | GOGGLES<br>INT | FULL VISOR<br>INT | MESH VISOR<br>INT | CLEAR  | SMOKED | MIRROR | UNI SLOTS/<br>RAILS | VENTS<br>CLOSABLE | ID/LOGO<br>REFLECT | NAPE GUARD<br>UV | LAMP CLIPS<br>BRKT | SLIDE COG<br>ADJUST | REPLACE<br>PADDING |         |       |         | <254mm<br>Release  | >504mm<br>Release |
| -30<br>-22<br>+50<br>122              | -                 | -                 | -                 | ◆                     | ■                     | ■              | ■                 | ■                 | ■      | ■      | ■      | ■                   | ■                 | ■                  | ■                | 5                  | ■                   | ■                  | ■       | ■     | ■       | * Primero PL is Europe only.<br>* Also in Hi-Viz (white shown in pic) + fluoro Yellow EU -add10% to cost.  | kask-safety.com   |
| -30<br>-22<br>+50<br>122              | ■                 | ■                 | ■                 | ◆                     | ■                     | ■              | ■                 | ■                 | ■      | ■      | ■      | ■                   | ■                 | ■                  | ■                | 4                  | ■                   | ■                  | ■       | ■     | ■       | * Also in Hi-Viz + ■ (Lime US) with fluorescent shell, luminous clips, reflective decals -add10% to cost.<br>AIR is vented version of Primero  | kask-safety.com   |
| -30<br>-22<br>-20<br>-4<br>+50<br>122 | ■                 | ■                 | ■                 | ◆                     | ■                     | ■              | ■                 | ■                 | ■      | ■      | ■      | ■                   | no                | ■                  | ■                | 4                  | ■                   | ■                  | ■       | ■     | ■       | * Zenith X unvented and technically an ANSI type 1 but meets EN12492.<br>* Also in Hi-Viz versions (cost = 15-20% higher than shown)<br>* 3x Pre-fitted Combo colours.<br>NB Std Zenith DISCONTINUED | kask-safety.com   |
| -30<br>-20<br>+50                     | ■                 | ■                 | ■                 | ◆                     | ■                     | ■              | ■                 | ■                 | ■      | ■      | ■      | ■                   | ■                 | ■                  | ■                | 4                  | ■                   | ■                  | ■       | ■     | ■       | * Also in Hi-Viz versions (cost = 15-20% higher than shown)<br>* 3x Pre-fitted Combo colours (pic shown)   | kask-safety.com   |
| -20<br>-4<br>+50<br>122               | ■                 | ■                 | ■                 | ■                     | ■                     | ■              | ■                 | ■                 | ■      | ■      | ■      | ■                   | no                | ■                  | ■                | 4                  | ■                   | ■                  | ■       | ■     | ■       | * X2 = unvented and technically an ANSI type 1 but meets EN12492.<br>* Also in Hi-Viz versions (cost = higher prices shown)<br>* 3x Pre-fitted Combo colours   | kask-safety.com   |
| -30<br>-22<br>+50<br>122              | ■                 | ■                 | ■                 | ■                     | ■                     | ■              | ■                 | ■                 | ■      | ■      | ■      | ■                   | ■                 | ■                  | ■                | 4                  | ■                   | ■                  | ■       | ■     | ■       | Kong Accessory slot required for ear defenders and visors  | kong.it           |
| -30<br>-22<br>+50<br>122              | ■                 | ■                 | ■                 | ■                     | ■                     | ■              | ■                 | ■                 | ■      | ■      | ■      | ■                   | ■                 | ■                  | ■                | 2                  | ■                   | ■                  | ■       | ■     | ■       | * Yellow is Hi-Viz version.<br>* Gloss black or Tactical version=matt black.<br>* Also available as WORK industrial version with EN397 chin strap  | kong.it           |
| -30<br>-22<br>+50<br>122              | ■                 | ■                 | ■                 | ■                     | no                    | ■              | ■                 | ■                 | ■      | ■      | ■      | ■                   | ■                 | ■                  | ■                | 4                  | ■                   | ■                  | ■       | ■     | ■       | Listed as suitable for climbing arborists but only has EN397 certification/additional tests.   | kong.it           |

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STAND-ARDS: ◆◆◆◆= partial adherenc

VENTS: ■=closable ●=mesh ◆=minimal

EAR: ◆= Will fit most accessories

□□□= OPTION

VARIANT= blue or □◇○ if it

|  |  | MODEL<br>Variant/<br>AKA            | COMPANY                  | ORIGIN | COST<br>BARE<br>HELMET<br>COMBO<br>inc Tax<br>£/\$/€ currency<br>conversion only | WEIGHT<br>(BARE<br>HELMET) | SIZES                 | CONSTRUCTION<br>SHELL<br>INNER<br>STRAPS/HEADBAND                                  |
|--|--|-------------------------------------|--------------------------|--------|--|----------------------------|-----------------------|--|
|  |  | F2-X-Trem                           | MSA-GALLET<br>MSA-CAIRNS | <br>   | £177<br>\$175<br>€160  | 700-750g<br>24.7-26-5oz    | 52-65cm<br>20.5-25.6" | HARD SHELL<br>FR Thermoplastic<br>Polyester/Nylon/<br>Plastane<br>Flame-retard mix |
|  |  | F2XR                                | MSA-GALLET<br>MSA-CAIRNS | <br>   | £160<br>\$235<br>€150  | 700-750g<br>24.7-26-5oz    | 52-65cm<br>20.5-25.6" | HARD SHELL<br>FR Thermoplastic<br>Polyester/Nylon/<br>Plastane<br>Flame-retard mix |
|  |  | V-Guard H1<br>TriVent<br>Non-Vented | MSA                      |        | £96<br>\$95<br>€85   | 515g<br>18.2oz             | 52-64cm<br>20.5-25.2" | HARD SHELL<br>HD PolyEthylene<br>EPS<br>Polyester/Nylon                            |
|  |  | MP2                                 | PAB                      |        | £150<br>\$170<br>€160  | 820g<br>29oz               | 52-64cm<br>20.5-25.2" | HARD SHELL<br>FR Thermoplastic<br>Heat Resist Foam<br>Flame retardent              |
|  |  | R5SLV                               | PACIFIC<br>HELMETS       |        | £195<br>\$230<br>€215  | n/a                        | 52-65cm<br>20.5-25.6" | HARD SHELL<br>Kevlar composite<br>None (Web Cradle)<br>Polyester/Nylon             |
|  |  | R6V<br>Dominator                    | PACIFIC<br>HELMETS       |        | £290<br>\$350<br>€325  | 1003g<br>36.2oz            | 52-65cm<br>20.5-25.6" | HARD SHELL<br>Kevlar composite<br>None (Web Cradle)<br>Polyester/Nylon             |
|  |  | Strato<br>Hi Viz<br>A020BA..        | PETZL                    |        | £77<br>£87<br>\$130<br>\$140<br>€95<br>€107                                      | 415-425* g<br>14.6-15oz    | 53-63cm<br>20.9-24.8" | HARD SHELL HYBRID<br>ABS<br>EPP/EPS<br>Polyester/Nylon                             |
|  |  | Strato Vent<br>Hi Viz<br>A020BA..   | PETZL                    |        | £77<br>£87<br>\$130<br>\$140<br>€95<br>€107                                      | 415-425* g<br>14.6-15oz    | 53-63cm<br>20.9-24.8" | HARD SHELL HYBRID<br>ABS<br>EPP/EPS<br>Polyester/Nylon                             |
|  |  | Vertex<br>Hi Viz<br>A010CA..        | PETZL                    |        | £93<br>£100<br>\$100<br>\$110<br>€83<br>€102                                     | 490-495* g<br>17.3-17.5oz  | 53-63cm<br>20.9-24.8" | HARD SHELL<br>ABS<br>None (Web Cradle)<br>Polyester/Nylon                          |
|  |  | Vertex Vent<br>Hi Viz<br>A010CA..   | PETZL                    |        | £93<br>£100<br>\$100<br>\$110<br>€83<br>€102                                     | 490-495* g<br>17.3-17.5oz  | 53-63cm<br>20.9-24.8" | HARD SHELL<br>ABS<br>None (Web Cradle)<br>Polyester/Nylon                          |



| TEMP RANGE °C/°F         | STANDARDS        |                |                |                    | EYE PRO           |             |                | Goggle Visor   |       | EAR     | FEATURES |                 |                |                 | CRADLE        | CHIN            |                 | COLOURS | NOTES | WEBSITE |   |                    |
|--------------------------|------------------|----------------|----------------|--------------------|-------------------|-------------|----------------|----------------|-------|---------|----------|-----------------|----------------|-----------------|---------------|-----------------|-----------------|---------|-------|---------|---|--------------------|
|                          | ANSI 289.1 / CGE | CSA AUS/NZ EAC | EN14052 / UKCA | EN397 (Industrial) | EN12492 / Lateral | GOGGLES INT | FULL VISOR INT | MESH VISOR INT | CLEAR | S MOKED | MIRROR   | UNI SLOTS/RAILS | VENTS CLOSABLE | ID/LOGO REFLECT | NAPE GUARD UV | LAMP CLIPS BRKT | SLIDECOG ADJUST |         |       |         | REPLACE PADDING   | <25dan Release     |
| -30<br>-22<br>+60<br>122 | -                | *              | *              |                    | ◆                 | ■           | ■              | ■              | ■     | ■       | ■        | ■               | ■              | ■               | ■             | 2+              | ■               | ■       | -     | ■       | *Unvented version meets NFPA & EN Technical Rescue standards with offset impact testing<br>*Also Hi-Viz Yellow, Orange and Photoluminescent.<br>Actual Goggles not visor-goggles                                  | msasafety.com      |
| -30<br>-22<br>+60<br>122 | -                | *              | *              |                    | ◆                 | ■           | ■              | ■              | ■     | ■       | ■        | ■               | ■              | ■               | ■             | 2+              | ■               | ■       | -     | ■       | *Unvented version meets NFPA & EN Technical Rescue standards with offset impact testing<br>*Also Hi-Viz Yellow, Orange and Photoluminescent.<br>*integrated rear & optional front lighting.<br>Clip-in ear guards | msasafety.com      |
| -30<br>-22<br>+50<br>122 | -                | ■              | ■              |                    | ◆                 | ■           | ■              | ■              | ■     | ■       | ■        | ◆               | ■              | ■               | ■             | 3               | ■               | ■       | -     | ■       | Unvented version meets electrical insulation requirements.<br>*Also Hi-Viz Yellow.<br>Rescue whistle integrated into chin-strap.  | msasafety.com      |
| -30<br>-22<br>+50<br>122 | -                | ◆              | -              |                    | ◆                 | ■           | ■              | ■              | ■     | ■       | ■        | ◆               | ■              | ■               | ■             | 1+              | ■               | ■       | ■     | ■       | Technical Rescue Helmet NBL MP1 Pro does not have ear defender slots/mounts.<br>*Luminous<br>*Option Velcro light fixtures  | pab.hr             |
| -30<br>-22<br>+50<br>122 | -                | ■              | ■              |                    | ■                 | ■           | ■              | ■              | ■     | ■       | ■        | ■               | ■              | ■               | ■             | 3               | ■               | ■       | ■     | ■       | 20 inc<br>Simplest R55 version has a clean shell, no vents and no accessories. R57 version has integral lighting mount. Shell (only) will withstand >250°C/500°F  | pacifichelmets.com |
| -30<br>-22<br>+50<br>122 | -                | ■              | ■              |                    | ◆                 | ■           | ■              | ■              | ■     | ■       | ■        | ■               | ■              | ■               | ■             | *               | ■               | ■       | -     | ■       | Fully modular -specify fitting like Rails, lighting clips, colours,decals,water drainage/air vents etc. *Custom options for 7 headlamp retainers/clips. Shell (only) will withstand >250°C/500°F                  | pacifichelmets.com |
| -30<br>-22<br>+50<br>122 | ■                | -              | ■              |                    | ■                 | ■           | ■              | ■              | ■     | ■       | ■        | ■               | ■              | ■               | ■             | 4               | ■               | ■       | ■     | ■       | *Hi-Viz Yellow & Orange with luminous clips.<br>*Supplied with both EN397&12492 chinstraps.<br>Meets EN12492 except vent requirements   | petzl.com          |
| -30<br>-22<br>+50<br>122 | ■                | ■              | ■              |                    | ■                 | ■           | ■              | ■              | ■     | ■       | ■        | ■               | ■              | ■               | ■             | 4               | ■               | ■       | ■     | ■       | *Hi-Viz Yellow & Orange with luminous clips.<br>*Supplied with both EN397&12492 chinstraps.   | petzl.com          |
| -30<br>-22<br>+50<br>122 | ■                | ■              | ■              |                    | ■                 | ■           | ■              | ■              | ■     | ■       | ■        | ■               | ■              | ■               | ■             | 4               | ■               | ■       | ■     | ■       | *Hi-Viz Yellow & Orange with luminous clips.<br>*Supplied with both EN397 &12492 chinstraps.<br>Meets EN12492 except vent requirements  | petzl.com          |
| -30<br>-22<br>+50<br>122 | ■                | ■              | ■              |                    | ■                 | ■           | ■              | ■              | ■     | ■       | ■        | ■               | ■              | ■               | ■             | 4               | ■               | ■       | ■     | ■       | *Hi-Viz Yellow & Orange with luminous clips.<br>*Supplied with both EN397 &12492 chinstraps.<br>*Vents must be closed to meet ANSI C, then does not fully meet EN12492.   | petzl.com          |

Images NOT to scale  
 Visors etc. are example of what can be fitted not necessarily what is supplied  
**COST:** Approx. Inc local tax/no VAT in UK £\$€=Currency Conversion Only  
**STANDARDS:** ◆◆◆◆ = partial adherence  
**VENTS:** ■=closable ●=mesh ◆=minimal  
**EAR:** ◆ = Will fit most accessories but check  
 □□□ = OPTION  
**VARIANT=** blue or □◇○ if it's an option

|  | MODEL<br>Variant/<br>AKA  | COMPANY                | ORIGIN  | COST<br>BARE<br>HELMET<br>COMBO<br>inc Tax<br>£\$€ currency<br>conversion only | WEIGHT<br>(BARE<br>HELMET)                | SIZES  | CONSTRUCTION<br>SHELL<br>INNER<br>STRAPS/HEADBAND                       |
|--|---|------------------------|---|--|---|--|---|
|    | <br>Protos<br>Integral Arborist<br>Integral Climber                      | PFANNER                |    | £235<br>£144<br>\$330<br>\$215<br>€261-342<br>€170                             | 629g<br>22.2oz                            | 54-62cm<br>20.9-24.4"<br>56-64cm<br>22-25.2"   | HARD SHELL HYBRID<br>ABS<br>EPS/Koroyd<br>Polyester/Nylon               |
|    | <br>Dynamo Hybrid<br>RC05H..<br>Dynamo/Plus<br>RC05/P..                  | ROCK<br>HELMETS        |    | £54<br>£85<br>\$56<br>€55  | 460g<br>14.5oz<br>410-420g<br>14.5-14.8oz | 54-62cm<br>21.3-24.4"                          | HARD SHELL HYBRID<br>ABS<br>EPS<br>Polyester/Nylon                      |
|   | <br>Flash Aero<br>W9602<br>Flash<br>W9601                                | SINGING<br>ROCK        |    | £51<br>\$60<br>€54   | 455g<br>16oz                              | 53-63cm<br>20.9-24.8"                          | HARD SHELL HYBRID<br>ABS/Polycarbonate<br>web cradle<br>Polyester/Nylon |
|  | <br>Inceptor<br>GRX Mnt<br>BE590..<br>GRX Mnt<br>HighVoltage<br>BE592.. | SKYLOTEC               |   | £110<br>\$145<br>€111  | 470g<br>16.6oz                            | 54-63cm<br>21.3-24.8"                          | HARD SHELL<br>Polycarbonate/ABS<br>EPS/web cradle<br>Polyester/Nylon    |
|  | <br>CT Aries Tree<br>CT Aries  | SKYLOTEC               |  | £75<br>\$90<br>€85   | 400g<br>14.1oz                            | 53-63cm<br>20.9-24.8"                          | HARD SHELL<br>ABS<br>EPS<br>Polyester/Nylon                             |
|  | <br>CT X-Arbor<br>6X946  | SKYLOTEC               |  | £60<br>£86<br>\$65<br>€57  | 365g<br>12.9oz                            | 50-61cm<br>19.7-22"                            | HARD SHELL HYBRID<br>ABS<br>EPS<br>Polyester/PP                         |
|  | <br>S3200  | SOVOS                  |  | £75<br>£167<br>\$99<br>€89   | 422-492g*<br>12.9-17oz*                   | 53-63cm<br>20.9-24.8"                          | HARD SHELL<br>Polypropylene<br>EPP<br>Polyester                         |
|  | <br>Advance<br>X-Climb   | STIHL<br>EUROPE        |  | £145<br>\$185<br>€179  | 495g<br>17.5oz                            | 53-59cm<br>20.9-23.2"<br>58-63cm<br>22.8-24.8" | HARD SHELL<br>ABS<br>EPS/Koroyd<br>Nylon                                |
|  | <br>Arborist   | STIHL<br>USA           |  | n/a<br>\$130<br>\$164<br>n/a   | 630g<br>22.2oz<br>720g<br>25.4oz          | 53-63cm<br>20.9-24.8"                          | HARD SHELL HYBRID<br>Lexan Polycarbonate Copolymer<br>EPS<br>5/8" Nylon |
|  | <br>Special Vent<br>Plus   | STIHL<br>INTERNATIONAL |  | £56<br>£70<br>n/a<br>€98<br>€150   | 450g<br>15.9oz<br>440g<br>15.5oz          | 54-62cm<br>21.3-24.4"                          | HARD SHELL HYBRID<br>ABS<br>EPS/Koroyd*<br>Nylon                        |

| TEMP RANGE °C/°F                       | STANDARDS  |            |                |                    | EYE PRO            |             | Goggle Visor   |                | EAR   | FEATURES |        |                 |                | CRADLE          |               | CHIN            |                 | COLOURS | NOTES | WEBSITE |                 |  |                          |
|--|------------|------------|----------------|--------------------|--------------------|-------------|----------------|----------------|-------|----------|--------|-----------------|----------------|-----------------|---------------|-----------------|-----------------|---------|-------|---------|-----------------|--|--------------------------|
|  | ANSI Z89.1 | CSA AUS/NZ | EN14052 / UKCA | EN397 (Industrial) | EN12492 / +lateral | GOGGLES INT | FULL VISOR INT | MESH VISOR INT | CLEAR | SMOKED   | MIRROR | UNI SLOTS/RAILS | VENTS CLOSABLE | ID/LOGO REFLECT | NAPE GUARD UV | LAMP CLIPS BRKT | SLIDECOG ADJUST |         |       |         | REPLACE PADDING | <25dan Release   | >50dan Release           |
| -30<br>-22<br>+50<br>122               | -          | -          | -              | ◆                  | ■                  | ■           | ■              | ■              | ■     | ■        | ■      | ■               | ■              | ■               | ■             | ■               | ■               | ■       | ■     | ■       | 28+ inc<br>     | Climber version is basic shell. Huge colour range inc solid and contrast & Hi-Viz. GoPro-style bracket available EN397 with optional chin strap                                | protos.at                |
| -40<br>-40<br>+50<br>122               | ■          | ■          | ■              | ◆                  | ■                  | ■           | ■              | ■              | ■     | ■        | ■      | ■               | ■              | ■               | ■             | 4               | ■               | ■       | ■     | ■       |                 | ALL components replaceable! + Florescent orange, green yellow, Hi-Viz Yellow, Luminous & matt black. Dynamo is vented. Plus has mesh-covered vents                             | rockhelmets.com          |
| -10<br>+14<br>-30<br>-22<br>+50<br>122 | ■          | ■          | ■              | ◆                  | ■                  | ■           | ■              | ■              | ■     | ■        | ■      | ■               | ■              | ■               | ■             | 4               | ■               | ■       | ■     | ■       |                 | Flash Aero - Red or White only * High Vis Yellow   | singingrock.com          |
| -30<br>-22<br>+50<br>122               | ■          | ■          | ■              | ◆                  | ■                  | ■           | ■              | ■              | ■     | ■        | ■      | ■               | ■              | ■               | ■             | 4               | ■               | ■       | ■     | ■       |                 | Also other EN357 versions in additional colours red, blue, yellow and Hi-Viz *Buckle is a magnetic clip.   | skylotec.com             |
| -30<br>-22<br>+50<br>122               | ■          | ■          | ■              | ◆                  | ■                  | ■           | ■              | ■              | ■     | ■        | ■      | ■               | ■              | ■               | ■             | 4               | ■               | ■       | ■     | ■       |                 | Aries=unvented dielectric version. Euro slot adapter supplied. Also Aries Air to EN397 but no dielectric standards   | skylotec.com             |
| -30<br>-22<br>+50<br>122               | ■          | ■          | ■              | ◆                  | ■                  | ■           | ■              | ■              | ■     | ■        | ■      | ■               | ■              | ■               | ■             | 4               | ■               | ■       | ■     | ■       |                 | TO BE DISCONTINUED Euro slot adapter supplied  | climbingtechnology.com   |
| -30<br>-22<br>+50<br>122               | ■          | ■          | ■              | ◆                  | ■                  | ■           | ■              | ■              | ■     | ■        | ■      | ■               | ■              | ■               | ■             | 4               | ■               | ■       | ■     | ■       |                 | *NB: all shells are white but can have a slip-over cover in various colours  | sovoshelmets.com         |
| -30<br>-22<br>+50<br>122               | ■          | ■          | ■              | ◆                  | ■                  | ■           | ■              | ■              | ■     | ■        | ■      | ■               | ■              | ■               | ■             | 4               | ■               | ■       | ■     | ■       |                 | *NB additional accessories / visors from Stihl and 3M  | stihl.com<br>stihl.co.uk |
| -30<br>-22<br>+50<br>122               | ■          | ■          | ■              | ◆                  | ■                  | ■           | ■              | ■              | ■     | ■        | ■      | ■               | ■              | ■               | ■             | 5               | ■               | ■       | ■     | ■       |                 | *NB additional accessories / visors from Kask. Not available in the UK/EU  | stihl.com                |
| -30<br>-22<br>+50<br>122               | ■          | ■          | ■              | ◆                  | ■                  | ■           | ■              | ■              | ■     | ■        | ■      | ■               | ■              | ■               | ■             | 4               | ■               | ■       | ■     | ■       |                 | *NB additional accessories / visors from Petzl *Option for both EN397 &12492 chinstraps. *Vents must be closed to meet ANSI C, then does not fully meet EN12492. Not in UK/EU. | stihl.com                |

Images **NOT** to scale  
 Visors etc. are example of what can be fitted  
 not necessarily what is supplied  
**COST:** Approx. **Inc** local tax/no VAT  
 in UK £\$€=Currency Conversion Only  
**STANDARDS:** ◆◆◆◆= partial adherenc  
**VENTS:** ■=closable ●=mesh ◆=minimal **EAR:**  
 ◆= Will fit most accessories but check □□□  
 = **OPTION**  
**VARIANT=** blue or □□□ if

|  |   | MODEL<br>Variant/<br>AKA  | COMPANY               | ORIGIN   | COST<br>BARE<br>HELMET<br>COMBO<br>inc Tax<br>£\$€ currency<br>conversion only | WEIGHT<br>(BARE<br>HELMET)                         | SIZES  | CONSTRUCTION<br>SHELL<br>INNER<br>STRAPS/HEADBAND                            |
|--|---|---|-----------------------|--|--|--|--|--|
|    |    | SHK-1 Vented<br>SHK-1 Unvented                                      | STUDSON               |   | £115<br>\$140<br>€130  | 495g<br>17.5oz                                     | 53-59cm<br>20.9-23.2"<br>58-63cm<br>22.8-24.8" | HARD SHELL<br>ABS<br>EPS/Koroyd<br>Nylon                                     |
|    |    | EXFIL SAR<br>Back Country   | TEAM<br>WENDY         |   | £245<br>\$221*<br>€250   | 630g*<br>22.2oz                                    | 53-63cm<br>20.9-24.8"                          | HARD SHELL HYBRID<br>Lexan Polycar-<br>bonate Copolymer<br>EPS<br>5/8" Nylon |
|   |    | SecureFit x5000   | 3M                    |   | £90-115<br>£149<br>€140<br>\$110-145<br>€106-135                               | 400g<br>14.1oz                                     | 50-63cm<br>19.7-24.8"                          | HARD SHELL<br>ABS<br>EPS/web cradle<br>Nylon/HDPE                            |
|   |   | Pheos Alpine  | UVEX                  |   | £75-85<br>\$95-105<br>€84-96<br>€150   | 490g<br>17oz                                       | 52-62cm<br>20.5-24.4"                          | HARD SHELL<br>ABS<br>web cradle<br>Nylon/PP                                  |
|  |   | Perfexxion  | UVEX                  |   | £115<br>€145<br>€130   | 550-570g<br>19.4-20oz                              | 52-58cm<br>20.5-22.8"<br>59-63cm<br>23.3-24.8" | HARD SHELL<br>ABS<br>EPS/mesh cradle<br>Nylon/PP                             |
|  |  | Pronamic<br>Alpine<br>MIPS  | UVEX                  |   | £130<br>\$165<br>€148  | 480g<br>16.9oz<br>490g<br>17.3oz                   | 51-63cm<br>23.2-24.8cm                         | HARD SHELL<br>ABS<br>EPS / MIPS<br>Nylon/PP                                  |
|  |  | Apex X2<br>ZAX201HV/202HV<br>Apex Exo<br>APX05                      | ZERO HEIGHT<br>SAFETY | <br> | £65<br>\$80<br>€62   | 425g<br>15oz<br>430g<br>15.2oz                     | 54-62cm<br>21.3-24.4"<br>51-62cm<br>20-24.4"   | HARD SHELL HYBRID<br>ABS Polypropylene<br>EPS<br>Nylon                       |
|  |  | Pinnacle Zertec<br>ZPZK01/01M/02<br>Pinnacle Exo<br>ZPE01/02/A02/HV | ZERO HEIGHT<br>SAFETY | <br> | £118<br>£78<br>\$140<br>\$90<br>€132<br>€85                                    | 445-465g<br>15.7-16.4oz<br>410-440g<br>14.5-15.5oz | 54-62cm<br>21.3-24.4"                          | HARD SHELL HYBRID<br>ABS<br>EPS/Koroyd*<br>Nylon                             |
|  |  | Zone/Zone MIPS<br>Zone Electro                                      | ZEKLER                |   | £85<br>\$105<br>€95  | 419g<br>14.8oz                                     | 53-63cm<br>20.9-24.8"                          | HARD SHELL HYBRID<br>Polypropylene<br>EPP/web cradle<br>Nylon/HDPE           |

| TEMP RANGE °C/°F         | STANDARDS  |                |                |                    | EYE PRO           |             |                | Goggle         | Visor | EAR    | FEATURES |                 |                |                 | CRADLE        |                 | CHIN            |                 | COLOURS | NOTES         | WEBSITE   |                      |
|--------------------------|------------|----------------|----------------|--------------------|-------------------|-------------|----------------|----------------|-------|--------|----------|-----------------|----------------|-----------------|---------------|-----------------|-----------------|-----------------|---------|---------------|---|----------------------|
|                          | ANSI Z89.1 | CSA AUS/NZ EAC | EN14052 / UKCA | EN397 (Industrial) | EN12492 / Lateral | GOGGLES INT | FULL VISOR INT | MESH VISOR INT | CLEAR | SMOKED | MIRROR   | UNI SLOTS/RAILS | VENTS CLOSABLE | ID/LOGO REFLECT | NAPE GUARD UV | LAMP CLIPS BRKT | SLIDECOG ADJUST | REPLACE PADDING |         |               |   | <25daN Release       |
| -30<br>-22<br>+50<br>122 | -          | -              | -              | ◆                  | ■                 | -           | -              | ■              | -     | -      | ■        | ■               | ■              | ■               | ■             | 4               | ■               | ■               | ■       | ■             | Includes a MIPS style enhanced impact system called <i>Brainshield</i> .<br>Non-vented version in white, grey ylw or orange.<br>Embedded NFC chip with emergency information  | studson.com          |
| -20<br>-4<br>+54<br>130  | -          | -              | -              | ◆                  | ■                 | -           | -              | ■              | -     | -      | ■*       | ■               | ■              | ■               | ■             | 1*              | ■               | ■               | ■       | ■*            | *Weight & cost is without rails. Add £€40 and 90g for rails.<br>*Buckle is a magnetic clip<br>* requires \$€10 adapter.<br>Peltor ear defender adaptor  | teamwendy.com        |
| -30<br>-22<br>+50<br>122 | ■          | -              | -              | ■                  | ■                 | ■           | ■              | ■              | ■     | -      | ■        | ■               | ■              | ■               | ■             | 4               | ■               | ■               | -       | ■             | Add approx 10% for reflective on standard helmet, Hi-Viz comes with reflective in price.  | 3m.com               |
| -30<br>-22<br>+50<br>122 | -          | -              | -              | ◆                  | ■                 | ■           | -              | -              | -     | -      | ■        | ■               | ■              | ■               | ■             | 4               | ■               | ■               | ■       | ■             | Version shown is the <i>Forestry</i> to illustrate visor and ear defenders but shows the basic <i>Pheos</i> not <i>Pheos Alpine</i> .   | uvex-safety.com      |
| -30<br>-22<br>+50<br>122 | -          | -              | -              | ◆                  | ■                 | ■           | -              | ■              | -     | -      | ■        | ■               | ■              | ■               | ■             | 1*              | ■               | ■               | -       | ■             | *Rear clip recesses flush to the shell when not in use  | uvex-safety.com      |
| -30<br>-22<br>+50<br>122 | -          | -              | -              | ◆                  | ■                 | ■           | -              | ■              | -     | -      | ◆        | ■               | ■              | ■               | ■             | 4               | ■               | ■               | ■       | ■             | MIPS version =enhanced anti-rotational impact protection  | uvex-safety.com      |
| -40<br>-40<br>+50<br>122 | ■          | -              | -              | ◆                  | ■                 | ■           | ■              | ■              | ■     | -      | ■        | ■               | ■              | ■               | ■             | 4               | ■               | ■               | ■       | ■             | <b>Apex Exo is EN12492 only</b><br>*Fluoro Orange & Lime<br>*Direct fit half face visors available EN166  | zeroheightsafety.com |
| -40<br>-40<br>+50<br>122 | ■          | -              | -              | ◆                  | ■                 | ■           | ■              | ■              | ■     | -      | ■        | ■               | ■              | ■               | ■             | 4               | ■               | ■               | ■       | ■             | <i>Zertec 02</i> =unvented & ANSI E (20,000v) + EN50395 <1500vDC.<br><i>Zertec</i> has NFC chip with emergency contact details.<br>* <i>Exo</i> does NOT use <i>Koroyd</i> and has mesh vents.*Fluoro Orange & Lime, luminous white | zeroheightsafety.com |
| -30<br>-22<br>+50<br>122 | ■          | -              | -              | ■                  | ■                 | ■           | -              | ■              | ■     | -      | ■        | ■               | ■              | ■               | ■             | 4               | ■               | ■               | ■       | ■             | Also rebadged by CRESTO<br>*Hi-Viz yellow.<br><b>ELECTRO</b> in Blue, White Yellow & Hi-Viz yellow  | zekler.com           |
|                          |            |                |                |                    |                   |             |                |                |       |        |          |                 |                |                 |               |                 |                 |                 |         | expansion row |   |                      |

UPDATED Sept '24

# CLIMBING SPIKES/ SPURS

The newest models on the market are Notch's Ergo Climber (left & main picture) and FTC TREE's Klik 'n Ka (right) with push button strap adjustment and an optional branch grip under the foot plate

www.rescuemagazines.com

The more environmentally-minded recoil at the sight of a set of tree-spikes (or 'climbers' as they're known in the US utilities industry), because it either means that another tree has bitten the dust and is being dismantled in its entirety or the wearer is not too concerned for the health and appearance of a tree in carrying out routine maintenance work. I had a friend in the business many moons ago who, brilliant though he was and indeed the best I've ever seen, used to wear spikes for virtually every job despite us all pointing out the woodpecker-attack appearance of the trees he left behind. That had changed by the 90's as the realisation of how many disease entry points were being created quite aside from the disfigurement which clients were presumably assured was perfectly normal! Of course, if you're working on timber that's being removed or the whole tree is being felled, it doesn't matter. Tree health and cosmetics aside, tree spikes/climbers are essential to the safety of the climbers for many types of job, rope-safety will get you so far but not all the way, all the time.

Spikes are quite literally leg-irons with a sharp spur or gaff on the inside that digs into the wood (through the bark or just into bark if it's thick enough) as you either 'walk' up a tree or stabilize your stance in readiness for cutting. In the absence of suitable side branches to stand on or a suitable rope anchor above (because you're dismantling/sectioning the tree as you descend), they provide a stable grip and platform with your pole-strap providing some security and helping to pendulum your weight into the spur or gaff. The spur itself has become a replaceable component and more on this vital element shortly but just to say that most companies offer a short and long spur with some offering a medium or hybrid size. The short spur tended to be used more for pole-work but there are many species of tree with thin bark that warrant use of the short rather than medium or long spurs so you would do well to have size options available for varied domestic or parkland work.

The US has three of the world's oldest spike manufacturers in *Klein Tools*, *Bashlin* and *Buckingham Manufacturing*, all of whom were originally catering much more to pole climbing than to arborists and consequently still target at least 50% of their equipment ranges to utility pole climbers (telegraph and electric poles). *Buckingham Mfg* in Pennsylvania are without doubt the oldest climbing spike company in the

Photo by Notch Equipment

# CLIMBING SPIKES/SPURS

world so it's not surprising that they have the largest range and like most companies has many variations on frame materials, shapes, widths, gaffs and bindings. They provide

the useful chart on frame designs overleaf which obviously doesn't apply to all or indeed many manufacturers, some of which like *Panther*, *Distel* and *Edelrid* have simplified things entirely with just one or two frames but different gaff and binding options. The other huge player in this market is *Bashlin*,

very much a utility lineman company that caters to arborists more as a sideline than their core business. They have stuck with the more traditional brown leather straps favoured by many a US

arborists in particular and still offer all-in-one frames with non-replaceable spurs/gaffs (as do Buckingham). You will often see Weaver leather straps offered as an option because they are widely regarded as the premier leather-meisters but

even they offer artificial 'leather' straps. However, even though well stitched leather is a thing of beauty and remains an extremely hardwearing and comfortable material especially when it is faced with softer calf-skin, there is no doubt that the most progressive models are thermo-foam padded with contoured reinforced/protective cuffs secured by Velcro or push-fit buckles.

We have NOT included the '*Bistel*' Talons as they are a very poor quality imitation of the *Distel* and do not come even close to meeting the ASTM load test and we have also omitted *Tomchy* and one from *Amazon* and *Walmart* - *Cohu* brand because it looks too poorly made to be a professional item using cable-ties to attach the bindings and padding! In the case of *Tomchy* they may be OK but we can't verify their specifications. All three appear to be Chinese made.

## FRAME /SHAFT/SHANK DESIGN

Traditionally made from iron and brought up to date with carbon steel at the heavier but less expensive end rising in cost with one or two stainless steel models and reduction in weight with aluminium and carbon fibre models. Even lighter (though not by much), sturdy and more expensive, are a few titanium models. Regardless of material there may be two or three distinct components to a climbing spike frame and this does

NOT include the actual pointy bit, the gaff or spur. The shaft or shank is the upright section attaching to the stirrup at the bottom and the shaft may be further sub-divided into a third component if it has length adjustment which most do. Some models may have an alloy stirrup and lower frame but a steel top adjustment to the frame. In the *Buckingham* Table above, the second frame (listed here as *CONTOURED* but in our tables as *PROFILED*) is the commonest construction for a modern climbing spike. The traditional straight shaft doesn't really follow the calf and ankles natural shape and is consequently less comfortable without padding at the top to bridge the calf's normal inward curve towards the knee but many offset the stirrup to



**CLIMBER STYLES**  
Designed to be used by a person with a maximum weight of 350 lbs. when fully equipped.

| Non Contoured Shank   | Contoured Shank | Twisted Shank*     | Offset Stirrup     | Stirrup Width |
|---|-----------------|--------------------|--------------------|---------------|
|   |                 |                    |                    |               |
| <small>*Available on all Buckingham pole climbers. Add a 'T' suffix; e.g. T94089AT.</small> |                 |                    |                    |               |
| Comfort & Fit for Narrow or Standard Width Stirrup  |                 |                    |                    |               |
| STIRRUP TYPE  | STIRRUP WIDTH   | SHORT SLEEVES      | LONG SLEEVES       |               |
| Standard  | 4 1/2"          | 15 3/4" to 18 1/2" | 18 3/4" to 21 1/2" |               |
| Narrow  | 4"              | 14 1/2" to 17 1/4" | 17 1/4" to 20 1/4" |               |

**TO SIZE CLIMBERS**

- Measure boot upper at the widest part of arch for correct stirrup width.
- With climber sleeve and pad attached, locate climber 1/2" below inside knee bone, mark location on the climber with a pencil (never scribe a line into the climber) & secure each sleeve with two screws per climber.

Note: For maximum mobility, pull pant leg up before fastening straps.

compensate. You can see this padding in the *Harkie* model on the right where soft leather padding extends down the shank. Some designs follow the legs contours more closely with an indented shape at the bottom like this *Edelrid* model. Others, like the *Distel* flatten the cross-section of the shaft and then twisted it to face slightly forward and better fit the angle of the calf muscle and inhibit the shaft digging in. A further refinement not seen on many is to offset the stirrup a little bit forward of the shaft because your heel-rebate, into



ABOVE RIGHT: Representative of a number of modern developments in spikes is *Protek's* R100 with a preformed plastic shell covering thermo-formed foam padding with a breathable mesh on the inside. The straps on both the calf cuff and the foot are secured with Velcro or 'hook&loop' if the manufacturer isn't stumping up for the real thing. This model uses a small D-Ring on the foot strap instead of the more usual ring to provide three-way attachment to the foot straps. OPPOSITE: Main pic is *Notch Equipment's* Ergo Climber from 2024 INSET: *Buckingham's* homage to US line workers with their hydra-transfer Stars & Stripes livery on a model with high-end push-fit buckles on the foot straps. A number of the frames, pads and straps from *Bashlin*, *Buckingham* and *Klein* are interchangeable.

which the stirrup sits, isn't actually directly in line with the calf bone which is the line most frames follow. This design purports to direct more load to the gaff/spur without the need for so much driving force, in other words, it makes your climbing more efficient. If that is true, not many have adopted the offset stirrup - perhaps the increased production cost outweighs the benefits? Another design that hasn't caught on is *Antec's* (now owned by *Honeywell*) articulated shaft model. This may be discontinued but is still being sold in France and has lateral articulation just above the achilles area. It effectively gives you an adjustable offset rather than the fixed angle of conventional offsets like this other *Antec* model providing better direction of force to the gaff but you had better make sure those bolts are tightened well.

### CUFF

This is the top attachment to the leg securing the shaft around the calf. It comprises of padding to the frame and then to the inside of the securing strap that goes around the calf. Traditionally the upper cuff has incorporated a regular leather strap with pin and hole adjusted just like a trouser belt and this is still the case with many models today except that many replace the more expensive leather with man-made fabrics less inclined to absorb unsavoury body fluids etc. The *Harkie* model on the left, which has now been discontinued pending an updated model, is a typical variation with leather 'T-shaped' padding beneath a leather or 'pleather' strap securing it around the calf, Some use Velcro straps like the *Edelrid Talon* on the previous page, which has the advantage that it is infinitely adjustable but the disadvantage that its hook and loop fastening can get 'gummed' up by sawdust and debris. The most recent trend is towards push-fit buckles for speed which can be further finitely adjusted by pulling the tail of the webbing-see the *Buck* model on the title page. Pin and hole straps on the other hand, have set adjustment and while both options keep things simple and light using spikes demands the straps be quite tight to stop movement of the top part of the frame, in effect, to stop it flapping against the calf during climbing if not properly secured. To counter this possibility *Bashlin* and *Buckingham* started putting curved metal plates in or around the top plate that would not only increase protection from the intrusive metal frame but also grasp the calf even if the straps weren't overtly tight. Some still use alloy cuffs but models like the ground-breaking *Distel* models from Germany started using a much longer, contoured plastic cuff curved around a foam or thermo-moulded EVA to provide protection and comfort. At the top end of their range the plastic is replaced by carbon-fibre - lighter and tougher but more expensive. Uli Distel wasn't the first to come up with this preformed cuff idea but he did perfect the design to make it the best compromise in terms of weight, comfort and cost. *Wolf Claws* never made it much past 2010 but they had a full-length nylon 'cuff', more like the best part of a boot, which incorporated the metal frame within the moulding. It was a



bit like an Ice Hockey leg pad without the articulation but it obviously never caught on much, possibly because it weighs as much as the tree being climbed. *Distel* too had a prototype along the same lines (pic right) albeit with much smoother curves than the *Wolf Claw*.

### STIRRUP

The boot support under the heel is important in working comfort. Most use a curved inside face that allows some leeway on the width of boot it will fit and some offer a narrow or wide-fit option. It's often difficult to know where they are measuring width from since the straight section across the bottom can be half the width of the curved section higher up so assume that the average width is around 100mm/4" with narrow options at around 75mm/3". Before we talk about the sharp bit, it's worth mentioning a couple of stirrup design additions that might seem like an obvious enhancement but will very much depend on your climbing style and type of job. Grip on the underside of the stirrup to make branch walking in between vertical spiking a safer and easier operation. Some have serrations or ribs forged or cast into the underside of the stirrup while others use a rubber grip, in the case of *Distel* this is the world-leading *Vibram* rubber used on mountaineering boot soles. This is taken further by *FTC TREE* with their *Sting&Stay* spike which has a full metal spike set mounted beneath the stirrup - akin to an instep crampon, indeed many European stockists anglicise the name of the range of products as 'crampons'. On the right you can see the detachable two-spiked plate with the spikes facing outward while the regular spur faces inwards.



### SPIKES/GAFFS/SPURS

The first thing to note about the pointy-end of your climbing 'leg-iron' is that it's imperative to keep it sharp and properly profiled. It needs to penetrate the bark to find a solid purchase in wood though there are some trees that have bark so thick and tough that this is impractical. It's all about penetration which requires it to be sharp with a precise cross-section - usually triangular or square. The efficiency of the spike is further enhanced with a slick surface - a rusty spike is far harder to push in and pull out than a teflon-style coating like *Distel's* PTFE and anodizing in the case of many others. However, once the need to sharpen arises you obviously begin to lose this more efficient and protective coating. *BUCKINGHAM* have what they call *GRIP* technology on some models. This stands for Gaff Ridge Positioning and is purportedly specific engineering that improves the security of placement of the gaff, ie. it digs in better with less effort. This is something that a few others have strived to achieve to help decrease the fatigue of climbing in spikes.







**ORIGIN TT SYNCHRONIZES TTRS DEVICES SO COMPLETELY,  
THEY FEEL CONJOINED.**

The first time you rig an Origin TT rigging plate in a rope rescue system you will be reminded exactly why the first letter in TTRS is twin. This plate's two independent locking pins allow both multi-purpose devices to mount directly—without an interlocking carabiner. This links and coordinates their operation for a safer, more efficient system and a smoother ride for the person at the end of the line.

Most of us aren't called upon to do a high-angle rope rescue every week—or even every month. But the day will come. Why not be ready to rig the most fully-controlled, fully-redundant system when it does?



WATCH THE ORIGIN TT  
AT WORK.



Shorter spikes for utility poles (CCA poles in the US are particularly tough and some will mention CCA in the title of the product), medium or hybrid for trees with average density bark and long spikes for thick bark; trees like pines and sequoia. One oddity to mention is again the *Antec* (now *Honeywell/Miller*) which has a single or double gaff option, like a bull's horns. It's unclear what, if any advantage this offers since nobody else makes them? Regardless of whether you have one or two, being so sharp, you will want to cover your gaffs both as a safety precaution against impale and to preserve the keen point.

Many offer a simple leather or plastic cap but some offer something a little different - *Buckingham* have a visually bright, magnetic plastic gaff-cover on a retractable lanyard (pic left) so it stows out of the way when not in use but is immediately to hand when you want to cover them, unlike most loose gaff covers which will have been lost two minutes after you take them off. Perhaps the best protection, and a means to keep hold of those loose gaff covers is a protective bag like the *Protekt* and *Stein* models below which are supplied with your spikes.

**SPIKING TECHNIQUES**

Try not to snag your chainsaw trousers. *KleinTools* are one of the oldest manufacturers so we'll steal their sound advice on spur choice and use.....*When using pole climbers, remember that poles are not all alike.*

*Different wood species, climate and pole age, as well as different preservative treatments (Creosote, Penta, CCA) affect climbability. Since these factors can result in significant differences in gaff penetration, visually check gaff penetration with your full weight on the climber before starting any climb. if penetration is shallow, use extreme caution, because the gaff could "cut-out", or the increased stress on the gaff tip could cause the tip to break. To allow for proper penetration, the minimum acceptable length for the underside of a pole climber gaff is 1-7/16" (37 mm). avoid gaff contact with metal objects when climbing (such as pole ID tags, nails, poster staples, metal pole hardware, or any other metal on the pole). When using tree climbers, remember that trees are not all alike. Different species and bark thickness affect climbability. Visually check gaff penetration in the same manner described*



*for pole climbers before starting any climb. To allow for proper penetration: Use a tree-climber gaff with a minimum underside length of 2-1/4" (57 mm). When the bark thickness measures more than 2-1/2" (64 mm), make sure the gaff is long enough to properly penetrate the wood under the bark. Avoid gaff contact with metal objects when climbing (such as nails, poster staples, or any other metal on the tree).*

NB: The *Wolf Claw* and *Harkie* have been discontinued although some *Harkie* spikes are still available from some stockists. In our tables we have limited the entries to the generic 'head-of-family' so to speak, and in particular any that have a structural difference in the frame like a twist or offset or permanent rather than replaceable gaffs/spurs. Companies like *Buckingham*, *Bashlin* and *Protekt* have a vast number of models but they are a variation on those 'head-of-family' models so we have tried to picture different cuff options for different models. In reality the same cuff and strapping options are often available for ALL of the models listed.



**IN THE FOLLOWING TABLES:**

Prices and weight etc, are for a model with specific features as shown by solid black or orange squares. Options are shown as outline squares □ or in green with alternate variants shown in blue. We have generally shown the Velcro (or equivalent) closure for bindings as the basic design.

**ORIGIN:**

The manufacturer's country but not always where it's made in which case, if we know, there is an inset flag.

**COST:** approximate, rounded up and inclusive of local taxes which are generally 20% in Europe. \$ prices in orange are a currency conversion (as of May 2022) for reference not necessarily the actual selling price.

**MATERIALS:** for the main frame/shank and separately for the gaff/spur. ALU means Aluminium Alloy unless otherwise specified. STEEL means carbon steel and we assume this unless the manufacturer specifically states Alloy-Steel which includes elements like Molybdenum and Nickel to improve corrosion resistance and strength etc. Gaffs available in more than one material are listed as an option in the notes.

**FRAME SHAPE:** The shank or upright section of a frame can be straight, twisted, or profiled (contoured) to match the leg's shape more accurately. As the frame becomes the stirrup, this may be straight (in line) or offset shown in orange or blue for a different version in the same group of products.

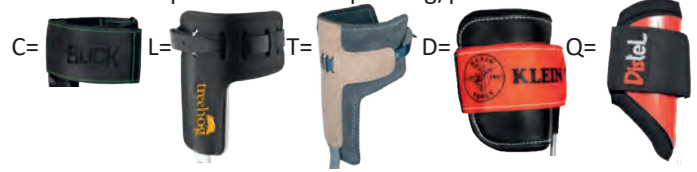
**HEIGHT ADJUST Increments:** Adjustable height is shown as a ■ or an actual figure for the range of adjustment is shown with optional size ranges in green. Some provide the increments by which you can make adjustments.

**STIRRUP FITS FOOT WIDTH....** A measurement across the width of the stirrup that your boot sits in. The width of the straight section on the bottom is less than a width measurement taken higher up on the curved section.

**GAFFS/SPURS:** The default spur size is shown in black with other length options shown in green. The vast majority are replaceable so the few that are not are indicated by an asterisk and a note. The lengths quoted are from the manufacturer and should indicate just the spike element of the gaff/spur but some may have included the complete length including the bolted section - this is usually obvious and we will have double checked but one or two may have crept through if they are a credible (but nevertheless incorrect) length.

**CUFF SHELL & SHAPE:** The material used in the 'protective shell' which may cover padding at the top/calf end of the frame with the binding often sitting over or through the shell/pad. Some have obvious plastic or glass-fibre shells but most are leather pads often with a softer facing leather on the inside. The shell/padding may be contoured to curve around the calf and extend further down to cover more of the metal or they may be a simpler square band like a giant bracelet. They might be a modified L-shape extending down the frame and around the 'bracelet'. Most offer a range of options for the cuff and bindings/straps with the simpler leather cuff often cheaper than the more complex shell-type cuffs. Our coding is shown below where C is the simplest and narrowest square/bracelet shape (this may have extra L-shape padding beneath and some, like *Bashlin* offer angled or straight 'legs' for shaft insertion), L is an inverted L-shape where the top part wraps around to join the vertical section. T-shape has the cuff wrapping around from both side of the upright section. D-shape is a longer version of the C-cuff extending further down the shank. Q-shape is a variation of the D-shape with a more sculpted inner edge tapering towards the shank. Bear in mind that some T and L shapes can be broad enough to be almost indiscernible from the Q-shape. Sometimes the cuff

and the padding are one and the same but our chart only relates the shape of cuff to the padding/protective element.



**WEIGHT Pair:** for a pair of spikes including the binding, padding and gaff as indicated by *not* being an option.

**MBS / WLL/SWL:** The MBS or Minimum Breaking Strength or Load will always be a much higher figure than the Working Load Limit or Safe Working Load which is usually calculated at around 10% of the MBS. As with all systems the load figure is limited by the weakest component because the spikes themselves may be rated several times higher than the quoted WLL. Note that any load figure means the TOTAL load applied during wear - if you're a 114kg/250lb climber, unless you're climbing naked, there is going to be significant additional weight to add with boots, harness, hardware, helmet etc. that will increase in weight in rain so you will get close to the 350lb SWL of a lot of these spikes exceed the limits on one or two. Remember, it's the TOTAL weight not just your body weight.

**FASTENING**

This refers to the upper (cuff) strap shown as a solid black square ■ and for the lower stirrup strap as an orange square ■. Options are shown as an outline square. □ □

**VELCRO:** Velcro or Hook&Loop fastening

**CLICK BUCKLE:** A push-fit buckle like the Austrianpin Cobra that speeds up donning and doffing.

**THREAD BUCKLE:** webbing is threaded through a ladder of D buckles

**LEATHER/EYELETS:** Some straps that look like leather are actually artificial like the Distal Weaver straps and therefore listed as 'plastic'

**PLASTIC/EYELETS:** not necessarily 'plastic' but a catch-all for nylons and man-made materials

**CUFF CONSTRUCTION**

**LEATHER/FELT:** Usually a softer calf leather and sometimes with a suede like inner face. **WOOL** or fleece was traditionally used for padding but not seen so much any more but retro is the new modern and wool is a timeless performer.

**THERMO-FOAM/EVA:** a foam lining that may be shaped with rounded edges in the case of thermo-foam. EVA is a type of foam, all are harder-wearing than simply a soft foam.

**MESH LINER:** a wicking mesh line on foam that moves sweat away from the skin

**METAL INSERT:** A thin band of alloy or steel that helps retain the shape and curve of the pad or increased support between the frame and the cuff

**GAFF COVER:** Protective cover for the sharp bit. We haven't included it but *Bashlin* also sell a protective heel cover to stop you spiking yourself.

**STORAGE BAG:** Some like *Protekt* and *Stein*, include a handy storage bag for a set of spikes in with the price quoted which will often be large enough to cram other stuff in. An outline square indicates that you can buy a 'spikes' bag separately from this manufacturer.

**OTHER COLOURS:** Colours available other than the ones shown - usually for the top cuff but some have frame-colour options. Note that many stockists sell colour and pad options that are no longer sold by the manufacturer eg. *Bashlin* now have 3 leather pad/cuff options but we often see variations in stockists that are not now sold.

images = one of a range of options - NOT to scale.  
 £€ = Currency conversion only exc. shipping, duties etc  
**FASTENING:** Top Cuff=   
 Bottom/Foot Strap=   
 OPTION=  or

|   | MODEL  | COMPANY    | ORIGIN   | COST<br>inc Tax/VAT                       | MATERIAL<br>Frame/Shaft<br>Gaff/Spur | SHAPE<br>Shaft/<br>Stirrup | HEIGHT<br>ADJUST<br>Option<br>Increments |
|---|--|------------|--|---|--------------------------------------|----------------------------|--|
|    | BD14B<br>BD14BOD<br>BD14BX                           | BASHLIN    |    | £746-£792<br>\$546-\$826<br>€505-760      | ALLOY<br>Steel                       | Straight<br>Offset         | 15-18"<br>18-21"                         |
|    | BD16B  | BASHLIN    |    | £285-445<br>\$306-\$560<br>€285-515       | STEEL<br>Steel                       | Profiled<br>Offset         | 15-18"<br>18-21"                         |
|    | BD16BC   | BASHLIN    |    | £255-500<br>\$325-\$580<br>€310-540       | STEEL<br>Steel                       | Twisted<br>Offset          | 15-18"<br>18-21"                         |
|   | Permanent-<br>Gaff BD12                              | BASHLIN    |    | £225-425<br>\$280-\$540<br>€260-500       | STEEL<br>Steel                       | Straight<br>Offset         | 15-18"<br>18-21"                         |
|  | Permanent-<br>Gaff BD12C                             | BASHLIN    |  | £225-425<br>\$285-\$540<br>€260-500       | STEEL<br>Steel                       | Twisted<br>Offset          | 15-18"<br>18-21"                         |
|  | Permanent-<br>Gaff BD12L                             | BASHLIN    |  | £205<br>\$260<br>€240                     | STEEL<br>Steel                       | Profiled<br>Offset         | 15-18"<br>18-21"                         |
|  | BuckAlloy<br>A94089AV<br>+94....variants             | BUCKINGHAM |  | £610-660<br>\$775-\$835<br>€715-770       | ALLOY<br>Steel                       | Straight<br>Offset         | 16½-18¾"<br>19½-21¾"                     |
|  | BuckAlloy<br>A94K2FG<br>+94..variants                | BUCKINGHAM |  | £755<br>\$955<br>€880                     | ALLOY<br>Steel                       | Straight<br>Offset         | 16½-18¾"<br>19½-21¾"                     |
|  | BuckAlloy<br>A95089<br>+95..variants                 | BUCKINGHAM |  | £575<br>\$730<br>€675                     | ALLOY<br>Steel                       | Straight<br>Offset         | 16½-18¾"<br>19½-21¾"                     |
|  | BuckLite<br>TBG95K2V-SG<br>TBG94K2V-BL<br>TB94K2V-BL | BUCKINGHAM |  | £584<br>\$990<br>€915<br>\$1121<br>\$1048 | TITANIUM<br>Steel                    | Profiled<br>Offset         | 16½-18¾"<br>19½-21¾"                     |

# CLIMBING SPIKES/SPURS

| GAFF/SPUR<br>Option |                |               | CUFF SHAPE<br>Option | WEIGHT PAIR              | WLL/<br>SWL<br>MBS | FASTENINGS                          |                                     |               |                 |                                     |                                     | CUFF PADDING             |                          |                                     |                                     | GAFF COVER | STORAGE BAG                         | OTHER COLOUR                        |   | NOTES             | WWW. |
|---------------------|----------------|---------------|----------------------|--------------------------|--------------------|-------------------------------------|-------------------------------------|---------------|-----------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|------------|-------------------------------------|-------------------------------------|---|-------------------|------|
| SHORT               | MED/<br>HYBRID | LONG          |                      |                          |                    | VELCRO                              | CLICK BUCKLE                        | THREAD BUCKLE | LEATHER/EYELETS | PLASTIC/EYELETS                     | LEATHER/VELCRO                      | WOOL                     | THERMO-FOAM/EVA          | MESH LINER                          | METAL INSERT                        |            |                                     | CUFF                                | FRAME   |                   |      |
| 41mm<br>1.6"        | -              | 63mm<br>2.5"  | C<br>T, L            | 2.2-3.86kg<br>4.75-8.5lb | -                  | <input type="checkbox"/>            | -                                   | -             | -               | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | -          | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Price & wt vary with colour strap/pad options. Velcro C pads=3.5lbs<br>Basic L pads=0.5lbs<br>Inc gaff gauge      | bashlin.com       |      |
| 41mm<br>1.6"        | -              | 63mm<br>2.5"  | C<br>T, L            | 2.7-4.5kg<br>6-10lb      | -                  | <input type="checkbox"/>            | -                                   | -             | -               | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | -          | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Price & wt vary with colour strap/pad options. Velcro C pads=3.5lbs<br>Basic L pads=0.5lbs<br>Inc gaff gauge      | bashlin.com       |      |
| 41mm<br>1.6"        | -              | 63mm<br>2.5"  | C<br>T, L            | 2.7-4.5kg<br>6-10lb      | -                  | <input type="checkbox"/>            | -                                   | -             | -               | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | -          | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Price & wt vary with colour strap/pad options. Velcro C pads=3.5lbs<br>Basic L pads=0.5lbs<br>Inc gaff gauge      | bashlin.com       |      |
| 41mm<br>1.6"        | -              | 63mm<br>2.5"  | C<br>T, L            | 2.5-4.3kg<br>5.5-9.5lb   | -                  | <input type="checkbox"/>            | -                                   | -             | -               | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | -          | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Price & wt vary with colour strap/pad options. Velcro C pads=3.5lbs<br>Basic L pads=0.5lbs<br>Inc gaff gauge      | bashlin.com       |      |
| 41mm<br>1.6"        | -              | 63mm<br>2.5"  | C<br>T, L            | 2.5-4.3kg<br>5.5-9.5lb   | -                  | <input type="checkbox"/>            | -                                   | -             | -               | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | -          | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Price & wt vary with colour strap/pad options. Velcro C pads=3.5lbs<br>Basic L pads=0.5lbs<br>Inc gaff gauge      | bashlin.com       |      |
| 41mm<br>1.6"        | -              | 63mm<br>2.5"  | C<br>T, L            | 2.5-4.3kg<br>5.5-9.5lb   | -                  | <input type="checkbox"/>            | -                                   | -             | -               | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | -          | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Price & wt vary with colour strap/pad options. Velcro C pads=3.5lbs<br>Basic L pads=0.5lbs<br>Inc gaff gauge      | bashlin.com       |      |
| 44mm<br>1.75"       | 54mm<br>2.1"   | 62mm<br>2.4"  | C<br>D, L            | 1.45kg<br>3.2lb          | 159kg<br>350 lb    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | -             | -               | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | -          | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | All frames , pads, straps and gaffs are interchangeable between models<br>*Europe                                 | buckinghammfg.com |      |
| 44mm<br>1.75"       | 54mm<br>2.1"   | 62mm<br>2.4"  | D<br>L, C            | 1.86kg<br>4.1lb          | 159kg<br>350lb     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | -             | -               | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | -          | <input type="checkbox"/>            | <input type="checkbox"/>            | All frames , pads, straps and gaffs are interchangeable.<br>GRIP gaffs, see intro for discussion.                 | buckinghammfg.com |      |
| 44mm<br>1.75"       | 54mm<br>2.1"   | 62mm<br>2.4"  | L<br>C D             | 1.3kg<br>2.8lb           | 159kg<br>350lb     | <input type="checkbox"/>            | <input type="checkbox"/>            | -             | -               | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | -          | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | All frames , pads, straps and gaffs are interchangeable between models.<br>*GRIP gaffs, see intro for discussion. | buckinghammfg.com |      |
| 44mm<br>1.75"       | 41mm<br>1.6"   | 71mm<br>2.75" | D<br>L, C            | 1.6kg<br>3.5lb           | 159kg<br>350 lb    | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | -             | -               | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | -          | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | 'SG' in product Code=Safety Green<br>Hi-Viz<br>GRIP gaffs, see intro for discussion.                              | buckinghammfg.com |      |

| <p>images = one of a range of options - NOT to scale.<br/>                     £\$€ = Currency conversion only exc. shipping, duties etc<br/>                     FASTENING: Top Cuff=<input type="checkbox"/><br/>                     Bottom/Foot Strap=<input type="checkbox"/><br/>                     OPTION=<input type="checkbox"/>or<input type="checkbox"/></p> |  | MODEL  | COMPANY    | ORIGIN | COST<br>inc Tax/VAT                     | MATERIAL<br>Frame/Shaft<br>Gaff/Spur    | SHAPE<br>Shaft/<br>Stirrup  | HEIGHT<br>ADJUST<br>Option<br>Increments |
|---|--|--|------------|--------|---|---|-----------------------------|--|
|   |  | <b>BuckLite Twisted Shank-Pole</b><br>TBG94K1VT-BL                                     | BUCKINGHAM |        | £815<br>\$1035<br>€995                  | TITANIUM<br>Steel                       | Twisted<br>Offset           | 16¼-18¾"<br>19¼-21¾"                     |
|   |  | <b>BuckLite Permanent Gaff</b><br>TB81429R<br>TB87479                                  | BUCKINGHAM |        | £745<br>\$940<br>€890<br>\$883          | TITANIUM<br>Steel                       | Profiled<br>Offset          | 16¼-18¾"<br>19¼-21¾"                     |
|   |  | <b>Buck Steel Offset</b><br>SB95059/ SB94089A<br>SB95K2V-BL<br>SBG95089Q2              | BUCKINGHAM |        | £410<br>\$405<br>€375<br>\$737<br>\$577 | STEEL<br>Steel                          | Profiled<br>Offset          | 16¼-18¾"<br>19¼-25¼"                     |
|   |  | <b>Buck Steel Straight Stirrup</b><br>SB93059  | BUCKINGHAM |        | £360<br>\$400<br>€370                   | STEEL<br>Steel                          | Profiled                    | 16¼-18¾"<br>19¼-21¾"                     |
|   |  | <b>Buck Steel Permanent Gaff</b><br>81429R (Tree)<br>87479 (Pole)                      | BUCKINGHAM |        | £310<br>\$390<br>€360<br>\$370          | STEEL<br>Steel                          | Profiled                    | 16¼-18¾"<br>19¼-21¾"                     |
|   |  | <b>Alu Classic*<br/>                     Alu3<br/>                     Alu Comfort</b> | DISTEL     |        | £375<br>\$420<br>€355                   | ALU<br>PTFE-coated<br>Steel             | Slight<br>Profile           | 34.3-47.8cm<br>6mm/¼"                    |
|   |  | <b>Alu Comfort Plus<br/>                     Alu DMM</b>                               | DISTEL     |        | £335<br>\$395<br>€375                   | ALU<br>PTFE-coated<br>Steel             | Slight<br>Profile<br>Offset | 34.3-47.8cm<br>12mm/½"                   |
|   |  | <b>Tree Punk</b>   | Distel     |        | £371<br>£525<br>€375                    | ALU<br>PTFE-coated<br>Steel             | Slight<br>Profile<br>Offset | 34.3-47.8cm<br>12mm/½"                   |
|   |  | <b>Carbon</b>  | DISTEL     |        | £582<br>\$723<br>€700                   | CARBON<br>FIBRE<br>PTFE-coated<br>Steel | Slight<br>Profile<br>Offset | 34-37.8cm<br>6mm/¼"                      |

# CLIMBING SPIKES/SPURS

| GAFF/SPUR<br>Option |                |               | CUFF SHAPE<br>Option | WEIGHT PAIR      | WLL/<br>SWL<br>MBS | FASTENINGS |              |               |                 |                 |                |        |                 |            |              | CUFF PADDING |       | GAFF COVER | STORAGE BAG | OTHER COLOUR                                  |   | NOTES             | WWW. |
|---------------------|----------------|---------------|----------------------|------------------|--------------------|------------|--------------|---------------|-----------------|-----------------|----------------|--------|-----------------|------------|--------------|--------------|-------|------------|-------------|---|---|-------------------|------|
| SHORT               | MED/<br>HYBRID | LONG          |                      |                  |                    | VELCRO     | CLICK BUCKLE | THREAD BUCKLE | LEATHER/EYELETS | PLASTIC/EYELETS | LEATHER/VELCRO | WOOL   | THERMO-FOAM/EVA | MESH LINER | METAL INSERT | CUFF         | FRAME |            |             |   |   |                   |      |
| 44mm<br>1.75"       | 41mm<br>1.6"   | 71mm<br>2.75" | C<br>D, L            | 1.4kg<br>3.1lb   | 159kg<br>350lb     | ■<br>■     | -            | -             | -               | -               | □<br>□         | ■<br>■ | □<br>□          | -          | ■<br>■       | ■<br>■       | -     | -          | -           | -   | All frames , pads, straps and gaffs are interchangeable between models                    | buckinghammfg.com |      |
| 38mm<br>1.5"        | -              | 79mm<br>3.1"  | L<br>C D             | 1kg<br>2.3lb     | 159kg<br>350lb     | -          | -            | -             | -               | ■<br>■          | ■<br>■         | □<br>□ | -               | □<br>□     | □<br>□       | -            | -     | -          | -           | -   | All frames , pads, straps and gaffs are interchangeable between models                    | buckinghammfg.com |      |
| 44mm<br>1.75"       | 41mm<br>1.6"   | 71mm<br>2.75" | C<br>L, D            | 2.2kg<br>4.8lb   | 159kg<br>350lb     | ■<br>□     | -            | -             | -               | -               | □<br>■         | ■<br>■ | □<br>□          | -          | ■<br>■       | ■<br>■       | -     | ■<br>■     | -           | Hi Viz Safety Green option with Big-Buck Pads | buckinghammfg.com   |                   |      |
| 44mm<br>1.75"       | 41mm<br>1.6"   | 71mm<br>2.75" | L<br>C D             | 2.8kg<br>6.2lb   | 159kg<br>350lb     | □<br>□     | -            | -             | -               | -               | ■<br>■         | -      | □<br>□          | -          | □<br>□       | □<br>□       | -     | -          | -           | -   | All frames , pads, straps and gaffs are interchangeable between models. 23 deg gaff angle | buckinghammfg.com |      |
| 40mm<br>1.6"        | -              | 78mm<br>3.1"  | L<br>C D             | 2.8kg<br>6.2lb   | 159kg<br>350lb     | □<br>□     | -            | -             | -               | -               | ■<br>■         | ■<br>■ | □<br>□          | -          | □<br>□       | □<br>□       | -     | -          | -           | -   | All frames , pads & straps are interchangeable between models                             | buckinghammfg.com |      |
| 31mm<br>1.2"        | 40mm<br>1.6"   | 47mm<br>1.85" | FibreGlass<br>Q      | 2.04kg<br>4.5lb  | 330kg              | ■<br>□     | □<br>□       | -             | -               | -               | ■<br>■         | -      | ■<br>■          | -          | -            | -            | -     | -          | -           | -   | *Alu Classic has been DISCONTINUED<br>*Weaver straps                                      | distelforst.de    |      |
| 31mm<br>1.2"        | 40mm<br>1.6"   | 47mm<br>1.85" | FibreGlass<br>Q      | 2.08kg<br>4.6lb  | 330kg              | ■<br>■     | □<br>□       | -             | -               | -               | □<br>□         | -      | ■<br>■          | -          | -            | -            | -     | -          | ■<br>■      | -   | Vibram rubber on underside of stirrup.<br>*Weaver straps                                  | distelforst.de    |      |
| 31mm<br>1.2"        | -              | 47mm<br>1.85" | FibreGlass<br>Q      | 2.08kg<br>4.6lb  | 330kg              | ■<br>■     | -            | -             | -               | ■<br>■          | □<br>□         | -      | ■<br>■          | -          | -            | -            | -     | -          | ■<br>■      | -   | Vibram rubber on underside of stirrup.<br>*Weaver straps                                  | distelforst.de    |      |
| 31mm<br>1.2"        | 40mm<br>1.6"   | 47mm<br>1.85" | Plastic<br>Q         | 1.66kg<br>3.6 lb | 330kg              | ■<br>■     | □<br>□       | -             | -               | -               | □<br>□         | -      | ■<br>■          | -          | -            | -            | -     | -          | -           | -   | Vibram rubber on underside of stirrup.<br>*Weaver straps                                  | distelforst.de    |      |

images = one of a range of options - NOT to scale.  
 £€ = Currency conversion only exc. shipping, duties etc  
 FASTENING: Top Cuff=  Bottom/Foot Strap=  OPTION=  or

|   | MODEL  | COMPANY                       | ORIGIN   | COST<br>inc Tax/VAT     | MATERIAL<br>Frame/Shaft<br>Gaff/Spur  | SHAPE<br>Shaft/<br>Stirrup | HEIGHT<br>ADJUST<br>Option<br>Increments |
|---|--|-------------------------------|--|-------------------------|---------------------------------------|----------------------------|--|
|    | Talon  | EDELRID                       |    | £375<br>\$625<br>€400   | powder-coated<br>STEEL<br>Steel       | Profiled<br>Offset         | 35.5-45.7cm<br>14-18"<br>5mm /¼"         |
|    | Sting & Stay                                   | FTC TREE                      |    | £260<br>\$315<br>€300   | STAINLESS STEEL<br>Stainless<br>Steel | Profiled                   | S-15.5"<br>L=16.5"<br>none               |
|    | Klik 'N Ka                                     | FTC TREE                      |    | £475<br>\$605<br>€520   | ALU<br>Stainless<br>Steel             | Profiled                   | 42-48cm<br>16.8-19.2"<br>12mm/½"         |
|    | Griffe 1                                       | HONEYWELL<br>MILLER/<br>KOMET |    | £255<br>\$315<br>€300   | ALU<br>Stainless<br>Steel             | Profiled                   | ?  |
|   | 1014991  | HONEYWELL<br>MILLER/<br>KOMET |  | £555<br>\$685<br>€650   | ALU<br>Stainless<br>Steel             | Profiled<br>Offset         | <input checked="" type="checkbox"/> 3    |
|   | Axess/Axis<br>1014990                          | HONEYWELL<br>MILLER/<br>ANTEC |  | £565<br>\$690 €662      | ALU<br>Stainless<br>Steel             | Profiled<br>Offset         | NO                                       |
|  | Twin Spikes<br>3139/1/2<br>Articulated<br>3358 | HONEYWELL<br>MILLER/<br>ANTEC |  | £412 €392<br>\$480 €457 | ALU<br>Steel<br>Twin Steel            | Profiled<br>articulated    | <input checked="" type="checkbox"/> 2    |

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# CLIMBING SPIKES/SPURS

| GAFF/SPUR<br>Option |                |               | CUFF SHAPE<br>Option | WEIGHT<br>PAIR | WLL/<br>SWL<br>MBS | FASTENINGS |                 |                  |                 |                     |                       |                     | CUFF PADDING |              |               |                |      | OTHER<br>COLOUR  | NOTES             | WWW. |
|---------------------|----------------|---------------|----------------------|----------------|--------------------|------------|-----------------|------------------|-----------------|---------------------|-----------------------|---------------------|--------------|--------------|---------------|----------------|------|--|-------------------|------|
| SHORT               | MED/<br>HYBRID | LONG          |                      |                |                    | VELCRO     | CLICK<br>BUCKLE | THREAD<br>BUCKLE | LEATHER/EYELETS | PLASTIC/<br>EYELETS | LEATHER/VELT/<br>WOOL | THERMO-<br>FOAM/EVA | MESH LINER   | METAL INSERT | GAFF<br>COVER | STORAGE<br>BAG | CUFF |  |                   |      |
| 43mm<br>1.7"        | -              | 70mm<br>2.75" | Plastic<br>D         | 2.5kg<br>5.5lb | -                  | ■          | -               | -                | -               | -                   | -                     | -                   | -            | -            | -             | -              | -    | Plastic is recycled rope scraps  | edelrid.de        |      |
| -                   | 50mm<br>2"     | -             | Leather<br>T         | 3kg<br>6.6lb   | -                  | ■          | -               | -                | ■               | -                   | ■                     | -                   | ■            | -            | □             | -              | -    | 2 sizes available for < or > than 1.75m height. Has instep spikes                      | ftc-tree.com      |      |
| -                   | 50mm<br>2"     | -             | FibreGlass<br>Q      | 1.8kg<br>4lb   | -                  | -          | ■               | -                | -               | -                   | ■                     | -                   | -            | □            | -             | -              | -    | New for 2024   | ftc-tree.com      |      |
| 40mm<br>1.6"        | -              | -             | Leather<br>T         | 2.4kg<br>5.3lb | -                  | -          | -               | -                | □               | ■*                  | □                     | ■*                  | -            | ■            | -             | ■              | -    | *Image shows Cam-'buckles' on calf and foot straps                                     | sps.honeywell.com |      |
| 40mm<br>1.6"        | -              | ■             | Leather<br>D         | N/A            | -                  | -          | -               | -                | ■               | □                   | ■                     | ■                   | -            | ■            | -             | -              | -    | Miller Komet now owned by Honeywell. Good luck finding spikes on the Honeywell website | sps.honeywell.com |      |
| 40mm<br>1.6"        | -              | -             | ABS<br>D             | 2.6kg<br>5.8lb | -                  | ■          | -               | -                | ■               | -                   | ■                     | -                   | ■            | □            | -             | -              | -    |  | sps.honeywell.com |      |
| -                   | -              | -             | Cordura<br>C         | 3.2kg<br>7 lb  | -                  | -          | -               | -                | □               | ■*                  | □                     | ■*                  | -            | ■            | -             | -              | -    | *Cam-'buckles' on calf & foot straps. May be discontinued but still being sold.        | sps.honeywell.com |      |

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 Bottom/Foot Strap=   
 OPTION=  or

|   | MODEL  | COMPANY     | ORIGIN   | COST<br>inc Tax/VAT               | MATERIAL<br>Frame/Shaft<br>Gaff/Spur | SHAPE<br>Shaft/<br>Stirrup  | HEIGHT<br>ADJUST<br>Option<br>Increments           |
|---|--|-------------|--|-----------------------------------|--------------------------------------|-----------------------------|--|
|    | FOR33<br>101603700006                        | IRUDEK      |    |                                   | ALU<br>Steel                         | Straight<br>Straight        | Fixed <b>TBA</b>                                   |
|     | K2   | KIWIKLIMBER |    | £430/475<br>\$540/599<br>€586/536 | CARBON-FIBRE<br>Titanium*            | Profiled                    | 34.3-47.8cm<br>6mm/¼"                              |
|    | Klein-Claw &<br>Hydra-Cool<br>2214..variants | KLEIN TOOLS |    | £425<br>\$330<br>€305             | STEEL<br>Steel                       | Profiled                    | 38-48cm<br>15-19"<br>43-53cm<br>17-21"<br>6mm/¼"   |
|    | 1907..variants                               | KLEIN TOOLS |    | £320<br>\$300<br>€270             | STEEL<br>Steel                       | Slight<br>Profile           | 38-48cm 15-<br>19"<br>43-53cm 17-<br>21"<br>6mm/¼" |
|   | 1972..variants                               | KLEIN TOOLS |  | £300<br>\$280<br>€255             | STEEL<br>Steel                       | Slight<br>Profile           | 38-48cm<br>15-19"<br>43-53cm<br>17-21"<br>6mm/¼"   |
|   | 1986..variants                               | KLEIN TOOLS |  | £301<br>\$270<br>€250             | STEEL<br>Steel                       | Slight<br>Profile           | 38-48cm<br>15-19"<br>43-53cm<br>17-21"<br>6mm/¼"   |
|  | Carbon Fiber                                 | NOTCH GECKO |  | £642<br>\$850<br>€761             | CARBON<br>FIBER<br>Steel             | Slight<br>Profile<br>Offset | 37.5-53cm<br>14¾-21"<br>6mm/¼"                     |
|   | Carbon Fiber<br>2.0                          | NOTCH GECKO |  | £750<br>\$950<br>€850             | CARBON<br>FIBER<br>Steel             | Slight<br>Profile<br>Offset | 37.5-53cm<br>14¾-21"<br>6mm/¼"                     |
|  | Aluminium 2.0<br>DMM*                        | NOTCH GECKO |  | £435<br>\$550<br>€492             | ALU<br>Steel                         | Profiled                    | 37.5-53cm<br>14¾-21"<br>6mm/¼"                     |
|   | Steel  | NOTCH GECKO |  | £276<br>\$350<br>€313             | powder-<br>coated<br>STEEL<br>Steel  | Profiled<br>Offset          | 37.5-53cm<br>14¾-21"<br>6mm/¼"                     |

# CLIMBING SPIKES/SPURS

| GAFF/SPUR<br>Option |                |               | CUFF SHAPE<br>Option | WEIGHT<br>PAIR | WLL/<br>SWL<br>MBS | FASTENINGS |              |               |                 |                 |                |      |                 | CUFF PADDING |              |      |       | GAFF COVER | STORAGE BAG | OTHER COLOUR |  | NOTES              | WWW. |
|---------------------|----------------|---------------|----------------------|----------------|--------------------|------------|--------------|---------------|-----------------|-----------------|----------------|------|-----------------|--------------|--------------|------|-------|------------|-------------|--------------|--|--------------------|------|
| SHORT               | MED/<br>HYBRID | LONG          |                      |                |                    | VELCRO     | CLICK BUCKLE | THREAD BUCKLE | LEATHER/EYELETS | PLASTIC/EYELETS | LEATHER/VELCRO | WOOL | THERMO-FOAM/EVA | MESH LINER   | METAL INSERT | CUFF | FRAME |            |             |              |  |                    |      |
| TBA                 | TBA            | TBA           | Leather L            | 3.8kg<br>8.4lb | TBA                | -          | -            | -             | ■               | ■               | -              | -    | -               | -            | -            | -    | -     | -          | -           | -            | New for 2024   | irudek.com         |      |
| 48mm<br>1.8"        | -              | 60mm<br>2.3"  | FibreGlass Q         | 2kg<br>4.4lb   | 95kg<br>210lb      | ■          | □            | -             | -               | -               | -              | -    | ■               | -            | -            | □    | □     | *          | -           | -            | *Titanium gaffs lightest on the mkt<br>Cost \$159<br>MBS 700-1600kg<br>*+Custom graphics | kiwiklimbers.com   |      |
| 38mm<br>1.5"        | 40mm<br>1.6"   | 70mm<br>2.75" | Leather C            | 3.9kg<br>8.6lb | 136kg<br>300lb     | ■          | -            | -             | -               | ■               | ■              | ■    | -               | -            | □            | -    | -     | -          | -           | -            | Hydra-Cool pads. All frames, pads, straps and gaffs are interchangeable between models   | kleintools.com     |      |
| 38mm<br>1.5"        | 40mm<br>1.6"   | 70mm<br>2.75" | Leather D<br>C, L    | 3.5kg<br>7.7lb | 136kg<br>300lb     | ■          | □            | -             | □*              | ■               | ■              | -    | ■               | -            | □            | -    | -     | -          | -           | -            | *Weaver leather All frames, pads, straps and gaffs are interchangeable between models    | kleintools.com     |      |
| 38mm<br>1.5"        | 40mm<br>1.6"   | 70mm<br>2.75" | Leather C, L         | 2.7kg<br>6lb   | 136kg<br>300lb     | -          | -            | -             | -               | ■               | ■              | -    | -               | -            | □            | -    | -     | -          | -           | -            | All frames, pads, straps and gaffs are interchangeable between models                    | kleintools.com     |      |
| 39mm<br>1.6"        | 40mm<br>1.6"   | 70mm<br>2.75" | Leather C, L         | 2.7kg<br>6lb   | 136kg<br>300lb     | -          | -            | -             | -               | ■               | ■              | -    | -               | -            | □            | -    | -     | -          | -           | -            | All frames, pads, straps and gaffs are interchangeable between models                    | kleintools.com     |      |
| 43mm<br>1.7"        | -              | 63mm<br>2.5"  | Fiber-Glass Q        | 2kg<br>4.4lb   | 159kg<br>350lb     | ■          | □            | ■             | -               | -               | -              | ■    | ■               | -            | -            | □    | □     | -          | -           | -            | ASTM F887  | notchequipment.com |      |
| 47mm<br>1.86"       | -              | 63mm<br>2.5"  | Fiber-Glass Q        | 2.1kg<br>4.7lb | 159kg<br>350lb     | ■          | □            | ■             | -               | -               | -              | ■    | ■               | -            | -            | □    | □     | -          | -           | -            | ASTM F887  | notchequipment.com |      |
| 43mm<br>1.75"       | -              | 63mm<br>2.5"  | Fiber-Glass Q        | 2.4kg<br>5.3lb | 159kg<br>350lb     | ■          | □            | -             | ■               | -               | ■              | ■    | -               | -            | □            | □    | -     | -          | -           | -            | ASTM F887<br>*DMM forged shaft version discontinued                                      | notchequipment.com |      |
| 43mm<br>1.75"       | -              | 63mm<br>2.5"  | Fiber-Glass Q        | 2.7kg<br>5.9lb | 159kg<br>350lb     | ■          | □            | -             | ■               | -               | ■              | ■    | -               | -            | □            | □    | -     | -          | -           | -            | ASTM F887  | notchequipment.com |      |

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 FASTENING: Top Cuff=   
 Bottom/Foot Strap=   
 OPTION=  or

| MODEL   | COMPANY | ORIGIN   | COST<br>inc Tax/VAT                        | MATERIAL<br>Frame/Shaft<br>Gaff/Spur | SHAPE<br>Shaft/<br>Stirrup | HEIGHT<br>ADJUST<br>Option<br>Increments |
|---|---------|--|--|--------------------------------------|----------------------------|--|
|  Ergo Steel                          | NOTCH   |    | £276<br>\$360<br>€322                      | powder-coated<br>STEEL<br>Steel      | Profiled<br>Offset         | 4.5"<br>18 x 6mm/ ¼"                     |
|  Panther Spikes                      | PANTHER |    | £288<br>\$375*<br>€305                     | ALU<br>AlloySteel                    | Profiled                   | 41-47cm<br>16-18½"<br>20mm/ ¾"           |
|  Panther Spikes                      | PANTHER |    | £420<br>\$474<br>€451                      | CARBON<br>FIBRE<br>AlloySteel        | Profiled                   | 41-47cm<br>16-18.5"<br>20mm/ ¾"          |
|  TREEUP<br>Iron Spikes<br>DR100     | PROTEKT |  | £160<br>\$205<br>€185                      | powder-coated<br>STEEL<br>Steel      | Profiled                   | 33-48cm<br>13-19"                        |
|  TREEUP<br>DR1/DR4<br>SP501/SP504   | PROTEKT |  | £205<br>\$255<br>€235                      | powder-coated<br>STEEL<br>Steel      | Profiled<br>offset         | 45cm<br>NO                               |
|  TREEUP<br>DR2/DR3<br>SP505/SP506  | PROTEKT |  | £230<br>\$290<br>€265                      | powder-coated<br>STEEL<br>Steel      | Profiled                   | 45cm<br>■7                               |
|  TREEUP<br>DR2A/DR3A<br>SP502/SP503 | PROTEKT |  | £265<br>\$335<br>€305                      | ALU<br>Steel                         | Slight<br>Profile          | 45cm<br>■7                               |
|  TREEUP<br>DR3A<br>SP503           | PROTEKT |  | £265<br>\$340<br>€310                      | ALU<br>Steel                         | Slight<br>Profile          | ■7                                       |
|  Climb Right<br>Ultra-Lite<br>91225 | SPYDER  |  | £225-270<br>\$286-340<br>€265-315<br>\$417 | ALU<br>Steel                         | Straight<br>offset         | 40-47.6cm<br>15.75- 18.75"               |

# CLIMBING SPIKES/SPURS

| GAFF/SPUR<br>Option |                |              | CUFF SHAPE<br>Option | WEIGHT PAIR       | WLL/<br>SWL<br>MBS | FASTENINGS |              |               |                 |                 |                   |                 |            |              |      | CUFF PADDING |      | GAFF COVER | STORAGE BAG                        | OTHER COLOUR   |                    | NOTES | WWW. |
|---------------------|----------------|--------------|----------------------|-------------------|--------------------|------------|--------------|---------------|-----------------|-----------------|-------------------|-----------------|------------|--------------|------|--------------|------|------------|------------------------------------|--|--------------------|-------|------|
| SHORT               | MED/<br>HYBRID | LONG         |                      |                   |                    | VELCRO     | CLICK BUCKLE | THREAD BUCKLE | LEATHER/EYELETS | PLASTIC/EYELETS | LEATHER/FEEL/WOOL | THERMO-FOAM/EVA | MESH LINER | METAL INSERT | CUFF | FRAME        | CUFF |            |                                    | FRAME  |                    |       |      |
| 43mm<br>1.75"       | -              | 63mm<br>2.5" | HDPE<br>Q            | 2.9kg<br>6.4lb    | 159kg<br>350lb     | ■          | -            | 2x ■          | -               | -               | -                 | ■               | -          | -            | -    | □            | □    |            |                                    | NEW for 2024 ASTM F887 Redesigned cuff and shaft for better alignment and comfort. Grip pad under stirrup. Dual foot strap | notchequipment.com |       |      |
| 43mm<br>1.7"        | 53mm<br>2"     | 63mm<br>2.5" | Fiber-Glass<br>Q     | 2.1kg<br>4.6 lb   | 150kg<br>330lb     | ■          | -            | -             | □               | □               | ■                 | -               | □          | -            | ■    | □            |      | ■          | *Sold as RC1 Climbers by Rock'nArb | pantherspikes.com  |                    |       |      |
| 43mm<br>1.7"        | 53mm<br>2"     | 63mm<br>2.5" | Fiber-Glass<br>Q     | 1.67kg<br>3.67 lb | 150kg<br>330lb     | ■          | -            | -             | □               | □               | ■                 | -               | □          | -            | ■    | □            |      | ■          | 35-48cm calf                       | pantherspikes.com  |                    |       |      |
|                     |                |              |                      |                   |                    |            |              |               |                 |                 |                   |                 |            |              |      |              |      |            |                                    | Expansion Row  |                    |       |      |
| 40mm<br>1.6"        | -              | 60mm<br>2.3" | Plastic<br>D         | 3.16kg<br>7lb     | -                  | ■          | -            | -             | -               | -               | ■                 | -               | -          | -            | □    | ■            |      | ■          |                                    |  | protekt.pl         |       |      |
| 40mm<br>1.6"        | -              | 60mm<br>2.3" | Leather<br>L<br>C    | 3.88kg<br>8.5lb   | -                  | -          | -            | -             | -               | ■               | ■                 | -               | ■          | -            | □    | □            |      |            |                                    | All frames , pads, straps and gaffs fit all models. Comes with Short & Long gaffs  | protekt.pl         |       |      |
| 40mm<br>1.6"        | -              | 60mm<br>2.3" | Leather<br>L<br>C    | 3.85kg<br>8.5lb   | -                  | -          | -            | -             | -               | ■               | ■                 | -               | ■          | -            | □    | □            |      |            |                                    | All frames , pads, straps and gaffs fit all models. Comes with Short & Long gaffs  | protekt.pl         |       |      |
| 40mm<br>1.6"        | -              | 60mm<br>2.3" | Leather<br>L         | 2.56kg<br>5.6lb   | -                  | -          | -            | -             | -               | ■               | ■                 | -               | ■          | -            | □    | □            |      |            |                                    | All frames , pads, straps and gaffs fit all models. Comes with Short & Long gaffs  | protekt.pl         |       |      |
| 40mm<br>1.6"        | -              | 60mm<br>2.3" | Leather<br>C         | 2.76kg<br>6lb     | -                  | -          | -            | -             | -               | ■               | ■                 | -               | ■          | -            | □    | □            |      |            |                                    | All frames , pads, straps and gaffs fit all models. Comes with Short & Long gaffs  | protekt.pl         |       |      |
| 40mm<br>1.6"        | -              | 67mm<br>2.6" | Alu<br>C<br>L, D     | 2.2kg<br>4.9lb    | <160kg<br><350lb   | ■          | -            | -             | -               | ■               | ■                 | □               | □          | -            | □    | -            |      |            |                                    | Textured base to stirrup   | spyderman.com      |       |      |

| images = one of a range of options - NOT to scale.<br>£€ = Currency conversion only exc. shipping, duties etc<br>FASTENING: Top Cuff= <input type="checkbox"/><br>Bottom/Foot Strap= <input type="checkbox"/><br>OPTION= <input type="checkbox"/> or <input type="checkbox"/> |                    | MODEL                 | COMPANY | ORIGIN                        | COST<br>inc Tax/VAT | MATERIAL<br>Frame/Shaft<br>Gaff/Spur | SHAPE<br>Shaft/<br>Stirrup             | HEIGHT<br>ADJUST<br>Option<br>Increments |
|---|--------------------|-----------------------|---------|-------------------------------|---------------------|--------------------------------------|--|--|
|   | Elevate            | STEIN                 |         | £385<br>\$500<br>€470         | ALU<br>Steel        | 5° Offset                            | 37.5-53cm<br>14¾"-21"<br>6mm/ ¼"       |  |
|   | X2                 | STEIN                 |         | £323<br>\$480<br>€445         | ALU<br>Steel        | Straight                             | <input type="checkbox"/><br>x7         |  |
|   | TH1000             | TREEHOG/<br>ARBOTEC   |         | £240<br>\$310<br>€295         | STEEL<br>Steel      | Slight<br>Profile                    | 45cm<br>NO                             |  |
|   | TH1005<br>TH1003   | TREEHOG/<br>ARBOTEC   |         | £360<br>\$415<br>€380<br>£354 | ALU<br>Steel        | Slight<br>Profile                    | 45cm<br><input type="checkbox"/><br>x7 |  |
|   | Alu Plus<br>71-284 | TREERUNNER<br>(GRUBE) |         | £421<br>\$553<br>€500         | ALU<br>STEEL        | Slight Pro-<br>file & Twist          | 37-47cm                                |  |

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# CLIMBING SPIKES/SPURS

| GAFF/SPUR<br>Option |                |              | CUFF SHAPE<br>Option            | WEIGHT PAIR                | WLL/<br>SWL<br>MBS | FASTENINGS |              |               |                 |                 |                       |                 |            | CUFF PADDING |      | GAFF COVER | STORAGE BAG | OTHER COLOUR |  | NOTES              | WWW. |
|---------------------|----------------|--------------|---------------------------------|----------------------------|--------------------|------------|--------------|---------------|-----------------|-----------------|-----------------------|-----------------|------------|--------------|------|------------|-------------|--------------|--|--------------------|------|
| SHORT               | MED/<br>HYBRID | LONG         |                                 |                            |                    | VELCRO     | CLICK BUCKLE | THREAD BUCKLE | LEATHER/EYELETS | PLASTIC/EYELETS | LEATHER/VELT/<br>WOOL | THERMO-FOAM/EVA | MESH LINER | METAL INSERT | CUFF |            |             | FRAME        |  |                    |      |
| 43mm<br>1.7"        | -              | 63mm<br>2.5" | Fiber-Glass<br>Q                | 2.4kg<br>5.3lb             | 159kg<br>350lb     | ■<br>□     | □            | -             | ■               | -               | ■                     | ■               | -          | -            | □    | □          | ■           |              |  | steinworldwide.com |      |
| 43mm<br>1.7"        | -              | 67mm<br>2.6" | Leather<br>Alu<br>C             | 2.2kg<br>4.8lb             | 125kg<br>275lb     | ■          | -            | -             | -               | ■               | -                     | ■               | -          | -            | ■    | ■          | ■           |              | Grip surfaces on underside of stirrups | steinworldwide.com |      |
| 40mm<br>1.6"        | -              | 60mm<br>2.3" | Leather<br>L                    | 3.88kg<br>8.5lb            | -                  | -          | -            | -             | □<br>■          | ■               | ■                     | -               | ■          | -            | □    | □          |             |              | comes with 2 sets of gaffs             | treehog.co.uk      |      |
| 40mm<br>1.6"        | -              | 60mm<br>2.3" | Leather<br>C<br>L               | 2.56-<br>2.76kg<br>5.6-6lb | -                  | -          | -            | -             | ■<br>■          | -               | ■                     | -               | -          | ■            | □    | □          |             |              | comes with 2 sets of gaffs             | treehog.co.uk      |      |
| 40mm<br>1.6"        | -              | 60mm<br>2.3" | Leather/<br>GRP<br>Plastic<br>T | 2.28kg<br>5lb              | -                  | -          | -            | -             | ■<br>■*         | -               | ■                     | -               | -          | ■            | □    | □          |             |              | *Weaver leather                        | grube.eu           |      |



**UPDATED** Aug '24

# ROPE/GEAR BAGS TRANSPORT & ORGANISERS PACKS

The first part of this guide covers and bags over 30 liters which more 'complex' transport or organiser packs followed by less complex but larger duffles. Both are designed to house your entire day's climbing kit. Organisers have easier access to the kit and with more pockets, Molle/attachment eyes, mesh and clear pouches etc. on the inside and outside while duffles mostly have some organisation outside and a cavernous but less well organised interior. Regular rope/tackle bags and buckets follow on with more simplified data but some, like the *Arbortec Cobra* bag far right are more of a really well-endowed rope bag than a true organiser so all of these bucket-style bags, even though quite complex are in the **ROPE/GEAR BAGS** section. For many more bags from access, rescue and climbing which can all cross over into arb, see the **ROPE EQPT BUYERSGUIDE**. There will also be separate guides for **THROWLINE BAGS/BOXES** in this **BUYERSGUIDE** but check out Palmu's squarerope bag which looks like a throwline cube but is a full strength rope bag. **TRAUMA PACKS** are in the **MEDEVAC/PPE BUYERSGUIDE** and watertight **WATER RESCUE BAGS** ARE in the **WATERRESCUEBUYERSGUIDE**. This introduction and the KEY to the tables covers *all* organiser bags. A separate KEY to Duffles and basic rope/gear bags with fewer data rows is on pages **368 & 372**.

**R**ope bags have been around as canvas 'buckets' and bags since humans first took to the sea but in the modern era we have cavers to thank for the original hard-wearing, water and mud resistant tackle bags. They were usually in bright yellow, blue or red PVC in Europe or blue and orange Cordura in North America, with a draw-cord closure and single 25mm/1" shoulder strap or two if you were posh and could afford a longer rope. This is pretty much the template for bags even now, some 50 or so years on. PVC and Cordura are still common fabrics, yellow is still a thing and a simple web shoulder strap or straps are also just as functional today as they always were. Cavers rarely looked at anything more sophisticated because it meant more to get wet and dirty, more to snag and too large for a tight squeeze. So it was climbers and



rescuers who took bags to the next level.

Mountaineers were using rucksacks all along of course and these large, carry-all products naturally organised your kit pretty well with exterior pockets and interior compartments so the obvious thing for rope-heavy activities that weren't restricted by tiny cave entrances was to marry the rope/tackle bag with a rucksack and have a tackle bag with shoulder straps, hauling eyes and with an array of pockets, pouches and loops. This would allow you to organise all your carabiners/hardware and software around your well-stowed rope and harness. Even more sophisticated was the rescue industry's further development of these bags into larger (team) packs and allow them to open fully to be laid out on the ground so that you could see everything clearly and work quickly rather than arriving on scene and tipping out whole piles of kit to find the one item you needed.

We first moved up from simple tackle bags using *CMC's Heavy Rescue Organiser* which they still make (pic above). This is a kind of saddle bag that has a stiff top with a handle from which two sets of pockets hang down on each side and the whole assembly is strapped to a regular rope bag which provides the shoulder straps for back-carry. On arrival you simply disengage your rope bag with your organiser pockets sat next to it like a collapsed calf. We're not sure of the exact evolution but we



began seeing (and using) rock-climbing bags with a pull out ground tarpaulin as an ad-hoc organiser of sorts because it allowed us to tip out our kit more safely and cleanly and quickly organise the necessary equipment groups so that anyone could see what was what. Not long after that the true, afore-mentioned transport/organiser packs appeared that had all your kit already clipped into eyes and daisy chains - inside and outside - and arranged into pockets, see-through and semi-see-through mesh pockets and you simply arrived on scene, unzipped or unbuckled the entire bag and laid it in some kind of crucifix shape on the ground. And that's pretty much how things remained for the next twenty or thirty years. Loads of great bags but all a variation on the same themes. Lyon's pack on p364 is a 'roll' rather than bag intended for rescue, but trust me it's an excellent arb organiser as well. The Lotus opposite is CMC's most recent incarnation of their excellent bags that have been market leaders since the seventies. Daisy chains and Molle style individual attachments adorn all organiser bags and CAMP's SpaceStation (right) uses dozens of eyelets around the frame of the case. Above that is CMC's RigTech interior with two rows of eyes along the base and velcro sealed pouches around the side walls. Sweden's Palmu has introduced this square rope bag with carry straps and 18 eyes on the outside.



## TRANSPORT PACKS

right but the most complex organisers, in a lay-flat or cabinet configuration are still produced by the old guard like CMC in the US, Courant in France and CAMP and Kong in Italy. As long established rope bag producers they now have virtually every climbing/arb producer in the world to compete with because bags are relatively easy to make and don't have quite the same safety and standards concerns as most other access-related equipment. Many of the established rope rescue and rope access manufacturers are now well known to arborists but one overt mountaineering/sport company, Mont-Bell from Switzerland also produce a very odd diversion from their regular market - the Logger frameright which is a tough aluminium frame housing an organiser bag at the bottom and either a large gear bag on top or a chainsaw storage system for a large ground saw, fuel, tools and subsistence supplies. This is obviously aimed more at forestry but there will be many an arborist who could make use of this kind of system. We see these a lot in WILDERNESS



See-through pockets in mesh or plastic are again a feature of most some back systems. like the Lotus, are as good as any long-range expedition pack. Load bearing (hauling/carrying) handles/eyes are clearly marked in red on this one.

SAR magazine because they are the domain of wildland firefighting and we will begin to bring across some more of these to this guide because they may well be of interest to arborists who work more remotely.



Rope access became a much bigger market than rescue and so was able to drive production of a wider range of products than we might otherwise have had but it was the adoption of technical hardware and 'SRT' techniques in the arb industry that kick-started a whole new drive to produce rope/tackle bags, duffles and organisers for a burgeoning and willing market.

Some companies like Silver Bull have based their entire company on bag production and carved out a great niche in the arb industry as a name you can trust because that is literally all that they make. Their Climber 'Day' bag above highlights one of the unique features of arb bags compared to access and rescue bags - saw pouches. These are open-top outside pouches to house long-bladed pruning saws and in some cases like the ArbPro Transporter, a pouch and straps to secure your climbing spikes. Others have diversified more recently into bags from their main specialisations like Teufelberger who have bags that are clearly related to their innovations with the Tree Motion harness like the bucket (pic right). This uses a base material that has hundreds of holes and shapes cut-out to accommodate carabiners, cord and loops meaning you have infinite attachment options. Despite their organisational capabilities these are mostly smaller volumes and listed in the Rope Bag section.



Teufelberger's Mule packs (pic right-this one has the additional Gear Mule attached to the front) embraces gear organisation from a mostly external perspective with no less than 81 external attachment points and a virtually clear inside space - this one has a serious back-carrying system but also has a wheeled version called the Lazy Mule and you presumably used the roll-top closure as a kind of pull-handle though that would seem to be a little more cumbersome than the extendible handle you get on most wheeled luggage? This would otherwise be more like a duffel and duffles (or duffles) are the most common transport format, not least because a duffles and bags from just about any work or sport sector works in the same way and could be used by arborists. Most have some organising features like Koompasia's helmet pouch-



Many bags have a drain hole in the bottom to let out water that can accumulate on your rope after a day of working in the wet. We used to use these as a tie-off hole for our ropes with a double fisherman's tied as a barrel termination. Frowned upon now as not only blocking the drainage hole but also exposing the knot to loads of abuse - can't say we were ever affected by either concern, we were more worried about losing our bag and marking the end of the rope with that bag should an incident push the limits of our bagged rope lengths (ie. we're about to ab off of the end!) Unlike tree work, it's not always so easy to judge distances on a long-drop, in the dark and doing it in a rush and on the fly so to speak!. There have always been drawstring lidded bags that could deploy rope through their rectal-style opening but some models have a sealable hole in the lid to allow rope deployment but keep water out when not in use.

Something overlooked by most bags including the organisers in this guide, is the incorporation of a pocket with a range of pen-style pouches for chainsaw tools, screwdrivers, sharpeners etc. like these on the *West Coast Climbers Pro Gear Bag 70L*. This would work well as a lid-organiser easily accessible without having to open the whole pack. The cabinet-style approach is exemplified by *Silver Bull's Mulituse* which can be suspended as if it were a cupboard (with inclined shelves to stop roll-out) and *Buckingham's BuckPack Pro* (right) which is a stand-up backpack with compartments that unzip to clearly show what's inside. This pack demonstrates quite a few nifty features that can be found spread around the other bags in our guides. Kevlar reinforcement of the bottom and side pouches allows climbing spikes to be safely stored and these clip to their own little hooks. The top compartment is for your helmet or your sandwiches or whatever else you want to get to quickly. The middle compartment can be configured as a dry-box to keep your warm clothing separated from a wet rope and this can accept an add-on 'Garage' which is a detachable Molle board with pouches to better store and present your hardware. This adds around \$65 to the base cost of \$415 making this one of the more expensive on the market but also the most complex. On the right you can see how the rucksack straps can be stowed out of snags way and immediately behind this padded back panel is another slim pocket to house a laptop or similar, delicate electronics. The latest addition to this genre is Arbession's GearTote+ which also has a couple of nifty features we don't yet see in others - the outside has specialist storage for two throwline cubes because they're the first bit of kit you need. The top pouch acts as a standalone rope bag for 75' of r 1/2" rope or a pre-rig



system so you can grab that without taking the whole pack.

Finally, we should mention the **WHEELED PACKS**. We mentioned *Tuefelberger's Lazy Mule* earlier with low-profile, luggage-style wheels common to many mass-market bags. On the left, *Singing Rock's Movement* show's the familiar extendible handle on a duffel-style pack. Then there is the cart-style.

This may have originated with freshwater anglers in Europe who have, for decades, moved their mountains of kit from car to lake as a stack of boxes/cases/bags on light alloy trolleys. Some like the afore mentioned *Mule* and the *Big Backpack* add optional integral wheels to an existing design but others, like this *ArbPro Rolly* are used with an optional *Eckla*-style trolley if you intend to move it off the truck! It is a partitioned 'cabinet' with a large rope bag in the top shelf and smaller tackle bags in the bottom. in fact the shelf even comes out to provide a firm, clean work surface. Hardware is housed in a detachable case sat on the top. The large 'box' can accommodate much longer pole equipment like pole-saws and line-launchers nestled into pouches on the side and secured with straps. The majority of arborists are working within a few hundred yards of their vehicles so this cart approach is the definition of taking the weight off...



**IN THE FOLLOWING TABLES:**.....

A large, modern transport pack is quite sophisticated with a whole load of different features that are not always apparent from simply looking at it.

**COST:** Approximate. Includes local taxes but can vary due to exchange rates, other taxes etc. We generally round up the cost to the nearest Pound£, US Dollar\$ or Euro€ **Simple currency conversions are shown in orange** for reference - they are lower than the actual price because it does not take into account import duty, shipping or tax.

**ORIGIN:** Is the country of the company selling the item, not necessarily the same as the origin of the product itself which is shown as an inset flag where we know.

**STYLE/FUNCTION:** The bags in this guide can be defined as one or two of the following

- **BUCKET/ROPE BAG** - an upright, top-feeder that holds its shape to allow rope to be fed in or out.
- **BACKPACK:** two shoulder straps and maybe a waist belt but either way- carried on the back giving both hands free to carry even more stuff. Often a combo with a rope bucket.
- **DUFFLE/DUFFEL:** a horizontally carried bag with handles on the top. May also has hidden rucksack straps in the base to convert to vertical orientation.
- **TRANSPORTER:** a multi-compartmented pack - usually a rucksack style - that will either present the equipment in a cabinet style or will open out entirely on the ground to show everything in pockets/pouches or attached.

**VOLUME:** in Litres/liters /US Gallons (20% less than UK Gallon)  
**Market Origin:** Bags are either specifically designed for arborists (Pro Arb), or for the Rope Access and/or rescue markets - both requiring tough equipment. Sport can be equally tough if its caving and canyoning but tends not to be used all day every day.

**NOMINAL/INTENDED ROPE CAPACITY:** As provided by the manufacturer but varies with the diameter. In organiser packs, rope storage may only be part of the overall volume whereas it may be all of the internal volume in a dedicated rope bag/duffle.

$46m/150ft \times 12.7mm/\frac{1}{2}'' = 76m/250' \times 11mm/\frac{7}{16}'' = 91m/300' \times 9mm/\frac{3}{8}''$

**WEIGHT:** empty with no optional extras included

**MAX DIMENSIONS:** Height and the width and maybe depth front-to-back. These figures are for the body of the bag and do not include extraneous handles or external pouches that are stuffed to bursting. Most bags will end up much wider!

**2xBACK STRAPS**=rucksack style carrying straps

**1xSHOULDER**=a single strap for slinging over your shoulder

**WAIST BELT**=rucksack style waist belt to keep the pack tight to your body when walking any distance

**[PADDED]**=in brackets[] indicates straps padded for comfort.

**BACK/LUMBAR PADDING**=padding on the pack itself rather than straps, again for improved comfort carrying a heavy load. Lumbar is lower back, behind the waist belt if there is one.

**DETACH/STOW CARRY STRAPS:** refers to rucksack style straps that can either be ditched entirely or can be stuffed into an integral pocket so that no straps are exposed to snagging.

**REINFORCED SIDES (Free-standing)**=the pack has stiffened panels or bars that keep the bag upright during rope feed.

**CARRY HANDLES WLL ENDS SIDE** dedicated carrying handles with ergonomic adjuncts to make carrying a heavy weight more comfortable. Mounted on the top or for duffle-style side-carry. Can also be used to clip on kit. **WLL**=the max weight you can carry via these handles or an additional haul eye.....

**ADDITIONAL HAUL WLL SEWN EYES RINGS** Top handles can be used for hauling but there is often a sewn loop between the top of shoulder straps or there may be metal eyes around the top.

**BAG OPENS FLAT to DISPLAY KIT** The whole bag unzips or unbuckles to expose the interior. Can also include organisers with detachable, opening display panels/boards.

**HELMET [SAW] POCKET/POUCH CORD** Designated for use with a helmet or saw but can obviously be used for anything that will fit. Climbers packs often use bungee cord on the outside front or top of the pack but some have a separated helmet pocket on the top as it should be the first thing you put on. **INTERNAL PARTITION** a means to divide internal space eg. for 2 ropes or to keep clothes dry-not just a pocket. Some packs

come with their own **ROPE TOOL BAG** or are an option ☐.

**GEAR (individual) EYES EXTERNAL INTERNAL** These can be daisy chain eyes, Molle eyes or individual plastic eyelets but all are intended to clip one carabiner and/or clippable hardware

**GEAR LOOPS [STRAPS] EXTERNAL INTERNAL** harness-style larger semi-circles of cord or plastic that allow multiple items to be clipped into the same loop. All handles could be used as a gear loop! **[STRAPS]** [in brackets] is securing web with buckles

**TOTAL POCKETS EXTERNAL INTERNAL** The total number of closable pockets and open pouches outside and inside the bag. This does not include saw pockets/pouches listed separately. **of which.. MESH/CLEAR EXTERNAL INTERNAL** of the total number of pockets those which are clear plastic or open mesh allowing free drainage but more importantly visibility of the contents. Mesh makes the bag lighter than a full, heavy duty enclosure.

**CLOSURES Velcro POP Zipped Draw-Cord Buckle** Referring ONLY to the outside pockets - a colour square indicates the type of closure and the number is the pockets that have that specific closure.

**WATERPROOF VENT HOLES DRAIN HOLES** All of these packs are water resistant to a degree unless they have mesh panels but some are more waterproof than others and particularly so if they have a roll-top closure. The most water resistant are marked with a blue square ■, less water resistant - usually because they are a drawcord closure, is marked with a ● Being waterproof does not preclude having vent and drain holes as the term 'waterproof' refers to rain from the top not complete submersion. See our **WATER RESCUEBUYERS GUIDE** for completely waterproof bags.

**LID POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP** Referring ONLY to the top lid and compartment doors if it is an organiser type pack.

**LOCKABLE:** the main compartment(s) can be locked with a small padlock (not usually supplied). Usually needs a chunky YKK style zip large enough to clip in a padlock clasp but may be a tougher, bespoke element like the *FTC-Tree Koompsonia*.

**ID PANEL:** a small-see-through rectangle for a luggage style label or large enough for an inventory or risk assessment sheet.

**END/SIDE STRAPS:** in addition to the carry straps these are adjustable webbing straps on the sides that can either act to compress the bag to a smaller size if it's not fully filled or you can secure items behind them. Side straps are often set above open pouches that can house a saw, pole or spikes or end straps can be used to secure a hank of rope or a tarpaulin etc.

**REFLECTIVE TRIM:** not seen as much on arb packs as they are on rescue packs- light reflective to provide high visibility.

**TARPAULIN:** a separate or integral ground sheet. ☐=if an option

**RAINCOVER:** a separate cap or complete cover. ☐=if an option

**MATERIALS:** just the main body panel materials

**OTHER COLOURS:** colours available OTHER than the colour shown in the product image at the top of the column.

**Images NOT to Scale**

£\$€ any price in 'burnt-orange' is a **Currency conversion only**-exc shipping, duties,taxes etc.  
**ROPE CAPACITY** = Not necessarily related to volume if only part of the bag is for rope.  
**ADDITIONAL HAUL** = Dedicated sewn eye or ring that can carry the entire weight of the bag & contents for hauling.Top handle is often able to function as a haul eye.  
**HELMET/BOOT**= pouch or compartment to fit a helmet, often on the outside, and/or boots (always on the inside. [SAW]=Dedicated pouch or scabbard for a hand saw  
**POP**= Popper or press stud  
**BUCKLE ROLL TOP**= all roll tops are closed with a push-fit/Fastex buckle



| MANUFACTURER                                  |  | ARBORTEC                             | ARBPRO   | ARPRO   | ARBSESSION  |
|---|--|--------------------------------------|--|---|---|
| MODELS litres/liters VARIANT                  |  | Python 50<br>AT104-50                | Transporter 50<br>APT50  | Rolly Box 225   | GearTote+ 72  |
| ORIGIN  |  |                                      |  |   |   |
| COST (inc Tax/VAT) (currency conversion only) |  | £120 \$146 €115                      | £125 \$160 €137  | £290 \$469 €336   | £188 \$240 €222   |
| STYLE/FUNCTION                                |  | RUCKSACK                             | RUCKSACK   | CABINET ORGANISER   | TOP-LOAD CABINET  |
| SPECIFICATIONS                                | VOLUME L/US Gallon intended market             | 50L/13.2gal Pro Arb                  | *50-60L/13.2-15.9gal Pro Arb   | 225+30L/59.4gal Pro Arb   | 72+15L/19-4gal Pro Arb  |
|   | NOMINAL/INTENDED ROPE CAPACITY                 | 45m x 11mm<br>100' x 1/2"            | 0/0m<br>0'   | 2x 80m+1x160m x 11mm<br>2x 160'+1x320' x 1/2"   | 2x 25m x 11mm<br>2x 75' x 1/2"  |
|   | WEIGHT empty                                   | 2.1kg<br>4.6lb                       | 1.5kg<br>3.3lb   | ?   | ?   |
|   | DIMENSIONS (unfilled)                          | 70 x 37 x 20cm<br>27.6 x 14.6 x 7.9" | 70 x 30 x 25cm<br>27.6 x 12 x 9.8"   | 75 x 60 x 50cm<br>29.5 x 23.6 x 19.6"   | 81.3 x 35.6 x 25.4cm<br>32 x 14 x 10"   |
| TRANSPORT                                     | 2xBACK STRAPS1xSHOULDERWAIST BELT[PADDED]      |                                      |  |   |   |
|   | BACK/LUMBAR PADDING                            |                                      |  |   |   |
|   | DETACH STOW CARRY STRAPS                       |                                      |  |   |   |
|   | REINFORCED SIDES (Free-standing)               |                                      |  |   |   |
|   | CARRY HANDLES WLL ENDS SIDE                    | 1 -                                  | 2 -  | --  | - 1   |
|   | ADDITIONAL HAUL WLL SEWN EYES RINGS            |                                      | 1 -  | --  | 1 -   |
| POCKETS STOW EQUIPMENT                        | BAG OPENS OUT to DISPLAY KIT                   | NO                                   | NO   | PARTIAL   | PARTIAL   |
|   | HELMET/BOOT [SAW] POCKET/POUCH CORD/WEB        |                                      |  |   |   |
|   | INTERNAL PARTITION +ROPE TOOL BAG              |                                      |  |   |   |
|   | GEAR (individual) EYES EXTERNAL INTERNAL       | ?                                    | 11   | --  | 16 20+16 in lid   |
|   | GEAR LOOPS [STRAPS] EXTERNAL INTERNAL          | --                                   | --   | --  | --  |
|   | TOTAL POCKETS EXTERNAL INTERNAL                | 2 1                                  | *3 3*  | 6 1 + 30L pouch   | 2 * 2 + 10L pouch   |
|   | of which..MESH/CLEAR EXTERNAL INTERNAL         | ?                                    |  | - 1 *   | --  |
| FEATURES                                      | CLOSURE VELCROPOPZIPPEDDRAW-CORDBUCKLE         | ?                                    | --   |   |   |
|   | WATERPROOF VENT HOLES DRAIN HOLES              |                                      |  |   |   |
|   | LID VELCROPOP ZIPPED DRAW-CORD BUCKLE ROLL-TOP |                                      |  |   |   |
|   | LOCKABLE ID PANEL END/SIDE STRAPS              |                                      |  |   |   |
|   | REFLECTIVE TRIM TARPAULIN RAINCOVER            |                                      |  |   |   |
| OUTER MATERIALS                               |  | PES/PVC                              | PVC  | 680 g/m <sup>2</sup> PVC  | 900D PVC  |
| OTHER COLOURS                                 |  |                                      | -  |   |   |
| NOTES   |  |                                      | *inc slide-in pouch on each side.<br>*Side straps allow variable volume<br>*Sml zipped security pocket | Wheeled trolley optional.<br>30L pouch has 2 dividers<br>Clear sleeve in back of box. | Lid pouch detaches as rope bag for 75'x1/2"<br>*2 exterior pockets intended for throwline cubes |
| WEBSITE                                       |  | arbortec.com                         | arbpro.it  | arpro.it  | arbsession.com  |

# TRANSPORT/ORGANISER



| BEAL  | BEAL   | BUCKINGHAM   | BUCKINGHAM                      | CAMP SAFETY                    | CAMP SAFETY  |
|---|--|--|---------------------------------|--------------------------------|--|
| <b>Combi-Pro 40</b><br>BSAC   | <b>Combi-Pro 80</b><br>BSAC  | <b>Backpack Pro 90</b><br>4377 <b>Garage</b> 4378  | <b>Eqpt Bag Wheels</b><br>41333 | <b>Hold 40</b><br>2789         | <b>Spacecraft 45</b><br>2790                               |
|   |  |  |                                 |                                |  |
| £130 \$155 €145   | £145 \$220 €173  | £328 \$415 €382  | £0 \$614* €0                    | £75 \$110 €67                  | £210 \$286 €258  |
| ORGANISER   | ORGANISER  | CABINET ORGANISER  | BACKPACK                        | BACKPACK                       | ORGANISER  |
| 0L/10gal <b>Pro access</b>  | 80L/21.1gal <b>Pro Access</b>  | 90L/23.8gal <b>Pro Arb</b>   | <b>0L Pro Arb</b>               | 40L/10gal <b>Pro Access</b>    | 45L/11.8gal <b>Pro Access</b>                              |
| 40m x 10.5mm<br>80' x 1/2"  | 60m x 10.5mm<br>120' x 1/2"  | 300m x 11mm<br>600' x 1/2"   | <b>0m 0'</b>                    | 100m x 11mm<br>200' x 1/2"     | 150m x 11mm<br>300' x 1/2"                                 |
| 1.96kg<br>4.3lb   | 2.5kg<br>5.5lb   | 3.36-4.5kg<br>7.4-10lb   | 1.1kg 2.4lb                     | 650g<br>1.4lb                  | 2.6kg<br>5.7lb   |
| 60 x 21cm<br>24 x 8"  | 72 x 26cm<br>28 x 10"  | 81 x 41 x 26mm<br>32 x 16 x 10"  | 48 x 36cm<br>18.75 x 14"        | 56 x 30 x 20cm<br>22 x 12 x 8" | 62 x 32 x 23cm<br>24 x 13 x 9"                             |
|   |  |  |                                 |                                |  |
|   |  |  |                                 |                                |  |
|   |  |  |                                 |                                |  |
|   |  |  |                                 |                                |  |
| <b>1+1 1</b>  | <b>1+1 1</b>   | <b>*5 -</b>  | <b>2 -</b>                      | <b>3 1</b>                     | <b>- 1</b>   |
| <b>1 -</b>  | <b>2 -</b>   | <b>1 -</b>   |                                 | <b>1x50kg -</b>                | <b>1x50kg -</b>  |
| <b>YES</b>  | <b>YES</b>   | <b>PARTIAL</b>   | <b>PARTIAL</b>                  | <b>PARTIAL</b>                 | <b>YES</b>   |
|   |  |  |                                 |                                |  |
|   |  |  |                                 |                                |  |
|   |  |  |                                 |                                |  |
| <b>-10+popper loops</b>   | <b>-15+7</b>   | <b>16 35</b>   | <b>-1-1</b>                     | <b>14 -</b>                    | <b>3 30</b>  |
| <b>2* 7*</b>  | <b>2* 7*</b>   | <b>*5 -</b>  |                                 | <b>- 2</b>                     | <b>- -</b>   |
| <b>0 4</b>  | <b>0 4</b>   | <b>*7 4</b>  | <b>3 1</b>                      | <b>3 -</b>                     | <b>3 *</b>   |
|   |  |  | <b>1 -</b>                      | <b>1 -</b>                     | <b>- -</b>   |
| <b>- 3</b>  | <b>- 3</b>   |  |                                 |                                |  |
|   |  |  |                                 |                                |  |
|   |  |  |                                 |                                |  |
|   |  |  |                                 |                                |  |
|   |  |  |                                 |                                |  |
| <b>PVC 1100g/m<sup>2</sup></b>  | <b>PVC 1100g/m<sup>2</sup></b>   | <b>Vinyl, Cordura, Kevlar</b>  | <b>44oz Vinyl</b>               | <b>500D PVC</b>                | <b>500D PVC</b>  |
|   |  |  |                                 |                                |  |
| 80L=pull-out rope tarp, sturdy enough to be a light handle.<br>*6-loops detachable clear pouch can be for water | 80L=pull-out rope tarp, sturdy enough to be a light handle.<br>*6-loops detachable *1 clear pouch can be for water | *Inc padded laptop pocket *carry handles = gear loops. GearGarage is a detachable hardware board with numerous eyes & pouches. | Hi-viz version is \$401         |                                | Comes with 2.5L detachable gear bag-clips inside main bag. |
| beal-planet.com   | beal-planet.com  | buckinghammfg.com  | buckinghammfg.com               | camp.it                        | camp.it  |



**Images NOT to Scale**

£\$€ any price in 'burnt-orange' is a **Currency conversion only**-exc shipping, duties,taxes etc.  
**ROPE CAPACITY** = Not necessarily related to volume if only part of the bag is for rope.  
**ADDITIONAL HAUL** = Dedicated sewn eye or ring that can carry the entire weight of the bag & contents for hauling.Top handle is often able to function as a haul eye.  
**HELMET/BOOT**= pouch or compartment to fit a helmet, often on the outside, and/or boots (always on the inside. [SAW]=Dedicated pouch or scabbard for a hand saw  
**POP**= Popper or press stud  
**BUCKLE ROLL TOP**= all roll tops are closed with a push-fit/Fastex buckle

| MANUFACTURER                                   |  | CMC RESCUE  |  | CMC RESCUE  |  | CMC RESCUE                     |  | CMC RESCUE   |  |
|--|--|---|--|---|--|--------------------------------|--|--|--|
| MODELS litres/liters VARIANT                   |  | H.R. Organiser 13<br>77040.   |  | Rope & Eqpt 37<br>44100.  |  | Lotus Tech Pack 37<br>441120   |  | Rigtech Pack 42<br>44110.  |  |
| ORIGIN   |  | USA   |  | USA   |  | USA                            |  | USA  |  |
| COST (inc Tax/VAT) (currency conversion only)  |  | £140 \$177 €163   |  | £142 \$180 €166   |  | £162 \$205 €176                |  | £202 \$256 €236  |  |
| STYLE/FUNCTION                                 |  | ORGANISER   |  | BAG/BACKPACK  |  | ORGANISER                      |  | ORGANISER  |  |
| VOLUME L/US Gallon intended market             |  | 13L/3.4gal Pro Rescue   |  | 37L/9.7gal Pro Rescue   |  | 37L/9.7gal Pro Rescue          |  | 42L/10L/11gal Pro Rescue   |  |
| NOMINAL/INTENDED ROPE CAPACITY                 |  | 25m x 11mm<br>50' x 1/2"  |  | 100m x 11mm<br>200' x 1/2"  |  | 122m x 11mm<br>400' x 3/16"    |  | 100m x 11mm<br>200' x 1/2"   |  |
| WEIGHT empty                                   |  | 879g<br>1.9lb   |  | 998g<br>2.25lb  |  | 2.37kg<br>5.2lb                |  | 2.8kg<br>6.2lb   |  |
| DIMENSIONS (unfilled)                          |  | 48 x 44 x 15cm<br>19 x 17 x 6"  |  | 53 x 33 x 20cm<br>21 x 13 x 8"  |  | 50 x 33 x 23cm<br>20 x 13 x 9" |  | 56 x 46 x 21cm<br>22 x 18 x 8"   |  |
| 2xBACK STRAPS1xSHOULDERWAIST BELT[PADDED]      |  | ---   |  | [■]--   |  | [■]-[■]                        |  | [■]-[■]  |  |
| BACK/LUMBAR PADDING                            |  | --  |  | --  |  | [■][■]                         |  | [■][■]   |  |
| DETACH STOW CARRY STRAPS                       |  | --  |  | - [■]   |  | [■](waist belt) [■]            |  | --   |  |
| REINFORCED SIDES (Free-standing)               |  | [■]   |  | -   |  | -                              |  | -  |  |
| CARRY HANDLES WLL ENDS SIDE                    |  | 1 -   |  | 1 2   |  | 1 2                            |  | - 1  |  |
| ADDITIONAL HAUL WLL SEWN EYES RINGS            |  | --  |  | --  |  | --                             |  | --   |  |
| BAG OPENS OUT to DISPLAY KIT                   |  | PARTIALLY   |  | PARTIALLY   |  | YES                            |  | YES  |  |
| HELMET/BOOT [SAW] POCKET/POUCH CORD/WEB        |  | --  |  | --  |  | --                             |  | --   |  |
| INTERNAL PARTITION +ROPE TOOL BAG              |  | ---   |  | ---   |  | ---                            |  | ---  |  |
| GEAR (individual) EYES EXTERNAL INTERNAL       |  | 3 -   |  | 16 ?  |  | 12 +16 web eyes 20             |  | 6 24   |  |
| GEAR LOOPS [STRAPS] EXTERNAL INTERNAL          |  | 2 -   |  | - 2   |  | - 1                            |  | 1 2  |  |
| TOTAL POCKETS EXTERNAL INTERNAL                |  | 4 -   |  | 1 2   |  | 4 7                            |  | 2 7  |  |
| of which..MESH/CLEAR EXTERNAL INTERNAL         |  | 1 -   |  | --  |  | - 6                            |  | --   |  |
| CLOSURE VELCROPOPZIPPEDDRAW-CORDBUCKLE         |  | [■]3 [■]1   |  | [■]3  |  | [■]10                          |  | [■]2 [■]6  |  |
| WATERPROOF VENT HOLES DRAIN HOLES              |  | [●]--   |  | [■]--   |  | [●]--                          |  | [■]-[■]  |  |
| LID VELCROPOP ZIPPED DRAW-CORD BUCKLE ROLL-TOP |  | ---   |  | [■]   |  | [■]                            |  | [■]  |  |
| LOCKABLE ID PANEL END/SIDE STRAPS              |  | [■][■]-[■]  |  | - [■] --  |  | [■][■]-[■]                     |  | - [■][■]* -  |  |
| REFLECTIVE TRIM TARPAULIN RAINCOVER            |  | ---   |  | ---   |  | [■]-[■]                        |  | [■]-[■]  |  |
| OUTER MATERIALS                                |  | 1000D Cordura   |  | 1000D Cordura   |  | PU-coated 840D Ripstop         |  | 1000D Cordura  |  |
| OTHER COLOURS                                  |  | [■]   |  | [■]   |  | -                              |  | [■]  |  |
| NOTES  |  | Rope bag not included. Pockets:48x13x10cm/19x5x4" 30x13x10cm/12x5x4" 13x13x10cm/5x5x4" H.R.= Heavy Rescue |  | 2x Internal zipped pockets - 1 for keys etc., one is fleece-lined for glasses/phone |  |                                |  | *Lid buckles act as end-to-end compression straps. Padded side pockets. Whistle on sternal buckle. 3 lash panels. 2x toggled bungs on lid. |  |
| WEBSITE  |  | cmcpro.com  |  | cmcpro.com  |  | cmcpro.com                     |  | cmcpro.com   |  |



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**APIII**  
SYSTEM



**Images NOT to Scale**

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**POP**= Popper or press stud  
**BUCKLE ROLL TOP**= all roll tops are closed with a push-fit/Fastex buckle

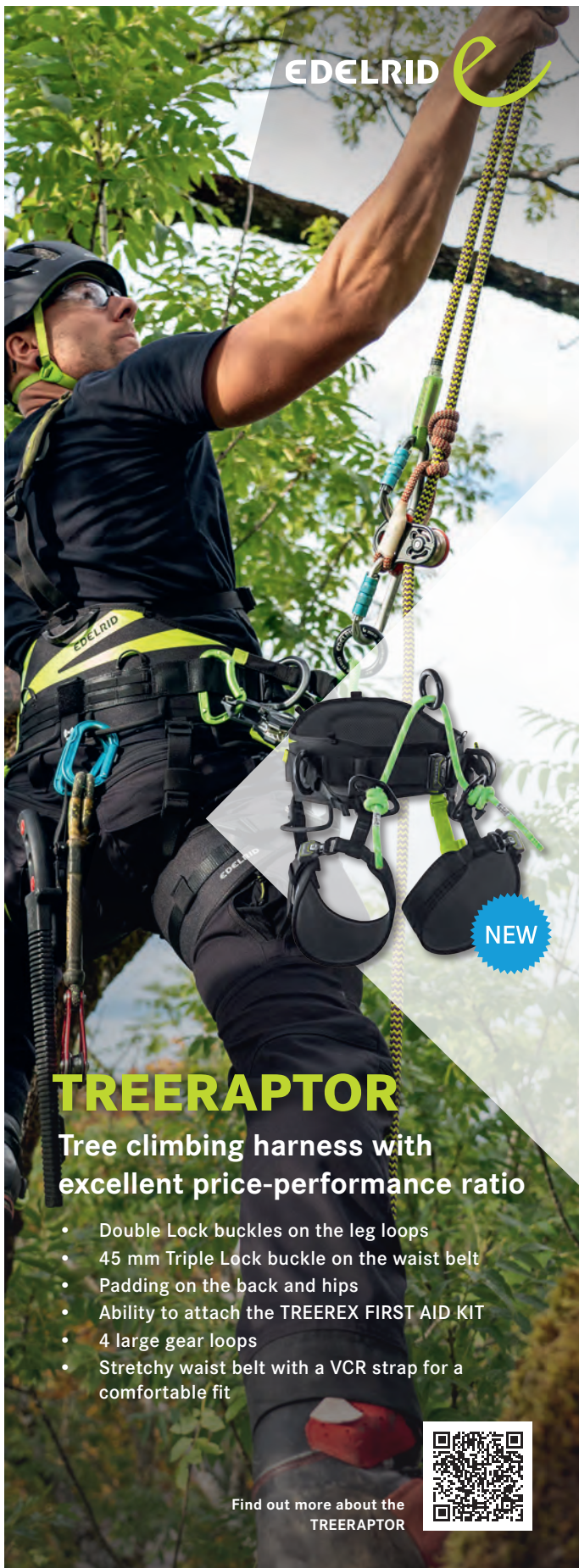
| MANUFACTURER                                  |   | COURANT                                   |   | COURANT                                 |   | COURANT                                   |   | COURANT                         |  |
|---|---|---|---|---|---|---|---|---------------------------------|--|
| MODELS litres/liters VARIANT                  |   | Cross Pro 54<br>PSCPBYA                   |   | Cross Pro XL 75<br>PSCPBYA              |   | Cross Evo 45<br>PPLSSCC4                  |   | Dock 60                         |  |
| ORIGIN  |   | FR  |   | FR                                      |   | FR  |   | FR                              |  |
| COST (inc Tax/VAT) (currency conversion only) |   | £164 \$230 €188                           |   | £225* \$300* €259*                      |   | £143 \$170 €146                           |   | £92 \$118 €102                  |  |
| STYLE/FUNCTION                                |   | ORGANISER                                 |   | ORGANISER                               |   | ORGANISER                                 |   | BUCKET/BACKPACK                 |  |
| SPECIFICATIONS                                | VOLUME L/US Gallon intended market  | 54L/14.3gal (inc.17L rope bag) Pro Access |   | 75L/20gal (inc 17L rope bag) Pro Rescue |   | 45L/11.8gal (inc 17L rope bag) Pro Access |   | 60L/15.8gal Pro Access          |  |
|   | NOMINAL/INTENDED ROPE CAPACITY  | 75m x 11mm<br>150' x ½"                   |   | 75m x 11mm<br>150' x ½"                 |   | 75m x 11mm<br>150' x ½"                   |   | 100m x 11mm<br>200' x ½"        |  |
|   | WEIGHT empty  | 2.7kg<br>6lb                              |   | 3.4kg<br>7.5lb                          |   | 3.25kg<br>7.15lb                          |   | 1.6kg<br>3.5lb                  |  |
|   | DIMENSIONS (unfilled)   | 76 x 32 x 25cm<br>30 x 13 x 10"           |   | 88 x 36 x 27cm<br>35 x 15 x 11"         |   | 59 x 42cm<br>23.3 x 16.5"                 |   | 82 x 32 x 25cm<br>33 x 13 x 10" |  |
| TRANSPORT                                     | 2xBACK STRAPS1xSHOULDERWAIST BELT[PADDED]   | [■]-[□]                                   |   | [■]-[□]                                 |   | [■]- -                                    |   | [■]-[□]                         |  |
|   | BACK/LUMBAR PADDING   | ■ ■                                       |   | ■ ■                                     |   | ■ -                                       |   | ■ ■                             |  |
|   | DETACH STOW CARRY STRAPS  | - -                                       |   | - -                                     |   | - -                                       |   | ■ -                             |  |
|   | REINFORCED SIDES (Free-standing)  | ■   |   | ■                                       |   | ■   |   | ■                               |  |
| STOW EQUIPMENT                                | CARRY HANDLES WLL ENDS SIDE   | 1 x200kg 4 x200kg                         |   | 2 x200kg 4 x200kg                       |   | 1 2                                       |   | 1 -                             |  |
|   | ADDITIONAL HAUL WLL SEWN EYES RINGS   | 1 x300kg -                                |   | 1 x300kg -                              |   | - 1 x210kg                                |   | 0 -                             |  |
|   | BAG OPENS OUT to DISPLAY KIT  | ■   |   | YES                                     |   | ■   |   | NO                              |  |
|   | HELMET/BOOT [SAW] POCKET/POUCH CORD/WEB   | - ■                                       |   | - ■                                     |   | - ■                                       |   | - -                             |  |
| POCKETS                                       | INTERNAL PARTITION +ROPE TOOL BAG   | YES + ■                                   |   | YES + ■                                 |   | YES + ■                                   |   | - - -                           |  |
|   | GEAR (individual) EYES EXTERNAL INTERNAL  | 6+4 20+19molle                            |   | 5+4 29+19molle                          |   | - 13 (+4 popped)                          |   | 10 + 2 3                        |  |
|   | GEAR LOOPS [STRAPS] EXTERNAL INTERNAL   | - [2]                                     |   | 2 [2]                                   |   | - 3                                       |   | 2 [*2] -                        |  |
|   | TOTAL POCKETS EXTERNAL INTERNAL   | *1 11                                     |   | *1+*2+*1 11                             |   | - 5                                       |   | 2 -                             |  |
| FEATURES                                      | of which..MESH/CLEAR EXTERNAL INTERNAL  | - 8                                       |   | - 8                                     |   | - 5 elasticated                           |   | 2 -                             |  |
|   | CLOSURE VELCROPOPZIPPEDDRAW-CORDBUCKLE  | ■11 ■1                                    |   | ■11 ■2 ■2                               |   | ■2  |   | ■2                              |  |
|   | WATERPROOF VENT HOLES DRAIN HOLES   | ●-?                                       |   | ●- -                                    |   | ■-■-                                      |   | ■-■-■                           |  |
|   | LID VELCROPOP ZIPPED DRAW-CORD BUCKLE ROLL-TOP  | ■ ■                                       |   | ■ ■                                     |   | ■   |   | ■                               |  |
| OTHER COLOURS                                 | ■ ■ ■   |   | ■ *   |   | ■ ■ ■   |   | ■ ■ ■   |                                 |  |
|   | LOCKABLE ID PANEL END/SIDE STRAPS   | - ■ - ■                                   |   | - ■ - ■                                 |   | - - ■ ■                                   |   | - ■ - -                         |  |
| REFLECTIVE TRIM TARPAULIN RAINCOVER           | ■ - -   |   | ■ - -   |   | ■ - -   |   | ■ - -   |                                 |  |
| OUTER MATERIALS                               | 1680D Ballistic nylon YKK zips  |   | 1680D Ballistic nylon YKK zips  |   | PVC   |   | 1680D Ballistic nylon YKK zips  |                                 |  |
| NOTES   | Zipped lids both ends. Internal pocket sizes can be adjusted with poppers. *Internal key pocket zipped from outside. Kit ID labels. |   | *Blk10% less.Zipped lids both ends. Adj internal pocket sizes. *Key pocket zips from outside *Bottle Holders. *Padded for phone/glasses. Kit ID labels. |   | unzips at both ends. Includes the Cross Light rope bag. |   | Extra rpe/gear bags can be attached to all Cross & Dock bags. *draw-cord bungy for securing saw/bottle/cylinder in mesh pockets |                                 |  |
| WEBSITE                                       | mycourant.com   |   | mycourant.com   |   | mycourant.com   |   | mycourant.com   |                                 |  |



# TRANSPORT/ORGANISER PACKS



| EDELRID  | FRANCITAL   | HUSQVARNA   |
|--|---|---|
| <b>PE Backpack 45</b><br>883101000170  | <b>Hercule 60</b><br>AC034  | <b>Gear Pack 70</b><br>534 10 18-02   |
|  |   |   |
| £108 \$160* €110   | £170 \$224 €200   | £185 \$260 €250   |
| BACKPACK   | BACKPACK  | BACKPACK  |
| L/11.8gal <b>Pro Rescue</b>  | - <b>Pro Arb</b>  | 70L/18.4gal <b>Pro Arb</b>  |
| 90m x 11mm<br>180' x 1/2"  | 30kg/66lb   | 75m x 11mm<br>150' x 1/2"   |
| 950g<br>2.1lb  | 1.75kg<br>3.85lb  | 2kg<br>4.4lb  |
| 66 x 36 x 10cm<br>26 x 14 x 4"   | ?   | 76 x 36cm<br>29.5 x 14.2"   |
|  |   |   |
| 1 -  | --  | 1 2   |
| 1 x40kg -  | --  | --  |
| PARTIAL  | NO  | PARTIAL   |
| - -  |   |   |
| - - -  | YES - -   | -   |
| 20+2* 20   | 5 1   | 2016  |
| - 2  | [4] -   |   |
| 2 6  | 2 2   | 5 1   |
| - 3  | --  | - 1   |
|  |   |   |
|  |   |   |
|  |   |   |
|  |   |   |
| <b>Ballistic Nylon</b>   | <b>Cordura/Alu frame</b>  | <b>900D</b>   |
|  |   |   |
| 2 metal rings if not used to attach shoulder straps<br>*Black version lacks reflective - 12% cheaper | Forestry pack intended to carry chainsaw, fuel, helmet subsistence etc. | Additional zipped side entry. Integral first aid pocket.<br>*Lid buckles act as end-to-end compression straps |
| edelrid.com  | francital.com   | husqvarna.com   |



EDELRID

## TREERAPTOR

Tree climbing harness with excellent price-performance ratio

- Double Lock buckles on the leg loops
- 45 mm Triple Lock buckle on the waist belt
- Padding on the back and hips
- Ability to attach the TREEREX FIRST AID KIT
- 4 large gear loops
- Stretchy waist belt with a VCR strap for a comfortable fit



Find out more about the TREERAPTOR



**Images NOT to Scale**

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**POP**= Popper or press stud  
**BUCKLE ROLL TOP**= all roll tops are closed with a push-fit/Fastex buckle

| MANUFACTURER                                  |  | KONG  | LYON EQUIPMENT  | MONTBELL                              | NOTCH EQPT                 |
|---|--|---|---|---------------------------------------|----------------------------|
| MODELS litres/liters VARIANT                  |  | Convoy 56<br>982002N00KK  | First Response 50<br>LSBMOD..   | Logger Gear 75<br>Chainsaw System     | Pro Large 43<br>40082      |
| ORIGIN  |  |   |   |                                       |                            |
| COST (inc Tax/VAT) (currency conversion only) |  | £240 \$325 €286   | £271* \$340 €315  | £460 \$480 \$585 €535                 | £97 \$120 €110             |
| STYLE/FUNCTION                                |  | ORGANISER   | ORGANISER   | FRAMED CARRIER                        | BACKPACK                   |
| SPECIFICATIONS                                | VOLUME L/US Gallon intended market               | 56L+19L/14.7+5gal rope bag Pro Access   | 50L/13.2gal Pro Rescue  | 63+12.7L/16.6+3.3gal Pro Arb          | 43L/11.4gal Pro Arb        |
|   | NOMINAL/INTENDED ROPE CAPACITY                   | 100m x 10.5mm<br>150' x 1/2"  | 80m x 11mm<br>160' x 1/2"   | n/a                                   | 120m x 11mm<br>245' x 1/2" |
|   | WEIGHT empty                                     | 2.6kg<br>5.8lb  | 1.91kg<br>4.2lb   | 2.47kg<br>5.5lb                       | 1.2kg<br>2.7lb             |
|   | DIMENSIONS (unfilled)                            | 80 x 35 x 26cm<br>31.5 x 13.8 x 10.2"   | 65 x 55cm<br>26 x 22"   | 73.5 x 39 x 28cm<br>28.9 x 15.3 x 11" | 48 x 33cm<br>19 x 13"      |
| TRANSPORT                                     | 2x BACK STRAPS 1x SHOULDER WAIST BELT [PADDED]   |   |   |                                       |                            |
|   | BACK/LUMBAR PADDING                              |   |   |                                       |                            |
|   | DETACH STOW CARRY STRAPS                         |   |   |                                       |                            |
|   | REINFORCED SIDES (Free-standing)                 |   |   |                                       |                            |
|   | CARRY HANDLES WLL ENDS SIDE                      | 1 2   | 1 -   | 1 44kg/88lb -                         | 0 -                        |
|   | ADDITIONAL HAUL WLL SEWN EYES RINGS              | 1 -   | - -   | - -                                   | 0 -                        |
| POCKETS STOW EQUIPMENT                        | BAG OPENS OUT to DISPLAY KIT                     | YES   | YES   | NO/YES                                | NO                         |
|   | HELMET/BOOT [SAW] POCKET/POUCH CORD/WEB          | -   | - -   | -                                     | - -                        |
|   | INTERNAL PARTITION + ROPE TOOL BAG               | -   | -   | - - -                                 | - - -                      |
|   | GEAR (individual) EYES EXTERNAL INTERNAL         | 5 24  | - 20  | ??                                    | 13 -                       |
|   | GEAR LOOPS [STRAPS] EXTERNAL INTERNAL            | - -   | - -   | ??                                    | - -                        |
|   | TOTAL POCKETS EXTERNAL INTERNAL                  | 6 6   | - 7   | 2 - /2 3                              | 6 -                        |
|   | of which..MESH/CLEAR EXTERNAL INTERNAL           | 2 6   | - 1   | - -                                   | 2 -                        |
| FEATURES                                      | CLOSURE VELCRO POP ZIPPED DRAW-CORD BUCKLE       |   |   |                                       |                            |
|   | WATERPROOF VENT HOLES DRAIN HOLES                |   |   |                                       |                            |
|   | LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP  |   |   |                                       |                            |
|   | LOCKABLE ID PANEL END/SIDE STRAPS                |   |   |                                       |                            |
|   | REFLECTIVE TRIM TARPAULIN RAINCOVER              | - - -   |   | - - -                                 | - - -                      |
| OUTER MATERIALS                               | -  | PVC   | 420D Ballistic Nylon Aluminium Frame  | 900D Polyester                        |                            |
| OTHER COLOURS                                 |  |   |   |                                       |                            |
| NOTES   | Optional 19L rope bag and helmet securing straps | Fully modular version with detachable bags & pockets *Empty modular pack=£120 | Modular Carry System with two bags or organiser for chainsaw and fuel can. Also available as separate components. |                                       |                            |
| WEBSITE                                       | Kong.it  | lyonequipment.com   |   | notchequipment.com                    |                            |

# TRANSPORT/ORGANISER PACKS



| NOTCH EQT  | NOTCH EQT   | PROTEKT                            | ROCK EMPIRE   | SILVER BULL  | SKYLOTEC  |
|--|---|------------------------------------|---|--|---|
| <b>Approach 50</b><br>99327                                | <b>Pro Access 60</b><br>53444   | <b>Trans Backpack 40</b><br>Ax075  | <b>Beetle Bag II 55</b><br>-  | <b>Multiuse 63</b><br>-  | <b>Actsafe SAR</b><br>ACS-0914  |
|  |   |                                    |   |  |   |
| £156 \$160 €146  | £192 \$250 €235   | £0 \$0 €0                          | £141 \$180 €164   | £162 \$203 €156  | £417 \$547 €494   |
| BUCKET/BACKPACK  | ORGANISER   | ORGANISER                          | BACKPACK  | CABINET ORGANISER  | BACKPACK  |
| 50L/13.2gal <b>Pro Arb</b>                                 | 60L/15.8gal <b>Pro Arb</b>  | 40L/10gal <b>Pro Access</b>        | 52.5L/13.9gal <b>Sport</b>  | 63L/16.6gal <b>Pro Arb</b>   |   |
| 120m x 11mm<br>245' x 1/2"                                 | 75m x 11mm<br>150' x 1/2"   | 100m x 11mm<br>200' x 1/2"         | 80-100m x 11mm<br>160-200' x 1/2'   | 100m x 11mm<br>200' x 1/2'   | n/a   |
| 2.3kg<br>5lb   | 2.63kg<br>5.8lb   | 1.88kg<br>4.2lb                    | 920g<br>2lb   | 2.5kg<br>5.5lb   | 2.75kg<br>6.1lb   |
| 71 x 35.5 x 35.5cm<br>22.5 x 14"                           | 69 x 36cm<br>27 x 14"   | 60 x 38 x 19cm<br>23.6 x 15 x 7.5" | 50 x 30 x 35cm<br>20 x 12 x 14"   | 63 x 40 x 25cm<br>25 x 15.75 x 10"   | 70 x 40 x 25cm<br>27 x 15.75 x 10"  |
| ■--  | ■--   | ■--                                | ■--   | ■--  | ■-■   |
| ■ ■  | ■ ■   | ■ ■                                | ■ ■   | --   | ■ ■   |
| --   | ■-  | ■-                                 | - ■   | - ■  | - ■   |
| ■  | -   | -                                  | -   | -  | ■   |
| 1 1  | 2 1   | 2 1                                | 1 -   | 2 2  | 1 1   |
| 0 -  | --  | --                                 | --  | - 1*   | --  |
| NO   | YES   | YES                                | YES   | PARTIAL  | ?   |
| --   | ■ [■]   | ■ [■]                              | --  | --   | ?   |
| ---  | ---   | ---                                | ---   | ■*--   | ?   |
| --   | 6+2* 21   | 6+2* 21                            | --  | 10 -   | 14 ?  |
| 6 -  | --  | --                                 | 1 2 [1]   | 8 -  | - ?   |
| 6 -  | 2 6   | 2 6                                | 1 3   | - 1  | - ?   |
| 1 -  | - 5   | - 5                                | --  | - 1  | - ?   |
| ■ 1  | ■ 3 ■ 1 ■ 2   | ■ 3 ■ 1 ■ 2                        | ■ 4   | ■ 1  | ?   |
| ■-?  | ■--   | ■--                                | ■--   | ■--  | ---   |
| ■+■  | ■   | ■                                  | ■   | ■+■  | ■   |
| - ■ --   | ■ ■ --  | ■ ■ --                             | ---   | ■ ■ - ■  | ■ ---   |
| --   | ---   | ---                                | - ■* -  | ---  | ---   |
| 1680D Nylon  | 900D Polyester  | PNC                                | PES   | PVC-coated canvas  | Ballistic Nylon   |
|  |   |                                    |   | ■  |   |
| Luxe 60 discontinued but still available while stocks last | *a sewn eye on each back-strap.<br>Pro Gear 70 discontinued but still available while stocks last |                                    | *padded back removes to become ground pad. Internal pocket with keys hook | Orang-utan=Ltd edition.<br>*1,2 or 3 partitioned 'shelves'<br>*3xLarge eyelets allow bag to be hung as a 'cabinet' | Intended for transport of powered ascender but suitable for any bulky kit |
| notchequipment.com   | notchequipment.com  | protekt.com                        | rockempire  | n/a  | skylotec.com  |



### Images NOT to Scale

£/\$ any price in 'burnt-orange' is a **Currency conversion only**-exc shipping, duties,taxes etc.  
**ROPE CAPACITY** = Not necessarily related to volume if only part of the bag is for rope.  
**ADDITIONAL HAUL** = Dedicated sewn eye or ring that can carry the entire weight of the bag & contents for hauling.Top handle is often able to function as a haul eye.  
**HELMET/BOOT**= pouch or compartment to fit a helmet, often on the outside, and/or boots (always on the inside. [SAW]=Dedicated pouch or scabbard for a hand saw  
**POP**= Popper or press stud  
**BUCKLE ROLL TOP**= all roll tops are closed with a push-fit/Fastex buckle

| MANUFACTURER                                  | STERLING ROPE                                  | STERLING ROPE  | STERLING ROPE  | TEUFELBERGER                              |                                   |
|---|--|--|--|---|-----------------------------------|
| MODELS litres/liters <b>VARIANT</b>           | WonderWall 23                                  | Vertac 40<br>MDBAGVERTAC40BK   | Vertac 60<br>MDBAGVERTAC60BK   | Baby Mule 23                              |                                   |
| ORIGIN  |  |  |  |   |                                   |
| COST (inc Tax/VAT) (currency conversion only) | £0 \$0 €183                                    | £142 \$180 €166  | £158 \$200 €185  | £0 \$0 €183                               |                                   |
| STYLE/FUNCTION                                | BACKPACK                                       | BUCKET/BACKPACK  | BUCKET/BACKPACK  | ORGANISER                                 |                                   |
| SPECIFICATIONS                                | VOLUME L/US Gallon <b>intended market</b>      | 23L Pro Access   | 40L/10gal Pro Access   | 23L Pro Access                            |                                   |
|   | NOMINAL/INTENDED ROPE CAPACITY                 |  | >75m x 11mm<br>>150' x ½"  | >100m x 11mm<br>>200' x ½"                |                                   |
|   | WEIGHT empty                                   | 1.85kg<br>0lb  | 1.35kg<br>3lb  | 1.55kg<br>3.41lb                          | 1.85kg<br>4.1lb                   |
|   | DIMENSIONS (unfilled)                          | 50 x 23 x 20cm<br>19.6 x 9 x 7.8"  | 56 x 34 x 22.5cm<br>22 x 13.3 x 9"   | 72.5 x 33.2 x 26.4cm<br>28.5 x 13 x 10.3" | 50 x 20 x 23cm<br>19.6 x 7.8 x 9" |
| TRANSPORT                                     | 2xBACK STRAPS1.SHOULDERWAIST BELT [PADDED]     |  |  |   |                                   |
|   | BACK/LUMBAR PADDING                            |  |  |   |                                   |
|   | DETACH STOW CARRY STRAPS                       |  |  |   |                                   |
|   | REINFORCED SIDES (Free-standing)               |  |  |   |                                   |
|   | CARRY HANDLES WLL ENDS SIDE                    | 22.7kg/50lb 0 -  | 2* 50lb -  | 2* 60lb -                                 | 1 -                               |
|   | ADDITIONAL HAUL WLL SEWN EYES RINGS            |  | 0 -  | 0 -                                       | 1 -                               |
| STOW EQUIPMENT                                | BAG OPENS OUT to DISPLAY KIT                   |  | PARTIAL  | PARTIAL                                   |                                   |
|   | HELMET/BOOT [SAW] POCKET/POUCH CORD/WEB        |  | - -  | - -                                       |                                   |
|   | INTERNAL PARTITION +ROPE TOOL BAG              | - - -  | - - -  | - - -                                     |                                   |
|   | GEAR (individual) EYES EXTERNAL INTERNAL       |  | - 6  | - 6                                       | 22 -                              |
|   | GEAR LOOPS [STRAPS] EXTERNAL INTERNAL          |  | - -  | - -                                       | 1 [2]                             |
|   | TOTAL POCKETS EXTERNAL INTERNAL                |  | 1 4  | 1 4                                       | 3 3                               |
| POCKETS                                       | of which..MESH/CLEAR EXTERNAL INTERNAL         |  | - 3  | - 3                                       |                                   |
|   | CLOSURE VELCROPOP ZIPPED DRAW-CORDBUCKLE       |  |  |   |                                   |
|   | WATERPROOF VENT HOLES DRAIN HOLES              |  |  |   |                                   |
|   | LID VELCROPOP ZIPPED DRAW-CORD BUCKLE ROLL-TOP |  |  |   |                                   |
|   | LOCKABLE ID PANEL END/SIDE STRAPS              |  | -  | -   |                                   |
|   | REFLECTIVE TRIM TARPULAIN RAINCOVER            |  |  |   |                                   |
| OUTER MATERIALS                               | recycled 600D Ripstop                          | recycled 600D Ripstop  | recycled 600D Ripstop  | 600D PVC, 600D PU                         |                                   |
| OTHER COLOURS                                 |  |  |  |   |                                   |
| NOTES   | NFC Chip                                       | *+Rucksack straps can join to become duffie carry handles<br>Integral NFC Chip.<br>Keys clip in top pocket | *+Rucksack straps can join to become duffie carry handles<br>Integral NFC Chip.<br>Keys clip in top pocket | Includes rain cover                       |                                   |
| WEBSITE                                       | sterlingrope.com                               | sterlingrope.com   | sterlingrope.com   | teufelberger.com                          |                                   |

# TRANSPORT/ORGANISER PACKS



| TEUFELBERGER   | TEUFELBERGER   | TREERUNNER | WEAVER ARBORIST   | WEAVER ARBORIST  | WEST COAST CLIMBER        |
|--|--|------------|---|--|---------------------------|
| <b>Mule 80</b>   | <b>Lazy Mule 80</b>  |            | <b>Chasm 40</b><br>08411-40-00  | <b>Cavern 70</b><br>08410-00   | <b>Pro Gear 70</b>        |
|  |  |            |   |  |                           |
| £325 \$275 €314  | £338 \$324 €326  |            | £130 \$148 €0   | £135 \$0 €0  | £177 \$220 €206           |
| ORGANISER  | WHEELED ORGANISER  |            | BACKPACK  | -  | BUCKET/BACKPACK           |
| 20L/21.1gal Pro Access   | 80L/21.1gal Pro Access   | Pro Access | 40L/10gal Pro Arb   | 70L/18.5gal Pro Arb  | 70L/18.5gal Pro Arb       |
| >2x 75m x 11mm<br>>2x 150' x ½'  | >2x 75m x 11mm<br>>2x 150' x ½'  |            | 100m x 11mm<br>200' x ¾"  | 0m<br>0'   | 150m x 11mm<br>300' x ½"  |
| 3.5kg<br>7.7lb   | 3.74kg<br>8.23lb   |            | 1.68kg<br>3.7lb   | 2.1kg<br>4.6lb   | 3.4-4.5kg<br>7.4-10lb     |
| 65 x 45 x 38cm<br>18 x 15"   | 68 x 45 x 38cm<br>27 x 15"   |            | <b>61 x 38 x 28cm</b><br><b>24 x 15 x 11"</b>   | 61 x 38 x 28cm<br>24 x 15 x 11"  | 56 x 30.5cm<br>22 x 12"   |
|  |  |            |   |  |                           |
|  |  |            |   |  |                           |
|  |  |            |   |  |                           |
|  |  |            |   |  |                           |
| 1 2  | 1 2  |            | 2 1   | 2 1  | 2 1                       |
| --   | --   |            | 0 -   | 1 -  | --                        |
| NO   | NO   |            | NO  | NO   | NO                        |
| -  | -  |            | - -   | -  | -                         |
| -  | -  |            | - - -   | - - -  | - - -                     |
| 70+4 4   | 70+4 4   |            | 22 0  | 22 6   | 10+10* -                  |
| 7 -  | 7 -  |            | - -   | - -  | - -                       |
| 2 -  | 2 -  |            | 3 -   | 4 1  | 4 -                       |
| - -  | - -  |            | - -   | - -  | - -                       |
|  |  |            |   |  |                           |
|  |  |            |   |  |                           |
|  |  |            |   |  |                           |
|  |  |            |   |  |                           |
| 600D PVC, 600D PU  | 600D PVC, 600D PU  |            | HD Nylon Tarp   | HD Nylon Tarp  | 1680D Ballistic Nylon     |
|  |  |            |   |  | -                         |
| Additional zipped side entry. 20L Gear Mule pack can be attached. 30L Optional rope buckets fit tube profile | Additional zipped side entry. 20L Gear Mule pack can be attached. 30L Optional rope buckets fit tube profile |            | *Separate waterproof cap held on with buckles which double as "top compression straps | *inc 1x buckle securing strap for saw pocket<br>*Separate waterproof cap held on with buckles [see Weaver Chasm] | *5 on each shoulder strap |
| teufelberger.com   | teufelberger.com   |            | weaverarborist.com  | weaverarborist.com   | nugreenstore.com          |

# DUFFLE / DUFFEL BAGS



*Singing Rock's Movement and Sterling's Vertac* except to say that you can tell a duffel just by looking at it - it's relatively basic in appearance; a big rectangle or a big barrel with shopping bag handles - a European carrier bag shopping bag not a US paper bag that you cradle in your arms! It's lighter and less complex than organiser and transport packs and it sits lengthways on the ground while you access the interior via a top, longitudinal lid or full length opening. Because these things are intended to carry literally everything from clothes to climbing gear, boots to a flask of soup, the rope capacity has been replaced by the sheer weight that it will carry.

## WATERTIGHT or WATERPROOF?

We have only included bags aimed mostly at arb and rope access or rescue workers but there is a whole category of duffles that may be of interest to you and that is the **watertight** bags as distinct from these **waterproof** bags. You'll find them in the **WATER RESCUE BUYERS GUIDE** because they keep the contents entirely dry even in the event of complete inundation or immersion - if you can even get them to sink since they usually have a lot of air sealed inside. The definition of **watertight** in this case is that you could store water in them (on the ground-not carried) because they have welded or glued seams rather than sewn. Brands such as *Ortlieb* and *Sealine* but there are two bags here that almost fit that bill - the *FTC Tree Duffles* with roll-top closure but you'll notice that the straps are sewn on so....waterproof, not watertight.

**IN THE FOLLOWING TABLES** as per p356  
**COST:** Approximate. Includes local taxes. We round up the cost to the nearest Pound£, US Dollar\$ or Euro€ **Simple currency conversions are shown in orange** exc import duty, shipping etc.

Duffel bags are usually the largest clear, usable space of any of the bags and often in a form where the bag itself can be folded down to a much smaller size when not in use. like the Husqy above left. Duffles were traditionally a cylinder with a shoulder strap in vertical orientation - think military kit bag - which then morphed into a horizontally carried bag with two long carry handles - think sports bag. On many duffles the handles are long enough to double as back-straps but they may also have full size, detachable shoulder straps enabling longer distance vertical carry. Often the handles have integral compression at their ends to help compress the volume so there's no spare material flapping around. Because of their relatively large size most have 'lift & shift' handles on the ends - not for carrying but for pulling and/or lifting and to tip out the contents, in some cases, like the FTC duffles, the lid securing buckles/straps on the ends can act as drag handles. For rope-related activities many have adopted external and internal daisy chains for clipping on gear and a variety of pockets, mostly relatively low profile to preserve the large internal space. It is otherwise a fine line of distinction between a duffel and organisers like *Sliver Bull's Multi-Use*,

|   |   |
|---|---|
| <b>Images NOT to Scale</b><br>£\$€ any price in 'burnt-orange' is a <b>Currency conversion only</b> -exc shipping, duties,taxes etc.<br><b>BACK STRAPSHANDLES</b> [in brackets]=padded<br><b>COMP STRAPS</b> = Compression straps allow you to take in slack and reduce the volume<br><b>HAUL</b> =has eye to take entire wt of bag & contents<br><b>EYES</b> =Sewn eyes and/or rings<br><b>STORE SAW</b> =Dedicated pouch or scabbard for a hand saw<br><b>POP</b> = Popper or press stud<br><b>BUCKLE ROLL TOP</b> = all roll tops are closed with a push-fit/Fastex buckle |   |
| <b>MANUFACTURER</b>   |   |
| <b>MODEL</b> litres/liters <b>VARIANT</b>   |   |
| <b>ORIGIN</b>   |   |
| <b>COST</b> (inc Tax/VAT) <b>Currency conversion only</b>   |   |
| <b>SPECIFICATIONS</b>   | <b>VOLUME</b> L/US Gallon <b>intended market</b>  |
|   | <b>LIFTED LOAD CAPACITY</b>   |
|   | <b>WEIGHT</b> empty   |
|   | <b>DIMENSIONS</b> ht x w x depth  |
| <b>FEATURES</b>   | <b>BACK STRAPS</b> <b>HANDLES</b> <b>COMP-STRAPS</b>                                      |
|   | <b>POCKETS</b> Ext/Int <b>EYES</b> Ext/Int <b>STORE SAW</b>                               |
|   | <b>WATERPROOF</b> <b>IDPANEL DRAIN/VENT HAUL</b>  |
|   | <b>LID</b> <b>VELCRO</b> <b>POP</b> <b>ZIPPED</b> <b>DRAW-CORD</b> <b>BUCKLE ROLL-TOP</b> |
| <b>OUTER MATERIALS</b> <b>REFLECTIVE TRIM</b>   |   |
| <b>OTHER COLOURS</b>  |   |
| <b>NOTES</b>  |   |
| <b>WEBSITE</b>  |   |
| <b>Images NOT to Scale</b><br>£\$€ any price in 'burnt-orange' is a <b>Currency conversion only</b> -exc shipping, duties,taxes etc.<br><b>BACK STRAPSHANDLES</b> [in brackets]=padded<br><b>COMP STRAPS</b> = Compression straps allow you to take in slack and reduce the volume<br><b>HAUL</b> =has eye to take entire wt of bag & contents<br><b>EYES</b> =Sewn eyes and/or rings<br><b>STORE SAW</b> =Dedicated pouch or scabbard for a hand saw<br><b>POP</b> = Popper or press stud<br><b>BUCKLE ROLL TOP</b> = all roll tops are closed with a push-fit/Fastex buckle |   |
| <b>MANUFACTURER</b>   |   |
| <b>MODEL</b> litres/liters <b>VARIANT</b>   |   |
| <b>ORIGIN</b>   |   |
| <b>COST</b> (inc Tax/VAT) <b>Currency conversion only</b>   |   |
| <b>SPECIFICATIONS</b>   | <b>VOLUME</b> L/US Gallon <b>intended market</b>  |
|   | <b>LIFTED LOAD CAPACITY</b>   |
|   | <b>WEIGHT</b> empty   |
|   | <b>DIMENSIONS</b> ht x w x depth  |
| <b>FEATURES</b>   | <b>BACK STRAPS</b> <b>HANDLES</b> <b>COMP-STRAPS</b>                                      |
|   | <b>POCKETS</b> Ext/Int <b>EYES</b> Ext/Int <b>STORE SAW</b>                               |
|   | <b>WATERPROOF</b> <b>IDPANEL DRAIN/VENT HAUL</b>  |
|   | <b>LID</b> <b>VELCRO</b> <b>POP</b> <b>ZIPPED</b> <b>DRAW-CORD</b> <b>BUCKLE ROLL-TOP</b> |
| <b>OUTER MATERIALS</b> <b>REFLECTIVE TRIM</b>   |   |
| <b>OTHER COLOURS</b>  |   |
| <b>NOTES</b>  |   |
| <b>WEBSITE</b>  |   |

# DUFFLE/DUFFEL BAGS

|   |   |   |  |  |
|---|---|---|--|--|
|      |                        |                      |                        |                       |
| <b>AAK SAFETY</b>   | <b>ARBORTEC</b>   | <b>ARBORTEC</b>   | <b>ARBORTEC</b>  | <b>ARBORTEC</b>  |
| <b>Transport 80</b><br>29104  | <b>Anaconda 90</b>  | <b>Mamba 40</b>   | <b>Mamba 70</b><br>AT101   | <b>Mamba 90</b><br>AT101   |
|    |                        |                      |                       |                       |
| £0 \$0 €0   | £126 \$0 €127   | £83 \$0 €0  | £104 \$125 €107  | £117 \$141 €120  |
| 80L/21.1gal <b>Pro Rescue</b>   | 90L/23.8gal <b>Pro Arb</b>  | 40L/10.6gal <b>Pro Arb</b>  | 70L/18.5gal <b>Pro Arb</b>   | 90L/23.8gal <b>Pro Arb</b>   |
| <b>0kg 0lb</b>  | <b>0kg 0lb</b>  | <b>0kg 0lb</b>  | <270m x11mm 540'x½"*   | <350m x11mm 700'x½"*   |
| 1.4kg 0lb   | 2.1kg 4.6lb   | <b>0kg 0lb</b>  | 2.6kg 5.7lb  | 2.88kg 6.3lb   |
| 62 x 32 x 32cm<br>24.4 x12.6 x 12.6"  | 75 x 40cm<br>29.5 x 15.7"   | <b>0 x 0cm</b><br><b>0 x 0"</b>   | 60 x 35 x 30cm<br>24 x 14 x 12"  | 65 x 35 x 35cm<br>26 x 14 x 14"  |
| 2 4 -   | -2 4  | - - -   | 2 * 4 2  | 2 * 4 2  |
| - - - - -   | 3- 10+4 -   | - - - - -   | 14 14 6 -  | 14 14 6 -  |
|    |                        |                      |                       |                       |
| <b>NYLON &amp; PVC -</b>  | <b>Welded PES/PVC</b>  | <b>680 g/m² PVC</b>  | <b>Polyester/PVC</b>  | <b>Polyester/PVC</b>  |
|   | green version is £6 less but NOT reflective   |   | *if handles used as backstraps. Reinforced base protects spikes *if whole bag used for rope              | *if handles used as backstraps. Reinforced base protects spikes *if whole bag used for rope              |
| aaksafety.no  | arbortec.com  | arbortec.com  | arbortec.com   | arbortec.com   |
|    |                      |                    |                      |                     |
| <b>BUCKINGHAM</b>   | <b>CAMP SAFETY</b>  | <b>CRESTO</b>   | <b>FTC TREE</b>  | <b>FTC TREE</b>  |
| <b>Big Mouth? Wheels</b><br>47333   | <b>Shipper 90</b><br>2791   | <b>PACQ 10</b><br>9446  | <b>Duffle 60</b><br>Duffle   | <b>Duffle 80</b><br>Duffle   |
|  |                      |                    |                     |                     |
| £0 \$409500* €0   | £125 \$232 €147   | £00 \$0 €0  | £64 \$0 €0   | £68 \$0 €0   |
| <b>0L/0gal Pro Arb</b>  | 67L/17.7gal <b>Pro Access</b>   |   | 60L/15.8gal <b>Pro Arb</b>   | 80L/0gal <b>Pro Arb</b>  |
| <b>0kg 0lb</b>  | <b>0kg 0lb</b>  | <b>0kg 0lb</b>  | <b>0kg 0lb</b>   | <b>0kg 0lb</b>   |
| 3.4 4.5kg 7.5 10lb  | 900g 2lb  |   | 1kg 2.2lb  | 1.2kg 2.6lb  |
| 56 x 51 x 48cm<br>22 x 20 x 19"   | 81 x 25 x 27cm<br>32 x 10 x 11"   | 39 x 22 x 11cm<br>15.3 x 8.6 x 4.3"   | 68 x 33 x 33cm<br>26.8 x 13 x 13"  | 73 x 36 x 36cm<br>28.7 x 14.2 x 14.2"  |
| 2 2 -   | - - -   | - 2 -   | -24  | -24  |
| - - - - -   | - - - - -   | - - - - -   | - - - - -  | - - - - -  |
|  |                      |                    |                     |                     |
| <b>44oz Vinyl</b>   | -   | <b>Polyester-</b>   | 1680D PVC-coated polyester   | 1680D PVC-coated polyester   |
|  |   |   |  |  |
| available as a non-lockable, non-wheeled model                                      | -   | Very simple bag   | -  | -  |
| buckinghammfg.com   | camp.it   | crestosafety.com  | ftc-tree.com   | ftc-tree.com   |

|   |  |  |  |   |   |
|---|--|--|--|---|---|
| <p><b>Images NOT to Scale</b><br/>                 £\$€ any price in 'burnt-orange' is a <b>Currency conversion only</b>-exc shipping, duties,taxes etc.<br/> <b>BACK STRAPS/HANDLES</b> [in brackets]=padded<br/> <b>COMP STRAPS</b> = Compression straps allow you to take in slack and reduce the volume<br/> <b>HAUL</b>=has eye to take entire wt of bag &amp; contents<br/> <b>EYES</b>=Sewn eyes and/or rings<br/> <b>STORE SAW</b>=Dedicated pouch or scabbard for a hand saw<br/> <b>POP</b>= Popper or press stud<br/> <b>BUCKLE ROLL TOP</b>= all roll tops are closed with a push-fit/Fastex buckle</p> |  |           |    |    |    |
| <b>MANUFACTURER</b>   |  | <b>FTC TREE</b>  | <b>HUSQVARNA</b>   | <b>HUSQVARNA</b>  | <b>NATIV</b>  |
| <b>MODEL litres/liters VARIANT</b>  |  | <b>Koompassia 90</b>   | <b>Xplorer Duffel 70</b>   | <b>Xplorer Trolley 90</b>   | <b>Kit Ba</b>   |
| <b>ORIGIN</b>   |  |           |    |    |    |
| <b>COST (inc Tax/VAT) Currency conversion only</b>  |  | £140 \$178 €160  | £114 \$0 €91   | £156 \$0 €91  | £82 \$1   |
| <b>SPECIFICATIONS</b>   | <b>VOLUME L/US Gallon intended market</b>              | 90L/23.8gal <b>Pro Arb</b>   | 70L/18.5gal <b>Pro Arb</b>   | 90L/23.8gal <b>Pro Arb</b>  | 100L/26.4   |
|   | <b>LIFTED LOAD CAPACITY</b>                            | <b>0kg 0lb</b>   | 0kg 0lb  | 0kg 0lb   | 0kg   |
|   | <b>WEIGHT empty</b>                                    | 2.1kg 4.62lb   | 0kg 0lb  | 0kg 0lb   | 2.2kg   |
|   | <b>DIMENSIONS ht x w x depth</b>                       | 70x35x30cm<br>28 x 14 x 12"  | 0 x 0 x 0cm<br>0 x 0 x 0"  | 0 x 0 x 0cm<br>0 x 0 x 0"   | 75 x 45<br>26 x   |
| <b>FEATURES</b>   | <b>BACK STRAPS HANDLES COMP-STRAPS</b>                 | - - -  | - - -  | - - -   | - - -   |
|   | <b>POCKETS Ext/Int EYES Ext/Int STORE SAW</b>          | - - - -  | - - - -  | - - - -   | - - - -   |
|   | <b>WATERPROOF IDPANEL DRAIN/VENT HAUL</b>              | - - - -  | - - - -  | - - - -   | - - - -   |
|   | <b>LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP</b> | - - - -  | - - - -  | - - - -   | - - - -   |
| <b>OUTER MATERIALS REFLECTIVE TRIM</b>  |  | 800D ripstop/Polyester   | Ripstop TPU-   | Ripstop TPU -   | 1000D TP  |
| <b>OTHER COLOURS</b>  |  |  |  |   |   |
| <b>NOTES</b>  |  | *1 pocket=helmet or anything.* Reflective on rain cover *max-if no other internal contents | -  | -   | Internal zip po<br>phone  |
| <b>WEBSITE</b>  |  | ftc-tree.com   | husqvarna.com  | husqvarna.com   | nativear  |
| <p><b>Images NOT to Scale</b><br/>                 £\$€ any price in 'burnt-orange' is a <b>Currency conversion only</b>-exc shipping, duties,taxes etc.<br/> <b>BACK STRAPS/HANDLES</b> [in brackets]=padded<br/> <b>COMP STRAPS</b> = Compression straps allow you to take in slack and reduce the volume<br/> <b>HAUL</b>=has eye to take entire wt of bag &amp; contents<br/> <b>EYES</b>=Sewn eyes and/or rings<br/> <b>STORE SAW</b>=Dedicated pouch or scabbard for a hand saw<br/> <b>POP</b>= Popper or press stud<br/> <b>BUCKLE ROLL TOP</b>= all roll tops are closed with a push-fit/Fastex buckle</p> |  |         |  |  |  |
| <b>MANUFACTURER</b>   |  | <b>PROTEKT</b>   | <b>PROTEKT</b>   | <b>ROCKnARB</b>   | <b>ROCKnARB</b>   |
| <b>MODEL litres/liters VARIANT</b>  |  | <b>AX028 50</b>  | <b>AX301 50</b>  | <b>Tech Duffel 60</b>   | <b>Tech Du</b>  |
| <b>ORIGIN</b>   |  |         |  |  |  |
| <b>COST (inc Tax/VAT) Currency conversion only</b>  |  | £0 \$0 €0  | £0 \$0 €0  | £0 \$84 €0  | £0 \$1  |
| <b>SPECIFICATIONS</b>   | <b>VOLUME L/US Gallon intended market</b>              | 50L/13.2gal <b>Pro Access</b>  | 50L/13.2gal <b>Pro Access</b>  | 60L/15.8gal <b>Pro Arb</b>  | 60L/15.8gal   |
|   | <b>LIFTED LOAD CAPACITY</b>                            | <b>0m 0'</b>   | <b>0m 0'</b>   | 0kg 0lb   | 0kg   |
|   | <b>WEIGHT empty</b>                                    | 0kg 0lb  | 0kg 0lb  | <b>0kg 2.2lb</b>  | <b>0kg</b>  |
|   | <b>DIMENSIONS ht x w x depth</b>                       | 60 x 30 x 30cm<br>23 x 12 x 12"  | <b>0 x 0 x 0cm<br/>0 x 0 x 0"</b>  | <b>0 x 0 x 0cm<br/>0 x 0 x 0"</b>   | 61 x 30<br>24 x 12  |
| <b>FEATURES</b>   | <b>BACK STRAPS HANDLES COMP-STRAPS</b>                 | -4 -   | [1] 2 -  | - - -   | - - -   |
|   | <b>POCKETS Ext/Int EYES Ext/Int STORE SAW</b>          | - - - -  | 13 - - -   | - - - -   | - - - -   |
|   | <b>WATERPROOF IDPANEL DRAIN/VENT HAUL</b>              | ■ - -  | ■ - -  | - - - -   | - - - -   |
|   | <b>LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP</b> | ■  | ■  | - - - -   | - - - -   |
| <b>OUTER MATERIALS REFLECTIVE TRIM</b>  |  | PVC -  | Polyester ■  | 1000D coated nylon-   | 1000D coa   |
| <b>OTHER COLOURS</b>  |  |         |  |   |   |
| <b>NOTES</b>  |  | -  | -  | -   | -   |
| <b>WEBSITE</b>  |  | protekt.pl   | protekt.pl   | rocknarbor.com  | rocknes   |



# DUFFLE/DUFFEL BAGS

|  |   |   |
|--|---|---|
|  |   |   |
| <b>PRO ARB</b><br><b>Duffel 100</b>    | <b>PETZL</b><br><b>Duffel 65</b>                                  | <b>PETZL</b><br><b>Duffel 85</b><br>S045AA02                      |
|  |   |   |
| £103 €96                               | £144 \$140 €150   | £156 \$160 €160   |
| 65gal <b>Pro Arb</b>                   | 65L/17.2gal <b>Pro Access</b>                                     | 85L/22.5gal <b>Pro Access</b>                                     |
| 0lb                                    | 0kg 0lb   | 340m x 11mm 680' x 1/2"   |
| 4.4lb                                  | 1.35kg 3lb  | 1.55kg 3.4lb  |
| 30cm x 22"                             | 58.5 x 40 x 28.5cm<br>23 x 15.75 x 11.2"                          | 70 x 40 x 32cm<br>27.6 x 15.75 x 12.6"                            |
| -                                      | 2 4 4   | [2] 4 4   |
| -                                      | 1*2 8- -  | 1*5 8- -  |
| -                                      | - - -   | - - -   |
| PE Nylon                               | TPU (PVC-free)  | TPU (PVC-free)  |
| Black                                  | Black   | Black   |
| Hook for keys/ etc.                    | *inc 4 for backstraps (if used)<br>*outside access to helmet/boot | *inc 4 for backstraps (if used)<br>*outside access to helmet/boot |
| arb.co.uk                              | petzl.com   | petzl.com   |
|  |   |   |
| <b>ROCKnRESCUE</b><br><b>Duffel 60</b> | <b>ROCKnRESCUE</b><br><b>Classic Duffel ?</b>                     | <b>SAR PRODUCTS</b><br><b>Transport 35</b><br>B0018               |
|  |   |   |
| £99 €90                                | £0 \$50 €0  | £0 \$0 €0   |
| 60gal <b>Pro Rescue</b>                | 60L <b>OL</b>   | 60L/15.8gal <b>Pro Rescue</b>                                     |
| 0lb                                    | 0kg 0lb   | 0kg 0lb   |
| 2.1lb                                  | 0kg 0lb   | 1kg 2.2lb   |
| 30cm x 22"                             | 68.6 x 29.2cm<br>27 x 11.5  | 30 x 0cm<br>0 x 0   |
| -                                      | - - -   | [2] 4 -   |
| -                                      | - - -   | - - -   |
| -                                      | - - -   | - - -   |
| 1000D coated nylon-                    | 1000D coated nylon-   | PVC -   |
| Black                                  | Black   | Black, Grey, White, Yellow, Blue, Red, Green                      |
| -                                      | -   | Hi- viz ylw or orange on request                                  |
| rocknrescue.com                        | rocknrescue.com   | sar-products.com  |

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|   |  |   |  |   |   |
|---|--|---|--|---|---|
| <p><b>Images NOT to Scale</b><br/>                 £\$€ any price in 'burnt-orange' is a <b>Currency conversion only</b>-exc shipping, duties,taxes etc.<br/> <b>BACK STRAPS/HANDLES</b> [in brackets]=padded<br/> <b>COMP STRAPS</b> = Compression straps allow you to take in slack and reduce the volume<br/> <b>HAUL</b>=has eye to take entire wt of bag &amp; contents<br/> <b>EYES</b>=Sewn eyes and/or rings<br/> <b>STORE SAW</b>=Dedicated pouch or scabbard for a hand saw<br/> <b>POP</b>= Popper or press stud<br/> <b>BUCKLE ROLL TOP</b>= all roll tops are closed with a push-fit/Fastex buckle</p> |  |    |    |    |    |
| <b>MANUFACTURER</b>   |  | <b>SAR PRODUCTS</b>   | <b>SAR PRODUCTS</b>  | <b>SINGING ROCK</b>   | <b>SINGING R</b>  |
| <b>MODEL litres/liters VARIANT</b>  |  | <b>Transport 63</b>   | <b>Transport 63</b>  | <b>Tarp Duffle 70</b>   | <b>Tarp Duffle</b>  |
| <b>ORIGIN</b>   |  |    |     |    |    |
| <b>COST (inc Tax/VAT) Currency conversion only</b>  |  | £0 \$50 €0  | £0 \$50 €0   | £0 \$0 €0   | £103 \$0 €  |
| <b>SPECIFICATIONS</b>   | <b>VOLUME L/US Gallon intended market</b>              | 63L/16.6gal <b>Pro Rescue</b>   | 63L/16.6gal <b>Pro Rescue</b>  | 70L/18.5gal <b>Pro Access</b>   | 90L/23.8gal <b>Pro</b>  |
|   | <b>LIFTED LOAD CAPACITY</b>                            | <b>0kg 0lb</b>  | <b>0kg 0lb</b>   | 20kg/40.4lb   | 23kg/50.6   |
|   | <b>WEIGHT empty</b>                                    | 1.4kg 0lb   | 1.4kg 0lb  | 1.82kg 4lb  | 2.27kg 5lb  |
| <b>FEATURES</b>   | <b>DIMENSIONS ht x w x depth</b>                       | <b>0 x 0cm</b><br><b>0 x 0</b>  | <b>0 x 0cm</b><br><b>0 x 0</b>   | 59 x 35 x 34cm<br>23 x 13.8 x 13.4"   | 69 x 40 x 33cm<br>27 x 15.7 x 13.4"   |
|   | <b>BACK STRAPS HANDLES COMP-STRAPS</b>                 | 24 -  | 24 -   | [1]4 6  | [1]4 4  |
|   | <b>POCKETS Ext/Int EYES Ext/Int STORE SAW</b>          | - - - -   | - - - -  | 2 2 8 - -   | 2 2 8 - -   |
|   | <b>WATERPROOF IDPANEL DRAIN/VENT HAUL</b>              | ■ --  | ■ --   | ■ ---   | ■ ---   |
|   | <b>LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP</b> | ■   | ■  | ■   | ■   |
|   | <b>OUTER MATERIALS REFLECTIVE TRIM</b>                 | PVC -   | PVC -  | PVC -   | PVC -   |
|   | <b>OTHER COLOURS</b>                                   |    |    | -   | -   |
|   | <b>NOTES</b>   | Hi- viz ylw or orange on request  | Hi- viz ylw or orange on request   | -   | -   |
| <b>WEBSITE</b>  | sar-products.com                                       | sar-products.com  | singingrock.com  | singingrock.c   |   |
| <p><b>Images NOT to Scale</b><br/>                 £\$€ any price in 'burnt-orange' is a <b>Currency conversion only</b>-exc shipping, duties,taxes etc.<br/> <b>BACK STRAPS/HANDLES</b> [in brackets]=padded<br/> <b>COMP STRAPS</b> = Compression straps allow you to take in slack and reduce the volume<br/> <b>HAUL</b>=has eye to take entire wt of bag &amp; contents<br/> <b>EYES</b>=Sewn eyes and/or rings<br/> <b>STORE SAW</b>=Dedicated pouch or scabbard for a hand saw<br/> <b>POP</b>= Popper or press stud<br/> <b>BUCKLE ROLL TOP</b>= all roll tops are closed with a push-fit/Fastex buckle</p> |  |  |  |  |  |
| <b>MANUFACTURER</b>   |  | <b>STEIN</b>  | <b>STEIN</b>   | <b>STEIN</b>  | <b>TREEHOG</b>  |
| <b>MODEL litres/liters VARIANT</b>  |  | <b>Metro 40</b>   | <b>Metro 70</b>  | <b>Metro 90</b>   | <b>HiVis Kit Bag</b>  |
| <b>ORIGIN</b>   |  |  |   |  |  |
| <b>COST (inc Tax/VAT) Currency conversion only</b>  |  | £60 \$90 €71  | £72 \$100 €85  | £84 \$110 €100  | £74 \$97 €  |
| <b>SPECIFICATIONS</b>   | <b>VOLUME L/US Gallon intended market</b>              | 40L/10.6gal <b>Pro Arb</b>  | 70L/18.5gal <b>Pro Arb</b>   | 90L/23.8gal <b>Pro Arb</b>  | 70L/18.5gal <b>Pro</b>  |
|   | <b>LIFTED LOAD CAPACITY</b>                            | 10kg 22lb   | 10kg 22lb  | 10kg 22lb   | <b>0kg 0lb</b>  |
|   | <b>WEIGHT empty</b>                                    | 1.23kg 2.7lb  | 1.69kg 3.7lb   | 2kg 4.4lb   | 2.5kg 5.5lb   |
| <b>FEATURES</b>   | <b>DIMENSIONS ht x w x depth</b>                       | 51 x 31cm<br>20 x 12.2"   | 60 x 39cm<br>23.6 x 15.3"  | 70 x 39cm<br>27.6 x 15.3"   | <b>0 x 0 x 0cm</b><br><b>0 x 0 x 0"</b>   |
|   | <b>BACK STRAPS HANDLES COMP-STRAPS</b>                 | [2]4 4  | [2]4 4   | [2]4 4  | 2 4 2   |
|   | <b>POCKETS Ext/Int EYES Ext/Int STORE SAW</b>          | 1 - 16 - -  | 1 - 18 - -   | 1 - 20 - -  | 1 4 14 6  |
|   | <b>WATERPROOF IDPANEL DRAIN/VENT HAUL</b>              | ■ ■ --  | ■ ■ --   | ■ ■ --  | ■ ---   |
|   | <b>LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP</b> | ■   | ■  | ■   | ■   |
|   | <b>OUTER MATERIALS REFLECTIVE TRIM</b>                 | PVC -   | PVC -  | PVC -   | PVC   |
|   | <b>OTHER COLOURS</b>                                   |  |  |  | -   |
|   | <b>NOTES</b>   | -   | -  | -   | -   |
| <b>WEBSITE</b>  | steinworldwide.com                                     | steinworldwide.com  | steinworldwide.com   | treehog.co.   |   |

# DUFFLE/DUFFEL BAGS

|  |  |                                   |   |   |
|--|--|-----------------------------------|---|---|
|  |  |                                   |   |   |
| <b>SINGING ROCK</b><br>Tarp Duffle 120<br>C0046BB120 | <b>SINGING ROCK</b><br>Movement 110<br>C0073BY00 | <b>SIP PROTECTION</b><br>Atlas 90 | <b>SKYLOTEC</b><br>Duffle M ?<br>ACS-0176 | <b>SKYLOTEC</b><br>Duffle L ?<br>ACS-0176 |
|  |  |                                   |   |   |
| £0 \$0 €0  | £159 \$0 €0                                      | £0 \$0 €91                        | £0 \$0 €102                               | £01 \$0 €108                              |
| Access 120L/31.7gal Pro Access                       | 110L/29gal Pro Access                            | 90L/23.8gal Pro Arb               | 90L/23.8gal Pro Access                    | 0L/0gal Pro Access                        |
| 23kg/50.6lb  | 0kg 0lb  | 0kg 0lb                           | 0kg 0lb                                   | 0kg 0lb                                   |
| 2.65kg 5.8lb   | 4.6kg 10.1lb                                     | 0kg 0lb                           | 0kg 0lb                                   | 1.4kg 0lb                                 |
| 85 x 42 x 38cm<br>33 x 12.5 x 15"                    | 77 x 39 x 38cm<br>30.3 x 15.4 x 15"              | 0 x 0 x 0cm<br>0 x 0 x 0"         | 0 x 0 x 0cm<br>0 x 0 x 0"                 | 0 x 0 x 0cm<br>0 x 0 x 0"                 |
| [1]4 4   | - - -  | - - -                             | - - -                                     | - - -                                     |
| 42 12- -   | - - - -  | - - - -                           | - - - -                                   | - - - -                                   |
|  |  |                                   |   |   |
| <b>PVC</b> -   | <b>PVC</b>                                       | - -                               | - -                                       | - -                                       |
| -  | reinforced edges/corners                         | -                                 | -   | -   |
| singingrock.com                                      | singingrock.com                                  | -                                 | skylotec.com                              | skylotec.com                              |



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# ROPE / GEAR BAGS

These are less complex **ROPE & GEAR BAGS** than the organisers but may still have attachment eyes/daisy chains and one or two pockets. Indeed many of these, like the *Recoil* bag on the right and *NLG* bags have far more 'organisation' than duffle bags in the previous section. They are virtually all top-loading cylinders in design and intended mostly for rope storage/transport rather than your entire day's climbing paraphernalia.



No Working Load Limits are given because these are mostly lower volume bags for rope but beware of overloading with too much hardware! Those with a drawstring top closure will often fold back over the lip of the bag to give unimpeded access to the interior like this *Petzl 45*.

## IN THE FOLLOWING TABLES:...

**COST:** Approximate. Includes local taxes but can vary due to exchange rates, other taxes etc. We round up the cost to the nearest Pound£, US Dollar\$ or Euro€ **Simple currency conversions are shown in orange** for reference - this does not take into account import duty, shipping or tax.

**STYLE/FUNCTION:** The bags in this guide can be defined as one or both of the following

- **(SIMPLE) ROPE BAG** - an upright, flexible bag with few additional features but greater rope storage volume.
- **BUCKET** an upright, top-feeder that holds its shape to allow rope to be fed in or out. Usually shorter in stature than a simple cylinder bag and often has extra storage features like eyes and/or pockets but lower overall volume.
- **BACKPACK:** single or double shoulder straps making it more suitable for longer distance transport. Still a simple rope bag with few other features but can be carried on the back giving both hands free to carry even more stuff.

**NOMINAL ROPE/LOAD CAPACITY:** Rope access requires the **load capacity** of handles and attachments to be clearly labelled.

46m/150ft x 12.7mm/½" = 76m/250' x 11mm 7/16" = 91m/300' x 9mm 3/8" = 100m/328' x 11mm = 60m x 11.7mm =

**Virtually all** 'buckets' have integral rigidity and will stand open.


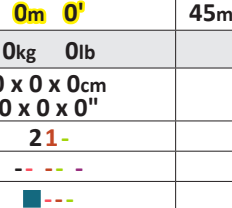







**POCKETS Ext/Int EYES Ext/Int STORE SAW** The number of pockets on the outside and inside **excluding** ID/Document pouches and saw pouches listed separately. This number may include a small security or key pocket on the inside.

**Comp strap=Compression Strap**

| <p><b>Images NOT to Scale</b><br/>                     £\$€ any price in 'burnt-orange' is a <b>Currency conversion only</b>-exc shipping, duties,taxes etc.<br/> <b>HAUL EYES</b> = can carry the entire weight of the bag &amp; contents eg. for hauling or attaching to harness.May double as handles shown as 1/1<br/> <b>STORE SAW</b>=pouch or scabbard for hand saw<br/> <b>POP</b>= Popper or press stud<br/> <b>BUCKLE ROLL TOP</b>= all roll tops are closed with a push-fit/Fastex buckle<br/>                     PES = Polyester<br/>                     ●●●●●●●●=Partial feature or OK but not ideal<br/>                     □□□□□□= Option</p> |  |                                    |
|---|--|------------------------------------|
| <b>MANUFACTURER</b>   |  | <b>AAK SAFETY</b>                  |
| <b>MODEL litres/liters VARIANT</b>  |  | <b>Backpack 35</b>                 |
| <b>ORIGIN</b>   |  |                                    |
| <b>COST (inc Tax/VAT) Currency conversion only</b>  |  | £0 \$0 €0                          |
| <b>SPECIFICATIONS</b>   | <b>VOLUME L/US Gallon intended market</b>              | 35L/9.2gal <b>Pro Access</b>       |
|   | <b>NOMINAL ROPE/LOAD CAPACITY</b>                      | <b>0kg 0lb</b>                     |
|   | <b>WEIGHT empty</b>                                    | <b>0kg 0lb</b>                     |
|   | <b>DIMENSIONS</b>                                      | <b>0 x 0 x 0cm</b><br><b>0 x 0</b> |
|   | <b>BACK STRAPS HANDLES HAUL EYE(S)</b>                 | ---                                |
| <b>FEATURES</b>   | <b>POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW</b>     | --- --                             |
|   | <b>WATERPROOF ID-PANEL DRAIN/VENT</b>                  | ---                                |
|   | <b>LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP</b> | ---                                |
|   | <b>OUTER MATERIALS REFLECTIVE TRIM</b>                 | <b>PVC -</b>                       |
|   | <b>OTHER COLOURS</b>                                   |                                    |
| <b>NOTES</b>  |  |                                    |
| <b>WEBSITE</b>  |  | aaksafety.no                       |
| <p><b>Images NOT to Scale</b><br/>                     £\$€ any price in 'burnt-orange' is a <b>Currency conversion only</b>-exc shipping, duties,taxes etc.<br/> <b>HAUL EYES</b> = can carry the entire weight of the bag &amp; contents eg. for hauling or attaching to harness.May double as handles shown as 1/1<br/> <b>STORE SAW</b>=pouch or scabbard for hand saw<br/> <b>POP</b>= Popper or press stud<br/> <b>BUCKLE ROLL TOP</b>= all roll tops are closed with a push-fit/Fastex buckle<br/>                     PES = Polyester<br/>                     ●●●●●●●●=Partial feature or OK but not ideal<br/>                     □□□□□□= Option</p> |  |                                    |
| <b>MANUFACTURER</b>   |  | <b>ARBORTEC</b>                    |
| <b>MODEL litres/liters VARIANT</b>  |  | <b>Cobra 65</b>                    |
| <b>ORIGIN</b>   |  |                                    |
| <b>COST (inc Tax/VAT) Currency conversion only</b>  |  | £221 \$295 €252                    |
| <b>SPECIFICATIONS</b>   | <b>VOLUME L/US Gallon intended market</b>              | 65L/17.1gal <b>Pro Arb</b>         |
|   | <b>NOMINAL ROPE/LOAD CAPACITY</b>                      | 45m x 11mm 100' x ½"               |
|   | <b>WEIGHT empty</b>                                    | 3.6kg 7.9lb                        |
|   | <b>DIMENSIONS</b>                                      | 61.5 x 37cm<br>24.2 x 14.6"        |
|   | <b>BACK STRAPS HANDLES HAUL EYE(S)</b>                 | -7-                                |
| <b>FEATURES</b>   | <b>POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW</b>     | 31 44- -                           |
|   | <b>WATERPROOF ID-PANEL DRAIN/VENT</b>                  | ■-■4                               |
|   | <b>LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP</b> | ■+■                                |
|   | <b>OUTER MATERIALS REFLECTIVE TRIM</b>                 | <b>PES/PVC</b>                     |
|   | <b>OTHER COLOURS</b>                                   |                                    |
| <b>NOTES</b>  |  | Rope feed hole in lid              |
| <b>WEBSITE</b>  |  | arbortec.com                       |

# ROPE/GEAR BAGS

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
| <b>ARS</b>  | <b>ARS</b>  | <b>ARBORTEC</b>   | <b>ARBORTEC</b>   | <b>ARBORTEC</b>   | <b>ARBORTEC</b>   |
| <b>Breakout</b>   | <b>Breakout</b>   | <b>00</b>   | <b>Viper 60</b>   | <b>Cobra 35</b>   | <b>Cobra 55</b>   |
|   |  |    |  |  |  |
| £205 \$0 €0   | £220 \$0 €0   | £0 \$0 €0   | £74 \$0 €0  | £108 \$142 €122   | £184 \$213 €209   |
| <b>0L Pro Rescue</b>  | <b>0L Pro Rescue</b>  | <b>0L Pro Arb</b>   | <b>60L Pro Arb</b>  | <b>35L Pro Arb</b>  | <b>55L/14.5gal Pro Arb</b>  |
| 200' x 1/2'   | 300' x 1/2'   | <b>0m 0'</b>  | <b>0m 0'</b>  | 45m x 11mm 100' x 1/2"  | 45m x 11mm 100' x 1/2"  |
| 0kg 0lb   | 0kg 0lb   | 0kg 0lb   | 0kg 0lb   | 1.5kg 3.3lb   | 2.4kg 5.3lb   |
| 0 x 0 x 0cm<br>0 x 0 x 0"   | 0 x 0 x 0cm<br>0 x 0 x 0"   | 0 x 0 x 0cm<br>0 x 0 x 0"   | 0 x 0 x 0cm<br>0 x 0 x 0"   | 34 x 36cm<br>13.4 x 14.2"   | 48.5 x 37cm<br>19.1 x 14.6"   |
| ---   | ---   | 21-   | 21-   | -4-   | -7-   |
| ---   | ---   | ---   | ---   | 31 32- -  | 31 36- -  |
| ---   | ---   | ■ ---   | ■ ---   | ■ ■ -   | ■ ■ 4   |
| ---   | ---   | ■ + ■   | ■ + ■   | ■ + ■   | ■ + ■   |
| <b>1000D Cordura</b>  | <b>1000D Cordura</b>  | <b>PES/PVC</b>  | <b>PES/PVC</b>  | <b>PES/PVC</b>  | <b>PES/PVC</b>  |
|   |  |   |    |  |  |
| Bag opens out as a ground tarp for rope/gear                                      | Bag opens out as a ground tarp for rope/gear                                      |   |   | Rope feed hole in lid   | Rope feed hole in lid   |
| andersonrescue.com  | andersonrescue.com  | arbortec  | arbortec  | arbortec.com  | arbortec.com  |

|  |   |  |
|--|---|--|
|   |   |  |
| <b>ARBPRO</b>  | <b>ARBPRO</b>   | <b>ARBPRO</b>  |
| <b>Bucket Bag Air 28</b>   | <b>Bucket Bag Air 40</b>  | <b>Bucket Bag Air 60</b>   |
|  |  |   |
| £0 \$0 €64   | £0 \$0 €64  | £0 \$0 €107  |
| <b>28L/7.4gal Pro Arb</b>  | <b>40L/10.6gal Pro Arb</b>  | <b>60L/15.8gal Pro Arb</b>   |
| <b>0m 0'</b>   | <b>0m 0'</b>  | <b>0m 0'</b>   |
| 906g 0lb   | 0kg 0lb   | 1.54kg 0lb   |
| 40 x 30 x 30cm<br>15.7 x 12 x 12"  | 0 x 0 x 0cm<br>0 x 0 x 0"   | 50 x 35 x 35cm<br>19.6 x 13.7 x 13.7"  |
| 12 ■   | 12 ■  | 22 ■   |
| 1- 8- -  | 1- 8- -   | 1- 8- -  |
| - ■ ■ 1  | - ■ ■ 1   | - ■ ■ 1  |
| ■  | ■   | ■  |
| <b>680 g/m² PVC+ Mesh</b>  | <b>680 g/m² PVC+ Mesh</b>   | <b>680 g/m² PVC+ Mesh</b>  |
|  |  |   |
| AIR has mesh sides   | AIR has mesh sides  | AIR has mesh sides   |
| arbpro.it  | arbpro.it   | arbpro.it  |

## Breakout Rope Bag



Rigging Reimagined

**ARS** www.andersonrescue.com

| <p><b>Images NOT to Scale</b><br/>                     £\$€ any price in 'burnt-orange' is a <b>Currency conversion only</b>-exc shipping, duties,taxes etc.<br/> <b>HAUL EYES</b> = can carry the entire weight of the bag &amp; contents eg. for hauling or attaching to harness.May double as handles shown as 1/1<br/> <b>STORE SAW</b>=pouch or scabbard for hand saw<br/> <b>POP</b>= Popper or press stud<br/> <b>BUCKLE ROLL TOP</b>= all roll tops are closed with a push-fit/Fastex buckle<br/>                     PES = Polyester<br/>                     ●●●●● =Partial feature or OK but not ideal<br/>                     □□□□□ = Option</p> |                                    |                            |                               |                               |  |
|---|------------------------------------|----------------------------|-------------------------------|-------------------------------|--|
| <b>MANUFACTURER</b>   | <b>ARBPRO</b>                      | <b>ARBPRO</b>              | <b>ARBPRO</b>                 | <b>ARBPRO</b>                 |  |
| <b>MODEL litres/liters VARIANT</b>  | <b>Bucket Rucksack 40</b><br>2P654 | <b>Bucket Rucksack 60</b>  | <b>Bucket Rucksack 75</b>     | <b>Bucket Bag 28</b>          |  |
| <b>ORIGIN</b>   |                                    |                            |                               |                               |  |
| <b>COST (inc Tax/VAT) Currency conversion only</b>  | £98 \$110 €106                     | £101 \$120 €110            | £108 \$120 €118               | £60 \$70 €64                  |  |
| <b>VOLUME L/US Gallon intended market</b>   | 40L/10.6gal <b>Pro Arb</b>         | 60L/15.8gal <b>Pro Arb</b> | 75L <b>Pro Arb</b>            | 28L/7.4gal <b>Pro Arb</b>     |  |
| <b>NOMINAL ROPE/LOAD CAPACITY</b>   | 0m 0'                              | 0m 0'                      | 0m 0'                         | 0m 0'                         |  |
| <b>WEIGHT empty</b>   | 0kg 0lb                            | 0kg 0lb                    | 3.4kg 7.5lb                   | 906g 0lb                      |  |
| <b>DIMENSIONS</b>   | 0 x 0cm<br>0 x 0"                  | 0 x 0cm<br>0 x 0"          | 0 x 0cm<br>0 x 0"             | 40 x 30cm<br>15.7 x 12"       |  |
| <b>BACK STRAPS HANDLES HAUL EYE(S)</b>  | 2 2                                | 2 2                        | 2 2                           | 1 2                           |  |
| <b>POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW</b>  | 2- 8- -                            | 2- 8- -                    | 2- 8- -                       | 1- 8- -                       |  |
| <b>WATERPROOF ID-PANEL DRAIN/VENT</b>   | ■ ■ ■                              | ■ ■ ■                      | ■ ■ ■                         | ● ■ ■                         |  |
| <b>LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP</b>  | ■                                  | ■                          | ■                             | ■                             |  |
| <b>OUTER MATERIALS REFLECTIVE TRIM</b>  | 680 g/m² PVC                       | 680 g/m² PVC               | 680 g/m² PVC                  | 680 g/m² PVC+ Mesh            |  |
| <b>OTHER COLOURS</b>  |                                    |                            |                               |                               |  |
| <b>NOTES</b>  |                                    |                            | Rope feed hole in lid         | AIR has mesh sides            |  |
| <b>WEBSITE</b>  | arbpro.it                          | arbpro.it                  | arbpro.it                     | arbpro.it                     |  |
| <p><b>Images NOT to Scale</b><br/>                     £\$€ any price in 'burnt-orange' is a <b>Currency conversion only</b>-exc shipping, duties,taxes etc.<br/> <b>HAUL EYES</b> = can carry the entire weight of the bag &amp; contents eg. for hauling or attaching to harness.May double as handles shown as 1/1<br/> <b>STORE SAW</b>=pouch or scabbard for hand saw<br/> <b>POP</b>= Popper or press stud<br/> <b>BUCKLE ROLL TOP</b>= all roll tops are closed with a push-fit/Fastex buckle<br/>                     PES = Polyester<br/>                     ●●●●● =Partial feature or OK but not ideal<br/>                     □□□□□ = Option</p> |                                    |                            |                               |                               |  |
| <b>MANUFACTURER</b>   | <b>BEAL</b>                        | <b>BEAL</b>                | <b>BEAL</b>                   | <b>BEAL</b>                   |  |
| <b>MODEL litres/liters VARIANT</b>  | <b>Genius Bucket 20</b>            | <b>ProWork 35</b><br>BSAC  | <b>ProWork 45</b><br>BSAC     | <b>ProWork 60</b><br>BSAC     |  |
| <b>ORIGIN</b>   |                                    |                            |                               |                               |  |
| <b>COST (inc Tax/VAT) Currency conversion only</b>  | £0 \$0 €0                          | £101 \$0 €110              | £131 \$0 €131                 | £137 \$0 €137                 |  |
| <b>VOLUME L/US Gallon intended market</b>   | 20L/5.3gal <b>Pro Access</b>       | 35L/9gal <b>Pro Access</b> | 45L/11.8gal <b>Pro Access</b> | 60L/15.8gal <b>Pro Access</b> |  |
| <b>NOMINAL ROPE/LOAD CAPACITY</b>   | 0m 0'                              | 0m 0'                      | 0m 0'                         | 0m 0'                         |  |
| <b>WEIGHT empty</b>   | 0kg 0lb                            | 0kg 0lb                    | 0kg 0lb                       | 0kg 0lb                       |  |
| <b>DIMENSIONS</b>   | 0 x 0 x 0cm<br>0 x 0 x 0"          | 0 x 0 x 0cm<br>0 x 0 x 0"  | 0 x 0 x 0cm<br>0 x 0 x 0"     | 0 x 0 x 0cm<br>0 x 0 x 0"     |  |
| <b>BACK STRAPS HANDLES HAUL EYE(S)</b>  | ---                                | -4-                        | ---                           | ---                           |  |
| <b>POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW</b>  | ---                                | 4- ---                     | ---                           | ---                           |  |
| <b>WATERPROOF ID-PANEL DRAIN/VENT</b>   | ---                                | ---                        | ---                           | ---                           |  |
| <b>LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP</b>  | ---                                | ■                          | ---                           | ■ ■                           |  |
| <b>OUTER MATERIALS REFLECTIVE TRIM</b>  | --                                 |                            | PVC                           | PVC                           |  |
| <b>OTHER COLOURS</b>  |                                    |                            |                               | ■                             |  |
| <b>NOTES</b>  | -                                  | Rope feed hole in lid      |                               |                               |  |
| <b>WEBSITE</b>  | beal-planet.com                    | beal-planet.com            | beal-planet.com               | beal-planet.com               |  |

# ROPE/GEAR BAGS

|  |   |   |   |   |   |
|--|---|---|---|---|---|
|    |   |    |    |    |    |
| <b>ARBPRO</b><br><b>Bucket Bag 40</b>  | <b>ARBPRO</b><br><b>Bucket Bag 60</b>   | <b>ARBPRO</b><br><b>Bucket Bag 75</b>   | <b>ARBSESSION</b><br><b>Rope Bbag M 28</b>  | <b>ARBSESSION</b><br><b>Rope Bag L 32</b>   | <b>ARBSESSION</b><br><b>RopeTote 28</b>   |
|    |    |    |    |    |    |
| £98 \$110 €106   | £101 \$120 €110   | £108 \$130 €118   | £20 \$25 €23  | £28 \$35 €32  | £45 \$55 €52  |
| 10L/10.6gal <b>Pro Arb</b>   | 60L/15.8gal <b>Pro Arb</b>  |   | 28L/7.4gal <b>Pro Arb</b>   | 32L <b>Pro Arb</b>  | 28L/7.4gal <b>Pro Arb</b>   |
| 0m 0'  | 0m 0'   | 0m 0'   | 60m/200' x 12.7mm/½"  | 76m/250' x 12.7mm/½"  | 60m/200' x 12.7mm/½"  |
| 0kg 0lb  | 0kg 0lb   | 2kg 4.4lb   | 453g 1lb  | 544g 1.2lb  | 900g 2lb  |
| 0 x 0cm<br>0 x 0"  | 0 x 0cm<br>0 x 0"   | 60 x 45 x 30cm<br>23.6 x 17.7 x 12"   | 40.6 x 30.5cm<br>16 x 12"   | 43 x 33 cm<br>17 x 13"  | 40.6 x 30.5cm<br>16 x 12"   |
| - 2  | - 2   | 2 2   | - 2 -   | - 2 -   | - 2 -   |
| -- 8 - -   | -- 8 - -  | 2 - - -   | - - - -   | - - - -   | - - 8 - -   |
|    |    |    |    |    |    |
| 680 g/m <sup>2</sup> PVC   | 680 g/m <sup>2</sup> PVC  | 680 g/m <sup>2</sup> PVC  | 600D Polyester -  | 600D Polyester -  | 900D Vinyl -  |
|    |    |    |   |   |   |
| arbpro.it  | arbpro.it   | arbpro.it   | arbsession.com  | arbsession.com  | arbsession.com  |
|  | May be discontinued?  |   |   |   | reinforced version. Apron folds down outside of bag                                   |
|  |  |  |  |   |  |
| <b>BUCKINGHAM</b><br><b>Std Rope bag</b>   | <b>BUCKINGHAM</b><br><b>Std Rope Bag</b>  | <b>BUCKINGHAM</b><br><b>0000</b>  | <b>BUCKINGHAM</b><br><b>BackpackWheels</b><br>4470                                  | <b>BUCKINGHAM</b><br><b>Big BackpackWheels</b><br>4471                                | <b>BUCKINGHAM</b><br><b>Buck Haul Bag</b><br>4380                                     |
|  |  |  |  |  |  |
| £0 \$0 €0  | £0 \$0 €0   | £0 \$0 €0   | £0 \$365 506 €0   | £0 \$395 535 €0   | £0 \$382* €0  |
| 0L <b>Pro Arb</b>  | 0L <b>Pro Arb</b>   | 0L <b>Pro Arb</b>   | 0L <b>Pro Arb</b>   | 0L <b>Pro Arb</b>   | 0L <b>Pro Arb</b>   |
| 68kg/150lb   | 0m 0'   | 0m 0'   | 0m 0'   | 0m 0'   | 0m 0'   |
| 0kg 1lb  | 0kg 1.6lb   | 0kg 0lb   | 0kg 0lb   | 0kg 0lb   | 0kg 0lb   |
| 0 x 0cm<br>15 x 12"  | 0 x 0cm<br>15 x 12"   | 0 x 0cm<br>0 x 0"   | 0 x 0 x 0cm<br>0 x 0 x 0"   | 0 x 0 x 0cm<br>0 x 0 x 0"   | 0 x 0 x 0cm<br>0 x 0 x 0"   |
| - - -  | - - -   | - - -   | - - -   | - - -   | - - -   |
| - - - -  | - - - -   | - - - -   | - - - -   | - - - -   | - - - -   |
| - - -  | - - -   | - - -   | - - -   | - - -   | - - -   |
|  |  |  |  |  |  |
| Canvas   | Canvas  | Canvas  | Canvas/Vinyl & Rubber   | Vinyl-coated Nylon  | 44oz Vinyl  |
| -  | Hard Plastic base   | -   | Black bag higher cost Vinyl.<br>*Optional wheels/handle                             | * Wheels=detachable option<br>Solid handle with wheels.                               | Hi-viz version is \$401   |
| buckinghammfg.com  | buckinghammfg.com   | buckinghammfg.com   | buckinghammfg.com   | buckinghammfg.com   | buckinghammfg.com   |















|   |  |                                   |  |   |   |
|---|--|-----------------------------------|--|---|---|
| <p><b>Images NOT to Scale</b><br/>                 £\$€ any price in 'burnt-orange' is a <b>Currency conversion only</b>-exc shipping, duties,taxes etc.<br/> <b>HAUL EYES</b> = can carry the entire weight of the bag &amp; contents eg. for hauling or attaching to harness.May double as handles shown as 1/1<br/> <b>STORE SAW</b>=pouch or scabbard for hand saw<br/> <b>POP</b>= Popper or press stud<br/> <b>BUCKLE ROLL TOP</b>= all roll tops are closed with a push-fit/Fastex buckle<br/>                 PES = Polyester<br/>                 ●●●●● =Partial feature or OK but not ideal<br/>                 □□□□□ = Option</p> |  |                                   |  |   |   |
| <b>MANUFACTURER</b>   |  | <b>BUCKINGHAM</b>                 | <b>BUCKINGHAM</b>                        | <b>BUCKINGHAM</b>                       | <b>CAMP SAFETY</b>  |
| <b>MODEL litres/liters VARIANT</b>  |  | <b>Buck Haul Bag XL</b><br>4370   | <b>RopePro Deluxe L</b><br>4374          | <b>RopePro Deluxe XL</b><br>4373        | <b>SuperCargo 40</b><br>2915.                               |
| <b>ORIGIN</b>   |  |                                   |  |   |   |
| <b>COST (inc Tax/VAT) Currency conversion only</b>  |  | £0 \$478 €0                       | £96 \$159 €0                             | £0 \$183 €0                             | £220 \$350 €0   |
| <b>SPECIFICATIONS</b>   | <b>VOLUME L/US Gallon intended market</b>              | <b>0L Pro Arb</b>                 | <b>0L Pro Arb</b>                        | <b>0L Pro Arb</b>                       | <b>40L/10.6gal Pro Access</b> 70                            |
|   | <b>NOMINAL ROPE/LOAD CAPACITY</b>                      | <b>0m 0'</b>                      | <b>76m x 12.7mm 250' x ½"</b>            | <b>152m x 12.7mm 500' x ½"</b>          | <b>80kg/176lb</b>   |
|   | <b>WEIGHT empty</b>                                    | <b>0kg 0lb</b>                    | <b>1.1kg 2.4lb</b>                       | <b>0kg 0lb</b>                          | <b>2.9g 6.4lb</b>   |
|   | <b>DIMENSIONS</b>                                      | <b>0 x 0 x 0cm<br/>0 x 0 x 0"</b> | <b>41 x 41 x 36cm<br/>16 x 16 x 14 "</b> | <b>59 x 56 x 36cm<br/>23 x 22 x 14"</b> | <b>63 x 34 x 28cm<br/>24.8 x 13.4 x 11"</b>                 |
| <b>FEATURES</b>   | <b>BACK STRAPS HANDLES HAUL EYE(S)</b>                 | ---                               | ---                                      | ---                                     | <b>2 2 4</b>  |
|   | <b>POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW</b>     | ---                               | ---                                      | ---                                     | ---   |
|   | <b>WATERPROOF ID-PANEL DRAIN/VENT</b>                  | ---                               | ---                                      | ---                                     | ---   |
|   | <b>LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP</b> | ---                               | ---                                      | ---                                     | ---   |
| <b>OUTER MATERIALS REFLECTIVE TRIM</b>  |  | <b>44oz Vinyl</b>                 |  |   | <b>4500D TPU</b>  |
| <b>OTHER COLOURS</b>  |  |                                   |  |   |   |
| <b>NOTES</b>  |  |                                   | Top, closable rope feed hole             | Top, closable rope feed hole            | *Handles inc 4 haul/gear loops. *4 eyes for backstraps *loo |
| <b>WEBSITE</b>  |  | buckinghammfg.com                 | buckinghammfg.com                        | buckinghammfg.com                       | camp.it   |






|   |  |                                   |                                   |  |   |
|---|--|-----------------------------------|-----------------------------------|--|---|
| <p><b>Images NOT to Scale</b><br/>                 £\$€ any price in 'burnt-orange' is a <b>Currency conversion only</b>-exc shipping, duties,taxes etc.<br/> <b>HAUL EYES</b> = can carry the entire weight of the bag &amp; contents eg. for hauling or attaching to harness.May double as handles shown as 1/1<br/> <b>STORE SAW</b>=pouch or scabbard for hand saw<br/> <b>POP</b>= Popper or press stud<br/> <b>BUCKLE ROLL TOP</b>= all roll tops are closed with a push-fit/Fastex buckle<br/>                 PES = Polyester<br/>                 ●●●●● =Partial feature or OK but not ideal<br/>                 □□□□□ = Option</p> |  |                                   |                                   |  |   |
| <b>MANUFACTURER</b>   |  | <b>CAMP SAFETY</b>                | <b>COURANT</b>                    | <b>COURANT</b>                                 | <b>COURANT</b>  |
| <b>MODEL litres/liters VARIANT</b>  |  | <b>Cargo 40</b><br>2785           | <b>Cross Rope Light 17</b><br>00  | <b>Host 36</b><br>PSECBYA                      | <b>Cross Rope 36</b>                                    |
| <b>ORIGIN</b>   |  |                                   |                                   |  |   |
| <b>COST (inc Tax/VAT) Currency conversion only</b>  |  | £60 \$80 €0                       | £0 \$0 €0                         | £58 \$0 €64                                    | £66 \$98 €89  |
| <b>SPECIFICATIONS</b>   | <b>VOLUME L/US Gallon intended market</b>              | <b>40L/10.6gal Pro Access</b>     | <b>17L/4.5gal Pro Access</b>      | <b>36L/9.5gal Pro Access</b>                   | <b>23-36L/6-9.5gal Pro Access</b> 40                    |
|   | <b>NOMINAL ROPE/LOAD CAPACITY</b>                      | <b>0m 0'</b>                      | <b>0m x 0mm 0' x ½"</b>           | <b>45m x 12mm</b>                              | <b>45m x 12mm</b>                                       |
|   | <b>WEIGHT empty</b>                                    | <b>0kg 2.1lb</b>                  | <b>00g 0lb</b>                    | <b>0.91kg 2lb</b>                              | <b>1.1kg 2.4lb</b>                                      |
|   | <b>DIMENSIONS</b>                                      | <b>0 x 0 x 0cm<br/>0 x 0 x 0"</b> | <b>0 x 0 x 0cm<br/>0 x 0 x 0"</b> | <b>0 x 0 x 0cm<br/>0 x 0 x 0"</b>              | <b>45 x 32 x 19cm<br/>18 x 13 x 7.5"</b>                |
| <b>FEATURES</b>   | <b>BACK STRAPS HANDLES HAUL EYE(S)</b>                 | <b>2-1</b>                        | ---                               | ---  | ---   |
|   | <b>POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW</b>     | <b>-1 -2 -</b>                    | ---                               | ---  | ---   |
|   | <b>WATERPROOF ID-PANEL DRAIN/VENT</b>                  |                                   | ---                               | ---  | ---   |
|   | <b>LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP</b> |                                   | ---                               | ---  | ---   |
| <b>OUTER MATERIALS REFLECTIVE TRIM</b>  |  | <b>500D PVC</b>                   |                                   | <b>1680D nylon &amp; mesh</b>                  | <b>1680D Ballistic nylon/mesh</b>                       |
| <b>OTHER COLOURS</b>  |  |                                   |                                   |  |   |
| <b>NOTES</b>  |  |                                   |                                   | Buckles/straps for clipping to Cross/Dock bags | Expands (upwards).Zips open both ends. zipped rope hole |
| <b>WEBSITE</b>  |  | camp.it                           | mycourant.com                     | mycourant.com                                  | mycourant.com   |



# ROPE/GEAR BAGS

|  |   |   |   |   |   |
|--|---|---|---|---|---|
|    |    |    |    |    |    |
| <b>CAMP SAFETY</b>   | <b>CAMP SAFETY</b>  | <b>CAMP SAFETY</b>  | <b>CAMP SAFETY</b>  | <b>CAMP SAFETY</b>  | <b>CAMP SAFETY</b>  |
| <b>Super Cargo 70</b><br>2775.   | <b>Transport 20</b><br>00   | <b>Transport 30</b><br>00   | <b>Trucker 30</b><br>00.  | <b>Trucker 45</b><br>00.  | <b>Trucker 60</b><br>00   |
|  |   |   |   |   |   |
| £246 \$450 €0  | £0 \$0 €0   | £0 \$0 €0   | £105 \$0 €124   | £119 \$0 €139   | £129 \$0 €162   |
| 0L/18.5gal <b>Pro Access</b>   | 20L/5.3gal <b>Pro Access</b>  | 30L/7.9gal <b>Pro Access</b>  | 30L/7.9gal <b>Pro Access</b>  | 45L/11.8gal <b>Pro Access</b>   | 60L/15.8gal <b>Pro Access</b>   |
| 80kg/176lb   | <b>0m 0'</b>  | <b>0m 0'</b>  | 0m x 0mm 0' x 1/2"  | 0m x 0mm 0' x 1/2"  | 0m x 0mm 0' x 1/2"  |
| 3.4g 7.5lb   | 0kg 0lb   | 0kg 0lb   | 00g 0lb   | 00g 0lb   | 00g 0lb   |
| 70 x 40 x 30cm<br>24.8 x 15.7 x 12"  | 0 x 0 x 0cm<br>0 x 0 x 0"   | 0 x 0 x 0cm<br>0 x 0 x 0"   | 0 x 0 x 0cm<br>0 x 0 x 0"   | 0 x 0 x 0cm<br>0 x 0 x 0"   | 0 x 0 x 0cm<br>0 x 0 x 0"   |
| <b>224</b>   | <b>22-</b>  | <b>---</b>  | <b>---</b>  | <b>---</b>  | <b>---</b>  |
| <b>4500D TPU</b>   | <b>--</b>   | <b>--</b>   | <b>-</b>  | <b>-</b>  | <b>-</b>  |
| Handles inc 4 haul/gear ps. *4 eyes for backstraps                                 |   |   |   |   |   |
| camp.it  | camp.it   | camp.it   | camp.it   | camp.it   | camp.it   |
|  |  |  |  |  |  |
| <b>COURANT</b>   | <b>COURANT</b>  | <b>CLIMBING TECHNOLOGY</b>  | <b>CLIMBING TECHNOLOGY</b>  | <b>CLIMBING TECHNOLOGY</b>  | <b>CLIMBING TECHNOLOGY</b>  |
| <b>Cargo 40</b>  | <b>Cargo 50</b>   | <b>Carrier 18</b><br>6X96018  | <b>Carrier 22</b><br>6X96022  | <b>Carrier 37</b><br>6X96037  | <b>Carrier Bag 35</b><br>7X971  |
|  |   |   |   |   |   |
| £0 \$0 €0  | £0 \$0 €0   | £0 \$0 €0   | £0 \$0 €0   | £0 \$0 €0   | £0 \$0 €110   |
| 0L/10.6gal <b>Pro Access</b>   | 0L <b>Pro Access</b>  | 18L/5gal <b>Pro Access</b>  | 22L/00gal <b>Pro Access</b>   | 37L/00gal <b>Pro Access</b>   | 35L/00gal <b>Pro Access</b>   |
| 0m x 0mm 0' x 1/2"   | 0m x 0mm 0' x 1/2"  | <b>0m 0'</b>  | <b>0m 0'</b>  | <b>0m 0'</b>  | 0m x 0mm 0' x 1/2"  |
| 00g 0lb  | 00g 0lb   | 550g 0lb  | 645g 0lb  | 765g 0lb  | 650g 0lb  |
| 0 x 0 x 0cm<br>0 x 0 x 0"  | 0 x 0 x 0cm<br>0 x 0 x 0"   | 48 x 21cm<br>0 x 0 x 0"   | 64 x 21cm<br>0 x 0 x 0"   | 64 x 31 x 20cm<br>0 x 0 x 0"  | 52 x 30cm<br>0 x 0"   |
| <b>---</b>   | <b>---</b>  | <b>2-1</b>  | <b>2-1</b>  | <b>2-1</b>  | <b>[2]-1</b>  |
| <b>---</b>   | <b>---</b>  | <b>-1 ---</b>   | <b>-1 ---</b>   | <b>-1 ---</b>   | <b>-1 72 1</b>  |
| <b>---</b>   | <b>---</b>  | <b>● ---</b>  | <b>● ---</b>  | <b>● ---</b>  | <b>■ ---</b>  |
| <b>---</b>   | <b>---</b>  | <b>■</b>  | <b>■</b>  | <b>■</b>  | <b>■ + Lid</b>  |
|  |   | 1000D PVC-coated PES  | 1000D PVC-coated PES  | 1000D PVC-coated PES  | 1000D PVC-coated PES  |
|  |   |   |   |   | Expandable from 25 to 25L   |
| mycourant.com  | mycourant.com   | climbingtechnology.com  | climbingtechnology.com  | climbingtechnology.com  | climbingtechnology.com  |

| <p><b>Images NOT to Scale</b><br/>                     £\$€ any price in 'burnt-orange' is a <b>Currency conversion only</b>-exc shipping, duties,taxes etc.<br/> <b>HAUL EYES</b> = can carry the entire weight of the bag &amp; contents eg. for hauling or attaching to harness.May double as handles shown as 1/1<br/> <b>STORE SAW</b>=pouch or scabbard for hand saw<br/> <b>POP</b>= Popper or press stud<br/> <b>BUCKLE ROLL TOP</b>= all roll tops are closed with a push-fit/Fastex buckle<br/>                     PES = Polyester<br/>                     ●●●●● =Partial feature or OK but not ideal<br/>                     □□□□□ = Option</p> |  |    |    |    |   |
|---|--|---|--|---|---|
| <b>MANUFACTURER</b>   |  | CLIMBING TECHNOLOGY   | CLIMBING TECHNOLOGY  | CLIMBING TECHNOLOGY   |   |
| <b>MODEL litres/liters VARIANT</b>  |  | <b>Azimuth 25-35</b><br>2785  | <b>Craggy 40-50</b><br>2785  | <b>Zenith 70-85</b><br>7X96970  |   |
| <b>ORIGIN</b>   |  |    |     |    |   |
| <b>COST (inc Tax/VAT) Currency conversion only</b>  |  | £0 \$0 €110   | £0 \$0 €110  | £0 \$0 €110   |   |
| <b>SPECIFICATIONS</b>   | <b>VOLUME L/US Gallon intended market</b>              | 25-35L Pro Access   | 40-50L Pro Access  | 70-85L Pro Access   |   |
|   | <b>NOMINAL ROPE/LOAD CAPACITY</b>                      | 0m x 0mm 0' x ½"  | 0m x 0mm 0' x ½"   | 0m x 0mm 0' x ½"  |   |
|   | <b>WEIGHT empty</b>                                    | 1.2kg 0lb   | 1.9kg 0lb  | 2.7kg 0lb   |   |
|   | <b>DIMENSIONS</b>                                      | 53 x 29 x 20cm<br>0 x 0 x 0"  | 57 x 34 x 22cm<br>0 x 0 x 0"   | 70 x 36 x 30cm<br>0 x 0 x 0"  |   |
| <b>FEATURES</b>   | <b>BACK STRAPS HANDLES HAUL EYE(S)</b>                 | 2-1   | 2-1  | 2-1   |   |
|   | <b>POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW</b>     | -1 7 2 1  | -1 2 2 1   | -1 2 2 1  |   |
|   | <b>WATERPROOF ID-PANEL DRAIN/VENT</b>                  | ■ ---   | ■ ---  | ■ ---   |   |
|   | <b>LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP</b> | ■ + ■   | ■ + ■  | ■ + ■   |   |
| <b>OUTER MATERIALS REFLECTIVE TRIM</b>  |  | PVC-coated polyester  | PVC-coated polyester   | PVC-coated polyester  |   |
| <b>OTHER COLOURS</b>  |  |   |  |   |   |
| <b>NOTES</b>  |  | Expandable from 25 to 25L   | Expandable from 40 to 50L. Removeable padded back                                    | Expandable from 40 to 50L. Removeable padded back                                     |   |
| <b>WEBSITE</b>  |  | climbingtechnology.com  | climbingtechnology.com   | climbingtechnology.com  |   |
| <p><b>Images NOT to Scale</b><br/>                     £\$€ any price in 'burnt-orange' is a <b>Currency conversion only</b>-exc shipping, duties,taxes etc.<br/> <b>HAUL EYES</b> = can carry the entire weight of the bag &amp; contents eg. for hauling or attaching to harness.May double as handles shown as 1/1<br/> <b>STORE SAW</b>=pouch or scabbard for hand saw<br/> <b>POP</b>= Popper or press stud<br/> <b>BUCKLE ROLL TOP</b>= all roll tops are closed with a push-fit/Fastex buckle<br/>                     PES = Polyester<br/>                     ●●●●● =Partial feature or OK but not ideal<br/>                     □□□□□ = Option</p> |  |  |  |  |  |
| <b>MANUFACTURER</b>   |  | DMM   | DMM  | DMM   | DMM   |
| <b>MODEL litres/liters VARIANT</b>  |  | <b>Transit 30</b>   | <b>Transit 45</b>  | <b>Porter 45</b>  | <b>Porter 70</b>  |
| <b>ORIGIN</b>   |  |  |   |  |  |
| <b>COST (inc Tax/VAT) Currency conversion only</b>  |  | £60 \$75 €70  | £70 \$85 €80   | £90 \$0 €90   | £100 \$110 €100   |
| <b>SPECIFICATIONS</b>   | <b>VOLUME L/US Gallon intended market</b>              | 30L/7.9gal Pro Access   | 45L/11.8gal Pro Access   | 45L/11.8gal Pro Access  | 70L/18.5gal Pro Access  |
|   | <b>NOMINAL ROPE/LOAD CAPACITY</b>                      | 0m 0'   | 0m 0'  | 0m 0'   | 0m 0'   |
|   | <b>WEIGHT empty</b>                                    | 0kg 0lb   | 0kg 0lb  | 1.25kg 0lb  | 1.42kg 0lb  |
|   | <b>DIMENSIONS</b>                                      | 0 x 0 x 0cm<br>0 x 0 x 0"   | 40 x 28cm<br>0 x 0 x 0"  | 0 x 0 x 0cm<br>0 x 0 x 0"   | 62 x 40 x 30cm<br>0 x 0 x 0"  |
| <b>FEATURES</b>   | <b>BACK STRAPS HANDLES HAUL EYE(S)</b>                 | ---   | ---  | ---   | ---   |
|   | <b>POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW</b>     | --- --  | --- --   | --- --  | --- --  |
|   | <b>WATERPROOF ID-PANEL DRAIN/VENT</b>                  | --- --  | --- --   | --- --  | --- --  |
|   | <b>LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP</b> | --- --  | --- --   | --- --  | --- --  |
| <b>OUTER MATERIALS REFLECTIVE TRIM</b>  |  | 600D PVC  | 600D PVC   | 600D PVC  | 600D PVC  |
| <b>OTHER COLOURS</b>  |  |   |  |   |   |
| <b>NOTES</b>  |  | -   | -  | -   | -   |
| <b>WEBSITE</b>  |  | dmmwales.com  | dmmwales.com   | dmmwales.com  | dmmwales.com  |


|   |   |   |   |  |  |
|---|---|---|---|--|--|
|             |            |            |  |  |  |
| <b>CRESTO</b>   | <b>CRESTO</b>   | <b>CRESTO</b>   | <b>CRESTO</b>   |  |  |
| <b>Rope Bag M ?</b>   | <b>Rope Bag L ?</b>   | <b>Rope Bag XL ?</b>  | <b>PACQ Backpack ?</b>  |  |  |
| 012260242   | 012260243   | 012260244   | 9450  |  |  |
|             |            |            |  |  |  |
| £00 \$0 €0  | £00 \$0 €0  | £00 \$0 €0  | £00 \$0 €0  |  |  |
| <b>0kg 0lb</b>  | <b>0kg 0lb</b>  | <b>0kg 0lb</b>  | <b>0kg 0lb</b>  |  |  |
| 39 x 22 x 11cm<br>15.3 x 8.6 x 4.3"   | 39 x 22 x 11cm<br>15.3 x 8.6 x 4.3"   | 39 x 22 x 11cm<br>15.3 x 8.6 x 4.3"   | 39 x 22 x 11cm<br>15.3 x 8.6 x 4.3"   |  |  |
| <b>21 1</b>   | <b>21 1</b>   | <b>21 1</b>   | <b>22 -</b>   |  |  |
| -- <b>3+1ring-</b> -  | -- <b>5+1ring-</b> -  | -- <b>6+1ring-</b> -  | - - - - -   |  |  |
|             |            |            |  |  |  |
| 'Polymer'  | 'Polymer'  | 'Polymer'  | Polyester-  |  |  |
| crestosafety.com  | crestosafety.com  | crestosafety.com  | crestosafety.com  |  |  |

|  |   |   |
|--|---|---|
|   |  |  |
| <b>DRAVER</b>  | <b>DRAVER</b>   | <b>DRAVER</b>   |
| <b>Stable 22</b>   | <b>Stable 30</b>  | <b>Stable 40</b>  |
|  |  |  |
| £43 \$55 €50   | £63 \$81 €73*   | £65 \$84 €76*   |
| 22L/5.9gal <b>Pro Arb</b>  | 30L/7.9gal <b>Pro Arb</b>   | 40L/10.4gal <b>Pro Arb</b>  |
| <b>0m 0'</b>   | <b>0m 0'</b>  | <b>0m 0'</b>  |
| <b>0kg 0lb</b>   | <b>0kg 0lb</b>  | <b>0kg 0lb</b>  |
| 0 x 0 x 0cm<br>0 x 0 x 0"  | 0 x 0 x 0cm<br>0 x 0 x 0"   | 0 x 0 x 0cm<br>0 x 0 x 0"   |
| <b>-21</b>   | <b>221</b>  | <b>221</b>  |
| - - - - -  | <b>1- 10- -</b>   | <b>1- 10- -</b>   |
|  |  |  |
| Coated polyester   | Coated polyester  | Coated polyester  |
|  |  |  |
| Black=€3 less  | Mesh side panel<br>Black=€3 less  | Mesh side panel<br>Black=€3 less  |
| drayer.de  | drayer.de   | drayer.de   |

# ARBORGEAR

## ESSENTIAL TREE CLIMBING GEAR FOR ARBORISTS

No fuss, no frills – just quality gear for professional tree climbing



[www.arbogear.com](http://www.arbogear.com)

| <p><b>Images NOT to Scale</b><br/>                     £\$€ any price in 'burnt-orange' is a <b>Currency conversion only</b>-exc shipping, duties,taxes etc.<br/> <b>HAUL EYES</b> = can carry the entire weight of the bag &amp; contents eg. for hauling or attaching to harness.May double as handles shown as 1/1<br/> <b>STORE SAW</b>=pouch or scabbard for hand saw<br/> <b>POP</b>= Popper or press stud<br/> <b>BUCKLE ROLL TOP</b>= all roll tops are closed with a push-fit/Fastex buckle<br/>                     PES = Polyester<br/>                     ●●●●● =Partial feature or OK but not ideal<br/>                     □□□□□ = Option</p> |  |    |   |    |    |
|---|--|---|---|---|---|
| <b>MANUFACTURER</b>   |  | CLIMBING TECHNOLOGY   | CLIMBING TECHNOLOGY   | CLIMBING TECHNOLOGY   | DMM   |
| <b>MODEL litres/liters VARIANT</b>  |  | Azimuth 25-35<br>2785   | Craggy 40-50<br>2785  | Zenith 70-85<br>7X96970   | Transit 30  |
| <b>ORIGIN</b>   |  |    |    |    |    |
| <b>COST (inc Tax/VAT) Currency conversion only</b>  |  | £0 \$0 €110   | £0 \$0 €110   | £0 \$0 €110   | £60 \$75 €70  |
| <b>SPECIFICATIONS</b>   | <b>VOLUME L/US Gallon intended market</b>              | 25-35L Pro Access   | 40-50L Pro Access   | 70-85L Pro Access   | 30L/7.9gal Pro Access   |
|   | <b>NOMINAL ROPE/LOAD CAPACITY</b>                      | 0m x 0mm 0' x ½"  | 0m x 0mm 0' x ½"  | 0m x 0mm 0' x ½"  | 0m 0'   |
|   | <b>WEIGHT empty</b>                                    | 1.2kg 0lb   | 1.9kg 0lb   | 2.7kg 0lb   | 0kg 0lb   |
|   | <b>DIMENSIONS</b>                                      | 53 x 29 x 20cm<br>0 x 0 x 0"  | 57 x 34 x 22cm<br>0 x 0 x 0"  | 70 x 36 x 30cm<br>0 x 0 x 0"  | 0 x 0 x 0cm<br>0 x 0 x 0"   |
| <b>FEATURES</b>   | <b>BACK STRAPS HANDLES HAUL EYE(S)</b>                 | 2-1   | 2-1   | 2-1   | ---   |
|   | <b>POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW</b>     | -1 72 1   | -1 22 1   | -1 22 1   | ---   |
|   | <b>WATERPROOF ID-PANEL DRAIN/VENT</b>                  | ■ ---   | ■ ---   | ■ ---   | ■ ---   |
|   | <b>LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP</b> | ■ + ■   | ■ + ■   | ■ + ■   | ■ ---   |
| <b>OUTER MATERIALS REFLECTIVE TRIM</b>  |  | PVC-coated polyester  | PVC-coated polyester  | PVC-coated polyester  | 600D PVC  |
| <b>OTHER COLOURS</b>  |  |   |   |   |   |
| <b>NOTES</b>  |  | Expandable from 25 to 25L   | Expandable from 40 to 50L. Removeable padded back                                   | Expandable from 40 to 50L. Removeable padded back                                     | -   |
| <b>WEBSITE</b>  |  | climbingtechnology.com  | climbingtechnology.com  | climbingtechnology.com  | dmmwales.com  |
| <p><b>Images NOT to Scale</b><br/>                     £\$€ any price in 'burnt-orange' is a <b>Currency conversion only</b>-exc shipping, duties,taxes etc.<br/> <b>HAUL EYES</b> = can carry the entire weight of the bag &amp; contents eg. for hauling or attaching to harness.May double as handles shown as 1/1<br/> <b>STORE SAW</b>=pouch or scabbard for hand saw<br/> <b>POP</b>= Popper or press stud<br/> <b>BUCKLE ROLL TOP</b>= all roll tops are closed with a push-fit/Fastex buckle<br/>                     PES = Polyester<br/>                     ●●●●● =Partial feature or OK but not ideal<br/>                     □□□□□ = Option</p> |  |  |  |  |  |
| <b>MANUFACTURER</b>   |  | EDELRID   | EDELRID   | EDELRID   | EYOLF   |
| <b>MODEL litres/liters VARIANT</b>  |  | KurtHaulbag 55<br>721860552210  | Kask 28<br>721860552210   | Kask 55<br>721860552210   | Emmer 25<br>L34   |
| <b>ORIGIN</b>   |  |  |  |  |  |
| <b>COST (inc Tax/VAT) Currency conversion only</b>  |  | £130 \$0 €0   | £0 \$0 €0   | £0 \$0 €0   | £41 \$52 €48  |
| <b>SPECIFICATIONS</b>   | <b>VOLUME L/US Gallon intended market</b>              | 55L/14.5gal Pro Rescue  | 28L/7.4gal Pro Access   | 55L/14.5gal Pro Access  | 25L/6.6gal Pro Access   |
|   | <b>NOMINAL ROPE/LOAD CAPACITY</b>                      | 0m 0'   | 0m 0'   | 0m 0'   | 0m 0'   |
|   | <b>WEIGHT empty</b>                                    | 0kg 0lb   | 0kg 0lb   | 0kg 0lb   | 0g 0lb  |
|   | <b>DIMENSIONS</b>                                      | 0 x 0 x 0cm<br>0 x 0 x 0"   | 0 x 0 x 0cm<br>0 x 0 x 0"   | 0 x 0 x 0cm<br>0 x 0 x 0"   | 30 x 34cm<br>0 x 0 x 0"   |
| <b>FEATURES</b>   | <b>BACK STRAPS HANDLES HAUL EYE(S)</b>                 | ---   | ---   | ---   | -2-   |
|   | <b>POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW</b>     | ---   | ---   | ---   | ---   |
|   | <b>WATERPROOF ID-PANEL DRAIN/VENT</b>                  | ■ ---   | ■ ---   | ■ ---   | ■ ---   |
|   | <b>LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP</b> | ■ ---   | ■ ---   | ■ ---   | ■   |
| <b>OUTER MATERIALS REFLECTIVE TRIM</b>  |  | 44oz Vinyl  | 44oz Vinyl  | 44oz Vinyl  | 1000D Cordura -   |
| <b>OTHER COLOURS</b>  |  |   |   |   |  |
| <b>NOTES</b>  |  | -   | -   | -   | -   |
| <b>WEBSITE</b>  |  | edelrid.com   | edelrid.com   | edelrid.com   | eyolf.ca  |

# ROPE/GEAR BAGS

|  |   |   |   |   |   |
|--|---|---|---|---|---|
|    |    |    |    |     |    |
| <b>DMM</b>   | <b>DMM</b>  | <b>DMM</b>  | <b>DRAYER</b>   | <b>DRAYER</b>   | <b>DRAYER</b>   |
| <b>Transit 45</b>  | <b>Porter 45</b>  | <b>Porter 70</b>  | <b>Stable 22</b>  | <b>Stable 30</b>  | <b>Stable 40</b>  |
|    |    |    |    |    |    |
| £70 \$85 €80   | £90 \$0 €90   | £100 \$110 €100   | £43 \$55 €50  | £63 \$81 €73*   | £65 \$84 €76*   |
| 5L/11.8gal Pro Access  | 45L/11.8gal Pro Access  | 70L/18.5gal Pro Access  | 22L/5.9gal Pro Arb  | 30L/7.9gal Pro Arb  | 40L/10.4gal Pro Arb   |
| 0m 0'  | 0m 0'   | 0m 0'   | 0m 0'   | 0m 0'   | 0m 0'   |
| 0kg 0lb  | 1.25kg 0lb  | 1.42kg 0lb  | 0kg 0lb   | 0kg 0lb   | 0kg 0lb   |
| 40 x 28cm<br>0 x 0 x 0"  | 0 x 0 x 0cm<br>0 x 0 x 0"   | 62 x 40 x 30cm<br>0 x 0 x 0"  | 0 x 0 x 0cm<br>0 x 0 x 0"   | 0 x 0 x 0cm<br>0 x 0 x 0"   | 0 x 0 x 0cm<br>0 x 0 x 0"   |
| ---  | ---   | ---   | -21   | 221   | 221   |
| ---  | ---   | ---   | ---   | 1- 10- -  | 1- 10- -  |
| ---  | ---   | ---   | ---   | ---   | ---   |
| ---  | ---   | ---   | ■   | ■   | ■   |
| 600D PVC   | 600D PVC  | 600D PVC  | Coated polyester  | Coated polyester  | Coated polyester  |
| -  | -   | -   | ■   | ■   | ■   |
| -  | -   | -   | Black=€3 less   | Mesh side panel<br>Black=€3 less  | Mesh side panel<br>Black=€3 less  |
| dmmwales.com   | dmmwales.com  | dmmwales.com  | drayer.de   | drayer.de   | drayer.de   |
|  |  |  |  |  |  |
| <b>EYOLF</b>   | <b>EYOLF</b>  | <b>EYOLF</b>  | <b>EYOLF</b>  | <b>EYOLF</b>  | <b>EYOLF</b>  |
| <b>Emmer 35</b>  | <b>Emmer 45</b>   | <b>Sml 10</b>   | <b>Med 23</b>   | <b>Lg 37</b>  | <b>XL 64</b>  |
| L36  | L38   | -   | L61   | L62   | L63   |
|  |  |  |  |  |  |
| £46 \$59 €54   | £85 \$110 €100  | £35 \$45 €41  | £49 \$63 €57  | £63 \$81 €74  | £78 \$100 €91   |
| 5L/9.2gal Pro Access   | 35L/9.2gal Pro Access   | 10L/2.6gal Pro Access   | 23L/0gal Pro Access   | 37L/0gal Pro Access   | 64L/16.9gal Pro Access  |
| 0m 0'  | 0m 0'   | 100m/660' 11mm 7/16"  | 50m/164' 11mm 7/16"   | 100m/330' 11mm 7/16"  | 200m/660' 11mm 7/16"  |
| 0g 0lb   | 0g 0lb  | 0g 0lb  | 345g 0.76lb   | 414g 0.9lb  | 538g 1.2lb  |
| 40 x 34cm<br>0 x 0 x 0"  | 50 x 34cm<br>0 x 0 x 0"   | 25 x 23cm<br>9.9 x 9"   | 55 x 23cm<br>0 x 0 x 0"   | 60 x 28cm<br>0 x 0 x 0"   | 85 x 34cm<br>0 x 0 x 0"   |
| -2-  | -2-   | -1-   | 2--   | 2--   | 2--   |
| ---  | --52--  | ---   | ---   | -- 5- -   | -- 5- -   |
| ---  | ■   | ---   | ---   | ---   | ---   |
| ■  | ■   | ■   | ■   | ■   | ■   |
| 1000D Cordura -  | 1000D Cordura ■   | 1000D Cordura -   | 1000D Cordura -   | 1000D Cordura -   | 1000D Cordura -   |
| ■ ■  | ■ ■   | ■ ■   | ■ ■   | ■ ■   | ■ ■   |
| -  | -   | -   | -   | -   | -   |
| eyolf.ca   | eyolf.ca  | eyolf.ca  | eyolf.ca  | eyolf.ca  | eyolf.ca  |

**Images NOT to Scale**  
 £\$€ any price in 'burnt-orange' is a **Currency conversion only**-exc shipping, duties,taxes etc.  
**HAUL EYES** = can carry the entire weight of the bag & contents eg. for hauling or attaching to harness.May double as handles shown as 1/1  
**STORE SAW**=pouch or scabbard for hand saw  
**POP**= Popper or press stud  
**BUCKLE ROLL TOP**= all roll tops are closed with a push-fit/Fastex buckle  
 PES = Polyester  
 ●●●●● =Partial feature or OK but not ideal  
 □□□□□ = Option



|  |                                      |                                       |                                     |                                     |
|--|--------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|
| <b>MANUFACTURER</b>                                    | <b>FTC TREE</b>                      | <b>FTC TREE</b>                       | <b>HARKIE</b>                       | <b>HARKIE</b>                       |
| <b>MODEL litres/liters VARIANT</b>                     | <b>Cylindric 40</b>                  | <b>Cylindric 60</b>                   | <b>Champion 38</b><br>H2240         | <b>Champion 55</b><br>H2240         |
| <b>ORIGIN</b>  |                                      |                                       |                                     |                                     |
| <b>COST (inc Tax/VAT) Currency conversion only</b>     | £45 \$54 €62                         | £54 \$64 €68                          | £151 \$200 €180                     | £201 \$266 €238                     |
| <b>VOLUME L/US Gallon intended market</b>              | 40L/10.6gal <b>Pro Arb</b>           | 60L/15.8gal <b>Pro Arb</b>            | 38L/10gal <b>Pro Arb</b>            | 55L/14.5gal <b>Pro Arb</b>          |
| <b>NOMINAL ROPE/LOAD CAPACITY</b>                      | 60m/197' x 14mm                      | 90m/295' x 14mm                       | <b>0m 0'</b>                        | <b>0m 0'</b>                        |
| <b>WEIGHT empty</b>                                    | 600g 1.3lb                           | 900g 2lb                              | <b>0kg 0lb</b>                      | <b>0kg 0lb</b>                      |
| <b>DIMENSIONS</b>                                      | 83 x 23 x 23cm<br>32.7 x 9.1 x 9.1"  | 92 x 32 x 32cm<br>36.2 x 12.6 x 12.6" | 50 x 30 x 25cm<br>19.7 x 12 x 13.8" | 50 x 38 x 29cm<br>19.7 x 15 x 11.4" |
| <b>BACK STRAPS HANDLES HAUL EYE(S)</b>                 | [2]1-                                | [2]1-                                 | 22-                                 | ---                                 |
| <b>POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW</b>     | ---                                  | ---                                   | ---                                 | ---                                 |
| <b>WATERPROOF ID-PANEL DRAIN/VENT</b>                  | ■---                                 | ■---                                  | ---                                 | ---                                 |
| <b>LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP</b> | ■+■                                  | ■+■                                   | ---                                 | ---                                 |
| <b>OUTER MATERIALS REFLECTIVE TRIM</b>                 | 1680D PVC                            | 1680D PVC                             | PVC                                 | PVC                                 |
| <b>OTHER COLOURS</b>                                   |                                      |                                       | ■                                   | ■                                   |
| <b>NOTES</b>   | Virtually, but not quite, watertight | Virtually, but not quite, watertight  | -                                   | -                                   |
| <b>WEBSITE</b>   | ftec-tree.com                        | ftec-tree.com                         | harkieglobal.com                    | harkieglobal.com                    |

**Images NOT to Scale**  
 £\$€ any price in 'burnt-orange' is a **Currency conversion only**-exc shipping, duties,taxes etc.  
**HAUL EYES** = can carry the entire weight of the bag & contents eg. for hauling or attaching to harness.May double as handles shown as 1/1  
**STORE SAW**=pouch or scabbard for hand saw  
**POP**= Popper or press stud  
**BUCKLE ROLL TOP**= all roll tops are closed with a push-fit/Fastex buckle  
 PES = Polyester  
 ●●●●● =Partial feature or OK but not ideal  
 □□□□□ = Option



|  |                           |                           |                                |                               |
|--|---------------------------|---------------------------|--------------------------------|-------------------------------|
| <b>MANUFACTURER</b>                                    | <b>KONG</b>               | <b>KONG</b>               | <b>KONG</b>                    | <b>KONG</b>                   |
| <b>MODEL litres/liters VARIANT</b>                     | <b>RopeBag 28</b>         | <b>Genius II 30</b>       | <b>Linnhà 40</b><br>98252200KK | <b>RopeBag 43</b>             |
| <b>ORIGIN</b>  |                           |                           |                                |                               |
| <b>COST (inc Tax/VAT) Currency conversion only</b>     | £0 \$0 €0                 | £0 \$0 €0                 | £0 \$0 €0                      | £0 \$0 €0                     |
| <b>VOLUME L/US Gallon intended market</b>              | 28L/7.4gal <b>Pro</b>     | 30L/7.9gal <b>Pro</b>     | 40L/10.6gal <b>Canyoning</b>   | 43L/11.4gal <b>Pro Access</b> |
| <b>NOMINAL ROPE/LOAD CAPACITY</b>                      | <b>0m 0'</b>              | <b>0m 0'</b>              | <b>0m 0'</b>                   | <b>0m 0'</b>                  |
| <b>WEIGHT empty</b>                                    | 0kg 0lb                   | 0.85kg 0lb                | 0kg 0lb                        | 0kg 0lb                       |
| <b>DIMENSIONS</b>                                      | 0 x 0 x 0cm<br>0 x 0 x 0" | 0 x 0 x 0cm<br>0 x 0 x 0" | 0 x 0 x 0cm<br>0 x 0 x 0"      | 0 x 0 x 0cm<br>0 x 0 x 0"     |
| <b>BACK STRAPS HANDLES HAUL EYE(S)</b>                 | ---                       | ---                       | ---                            | ---                           |
| <b>POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW</b>     | ---                       | ---                       | ---                            | ---                           |
| <b>WATERPROOF ID-PANEL DRAIN/VENT</b>                  | ---                       | ---                       | ---                            | ---                           |
| <b>LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP</b> | ---                       | ---                       | ---                            | ---                           |
| <b>OUTER MATERIALS REFLECTIVE TRIM</b>                 | --                        | PVC                       | --                             | --                            |
| <b>OTHER COLOURS</b>                                   |                           |                           |                                |                               |
| <b>NOTES</b>   | -                         | -                         | -                              | -                             |
| <b>WEBSITE</b>   | Kong.it                   | kong.it                   | Kong.it                        | Kong.it                       |

# ROPE/GEAR BAGS

|  |   |   |   |   |   |
|--|---|---|---|---|---|
|    |    |    |    |    |    |
| <b>HARKIE</b>  | <b>HARKIE</b>   | <b>HUSQVARNA</b>  | <b>HUSQVARNA</b>  | <b>KONG</b>   | <b>KONG</b>   |
| <b>Sentry 47</b><br>H2260  | <b>Sentry 60</b><br>H2265   | <b>Rope Bag 28</b><br>596 93 63-11  | <b>Xplorer Backpack</b><br>596 93 63-11   | <b>RopeTube 17</b><br>98252500KK  | <b>Lirung 25</b><br>98252100KK  |
|    |    |    |    |    |    |
| £221 \$292 €262  | £246 \$325 €291   | £61 \$82 €73  |   | £0 \$0 €0   | £0 \$0 €0   |
| 17L/12.4gal Pro Arb  | 60L/15.8gal Pro Arb   | 28L/7.4gal Pro Arb  |   | 17L/4.5gal Pro  | 25L/6.6gal Canyoning  |
| 70m x 12mm 0'  | 90m x 12mm 0'   | 250' x 1/2"   | 0m 0'   | 0m 0'   | 0m 0'   |
| 0kg 0lb  | 0kg 0lb   | 0kg 0lb   | 0kg 0lb   | 155g 0oz  | 750g 0lb  |
| 0 x 0 x 0cm<br>0 x 0 x 0"  | 0 x 0 x 0cm<br>0 x 0 x 0"   | 0 x 0 x 0cm<br>0 x 0 x 0"   | 0 x 0 x 0cm<br>0 x 0 x 0"   | 0 x 0 x 0cm<br>0 x 0 x 0"   | 0 x 0 x 0cm<br>0 x 0 x 0"   |
| 22   | 22  | ---   | ---   | ---   | ---   |
| 2- 6- -  | 2- 6- -   | ---   | ---   | ---   | ---   |
|    |    | ---   | ---   | ---   | ---   |
| carabiner  | carabiner   | ---   | ---   | ---   | ---   |
| PVC  | PVC   | ---   | ---   | ---   | ---   |
|    |    | ---   | ---   | ---   | ---   |
| -  | -   | -   | -   | -   | -   |
| harkieglobal.com   | harkieglobal.com  | husqvarna.com   | husqvarna.com   | Kong.it   | Kong.it   |
|  |  |  |  |    |  |
| <b>KONG</b>  | <b>KONG</b>   | <b>LYON EQUIPMENT</b>   | <b>LYON EQUIPMENT</b>   | <b>LYON EQUIPMENT</b>   | <b>LYON EQUIPMENT</b>   |
| <b>WorkBag 50</b><br>982528N00KK   | <b>OmniBag 60</b>   | <b>Rope Bag 20</b><br>LSB 20..  | <b>Rope Bag 30</b><br>LSB 30..  | <b>Rope Bag Lid 40</b><br>LSB 40..  | <b>Industrial Access 55</b><br>LSB 55.  |
|  |  |  |  |    |  |
| £0 \$0 €0  | £0 \$0 €0   | £70 \$0 €0  | £78 \$0 €0  | £82127 \$0 €0   | £108 \$0 €0   |
| 17L/13.2gal Pro Access   | 60L/15.8gal Pro Access  | 20L/5.3gal Pro Access   | 30L/7.9gal Pro Access   | 40L/10.6gal Pro Access  | 52.5L/13.9gal Pro Access  |
| 0m 0'  | 0m 0'   | 80m x 10.5mm 0'   | 120m x 10.5mm 0'  | 0m 0'   | 220m x 10.5mm 110'x1/2"   |
| 0kg 0lb  | 0kg 0lb   | 0kg 0lb   | 0kg 0lb   | 0kg 0lb   | 0kg 0lb   |
| 0 x 0 x 0cm<br>0 x 0 x 0"  | 0 x 0 x 0cm<br>0 x 0 x 0"   | 51 x 0 x 0cm<br>20 x 0 x 0"   | 56 x 0 x 0cm<br>22 x 0 x 0"   | 51 x 22 x 22cm<br>20 x 8.6 x 8.6"   | 59x 38 x 15cm<br>13.2 x 15 x 5.9"   |
| ---  | ---   | ---   | 21-   | ---   | 22-   |
| ---  | ---   | ---   | ---   | ---   | ---   |
| ---  | ---   | ---   | ---   |    | ---   |
| ---  | ---   |  |  |  +  Lid | ---   |
| PVC  | ---   | ---   | ---   | ---   | ---   |
|  | ---   |  |  |    |  |
| Being phased out   | -   | * Hi-vis Orange.<br>Cushioned base  | * Hi-vis Orange & green.<br>Cushioned base  | * Hi-vis Orange & green.<br>Cushioned base  | -   |
| Kong.it  | Kong.it   | lyonequipment.com   | lyonequipment.com   | lyonequipment.com   | lyonequipment.com   |

| <p><b>Images NOT to Scale</b><br/>                     £\$€ any price in 'burnt-orange' is a <b>Currency conversion only</b>-exc shipping, duties,taxes etc.<br/> <b>HAUL EYES</b> = can carry the entire weight of the bag &amp; contents eg. for hauling or attaching to harness.May double as handles shown as 1/1<br/> <b>STORE SAW</b>=pouch or scabbard for hand saw<br/> <b>POP</b>= Popper or press stud<br/> <b>BUCKLE ROLL TOP</b>= all roll tops are closed with a push-fit/Fastex buckle<br/>                     PES = Polyester<br/>                     ●●●●● =Partial feature or OK but not ideal<br/>                     □□□□□ = Option</p> |   |    |     |    |    |
|---|---|---|---|---|---|
| <b>MANUFACTURER</b>   | <b>LYON EQUIPMENT</b>   | <b>LYON EQUIPMENT</b>   | <b>LYON EQUIPMENT</b>   | <b>NATIVE ARB</b>   |   |
| <b>MODEL litres/liters VARIANT</b>  | <b>Essentials 30</b><br>LSB ES30..  | <b>Essentials 40</b><br>LSB ES40..  | <b>Essentials 60</b><br>LSB ES60..  | <b>Rig Bag 55</b><br>RB1  |   |
| <b>ORIGIN</b>   |    |    |    |    |   |
| <b>COST (inc Tax/VAT) Currency conversion only</b>  | <b>£51 \$67 €61</b>   | <b>£56 \$74 €66</b>   | <b>£80 \$105 €95</b>  | <b>£102 \$134 €121</b>  |   |
| <b>VOLUME L/US Gallon intended market</b>   | <b>30L/7.9gal Pro Access</b>  | <b>40L/10.6gal Pro Access</b>   | <b>60L/15.8gal Pro Access</b>   | <b>55L/14.5gal Pro Arb</b>  |   |
| <b>NOMINAL ROPE/LOAD CAPACITY</b>   | <b>25kg 100m x 11mm</b>   | <b>25kg 150m x 11mm</b>   | <b>25kg 200m x 11mm 100'x½"</b>   | <b>0m 0'</b>  |   |
| <b>WEIGHT empty</b>   | <b>500g 1.1lb</b>   | <b>620g 1.4lb</b>   | <b>1.19kg 2.6lb</b>   | <b>0kg 0lb</b>  |   |
| <b>DIMENSIONS</b>   | <b>50 x 28 x 23cm<br/>20 x 11 x 9"</b>  | <b>52 x 33 x 28cm<br/>20.5 x 13 x 11"</b>   | <b>60 x 35 x 30cm<br/>24 x 14 x 12"</b>   | <b>45 x 36cm<br/>17.7 x 14.2"</b>   |   |
| <b>BACK STRAPS HANDLES HAUL EYE(S)</b>  | <b>21-</b>  | <b>21-</b>  | <b>22-</b>  | <b>-2-</b>  |   |
| <b>POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW</b>  | <b>-- -1 -</b>  | <b>-- -1 -</b>  | <b>-- -1 -</b>  | <b>-- 282 -</b>   |   |
| <b>WATERPROOF ID-PANEL DRAIN/VENT</b>   | <b>■ ■ -</b>  | <b>■ ■ -</b>  | <b>■ ■ -</b>  | <b>■ --</b>   |   |
| <b>LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP</b>  | <b>■ + ■ Lid</b>  | <b>■ + ■ Lid</b>  | <b>■ + ■ Lid</b>  | <b>■ Cap</b>  |   |
| <b>OUTER MATERIALS REFLECTIVE TRIM</b>  | <b>620g PVC -</b>   | <b>620g PVC -</b>   | <b>620g PVC -</b>   | <b>1000d PVC-free TPE Nylon 1000d</b>   |   |
| <b>OTHER COLOURS</b>  |    |    |    |   |   |
| <b>NOTES</b>  | -   | -   | Also sold under the <i>G-Force</i> brand  | Integral rope cleaner on this and the twin-rope bag                                   |   |
| <b>WEBSITE</b>  | lyonequipment.com   | lyonequipment.com   | lyonequipment.com   | nativearb.co.uk   |   |
| <p><b>Images NOT to Scale</b><br/>                     £\$€ any price in 'burnt-orange' is a <b>Currency conversion only</b>-exc shipping, duties,taxes etc.<br/> <b>HAUL EYES</b> = can carry the entire weight of the bag &amp; contents eg. for hauling or attaching to harness.May double as handles shown as 1/1<br/> <b>STORE SAW</b>=pouch or scabbard for hand saw<br/> <b>POP</b>= Popper or press stud<br/> <b>BUCKLE ROLL TOP</b>= all roll tops are closed with a push-fit/Fastex buckle<br/>                     PES = Polyester<br/>                     ●●●●● =Partial feature or OK but not ideal<br/>                     □□□□□ = Option</p> |   |  |   |  |  |
| <b>MANUFACTURER</b>   | <b>NOTCH</b>  | <b>NOTCH</b>  | <b>PALMU</b>  | <b>PETZL</b>  |   |
| <b>MODEL litres/liters VARIANT</b>  | <b>Pro 250 28</b><br>00   | <b>Pro 450 35</b><br>99383  | <b>Rope Bag 32</b><br>00  | <b>Bucket 15</b>  |   |
| <b>ORIGIN</b>   |  |  |  |  |   |
| <b>COST (inc Tax/VAT) Currency conversion only</b>  | <b>£50 \$75 €72</b>   | <b>£72 \$95 €91</b>   | <b>£66 \$89 €78</b>   | <b>£41 \$50 €42</b>   |   |
| <b>VOLUME L/US Gallon intended market</b>   | <b>28L/7.4gal Pro Arb</b>   | <b>35L/9.2gal Pro Arb</b>   | <b>32L/8.2gal Pro Access</b>  | <b>15L/4gal Pro Access</b>  |   |
| <b>NOMINAL ROPE/LOAD CAPACITY</b>   | <b>20kg 76m/250' x½"</b>  | <b>20kg 137m/450' x½"</b>   | <b>50kg 80m x11.5mm</b>   | <b>50kg 45m x11mm 88'x½"</b>  |   |
| <b>WEIGHT empty</b>   | <b>815g 1.8lb</b>   | <b>915g 2lb</b>   | <b>1.2kg 2.64lb</b>   | <b>465g 1lb</b>   |   |
| <b>DIMENSIONS</b>   | <b>40.5 x 30.5cm<br/>16 x 12"</b>   | <b>50 x 30cm<br/>20 x 12"</b>   | <b>32 x 32 x 32cm<br/>12.6 x 12.6 x 12.6"</b>   | <b>30 x 25cm<br/>11.8 x 9.8"</b>  |   |
| <b>BACK STRAPS HANDLES HAUL EYE(S)</b>  | <b>-2-</b>  | <b>22-</b>  | <b>22-</b>  | <b>-21</b>  |   |
| <b>POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW</b>  | <b>-- -- -</b>  | <b>-- 10 -</b>  | <b>2- 18- -</b>   | <b>11 -2 -</b>  |   |
| <b>WATERPROOF ID-PANEL DRAIN/VENT</b>   | <b>● --</b>   | <b>● ■ -</b>  | <b>● ■ -</b>  | <b>■ ■ -</b>  |   |
| <b>LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP</b>  | <b>■</b>  | <b>■</b>  | <b>■</b>  | <b>■ ■</b>  |   |
| <b>OUTER MATERIALS REFLECTIVE TRIM</b>  | <b>600D Nylon</b>   | <b>600D Nylon</b>   | <b>PVC</b>  | <b>TPU (PVC-free)</b>   |   |
| <b>OTHER COLOURS</b>  |   |   |   |  |   |
| <b>NOTES</b>  |   |   | vent mesh in lid  | *two loops intended for tie-off in the rope ends.                                     |   |
| <b>WEBSITE</b>  | notchequipment.com  | notchequipment.com  | palmubags.com   |   |   |





| NATIVE ARB   | NEVER LET GO                                | NEVER LET GO   | NEVER LET GO   | NEVER LET GO   | NEVER LET GO   |
|--|---|--|--|--|--|
| <b>Native Rope Bag 55</b><br>TRB1                                  | <b>Ascent Bucket 30</b><br>101360           | <b>Ascent Carry 50</b><br>101730                     | <b>Ascent Haul 70</b><br>101666                      | <b>RopePro Bucket 30</b><br>101680                     | <b>RopePro 50</b><br>101679                            |
|  |   |  |  |  |  |
| £102 \$134 €121  | £170 \$219 €200                             | £230 \$296 €270                                      | £270 \$347 €317                                      | £99 \$128 €116   | £95 \$123 €112   |
| 55L/14.5gal Pro Arb  | 30L/7.9gal Pro Access                       | 50L/13.2gal Pro Access                               | 70L/18.5gal Pro Access                               | 30L/7.9gal Pro Access                                  | 50L/13.2gal Pro Access                                 |
| 0m 0'  | 100kg 220lb                                 | 100kg 220lb  | 100kg 220lb  | 50kg 110lb   | 30kg 66lb  |
| 0kg 0lb  | 1.99kg 4.4lb                                | 2.6kg 5.7lb  | 3.05kg 6.7lb   | 1.65kg 3.6lb   | 1.44kg 3.2lb   |
| 45 x 36cm<br>17.7 x 14.2"  | 40 x 32cm<br>15.7 x 12.6"                   | 57 x 32cm<br>22.5 x 12.6"                            | 71 x 36 x 35cm<br>28 x 14.2 x 13.8"                  | 40 x 32cm<br>15.7 x 12.6"                              | 58 x 32 x 26cm<br>22.8 x 12.6 x 10.2"                  |
| - 2 -  | - 1+1*+1/1                                  | 21*+2/2  | 21*+4/4  | - 2/2  | 22-  |
| 2- 202 -   | -- 8/6/2 -                                  | - 1 14 6/2 -   | - 1 6/2 5/2 -  | -- 10/1 6/4* -   | 21 -9/4* -   |
|  |   |  |  |  |  |
| Cap  |   |  |  |  |  |
| 100% PVC-free TPE Nylon  | Megatex -                                   | Megatex -  | Megatex -  | Innervis -   | Innervis -   |
| 2 compartments with rope-feed eye each side. Integral rope cleaner | *1xBase & 1 tipping/drag handle. Comp strap | *1xBase handle. Back&waist straps detach. Comp strap | *1xBase handle. Back&waist straps detach. Comp strap | *rope tie-off. Removable reinforcing.Compression strap | *rope tie-off. Removable reinforcing.Compression strap |
| nativearb.co.uk  | neverletgo.com                              | neverletgo.com                                       | neverletgo.com                                       | neverletgo.com   | neverletgo.com   |



| PETZL  | PETZL  | PETZL   | PETZL   | PETZL   |  |
|--|--|---|---|---|--|
| <b>Bucket 30</b>                                   | <b>Bucket 45</b>                                   | <b>Transport 30</b>                           | <b>Transport 45</b>                           | <b>Transport 60</b>                           |  |
|  |  |   |   |   |  |
| £58 \$70 €60                                       | £76 \$90 €78                                       | £108 \$0 €115                                 | £126 \$0 €134                                 | £150 \$0 €158                                 |  |
| 30L/7.9gal Pro Access                              | 45L/11.8gal Pro Access                             | 30L/7.9gal Pro Access                         | 45L/11.8gal Pro Access                        | 60L/15.8gal Pro Access                        |  |
| 50kg 110m x11mm 225'x½"                            | 50kg 180m x11mm 369'x½"                            | 50kg  | 50kg  | 50kg  |  |
| 735g 1.6lb   | 890g 2lb   | 1.3kg 2.86lb                                  | 1.53kg 3.37lb                                 | 1.78kg 3.924lb                                |  |
| 40 x 30cm<br>15.8 x 11.8"                          | 45 x 35cm<br>17.7 x 13.8"                          | 53 x 29 x 23cm<br>20.9 x 11.4 x 9"            | 58 x 32.5 x 28cm<br>22.8 x 12.8 x 11"         | 65 x 35 x 30cm<br>25.6 x 13.8 x 11.8"         |  |
| 2 2 1  | 2 2 1  | [2]3+1 inside-                                | [2]3+1 inside-                                | [2]3+1 inside-                                |  |
| 11 - 6 -   | 11 - 6 -   | 1 - 22 -                                      | 1 - 22 -                                      | 1 - 23 -                                      |  |
|  |  |   |   |   |  |
|  |  | + Lid   | + Lid   | + Lid   |  |
| TPU (PVC-free)                                     | TPU (PVC-free)                                     | TPU (PVC-free)                                | TPU (PVC-free)                                | TPU (PVC-free)                                |  |
|  |  |   |   |   |  |
| *two loops intended for tieo-ing in the rope ends. | *two loops intended for tieo-ing in the rope ends. | replaced the 'Portage' range. 50kg load limit | replaced the 'Portage' range. 50kg load limit | replaced the 'Portage' range. 50kg load limit |  |
| petzl.com  | petzl.com  | petzl.com                                     | petzl.com                                     | petzl.com                                     |  |

# NEW COMPILING Q1 '25

www.rescuemagazines.co.uk



**Images NOT to Scale**  
 £\$€ any price in 'burnt-orange' is a **Currency conversion only**-exc shipping, duties,taxes etc.  
**HAUL EYES** = can carry the entire weight of the bag & contents eg. for hauling or attaching to harness.May double as handles shown as 1/1  
**STORE SAW**=pouch or scabbard for hand saw  
**POP**= Popper or press stud  
**BUCKLE ROLL TOP**= all roll tops are closed with a push-fit/Fastex buckle  
 PES = Polyester  
 ●●●●● =Partial feature or OK but not ideal  
 □□□□□ = Option



|  |                                    |                                    |  |  |
|--|------------------------------------|------------------------------------|--|--|
| <b>MANUFACTURER</b>                                    | <b>PROTEKT</b>                     | <b>PROTEKT</b>                     | <b>PROTEKT</b>   | <b>PROTEKT</b>                                       |
| <b>MODEL litres/liters VARIANT</b>                     | <b>Arborist Basket 15</b><br>AX701 | <b>Arborist Basket 30</b><br>AX701 | <b>AX011T/K 42</b>                                     | <b>AX011N/D 42</b>                                   |
| <b>ORIGIN</b>  |                                    |                                    |  |  |
| <b>COST (inc Tax/VAT) Currency conversion only</b>     | £0 \$0 €0                          | £0 \$0 €0                          | £0 \$0 €0  | £0 \$0 €0  |
| <b>VOLUME L/US Gallon intended market</b>              | 15L/3.9gal <b>Pro Access</b>       | 30L/8gal <b>Pro Access</b>         | 42L/11gal <b>Pro Access</b>                            | 42L/11gal <b>Pro Access</b>                          |
| <b>NOMINAL ROPE/LOAD CAPACITY</b>                      | 0m 0'                              | 0m 0'                              | 0m 0'  | 0m 0'  |
| <b>WEIGHT empty</b>                                    | 0kg 0lb                            | 0kg 0lb                            | 720 /650g 0lb  | 600/850g 0lb   |
| <b>DIMENSIONS</b>                                      | 0 x 0 x 0cm<br>0 x 0 x 0"          | 0 x 0 x 0cm<br>0 x 0 x 0"          | 60 x 30 x 30cm<br>23.6 x 12 x 12"                      | 60 x 30 x 30cm<br>23.6 x 12 x 12"                    |
| <b>BACK STRAPS HANDLES HAUL EYE(S)</b>                 | 1 2 1                              | 1 2 1                              | 2-1 / 2-2  | 2 1-   |
| <b>POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW</b>     | -- 6- -                            | -- 6- -                            | -- - - -   | -- 3- - / - - - -                                    |
| <b>WATERPROOF ID-PANEL DRAIN/VENT</b>                  | ●-■                                | ●-■                                | ●-■  | ●-■/■/■/■  |
| <b>LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP</b> | ■                                  | ■                                  | ■/■  | ■  |
| <b>OUTER MATERIALS REFLECTIVE TRIM</b>                 | PVC & Mesh -                       | PVC & Mesh -                       | Reinforced PVC-  | Reinforced PVC-                                      |
| <b>OTHER COLOURS</b>                                   |                                    |                                    |  |  |
| <b>NOTES</b>   | Solid Plastic base with air-vents  | Solid Plastic base with air-vents  | T- zip closure & D-ring<br>K=Drawstring & 2 haul loops | AX011D = lid-flap +ID pocket<br>Also AX011 plain bag |
| <b>WEBSITE</b>   | protekt.pl                         | protekt.pl                         | protekt.pl   | protekt.pl   |

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 PES = Polyester  
 ●●●●● =Partial feature or OK but not ideal  
 □□□□□ = Option



|  |                                       |                                       |                             |                            |
|--|---------------------------------------|---------------------------------------|-----------------------------|----------------------------|
| <b>MANUFACTURER</b>                                    | <b>PROTEKT</b>                        | <b>PROTEKT</b>                        | <b>REECOIL</b>              | <b>REECOIL</b>             |
| <b>MODEL litres/liters VARIANT</b>                     | <b>Arborist Backpack 80</b><br>Ax080  | <b>AX012 ARBO 100</b>                 | <b>Rope Bag 28</b>          | <b>Rope Bag 45</b>         |
| <b>ORIGIN</b>  |                                       |                                       |                             |                            |
| <b>COST (inc Tax/VAT) Currency conversion only</b>     | £0 \$0 €0                             | £0 \$0 €0                             | £94 \$131 €0                | £123 \$167 €0              |
| <b>VOLUME L/US Gallon intended market</b>              | 80L/21.1gal <b>Pro Arb</b>            | 100L/26.4gal <b>Pro Access</b>        | 28L/7.4gal <b>Pro Arb</b>   | 45L/11.8gal <b>Pro Arb</b> |
| <b>NOMINAL ROPE/LOAD CAPACITY</b>                      |                                       | 0m 0'                                 | 100m 0' x 11mm 0"           | 200m 0' x 11mm 0"          |
| <b>WEIGHT empty</b>                                    | 2.6kg 5.7lb                           | 1.48kg 0lb                            | 1.7kg 0lb                   | 0kg 0lb                    |
| <b>DIMENSIONS</b>                                      | 80 x 35 x 35cm<br>31.5 x 13.8 x 13.8" | 80 x 40 x 40cm<br>31.5 x 15.7 x 15.7" | 50.5 x 35cm<br>19.9 x 13.8" | 0 x 0 x 0cm<br>0 x 0 x 0"  |
| <b>BACK STRAPS HANDLES HAUL EYE(S)</b>                 | ---                                   | 2--                                   | 2 2 ■                       | 2 2 ■                      |
| <b>POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW</b>     | -- - - -                              | -1 6- -                               | -- 16/2 ■                   | -- 16/2 ■                  |
| <b>WATERPROOF ID-PANEL DRAIN/VENT</b>                  | ■- - - -                              | - - - - -                             | ■-■-■                       | ■-■-■                      |
| <b>LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP</b> | ■                                     | ■                                     | ■ ■                         | ■ ■                        |
| <b>OUTER MATERIALS REFLECTIVE TRIM</b>                 | --                                    | Reinforced PVC-                       | --                          | --                         |
| <b>OTHER COLOURS</b>                                   |                                       |                                       |                             |                            |
| <b>NOTES</b>   | -                                     | Also AX012 plain bag                  | -                           | -                          |
| <b>WEBSITE</b>   | protekt.pl                            | protekt.pl                            | rockempire.com              | rockempire.com             |

# ROPE/GEAR BAGS

|   |   |   |  |   |   |
|---|---|---|--|---|---|
|   |   |   |  |   |   |
| <b>PROTEKT</b><br><b>AX011SP /S 45</b>                  | <b>PROTEKT</b><br><b>AX040</b>                  | <b>PROTEKT</b><br><b>AX070</b>                  | <b>PROTEKT</b><br><b>AX070L</b>                      | <b>PROTEKT</b><br><b>AX074</b>                      | <b>PROTEKT</b><br><b>AX071</b>                      |
|   |   |   |  |   |   |
| <b>£0 \$0 €0</b>  | <b>£0 \$0 €0</b>                                | <b>£0 \$0 €0</b>                                | <b>£0 \$0 €0</b>                                     | <b>£0 \$0 €0</b>                                    | <b>£0 \$0 €0</b>                                    |
| 11L/11.8gal <b>Pro Access</b>                           | 40L/10gal <b>Pro Access</b>                     | 70L/18.5gal <b>Pro Access</b>                   | 70L/18.5gal <b>Pro Access</b>                        | 74L/19.5gal <b>Pro Access</b>                       | 71L/18.7gal <b>Pro Access</b>                       |
| <b>0m 0'</b>  | <b>0m 0'</b>                                    | <b>0m 0'</b>                                    | <b>0m 0'</b>   | <b>0m 0'</b>  | <b>0m 0'</b>  |
| 1.64/1.2kg <b>0lb</b>                                   | 0kg <b>0lb</b>                                  | 0kg <b>0lb</b>                                  | 0kg <b>0lb</b>                                       | 0kg <b>0lb</b>                                      | 0kg <b>0lb</b>                                      |
| 38 x 38 / 36 x 25 / 22cm<br>15 x 15 / 14.2 x 9.8 / 8.6" | 0 x 0 x 0cm<br>0 x 0 x 0"                       | 0 x 0 x 0cm<br>0 x 0 x 0"                       | 0 x 0 x 0cm<br>0 x 0 x 0"                            | 0 x 0 x 0cm<br>0 x 0 x 0"                           | 0 x 0 x 0cm<br>0 x 0 x 0"                           |
| [2] 1-  | ---   | ---   | ---  | ---   | ---   |
| 2- - - / - - - -  | - - - - -                                       | - - - - -                                       | - - - - -  | - - - - -   | - - - - -   |
|   |   |   |  |   |   |
| <b>Reinforced PVC-</b>                                  | <b>Reinforced PVC-</b>                          | <b>Reinforced PVC-</b>                          | <b>Reinforced PVC-</b>                               | <b>Reinforced PVC-</b>                              | <b>Reinforced PVC-</b>                              |
|   |   |   |  |   |   |
| AX011S has no pockets                                   | -   | -   | -  | -   | -   |
| protekt.pl  | protekt.pl                                      | protekt.pl                                      | protekt.pl   | protekt.pl  | protekt.pl  |
|   |   |   |  |   |   |
| <b>ROCK EMPIRE</b><br><b>Cargo Reep 30</b>              | <b>ROCK EMPIRE</b><br><b>Cargo 35</b><br>CVV035 | <b>ROCK EMPIRE</b><br><b>Cargo 55</b><br>CVV055 | <b>ROCK EMPIRE</b><br><b>Cargo Roll 55</b><br>CVR055 | <b>ROCKnARB</b><br><b>Mnt Ape Bull 30</b><br>RMA001 | <b>ROCKnARB</b><br><b>Plain Jane II ?</b><br>RPI015 |
|   |   |   |  |   |   |
| <b>£0 \$0 €0</b>  | <b>£0 \$0 €0</b>                                | <b>£0 \$0 €0</b>                                | <b>£0 \$0 €0</b>                                     | <b>£0 \$46 €0</b>                                   | <b>£0 \$30 €0</b>                                   |
| 7L/6.8gal <b>Pro Access</b>                             | 31.9L/8.4gal <b>Pro Access</b>                  | 52.4L/13.8gal <b>Pro Access</b>                 | 52.4L/13.8gal <b>Pro Access</b>                      | 30L/7.9gal <b>Pro Arb</b>                           | 0L/0gal <b>Pro Arb</b>                              |
| <b>0m 0'</b>  | <b>0m 0'</b>                                    | <b>0m 0'</b>                                    | <b>0m 0'</b>   | <b>0m 200'x3/4"</b>                                 | <b>0m 200' x 1/2"</b>                               |
| 390g <b>0lb</b>   | 805g <b>0lb</b>                                 | 805g <b>0lb</b>                                 | 805g <b>0lb</b>                                      | 0kg <b>0lb</b>                                      | 0kg <b>0lb</b>                                      |
| 50 x 25cm<br>0 x 0 x 0"                                 | 65 x 25cm<br>0 x 0 x 0"                         | 75 x 30cm<br>0 x 0 x 0"                         | 85 x 30cm<br>0 x 0 x 0"                              | 43 x 33 x 33cm<br>17 x 13 x 13"                     | 40-52 x 30 x 30cm<br>16-20.5 x 12 x 12"             |
| - 2 -   | 11 -  | 11 -  | 32 -   | - 21 -  | - 2 -   |
| - - 3 - -   | - - - - -                                       | - - - - -                                       | - - - - -  | - - - - -   | - - - - -   |
|   |   |   |  |   |   |
|   |   |   |  |   |   |
| <b>600D Polyester -</b>                                 | <b>600D Polyester -</b>                         | <b>600D Polyester -</b>                         | <b>600D Polyester -</b>                              | <b>600D Polyester -</b>                             | <b>600D Polyester -</b>                             |
| -   | -   | -   | -  | Dbf reinforced bottom                               | Dbf reinforced bottom                               |
| singingrock.com   | singingrock.com                                 | singingrock.com                                 | singingrock.com                                      | rocknarbor.com                                      | rocknarbor.com                                      |

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|---|---|---|---|---|---|
| <b>MANUFACTURER</b>   | <b>ROCKnARB</b>   | <b>ROCKnARB</b>   | <b>ROCKnARB</b>   | <b>SILVER BULL</b>  |   |
| <b>MODEL litres/liters VARIANT</b>  | <b>Arborist Storage ?</b><br>RBA00..  | <b>Arborist Storage ?</b><br>RBA00..  | <b>Poseidon Rigger ?</b><br>RPB093  | <b>Net Sml 21</b>   |   |
| <b>ORIGIN</b>   |    |    |    |    |   |
| <b>COST (inc Tax/VAT) Currency conversion only</b>  | £0 \$36 €0  | £0 \$38 €0  | £0 \$215 €0   | £40 \$0 €0  |   |
| <b>VOLUME L/US Gallon intended market</b>   | <b>0L/0gal Pro Arb</b>  | <b>0L/0gal Pro Arb</b>  | <b>0L/0gal Pro Rescue</b>   | <b>21L/5.5gal Pro Arb</b>   |   |
| <b>NOMINAL ROPE/LOAD CAPACITY</b>   | <b>0m 150'x ½"</b>  | <b>0m 200'x ½"</b>  | <b>0m 200'x ½"</b>  | <b>0m 0'</b>  |   |
| <b>WEIGHT empty</b>   | <b>0kg 1.5lb</b>  | <b>0kg 0lb</b>  | <b>0kg 2.2lb</b>  | <b>0kg 0lb</b>  |   |
| <b>DIMENSIONS</b>   | <b>0 x 0 x 0cm<br/>0 x 0 x 0"</b>   | <b>0 x 0 x 0cm<br/>0 x 0 x 0"</b>   | <b>0 x 0 x 0cm<br/>0 x 0 x 0"</b>   | <b>35 x 28cm<br/>13.8 x 11"</b>   |   |
| <b>BACK STRAPS HANDLES HAUL EYE(S)</b>  | ---   | ---   | [2]1-   | ---   |   |
| <b>POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW</b>  | 4- - - -  | 4- - - -  | 2- 10 14 -  | - - - - -   |   |
| <b>WATERPROOF ID-PANEL DRAIN/VENT</b>   | - ■ -   | - ■ -   | ■ - -   | - - - - -   |   |
| <b>LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP</b>  | ■   | ■   | ■ + ■   | - - - - -   |   |
| <b>OUTER MATERIALS REFLECTIVE TRIM</b>  | 1000D coated nylon-   | 1000D coated nylon-   | 1000D coated nylon-   | --  |   |
| <b>OTHER COLOURS</b>  |    |   |    |   |   |
| <b>NOTES</b>  | -   | -   | -   | -   |   |
| <b>WEBSITE</b>  | rocknarbor.com  | rocknarbor.com  | rocknarbor.com  | -   |   |
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| <b>MANUFACTURER</b>   | <b>SILVER BULL</b>  | <b>SILVER BULL</b>  | <b>SILVER BULL</b>  | <b>SILVER BULL</b>  |   |
| <b>MODEL litres/liters VARIANT</b>  | <b>Rig</b>  | <b>Rig 44</b>   | <b>(Pro) Rig 60</b>   | <b>Day Pack</b>   |   |
| <b>ORIGIN</b>   |  |  |  |   |   |
| <b>COST (inc Tax/VAT) Currency conversion only</b>  | £66 \$0 €90   | £69 \$0 €94   | £83 \$0 €113  | £0 \$0 €0   |   |
| <b>VOLUME L/US Gallon intended market</b>   | <b>33L/8.7gal Pro Arb</b>   | <b>44L/11.6gal Pro Arb</b>  | <b>60L/15.8gal Pro Arb</b>  | <b>0L/0gal Pro Arb</b>  |   |
| <b>NOMINAL ROPE/LOAD CAPACITY</b>   | <b>0m 0'</b>  | <b>0m 0'</b>  | <b>0m 0'</b>  | <b>0m 0'</b>  |   |
| <b>WEIGHT empty</b>   | <b>0kg 0lb</b>  | <b>0kg 0lb</b>  | <b>0kg 0lb</b>  | <b>0kg 0lb</b>  |   |
| <b>DIMENSIONS</b>   | <b>35 x 28 cm<br/>13.8 x 11"</b>  | <b>40 x 32cm<br/>15.7 x12.6"</b>  | <b>46 x 45cm<br/>18 x 17.7"</b>   | <b>0 x 0 x 0cm<br/>0 x 0 x 0"</b>   |   |
| <b>BACK STRAPS HANDLES HAUL EYE(S)</b>  | ---   | ---   | ---   | ---   |   |
| <b>POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW</b>  | - - - - -   | - - - - -   | - - - - -   | - - - - -   |   |
| <b>WATERPROOF ID-PANEL DRAIN/VENT</b>   | - - - - -   | - - - - -   | - - - - -   | - - - - -   |   |
| <b>LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP</b>  | - - - - -   | - - - - -   | - - - - -   | - - - - -   |   |
| <b>OUTER MATERIALS REFLECTIVE TRIM</b>  | --  | --  | --  | --  |   |
| <b>OTHER COLOURS</b>  |   |   |   |   |   |
| <b>NOTES</b>  | -   | -   | -   | -   |   |
| <b>WEBSITE</b>  | -   | -   | -   | -   |   |



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 PES = Polyester  
 ●●●●● =Partial feature or OK but not ideal  
 □□□□□ = Option















| MANUFACTURER                                | SINGING ROCK                                    | SINGING ROCK              | SINGING ROCK              | SINGING ROCK              |                           |
|---|---|---------------------------|---------------------------|---------------------------|---------------------------|
| MODEL litres/liters VARIANT                 | Gear 35   | Drybag 40                 | Gear 50                   | Drybag 40                 |                           |
| ORIGIN                                      |   |                           |                           |                           |                           |
| COST (inc Tax/VAT) Currency conversion only | £0 \$0 €0                                       | £0 \$0 €0                 | £0 \$0 €0                 | £0 \$0 €0                 |                           |
| SPECIFICATIONS                              | VOLUME L/US Gallon intended market              | 35L/9.2gal Pro Access     | 40L/10gal Pro Access      | 50L/30.2gal Pro Access    | 40L/10gal Pro Access      |
|   | NOMINAL ROPE/LOAD CAPACITY                      | 0m 0'                     | 0m 0'                     | 0m 0'                     | 0m 0'                     |
|   | WEIGHT empty                                    | 0kg 0lb                   | 0kg 0lb                   | 0kg 0lb                   | 0kg 0lb                   |
| FEATURES                                    | DIMENSIONS                                      | 0 x 0 x 0cm<br>0 x 0 x 0" | 0 x 0 x 0cm<br>0 x 0 x 0" | 0 x 0 x 0cm<br>0 x 0 x 0" | 0 x 0 x 0cm<br>0 x 0 x 0" |
|   | BACK STRAPS HANDLES HAUL EYE(S)                 | ---                       | ---                       | ---                       | ---                       |
|   | POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW     | ---                       | ---                       | ---                       | ---                       |
|   | WATERPROOF ID-PANEL DRAIN/VENT                  | ---                       | ---                       | ---                       | ---                       |
|   | LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | ---                       | ---                       | ---                       | ---                       |
|   | OUTER MATERIALS REFLECTIVE TRIM                 | ---                       | ---                       | ---                       | ---                       |
|   | OTHER COLOURS                                   |                           |                           |                           |                           |
| NOTES                                       | -   | -                         | -                         | -                         |                           |
| WEBSITE                                     | singingrock.com                                 | singingrock.com           | singingrock.com           | singingrock.com           |                           |

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 PES = Polyester  
 ●●●●● =Partial feature or OK but not ideal  
 □□□□□ = Option



| MANUFACTURER                                | STEIN   | STEIN                     | STEIN                             | STEIN                             |                           |
|---|---|---------------------------|-----------------------------------|-----------------------------------|---------------------------|
| MODEL litres/liters VARIANT                 | Utility 15                                      | Utility 25                | Vault 25                          | Vault 30                          |                           |
| ORIGIN                                      |   |                           |                                   |                                   |                           |
| COST (inc Tax/VAT) Currency conversion only | £24 \$0 €0                                      | £48 \$0 €0                | £0 \$0 €0                         | £60 \$0 €0                        |                           |
| SPECIFICATIONS                              | VOLUME L/US Gallon intended market              | 15L/3.9gal Pro Arb        | 25L/6.6gal Pro Arb                | 25L/6.6gal Pro Arb                | 30L/7.9gal Pro Arb        |
|   | NOMINAL ROPE/LOAD CAPACITY                      | 0m 0'                     | 0m 0'                             | 0m 0'                             | 0m 0'                     |
|   | WEIGHT empty                                    | 0kg 0lb                   | 0kg 0lb                           | 0kg 0lb                           | 0kg 0lb                   |
| FEATURES                                    | DIMENSIONS                                      | 0 x 0 x 0cm<br>0 x 0 x 0" | 40 x 30 x 30cm<br>15.7 x 12 x 12" | 50 x 30 x 30cm<br>19.7 x 12 x 12" | 0 x 0 x 0cm<br>0 x 0 x 0" |
|   | BACK STRAPS HANDLES HAUL EYE(S)                 | ---                       | ---                               | ---                               | ---                       |
|   | POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW     | ---                       | 1- 24- -                          | ---                               | ---                       |
|   | WATERPROOF ID-PANEL DRAIN/VENT                  | ---                       | ●■                                | ●■                                | ●■                        |
|   | LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | ---                       | ■                                 | ■                                 | ■                         |
|   | OUTER MATERIALS REFLECTIVE TRIM                 | PVC-                      | PVC-                              | PVC-                              | PVC-                      |
|   | OTHER COLOURS                                   |                           |                                   |                                   |                           |
| NOTES                                       | -   | -                         | -                                 | -                                 |                           |
| WEBSITE                                     | steinworldwide.com                              | steinworldwide.com        | steinworldwide.com                | steinworldwide.com                |                           |

# ROPE/GEAR BAGS

|  |   |   |   |   |   |
|--|---|---|---|---|---|
|  |  |  |  |  |  |
| <b>SKYLOTEC</b>  | <b>SKYLOTEC</b>   | <b>SKYLOTEC</b>   | <b>SKYLOTEC</b>   | <b>SKYLOTEC</b>   | <b>SKYLOTEC</b>   |
| <b>Classic 9</b><br>ACS-0009-1   | <b>Classic 22</b><br>ACS-0009-2   | <b>Classic 30</b><br>ACS-0009-3   | <b>Classic 38</b><br>ACS-0009-4   | <b>Tool Bag Pro Lift 25</b><br>ACS-0133-2   | <b>Tool Bag Pro Lift 40</b><br>ACS-0133-4   |
|  |  |  |  |  |  |
| £20 \$0 €21  | £24 \$0 €27   | £26 \$0 €29   | £29 \$0 €31   | £00 \$0 €00   | £00 \$0 €00   |
| 10L/5.8gal <b>Pro Access</b>   | 22L/5.8gal <b>Pro Access</b>  | 30L/6.6gal <b>Pro Access</b>  | 38L/10gal <b>Pro Access</b>   | 25L/6.6gal <b>Pro Access</b>  | 40L/10gal <b>Pro Access</b>   |
| 15m/50' x 11mm   | 50m/164' x 11mm   | 90m/295' x 11mm   | 130m/426' x 11mm  | 130m/426' x 11mm  | 130m/426' x 11mm  |
| 140g 0lb   | 310g 0lb  | 390g 0lb  | 520g 0lb  | 600g 0lb  | 700g 0lb  |
| 26 x 21.5 x 16.5cm<br>10.2 x 8.5 x 6.5"  | 45 x 30 x 28cm<br>17.7 x 11.8 x 11"   | 45 x 40 x 28cm<br>17.7 x 0 x 11"  | 50 x 45 x 28cm<br>19.7 x 17.7 x 11"   | 00 x 00 x 00cm<br>00 x 00 x 00"   | 00 x 00 x 00cm<br>00 x 00 x 00"   |
| -2-  | -2-   | -2-   | -2-   | -2-   | -2-   |
| -- 2 -   | -- 2 -  | -- 2 -  | -- 2 -  | -- 2 -  | -- 2 -  |
| ---  | ---   | ---   | ---   | ---   | ---   |
| ■  | ■   | ■   | ■   | ■   | ■   |
| Ballistic Nylon  | Ballistic Nylon   | Ballistic Nylon   | Ballistic Nylon   | Nylon   | Nylon   |
| -  | -   | -   | -   | -   | -   |
| skylotec.com   | skylotec.com  | skylotec.com  | skylotec.com  | skylotec.com  | skylotec.com  |

|  |   |   |   |   |   |
|--|---|---|---|---|---|
|  |  |  |  |  |  |
| <b>STEIN</b>   | <b>STEIN</b>  | <b>STEIN</b>  | <b>STERLING ROPES</b>   | <b>STERLING ROPES</b>   | <b>STERLING ROPES</b>   |
| <b>Utility 50</b>  | <b>Voyager 60</b>   | <b>Utility 70</b>   | <b>RopeBag S 17</b><br>MDBAGROPEBM17  | <b>RopeBag M 31</b><br>MDBAGROPEBM31  | <b>Rope Bag L 45</b><br>MDBAGROPEBL45   |
|  |  |  |  |  |  |
| £60 \$0 €0   | £108 \$140 €0   | £90 \$0 €0  | £52 \$60 €61  | £63 \$70 €74  | £76 \$80 €90  |
| 50L/13.2gal <b>Pro Arb</b>   | 60L/15.8gal <b>Pro Arb</b>  | 70L/18.5gal <b>Pro Arb</b>  | 17L/4.5gal <b>Pro Access</b>  | 31L/8.1gal <b>Pro Access</b>  | 45L/11.89gal <b>Pro Access</b>  |
| 0m 0'  | 0m 0'   | 0m 0'   | 41kg/90lb 46mx11mm  | 41kg/90lb 61mx11mm  | 41kg/90lb 92mx11mm  |
| 0kg 0lb  | 0kg 0lb   | 0kg 0lb   | kg 0lb  | 0.81kg 0lb  | 0kg 0lb   |
| 48 x 38 x 38cm<br>18.9 x 15 x 15"  | 60 x 37 x 27cm<br>0 x 0 x 0"  | 60 x 40 x 27cm<br>23.6 x 15.7 x 10.6"   | 53 x 20.3cm<br>21 x 8"  | 53 x 28 cm<br>21 x 11"  | 69 x 28cm<br>27 x 11"   |
| ---  | ---   | ---   | 22-   | 22-   | 22-   |
| 1- - - -   | 1- - - ■  | 1- - - ■  | -- 101 -  | -- 101 -  | -- 121 -  |
| ● ■  | ■ ■   | ■ ■   | ● ■ ■   | ● ■ ■   | ● ■ ■   |
| ■  | ■ + ■   | ■ + ■   | ■   | ■   | ■   |
| PVC-   | Ballistic Nylon-  | PVC-  | 1600D Polyester-  | 1600D Polyester-  | 1600D Polyester--   |
| -  | Will fit 3xVault 15L in a stack.<br>2L front pocket                                 | Will fit 3xVault 15L+ bleed<br>control in a stack.                                  | -   | -   | -   |
| steinworldwide.com   | steinworldwide.com  | steinworldwide.com  | sterlingrope.com  | sterlingrope.com  | sterlingrope.com  |

| <p><b>Images NOT to Scale</b><br/>                     £\$€ any price in 'burnt-orange' is a <b>Currency conversion only</b>-exc shipping, duties,taxes etc.<br/> <b>HAUL EYES</b> = can carry the entire weight of the bag &amp; contents eg. for hauling or attaching to harness.May double as handles shown as 1/1<br/> <b>STORE SAW</b>=pouch or scabbard for hand saw<br/> <b>POP</b>= Popper or press stud<br/> <b>BUCKLE ROLL TOP</b>= all roll tops are closed with a push-fit/Fastex buckle<br/>                     PES = Polyester<br/>                     ●●●●● =Partial feature or OK but not ideal<br/>                     □□□□□ = Option</p> |   |   |   |   |  |
|---|---|---|---|---|--|
| <b>MANUFACTURER</b>   | <b>TEUFELBERGER</b>                             | <b>TEUFELBERGER</b>                             | <b>TEUFELBERGER</b>                             | <b>TEUFELBERGER</b>   |  |
| <b>MODEL litres/liters VARIANT</b>  | <b>Rope Bucket 25</b>                           | <b>Rope Bucket 30</b>                           | <b>Rope Bucket 50</b>                           | <b>Rope Bucket 80</b>   |  |
| <b>ORIGIN</b>   |   |   |   |   |  |
| <b>COST (inc Tax/VAT) Currency conversion only</b>  | £0 \$210 €170                                   | £0 \$225 €185                                   | £0 \$330 €0                                     | £0 \$370 €276   |  |
| <b>VOLUME L/US Gallon intended market</b>   | 25L/6.6gal <b>Pro Access</b>                    | 50L/13.2gal <b>Pro Access</b>                   | 50L/13.2gal <b>Pro Access</b>                   | 80L/21.1gal <b>Pro Access</b>                                     |  |
| <b>NOMINAL ROPE/LOAD CAPACITY</b>   | 0m 0'   | 0m 0'   | 0m 0'   | 0m 0'   |  |
| <b>WEIGHT empty</b>   | 0kg 0lb   | 0kg 0lb   | 0kg 0lb   | 0kg 0lb   |  |
| <b>DIMENSIONS</b>   | 35 x 35 x 35cm<br>13.8 x 13.8 x 13.8"           | 0 x 0 x 0cm<br>0 x 0 x 0"                       | 0 x 0 x 0cm<br>0 x 0 x 0"                       | 0 x 0 x 0cm<br>0 x 0 x 0"   |  |
| <b>BACK STRAPS HANDLES HAUL EYE(S)</b>  | -2-   | -2-   | 22-   | 22-   |  |
| <b>POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW</b>  | -- MultipleMultiple -                           | -- MultipleMultiple -                           | -- MultipleMultiple -                           | -- MultipleMultiple -   |  |
| <b>WATERPROOF ID-PANEL DRAIN/VENT</b>   | --■   | --■   | --■   | --■   |  |
| <b>LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP</b>  | ■   | ■   | ■   | ■   |  |
| <b>OUTER MATERIALS REFLECTIVE TRIM</b>  | 44oz Vinyl                                      | --  | --  | --  |  |
| <b>OTHER COLOURS</b>  |   |   |   |   |  |
| <b>NOTES</b>  | Can be customised for any ext/int gear carriage | Can be customised for any ext/int gear carriage | Can be customised for any ext/int gear carriage | Can be customised for any ext/int gear carriage                   |  |
| <b>WEBSITE</b>  | teufelberger.com                                | teufelberger.com                                | teufelberger.com                                | teufelberger.com  |  |
| <p><b>Images NOT to Scale</b><br/>                     £\$€ any price in 'burnt-orange' is a <b>Currency conversion only</b>-exc shipping, duties,taxes etc.<br/> <b>HAUL EYES</b> = can carry the entire weight of the bag &amp; contents eg. for hauling or attaching to harness.May double as handles shown as 1/1<br/> <b>STORE SAW</b>=pouch or scabbard for hand saw<br/> <b>POP</b>= Popper or press stud<br/> <b>BUCKLE ROLL TOP</b>= all roll tops are closed with a push-fit/Fastex buckle<br/>                     PES = Polyester<br/>                     ●●●●● =Partial feature or OK but not ideal<br/>                     □□□□□ = Option</p> |   |   |   |   |  |
| <b>MANUFACTURER</b>   | <b>TREERUNNER</b>                               | <b>TREERUNNER</b>                               | <b>WEAVER ARBORIST</b>                          | <b>WEAVER ARBORIST</b>  |  |
| <b>MODEL litres/liters VARIANT</b>  | <b>Vented Rope Bag 31</b>                       | <b>Spring Bag 54</b>                            | <b>Basic 26</b>                                 | <b>DeLuxe 22</b><br>08-07185                                      |  |
| <b>ORIGIN</b>   |   |   |   |   |  |
| <b>COST (inc Tax/VAT) Currency conversion only</b>  | £0 \$0 €40                                      | £0 \$0 €44                                      | £41 \$0 €0                                      | £73 \$0 €0  |  |
| <b>VOLUME L/US Gallon intended market</b>   | 31L/8.1gal <b>Pro Arb</b>                       | 54L/14.2gal <b>Pro Arb</b>                      | 26L/6.8gal <b>Pro Arb</b>                       | 22L/5.8gal- <b>Pro Arb</b>  |  |
| <b>NOMINAL ROPE/LOAD CAPACITY</b>   | 0m 0'   | 0m 0'   | 0m 0'   | 75m x 11mm >150' x ½"   |  |
| <b>WEIGHT empty</b>   | 600g 0lb  | 0kg 0lb   | 0kg 0lb   | 0kg 0lb   |  |
| <b>DIMENSIONS</b>   | 50 x 28 x 28cm<br>19.7 x 11 x 11"               | 42 x 39 x 39cm<br>16.5 x 15.4 x 15.4"           | 35.6 x 30cm<br>14 x 12"                         | 73.7 x 38 cm<br>29 x 15"  |  |
| <b>BACK STRAPS HANDLES HAUL EYE(S)</b>  | 22-   | 12-   | ---   | - 2-  |  |
| <b>POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW</b>  | 1- -1 -   | 1- -4 -   | --- --  | --- --  |  |
| <b>WATERPROOF ID-PANEL DRAIN/VENT</b>   | ---■  | --■   | ●■  | ●■  |  |
| <b>LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP</b>  | ■   | ■   | ■   | ■   |  |
| <b>OUTER MATERIALS REFLECTIVE TRIM</b>  | Ballistic Nyon -                                | Tarpaulin(PVC) -                                | --  | 1200D Polyester   |  |
| <b>OTHER COLOURS</b>  |   |   | ■   | ■   |  |
| <b>NOTES</b>  | -   | 3 height adjustments straps. Mesh lid           | -   | * 1 eye= shoulder+storage strap secured by 2 small fastex buckles |  |
| <b>WEBSITE</b>  | grube.de  | grube.de  | -   | weaverarborist.com  |  |



# ROPE/GEAR BAGS

|  |   |   |   |   |   |
|--|---|---|---|---|---|
|    |    |    |    |     |  |
| <b>TEUFELBERGER</b>  | <b>TREEHOG</b>  | <b>TREERUNNER</b>   | <b>TREERUNNER</b>   | <b>TREERUNNER</b>   | <b>TREERUNNER</b>   |
| <b>Bucket Mule</b>   | <b>Rope&amp;Kit Bag 40</b><br><small>TH4000</small>                                 | <b>Rope Bag 28</b>  | <b>Rope Tarp Bag 24</b>   | <b>Rope Tarp Bag 28</b>   | <b>Rope Tarp Bag 32</b>   |
|    |    |    |    |    |  |
| £45 \$0 €0   | £50 \$0 €0  | £36 \$0 €35   | £38 \$0 €42   | £47 \$0 €44   | £51 \$0 €48   |
| <b>0L Pro Access</b>   | <b>40L/10gal Pro Arb</b>  | <b>28L/7.4gal Pro Arb</b>   | <b>24L/6.3gal Pro Arb</b>   | <b>28L/7.4gal Pro Arb</b>   | <b>32L/8.4gal Pro Arb</b>   |
| <b>0m 0'</b>   | <b>0m 0'</b>  | <b>0m 0'</b>  | <b>0m 0'</b>  | <b>0m 0'</b>  | <b>0m 0'</b>  |
| 0kg 0lb  | <b>0kg 0lb</b>  | 570g 1.25lb   | 908g 2lb  | 1.05kg 2.3lb  | 1.09kg 2.4lb  |
| <b>100 x 31 x 30cm</b><br><b>39.4 x 12 x 12"</b>                                   | <b>0 x 0 x 0cm</b><br><b>0 x 0 x 0"</b>   | 40 x 30cm<br>15.8x 12"  | 35 x 40 x 30cm<br>13.8 x 15.8 x 12"   | 40 x 40 x 30cm<br>15.8 x 15.8x 12"  | 45 x 40 x 30cm<br>17.7 x 15.8 x 12"   |
| ---  | 2-2   | -21   | -21   | -21   | -21   |
| ---  | ---   | 4- ---  | 2- 6- -   | 2- 6- -   | 2- 6- -   |
| ---  | ●- -  | ●- ■  | ●- ■  | ●- ■  | ●- ■  |
| ---  | ■   | ■   | ■   | ■   | ■   |
| ---  |   | --  | Tarpaulin(PVC) -  | Tarpaulin(PVC) -  | Tarpaulin(PVC) -  |
|  |   |   |   |   |   |
| teufelberger.com   | treehog.co.uk   | grube.de  | grube.de  | grube.de  | grube.de  |
|   |  |  |  |  |   |
| <b>WEAVER ARBORIST</b>   | <b>WEAVER ARBORIST</b>  | <b>WEST COAST CLIMBER</b>   | <b>WEST COAST CLIMBER</b>   | <b>WEST COAST CLIMBER</b>   |   |
| <b>All Rope Deploy 52</b><br><small>08-07161.</small>                              | <b>All Purpose 84</b><br><small>08-07185</small>                                    | <b>Rocket Mini 36</b>   | <b>Classic 45</b>   | <b>Rocket 55</b>  |   |
|  |  |  |  |  |   |
| £71 \$0 €0   | £73 \$90 €0   | £101 \$125 €117   | £42 \$52 €49  | £117 \$146 €137   |   |
| <b>52L/13.7gal Pro Arb</b>   | <b>84L/22.2gal Pro Arb</b>  | <b>36L/9.5gal Pro Arb</b>   | <b>45L/11.9gal Pro Arb</b>  | <b>55L/14.5gal Pro Arb</b>  |   |
| <b>0m 200' x 5/8"</b>  |   | 75m x 11mm >150' x 1/2"   | 150m x 11mm 300' x 1/2"   | 150m x 11mm >300' x 1/2"  |   |
| 0kg 0lb  | 1.22kg 2.7lb  | <b>0kg 0lb</b>  | <b>0kg 0lb</b>  | <b>0kg 0lb</b>  |   |
| 45.7 x 38 cm<br>18 x 15"   | 73.7 x 38 cm<br>29 x 15"  | 35.6 x 30.4cm<br>14 x 12"   | 45.7 x 30.4cm<br>18 x 12"   | 69 x 38cm<br>27 x 15"   |   |
| [1] 2-   |   | [2] 1-  | - 2-  | 2 1-  |   |
| ---  | 1- ---■   | ---   | -- 1- -   | 1- 1- -   |   |
| ●- ■   | ●- ■  | ●- ■  | ●- ■  | ●- ■  |   |
| ■  | ■   | ■   | ■   | ■   |   |
| <b>1200D Polyester</b>   | <b>1200D Polyester</b>  | <b>1680D Ballistic Nylon</b>  | <b>1000D Cordura</b>  | <b>1680D Ballistic Nylon</b>  |   |
|  |   |   |  |   |   |
| Field closed by 2 small fastex buckles   | Side zip allows access and visibility of main compartment gear                      |   |   |   |   |
| weaverarborist.com   | weaverarborist.com  | nugreenstore.com  | nugreenstore.com  | nugreenstore.com  |   |

# Bungee CHAINSAW Lanyards/ Tethers

The chainsaw holding lanyard (or leash or tether) stands out as an essential accessory for professional arborists. This equipment allows secure and transport the chainsaw optimally when working at height.

The main reason to use a chainsaw holder is security. When a chainsaw is attached to a lanyard, the Risks of accidental falls are considerably reduced. This is particularly important when the pruner is working high up, where a chainsaw falling several meters can cause serious injury or significant property damage. By securing the chainsaw with a lanyard, you protect the tool against falls and shocks, but also the worker and its immediate environment in the event of loss of control.

There are more and more models of lanyards and each has advantages and disadvantages. all bungee lanyards have, by definition, a small degree of shock absorbency but some are equipped with a full-spec shock reduction system that absorbs impact force that would otherwise affect the harness and the user in the event of a fall.

Lengths, widths and attachment system vary from model to model to another, but one of the most important aspects to consider is the lengthening of the strap with stretch, which is closely related to its Maximum Utilization Capacity (CMU). Here are the main criteria to consider when making your selection:

## LENGTH AND WIDTH OF THE LANYARD

The lanyard must provide adequate length to allow sufficient range of movement without risk of entanglement. A lanyard that is too short can restrict movement of the climber, while a lanyard that is too long can become cumbersome and increase the risk of accidents especially when closer to the ground or to a hazard like cables. The width of the lanyard can influence its ability to support more or less significant loads. A wider or thicker lanyard is generally capable of supporting higher loads, but the only data you can you can trust is the CMU (in France= Charge Minimale de Rupture) or MBS which is the Minimum Breaking (or Rupture) load.

## MAXIMUM USE CAPACITY

The CMU or MBS is essential information and must absolutely support the weight of your chainsaw **as well as the additional forces generated during movements**. However, some also have built-in 'weak' points that will allow the saw to break away

under extreme loading such as could occur if the saw or lanyard snag on a large limb or section that then threatens to drag you with it! it's a fine line between safety of the user in this event and ensuring that the chainsaw remains secure during 'robust' work.

## CONNECTION

The connection must be secure and easy to use. THE carabiners and loops must be able to withstand the weight of the chainsaw without risk of breakage. Make sure that the locking mechanisms are reliable and easy to handle, even with protective gloves. Most chainsaw lanyards have the option of a girth-hitch connection to the handle or attachment ring using the end loop in the webbing which is often sewn inverted to make the girth hitch neater. However, for quicker change-arounds, some simply clip a carabiner from the metal ring a little further back. This metal ring is otherwise intended to be used as the short harness clip-point when climbing and manoeuvring rather than have the saw dangling a metre or so below you. Note that virtually any chainsaw lanyard can be used the opposite way around to the intended way shown in our tables.

## ELONGATION

The elongation of a lanyard refers to the ability of the material to stretch under tension. This property can absorb shock and reduce the forces transmitted to the user in the event of a fall or sudden movement. A well-designed lanyard with an extension adequate acts as a shock absorber, protecting the both the pruner and the equipment.

## STANDARDS

The US has ANSI/ISEA 121-2018 referring to drop-prevention but unusually the EU was a bit behind the game on this one.





Drayer's Tango Vario Plus allows each tool to have it's own loop and then connect to the lanyard as needed.

## FOR TOOLS NOT PPE

The lanyards in this guide are not all from the arb industry but can all be used for chainsaws. There are many bungee-lanyards from construction and rope access intended for smaller power tools - perhaps still 5kg limit but that would stretch the limits (so to speak) of a rear-handled chainsaw. We have only included the more arb oriented models but have differentiated the lighter and heavier duty models because a top-handle chainsaw will generally be just under 5kg with the battery or a full tank of fuel while a larger, rear-handle chainsaw may go several kg beyond that. There are also a number of even lighter lanyard variants with bungee attachments for use with handsaws and light tools like this *Skylootec Long Leash* on the right - these are NOT for use with chainsaws but they will be included in the BUYERS GUIDE version of this article later this year. We have stuck with bungee or elasticated lanyards because why would you use anything else? We all used to use lengths of rope and slings but retracting the working length when you are not using

the chainsaw and the extreme-load breakaway facility of some makes working much safer.

None of these lanyard are intended for personal safety in the sense of climbing PPE but there are lanyards that will do both jobs - the tactical lanyard from *Warrior* (pic top right) using Kong's Frog connector could easily do the job of a chainsaw lanyard BUT.....

- 1) Never mix rigging or tool connector use with climbing or personal protection.
- 2) Personal protection makes this more expensive at around £50 compared to a more usual £20-30
- 3) This is designed specifically to hold your weight no matter what - it will not break away if a trunk or limb tries to snatch your saw away with you attached to it but that is also the case with most chainsaw lanyards.



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**Images NOT to Scale**

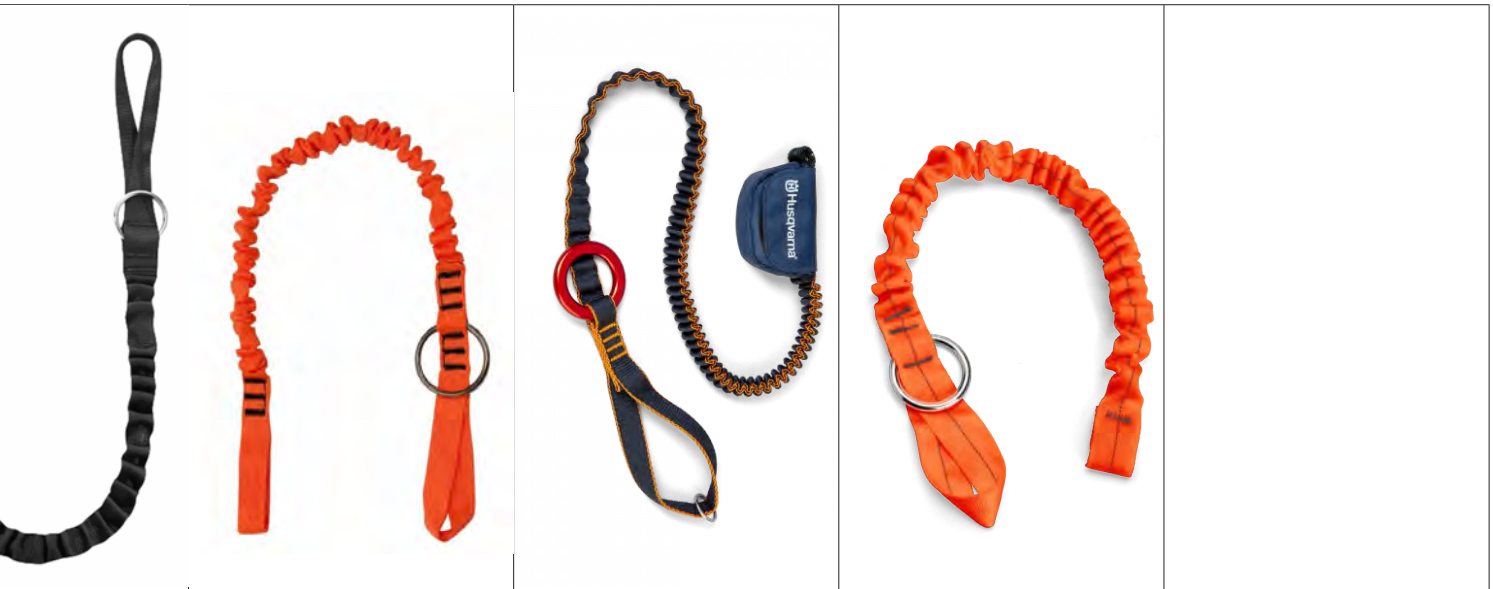
●● = OK but not ideal

£\$€ any price in 'burnt-orange' is a Currency conversion only-exc shipping, duties,taxes etc

MBS in the case of these lanyards, usually refers to impact force and should therefore be in kiloNewtons kN or pounds force. For reference 1kN=102kg of force or 225 pound-force



| BRAND                      | BUCKINGHAM MFG  | CAMP  | CAMP   | ED                                       |
|----------------------------|---|---|--|--|
| MODEL VARIANT              | Tear-Away Snap  | Sawer   | Sawer Pro  | Dyno                                     |
| PRODUCT CODE               | 25G12A 25G13A   | 2151  | 2300   | H  |
| ORIGIN                     |   |   |  |  |
| COST approx retail inc tax | £3234 \$4143 €3841  | £21 \$35 €22  | £29 \$36 €32   | £31                                      |
| BREAKAWAY                  | ■   | ■   | ■  |  |
| CHAINSAW/HEAVY TOOL        | -   | ■   | ■  |  |
| LIGHT CHAINSAW             | ■   | ■   | ■  |  |
| RETRACTED LENGTH           | 65cm /25.6"   | 90cm /35.4"   | 75cm /29.5"  | 90cm                                     |
| EXTENDED LENGTH            | 120cm /48"  | 135cm /53"  | 125cm /49.2"   | 140cm                                    |
| MATERIAL                   | Nylon   | Nylon   | Nylon  | Polystyrene                              |
| WEBBING WIDTH / Ø          | 25mm / 1"   | 13-20mm / 0.5-0.8"  | 28mm / 1.1"  | 25mm                                     |
| WEIGHT                     | 146g / 5.1oz  | 95g / 3.4oz   | 130g / 4.6oz   | 90g                                      |
| SWL MBS                    | 7kg /15lb 90kg/200lb*   | 10kg /22lb 200kg  | 10kg /22lb 200kg   | 20kg /                                   |
| CONNECTER/SHORTEN          | Steel ring  | Steel ring  | Steel ring   | Ste                                      |
| HARNES TERMINATION         | Inverted loop   | Snap alloy carabiner  | Snap alloy carabiner   | Inver                                    |
| TOOL-END TERMINATION       | Sml steel ring  | Inverted loop   | Inverted loop  | Sev                                      |
| STANDARDS                  | ANSI  |   |  |  |
| NOTES                      | <p>* The tear-away element deploys at 90kg of force.</p> <p>Also available without terminal steel ring (as a sewn eye for your own carabiner/connector)</p> | <p>The Sawer lanyard features a metal ring, for quick and easy attachment to a tool-carabiner and a 13 or 28 mm elastic tubular strap. The tools are connected thanks to a lark's foot made with the strap. The connection to the harness safety is by aluminum alloy carabiner. "Sawer" is designed to break at around 200-250 kg, to help avoid risk of injury to the user in the event of a fall or being snagged by falling wood.</p> | <p>As per the Sawer with a more robust webbing but the same breakaway facility via the small integral carabiner.</p> | <p>Integrated ruptures a (dropped op</p> |
| WEBSITE                    | buckinghammfg.com   | camp.it   | camp.it  | ede                                      |



| DELRID<br>Chainsaw ABS   | HARKIE<br>Chainsaw | HUSQVARNA<br>Anti-Shock                     | HUSQVARNA<br>Chainsaw Strop               |  |
|--|--------------------|---|---|--|
| H2345  | H2345              | 534 10 08-01                                | 577 43 80-01                              |  |
|  |                    |   |   |  |
| £40 €25  | £19 \$26 €23       | £67 \$90 €80                                | £36 \$40 €35                              |  |
|  | no                 |   | no  |  |
|  |                    | -   |   |  |
|  |                    |   |   |  |
| 90cm /35.4"  | 90cm /35.4"        | 73cm /28.7"                                 | 50cm /19.7"                               |  |
| 130cm /51.1"   | 130cm /51"         | 135cm /53"                                  | 125cm /49.2"                              |  |
| Polyester & Nylon  | Polyester          | Polyester & Nylon                           | Nylon                                     |  |
| 25mm/1"  | 25mm/1"            | 25mm/1"                                     | 25mm / 1"                                 |  |
| 110g / 3.3oz   | 110g/3.9oz         | 140g/5oz                                    | 140g / 4.9oz                              |  |
| 44lb <b>240kg</b>  | 30kg /66lb         | 20kg /44lb <b>&gt;200kg/440lb</b>           | 10kg /22lb <b>200kg</b>                   |  |
| Steel ring   | Steel ring         | Alloy ring                                  | Alloy ring                                |  |
| Loop   | Loop               | Shock absorber                              | Shock absorber                            |  |
| Inverted loop  | Inverted loop      | Inverted loop + Alloy ring                  | Inverted loop + Alloy ring                |  |
| integrated shock absorber (at 2.4kN impact or trapped saw/operator.) |                    | integrated shock absorber. Ruptures at 2 kn | General purpose, relatively short lanyard |  |
| delrid.com   | harkie.co.uk       | husqvarna.com                               | husqvarna.com                             |  |

**Images NOT to Scale**

●● = OK but not ideal

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**MBS** in the case of these lanyards, usually refers to impact force and should therefore be in kiloNewtons kN or pounds force. For reference 1kN=102kg of force or 225 pound-force



| BRAND                      | MILLER  | NEVER LET GO   | NEVER LET GO              |
|----------------------------|---|----------------|---------------------------|
| MODEL VARIANT              | Longue PT   | Chainsaw       | HD FIRE RESIST            |
| PRODUCT CODE               | -   | 101609         | 101373 101716             |
| ORIGIN                     |   |                |                           |
| COST approx retail inc tax | £28 \$40 €35  | £14 \$20 €17   | £4665 \$6186 €5577        |
| BREAKAWAY                  | no  | no             | no                        |
| CHAINSAW/HEAVY TOOL        | ■   | ■              | ■                         |
| LIGHT CHAINSAW             | ■   | ■              | ■                         |
| RETRACTED LENGTH           | 60cm /23.6"   | 85cm /33.5"    | 8090cm /31.535.4"         |
| EXTENDED LENGTH            | 122cm /48"  | 130cm /51.2"   | 130140cm /51.255.1"       |
| MATERIAL                   | Nylon   | Nylon          | Nylon/Dyneema/Aramid      |
| WEBBING WIDTH / Ø          | 17mm / 0.7"   | 25mm / 1"      | 1925mm / 0.75 1"          |
| WEIGHT                     | 70g / 2.5oz   | 105g /3.7oz    | 175g/6.2oz                |
| SWL MBS                    | 9kg /20lb 90kg  | 10kg /22lb     | 20kg /44lb                |
| CONNECTER/SHORTEN          | Steel ring  | Steel ring     | -                         |
| HARNES TERMINATION         | Alloy snap carabiner  | Inverted loop  | Dyneema Loop              |
| TOOL-END TERMINATION       | Loop  | Inverted loop  | Alloy carabiner           |
| STANDARDS                  |   | ANSI, CE, UKCA | ANSI, CE, UKCA            |
| NOTES                      | The miller brand polyamide lanyard helps secure the chainsaw and to facilitate its connection to the harness. Its load capacity reaches just under 10kg and once stretched it can measure up to 122 cm. |                | Auto lock alloy carabiner |
| WEBSITE                    | honeywell.com   | Neverletgo.Com | Neverletgo.com            |

# TCI MAGAZINE™

Official publication of the TREE CARE INDUSTRY ASSOCIATION

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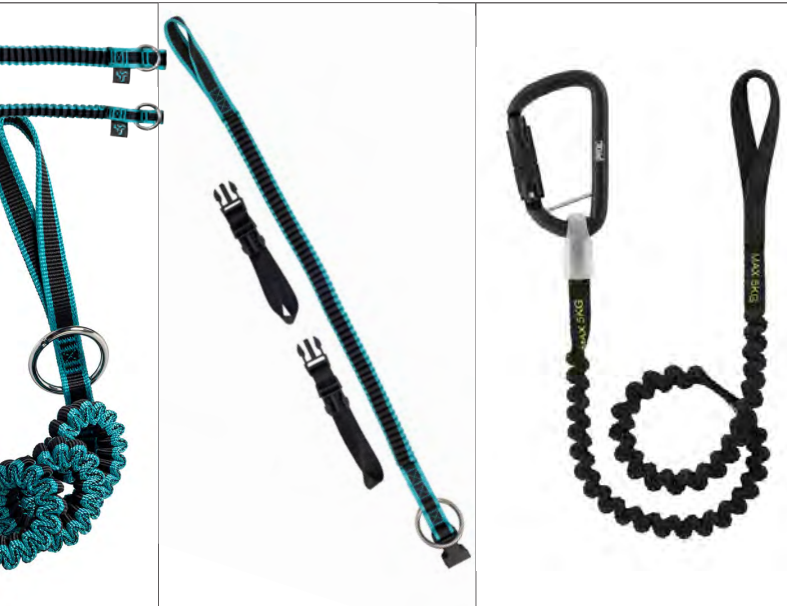
£\$€ any price in 'burnt-orange' is a Currency conversion only-exc shipping, duties,taxes etc

MBS in the case of these lanyards, usually refers to impact force and should therefore be in kiloNewtons kN or pounds force. For reference 1kN=102kg of force or 225 pound-force



| BRAND                      | NEVER LET GO          | NEVER LET GO  | NOTCH  | NOTCH  |
|----------------------------|-----------------------|---|--|--|
| MODEL VARIANT              | Super Bungee Chainsaw | Super Bungee Tool   | Quick Cinch Sml  | Quick Cinch  |
| PRODUCT CODE               | 101610 101623         | 101419  | NQCCL-17   | NQCCL-17   |
| ORIGIN                     | UK                    | UK  | USA  | USA  |
| COST approx retail inc tax | £44.65 \$60.88 €53.78 | £77 \$104 €93   | £29 \$33 €37   | £32 \$42 €37   |
| BREAKAWAY                  | no                    | no  | no   | no   |
| CHAINSAW/HEAVY TOOL        | ■                     | ■   | ●  | ■  |
| LIGHT CHAINSAW             | ■                     | ■   | ■  | ■  |
| RETRACTED LENGTH           | 80cm/31.5"            | 160cm/63"   | 80cm/31.5"   | 80cm/31.5"   |
| EXTENDED LENGTH            | 200cm/78"             | 340cm/133"  | 152cm/60"  | 152cm/60"  |
| MATERIAL                   | Nylon                 | Nylon   | Nylon  | Nylon  |
| WEBBING WIDTH / Ø          | 25mm/1"               | 25mm/1"   | 17mm/0.8"  | 25mm/1"  |
| WEIGHT                     | 110/3.9oz 210g/7.4oz  | 345g/12.2oz   | 230g / 8oz   | 270g / 9.5oz   |
| SWL MBS                    | 10kg / 22lbs          | 20kg / 44lbs  | 15kg / 33lbs   | 25kg / 55lbs   |
| CONNECTER/SHORTEN          | Sewn eye Steel ring   | -   | Steel ring   | Steel ring   |
| HARNESSTERMINATION         | Loop                  | NOT for HARNESSTERMINATION  | Inverted loop  | Inverted loop  |
| TOOL-END TERMINATION       | Inverted Loop         | Inverted Loop   | Sml steel ring + sewn  | Sml steel ring + sewn  |
| STANDARDS                  | ANSI, CE, UKCA        | ANSI, CE, UKCA  |  |  |
| NOTES                      |                       | Very long. Intended for use in an elevated platform/ cherry picker NOT for connecting to your harness. Integral captive eye carabiner for cage connection | The quick cinch lanyard solves a common problem faced by climbers attempting to remove a chainsaw that has been choked to the small metal d-shaped fastening buckle. The quick cinch system allows simple attachment, without having to girth hitch your chainsaw to the small metal d-ring. | The quick cinch lanyard solves a common problem faced by climbers attempting to remove a chainsaw that has been choked to the small metal d-shaped fastening buckle. The quick cinch system allows simple attachment, without having to girth hitch your chainsaw to the small metal d-ring. |
| WEBSITE                    | Neverletgo.com        | Neverletgo.com  | notchequipment.com   | notchequipment.com   |





| NOTCH  | NOTCH   | PETZL  |
|--|---|--|
| 12.5 inch Lg   | Modular   | TOOLEASH   |
| CL-25  | VSG99426  | S049AA00   |
|  |   |  |
| £37 €39  | £40 \$40 €48  | £25 \$35 €25   |
| no   |   | no   |
|  |   | -  |
|  |   |  |
| 31.5"  | 99cm /39"   | 40cm/15.75"  |
| n/60"  | 167.6cm/66"   | 105cm/41.3" *  |
| on   | Nylon   | Polyester  |
| m/1"   | 15mm/0.6"   | 25mm/1"  |
| 9.5oz  | 230g / 8oz  | 56g/2oz  |
| 55lbs  | 30kg / 65lb   | 5kg/11lb   |
| ring   | Steel ring  | crab (using optional   |
| ed loop  | Inverted loop   | Inverted loop  |
| ing + sewn   | Clip-on inverted loop   | Sewn eye + alu   |
|  |   | ANSI, CE, UKCA   |
| lanyard solves<br>problem faced by<br>climbers trying to remove<br>tools. It has been<br>designed with small metal<br>buckle. This system allows<br>fast switching between tools<br>without hitching your<br>small metal | Clip-on tool lanyards allow for fast-switching between tools. | <br>* This extends to up to 120cm with the addition of one of three sizes of optional leash extensions to make switching between tools easier. |
| moment.com   | notchequipment.com  | petzl.com  |



EDELRID

## TREERAPTOR

Tree climbing harness with excellent price-performance ratio

- Double Lock buckles on the leg loops
- 45 mm Triple Lock buckle on the waist belt
- Padding on the back and hips
- Ability to attach the TREEREX FIRST AID KIT
- 4 large gear loops
- Stretchy waist belt with a VCR strap for a comfortable fit



Discover the TREERAPTOR

**Images NOT to Scale**

●● = OK but not ideal

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MBS in the case of these lanyards, usually refers to impact force and should therefore be in kiloNewtons kN or pounds force. For reference 1kN=102kg of force or 225 pound-force



| BRAND                      | REECOIL               | REECOIL  | REECOIL  | ROCK N ROLL                        |
|----------------------------|-----------------------|--|--|------------------------------------|
| MODEL VARIANT              | Standard V2           | Big Boss   | Full Reach   | R                                  |
| PRODUCT CODE               | -                     | -  | -  | -                                  |
| ORIGIN                     |                       |  |  |                                    |
| COST approx retail inc tax | £23 \$30 €26          | £62 \$75 €66   | £54 \$57 €64   | £28                                |
| BREAKAWAY                  | no                    | no   | no   |                                    |
| CHAINSAW/HEAVY TOOL        | ●                     | ■  | -  |                                    |
| LIGHT CHAINSAW             | ■                     | ■  | ■  |                                    |
| RETRACTED LENGTH           | 69cm/27"              | 35cm/13.8"   | 55cm/21.6"   | 91                                 |
| EXTENDED LENGTH            | 140cm/55"             | 170cm/67"  | 150cm/59"  | 127                                |
| MATERIAL                   | Nylon                 | Nylon  | Nylon  | N                                  |
| WEBBING WIDTH / Ø          | 20mm/0.8"             | 25mm/1"  | 25mm/1"  | 25                                 |
| WEIGHT                     | 100g/3.5oz            | 358g/12.6oz  | 200g/7oz   | 203                                |
| SWL MBS                    | 5kg /11lb 210kg/462lb | 12kg/26.4lb*   | 5.3kg /11.75lb   | 6.8                                |
| CONNECTER/SHORTEN          | Steel ring            | -  | Sewn eye - optional  | Ste                                |
| HARNESS TERMINATION        | Inverted loop         | Inverted loop  | Inverted loop  | Inver                              |
| TOOL-END TERMINATION       | Sewn eye              | Sewn eye   | Sewn eye   | Sewn                               |
| STANDARDS                  |                       |  |  |                                    |
| NOTES                      |                       | <p>* equates to 12kg dropped 1.5m to remain below the WLL of 107kg/235lb.</p> <p>Designed for heavier, rear-handled saws. Once girth-hitched to the handle there is a carabiner eye protruding for direct harness attachment</p> | <p>Carabiner not included</p> <p>Available in Pink  for Breast-Cancer Foundation</p> | <p>Carabi</p> <p>Also availabl</p> |
| WEBSITE                    | recoil.com            | recoil.com   | recoil.com   | rockn                              |

|   |   |   |  |  |
|---|---|---|--|--|
|  |  |  |                                |   |
| <b>K n ARB</b>  | <b>SAFEWAZE</b>   | <b>SINGING ROCK</b>   | <b>SINGING ROCK</b>  | <b>SKYLOTEC</b>  |
| <b>Tool Holder</b>  | <b>Med Heavy Duty Tether</b>  | <b>Tool Holder</b>  | <b>Tool Holder MAX</b>   | <b>Stropp</b>  |
| -   | SW431 SW433   | W1028BY00   | W1054BR00  | ACS-0285   |
|  |  |  |                                |   |
| \$33 €35  | £30 \$34 €37  | £11 \$15 €12  | £13 \$19 €15   | £30 \$41 €26   |
| no  | no  | no  | no   | no   |
| ■   | ■   | -   | ■  | ●  |
| ■   | ■   | ■   | ■  | ■  |
| 76cm/36"  | 127cm /50" <b>66.6"</b>   | 70cm /33.5"   | 85cm /33.5"  | 70cm/27.6"   |
| 168cm/50"   | 168cm /66" <b>80.5"</b>   | 130cm /51"  | 150cm / 59"  | 120cm/47.2"  |
| Nylon   | Polyester   | Nylon & Polyester   | Nylon & Polyester  | Polyester  |
| 25mm/1"   | 25mm/1"   | 10mm/0.4"   | 16mm/0.6"  | 25mm/1"  |
| 33g/7.2oz   | 200g /7.1oz   | 30g /1oz  | 95g / 3.4oz  | 120g/4.2oz   |
| 3kg/15lb  | 16kg/35lb   | 3kg/6.6lb <b>25kg/55lb</b>  | 10kg/22lb<br><b>300kg/660lb</b>  | 10kg/22lb  |
| Steel ring  | -   | Stainless steel ring  | Stainless steel ring   | Steel ring   |
| Inverted loop   | Inverted loop   | Sewn eye  | Sewn eye   | Loop   |
| Steel eye + alu   | Captive Swivel Carabiner  | Inverted loop   | Inverted loop  | Sml steel ring   |
|   | ANSI-ISEA-121   |   |  |  |
| Tool holder included  | Also available with two captive eye swivel carabiners                             |   | A heavier duty version of the toolholder which will not breakaway in the event of chainsaw/lanyard being snagged | The Stropp lanyard is a heavy-duty elastic strap which resists permanent twisting or stretching of the strap, even after prolonged use. The rings at the end of the stropp allow it to be easily attached to your harness with a carabiner. With a capacity load of up to 10 kg, it is designed for tools such as drills or chainsaws for example. |
| Available in Neon Green ■   |   |   |  |  |
| arbclimber.com  | safewaze.com  | singingrock.com   | singingrock.com  | skylotec.com   |

**Images NOT to Scale**

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| BRAND                      | STEIN  | TANGO   | TANGO   | TEUFELBERG   |
|----------------------------|--|---|---|--|
| MODEL VARIANT              | Bungee Tool Lanyard                                    | Slim  | Vario Plus  | Anti-Shock   |
| PRODUCT CODE               | 5060483280110  | 15012340005   | 15012340010   |  |
| ORIGIN                     |  |   |   |  |
| COST approx retail inc tax | £22 \$30 €26   | £20 \$35 €21  | £41 \$54 €48  | £50 \$64 \$  |
| BREAKAWAY                  | no   | ■   | ■   |  |
| CHAINSAW/HEAVY TOOL        | ■  | ■   | ■   |  |
| LIGHT CHAINSAW             | ■  | ■   | ■   |  |
| RETRACTED LENGTH           | 95cm /37.4"  | 70cm /27.6"   | 75cm /29.5"   | 73cm   |
| EXTENDED LENGTH            | 140cm /55"   | 140cm /55"  | 140cm /55"  | 135cm  |
| MATERIAL                   | Treated Nylon  | Polyester   | Polyester   | Polyester  |
| WEBBING WIDTH / Ø          | 25mm/1"  | 15mm/0.6"   | 15mm/0.6"   | 25mm   |
| WEIGHT                     | 140g/5oz   | 72g/2.5oz   | 107g/3.8oz  | 140g   |
| SWL MBS                    | 20kg /44lb   | 70-140*kg /154-308lb  | 70kg /154lb   | 20kg /44lb >224  |
| CONNECTER/SHORTEN          | Steel ring   | Steel ring  | Steel ring  | All  |
| HARNES TERMINATION         | Inverted loop  | Loop  | Small loop + 2x sml rings   | Shock absorber   |
| TOOL-END TERMINATION       | Inverted loop  | 1 or 2 small rings  | Detachable loop   | Inverted loop  |
| STANDARDS                  |  |   |   |  |
| NOTES                      | Nylon is treated to be water, oil and grease repellent | *Small ring designed to break at 70kg or 140kg if you connect to both rings at the same time. | The Vario Plus has detachable tool loops (1 supplied or the kit has 2 spare loops or purchase all components separately) so that chainsaws/tools can be swapped in seconds. The offset buckles ensure that it does not open unintentionally. The small lower loop rests on the chainsaw handle (this fits all chainsaws of all brands, even the largest) and can remain there for a long time. It is sized so that it does not touch the ground. Breakaway strength depends on one small ring or two. | The Teufelberg lanyard was the carrying lanyard with shock absorber falls or gets stuck (static) reaches the shock absorber tears after 70 cm of the shock of up the climber's harness *MBS from 224 |
| WEBSITE                    | steininternational.com                                 | drayer.de   | drayer.de   | teufelberg.com   |



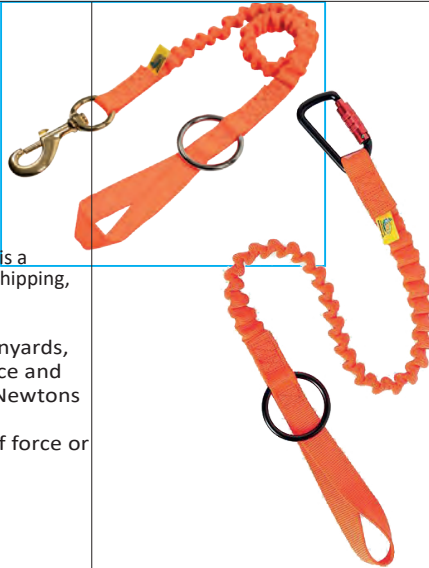
| ELBERGER   | TREEHOG       | TREEHOG       | TREEHOG        | TREERUNNER  |
|--|---------------|---------------|----------------|---|
| Shock Ring +Krab   | Standard      | Heavy Duty    | Mini loop Clip | Chainsaw Strop/overload   |
|  | TH1111        | TH1112        | TH11156        | 71-778  |
|  |               |               |                |   |
| £6685 €5875  | £16 \$20 €21  | £26 \$35 €30  | £14 \$19 €15   | £14 \$19 €20  |
|  | no            | no            | no             |   |
|  |               |               |                |   |
|  |               |               |                |   |
| 120cm /28.7"   | 85cm /34"     | 90cm /35.4"   | 70cm /27.6"    | 68cm / 27"  |
| 150cm /53.1"   | 120cm /48"    | 130cm /51.2"  | 130cm /51.2"   | 115cm / 45"   |
| Webbing & Nylon  | Polyester     | Polyester     | Polyester      | Polyester   |
| 25mm/1"  | 25mm/1"       | 25mm/1"       | 25mm / 1"      | 15mm / 0.6"   |
| 110g/5oz   | 110g/3.9oz    | 213g/7.5oz    | 190g/7.5oz     | 120g/4.2oz  |
| 30kg /44lb<br>35kg /494lb*   | 30kg /66lb    | 30kg /66lb    | 30kg /66lb     | 35-70kg /77-lb  |
| Steel ring   | Steel ring    | Steel ring    | Steel ring     | Steel ring  |
| Shock absorber-Option<br>Krab  | Loop          | Loop          | Loop           | Loop  |
| Shock absorber + sml steel ring  | Inverted loop | Inverted loop | Inverted loop  | Sewn eye+1 or 2 sml rings   |
| <p>For Antishock tool<br/>The first chainsaw<br/>is equipped with an integrated<br/>shock absorber. If the chainsaw<br/>is cut and the impact<br/>is 2 kn, the antishock<br/>device opens completely<br/>and pulls to mitigate<br/>the force to 1.5 Kn on the<br/>chain. It can absorb up<br/>to 240kg of force.</p> |               |               |                | Breakaway rings can be used together to double the 35kg limit to 70kg |
| elberger.com   | treehog.co.uk | treehog.co.uk | treehog.co.uk  | grube.eu  |

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| BRAND                      | WEAVER ARBORIST  | WORKGEAR UK                                  | WORKGEAR UK                                     |
|----------------------------|--|--|---|
| MODEL VARIANT              | Bungee Chainsaw Clip   | Arborist                                     | Arborist HD                                     |
| PRODUCT CODE               | 08-98228 08-98225  | WG-TL04                                      | WG-TL05   |
| ORIGIN                     |  |  |   |
| COST approx retail inc tax | £2030 \$1926 €2436   | £9 \$15 €13                                  | £15 \$23 €22                                    |
| BREAKAWAY                  | no   | no   | no  |
| CHAINSAW/HEAVY TOOL        | ■  | ■  | ■   |
| LIGHT CHAINSAW             | ■  | ■  | ■   |
| RETRACTED LENGTH           | 76.2cm / 3330"   | 90cm / 35.4"                                 | 90cm / 35.4"                                    |
| EXTENDED LENGTH            | 116cm / 4845.5"  | 130cm / 51"                                  | 120cm / 47.2"                                   |
| MATERIAL                   | Nylon  | Nylon  | Nylon   |
| WEBBING WIDTH / Ø          | 25mm / 1"  | 25mm / 1"                                    | 25mm / 1"                                       |
| WEIGHT                     | 159g/5.6oz 250g/8.8oz  | 190g/6.7oz                                   | 221g/7.8oz                                      |
| SWL MBS                    | 6.8kg /15lb 8kN  | 30kg /66lb                                   | 30kg /66lb                                      |
| CONNECTER/SHORTEN          | Steel ring   | Steel ring                                   | Steel ring                                      |
| HARNES TERMINATION         | Sewn Eye+Crab Clip   | Sewn Eye                                     | Sewn Eye+ CE Crab                               |
| TOOL-END TERMINATION       | Inverted loop  | Inverted loop                                | Inverted loop                                   |
| STANDARDS                  |  |  |   |
| NOTES                      | Also available with just one ring £14 or two rings £15.<br>Optional tool extension loops to connect to bungee lanyard carabiner. | Available with carabiner for £3/\$5/€4 more. | Available without carabiner for £3/\$5/€4 less. |
| WEBSITE                    | weaverarborist.com   | workgearuk.com                               | workgearuk.com                                  |



# PMI ROPE:

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PMIROPE.COM



### Advantage Helmet

**THINK SAFETY.  
THINK ADVANTAGE**

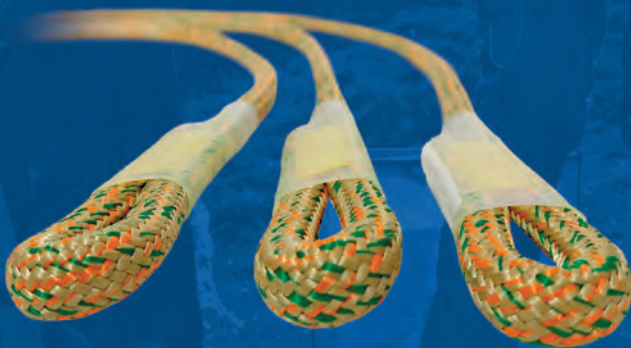
Kevlar® head protection  
Choice of different colors  
ANSI Z89.1 TYPE 1, CLASS G (2200V)  
TYPE 1 & 2, EN 397, NFPA 1951



### Extreme Pro Rope

**TOP-TIER TERMINATION:  
CRAFTED FOR THE PROS**

Unicore® technology  
MBS: 42.9 kN (9644 lbf)  
Core - 100% Nylon 6.6  
Sheath - 100% Polyester



### Eye and Eye Prusik

**BUILT FOR HIGH-LOAD  
PRECISION AND EASE**

Eye MBS: 14.2 kN (3192 lbf)  
Basket MBS: 27.6 kN (6204 lbf)  
Technora/polyester sheath



### Rope Tech Gloves

**A PERFECT FIT FOR EVERY GRIP**

Ultra-lightweight design: 0.221 lbs  
7 sizes: XXS, XS, S, M, L, XL, XXL  
Materials: synthetic leather, cowhide, spandex

**UPDATED Oct'24**

Images NOT to scale

www.rescuemagazines.com

# Pro/High Power BATTERIES

18 to 72 volt

We will shortly be adding chainsaws, blowers and safety clothing to this ARBORIST BUYERS GUIDE so as a prelude we'll start with batteries. We have limited these initially to a minimum of 18v because there are just too many 12v batteries to consider. So, while there are pro tools that run on 12v platforms (indeed we have hydraulic rescue tools running on the Makita 12v batteries) if there are no top-handle chainsaws using them we haven't included them and at the moment 18v is the minimum for pro tools while 12v are reserved for home/smallholding use.

DeWalt are a confusing brand because the US and Europeans list voltages differently (max vs nominal) and DeWalt keep changing their ranges - currently you could buy 5 different series of DeWalt batteries but there should only be three and the Europeans merge two of those series into one! The Europeans also give a different product code which, unlike the US, does not always reflect the Ah rating for the battery. The US sensibly uses a code to reflect the voltage and then the AH eg. DCB2015 is a 20volt 15Ah battery. We disappeared down a rabbit-hole with this one!



The arb industry has three unique brands of batteries for professionals *Husqvarna*, *Stihl* and *Echo* which all drive their own products but *Husqvarna* and *Stihl* have started to branch out and be used by other brands of equipment - the *Skylotec* Powered Ascender uses *Husqvarna* and the *Edel* Powered Ascender uses the *Stihl* platform - we will see more of this. There are a plethora of broad-spectrum industrial brands that are also used in arb/forestry/landscaping, *Milwaukee*, *Makita* and *De Walt* principle among these. *Milwaukee* in particular are a key, widely available battery with the *M18* having been adopted by hardcore rescue hydraulic brand *Weber* and proving that 18v will drive the largest equipment.



## BATTERY TECHNOLOGY

ALL of the saws in this list are Lithium Ion (Li) and the effectiveness of the higher Amp-hour batteries might be lost on your chainsaw if its electronics aren't up to managing these higher Ah batteries. Where they can, such as the professional grade *Stihl* and *Husqvarna* saws, you're better off stumping up for their higher Ah options to give longer run times. Most chainsaws have brushless motors with 'smart' circuit boards - this means they regulate the load electronically, sensing when you're cutting a thick log as compared to pruning small branches and adjusting the power output accordingly. Having no brushes to wear out increases the lifespan of your saw and the smart element helps mitigate the tendency in underpowered saw/battery combinations for the battery to overheat and cut out to protect itself leading to you needing to swap batteries while it cools down or wait. And waiting never seems to work that well because the battery is a dense mass that retains a lot of residual heat and so overheats quicker the second and subsequent times than it did the first time. *Husqvarna*'s newest batteries have on-board cooling which will negate this and proving once ah=gain that the more you pay, the better your productivity! If your battery-saw combination is cutting out regularly you need to upgrade the battery if a higher Ah is available and compatible or accept that the saw is not up to the job you're asking of it. This will almost always only apply to the less professionally oriented models.

When we first wrote about batteries for chainsaws we said that you were best sticking with the higher voltage packages of 28 to 36v but while that is still the case with *Husqvarna* and *Stihl* platforms the emergence of 18v as a battery for high-draw specialist equipment has backed up *Makita*'s original contention some 30 years ago that 18v would be the overall voltage. *Milwaukee* have more or less sidelined their original 28v platform in favour of the *M18* which is now driving high power rescue hydraulics in life-saving circumstances that





cannot afford to have them fail so they're certainly going to make the grade for chainsaws and industrial tools.

### BACKPACKS

Backpacks are an incredibly useful option for extending work duration. They cost a lot of money but you can easily get a full days work out of one backpack and it can reduce your front-end weight. Your back is a much stronger part of the body than arms so is a worthwhile compromise in terms of having to work with your chainsaw on a lead. Since most of you work with a lanyard already what's a wire cord between friends. You do pay for that extended duration in money and with charging times that, in the case of the Echo are five and a half hours but I guess if you're charging overnight prior to a days work this should work out just fine. If a full backpack is beyond your budget but you like the idea of increased duration or reduced



front-end weight there are backpack-carriers that simply use the existing battery like EGO and some like Redback have a waist belt. This again requires an extraneous lead similar to the full backpack models and some may find this cumbersome but for ground work in particular it can be useful. If using a backpack for climbing be aware of the huge difference in your center of gravity and all the safety implications that this entails. If being incapacitated in the star position was uncomfortable and dangerous before, imagine that same posture with several extra Kilos flexing your spine. We've not heard it mentioned but it would be highly preferable when climbing to use a backpack in conjunction with a full body harness or chest section giving you the ability to tie in at the sternum during work and negate any chance of inversion.

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Mains CHARGERS can be standard or rapid and higher initial cost of a rapid charger can make the difference between waiting around for 20 minutes or an hour or two. These three

and the Echo, Milwaukee, Bosch & Makita ) are the current crop of battery tools we're using and all seven continue to provide exceptional service, even the EGO which we had not previously used which has a space-station-like charging dock. You can see that its 54v batteries are larger than the Stihl 36v and the even sleeker Oregon 36v. The charge status is shown as 4 LEDs which illuminate when you press the button. In the case of the EGO it's the round button on the top and the LEDs are around the circumference of the button. Unlike most images in this article, these chargers are in scale to each other.



**IN THE FOLLOWING TABLES**

We have included the all-important consideration (if cost is a consideration) of what other tool classes your battery will operate:

**FITS TOOLS FOR.....**

We have given a generic idea of what types of tools this particular battery will fit because cross-platform capability can be such a key consideration for smaller services/departments/agencies:

- = CSaw -Pro Chainsaws
- = OPE - DIY Chainsaws & Outdoor Power Equipment inc blowers, brushcutters and trimmers

■ = Trade Tools - Can be any number of over 200 tools in the case of Milwaukee, DeWalt and Makita etc but it really refers to hand tools like hand drills, impact drill and hammer drills used in vehicle extrication and/or building collapse etc.

■ =Lighting - A specifically useful item for your battery platform to power - may be anything from a hand torch to area lighting.

■ =Rescue Tools - Hydraulics Cutters, spreaders, combi, rams and special tools like door breakers and re-bar cutters

■ =Disc Cutter - either smaller disc cutters or larger circular saws for metal/concrete/masonry cutting

① =Special Tools - Other rescue-specific equipment detailed in the NOTES section

**CHARGERS**

Images below NOT to scale

A much overlooked but vitally important consideration. If you buy a kit it will invariably come with a standard single charger. In some cases they may provide a 'Rapid' charger which seems great until you realise that their base charger is a 'rapid'. For all other we would generally expect a standard charger and a rapid/quick charger and maybe a further enhancement as milwaukee has with their 'Super' charger in addition to 'Rapid' and 'Standard' chargers. The difference in speed of charging is very roughly, twice as fast for a 'Rapid' versus a 'Standard' but don't forget that charge times increase as the Ah of your battery increases - a 3Ah may take 30minutes while an equivalent 6Ah would be 70mins. If you need fast turn around a rapid charger is essential but some contest that fast charging lessens the life of your battery. Not sure that's true these days as much as it was back in the days of NiMH and lead acid!

The next consideration is the ability charge multiple batteries at the same time. Most manufactures have at least a twin battery option but some have considerably more either as a racked system secured to your vehicle as the 4-bay Stihl can do or as a more portable option like the 4-bay £\$500 Husqvarna below or the 6-bay milwaukee. These multi-chargers are also excellent protective storage measures for your precious batteries so are more of an investment than they might at first appear. The Ego PGX PowerBank below is an off-mains charger for true, in-the-field charging.



We've added an icon key to the additional features which indicate, from top to bottom:

LED charge indication: This may be visible continuously or you may need to press the button to see what power you have left.

On-board cooling - the battery itself has active cooling as distinct from the charger which is often fan-cooled.

Wifi or Bluetooth connectivity of the battery (not necessarily the tool) for service management & inventory

The IP rating indicating degree of water resistance 54/55/56 or waterproof 57/58

Operating temperature - battery performance is at optimum room temp - colder and hotter will affect performance and work duration.





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The new ADVANCE ProCOM headset and ear defenders on the X-CLIMB helmet allow you to communicate with workers on the ground seamlessly, with simple networking over vast distances for up to 16 people, plus much more.

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IMAGES NOT TO SCALE  
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 OTHER TOOLS IN RANGE:  
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 ■=OPE ■=Rescue Tools ■=Lighting  
 Ⓢ=Special Tools  
 ●=PARTIAL FEATURE  
 □= Option

**SERIES**  
**MODEL**  
 NB: 20v/60v in the US is 18v/54v in Europe & bizarrely, DeWalt codes in Europe DO NOT relate to Ah

| IMAGE | SERIES<br>MODEL                 | COMPANY | FITS TOOLS FOR:... | ORIGIN | COST inc tax / VAT    | WEIGHT           | BATTERY TYPE<br>VOLTAGE | AmpHours Ah | Energy/<br>Work-Hours Wh | LE |
|-------|---------------------------------|---------|--------------------|--------|-----------------------|------------------|-------------------------|-------------|--------------------------|----|
|       | Max XR<br>DCB203<br>DCB183-XJ   | DEWALT  | ■ ■ ■ ■            |        | £74<br>\$100<br>€90   | 350g<br>14.6oz   | Li ion<br>18/20v        | 2 Ah        | 36 wh                    | 17 |
|       | Max XR<br>DCB230                | DEWALT  | ■ ■ ■ ■            |        | £0<br>\$00<br>€00     | 520g<br>1.15lb   | Li ion<br>20v           | 3 Ah        | 54 wh                    | 17 |
|       | Max XR<br>DCB200                | DEWALT  | ■ ■ ■ ■            |        | £0<br>\$140<br>€00    | 1.27kg<br>2.8lb  | Li ion<br>18/20v        | 3 Ah        | 00 wh                    | 25 |
|       | Max XR<br>DCB240                | DEWALT  | ■ ■ ■ ■            |        | £0<br>\$130<br>€00    | 520g<br>1.15lb   | Li ion<br>20v           | 4 Ah        | 00 wh                    | 17 |
|       | Max XR<br>DCB204<br>DCB182      | DEWALT  | ■ ■ ■ ■            |        | £80<br>\$130<br>€00   | 630g<br>1.4lb    | Li ion<br>18/20v        | 4 Ah        | 72 wh                    | 17 |
|       | Max XR<br>DCB205<br>DCB184      | DEWALT  | ■ ■ ■ ■            |        | £84<br>\$150<br>€00   | 630g<br>1.4lb    | Li ion<br>18/20v        | 5 Ah        | 90 wh                    | 17 |
|       | Max XR<br>DCB206<br>DCB185      | DEWALT  | ■ ■ ■ ■            |        | £0<br>\$180<br>€00    | 680g<br>1.5lb    | Li ion<br>18/20v        | 6 Ah        | 00 wh                    | 17 |
|       | Max XR<br>DCB208<br>DCB1808     | DEWALT  | ■ ■ ■ ■            |        | £00<br>\$200<br>€00   | 1.02kg<br>2.25lb | Li ion<br>18/20v        | 8 Ah        | 160wh                    | 17 |
|       | Max XR<br>DCB210<br>DCB1810     | DEWALT  | ■ ■ ■ ■            |        | £186<br>\$249<br>€223 | 1.11kg<br>2.45lb | Li ion<br>18/20v        | 10 Ah       | 00 wh                    | 17 |
|       | Max XR<br>DCB2105<br>DCB184B-XJ | DEWALT  | ■ ■ ■ ■            |        | £0<br>\$00<br>€00     | 620g<br>1.3lb    | Li ion<br>18/20v        | 5 Ah        | 00 wh                    | 17 |
|       | Max XR<br>DCB2108               | DEWALT  | ■ ■ ■ ■            |        | £0<br>\$220<br>€00    | 00g<br>00oz      | Li ion<br>18/20v        | 8 Ah        | 00 wh                    | 17 |

| LENGTH        | WIDTH         | DEPTH        | RECHARGE<br>Min to Max Time<br>Charger-dependant<br><br>No of CHARGE<br>CYCLES | MULTI<br>CHARGERS               | REPRESENTATIVE<br>ENDURANCE | WARRANTY (Years) | LED CHARGE STATUS | IN-USE COOLING FAN | WIFI/BLUETOOTH | IP RATING (WATERPROOF) | OP TEMPERATURE °C/°F | NOTES   | WWW.       |
|---------------|---------------|--------------|--|---------------------------------|-----------------------------|------------------|-------------------|--------------------|----------------|------------------------|----------------------|---|------------|
|               |               |              |  |                                 |                             |                  |                   |                    |                |                        |                      |   |            |
| 77mm<br>3"    | 89mm<br>3.5"  | 45mm<br>1.8" | 30-90-mins<br>1500   | 2 & 4-port<br>Standard<br>Rapid |                             |                  | ■                 | -                  | -              | -                      | -                    | NB: DEWALT are a confusing range having modified various batteries that are still under the same names. info is limited and often contradictory so will take longer to compile. | dewalt.com |
| 78mm<br>3"    | 89mm<br>3.5"  | 45mm<br>1.8" | 30-90-mins   | 2 & 4-port<br>Standard<br>Rapid |                             |                  | ■                 | -                  | -              | -                      | -                    |   | dewalt.com |
| 114mm<br>4.5" | 114mm<br>4.5" | 75mm<br>3"   | 60-mins  | 2 & 4-port<br>Standard<br>Rapid |                             |                  | ■                 | -                  | -              | -                      | -                    |   | dewalt.com |
| 78mm<br>3"    | 89mm<br>3.5"  | 45mm<br>1.8" | 45-90mins  | 2 & 4-port<br>Standard<br>Rapid |                             |                  | ■                 | -                  | -              | -                      | -                    |   | dewalt.com |
| 78mm<br>3"    | 89mm<br>3.5"  | 75mm<br>3"   | 60-185mins   | 2 & 4-port<br>Standard<br>Rapid |                             |                  | ■                 | -                  | -              | -                      | -                    |   | dewalt.com |
| 78mm<br>3"    | 89mm<br>3.5"  | 75mm<br>3"   | 90mins   | 2 & 4-port<br>Standard<br>Rapid |                             |                  | ■                 | -                  | -              | -                      | -                    |   | dewalt.com |
| 78mm<br>3"    | 89mm<br>3.5"  | 75mm<br>3"   | 90mins   | 2 & 4-port<br>Standard<br>Rapid |                             |                  | ■                 | -                  | -              | -                      | -                    |   | dewalt.com |
| 78mm<br>3"    | 89mm<br>3.5"  | 75mm<br>3"   | 60mins   | 2 & 4-port<br>Standard<br>Rapid |                             |                  | ■                 | -                  | -              | -                      | -                    |   | dewalt.com |
| 78mm<br>3"    | 89mm<br>3.5"  | 75mm<br>3"   | 60mins   | 2 & 4-port<br>Standard<br>Rapid |                             |                  | ■                 | -                  | -              | -                      | -                    |   | dewalt.com |
| 78mm<br>3"    | 89mm<br>3.5"  | 75mm<br>3"   |  | 2 & 4-port<br>Standard<br>Rapid |                             |                  | ■                 | -                  | Bluetooth      | -                      | -                    | Also available as an oil-resistant version. Bluetooth is an option  | dewalt.com |
| 78mm<br>3"    | 89mm<br>3.5"  | 100mm<br>4"  |  | 2 & 4-port<br>Standard<br>Rapid |                             |                  | ■                 | -                  | Bluetooth      | -                      | -                    | Bluetooth is an option  | dewalt.com |

IMAGES NOT TO SCALE  
 COSTS in £/\$/€= Currency conversion only. Most costs=max MSRP - you will often find for a lot less.  
 OTHER TOOLS IN RANGE:  
 ■=CSaw ■=Trade-Tools ■=DiscCutter  
 ■=OPE ■=Rescue Tools ■=Lighting  
 ⊕=Special Tools  
 ●=PARTIAL FEATURE  
 □= Option

SERIES  
 MODEL  
 COMPANY  
 FITS TOOLS FOR...  
 ORIGIN  
 COST inc tax / VAT  
 WEIGHT  
 BATTERY TYPE VOLTAGE  
 AmpHours Ah  
 Energy/ Work-Hours Wh  
 LE

NB: 20v/60v in the US is 18v/54v in Europe

| IMAGE         | SERIES MODEL                           | COMPANY | FITS TOOLS FOR... | ORIGIN | COST inc tax / VAT   | WEIGHT           | BATTERY TYPE VOLTAGE       | AmpHours Ah | Energy/ Work-Hours Wh | LE      |
|---------------|--|---------|-------------------|--------|----------------------|------------------|----------------------------|-------------|-----------------------|---------|
|               | XR Powerstack<br>DCBP034<br>DCBP034-XJ | DEWALT  | ■                 |        | £0<br>\$00<br>€00    | 320g<br>11.3oz   | Li ion<br>18/20v           | 1.7 Ah      | 27 wh                 | 18<br>7 |
|               | XR Powerstack<br>DCBP518-XJ            | DEWALT  | ■                 |        | £0<br>\$00<br>€00    | 300g<br>12.8oz   | Li ion<br>18/20v           | 5 Ah        | 00 wh                 | 18<br>7 |
| expansion row |  |         |                   |        |                      |                  |                            |             |                       |         |
|               | FlexVolt<br>DCB606<br>DCB546           | DEWALT  | ■                 |        | £141<br>\$180<br>€00 | 1.05kg<br>2.3lb  | Li ion<br>20-60V<br>18-54v | 2/6 Ah      | 108 wh                | 12<br>4 |
|               | FlexVolt<br>DCB609<br>DCB547           | DEWALT  | ■                 |        | £197<br>\$300<br>€00 | 1.44kg<br>3.2lb  | Li ion<br>20-60V<br>18-54v | 3/9 Ah      | 162 wh                | 13<br>5 |
|               | FlexVolt<br>DCB612<br>DCB548           | DEWALT  | ■                 |        | £281<br>\$00<br>€00  | 1.46kg<br>3.2lb  | Li ion<br>20-60V<br>18-54v | 4/12 Ah     | 216 wh                | 13<br>5 |
|               | FlexVolt<br>DCB615<br>DCB549           | DEWALT  | ■                 |        | £0<br>\$00<br>€00    | 2.04kg<br>4.55lb | Li ion<br>20-60V<br>18-54v | 5/15 Ah     | 00 wh                 | 19<br>7 |
|               | 36v<br>DCB361                          | DEWALT  | ■                 |        | £0<br>\$300<br>€00   | 1.44kg<br>38.4oz | Li ion<br>36V              | 2 Ah        | 00 wh                 | 00<br>0 |
|               | Max XR<br>DCB404                       | DEWALT  | ■                 |        | £0<br>\$00<br>€00    | 1.6kg<br>3.53lb  | Li ion<br>40v              | 4 Ah        | 00 wh                 | 18<br>7 |
|               | Max XR<br>DCB406                       | DEWALT  | ■                 |        | £0<br>\$00<br>€00    | 1.96kg<br>4.32lb | Li ion<br>40v              | 6 Ah        | 300 wh                | 18<br>7 |
|               | Max XR<br>DCB407                       | DEWALT  | ■                 |        | £80<br>\$00<br>€00   | 2.1g<br>4.6lb    | Li ion<br>40v              | 7.5 Ah      | 00 wh                 | 18<br>7 |



| LENGTH          | WIDTH           | DEPTH           | RECHARGE<br>Min to Max Time<br>Charger-dependant<br><br>No of CHARGE<br>CYCLES | MULTI<br>CHARGERS        | REPRESENTATIVE<br>ENDURANCE | WARRANTY (Years) | LED CHARGE STATUS | IN-USE COOLING FAN | WIFI/BLUETOOTH | IP RATING (WATERPROOF) | OP TEMPERATURE °C/°F | NOTES                                     | WWW.       |
|-----------------|-----------------|-----------------|--|--------------------------|-----------------------------|------------------|-------------------|--------------------|----------------|------------------------|----------------------|---|------------|
| 137mm<br>5.4"   | 34mm<br>1.3"    | 46mm<br>1.8"    | 60mins   |                          |                             |                  | ■                 | -                  | -              | -                      | -                    |   | dewalt.com |
| 137mm<br>5.4"   | 150mm<br>5.9"   | 66mm<br>2.62"   | 75mins   | multi voltage<br>charger | 70cuts 4x4 PT<br>Spruce     |                  | ■                 | -                  | -              | -                      | -                    | Enhanced power to<br>weight/Ah ratio +50% | dewalt.com |
|                 |                 |                 |  |                          |                             |                  |                   |                    |                |                        |                      |   |            |
| 85mm<br>3.3"    | 85mm<br>3.3"    | 90mm<br>3.5"    | 40-90mins  |                          |                             |                  | -                 | -                  | -              | -                      | -                    |   | dewalt.com |
| 88mm<br>3.433"  | 87mm<br>3.543"  | 97mm<br>3.813"  | 60-140mins   |                          |                             |                  | -                 | -                  | -              | -                      | -                    |   | dewalt.com |
| 88mm<br>3.433"  | 87mm<br>3.543"  | 97mm<br>3.813"  | 80-180mins   |                          |                             |                  | ■                 | -                  | -              | -                      | -                    |   | dewalt.com |
| 102mm<br>4.016" | 111mm<br>4.375" | 97mm<br>3.813"  | 100-233mins  |                          |                             |                  | ■                 | -                  | -              | -                      | -                    |   | dewalt.com |
| 100mm<br>3.937" | 100mm<br>3.937" | 100mm<br>3.937" | 30mins   |                          |                             |                  | -                 | -                  | -              | -                      | -                    | discontinued                              | dewalt.com |
| 134mm<br>5.275" | 137mm<br>5.375" | 126mm<br>4.938" | 90mins   |                          |                             |                  | ■                 | -                  | -              | -                      | -                    |   | dewalt.com |
| 134mm<br>5.275" | 137mm<br>5.375" | 126mm<br>4.938" | 130mins  |                          |                             |                  | ■                 | -                  | -              | -                      | -                    |   | dewalt.com |
| 134mm<br>5.275" | 137mm<br>5.375" | 126mm<br>4.938" | 60mins   |                          |                             |                  | -                 | -                  | -              | -                      | -                    |   | dewalt.com |

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 □=Option

**SERIES**  
**MODEL**  
**COMPANY**

NB: 20v/60v in the US is 18v/54v in Europe

**FITS TOOLS FOR:...**

**ORIGIN**

**COST inc tax / VAT**























**WEIGHT**

**BATTERY TYPE VOLTAGE**

**AmpHours Ah**

**Energy/Work-Hours Wh**

**LE**

| IMAGES NOT TO SCALE<br>COSTS in £\$€= Currency conversion only. Most costs=max MSRP - you will often find for a lot less.<br>OTHER TOOLS IN RANGE:<br>■=CSaw ■=Trade-Tools ■=DiscCutter<br>■=OPE ■=Rescue Tools ■=Lighting<br>ⓘ=Special Tools<br>●=PARTIAL FEATURE<br>□=Option | SERIES<br>MODEL                             | COMPANY     | FITS TOOLS FOR:... | ORIGIN  | COST inc tax / VAT    | WEIGHT         | BATTERY TYPE VOLTAGE | AmpHours Ah | Energy/Work-Hours Wh | LE       |
|--|---|-------------|--------------------|---|-----------------------|----------------|----------------------|-------------|----------------------|----------|
|   | <b>E-Force</b><br>LBP-36-80                 | <b>ECHO</b> | ■                  |    | £145<br>\$00<br>€00   | 1.8kg<br>2.2lb | Li ion<br>36/40v     | 2Ah         | 150 Wh               |          |
|   | <b>E-Force</b><br>LBP-36-150                | <b>ECHO</b> | ■                  |    | £145<br>\$00<br>€00   | 1.8kg<br>3.9lb | Li ion<br>36/40v     | 4Ah         | 150 Wh               | 00       |
|   | <b>E-Force</b><br>LBP-56V125<br>LBP-50-150  | <b>ECHO</b> | ■                  |    | £190<br>\$150<br>€210 | 1kg<br>2.25lb  | Li ion<br>56/50.4v   | 2/2.5Ah     | 113/<br>126 Wh       | 18<br>7  |
|   | <b>E-Force</b><br>LBP-56V250<br>LBP-50-250  | <b>ECHO</b> | ■                  |    | £290<br>\$250<br>€300 | 1.8kg<br>4lb   | Li ion<br>56/50.4v   | 4.5/5Ah     | 252 Wh               | 18<br>7  |
|    | <b>E-Force</b><br>LBP-56V400A<br>LBP-50-400 | <b>ECHO</b> | ■                  |  | £299<br>\$350<br>€356 |                | Li ion<br>56/50.4v   | 9Ah         | 400 Wh               | 222<br>8 |
|   | <b>ARC 56v</b><br>BA1400T                   | <b>EGO</b>  | ■                  |  | £120<br>\$187<br>€0   | 1.3g<br>2.9lb  | Li ion<br>56v        | 2.5Ah       | 140 Wh               | 19<br>7  |
|   | <b>ARC 56v</b><br>BA2242T                   | <b>EGO</b>  | ■                  |  | £190<br>\$330<br>€0   | 2.1kg<br>4.7lb | Li ion<br>56v        | 4Ah         | 224 Wh               | 19<br>7  |
|   | <b>ARC 56v</b><br>BA2800T                   | <b>EGO</b>  | ■                  |  | £240<br>\$330<br>€0   | 2.25g<br>5lb   | Li ion<br>56v        | 5Ah         | 280 Wh               | 19<br>7  |
|   | <b>ARC 56v</b><br>BA3360T                   | <b>EGO</b>  | ■                  |  | £0<br>\$0<br>€0       | 2.8g<br>6.2lb  | Li ion<br>56v        | 6Ah         | 336 Wh               | 19<br>7  |
|   | <b>ARC 56v</b><br>BA4200T                   | <b>EGO</b>  | ■                  |  | £0<br>\$0<br>€0       | 2.9kg<br>6.4lb | Li ion<br>56v        | 7.5Ah       | 420 Wh               | 19<br>7  |
|   | <b>ARC 56v</b><br>BA4480T                   | <b>EGO</b>  | ■                  |  | £00<br>\$00<br>€00    | 3kg<br>6.7lb   | Li ion<br>56v        | 8Ah         | 448 Wh               | 19<br>7  |





| LENGTH            | WIDTH          | DEPTH          | RECHARGE<br>Min to Max Time<br>Charger-dependant<br><br>No of CHARGE<br>CYCLES | MULTI<br>CHARGERS   | REPRESENTATIVE<br>ENDURANCE                       | WARRANTY (Years) | LED CHARGE STATUS | IN-USE COOLING FAN | WiFi/BLUETOOTH | IPRATING (WATERPROOF) | OP TEMPERATURE °C/°F | NOTES  | WWW.             |
|-------------------|----------------|----------------|--|---|---|------------------|-------------------|--------------------|----------------|-----------------------|----------------------|--|------------------|
|                   |                |                | 60mins   | Standard  |   |                  | ■                 | -                  | -              |                       |                      |  | echotools.com    |
| 100mm<br>4.00"    | 100mm<br>4.00" | 100mm<br>4.00" | 120mins  | Standard  |   |                  | ■                 | -                  | -              |                       |                      |  | echotools.com    |
| 104mm<br>4.14"    | 88mm<br>3.46"  | 66mm<br>2.6"   | 38-75mins  | Dual-port.<br>Rapid.<br>Ultra-Rapid.                      |   |                  | ■                 | -                  | -              |                       | 0<br>45<br>32<br>113 |  | echotools.com    |
| 104mm<br>4.14"    | 88mm<br>3.46"  | 100mm<br>3.96" | 60-150mins   | Dual-port.<br>Rapid.<br>Ultra-Rapid.                      |   |                  | ■                 | -                  | -              |                       | 0<br>45<br>32<br>113 | NB: will not fit 2500T<br>Top-handle CSaw  | echotools.com    |
| 102.2mm<br>4.075" | 88mm<br>3.46"  | 107mm<br>4.25" | 60-225mins   | Dual-port<br>Rapid.<br>Ultra-Rapid.                       |   |                  | ■                 | -                  | -              |                       | 0<br>45<br>32<br>113 | NB: will not fit 2500T<br>Top-handle CSaw  | echotools.com    |
| 105mm<br>4.167"   | 157mm<br>6.2"  | 109mm<br>4.3"  | 30-50mins  | 2,3 &6-port.<br>Power Bank*<br>Standard<br>Rapid<br>Turbo | 130 cuts in 2x2"<br>with 12" bar C'Saw            | 3                | ■                 | -                  | Bluetooth      | X4                    |                      | 2Ah DISCONTINUED<br>*An off grid, remote<br>charging bank for 2<br>batteries at a time | egopowerplus.com |
| 105mm<br>4.167"   | 157mm<br>6.2"  | 109mm<br>4.3"  | 30-80mins  | 2,3 &6-port.<br>Power Bank*<br>Standard<br>Rapid<br>Turbo | 240 cuts in 2x2"<br>with 12" bar C'Saw            | 3                | ■                 |                    | Bluetooth      | X4                    |                      | *An off grid, remote<br>charging bank for 2<br>batteries at a time                     | egopowerplus.com |
| 105mm<br>4.167"   | 157mm<br>6.2"  | 109mm<br>4.3"  | 30-100mins   | 2,3 &6-port.<br>Power Bank*<br>Standard<br>Rapid<br>Turbo | 300 cuts in 2x2"<br>with 12" bar C'Saw            | 3                | ■                 |                    | Bluetooth      | X4                    |                      | *An off grid, remote<br>charging bank for 2<br>batteries at a time                     | egopowerplus.com |
| 105mm<br>4.167"   | 157mm<br>6.2"  | 109mm<br>4.3"  | 35-120mins   | 2,3 &6-port.<br>Power Bank*<br>Standard<br>Rapid<br>Turbo | 265 cuts in 4x4"<br>with 12" bar<br>CSX3000 C'Saw | 3                | ■                 | -                  | Bluetooth      | X4                    |                      | *An off grid, remote<br>charging bank for 2<br>batteries at a time                     | egopowerplus.com |
| 105mm<br>4.167"   | 157mm<br>6.2"  | 109mm<br>4.3"  | 45-140mins   | 2,3 &6-port.<br>Power Bank*<br>Standard<br>Rapid<br>Turbo | 450 cuts in 2x2"<br>with 12" bar C'Saw            | 3                | ■                 |                    | Bluetooth      | X4                    |                      | *An off grid, remote<br>charging bank for 2<br>batteries at a time                     | egopowerplus.com |
| 105mm<br>4.167"   | 157mm<br>6.2"  | 109mm<br>4.3"  | 50-160mins   | 2,3 &6-port.<br>Power Bank*<br>Standard<br>Rapid<br>Turbo | 275 cuts in 4x4"<br>with 20" bar<br>CSX5000 C'Saw | 3                | ■                 |                    |                | X4                    |                      | *An off grid, remote<br>charging bank for 2<br>batteries at a time                     | egopowerplus.com |





| LENGTH        | WIDTH         | DEPTH         | RECHARGE<br>Min to Max Time<br>Charger-dependant<br><br>No of CHARGE<br>CYCLES | MULTI<br>CHARGERS   | REPRESENTATIVE<br>ENDURANCE            | WARRANTY (Years) | LED CHARGE STATUS | IN-USE COOLING FAN | WiFi/BLUETOOTH | IP RATING (WATERPROOF) | OP TEMPERATURE °C/°F | NOTES  | WWW.  |
|---------------|---------------|---------------|--|---|--|------------------|-------------------|--------------------|----------------|------------------------|----------------------|--|---|
| 155mm<br>6.1" | 157mm<br>6.2" | 109mm<br>4.3" | 70-190mins   | 2,3 &6-port.<br>Power Bank*<br>Standard<br>Rapid<br>Turbo | 600 cuts in 2x2"<br>with 12" bar C'Saw | 3<br>to<br>5     | ■                 | -                  | -              | X4                     |                      | *An off grid, remote<br>charging bank for 2<br>batteries at a time | egopowerplus.com  |
| 155mm<br>6.1" | 157mm<br>6.2" | 109mm<br>4.3" | 75-230mins   | 2,3 &6-port.<br>Power Bank*<br>Standard<br>Rapid<br>Turbo | 720 cuts in 2x2"<br>with 12" bar C'Saw | 3<br>to<br>5     | ■                 | -                  | -              | X4                     |                      | *An off grid, remote<br>charging bank for 2<br>batteries at a time | egopowerplus.com  |
|               |               |               | 60mins   | Dual-port<br>Standard                                     |  |                  |                   |                    |                |                        | 67                   | Waterproof   | greenworktools.com<br>greenworktools.eu                                 |
|               |               |               | 60mins   | Dual-port<br>Standard                                     |  |                  |                   |                    |                |                        |                      |  | greenworktools.com<br>greenworktools.eu                                 |
|               |               |               | 60mins   | Dual-port<br>Standard                                     |  | -                |                   |                    |                |                        |                      |  | greenworktools.com<br>greenworktools.eu                                 |
|               |               |               | 30mins   | Dual-port<br>Standard                                     |  | -                |                   |                    |                |                        |                      |  | greenworktools.com<br>greenworktools.eu<br>greenworktoolscommercial.com |
|               |               |               | 60mins   | Dual-port<br>Standard                                     |  | -                |                   |                    |                |                        |                      |  | greenworktools.com<br>greenworktools.eu<br>greenworktoolscommercial.com |
|               |               |               | 120mins  |   |  | -                |                   |                    |                |                        |                      |  | greenworktools.com<br>greenworktools.eu<br>greenworktoolscommercial.com |
|               |               |               | <60mins  |   |  | -                |                   |                    |                |                        |                      |  | greenworktools.com<br>greenworktools.eu<br>greenworktoolscommercial.com |
|               |               |               | <120mins   |   |  | -                |                   |                    |                |                        |                      |  | greenworktools.com<br>greenworktools.eu<br>greenworktoolscommercial.com |
|               |               |               | <120mins   |   |  | -                |                   |                    |                |                        |                      |  | greenworktools.com<br>greenworktools.eu<br>greenworktoolscommercial.com |





| LENGTH     | WIDTH       | DEPTH       | RECHARGE<br>Min to Max Time<br>Charger-dependant<br><br>No of CHARGE<br>CYCLES | MULTI<br>CHARGERS | REPRESENTATIVE<br>ENDURANCE | WARRANTY (Years) | LED CHARGE STATUS | IN-USE COOLING FAN | WiFi/BLUETOOTH | IP RATING (WATERPROOF) | OP TEMPERATURE °C/°F | NOTES | WWW.  |
|------------|-------------|-------------|--|-------------------|-----------------------------|------------------|-------------------|--------------------|----------------|------------------------|----------------------|-------|---|
|            |             |             |  |                   |                             |                  |                   |                    |                |                        |                      |       | greenworkstools.com<br>greenworkstools.eu<br>greenworkscommercial.com |
|            |             |             |  |                   |                             |                  |                   |                    |                |                        |                      |       | greenworkstools.com<br>greenworkstools.eu<br>greenworkscommercial.com |
| 0mm<br>00" | 00mm<br>00" | 00mm<br>00" | 60mins   | Standard          |                             |                  | ■                 | -                  | -              | X4                     |                      |       | greenworkstools.com<br>greenworkstools.eu<br>greenworkscommercial.com |
|            |             |             |  |                   |                             |                  |                   |                    |                |                        |                      |       | greenworkstools.com<br>greenworkstools.eu<br>greenworkscommercial.com |
| 0mm<br>00" | 00mm<br>00" | 00mm<br>00" | 60mins   | Standard          |                             |                  | ■                 | -                  | -              | X4                     |                      |       | greenworkstools.com<br>greenworkstools.eu<br>greenworkscommercial.com |
|            |             |             |  |                   |                             |                  | -                 |                    |                |                        |                      |       | greenworkstools.com<br>greenworkstools.eu<br>greenworkscommercial.com |
|            |             |             |  |                   |                             |                  |                   |                    |                |                        |                      |       |   |
|            |             |             |  |                   |                             |                  |                   |                    |                |                        |                      |       |   |
|            |             |             |  |                   |                             |                  |                   |                    |                |                        |                      |       |   |
|            |             |             |  |                   |                             |                  |                   |                    |                |                        |                      |       |   |
|            |             |             |  |                   |                             |                  |                   |                    |                |                        |                      |       |   |

IMAGES NOT TO SCALE  
 COSTS in £\$€= Currency conversion only. Most costs=max MSRP - you will often find for a lot less.  
 OTHER TOOLS IN RANGE:  
 ■=CSaw ■=Trade-Tools ■=DiscCutter  
 ■=OPE ■=Rescue Tools ■=Lighting  
 ⓘ=Special Tools  
 ●=PARTIAL FEATURE  
 □= Option

**SERIES**  
**MODEL**  
**COMPANY**

NB: 20v/60v in the US is 18v/54v in Europe

**FITS TOOLS FOR:...**

**ORIGIN**

**COST inc tax / VAT**

**WEIGHT**

**BATTERY TYPE VOLTAGE**

**AmpHours Ah**

**Energy/Work-Hours Wh**

**LE...**

| Image | SERIES MODEL       | COMPANY   | FITS TOOLS FOR:... | ORIGIN | COST inc tax / VAT   | WEIGHT         | BATTERY TYPE VOLTAGE | AmpHours Ah | Energy/Work-Hours Wh | LE... |
|-------|--------------------|-----------|--------------------|--------|----------------------|----------------|----------------------|-------------|----------------------|-------|
|       | Aspire P4A 18-B45  | HUSQVARNA | ■ ■                | Sweden | £75<br>\$00<br>€00   | 360g<br>12.7oz | Li ion 18V           | 2.5 Ah      | 45 wh                | 11 4  |
|       | Aspire P4A 18-B72  | HUSQVARNA | ■ ■                | Sweden | £100<br>\$00<br>€00  | 660g<br>1.4lb  | Li ion 18V           | 4 Ah        | 72 wh                | 11 4  |
|       | Aspire P4A 18-B108 | HUSQVARNA | ■ ■                | Sweden | £120<br>\$<br>€      | 800g<br>1.76lb | Li ion 18V           | 6 Ah        | 108 wh               | 13 5  |
|       | 100 40-B70         | HUSQVARNA | ■ ■ ■ ■            | Sweden | £100<br>\$<br>€      | 800g<br>1.76lb | Li ion 36V           | 2 Ah        | 75.6 wh              | 13 5  |
|       | 100 40-B140        | HUSQVARNA | ■ ■ ■ ■            | Sweden | £150<br>\$<br>€      | 1.25k<br>2.7lb | Li ion 36V           | 2 Ah        | 144 wh               | 13 5  |
|       | BLi BLi30          | HUSQVARNA | ■ ■ ■ ■ ⓘ          | Sweden | £280<br>\$<br>€      | 1.9kg<br>4.2lb | Li ion 36V           | 7.5/7.7 Ah  | 270 wh               | 13 5  |
|       | BLi BLi100         | HUSQVARNA | ■ ■ ■ ■ ⓘ          | Sweden | £170<br>\$00<br>€00  | 00kg<br>00lb   | Li ion 36V           | 2.6 Ah      | 00 wh                | 13 5  |
|       | BLi BLi200         | HUSQVARNA | ■ ■ ■ ■ ⓘ          | Sweden | £240<br>\$00<br>€00  | 1.3kg<br>2.8lb | Li ion 36V           | 5.2 Ah      | 180 wh               | 13 5  |
|       | BLi BLi200X        | HUSQVARNA | ■ ■ ■ ■ ⓘ          | Sweden | £260<br>\$00<br>€320 | 1.3kg<br>2.8lb | Li ion 36V           | 5.2 Ah      | 180 wh               | 13 5  |
|       | BLi BLi300         | HUSQVARNA | ■ ■ ■ ■ ⓘ          | Sweden | £340<br>\$00<br>€00  | 1.9kg<br>4.2lb | Li ion 36V           | 9/9.4 Ah    | 324 wh               | 15 5  |
|       |                    |           |                    |        |                      |                |                      |             |                      |       |



| LENGTH       | WIDTH           | DEPTH        | RECHARGE<br>Min to Max Time<br>Charger-dependant<br><br>No of CHARGE<br>CYCLES | MULTI<br>CHARGERS | REPRESENTATIVE<br>ENDURANCE | WARRANTY (Years) | LED CHARGE STATUS | IN-USE COOLING FAN | WiFi/BLUETOOTH | IP RATING (WATERPROOF) | OP TEMPERATURE °C/°F | NOTES   | WWW.          |
|--------------|-----------------|--------------|--|-------------------|-----------------------------|------------------|-------------------|--------------------|----------------|------------------------|----------------------|---|---------------|
| 44mm<br>1.7" | 81mm<br>3.1"    | 45mm<br>1.7" |  |                   |                             | -                | -                 | -                  | -              | -                      | -                    | Not technically a pro battery but will power a range of 18v trade tools - | husqvarna.com |
| 55mm<br>2.2" | 84mm<br>3.3"    | 64mm<br>2.5" |  |                   |                             | -                | -                 | -                  | -              | -                      | -                    |   | husqvarna.com |
| 62mm<br>2.4" | 117mm<br>4.6"   | 98mm<br>3.8" | >600   |                   |                             | -                | -                 | -                  | -              | -                      | -                    |   | husqvarna.com |
| 62mm<br>2.4" | 117mm<br>4.6"   | 98mm<br>3.8" | >600   |                   |                             | -                | ■                 | -                  | -              | -                      | -                    | ① Powered ascender/winch  | husqvarna.com |
| 62mm<br>2.4" | 117mm<br>4.6"   | 98mm<br>3.8" | >600   |                   |                             | -                | ■                 | -                  | -              | -                      | -                    | ① Powered ascender/winch  | husqvarna.com |
| 62mm<br>2.4" | 155mm<br>6.1"   | 98mm<br>3.8" | >600   |                   |                             | -                | ■                 | -                  | -              | -                      | -                    | ① Powered ascender/winch  | husqvarna.com |
| 62mm<br>2.4" | 115.6mm<br>4.5" | 98mm<br>3.8" | 1500   |                   |                             | -                | ■                 | -                  | -              | -                      | -                    | ① Powered ascender/winch  | husqvarna.com |
| 62mm<br>2.4" | 115.6mm<br>4.5" | 98mm<br>3.8" | 1500   |                   |                             | -                | ■                 | -                  | -              | -                      | -                    | ① Powered ascender/winch  | husqvarna.com |
| 62mm<br>2.4" | 115.6mm<br>4.5" | 98mm<br>3.8" | 1500   |                   |                             | -                | ■                 | -                  | -              | -                      | -                    | ① Powered ascender/winch  | husqvarna.com |
| 65mm<br>2.6" | 115.6mm<br>4.5" | 98mm<br>3.8" |  |                   |                             | -                | ■                 | -                  | -              | -                      | -                    | ① Powered ascender/winch  | husqvarna.com |



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 OTHER TOOLS IN RANGE:  
 ■=CSaw ■=Trade-Tools ■=DiscCutter  
 ■=OPE ■=Rescue Tools ■=Lighting  
 ⓘ=Special Tools  
 ●=PARTIAL FEATURE  
 □= Option

SERIES  
 MODEL  
 COMPANY  
 NB: 20v/60v in the US is 18v/54v in Europe

FITS TOOLS FOR...  
 ORIGIN  
 COST inc tax / VAT  
 WEIGHT  
 BATTERY TYPE VOLTAGE  
 AmpHours Ah  
 Energy/Work-Hours Wh  
 LEN

| IMAGE | SERIES MODEL    | COMPANY   | FITS TOOLS FOR... | ORIGIN | COST inc tax / VAT    | WEIGHT           | BATTERY TYPE VOLTAGE | AmpHours Ah | Energy/Work-Hours Wh | LEN |
|-------|-----------------|-----------|-------------------|--------|-----------------------|------------------|----------------------|-------------|----------------------|-----|
|       | BLiX 40-B140X   | HUSQVARNA | ■<br>■<br>■<br>ⓘ  | Sweden | £210<br>\$<br>€       | 800g<br>1.76lb   | Li ion 36v           | 4 Ah        | 75.6 wh              | 135 |
|       | BLiX 40-B220X   | HUSQVARNA | ■<br>■<br>■<br>ⓘ  | Sweden | £310<br>\$<br>€       | 1.4kg<br>3lb     | Li ion 36v           | 6 Ah        | 216 wh               | 135 |
|       | BLiX 40-B330X   | HUSQVARNA | ■<br>■<br>■<br>ⓘ  | Sweden | £420<br>\$560<br>€520 | 1.9kg<br>4.2lb   | Li ion 36v           | 9 Ah        | 324 wh               | 156 |
|       | XGT BL4020      | MAKITA    | ■<br>■<br>■       | Japan  | £75<br>\$00<br>€00    | 690g<br>1.5lb    | Li ion 40v           | 2 Ah        | 72 wh                | 114 |
|       | M18 BL4025      | MAKITA    | ■<br>■<br>■       | Japan  | £90<br>\$00<br>€00    | 710g<br>1.5lb    | Li ion 40v           | 2.5 Ah      | 90 wh                | 114 |
|       | XGT BL4040F     | MAKITA    | ■<br>■<br>■       | Japan  | £150<br>\$00<br>€00   | 1kg<br>2.2lb     | Li ion 40v           | 4 Ah        | 144 wh               | 135 |
|       | XGT BL4050F     | MAKITA    | ■<br>■<br>■       | Japan  | £180<br>\$00<br>€00   | 1.3kg<br>2.8lb   | Li ion 40v           | 5 Ah        | 180 wh               | 156 |
|       | XGT BL4080F     | MAKITA    | ■<br>■<br>■       | Japan  | £265<br>\$00<br>€00   | 1.9kg<br>4.2lb   | Li ion 40v           | 8 Ah        | 288 wh               | 156 |
|       | 36Liion BL3622A | MAKITA    | ■                 | Japan  | £00<br>\$00<br>€00    | 1.33kg<br>2.9lb  | Li ion 40v           | 2.2 Ah      | 80 wh                | 166 |
|       | 36Liion BL3626  | MAKITA    | ■                 | Japan  | £00<br>\$00<br>€00    | 1.34kg<br>2.95lb | Li ion 40v           | 2.6 Ah      | 94 wh                | 166 |
|       | 36Liion BL6440  | MAKITA    | ■                 | Japan  | £00<br>\$00<br>€00    | 2.2kg<br>4.4lb   | Li-ion 64v           | 4 Ah        | 230.4 wh             | 197 |



| LENGTH        | WIDTH           | DEPTH          | RECHARGE<br>Min to Max Time<br>Charger-dependant<br><br>No of CHARGE<br>CYCLES | MULTI<br>CHARGERS                              | REPRESENTATIVE<br>ENDURANCE | WARRANTY (Years) | LED CHARGE STATUS | IN-USE COOLING FAN | WiFi/BLUETOOTH | IP RATING (WATERPROOF) | OP TEMPERATURE °C/°F | NOTES  | WWW.            |
|---------------|-----------------|----------------|--|--|-----------------------------|------------------|-------------------|--------------------|----------------|------------------------|----------------------|--|-----------------|
| 122mm<br>4.8" | 117mm<br>4.6"   | 98mm<br>3.85"  | >600   |  |                             |                  | ■                 |                    | ⊗              | X4                     | -                    | On-board temp gauge.<br>ⓘ Powered ascender/winich                          | husqvarna.com   |
| 122mm<br>4.8" | 117mm<br>4.6"   | 98mm<br>3.85"  |  |  |                             |                  | ■                 |                    | ⊗              | X4                     | -                    | On-board temp gauge.<br>ⓘ Powered ascender/winich                          | husqvarna.com   |
| 155mm<br>6.1" | 130.5mm<br>5.1" | 93mm<br>3.6"   |  |  |                             |                  | ■                 |                    | ⊗              | X4                     | -                    | On-board temp gauge.<br>ⓘ Powered ascender/winich                          | husqvarna.com   |
| 88mm<br>3.5"  | 77mm<br>3"      | 65mm<br>2.5"   | 22-30mins  | 2-bank<br>Rapid<br>Standard<br>Back/Power Pack |                             |                  | ■                 | ■                  | ●              | *                      | -                    | *Digital coms between battery and tool regarding staus and power draw etc. | makitatools.com |
| 88mm<br>3.5"  | 77mm<br>3"      | 65mm<br>2.5"   | 28-38mins  | 2-bank<br>Rapid<br>Standard<br>Back/Power Pack |                             |                  | ■                 | ■                  | ●              | *                      | -                    | *Digital coms between battery and tool regarding staus and power draw etc. | makitatools.com |
| 103mm<br>4.1" | 82mm<br>3.22"   | 71mm<br>2.8"   | 45-67mins  | 2-bank<br>Rapid<br>Standard<br>Back/Power Pack |                             |                  | - ■               | ■                  | ●              | *                      | -                    | *Digital coms between battery and tool regarding staus and power draw etc. | makitatools.com |
| 122mm<br>4.8" | 79mm<br>3.1"    | 92mm<br>3.6"   | 50-85mins  | 2-bank<br>Rapid<br>Standard<br>Back/Power Pack |                             |                  | - ■               | ■                  | ●              | *                      | -                    | *Digital coms between battery and tool regarding staus and power draw etc. | makitatools.com |
| 122mm<br>4.8" | 85mm<br>3.3"    | 94mm<br>3.7"   | 76mins   | 2-bank<br>Rapid<br>Standard<br>Back/Power Pack |                             |                  | - ■               | ■                  | ●              | *                      | -                    | *Digital coms between battery and tool regarding staus and power draw etc. | makitatools.com |
| 155mm<br>6.1" | 102mm<br>4"     | 85mm<br>3.3"   |  | 2-bank<br>Rapid<br>Standard<br>Back/Power Pack |                             |                  | - ■               | -                  | -              | -                      | -                    | DISCONTINUED   | makitatools.com |
| 122mm<br>4.8" | 102mm<br>4"     | 85mm<br>3.3"   |  | 2-bank<br>Rapid<br>Standard<br>Back/Power Pack |                             |                  | - ■               | -                  | -              | -                      | -                    | DISCONTINUED   | makitatools.com |
| 170mm<br>6.7" | 90mm<br>3.5"    | 172mm<br>6.77" |  |  |                             |                  | - ■               | -                  | -              | -                      | -                    | Mower only   | makitatools.com |

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 ●=PARTIAL FEATURE  
 □□= Option

SERIES  
 MODEL  
 COMPANY  
 NB: 20v/60v in the US  
 is 18v/54v in Europe

| IMAGE | SERIES<br>MODEL            | COMPANY   | FITS TOOLS FOR... | ORIGIN | COST<br>inc tax /<br>VAT | WEIGHT           | BATTERY TYPE<br>VOLTAGE | AmpHours<br>Ah | Energy/<br>Work-<br>Hours<br>Wh | LEN      |
|-------|----------------------------|-----------|-------------------|--------|--------------------------|------------------|-------------------------|----------------|---------------------------------|----------|
|       | LXT<br>BL1820B             | MAKITA    | ■<br>■<br>■       | ●      | £00<br>\$00<br>€00       | 380g<br>13oz     | Li ion<br>18V           | 2 Ah           | 36 wh                           | 113<br>4 |
|       | LXT<br>BL1830B             | MAKITA    | ■<br>■<br>■       | ●      | £00<br>\$00<br>€00       | 640g<br>1.4lb    | Li ion<br>18V           | 3 Ah           | 54 wh                           | 113<br>4 |
|       | LXT<br>BL1840B             | MAKITA    | ■<br>■<br>■       | ●      | £00<br>\$00<br>€00       | 640g<br>1.4lb    | Li ion<br>18V           | 4 Ah           | 72 wh                           | 113<br>4 |
|       | LXT<br>BL1850B             | MAKITA    | ■<br>■<br>■       | ●      | £00<br>\$00<br>€00       | 640g<br>1.4oz    | Li ion<br>18V           | 5 Ah           | 90 wh                           | 113<br>4 |
|       | LXT<br>BL1860B             | MAKITA    | ■<br>■<br>■       | ●      | £00<br>\$00<br>€00       | 660g<br>1.45lb   | Li ion<br>18V           | 6 Ah           | 108 wh                          | 113<br>4 |
|       | M18 Red Lithium<br>XC1.5   | MILWAUKEE | ■<br>■<br>■       | ■      | £00<br>\$00<br>€00       | 0g<br>0lb        | Li ion<br>18V           | 1.5 Ah         | 00 wh                           | 00<br>0  |
|       | M18 Red Lithium<br>XC2     | MILWAUKEE | ■<br>■<br>■       | ■      | £53<br>\$00<br>€00       | 0g<br>0lb        | Li ion<br>18V           | 2 Ah           | 00 wh                           | 00<br>0  |
|       | M18 Red Lithium<br>XC3/2.8 | MILWAUKEE | ■<br>■<br>■       | ■      | £00<br>\$00<br>€00       | 0g<br>0lb        | Li ion<br>18V           | 2.8 Ah         | 00 wh                           | 00<br>0  |
|       | M18 Red Lithium<br>XC4     | MILWAUKEE | ■<br>■<br>■       | ■      | £78<br>\$00<br>€00       | 0g<br>0lb        | Li ion<br>18V           | 4 Ah           | 00 wh                           | 00<br>0  |
|       | M18 Red Lithium<br>XC5     | MILWAUKEE | ■<br>■<br>■       | ■      | £80<br>\$160<br>€202     | 700g<br>1.5lb    | Li ion<br>18V           | 5 Ah           | 00 wh                           | 80<br>3  |
|       | M18 Red Lithium<br>XC6     | MILWAUKEE | ■<br>■<br>■       | ■      | £00<br>\$00<br>€00       | 1.03kg<br>2.27lb | Li ion<br>18V           | 6 Ah           | 00 wh                           | 00<br>0  |



| HEIGHT      | WIDTH      | DEPTH        | RECHARGE<br>Min to Max Time<br>Charger-dependant<br><br>No of CHARGE<br>CYCLES | MULTI<br>CHARGERS                              | REPRESENTATIVE<br>ENDURANCE | WARRANTY (Years) | LED CHARGE STATUS | IN-USE COOLING FAN | WIFI/BLUETOOTH | IP RATING (WATERPROOF) | OPERATING TEMP °C/°F | NOTES | WWW.            |
|-------------|------------|--------------|--|--|-----------------------------|------------------|-------------------|--------------------|----------------|------------------------|----------------------|-------|-----------------|
| 3mm<br>1.4" | 75mm<br>3" | 45mm<br>1.8" | 22-45 mins   | 2-bank<br>Rapid<br>Standard<br>Back/Power Pack |                             |                  | ■                 | -                  | -              | -                      | -                    |       | makitatools.com |
| 3mm<br>1.4" | 75mm<br>3" | 62mm<br>2.4" | 24-60 mins   | 2-bank<br>Rapid<br>Standard<br>Back/Power Pack |                             |                  | ■                 | -                  | -              | -                      | -                    |       | makitatools.com |
| 3mm<br>1.4" | 75mm<br>3" | 62mm<br>2.4" | 36-90 mins   | 2-bank<br>Rapid<br>Standard<br>Back/Power Pack |                             |                  | ■                 | -                  | -              | -                      | -                    |       | makitatools.com |
| 3mm<br>1.4" | 75mm<br>3" | 62mm<br>2.4" | 45-110 mins  | 2-bank<br>Rapid<br>Standard<br>Back/Power Pack |                             |                  | ■                 | -                  | -              | -                      | -                    |       | makitatools.com |
| 3mm<br>1.4" | 75mm<br>3" | 62mm<br>2.4" | 55-130 mins  | 2-bank<br>Rapid<br>Standard<br>Back/Power Pack |                             |                  | ■                 | -                  | -              | -                      | -                    |       | makitatools.com |
| 0mm<br>0"   | 00mm<br>0" | 00mm<br>0"   | 21 mins<br>21 mins<br>31 mins  | 2,3,4 & 6-bank<br>Super<br>Rapid<br>Standard   |                             |                  | -                 | ■                  | -              | -                      | -20                  |       | milwaukee.com   |
| 0mm<br>0"   | 00mm<br>0" | 00mm<br>0"   | 27 mins<br>27 mins<br>42 mins  | 2,3,4 & 6-bank<br>Super<br>Rapid<br>Standard   |                             |                  | -                 | ■                  | -              | -                      | -20                  |       | milwaukee.com   |
| 0mm<br>0"   | 00mm<br>0" | 00mm<br>0"   | 34 mins<br>34 mins<br>57 mins  | 2,3,4 & 6-bank<br>Super<br>Rapid<br>Standard   |                             |                  | -                 | ■                  | -              | -                      | -20                  |       | milwaukee.com   |
| 0mm<br>0"   | 00mm<br>0" | 00mm<br>0"   | 48 mins<br>48 mins<br>76 mins  | 2,3,4 & 6-bank<br>Super<br>Rapid<br>Standard   |                             |                  | -                 | ■                  | -              | -                      | -20                  |       | milwaukee.com   |
| 0mm<br>0"   | 50mm<br>2" | 80mm<br>3.1" | 60 mins<br>60 mins<br>105 mins   | 2,3,4 & 6-bank<br>Super<br>Rapid<br>Standard   |                             |                  | -                 | ■                  | -              | -                      | -20                  |       | milwaukee.com   |
| 0mm<br>0"   | 00mm<br>0" | 00mm<br>0"   | 70 mins<br>70 mins<br>125 mins   | 2,3,4 & 6-bank<br>Super<br>Rapid<br>Standard   |                             |                  | -                 | ■                  | -              | -                      | -20                  |       | milwaukee.com   |

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 ●=PARTIAL FEATURE  
 □= Option

SERIES  
 MODEL  
 COMPANY  
 NB: 20v/60v in the US is 18v/54v in Europe

FITS TOOLS FOR...  
 ORIGIN  
 COST inc tax / VAT  
 WEIGHT  
 BATTERY TYPE VOLTAGE  
 AmpHours Ah  
 Energy/Work-Hours Wh

LE...

| Image | SERIES<br>MODEL                      | COMPANY   | FITS TOOLS FOR... | ORIGIN | COST inc tax / VAT    | WEIGHT           | BATTERY TYPE VOLTAGE | AmpHours Ah | Energy/Work-Hours Wh | LE...    |
|-------|--------------------------------------|-----------|-------------------|--------|-----------------------|------------------|----------------------|-------------|----------------------|----------|
|       | MX Fuel<br>RedLithium Forge<br>XC8   | MILWAUKEE | ■                 | USA    | £00<br>\$00<br>€1154  | 4.4kg<br>9.8lb   | Li ion<br>00v        | 8 Ah        | 00 wh                | 27<br>10 |
|       | MX Fuel<br>RedLithium Forge<br>XC12  | MILWAUKEE | ■                 | USA    | £00<br>\$00<br>€1546  | 0g<br>0oz        | Li ion<br>00v        | 12 Ah       | 00 wh                | 00<br>0  |
|       | M18 Red Lithium<br>High Output CP3   | MILWAUKEE | ■                 | USA    | £130<br>\$120<br>€166 | 0g<br>0oz        | Li ion<br>18v        | 3 Ah        | 00 wh                | 00<br>0  |
|       | M18 Red Lithium<br>High Output XC5.5 | MILWAUKEE | ■                 | USA    | £197<br>\$00<br>€00   | 0g<br>0oz        | Li ion<br>18v        | 5.5 Ah      | 00 wh                | 00<br>0  |
|       | M18 Red Lithium<br>High Output XC6   | MILWAUKEE | ■                 | USA    | £00<br>\$00<br>€00    | 0g<br>0oz        | Li ion<br>18v        | 6 Ah        | 00 wh                | 00<br>0  |
|       | M18 Red Lithium<br>High Output XC8   | MILWAUKEE | ■                 | USA    | £160<br>\$200<br>€279 | 1.08kg<br>2.38lb | Li ion<br>18v        | 8 Ah        | 00 wh                | 13<br>5  |
|       | M18 Red Lithium<br>High Output HD12  | MILWAUKEE | ■                 | USA    | £240<br>\$250<br>€361 | 1.54kg<br>3.4lb  | Li ion<br>18v        | 12 Ah       | 00 wh                | 15<br>5  |
|       | M18 Red Lithium<br>Forge XC5         | MILWAUKEE | ■                 | USA    | £00<br>\$00<br>€00    | 0g<br>0oz        | Li ion<br>18v        | 5 Ah        | 00 wh                | 00<br>0  |
|       | M18 Red Lithium<br>Forge XC6         | MILWAUKEE | ■                 | USA    | £311<br>\$00<br>€00   | 0g<br>0oz        | Li ion<br>18v        | 6 Ah        | 00 wh                | 00<br>0  |
|       | M18 Red Lithium<br>Forge XC8         | MILWAUKEE | ■                 | USA    | £220<br>\$200<br>€279 | 1.08kg<br>2.38lb | Li ion<br>18v        | 8 Ah        | 00 wh                | 10<br>5  |
|       | M18 Red Lithium<br>Forge HD12        | MILWAUKEE | ■                 | USA    | £270<br>\$250<br>€361 | 1.54kg<br>3.4lb  | Li ion<br>18v        | 12 Ah       | 00 wh                | 14<br>5  |



| LENGTH        | WIDTH         | DEPTH         | RECHARGE<br>Min to Max Time<br>Charger-dependant<br><br>No of CHARGE<br>CYCLES | MULTI<br>CHARGERS                            | REPRESENTATIVE<br>ENDURANCE | WARRANTY (Years) | LED CHARGE STATUS | IN-USE COOLING FAN | WIFI/BLUETOOTH | IP RATING (WATERPROOF) | OP TEMPERATURE °C/°F | NOTES         | WWW.          |
|---------------|---------------|---------------|--|--|-----------------------------|------------------|-------------------|--------------------|----------------|------------------------|----------------------|---------------|---------------|
| 174mm<br>6.8" | 180mm<br>7.1" | 96mm<br>3.8"  | 45mins   | RedLi Super                                  |                             |                  | ■                 | ■                  | ■              |                        |                      |               | milwaukee.com |
| 200mm<br>8.0" | 200mm<br>8.0" | 200mm<br>8.0" | 0 mins   |  |                             |                  | ■                 | ■                  | ■              |                        |                      |               | milwaukee.com |
| 200mm<br>8.0" | 200mm<br>8.0" | 200mm<br>8.0" | 35 mins<br>35 mins<br>65 mins  | 2,3,4 & 6-bank<br>Super<br>Rapid<br>Standard |                             |                  | ■                 | -                  | -              | -                      | -28                  |               | milwaukee.com |
| 200mm<br>8.0" | 200mm<br>8.0" | 200mm<br>8.0" | 35 mins<br>35 mins<br>65 mins  | 2,3,4 & 6-bank<br>Super<br>Rapid<br>Standard |                             |                  | ■                 | -                  | -              | -                      | -28                  |               | milwaukee.com |
| 200mm<br>8.0" | 200mm<br>8.0" | 200mm<br>8.0" | 35 mins<br>65 mins<br>123 mins   | 2,3,4 & 6-bank<br>Super<br>Rapid<br>Standard |                             |                  | ■                 | -                  | -              | -                      | -28                  |               | milwaukee.com |
| 238mm<br>9.4" | 84mm<br>3.33" | 82mm<br>3.25" | 45 mins<br>83 mins<br>153 mins   | 2,3,4 & 6-bank<br>Super<br>Rapid<br>Standard |                             |                  | -                 | ■                  | -              | -                      | -28                  |               | milwaukee.com |
| 252mm<br>9.9" | 86mm<br>3.4"  | 99mm<br>3.9"  | 60 mins<br>130 mins<br>241 mins  | 2,3,4 & 6-bank<br>Super<br>Rapid<br>Standard |                             |                  | -                 | ■                  | -              | -                      | -28                  |               | milwaukee.com |
| 200mm<br>8.0" | 200mm<br>8.0" | 200mm<br>8.0" | 0 mins   | 2,3,4 & 6-bank<br>Super<br>Rapid<br>Standard |                             |                  | -                 | ■                  | -              | -                      | -28                  |               | milwaukee.com |
| 200mm<br>8.0" | 200mm<br>8.0" | 200mm<br>8.0" | 0 mins   | 2,3,4 & 6-bank<br>Super<br>Rapid<br>Standard |                             |                  | -                 | ■                  | -              | -                      | -28                  |               | milwaukee.com |
| 205mm<br>8.1" | 95mm<br>3.4"  | 154mm<br>3.5" | 45 mins<br>83 mins<br>162 mins   | 2,3,4 & 6-bank<br>Super<br>Rapid<br>Standard |                             |                  | -                 | ■                  | -              | -                      | -28                  | oil resistant | milwaukee.com |
| 217mm<br>8.5" | 200mm<br>8.0" | 104mm<br>4.1" | 45 mins<br>130 mins<br>241 mins  | 2,3,4 & 6-bank<br>Super<br>Rapid<br>Standard |                             |                  | -                 | ■                  | -              | -                      | -28                  | oil resistant | milwaukee.com |

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 =Special Tools  
 =PARTIAL FEATURE  
 = Option

**SERIES MODEL**  
**COMPANY**  
 NB: 20v/60v in the US is 18v/54v in Europe

| IMAGE | SERIES MODEL         | COMPANY | FITS TOOLS FOR... | ORIGIN | COST inc tax / VAT  | WEIGHT           | BATTERY TYPE VOLTAGE | AmpHours Ah    | Energy/Work-Hours Wh | LEAF    |
|-------|----------------------|---------|-------------------|--------|---------------------|------------------|----------------------|----------------|----------------------|---------|
|       | Power Now B42E/B426  | OREGON  |                   |        | £00<br>\$105<br>€00 | 1.24kg<br>2.74lb | Li ion<br>36/40v     | 2.6 Ah         | 94 wh                | 17<br>6 |
|       | Power Now B600E/B742 | OREGON  |                   |        | £00<br>\$145<br>€00 | 1.24kg<br>2.74lb | Li ion<br>36/40v     | 4 Ah           | 144 wh               | 17<br>6 |
|       | Power Now B650E/B662 | OREGON  |                   |        | £00<br>\$00<br>€00  | 2.84lb<br>1.29lb | Li ion<br>36/40v     | 6 Ah           | 216 wh               | 17<br>6 |
|       | AK AK10              | STIHL   |                   |        | £119<br>\$00<br>€00 | 800g<br>1.76lb   | Li ion<br>36v        | 1 Ah           | 72 wh                | 00<br>0 |
|       | AK AK20              | STIHL   |                   |        | £120<br>\$00<br>€00 | 1.2g<br>2.64lb   | Li ion<br>36v        | 2 Ah           | 144 wh               | 00<br>0 |
|       | AK AK30              | STIHL   |                   |        | £140<br>\$00<br>€00 | 1.3kg<br>2.86lb  | Li ion<br>36v        | 3 Ah           | 180 wh               | 00<br>0 |
|       | AP (Pro) AP 100      | STIHL   |                   |        | £126<br>\$00<br>€00 | 1.3kg<br>2.86lb  | Li ion<br>36v        | 2Ah            | 94 wh                | 00<br>0 |
|       | AP (Pro) AP 200 200S | STIHL   |                   |        | £156<br>\$00<br>€00 | 1.3kg<br>2.86lb  | Li ion<br>36v        | 4.8Ah<br>5.2Ah | 187 wh               | 00<br>0 |
|       | AP (Pro) AP 300      | STIHL   |                   |        | £288<br>\$00<br>€00 | 1.8kg<br>4lb     | Li ion<br>36v        | 3Ah            | 227 wh               | 00<br>0 |
|       | AP (Pro) AP 300 S    | STIHL   |                   |        | £288<br>\$00<br>€00 | 1.8kg<br>4lb     | Li ion<br>36v        | 7.2Ah          | 281 wh               | 00<br>0 |
|       | AP (Pro) AP 500 S    | STIHL   |                   |        | £385<br>\$00<br>€00 | 2kg<br>4.4lb     | Li ion<br>00v        | 8.8 Ah         | 337 wh               | 00<br>0 |





| LENGTH       | WIDTH         | DEPTH        | RECHARGE<br>Min to Max Time<br>Charger-dependant<br><br>No of CHARGE<br>CYCLES | MULTI<br>CHARGERS | REPRESENTATIVE<br>ENDURANCE | WARRANTY (Years) | LED CHARGE STATUS | IN-USE COOLING FAN | WiFi/BLUETOOTH | IP RATING (WATERPROOF) | OP TEMPERATURE °C/°F   | NOTES   | WWW.       |
|--------------|---------------|--------------|--|-------------------|-----------------------------|------------------|-------------------|--------------------|----------------|------------------------|------------------------|---|------------|
| 70mm<br>2.8" | 105mm<br>4.1" | 50mm<br>1.9" | 30-90 mins<br>≥1000  | Rapid<br>Standard | ≤250cuts @2-3"              | ■                | -                 |                    |                |                        | -20<br>40<br>-4<br>104 |   | oregon.com |
| 70mm<br>2.8" | 105mm<br>4.1" | 50mm<br>1.9" | 55-135 mins<br>≥1000   | Rapid<br>Standard | ≤400cuts @2-3"              | ■                |                   |                    |                |                        | -20<br>40<br>-4<br>104 |   | oregon.com |
| 70mm<br>2.8" | 105mm<br>4.1" | 50mm<br>1.9" | 75-200 mins<br>≥1000   | Rapid<br>Standard | ≤600cuts @2-3"              | ■                |                   |                    |                |                        | -20<br>40<br>-4<br>104 |   | oregon.com |
| 00mm<br>00"  | 00mm<br>00"   | 00mm<br>00"  |  |                   |                             | ■                | -                 | -                  | -              | -                      |                        |   | stihl.com  |
| 00mm<br>00"  | 00mm<br>00"   | 00mm<br>00"  |  |                   |                             | ■                | -                 | -                  | -              | -                      |                        |   | stihl.com  |
| 00mm<br>00"  | 00mm<br>00"   | 00mm<br>00"  |  |                   |                             | -                | ■                 | -                  | -              | -                      |                        |   | stihl.com  |
| 00mm<br>00"  | 00mm<br>00"   | 00mm<br>00"  |  |                   |                             | -                | ■                 | -                  | -              | X4                     |                        | ① Powered<br>ascender/winch                         | stihl.com  |
| 00mm<br>00"  | 00mm<br>00"   | 00mm<br>00"  | 45-200 mins  |                   | 161T CSaw-42mins            | -                | ■                 | -                  | ■              | X4                     |                        | ① Powered<br>ascender/winch<br>200S=Wifi-capable    | stihl.com  |
| 00mm<br>00"  | 00mm<br>00"   | 00mm<br>00"  | 75-250 mins  |                   | 161T CSaw-50mins            | -                | ■                 | -                  | -              | X4                     |                        | ① Powered<br>ascender/winch                         | stihl.com  |
| 00mm<br>00"  | 00mm<br>00"   | 00mm<br>00"  | 45-300 mins  |                   | 161T CSaw-60mins            | -                | ■                 | -                  | □              | X4                     |                        | ① Powered<br>ascender/winch<br>300S has Wifi-option | stihl.com  |
| 00mm<br>00"  | 00mm<br>00"   | 00mm<br>00"  | 55-355 mins<br>2530 over 10yrs   |                   | 161T CSaw-74mins            | -                | ■                 | -                  | -              | X4                     |                        |   | stihl.com  |

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 □= Option

**SERIES**  
**MODEL**

NB: 20v/60v in the US is 18v/54v in Europe

**COMPANY**

FITS TOOLS FOR...

ORIGIN

**COST**  
 inc tax /  
 VAT





**WEIGHT**

**BATTERY TYPE**  
**VOLTAGE**

**AmpHours**  
 Ah

**Energy/**  
**Work-**  
**Hours**  
 Wh

LE...

|   | SERIES<br>MODEL        | COMPANY          | FITS TOOLS FOR... | ORIGIN | COST<br>inc tax /<br>VAT | WEIGHT       | BATTERY TYPE<br>VOLTAGE | AmpHours<br>Ah | Energy/<br>Work-<br>Hours<br>Wh | LE...    |
|---|------------------------|------------------|-------------------|--------|--------------------------|--------------|-------------------------|----------------|---------------------------------|----------|
|   | OO<br>OO               | HITACHI/<br>KOKI |                   |        | £00<br>\$00<br>€00       | 1.8kg<br>0oz | Li ion<br>36v           | 3Ah            | 227 wh                          | 00<br>00 |
|   | OO<br>OO               | HITACHI/<br>KOKI |                   |        | £00<br>\$00<br>€00       | 1.8kg<br>0oz | Li ion<br>36v           | 3Ah            | 281 wh                          | 00<br>00 |
|   | OO<br>OO               | HITACHI/<br>KOKI |                   |        | £00<br>\$00<br>€00       | 0g<br>0oz    | Li ion<br>00v           | 5 Ah           | 337 wh                          | 00<br>00 |
|   | OO<br>OO               | HITACHI/<br>KOKI |                   |        | £00<br>\$00<br>€00       | 0g<br>0oz    | Li ion<br>00v           | 0 Ah           | 00 wh                           | 00<br>00 |
|   | OO<br>OO               | HITACHI/<br>KOKI |                   |        | £00<br>\$00<br>€00       | 0g<br>0oz    | Li ion<br>00v           | 0 Ah           | 00 wh                           | 00<br>00 |
|  | E-Power<br>E450        | STIGA            | ■                 |        | £190<br>\$00<br>€00      | 0g<br>0oz    | Li ion<br>48v           | 4 Ah           | 00 wh                           | 00<br>00 |
|  | Max Flex-Force<br>L135 | TORO             |                   |        | £135<br>\$00<br>€00      | 0g<br>0oz    | Li ion<br>54/60v        | 2.5 Ah         | 135 wh                          | 00<br>00 |
|  | Max Flex-Force<br>L216 | TORO             |                   |        | £205<br>\$00<br>€00      | 0g<br>0oz    | Li ion<br>54/60v        | 4 Ah           | 216 wh                          | 00<br>00 |
|  | Max Flex-Force<br>L405 | TORO             |                   |        | £325<br>\$00<br>€00      | 0g<br>0oz    | Li ion<br>54/60v        | 7.5 Ah         | 405 wh                          | 00<br>00 |
|   | OO<br>OO               | OO               |                   |        | £190<br>\$00<br>€00      | 0g<br>0oz    | Li ion<br>48v           | 0 Ah           | 00 wh                           | 00<br>00 |
|   |                        |                  |                   |        |                          |              |                         |                |                                 |          |



| LENGTH     | WIDTH       | DEPTH       | RECHARGE<br>Min to Max Time<br>Charger-dependant<br><br>No of CHARGE<br>CYCLES | MULTI<br>CHARGERS | REPRESENTATIVE<br>ENDURANCE | WARRANTY (Years) | LED CHARGE STATUS | IN-USE COOLING FAN | WIFI/BLUETOOTH | IP RATING (WATERPROOF) | OP TEMPERATURE °C/°F | NOTES | WWW.      |
|------------|-------------|-------------|--|-------------------|-----------------------------|------------------|-------------------|--------------------|----------------|------------------------|----------------------|-------|-----------|
| 0mm<br>00" | 00mm<br>00" | 00mm<br>00" |  |                   |                             |                  | ■                 |                    |                |                        |                      |       | stihl.com |
| 0mm<br>00" | 00mm<br>00" | 00mm<br>00" |  |                   |                             |                  | ■                 |                    |                |                        |                      |       | stihl.com |
| 0mm<br>00" | 00mm<br>00" | 00mm<br>00" |  |                   |                             |                  | ■                 |                    |                |                        |                      |       | stihl.com |
| 0mm<br>00" | 00mm<br>00" | 00mm<br>00" |  |                   |                             |                  | ■                 |                    |                |                        |                      |       | OO.com    |
| 0mm<br>00" | 00mm<br>00" | 00mm<br>00" |  |                   |                             |                  | ■                 |                    |                |                        |                      |       | OO.com    |
| 0mm<br>00" | 00mm<br>00" | 00mm<br>00" | 120-220 mins<br>=  |                   |                             |                  | - ■               |                    |                |                        |                      |       | OO.com    |
| 0mm<br>00" | 00mm<br>00" | 00mm<br>00" |  |                   |                             |                  | - ■               |                    |                |                        |                      |       | OO.com    |
| 0mm<br>00" | 00mm<br>00" | 00mm<br>00" |  |                   |                             |                  | - ■               |                    |                |                        |                      |       | OO.com    |
| 0mm<br>00" | 00mm<br>00" | 00mm<br>00" | 60 mins<br>=   |                   |                             |                  | - ■               |                    |                |                        |                      |       | OO.com    |
| 0mm<br>00" | 00mm<br>00" | 00mm<br>00" | 0-0 mins<br>=  |                   |                             |                  | - ■               |                    |                |                        |                      |       | OO.com    |
|            |             |             |  |                   |                             |                  | -                 |                    |                |                        |                      |       |           |

# CHAINSAW PROTECTIVE GLOVES

Ask most private arb contractors about chainsaw protective gloves and they'll be pretty dismissive especially if they're left-handed. Many value the safety offered by comfort and dexterity of a quality work glove more than the possibility that a chainsaw glove will actually make much difference. It is indeed hard to see how that thin barrier on the back of the left hand (in most instances) will cover all the possible scenarios involving your hand coming into contact with a moving chain. The only real scenario being covered by most gloves is a rotational kickback impact to the back of your left hand while it is grasping the top of the wrap-around handle.

You might be surprised to hear that specialist glove manufacturers making gloves for many different purposes deem chainsaw use as a minority concern and often simply rename a glove they already make with kevlar protection for some other industry like foundry workers or mining! Consequently there are many hundreds of gloves that COULD be used by chainsaw operators but we have included only those models actively marketed to arborists and meeting a chainsaw-relevant standard. We will, however, be augmenting this chainsaw-specific guide with CUT-RESISTANT models shortly. You need to be VERY careful that the glove you have picked up for work actually is chainsaw protective, outwardly there may be nothing to distinguish a chainsaw protective glove from a .....well...glove. Even recognition of a quality brand is no indication - take the gloves above from *Arbortec* - top right. The glove on the right is EN certified to withstand a chain speed of 16m/sec or 3150ft per minute. The equally slick looking gloves on the left are similar colours and even have the same pattern of palm reinforcement not to mention a dubious finger insult but they are NOT chainsaw protective except that they are leather and therefore have greater cut resistance than your skin. Shame because they otherwise looked like our kind of glove with excellent dexterity for as long as you keep your fingers. Our definition of a chainsaw protective glove is one that meets either EN381-7 with a specified chain speed that needs to be resisted or has active chainsaw protective materials in terms of kevlar or multi-fibres to clog the moving chain. The US ANSI/ISEA cut resistance standards using primarily ASTM test methods is better than it was with an extra four sub-classifications but this still only relates to downward pressure and side-to side movement of knives and hand saws not powered chainsaws - if a retailer tells you the glove they're selling you meets ANSI 4,5,6,7, 8 or 9, ask them if that



actually means it will resist a moving chain? Most chainsaw protective gloves only provide active protection on the left glove and almost without exception, to the back of the hand rather than all around. So, not only are the cut-protection areas quite limited, even where they do exist, we're really only talking about the most glancing of glancing

blows rather than falling onto a moving chain with your hands outstretched. This is effectively run-out protection-only rather than full speed protection. Cut resistance is a different matter, that does not refer to chainsaws at all and instead, as we've already mentioned with the ASTM standard, resists knife or hand saw blades. In Europe this may be categorised under EN 388 as the third of 4 numbers relating to abrasion, tear, cut and puncture resistance, these are numbered 0 to 4 and 0-to 5 in the case of cut resistance with 5 as the highest protection. There may also be letters A to F relating to an alternative cut test if the blade is too dull to cut and a P if there is Impact resistance. You may see these numbers and letters listed after EN388. Again, this standard does not relate to chainsaw use and it could be that, if you have an accident resulting in lost digits and you are found to be wearing gloves that meet EN388 but NOT EN 381-7, the insurance company can say you weren't properly equipped and will not pay out. For those of you that resist wearing gloves because you say they are too bulky or you're primarily climbing, don't be lulled into thinking that the thinner, more dexterous 'cut-resistant' gloves under an EN388 or ANSI standard are going to give you protection against your chainsaw or insurance broker. However, cut-resistant gloves will help minimise the multitude of small cuts and impales that occur during a working day and you would think chain-mail would almost come under active chainsaw protection? Probably binds up and causes more of an amputation risk than sharp chain? Even so, aside from multi-layer protection like the *Cutters*, *Elvex* and *Endura* gloves (right) which bind up the chain, we have our doubts about the true validity of single sheets of material and chainsaw-resistance cut tests using test chainsaws that don't accurately reflect the size and power of what is actually being used. They do at least give an indication of something specific to chainsaws but chainsaw protection may not be as effective a barrier against a samurai blade or



# CHAINSAW PROTECTIVE GLOVES



**Fig 1 ANATOMY of a CHAINSAW-PROTECTIVE GLOVE**

- FINGER-TIP GRIP**  
tactile material to improve grip but on most gloves this may simply be reinforcement.
- PREFORMED/SHAPED HAND** for improved dexterity. a shaped, close-fitting glove is vital in a climbing glove
- VIBRATION-DAMPENING**  
foam or gel layer beneath reinforcement. If no dampening this may simply be part of palm reinforcement
- PALM REINFORCEMENT**  
High-wear area of the hand has extra material and may incorporate vibration dampening.
- FINGER REINFORCEMENT**
- KNUCKLE REINFORCEMENT**
- SWEAT or NOSE-WIPING MATERIAL!**
- HI-VISIBILITY COLOURS** usually red, orange or lime. May also have reflective highlights on the fingers and/or back and/or cuff
- STRETCH FABRIC**
- ACTIVE CHAINSAW PROTECTION**  
but may just be padding in other designs-very hard to tell if you don't know the glove.
- VELCRO CLOSURE/TIGHTENING**
- NEOPRENE or ELASTICATED cuff** -Often knitted.

names. Not surprising really that if you make chainsaws you would feel the need to provide an accompanying branded glove but they're generally not set up to produce textiles so they source it elsewhere and rebadge. Nothing wrong with that, no point in reinventing the wheel.

## FEATURES (refer to fig 1 left)

### FINGER-TIP GRIP:

Refers to specific rubberised or tactile enhancement to the finger-tips to improve grip particularly in the wet.

### PREFORMED/SHAPED HAND:

The glove is designed as 3-dimensional hand-shape with curves rather than two flat hand-shapes (back and front) sewn together. Pre-shaped gives a much closer fit but costs more.

### VIBRATION-DAMPENING:

Extra padding or gel pads which stop some of the saw's vibration reaching your hand and fingers.

rotary saw blade as the cut-resistant gloves we maligned earlier because it's designed to stop a moving chain not a rotating or swinging sharp edge. And what about electric chainsaws with higher torque - admittedly not originally a pro tool but this type of glove may not stop that at all. It's interesting to note that *Pfanner*, that make a lot of chainsaw clothing, don't produce a chainsaw-protective glove at all even though they do have a number of work gloves. Instead they just have chainsaw protective *sleeves* to protect the forearm and wrist. Maybe they see arms as more vulnerable or that gloves just aren't up to much while comfort and dexterity of a glove takes priority in reducing the risk of injury?

**What we need is a lightweight glove that you hardly realise you have on but has active, effective chainsaw protection on the front and back of BOTH hands covering the entire surface from wrist to palm to finger tips, how hard can it be?**

The Holy Grail of gloves it would seem although the *Youngstown* model we've included has 360° kevlar lining (pic below) in quite complex but light designs so maybe it's not that far off. Two of these *Youngstown* gloves will NOT stop a chainsaw so their inclusion is a little misleading but they do offer some protection and more on the right hand and front of hand than most actual chainsaw gloves and the *Winter Plus* glove (right) offers all around Kevlar on both hands AND is entirely waterproof. Their



latest model the *CR5 Hybrid* does have level 5 instead of level 4 protection which is as high as it gets in the US at the moment. As usual, we have more 'manufacturers' listed than there are actual 'manufacturers' so there are a number of like models under different



### PALM REINFORCEMENT:

This may include dampening mentioned above but without dampening is an extra layer of material to improve wear

### FINGER REINFORCEMENT:

As above but it runs up the front/ and/or back of the fingers as an extra layer of protective material - this may include cut-protection but more often than not, not!

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**KNUCKLE REINFORCEMENT**

Often coincides with the active cut protection but since this may only be on the left glove it is a narrow or wide strip of extra protective material, mostly leather.

**NOSE-WIPING MATERIAL:**

They may not admit it but that bit of Terry-cloth (nappy material) on the back of some of the thumbs is for forehead-sweat-removal or nose-wiping - bare this in mind when you borrow your mate's gloves. Listed as 'Sweat-Wipe' in the tables

**HI-VISIBILITY COLOURS**

Unless you're Edward Scissor-hands or working next to Edward Scissor-hands and there's a danger of speedily slashing around your own hand. this is more to do with overall visibility of the arborists and signalling ground crew than noticing where your own hand is..

**VELCRO CLOSURE/TIGHTENING:**

A velcro closure means that you can tighten the wrist - this not only makes for a firmer, more secure fit but it helps keeps out sawdust and debris. It also means that the glove is made easier to put on in the first place. This needs to be very firmly stitched because, for most arborists, it doubles as a pull-on tab.

**CUFF:**

If the cuff is elasticated, it might be Neoprene or knitted. We've differentiated between the two by having a solid black square for neoprene and an outline square for knitted. Knitted can be good and bad - on cold dry days it's the warmest and most comfortable fit but many will retain water and sweat and any other body moisture or nasal effluent you inflict on it as well as dust and wood chips. For a firmer and more watertight fit Neoprene is used and may be married to a Velcro closure to provide a flexible, water-resistant cuff. Some gloves, particularly

|   | size       | inch*            | cm*       | size       | inch*      | cm*         |
|---|------------|------------------|-----------|------------|------------|-------------|
| all-leather or leather and cotton, may have a simple, open 'skirt' which many find more   | <b>XS</b>  | <b>7</b>         | <b>18</b> | <b>XS</b>  | <b>6</b>   | <b>15</b>   |
| comfortable. This is fine on shaped gloves like the Forester High Impact but be careful that the glove doesn't work loose on more generic designs with an open cuff like the Forester HD. | <b>S</b>   | <b>7.5 - 8</b>   | <b>20</b> | <b>S</b>   | <b>6.5</b> | <b>16.5</b> |
|   | <b>M</b>   | <b>8.5 - 9</b>   | <b>23</b> | <b>M</b>   | <b>7</b>   | <b>18</b>   |
|   | <b>L</b>   | <b>9.5 - 10</b>  | <b>25</b> | <b>M/L</b> | <b>7.5</b> | <b>19</b>   |
|   | <b>XL</b>  | <b>10.5 - 11</b> | <b>28</b> | <b>L</b>   | <b>8</b>   | <b>20</b>   |
|   | <b>XXL</b> | <b>11.5 - 12</b> | <b>30</b> | <b>XL</b>  | <b>8.5</b> | <b>23</b>   |

comfortable. This is fine on shaped gloves like the Forester High Impact but be careful that the glove doesn't work loose on more generic designs with an open cuff like the Forester HD.

**SIZING**

This is a can of worms. In the US sizes are usually given as Small to XXL sometimes as a figure normally relevant to dress gloves with the measurement taken as the circumference around the palm. In the UK and parts of Europe sizes are from 6-12 where 9 is generally Med, L in the case of Francitel, 10 is Large and don't arm wrestle with a size 11 or 12. However, we also see these measurements given by some as what must be a width across the palm rather than circumference which helps confuse things: 8cm = small, 9cm = medium, 10cm = large, 11cm = X large  
The tables above are the US charts for Men and Women:

The moral of the story is - try them on if you're using a different glove to your last pair or make sure you can send them back if they don't fit.

**STANDARDS**

We've mentioned EN388 but for active chainsaw protection it's **EN381-7 1999** sub-divided into three cut-resistance classes and two designs adopted across the globe:

**Class 0** = 16m/sec or 3150 feet/min

**Class 1** = 20m/sec or 3937 feet/min

**Class 2** = 24m/sec

**Standard EN 381-7 design A** for gloves describes a protection surface on the back of the hand. The protective surface must be min. 110mm wide and min.120mm high at the highest point (without the fingers).

**Standard EN 381-7 design B** for gloves describes a protection on the back of the hand and 4 fingers. The protective surface must be min. 110mm wide and min. 190mm high from the base to the highest point.

In simple terms the European standard EN381-7 is specific about providing some degree of protection against a moving chainsaw However it only requires the back of the left-hand glove to be chainsaw protective and this may include fingers but not the thumb. Not much you can do without that opposing thumb! We wonder why this standard applies to a PAIR of gloves when only the left is protective? It's strange that this standard hasn't been tightened up or further sub-categorised to indicate dual hand protection. And aren't left-handed people discriminated against in the arb world with all the right handed chainsaws and gloves? The biggest nonsense is that in the US you can virtually forget about ANSI/ASTM cut-resistance standards having much to do with protection from chainsaws - they're really only applicable to knives and hand saws. Until this very odd oversight is rectified, look for European chainsaw standards quoting 0 or 1 when choosing gloves. *Solidur* now has a '2' - the *Sequoia* protecting to 24m/s so expect to see more.

**EN420** is a generic Safety Glove and quality assurance standard covering quality of components, manufacture, fit & longevity.

**IN THE FOLLOWING TABLES.....**

**USES:** All except two of the *Youngstown* models are certified as, or designed to be, chainsaw protective gloves.

**CLIMBING:** The manufacturer feels these are particularly appropriate for climbing but you may find a favourite glove for climbing not listed as such. It should be close fitting with an elasticated (wrist-hugging) cuff and tactile grip.

**COLD WEATHER:** Some have active insulation against the cold but this will often be at the expense of dexterity.

**UTILITY:** most of these could be listed under this heading which takes in chipping, rope-work and groundwork but it's a bit of a waste of the higher quality gloves so you will see shaped gloves in particular not listing 'UTILITY' as a use.

Our tables show '**WATERPROOF**' but chainsaw gloves have such a complex array of stitching and articulation points that none are truly waterproof - water-resistant is the best you'll get unless you wear a latex/nitrile glove as a liner and even then it will end up damp from sweat! The key value of a waterproof glove is that you're less likely to be working all day in a wet glove that retains moisture through the day from the first half hour's cutting. We haven't yet included *Vgo*, the *Raptor* and *Hand Protection International*. We would probably need an entire publication to capture them all!



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**PROTECTION CUT=** EN381-7 level = ANSI level  
**GENERAL=** EN388 level = ANSI level  
 ● Water Resistant ■ Water Proof  
 ● OK but not Ideal  
 ○ Good Cut-resistance but not full chainsaw protection

| MODEL   | COMPANY                    | ORIGIN  | COST<br><small>For 1x PAIR approx, rounded up inc. VAT/Tax</small> | MATERIAL  | SIZES              | STAND          |
|---|----------------------------|---|--|---|--------------------|----------------|
|    | <b>ARBORTEC FORESTWEAR</b> |    | £48<br>\$59<br>€55   | Cowhide, Polyester, Rubber, Kevlar                | 8,9,10,11          | EN388<br>EN388 |
|     | <b>ARBORTEC FORESTWEAR</b> |    | £47<br>\$57<br>€54   | Leather   | 79,9,10,11,12      | EN388<br>EN388 |
|    | <b>ARBORTEC FORESTWEAR</b> |    | £47<br>\$57<br>€54   | Leather   | 8,9,10,11          | EN388<br>EN388 |
|   | <b>ARBORTEC FORESTWEAR</b> |    | £42<br>\$49<br>€51   | Leather   | 8,9,10,11          | EN388<br>EN388 |
|    | <b>ARBPRO</b>              |  | £00<br>\$00<br>€35   | Griptech reinforced Goat leather<br>Stretch Nylon | 8,9,10,11,12       | EN388-EN4      |
|   | <b>CUTTERS</b>             |  | £23<br>\$00<br>€00   | Full Grain leather, Cordura                       | 8,9,10,11 S,M,L,XL | EN388          |
|   | <b>CUTTERS</b>             |  | £29<br>\$00<br>€00   | Amara synthetic leather, Spandex, PVC, Thinsulate | 8,9,10,11 S,M,L,XL | EN388          |
|  | <b>CUTTERS</b>             |  | £25<br>\$00<br>€00   | Amara synthetic leather, Spandex, PVC             | 8,9,10,11 S,M,L,XL | EN388          |
|   | <b>EJENDAL</b>             |  | £39<br>\$00<br>€00   | 1-1.2mm Cowhide, Polyester, Dyneema               | 8,9,10,11 S,M,L,XL | EN388<br>EN388 |
|  | <b>ELVEX</b>               |  | \$43<br>\$00<br>€00  | Cowhide & Suede, Polyester fibres                 | M,L,XL             | EN388<br>EN388 |





**IMAGES NOT TO SCALE**  
**COST:** approx, rounded up & inc local tax/vat  
**£/\$/€=** currency conversion only - no import duty, etc.  
**PROTECTION CUT=** EN381-7 level = ANSI level  
**GENERAL=** EN388 level = ANSI level

● Water Resistant ■ Water Proof  
 ● OK but not ideal  
 ○ Good but not ideal

○ Good but not ideal for chainsaw protection



| MODEL                   | COMPANY             | ORIGIN | COST<br><small>For 1x PAIR approx, rounded up inc. VAT/Tax</small> | MATERIAL   | SIZES           | STANDARDS        |
|-------------------------|---------------------|--------|--|--|-----------------|------------------|
| Anti-Vibration Chainsaw | FORESTER / ECHO-USA |        | £00<br>\$23<br>€00   | Goatskin Leather, Nylon/Poly Spandex, Neoprene, Kevlar-Lined | M-XXL           |                  |
| Knitted Chainsaw        | FORESTER            |        | £00<br>\$26<br>€00   | Goatskin Leather, Nylon/Poly Spandex, Kevlar-Lined           | M-XXL           |                  |
| Arbor                   | FORESTER            |        | £00<br>\$23<br>€00   | 70% leather 20% polyester spandex 10% polyester nylon        | S-XXL           | EN388            |
| HD Leather              | FORESTER            |        | £00<br>\$23<br>€00   | Leather  | S-XXL           | EN388            |
| High Impact             | FORESTER            |        | £00<br>\$23  | 50% Goat Skin 50% Kevlar                                     | S-XXL           | EN388            |
| Chain 304               | FRANCITAL           |        | £26<br>\$00<br>€25   |  | 8,9,10,11 M-XXL | EN388<br>EN381-7 |
| Chain 216               | FRANCITAL           |        | £25<br>\$00<br>€00   | Leather  | 8,9,10,11 M-XXL | EN388<br>EN381-7 |
| Pro                     | GO PART             |        | £13<br>\$00<br>€00   | Kid Leather Polyester  | 8,9,10,11 M-XXL | EN388<br>EN381-7 |
| 454                     | HARKIE              |        | £33<br>\$00<br>€34   |  | 8-12 S-XXL      | EN388<br>EN381-7 |
| Functional              | HUSQVARNA           |        | £39<br>\$30<br>€00   |  | 8,9,10,11       | EN388<br>EN381-7 |
| Technical               | HUSQVARNA           |        | £42<br>\$00<br>€00   | Goatskin, Polyester, Neoprene, Spandex, Terry-cloth          | 8,9,10,11       | EN388<br>EN381-7 |

| BRANDS   | USES     |          |              |         | PROTECTION    |                   |                    |                    | WRIST/CUFF          |                |                    |                | FEATURES |             |             |            | OTHER COLOURS | NOTES | WWW. |                      |                |            |            |                 |                     |   |  |                  |
|----------|----------|----------|--------------|---------|---------------|-------------------|--------------------|--------------------|---------------------|----------------|--------------------|----------------|----------|-------------|-------------|------------|---------------|-------|------|----------------------|----------------|------------|------------|-----------------|---------------------|---|--|------------------|
|          | CHAINSAW | CLIMBING | COLD WEATHER | UTILITY | CUT EN / ANSI | PROTECT LEFT HAND | PROTECT RIGHT HAND | ABRASION EN / ANSI | BLADE CUT EN / ANSI | TEAR EN / ANSI | PUNCTURE EN / ANSI | AIR CUT IMPACT | VELCRO   | ELASTICATED | PULL-ON TAB | WATERPROOF |               |       |      | ENHANCED GRIP in WET | ANTI-VIBRATION | SWEAT-WIPE | PRE SHAPED | REINFORCED PALM | REINFORCED KNUCKLES | REINFORCED FINGERS  | WARRANTY (YEARS)                                       |                  |
|          | ○        |          |              |         | NO            | ■                 | ■                  | 3                  | 3                   | 4              | 2                  | -              | -        | ■           | ■           |            |               |       |      |                      |                | ■          | ■          | ■               | 1                   | <div style="display: flex; align-items: center;"> <div style="width: 10px; height: 10px; background-color: #90EE90; border: 1px solid black; margin-right: 5px;"></div> <span>rebadged by ECHO USA in Orange.</span> </div> <div style="display: flex; align-items: center; margin-top: 5px;"> <div style="width: 10px; height: 10px; background-color: #008000; border: 1px solid black; margin-right: 5px;"></div> <span>2 layers of Kevlar</span> </div> | forestershop.com<br>echo-usa.com                       |                  |
|          | ○        |          |              |         | NO            |                   |                    | 3                  | 1                   | 2              | 2                  | -              | -        | ■           |             |            |               |       |      |                      |                |            |            |                 | 1                   | Also available in WHITE/black with extended safety cuff with Velcro   | forestershop.com                                       |                  |
| 88       | ○        | ■        |              |         | 4             | ■                 | ■                  |                    |                     |                |                    | -              | -        | ■           |             | □          | ■             | ■     | ■    |                      |                |            |            |                 |                     |   | Hi-Viz Carabiner eye                                   | forestershop.com |
| 88       | ○        |          | ■            |         | 4             | ■                 | ■                  |                    |                     |                |                    | -              | -        |             |             | □          |               |       | ■    |                      |                |            |            |                 |                     |   | Hi-Viz   | forestershop.com |
| 2243     | ○        |          | ■            |         | 4             | ■                 | ■                  |                    |                     |                |                    | -              | -        |             |             |            |               |       | ■    | ■                    | ■              |            |            |                 |                     |   | Back-hand shield resists impact.                       | forestershop.com |
| 1-7 88   | ■        |          |              |         | 1             |                   |                    |                    |                     |                |                    | -              | -        | □           |             |            |               |       |      |                      |                |            | ■          |                 |                     |   |  | francital.com    |
| 1-7 4144 | ■        | ●        |              |         | 0             |                   |                    | 4                  | 1                   | 4              | 4                  | -              | -        | ■           | ■           |            |               |       |      |                      |                |            |            |                 |                     | ■   | Hi-Viz, 4-way stretch fabric on back                   | francital.com    |
| 1-7 88   | ■        |          | ■            |         | 0             | ■                 | -                  |                    |                     |                |                    | -              | -        | □           | ■           | □          |               |       |      |                      |                |            |            |                 |                     |   |  | kramp.com        |
| 1-7 4142 | ■        |          |              |         | 0             | ■                 | -                  | 4                  | 1                   | 4              | 2                  | -              | -        | ■           |             |            | ■             |       |      |                      |                |            |            |                 |                     |   | 4-way stretch fabric on back. Rubber grip pads on palm | harkie.co.uk     |
| 1-7 88   | ■        |          | ■            |         | 0             |                   |                    |                    |                     |                |                    | -              | -        | ■           |             | □          |               |       |      |                      |                |            |            |                 |                     |   | reflective logo  | husqvarna.com    |
| 1-7 88   | ■        | ●        | ■            |         | 1             |                   |                    |                    |                     |                |                    | -              | -        | ■           | ■           | □          | ■             | ■     | ■    | ■                    |                |            |            |                 |                     |   | Hi-Viz, Reflective piping.                             | husqvarna.com    |

**IMAGES NOT TO SCALE**  
**COST:** approx, rounded up & inc local tax/vat  
**£\$€=** currency conversion only - no import duty, etc.  
**PROTECTION CUT=** EN381-7 level = ANSI level  
**GENERAL=** EN388 level = ANSI level  
 ● Water Resistant ■ Water Proof  
 ● OK but not ideal  
 ○ Good balance but not full chainsaw protection



| MODEL                              | COMPANY  | ORIGIN | COST<br><small>For 1x PAIR approx, rounded up inc. VAT/Tax</small> | MATERIAL  | SIZES                  | STAND                 |
|------------------------------------|----------|--------|--|---|------------------------|-----------------------|
| Chainsaw<br>91305                  | OREGON   |        | £20<br>\$20<br>€00   | 55% Leather<br>25% Nylon<br>10% Spandex<br>5% Polyester<br>5% Para-aramid | 8,9,10,11<br>S,M, L,XL | EN381<br>EN388        |
| Fiordland                          | OREGON   |        | £30<br>\$00<br>€00   | 24% Leather<br>47% Nylon<br>9% Poly/Cotton<br>15% PVC<br>5% Para-aramid   | 9,10,11<br>M, L,XL     | EN381<br>EN388<br>EN4 |
| Fiordland Winter                   | OREGON   |        | £26<br>\$35<br>€00   | Leather   | 9,10,11<br>M, L,XL     | EN381<br>EN388<br>EN4 |
| OAK<br>A290                        | PORTWEST |        | £14<br>\$00<br>€00   | 60% leather<br>25% polyester<br>10% polyethylene<br>5% elastic            | 9-10<br>M-L            | EN381<br>EN388<br>EN4 |
| Function<br>MS Protect             | STIHL    |        | £30<br>\$00<br>€00   | Leather,<br>Textile,<br>Elastic   | 8-11<br>S-XL           | EN381<br>EN388<br>EN4 |
| Dynamic<br>MS Protect/<br>Pro-Mark | STIHL    |        | £42<br>\$00<br>€00   | Leather,<br>Textile,<br>Elastic   | 8-11<br>S-XL           | EN381<br>EN388<br>EN4 |
|                                    |          |        |  |   |                        |                       |
|                                    |          |        |  |   |                        |                       |

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# CHAINSAW PROTECTIVE GLOVES

| MODELS            | USES     |          |              |         | PROTECTION    |                   |                    |                    | WRIST/CUFF          |                |                    |                | FEATURES |             |             |            |                      |                | OTHER COLOURS | NOTES | WWW. |            |            |                 |                     |                                      |                                  |
|-------------------|----------|----------|--------------|---------|---------------|-------------------|--------------------|--------------------|---------------------|----------------|--------------------|----------------|----------|-------------|-------------|------------|----------------------|----------------|---------------|-------|------|------------|------------|-----------------|---------------------|--------------------------------------|----------------------------------|
|                   | CHAINSAW | CLIMBING | COLD WEATHER | UTILITY | CUT EN / ANSI | PROTECT LEFT HAND | PROTECT RIGHT HAND | ABRASION EN / ANSI | BLADE CUT EN / ANSI | TEAR EN / ANSI | PUNCTURE EN / ANSI | AIR CUT IMPACT | VELCRO   | ELASTICATED | PULL-ON TAB | WATERPROOF | ENHANCED GRIP in WET | ANTI-VIBRATION |               |       |      | SWEAT-WIPE | PRE SHAPED | REINFORCED PALM | REINFORCED KNUCKLES | REINFORCED FINGERS                   | WARRANTY (YEARS)                 |
| 1-7 A<br>3142     | ■        | -        | -            | ■       | 0             | ■                 | ■*                 | 3                  | 1                   | 4              | 2                  | -              | -        | ■           | -           | -          | -                    | -              | -             | -     | ■    | ■          | -          | 1               | ■                   | *10% cheaper with Left hand pro only | oregonproducts.com<br>blount.com |
| 1-7 A<br>88<br>20 | ■        | -        | ■            | ■       | 0             | ■                 | -                  | -                  | -                   | -              | -                  | ■              | -        | -           | -           | -          | -                    | -              | -             | -     | ■    | ■          | ■          | -               | -                   | -                                    | oregonproducts.com<br>blount.com |
| 1-7 A<br>88<br>20 | ■        | -        | ■            | ■       | 0             | ■                 | -                  | -                  | -                   | -              | -                  | ■              | -        | -           | -           | -          | -                    | -              | -             | -     | ■    | ■          | ■          | -               | -                   | -                                    | oregonproducts.com<br>blount.com |
| 1-7<br>88<br>20   | ■        | -        | ■            | ■       | 0             | ■                 | -                  | -                  | -                   | -              | -                  | ■              | -        | -           | -           | -          | -                    | -              | -             | -     | -    | -          | -          | -               | -                   | Also badged as 'Arborsafe'           | portwest.com                     |
| 1-7<br>88<br>20   | ■        | -        | -            | ■       | 0             | ■                 | ■                  | -                  | -                   | -              | -                  | ■              | -        | ■           | -           | -          | -                    | -              | -             | -     | ■    | ■          | -          | ?               | -                   | Lined                                | stihl.com<br>stihl.co.uk         |
| 1-7<br>88<br>20   | ■        | -        | -            | -       | 1             | ■                 | ■                  | -                  | -                   | -              | -                  | ■              | ■        | -           | ■           | -          | -                    | -              | -             | ■     | ■    | ■          | -          | ?               | -                   | Lined                                | stihl.com<br>stihl.co.uk         |

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| MODEL             | COMPANY                        | ORIGIN | COST<br><small>For 1x PAIR approx, rounded up inc. VAT/Tax</small> | MATERIAL  | SIZES              | STAND                 |
|-------------------|--------------------------------|--------|--|---|--------------------|-----------------------|
| SS-15 010 25 0_   | STEIN                          |        | £20<br>\$00<br>€00   | Leather, Rubber   | 8,9,10             | EN381<br>EN3          |
| 2XD3/2            | SIP PROTECTION                 |        | £24<br>\$00<br>€29   | 60% polyamide<br>40% polyurethane<br>Rubber PVC/PU  | 8,9,10,<br>11,12   | EN381<br>EN388<br>EN4 |
| 2SA5              | SIP PROTECTION                 |        | £38<br>\$00<br>€36   | cowhide leather,<br>aramid yarn   | 8,9,10,<br>11,12   | EN381<br>EN388<br>EN4 |
| Infinity          | SOLIDUR                        |        | £00<br>\$00<br>€35   |   |                    |                       |
| Cidre             | SOLIDUR                        |        | £00<br>\$00<br>€20   |   |                    |                       |
| Magic             | SOLIDUR                        |        | £00<br>\$00<br>€30   |   |                    |                       |
| Sequoia           | SOLIDUR                        |        | £00<br>\$00<br>€38   |   |                    |                       |
| Endura            | SUPERIOR GLOVE/<br>LUMBERWORKS |        | £00<br>\$39<br>€00   | Goatskin Leather,<br>Nylon lycra,<br>Kevlar   | 9,10,11<br>M, L,XL |                       |
| Titan XT Kevlar   | YOUNGSTOWN                     |        | £00<br>\$44<br>€00   | Sythetic Leather,<br>Kevlar,<br>Elastic, Nylon  | 7-12<br>S-XXXL     | ANSI/                 |
| WINTER + Kevlar   | YOUNGSTOWN                     |        | £00<br>\$50<br>€00   | Sythetic Leather,<br>Waterproof/<br>breathable membrane,<br>Clarino Palm,<br>Kevlar-Liner | 7-12<br>S-XXXL     | ANSI/                 |
| CR5 Hybrid Kevlar | YOUNGSTOWN                     |        | £00<br>\$55<br>€00   | Sythetic Leather,<br>Kevlar,<br>Elastic, Nylon  | 7-12<br>S-XXXL     | ANSI/                 |

450



