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# BUYERSGUIDES

# Arborist Equipment

**OTHER ROPES AND HARDWARE.....**

SRT Ropes, descenders, carabiners, PCDs & swivels are in **Rope Equipment**
Specialist hardware, ropes and PPE are in **Water Rescue**
Helmets, med-packs, spine-care & stretchers are in **PPE & CasEvac**
'Black' theatre and tactical rope, hardware & access items are in **'Black' Equipment**
Cases, lighting, Tripods & High Directional are also in **USAR/Extrication**

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**We have begun to replace some rope equipment not specifically related to arb with chainsaws, trousers, boots & chippers. Products ~~crossed out in red~~ below can now be found in the ROPE EQUIPMENT BUYERSGUIDE which contains many items of eqipment relevant to arborists.**

**(Now Compiling/Due late 2025)**


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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 late 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.

**MANUFACTURERS can contact us at any time to update the information on a product(s).**
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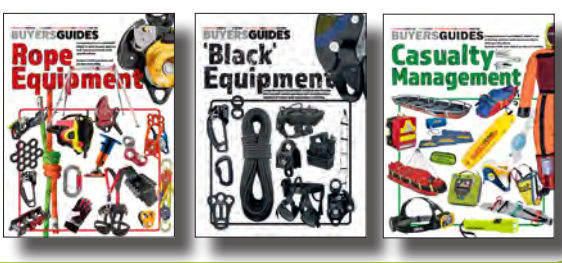

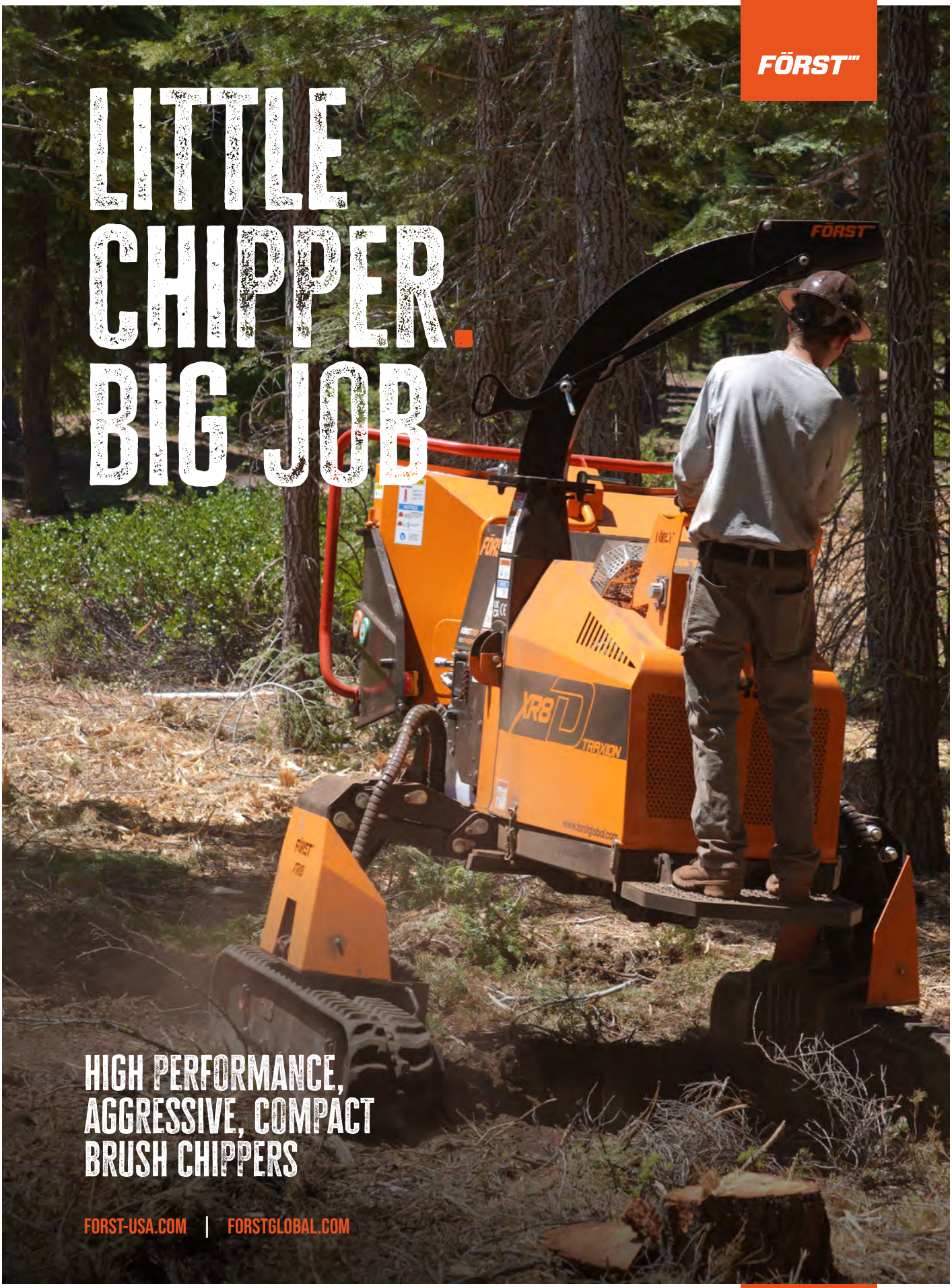
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**UPDATING late 2025**
In 2025 we began to add PPE, Chippers and chainsaws to this BUYERSGUIDE:
Some rope equipment NOT specific to arb work can now be found in the ROPE EQUIPMENT BUYERSGUIDE eg.
Progress Capture Devices, Lever Cam Grabs/ Ascenders and Mini Hauling Systems

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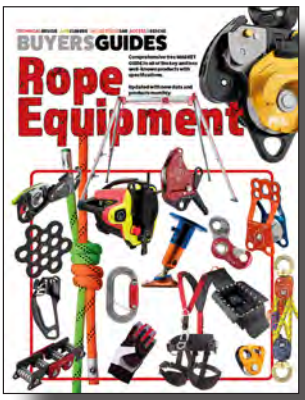

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## KEY TO TABLES:

**CONVERSION RATE USED Q3 '24= 1.31 US$ to the GBP£**
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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.

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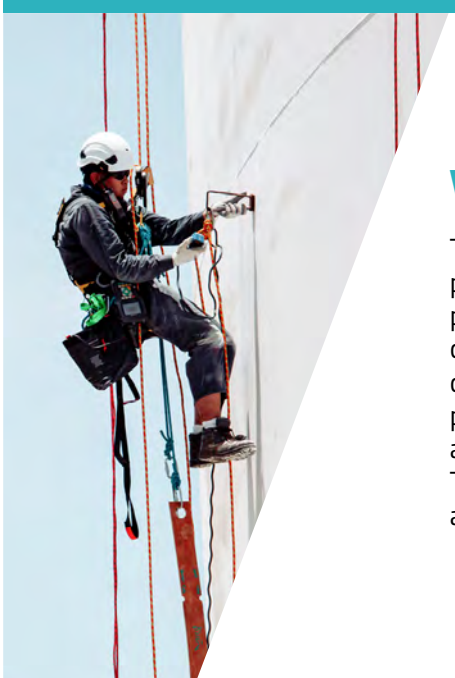

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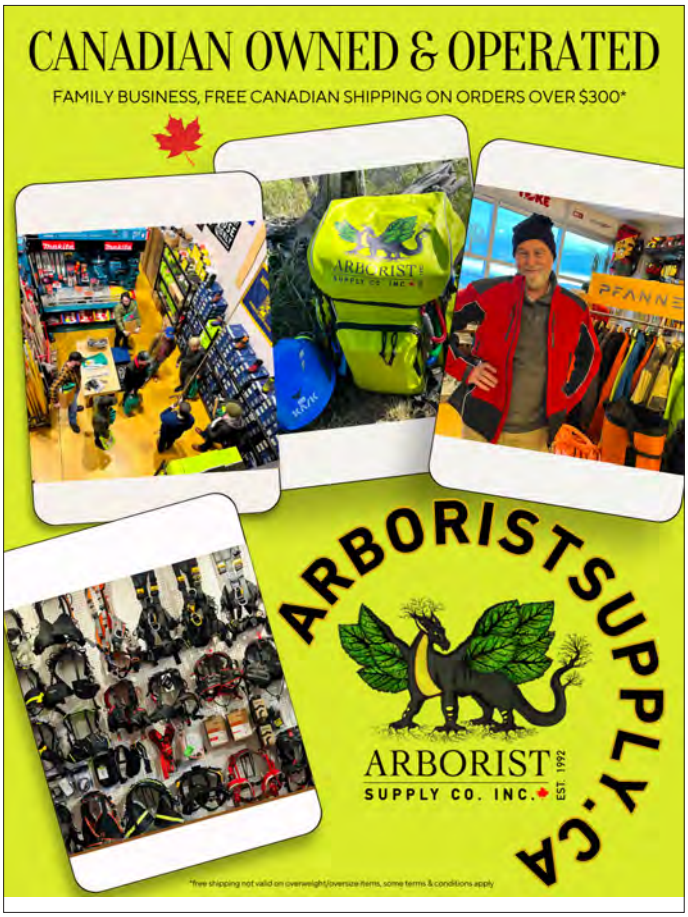
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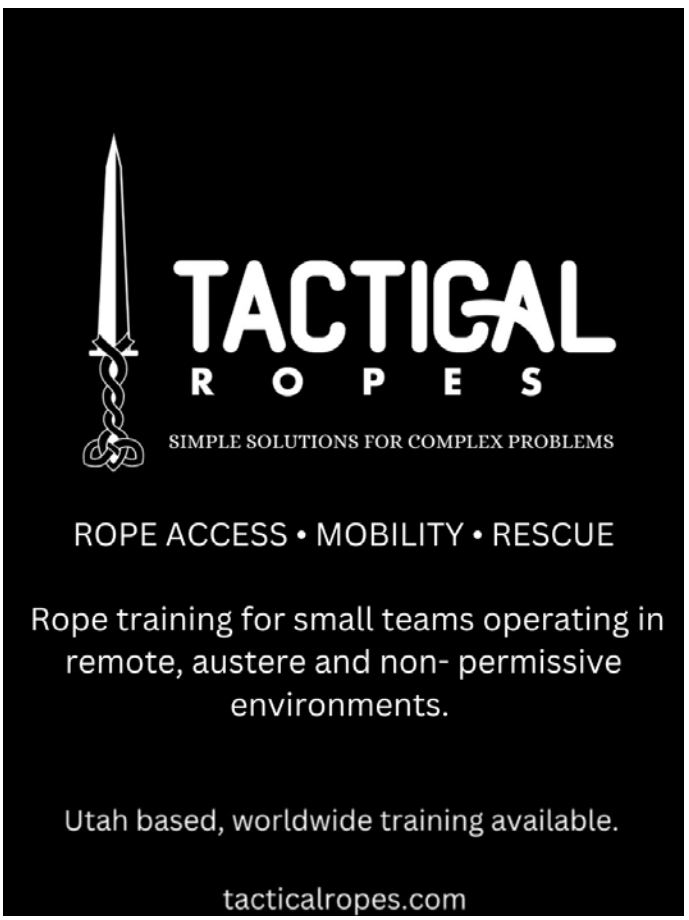
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# HARNESS TOOL CARRIERS

Petzl's PRO version of the CARITOOL 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.

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. *CM*I 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 torqueing - 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

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 CARITOOL* (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.

ABOVE/RIGHT: the *Notch Cargo* can be used flat, spread or angled

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" 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 *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

# UPDATED Jul '25

readily when overloaded so is less of a hang-up risk than the heavier-duty models which can carry a small elephant. Some models have 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 *Reecoil* 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. Skylotecs' *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 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 | | | | | | | | |
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| **MANUFACTURER** | BLACK DIAMOND | BUCKINGHAM | BUCKINGHAM | CAMP | CAMP | CMI | CMI | |
| **MODEL VARIANT** | Ice Clipper<br>--- | 2402G<br>--- | BuckCarrier<br>2402B | Hub<br>--- | Kilo<br>--- | Shembiner<br>--- | Shembiner XL<br>--- | Shen |
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| **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** | 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" | 12<br>4. |
| **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" | ≥ |
| **LOCKING STANDARD** | - | - | - | - | - | - | - | |
| **MATERIAL FRAME<br>GATE** | Plastic<br>Stainless Steel | Polymer<br>Polymer | Alu<br>Alu | Plastic<br>Stainless Steel | AluStainless 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 | | | Web at prev |
| **WEBSITE** | blackdiamondequipment.com | buckinghammfg.com | buckinghammfg.com | camp.it | camp.it | cmigearusa.com | cmigearusa.com | cmig |

# HARNESS TOOL CARRIERS

a more secure, semi-permanent fixing to the harness. DMM's *Parking Lot* (pic-left) 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.

**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 of 'Plastic'. While they are outwardly the same, nylon is a specifically produced DuPont product.

**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.

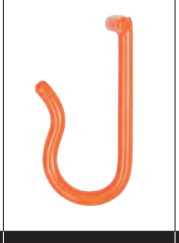
**GATE CLEARANCE**: the physical space between the nose and the spine through which you can fit an item - bent gates will have a larger opening but some don't have a gate at all, being open hooks, so these are good for larger kit and chainsaws.

**FITS to WEB SIZE**: those that simply slot over the top are not as limited as those like the *Vault* or *Camp's Kilo* that have a definite containment area. Rubber keepers are also 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 looked 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-snag precaution. STANDARD: generally none except where the hook is a modified carabiner but ANSI/ISEA 121-2018 – Dropped Object Prevention Solutions will become common.

| CMI | COURANT | COURANT | DMM | DMM | DMM | DMM | EDELRID | EDELRID |
|---|---|---|---|---|---|---|---|---|
| nbiner XLS | Honos sm | Honos lg | Mega Vault | Vault Lock | Vault Wire | Micro Vault | SM Clip 719070001380 | SM Clip 3R 744150000170 |
| 5 $70 €65 | £8 $11 €9 | £17 $22 €18 | £65 $81 €75 | £46 $57 €61 | £35 $45 €47 | £21 $25 €26 | £7 $10 €8 | £9 $12 €11 |
| 60g 4oz | 35g 1.2oz | 82g 2.9oz | 126g 4.5oz | 72g 2.5oz | 61g 2.15oz | 22g 0.8oz | 24g 0.85oz | 41g 1.45oz |
| n/a | 5kg 11lb | 15kg 33lb | 30kg 66lb | 30kg 66lb | 30kg 66lb | 30kg 66lb | 5kg 11lb | 5kg 11lb |
| 31mm 1.22" | 20mm 0.8" | 37mm 1.5" | 46mm 1.8" | 20mm 0.8" | 23mm 0.9" | 12mm 0.5" | 25mm 1" | 33mm 1.3" |
| 1 x 76mm .75 x 3" | 112 x 65mm 4.4 x 2.6" | 150 x 92mm 6 x 3.6" | 147 x 88mm 5.8 x 3.5" | 111 x 56mm 4.37 x 2.2" | 111 x 56mm 4.37 x 2.2" | 68 x 35mm 2.7 x 1.4" | 85 x 58mm 3.35 x 2.3" | 118 x 56mm 4.6 x 2.2" |
| ≥50mm ≥2" | ≥45mm ≥1.75" | ≥45mm ≥1.75" | ≥45mm ≥1.75" | ≥45mm ≥1.75" | ≥45mm ≥1.75" | ≥45mm ≥1.75" | ≤50mm ≤2" | ≤95mm ≤3.7" |
| - | - | ■ | ■ | ■ | - | ■ | - | - - |
| Alu | Glass Fibre Plastic Stainless Steel | Glass Fibre Plastic Stainless Steel | Alu Alu | Alu Alu | Alu Stainless Steel | Alu Alu | Plastic Stainless Steel | Nylon Stainless Steel |
| tachment plate ents rotation | | | | | | fixes with bolts | Made from recycled rope. Rubber web keeper | Web slot kept closed with rubber keeper |
| gearusa.com | mycourant.com | mycourant.com | dmmwales.com | dmmwales.com | dmmwales.com | dmmwales.com | edelrid.com | edelrid.com |

| 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** | EYOLF | GRIVEL | HONEYWELL | HONEYWELL | HUSQVARNA | HUSQVARNA | ISC | |
| **MODEL VARIANT** | Hake | Carryabiner | Chainsaw hook | Ch'saw hook Lg | Carry Hook | Chainsaw Hook | Nessie<br>TC100 | |
| **ORIGIN** | | | | | | | | |
| **COST** (inc VAT/Tax) | £15 $18 €16 | £13 $19 €15 | £51 $50 €49 | £40 $50 €46 | £15 $18 €16 | £12 $17 €15 | £24 $30 €28 | £2 |
| **WEIGHT** | 56g<br>2oz | 63g<br>2.2oz | 260g<br>9.2oz | 190g<br>6.7oz | 25g<br>0.9oz | 65g<br>2.3oz | 52g<br>1.8oz | |
| **MAX LOAD** | n/a | 100kg*<br>220lb | 20kg<br>44lb | 20kg<br>44lb | 5kg<br>11lb | n/a | 10kg<br>22lb | |
| **GATE CLEARANCE** | 33mm<br>1.3" | 27mm<br>1.75" | 50mm<br>2" | 54mm<br>2.1" | 20mm<br>0.8" | 60mm<br>2.4" | 13mm<br>½" | |
| **DIMENSIONS** | 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" | ? | 17<br>6 |
| **FITS to WEB SIZE...** | ≤80mm<br>≤3.15" | ≤45mm<br>≤1.75" | 45mm<br>1.75" | Any | ≤45mm<br>≤1.75" | ≤80mm<br>≤3.15" | ≤50mm<br>≤2" | |
| **LOCKING STANDARD** | - | - CE, UIAA | - | - | - | - | - | |
| **MATERIAL FRAME<br>GATE** | Alu | Hot-forged alu<br>Stainless Steel | Alu<br>Alu | Alu<br>Alu | Glass Fibre<br>Plastic<br>Stainless Steel | Plastic<br>Stainless Steel | Polymer | |
| **NOTES** | 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 forestry rather than arb. Also loop-hook version | For LANYARDS Also Blue, Green or Lime colours | Atta<br>loo |
| **WEBSITE** | eyolf.ca | grivel.com | sps.honeywell.com | sps.honeywell.com | husqvarna.com | husqvarna.com | iscwales.com | |

| 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** | PROTEKT | PROTEKT | REECOIL | ROCK EMPIRE | ROCK EXOTICA | ROCK EXOTICA | SINGING ROCK | SIN |
| **MODEL VARIANT** | TU300 | AY100 | Drill-Grab | Helper | Transporter | TransporterXL | Porter | P |
| **ORIGIN** | | | | | | | | |
| **COST** (inc VAT/Tax) | £5 $7 €8 | £5 $8 €6 | £11 $13 €12 | £6 $8 €7 | £85 $81 €100 | £94 $90 €110 | £7 $12 €8 | £1 |
| **WEIGHT** | 80g<br>2.8oz | 31g<br>1oz | 40g<br>1.4oz | 28g<br>1oz | 95g<br>3.4oz | 142g<br>5oz | 32g<br>1.13oz | |
| **MAX LOAD** | 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 | 5kg<br>11lb | |
| **GATE CLEARANCE** | 27mm<br>1" | 23mm<br>0.9" | 45mm<br>1.75" | 18mm<br>0.7" | 32mm<br>1.25" | 48mm<br>1.9" | 23mm<br>0.9" | |
| **DIMENSIONS** | 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" | 112 x 53mm<br>4.4 x 2.1" | 14<br>5 |
| **FITS to WEB SIZE...** | T=35mm 1.4" wide | ≤60mm<br>≤2.4" | ≤45mm<br>≤1.75" | ≤45mm<br>≤1.75" | ≤50mm<br>≤2" | 145mm<br>5.7" | ≤75mm<br>3" | |
| **LOCKING STANDARD** | - - | - - | - - | - - | ■ | ■ | - - | |
| **MATERIAL FRAME<br>GATE** | Steel | Plastic<br>Stainless Steel | Plastic | Plastic<br>Stainless Steel | Alu<br>Alu | Alu<br>Alu | Plastic<br>Stainless Steel | Stai |
| **NOTES** | Top T-section retains hook within loop | | * Lanyard eye for chainsaw or tool being used | | | 180kg MBS | rubber web keeper | Intro |
| **WEBSITE** | protekt.com | protekt.com | reecoil.com | rockempire.com | rockexotica.com | rockexotica.com | singingrock.com | sing |

# HARNESS TOOL CARRIERS

| KONG | NLG | NOTCH | NOTCH | OMEGA PACIFIC | PETZL | PETZL | PETZL | PETZL |
|---|---|---|---|---|---|---|---|---|
| Owl | Airpark 101717 | Cargo | Swinger 64350 | Deputy+ | CARITOOL Sml | CARITOOL Lg | CARITOOL Evo | Interfast |
| 4 $29 €27 | £24 $29 €27 | £24 $30 €28 | £84 $94 €100 | £30 $36 €34 | £7 $9 €7 | £14 $20 €16 | £12 $15 €14 | £ 12 $15 €14 |
| 68g 2.4oz | 45g 1.5oz | 140g 4.9oz | 136g 4.8oz | 108g 3.8oz | 25g 0.9oz | 75g 2.6oz | 40g 1.4oz | 55g 1.9oz |
| 10kg 22lb | 10kg 22lb | 10kg 22lb | 20kg 44lb | 22.7kg 50lb | 5kg 11lb | 15kg 33lb | 5kg 11lb | 5kg 11lb |
| 17mm 0.7" | 55mm 2.1" | 26mm 1.02" | 26mm 1.02" | 26mm 1.02" | 20mm 0.8" | 45mm 1.75" | 120mm 4.73" | >6mm >0.25" |
| 72 x 92mm 2.8 x 3.6" | 100 x 60mm 4 x 2.4" | 150 x 90mm 5.9 x 3.54 | 137 x 70mm 5.4 x 2.75 | 116.3 x 65mm 4.57 x 2.55" | 114 x 54mm 4.5 x 2.13" | 142 x 80mm 5.6 x 3.15" | 146 x 74mm 5.75 x2.9" | 85 x 45mm 3.4 x 1.75" |
| Any | ≤50mm ≤2" | ≤45mm ≤1.76" | ≤50mm ≤2" | ≤45mm ≤1.76" | ≤45mm ≤1.75" | ≤45mm ≤1.75" | Any | ≤60mm ≤2.4" |
| - | - | - | ■ | - | - | - | - | ■ ANSI/ISEA |
| Alu Alu | Nylon | Plastic Stainless Steel | Alu Alu/Stainless Steel | Alu Alu | Glass Fibre Plastic Stainless Steel | GlassFibre Plastic GFP/ Stainless Steel | Glass Fibre Plastic Stainless Steel | Nylon Nylon |
| aches to eyes/ ops with snap carabiners | | Folds to a single hook or for storage | Gate opens outwards and inwards. Large chainsaw eye | + is a colour variant. Cost is $10 more | | | Fixes with elastic cord | hinged backplate traps belt webbing |
| kong.it | neverletgo.com | notchequipment.com | notchequipment.com | rocknrescue.com | petzl.com | petzl.com | petzl.com | petzl.com |

| GING ROCK | SKYLOTEC | SKYLOTEC | TREEHOG | TREERUNNER | TREERUNNER | TREERUNNER | TEUFELBERGER | TEUFELBERGER |
|---|---|---|---|---|---|---|---|---|
| Porter XL | CT Hammer Lodge | CT Truck | TH1045 | ChSaw Folding | ChainSaw Hook | ChSaw Steel | Sky Hook 7080262 | Sky Hook Open 7080264 |
| 1 $16 €14 | £10 $13 €12 | £9 $11 €10 | £11 $14 €13 | £37 $47 €43 | £34 $42 €39 | £40 $50 €46 | £36 $46 €40 | £29 $35 €33 |
| 80g 2.8oz | 19g 0.7oz | 20g 0.7oz | 31g 1oz | 114g 4oz | 260g 9.2oz | 200g 7oz | 108g 3.8oz | 100g 3.5oz |
| 20kg 44 lb | 5kg 11lb | 5kg 11lb | 5kg 11 lb | 20kg 44 lb | 20kg 44 lb | >20kg >44 lb | 30kg 66 lb | 30kg 66 lb |
| 40mm 1.6" | 25mm 1" | 25mm 1" | 23mm 0.9" | 30mm 1.2" | 50mm 2" | 30mm 1.2" | 30mm 1.2" | 30mm 1.2" |
| 83 x 86mm 3.6 x 3.4" | 101 x 43mm 4 x 1.8" | 108 x 55mm 4.25 x 2.16" | 110 x 50mm 4.3 x 2" | 126 x 70mm 5 x 2.75" | 190 x 120mm 7.5 x 4.7" | 96 x 58mm 3.78 x 2.3" | 75 x 60mm 3 x 2.4" | 75 x 60mm 3 x 2.4" |
| ≤75mm 3" | ≥45mm ≥1.75" | ≥45mm ≥1.75" | ≤50mm 2" | ≤80mm 3.15" | ≤80mm ≤3.15" | ≤50mm ≤2" | ≤45mm ≤1.76" | ≤45mm ≤1.76" |
| - - | - - | - - | - - | - - | - - | - - | - - | - - |
| Plastic nless Steel | Nylon Nylon | Nylon Stainless Steel | Plastic Stainless Steel | Alu Alu | Alu Alu | Alu Stainless Steel | Alu Stainless Steel | Alu Stainless Steel |
| 100kg MBS duced in 2024 | rubber web keeper. Climbing Technology (Italy) owned by Skylotec | rubber web keeper. Climbing Technology (Italy) owned by Skylotec | | can be fixed with bolts | | | | |
| ingrock.com | skylotec.com | skylotec.com | treehog.co.uk | grube.de | grube.de | grube.de | teufelberger.com | teufelberger.com |

**UPDATED Aug '25**

# MULTI-POINT ANCHOR/ RIGGING PLATES

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.

## KNOTLESS RIGGING & RINGS

Originally only seen in rescue stretcher rigs, rigging rings are a multi-use item in arb with the 'engineered' rigging version as distinct from lighter harness rings, introduced as David Driver's excellent *X-Rigging* rings. You can attach multiple carabiners but there's not much 'organising' so we have added rings and 'textile' anchors like the *Notch Backbone* (right), and

**Images in this introduction NOT to scale**

www.arbclimber.com

*HexaRope's Hexa Ring* and *HandsUp* (right) at the end of this Guide. These are basically knot replacements to save you time and give the rope a smoother surface for tightening rather than rigging organisers. There are aslo rigging organisers incorporated into carabiners like this *Grivel Vlad, and* into pulleys like *Rock Exotica*'s huge *Kootenay Carriage* knot-passing pulley and their more diminutive *Hydra* right. Find these in the PULLEYS guide. 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

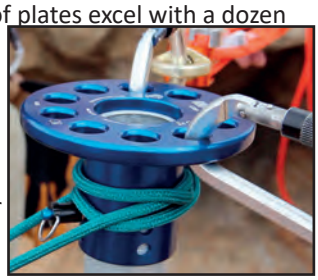
is exceeded. You must treat that MBS figure as the maximum total load that can be **TRANSMITTED** through the plate **via the main collection eye** - therefore, in the 45kN example, if you had 6 eyes evenly connecting to ONE central collection eye, each of those eyes should only be loaded to 750 kg/1650 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, be careful that such 'holes' are actually designed to take load. If they're surrounded



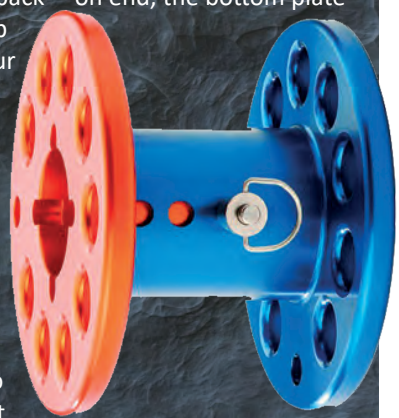
## ROCK EXOTICA

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.

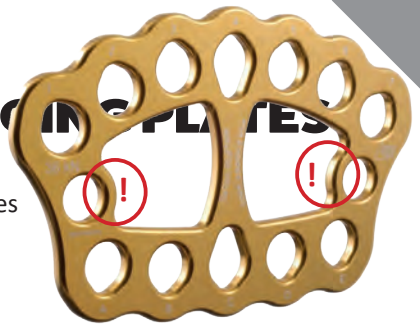
The cubist **UFO** was discontinued a decade ago with the mantle taken up by its lighter cousin the **Rockstar** which enables connection of carabiners in all directions so they are truly 3-dimensional before you even apply a rope. The problem we had with the UFO in particular was the ease with which 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 though 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



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.

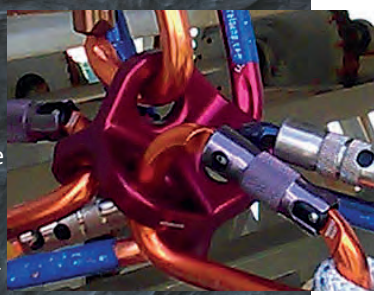
A plate makes a great trolley attachment for connecting pulleys to the main rope and pulleys, control lines to either side and your own array of connections beneath. *ISC*'s photo in the titles shows what we mean by 'trolley organiser'. Of course some pulleys, notably the *Kootenay Carriage* and *DMM*'s '*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 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* (right) . These require carabiners 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 *Neptune*, 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. The French *HexaRing* (top-right) is more of a rope protector and is intended to provide a heavy-duty smooth surface for dropping heavy wood sections (anchor/whoopie on the outside, lowering rope thru the middle). Despite the high MBS, is NOT for human loads and, like the Notch Bone and Hands-UP is more of a knot replacement than a true organiser.



## STANDARDS

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 open-able). 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 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 increase the 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.

# RISK.

## It's there in every rescue. So Rig Radix. Understand Risk. And Shrink It.

This is going to change the way we understand the forces on our rope systems in real time—in time to revise the plan and head off additional danger. Introducing the Harken Radix load monitor. Radix the risk and respond immediately.

Radix is ANSI Z359.12-2019 certified as a connector, and CE 2821 certified as PPE. It's compact. So it's practical to carry in and helps keep rope systems clean. Plus up to sixteen Radix units can reveal data to a single or multiple iOS or Android devices.

*This product complies with regulations (EU) 2016/425 relating to PPE*

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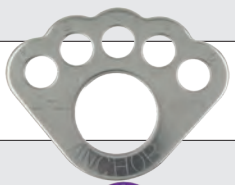
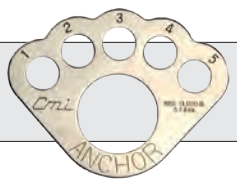
images approximately to scale
£$€=Currency conversion only - no tax/shipping etc.
MBS/MBL Min Break Load approx 10x WLL Working Load Limit
LARGE EYES= largest round /shaped hole - NB: may be cosmetic!
ALU = Aluminium Alloy. ~ = Approximate
● =OK but not ideal

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

# ANCHOR/RIGGING PLATES

| ATE PTH | DIMENSIONS | STANDARDS | MBS approx 10x WWL | MIN HOLE DIAM | SMALLEST DIMENSION of LARGEST EYE | HOLES LARGE EYE(S) | 3D | OTHER COLOURS | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|
| m 2" | 90 x 82mm 3.5 x 3.2" | CE | 40kN 8992 lbf | 20mm 0.75" | 30mm 1.2" | 3 +1 | - | | * Price is retail FOB China so excludes shipping/import duty etc. | en.anpen.net |
| m 2" | 156 x 121mm 6.1 x 4.8" | CE | 50kN 11240 lbf | 20mm 0.75" | 52mm 2" | 4 +1 | - | | * Price is retail FOB China so excludes shipping/import duty etc. | en.anpen.net |
| m 2" | 173 x 113mm 6.8 x 4.5" | CE | 50kN 11240 lbf | 20mm 0.75" | 40mm 1.6" | 5 +1 | - | | * Price is retail FOB China so excludes shipping/import duty etc. | en.anpen.net |
| mm 4" | 158 x 100mm 6.25 x 3.9" | CE | 45kN 10116lbs | 20mm 0.75" | 40mm 1.6" | 7 +1 | - | | * Price is retail FOB China so excludes shipping/import duty etc. | en.anpen.net |
| mm 4" | 173 x 85mm 6.8 x 3.4" | CE | 45kN 10116lbs | 20mm 0.75" | 40mm 1.6" | 7 +1 | - | | * Price is retail FOB China so excludes shipping/import duty etc. | en.anpen.net |
| mm 4" | 247 x 150mm 9.8 x 5.9" | CE | 45kN 10116lbs | 19mm 0.75" | 65mm 2.6" | 13 +2 | - | | * Price is retail FOB China so excludes shipping/import duty etc. | en.anpen.net |
| mm 4" | 90 x 84mm 3.5 x 3.3" | CE NFPA-G | 36kN 809 lbf | 19mm 0.75" | 36mm 1.4" | 3 +1 | - | - | | treehog.co.uk |
| mm 4" | 159 x 100mm 6.25 x 3.9" | CE | 40kN 8993 lbf | 19mm 0.75" | 38mm 1.5" | 7 +1 | - | - | | treehog.co.uk |
| mm 4" | 248 x 149mm 9.8 x 5.9" | CE | 50kN 11240 lbf | 19mm 0.75 | 66mm 2.6" | 13 +1 | - | - | | treehog.co.uk |
| mm 4" | 140 x 126mm 5.5 x 5" | CE UIAA | 60kN 13488lbf | 22mm 0.86" | 52mm 2" | 5 +1 | - | - | | austrialpin.at |
| mm 4" | 188 x 126mm 7.4 x 5" | CE UIAA | 60kN 13488lbf | 22mm 0.86" | 52mm 2" | 9 +1 | - | ■ | | austrialpin.at |
| mm 4" | 328 x 126mm 13 x 5" | CE UIAA | 60kN 13488lbf | 22mm 0.86" | 52mm 2" | 16 +1 | - | ■ | | austrialpin.at |
| m 2" | 83 x 85mm 3.25 x 3.4" | CE | 45kN 10116 lbf | 20mm 0.75" | 30mm 1.2" | 3 +1 | - | - | Also branded as Edelweiss | beal-pro.com |
| mm 4" | 174 x 85mm 6.8 x 3.4" | CE | 45kN 10116 lbf | 20mm 0.75" | 30mm 1.2" | 7 +1 | - | - | | beal-pro.com |
| m 2" | 93 x 72mm 3.6 x 2.8" | CE EAC | 36kN 8093lbs | 19mm 0.75" | 19mm 0.75" | 5 | - | - | | camp.it |
| mm 7" | 149 x 86mm 5.8 x 3.3" | CE EAC | 45kN 10116lbs | 19mm 0.75" | 19mm 0.75" | 8 | - | - | | camp.it |
| mm 7" | 227 x 128mm 8.9 x 5" | CE EAC | 45kN 10116lbs | 19mm 0.75" | 19mm 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!
ALU = Aluminium Alloy. ~ = Approximate
● =OK but not ideal

| | MODEL | COMPANY | ORIGIN | COST | WEIGHT | MATERIAL | PLA DEP |
|---|---|---|---|---|---|---|---|
| | Micro Anchor Plate 300623 | CMC | | £33 $42 €38 | 74g 2.6oz | Alu | 8.2r 0.3 |
| | Anchor Plate 30061 | CMC | | £61 $79 €71 | 204g 7.4oz | Alu | 6.7r 0.2 |
| | Anchor Plate 300615 | CMC | | £71 $93 €83 | 278g 9.8oz | Stainless Steel | 3m 0.1 |
| | AZORP Arizona Omni Rigging Pod | CMC | | £na/770* $343/650* €na/896* | 1400g 3 lb | 7075 Alloy | 12m 0.4 |
| | SQUID | CMC | | £120 $149 €137 | 240g 8.5oz | Alu | 51m 2.0 |
| | RigPlat4 | CMI | | £37 $48 €43 | 91g 3.2oz | Alu | 9.5r 0.37 |
|  | RigPlat1 | CMI | | £78 $101 €90 | 190g 6.7oz | Aircraft Alu | 9.5r 0.37 |
|  | RigPlat2 | CMI | | £83 $108 €97 | 245g 8.6oz | Stainless Steel | 3m 0.1 |
| | Maxi/ RigPlat3 | CMI | | £104 $136 €121 | 500g 1.1 lb | Aircraft Alu | 9.5r 0.3 |
| | Honey Badger | CMI | | £000 $000 €000 | 000g 000lb | Aircraft Alu | 00m 00 |
| | Neptune | CMI | | £125 $163 €145 | 363g 0.8lb | Aircraft Alu | 41m 1.62 |
| | Focus | CONTERRA | | £35 $45 €40 | 270g 9.5oz | Alu | 8.9r 0.3 |
| | Anchor Multiplier Small | COURANT | | £20 $24 €22 | 93g 3.3oz | Alu | 9.8r 0.3 |
| | Anchor Multiplier Med | COURANT | | £32 $39 €37 | 202g 7oz | Alu | 9.5r 0.3 |
| | Anchor Multiplier Large | COURANT | | £67 $81 €76 | 422g 1 lb | Alu | 10m 0.3 |

# ANCHOR/RIGGING PLATES

| TE TH | DIMENSIONS | STANDARDS | MBS approx 10x WWL | MIN HOLE DIAM | SMALLEST DIMENSION of LARGEST EYE | HOLES LARGE EYE(S) | 3D | OTHER COLOURS | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|
| mm 2" | 89 x 70mm 3.5 x 2.75" | NFPA G | 46kN 10341lbf | 16mm 0.6" | 25mm 1" | 3 +1 | - | - | | cmcpro.com |
| mm 6" | 158 x 117mm 6.2 x 4.6" | NFPA G | 45kN 10116lbf | 22mm 0.9" | 51mm 2" | 4 +1 | - | - | | cmcpro.com |
| m 2" | 158 x 117mm 6.2 x 4.6" | NFPA G | 43kN 9666lbf | 22mm 0.9" | 51mm 2" | 4 +1 | - | - | | cmcpro.com |
| nm 7" | 165 x >140mm 6.5 x >5.5" | NFPA G | 67kN 15062lbf | 22mm 0.9" | 50mm 2" | 18 +1 +2 | ■ | - | $650* =AZORP kit 2 rig plates/pins.. Cord and rope can be passed through central spindle. Outer sleeve opening 60mm | cmcpro.com (for North American Sales) |
| nm 0" | 104 x 84mm 4.1 x 3.3" | CE NFPA G*T | TBA | TBA | TBA | 3 | - | - | New 2023 Model * G+ certain configurations only | cmcpro.com |
| mm 75" | 88 x 70mm 3.5 x 2.75" | NO | 89kN 20007lb | 20mm 0.75" | 20mm 0.75" | 4 | - | - | | cmi-gear.com |
| mm 75" | 171 x 127mm 6.75 x 5" | exceeds NFPA G but not certified | 57.8kN 13000lb | 23mm 0.9" | 57mm 2.25" | 5 +1 | - | - | | cmi-gear.com |
| m 25 | 171 x 127mm 6.75 x 5" | exceeds NFPA G but not certified | 57.8kN 13000lb | 23mm 0.9" | 57mm 2.25" | 5 +1 | - | - | | cmi-gear.com |
| mm 75 | 241 x 120mm 9.5 x 4.75" | exceeds NFPA G but not certified | 57kN 13000lb | 20mm 0.75" | 57mm 2.5" | 11 +1 +1* | - | - | * 1 x 3" webbing eye | cmi-gear.com |
| mm " | 000mm 0" | | 00kN 000lbf | 00mm 00" | 00mm 00" | 0 0 | ■ | - | | cmi-gear.com |
| nm 25" | 100mm 4" | | 40.1kN 9000lbf | 14mm 0.55" | 30mm 1.2" | 6 +1 | ■ | - | | cmi-gear.com |
| mm 5" | 152 x 121mm 6 x 4.75" | NFPA G | 40kN 8993lbf | 24mm 0.95" | 30mm 1.2" | 6 +2 | ● | - | | conterra-inc.com |
| mm 8" | 91 x 84mm 3.5 x 3.3" | CE NFPA-G | 36kN 8093lbf | 20mm 3/4" | 36mm 1.4" | 3 +1 | - | ■ | Individually marked | mycourant.com |
| mm 7" | 166 x 108mm 6.5 x 4.25" | CE NFPA G | 40kN 8993lbf | 20mm 0.75"" | 38mm 1.5" | 7 +1 | - | ■ | Individually marked | mycourant.com |
| nm 9" | 249 x 150mm 9.8 x 5.9" | CE NFPA G | 45kN 10116lbf | 20mm 0.75"" | 66mm 2.6" | 13 +1 | - | - | Individually marked | mycourant.com |
| | | | | | | | | | | expansion row |
| | | | | | | | | | | expansion row |

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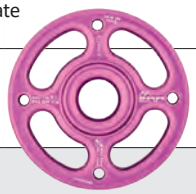
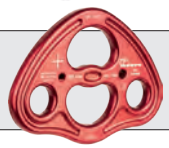
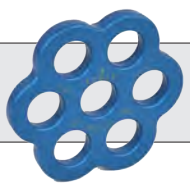
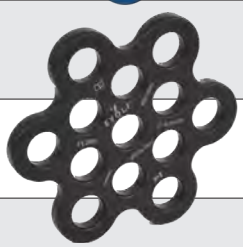
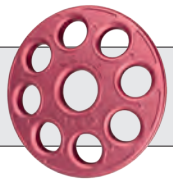
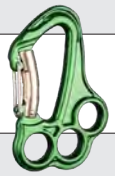
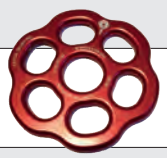
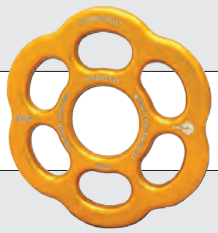
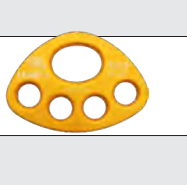
|---|---|---|---|---|---|---|---|
|  | Hub Small | DMM | | £131 $160 €118 | 260g 9.2oz | Alu | * <20 <0 |
|   | Hub Large | DMM | | £191 $290 €240 | 550g 1.2 lb | Alu | * <20 <0 |
| | X Small Bat Plate | DMM | | £30 $38 €40 | 37g 1.3oz | Alu | 8m 0.3 |
|  | Small Bat Plate | DMM | | £51 $30 €65 | 159g 5.5oz | Alu | 10r 0.3 |
| | Medium Bat Plate | DMM | | £66 $66 €85 | 247g 8.6oz | Alu | 10r 0.3 |
| | Large Bat Plate | DMM | | £80 $95 €104 | 322g 11.2oz | Alu | 10r 0.3 |
| | Maggi Rig | EDELRID | | £47 $64 €60 | 140g 4.0oz | Stainless Steel | 10r 0.3 |
| | Mini Rig | EDELRID | | £22 $25 €30 | 62g 2.2oz | Alu | 6m 0.2 |
| | MasterRig II | EDELRID | | £68 $86 €81 | 165g 5.8oz | Alu | 7m 0.2 |
| | Hertz XS | EDELWEISS | | £31 $37 €35 | 36g 1.3oz | Light Alloy | 8m 0.3 |
| | Hertz S | EDELWEISS | | £31 $37 €35 | 92g 3.25oz | Alu | 8m 0.3 |
| | Hertz M | EDELWEISS | | £47 $57 €54 | 188g 6.6oz | Alu | 10r 0.4 |
| | SnoFlake S | EYOLF | | £27 $32 €31 | 73g 0oz | Alu | 10r 0.4 |
|  | SnoFlake M | EYOLF | | £43 $52 €50 | 121g 0oz | Alu | 10r 0.4 |
|  | SnoFlake L | EYOLF | | £59 $71 €68 | 220g 7.8oz | Alu | 10r 0.4 |
| | Little Foot | FUSION CLIMBING | | £16 $17 €20 | 74g 2.6oz | Alu | 8m 0.3 |
| | Big Foot | FUSION CLIMBING | | £25 $19 €30 | 115g 4oz | Alu | 8m 0.3 |

# ANCHOR/RIGGING PLATES

| ATE PTH | DIMENSIONS | STANDARDS | MBS approx 10x WWL | MIN HOLE DIAM | SMALLEST DIMENSION of LARGEST EYE | HOLES LARGE EYE(S) | 3D | OTHER COLOURS | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|
| mm .8" | 119mm 4.7" | CE RFU 11.114 V1 | 45/80kN 10116 lbf 16186 lbf | 16mm 0.63" | 24mm 0.94" | 4** +1 | ■ | ■ | *Reduces to 10mm depth. Individually marked. 80kN load = central eye. ** eyes for web/rope 45mm wide. 4x 6mm eyes aesthetic only | dmmprofessional.com |
| mm .8" | 169mm 6.6" | CE RFU 11.114 V1 | 150/45kN 10116lbf 33721lbf | 19mm 0.75" | 48mm 1.9" | 4 +1 +4* | ■ | ■ | * Plate thickness reduces to 10mm. Individually marked. 80kN load = central eye. * web eyes 43mm wide | dmmprofessional.com |
| m 1" | 62 x 62mm 2.4 x 2.4" | CE RFU 11.114 V1 | 36kN 8093lbf | 15mm 0.6" | 17mm 0.7" | 3 +1 | - | ■ | Individually marked. Large eye 27mm wide | dmmprofessional.com |
| mm 9" | 129 x 95mm 5 x 3.7" | CE RFU 11.114 V1 | 60kN 13,200lbs | 19mm 0.75" | 25mm 1" | 2 +2 +2* | - | ■ | *2 bolt holes for connecting plates together. Individually marked. Large eye 40mm wide | dmmprofessional.com |
| mm 9" | 189 x 97mm 7.4 x 3.8"' | CE RFU 11.114 V1 | 60kN 13,200lbs | 19mm 0.75" | 25mm 1" | 6 +2 +2* | - | ■ | *2 bolt holes for connecting plates. Individually marked. Narrow plate profile for restrictive spaces. Large eye 40mm wide | dmmprofessional.com |
| mm 9" | 249 x 99mm 9.8 x 3.9"' | CE RFU 11.114 V1 | 60kN 13,200lbs | 19mm 0.75" | 25mm 1" | 10 +2 +2* | - | ■ | *2 bolt holes for connecting plates. Individually marked. Narrower plate profile for restrictive spaces. Large eye 40mm wide | dmmprofessional.com |
| mm 9" | 60 x 60mm 2.4 x 2.42 | CE CNB/P 11.114 pfE | 70kN 15,737lbf | 20mm 0.75" | 20mm 0.75" | 4 | - | - | two plates riveted together for maximum redundancy | edelrid.de |
| m 5" | 101 x 83mm 4 x 3.25" | CE | 36kN 8093 lbf | 20mm 0.75" | 30mm 1.2" | 3 +1 | - | - | Hot-forged update of previous flat-plate design still available from some outlets | edelrid.de |
| m 7" | 149 x 98mm 5.9 x 3.9" | CE | 50kN 11240lbf | 20mm 0.75" | 30mm 1.2" | 7 +1 | - | - | Hot-forged update of MasterRig I, a flat-plate design still available from some outlets | edelrid.de |
| m 2" | 62 x 61mm 2.4 x 2.4" | CE | 36kN 8093 lbf | 15mm 0.6" | 17mm 0.7" | 3 +1 | - | - | | edelweiss-ropes.com |
| m 2" | 83 x 85mm 3.25 x 3.4" | CE | 45kN 10116 lbf | 20mm 0.75" | 25mm 1" | 3 +1 | - | - | | edelweiss-ropes.com |
| mm 4" | 174x85mm 6.8 x 3.4" | CE | 45kN 10116 lbf | 20mm 0.75" | 25mm 1" | 7 +1 | - | - | | edelweiss-ropes.com |
| mm 4" | 90 x 70mm 3.5 x 2.75" | CE | 36kN 8093lbf | 20mm 0.75" | 20mm 0.75" | 4 | - | ■ | | eyolf.ca |
| mm 4" | 100mm 4" | CE | 36kN 8093lbf | 20mm 0.75" | 20mm 0.75" | 7 | - | ■ | | eyolf.ca |
| mm 4" | 145mm 5.7" | CE | 36kN 8093lbf | 20mm 0.75" | 20mm 0.75" | 13 | - | ■ | | eyolf.ca |
| m 3" | 89 x 82mm 3.25 x 3.24" | CE | 30kN 6744lbf | 19.75mm 0.78" | 35.5mm 1.4" | 3 +1 | - | ■ | | fusionclimb.com |
| m 3" | 152 x 120mm 6 x 4.7" | CE | 40kN 8992 lbf | 23mm 0.9" | 51mm 2" | 4 +1 | - | ■ | | fusionclimb.com |

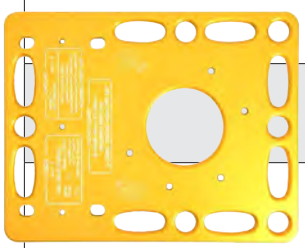
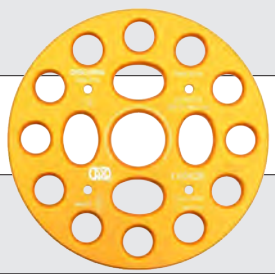
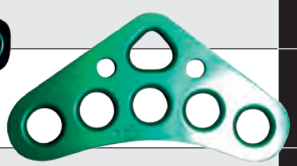
images approximately to scale
£$€=Currency conversion only - no tax/shipping etc.
MBS/MBL Min Break Load approx 10x WLL Working Load Limit
LARGE EYES= largest round /shaped hole - NB: may be cosmetic!
ALU = Aluminium Alloy. ~ = Approximate
● =OK but not ideal

| | MODEL | COMPANY | ORIGIN | COST | WEIGHT | MATERIAL | PLA DEP |
|---|---|---|---|---|---|---|---|
| | Tris | GRIVEL | | £12<br>$14<br>€13 | 39g<br>1.4oz | Alu | 10m<br>0.3 |
|  | Four | GRIVEL | | £14<br>$17<br>€16 | 55g<br>1.9oz | Alu | 10m<br>0.3 |
|  | Nine | GRIVEL | | £19<br>$23<br>€22 | 149g<br>5.3oz | Alu | 10m<br>0.3 |
| | Vlad | GRIVEL | | £33<br>$40<br>€35 | 90g<br>3.2oz | Alu | - |
| | Shuttle | GRIVEL | | £19<br>$18<br>€17 | 86g<br>3oz | Alu | 10m<br>0.3 |
| | Origin TT | HARKEN | | £270<br>$250<br>€320 | 521g<br>18.4oz | Alu & Stainless Steel | 12.7<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 | 10m<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 |
|  | 3-Rig | KONG | | £23<br>$28<br>€26 | 95g<br>0oz | Alu | 10m<br>.39 |
|  | 4-Rig | KONG | | £27<br>$34<br>€32 | 150g<br>0oz | Alu | 10m<br>0.3 |
|  | | | | | | | |

# ANCHOR/RIGGING PLATES

| TE TH | DIMENSIONS | STANDARDS | MBS approx 10x WWL | MIN HOLE DIAM | SMALLEST DIMENSION of LARGEST EYE | HOLES LARGE EYE(S) | 3D | OTHER COLOURS | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | expansion row |
| nm 9" | 60 x 60mm 2.4 x 2.4" | CE | 29kN 6519 lbf | 19mm 0.75" | 19mm 0.75" | 3 | ● | - | | grivel.com |
| nm 9" | 79 x 59mm 3.1 x 2.3" | CE | 30kN 6744 lbf | 19mm 0.75" | 19mm 0.75" | 4 | ● | - | Concave profile, Individually marked. | grivel.com |
| nm 9" | 104mm 4.1" | CE | 30kN 6744 lbf | 19mm 0.75" | 25mm 1" | 8 +1 | ● | - | Concave profile, Individually marked | grivel.com |
| | 120 x 82mm 4.7 x 3.2 | CE | 12*-30kN 6744lbf | 22mm 0.9" | 22mm** 0.9" | 3 +1 | - | - | *Minor axis - loading across the gate. Double gate with 15mm opening. **round bar capacity | grivel.com |
| nm 9" | 125 x 87mm 4.9 x 3.4" | CE UIAA | 20kN 4496 lbf | 19mm 0.75" | 13mm 0.5" | 3 +1 +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 |
| mm 5" | 190x114mm 7.5 x 4.5" | CE NFPA G UKCA | 45kN 10116lbf | n/a | n/a | 4 +3 | - | - | See also SMC/Harken | harken.com |
| mm 8" | 91 x 84mm 3.5 x 3.3" | CE NFPA-G | 36kN 8093 lbf | 20mm 0.75" | 36mm 1.4" | 3 +1 | - | - | Individually marked. | iscwales.com |
| mm 7" | 166 x 108mm 6.5 x 4.25" | CE NFPA G | 40kN 8993 lbf | 20mm 0.75" | 38mm 1.5" | 7 +1 | - | - | Individually marked. | iscwales.com |
| nm 9" | 249 x 150mm 9.8 x 5.9" | CE NFPA G | 45kN 10116 lbf | 20mm 0.75" | 66mm 2.6" | 13 +1 | - | - | Individually marked. | iscwales.com |
| mm 1" | 115mm 4.5" | CE NFPA G | 40kN 8992 lbf | 20mm 0.75" | 29mm 1.14" | 6 +1 | ■ | - | Individually marked. Outer eyes are 27mm/1" wide | iscwales.com |
| mm 8" | 144mm 5.72" | CE NFPA G | 50kN 11240 lbf | 25mm 1" | 39mm 1.5" | 6 +1 | ■ | - | Individually marked. Outer eyes are 36mm/1.4" wide | iscwales.com |
| mm 5" | 165mm 6.5" | CE NFPA G | 70kN 15736 lbf | 28mm 1.1" | 52mm 2" | 6 +1 | ■ | - | Individually marked. Outer eyes are 39mm/1.5" wide | iscwales.com |
| nm 9" | 96 x 76mm " | CE | 36kN 8093 lbf | 20mm 0.75" | 24mm 0.95" | 3 +1 | ● | - | Stronger version-replaced the Tris | kong.it |
| nm 9" | 125.5 x 90mm " | CE | 36kN 8093 lbf | 20mm 0.75" | 32mm 1.25" | 4 +1 | ● | - | Stronger version-replaced the Poker | kong.it |
| | | | | | | | | | | expansion row |
| | | | | | | | | | | expansion row |

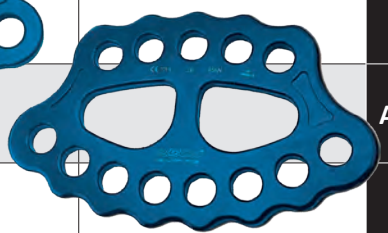
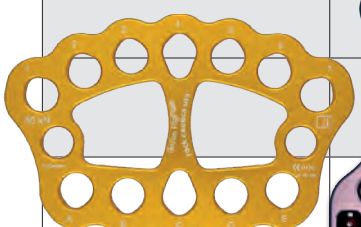
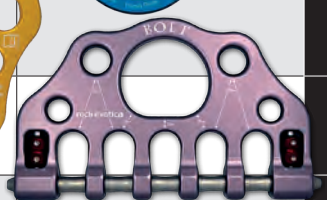
images approximately to scale
£$€=Currency conversion only - no tax/shipping etc.
MBS/MBL Min Break Load approx 10x WLL Working Load Limit
LARGE EYES= largest round /shaped hole - NB: may be cosmetic!
ALU = Aluminium Alloy. ~ = Approximate
● =OK but not ideal

| | MODEL | COMPANY | ORIGIN | COST | WEIGHT | MATERIAL | PLA DEP |
|---|---|---|---|---|---|---|---|
| | Full | KONG | | £34 $42 €39 | 90g 3.2oz | Alu | 10m 0.3 |
| | Rally | KONG | | £38 $40 €36 | 180g 6.3oz | Alu | 10m 0.3 |
| | Rally Bent | KONG | | £24 $36 €30 | 180g 6.3oz | Alu | 10m 0.3 |
|  | BigRig | KONG | | £243 $302 €280 | 1.5kg 3.3lb | Alu | 10m 0.3 |
|  | DiscoRig | KONG | | £68 $86 €74 | 390g 13.75oz | Alu | 10m 0.3 |
| | 3 Hole FA6003605 | KRATOS SAFETY | | £28 $35 €32 | 53g 1.9oz | Alu | 6m 0.2 |
| | 5-Hole FA6003605 | KRATOS SAFETY | | £34 $42 €40 | 210g 7.4oz | Alu | 7m 0.2 |
| | Stretcher | MSA | | £92 $120 €107 | 330g 11.6oz | Alu | 8.6 0.3 |
|  | Stealth | MSA | | £69 $90 €81 | 250g 8.7oz | Alu | 8m 0.3 |
| | Hec | ONBOARD SYSTEMS | | n/a | 1.75lb 0.8kg | Stainless Steel | n/ |
| | | | | | | | |
| | | | | | | | |

# ANCHOR/RIGGING PLATES

| TE TH | DIMENSIONS | STANDARDS | MBS approx 10x WWL | MIN HOLE DIAM | SMALLEST DIMENSION of LARGEST EYE | HOLES LARGE EYE(S) | 3D | OTHER COLOURS | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|
| nm 9" | 125 x 90mm 4.9 3.5" | CE | 30kN 6744 lbf | 20mm 0.75" | 20mm 0.75" | 3 +1 +2* | ■ | ■ | Also a fully capable belay plate/ descender *Slots for single or double ropes 8-12mm Large eye 30m wide | kong.it |
| nm 9" | 160 x 56mm | CE | 36kN 8093 lbf | 20mm 0.75" | 20mm 0.75" | 10 | - | - | | kong.it |
| nm 9" | 139.5 x 56mm | CE | 36kN 8093 lbf | 20mm 0.75" | 20mm 0.75" | 10 | - | - | | kong.it |
| nm 9" | 295 x | CE | 36kN 8093 lbf | 20mm 0.75" | 50mm 2" | 5 8xoval +1 +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 |
| nm 9" | 187mm | CE | 36kN 8093 lbf | 20mm 0.75" | 38mm 1.5" | 12 +5 | ■ | - | | kong.it |
| m 5" | 103 x 83mm 4 x 3.25" | CE NFPA | 36kN 8093 lbf | 19mm 0.75" | 25mm 1" | 3 +1 | - | - | | kratossafety.com |
| m 8" | 149 x 98mm 5.9 x 3.8" | CE NFPA | 45kN 10116 lbs | 19mm 0.75" | 27mm 1.1" | 7 +1 | - | - | | kratossafety.com |
| mm 4 " | 254 x 95mm 10 x 3.75" | NFPA G | 54kN 12200lbs | 25mm 1" | 25mm 1" | 10 +2* | - | - | * 2 accessory eyes | msanet.com |
| m 2" | 184 x 89mm 7.25 x 3.5" | NFPA G | 48kN 11000lbs | 22mm 0.8" | 24mm 0.93" | 4 +1 +2* | - | - | * 2 accessory eyes | msanet.com |
| a | n.a | FAA | 3.56kN 800lbf | n/a | n/a | 6 +2 | - | - | specialist item for military and civil aircraft industries (FAA) | onboardsystems.com |
| | | | | | | | | | | expansion row |
| | | | | | | | | | | 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!
ALU = Aluminium Alloy. ~ = Approximate
● =OK but not ideal

| | MODEL | COMPANY | ORIGIN | COST | WEIGHT | MATERIAL | PLA DEP |
|---|---|---|---|---|---|---|---|
| | Paw S | PETZL | | £26 $32 €29 | 60g 2.1oz | Alu | 6m 0.2 |
| | Paw M | PETZL | | £46 $55 €54 | 210g 7.4oz | Alu | 6m 0.2 |
| | Paw L | PETZL | | £72 $83 €83 | 350g 12.3oz | Alu | 10m .39 |
| | RSI Anchor Plate 603210 | RESCUE SYSTEMS inc | | £55 $71 €68 | 211g 8oz | Alu | 10m .39 |
| | Micro | RESCUE TECHNOLOGY | | £26 $33 €30 | 93g 3.3oz | Alu | 9.8m 0.3 |
| | Tech.Rescue 603215 | RESCUE TECHNOLOGY | | £39 $51 €50 | 202g 7oz | Alu | 9.5m 0.3 |
| | Magnum 603216 | RESCUE TECHNOLOGY | | £85 $103 €92 | 422g 16oz | Alu | 10m 0.3 |
| | RIT Rigging Plate | RIT SAFETY SOLUTIONS | | £44 $53 €50 | n/a | Alu | 8m 0.3 |
| | Anchor Plate 1:3 | ROCK EMPIRE | | £26 $32 €30 | 73g 2.6oz | Alu | 6m 0.2 |
| | Anchor Plate 3:5 | ROCK EMPIRE | | £39 $49 €46 | 240g 8.5oz | Alu | 10m 0.3 |
|  | Anchor Plate 5:8 | ROCK EMPIRE | | £70 $87 €82 | 500g 1.1 lb | Alu | 10m 0.3 |
| | Tri Rig RP1 | ROCK EXOTICA | | £20 $34 €40 | 51g 1.8oz | 7075 Alu | 8.9m 0.3 |
| | Penta Plate RP2 | ROCK EXOTICA | | £59 $55 €63 | 108g 3.8oz | 7075 Alu | 8.9m 0.3 |
|  | Se7en RP3 | ROCK EXOTICA | | £66 $74 €95 | 376g 13.3oz | 7075 Alu | 9.7m 0.3 |
|  | Bolt RP5 | ROCK EXOTICA | | £124 $155 €145 | 489g 1.07 lb | Alu + St Steel pin | 12m 0.4 |
| | Rock Star RP22 | ROCK EXOTICA | | £125 $140 €178 | 209g 7.4oz | Alu | 11.3 0.4 |

# ANCHOR/RIGGING PLATES

| ATE PTH | DIMENSIONS | STANDARDS | MBS approx 10x WWL | MIN HOLE DIAM | SMALLEST DIMENSION of LARGEST EYE | HOLES LARGE EYE(S) | 3D | OTHER COLOURS | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|
| m 4" | 96 x 75mm 3.8 x 2.95" | CE, NFPA G UKCA | 36kN 8093lbf | 19mm 0.75" | 24mm 0.93" | 3 +1 | - | ■ | Previous version also in red | petzl.com |
| m 4" | 160 x 90mm 6.3 x 3.5" | CE, NFPA G UKCA | 36kN 8093 lbf | 19mm 0.75" | 35mm 1.4" | 7 +1 | - | ■ | Individually marked. Large eye 40mm wide Previous version also in blue | petzl.com |
| nm 9" | 221 x 120mm 8.7 x 4.7" | NFPA G | 36kN 8093 lbf | 19mm 0.75" | 35mm 1.4" | 12 +2 | - | ■ | Individually marked. Voids not to be used | petzl.com |
| nm 9" | 178 x 137mm 7 x 5.4" | CE, NFPA G UKCA | 48kN 11000 lbf | 20mm 0.75" | 36mm 1.4" | 5 +1* | - | ■ | *+1 central slot - can be used as brake-plate for 1/2" rope | petzl.com |
| mm 8" | 91 x 84mm 3.5 x 3.3" | CE NFPA-G | 36kN 8093 lbf | 20mm 0.75" | 36mm 1.4" | 3 +1 | - | - | Individually marked. | rescuetech1.com |
| mm 7" | 166 x 108mm 6.5 x 4.25" | CE NFPA G | 40kN 8993 lbf | 20mm 0.75" | 38mm 1.5" | 7 +1 | - | - | Individually marked. | rescuetech1.com |
| nm 9" | 249 x 150mm 9.8 x 5.9" | CE NFPA G | 45kN 10116 lbf | 20mm 0.75" | 66mm 2.6" | 13 +2 | - | - | Individually marked. Large central eyes not intended for load | rescuetech1.com |
| m 2" | 121 x 83mm 4.75 x 3.25" | NFPA G | 55kN 12365 lbf | 22mm 0.8" | 25mm 1" | 3 +1 | - | - | Apex eye is slightly larger at just over 25mm. Large eye is 35mm wide | ritsafetysolutions.com |
| m 4" | 80 x 65mm 3.2 x 2.6" | CE | 33kN 7419 lbf | 20mm 0.75" | 22mm 0.9" | 1 +3 | - | - | Individually marked. | rockempire.cz |
| nm 9" | 159 x 100mm 6.25 x 3.9" | CE | 40kN 8993 lbf | 20mm 0.75" | 38mm 1.5" | 7 +1 | - | - | Individually marked. | rockempire.cz |
| nm 9" | 248 x 149mm 9.8 x 5.9" | CE | 50kN 11240lbf | 20mm 0.75" | 66mm 2.6" | 13 +2 | - | - | Individually marked. Large central eyes not intended for load | rockempire.cz |
| mm 5" | 84 x 72mm 3.3 x 2.8" | CE | 33kN 7419lbf | 19mm 0.75" | 25.4mm 1" | 3 +1 | - | - | All Rock Exotica plates are machined flat from oversized material | rockexotica.com |
| mm 9" | 123 x 101mm 4.9 x 4" | CE NFPA G | 36kN 8093lbf | 19mm 0.75" | 57mm 2.25" | 5 +1 | - | - | V5 Discontinued | rockexotica.com |
| mm 7" | 238 x 152mm 9.4 x 6" | CE NFPA G | 36kN 8093lbf | 22mm 0.87" | 24mm 0.93" | 12* +2 +2 | - | ● | Original Large Rig-Plate. *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 |
| nm 7" | 203 x 127mm 8 x 5" | NO | 36kN 8093lbf | 19mm 0.75" | 53mm 2.1" | 9 +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 |
| mm 5" | 75 x 93mm 3 x 3.7" | CE NFPA G | 36kN 8093lbf | 20mm 0.77" | 20mm 0.77" | 9 | ■ | | Rockstar and UFO are machined from a solid lump of alloy | rockexotica.com |
| | | | | | | | | | | expansion row |

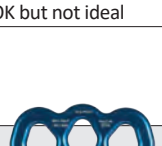
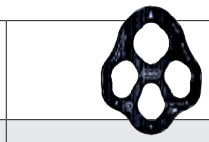
images approximately to scale
£$€=Currency conversion only - no tax/shipping etc.
MBS/MBL Min Break Load approx 10x WLL Working Load Limit
LARGE EYES= largest round /shaped hole - NB: may be cosmetic!
ALU = Aluminium Alloy. ~ = Approximate
● =OK but not ideal

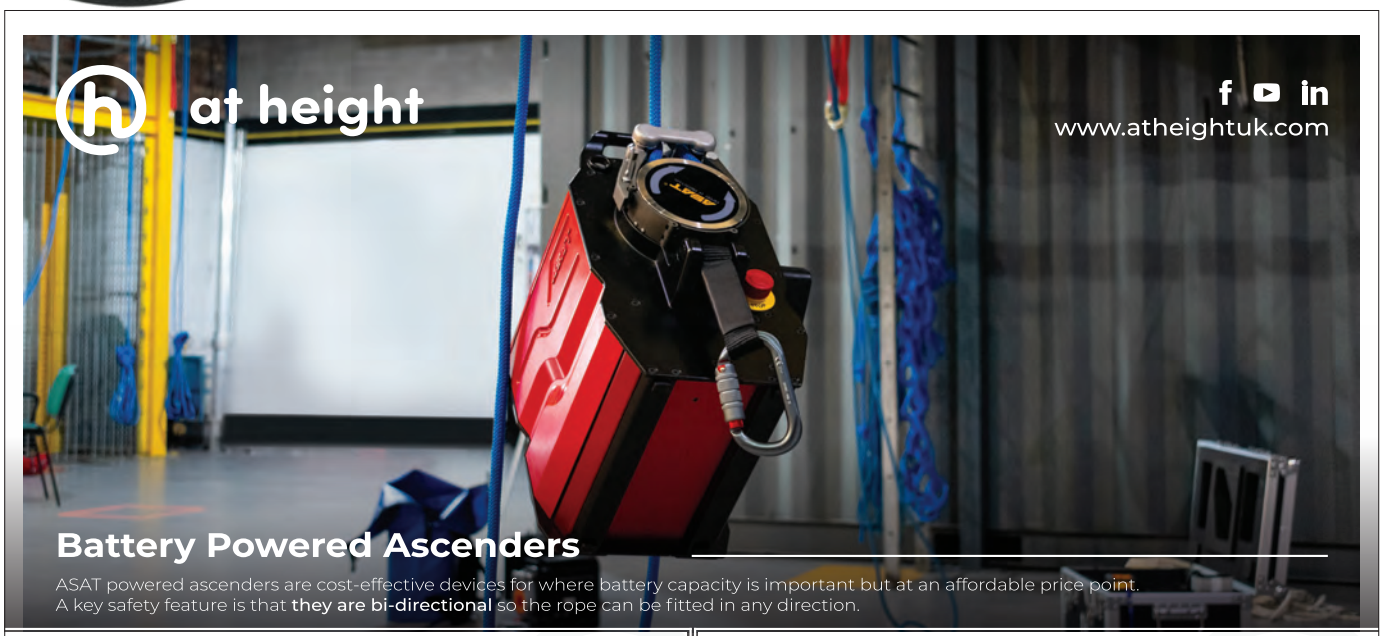
| MODEL | COMPANY | ORIGIN | COST | WEIGHT | MATERIAL | PLA DEP |
|---|---|---|---|---|---|---|
| Totem F10 | ROCK EXOTICA | | £40 $48 €45 | 128g 4.5oz | Alu | 10r 0.3 |
| Totem CRT DISCONTINUED | ROCK EXOTICA/ RICH CARLSON | | £40 $48 €46 | 278g 9.8oz | Alu | 12r 0.4 |
| AZORP | ROCK EXOTICA | | £281 $343 €897 | 1400g 3 lb | 7075 Alu | 12r 0.4 |
| SMALL RS015 | SAR PRODUCTS | | £20 >$27 >€24 | 93g 3.3oz | Alu | 9.8r 0.3 |
| MEDIUM RS016 | SAR PRODUCTS | | £29 $38 €34 | 202g 7oz | Alu | 9.5r 0.3 |
| LARGE RS017 | SAR PRODUCTS | | £61 $80 €71 | 422g 14.8oz | Alu | 10r 0.3 |
| SpiderPlate | SHIZLL | | £30 $40 €39 | 55g 1.9oz | Alu | 10r 0.3 |
| Big Spider | SHIZLL | | £40 $65 €52 | 134g 4.7oz | Alu | 14r 0.5 |
| Rigging Plate 1/3 RK713BB00 | SINGING ROCK | | £38 $30 €27 | 65g 2.3oz | Alu | 6m 0.2 |
| Rigging Plate 3/5 RK714BB00 | SINGING ROCK | | £50 $75 €65 | 145g 5.1oz | Alu | 8m 0.3 |
| Rigging Plate 5/7 RK717BB00 | SINGING ROCK | | £70 $115 €85 | 285g 10oz | Alu | 10r 0.3 |
| Cheese Plate S | SKYLOTEC | | £48 $34 €55 | 75g 2.6oz | Alu | 6m 0.2 |
| Cheese Plate L | SKYLOTEC | | £95 $116 €90 | 160g 5.6oz | Alu | 7m 0.2 |
| Genesis | SLACK-TECH | | £78 $95 €90 | 304g 10.7oz | Alu | 20m 0.8 |

# ANCHOR/RIGGING PLATES

| ATE PTH | DIMENSIONS | STANDARDS | MBS approx 10x WWL | MIN HOLE DIAM | SMALLEST DIMENSION of LARGEST EYE | HOLES LARGE EYE(S) | 3D | OTHER COLOURS | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|
| mm 9" | 190 x 64mm 7.5 x 2.5" | NO | 30kN 6744lbf | 18mm 0.72 | 44mm 1.7" | 2 +2* +1 | ● | | *Accepts 10.5-13mm ropes for abseil/belay with carabiner adjunct. elliptical eyes 26 x 18mm | rockexotica.com |
| mm 7" | 216 x 121mm 8.5 x 4.8" | NO | 36kN 8093lbf | 21mm 0.8" | 48mm 1.9" | 3 +2* +2 | ● | | DISCONTINUED *Accepts 10.5-13mm ropes. Two fabric/rope rigging bollards. Rich Carlson design. | canyonsandcrags.com |
| mm 7" | 165 x >140mm 6.5 x >5.5" | NFPA G | 67kN 15062lbf | 22mm 0.9" | 50mm 2" | 18 +1 +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 cmcrescue.com |
| mm 8" | 91 x 84mm 3.5 x 3.3" | CE NFPA-G | 36kN 8093lbf | 20mm 3/4" | 36mm 1.4" | 3 +1 | - | - | Individually marked. | sarproducts.com |
| mm 7" | 166 x 108mm 6.5 x 4.25" | CE NFPA G | 40kN 8993lbf | 20mm 3/4" | 38mm 1.5" | 7 +1 | - | - | Individually marked. | sarproducts.com |
| mm 9" | 249 x 150mm 9.8 x 5.9" | CE NFPA G | 45kN 10116lbf | 20mm 3/4" | 66mm 2.6" | 13 +1 | - | - | Individually marked. | sarproducts.com |
| mm 9" | 58 x 58mm 2.3 x 2.3" | Machinery Directive '06 | 50kN 11240lbf | 14mm 0.5" | 14mm 0.5" | 4 | ■ | | Accepts 12-13mm rope. Individually marked. *MBS equates to use with carabiners/ webbing. Rope-only connection = 25kN | shizll.com |
| mm 5" | 76 x 76mm 3 x 3" | Machinery Directive '06 | 100kN* 22480lbf | 17mm 0.7" | 17mm 0.7" | 4 | ■ | | accepts 14-16mm rope. Individually marked. *MBS equates to use with carabiners/ webbing. Rope-only connection = 50kN | Shizll.com |
| m 5" | 100 x 82mm 4 x 3.25" | CE | 36kN 8093lbf | 20mm 0.75" | 26mm 1" | 3 +1 | - | - | Individually marked | singingrock.com |
| m 3" | 153 x 88mm 6 x 3.5" | CE | 50kN 11240lbf | 20mm 0.75" | 26mm 1" | 7 +1 | - | - | Individually marked | singingrock.com |
| mm 8" | 226 x 94mm 8.9 x 3.7" | CE | 55kN 11240lbf | 19mm 0.75" | 32mm 1.26" | 10 +2 | - | - | Individually marked | singingrock.com |
| m 5" | 103 x 83mm 4 x 3.25" | CE | 36kN 8093lbf | 20mm 0.75" | 30mm 1.2" | 3 +1 | - | ■ | Individually marked. CLIMBING TECHNOLOGY now owned by SKYLOTEC | skylotec.com climbingtechnology.com |
| m 8" | 149 x 98mm 5.9 x 3.8" | CE | 45kN 10116lbs | 20mm 0.75" | 30mm 1.2" | 7 +1 | - | ■ | Individually marked. CLIMBING TECHNOLOGY now owned by SKYLOTEC | skylotec.com climbingtechnology.com |
| mm 8" | 152 x 122mm 6 x 4.8" | No | 70kN 15736 lbf | 20mm 0.8" | 40mm 1.57" | 3 +1 +3* | ■ | | * 3 Webbing eyes Designed for Slack-lining/ Tight-rope walking! Largest eye 42mm wide. | slacklinetechnology.com |
| | | | | | | | | | | expansion row |
| | | | | | | | | | | expansion row |
| | | | | | | | | | | 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!
ALU = Aluminium Alloy. ~ = Approximate
● =OK but not ideal

| | MODEL | COMPANY | ORIGIN | COST | WEIGHT | MATERIAL | PLA DEP |
|---|---|---|---|---|---|---|---|
|   | NFPA Mini | SMC/HARKEN | | £26 $31 €30 | 79g 2.8oz | Alu | 9m 0.3 |
| | Origin 5 | SMC/HARKEN | | £27 $33 €31 | 113g 4oz | Alu | 9.5 0.3 |
| | NFPA Large | SMC/HARKEN | | £47 $57 €54 | 323g 11.4oz | Alu | 127 0.5 |
| | Origin 8 | SMC/HARKEN | | £45 $55 €52 | 264g 9.3oz | Alu | 127 0.5 |
| | Vector | SMC/HARKEN | | £39 $47 €45 | 168g 5.9oz | Alu | 127 0.5 |
| | TF-CD404 | TREE-FORCE | | £25 $35 €33 | 240g 8.5oz | Alu | 10r 0.3 |
| | Mini Rigger 1012 | YATES | | £41 $50 €47 | 130g 4.7oz | 6061 T6 Alu | 10r 0.3 |
| | Rescue Rigger 1015 | YATES | | £46 $56 €53 | 243g 8.6oz | 6061 T6 Alu | 10r 0.3 |




ACE 22
**Personal Device**

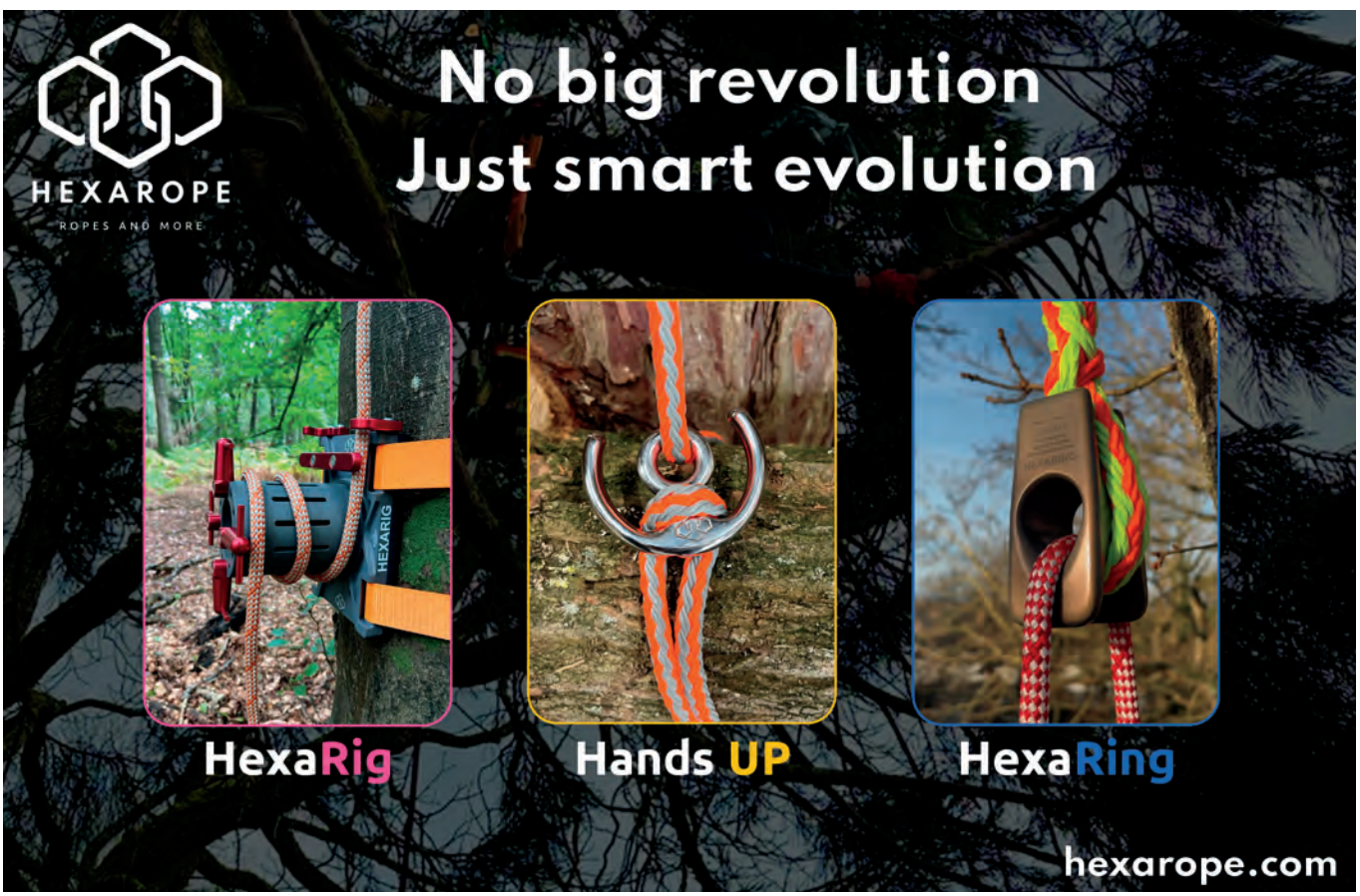
ACE22 is a compact lightweight 'personal' device, weighing 11kg. It has an expected battery life of 350m general use @ 140kg load and a maximum rated load of 180kg.
It features a remote control function including two-way communication.

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.

# ANCHOR/RIGGING PLATES

| ATE PTH | DIMENSIONS | STANDARDS | MBS approx 10x WWL | MIN HOLE DIAM | SMALLEST DIMENSION of LARGEST EYE | HOLES LARGE EYE(S) | 3D | OTHER COLOURS | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|
| mm 7" | 75 x 95mm 3 x 3.7" | NFPA "G" | 36kN 8093 lbf | 19mm 0.74" | 25mm 1" | 3 +1 | - | ■ | DISCONTINUED small eye height 27mm Large eye height 30mm | harken.com |
| mm 7" | 104 x 84.9mm 4.1 x 3.3" | CE NFPA G UKCA | 36kN 8093 lbf | 20mm 0.8" | 25mm 1" | 3 +2 | - | - | SMC now owned/branded by HARKEN | harken.com |
| mm 5" | 178 x 135mm 7 x 5.3" | NFPA "G" | 50kN 11240 lbf | 25mm 1" | 57mm 2.25" | 5 +1 | - | ■ | DISCONTINUED individually numbered small eye height 36mm | harken.com |
| mm 5" | 169 x 99mm 6.6 x 3.9" | CE NFPA G UKCA | 50kN 11240 lbf | 20mm 0.8" | 25mm 1" | 5 +3 | - | - | SMC now owned/branded by HARKEN | harken.com |
| mm 5" | 105 x 116mm 4.15 x 4.16" | NFPA G | 48kN 10791 lbf | 18mm 0.72" | 46mm 1.8" | 6 +1 | - | - | DISCONTINUED as a separate item individually numbered Small eye width 31mm | harken.com |
| mm 9" | 159 x 100mm 6.25 x 3.9" | CE | 40kN 8993 lbf | 20mm 0.75" | 38mm 1.5" | 7 +1 | - | - | Also a Small & large plate in this range - see Arbortec/Treehog THRP1 & 3 for spec | tree-force.com |
| mm 8" | 102 x 112mm 4 x 4.4" | - | 45kN 10000 lbf | 19mm 0.75" | 27mm 1.1" | 3 +1 | - | - | Previous ISC-made version discontinued | yatesgear.com |
| mm 8" | 165 x108mm 6.5x 4.25" | - | 45kN 10000 lbf | 19mm 0.75" | 27mm 1.1" | 7 +1 | - | ■ | | yatesgear.com |



**UPDATED Sep '25**

# KNOTLESS RIGGING & RINGS

have multiple eyes on the one device like David Driver's (now *Notch*) triple *X-rigging Safebloc* (right) and *Tylaska's Cerberus* triple (top). Take note of outer dimensions in our tables because some of these are much bigger than they seem - this *Safebloc* is nearly 6" long.

There are 5 types of hardware in this section:
1) **KNOTLESS RIGGING Plates** that replace the need to tie a knot in your rigging system like the *Notch Bone* on the right and *Hexarope*'s *Hands UP* in the ad on the previous page. These increase the available strength of your rope which now does not compress on itself under tightening and of course simplifies and speeds up rigging/de-rigging.

2) **RIGGING RINGS**
Much larger than PPE rings these are designed specifically for high impact loads and moving ropes, often from the marine/ yachting world where they were developed as a hardened, low friction-coated alternative to pulleys/blocks (and there are many). Like a tyre, the rope fits into the groove around the circumference but also through the middle eye - whoopie slings etc. are the most common usage. Remember, as per top pic- that **MBS in pulley mode** with both ends of a rope passing around the sheave plus one anchor through the eye (the blue & red ropes) **will be 2-3 times more** than an opposing pull thru the eye via the red & green ropes. One or two designs

3) **GENERAL RIGGING RINGS**
As we mentioned in the rigging plates intro, simple rings have been used as collection points on stretcher rigs and in heavy lifting since the bronze age. Steel versions are still a nifty thing in all kinds of situations where they are likely to be abused but unlike the arborist rigging rings these are simple rings with no external rebate (groove) to house a rope and not generally certified for PPE. Their uses can easily cross over into the next category which are mostly alloy bridge rings used more as a connector for your climbing and safety equipment than for rigging but both types can act as a collection point for a number of different attachments coming into it from all angles. While not as efficient as a pulley, both steel and alloy versions offer a smooth surface for any moving rope so can be used for pull-down and belay, MRS/ DdRT.

**4) SOLID PPE CONNECTION RING**
Certified for personal safety (rather than rigging- non PPE or EC machinery directive) and most often used on the harness bridge as a sliding ring and on some harnesses as the side/pole strap connectors. At least one model, the *Notch Wear-Safe,* has a wear indicator layer that shows through the outer

images NOT to scale
**£$€**=Currency conversion only - no tax/shipping etc.
**MBS/MBL** Min Break Load ~ 10x WLL/Working Load Limit
**SHEAVE**= Rings with an outside rope channel ( 'U'-shape)
ALU = Aluminium Alloy.
**~** = Approximate
● ● ● =OK but not ideal
**CE Not PPE=** EU Machinery Directive

| | MODEL | COMPANY | ORIGIN | COST | WEIGHT | MATERIAL | INN RO CAPA SHE |
|---|---|---|---|---|---|---|---|
| | **Low Friction Ring** AGLFR34 | ALL GEAR | | £16 $0 €00 | 38g 0oz | Alu | 12 0.4 |
| | **Low Friction Ring** AGLFR118 | ALL GEAR | | £16 $0 €00 | 00g 0oz | Alu | 12 0.4 |
| | **Low Friction Ring** AGLFR112 | ALL GEAR | | £17 $0 €00 | 00g 0oz | Alu | 12 0.4 |
| | **Big Blue Ring** AGLFR2-BLUE | ALL GEAR | | £87 $0 €00 | 00g 0oz | Alu | 12 0.4 |
| | **Sml** **R28.20** | ANTAL | | £0 $41 €48 | 120g 0oz | Alu | 20 0. |
| | **Lrg** R38.28 | ANTAL | | £0 $68 €84 | 338g 0oz | Alu | 28 1. |

# KNOTLESS RIGGING & RINGS

material when the ring is worn through (right). PPE rings tend to be lighter with a large inner eye diameter in relation to the diameter of the material to ensure fluid bridge movement.

5) **OPENABLE OR GATED CONNECTION RING**: This is where the real action is for life-support connectors at the moment. Petzl introduced the *Ring OPEN* -what we think was the first ring that had an opening 'gate' secured by an allen bolt that allowed it to be installed mid-rope/webbing or on an eye termination. This was pretty much all about harness connections for personal safety like the bridge and side pole-strap attachments and opened the flood gates for a whole new genre of hardware to be introduced by all the other manufacturers in the intervening years. This *Edelrid Cupid Ring* has a metal hinged gate that locks via an allen bolt while their steel version has a sprung pin to lock requiring no specialist tools, just a pen tip or pointy stick. The concept then migrated to items like swivel eyes that had previous been closed or needed a carabiner style connector like the *Rock Exotica Swivabiner*s. These things are now effectively circular carabiners that load in all directions. Petzl's other ring-trick is to provide an 'organiser' and 90 degree rotation option for hardware more usually connected to an SRT harness where the D-ring sits flat to your body rather than a bridge ring at right angles to your body. Aimed at rescue but plenty of arb harness applications.

**HARDENED, ANODIZED & POLISHED**

The toughest rings have a Teflon style hard coating that we first saw on *CMI*'s figure 8 descenders back in the 80's. This translates well to the heavy rigging items taking abuse during impact loading and where constantly moving 'dirty' rope would otherwise cause premature wear. Hard coats are an 'anodizing' but almost all dark grey in colour and in the case of rings, come from the yachting world with the hard coating necessary to prevent premature wear in rings being subjected to constant, salty, heavily loaded and fast moving ropes - perfect for arb! Less resistant but still offering protection to the metal is standard anodizing. This helps prevent corrosion and offers a plethora of colour options. Polished, uncoated metal is the cheapest option if you use a lot of rings with the same strength but not quite a s 'slippery' when it comes to rope movement or identifiable in complex rigging systems.

## IN THE FOLLOWING TABLES:

**INNER ROPE CAPACITY/SHEAVE:** very few manufacturers quote this because it is pretty much regulated by the inner eye/hole diameter but in reality it should be a good 25% smaller than that dimension in order for your rope to move freely. SHEAVE is a specific limitation because it is the outer 'tyre'rim' width/depth of the low friction rigging rings in which the rope sits.

**STANDARDS**: There are two distinct types of device here. Life-load capable or PPE listed as CE, NFPA, ANSI or a specific EN eg 395 as a connector. And Non-life load or 'material' load only. In reality, as with all impact-load rigging, the non PPE are stronger than the PPE models but once used for rigging and particularly impact loading ***you cannot use for a live/human load***. Beware of models described as PPE but with no accompanying certification.

| INNER ROPE CAPACITY/SHEAVE | HOLE / INNER Ø | LENGTH/ OUTER Ø / BAR Ø | STANDARDS | MBS in non-pulley mode approx 10x WWL | KNOTLESS RIGGING | IMPACT/RIGGING | PPE/BRIDGE RING | OPENABLE | HARDENED | ANODIZED | OTHER COLOURS | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mm 47" | 14mm 0.55" | 20mm 0.8" | CE NFPA G | 00kN 70,000lbf | | ■ ■ | ■ ■ | | | ■ | ■ | | allgear.com |
| mm 47" | 20mm 0.8" | 50mm 2" | CE NFPA G | 00kN 140,000lbf | | ■ ■ | ■ ■ | | | ■ | ■ | | allgear.com |
| mm 47" | 28mm 1.1" | ~70mm 2.76" | CE NFPA G | 30kN 220,000lbf | | ■ ■ | ■ ■ | | | ■ | ■ | | allgear.com |
| mm 47" | 51mm 2" | ~130mm 5.12" | CE NFPA G | 30kN 320,000lbf | | ■ ■ | ■ ■ | | | ■ | | | allgear.com |
| mm 8" | 28mm 1.1" | 70mm 2.76" | | 64kN 14,110lbf | | ■ ■ | | | ■ | | - | | antal.it |
| mm 1" | 38mm 1.5" | 99mm 3.9" | | 100kN 22481lbf | | ■ ■ | | | ■ | | - | | antal.it |

images NOT to scale
£$€=Currency conversion only - no tax/shipping etc.
MBS/MBL Min Break Load ~ 10x WLL/Working Load Limit
SHEAVE= Rings with an outside rope channel ( 'U'-shape)
ALU = Aluminium Alloy.
~ = Approximate
● ● ● =OK but not ideal
**CE Not PPE=** EU Machinery Directive

| | MODEL | COMPANY | ORIGIN | COST | WEIGHT | MATERIAL | INN RO CAPA SHE |
|---|---|---|---|---|---|---|---|
| | **Steel O-Ring Sm**<br>000 | AT HEIGHT | | £6<br>$9<br>€8 | 113g<br>4oz | Steel | 12<br>0.4 |
|  | **Steel O-Ring Lg**<br>000 | AT HEIGHT | | £7<br>$10<br>€9 | 170g<br>6oz | Steel | 12<br>0.4 |
| | **Alu O-Ring Sm**<br>000 | AT HEIGHT | | £6<br>$9<br>€8 | 39g<br>1.4oz | Aluminium | 12<br>0.4 |
| | **Alu O-Ring Lg**<br>000 | AT HEIGHT | | £7<br>$10<br>€9 | 55g<br>1.9oz | Aluminium | 12<br>0.4 |
| | **Odin**<br>107-14001001 | COURANT | | £24~<br>$32~<br>€28~ | 130g<br>4.6oz | Stainless Steel | 12<br>0.4 |
| | **Atol sml**<br>000 | COURANT | | £7<br>$10<br>€8 | 36g<br>1.3oz | Aluminium | - |
| | **Atol lg**<br>000 | COURANT | | £10<br>$14<br>€11 | 53g<br>1.9oz | Aluminium | - |
| | **Sml Size 2**<br>EH000152 | COUSIN-TRESTEC | | £33<br>$45<br>€37 | ~135g<br>~1.8oz | Alu | ~20<br>~0 |
| | **Big Size 3**<br>EH000152 | COUSIN-TRESTEC | | £51<br>$69<br>€58 | ~395g<br>~13.9oz | Alu | ~28<br>~1 |
| | **26mm Rigging Ring**<br>R500-26 | DMM | | £16<br>$32<br>€20 | 38g<br>1.3oz | Alu | - |
| | **28mm Rigging Ring**<br>R500-28 | DMM | | £16<br>$32<br>€20 | 41g<br>1.5oz | Alu | - |
| | **34mm Rigging Ring**<br>R500-34 | DMM | | £17<br>$35<br>€21 | 48g<br>1.7oz | Alu | - |
| | **40mm Rigging Ring**<br>R500-40 | DMM | | £17<br>$35<br>€21 | 51g<br>1.8oz | Alu | - |
| | **Cupid Alu Ring**<br>852130000060 | EDELRID | | £25<br>$40<br>€30 | 65g<br>2.3oz | Alu | - |
| | **Cupid Steel Ring**<br>852130000060 | EDELRID | | £25<br>$40<br>€30 | 160g<br>5.6oz | Steel | - |
| | **OKO Ring lg**<br>201000160690 | EDELRID | | £NA<br>$NA<br>€NA0 | NA | Alu | - |
| | **Fiori's Ring**<br>R52 | FTC | | £183<br>$250<br>€212 | 1000g<br>2.2lb | Machined Alu | 40<br>1.( |
| | | | | | | | |

# KNOTLESS RIGGING & RINGS

| ...NER ...PE ...ACITY ...AVE | HOLE / INNER Ø | LENGTH/ OUTER Ø BAR Ø | STANDARDS | MBS in non-pulley mode approx 10x WWL | KNOTLESS RIGGING | IMPACT/RIGGING | PPE / BRIDGE RING | OPENABLE | HARDENED | ANODIZED | OTHER COLOURS | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ...mm ...7" | 27mm 1.1" | 51mm 2" | Not PPE | 70kN 15737lbf | - | ■ ■ | - | - | - | - | - | | atheightuk.com |
| ...mm ...7" | 46mm 1.8" | 70mm 2.76" | Not PPE | 70kN 15737lbf | - | ■ ■ | - | - | - | - | - | | atheightuk.com |
| ...mm ...7" | 30mm 1.2" | 54mm 2.1" | Not PPE | 25kN 5620lbf | - | ■ | - | - | - | - | - | | atheightuk.com |
| ...mm ...7" | 46mm 1.8" | 70mm 2.76" | Not PPE | 25kN 5620lbf | - | ■ | - | - | - | - | - | | atheightuk.com |
| ...mm ...7" | 47mm 1.85" | 75mm 3" | EN | 25kN 5620lbf | - | | ■ ■ | ■ | | | | 18mm gate opening. replaced the OLIK but now also DISCONTINUED | mycourant.com |
| ... | 27mm 1.1" | 51mm 2" | CE | 25kN 5620lbf | - | | ■ ■ | - | - | ■ | | Only certificed for Koala Harness | mycourant.com |
| ... | 45mm 1.77" | 70mm 2.76" | CE | 25kN 5620lbf | - | | ■ ■ | - | - | ■ | | Only certified for Koala harness | mycourant.com |
| ...0mm ...8" | 28mm 1.1" | ~70mm ~2.76" | Not PPE | 67kN 15061lbf | - | ■ | - | - | - | ■ | | | cousin-trestec.com |
| ...8mm ...1" | 40mm 1.6" | ~90mm ~2.75" | Not PPE | 110kN 24729lbf | - | ■ | - | - | - | ■ | | | cousin-trestec.com |
| ... | 26mm 1" | 48 x 12mm 1.9 x 0.47" | CE NFPA G | 30kN 6744lbf | | ■ | ■ ■ | | | ■ | | | dmmprofessional.com |
| ... | 28mm 1.1" | 52 x 12mm 2.1 x 0.47" | CE NFPA G | 30kN 6744lbf | | ■ | ■ ■ | | | ■ | | | dmmprofessional.com |
| ... | 34mm 1.3" | 58 x 12mm 2.3 x 0.47" | CE NFPA G | 30kN 6744lbf | | ■ | ■ ■ | | | ■ | | | dmmprofessional.com |
| ... | 40mm 1.6" | 64 x 12mm 2.5 x 0.47" | CE NFPA G | 30kN 6744lbf | | ■ | ■ ■ | | | ■ | | | dmmprofessional.com |
| ... | 44mm 1.7" | 70mm 2.75" | EN362 | 20kN 4496lbf | | | ■ ■ | ■ | | ■ | ■ | 12mm opening . Opens with allen key. (Conecto is DISCONTINUED) | edelrid.com |
| ... | 44mm 1.7" | 70mm 2.75" | EN262 | 23kN 5171lbf | | | ■ ■ | ■ | | | | 12mm opening Opens with no tools - sprung pin | edelrid.com |
| ... | 6mm 0.79" | 16mm 0.63" | Not PPE | ~3kN ~675lbf | | ■ | | | ■ | | | small redirection ring for rigging taking indirect (light) load. Also a 10mm version | edelrid.com |
| ...mm ...6" | 135mm 5.3" | 52mm 2" | CE not PPE | 60kN 13489lbf | | ■ ■ | | | ■ | | | | ftc-tree.com |
| | | | | | | | | | | | | | |

images NOT to scale
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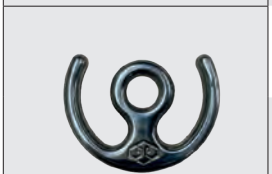
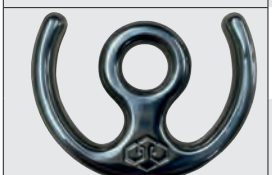
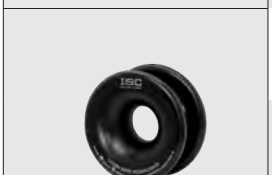
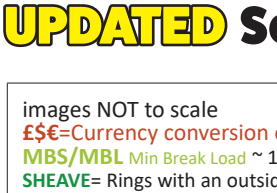
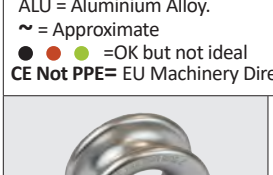
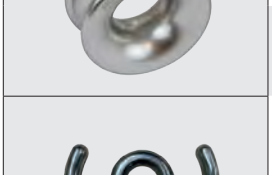
MBS/MBL Min Break Load ~ 10x WLL/Working Load Limit
SHEAVE= Rings with an outside rope channel ( 'U'-shape)
ALU = Aluminium Alloy.
~ = Approximate
● ● ● =OK but not ideal
**CE Not PPE=** EU Machinery Directive

| | MODEL | COMPANY | ORIGIN | COST | WEIGHT | MATERIAL | IN RO CAPA SHE |
|---|---|---|---|---|---|---|---|
| | **Friction Ring** FR1 | FTC | | £25 $33 €28 | 50g 1.76oz | Machined Alu | 14 0. |
|  | **Friction Ring** FR2 | FTC | | £33 $44 €37 | 136g 4.8oz | Machined Alu | 20 0. |
|  | **Friction Ring** FR3 | FTC | | £49 $65 €55 | 395g 13.9oz | Machined Alu | 28 1. |
| | **Hands Up Sml** HX02282 | HEXAROPE | | £24 $32 €27 | 136g 4.8oz | SUS316 Stain-less Steel alloy | 12 0.4 |
|  | **Hands Up Med** HX02283 | HEXAROPE | | £37 $52 €44 | 252g 8.9oz | SUS316 Stain-less Steel alloy | 15 0. |
| | **Hands Up Lg** HX02284 | HEXAROPE | | £60 $85 €72 | 487g 1lb 1.2oz | SUS316 Stain-less Steel alloy | 18 0. |
| | **HexaRing Med** HX06448 | HEXAROPE | | £72 $98 €83 | 185g 6.5oz | Alu 7075-T6 | |
| | **HexaRing Lg** HX06449 | HEXAROPE | | £101 $137 €116 | 400g 14.1oz | Alu 7075-T6 | |
| | **HexaRing XL** HX06450 | HEXAROPE | | £156 $216 €178 | 634g 1lb 6.4oz | Alu 7075-T6 | |
| | **Saturn Ring 1** RIN2528 | ISC | | £41 $56 €48 | 302g 10.6oz | Machined Alu | 25 1 |
|  | **Saturn Ring 2** RIN3238 | ISC | | £72 $97 €85 | 591g 1lb 4.8oz | Machined Alu | 32 1.1 |
| | **Saturn Ring 3** RIN4452 | ISC | | £143 $193 €168 | 1073g 2lb 5.8oz | Machined Alu | 44 1.1 |
|  | **Alu Ring sml** RIN0010 | ISC | | £6 $8 €7 | 44g 1.5oz | Alu | |
|  | **Alu Ring lg** RIN0011 | ISC | | £8 $13 €11 | 59g 2oz | Alu | |
| | **Steel Ring sml** RIN0012 | ISC | | £7 $9 €8 | 118g 4.1oz | Steel | |
| | **Steel Ring lg** RIN0013 | ISC | | £9 $14 €12 | 155g 5.5oz | Steel | |
| | Ana Sml 930028O00KK | KONG | | £12 $17 €14 | 40g 1.4oz | Alu | |
| | Ana Lg 930046N00KK | KONG | | £13 $18 €15 | 60g 2.1oz | Alu | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -mm 55" | 20mm 0.79" | 50mm 2" | CE not PPE | 65kN 14613lbf | | ■ ■ | | | ■ | | | | ftc-tree.com |
| 0mm .8" | 28mm 1.1" | 70mm 2.76" | CE not PPE | 135kN 30349lbf | | ■ ■ | | | ■ | | | | ftc-tree.com |
| 8mm .1" | 38mm 1.5" | 89mm 3.5" | CE not PPE | 240kN 53954lbf | | ■ ■ | | | ■ | | | | ftc-tree.com |
| .mm 47" | 15mm 0.6" | 75mm 3" | not PPE | 39kN 8768 lbf | ■ | ■ ■ | | | ■ | | - | Knot replacement (cinching) plate for impact lowering for 9-12mm rope | hexarope.com |
| 0mm .6" | 19mm 0.75" | 90mm 3.54" | not PPE | 60kN 13488 lbf | ■ | ■ ■ | | | ■ | | - | Knot replacement (cinching) plate for impact lowering for 9-12mm rope | hexarope.com |
| 8mm .7" | 25mm 1" | 148mm 5.8" | not PPE | 96kN 21582lbf | ■ | ■ ■ | | | ■ | | - | Knot replacement (cinching) plate for impact lowering for 9-12mm rope | hexarope.com |
| - | 27mm 1" | 89 x 41mm 3.5 x 1.6" | not PPE | 200kN* 44962lbf | | ■ ■ | | | ■ | | - | *Designed for impact lowering. Max recommended rope 12mm *Rim-style outer for rope/sling loop | hexarope.com |
| - | 35mm 1.4" | 115 x 51mm 4.53 x 2" | not PPE | 300kN* 67443lbf | | ■ ■ | | | ■ | | - | *Designed for impact lowering.Max recommended rope 16mm. *Rim-style outer for rope/sling loop | hexarope.com |
| - | 38.2mm 1.5" | 130 x 55mm 5.1 x 2.2" | not PPE | 400kN* 89924lbf | | ■ ■ | | | ■ | | - | *Designed for impact lowering.Max recommended rope 20mm. *Rim-style outer for rope/sling loop | hexarope.com |
| 0mm 1" | 28mm 1.1" | 88mm 3.5" | CE not PPE | 140kN 31473lbf | | ■ ■ | | | | ■ | | | iscwales.com |
| .mm 25" | 38mm 1.5" | 112mm 4.4" | CE not PPE | 200kN 44961lbf | | ■ ■ | | | | ■ | | | iscwales.com |
| -mm 25" | 52mm 2" | 138mm 5.43" | CE not PPE | 300kN 67442lbf | | ■ ■ | | | | ■ | | | iscwales.com |
| - | 27 x 12mm 1.1 x 0.47" | 51mm 2" | CE | 25kN 5620lbf | | ■ | ■ ■ | | | ■ | | | iscwales.com |
| - | 45 x 12mm 1.8 x 0.47" | 70mm 2.75" | CE | 25kN 5620bf | | ■ | ■ ■ | | | ■ | | | iscwales.com |
| - | 27 x 12mm 1.1 x 0.47" | 51mm 2" | not PPE | 70kN 15736lbf | | ■ ■ | | | | | | | iscwales.com |
| - | 45 x 12mm 1.8 x 0.47" | 70mm 2.75" | not PPE | 70kN 15736lbf | | ■ ■ | | | | | | | iscwales.com |
| - | 28mm 1.1" | 50mm 2" | CE | 25kN 5620lbf | | ● | ■ ■ | | | ■ | ■ | | kong.it |
| - | 46mm 1.8" | 67mm 2.6" | CE | 25kN 5620lbf | | ■ | ■ ■ | | | ■ | | | kong.it |

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MBS/MBL Min Break Load ~ 10x WLL/Working Load Limit
SHEAVE= Rings with an outside rope channel ( 'U'-shape)
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| | | MODEL | COMPANY | ORIGIN | COST | WEIGHT | MATERIAL | INN RO CAPA SHE |
|---|---|---|---|---|---|---|---|---|
| | | Lotor Sml<br>96042NN00K | KONG | | £32<br>$52<br>€37 | 65g<br>2.3oz | Alu | - |
| | | Lotor Lg<br>96048NO00KK | KONG | | £32<br>$52<br>€37 | 75g<br>2.65oz | Alu | - |
| | | X-Rigging Ring 1<br>35789 | NOTCH | | £35<br>$37<br>€40 | 95g<br>3.35oz | Alu | 14m<br>0.5 |
| | | X-Rigging Ring 2<br>35790 | NOTCH | | £46<br>$48<br>€51 | 204g<br>7.2oz | Alu | 20m<br>0.8 |
| | | X-Rigging Ring 3<br>36335 | NOTCH | | £72<br>$81<br>€85 | 150g<br>5.3oz | Alu | 28m<br>1.1 |
| | | Triple X-Rigging Safebloc<br>36680 | NOTCH | | £190<br>$204<br>€230 | 1100g<br>2.25lb | Alu | 19m<br>0.7<br>24m<br>1' |
| | | Rapid Rig<br>40418 | NOTCH | | £36<br>$39<br>€45 | 295g<br>10.4oz | stainless steel | 12.7<br>0.5 |
| | | Backbone Mini<br>35174 | NOTCH | | £60<br>$66<br>€78 | 60g<br>1.47lb | plated 4130 Steel | 14m<br>0.55 |
| | | Backbone<br>35174 | NOTCH | | £78<br>$89<br>€81 | 1.7kg<br>3.85lb | plated 4130 Steel | 30m<br>1.2 |
| | | Wear-Safe sml | NOTCH | | £19<br>$24<br>€21 | 53g<br>1.9oz | 7075 Alu | - |
| | | Wear-Safe lg | NOTCH | | £20<br>$25<br>€23 | 79g<br>2.8oz | 7075 Alu | - |
| | | Wear-Safe sml | NOTCH | | £18<br>$22<br>€20 | 130g<br>4.6oz | hot forge Steel | - |
| | | Wear-Safe lg | NOTCH | | £20<br>$26<br>€23 | 192g<br>6.8oz | hot forge Steel | - |
| | | Forged Ring<br>7600-12-0-00-11-1 | PENSAFE | | £11<br>$14<br>€13 | 127g<br>4.5oz | Steel | - |
| | | Ring Sml | PETZL | | £12<br>$23<br>€15 | 40g<br>1.4oz | Alu | - |
| | | Ring Lg | PETZL | | £14<br>$25<br>€17 | 70g<br>2.5oz | Alu | - |
| | | Ring Open<br>M028AA00 P28 | PETZL | | £22<br>$35<br>€24 | 70g<br>2.5oz | Alu/Plastic gate | - |
| | | Ringo<br>K7002BX46 | SINGING ROCK | | £17<br>$25<br>€18 | 75g<br>2.6oz | Alu | - |

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| ER PE CITY AVE | HOLE / INNER Ø | LENGTH/ OUTER Ø BAR Ø | STANDARDS | MBS in non-pulley mode approx 10x WWL | KNOTLESS RIGGING | IMPACT/RIGGING | PPE / BRIDGE RING | OPENABLE | HARDENED | ANODIZED | OTHER COLOURS | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 42mm 1.65" | 00mm 0" | CE UIAA 130 EN 362 | 24kN 5395lbf | | | ■ ■ | ■ | | ■ | | 15mm gate opening | kong.it |
| | 48mm 1.9" | 00mm 0" | CE UIAA 130 EN 362 | 24kN 5395lbf | | | ■ ■ | ■ | | ■ | ■ | 15mm gate opening | kong.it |
| nm 5" | 20mm 0.8" | 50mm 2" | Not PPE | 30kN 6744lbs | | ■ ■ | | | ■ | | | | notchequipment.com |
| nm 3" | 28mm 1.1" | 00mm 0" | Not PPE | 60kN 13489lbs | | ■ ■ | | | ■ | | | | notchequipment.com |
| nm " | 38mm 1.5" | 70mm 2.75" | Not PPE | 98kN 22031lbs | | ■ ■ | | | ■ | | | | notchequipment.com |
| nm 5" nm | 3x 38mm 3x 1.5" | 146 mm 5.6" | Not PPE | 115kN 25853lbs | | ■ ■ | | | ■ | | | Hard-coated for extended wear | notchequipment.com |
| mm 5" | - | 108 x 140mm 4.25 x 5.5" | Not PPE | 60kN 13489lbs | ■ | ■ ■ | | ■ | | | | Knotless rigging | notchequipment.com |
| nm 5 ” | ? | 169 x 104mm 6.65 x 4.1” | CE Not PPE | 26kN 3700lbs | ■ | ■ ■ | | | | - | - | Knot replacement (cinching) plate & impact lowering for 9-12mm rope | notchequipment.com |
| nm ” | ? | 295 x 133mm 10.75 x 5.25” | CE Not PPE | 20.8kN 4672lbs | ■ | ■ ■ | | | | - | - | Knot replacement (cinching) plate & impact lowering for 9-12mm rope | notchequipment.com |
| | 28mm 1.1mm | 54mm 2.1" | CE | 30kN 6744lbs | | ● | ■ ■ | | | | | | notchequipment.com |
| | 48mm 1.9mm | 72mm 2.8" | CE | 30kN 6744lbs | | ■ | ■ ■ | | | | | | notchequipment.com |
| | 28mm 1.1mm | 52mm 2" | Ansi Z133 | 30kN 6744lbs | | ● | ■ ■ | | | | | | notchequipment.com |
| | 48mm 1.9mm | 72mm 2.8" | Ansi Z133 | 30kN 6744lbs | | ■ | ■ ■ | | | | | | notchequipment.com |
| | 57mm 2.25" | 75mm 3" | ANSI/ASSE CZA | 22.2kN 5000lbs | | ■ ■ | ■ ■ | | | | | | |
| | 28mm 1.1" | 52mm 2" | CE | 23kN 5171lbs | | ● | ■ ■ | | | ■ | | | petzl.com |
| | 46mm 1.8" | 72mm 2.8" | CE | 23kN 5171lbs | | ■ | ■ ■ | | | ■ | | | petzl.com |
| | 45mm 1.8" | 72mm 2.8" | CE | 23kN 5171lbs | | | ■ ■ | ■ | | ■ | □ | 11mm opening | petzl.com |
| | 46mm 1.8" | 71.6mm 2.8" | CE | 20kN 4496lbs | | | ■ ■ | ■ | | ■ | | 10mm gate opening | singingrock.com |

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| MODEL | COMPANY | ORIGIN | COST | WEIGHT | MATERIAL | INN RO CAPA SHE |
|---|---|---|---|---|---|---|
| Ring 28<br>RK400BB028 | SINGING ROCK | | £9<br>$14<br>€10 | 39g<br>1.4oz | Alu | - |
| Ring 46<br>RK400BB046 | SINGING ROCK | | £11<br>$16<br>€12 | 57g<br>2oz | Alu | - |
| CT Arbo-Ring Sml<br>2B12528 | SKYLOTEC | | £18<br>$24<br>€17 | 38g<br>1.3oz | Alu | - |
| CT Arbo-Ring Lg<br>2B12546 | SKYLOTEC | | £23<br>$31<br>€22 | 56g<br>2oz | Alu | - |
| Rigging Ring<br>81505 or 81503 | SMC/HARKEN | | £18<br>$7.50<br>€22 | 26g<br>0.9oz | Alu | - |
| Tree Angel<br>000 | TREE CLIMBING JAPAN | | £114<br>$96<br>€85 | 420g<br>14.4oz | Alu | 127<br>0.5 |
| Harness Ring sml<br>TH1027 | TREEHOG | | £11<br>$15<br>€13 | ~40g<br>2.8oz | Alu | 12r<br>0.4 |
| Harness Ring lg<br>TH1028 | TREEHOG | | £11<br>$15<br>€13 | ~55g<br>3.5oz | Alu | 14r<br>0.5 |
| Rigging Ring 1<br>THHR1 | TREEHOG | | £31<br>$42<br>€36 | ~80g<br>2.8oz | Alu | 12r<br>0.4 |
| Rigging Ring 2<br>THRR2 | TREEHOG | | £40<br>$54<br>€46 | ~100g<br>3.5oz | Alu | 14r<br>0.5 |
| Rigging Ring 3<br>THRR3 | TREEHOG | | £47<br>$64<br>€54 | ~130g<br>4.6oz | Alu | 16r<br>0.6 |
| Rigging Ring 4<br>THRR4 | TREEHOG | | £58<br>$78<br>€67 | ~230g<br>8.1oz | Alu | 24r<br>1 |
| TR14 Rigging Ring<br>TY2714 | TYLASKA | | £28<br>$37*<br>€24 | 125g<br>4.4oz | 6061 alu | 14r<br>0.5 |
| TR20 Rigging Ring<br>TY2720 | TYLASKA | | £41<br>$54*<br>€47 | 235g<br>8.3oz | 6061 alu | 20r<br>0.8 |
| TR28 Rigging Ring<br>TY2728 | TYLASKA | | £70<br>$93*<br>€80 | 499g<br>1.16lb | 6061 alu | 28r<br>1.1 |
| TR38 Rigging Ring<br>TY2738 | TYLASKA | | £160<br>$215<br>€184 | 1265g<br>2.79lb | 6061 alu | 20r<br>0.8<br>38r<br>1.5 |
| TFB20 Cerberus<br>TY2730 | TYLASKA | | £230<br>$309<br>€264 | 900g<br>2lb | 6061 alu | 20r<br>0.8<br>24r<br>0.9 |
| LFB28 Basilisk<br>TY6128 | TYLASKA | | £230<br>$309<br>€264 | 1780g<br>3.92lb | 6061 alu | 28r<br>1.1 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 28mm 1.1" | 0mm 0" | CE | 25kN 5620lbs | | ● | ■ ■ | | | ■ | | | singingrock.com |
| | 46mm 1.8" | 0mm 0" | CE | 25kN 5620lbs | | ■ | ■ ■ | | | ■ | | | singingrock.com |
| | 28mm 1.1" | 52 x 12mm 2.1 x 0.47" | | 25kN 5620lbs | | ● | ■ ■ | | | | | Also steel versions but Climbing Technology brand phasing out under Slylotec | skylotec.com |
| | 46mm 1.8" | 72 x 13mm 2.8 x 0.5" | | 25kN 5620lbs | | ■ | ■ ■ | | | | | Also steel versions but Climbing Technology brand phasing out under Slylotec | skylotec.com |
| | 28mm 1.1" | 43 x 12.7mm 1.7 x 0.5" | | 32kN 7914lbs | | ■ | ■ ■ | | | ■ | | | Harken.com smcgear.com |
| ...mm ...5" | 13.5mm 0.5" | 240x150mm 9.5 x 6.9" | No PPE | 60kN 13488 lbf | ■ | ■ | | | | ■ | | Also branded for STEIN. Also used as a Knotless rigging device. * 4 accessory cord holes individually numbered | steinworldwide.com |
| ...mm ...7" | 28mm 1.1" | 52 x 12mm 2.1 x 0.47" | | 25kN 5620lbs | | ● | ■ ■ | | | ■ | | | treehog.co.uk |
| ...mm ...5" | 46mm 1.8" | 70 x 12mm 2.7 x 0.5" | | 25kN 5620lbs | | ■ | ■ ■ | | | ■ | | | treehog.co.uk |
| ...mm ...7" | 20mm 0.8" | 40mm 1.6" | | 00kN 00lbs | | ● ● | | | | ■ | | | treehog.co.uk |
| ...mm ...5" | 20mm 0.8" | 46mm 1.8" | | 00kN 00lbs | | ● ■ | | | | ■ | | | treehog.co.uk |
| ...mm ...2" | 20mm 0.8" | 54mm 2.1" | | 00kN 00lbs | | ■ ■ | | | | ■ | | | treehog.co.uk |
| ...mm ..." | 28mm 1.1" | 70mm 2.75" | | 00kN 00lbs | | ■ ■ | | | | ■ | | | treehog.co.uk |
| ...mm ...5" | 20mm 0.8" | 59.3mm 2.34" | | 75kN 16861lbs | | ● ● | | | ■ | | ■* | *Black=Hardened cost $44 | tylaska.com |
| ...mm ...8" | 28mm 1.1" | 75.9mm 3" | | 100kN 22481lbs | | ■ ■ | | | ■ | | ■* | *Blue=Anodized not Hardened cost $49. Also XTR20 & DTR20 with wider sheaves to be added | tylaska.com |
| ...mm ...1" | 38.1mm 1.5" | 101mm 4" | | 125kN 28100lbs | | ■ ■ | | | ■ | | ■* | *orange=Anodized not Hardened cost $83 | tylaska.com |
| ...mm ...8" ...mm ...5" | 52mm 2.1" | 137mm 5.4" | | 396kN 89025lbs | | ■ ■ | | | ■ | | | | tylaska.com |
| ...mm ...8" ...mm ...9" | 33mm 1.3" | 170mm 6.7" | | 110kN 24729lbs | | ■ ■ | | | ■ | | | | tylaska.com |
| ...mm ...1" | 38mm 1.5" | 279x101mm 11 x 4" | | 195kN 43838lbs | | ■ ■ | | | ■ | | | Also LFB10 & LFB20 with smaller dimensions to be added | tylaska.com |

**UPDATED Aug '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 an incorporate a machined swivels 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 *Harken/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 *Edelrid'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 *Edelrid* 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 now resolved. 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 Exotca'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

| Images NOT to Scale<br>COSTS: Any £$€ shown in burnt orange are currency conversions only and will not include shipping, import duty and tax. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MANUFACTURER** | ART | BEAL | BLACK DIAMOND | CAMP | CAMP | CAMP | CAMP | CAMP |
| **MODEL VARIANT** | Twister<br>- | Twist-Air B<br>- | Rotor Swivel<br>- | Swivel<br>1393 | Enigma<br>3259 | Gyro 1<br>3260 | Gyro 3<br>2940 | Gyro 4<br>3109 |
| **ORIGIN** | | | | | | | | |
| **COST** | £51 $70 €60 | £48 $65 €55 | £65 $74 €63 | £50 $64 €55 | £104 $140 €119 | £46 $62 €53 | £81 $120 €95 | £111 $145 €126 |
| **WEIGHT** | 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 |
| **MAX LOAD** | 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 |
| **LOWER/MAX EYE SIZE** | 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" |
| **DIMENSIONS** heightt x width | 78 x 30mm<br>3.1 x1.2" | 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>4.9x 3.5" |
| **BEARING/BUSHING** | ■ | ■ | ■ | ■ | ■ | Steel Ball/Socket | Steel Ball/Socket | Steel Ball/Socket |
| **OPENABLE** | - | ■ | - | - | ■ | - | - | - |
| **STANDARDS** | CE | CE | CE | CE EAC | CE EAC ANSI | CE ANSI EAC | CE ANSI EAC | CE ANSI EAC |
| **MATERIAL** | Machined Alu | Alu | Alu | Alu | Alu<br>St Steel | Allu, Steel,<br>St Steel | Alu, Steel,<br>St Steel | Alu, Steel,<br>St Steel |
| **OTHER COLOURS/ NOTES** | *28kN max load, tested with 25kN. Does not twist under load | | | | ■<br>Collapsible, take-apart | plastic inserts for tighter 10mm fit | plastic inserts for tighter 10mm fit | plastic inserts for tighter 10mm fit |
| **WEBSITE** | climb-art.de | beal-planet.com | blackdiamondequipment.com | camp.it | camp.it | camp.it | camp.it | camp.it |

| Images NOT to Scale<br>COSTS: Any £$€ shown in burnt orange are currency conversions only and will not include shipping, import duty and tax. | | | | | | |
|---|---|---|---|---|---|---|
| **MANUFACTURER** | DMM | DMM | DMM | EDELRID | EDELRID | EDELRID | EDELRID | EDELRID |
| **MODEL VARIANT** | Nexus Bow-D<br>SW470 | Nexus D-D<br>SW480 | Nexus Bow-Bow<br>SW490 | Cupid<br>- | Cupid Mix<br>- | Cupid Mini<br>- | Conecto<br>- | Vortex<br>- |
| **ORIGIN** | | | | | | | | |
| **COST** | £90 $130 €115 | £90 $130 €115 | £90 $130 €115 | £85 $107 €90 | TBA | £47 $64 €55 | £77 $104 €89 | £52 $62 €56 |
| **WEIGHT** | 103g<br>3.6oz | 95g<br>3.4oz | 110g<br>3.9oz | 105g<br>3.7oz | TBAg<br>TBAoz | TBAg<br>TBAoz | 155g<br>5.5oz | 88g<br>3.1oz |
| **MAX LOAD** | 26kN<br>5845lbf | 26kN<br>5845lbf | 26kN<br>5845lbf | 20kN<br>4496lbf | 20kN<br>4496lbf | TBAkN<br>TBAbf | 15kN<br>3372lbf | 22kN<br>4945lbf |
| **LOWER/MAX EYE SIZE** | 16 20-30mm<br>0.6 0.8-1.2" | 16mm<br>0.6" | 20-30mm<br>0.8-1.2" | 25mm<br>1" | 25mm<br>1" | TBA | 20mm<br>0.8" | 18mm<br>0.7" |
| **DIMENSIONS** heightt x width | 103 x 48mm<br>4 x 1.9" | 97 x 35mm<br>3.8 x1.4" | 108 x 48mm<br>4.25 x 1.9" | 95 x 50mm<br>3.7 x 2" | 95 x 50mm<br>3.7 x 2" | TBA | 100 x52mm<br>4 x 2" | 86 x 39mm<br>3.4 x 1.5" |
| **BEARING/BUSHING** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **OPENABLE** | ■ | ■ | ■ | ■ | ■ | - | ■ | - |
| **STANDARDS** | CE | CE | CE | CE | CE | CE | CE | CE |
| **MATERIAL** | Body Milled Alu | Body Milled Alu | Body Milled Alu | Hot forged Alu | Hot forged Alu | Hot forged Alu | Hot forged Alu | Alu |
| **OTHER COLOURS/ NOTES** | ■ | ■ | ■ | Replaced Conecto. Gate opening=12mm | New in 2025. Captive lower eye resists torque | New in 2025 | DISCONTINUED | |
| **WEBSITE** | dmmwales.com | dmmwales.com | dmmwales.com | edelrid.com | edelrid.com | edelrid.com | edelrid.com | edelrid.com |

# LIFE SUPPORT SWIVELS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| CMC/RE | CMC/RE | CMI | CMI | CONTERRA | DMM | DMM | DMM | DMM | DMM |
| Rescue - | ProSeries - | Rescue - | Cali Swivel2 - | TiRadius - | Axis L - | Axis S - | Mini SW400 | Focus D SW440 | Focus Bow SW450 |
| 71 $89 €82 | £102 $127 €117 | £101 $122 €116 | £104 $126 €119 | £119 $145 €137 | £80 $110 €100 | £70 $95 €75 | £63 $85 €69 | £79 $118 €98 | £79 $118 €98 |
| 125g 4.4oz | 184g 6.5oz | 159g 5.6oz | 204g 7.2oz | 83g 2.9oz | 184g 6.5oz | 117g 4.2oz | 48g 1.7oz | 64g 2.3oz | 72g 2.5oz |
| 36kN 8093lbf | 36kN 8093lbf | 40kN 9000lbf | 43.6kN 9800lbf | 38kN 8500lbf | 50kN 11240lbf | 36kN 8093lbf | 26kN 5845lbf | 26kN 5845lbf | 26kN 5845lbf |
| 25mm 1" | 30mm 1.2" | 30mm* 1.2" | 20 18mm 0.8 0.7" | 25mm 1" | 20-38mm 0.8-1.1" | 18-30mm 0.7-1.2" | 16mm 0.6" | 10-16 16mm 0.4-0.6" | 10-16 20-30mm 0.4-0.6 0.8-1.2" |
| 93 x 49mm 3.75x1.9" | 114 x 50mm 4.5 x2" | 108 x 45mm 4.25 x 1.75" | 100 x 76.2mm 4 x 3" | 76.2 x 32mm 3 x 1.25" | 96 x60mm 3.8 x 2.4" | 80 x 50mm 3.2 x 2" | 66 x 32mm 2.6 x 1.3" | 76.5 x 35mm 3 x 1.4" | 82 x 48mm 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 20mm/0.8" | ■ ■ | | ■ | ■ | ■ | ■ | ■ |
| cmcpro.com | cmcpro.com | cmigearusa.com | cmigearusa.com | conterra-inc.com | dmmwales.com | dmmwales.com | dmmwales.com | dmmwales.com | dmmwales.com |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| EDELWEISS | FIXE CLIMBING | FUSION CLIMB | FUSION CLIMB | KONG | iRUDEK | PETZL | PETZL | PETZL | PETZL |
| SWR - | SW1 590 | Delta - | Oval - | Dancer - | Swiver - | Swivel S - | Swivel L P58-L | Micro Swivel P58 XSO | Open Swivel - |
| €40 $45 €45 | £30 $35 €27 | £50 $61 €53 | £54 $66 €57 | £57 $80 €66 | £26 $35 €30 | £64 $76 €65 | £76 $95 €81 | £58 $73 €63 | £81 $102 €85 |
| 88g 3.1oz | 154g 5.5oz | 170g 6oz | 170g 6oz | 160g 5.6oz | 79g 2.8oz | 95g 3.4oz | 150g 5.3oz | 75g 2.6oz | 130g 4.6oz |
| 22kN 4945lbf | 30kN 6744lbf | 36kN 8093lbf | 36kN 8093lbf | 42kN 9442lbf | 35kN 7868lbf | 23kN 5170lbf | 36kN 8093lbf | 26kN 5845lbf | 23kN 5170lbf |
| 18mm 0.7" | 23mm 0.9" | 30.5mm* 1.2" | 31.75mm 1.25" | 23mm 0.9" | 21mm 0.8" | 19 22mm 0.75 0.8" | 27mm 1.2" | 14 22mm 0.55 09" | 23 29mm 0.9 1" |
| 86 x 39mm 3.4 x 1.5" | 110 x 55mm 4.3 x 2.1" | 110 x 54.7mm 4.3 x 2.15" | 114 x 52mm 4.5 x 2" | 113.5 x 54mm 4.5 x 2.1" | 85 x 36mm 3.3 x 1.4" | 82 x 45mm 3.2 x 1.6" | 105 x 53mm 4.1 x 2.1" | 76 x 45mm 3 x1.8" | 97 x 50mm 3.5 x 2" |
| ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| - | - | - | - | - | ■ | - | - | ■ | ■ |
| CE | | CE ANSI | CE ANSI | CE | CE | CE NFPA EAC UKCA | CE NFPA EAC UKCA | CE EAC UKCA | CE EAC UKCA |
| Alu | Alu | Alu | Alu | Alu | Alu | Alu | Alu | Alu | Alu |
| | | *max bar size < 25mm/1" | | | | ■ | | no bearings so Does not rotate once loaded | 14mm gate |
| elweiss-ropes.com | fixeclimbing.com | fusionclimb.com | fusionclimb.com | kong.com | irudek.com | petzl.com | petzl.com | petzl.com | petzl.com |

**Images NOT to Scale**
COSTS: Any £$€ shown in burnt orange are currency conversions only and will not include shipping, import duty and tax.

| MANUFACTURER | PROTEKT | ROCK EMPIRE | ROCK EXOTICA | ROCK EXOTICA | ROCK EXOTICA | ROCK EXOTICA | ROCK EXOTICA | ROCK EXOTICA R |
|---|---|---|---|---|---|---|---|---|
| MODEL VARIANT | KR-200 210 - | ZWB018 - | Shackle Swivel SS1 | Triangle S1L | Rotator Round Large S2L | Orbitor S3 | Nano-Swivel S11 | Stainless Steel S2S-B |
| ORIGIN | | | | | | | | |
| COST | £38 $51 €44 | £39 $49 €46 | £95 $129 €1104 | £65 $75 €90 | £64 $87 €74 | £77 $104 €89 | £84 $114 €98 | £156 $190 €180 £ |
| WEIGHT | 157 167g 5.5 5.9oz | 74.2g 2.6oz | 163g 5.76oz | 144g 5.1oz | 127g 4.5oz | 99g 3.5oz | 57g 2oz | 227g 8oz |
| MAX LOAD | 30kN 6744lbf | 30kN 6744lbf | 36kN 8093lbf | 36kN 8093lbf | 36kN 8093lbf | 26kN 5845lbf | 23kN 5170lbf | 36kN 8093lbf |
| LOWER/MAX EYE SIZE | 29-34mm* 1.1-1.3" | 21mm 0.83" | 19 24-30mm 0.75 0.9-1.2" | 26-30mm 1-1.2" | 24-30mm 0.9-1.2" | 20-28mm 0.8-1.1" | 11 18-20mm 0.4 0.7-0.8" | 30mm 1.2" |
| DIMENSIONS heightt x width | 113 x 54mm 4.5 x 2.1" | 83 x 38mm 3.3 x 1.5" | 97x 50mm 3.8 x 2" | 108 x 50.8mm 4.24 x 2" | 97 x 50mm 3.8 x 2" | 71 x 37mm 2.8 x 1.44" | 69 x 38mm 2.7x1.5" | 94 x 51mm 3.7x 2" |
| BEARING/BUSHING | ■ ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| OPENABLE | - | - | ■ | - | - | - | - | - |
| STANDARDS | CE | CE | CE | - | CE | CE | CE | - |
| MATERIAL | Alu | Alu | Machined Alu , Steel | Machined Alu | Machined Alu | Machined Alu | Machined Alu | Stainless Steel |
| OTHER COLOURS/ NOTES | *max bar size 23mm/0.9" | | | DISCONTINUED | Rotator Small discontinued | | | non-black S2S version discontinued |
| WEBSITE | protekt.com | rockempire.com | rockexotica.com | rockexotica.com | rockexotica.com | rockexotica.com | rockexotica.com | rockexotica.com |

# LIFE SUPPORT SWIVELS

| | | | | | | | | | Expansion column |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | |  | |
| ROCK EXOTICA | ROCK EXOTICA | ROCK EXOTICA | SINGING ROCK | SKYLOTEC | SKYLOTEC | SKYLOTEC | SMC/ HARKEN | SMC/ HARKEN | |
| SwivaEye C82 A | SwivaBiner C81 A | Enforcer LC1 | Twister - | WIB H074 | CT Twister - | CT Twirl - | Reactor L - | Reactor S - | |
| 110 $131 €113 | £135 $183 €156 | £1050 $1422 €1375 | £37 $55 €43 | £44 $50 €46 | £62 $83 €70 | £70 $95 €81 | £50 $80 €62 | £45 $61 €52 | |
| 137g 4.86oz | 166g 5.9oz | 400g* 14oz | 88g 3.1oz | 160g 5.7oz | 80g 2.8oz | 170g 6oz | 136g 4.8oz | 82g 2.9oz | |
| 30kN 0lbf | 30kN 6744lbf | 36kN* 8093lbf | 22kN 4945lbf | 40kN 8992lbf | 24kN 5396lbf | 36kN 8093lbf | 40kN 8992lbf | 40kN 8992lbf | |
| 4-30 21mm* .95-1.2 0.84" | 24-30 24-30mm* 0.9-1.2 0.9-1.2" | 24-30mm 0.9-1.2" | 18mm 0.7" | 35mm* 1.3" | 19-24mm 0.75-1" | 26-30mm 1-1.2" | 25mm 1" | 14mm 0.55" | |
| 138 x 66mm 5.42x 2.6" | 185 x 66mm 7.3 x 2.6" | 203 x 53mm 8 x 2.1" | 86 x 39mm 3.4 x 1.5" | 110 x 50mm 4.3 x 2" | 84 x 43mm 3.3 x 1.7" | 116 x53mm 4.6 x 2.1" | 101 x 50mm 4 x 2" | 67 x 83mm 3.3 x 2.64" | |
| ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| - | - | - | - | - | - | - | - | - | |
| CE | - | CE | CE | CE | CE | CE | CE NFPA UKCA | CE NFPA UKCA | |
| Machined Alu | Machined Alu | Machined Alu | Alu | Alu | Hot forged Alu | Hot forged Alu | Forged Alu | Forged Alu | |
| *Top eye figure =gate opening | *Top & bottom eye figure =gate opening | *20kN max reading. *inc batteries | 4kN swivelling limit | *max round bar size 23mm/0.9" | ■ climbingtechnology.com | *max round bar size 24mm/0.9" | | | |
| ockexotica.com | rockexotica.com | rockexotica.com | singingrock.com | skylotec.com | skylotec.com | skylotec.com | smcgear.com | smcgear.com | |

# MULTISCENDERS

## HYBRID ASCENDER/DESCENDER/ MECHANICAL FRICTION DEVICES

**NEW in 2025**
**RockExotica**
**Akimbo²**

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-right) as market leaders alongside the *Zig Zag and Richard Mumford's XF* version of the *Hitch Hiker*. This has now led to *Buckingham*'s (*Buck-Tree*) *Throttle* (bottom-right) as the newest variation on the *Akimbo* while *Akimbo* itself now has a mk2. 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 Kev Binghams original *Wrench* concept with various tether adjuncts enabling SRS working with their adjustable cam *Apex* and their *Squirrel* and *Chipmunk* tethers. The systems above-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*, the *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 that fit more than one usage category like the *CMC MPD* as a descender/lowering/progress capture device or *SMC Advance HX* and *Petzl Traxion*s 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

# HYBRIDS MULTI ENDERS

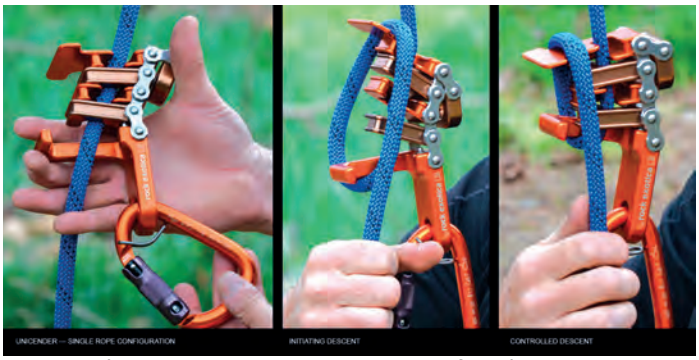
**NEW in 2025**
**ART**
**Blackbird**

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 what a lot of old-timers did (do?). The safer option is to switch to a dedicated ascender so really, that's 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 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, some devices highlighted in this article may have more to do with the original *Jumar*s than the *Stop* descender, take a look at the silver ascender above-middle, 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?

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 competitor to the *ZigZag* along with Jamie Merrit's *Akimbo* made by *Rock Exotica (*now with a mk2 variant). All have gone from garage prototype to an 'elite' level of production and perhaps Gordon Svedberg's *Bulldog* devices and *Climbing 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 2025 update. As of 2025 the key models remain the *Petzl's ZigZag*, *Rope Runner* and the *Akimbo* (and probably now the *Throttle, Blackbird* and *Akimbo*$^2$). Following in *ART*'s footsteps the *ZigZa*g has most closely followed doubled rope technique (DdRT/MRS) and the traditional functioning of a closed-loop/split-tail prusik systems. This is in contrast to the *Rope Runner* and *Akimbo* which are more SRT/SRS than DdRT/MRS though will adapt to it. The *Blackbird* and *Throttle* buck the trend, so to speak, because they have added eyes that DO

allow easy MRS use. The *ZigZag* failed to achieve universal acceptance before the 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 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/Throttle* are alien chain links. The Germans on the other hand, in the guise of those complex metal artisans *ART*, have continued to evolve their original *RopeJack* with the *SpiderJack* and now have a cross between the *Akimbo* and *Rope Runner* called the *Blackbird*. Their existing range might look intimidatingly complex but all five 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 *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:

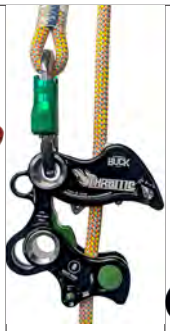
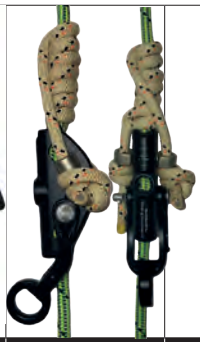
1) how well it functions as an ascender, and allied with this...
2) how efficient it is in NOT losing progress and efficiency to drop-back
3) how forgiving the start-stop function is
4) how easily it switches between modes

The ground-breaking *LockJack*s 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 top-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 *LockJack*s 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. ART's latest offering the Blackbird may show that the Akimbo/RopeRunner style devices are taking the lead against Lockjacks? More on the new Blackbird soon.

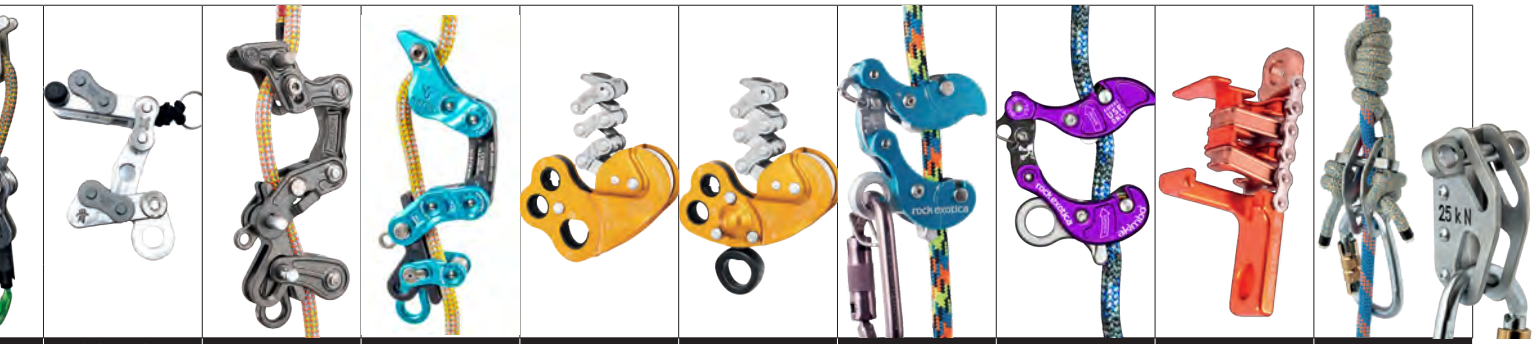
**WARNING: Unlike every other area of rope access & rescue, arborism generates a lot of home/garage modifications of existing products. Just like a car, ANY modification voids the warranty and any certification.**

SEE ALSO **ARBCLIMBER** #21 for detailed discussion of Multiscenders in comparison with enhanced DdRT systems and SRT Descenders. **BUYERSGUIDE** 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.

rock exotica
GEAR FOR THE Z AXIS
akimbo
For Stationary Rope / Moving Rope Systems — Made in USA
The AKIMBO is a versatile, mid-line attachable friction device that allows climbers to ascend and descend stationary or moving rope systems without needing tools or changing equipment.
Learn more at:
www.rockexotica.com
*Only use ropes approved by Rock Exotica. Consult user manual or website for details.
Patented
CE

| Images NOT to Scale<br>£$€ in burnt orange<br>=currency conversion only & exc shipping, duty & tax<br>**COST:** ~ & inc local tax/VAT<br>**WLL:** If no WLL is given by manufacturer we show a Max Load based on ~10:1 safety ratio<br>**HYPHEN**- = not applicable<br>N/A = Not Available/not given<br>● =OK but not ideal<br>~ = Approximate | | | | | |  |  | |
|---|---|---|---|---|---|---|---|---|
| **MANUFACTURER** | ART | ART | ART | ART | ART | BUCKING-HAM | CLIMBING INNOVATIONS | CMI/ SINGING TR |
| **MODEL VARIANT** | Blackbird | Lockjack Basic (aka Sport) | Lockjack 2 (swivel) | SpyderJack 2.1 Dyneema Velcro | SpyderJack 3 | Throttle | HitchHiker XF | Rope Run |
| **ORIGIN** | | | | | | | | |
| **COST** | £550<br>$630<br>€550 | £246<br>$410*<br>€286 | £280<br>$415<br>€315 | £267<br>$395<br>€316 | £406<br>$518<br>€425 | £369<br>$500<br>€435 | £230<br>$300<br>€250 | £289<br>$350<br>€333 |
| **WEIGHT** (System) | 609g<br>1lb 9oz | 268g<br>9.5oz | 310g<br>11oz | 281/241g<br>9.9oz/8.5oz | 511g<br>1lb 1oz | 535g<br>1lb 3oz | n/a | 246g<br>8.67oz |
| **MBS/MBL** | TBAkN<br>TBAlbf | 23kN<br>5170lbf | 23kN<br>5170lbf | 16kN<br>3597lbf | 25kN*<br>5620lbf | - | - | 22.7kN<br>5103lbf |
| **WLL** (Specific Ropes) | 150kg<br>330lb | 200kg<br>440lb | 200kg<br>440lb | 200kg<br>440lb | 200kg<br>440lb | 140kg<br>308lbf | <227kg*<br><500lb | 125kg<br>275lb |
| **MIN Rope Diameter** | 11.2mm<br>7/16" | 11mm<br>7/16" | 11mm<br>7/16" | 11mm<br>7/16" | 11mm/12mm*<br>7/16"/½" | 11mm<br>7/16" | 9mm<br>⅜" | 11mm<br>7/16" |
| **MAX Rope Diameter** | 13mm<br>½" | 13mm<br>½" | 13mm<br>½" | 13mm<br>½" | 12mm/14mm*<br>½"/ 9/16" | 13mm<br>½" | 14mm<br>9/16" | 13mm<br>½" |
| **HEIGHT** (System) | ?-300mm<br>-11.8" | 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" | TBA | 150/230mm<br>6/9" | 160 mm<br>6.3" |
| **SRT / SRS** | ■ | - | - | - | - | ■ | ■ | ■ |
| **DRT /SRS** | - | - | - | - | - | - | - | - |
| **DdRT / MRS** | ■ | ■ | ■ | ■ | ■ | ■ | ● | ● |
| **ASCEND** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **DESCEND** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **ADJUST FRICTION** | ■ | ● | ● | ● | ● | ■ | ● | ● |
| **MIDLINE ATTACH** | ■ | ■ | ■ | - | - | ■ | ■ | ■ |
| **INTEGRAL SWIVEL** | ■ | - | ■ | - | ■ | - | - | - |
| **ATTACH to CHEST** | ■ | ● | ● | - | - | ■ | ■ | ■ |
| **STANDARDS** (System) | EN 12841 B/C | CE | CE | CE | CE | ANSI | NO | CE |
| **FRAME MATERIAL** | Alu | Alu | Alu | Alu | Stainless Steel | Alu/StSteel | Alu/Steel | Alu /Ste |
| **RECOMMENDED ROPES**<br>**NOTES** | NEW in 2025<br>Two-person (rescue) capable in SRT mode. Capable of left or right handed use. | *imported by VSG/Sherril so price of basic vs swivel seems to be higher than ££ equivalent.<br>*system=with rope & knob. Fixed carabiner eye.<br>All components replaceable . Approved for two person load | *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 states 25kN. Add approx10% for laser-cut of your logo | NEW in 2025<br>Attach midline and operate on SRS and MRS systems (without requiring the use of tools) the *Throttle* has addressed some of the issues associated with other devices. See their website for a list of recommended ropes | runs on 24 strand & Kernmantle, requires 8-10mm cord for climbing hitch<br>2 versions - with and without captive eye.<br>Works 180to90° website address is: climbing-innovations.com | EN 1891 typ low stretch k mantle rop |
| **WEBSITE** | climb-art.de | climb-art.de | climb-art.de | climb-art.de | climb-art.de | buckinghammfg.com | see above | cmigearusa. |

# MECHANICAL FRICTION DEVICES




| | GORDON SVEDBERG | NOTCH | NOTCH | PETZL | PETZL | ROCK EXOTICA | ROCK EXOTICA | ROCK EXOTICA | ROPETEK |
|---|---|---|---|---|---|---|---|---|---|
| | Bulldog Bone Adjustable | Rope Runner Pro | Rope Runner Vertec | Zig Zag | Zig Zag Plus | Akimbo | Akimbo² | Unicender | HitchHiker 2 |
| | | | | | | | | | |
| | £320<br>$385<br>€366 | £376<br>$440<br>€395 | £445<br>$495<br>€543 | £228<br>$310<br>€205 | £270<br>$370<br>€296 | £410<br>$415<br>€565 | £426<br>$425<br>€570 | £408<br>$400<br>€490 | £245<br>$300<br>€280 |
| | 433g<br>14.4oz | 425g<br>15oz | 453g<br>15.9oz | 365g<br>12.9oz | 425g<br>15oz | 261g<br>9.2oz | 301g<br>10.6oz | 310g<br>10.9oz | 275/545g<br>9.6oz/1.2lb |
| | - | - | - | - | - | 23kN<br>5,170lbf | 23kN<br>5,170lbf | 31kN<br>6969lbf | 25kN<br>5620lbf |
| | <113kg<br><250lb | 140kg<br>308lbf | 130kg<br>286lbf | 140kg<br>308lbf | 140kg<br>308lbf | 100/130kg<br>220/286lb | 100/130kg<br>220/286lb | <545kg*<br><1200lb | <522kg*<br><1150lb |
| | 10.5mm<br>7/16" | 11mm<br>7/16" | 11mm<br>7/16" | 11.5mm<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" |
| | 12mm<br>½" | 13mm<br>½" | 13mm<br>½" | 13mm<br>½" | 13mm<br>½" | 13mm<br>½" | 12.7mm<br>½" | 13mm<br>½" | 13mm<br>½" |
| | 175mm<br>6.9" | 158mm<br>6.2" | 155mm<br>6.1" | 115*-248/290mm<br>4.5*-7.9/" | 127*258/300mm<br>5*-10.1/11.8" | ~85*-200mm<br>~3.4*-7.9" | ~90*-208mm<br>~3.6*-8.2" | 155mm<br>6.1" | 105mm<br>4.15" |
| | ■ | ■ | ■ | ●* | ●* | ■ | ■ | ■ | ■ |
| | - | - | ■ | - | - | - | - | - | - |
| | ● | ● | ● | ■ | ■ | ● | ● | ■ | ● |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | - | ● | ■ | - | - | ● | ■ | ■ | ● |
| | ■ | ■ | ■ | - | - | ■ | ■ | ■ | ■ |
| | - | - | - | - | ■ | - | - | - | - |
| | ■* | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | NO | CE | CE | CE ANSI | CE ANSI | CE | CE | CE | NO |
| | Alu/Steel | Alu | Alu | Alu/Steel | Alu/Steel | Alu | Alu | Machined Alu | Steel & Alu |
| | The BDB is constantly evolving and hard to keep track of - monitor @surveyor on Treebuzz for more info (outside of Japan) . Image shows the Japanese made adjustable version. *via a tied cord loop | Centre chest attachment, smoother edges and drop-free mid-line rope attach | Tool-free friction adjustment. 7 friction settings. Centre chest attachment, smoother edges and drop-free mid-line rope attach | * height when in use for SRT<br>EN 1891 type A low stretch kernmantle ropes<br>* length with *Chicane* for SRT Cost=Add £168/$193/€174 | * height when in use for SRT<br>EN 1891 type A low stretch kernmantle ropes<br>* length with *Chicane* for SRT Cost=Add £168/$193/€174 | * height when in use<br>Check website for list of specific ropes to use.<br>Breakaway chest attachment when pulled downwards (ie. when not ascending-same on AK²) | NEW in 2025<br>* height when in use.<br>no specific rope brand require-ments<br>Replaceable cams<br>Sprung top arm (not cam) | *Load at which ropes slips thru<br>SRT Barrel attachment available to improve frictional adjustment. Not officially sold in Europe. | *Load at which prusik slips $495 as system with cord.<br>24 strand and Kernmantle requires 8-10mm cord for climbing hitch<br>*Comes with steel carabiner. Ropetek no longer supply cord but some stockists do. |
| | works-odsk.com | notchequipment.com | notchequipment.com | petzl.com | petzl.com | rockexotica.com | rockexotica.com | rockexotica.com | ropetek.com |

UPDATED Aug '25

# AUTOLOCKING, 2-WAY LANYARD/ FLIPLINE AJUSTERS

## AKA ROPE SHORTENERS

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

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 faction 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 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 it's 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!

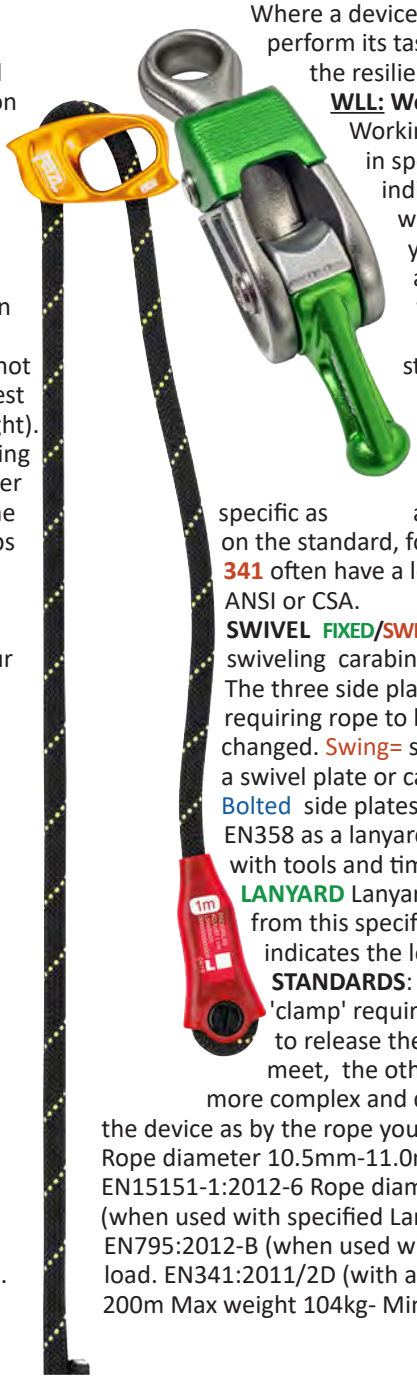
**COST:** Prices are a rough guide only - it can vary due to exchange rates, taxes etc. and we usually round the price up. Chinese devices may need import duty added.

**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.

**MAX**IMUM 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 | | | | | | |
|---|---|---|---|---|---|---|
| **MANUFACTURER** | **ABTECH** | **ANPEN** | **ART** | **ART** | **CAMP** | |
| **MODEL VARIANT** | **ROPE RAT**<br>ABRAT | **P15**<br>- | **Positioner Basic**<br>- | **Positioner 2 Swivel**<br>- | **Druid Pro**<br>2P654 | C |
| **ORIGIN** | | | | | | |
| **COST** (inc Tax) **DEVICE-ONLY**<br>**Inc. Integral LANYARD** | -<br>£144* $177 €165 | £111 $135* €125<br>- | £103 $165 €110<br>- | £125 $200 €140<br>- | £135 $220 €113<br>- | £296 |
| **WEIGHT** exc lanyard | 346g<br>12.2oz | 245g<br>8.6oz | 175g<br>6.2oz | 175g<br>6.2oz | 280g<br>9.9oz | |
| **MAX LOAD- WLL MBS** | 191kg 16kN<br>420lb 3597lbf | 250kg 16kN<br>551lb 3597lbf | 200kg 23kN<br>441lb 5170lbf | 200kg 23kN<br>441lb 5170lbf | 200kg 12kN<br>441lb 2697lbf | - |
| **ROPE RANGE Ø** | 11mm<br>7/16" | 9.5-11mm<br>3/8 - 7/16" | 11-13mm*<br>7/16 - 1/2" | 11-13mm*<br>7/16 - 1/2" | 10-11mm<br>3/8-7/16" | 10 |
| **DIMENSIONS** ht x w x depth | 114 x 73 x 24mm<br>4.5 x 2.9 x 0.9" | 140 x 50mm<br>5.5 x 2" | 120 x 45 x 38mm<br>4.7 x 1.8 x 1.5" | 135 x 45 x 38mm<br>5.3 x 1.8 x 1.5" | 118 x 76 x 46mm<br>4.7 x 3 x 1.8" | 150<br>5.9 x |
| **SWIVEL FIXED/SWING/BOLTED** | - | - | - | | | |
| **LANYARD RELEASE UNDER LOAD** | 2*/5/10m | | | | | |
| **USES: PCD BELAY DESC ASC** | - | | | | | |
| **FRAME CAM HANDLE** | Alu S.Steel Alu | Alu Alu Plastic | Alu Alu Alu | Alu Alu Alu | Alu S.Steel Alu | A |
| **STANDARDS** (with lanyard) | CE ANSI | GA494-2004 | CE ANSI | CE ANSI | CE | |
| **OTHER COLOURS** | | | - | - | - | |
| **NOTES** | 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 lock | |
| **WEBSITE** | abtechsafety.com | enanpen.com | smcgear.com | cmcpro.com | camp.it | cm |

| IMAGES NOT to SCALE | | | | | | |
|---|---|---|---|---|---|---|
| **MANUFACTURER** | **NOTCH** | **PETZL** | **PETZL** | **PETZL** | **RnR** | **SAR** |
| **MODEL VARIANT** | **Glide**<br>64055 | **GrillonPlus**<br>Grillon | **Zillon**<br>- | **Progress Adjust-I**<br>L044 | **Renegade**<br>P54 | |
| **ORIGIN** | | | | | | |
| **COST** (inc Tax) **DEVICE-ONLY**<br>**Inc. Integral LANYARD** | £123 $140 €131<br>- | -<br>£126 $240 €155* | -<br>£204 $260* €209 | £66 $72 €66*<br>- | -<br>£123 $150 €140* | £110 |
| **WEIGHT** exc lanyard | 206g<br>7oz | 208g<br>7.3oz | 570g<br>20oz | 185g<br>5oz | 140g<br>4.9oz | |
| **MAX LOAD- WLL MBS** | - 23kN<br>- 5170lbf | 100-140kg n/akN<br>220-309lb n/albf | 150kg n/akN<br>330lb n/albf | 140kg n/akN<br>308lb n/albf | 509kg 23kN<br>1124lb 5170lbf | 104-<br>230-3 |
| **ROPE RANGE Ø** | 11-13mm*<br>7/16 - 1/2" | 11mm<br>7/16" | 11mm<br>7/16" | 11mm<br>7/16" | ≤11mm<br>≤7/16" | 10 |
| **DIMENSIONS** ht x w x depth | 140 x 90 x 33mm<br>5.5 x 3.5 x 1.3" | 105 x 63 x 42mm<br>4.2 x 2.5 x 1.65" | 100+ x 35mm<br>4+ x 1.4" | 50 x 36mm<br>2 x 1.4" | 85.5 x 44 x 31mm<br>3.4 x 1.7 x 1.2" | 112<br>4.4 |
| **SWIVEL FIXED/SWING/BOLTED** | | - | - | - | - | |
| **LANYARD RELEASE UNDER LOAD** | | 2*/3/4/5/10/15/20m | 2.5*/4/5.5m | 1*/2/3/4/5m | 8'*, 12' | |
| **USES: PCD BELAY DESC ASC** | | | * * | | | |
| **FRAME CAM HANDLE** | Alu StSt Alu | Alu StSt Plastic | Alu StSt - | Alu - - | Alu Alu Alu | Al |
| **STANDARDS** (with lanyard) | ASTM CE | CE ANSI CSA EAC UKCA | CE | CE ANSI CSA EAC UKCA | CE | |
| **OTHER COLOURS** | | | | | - | |
| **NOTES** | 3 friction settings to cater for rope sizes | | *As a DdRT device | can use dynamic rope | | *converts swing-che |
| **WEBSITE** | notchequipment.com | petzl.com | petzl.com | petzl.com | rocknrescue.com | sarpr |

| CMC | CMC | HEIGHTEC | GIBBS | ISC | KONG | |
|---|---|---|---|---|---|---|
| Capto 11<br>336011 | Capto 13<br>336013 | Piranha<br>LA02 | Klimair BiDirectional<br>- | RAD<br>RP815 | Trimmer +<br>Trimmer | |
| | | | | | | |
| 6 $359 €341<br>- | £296 $359 €341<br>- | -<br>£132* $161 €151 | £104 $110 €103<br>- | £110 $165 €126<br>- | £72 $85 €81<br>- | |
| 513g<br>1.13lb | 508g<br>1.12lb | 800g<br>1.76lb | 156g<br>5.5oz | 306g<br>10oz | 120g<br>4.2oz | |
| - 36kN<br>- 8093lbf | - 36kN<br>- 8093lbf | 125kg n/akN<br>276lb n/albf | 454kg 22.2kN<br>998lb 5000lbf | 104-150kg 16kN<br>230-331lb 3597lbf | 509kg 23kN<br>1124lb 5170lbf | |
| 0.5-11mm<br>7/16" | 10-13mm<br>3/8-1/2" | 10.5-11mm<br>7/16" | 11-13mm*<br>7/16 - 1/2" | 10.5-11mm<br>7/16" | ≤10 11mm<br>≤3/8 7/162" | |
| x 70 x 31mm<br>2.75 x 1.2" | 254 x 102 x 62mm<br>10 x 4 x 2.4" | 108 x 61 x 26mm<br>4.25 x 2.4 x 1" | 75 x 50 x 23mm<br>3 x 2 x 1" | 112 x 73 x 34mm<br>4.4 x 2.8 x1.4" | 85.5 x 44 x 31mm<br>3.4 x 1.7 x 1.2" | |
| - ■ | - ■ | ■ ■ | ■ ■ | - ■* | - ■ | |
| ■ | ■ | 2*/3/5/10/20m ■ | - | ■ | 1.3/2/3/4/5m ■ | |
| ■●● | ■●● | ●● | ■■ | ■■■ | ●● | |
| Alu Alu - | Alu Alu - | Alu Steel Alu | Alu Alu - | Alu S.Steel Alu | Alu Alu Alu | |
| CE | CE | CE | | CE | CE | |
| - | - | - | - | ■ | - | |
| | | | *NOT for wire core rope | *converts between fixed and swing-cheek. Sprung handle | | |
| cpro.com | cmcpro.com | heightec.com | gibbsproducts.com | iscwales.com | kong.it | |

| PRODUCTS | SINGING ROCK | SINGING ROCK | SKYLOTEC | SKYLOTEC | TAZ | TRANGO |
|---|---|---|---|---|---|---|
| RAD<br>P54D | SIR<br>K032SIR00 | Jack<br>K0126YX00 BX00 | Lory Pro X<br>A041 | Tuner Pro<br>L-1017-XX | Lov 3<br>- | Vergo<br>P51 SH |
| | | | | | | |
| 0 $135 €126<br>- | £153 $190 €133<br>- | £138 $187 €159<br>- | £107 $130 €147<br>€305* | £00 $00 €00<br>£78* $00 €00* | £176 $275 €200<br>- | £82 $100 €94<br>- |
| 307g<br>10oz | 365g<br>12.9oz | 410g<br>14.5oz | 390g<br>13.7oz | 00g<br>00oz | 353g<br>12.4oz | 195g<br>6.9oz |
| -150kg 16kN<br>331lb 3597lbf | 225kg 21kN<br>496 4721lbf | 200kg 15kN<br>441 3372lbf | 225kg 21kN<br>496 4721lbf | 150kg 00kN<br>330 0000lbf | 0kg 15kN<br>0 3372lbf | 8 36kN<br>1798 8093lbf |
| 0.5-11mm<br>7/16" | 10-12mm<br>3/8-1/2" | 9.3-11mm<br>3/8- 7/16" | 11mm<br>7/16" | 9.6mm<br>3/8" | 10-11mm<br>7/16" | 8.9-10.7mm<br>≤1/2" |
| x 73 x 34mm<br>x 2.8 x 1.4" | 134 x 71 x 35mm<br>5.3 x 2.8 x 1.4" | 180 x70 x55mm<br>7 x 2.75 x 2.16" | 134 x 71 x 35mm<br>5.3 x 2.8 x 1.4" | 000 x 00 x 00mm<br>00 x 00 x 00" | 140 x 95 x 50mm<br>5.5 x 3.75 × 2" | 103 x 58 x 32mm<br>4 x 2.3 x 1.25" |
| - ■* | - ■ | - ■ | - ■ | - ■ | - ■ | - ■ |
| ■ | ■ | ■ | 1.5*/2/3/5m ■ | 1.3/2/3/5/10*m ? | ■ | ■ |
| ■■●● | ■●● | ■■■■ | ■●● | ● | ■■■● | ■■■ |
| u StSt Alu | Alu StSt Plastic | Alu Fe Alloy Alu | Alu StSt Plastic | Alu Alu - | Alu StSt Plastic | Alu Cast St Plastic |
| CE | CE ANSI | CE DIN | CE DIN | CE DIN | CE | CE |
| - | - | ■ | - | - | - | - |
| s between fixed and eek. Sprung handle. | Standard Lory has panic brake | | | single, twin & flex versions | | |
| roducts.com | singingrock.com | singingrock.com | skylotec.com | skylotec.com | taz3d.fr | trango.com |

**UPDATED Jul '25**

# 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 god 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 RollClip*s 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.

NEW

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| Images NOT to Scale<br>■ EN12278 as a PULLEY<br>■ EN12275 for SPORT<br>■ EN362 for WORK<br>EAC=Eastern Europe/Russia<br>UIAA =mountaineering<br>UKCA=UK | | | | | | |
|---|---|---|---|---|---|---|
| **MANUFACTURER** | DMM | DMM | DMM | DMM | DMM | DMM |
| **MODEL VARIANT** | Revolver Snap<br>A238 | Revolver SG<br>A272 | Revolver LockSafe<br>A277 | Revolver Kwiklok<br>A273 | Revolver Rig SG<br>A5821CB | Revolver Rig<br>LockSafe A5871 |
| **ORIGIN** | | | | | | |
| **COST** (inc Tax/VAT) | £29 $37 €33 | £31 $48 €36 | £37 $50 €49 | £34 $43 €39 | £82 $107 €91 | £85 $107 €11 |
| **WEIGHT** min- max (see gatelock colour-coding) | 51 g<br>1.8oz | 63g<br>2.2oz | 70g<br>2.4oz | 69g<br>2.4oz | 196g<br>6.9oz | 203g<br>7.2oz |
| **MBS** 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 5620lb<br>7kN 1574lbf |
| **MIN-MAX ROPE Ø** | ≤12.7mm ½" | ≤12.7mm ½" | ≤12.7mm ½" | ≤12.7mm ½" | 13mm ½" | 13mm ½" |
| **DIMENSIONS** 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" |
| **SHEAVE Ø** *TREAD*<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" |
| **PULLEY EFFICIENCY SWL** | n/a | n/a | n/a | n/a | n/a | n/a |
| **GATELOCK- SNAP SCREW**<br>Auto2 Auto3 Auto4 **ACTIONS** | ■ | ■ | ■ | ■ | ■ | ■ |
| **CAPTIVE EYE BECKET** | -- | -- | -- | -- | ■■ | ■■ |
| **MATERIAL: 'BINER SHEAVE** | Alu Alu | Alu Alu | Alu Alu | Alu Alu | Alu Alu | Alu Alu |
| **STANDARDS** | UIAA CE ■ | UIAA CE ■■ | UIAA CE ■■ | UIAA CE ■■ | CE ■■ | CE ■■ |
| **OTHER COLOURS** | ■ ■ | ■ | ■ | ■ | ■ | ■ |
| **NOTES** | | | | | | |
| **WEBSITE** | dmmwales.com | dmmwales.com | dmmwales.com | dmmwales.com | dmmwales.com | dmmwales.cor |

| Images NOT to Scale<br>■ EN12278 as a PULLEY<br>■ EN12275 for SPORT<br>■ EN362 for WORK<br>EAC=Eastern Europe/Russia<br>UIAA =mountaineering<br>UKCA=UK | | | | | | |
|---|---|---|---|---|---|---|
| **MANUFACTURER** | HARKEN | HARKEN | KAILAS | LACD | PETZL | PETZL |
| **MODEL VARIANT** | Snatchet<br>INSN65R | Snatchet<br>INSN65 | Rota<br>EC202 | Trilock W<br>1242 | RollClip Snap<br>P74 | RollClip Triac<br>P74TL |
| **ORIGIN** | | | | | | |
| **COST** (inc Tax/VAT) | £270 $340 €315 | £228 $286 €263 | £44 $51 €46 | £35 $49 €40 | £35 $41 €46 | £40 $52 €44 |
| **WEIGHT** min- max (see gatelock colour-coding) | 178g<br>6.3oz | 178g<br>6.3oz | 121g<br>4.3oz | 131g<br>4.6oz | 69g<br>2.4oz | 115g<br>4oz |
| **MBS** 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 4496lb<br>7kN 1574lbf |
| **MIN-MAX ROPE Ø** | 9-14mm ⅜-9⁄16" | 9-14mm ⅜-9⁄16" | 7-13mm 9⁄32-½" | 7-13mm 9⁄32-½" | 7-13mm 9⁄32-½" | 7-13mm 9⁄32-½ |
| **DIMENSIONS** 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" |
| **SHEAVE Ø** *TREAD*<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 |
| **PULLEY EFFICIENCY SWL** | n/a 10kN | n/a 10kN | 85% 4kN | n/a | 85% 4kN | 85% 4kN |
| **GATELOCK- SNAP SCREW**<br>Auto2 Auto3 Auto4 **ACTIONS** | ■ | ■ | ■ | ■ | ■ | ■ |
| **CAPTIVE EYE BECKET** | -- | -- | -- | -- | □- | □- |
| **MATERIAL: 'BINER SHEAVE** | Steel StSt - | Steel StSt | Alu Alu | Alu Alu | Alu Alu | Alu Alu |
| **STANDARDS** | CE ■ANSI | CE ■■ ANSI | CE ■■■ | CE ■■■ | CE ■■ EAC UKCA | CE ■■■EAC U |
| **OTHER COLOURS** | ■ | ■ | ■ ■ | | ■ | ■ |
| **NOTES** | Ratchet version | Non-Ratchet version | Hot-forged, no snag nose | DISCONTINUED? | | |
| **WEBSITE** | harken.com | harken.com | kailasgear.com | lacd.de | petzl.com | petzl.com |

# CARABINER PULLEYS

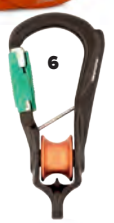
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | expansion column |
| | DMM | DMM | DMM | DMM | EDELRID | EDELRID | |
| CB | Revolver Rig Durolok A5841CB | Revolver Rig SG Dbl A5822CB | Revolver Rig LockSafe Dbl A5872CB | Revolver Rig Durolok Dbl A5842CB | Axiom Slider 54640 | Axiom 54640 | |
| | UK | UK | UK | UK | DE | DE | |
| 11 | £87 $110 €96 | £87 $110 €96 | £90 $118 €122 | £95 $120 €111 | £42 $54 €50 | £36 $50 €43 | |
| | 213g 7.5oz | 214g 7.5oz | 219g 7.7oz | 226g 8oz | 68g 2.4oz | 66g 2.3oz | |
| f | 7kN 1574lbf 25kN 5620lbf 7kN 1574lbf | 7kN 1574lbf 25kN 5620lbf 7kN 1574lbf | 7kN 1574lbf 25kN 5620lbf 7kN 1574lbf | 7kN 1574lbf 25kN 5620lbf 7kN 1574lbf | 8kN 1798lbf 22kN 4945lbf 7kN 1574lbf | 8kN 1798lbf 22kN 4945lbf 7kN 1574lbf | |
| | 13mm ½" | 8mm 5/16" | 8mm 5/16" | 8mm 5/16" | 13mm ½" | 13mm ½" | |
| | 161 x 76mm 6.3 x 3" | 161 x 76mm 6.3 x 3" | 161 x 76mm 6.3 x 3" | 161 x 76mm 6.3 x 3" | 125 x 65mm 4.9 x 2.6" | 125 x 65mm 4.9 x 2.6" | |
| | 24mm 0.95" 20mm 0.8" | 2x 25.7mm 1" 23mm 0.9" | 2x 25.7mm 1" 22mm 0.87" | 2x 25.7mm 1" 20mm 0.87" | 12mm 0.47" 15mm 0.6" | 12mm 0.47" 15mm 0.6" | |
| | n/a | n/a | n/a | n/a | 86% 4kN | 86% 4kN | |
| | ■ | ■ | ■ | ■ | ■ | ■ | |
| | ■■ | ■■ | ■■ | ■■ | ■ | -- | |
| | Alu Alu | Alu Alu | Alu Alu | Alu Alu | Alu Alu | Alu Alu | |
| | CE ■■ | CE ■■ | CE ■■ | CE ■■ | CE ■ | CE ■ | |
| | ■ | ■ | ■ | ■ | - | ■ | |
| | | | | | | 3 friction settings to cater for rope sizes | |
| m | dmmwales.com | dmmwales.com | dmmwales.com. | dmmwales.com | edelrid.com | edelrid.com | |
| | | | | | | | | expansion column |
| | PETZL | PETZL | RNR | SPIDER SLACKLINES | SPIDER SLACKLINES | TREERUNNER | |
| t | RollClip Z SL P75SL | RollClip Z Triact P75TL | Onyx RC049 | Rollex Highline SS 2P | Rollex Highline SG 2P | Spin 64055 | |
| | FR | FR | US | IT | IT | US | |
| 4 | £36 $48 €45 | £40 $52 €46 | £40 $39 €46 | £43 $55 €50/75 | £47 $58 €53 | £31 $39 €35 | |
| | 105g 3.7oz | 110g 3.9oz | 139g 4.9oz | 129g 4.6oz | 139g 4.9oz | 132g 4.7oz | |
| f | 8kN 1798lbf 20kN 4496lbf 7kN 1574lbf | 8kN 1798lbf 20kN 4496lbf 7kN 1574lbf | 8kN 1798lbf 20kN 4496lbf 7kN 1574lbf | 8kN 1798lbf 20kN 4496lbf 7kN 1574lbf | 8kN 1798lbf 20kN 4496lbf 7kN 1574lbf | 7kN 1574lbf 20kN 4496lbf 8kN 1798lbf | |
| " | 7-13mm 3/32-½" | 7-13mm 3/32-½" | 7-13mm 3/32-½" | web24-26mm0.9-1" | web24-26mm0.9-1" | 7-13mm 3/32-½" | |
| | 109 x 60mm 4.3 x 2.4" | 109 x 60mm 4.3 x 2.4" | n/a | 130 x 67mm 5.1 x 2.6" | 130 x 67mm 5.1 x 2.6" | 130x73mm 5.1 x 2.9" | |
| " | 18mm 0.7" 21mm 0.825" | 18mm 0.7" 20mm 0.8" | ?mm ?mm | 27mm/1.1" 31mm/1.2" | 25mm/1" 24mm/1" | 21mm/1" 24mm/1" | |
| | 85% 4kN | 85% 4kN | n/a 4kN | n/a 4kN | n/a 4kN | n/a n/a | |
| | ■ | ■ | ■ | ■ | ■ | ■ | |
| | □- | □- | -- | -- | -- | -- | |
| | Alu Alu | Alu Alu | Alu Alu | Alu Alu | Alu Alu | Alu Alu | |
| KCA | CE ■■■ EAC UKCA | CE ■■■ EAC UKCA | - | CE ■ | CE ■ | CE ■ | |
| | ■ | ■ | ■ | ■■■■ | ■■■■ | ■■■■ | |
| | | | | Steel or Stainless Steel bearing Small lanyard eye | | | |
| | petzl.com | petzl.com | rocknrescue.com | spider-slacklines.com | spider-slacklines.com | grube.eu | |

**UPDATED Aug '25**

# PULLEYS
## for General Rope-Use

Pulleys 101 states that the Minimum Breakling 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 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

IMAGES NOT TO SCALE

# MAGNAPULLEYS

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.

**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*

**andersonrescue.com**

| Images NOT to Scale<br>£$€ Currency Conversion-only<br>XX XX XX = Check/Update | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MANUFACTURER** | ART | CMI | CMI | CMI | CMI | DMM | DMM | DMM |
| **MODEL VARIANT** | Cocoon 5 - | RP141 | RP151 | RP161RS - | RollnAnchor - | HitchClimber Eccentric pul500 | Rigger pul400 | Rigger be pul41 |
| **ORIGIN** | | | | | | | | |
| **COST** (inc Tax) Conversion-only | £106 $176 €150 | £55 $78 €60 | £63 $85 €73 | £90 $120 €104 | £121 $160 €140 | £62 $85 €72 | £62 $85 €72 | £90 $115 |
| **WEIGHT** | 177g<br>6.2oz | 44g<br>1.5oz | 113g<br>4oz | 204/226g<br>7.2/8oz | 160g<br>5.6oz | 176g<br>6.2oz | 176g<br>6.2oz | 198g<br>3.5oz |
| **MAX LOAD- WLL MBS** | - 29kN<br>- 6520lbf | 3.1 31.1kN<br>700 7000lbf | 3.1 31.1kN<br>700 7000lbf | 8.8 44kN<br>1980 9900lbf | - 36kN<br>- 8000lbf | 6 32kN<br>1349 6744lbf | 8 40kN<br>1798 8992lbf | 8 40k<br>1798 89 |
| **MAX ROPE Ø** | ≤14mm<br>≤9⁄16" | ≤12.7mm<br>≤½" | ≤12.7mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | 7-14mm<br>5⁄16-9⁄16" | 7-14mm<br>5⁄16-9⁄16" | 7-14m<br>5⁄16-9⁄1 |
| **SHEAVE/TREAD Ø** | 30mm<br>1.2" | 32mm<br>1.25" | 32mm<br>1.25" | 32mm<br>1.25" | 23mm<br>0.92" | 28mm<br>1.1" | 28mm<br>1.1" | 28mm<br>1.1" |
| **DIMENSIONS** 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" | 114 x 45mm<br>4.5 x 1.75" | 96x76x44mm<br>3.8x2.8x1.7" | 94x68x33mm<br>3.7x2.7x1.3" | 124x68x3<br>4.9 x2.7x |
| **PRUSIK TEND LOCK BECKET** | - - - | ■ - - | ■ - - | ■ - - | ■ - ■ | ■ - - - | ■ - - | ■ - ■ |
| **BUSHING BEARING PIN** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **CHEEKS - SWIVEL FIXED** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **EFFICIENCY** | | | | | | | | |
| **CHEEK SHEAVE AXLE** | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu |
| **STANDARDS** | CE | ANSI | ? | CE | ? | CE | CE NFPA | CE NF |
| **OTHER COLOURS** | - | - | - | - | - | ■ ■ ■ ■ | ■ | ■ |
| **NOTES** | rope feeds directly onto top pin | | | RS=removable axle/ sheave +$2 | Referred t as 'RA' | For HitchClimber prusik system | | |
| **WEBSITE** | climb-art.de | cmigearusa.com | cmigearusa.com | cmigearusa.com | cmigearusa.com | dmmwales.com | dmmwales.com | dmmwales |

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 *Ultralink*s 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

# extracted ARBORIST MICRO PULLEYS

| M | DMM | EDELRID | ISC | NOTCH | OMEGA PACIFIC | PROTEKT | ROCK EXOTICA | SINGING ROCK | SKYLOTEC |
|---|---|---|---|---|---|---|---|---|---|
| ecket 0 | HitchClimber Triple Attach pul100 | Puck 854050003290 | Phlotich RP282BRBS | Rook x | Octavia - | TREE UP TU 421 | Hydra P4 | Miky RK806BB00 | CT Orbiter A 2P665 |
| | | | | | | | | | |
| 5 €98 | £50 $68 €58 | £53 $71 €60 | £38 $52 €44 | £132 $179 €154 | £50 $60 €58 | £23 $28 €27 | £134 $182 €155 | £35 $48 €41 | £30 $41 €35 |
| g z | 133g 4.7oz | 164g 5.8oz | 145g 5oz | 189g 6.7oz | 166g 5.85oz | 160g 5.6oz | 189g 6.7oz | 105g 3.7oz | 104g 3.7oz |
| N 92lbf | 6 30kN 1349 6744lbf | 8 40kN 1798 8992lbf | - 30kN - 6744lbf | 2.8 28kN 629 6295lbf | - 32kN - 4945lbf | 5 25kN 1124 5620lbf | 5 28kN 1124 6295lbf | - 28kN - 6295lbf | 5 30kN 1124 6744lbf |
| m " | ≤14mm ≤9/16" | ≤13mm ≤½" | ≤13mm ≤½" | ≤13mm ≤½" | 8-14mm 5/16-9/16" | ≤13.5mm ≤17/32" | ≤13mm ≤½" | ≤13mm ≤½" | 8-13mm 5/16-½" |
| n | 28mm 1.1" | 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" | 29mm 1.2" | 19mm 0.75" |
| 3mm x1.3" | 94x68x33mm 3.7x2.7x1.3" | 98x68x33mm 3.8x2.7x1.3" | 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" |
| | ■ - - | ■ - - | ■ - - | - - - | ■ - - | ■ - - | - - - | - - - | ■ - |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | | 94% | | >90% | | | >90% | 81% | 80% |
| StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu Alu | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt |
| PA | CE | CE | CE UKCA | ANSI CE | CE | CE | CE | CE | CE |
| | ■ | | ■ ■ ■ ■ ■ | - | - | ■ ■ | - | - | - |
| | For HitchClimber prusik system | | For HitchClimber prusik system | | | Updated model'23 | | Updated model'25 | NB: this CT data differs from Skylotec's |
| s.com | dmmwales.com | edelrid.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 | STEIN | TEUFELBERGER |
|---|---|---|
| Skywalker - | Skywalker Pro - | Glide-Hitch - |
| | | |
| £40 $55 €48 | £51 $75 €60 | £42 $56 €47 |
| 100g 3.5oz | 145g 5oz | 125g 4.4oz |
| - 36kN - 8093lbf | - 30kN - 6744lbf | 7 35kN 1574 7868lbf |
| ≤13mm ≤½" | ≤13mm ≤½" | ≤13mm ≤½" |
| 38mm 1.5" | 42/30mm 1.6/1.2" | 28.5/17mm 1.1/0.7" |
| 74x60x29mm 2x1.77x1.1" | 97x69x34mm 3.8x2.7x1.3" | 98x35x32mm 3.8x1.4x1.3" |
| ■ - - | ■ - - | ■ - - |
| ■ | ■ | ■ |
| ■ | ■ | ■ |
| - | | |
| Alu Alu StSt | Alu Alu StSt | Alu Alu StSt |
| CE | CE UKCA | CE UIAA UKCA |
| ■ | ■ | - |
| | For HitchClimber prusik system | For HitchClimber prusik system |
| stein.com | stein.com | stein.com |

| Images NOT to Scale<br>£$€ Currency Conversion-only<br>XX.XX.XX = Check/Update | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MANUFACTURER** | ALPIDEX | ANPEN | ANPEN | ANPEN | ANPEN | ARS<br>ANDERSON RESCUE SOLUTIONS | ARS<br>ANDERSON RESCUE SOLUTIONS | ARS<br>ANDERSON RESCUE S |
| **MODEL VARIANT** | Mobile<br>107 | U29<br>- | U28<br>- | U01<br>- | U02<br>2155 | Magna Single | Magna Becket | Magna Do |
| **ORIGIN** | | | | | | | | |
| **COST** (inc Tax) Conversion-only | £14 $20 €16 | £28 $44 €38 | £45 $61 €52 | £18 $24 €20 | £27 $36 €31 | £75 $98 €86 | £91 $120 €104 | £145 $185 |
| **WEIGHT** | 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 |
| **MAX LOAD- WLL MBS** | - 20kN<br>- 4496lbf | - 32kN<br>- 7195lbf | - 32kN<br>- 7195lbf | - 32kN<br>- 7195lbf | - 32kN<br>- 7195lbf | - 28kN<br>- 0lbf | - 26kN<br>-5845lbf | - 40kN<br>- 8992 |
| **MAX ROPE Ø** | ≤11mm<br>≤7/16" | 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>≤7/16" | ≤11mm<br>≤7/16" | ≤11mm<br>≤7/16" |
| **SHEAVE/TREAD Ø** | 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" |
| **DIMENSIONS** ht x w x depth | 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 x36mm<br>4.7 x 3.2x 1.4" | 147x82x60mm<br>5.8 x3.2x2.4" | 76x63x26mm<br>3 x 2.5 x 1" | 105x63x26mm<br>4.1 x 2.5 x 1" | 76x63x53<br>3 x 2.5 x |
| **PRUSIK TEND LOCK BECKET** | - - - | - - - | - - - | - - - | - - ■ | ■ - - | ■ - ■ | ■ - - |
| **BUSHING BEARING PIN** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **CHEEKS - SWIVEL FIXED** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **EFFICIENCY** | - | - | - | - | - | - | - | - |
| **CHEEK SHEAVE AXLE** | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu |
| **STANDARDS** | CE | CE | CE | CE | CE | CE UKCA | CE UKCA | CE UKC |
| **OTHER COLOURS** | ■■■■■■■■■ | ■■■■ | ■■ | ■ | ■ | - | - | - |
| **NOTES** | | | | | | Magnetic cheeks to form double sheave | Magnetic cheeks to form double sheave | Magnetic-car into single p |
| **WEBSITE** | alpidex.com | en.anpen.net | en.anpen.net | en.anpen.net | en.anpen.net | andersonrescue.com | andersonrescue.com | andersonresc |

| Images NOT to Scale<br>£$€ Currency Conversion-only<br>XX.XX.XX = Check/Update | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MANUFACTURER** | BEAL | BEAL | BEAL | BLACK DIAMOND | BLUEWATER | BLUEWATER | BLUEWATER | BLUEWA |
| **MODEL VARIANT** | Transf'air 1B<br>- | Transf'air 2<br>- | Transf'air 2B<br>- | RP102D | Micro Pulley<br>61000 | Mini Pulley<br>- | Mini Dbl Pulley<br>610121 | Mini Dbl P<br>610122 |
| **ORIGIN** | | | | | | | | |
| **COST** (inc Tax) Conversion-only | £43 $57 €49 | £57 $77 €66 | £72 $98 €84 | £25 $34 €30 | £12 $15 €13 | £17 $22 €19 | £21 $28 €25 | £23 $30 |
| **WEIGHT** | 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 |
| **MAX LOAD- WLL MBS** | 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 |
| **MAX ROPE Ø** | ≤16mm<br>≤5/8" | ≤16mm<br>≤5/8" | ≤16mm<br>≤5/8" | n/a<br>n/a | ≤13mm<br>1/2" | ≤8mm<br>≤5/16" | ≤8mm<br>≤5/16" | ≤8mm<br>≤5/16" |
| **SHEAVE/TREAD Ø** | 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 21m<br>2x 0.82 |
| **DIMENSIONS** ht x w x depth | 118x83x36mm<br>4.6x3.3x 1.4" | 150x83x60mm<br>4.6x3.3x2.4" | 150x83x60mm<br>4.6x3.3x2.4" | 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 39<br>3.6 x 1. |
| **PRUSIK TEND LOCK BECKET** | - - - | - - ■ | - - ■ | - - - | - - - | ■ - - | ■ - - | ■ - ■ |
| **BUSHING BEARING PIN** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **CHEEKS - SWIVEL FIXED** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **EFFICIENCY** | - | - | - | - | - | - | - | - |
| **CHEEK SHEAVE AXLE** | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Nylon Alu | Alu Alu ZStl | Alu Alu StSt | Alu Alu StSt | Alu Alu |
| **STANDARDS** | CE UIAA | CE UIAA | CE UIA | CE | CE UIAA | CE | CE | CE |
| **OTHER COLOURS** | - | - | - | - | ■ | - | - | - |
| **NOTES** | | | | | | | | |
| **WEBSITE** | beal-planet.com | beal-planet.com | beal-planet.com | blackdiamond.com | bluewaterropes.com | bluewaterropes.com | bluewaterropes.com | bluewaterrop |

| | ARS<br>ANDERSON RESCUE SOLUTIONS | ART | ART | AT HEIGHT<br>JAMMY DESIGN | AUSTRIALPIN | BEAL | BEAL | BEAL | BEAL |
|---|---|---|---|---|---|---|---|---|---|
| ouble | Magna Double Becket | Link 2 - | Turnbase PSA - | PulleyOne P36 | AL02B - | Transf'air Mini - | Transf'airf Fixe - | Transf'air FixeB - | Transf'air 1 - |
| | | | | | | | | | |
| €166 | £178 $224 €204 | £49 $67 €57 | £82 $111 €945 | £83 $92 €85 | £13 $20 €15 | £28 $38 €33 | £24 $32 €27 | £42 $57 €49 | £38 $51 €44 |
| g | 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 |
| N<br>lbf | - 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 |
| m | ≤11mm<br>≤7⁄16" | ≤14mm<br>≤9⁄16" | ≤14mm<br>≤9⁄16" | ≤11.5mm<br>≤7⁄16" | ≤12mm<br>≤½" | ≤11mm<br>≤7⁄16" | ≤12mm<br>≤½" | ≤13mm<br>≤½" | ≤16mm<br>≤⅝" |
| n | 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" |
| 3mm<br>2.1" | 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 07" | 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" |
| | ■ - ■ | - - - | - - ■ | - - - | - - - | - - - | - - - | - - - | - - - |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | - | - | - | - | - | - | - | - | - |
| Alu | Alu Alu Alu | Stst Alu StSt | Alu Alu Alu | Alu Alu - | AluPolymerAlu | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt |
| CA | CE UKCA | CE | CE | CE | CE | CE UIAA | CE UIAA | CE UIAA | CE UIAA |
| | - | - | - | - | ☐ | - | - | - | - |
| n divide<br>ulleys | Magnetic-can divide into single pulleys | redirect for ART Rope Guide | inc. bridging spindle for becket | Clip through axle | | | | | |
| ue.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 |

| | CAMP | CAMP | CAMP | CAMP | CAMP | CAMP | CAMP | CAMP | CAMP |
|---|---|---|---|---|---|---|---|---|---|
| ATER<br>Pulley<br>2 | Andry<br>0108 | Sphinx<br>2152 | Sphinx Pro<br>2153 | Tethys<br>2154 | Tethys Pro<br>2155 | Dryad<br>2156 | Dryad Pro<br>2157 | Naiad<br>2158 | Naiad Pro<br>2159 |
| | | | | | | | | | |
| €26 | £14 $19 €16 | £26 $35 €30 | £32 $43 €37 | £31 $36 €31 | £32 $43 €37 | £52 $70 €60 | £61 $83 €71 | £50 $67 €58 | £58 $78 €67 |
| | 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 |
| N<br>lbf | - 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 |
| n | ≤12mm<br>≤ ½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤16mm<br>≤⅝" | ≤16mm<br>≤⅝" |
| mm<br>25" | 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" |
| mm<br>5" | 75 x36 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% |
| StSt | ZStl Nylon ZSt | 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 EAC | CE EAC | CE EAC | CE EAC | CE EAC | CE EAC | CE EAC | CE EAC |
| | - | ■ | ■ | ■ | - | - | - | - | - |
| | designed for safety net tensioning | | | | | | | | |
| es.com | camp.it | camp.it | camp.it | camp.it | camp.it | camp.it | camp.it | camp.it | camp.it |

| Images NOT to Scale<br>£$€ Currency Conversion-only<br>XX XX XX = Check/Update | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MANUFACTURER** | CAMP | CAMP | CMC | CMC | CMC | CMC | CMC | CMC |
| **MODEL VARIANT** | Janus<br>2160 | Janus Pro<br>2161 | Protech sngle<br>300501 | Protech dbl<br>300502 | HD2<br>300441 | HD2 Double<br>300442 | HD4<br>300461 | Rescue s<br>30030 |
| **ORIGIN** | | | | | | | | |
| **COST** (inc Tax) Conversion-only | £66 $89 €76 | £79 $104 €99 | £52 $71 €61 | £88 $119 €102 | £149 $184 €172 | £202 $249 €232 | £234 $289 €270 | £59 $80 |
| **WEIGHT** | 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 |
| **MAX LOAD- WLL MBS** | 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 | - 52k<br>- 1169 |
| **MAX ROPE Ø** | ≤16mm<br>≤⅝" | ≤16mm<br>≤⅝" | ≤11mm<br>≤7/16" | ≤11mm<br>≤7/16" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13m<br>≤½" |
| **SHEAVE/TREAD Ø** | 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" |
| **DIMENSIONS** ht x w x depth | 147 x 100 x 54mm<br>5.8 x 4x 2.1" | 147 x 100 x 54mm<br>5.8 x 4 x 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 30 mm<br>7.75 x 5.5 x 1.2" | 89 x 64 x 2<br>3.5 x 2.5 x |
| **PRUSIK TEND LOCK BECKET** | ■ - ■ | ■ - ■ | ■ - - | ■ - - | ■ - ■ | ■ - - | ■ - ■ | - - - |
| **BUSHING BEARING PIN** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **CHEEKS - SWIVEL FIXED** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **EFFICIENCY** | 90% | 97% | | | | | | |
| **CHEEK SHEAVE AXLE** | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu |
| **STANDARDS** | CE EAC | CE EAC | CE | CE | NFPA | NFPA | NFPA | NFPA |
| **OTHER COLOURS** | ■ | - | - | - | - | - | - | - |
| **NOTES** | | | machined alloy | machined alloy | Discontinued | Discontinued | Discontinued | |
| **WEBSITE** | camp.it | camp.it | cmcpro.com | cmcpro.com | cmcpro.com | cmcpro.com | cmcpro.com | cmcpro.c |

| Images NOT to Scale<br>£$€ Currency Conversion-only<br>XX XX XX = Check/Update | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MANUFACTURER** | CMI | CMI | CMI | CMI | CMI | CMI | CMI | CMI |
| **MODEL VARIANT** | RP104BB | RC104 | RC105 | RP105 | RP105D | RC106 | RP106BB | RP106 |
| **ORIGIN** | | | | | | | | |
| **COST** (inc Tax) Conversion-only | £98 $126 €115 | £103 $134 €111 | £70 $92 €85 | £95 $125 €108 | £152 $200 €172 | £124 $143 €130 | £124 $164 €141 | £199 $263 |
| **WEIGHT** | 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 | 1043<br>1lb 5. |
| **MAX LOAD- WLL MBS** | 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.<br>4000200 |
| **MAX ROPE Ø** | 16mm<br>⅝" | 16mm<br>⅝" | 16mm<br>⅝" | 16mm<br>⅝" | 16mm<br>⅝" | 16mm<br>⅝" | 16mm<br>⅝" | 16mm<br>⅝" |
| **SHEAVE/TREAD Ø** | 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" |
| **DIMENSIONS** ht x w x depth | 108x83x 25mm<br>4.25x3.25x1" | 111x89x25mm<br>4.4 x 3.5 x 1" | 152x83x25mm<br>6 x 3.25 x1" | 165x108x26mm<br>6.5 x 4.25 x 1" | 184x108x50mm<br>7.25 x 4.25 x 2" | 152x83x25mm<br>6 x 3.25 x1" | 165x108x26mm<br>6.5 x 4.25x1" | 184x108x<br>7.25 x 4.2 |
| **PRUSIK TEND LOCK BECKET** | - - - | - - - | - - ■ | - - - | - - ■ | - - ■ | - - - | - - ■ |
| **BUSHING BEARING PIN** | ■* ■ | ■ | ■ | ■ | ■ | ■ | ■* ■ | ■ |
| **CHEEKS - SWIVEL FIXED** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **EFFICIENCY** | 95.6% | 95.6% | 91.4% | 92.1% | n/a | 95.6% | 94.1% | 94.1% |
| **CHEEK SHEAVE AXLE** | StSt Alu StSt | StSt Steel StSt | StSt Steel StSt | StSt Alu StSt | StSt Alu StSt | StSt Steel StSt | StSt Alu StSt | StSt Alu |
| **STANDARDS** | CE | CE | CE | CE | CE | CE | CE | CE |
| **OTHER COLOURS** | - | - | - | - | - | - | - | - |
| **NOTES** | * Needle Bearing | wire cable-able<br>*needle bearing | Wire cable-able | bush | | wire cable-able<br>*needle bearing | *needle bearing<br>Ball Bearing +£10 | |
| **WEBSITE** | cmigearusa.com | cmigearusa.com | cmigearusa.com | cmigearusa.com | cmigearusa.com | cmigearusa.com | cmigearusa.com | cmigearus |

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|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | CMC | CMI | CMI | CMI | CMI | CMI | CMI | CMI | CMI |
| ingle<br>1 | Rescue dbl<br>300302 | RP101 | RP101D | RP102 | RP102D | RC102 | RP103 | RP103BB | RC103 |
| | | | | | | | | | |
| €68 | £94 $127 €108 | £41 $52 €45 | £68 $85 €79 | £60 $82 €70 | £118 $148 €128 | £73 $92 €84 | £84 $109 €99 | £90 $118 €105 | £88 $115 €102 |
| g<br>z | 249g<br>8.8oz | 170g<br>6oz | n/a | 198g<br>7oz | 510g<br>1lb 2oz | 340g<br>12oz | 198g<br>7oz | 198g<br>7oz | 340g<br>12oz |
| N<br>lbf | - 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 |
| m | ≤13mm<br>≤½" | ≤16mm<br>≤⅝" | ≤16mm<br>≤⅝" | ≤16mm<br>≤⅝" | ≤16mm<br>≤⅝" | ≤16mm<br>≤⅝" | ≤16mm<br>≤⅝" | ≤16mm<br>≤⅝" | ≤16mm<br>≤⅝" |
| n | 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" |
| 23mm<br>x 0.9" | 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 x3.25 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 3.25x1" | 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" |
| | - - | - - - | - - | - - - | - - | - - - | - - - | - - - | - - - |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■* | ■ | ■* |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | | 93.3 | 93.3 | 91.4 | n/a | 91.4 | 95.6 | n/a | 95.6% |
| StSt | Alu Alu StSt | Alu Celcon StSt | Alu Celcon StSt | Alu Alu StSt | Alu Alu StSt | Alu Steel StSt | Alu Alu StSt | Alu Alu StSt | Alu Steel StSt |
| A | NFPA | - | - | - | - | - | - | - | CE |
| | - | ■ | - | - | - | - | - | - | - |
| | | | Discontinued | | | | * Needle Bearing | | * Needle Bearing |
| com | cmcpro.com | cmigearusa.com | cmigearusa.com | cmigearusa.com | cmigearusa.com | cmigearusa.com | cmigearusa.com | cmigearusa.com | cmigearusa.com |

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|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | CMI PULLEYS NUMBERING 130,131, 145, 146,160.162 = Impact Blocks 139 & 143 = Trolleys. 141&151 =p64 No 128 or 150 |
| | CMI | CMI | CMI | CMI | CMI | CMI | CMI | CMI | |
| D | RP107 | RP108BB | RP109 | RP110 | RP110BB | RP110D | RP111 | RP112BB | |
| | | | | | | | | | |
| €226 | £101 $133 €115 | £133 $175 €151 | £37 $49 €43 | £38 $50 €43 | £48 $64 €55 | £62 $82 €71 | £66 $87 €75 | £101 $134 €116 | |
| g<br>oz | 822g<br>1lb 13oz | 822g<br>1lb 13oz | 71g<br>2.4oz | 71g<br>2.5oz | 71g<br>2.4oz | 113g<br>4oz | 318g<br>11.2oz | 318g<br>11.2oz | |
| .9kN<br>00lbf | 14.2 71.2kN<br>320016000lbf | 14.2 71.2kN<br>320016000lbf | 6.2 31.1kN<br>1400 7000lbf | 6.2 31.1kN<br>1400 7000lbf | 6.2 31.1kN<br>1400 7000lbf | 6.2 31.1kN<br>1400 7000lbf | - 37.8kN<br>1700 8500lbf | 7.5 37.8kN<br>1700 8500lbf | |
| n | 16mm<br>⅝" | 16mm<br>⅝" | ≤12.7mm<br>≤½" | ≤12.7mm<br>≤½" | ≤12.7mm<br>≤½" | ≤12.7mm<br>≤½" | 16mm<br>⅝" | 16mm<br>⅝" | |
| n | 100mm<br>4" | 100mm<br>4" | 31mm<br>1.25" | 31mm<br>1.25" | 31mm<br>1.25" | 2x 31mm<br>1.25" | 60mm<br>2.4" | 60mm<br>2.4" | |
| 50mm<br>5 x 2" | 190x127x26mm<br>7.5 x 5 x1" | 190x127x26mm<br>7.5 x 5 x1" | 70x41x24mm<br>2.75x1.6x1" | 70x41x24mm<br>2.75x1.6x1" | 70x41x24mm<br>2.75x1.6x1" | 89x41x46mm<br>3.5 x1.6x1.8" | 146x75x25mm<br>5.75 x 3 x1 | 152x83x25mm<br>6 x 3.25 x1 | |
| | - - - | - - - | ■ - - | ■ - - | ■ - - | - - | - - | - - | |
| | ■ | ■* ■ | ■ | ■ | ■ | ■ | ■ | ■* | |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| % | 93.7% | 95.6% | 84.1% | 84.1% | ?% | 133.6% | 91.4% | 95.6% | |
| StSt | StSt Alu StSt | StSt Alu StSt | AluNylonAlu | AluAluAlu | AluAluAlu | Alu Alu Alu | StSt Alu StSt | StSt Alu StSt | |
| | - | - | CE | ANSI | ANSI | CE | CE | CE | |
| | - | - | - | - | ■ | ■ | - | - | |
| | | *needle bearing Ball Bearing +£10 | | Alu sheave version shown | Alu sheave version shown | | | *needle bearing Ball Bearing +£13 | |
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| Images NOT to Scale<br>£$€ Currency Conversion-only<br>XX XX XX = Check/Update | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MANUFACTURER** | CMI | CMI | CMI | CMI | CMI | CMI | CMI | CMI |
| **MODEL VARIANT** | RP113 | RP114 | RP115 | RP116 | RP116BB | RP117NFPA | RP118NFPA | RP118 |
| **ORIGIN** | | | | | | | | |
| **COST** (inc Tax) Conversion-only | £20 $26 €23 | £47 $61 €48 | £39 $51 €44 | £45 $59 €51 | £54 $72 €56 | £54 $72/97 €55 | £66 $87/97 €73 | £60 $79 |
| **WEIGHT** | 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 |
| **MAX LOAD- WLL MBS** | 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.<br>1600 80 |
| **MAX ROPE Ø** | ≤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" | ≤12.7<br>≤½" |
| **SHEAVE/TREAD Ø** | 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" |
| **DIMENSIONS** ht x w x depth | 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 0x2<br>5 x 2.5 x |
| **PRUSIK TEND LOCK BECKET** | - - - | - - - | - - - | - - - | - - - | - - - | - - - | - - - |
| **BUSHING BEARING PIN** | ■ | ■ | ■ | ■* | ■ | ■* | ■ | ■ |
| **CHEEKS - SWIVEL FIXED** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **EFFICIENCY** | 86.4% | 89.2% | 89.2% | 90.6% | 90.6% | 90.6% | 89.2% | 89.2% |
| **CHEEK SHEAVE AXLE** | Alu Nylon StSt | Alu StSt StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | StSt Alu StSt | StSt StSt StSt | StSt Alu |
| **STANDARDS** | CE | CE | CE | - | - | Exceeds NFPA but no cert | Exceeds NFPA but no cert | |
| **OTHER COLOURS** | - | ■ | - | - | - | - | - | - |
| **NOTES** | | | | *Needle Bearing | | *Needle Bearing.<br>Ball Bearing +£11 $14 | | Alloy she<br>version of F |
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| Images NOT to Scale<br>£$€ Currency Conversion-only<br>XX XX XX = Under Review | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MANUFACTURER** | CMI | CMI | CMI | CMI | CMI | CMI | CMI | CMI |
| **MODEL VARIANT** | RP124NFPA | RP125 | RP125NFPA | RP126 | RP127 | RP129NFPA | RP132NFPA | RP133N |
| **ORIGIN** | | | | | | | | |
| **COST** (inc Tax) Conversion-only | £208 $275 €237 | £ 241 $318 €274 | £301 $ 397 €342 | £68 $89 €77 | £112 $148 €128 | £130 $172 €148 | £80 $105 €91 | £130 $172 |
| **WEIGHT** | 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 | 703g<br>1lb 9 |
| **MAX LOAD- WLL MBS** | 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 57<br>2600 130 |
| **MAX ROPE Ø** | ≤16mm<br>≤⅝" | ≤16mm<br>≤⅝" | ≤16mm<br>≤⅝" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤12.7mm<br>≤½" | ≤12.7mm<br>≤½" | ≤12.7<br>≤½" |
| **SHEAVE/TREAD Ø** | 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" |
| **DIMENSIONS** ht x w x depth | 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" | 172x133x<br>6.75x5x |
| **PRUSIK TEND LOCK BECKET** | - - ■ | - - ■ | - - ■ | - ■ - | - ■ - | ■ - - | ■ - - | ■ - |
| **BUSHING BEARING PIN** | ■ | ■* | ■* | ■ | ■ | ■ | ■ | ■ |
| **CHEEKS - SWIVEL FIXED** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **EFFICIENCY** | - | - | - | - | - | 91.7% | 90.7 | - |
| **CHEEK SHEAVE AXLE** | StSt Alu StSt | StSt Alu StSt | StSt Alu StSt | StSt Alu StSt | StSt StSt StSt | StSt Alu StSt | StSt Alu StSt | StSt Alu |
| **STANDARDS** | NFPA | | NFPA | - | - | CE | * | * |
| **OTHER COLOURS** | - | - | - | - | - | - | - | - |
| **NOTES** | NFPA +£61 $78 | * Needle Bearing | * Needle Bearing | Intended as a ropes course pulley | | | *Not NFPA but exceeds test | *Not NFPA exceeds t |
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|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Expansion Column |
| | CMI | CMI | CMI | CMI | CMI | CMI | CMI | CMI | |
| BA | RP119BB | RP120 | RP120A | RP121 | RP122NFPA | RP122SS | RP123NFPA | RP123SS | |
| | | | | | | | | | |
| €68 | £85 $112 €96 | £90 $119 €102 | £81 $107 €94 | £19 $22 €53 | £101 $133/144 | £150 $198 €171 | £112 $147 €127 | £166 $220 €190 | |
| g | 397g 14oz | 589g 20.8oz | 397g 14oz | 284g 10oz | 998g 2lb 4oz | 998g 2lb 4oz | 998g 2lb 4oz | 1633g 3lb 10oz | |
| 5kN 00lbf | 9.7 48.9kN 2200 11000lbf | 9.7 48.9kN 2200 11000lbf | 9.7 48.9kN 2200 11000lbf | - 30.2kN - 6800lbf | 17.8 88.9kN 4000 20000lbf | 17.8 88.9kN 4000 20000lbf | 17.8 88.9kN 4000 20000lbf | 17.8 88.9kN 4000 20000lbf | |
| mm | ≤12.7mm ≤½" | ≤12.7mm ≤½" | ≤12.7mm ≤½" | ≤16mm ≤⅝" | ≤16mm ≤⅝" | ≤16mm ≤⅝" | ≤16mm ≤⅝" | ≤16mm ≤⅝" | |
| n | 2x 50mm 2x 2" | 2x 50mm 2x 2" | 2x 50mm 2x 2" | 50mm 2" | 100mm 4" | 100mm 4" | 100mm 4" | 100mm 4" | |
| 1mm 0.8" | 165x66x37mm 6.5x2.6x 1.5" | 165x66x37mm 6.5x2.6x 1.5" | 165x66x37mm 6.5x2.6x 1.5" | 140x108x31mm 5.5x4.25x1.2" | 203x121x26mm 8 x 4.75 x 1" | 203x121x26mm 8 x 4.75 x 1" | 203x121x26mm 8 x 4.75 x 1" | 203x121x26mm 8 x 4.75 x 1" | |
| | - - ■ | - - ■ | - - ■ | ■ - - | - - - | - - - | - - - | - - - | |
| | ■* | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| % | 185.7% | 172.9% | 172.9% | 89.2% | 92.3% | 92.3% | 95% | 95% | |
| StSt | StSt Alu StSt | StSt StSt StSt | StSt Alu StSt | StSt Alu ZPS | StSt Alu StSt | StSt StSt StSt | StSt Alu StSt | StSt StSt StSt | |
| | - | - | - | - | Exceeds NFPA but no cert | - | NFPA | - | |
| | - | - | - | - | - | - | - | - | |
| ave RP118 | *Needle Bearing Ball Bearing +£10 $30 | | | | NFPA +£20 $26 | | NFPA +£14 $20 | | |
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|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Expansion Column |
| | CMI | CMI | CMI | CMI | CMI | CMI | CMI | CMI | |
| FPA | RP134 | RP135 | RP137 | RP137D | RP138 | RP140 | RP142 | RP144 | |
| | | | | | | | | | |
| €148 | £255 $337 €290 | £282 $372 €320 | £56 $73 €63 | £62 $84 €72 | £112 $148 €128 | £46 $60 €52 | £19 $25 €22 | £64 $84 €73 | |
| g oz | 2382g 3lb 4oz | 2382g 3lb 4oz | 91g 3.2oz | 136g 4.8oz | 1270g 2lb 13oz | 91g 3.2oz | 71g 2.5oz | 85g 3oz | |
| .8kN 00lbf | 26.6 133kN 6000 30000lbf | 26.6 133kN 6000 30000lbf | 3.1 31.1kN 700 7000lbf | 3.1 31.1kN 700 7000lbf | 13.3 66.7kN 3000 15000lbf | 3.1 31.1kN 700 7000lbf | 18kN 800 4047lbf | - 35.5kN - 8000lbf | |
| nm | ≤16mm ≤⅝" | ≤16mm ≤⅝" | ≤12.7mm ≤½" | ≤12.7mm ≤½" | ≤16mm ≤⅝" | ≤12.7mm ≤½" | ≤12.7mm ≤½" | ≤12.7mm ≤½" | |
| n | 3x 100mm 3x 4" | 3x 100mm 3x 4" | 32mm 1.25" | 2x 32mm 2x 1.25" | 100mm 4" | 32mm 1.25" | 32mm 1.25" | 32mm 1.25" | |
| 40mm 1.6" | 203x121x72mm 8x4.75x2.8" | 203x121x72mm 8x4.75x2.8" | 76x70 x25mm 3 x 2.75 x 1" | 95x70x45mm 3.75x2.75x1.8" | 222x178x26mm 8.75 x7 x 1" | 64 x 44.5mm 2.5 x 1.75" | 70x48x20mm 2.75x1.9x08." | 63x38mm 2.5x1.5" | |
| | - - - | - - - | ■ - - | ■ - ■ | ■ - - | - - - | - - - | - - - | |
| | ■ | ■* | ■ | ■ | ■ | ■ | ■ | ■ | |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| | | | | | | | | | |
| StSt | StSt Alu StSt | StSt Alu StSt | Alu Alu Alu | Alu Alu Alu | StSt Alu StSt | Alu Alu StSt | Alu Nylon StSt | StSt Alu StSt | |
| | - | - | CE | CE | CE | CE | CE | CE | |
| | - | - | - | - | - | - | ■ | - | |
| A but test | | * Needle Bearing | | | | | | | |
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| Images NOT to Scale<br>£$€ Currency Conversion-only | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MANUFACTURER** | CMI | CMI | CMI | CMI | CMI | CMI | CMI | CMI |
| **MODEL VARIANT** | RP147 | RP148 | RP149C | RP152 | RP153 | RP154 | RP155 | RP156 |
| **ORIGIN** | | | | | | | | |
| **COST** (inc Tax) Conversion-only | £108 $143 €123 | £108 $143 €123 | £118 $155 €134 | £69 $91 €77 | £103 $136 €116 | £92 $121 €103 | £137 $136 €117 | £54 $72 €6 |
| **WEIGHT** | 408g<br>14.4oz | 408g<br>14.4oz | 6921068g<br>12lb 96oz | 199g<br>7oz | 340g<br>12oz | 363g<br>12.8oz | 635g<br>1lb 6.4oz | 199g<br>7oz |
| **MAX LOAD- WLL MBS** | 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 6500 |
| **MAX ROPE Ø** | ≤9mm cable<br>≤⅜" cable | ≤12.7mm cable<br>≤½" cable | 25mm<br>1" | ≤12.7mm<br>≤½" | ≤12.7mm<br>≤½" | ≤12.7mm<br>≤½" | ≤12.7mm<br>≤½" | ≤12.7mm<br>≤½" |
| **SHEAVE/TREAD Ø** | 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" |
| **DIMENSIONS** ht x w x depth | 127x50x25mm<br>5 x 2 x 1" | 127 x 50x25mm<br>5 x 2.5 x 1" | 165 x 108 x 36mm<br>6.5 x 4.25 x1.4" | 100 x 75 x 23mm<br>4 x 3 x 0.9" | 127 x 76mm<br>5 x 3" | 152 x 100 x 23mm<br>6 x 4 x 0.9" | 178 x 100 x 42mm<br>7 x 4 x 1.7" | 100 x 70 x 23m<br>4 x 2.75 x 0. |
| **PRUSIK TEND LOCK BECKET** | - - - | - - - | - - - | ■ - - | ■ - ■ | ■ - - | ■ - ■ | - - - |
| **BUSHING BEARING PIN** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **CHEEKS - SWIVEL FIXED** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **EFFICIENCY** | n/a | n/a | n/a | 93.3% | 93.3% | n/a | n/a | n/a |
| **CHEEK SHEAVE AXLE** | StSt StSt StSt | StSt StSt StSt | StSt Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StS |
| **STANDARDS** | CE | CE | CE | CE | CE | CE | CE | CE |
| **OTHER COLOURS** | - | - | - | - | - | - | - | - |
| **NOTES** | cheek gap lets rope direct to sheave | cheek gap lets rope direct to sheave | C-Cable +£ $121 | | | | | |
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| Images NOT to Scale<br>£$€ Currency Conversion-only | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MANUFACTURER** | CONTERRA | COURANT | COURANT | DMM | DMM | DMM | DMM | DMM |
| **MODEL VARIANT** | Revolution FR<br>RPFR | Mova<br>Eccentric | Orbit22<br>- | Polo<br>pul600 | Pinto 2<br>pul110 | Pinto Rig 2<br>PUL120 | Gyro<br>pul230 | Gyro PM<br>PUL231 |
| **ORIGIN** | | | | | | | | |
| **COST** (inc Tax) Conversion-only | £66 $90 €77 | £16 $21 €18 | £12 $17 €14 | £55 $67 €64 | £42 $57 €49 | £60 $90 €70 | £84 $ 114 €97 | £75 $93 €8 |
| **WEIGHT** | 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 | 234g<br>9.2oz |
| **MAX LOAD- WLL MBS** | - 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 | 10 50kN<br>2248 11241 |
| **MAX ROPE Ø** | 8-13mm<br>5/16-½" | ≤11mm<br>≤7/16" | ≤13mm<br>≤½" | 2-6mm<br>3/32-¼" | ≤14mm<br>≤9/16" | ≤16mm<br>≤⅝" | ≤13mm<br>≤½" | ≤13mm<br>≤½" |
| **SHEAVE/TREAD Ø** | 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" | 38mm<br>1.5" |
| **DIMENSIONS** 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 1.2" | 97x70x31m<br>3.8 x 2.7 x 1. |
| **PRUSIK TEND LOCK BECKET** | ■ - ■ | - - - | - - - | - - - | - - ■ | - - ■ | - - - | ■ - - |
| **BUSHING BEARING PIN** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **CHEEKS - SWIVEL FIXED** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **EFFICIENCY** | 184% | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| **CHEEK SHEAVE AXLE** | Alu Alu StSt | Alu Alu Alu | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StS |
| **STANDARDS** | NFPA | CE | CE | CE | CE NFPA | CE NFPA | CE | CE |
| **OTHER COLOURS** | - | - | - | ■ | ■ | ■ | | |
| **NOTES** | centre eye=becket | | | | replaced Pinto in 2024 | replaced Rig in 2024 | originally for 12mm rope, uprated to 13 | originally for 12r rope, uprated to |
| **WEBSITE** | conterra.com | mycourant.com | mycourant.com | dmmwales.com | dmmwales.com | dmmwales.com | dmmwales.com | dmmwales.c |

# PULLEYS

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|---|---|---|---|---|---|
| | | | | | |
| | CMI | CMI | CMI | CMI | CMI |
| | RP157 | RP158 | RP159 | UP101 | UP102 |
| | | | | | |
| 62 | £ 89 $118 €102 | £119 $157 €135 | £195 $257 €221 | £152 $206 €176 | £152 $206 €176 |
| | 340g 12oz | 709g 1lb 9oz | 822g 2lb 13oz | 737g 1lb 10oz | 708g 1lb 9oz |
| lbf | 9.8 48kN 2200 11000lbf | 7.1 35kN 1600 8000lbf | 12 60kN 2700 13500lbf | - 53.4kN - 12000lbf | - 53.4kN - 12000lbf |
| | ≤12.7mm ≤½" | 16mm ⅝" | 16mm ⅝" | ≤12.7mm ≤½" | ≤12.7mm ≤½" |
| | 2x 51mm 2x 2" | 100mm 4" | 2x 100mm 2x 4" | 2x 75mm 2x 3" | 2x 75mm 2x 3" |
| mm 9" | 140 x 70 x 43mm 5.5 x 2.75 x 1.7" | 203 x 114 x 28mm 8 x 4.5 x 1.1" | 229 x 114 x 54mm 9 x 4.5 x 2.1" | 190 x 102 x 51mm 7.5 x 3.75 x 2" | 152 x 102 x 51mm 5.75 x 3.75 x 2" |
| | - - | - - - | - - | - - | - - - |
| | ■ | ■ | ■ | ■ | ■ |
| | ■ | ■ | ■ | ■ | ■ |
| | n/a | n/a | n/a | 184% | 184% |
| St | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt |
| | CE | CE | CE | NFPA* | NFPA* |
| | - | - | - | - | - |
| | | | | *Not NFPA but exceeds test | *Not NFPA but exceeds test |
| om | cmigearusa.com | cmigearusa.com | cmigearusa.com | cmigearusa.com | cmigearusa.com |
| | | | | | |
| | DMM | EDELRID | EDELRID | EDELRID | EDELRID |
| | Gyro PM Twin PUL241 | Flux 854010003290 | Neelix 854000003290 | Pike Rescue 854030000690 | Pike Rescue Dbl 854040000690 |
| | | | | | |
| 37 | £100 $124 €140 | £26 $33 €25 | £35 $47 €40 | £53 $71 €60 | £85 $135 €95 |
| | 346g 13.6oz | 82g 2.9oz | 122g 4.3oz | 262g 9.2oz | 461g 16.26oz |
| lbf | 10 50kN 2248 11241lbf | 0.5 26kN 112 5845lbf | 0.6 30kN 134 6744lbf | 0.9 46kN 202 10341lbf | 0.9 46kN 202 10341lbf |
| | ≤13mm ≤½" | 6-13mm ¼-½" | 6-13mm ¼-½" | 6-13mm ¼-½" | 6-13mm ¼-½" |
| | 2x 38mm 2x 1.5" | 29mm 1.1" | 29mm 1.1" | 50mm 2" | 50mm 2" |
| m 2" | 125x70x52mm 4.9 x2.7 x 2" | 75x50mm 3 x 2" | 99x48mm 3.9 x 1.9" | 120x72x30mm 4.7 x 2.8 x 1.2" | 150x78mm 5.9 x 3.1" |
| | ■ - ■ | - - - | - - ■ | ■ - - | ■ - ■ |
| | ■ | ■ | ■ | ■ | ■ |
| | ■ | ■ | ■ | ■ | ■ |
| | n/a | 94% | 94% | 98% | 98% |
| St | Alu Alu StSt | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu |
| | CE | CE | CE | CE | CE |
| | | - | - | - | - |
| mm 13 | originally for 12mm rope, uprated to 13 | Replaced 'Turn-71789' | Replaced 'Easy-88906' Plastic insert | | |
| om | dmmwales.com | edelrid.com | edelrid.com | edelrid.com | edelrid.com |

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|---|---|---|---|---|---|---|---|---|
| **MANUFACTURER** | EDELRID | EDELRID | EDELWEISS | EDELWEISS | EDELWEISS | EDELWEISS | EDELWEISS | EDELW |
| **MODEL VARIANT** | Roll Single<br>88908 | Roll Double<br>88909 | Rotor<br>0 | Rotor 113R<br>0 | Trafic 111<br>0 | Trafic 116<br>0 | Trafic 116R<br>0 | Traffic 2<br>0 |
| **ORIGIN** | | | | | | | | |
| **COST** (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 |
| **WEIGHT** | 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 |
| **MAX LOAD- WLL MBS** | - 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 30k<br>1124 67 |
| **MAX ROPE Ø** | ≤13mm<br>≤½" | ≤13mm<br>≤½" | 8-12mm<br>≤5⁄16-7⁄16" | 8-13mm<br>≤5⁄16-½" | 8-11mm<br>≤5⁄16-7⁄16" | ≤16mm<br>≤⅝" | ≤16mm<br>≤⅝" | ≤16m<br>≤⅝" |
| **SHEAVE/TREAD Ø** | 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 48m<br>2x 1.9 |
| **DIMENSIONS** 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<br>4.6 x 3.3 x |
| **PRUSIK TEND LOCK BECKET** | - - ■ | - - ■ | - - - | - - - | - - - | - - - | - - - | - - ■ |
| **BUSHING BEARING PIN** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **CHEEKS - SWIVEL FIXED** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **EFFICIENCY** | 96% | 96% | n/a | n/a | n/a | n/a | n/a | n/a |
| **CHEEK SHEAVE AXLE** | Alu Alu Alu | Alu Alu Alu | Alu Alu ZstI | Alu Alu ZstI | Alu Alu ZstI | Alu Alu ZstI | Alu Alu ZstI | Alu Alu |
| **STANDARDS** | CE | CE | CE | CE | CE UIAA | CE | CE | CE |
| **OTHER COLOURS** | - | - | | | | | | |
| **NOTES** | DISCONTINUED | DISCONTINUED | | | | | | |
| **WEBSITE** | edelrid.com | edelrid.com | edelweiss-ropes.com | edelweiss-ropes.com | edelweiss-ropes.com | edelweiss-ropes.com | edelweiss-ropes.com | edelweiss-rop |

| Images NOT to Scale<br>£$€ Currency Conversion-only | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MANUFACTURER** | HARKEN | HARKEN/SMC | HARKEN/SMC | | HEIGHTEC | HEIGHTEC | HEIGHTEC | ISC |
| **MODEL VARIANT** | CRx<br>241006 | Apex Direct 1.1<br>16501 | Apex Direct 1.5<br>165110 | | PO1<br>- | PO2<br>- | PO4<br>- | UltraLi<br>LK101A |
| **ORIGIN** | | | | | | | | |
| **COST** (inc Tax) Conversion-only | TBA | £78 $88 €80 | £80 $92 €84 | | £22 $30 €20 | £522 $65 €56 | £77 $94 €88 | **£51 $76** |
| **WEIGHT** | TBA | 122g<br>4.3oz | 208g<br>7.3oz | | 90g<br>3.2oz | 174g<br>6.1oz | 282g<br>9.9oz | 218g<br>7.7oz |
| **MAX LOAD- WLL MBS** | TBA | 6 24kN<br>1349 5395lbf | 9.5 38kN<br>2136 8543lbf | | 2.6 26kN<br>0 5845lbf | 3 30kN<br>674 6744lbf | 3 30kN<br>674 6744lbf | - 40k<br>- 8992 |
| **MAX ROPE Ø** | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | | ≤12mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13m<br>≤½" |
| **SHEAVE/TREAD Ø** | 32/19mm<br>1.25/0.8" | 38/28mm<br>1.5/1.1" | 50/38mm<br>2/1.5" | | 21mm<br>0.825" | 50mm<br>2" | 50mm<br>2" | 32/21m<br>1.2/0. |
| **DIMENSIONS** ht x w x depth | TBA | 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" | | 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" | 70x57x32<br>2.75 x 2.3 |
| **PRUSIK TEND LOCK BECKET** | ■ - - | ■ ■ - | ■ ■ - | | - - - | - - - | - - - | ■ |
| **BUSHING BEARING PIN** | TBA | ■ | ■ | | ■ | ■ | ■ | ■ |
| **CHEEKS - SWIVEL FIXED** | ■ | ■ | ■ | | ■ | ■ | ■ | ■ |
| **EFFICIENCY** | TBA | - | - | | n/a | n/a | n/a | n/a |
| **CHEEK SHEAVE AXLE** | Alu Nylon StSt | Alu Alu StSt | Alu Alu StSt | | Alu Alu ZstI | Alu Nylon StSt | StStNylonStSt | StSt Alu |
| **STANDARDS** | CE | CE UKCA | CE UKCA | | CE | CE | CE | CE UK |
| **OTHER COLOURS** | ■ | - | - | | | | | *with she |
| **NOTES** | not for high-speeds | See Also Swivel Pulleys | See Also Swivel Pulleys | | | PO3 discontinued | | |
| **WEBSITE** | harken.com | harken.com | harken.com | | heightec.com | heightec.com | heightec.com | iscwales.c |

| EISS | EDELWEISS | EYOLF | EYOLF | EYOLF | FIXE | FUSION CLIMB | FUSION CLIMB | FUSION CLIMB | FUSION CLIMB |
|---|---|---|---|---|---|---|---|---|---|
| 216 | Trafic 216R<br>0 | Katrol S<br>P20 | Katrol V<br>P10 | Katrol L<br>P40 | Aux<br>746 | Micro<br>746 | Nuro<br>418 | Strux<br>8152 | Secura Dbl<br>8155 |
| €57 | £63 $77 €73 | £23 $27 €26 | £31 $37 €35 | £46 $55 €52 | £37 $47 €44 | £12 $14 €13 | £16 $24 €23 | £17 $23 €22 | £36 $43 €40 |
| g | 500g<br>17.6oz | 66g<br>2.3oz | 88g<br>3.1oz | 258g<br>9.1oz | 91g<br>3.2oz | 142g<br>5oz | 85g<br>3oz | 280g<br>9.9oz | 500g<br>17.6oz |
| N<br>44lbf | 5 30kN<br>1124 6744lbf | - 15kN<br>- 3372lbf | - 30kN<br>- 6744lbf | - 36kN<br>- 8093lbf | - 20kN<br>- 4496lbf | - 20kN<br>- 4496lbf | - 20kN<br>- 4496lbf | 2 34kN<br>0 00lbf | 2 32kN<br>0 4945lbf |
| m | ≤16mm<br>≤⅝" | ≤11mm<br>≤7⁄16" | ≤11mm<br>≤7⁄16" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | 8-11mm<br>≤5⁄16-7⁄16" | 8-12mm<br>≤5⁄16-7⁄16" | 9-14mm<br>⅜-9⁄16" | 9-15mm<br>⅜-9⁄16" |
| mm<br>9" | 2x 48mm<br>2x 1.9" | 32/19mm<br>1.25/0.8" | 32/19mm<br>1.25/0.8" | 54/37mm<br>2.1" | 21mm<br>0.825" | 28mm<br>1.1" | 28mm<br>1.1" | 50mm<br>2" | 50mm<br>2" |
| 60mm<br>x 2.4" | 150 x 83 x 60mm<br>4.6 x 3.3 x 2.4" | 77 x 50 x 28mm<br>3 x 1.6 x 1.1 | 75 x 42 x 29mm<br>3 x 1.6 x 1.2" | 119 x 76 x 37mm<br>4.7 x 3 x 1.45" | 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" | 82 x 45 x 29mm<br>3.2 x 1.77 x 1.1" | 118 x 83 x 36mm<br>4.6 x 3.3 x 1.4" | 150x83x 60mm<br>4.6 x 3.3 x 2.4" |
| | - - ■ | ■ - - | - - - | ■ - - | - - - | - - - | - - - | - - - | - - ■ |
| | ■ | ■* | ■* | ■ | ■ | ■ | ■ | ■ | ■ |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| Zstl | Alu Alu Zstl | Alu Alu St | Alu Alu St | Alu Alu St | Alu Alu Zstl | Alu Alu Zstl | Alu Alu Zstl | Alu Alu Zstl | Alu Alu Zstl |
| | CE | CE | CE | CE | CE | CE | CE | CE | CE |
| | | ■ | | ■ | | ■ | ■ | ■ | ■ |
| | | New in 2024<br>*Needle Bearing | New in 2024<br>*Needle Bearing | New in 2024 | | | | | |
| pes.com | edelweiss-ropes.com | eyolf.ca | eyolf.ca | eyolf.ca | fixeclimbing.com | iusionclimb.com | iusionclimb.com | fusionclimb.com | fusionclimb.com |

| | ISC | ISC | ISC | ISC | ISC | ISC | ISC | ISC | ISC |
|---|---|---|---|---|---|---|---|---|---|
| nk L<br>12 | UltraLink S<br>LK100A12 | Eiger Micro<br>RP037 | Eiger sm<br>RP012 | Eiger sm dbl<br>RP030 | Eiger Redirect<br>RP031 | Eiger m<br>RP032 | Eiger m dbl<br>RP033 | Eiger m dbl<br>RP034 | Rope Wrench<br>RP281 |
| €79 | £51 $76 €79 | £25 $36 €32 | £24 $36 €38 | £35 $46 €40 | £29 $40 €35 | £33 $45 €39 | £46 $68 €52 | £38 $50 €45 | £24 $36 €29 |
| *<br>z | 208g*<br>7.3oz | 92g<br>3.25oz | 87g<br>3oz | 153g<br>5oz | 124g<br>4oz | 158g<br>6oz | 284g<br>10oz | 180g<br>6oz | 76g<br>2.7oz |
| N<br>lbf | - 40kN<br>- 8992lbf | 0 28kN<br>0 6294lbf | - 36kN<br>- 8093lbf | - 36kN<br>- 8093lbf | - 30kN<br>- 6744lbf | - 36kN<br>- 8093lbf | - 36kN<br>- 8093lbf | - 36kN<br>- 8093lbf | - 36kN<br>- 8093lbf |
| m | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" |
| mm<br>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" | 2x 32/22mm<br>2x 1.6/0.9" | 50/42mm<br>2/1.65" | 2x 50/42mm<br>2x 2/1.65" | 50/42mm<br>2/1.65" | 32/22mm<br>1.6/0.9" |
| 2mm*<br>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" | 94x45x54mm<br>3.75 x 1.75 x 2.1" | 72x45x50mm<br>3 x 1.75 x 2" | 90x52x34mm<br>3.5 x 2.1 x 1.4" | 110x52x56mm<br>4.3 x 2 x 2.2" | 126x52x34mm<br>5 x 2 x 1.4" | 75x45x32mm<br>3x 1.75 x 1.3" |
| | ■ | - - ■ | - - - | - - ■ | - - - | - - - | - - ■ | - - ■* | - - - |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| StSt | StStl 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 |
| CA | CE UKCA | CE UKCA | CE UKCA | CE UKCA | CE UKCA | CE UKCA | CE UKCA | CE UKCA | CE UKCA |
| eave | - | ■ | - | - | - | - | - | - | ■ |
| | | bridge can be used as a textile becket | | | | | | *Fully load-bearing double ended eyes | won't rotate >200kg load |
| com | iscwales.com | iscwales.com | iscwales.com | iscwales.com | iscwales.com | iscwales.com | iscwales.com | iscwales.com | iscwales.com |

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|---|---|---|---|---|---|---|---|---|
| **MANUFACTURER** | ISC | ISC | ISC | ISC | ISC | ISC | ISC | ISC |
| **MODEL VARIANT** | Prusik sm<br>RP060 | Prusik sm<br>RP060 | Prusik sm dbl<br>RP061 | Prusik sm dbl<br>RP061 | Prusik m<br>RP063 | Prusik m<br>RP063 | Prusik m dbl<br>RP064 | Prusik m<br>RP064 |
| **ORIGIN** | | | | | | | | |
| **COST** (inc Tax) Conversion-only | £36 $43 €54 | £67 $107 €99 | £54 $77 €84 | £67 $107 €99 | £50 $65 €60 | £55 $81 €75 | £66 $108 €100 | £92 $140 |
| **WEIGHT** | 214g<br>8oz | 396g<br>14oz | 340g<br>12oz | 674g<br>24oz | 280g<br>9.9oz | 584g<br>20.6oz | 555g<br>20oz | 1036<br>37oz |
| **MAX LOAD- WLL MBS** | - 40kN<br>- 8992lbf | - 40kN<br>- 8992lbf | - 40kN<br>- 8992lbf | - 40kN<br>- 8992lbf | - 50kN<br>- 11240lbf | - 50kN<br>- 11240lbf | - 50kN<br>- 11240lbf | - 50k<br>- 1124 |
| **MAX ROPE Ø** | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13m<br>≤½" |
| **SHEAVE/TREAD Ø** | 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" | 2x 50/42mm<br>2x 2/1.65" | 2x 50/4<br>2x 2/1. |
| **DIMENSIONS** ht x w x depth | 103x70x34mm<br>4.1 x 5.1 x 1.4" | 103x70x34mm<br>4.1 x 5.1 x 1.4" | 128x70x58mm<br>5 x 5.1 x 2.3" | 128x70x58mm<br>5 x 5.1 2.3" | 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" | 158x88x5<br>6.2 x 3.5 |
| **PRUSIK TEND LOCK BECKET** | ■ - - | ■ - - | ■ - ■ | ■ - ■ | - - - | - - - | ■ - ■ | ■ - |
| **BUSHING BEARING PIN** | ■ ■ | ■ ■ | ■ ■ | ■ ■ | ■ ■ | ■ ■ | ■ ■ | ■ ■ |
| **CHEEKS - SWIVEL FIXED** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **EFFICIENCY** | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| **CHEEK SHEAVE AXLE** | Alu Alu StSt | StSt StSt StSt | Alu Alu StSt | StSt StSt StSt | Alu Alu StSt | Alu StSt StSt | Alu Alu StSt | Alu Alu |
| **STANDARDS** | CE NFPA UKCA | CE NFPA UKCA | CE NFPA UKCA | CE NFPA UKCA | CE NFPA UKCA | CE NFPA UKCA | CE NFPA UKCA | CE NFPA |
| **OTHER COLOURS** | ■ | - | ■ | - | ■ | - | ■ | ■ |
| **NOTES** | | | | | | | | |
| **WEBSITE** | iscwales.com | iscwales.com | iscwales.com | iscwales.com | iscwales.com | iscwales.com | iscwales.com | iscwales.c |

| Images NOT to Scale<br>£$€ Currency Conversion-only | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MANUFACTURER** | | KAILAS | KAILAS | KONG | KONG | KONG | KONG | KONG |
| **MODEL VARIANT** | | Mini<br>K010613 | Rescue<br>0 | Turbo Roll<br>0 | Swing<br>993N(P) | Swing Steel<br>994 | Mini Twin Evo<br>0 | Refle<br>0 |
| **ORIGIN** | | | | | | | | |
| **COST** (inc Tax) Conversion-only | | £27 $35 €31 | £73 $89 €82 | £48 $25 €24 | £25 $32 €27 | £27 $40 €35 | £70 $87 €81 | £82 $111 |
| **WEIGHT** | | 155g<br>5.5oz | 367g<br>13oz | 65g<br>2.3oz | 120g<br>4.2oz | 162g<br>5.7oz | 171g<br>60oz | 270<br>9.5oz |
| **MAX LOAD- WLL MBS** | | 8 28kN<br>17986295lbf | 8 50kN<br>179811240lbf | - 26kN<br>- 5845lbf | - 30kN<br>- 6744lbf | - 30kN<br>- 6744lbf | - 32kN<br>- 7194lbf | - 26k<br>- 5845 |
| **MAX ROPE Ø** | | ≤12mm<br>≤½" | 7-13mm<br>9/32-½" | ≤11mm<br>≤7/16" | ≤11mm<br>≤7/16" | ≤11mm<br>≤7/16" | ≤13mm<br>≤½" | ≤13m<br>≤½" |
| **SHEAVE/TREAD Ø** | | 26mm<br>1" | 51mm<br>2" | 40.5/27mm<br>1.6/1" | 40.5/27mm<br>1.6/1" | 40.5/27mm<br>1.6/1" | 2x 35mm<br>2x 1.5" | 60m<br>2.4" |
| **DIMENSIONS** ht x w x depth | | 81 x 58 x 29mm<br>3.2 x 2.3 x 1.1" | 121 x 85x 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" | 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<br>6 x 3.1 x |
| **PRUSIK TEND LOCK BECKET** | | ■ - - | ■ - - | - - ■ | - - - | - - - | ■ - ■ | - - |
| **BUSHING BEARING PIN** | | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **CHEEKS - SWIVEL FIXED** | | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **EFFICIENCY** | | 94% | 94% | 93% | 87% | 87% | 91% | 96% |
| **CHEEK SHEAVE AXLE** | | Alu Alu StSt | S.Steel Alu | Alu Nylon StSt | AluNylonStSt | AluNylonStSt | Alu Alu StSt | Alu Alu |
| **STANDARDS** | | CE UIAA | CE NFPA | CE EAC | CE UIAA | CE UIAA | CE UIAA | CE UI |
| **OTHER COLOURS** | | - | - | | □ | □ | ■ | - |
| **NOTES** | | | | alloy red side plate version discontinued | Polished model=$21 | PHASING OUT | | *Fully load-b double ende |
| **WEBSITE** | | kailasgear.com | kailasgear.com | kong.it | kong.it | kong.it | kong.it | kong. |

| | ISC | ISC | ISC | ISC | ISC | ISC | ISC | ISC | ISC |
|---|---|---|---|---|---|---|---|---|---|
| dbl | Prusik m RP065 | Prusik m RP065 | Prusik lg RP066 | Prusik lg RP066 | Prusik lg dbl RP067 | Prusik lg dbl RP067 | Prusik lg RP068 | Prusik xl RP069 | Double Rescue RP700701 |
| €130 | £53 $78 €72 | £63 $93 €86 | £52 $66 €61 | £67 $96 €89 | £84 $129 €120 | £109 $160 €138 | £53 $78 €72 | £67 $107 €99 | £78 $120 €110 |
| g<br>z | 0g<br>0oz | 620g<br>22oz | 463g<br>1lb | 896g<br>2lb | 818g<br>29oz | 1.62kg<br>3.6lb | 477g<br>1lb1oz | 466g<br>16oz | 660g<br>23oz |
| N<br>0lbf | - 50kN<br>- 11240lbf | - 50kN<br>- 11240lbf | - 70kN<br>- 15736lbf | - 50kN<br>- 11240lbf | - 70kN<br>- 15736lbf | - 50kN<br>- 11240lbf | - 70kN<br>- 15736lbf | - 70kN<br>- 15736lbf | - 3040kN<br>- 67448992lbf |
| m | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤16mm<br>≤⅝" | ≤16mm<br>≤⅝" | ≤16mm<br>≤⅝" | ≤16mm<br>≤⅝" | ≤16mm<br>≤⅝" | ≤20mm<br>≤¾" | 10-13mm<br>25/64-½" |
| 2mm<br>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" | 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" |
| 8mm<br>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" | 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" |
| | ■ - ■ | ■ - ■ | ■ - - | ■ - - | ■ - ■ | ■ - ■ | ■ - ■ | ■ - - | ■ - - |
| | ■ ■ | ■ ■ | ■ ■ | ■ ■ | ■ ■ | ■ ■ | ■ ■ | ■ ■ | ■ |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| StSt | Alu Alu StSt | StSt StSt StSt | Alu Alu StSt | StSt StSt StSt | Alu Alu StSt | StSt StSt StSt | Alu Alu StSt | Alu Alu StSt | Alu StSt StSt |
| UKCA | CE NFPA UKCA | CE NFPA UKCA | CE NFPA UKCA | CE NFPA UKCA | CE NFPA UKCA | CE NFPA UKCA | CE NFPA UKCA | CE NFPA UKCA | CE NFPA UKCA |
| | ■ | - | ■ | - | ■ | - | ■ | ■ | ■ |
| | | | Bushing option same spec as bearing | | Bushing option same spec as bearing | | Bushing option same spec as bearing | | 700=1-way sheave |
| com | iscwales.com | iscwales.com | iscwales.com | iscwales.com | iscwales.com | iscwales.com | iscwales.com | iscwales.com | iscwales.com |

| G | KONG | KONG | LRV8 | NOTCH | OMEGA PACIFIC | PALM | PETZL | PETZL | PETZL |
|---|---|---|---|---|---|---|---|---|---|
| x | Extra-Roll 0 | Twin 0 | P3Ta | Micro P52 | Revo Ice - | Whitewater 12602 | Mobile PO3 | Fixe P05 | Oscillante P02 |
| €90 | £47 $68 €57 | £60 $87 €65 | AU$185 $120 | £30 $42 €35 | **£21 $28 €24** | £37 $50 €43 | £23 $31 €27 | £24 $33 €28 | £18 $24 €21 |
| g<br>z | 245g<br>8.6oz | 490g<br>1lb 1oz | 486g<br>19oz | 73g<br>2.56oz | 52g<br>1.83oz | 90g<br>3.2oz | 75g<br>2.6oz | 90g<br>3.2oz | 42g<br>1.5oz |
| N<br>lbf | - 30kN<br>- 6744lbf | - 50kN<br>- 11240lbf | 24 120kN<br>5395 26977lbf | - 31kN<br>- 6900lbf | - 22kN<br>- 4945lbf | 5 30kN<br>1124 6744lbf | 5 15kN<br>1124 3372lbf | 5 23kN<br>1124 5171lbf | 4 15kN<br>899 3372lbf |
| m | ≤13mm<br>≤½" | ≤13mm<br>≤½" | 8-24mm<br>5/16-<1" | ≤12.9mm<br>≤½" | ≤12.7mm<br>≤½" | ≤11mm<br>≤7/16" | 7-13mm<br>9/32-½" | 7-13mm<br>9/32-½" | 7-11mm<br>9/32-7/16" |
| n | 60mm<br>2.4" | 2x 60mm<br>2x 2.4" | 60/52mm<br>2.4/2" | 33mm<br>1.3" | 20mm<br>0.8" | | 21mm<br>0.8" | 21mm<br>0.8" | 25mm<br>1" |
| 29mm<br>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 28mm<br>2.6 x 1.8 x 1.1" | 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" | 68 x 47 x 26mm<br>2.7 x 1.9 x 1" |
| * | - - - | - - ■ | - - - | - - - | ■ - - | ■ - - | ■ - - | - - - | - - - |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | 96% | 96% | - | n/a | n/a | n/a | 71% | 71% | 71% |
| StSt | Alu Alu* StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | AluNylonStSt | Alu Alu Alu | Alu Alu StSt | Alu Alu StSt | AluNylonAlu |
| AA | CE EAC UIAA | CE UIAA | CE NFPA | ANSI | CE | CE UIAA UKCA | CE UIAA UKCA | CE UKCA | CE UIAA UKCA |
| | ■ | ■ | | ■ | - | | - | ■ ■ | ■ |
| pearing<br>ed eyes | *Nylon sheave option discontinued | | Remake of SRTe original | | | | | | Emergency pulley |
| it | kong.it | kong.it | lrv8.com.au | notchequipment.com | omega-pacific.com | palmequipmenteurope.com | petzl.com | petzl.com | petzl.com |

| Images NOT to Scale<br>£$€ Currency Conversion-only | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MANUFACTURER** | PETZL | PETZL | PETZL | PETZL | PETZL | PETZL | PETZL | PROCLI |
| **MODEL VARIANT** | Partner<br>P52 | Mini<br>P59 | Gemini<br>P66 | Jag<br>P45 | Rescue<br>P50 | Minder<br>P60 | Twin<br>P65 | USR-PFB |
| **ORIGIN** | | | | | | | | |
| **COST** (inc Tax) Conversion-only | £40 $54 €46 | £48 $64 €55 | £87 $118 €101 | £67 $91 €78 | £60 $81 €70 | £59 $79 €68 | £ 26 $171 €146 | £13 $16 |
| **WEIGHT** | 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 |
| **MAX LOAD- WLL MBS** | 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 | - 22k<br>- 4945 |
| **MAX ROPE Ø** | 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" | ≤13m<br>≤1/2" |
| **SHEAVE/TREAD Ø** | 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" | 32/21r<br>1.25/0.8 |
| **DIMENSIONS** 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<br>3.2 x 1.7 |
| **PRUSIK TEND LOCK BECKET** | - - - | ■ - - | ■ - ■ | - - - | - - - | ■ - - | ■ - ■ | - - - |
| **BUSHING BEARING PIN** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **CHEEKS - SWIVEL FIXED** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **EFFICIENCY** | 91% | 91% | 91% | 91% | 95% | 97% | 97% | n/a |
| **CHEEK SHEAVE AXLE** | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu |
| **STANDARDS** | CE UIAA UKCA | CE | CE NFPA | CE NFPA | CENFPAUIAAUKCA | CE NFPA | CE NFPA | CE UIA |
| **OTHER COLOURS** | ■ | - | - | - | ■ | - | - | |
| **NOTES** | | | | designed to be part of Jag mini-haul kit | | | | |
| **WEBSITE** | petzl.com | petzl.com | petzl.com | petzl.com | petzl.com | petzl.com | petzl.com | usrigging. |

| Images NOT to Scale<br>£$€ Currency Conversion-only | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MANUFACTURER** | RNR | RNR | RNR | RNR | RNR | RNR | RNR | RNR |
| **MODEL VARIANT** | Poseidon PMP<br>2" | Poseidon PMP<br>2"Double | Poseidon PMP<br>3" | Poseidon PMP<br>3"Double | Poseidon<br>2" | Poseidon<br>2"Double | Poseidon<br>4" | Poseid<br>4" Doub |
| **ORIGIN** | | | | | | | | |
| **COST** (inc Tax) Conversion-only | £35 $48 €41 | £75 $101 €86 | £90 $121 €104 | £134 $181 €155 | £39 $48 €45 | £64 $78 €73 | £86 $106 €99 | £141 $174 |
| **WEIGHT** | 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 | 1270<br>2.8lb |
| **MAX LOAD- WLL MBS** | - 43kN<br>- 9800lbf | - 62kN<br>- 1400lbf | - 44kN<br>- 9900lbf | - 61kN<br>- 13900lbf | - 28.9kN<br>- 6500lbf | - 40kN<br>- 1100lbf | - 35.6kN<br>- 8000lbf | - 60k<br>- 1350 |
| **MAX ROPE Ø** | ≤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" | ≤16m<br>≤5/8" |
| **SHEAVE/TREAD Ø** | 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 100<br>2x 4 |
| **DIMENSIONS** 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" | 229x114x5<br>9 x 4.5 x |
| **PRUSIK TEND LOCK BECKET** | ■ - - | ■ - ■ | ■ - - | ■ - ■ | - - - | - - ■ | - - - | - - ■ |
| **BUSHING BEARING PIN** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **CHEEKS - SWIVEL FIXED** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **EFFICIENCY** | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| **CHEEK SHEAVE AXLE** | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu |
| **STANDARDS** | - | - | - | - | - | - | - | - |
| **OTHER COLOURS** | - | - | - | - | - | - | - | - |
| **NOTES** | | | | | | | | |
| **WEBSITE** | rocknarbor.com | rocknarbor.com | rocknarbor.com | rocknarbor.com | rocknarbor.com | rocknarbor.com | rocknarbor.com | rocknarbo |

expansion column

| | PROCLIMB | PROCLIMB | PROCLIMB | PROTEKT | PROTEKT | PROTEKT | PROTEKT | PROTEKT | |
|---|---|---|---|---|---|---|---|---|---|
| | 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 | |
| | €17 $22 €19 | £31 $42 €36 | £45 $60 €52 | £26 $33 €30 | £34 $42 €39 | £40 $49 €45 | £83 $101 €95 | £78 $52 €48 | |
| | 130g 5.1oz | 247g 8.7oz | 425g 15oz | 120g 4.2oz | 257g 9oz | 470g 16.6oz | 153g 5.4oz | 450g 15.8oz | |
| | - 20kN - 4496lbf | 5 30kN 1124 6744lbf | 5 30kN 1124 6744lbf | 5 25kN 1124 5620lbf | 6 30kN 1349 6744lbf | 6 30kN 1349 6744lbf | 5 25kN 1124 5620lbf | 5 30kN 1124 6744lbf | |
| | ≤11mm ≤7/16" | ≤16mm ≤5/8" | ≤16mm ≤5/8" | ≤13.5mm ≤1/2" | ≤15mm ≤5/8" | ≤15mm ≤5/8" | ≤10mm ≤25/64" | 8-12mm* 5/16-1/2" | |
| | 37/25mm 1.5/1" | 30.5mm* 1.2" | 2x 30.5mm* 2x 1.2" | 34/24mm 1.3/0.9" | 60mm 2.4" | 2x 60mm 2x 2.4" | 30/22mm 1.2/0.9" | 108mm 4.25" | |
| | 80 x 57 x 33mm 3.2 x 2.2 x 1.3" | 121x82x30.5mm* 4.8 x 3.2 x 1.2" | 143 x 82x 57mm* 5.6 x 3.2 x 2.1" | 86 x 44 x 40mm 3.4 x 1.7 x 1.6" | 122 x 80 x 38mm 4.8 x3.1 x 1.5" | 162 x 80 x 63mm 6.4 x 3.1 x 2.5" | 85 x 40 x 39mm 3.3 x 1.6 x 1.6" | 133x128x56mm 5.2 x 5 x 2.2" | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | |
| | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Nylon StSt | |
| | CE UIAA | CE* UIAA | CE*UIAA | CE | CE | CE | CE | CE | |
| | - | | | | | | | - | |
| | | *Spec does not match scaling. | *Spec does not match scaling. | Updated model '23 | | | <21mm Webbing on hidden load pin | *or 6mm cable | |
| | usrigging.com | usrigging.com | usrigging.com | protekt.pl | protekt.pl | protekt.pl | protekt.pl | protekt.pl | |

| | RNR | ROCK EMPIRE | ROCK EMPIRE | ROCK EMPIRE | ROCK EMPIRE | ROCK EXOTICA | ROCK EXOTICA | ROCK EXOTICA | ROCK EXOTICA |
|---|---|---|---|---|---|---|---|---|---|
| | Poseidon 3"Companion Dbl | Mini ZWP018 | Small SS ZWP121 | Big ZWP119 | Big Double ZWP121 | 1.1" Mini P21 | 1.1" Mini Dbl P21D | 1.5" Rescue P22 | 1.5" Rescue Dbl P22D |
| | €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 |
| | 737g 1lb 10oz | 88g 3.5oz | 130g 5.1oz | 250g 9.8oz | 440g 17.3oz | 83g 2.9oz | 141g 5oz | 144g 5.1oz | 254g 9oz |
| | - 53.4kN - 12000lbf | - 24kN - 5395lbf | - 20kN - 4496lbf | 8 36kN 1798 8093lbf | 8 36kN 1798 8093lbf | 5 30kN 1124 6744lbf | 8 36kN 1798 8093lbf | 8 36kN 1798 8093lbf | 8 36kN 1798 8093lbf |
| | ≤12.7mm ≤1/2" | ≤12mm ≤1/2" | ≤11mm ≤7/16" | ≤13mm ≤1/2" | ≤13mm ≤1/2" | ≤11mm ≤7/16" | ≤11mm ≤7/16" | ≤13mm ≤1/2" | ≤13mm ≤1/2" |
| | 2x 75mm 2x 3" | 21mm 0.825" | 37/25mm 1.5/1" | 50mm 1.9" | 2x 33mm 2x 1.3" | 28mm 1.1" | 2x 28mm 2x 1.1" | 38mm 1.5" | 2x 38mm 2x 1.5" |
| | 190x102x51mm 7.5x3.75x2" | 82x45x29mm 3.2 x 1.77 x 1.1" | 80 x 57 x 33mm 3.2 x 2.2 x 1.3" | 117 x 82 x 35mm 4.6 x 3.2 x 1.3" | 107 x 80 x 35mm 4.2 x 3.1 x 1.4" | 76 x 62 x 19mm 3 x2.45 x0.75" | 100 x 62 x 37mm 3.95x2.45x1.45" | 89 x 64 x 23mm 3.5 x 2.5 x 0.9" | 117 x 64 x 43mm 4.6 x 2.5 x 1.7" |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | 184% | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| | Alu Alu StSt | Alu Alu Zstl | Alu Alu StSt | Alu Alu StSt | Alu StSt StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt |
| | NFPA* | CE | CE UIAA | CE UIAA | CE UIAA | CE UIAA | CE UIAA | CE UIAA | CE UIAA |
| | - | - | - | - | - | - | - | - | - |
| | *Not NFPA but exceeds test | | | | | Machined alloy | Machined alloy | Machined alloy | Machined alloy. 2"model discontinued |
| | rocknarbor.com | rockempire.cz | rockempire.cz | rockempire.cz | rockempire.cz | rockexotica.com | rockexotica.com | rockexotica.com | rockexotica.com |

| Images NOT to Scale<br>£$€ Currency Conversion-only | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MANUFACTURER** | SINGING ROCK | SINGING ROCK | SINGING ROCK | SINGING ROCK | SINGING ROCK | SINGING ROCK | SKEDCO | SKED |
| **MODEL VARIANT** | Small<br>RK800 | Extra<br>RK801 | Extra+<br>RK808 | Twin<br>RK802 | Extra HD<br>RK810RX00 | Twin HD<br>RK811RX00 | Micro Dbl<br>712M | 3"Dou<br>711 |
| **ORIGIN** | | | | | | | | |
| **COST** (inc Tax) Conversion-only | £20 $30 €30 | £37 $50 €33 | £44 $55 €40 | £64 $90 €72 | £69 $93 €79 | £110 $148 €126 | £60 $81 €69 | £ 152 $20 |
| **WEIGHT** | 92g<br>3.3oz | 257g<br>9.5oz | 276g<br>9.7oz | 421g<br>14.9oz | TBAg<br>TBAoz | TBAg<br>TBAoz | 113g<br>4oz | 708<br>1lb 9 |
| **MAX LOAD- WLL MBS** | - 22kN<br>- 4946lbf | 6 32kN<br>1349 7194lbf | 6 32kN<br>1349 7194lbf | 6 32kN<br>1349 7194lbf | 16.7 72kN<br>3754 16186lbf | 16.7 72kN<br>3754 16186lbf | 6.2 31.1kN<br>1400 7000lbf | - 53.4<br>- 1200 |
| **MAX ROPE Ø** | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤12.7mm<br>≤½" | ≤12.7<br>≤½ |
| **SHEAVE/TREAD Ø** | 29mm<br>1.1" | 56mm<br>2.2" | 56mm<br>2.2" | 2x 56mm<br>2x 2.2" | 67mm<br>2.6" | 2x 67mm<br>2x 2.6" | 32mm<br>1.25" | 2x 75<br>2x 3 |
| **DIMENSIONS** ht x w x depth | 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" | 144 x 108 x 38mm<br>5.7 x 4.25 1.5" | 172 x 108 x 64mm<br>0 x 4.25 x 2.5" | 89 x 41 x 46mm<br>3.5 x 1.6 x 1.8" | 152 x 102<br>5.75 x 3.7 |
| **PRUSIK TEND LOCK BECKET** | - - - | ■ - - | ■ - ■ | ■ - ■ | ■ - - | ■ - ■ | - - ■ | - - - |
| **BUSHING BEARING PIN** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **CHEEKS - SWIVEL FIXED** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **EFFICIENCY** | 81% | 94% | 94% | 94% | 86% | 86% | 133.6% | 184 |
| **CHEEK SHEAVE AXLE** | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | AluAluAlu | Alu Alu |
| **STANDARDS** | CE | CE | CE | CE | CE | CE | ANSI | NFP |
| **OTHER COLOURS** | ■ | ■ | ■ | ■ | - | - | - | - |
| **NOTES** | | | | | New 2025 | New 2025 | | *Not NFP exceeds |
| **WEBSITE** | singingrock.com | singingrock.com | singingrock.com | singingrock.com | singingrock.com | singingrock.com | skedco.com | skedco. |

| Images NOT to Scale<br>£$€ Currency Conversion-only | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MANUFACTURER** | SKYLOTEC | SKYLOTEC | SKYLOTEC | SKYLOTEC | SKYLOTEC | SMC/HARKEN | SMC/HARKEN | SMC/HA |
| **MODEL VARIANT** | CT Orbiter T<br>2P662 | Darios<br>- | Pollux<br>- | Castor<br>- | Castor Dbl<br>- | CRX Crevasse<br>RP030 | Tiny Rescue<br>RP030 | Adv Tech Dbl<br>NFPA |
| **ORIGIN** | | | | | | | | |
| **COST** (inc Tax) Conversion-only | £84 $104 €99 | £76 $103 €88 | £85 $115 €99 | £102 $138 €118 | £115 $150 €135 | £15 $20 €17 | £34 $47 €40 | £80 $10 |
| **WEIGHT** | 310g<br>10.9oz | 100g<br>3.5oz | 290g<br>10.2oz | 310g<br>10.9oz | 540g<br>19oz | 52g<br>1.8oz | 66g<br>2.3oz | 154<br>5.44 |
| **MAX LOAD- WLL MBS** | 12kN 50kN<br>269811240lbf | - 30kN<br>- 6744lbf | - 36kN<br>- 8093lbf | - 36kN<br>- 8093lbf | - 48kN<br>- 10791lbf | - 22kN<br>- 4946lbf | - 26kN<br>- 5845lbf | - 34<br>- 764 |
| **MAX ROPE Ø** | ≤13mm<br>≤½" | ≤14mm<br>≤9⁄16" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤14mm<br>≤9⁄16" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | 7-12.5<br>9⁄32-½ |
| **SHEAVE/TREAD Ø** | 2x 39mm<br>2x 1.5" | 44mm<br>1.7" | 64/51mm<br>2.5/2" | 64/51mm<br>2.5/2" | 2x 64/51mm<br>2x 2.5/2" | 30mm<br>1.2" | 30mm<br>1.2" | 2x 35<br>2x 1.3 |
| **DIMENSIONS** ht x w x depth | 137x70x55mm<br>5.4x2.7x2.2" | 85 x 50 x 32mm<br>3.3 x2x 1.25" | 130 x 80 x 35mm<br>5.1 x 3.1 x1.4" | 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" | 69 x 45 x 25mm<br>2.7 x 1.75 x 1" | 75 x 45x 25mm<br>3 x 1.75 x 1" | 75 x 61 x<br>3 x 2.4 |
| **PRUSIK TEND LOCK BECKET** | - ■ | - - - | - - - | - ■ | - ■ | ■ - - | - - - | ■ - |
| **BUSHING BEARING PIN** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **CHEEKS - SWIVEL FIXED** | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **EFFICIENCY** | 96% | - | - | - | - | - | - | - |
| **CHEEK SHEAVE AXLE** | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | AluDelrin StSt | Alu Alu StSt | Alu Alu |
| **STANDARDS** | CE UIAA | CE | CE | CE | CE | CE | CE | NFP |
| **OTHER COLOURS** | - | - | ■ | ■ | ■ | ■ | - | - |
| **NOTES** | | | | | | | | Intended as AdvanceTec |
| **WEBSITE** | climbingtechnology.com | skylotec.com | skylotec.com | skylotec.com | skylotec.com | smcgear.com | smcgear.com | smcgear |

| CO | SKEDCO | SKYLOTEC | SKYLOTEC | SKYLOTEC | SKYLOTEC | SKYLOTEC | SKYLOTEC | SKYLOTEC | SKYLOTEC |
|---|---|---|---|---|---|---|---|---|---|
| ible | 3" Double Bck<br>712 | CT Orbiter S<br>2P660 | 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 |
| | | | | | | | | | |
| 6 €176 | £152 $206 €176 | £37 $50 €43 | £20 $27 €23 | £20 $28 €24 | £94 $127 €109 | £109 $148 €126 | £79 $107 €92 | £22 $31 €26 | £65 $89 €76 |
| g<br>oz | 737g<br>1lb 10oz | 180g<br>6.4oz | 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 |
| kN<br>0lbf | - 53.4kN<br>- 12000lbf | 8kN 32kN<br>1798 7194lbf | 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 |
| mm<br>" | ≤12.7mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | 8-11mm<br>5⁄16-7⁄16" | ≤13mm<br>≤½" | ≤13mm<br>≤½" |
| mm<br>" | 2x 75mm<br>2x 3" | 19mm<br>0.75" | 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" |
| x 51mm<br>75 x 2" | 190 x 102 x 51mm<br>7.5 x 3.75 x 2" | 110 x 70 x 32mm<br>4.3 x 2.7 x 1.3" | 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" |
| - | - - ■ | - - - | - - - | - - - | - - - | - - ■ | - - ■ | - - - | - - - |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| % | 184% | 96% | 80% | 80% | 96% | 96% | 90% | 80% | 96% |
| 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 |
| A* | NFPA* | CE UIAA | CE | CE UIAA | CE UIAA | CE UIAA | CE | CE UIAA | CE UIAA |
| | - | - | - | - | - | - | - | - | - |
| PA but<br>test | *Not NFPA but<br>exceeds test | | | | Discontinued | | designed for 'UP'<br>pulley system | | |
| .com | skedco.com | skylotec.com | skylotec.com | skylotec.com | dimbingtechnology.com | dimbingtechnology.com | dimbingtechnology.com | dimbingtechnology.com | dimbingtechnology.com |

| ARKEN | SMC/HARKEN | SMC/HARKEN | SMC/HARKEN | SMC/HARKEN | SMC/HARKEN | SMC/HARKEN | SMC/HARKEN |
|---|---|---|---|---|---|---|---|
| Mate<br>154801 | 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 Dbl<br>NFPA1528 |
| | | | | | | | |
| 8 €92 | £34 $47 €40 | £32 $43 €37 | £29 $39 €33 | £80 $108 €92 | £44 $60 €51 | £61 $83 €70 | £66 $90 €77 |
| g<br>oz | 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 |
| kN<br>4lbf | - 22kN<br>- 4946lbf | - 22kN<br>- 4946lbf | - 22kN<br>- 4946lbf | - 40kN<br>- 8992lbf | - 34kN<br>- 7644lbf | - 36kN<br>- 8093lbf | - 46kN<br>- 10341lbf |
| 5mm<br>2" | ≤9mm<br>≤⅜" | ≤9mm<br>≤⅜" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" |
| mm<br>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" |
| 46mm<br>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" |
| - | ■ - - | ■ - ■ | ■ - - | ■ - ■ | ■ - - | ■ - - | ■ - ■ |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | - | - | - | - | - | - | - |
| StSt | AluNylonStSt | AluNylonStSt | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu |
| PA | UIAA | UIAA | NFPA | NFPA | UIAA | NFPA | NFPA |
| | ■ | ■ | - | - | - | ■ | ■ |
| s part of<br>ch HX Kit | | | | | | | |
| r.com | smcgear.com | smcgear.com | smcgear.com | smcgear.com | smcgear.com | smcgear.com | smcgear.com |

| Images NOT to Scale<br>£$€ Currency Conversion-only | | | | | | | |
|---|---|---|---|---|---|---|---|
| **MANUFACTURER** | SMC | SMC | SMC | SMC | SMC | SMC | SPIDER |
| **MODEL VARIANT** | 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>NFPA15705 | Highline<br>- |
| **ORIGIN** | | | | | | | |
| **COST** (inc Tax) Conversion-only | £56 $80 €65 | £45 $61 €52 | £89 $120 €103 | £132 $179 €153 | £63 $85 €73 | £207 $280 €239 | £30 $41 €35 |
| **WEIGHT** | 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 |
| **MAX LOAD- WLL MBS** | - 29kN<br>- 6520lbf | - 29kN<br>- 6520lbf | -38kN<br>- 8543lbf | - 48kN<br>- 10791lbf | - 51kN<br>- 11465lbf | - 63kN<br>- 14163lbf | 4 20kN<br>899 4497lbf |
| **MAX ROPE Ø** | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤16mm<br>≤⅝" | 24-26mmWEB<br>1-1.1"WEB |
| **SHEAVE/TREAD Ø** | 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" |
| **DIMENSIONS** ht x w x depth | 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" |
| **PRUSIK TEND LOCK BECKET** | - - - | - - - | - - | - - | - - - | - - | - - - |
| **BUSHING BEARING PIN** | | | | | | | |
| **CHEEKS - SWIVEL FIXED** | | | | | | | |
| **EFFICIENCY** | - | - | - | - | - | - | |
| **CHEEK SHEAVE AXLE** | StSt Alu StSt | StSt Alu StSt | Alu Alu Alu | Alu Alu Alu | StSt Alu StSt | StSt Alu StSt | Alu Alu StSt |
| **STANDARDS** | NFPA | NFPA | NFPA | NFPA | NFPA | NFPA | NOT PPE |
| **OTHER COLOURS** | - | - | - | - | - | - | |
| **NOTES** | | | | | | | Load transport only |
| **WEBSITE** | smcgear.com | smcgear.com | smcgear.com | smcgear.com | smcgear.com | smcgear.com | spider-slacklines.com |

| Images NOT to Scale<br>£$€ Currency Conversion-only | | | | | | | Expansion Column |
|---|---|---|---|---|---|---|---|
| **MANUFACTURER** | STEIN | TRANGO | TREEHOG | TREERUNNER | TREERUNNER | TREERUNNER | |
| **MODEL VARIANT** | Rope Wrench Pulley - | Rock Prodigy | Fixed Pulley<br>THPUL1 | Fixed Pulley<br>71-248 | Small Pulley<br>71-247 | Large Pulley<br>71-993 | |
| **ORIGIN** | | | | | | | |
| **COST** (inc Tax) Conversion-only | £17 $23 €20 | £30 $40 €45 | £25 $34 €29 | £15 $20 €17 | £14 $19 €16 | £22 $39 €36 | |
| **WEIGHT** | 76g<br>2.7oz | 91g<br>3.2oz | 91g<br>3.2oz | 110g<br>3.9oz | 116g<br>4oz | 285g<br>10oz | |
| **MAX LOAD- WLL MBS** | - 36kN<br>- 8093lbf | - 26kN<br>- 5845lbf | - 22kN<br>- 4946lbf | - 20kN<br>- 4497lbf | - 20kN<br>- 4497lbf | 6 42kN<br>1349 6744lbf | |
| **MAX ROPE Ø** | ≤13mm<br>≤½" | ≤12mm<br>≤½" | ≤13mm<br>≤½" | ≤12mm<br>≤½" | ≤12mm<br>≤½" | ≤15mm<br>≤⅝" | |
| **SHEAVE/TREAD Ø** | 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" | |
| **DIMENSIONS** ht x w x depth | 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" | |
| **PRUSIK TEND LOCK BECKET** | - - - | - - - | - - - | - - | - - | - - - | |
| **BUSHING BEARING PIN** | | | | | | | |
| **CHEEKS - SWIVEL FIXED** | | | | | | | |
| **EFFICIENCY** | n/a | - | - | n/a | n/a | n/a | |
| **CHEEK SHEAVE AXLE** | Alu Alu Alu | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | |
| **STANDARDS** | CE UKCA | CE | CE | CE | CE | CE | |
| **OTHER COLOURS** | | - | - | | | | |
| **NOTES** | won't rotate >200kg load | | | | | | |
| **WEBSITE** | stein.com | trango.com | treehog.co.uk | grube.eu | grube.eu | grube.eu | |

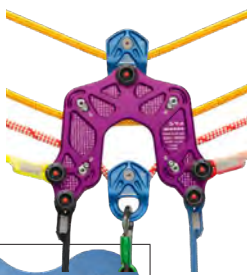
# TANDEM PULLEYS

## for Zip-Lines

**UPDATED Sep '25**

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 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-pate 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** £$€ Currency Conversion-only | | | | | |
|---|---|---|---|---|---|
| **MANUFACTURER** | **ALPIDEX** | **BEAL** | **CAMP** | **CAMP** | **CMI** |
| **MODEL VARIANT** | **Tandem** 2P654 | Transf'air Twin B - | **Wing2** - | **Flyte** 3121 | **Trolley HD (+ Plate)** |
| **ORIGIN** | | | | | |
| **COST** (inc Tax) Conversion-only | £33 $45 €37 | £65 $88 €64 | £100 $135 €115 | £75 $102 €87 | £308 $416 €354 |
| **WEIGHT** | 280g 9.9oz | 290g 13.8oz | 347g 12.2oz | 280g 9.9oz | 1.9kg* 2.4lb* |
| **MAX LOAD- WLL MBS** | 10 20kN 2248 4497lbf | 8 30kN 1798 6744lbf | 6 15kN 1349 3372lbf | 10 20kN 2248 4497lbf | - 62.3kN - 14000lbf |
| **MAX ROPE CABLE Ø** | 13 12mm ½ ½" | ≤13 12mm ≤½ ½" | ≤13 12mm ≤½ ½" | ≤13 12mm ≤½ ½" | ≤16mm ≤⅝" |
| **SHEAVE/TREAD Ø** | 2x 27mm 2x 1.1" | 2x 27mm 2x 1.1" | 2x 26mm 2x 1" | 2x 27mm 2x 1.1" | 2x 75mm 2x 3" |
| **DIMENSIONS** ht x w x depth | 83 x 108 x 28mm 3.3 x 4.2 x 1.1" | 108 x 78 x 36mm 4.3 x 3.1 x 1.4" | 125 x 75 x 30mm 5 x 3 x 1.2" | 83 x 108 x 28mm 3.3 x 4.2 x 1.1" | 75 x 127 x 26*mm 9.5 x 6 x 1" |
| **BUSHING BEARING PIN** | ■ | ■ | ■ | ■ | ■ |
| **CHEEKS - SWIVEL FIXED** | ■ | ■ | ■ | ■ | ■ |
| **EFFICIENCY** | ? | ? | n/a | n/a | n/a |
| **CHEEK SHEAVE AXLE** | Alu StSt StSt | Alu StSt StSt | Alu StSt StSt | Alu StSt StSt | Alu Alu StSt |
| **STANDARDS** | CE | CE | CE | CE | CE |
| **MAX SPEED** | - | 33mph 15m/s | 45mph 20m/s | 45mph 20m/s | 60mph 27m/s |
| **NOTES** | 7 Colour options | | DISCONTINUED Sprung gate. Hooks each end are to store backups during travel | | *Exc mandatory use of CMI Maxi-Plate attached to bottom pins |
| **WEBSITE** | alpidex.com | beal-planet.com | camp.it | camp.it | cmigear.com |

| Images NOT to Scale<br>£$€ Currency Conversion-only | | | | | | |
|---|---|---|---|---|---|---|
| **MANUFACTURER** | CMI | CMI | CMI | DMM | EDELRID | E |
| **MODEL VARIANT** | Trolley½ ⅝<br>- | Velocity Micro½ ⅝<br>- | Rapid Transit<br>- | Keanu<br>TR400 | Rail<br>71791 | 854 |
| **ORIGIN** | | | | | | |
| **COST** (inc Tax) Conversion-only | £233 $280 €266 | £133 $180 €153 | £228 $308 €266 | £521 $705 €601 | £70 $99 €80 | £91 |
| **WEIGHT** | 648g<br>1lb 6oz | 368/397g<br>13/14oz | 648g<br>1lb 6oz | 1698g<br>3lb 12oz | 290g<br>10.2oz | |
| **MAX LOAD- WLL MBS** | - 62.3kN<br>- 14000lbf | - 62.3kN<br>- 14000lbf | - 62.3kN<br>- 14000lbf | 10 50kN<br>2248 11240lbf | - 25kN<br>- 5620lbf | 8k<br>179 |
| **MAX ROPE CABLE Ø** | 9-12.7mm 16mm<br>⅜-½" ⅝" | ≤12.7 12.7-16mm<br>≤½ ½-⅝" | 9-12.7mm<br>⅜-½" | ≤13 12mm<br>≤½ ½" | ≤13 12mm<br>≤½ ½" | ≤1 |
| **SHEAVE/TREAD Ø** | 2x 50mm<br>2x 2" | 2x 38mm<br>2x1.5" | 2x 50mm<br>2x 2" | 2x 38mm<br>2x 1.5" | 2x 28mm<br>2x 1.1" | 2x<br>2 |
| **DIMENSIONS** ht x w x depth | 165 x 152 x 24*mm<br>6.5 x 6 x 1" | 75 x 127x23/27*mm<br>3 x 5 x.0.9/1.1" | 142 x 95x26.8*mm<br>5.6 x 3.75 x 1" | 250 x 220 x 40mm<br>9.8 x 8.7 x 1.6" | 0 x 0mm<br>0 x 0" | 85<br>3. |
| **BUSHING BEARING PIN** | ■ | ■ | ■ | ■ | ■ | |
| **CHEEKS - SWIVEL FIXED** | ■ | ■ | ■ | ■ | ■ | |
| **EFFICIENCY** | n/a | n/a | n/a | n/a | 90% | |
| **CHEEK SHEAVE AXLE** | StSt StSt StSt | StSt StSt StSt | StSt StSt StSt | Alu Alu StSt | Alu StSt StSt | Alu |
| **STANDARDS** | CE | CE | CE | CE | CE | |
| **MAX SPEED** | 90mph 40m/s | 60mph 27m/s | 90mph 40m/s | - | - | |
| **NOTES** | depth does not include bolt *heads | depth does not include bolt *heads | depth does not include bolt *heads | Also in Purple. Modular sheaves, pins and rig plate | PHASING OUT<br>Replaced by Warp | |
| **WEBSITE** | cmigear.com | cmigear.com | cmigear.com | dmmwales.com | edelrid.com | ede |

| Images NOT to Scale<br>£$€ Currency Conversion-only | | | | | | |
|---|---|---|---|---|---|---|
| **MANUFACTURER** | KONG | KONG | KONG | PETZL | PETZL | |
| **MODEL VARIANT** | Pamir Fast<br>94600(4/N)401KK | MegaZip<br>91200ON00KK | Zip Evo Hook<br>826040400KK 826050400KK | Tandem<br>P21 | Tandem Speed<br>P21 SPE | |
| **ORIGIN** | | | | | | |
| **COST** (inc Tax) Conversion-only | £187/€216/$253 | £219 $297 €253 | £100 $135 €104 | £44 $60 €51 | £65 $88 €75 | £180 |
| **WEIGHT** | 365g<br>12.9oz | 1310g<br>2lb 14oz | 440 470g<br>15.5 16.6 oz | 195g<br>6.9oz | 270g<br>9.5oz | |
| **MAX LOAD- WLL MBS** | 8 30kN<br>1798 6744lbf | - 21kN<br>- 4721lbf | - 22kN<br>- 5000lbf | 10 24kN<br>2248 5395lbf | 10 24kN<br>2248 5395lbf | - |
| **MAX ROPE CABLE Ø** | ≤13 13mm<br>≤½ ½" | 12-16mm<br>½-⅝" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13 13mm<br>½ ½" | 7 |
| **SHEAVE/TREAD Ø** | 2x 37mm<br>2x 1.5" | 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<br>2 |
| **DIMENSIONS** ht x w x depth | 86.5 x 113 x 29mm<br>3.4 x 4.5 x 1.1" | 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<br>5. |
| **BUSHING BEARING PIN** | ■ | ■ | ■ | ■ | ■ | |
| **CHEEKS - SWIVEL FIXED** | ■ | ■ | ■ | ■ | ■ | |
| **EFFICIENCY** | n/a | n/a | 95% | 71% | 95% | |
| **CHEEK SHEAVE AXLE** | Alu StSt StSt | Alu Steel StSt | Alu StSt StSt | Alu Alu StSt | Alu StSt StSt | Alu |
| **STANDARDS** | CE | CE | CE | CE UIAA UKCA | CE UIAA UKCA | CE N |
| **MAX SPEED mph m/s** | - | | | 22mph 10m/s | 89mph 20m/s | |
| **NOTES** | Top-cap=finger protector. Also available in Blue | | Sprung safety gate for sheaves. Hook version (shown) avoids safety backup wear on wire cable | | | |
| **WEBSITE** | kong.it | kong.it | kong.it | petzl.com | petzl.com | pe |

www.arbclimber.com

# TANDEM PULLEYS/TROLLEYS

| | | | | | | |
|---|---|---|---|---|---|---|
| **DELRID** | **EDELWEISS** | **FIXE** | **FUSION CLIMB** | **FUSION CLIMB** | **ISC** | **KAILAS** |
| **Warp**<br>020001380 | **?** | **DB2 Cable**<br>418 | **Advent GT Tactical**<br>FP-8160-SS-SILBLK | **Tesa Speed**<br>FP-8154-7-BLU | **ZipSpeed SL**<br>RP075 | **Trolley Double**<br>- |
| $120 €105 | £55 $68 €38 | £75 $92 €86 | £73 $89 €84 | £62 $84 €72 | £145 $230 €200 | £105 $130 €120 |
| 300g<br>10.6oz | 290g<br>10.2oz | 291g<br>10.3oz | 765g<br>1lb 11oz | 311g<br>11oz | 875g<br>1lb 14oz | 372g<br>13.1oz |
| kN 32kN<br>8 7194lbf | 8 30kN<br>1798 6744lbf | 10 20kN<br>2248 4497lbf | - 50kN<br>- 11240lbf | 10 24kN<br>2248 5395lbf | - 40kN<br>- 8992lbf | 12 26kN<br>2697 5845lbf |
| 3 12mm<br>≤½ ½" | ≤13 12mm<br>≤½ ½" | ≤13 12mm<br>≤½ ½" | 9-13 8-12mm<br>⅜-½ 15⁄16-½" | 9-13 8-12mm<br>⅜-½ 15⁄16-½" | ≤13,16 &20mm<br>≤½, ⅝ & ¾" | ≤13 12mm<br>≤½ ½" |
| x 28mm<br>2x 1.1" | 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" |
| x 100mm<br>3 x 3.9" | 78 x 108 x 36mm<br>3.1 x 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" |
| ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| 92% | n/a | n/a | n/a | n/a | n/a | n/a |
| StSt StSt | Alu StSt StSt | Alu StSt StSt | StSt Alu StSt | Alu Alu StSt | Alu StSt StSt | Alu Alu StSt |
| CE | CE | CE | CE | CE ANSI | CE | CE |
| - | 33mph 15m/s | - | | 89mph 20m/s | 69mph 30.8m/s | |
| | | | Tactical version=Black | | Also available with 13&16mm cable sheaves & 75mm/3" rope sheaves | |
| elrid.com | fixeclimbing.com | fusionclimb.com | fusionclimb.com | iscwales.com | kailas.com | kong.it |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **PETZL** | **PROTEKT** | **ROCK EMPIRE** | **SINGING ROCK** | **SKYLOTEC** | **SMC** | **SMC** |
| **Reeve**<br>P21 SPE | **Tree-Up Dbl Transport**<br>CD101 | **Tandem**<br>ZWP120 | **Tandem**<br>RK803 | **CT Duetto**<br>2P654 | **Shuttle**<br>156302 | **Shuttle Extreme**<br>156304 |
| $244 €208 | £40 $50 €46 | £87 $118 €73 | £59 $80 €59 | £66 $89 €55 | £51 $90 €59 | £98 $132 €112 |
| 650g<br>1lb 7oz | 250g<br>8.8oz | 280g<br>9.9oz | 290g<br>10.2oz | 290g<br>13.8oz | 162g<br>5.7oz | 227g<br>8oz |
| - 36kN<br>8093lbf | 4.8 24kN<br>1079 5395lbf | - 20kN<br>- 4496lbf | 5 25kN<br>1124 5620lbf | 10 25kN<br>2248 5620lbf | - 26kN<br>- 5845lbf | - 26kN<br>- 5845lbf |
| -13mm<br>/32- ½" | ≤13mm<br>≤/2" | ≤13 12mm<br>≤½ ½" | ≤13 12mm<br>≤½ ½" | ≤13 12mm<br>≤½ ½" | ≤13 13mm<br>≤½ ½" | ≤13 13mm<br>1≤/2 ½" |
| x 38mm<br>2x 1.5" | 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" |
| x 195mm<br>2 x 7.7" | 90 x 103 x 36.5mm<br>35.4 x 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" |
| ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| 95% | n/a | n/a | n/a | 90% | n/a | n/a |
| StSt StSt | Alu StSt StSt | Alu StSt StSt | Alu StSt StSt | Alu StSt StSt | Alu StSt StSt | Alu StSt StSt |
| FPA UKCA | CE | | | CE | - | - |
| | | | | - | - | - |
| | | | | | DISCONTINUED | Replaceable bearings. For high volume jobs |
| etzl.com | protekt.pl | rockempire.com | singingrock.com | skylotec.com | smcgear.com | smcgear.com |

**UPDATED Sep '25**

# SWIVEL PULLEYS

## & CARABINER/PULLEY SWIVELS

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 becket 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* (now *Harken*) decided to buck the trend and have theirs 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 *CMI*'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 H*ydra* (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 orAluminium 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.

rock exotica

| Images NOT to Scale | | | | | | |
|---|---|---|---|---|---|---|
| **MANUFACTURER** | ASAT/ATHEIGHTUK | ASAT/ATHEIGHTUK | CMC | CMC | CMC | CMC |
| **MODEL VARIANT** | RP50 - | RP51 - | 1.1 PMP Single 300434 | 1.1 PMP Double 300433 | 1.5 PMPSingle SS 300430 | 1.5 Single 300431 |
| **ORIGIN** | | | | | | |
| **COST** (inc Tax) Conversion-only | £96 $99 €112 | £127 $132 €148 | - $95 - | - $123 - | - $139 - | - $105 - |
| **WEIGHT** | 305g 10.7oz | 495g 1lb 1.5oz | 140g 4.9oz | 245g 8.6oz | 331g 11.7oz | 260g 9.2oz |
| **MAX LOAD- WLL MBS** | 8 36kN 1798 8093lbf | 8 36kN 1798 8093lbf | 5 23kN 1124 8093lbf | 7.25 30kN 1630 6744lbf | 8 36kN 1798 8093lbf | 8 36kN 1798 8093lbf |
| **ROPE Ø** | ≤13mm ≤½" | ≤13mm ≤½" | ≤13mm ≤½" | ≤13mm ≤½" | ≤13mm ≤½" | ≤13mm ≤½" |
| **SHEAVE/TREAD Ø** | 38mm 1.5" | 38mm 1.5" | 28mm 1.1" | 2x 28mm 2x 1.1" | 38mm 1.5" | 38mm 1.5" |
| **DIMENSIONS** ht x w x depth | 126 x 60 x 34mm 5 x 2.4 x 1.4" | 154x 60 x 57mm 6 x 2.4 x 2.3" | 112 x 51x 30mm 4.4 x 2 x 1.2" | 135 x 51 x 53mm 5.3 x 2 x 2" | 135 x 64 x 32mm 6.3 x 2.5 1.3" | 135 x 64 x 32mm 5.3 x 2.5 x 1.3" |
| **PRUSIK TEND LOCK BECKET** | - ■ - | - ■ ■ | ■ ■ - | ■ ■ ■ | ■ ■ - | - ■ - |
| **BUSHING BEARING PIN** | ■ | ■ | ■ | ■ | ■ | ■ |
| **CHEEKS - SWIVEL FIXED** | ■ | ■ | ■ | ■ | ■ | ■ |
| **EFFICIENCY** | - | - | >90% | >90% | >90% | >90% |
| **CHEEK SHEAVE AXLE** | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu StSteel Alu | Alu Alu Alu |
| **STANDARDS** | CE | CE | CE | CE | CE | CE |
| **OTHER COLOURS** | | | - | - | - | - |
| **NOTES** | NEW for 2025 | NEW for 2025 | | | *steel cable≤12mm | |
| **WEBSITE** | atheightuk.com | atheightuk.com | cmcpro.com | cmcpro.com | cmcpro.com | cmcpro.com |

| Images NOT to Scale | | | | | | |
|---|---|---|---|---|---|---|
| **MANUFACTURER** | HARKEN | HARKEN | HARKEN/SMC | NOTCH | PETZL | PETZL |
| **MODEL VARIANT** | Apex 1.1 165020 | Apex 1.5 165120 | Apex 1.5 dbl 165130 | Rook x | Twin Release - | Spin S1 S1 |
| **ORIGIN** | | | | | | |
| **COST** (inc Tax) Conversion-only | £82 $99 €94 | £87 $105 €100 | £140 $169 €161 | £111 $120 €114 | £362 $440 €410 | £58 $72 €66 |
| **WEIGHT** | 190g 6.7oz | 306g 10.8oz | 478g 16.9oz | 189g 6.7oz | 800g 1lb 12oz | 145g 5.1oz |
| **MAX LOAD- WLL MBS** | 3 12kN 674 2697lbf | 9.5 38kN 2135 8542lbf | 9.5 38kN 2135 8542lbf | 2.8 28kN 629 6295lbf | 9 36kN 2023 8093lbf | 5 23kN 1124 8093lbf |
| **ROPE Ø** | ≤13mm ≤½" | ≤13mm ≤½" | ≤13mm ≤½" | ≤13mm ≤½" | 8-13mm 5/16-½" | 7-11mm 9/32-7/16" |
| **SHEAVE/TREAD Ø** | 28mm 1.1" | 38mm 1.5" | 2x 38mm 2x 1.5" | 53mm 2.1" | 2x 38-40*mm 2x 1.5" | 25mm 1" |
| **DIMENSIONS** ht x w x depth | 121 x 59.4 x 29mm 4.75 x 2.3 x 1.13" | 150 x 74 x 29mm 5.9 x 2.9 x 1.13" | 171 x 74 x 58mm 6.7 x 2.9 x 2.3" | 112 x 63.5 x 33mm 4.6 x 2.5" | 180 x 105 x 77mm 7 x 4.1 x 3" | 103x48x33mm 4 x 1.9 x 1.3" |
| **PRUSIK TEND LOCK BECKET** | ■ ■ - | ■ ■ - | ■ ■ ■ | - - - | - ■ ■ | - ■ - |
| **BUSHING BEARING PIN** | ■ | ■ | ■ | ■ | ■ | ■ |
| **CHEEKS - SWIVEL FIXED** | ■ | ■ | ■ | ■ | ■ | ■ |
| **EFFICIENCY** | | | | >90% | 95% | 91% |
| **CHEEK SHEAVE AXLE** | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu Alu StSt | Alu StSt StSt | Alu StSt StSt |
| **STANDARDS** | CE NFPA UKCA | CE NFPA UKCA | CE NFPA UKCA | ANSI CE | CE NFPA ANSI UKCA | CE NFPA UKCA UIA |
| **OTHER COLOURS** | - | ■ | - | - | ■ | ■ |
| **NOTES** | | | Production paused? | | Integrated progress capture cam.*=faceted cam | red warning mark if shea is not locked |
| **WEBSITE** | harken.com | harken.com | harken.com | notchequipment.com | petzl.com | petzl.com |

# SV . PULLEYS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| | **CMC** | **CMC** | **CMC** | **CMC** | **CMC** | **CMC** | **CMI** |
| | **1.5 Double**<br>300432 | **2.0 PMP Single**<br>300437 | **2.0 PMP Double**<br>300438 | 2.6 PMP Single<br>300436 | 1.1 PMP SwivaBiner<br>300435 | 1.1 PMP SwivaBiner<br>300439 | **MicroTrolley**<br>RP161RS |
| | - $155 - | - $130 - | - $195 - | - $225 - | - $125 - | - $155 - | £91 $110/114 €105 |
| | 411g<br>14.5oz | 348g<br>12.3oz | 591g<br>20.9oz | 850g<br>29.9oz | 200g<br>7oz | 298g<br>11oz | 204/226g<br>7.2/8oz |
| | 8 36kN<br>1798 8093lbf | 8 36kN<br>1798 8093lbf | 10 40kN<br>2248 8992lbf | 20 80kN<br>4496 17984lbf | - 22kN<br>- 4946lbf | - 22kN<br>- 4946lbf | 8.8 44kN<br>1980 9900lbf |
| | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" |
| | 2x 38mm<br>2x 1.5" | 51mm<br>2" | 2x 51mm<br>2x 2" | 66mm<br>2.6" | 28mm<br>1.1" | 2x 28mm<br>2x 1.1" | 32mm<br>1.25" |
| n | 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" | 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" |
| | - | - | | - | - | | - - |
| | | | | | | | |
| | | | | | | | |
| | >90% | >90% | >90% | >90% | >90% | >90% | |
| | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu StSt |
| | CE | - | CE | CE | CE | CE | CE |
| | - | - | - | - | - | - | - |
| | | | | | | | RS=removable axle/sheave |
| | cmcpro.com | cmcpro.com | cmcpro.com | cmcpro.com | cmcpro.com | cmcpro.com | cmigearusa.com |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| | **PETZL** | **PETZL** | **PETZL** | **PETZL** | **ROCK EXOTICA** | **ROCK EXOTICA** | **ROCK EXOTICA** |
| | **Spin S1 Open**<br>2P654 | **Spin L1**<br>L1 | **Spin L2 dbl**<br>L2D | **Spin L1D 1-way**<br>L2 | **Omni Block 1.1**<br>P54 | **Omni Block 1.1 dbl**<br>P54D | **Omni Block 1.5**<br>P51 |
| | £65 $75 €70 | £90 $110 €100 | £144 $175 €160 | £168 $205 €190 | £110 $98 €122 | £150 $135 €162 | £122 $105 €142 |
| | 0g<br>0oz | 290g<br>10.2oz | 480g<br>1lb 9oz | 425g<br>15oz | 140g<br>4.9oz | 245g<br>8.6oz | 260g<br>9.2oz |
| | 5 23kN<br>1124 8093lbf | 6 36kN<br>1348 8093lbf | 6 36kN<br>1348 8093lbf | 6 36kN<br>1348 8093lbf | 5 23kN<br>1124 8093lbf | 7.25 30kN<br>1630 6744lbf | 8 36kN<br>1798 8093lbf |
| | 7-11mm<br>9/32-7/16" | 8-13mm<br>5/16-½" | 8-13mm<br>5/16-½" | 8-13mm<br>5/16-½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" |
| | 25mm<br>1" | 38mm<br>1.5" | 2x 38mm<br>2x 1.5" | 38mm<br>1.5" | 28mm<br>1.1" | 2x 28mm<br>2x 1.1" | 38mm<br>1.5" |
| | 105x48x33mm<br>4.1 x 1.9 x 1.3" | 150x70mm<br>5.9 x 2.75" | 180 x 70 x 70mm<br>7 x 2.75 x 2.75" | 150x74mm<br>5.9 x 2.9" | 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" |
| | - | - | - | - | - | | - |
| | | | | | | | |
| | | | | | | | |
| | 91% | 95% | 95% | 93% one-way | >90% | >90% | >90% |
| | Alu StSt StSt | Alu StSt StSt | Alu StSt StSt | Alu StSt StSt | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu |
| AA | CE NFPA UKCA | CE NFPA UKCA | CE NFPA UKCA | CE NFPA UKCA | CE | CE | CE |
| | | | | | | | |
| ave | 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. One way faceted sheave | | | |
| | petzl.com | petzl.com | petzl.com | petzl.com | rockexotica.com | rockexotica.com | rockexotica.com |

# UPDATED Sep '25

www.rescuemagazines.com

| Images NOT to Scale | | | | | | |
|---|---|---|---|---|---|---|
| **MANUFACTURER** | ROCK EXOTICA | ROCK EXOTICA | ROCK EXOTICA | ROCK EXOTICA | ROCK EXOTICA | ROCK EXOTICA |
| **MODEL VARIANT** | Omni Block 1.5 SS<br>P51 SS | Omni Block 1.5<br>P51 SH | Omni Block 1.5 dbl<br>P51 D | Omni Block 2<br>P53 | Omni Block 2 dbl<br>P53 D | Omni Block 2.6<br>P55 |
| **ORIGIN** | | | | | | |
| **COST** (inc Tax) Conversion-only | £100 $90 €87 | £122 $105 €142 | £150 $160 €190 | £150 $134 €162 | £225 $202 €263 | £256 $235 €223 |
| **WEIGHT** | 303g<br>10.7oz | 303g<br>10.7oz | 411g<br>14.5oz | 348g<br>12.3oz | 591g<br>20.9oz | 850g<br>29.9oz |
| **MAX LOAD- WLL MBS** | 8 36kN<br>1798 8093lbf | 8 36kN<br>1798 8093lbf | 8 36kN<br>1798 8093lbf | 8 36kN<br>1798 8093lbf | 10 40kN<br>0lbf | 20 80kN<br>4496 17984lbf |
| **MAX ROPE Ø** | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" | ≤13mm<br>≤½" |
| **SHEAVE/TREAD Ø** | 38mm<br>1.5" | 38mm<br>1.5" | 2x 38mm<br>2x 1.5" | 51mm<br>2" | 2x 51mm<br>2x 2" | 66mm<br>2.6" |
| **DIMENSIONS** ht x w x depth | 135 x 64 x 32mm<br>5.3 x 2.5 x 1.3" | 135 x 64 x33mm<br>6.3 x 2.5 x 1.3" | 160 x 64 x 58mm<br>6.3 x 2.5 x 2.3" | 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" |
| **PRUSIK TEND LOCK BECKET** | - ■ - | - ■ - | - ■ ■ | ■ ■ - | ■ ■ ■ | ■ ■ - |
| **BUSHING BEARING PIN** | ■ | ■ | ■ | ■ | ■ | ■ |
| **CHEEKS - SWIVEL FIXED** | ■ | ■ | ■ | ■ | ■ | ■ |
| **EFFICIENCY** | >90% | >90% | >90% | >90% | >90% | >90% |
| **CHEEK SHEAVE AXLE** | Alu StSteel Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu |
| **STANDARDS** | CE | - | CE | - | CE | CE |
| **OTHER COLOURS** | ■ | - | ■ | ■ | ■ | - |
| **NOTES** | | DISCONTINUED | | | | |
| **WEBSITE** | rockexotica.com | rockexotica.com | rockexotica.com | rockexotica.com | rockexotica.com | rockexotica.com |

| Images NOT to Scale | | | | | | |
|---|---|---|---|---|---|---|
| **MANUFACTURER** | ROCK EXOTICA | ROCK EXOTICA | RE / CMC | ROCK EXOTICA | ROCK EXOTICA | ROCK EXOTICA |
| **MODEL VARIANT** | 1.1 Swivabiner<br>P54 SB B | 1.1 Swivabiner dbl<br>P54D SB B | AZTEK<br>P41 / 300321 | Material Handling Omni 2.6 MHP55 | Material Handling Omni 4.5 MHP58 | **Hydra**<br>P4 |
| **ORIGIN** | | | | | | |
| **COST** (inc Tax) Conversion-only | £135 $137 €150 | £190 $170 €220 | £105 $127 €121 | £207 $250 €238 | £392 $475 €451 | £127 $120 €134 |
| **WEIGHT** | 140g<br>4.9oz | 300g<br>10.5oz | 226g<br>7.9oz | 850g<br>29.9oz | 2.65kg<br>5.8lb | 189g<br>6.7oz |
| **MAX LOAD- WLL MBS** | 5 23kN<br>1124 5170lbf | 7 28kN<br>1573 6295lbf | 9 36kN<br>2023 8093lbf | 20 100kN<br>4500 22500lbf | 26.6 133.4kN<br>6000 30000lbf | 5 28kN<br>1124 6295lbf |
| **MAX ROPE Ø** | ≤13mm<br>≤½" | ≤13mm<br>≤½" | 8mm<br>5/16" | 9-13mm<br>⅜-½" | 9-19mm<br>⅜-¾" | ≤13mm<br>≤½" |
| **SHEAVE/TREAD Ø** | 28mm<br>1.1" | 2x 28mm<br>2x 1.1" | 2x 28mm<br>2x 1.1" | 75 66mm<br>2.95 2.6" | 114 95mm<br>4.5 3.75" | 53mm<br>2.1" |
| **DIMENSIONS** ht x w x depth | 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" | 104 x 50mm<br>4.1 x 2" | 191 x 92.5 x 37mm<br>7.5 x 3.6 x 1.5" | 0 x 0mm<br>0 x 0" | 112 x 63.5 x 33mm<br>4.4 x 2.5 x 1.3" |
| **PRUSIK TEND LOCK BECKET** | ■ ■ - | ■ ■ ■ | ■ - - | ■ ■ - | ■ ■ - | - - - |
| **BUSHING BEARING PIN** | ■ | ■ | ■ | ■ | ■ | ■ |
| **CHEEKS - SWIVEL FIXED** | ■ | ■ | ■ | ■ | ■ | ■ |
| **EFFICIENCY** | >90% | >90% | >90% | >90% | >90% | >90% |
| **CHEEK SHEAVE AXLE** | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu Alu | Alu Alu StSt |
| **STANDARDS** | CE | CE | CE | ASME | ASME | CE |
| **OTHER COLOURS** | - | - | ■ ■ | - | - | - |
| **NOTES** | | | grey= quick release pin<br>orange=side becket screw | non-human loads | non-human loads | |
| **WEBSITE** | rockexotica.com | rockexotica.com | rockexotica.com | rockexotica.com | rockexotica.com | rockexotica.com |

# EDER Ascender EPC-240

With 36m/minute and a permissible payload of 240kg, the EDER Ascender is ready for any rescue job. The Ascender is powered by a powerful STIHL battery or 2-stroke engine.

**www.eder-maschinenbau.de**

**UPDATED Jun '25**

# IMPACT PULLEYS

## aka RIGGING BLOCKS & DISMANTLING PULLEYS

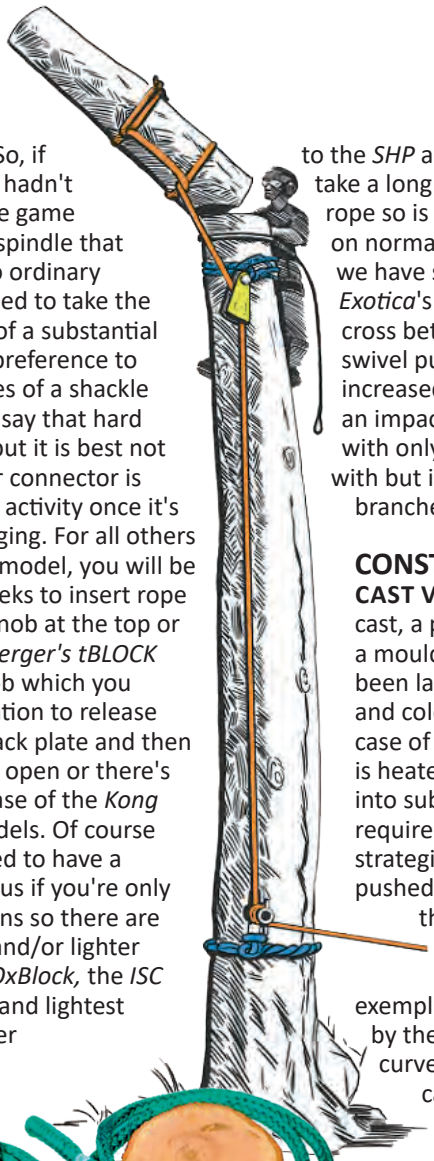
*ABOVE Left to right- approximately to scale: DMM Large Impact Block, ISC 3/4" medium and 5/8" small and DMM XS Impact Block. Top right (NOT to scale) the DMM Small Impact Block. Note the hollow spindle on the DMM which is also seen in the Arbortec and TreeUp models. This is for 3D rigging allowing a 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 sever 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 and Teufelberger's tBLOCK* above, 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 *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 afore mentioned *OxBlock,* the *ISC Mini* block, *FTC TREE Mini Eclipse 2* 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.

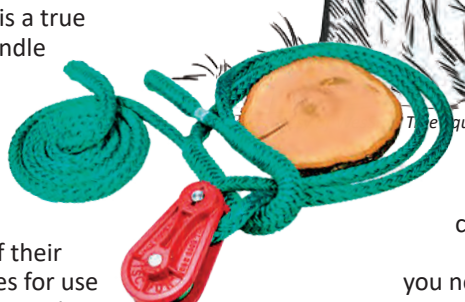


to the *SHP* and its top bobbin is designed to take a long Maillon Rapide rather than a rope so is narrower in diameter than those on normal impact pulleys. More recently we have seen the introduction of *Rock Exotica*'s *Downrigger* (right) which is a cross between an impact block and a swivel pulley with a one-way sheave for increased friction on lowering. 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 that 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.



## 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 (**below) which we haven't included in this Guide since it's not intended for impact loading 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

**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 I*SC 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 material-handling pulleys listed together with *Buckingham's OxBlock* which they also make

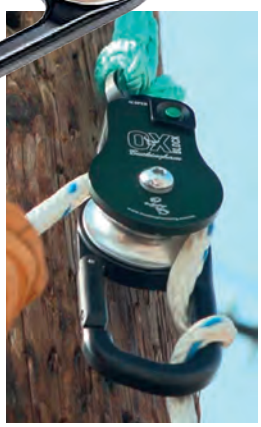
## UPDATED Jun '25

(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 and 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 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 'oddity' 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.

## 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 □.

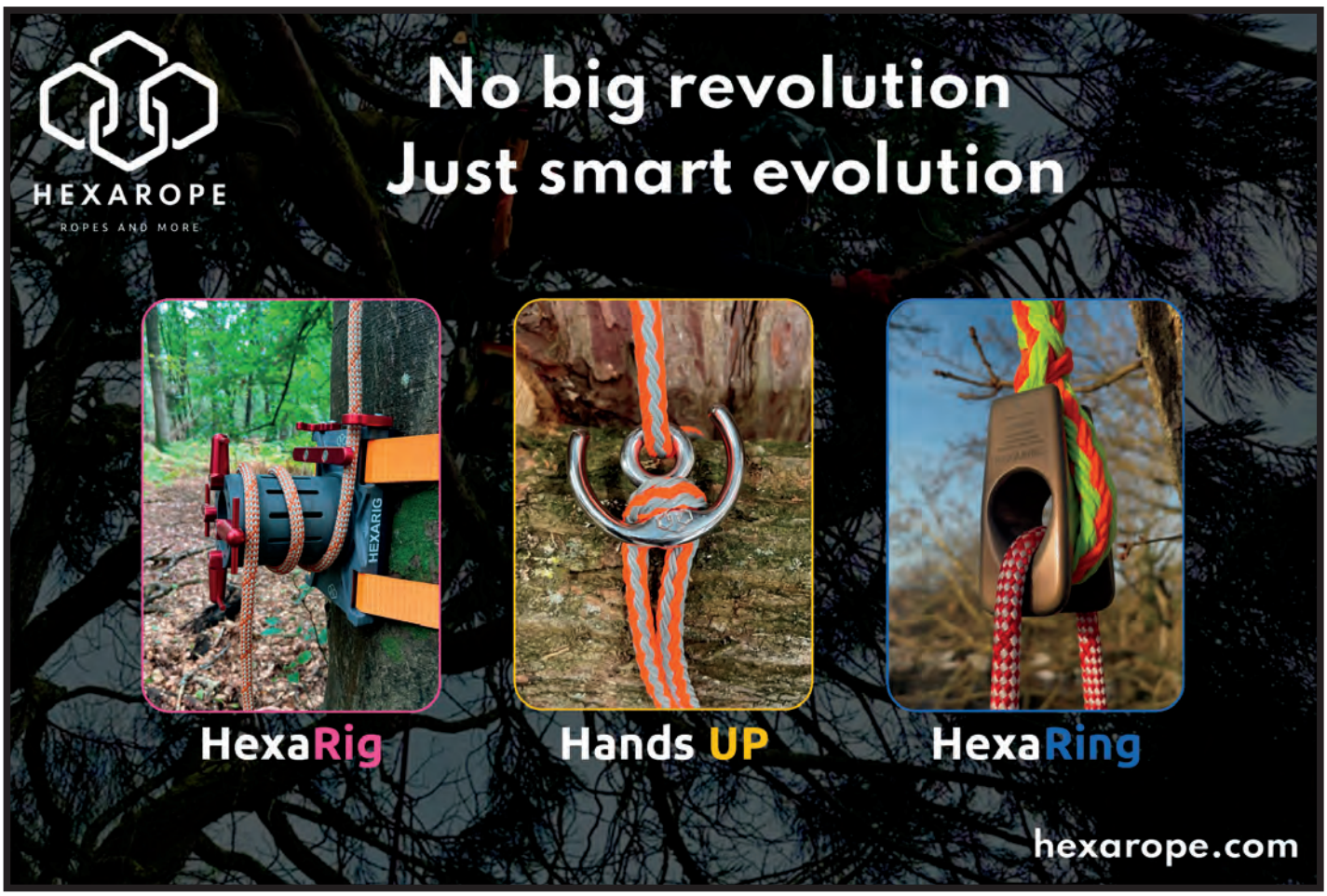
Some of the '**depth/thickness**' figures may or may not include the release button. Despite the obvious bulk of some release knobs some give depth as just the body of the pulley!

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.

**IMAGES NOT TO SCALE**

**COST:** Approx & inc local tax/ VAT **£$€ prices in burnt orange are a currency conversion 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

| | | | | | | |
|---|---|---|---|---|---|---|
| **MANUFACTURER** | **ARBORTEC** | **ARBORTEC** | **ARBPRO** | **BUCKINGHAM** | **CMI** | **CMI** |
| **MODEL VARIANT** | **Treehog** TH2040 | **Treehog** TH2050 | **AP-RB01** - | **OxBlock** PM5062(clevis) | **Mini Arb Block** RP162 | **Small Arb B** RP160 |
| **ORIGIN** | | | | | | |
| **COST** | £190 $236 €220 | £190 $236 €220 | £131 $162 €151 | £600 $745 €695 | £137 $169 €158 | £198 $358 € |
| **WEIGHT** | 1.36kg 2.86lb | 1.4kg 3lb | 880g 1.94lb | 1.4kg 2.86lb | 450g 1lb | 1.3kg 2.95lb |
| **MBS of Pulley** | 100kN 22,481lbf | 100kN 22,481lbf | 80kN 17,985lbf | 44kN 10,000lb | 97kN 21,900lbf | 227kN 51,000lb |
| **WLL** | 2039kg 4496lb | 2039kg 4496lb | 1600kg 3527lb | 1100kg 2425lb | 1422kg 3128lb | 3312kg 7286 lb |
| **MAX ROPE Ø** | 18mm <¾" | 18mm <¾" | 15mm 9/16" | 16mm ⅝" | 12.7mm ½" | 19mm ¾" |
| **TOP ANCHOR WIDTH** | 18mm <¾" | 18mm <¾" | 20mm ¾" | 22mm 0.9" | 22mm 0.9" | 28mm 1 ⅛" |
| **HEIGHT** | 175mm / 6.9" | 175mm / 6.9" | 185mm / 7.3" | 260mm / 10.2" | 102mm / 4" | 140mm / 5. |
| **WIDTH** | 105mm / 4.1" | 105mm / 4.1" | 95mm / 3.7" | 65mm / 2,6" | 57mm / 2.25" | 76mm / 3 |
| **DEPTH** | 50mm / 2" | 50mm / 2" | 35mm / 1.4" | 50mm / 2" | 45mm / 1.75" | 70mm / 2.7 |
| **CHEEK MATERIAL**<br>**SHEAVE MATERIAL**<br>**AXLE MATERIAL**<br>**CONSTRUCTION** | Alu<br>Alu<br>Stainless Steel<br>Forged | Alu<br>Alu<br>Stainless Steel<br>Forged | Alu<br>Alu<br>Stainless Steel<br>Plate | Alu<br>Alu<br>Stainless Steel<br>Milled | Stainless Steel<br>Nylon<br>Stainless Steel<br>Milled | Alu<br>Nylon<br>Stainless St<br>Milled |
| **BEARING/BUSHING** | ■ | ■ | ■ | ■ | ■ | ■ |
| **BUTTON** | - | - | ■ | ■ | - | - |
| **SPRUNG** | - | - | ■ | ■ | - | ■ |
| **SCREW** | ■ | ■ | - | - | ■ | - |
| **STANDARDS** | ANSI CE | ANSI CE | | CE | | |
| **OTHER CHEEK COLOURS** | ■ ■ ■ | ■ ■ ■ | | ■ | | |
| **TOP SHEAVE COLOUR** | ■ | ■ | ■ | - | ■ | ■ |
| **MAIN SHEAVE COLOUR** | ■ | ■ | ■ | ■ | ■ | ■ |
| **NOTES** | Solid spindle/axle. 30kg lanyard eye. Sprung, half-turn cheek release. Full-turn screw cheek release | 20mm spindle hole. 30kg lanyard eye. Sprung, half-turn cheek release. Full-turn screw cheek release | DISCONTINUED<br>LIGHT IMPACT LOADS ONLY<br>Gold anchor eye. | LIGHT IMPACT LOADS ONLY<br>Carb spine=Friction post. . Spec for CLEVIS version - Swivel eye option | | |
| **WEBSITE** | treehog.com | treehog.com | arbpro.com | buckinghammfg.com | cmigearusa.com | cmigearusa.c |

SPECIFICATIONS

CHEEK RELEASE

# IMPACT PULLEYS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | CMI | CMI | CMI | CMI | DMM | DMM | DMM |
| lock | 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 | L Arb Impact<br>- |
| | | | | | | | |
| £229 | £177 $218 €205 | £279 $345 €322 | £134 $166 €155 | £401 $497 €464 | £330 $450 €399 | £290 $400 €339 | £450 $650 €569 |
| | 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 | 3.47kg<br>7.6lb |
| f | 125kN<br>28000 lbf | 178kN<br>40,000lbf | 125kN<br>28,000lb | 302kN<br>68,000lbf | 100kN<br>22,480lbf | 200kN<br>44,961lbf | 300kN<br>67,443 lbf |
| | 1818kg<br>4000 lb | 2597kg<br>5714lb | 1818kg<br>4000lb | 6169kg<br>13600lb | 2039kg<br>4496lb | 4078kg<br>8992lb | 6118kg<br>13488lb |
| | 16mm<br>⅝" | 19mm<br>¾" | 19mm<br>¾" | 25mm<br>1" | 16mm<br>⅝" | 16mm<br>⅝" | 20mm<br>¾" |
| | 19mm<br>¾" | 25mm<br>1" | 25mm<br>1" | 28mm<br>1 ⅛" | 20mm<br>¾" | 22mm<br>0.9" | 27mm<br>1.06" |
| 5" | 165mm / 6.5" | 178mm / 7" | 165mm / 6.5" | 235mm / 9.25" | 137mm / 5.4" | 180mm / 7" | 225mm / 8.85" |
| " | 102mm / 4" | 127mm / 5" | 102mm / 4" | 152mm / 6" | 82mm / 3.3" | 100mm / 4" | 120mm / 4.7" |
| 75" | 45mm / 1.75" | 63mm / 2.5" | 63mm / 2.5" | 76mm / 3" | 55mm / 2.2" | 80mm / 3.15" | 97mm / 3.82" |
| eel | 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 | Alu<br>Alu<br>Stainless Steel<br>Hot Forged |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | - | - | - | - | - | - | - |
| | - | - | - | - | - | - | - |
| | ■ | ■ | ■ | □ | ■ | ■ | ■ |
| | | | | | CE | CE | ANSI CE |
| | | | | | ■ | | |
| | ■ | ■ | ■ | | ■ | ■ | ■ |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | | | | cotter-pin locking closure | 10mm Hollow spindle/ axle | Solid spindle/axle | Hollow spindle/axle |
| com | cmigearusa.com | cmigearusa.com | cmigearusa.com | cmigearusa.com | dmmwales.com | dmmwales.com | dmmwales.com |

**IMAGES NOT TO SCALE**

**COST:** Approx & inc local tax/ VAT **£$€ prices in burnt orange are a currency conversion 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

SPECIFICATIONS / CHEEK RELEASE

| | | | | | | |
|---|---|---|---|---|---|---|
| **MANUFACTURER** | FTC TREE | FTC TREE | ISC | ISC | ISC | ISC |
| **MODEL VARIANT** | MIni Eclipes 2 - | Eclipse 3 - | 1/2" Compact/ Mini Block RP048 | 1/2" Rig Block RP051 | 5/8" Small Rig Block RP162 | 5/8"Med Block RP054 |
| **ORIGIN** | | | | | | |
| **COST** | £139 $172 €160 | £184 $228 €212 | £105 $201 €149 | £168 $220 €199 | £168 $220 €198 | £202 $250 |
| **WEIGHT** | 650g 1.43lb | 1.04kg 2.3lb | 490g 1.08lb | 1.54kg 3.4lb | 1.49kg 3.3lb | 2.16kg 4.75lb |
| **MBS of Pulley** | 100kN 22,480 lbf | 150kN 33,721lbf | 85kN 18,000 lbf | 100kN 22,480lbf | 100kN 22,480lbf | 150kN 33,721lb |
| **WLL** | 2039kg 4496lb | 3059kg 6744lb | 1700kg 3748lb | 2039kg 4496lb | 2039kg 4496lb | 3312kg 7286 lb |
| **MAX ROPE Ø** | 16mm ⅝" | 18mm <¾" | 13mm ½" | 13mm ½" | 16mm ⅝" | 16mm ⅝" |
| **TOP ANCHOR WIDTH** | 24mm <1" | 26mm 1" | 16mm ⅝" | 19mm ¾" | 25mm 1" | 25mm 1" |
| **HEIGHT** | 189mm / 7.4" | 189mm / 7.4" | 125mm / 4.9" | 190mm / 7.5" | 190mm / 7.5" | 230mm / |
| **WIDTH** | 65mm / 2.6" | 93mm / 3.7" | 76mm / 3" | 99mm / 3.9" | 99mm / 3.9" | 124mm / 4 |
| **DEPTH** | 65mm / 2.6" | 65mm / 2.6" | 75mm / 3" | 108mm / 4.25" | 108mm / 4.25" | 108mm / 4. |
| **CHEEK MATERIAL**<br>**SHEAVE MATERIAL**<br>**AXLE MATERIAL**<br>**CONSTRUCTION** | 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 Steel<br>Nylon<br>Stainless Steel<br>Forged* | Alu<br>Nylon<br>Stainless St<br>Forged* |
| **BEARING/BUSHING** | ■ | ■ | ■ | ■ | ■ | ■ |
| **BUTTON** | - | - | - | - | - | - |
| **SPRUNG** | - | - | ■ | ■ | ■ | ■ |
| **SCREW** | ■ | ■ | - | - | - | - |
| **STANDARDS** | CE | CE | CE | CE | CE | CE |
| **OTHER CHEEK COLOURS** | | | ■ | | | |
| **TOP SHEAVE COLOUR** | ■ | ■ | ■ | ■ | ■ | ■ |
| **MAIN SHEAVE COLOUR** | ■ | ■ | ■ | ■ | ■ | ■ |
| **NOTES** | Dyneema lanyard to prevent locking pin loss | Dyneema lanyard to prevent locking pin loss | Red Anchor bollard Phasing out | | *Older versions are cast | *Older version cast |
| **WEBSITE** | ftc-tree.com | ftc-tree.com | iscwales.com | iscwales.com | iscwales.com | iscwales.co |

# IMPACT PULLEYS

| Rig | | | | | | | |
|---|---|---|---|---|---|---|---|
| | ISC | ISC | ISC | ISC | ISC | ISC | ISC |
| | **5/8" Flame** RP056 | **3/4" Med Rig Block** RP055 | **3/4" Large Rig Block** RP057 | **200-Series Compact** RP248 | **200-Series Small** RP251 | **200-Series Med** R255 | **200-Series Large** RP257 |
| | | | | | | | |
| €233 | £132 $171 €162 | £153 $270 €244 | £198 $300 €280 | £175 $240 €205 | £210 $300 €249 | £240 $340 €282 | £444 $560 €513 |
| | 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 | 5kg<br>11lb |
| bf | 100kN<br>22,480lbf | 150kN<br>33,721lbf | 200kN<br>44,962lbf | 100kN<br>22,480lbf | 250kN<br>67,422lbf | 300kN<br>67,443lbf | 380kN<br>85,257lbf |
| | 2039kg<br>4496lb | 3059kg<br>6744lb | 4078kg<br>8992lb | 2039kg<br>4496lb | 5099kg<br>11240lb | 6118kg<br>13488lb | 7600kg<br>17085lb |
| | 16mm<br>⅝" | 19mm<br>¾" | 19mm<br>¾" | 14mm<br>9⁄16" | 16mm<br>⅝" | 20mm<br>¾" | 26mm<br>1" |
| | 25mm<br>1" | 29mm<br>1.25" | 29mm<br>1.25" | 16mm<br>⅝" | 25mm<br>1" | | 32mm<br>1¼" |
| 9" | 182mm / 7.2" | 230mm / 9" | 300mm / 11.8" | 125mm / 4.9" | 178mm / 7" | 222mm / 8.7" | 283mm / 11.1" |
| .9" | 99mm / 3.9" | 124mm / 4.9" | 158mm / 6.2" | 69mm / 2.7" | 99mm / 4" | 123mm / 4.8" | 156mm / 6.15" |
| 25" | 57mm / 2.25" | 108mm / 4.25" | *108mm / 4.25" | 65mm / 2.6" | 93mm / 3.7" | 93mm / 3.7" | 95mm / 3.7" |
| teel<br>* | 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 | Alu<br>Alu<br>Stainless Steel<br>Hot Forged |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | - | - | - | ■ | ■ | ■ | - |
| | - | ■ | ■ | ■ | ■ | ■ | - |
| | ■ | - | - | - | - | - | ■ |
| | CE | CE | CE | CE UKCA | CE UKCA | CE UKCA | CE UKCA |
| | | | | | ■ | ■ | - |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| s are | | *Older versions are cast | *Depth exc sprung release. | | | | Hollow spindle/axle |
| om | iscwales.com | iscwales.com | iscwales.com | iscwales.com | iscwales.com | iscwales.com | iscwales.com |

**IMAGES NOT TO SCALE**

COST: Approx & inc local tax/ VAT **£$€ prices in burnt orange are a currency conversion 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

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | MANUFACTURER | KONG | NOTCH | NOTCH | NOTCH | SKYLOTEC | ROCK EXOT |
| | MODEL VARIANT | Alby<br>- | 1/2" Block<br>55352 | 5/8" Block<br>- | 3/4" Block<br>- | CT Grizzly<br>H279 | Downrigg<br>- |
| SPECIFICATIONS | ORIGIN | | | | | | |
| | COST | £134 $170 €100 | £135 $182 €160 | £160 $220 €190 | £210 $286 €245 | £160 - €182 | £280 $300 € |
| | WEIGHT | 1.15kg<br>3.05lb | 0.45kg<br>1lb | 1.4kg<br>3.1 lb | 1.55kg<br>3.49lb | 914g<br>2lb | 453g<br>1lb |
| | MBS of Pulley | 50kN<br>11,240lbf | 100kN<br>22481lbf | 125kN<br>28101lbf | 150kN<br>33,720 lbf | 80kN<br>17,985lbf | 31kN<br>7000lbf |
| | WLL | 700kg*<br>1543lb* | 2039kg<br>4496lb | 2549kg<br>5620lb | 3059kg<br>6744lb | 1600kg<br>3527lbf | 130kg*<br>300lb* |
| | MAX ROPE Ø main sheave | 26mm<br>1" | 13mm<br>½" | 16mm<br>⅝" | 19mm<br>¾" | 15mm<br>9⁄16" | 14mm<br>1" |
| | TOP ANCHOR WIDTH | 28mm<br>1.1" | 16mm<br>⅝" | 25mm<br>1" | 29mm<br>1⅛" | 20mm<br>¾" | 22 x 30mm<br>0.9-x1.2" |
| | HEIGHT | 236mm / 9.25" | 118mm / 4.7" | 158mm / 6.2" | 176mm / 7" | 185mm / 7.3" | 168mm / 6.( |
| | WIDTH | 124mm / 5" | 68mm / 2.7" | 87mm / 3.4" | 101mm / 4" | 95mm / 3.7" | 83mm / 3.25 |
| | DEPTH | 38.5mm / 1.5" | *62mm / 2.4" | *74mm / 3" | *78mm / 3" | 35mm / 1.4" | *35mm / 1.4 |
| | CHEEK MATERIAL<br>SHEAVE MATERIAL<br>AXLE MATERIAL<br>CONSTRUCTION | Alu<br>Alu<br>Stainless Steel<br>Plate | 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 | Alu<br>Alu<br>Stainless Steel<br>Plate | Alu<br>Alu<br>Stainless Ste<br>machined |
| CHEEK RELEASE | BEARING/BUSHING | ■ | ■ | ■ | ■ | ■ | ■ |
| | BUTTON | - | - | - | - | ■ | ■ |
| | SPRUNG | - | - | ■ | ■ | ■ | - |
| | SCREW | ■ | ■ | - | - | - | - |
| | STANDARDS | | CE | CE | CE | | CE |
| | OTHER CHEEK COLOURS | - | - | - | - | - | - |
| | TOP SHEAVE COLOUR | ■ | ■ | ■ | ■ | ■ | - |
| | MAIN SHEAVE COLOUR | ■ | ■ | ■ | ■ | ■ | ■ |
| | NOTES | LIGHT IMPACT LOADS ONLY<br>Older version is red. | Dyneema lanyard to prevent locking pin loss.<br>*exc bolt head of approx 0.6" | DISCONTINUED<br>Red Anchor bollard Phasing out.<br>*exc bolt head of approx 0.6" | *exc bolt head of approx 0.6" | LIGHT IMPACT LOADS ONLY<br>Not available in USA | *LIGHT IMPACT L<br>ONLY<br>*Not intended<br>negative rigging -<br>interface will fail<br>*with swivel eye r<br>as shown in ima<br>above. |
| | WEBSITE | kong.it | notchequipment.com | notchequipment.com | notchequipment.com | skylotec.com | rockexotica.c |

| ICA | STEIN | STRAIGHTPOINT | TEUFELBERGER | TREEUP (PROTEKT) | TREEUP (PROTEKT) | TREEUP (PROTEKT) | TREEUP (PROTEKT) |
|---|---|---|---|---|---|---|---|
| er | SS-1H6056 - | LOAD CELL Impact Block RP054 | t-BLOCK 7083229 | Small TU400 TU401 | Small TU402 TU403 | Large TU404 TU405 | Large TU406 TU407 |
| | | | | | | | |
| 345 | £144 $179 €165 | £3600>$5000€4163 | £215 $335 €287 | £116 $160 €132 | £116 $160 €132 | £168 $220 €192 | £168 $220 €192 |
| | 1.55kg 3.49lb | 6kg 13.2lb | 1.6kg 3.52lb | 1.36kg 2.86lb | 1.4kg 3lb | 2.3kg 5lb | 2.5kg 5.5 lb |
| | 100kN 22480lbf | 60kN 13,488 lbf | 225kN 50,582 lbf | 100kN 22,481 lbf | 100kN 22,481 lbf | 100/125kN 22481/28101lbf | 100/125kN 22481/28101lbf |
| | 2039kg 4496lb | 1224kg 2698 lb | 4588kg 10116 lb | 2039kg 4496lb | 2039kg 4496lb | 2039/2549kg 4496/5620 lb | 2039/2549kg 4496/5620 lb |
| | 16mm ⅝" | 20mm ¾" | 16mm ⅝" | 18mm <¾" | 18mm <¾" | <30mm <1.2" | <30mm <1.2" |
| n | 25mm 1" | 20mm ¾" | ? | 18mm <¾" | 18mm <¾" | <30mm <1.2" | <30mm <1.2" |
| 6" | 182mm / 7.1" | 348mm / 13.7" | 167mm / 13.7" | 176mm / 6.9" | 176mm / 6.9" | 238mm / 9.4" | 238mm / 9.4" |
| 5" | 100mm / 3.9" | 131mm / 5.16" | 96mm / 5.16" | 96mm /4.1" | 96mm /4.1" | 85mm / 3.4" | 85mm / 3.4" |
| 4" | 37mm / 1.45" | 89mm / 3.5" | 76mm / 3.5" | 81mm / 3.46" | 81mm / 3.46" | 115mm / 4.5" | 115mm / 4.5" |
| eel d | Alu Alu Stainless Steel Plate | Alu StSteel Stainless Steel Milled | Alu Alu Stainless Steel Hot Forged | Alu Alu Stainless Steel Forged | Alu Alu Stainless Steel Forged | Alu Alu Stainless Steel Forged | Alu Alu Stainless Steel Forged |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | - | - | - | - | - | - | ■ |
| | ■ | ■ | ■ | - | ■ | ■ | ■ |
| | - | - | - | ■ | - | - | - |
| | CE | CE | CE | CE | CE | CE | CE |
| | | - | - | ■ ■ | ■ ■ | ■ ■ | ■ ■ |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| LOADS for swivel first.. otated age | Discontinued as STEIN but still available | Made by DMM. Integral wireless load cell monitor. Top screw-bolt to allow anchor sling attachment | Co Designed with FTC TREE of France. Teflon Bearing | 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). |
| om | steinworldwide.com | straightpoint.com | teufelberger.com | protekt.pl | protekt.pl | protekt.pl | protekt.pl |

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# NON-HANDLED ASCENDERS

## CHEST ASCENDERS HAND 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. You can find a full Guide to **LEVER CAM ASCENDERS** in the **ROPE EQUIPMENT BUYERSGUIDES** 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 R*ope Grabs Guide* includes models like the *Petzl Rescuecender*(2) and *CMC Ascender*(7) with a range of alternative uses while these hand and chest ascenders don't-they are pretty much PPE-only. 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 or better still a bespoke lanyard shortener featured in the guide on page 56. 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 hand/chest ascenders Guide - 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**

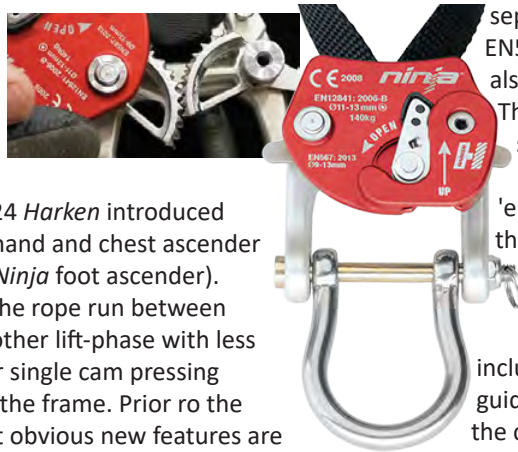
**Gibbs 2023**

# HAND ASCENDERS

## 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 ro 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, if 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.

images NOT to scale

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

www.rescuemagazines.com

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:

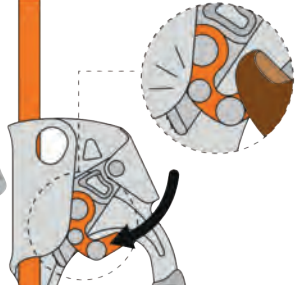
- Progress Capture in haul systems
- Lanyard/Flip line/Rope length adjusters
- Top Ascender
- Self Belay/Fall Arrest (maybe but beware!)

## 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!

## 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/hauled 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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**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 Currency conversion | WEIGHT | DIMENSIONS Width x Height x Depth | STANDARDS | |
|---|---|---|---|---|---|---|---|---|
| | Explorer Chest Retrofit | 3M/ DBI SALA/ ROLLGLIS | | $185 A$182 | 170g 6oz | 104 x 65mm 4 x 2.6" | EN567 NFPA AS/NZS4488 | |
| | Olymp | ALPIDEX | | £32 $40 €36 | 154g 5.4oz | 100 x 78 x 33mm 4 x 3 x 1.3" | EN567 UIAA | S |
| | A12 | ANPEN | | £40 $49* €46 | 163g 5.8oz | 121 x 76mm 4.7 x 3" | EN567 | |
| | Hold Up | BEAL | | £40 $52 €54 | 90g 3.2oz | 82 x 74 x 59mm 3.2 x 2.9 x 2.3" | EN567 EN12841B | S |
| | Solo 2 | CAMP | | £60 $90 €75 | 95g 3.4oz | 95 x 57 x 24mm 3.7 x 2.2 x 0.9" | EN567 EN12841B UIAA | H |
| | TurboChest | CAMP | | £85 $90 €102 | 110g 3.9oz | 94 x 59 x 39mm 3.7 x 2.3 x 1.5" | EN567 EN12841B UIAA | H |
| | Nahuel 2019 | CLIMAX | | $34 €31 | 165g 5.8oz | 118 x 80 x35mm 4.6 x 3.1 x 1.4" | EN567 | S |
| | Nahuel 2020 | CLIMAX | | $36 €33 | 122g 4.3oz | 110 x 68mm 4.3 x 2.5" | EN567 EN12841B | S |
| | Evo Chest | COURANT | | $48 €47 | 130g 4.6oz | 105 x 74 x 23mm 4.1 x 2.9 x 0.9" | EN567 | S |
| | Chest Ascender | CYPHER | | $75 $70 | 147g 5.2oz | 105 x 74 x 23mm 4.1 x 2.9 x 0.9" | EN567 EN12841B | S |
| | Uni Cruiser | EDELRID | | $80 €57 | 126g 4.4oz | 106 x 65 x 32mm 4.1 x 2.6 x 1.2" | EN567 EN12841B | S |
| | Chest Cruiser | EDELRID | | $75 €55 | 162g 5.7oz | 80 x 65 x 40mm 3.2 x 2.6 x 1.6" | EN567 EN12841B | S |

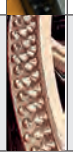
# HAND & CHEST ASCENDERS

| MATERIALS ALLOY SHELL CAM | CAM | ROPE DIAM RANGE | WLL/ MBS | (Bottom) EYE DIAM | CAM-PARK | ANTI-CAM INVERT | SERIAL NO | HAND/BASIC | CHEST/offset | COLOURS LEFT | COLOURS RIGHT | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Extruded Alu Stainless Steel | | 11*-13mm 7/16 -½" | 300kg 661lbf 7.9kn 1776lbf | 15mm 0.6" | ■ | - | ■ | - | ■ | ■ | - | Was SRTe. Still sold but this and std model discontinued by 3M. Top 'eye' is for webbing.*Prod-Info states 10.5mm but 11mm is printed on the device. | 3m.com.au |
| Stamped Alu tainless Steel | | 8-13mm 5/16 -½" | 4kN 900lbf | 18mm 0.7" | ■ | ■ | - | - | ■ | ■ | ■ ■ | | alpidex.com |
| Stamped Alu Alu | | 8-13mm 5/16 -½" | 5kN 1124lbf | 20mm 0.8" | ■ | ■ | ■ | - | ■ | ■ ■ ■ | | Also a 12AA model but details are sketchy! *FOB China | en.anpen.net |
| Extruded Alu tainless Steel | | 8-13mm 5/16 -½" | 100kg 220lb | *15mm 0.6" | ■ | ■ | ■ | - | ■ | ■ | | *15x18mm See also *Beal Tract Up* in PCP guide | pro.beal-planet.com |
| Stamped Alu ardened Steel | | 8-13mm 5/16 -½" | 140kg 308lb | 14mm 0.5?" | ■ | - | ■ | ■ | - | | ■ ■ | | camp.it |
| Stamped Alu ardened Steel | | 8-13mm 5/16 -½" | 120kg 265lb | 16mm* 0.6" | ■ | - | ■ | - | ■ | ■ ■ | | Equipped with two patented rollers for a smooth interface with the rope. *17x16mm | camp.it |
| Stamped Alu tainless Steel | | 8-13mm 5/16 -½" | 100kg 220lb 4kN 900lbf | 19mm 0.8" | ■ | ■ | - | - | ■ | ■ | | Also rebadged from chinese original as Lapard, GM Climbing, Xinda, Epic Peak, Vento, NTR, Rock Empire etc. | productosclimax.com |
| Stamped Alu tainless Steel | | 8-13mm 5/16 -½" | 100kg 220lb 4kN 900lbf | *15mm 0.6" | ■ | ■ | ■ | ■ | - | | ■ | *29x15mm | productosclimax.com |
| Stamped Alu tainless Steel | | 10-13mm ⅜ -½" | 100kg 220lb 6kN 1349lbf | 19mm 0.75" | ■ | ■ | ■ | - | ■ | ■ | | ■=leverage cam | mycourant.com |
| Stamped Alu tainless Steel | | 8-13mm 5/16 -½" | 140kg 308lb | 19mm 0.75" | ■ | ■ | - | - | ■ | ■ | | ■=leverage cam | cypherclimbing.com |
| Stamped Alu tainless Steel | | 8-13mm 5/16 -½" | 150kg 331lb | 31x20mm 1.2x0.8" | ■ | ■ | - | ■ | ■ | ■ | | Modular ascender, can be integrated into Chest Cruiser plate (becomes the Chest Cruiser) | edelrid.de |
| Stamped Alu tainless Steel | | 8-13mm 5/16 -½" | 150kg 331lb | 29x5mm 1.1x0.2" | ■ | ■ | - | - | ■ | ■ | | Component of Uni Cruiser. Modular ascender with adapter for various harnesses. Comes with webbing. | edelrid.de |

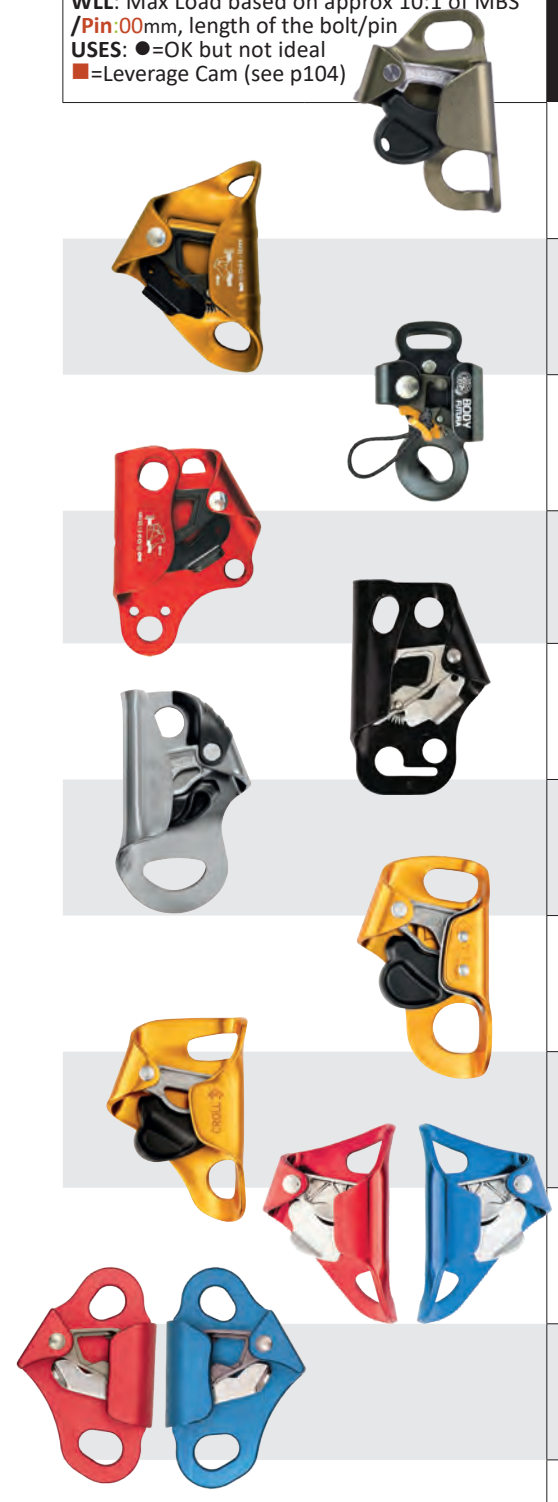
**images approximately to scale**
**COST**: Approx & inc local tax/VAT
CURRENCY CONVERSION ONLY. * FOB China
**WLL**: Max Load based on approx 10:1 of MBS
**/Pin**:00mm, length of the bolt/pin
**USES**: ●=OK but not ideal
■=Leverage Cam (see p104)

| | MODEL | COMPANY | ORIGIN | COST Currency conversion | WEIGHT | DIMENSIONS Width x Height x Depth | STANDARDS |
|---|---|---|---|---|---|---|---|
| | **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 |
| | **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 |
| | **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 |
| | **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 |
| | **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 |
| | **Twist**<br>D42 | **HEIGHTEC/ 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 |
| | **Cam Clean** | **HONEYWELL 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 |
| | **RP229** | **ISC** | | £51<br>$82<br>€59 | 130g<br>4.6oz | 116 x 75 x 24mm<br>4.6 x 3 x 1" | EN567 |

# HAND & CHEST ASCENDERS

| MATERIALS ALLOY SHELL CAM | CAM | ROPE DIAM RANGE | WLL/ MBS | (Bottom) EYE DIAM | CAM-PARK | ANTI-CAM INVERT | SERIAL NO | HAND/BASIC | CHEST/offset | COLOURS LEFT | COLOURS RIGHT | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| xtruded Alu<br>tainless Steel<br>- | | 8-13mm<br>5/16 -1/2" | 100kg<br>220lb | *15mm<br>0.6" | ■ | ■ | ■ | - | ■ | ■ | | *15x18mm | edelweiss-ropes.com |
| tamped 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 with no anti-cam invert which is the same model as Climax *Nahuel* | fixeclimbing.com |
| tamped Alu<br>Cast Steel | | 9-13mm<br>3/8 -1/2" | 140kg<br>308lb | >35mm<br>>1.4" | - | - | | ■ | ■ | ■ | ■ | Two cams - one either side of the rope. Use as chest and hand ascender.<br>Has 2 release triggers to make down-climbing easier. | harken.com |
| tamped Alu<br>ardened Steel | | 9-13mm<br>3/8 -1/2" | 100kg<br>220lb | 15mm<br>0.6" | ■ | ■ | ■ | ■ | - | | ■ | | heightec.com |
| tamped Alu<br>ardened Steel | | 10.5-12mm<br>7/16-<1/2" | 100kg<br>220lb | *<50mm<br><2" | ■ | ■ | ■ | - | ■ | ■ | | *Fixes direct to chest harness webbing but can still be detached. Only sold with chest harness. | heightec.com |
| tamped Alu<br>ardened Steel | | 10-13mm<br>3/8 -1/2" | 100kg<br>220lb | 16mm<br>0.6" | ■ | ■ | ■ | - | ■ | ■ | | | heightec.com |
| tamped Alu<br>ardened Steel | | 8-13mm<br>5/16 -1/2" | 100kg<br>220lb<br>5kN<br>1124lbf | *17mm<br>0.7" | ■ | - | - | - | ■ | ■<br>■ | | *17 x 21 mm<br>Good luck finding this-see Kong for original model! | honeywellsafety.com |
| tamped Alu<br>tainless Steel |  | 9-13mm<br>3/8 -1/2" | 140kg<br>308lb<br>2.5kN<br>562lbf | *17mm<br>0.7" | ■ | - | ■ | - | ■ | | | Also rebadged by Checkmate, Stein, WestfallPro and others.<br>*17 x 21 mm | 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
■=Leverage Cam (see p104)



| MODEL | COMPANY | ORIGIN | COST Currency conversion | WEIGHT | DIMENSIONS Width x Height x Depth | STANDARDS | |
|---|---|---|---|---|---|---|---|
| **Chest-Up** | KAILAS | | £101<br>$125<br>€116 | 106g<br>3.7oz | 97 x 66 x 31mm<br>3.8 x 2.6 x 1.2" | EN567 | S |
| **Cam Clean**<br>82400 | KONG | | £55<br>$76<br>€55 | 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 |
| **Futura Body**<br>94200 | KONG | | £68<br>$90<br>€69 | 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 |
| **Modular**<br>875 | KONG | | £42<br>$68<br>€44 | 170g<br>6oz | 114 x78 x25mm<br>4.5 x 3 x 1" | NFPA-L<br>EN567<br>UIAA | S<br>Ha |
| **Ventral**<br>FA7001500 | KRATOS SAFETY | | £51<br>$64<br>€55 | 160g<br>5.6oz | 115 x 75 x 21mm<br>4.5 x 3 x 0.8" | EN567 | S |
| **Basic**<br>B18BAA | PETZL | | £53<br>$88<br>€55 | 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 |
| **Croll-S**<br>B16BAA | PETZL | | £53<br>$88<br>€55 | 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 |
| **Croll-L**<br>B016AA00 | PETZL | | £53<br>$88<br>€55 | 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 |
| **UltraLight**<br>CD201L/202L | PROTEKT | | £31<br>$38<br>€35 | 135g<br>4.8oz | 110 x75 x 30mm<br>4.4 x 3 x 1.1" | EN567 | S |
| **TREEUP**<br>CD201/202 | PROTEKT | | £35<br>$43<br>€40 | 220g<br>7.8oz | 134 x 86 x 28mm<br>5.3 x 3.4 x 1.1" | EN567 | E |
| | | | | | | | |
| | | | | | | | |

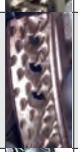
# HAND/CHEST ASCENDERS

| MATERIALS ALLOY SHELL CAM | CAM | ROPE DIAM RANGE | WLL/ MBS | (Bottom) EYE DIAM | CAM-PARK | ANTI-CAM INVERT | SERIAL NO | HAND/BASIC | CHEST/offset | COLOURS LEFT | COLOURS RIGHT | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Milled Alu<br>tainless Steel | | 8-13mm<br>5/16 -½" | 140kg<br>308lb | 20mm<br>0.8" | ■ | ■ | - | - | ■ | ■ | | Discontinued but some still available from Russo-Asian stockists | Kailasgear.com |
| Stamped Alu<br>ardened Steel | | 8-13mm<br>5/16 -½" | 100kg<br>220lb<br>5kN<br>1124lbf | *17mm<br>0.7" | ■ | - | - | - | ■ | ■<br>■ | | *17 x 21 mm | kong.it |
| Extruded Alu<br>ardened Steel | | 9-12mm<br>⅜ -< ½" | 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>ardened Steel | | 11-13mm<br>7/16 -½" | 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>⅜-<½" | 4kN<br>899lbf<br>15kN<br>1686lbf | 13mm<br>0.5" | ■ | - | - | ■ | ■ | | ■ | | kratossafety.com |
| Stamped Alu<br>tainless Steel | | 8-11mm<br>5/16 -7/16" | 140kg<br>308 lb | 16mm*<br>0.6" | ■ | - | ■ | ■ | - | | ■ | *28 x 16mm | petzl.com |
| Stamped Alu<br>tainless 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>tainless Steel | | 8-13mm<br>5/16 -½" | 140kg<br>308 lb | 22mm<br>0.9" | ■ | - | ■ | - | ■ | ■ | | | petzl.com |
| Stamped Alu<br>Steel | | 8-12mm<br>5/16 -<½" | 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 -½" | 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/pi...
**USES**: ●=OK but not ideal
■=Leverage Cam (see p104)

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

# HAND & CHEST ASCENDERS

| MATERIALS ALLOY SHELL CAM | CAM | ROPE DIAM RANGE | WLL/ MBS | (Bottom) EYE DIAM | CAM-PARK | ANTI-CAM INVERT | SERIAL NO | HAND/BASIC | CHEST/offset | COLOURS LEFT | COLOURS RIGHT | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ot-ForgedAlu Alu | | 8-11mm 5/16 -7/16" | 4kN 899lbf | 16mm 0.6" | ■ | ■ | - | ■ | ■ | ■ ■ | | Swivel eye | rockempire.cz |
| Stamped Alu tainless Steel | | 8-13mm 5/16 -1/2" | 4kN 899lbf | 19mm* 0.75" | ■ | - | - | | ■ | ■ | | DISCONTINUED by RE but also rebadged from Chinese original as Lapard, GM Climbing, Xinda, Epic Peak, Vento, NTR, etc. *23x19.5mm | rockempire.cz |
| Stamped Alu tainlessSteel | | 8-13mm 5/16 -1/2" | 100kg 220lb 4kN 900lbf | *15mm 0.6" | ■ | ■ | ■ | - | ■ | | ■ ■ ■ | Upgrade from S-206 *29x15mm Also listed as 130g? See SE.Peak notes on p155 | sepeak.net (often difficult to access) |
| Stamped Alu tainless Steel | | 8-12mm 5/16 -<1/2" | 4kN 899lbf 20kN 4496lbf | 19mm 0.75" | ■ | - | - | - | ■ | ■ | | Variation of the Rock Empire model above. | safetecbr.com.br |
| Stamped Alu tainlessSteel | | 8-13mm 5/16 -1/2" | 100kg 220 lb | 19mm 0.75" | ■ | ■ | ■ | - | ■ | ■ | | ■=leverage cam | sar-products.com |
| Stamped Alu tainlessSteel |  | 8-13mm 5/16 -1/2" | 120kg 265 lb 12kN 2697lbf | 19mm 0.75" | ■ | - | ■ | - | ■ | ■ | | Updated model. Safety catch has a secondary trigger to allow safer cam-release for short downclimbs | singingrock.com |
| Stamped Alu Alu | | 9-13mm 3/8-1/2" | 4kN 899lbf 14kN 3147lbf | 13mm 0.5" | ■ | - | ■ | - | ■ | ■ ■ | | Skylotec Germany owns Anthron Slovenia. Anthron brand-name being phased out | skylotec.com (anthron.si) |
| Stamped Alu tainless Steel | | 8-13mm 5/16 -1/2" | 140kg 308lb | 19mm 0.75" | ■ | ■ | ■ | - | ■ | ■ | | Also rebadged by others inc 'Bornack'. Listed as 'Evo' by some stockists ■=leverage cam | skylotec.com climbingtechnology.com |
| Stamped Alu ainless Steel* | | 8-13mm 5/16 -1/2" | 140kg 308lb | 19mm 0.75" | ■ | ■ | ■ | - | ■ | ■ | | *HC= Hard-coated shell for improved abrasion resistance. ■=leverage cam | skylotec.com climbingtechnology.com |
| Stamped Alu tainless Steel | | 8-13mm 5/16 -1/2" | 140kg 308lb | 19mm 0.75" | ■ | ■ | ■ | ■ | - | | ■ | ■=leverage cam | skylotec.com 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 Currency conversion | WEIGHT | DIMENSIONS Width x Height x Depth | STANDARDS |
|---|---|---|---|---|---|---|
| **Hoist** (AB20) | SKYLOTEC (ANTHRON) | | £62 $70 €67 | 150g 5.3oz | 104 x 75 x 30mm 4.1 x 3 x 1.2" | EN567 EN12841B UIAA |
| **Get Up** H-210 | SKYLOTEC | | £101 $125 €115 | 123g 4.3oz | 129 x 122 x 66mm 5 x 4.8 x 2.6" | EN567 EN12841B |
| RB16AAA | SOB | | £59 $74 €67 | 138g 4.9oz | 107 x 80 x 30mm 4.2 x 3.2 x 1.2" | EN567 EN12841B |
| RP229 | STEIN | | £42 $53 €49 | 130g 4.6oz | 116 x 75 x 24mm 4.6 x 3 x 1" | EN567 |
| **Chest** | US CLIMB | | £61 $75 €70 | 159g 5.6oz | 101 x 88 x 33mm 4 x 3.5 x 1.3" | EN567 UIAA |
| **Ropeman 1** | WILD COUNTRY | | £60 $75 €68 | 62g 2.2oz | 55 x 36 x 31mm 2.1 x 1.4 x 1.2" | EN567 UIAA |
| **Ropeman 2** | WILD COUNTRY | | £65 $81 €75 | 92g 3.25oz | 55 x 36 x 31mm 2.1 x 1.4 x 1.2" | EN567 UIAA |
| **OCA** H-XS01 | XINDA (BINFEN OUTDOOR) | | £22 $27* €25 | 112g 3.9oz | 102 x 72 x 32mm 4 x 2.8 x 1.3" | EN567 UIAA |
| **Chest** HXS03 | XINDA (BINFEN OUTDOOR) | | £18 $22* €21 | 150g 5.3oz | 115 x 75mm 4.5 x 3" | EN567 |
| **PCA (DeLuxe)** HXS02 | XINDA (BINFEN OUTDOOR) | | £21 $26* €24 | 150g 5.3oz | 115 x 95mm 4.5 x 3.7" | EN567 |

# HAND & CHEST ASCENDERS

| MATERIALS ALLOY SHELL CAM | CAM | ROPE DIAM RANGE | WLL/ MBS | (Bottom) EYE DIAM | CAM-PARK | ANTI-CAM INVERT | SERIAL NO | HAND/BASIC | CHEST/offset | COLOURS LEFT | COLOURS RIGHT | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| tamped Alu Alu | | 9-13mm ⅜-½" | 4kN 899lbf 14kN 3147lbf | 13mm 0.5" | ■ | ■ | ■ | ■ | ■ | | ■ | Skylotec Germany owns Anthron Slovenia. Anthron brand-name being phased out. Also rebadged by 'Skalt' | skylotec.com (anthron.si) |
| tamped Alu Alu | | 8-13mm 5/16 -½" | 140kg 308 lb | 13mm 0.5" | ■ | - | - | ■ | ■ | | ■ | Integral shackle-eye | skylotec.com (anthron.si) |
| tamped Alu Alu | | 10-13mm ⅜ -½" | 100kg 220 lb 4kN 899lbf | 21mm 0.8" | ■ | ■ | - | - | ■ | ■ | | Updated version still listed by SOB as 120g? Verify certification | cnsob.com |
| tamped Alu tainless Steel | | 9-13mm ⅜ -½" | 140kg 308lb 2.5kN 562lbf | *17mm 0.7" | ■ | - | ■ | - | ■ | ■ | | Also rebadged by Checkmate, WestfallPro and others. *17 x 21 mm | steinworldwide.com |
| tamped Alu Alu | | 8-13mm 5/16 -½" | 4kN 899lbf | 18mm 0.7" | ■ | ■ | - | - | ■ | ■ | | | usclimb.com climbclean.com.br |
| ot-Forged Alu Alu | | 10-13mm ⅜ -½" | 400kg 880lbf | 13mm 0.5" | ■ | - | - | ■ | - | | ■ ■ | | wildcountry.com |
| ot-Forged Alu tainless Steel | | 8-13mm 5/16 -½" | 400kg 880lbf | 13mm 0.5" | ■ | - | - | ■ | - | | ■ ■ | *There was also a Ropeman mk3. narrower than the mk1/2 but was discontinued* | wildcountry.com |
| tamped Alu tainless Steel | | 8-13mm 5/16 -½" | 150kg 331lb | 20mm 0.8" | ■ | - | - | ■ | ■ | ■ ■ ■ ■ | | Fold-down safety catch keeps it out of the way. Hardened frame coating | xindaoutdoor.com |
| tamped Alu tainless Steel | | 8-13mm 5/16 -½" | 150kg 331lb | 20mm 0.8" | ■ | - | - | - | ■ | ■ ■ ■ | | No hardened coat - regular anodizing | xindaoutdoor.com |
| tamped Alu Steel | | 8-13mm 5/16 -½" | 150kg 331lb | 20mm 0.8" | ■ | - | - | - | ■ | ■ ■ ■ ■ | | Hardened frame coating & enhanced safety catch ■ allows release when jammed. See CT models | xindaoutdoor.com |
| | | | | | | | | | | | | | Expansion Row |
| | | | | | | | | | | | | | Expansion Row |

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# 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

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**UPDATED Aug '25**

# HANDLED ASCENDERS

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 moden version of a Jumar (doubled in this case) by Swiss Rescue but may already be discontinued. LEFT: Petzl Ascentree double handled, double cam ascender with custom-built frame as distinct from bolting two regular ascenders together.

Unusually 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 Storrick 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 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

# HANDLED ASCENDERS

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:

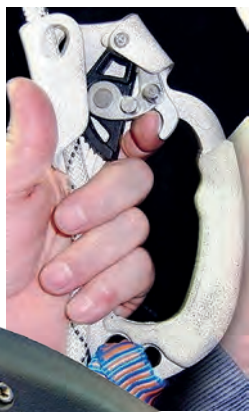
**1)** an added safety to stop the cam enclosure 'unfurling' allowing the cam to invert under high load but these days mitigated by other design features

**2)** to clip a carabiner around the rope thus ensuring the 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 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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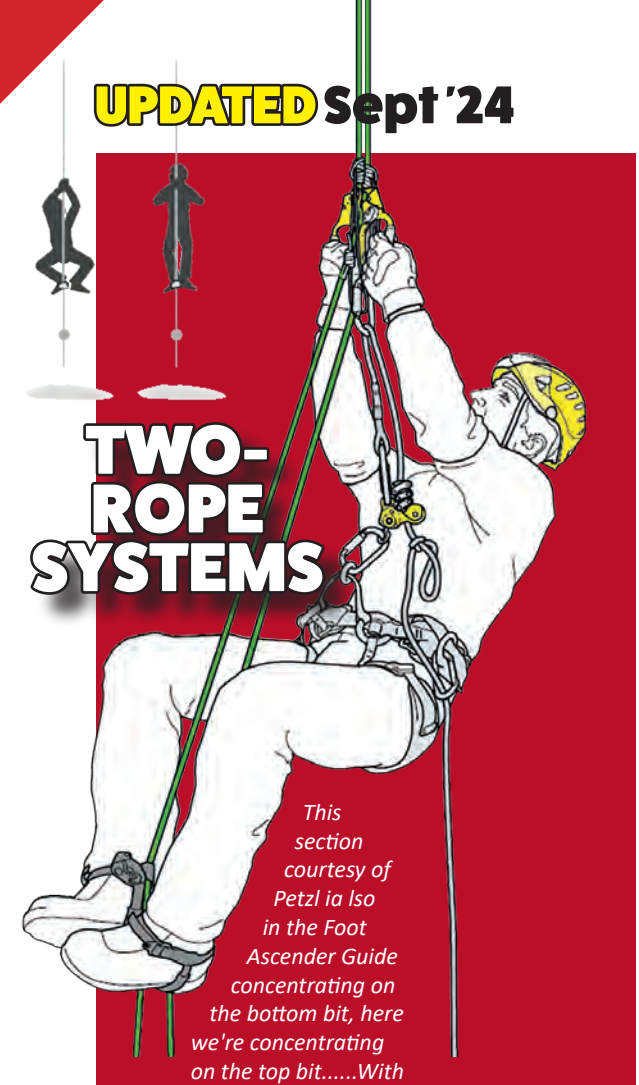


# TWO-ROPE SYSTEMS

*This section courtesy of Petzl ia lso 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 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 still hurts from the last time we mentioned all this.*

pin and remove it while the *Kong Trender* (pic left) has a carbine 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 S*ALA/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 quirkyness 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

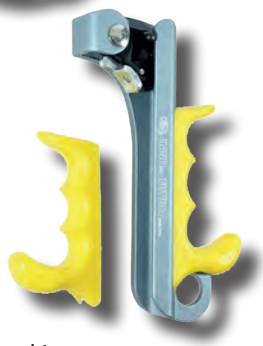
# HANDLED ASCEN

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, f 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, not 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 climbing.

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

# HANDLED ASCENDERS

Eyes being added in'25

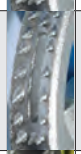
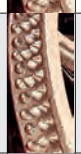
| MATERIALS SHELL CAM GRIP | CAM | STANDARDS | ROPE DIAM RANGE | WLL/ MBS | TOP EYE BOTTOM EYE | CAM -PARK | ANTI CAM-INVERT | COLOURS LEFT | COLOURS RIGHT | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Extruded Alu<br>Stainless Steel<br>Plastic | | CE<br>NFPA<br>AS/NZ | 10.5-13mm<br>13/32 -½" | 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 DISCONTINUED.<br>*600kg is to cam-failure | 3m.com.au |
| Stamped Alu<br>Steel<br>Plastic/Rubber | | CE | 8-13mm<br>5/16 -½" | 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 -½" | 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 -½" | 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 -½" | 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 -½" | 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 -½" | 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 -½" | 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,<br>*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<br>*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<br>*NFPA version +$10 | cmigearusa.com |

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

| MODEL | COMPANY | ORIGIN | COST | WEIGHT | DIMENSIONS Width x Height 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/ (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 (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 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 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 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 SHELL CAM GRIP | CAM | STANDARDS | ROPE DIAM RANGE | WLL/ MBS | TOP EYE BOTTOM EYE | CAM -PARK | ANTI CAM-INVERT | COLOURS LEFT | COLOURS RIGHT | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Stamped Alu<br>Stainless Steel<br>Rubber | | CE<br>UIAA | 8-13mm<br>5/16 -½" | 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 -½" | 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 -½" | 20kN<br>2039lbf | 00mm<br>00"<br>00mm<br>00" | ■ | ■ | ■<br>■ | ■<br>■ | 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 -½" | 2kN<br>450lbf<br>100kg<br>220lb | 15mm<br>0.6"<br>26 x 16mm<br>1 x 0.6" | ■ | ■ | ■<br>■ | ■<br>■ | NB: carbon Fibre pattern not actually made of carbon-fi-bre. | fusionclimb.com |
| Stamped Alu<br>Steel<br>Plastic | | CE<br>UIAA | 8.3-13mm<br>5/16 -½" | 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 -½" | 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 -½" | 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 -½" | 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 -½" | 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 -½" | 140kg<br>308lb 2.5kN<br>562lbf | 00mm<br>00"<br>00mm<br>00" | ■ | ■ | ■ | ■ | Ultrasafe version has cam arc restiction/Anti-cam-invert pin | iscwales.com |
| | | | | | | | | | | | Expansion Row |
| | | | | | | | | | | | Expansion Row |

**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 ratio
**N/A**: info Not Available/not given
**COLOURS** =Body colour.

| MODEL | COMPANY | ORIGIN | COST | WEIGHT | DIMENSIONS Width x Height x Depth |
|---|---|---|---|---|---|
| Futura Hand/ Futura Hand Tactical | KONG | | £70 $85 €75 | 125g 4.4oz | 140 x 88 x 24mm 5.5 x 3.5 x 1" |
| Lift/ Lift Tactical | KONG | | £49 $72 €51 | 225g 7.9oz | 193 x 90 x 25mm 7.6 x 3.5 x 1" |
| FA 70 003 00 FA 70 002 00 | KRATOS SAFETY | | £82 $102 €60 | 220g 7.8oz | 206 x 95.5 x 35mm 8.1 x 3.8 x 1.4" |
| Ascension | PETZL | | £58 $100 €66 | 165g 5.8oz | 190 x 90 x 26mm 7.5 x 3.5 x 1" |
| Proverti CD211/212 | PROTEKT | | £37 $46 €42 | 280g 9.9oz | 207x100x28mm 8.1x3.9x1.1" |
| Ultralight CD211L/212L | PROTEKT | | £40 $50 €45 | 205g 7.2oz | 190 x 93 x 24mm 7.5 x 3.7 x 1" |
| RE Ascender | ROCK EMPIRE | | £48 $60 €54 | 220g 7.8oz | 203 x 98 x 35mm 8 x 3.9 x 1.4" |
| Clean Cam | SAR PRODUCTS | | £60 $82 €75 | 216g 7.6oz | 189 x 90 x 32mm 7.5 x 3.5 x 1.3" |

Eyes being added in '25

# HANDLED ASCENDERS

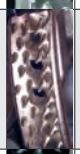
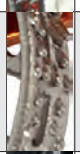
| MATERIALS SHELL CAM GRIP | CAM | STANDARDS | ROPE DIAM RANGE | WLL/ MBS | TOP EYE BOTTOM EYE | CAM -PARK | ANTI CAM-INVERT | COLOURS LEFT | COLOURS RIGHT | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Extruded Alu HardenedSteel Rubber | | CE | 8-13mm 5/16 -½" | n/a | 00mm 00" 00mm 00" | ■ | ■ | ■ ■ | ■ ■ | two different sized grips available | kong.it |
| Stamped Alu HardenedSteel Plastic | | CE NFPA | 8-13mm 5/16 -½" | 100kg 220 lb 5kN 1124 lbf | 00mm 00" 00mm 00" | ■ | ■ | ■ ■ ■ | ■ ■ ■ ■ | | kong.it |
| Stamped Alu Steel Plastic | | CE | 10-12mm 25/64-½" | 20kN 2039 lbf | 00mm 00" 00mm 00" | ■ | - | ■ | ■ | 002=Black 003 = Green | kratossafety.com |
| tamped AluStain-less Steel Plastic/Rubber | | CE EAC NFPA | 8-13mm 5/16 -½" | 140kg 308 lb | 00mm 00" 00mm 00" | ■ | - | ■ | ■ ■ | All -black version is two or three £$€ more | petzl.com |
| Extruded Alu Steel Plastic | | CE UIAA | 9-13mm 3/8-½" | | 00mm 00" 00mm 00" | ■ | - | ■ | ■ | Older right hand models were blue. Proverti is a wholly owned subsidiary of Protekt | protekt.pl |
| Stamped Alu Steel Plastic | | CE | 8-13mm 5/16 -½" | 100kg 220 lb | 00mm 00" 00mm 00" | ■ | ■ | ■ | ■ | | protekt.pl |
| Stamped Alu Steel Plastic | | CE | 8-12mm 5/16 -½" | 4kN 899lbf | 00mm 00" 00mm 00" | ■ | ■ | ■ | ■ | Discontinued by RE but many rebadged versions inc Lixada, GM. Newdoar, Climbtech, Xinda, Grivel and Fixe | rockempire.cz |
| Stamped Alu Stainless Steel Soft Nylon | | CE UIAA | 8-13mm 5/16 -½" | 140kg 308lb | 00mm 00" 00mm 00" | ■ | ■ | ■ | ■ ■ | | sar-products.com |

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

| MODEL | COMPANY | ORIGIN | COST | WEIGHT | DIMENSIONS Width x Height x Depth |
|---|---|---|---|---|---|
| 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 (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/ 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 (BINGFENG 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 CAM GRIP | CAM | STANDARDS | ROPE DIAM RANGE | WLL/ MBS | TOP EYE BOTTOM EYE | CAM -PARK | ANTI CAM-INVERT | COLOURS LEFT | COLOURS RIGHT | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Stamped Alu<br>Stainless Steel<br>Plastic | | CE | 8-13mm<br>5/16 -½" | 2kN<br>450lbf<br>140kg<br>308lb | 15mm<br>0.6"<br>26 x 16mm<br>1 x 0.6" | ■ | ■ | ■<br>■<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 -½" | 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' compound | | CE<br>NFPA | 9-13mm<br>3/8-½" | 4kN<br>899lbf<br>18kN<br>4047 lbf | 00mm<br>00"<br>00mm<br>00" | ■ | ■ | | ■<br>■ | Skylotec Germany owns Anthron Slovenia | skylotec.com |
| Stamped Alu<br>Steel<br>Plastic/Rubber | | CE | 8-13mm<br>5/16 -½" | 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 -½" | 140kg<br>308lb | 00mm<br>00"<br>00mm<br>00" | ■ | ■ | ■ | ■ | | climbingtechnology.com |
| Stamped Alu<br>Steel<br>Plastic |  | CE | 8-13mm<br>5/16 -½" | 100kg<br>220lb | 00mm<br>00"<br>00mm<br>00" | ■ | ■ | ■ | ■ | optimum rope=10-13mm [arborists reported cam-rope interface problems with the SOB foot ascender - beware!] | chinasob.com |
| Extruded Alu<br>Steel<br>Plastic | | CE* | 9-13mm<br>3/8-½" | | 00mm<br>00"<br>00mm<br>00" | ■ | - | ■ | ■ | DISCONTINUED ? | swiss-rescue.de |
| Stamped Alu<br>Steel<br>Plastic | | CE | 8-13mm<br>5/16 -½" | 4kN<br>899lbf | 15mm<br>0.6"<br>14mm<br>0.6" | ■ | ■ | ■ | ■ | purple Left colour discontinued | trango.com |
| Stamped Alu<br>Steel<br>Plastic | | CE | 8-13mm<br>5/16 -½" | 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 -½" | 150kg<br>3lb | 00mm<br>00"<br>00mm<br>00" | ■ | - | ■<br>■<br>■ | ■<br>■<br>■<br>■ | | xindaoutdoor.com |
| | | | | | | | | | | | Expansion Row |
| | | | | | | | | | | | Expansion Row |

**IMAGES NOT TO SCALE**
**COST:** Approx & inc local tax/VAT
**Prices** in £$€= Currency Conversio
**WLL**: May be Max Load based 1 ratio
**N/A**: info Not Available/not gi
**COLOURS** =Body colour.

| MODEL | COMPANY | ORIGIN | COST | WEIGHT | DIMENSIONS Width x Height 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 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 QuickArbor H | SKYLOTEC | | £125<br>$200<br>€165 | 500g<br>17.6oz | 160x220mm<br>6.3x8.7" |
| | | | | | |
| | | | | | |
| | | | | | |

# TWIN CAM & TWIN HANDLED ASCENDERS

| MATERIALS SHELL CAM GRIP | CAM | STANDARDS | ROPE DIAM RANGE | WLL/ MBS | TWIN ROPES ONLY | DOUBLE &/or SINGLE ROPE | CAM -PARK | ANTI CAM-INVERT | COLOURS LEFT | COLOURS RIGHT | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stamped Alu<br>Steel<br>Plastic | | CE | 8-13mm<br>5/16 -1/2" | 5kN<br>1124lbf | - | ■ | ■ | ■ | ■/■ | ■/■ | | en.anpen.net |
| Stamped Alu<br>Hardened Steel<br>Plastic | | - | 9-16mm<br>3/8-5/8" | 15.1kN<br>3400lbf | - | ■ | ■ | ■ | ■ | ■ | Hard-coated cam with lifetime warranty | cmigearusa.com |
| Stamped Alu<br>Hardened Steel<br>Plastic | | - | 9-16mm<br>3/8-5/8" | 14.7kN<br>3300lbf | - | ■ | ■ | ■ | | ■ | Hard-coated cam with lifetime warranty | cmigearusa.com |
| Stamped Alu<br>Hardened Steel<br>Plastic | | CE<br>UIAA | 11-13mm<br>7/16 -1/2" | 100kg<br>220lb | - | ■ | ■ | ■ | | ■/■ | | honeywellsafety.com |
| Stamped Alu<br>HardenedSteel<br>Plastic | | CE<br>UIAA | 11-13mm<br>7/16 -1/2" | 100kg<br>220 lb | - | ■ | ■ | ■ | ■/■ | ■/■ | debris ingress protection plate | kong.it |
| Stamped Alu<br>Stainless Steel<br>Plastic/Rubber | | CE* | 8-13mm<br>5/16 -1/2" | 140kg<br>308 lb | ■ | - | ■ | ■ | ■ | ■ | Not EN567 | petzl.com |
| Stamped Alu<br>Stainless Steel<br>Plastic | | CE | 8-13mm<br>5/16 -1/2" | 140kg<br>308lb | ■ | - | ■ | ■ | ■<br>■ | ■<br>■ | Beklim Double discontinued by Fusion. S.E.Peak is Shanghai Leideer Trading Co but hard to pin down their own website - they use Amazon & Alibaba shops | sepeak.net<br>(may be difficult to access) |
| Stamped Alu<br>Steel<br>Plastic/Rubber | | CE | 10-13mm<br>3/8 -1/2" | 140kg<br>308lb | ■ | - | ■ | ■ | ■ | ■ | Cam cover protects from debris ingress.<br>No depth given as the two ascenders are angled | skylotec.com |
| | | | | | | | | | | | | Expansion Row |
| | | | | | | | | | | | | Expansion Row |
| | | | | | | | | | | | | Expansion Row<br>2x Russian Krok models temporarily excluded |

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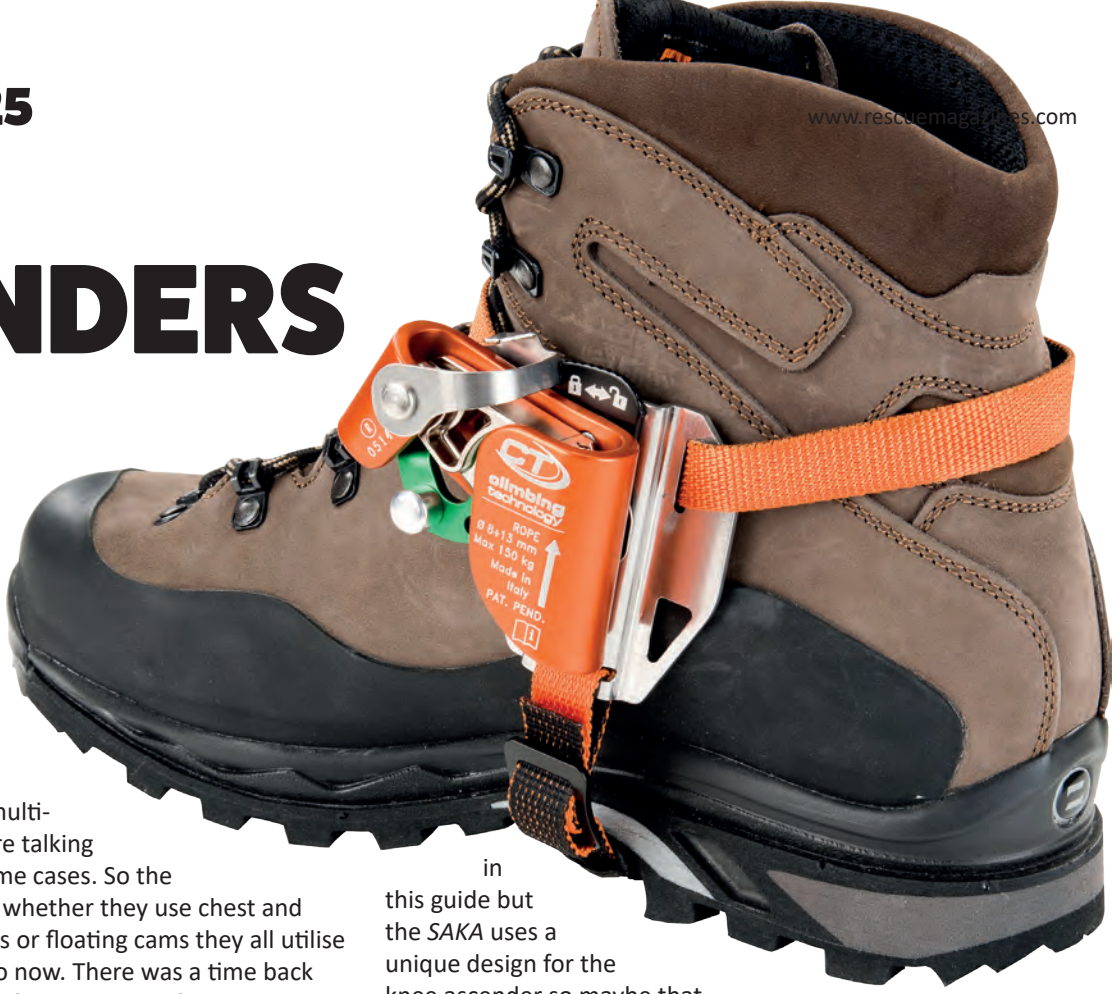
UPDATED Jul '25

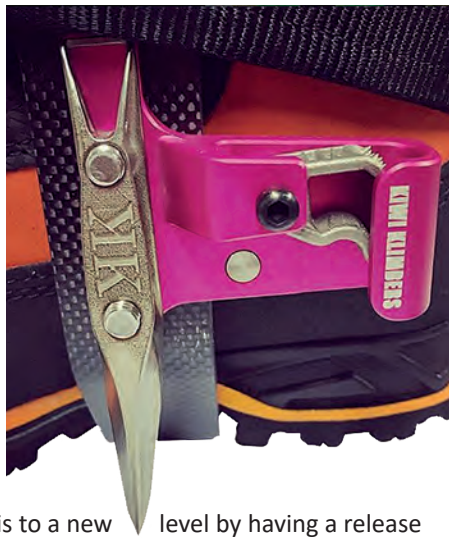
# FOOT ASCENDERS




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

# FOOT ASCENDERS




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 *KiwiKlimber*s 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 *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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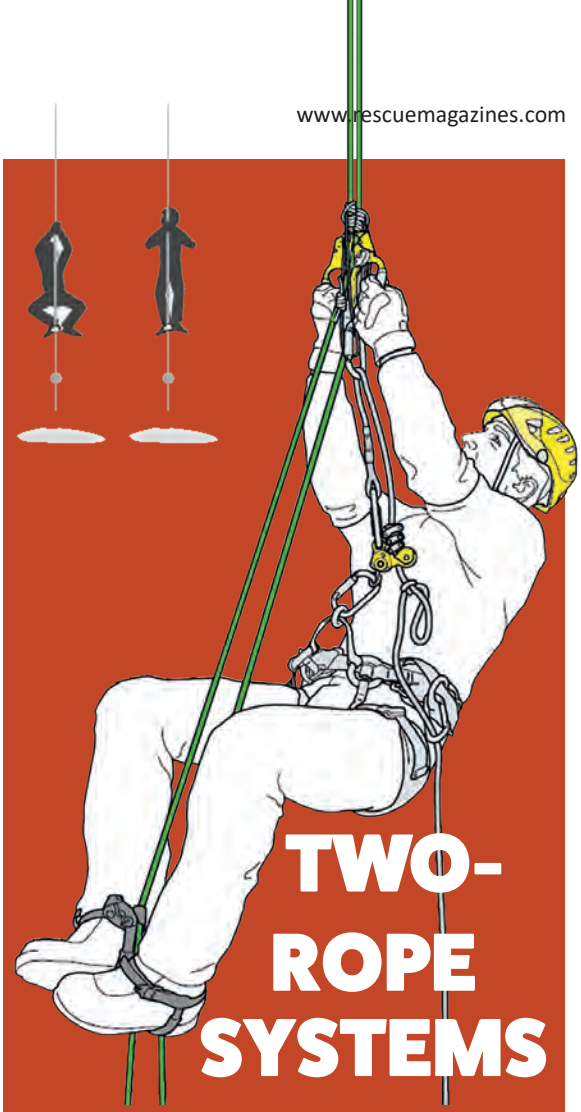
the cam badly and either increase drag or decrease traction. In fact, if you angle your foot enough some cams may not engage at all and your foot could slip until the correct angle is regained. Some climbers in other rope work sectors take advantage of this anomaly to be able to reposition downwards, 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 terminolgy? 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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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.

### 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.

### 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

### 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.

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 a 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.

## 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 ironicaly 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 Padget and Smith should have patented the original floating knee cam concept back in the 1980s!*

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**images NOT to scale** COST: Approx & inc local tax/VAT
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 inc strap | SHELL | CAM | |
|---|---|---|---|---|---|---|---|
| A13 | ANPEN | | £41<br>$50<br>€46 | 136g<br>4.8oz<br>170g<br>6oz | Stamped Alu | Cast Steel | |
| QuickStep | ARBPRO | | £85<br>$106<br>€95 | 130g<br>4.6oz | Stamped Alu | Cast Steel | |
| Turbo-Foot Evo<br>Turbo Spike | CAMP | | £81105<br>$99131<br>€92110 | 97g<br>3.4oz<br>135g<br>4.8oz | Stamped Alu | Cast Steel | |
| Foot Ascender | CMI | | £90<br>$110<br>€102 | 320g<br>11.2oz<br>324g<br>11.4oz | Extruded Alu | Cast Steel | |
| Foot Cruiser | EDELRID | | £55<br>$83<br>€60 | 142g<br>5oz<br>160g<br>5.6oz | Stamped Alu | Cast Steel | |
| Tree Cruiser | EDELRID | | £65<br>$93<br>€65 | 134g<br>4.7oz | Stamped Alu | Cast Steel | |
| Ninja | HARKEN | | £102<br>$114<br>€112 | 136g<br>4.8oz<br>177g<br>6.2oz | Stamped Alu | Cast Steel | |
| Stryder<br>RP227X | ISC | | £51<br>$87<br>€80 | 130g<br>4.6oz<br>202g<br>7.1oz | Stamped Alu | Stainless 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 Alu | Stainless Steel | |

# FOOT ASCENDERS

| DIMENSIONS Width x Height x Depth | ROPE DIAM RANGE | MBS | MAX LOAD | RIGHT LEFT | Anti Cam Invert | Carabiner Eye | Cam Park | Inc Foot Harness | Fits to Spurs | Fits to Boot Plate | COLOURS LEFT | COLOURS RIGHT | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 72 x 51mm 2.8 x 2" | 8-13mm 5/16 -½" | 4.9kN 1102lbf | 140kg 308lb | | - | ■ | ■ | ■ | - | - | ■ | ■ ■ | | en.anpen.net |
| 83 x 65mm 3.3 x 2.6" | 8-13mm 5/16 -½" | - | 150kg 330lb | | ■ | - | ■ | □ | ■ | ■ | ■ | ■ | 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 2.6 x 2.7 x 1" | 8-13mm 5/16 -½" | - | 150kg 330lb | | ■ | ■ | ■ | ■ | ■ | - | ■ | ■ | Non-Evo version precludes the safety lock. Rollers in the rope channel reduce friction.Turbo Spike version fits direct to Distal spikes | camp.it |
| 80 x 56 x 32mm 3.1 x 2.2 x 1.3" | 9-16mm 3/8 -5/8" | 3.5kN 800lbf | - | | ■ | - | ■ | | - | - | ■ | ■ | ANSI Hard-coated cam | cmigear.com |
| 82 x 62 x 37mm 3.3 x 2.6" | 8-13mm 5/16 -½" | - | - | | ■ | ■ | ■ | ■ | - | - | ■ | ■ | green cam safety cover is removable | edelrid.com |
| 127 x 80 x 45mm 5 x 3.2 x 1.8" | 8-13mm 5/16 -½" | - | - | | ■ | - | ■ | | ■ | - | ■ | ■ | Fits to the Edelrid Talon Spurs green cam safety cover is removable | edelrid.com |
| 83 x 74 x 27mm 3.3 x 3 x 1.1" | 8-13mm 5/16 -½" | - | 150kg 330lb | | - | - | - | ■ | - | - | ■ | ■ | Rope guide above cams | harken.com |
| 75 x 52 x 28mm 3 x 2 x 1.1" | 8-13mm 5/16 -½" | 2.5kN 562lbf | 140kg 308lb | | ■ | - | ■ | ■ | - | - | ■ | ■ | Extended (removable) cam safety allows kick-release of cam | iscwales.com |
| 75 x 36 x 74mm 3 x 1.4 x 3" | 10-12.5mm 25/64 -½" | 6kN 1348lbf | 150kg 331lb | | ■ | - | - | | ■ | - | | ■ ■ ■ ■ ■ | 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 3.1 x 2.2 x 1" | 8-13mm 5/16 -½" | - | 150kg 330lb | | - | ■ | - | ■ | - | - | ■ | ■ | metal boot stirrup prevents torsional rotation-greater efficiency | kong.it |

**images NOT to scale** COST: Approx & inc local tax/VAT
DEPTH: = material thickness WLL/Max Load: If not given by manufacturer we use Max Load as 10:1 safety ratio
COLOURS: =Body colour ☐=Optio
○●● = OK BUT NOT IDEAL

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

# FOOT ASCENDERS

| DIMENSIONS Width x Height x Depth | ROPE DIAM RANGE | MBS | MAX LOAD | RIGHT LEFT | Anti Cam Invert | Carabiner Eye | Cam Park | Inc Foot Harness | Fits to Spurs | Fits to Boot Plate | COLOURS LEFT | COLOURS RIGHT | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **80 x 73 x 27mm 3.2 x 3 x 1.1"** | **8-13mm 5/16 -½"** | | **152kg 337lb** | - | - | - | ■ ■ | ■ | - | - | ■ | ■ | **Rope guide above cams** | notchequipment.com |
| **64 x 45 x 23mm 2.5 x 1.8 x 0.9"** | **8-13mm 5/16 -½"** | | **150kg 331lb** | □* | - | □* | ■ ■ | ■ | - | - | ■ | ■ | *Pantin* is now on perhaps its 3rd or 4th variant. *optional plastic Safety catch screws into cam to provide rope safety and cam-off option (£6) | petzl.com |
| **72 x 54 x 30mm 2.8 x 2.1 x 1.2"** | **8-13mm 5/16 -½"** | | **120kg 264lb** | ■ | - | ■ | ■ ■ | ■ | - | - | ■ | ■ | Stainless steel back plate | singingrock.com |
| **73 x 51 x 27mm 3.3 x 2.6 x 1.1"** | **8-13mm 5/16 -½"** | | **150kg 331lb** | ■ | - | ■ | ■ ■ | ■ | - | - | ■ | ■ | **Speleo version 'S' is 10g lighter with harness** | Skylotec.com |
| **73 x 51 x 27mm 3.3 x 2.6 x 1.1"** | **8-13mm 5/16 -½"** | | **150kg 331lb** | ■ | - | - | ■ ■ | ■ | - | - | ■ | ■ | **Same as QSA but is a Caver's minimalist version with no safety catch** | Skylotec.com |
| **73 x 65 32mm 3.3 x 2.6 1.3"** | **8-13mm 5/16 -½"** | | **150kg 331lb** | ■ | - | ■ | ■ ■ | □ | ■ | - | ■ | ■ | **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 3 x 2 x 1"** | **8-13mm 5/16 -½"** | **2.5kN 562 lbf** | **140kg 308lb** | - | - | ■ | ■ ■ | ■ | - | - | ■ | ■ | Made by ISC Wales Extended (removable) cam safety allows kick-release of cam | steinworldwide.com |
| **73 x 47 x 27mm 2.9 x 1.85 x 1.1"** | **8-13mm 5/16 -½"** | | **140kg 308lb** | - | ■ | ■ | ■ ■ | ■ | - | - | ■ ■ ■ | | *FOB China | n/a |
| **64 x 70 x 24mm 2.5 x 2.8 x 1"** | **8-13mm 5/16 -½"** | | **150kg 330lb** | ■ | ■ | ■ | ■ ■ | ■ | - | - | ■ | ■ | BEWARE: This copy of a CAMP Turbo may list a CE but foot ascenders DO NOT comply with PPE standards. ***FOB China** | n/a |
| **75 x 47 x 25mm 3 x 1.85 x 1"** | **8-13mm 5/16 -½"** | | **150kg 331lb** | - | ■ | - | ■ ■ | ■ | - | - | ■ ■ ■ | ■ ■ | ***FOB China** One of many Chinese models with the same design under under various names, New Doar,Camnal & Wildken | xindaoutdoor.com |

UPDATED Jul '25

# FIXED & FLYING BOLLARDS

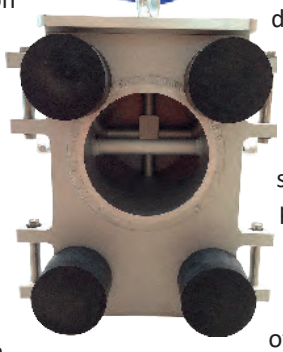
## for LOWERING

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-Wrap*s 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 'FIXED' bollard with a large tube mounted (welded) to a backing plate with the whole assembly anchored firmly to the tree's trunk usually with ratchet straps.

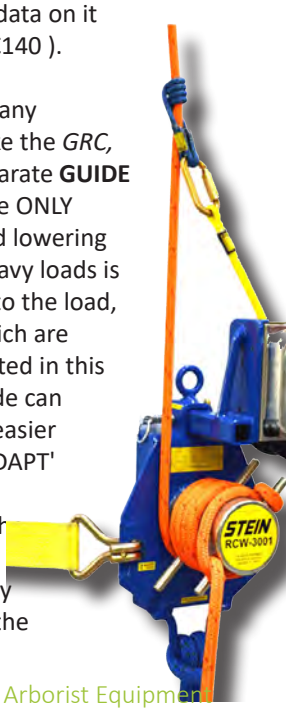




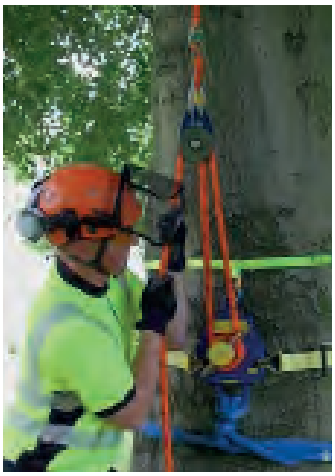
Many have rubber feet or the option of rubber feet to protect the bark from inevitable damage during tensioning and arrest/lowering. In the *Stein* model (left) this consists of two large rubber blocks rather than the four separate feet of this *ArbPro* model below it but either way, you need to have a fairly level surface to sit the back plate on so that it can't rock under load and loosen its retaining straps. Interestingly, the *Arbpro* models now discontinued, quoted a lower WLL with rubber feet than without, probably due to compression forces on the rubber.

For dismantling jobs you would be able to cut a flat section into the bark with your chainsaw 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 (see pic of orange Obermeier Forst Technik model bottom left which isn't in our tables because we couldn't get any data on it other than cost being around €140 ).

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.

## AUTO-LOCKING LOWERING DEVICES

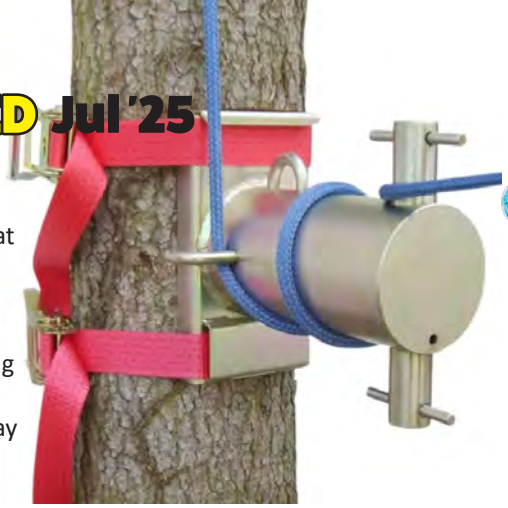
One key type of 'Flying/Floating' lowering device NOT included here because the sheave or 'drum' rotates is an alternative you may also want to consider. It's the now tried and trusted *CMC MPD*. This should never be as robust as any of the bollards in this guide because it has mechanically interfacing 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. 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 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

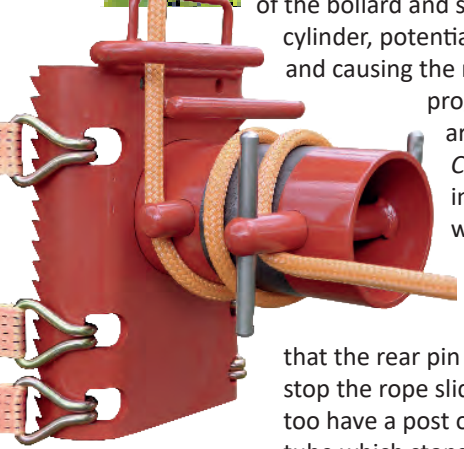
can make the device truly fixed by using that to anchor it as well. The friction posts act as redirects allowing the ground crew to stand well away from the danger (drop) zone and still control the arrest and lower.

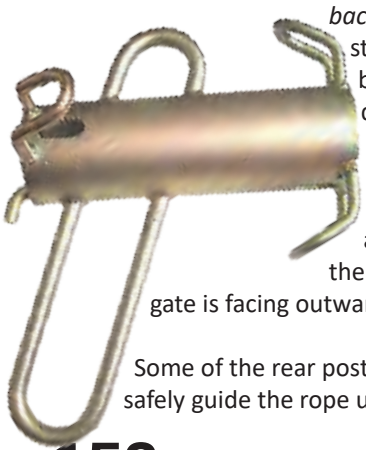


## PINS, POSTS & GUIDES

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-Wrap*s 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 left) 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 6-Pack:** The newest device and obviously owes at least some inspiration to the Hulk. it has 6 fixed bollards and 10 friction settings via 2 entry and 2 hook-shaped exit fairleads. Like the Hulk, this is large at almost 2 feet long but offers a versatile lowering option

# LOWERING BOLLARDS

**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 *Whaleltail* 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 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-Wrap*s, it will be the depth of the cylinder and that may also be case for some fixed bollards.

**MAX ROPE DIAM**ETER 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-Wrap*s, 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-Wrap*s.

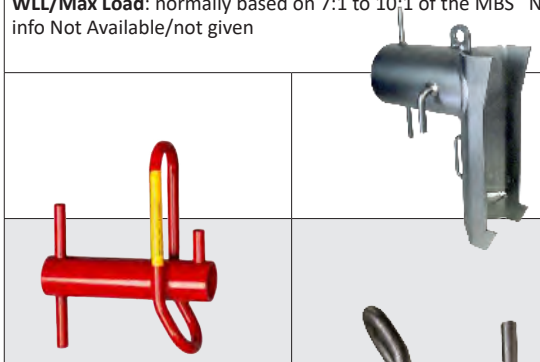
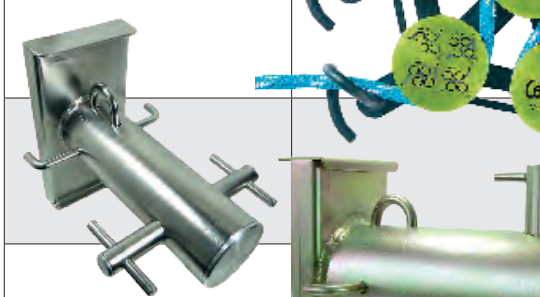
**WINCH ADAPT:** a black square here means that the device can be retrofitted with a winch.

**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. The *Notch AFB* and *McDermott Crown Brake* appear to be discontinued but if that subsequently changes we will update this guide.

**Images Approximately 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 |
|---|---|---|---|---|---|---|---|
|  | 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>1 |
|  | LCD | CMI | | £660<br>$657<br>€775 | 7.66kg<br>16.9lb | Stainless Steel | 305<br>12 |
|  | Hulk | COURANT | | £310<br>$399<br>€352 | 4.3kg<br>9.5lb | Alloy Bollards Stainless Steel posts, HT & Coated Steel Back Plate | 30<br>1 |
|  | Rigging Bollard SIlver | FREEWORKER | | £222<br>$312<br>€292 | 7.1kg<br>15.6lb | Stainless Steel | 30<br>1 |
| | Obilasser | FREEWORKER | | £354<br>$465<br>€405 | 8.55kg<br>18.9lb | Galvanised Steel, Stainless pins | 30 |
|  | Micro | FTC TREE | | £336<br>£400<br>€385 | 1.7kg<br>3.75lb | Aluminium | 22<br>8 |
| | Mini | FTC TREE | | £540<br>$706<br>€620 | 3.6kg<br>7.9lb | Aluminium | 34<br>1 |

# LOWERING BOLLARDS

| MAX MENSIONS | BOLLARD Ø | MAX ROPE Ø | MBS | WLL (Max Working Load) | FLYING | FIXED | TRUNK GRIPS | RUBBER BARK PROTECTION | ANCHOR STRAP(s) | WINCH ADAPT | TIE-OFF/ CONTROL POSTS | ROPE GUIDES | TOP/BOTTOM ANCHOR EYE | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 x 206mm 1.8 x 8.1" | 90mm 3.5" | 14mm 9/16" | - | 1000kg 2204lb | - | ■ | ■ | - | - | - | 2 | 2 | ■ ■ | | climb-art.de |
| 40 x165mm .5" x 6.5" | 33.5mm 1.32" | 12.7mm ½" | 31kN 7000 lbf | 450kg 1000lb | ■ | - | - | - | - | - | 2 | 1 | ■ ■ | Price is for polished. Black powder-coated also available Red with integral Tenex rope for RESCUE = $250. | buckinghammfg.com |
| 4 x 228mm 7.25 x 9" | 48mm 1.9" | 16mm ⅝" | 53kN 12000lbf | 907kg 2000lb | ■ | - | - | - | - | - | 2 | 1 | ■ ■ | Also available as black powder-coated | buckinghammfg.com |
| 1 x 280mm 9.5" x 11" | 61mm 2.4" | 18mm ¾" | 53kN 12000lbf | 907kg 2000lb | ■ | - | - | - | - | - | 2 | 1 | ■ ■ | Also branded as 'ArborMax 601LN' | buckinghammfg.com |
| 30 x 55mm 13" x 14" | 89mm 3.5" | 22mm ⅞" | 6.7kN 60000lbf | 2720kg 6000lb | ■ | - | - | - | - | - | 2 | 1 | ■ ■ | | buckinghammfg.com |
| x 305 x 15mm 2 x 12 x 6" | ? | 19mm ¾" | - | 2720kg 6000lb | - | ■ | - | - | ■ | - | 4 | 2 | ■ - | LCD=Lowering Control Device | cmigearusa.com |
| 00 x 330mm 11.8 x 13" | 60mm 2.36" | 14mm 9/16" | 25kN 5620lbf | 500kg 1102lb | ■ | - | - | - | - | - | - | 3 | ■ ■ | Sheaves/bollards can be rotated to even out wear or replaced | mycourant.com |
| 00 x 160mm 1.8 x 6.3" | 112mm 4.4" | 16mm ⅝" | - | 500kg 1102lb | - | ■ | - | - | □ | - | 2 | 2 | ■ | | freeworker.de |
| 5 x 160mm 12 x 6.3" | 140mm 5.5" | 19mm ¾" | - | 1400kg 3086lb | - | ■ | - | | □ | - | 2 | 2 | ■ | Removable pins | freeworker.de |
| 4 x 163mm 3.8 x 6.4" | 75mm 3" | 14mm 9/16" | 36.2kN 8819 lbf | 800kg 1764lbf | - | ■ | - | ■ | ■ | - | 2 | 2 | ■ ■ | Comes with storage box and 9m ratchet strap | ftc-tree.com |
| 40 x 120mm 3.2 x 4.7" | 100mm 4" | 16mm ⅝" | 49kN 11023lbf | 1000kg 2204lbf | - | ■ | - | ■ | ■ | ■ | 2 | 2 | ■ | Comes with storage box and 9m ratchet strap | ftc-tree.com |

**Images Approximately to Scale**
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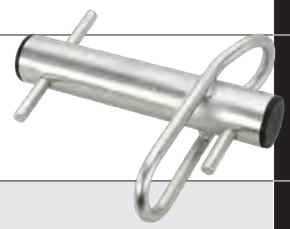
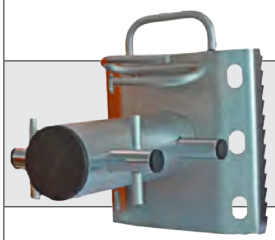
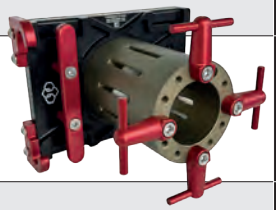
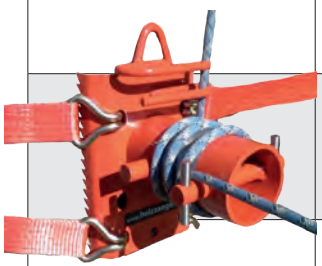
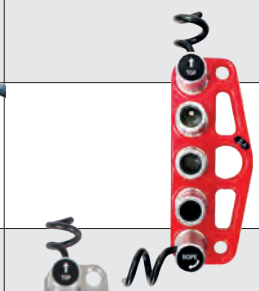
£$€ - Currency Conversion Only
**MAX DIMENSIONS**: usually height x width but depth of tube if that's greater
**WLL/Max Load**: normally based on 7:1 to 10:1 of the MBS N/A: info Not Available/not given

| | MODEL | COMPANY | ORIGIN | COST inc tax | WEIGHT exc straps | MATERIALS | DI |
|---|---|---|---|---|---|---|---|
|  | Flying Capstan H2611 | HARKIE | | £149 $195 $163 | 1.92kg 4.2 lb | Galvanised Steel | 26 |
|  | Heavy Duty Capstan H2621 | HARKIE | | £302 $395 $346 | 6.45kg 14.2 lb | Galvanised Steel | 33 13 |
|  | Hexarig HX02648 | HEXAROPE | | £1300 $1680 €1320 | 5.9kg 13 lb | Machined Alu 7075-T6 | 25 13 |
|  | AbseilPoller | HOLZZANGEN (DONHAUSER) | | £90 $115 €105 | 8kg 17.6lb | Powder-coated Steel | 28 |
|  | Jail Brake 5R | JAIL BRAKE | | £382 $499 €455 | 2.7kg 6lb | A356 Alloy | 431 17 |
| | Jail Brake 7R | JAIL BRAKE | | £500 $599 €635 | 3.6kg 8lb | A356 Alloy | 559 22 |
| | Jail Brake HD | JAIL BRAKE | | £611 $799 €728 | 3.6kg 8lb | 6061 Aluminium | 559 22 |
| | Port-A-Wrap Medium | NOTCH | | £169 $208 €195 | 1.9kg 4.25lb | Stainless Steel | 17 |
| | Port-A-Wrap Large | NOTCH | | £185 $230 €215 | 3.3kg 7.25lb | Stainless Steel | 23 9 |
| | 6-Pack | NOTCH | | £292 $400 €340 | 17kg 37.4lb | Friction-coated Carbon Steel | 530 x 21 |

# LOWERING BOLLARDS

| MAX MENSIONS | BOLLARD Ø | MAX ROPE Ø | MBS | WLL (Max Working Load) | FLYING | FIXED | TRUNK GRIPS | RUBBER BARK PROTECTION | ANCHOR STRAP(s) | WINCH ADAPT | TIE-OFF/ CONTROL POSTS | ROPE GUIDES | TOP/BOTTOM ANCHOR EYE | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 x 230mm 10.4 x 9" | 75mm 3" | 14mm 9/16" | 50kN 11240lbf | 1000kg 2204lb | ■ | - | - | ■ | - | - | 3 | | ■ ■ | Comes with storage bag | harkieglobal.com |
| 5 x 300mm 3.2 x 11.8" | 75mm 3" | 14mm 9/16" | 50kN 11240lbf | 1000kg 2204lb | - | ■ | ■ | | ■ | - | 4 | 1 | ■ | Comes with storage bag | harkieglobal.com |
| 0 x 180mm 3.2 x 11.8" | 120mm 4.7" | 14mm 9/16" | 75kN 16860lbf | 1500kg 3300lb | - | ■ | - | ■ | ■ | - | 4 | 2 | ■ | Comes with storage case and ratchhet straps. No welds/weakpoints. Air vents for cooling. Main bollard reversible to spread wear. | hexarope.com |
| 0 x 230mm 11 x 9" | 102mm 4" | 19mm 3/4" | - | 2000kg 4408lbf | - | ■ | ■ | | □ | - | 4 | 2 | ■ | direct from manufacturer | holzzangen.de |
| x 102 x 114 x 4 x 4.5" | 38mm 1.5" | 19mm 3/4" | 36kN 8267lbf | 750kg 1500lb | ■ | - | - | - | - | - | 5* | 2 | ■ ■ | *Note the 'Bollards' are effectively acting as tie-off/ Control posts. | jailbrake.net |
| x 102 x 114 x 4 x 4.5" | 38mm 1.5" | 19mm 3/4" | 55kN 12522lbf | 1136kg 2500lb | ■ | - | - | - | - | - | 7* | 2 | ■ ■ | *Note the 'Bollards' are effectively acting as tie-off/ Control posts. | jailbrake.net |
| x 102 x 114 x 4 x 4.5" | 38mm 1.5" | 19mm 3/4" | 111kN 25000lbf | 2272kg 5000lb | ■ | - | - | - | - | - | 7* | 2 | ■ ■ | Solid, machined block of aluminium. *Note the 'Bollards' are effectively acting as tie-off/ Control posts. | jailbrake.net |
| 8 x 236mm 7 x 9.3" | 40mm 1.6" | 14mm 9/16" | 88.9kN 20000lbf | 897kg 1978lb | ■ | - | - | ■ | - | - | 2 | 1 | ■ ■ | Tree protection cap on tube-end | notchequipment.com |
| 4 x 287mm .2 x 11.3" | 61mm 2.4" | 19mm 3/4" | 88.9kN 20000lbf | 897kg 1978lb | ■ | - | - | ■ | - | - | 2 | 1 | ■ ■ | Tree protection cap on tube-end | notchequipment.com |
| 405 x 180mm 1 x 16 x 7" | ? | 19mm 5/8" | 50kN 11240lbf | 1000kg 2200lb | - | ■ | - | ■ | ■ | - | 6+2 | 2 | ■ ■ | **New in 2025** meets ANSI Z133. Scannable tracking chip 12mm min rope | notchequipment.com |
| | | | | | | | | | | | | | | | |

**Images Approximately to Scale**
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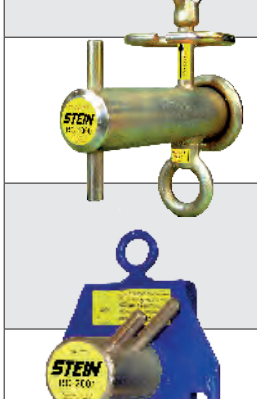
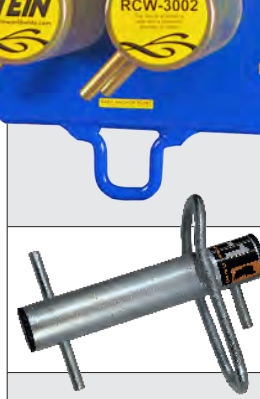
£$€ - Currency Conversion Only
**MAX DIMENSIONS**: usually height x width but depth of tube if that's greater
**WLL/Max Load**: normally based on 7:1 to 10:1 of the MBS N/A: info Not Available/not given

| | 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>11 |
|  | 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>16 |
| | SMB1000 | STEIN | | £298<br>$399<br>€356 | 4.4kg<br>9.7lb | Plated & powder-coated Steel | 31<br>1 |
|  | TH LD1 | TREEHOG | | £126<br>$165<br>€151 | 1.92kg<br>4.2lb | Galvanised Steel | 26 |
|  | 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(s) | WINCH ADAPT | TIE-OFF/ CONTROL POSTS | ROPE GUIDES | TOP/BOTTOM ANCHOR EYE | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 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 |
| 45 x 300mm<br>.7 x 11.8" | 61mm<br>2.4" | 14mm<br>9/16" | - | 1000kg<br>2204lb | ■ | - | - | ■ | - | - | 2 | 2 | ■<br>■ | Inc removable / replaceable protection rubber cap | steinworldwide.com |
| 45 x 300mm<br>.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 |
| 45 x 300mm<br>.7 x 11.8" | 61mm<br>2.4" | 14mm<br>9/16" | - | 1000kg<br>2204lb | ■ | - | - | | - | - | 2 | 1 | ■<br>■ | US$ price less than GB£ | steinworldwide.com |
| 35 x 370mm<br>1.2 x 14.6" | 76mm<br>3" | 16mm<br>⅝" | - | 2000kg<br>4409lb | ■ | - | - | | - | - | 4 | 1 | ■<br>■ | US$ price less than GB£ | steinworldwide.com |
| 35 x 325mm<br>.3 x 12.8" | 76mm<br>3" | 16mm<br>⅝" | - | 2000kg<br>4409lb | - | ■ | - | ■ | - | ■ | 4 | - | ■<br>■ | | steinworldwide.com |
| 75 x 480mm<br>0.8 x 18.9" | 115mm<br>4.5" | 19mm<br>¾" | - | 3000kg<br>6614lb | - | ■ | - | ■ | - | ■ | 4 | - | ■<br>■ | (W) refers to winch capable adapation, this is otherwise the same model previously listed as 'RC'. | steinworldwide.com |
| 10 x 480mm<br>6.1 x18.9" | 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 |
| 10 x 210mm<br>2.2 x 8.3" | 73mm<br>2.9" | 14mm<br>9/16" | - | 1000kg<br>2204lb | - | ■ | - | ■ | ■ | - | 4 | 1 | ■<br>■ | (W) refers to winch capable adapation, this is otherwise the same model previously listed as 'RC'. | steinworldwide.com |
| 65 x 230mm<br>10.4 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 |
| 70 x 385mm<br>4.6 x 15.2" | 75mm<br>3" | 14mm<br>9/16" | 50kN<br>11240lbf | 1000kg<br>2204lb | - | ■ | - | ■ | ■ | - | 2 | 4 | ■ | comes in PVC pack | arbortec.com |

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**MAX DIMENSIONS**: usually height x width but depth of tube if that's greater
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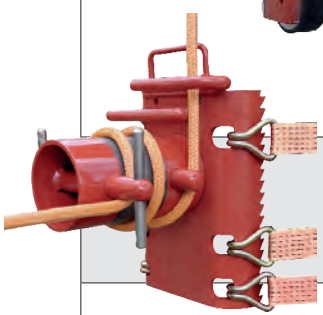
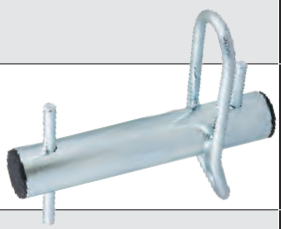
| | MODEL | COMPANY | ORIGIN | COST inc tax | WEIGHT exc straps | MATERIALS | DI |
|---|---|---|---|---|---|---|---|
| | TH LD3 | TREEHOG | | £305<br>$400<br>$365 | 6.45kg<br>14.2lb | Galvanised Steel | 33<br>13 |
| | TH LD5 3.0T | TREEHOG | | £440<br>$540<br>€505 | 5.8kg<br>12.8lb | Stainless Steel | 25 |
| | 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>11 |
|  | P3000 (71-877) | TREERUNNER | | £455<br>$595<br>€459 | 16kg<br>35.3lb | Powder-coated Steel | 47<br>1 |
| | Port-A-Wrap-TU200 | TREE-UP (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 |

# LOWERING BOLLARDS

| MAX DIMENSIONS | BOLLARD Ø | MAX ROPE Ø | MBS | WLL (Max Working Load) | FLYING | FIXED | TRUNK GRIPS | RUBBER BARK PROTECTION | ANCHOR STRAP(s) | WINCH ADAPT | TIE-OFF/ CONTROL POSTS | ROPE GUIDES | TOP/BOTTOM ANCHOR EYE | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 x 300mm 13.2 x 11.8" | 75mm 3" | 14mm 9/16" | 50kN 11240lbf | 1000kg 2204lb | - | ■ | ■ | - | ■ | - | 2 | 3 | ■ | May be discontinued comes in PVC pack | arbortec.com |
| 50 x 200mm 19.8 x 7.9" | 75mm 3" | 14mm 9/16" | 150kN 33721lbf | 3000kg 6614lb | - | ■ | - | ■ | ■ | - | 2 | 3* | ■ | *Top anchor eye is designated as a rope guide by manufacturer.Comes in PVC pack | arbortec.com |
| 60 x 310mm 19.8 x 12.2" | 60mm 2.36" | 18mm 3/4" | - | 1000kg 2204lb | ■ | - | - | - | - | - | 3 | - | ■ ■ | | grube.de |
| 220 x 220mm 12.6 x 8.7" | 76mm 3" | 16mm 5/8" | - | 500kg 1102lb | - | ■ | - | ■ | □ | - | 4 | 2 | ■ ■ | | grube.de |
| 300 x 380mm 11.8 x 14.9" | 76mm 3" | 16mm 5/5" | - | 500kg 1102lb | - | ■ | - | - | □ | - | 3 | 2 | ■ | | grube.de |
| 370 x 380mm 18.5 x14.9" | 140mm 5.5" | 20mm 3/4" | - | 3000kg 6613lb | - | ■ | ■ | - | □ | - | 4 | 2 | ■ | | grube.de |
| 265 x 230mm 10.4 x 9" | 75mm 3" | 14mm 9/16" | 50kN 11240lbf | 1000kg 2204lb | ■ | - | - | ■ | - | - | 3 | - | ■ ■ | Comes with storage bag Also available in Yellow. | treeup.pl |
| 260 x 282mm 10.2 x 11.1" | 108mm 4.25" | 20mm 3/4" | 50kN 11240lbf | 1000kg 2204lb | ■ | - | - | ■ | - | - | 3 | - | ■ ■ | | treeup.pl |
| 370 x 385mm 14.6 x 15.1" | 75mm 3" | 14mm 9/16" | 50kN 11240lbf | 1500kg 3306lb | - | ■ | - | ■ | ■ | - | 4 | 1 | ■ | Comes with storage bag. Also available in Yellow with dome-top capstan | treeup.pl |
| 335 x 300mm 13.2 x 11.8" | 75mm 3" | 14mm 9/16" | 50kN 11240lbf | 1500kg 3306lb | - | ■ | ■ | | ■ | - | 4 | 1 | ■ | Comes with storage bag. Also available in Yellow with dome-top capstan. | treeup.pl |
| 350 x 200mm 19.8 x 7.9" | 75mm 3" | 14mm 9/16" | 150kN 33721 lbf | 3000kg 6613lb | - | ■ | - | ■ | ■ | - | 4 | 1* | ■ | *Top anchor eye is designated as a rope guide by manufacturer (with carabiner?) | treeup.pl |

magazines.com

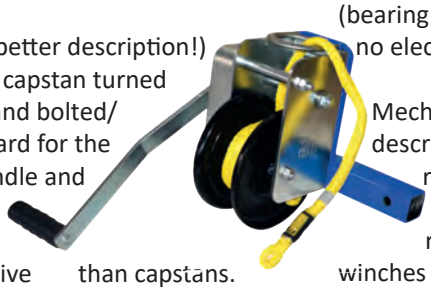
# HAND-POWERED ROPE WINCHES

## including COMBINATION WINCH/BOLLARDS

Handled 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.



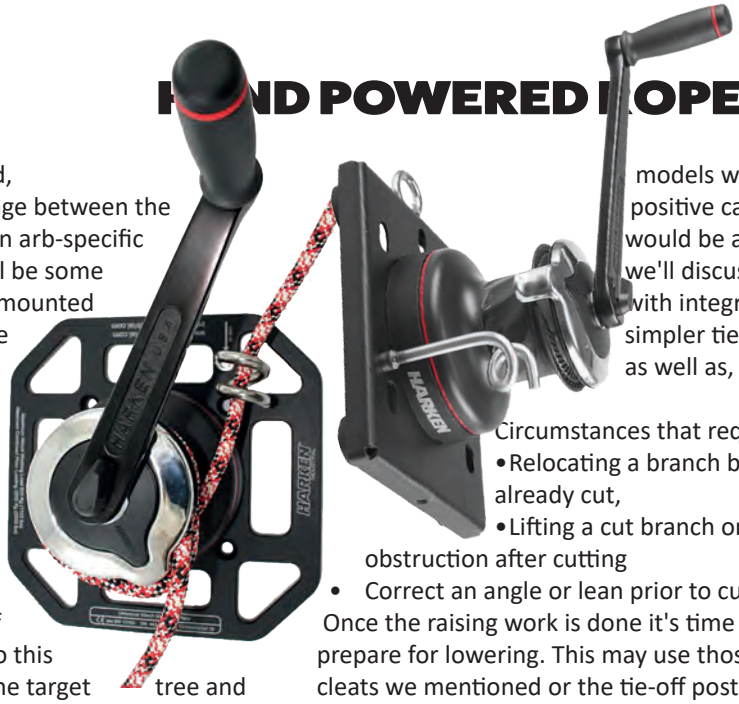
The difference between a winch and a static bollard as we featured in last issue's GUIDE is that they have a handle and some cogs connected to the inside of the capstan to offer varying degrees of mechanical advantage allowing you to *lift* heavy weights as well as lower. This GUIDE focuses only on manual 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.

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 *Arbpro* 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.

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 wincing 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 *Anta*l 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.

## 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

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 opposite with the Hobb) or the ATD by Arboteam (below 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.

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:

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

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*

*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* 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.

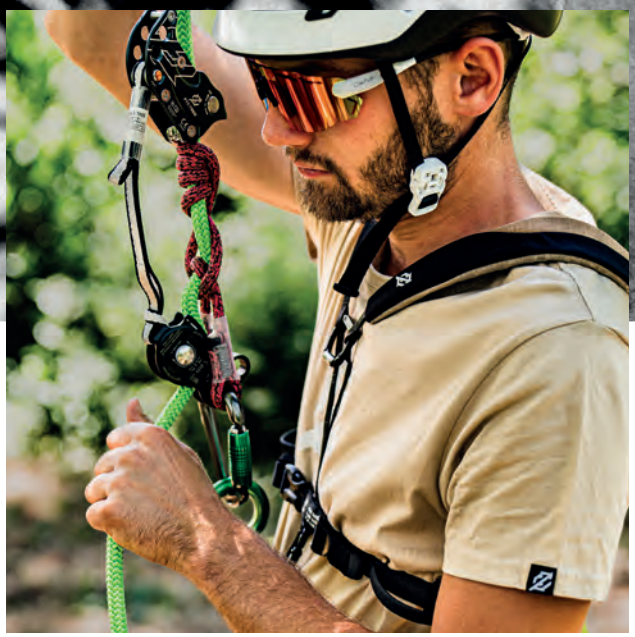
## DRILL ADAPTERS

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

FTC-TREE.COM

## NATE RANGE FOR SRT

# BUILT LIGHT.
# WORN TIGHT.
# WORKS HARD.



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#WEARANDFORGET

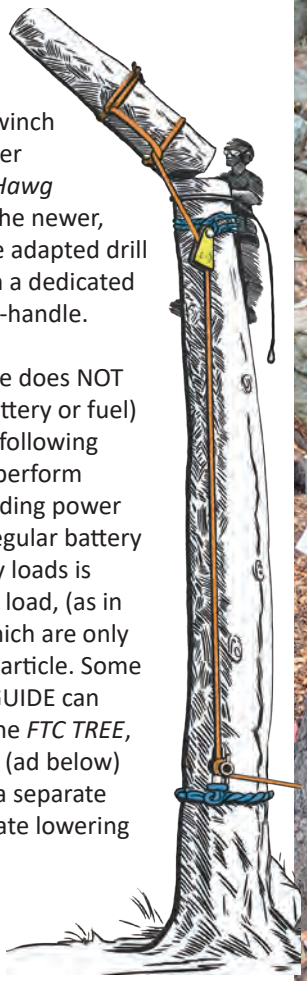
@ftctree

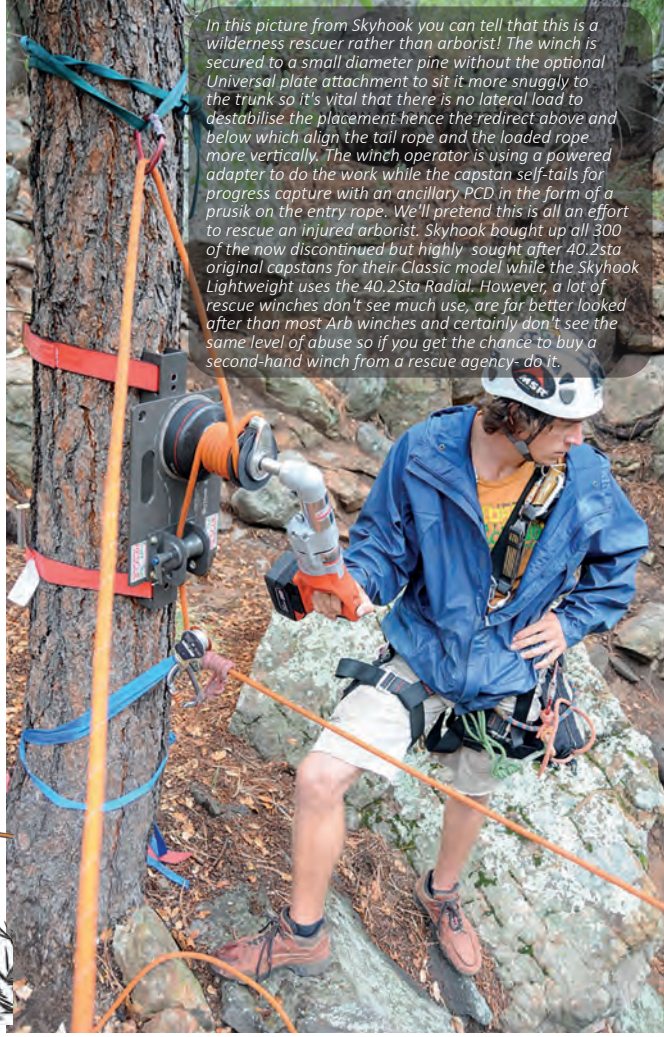
FTC TREE

**UPDATED Mar '25**

up four figures for your winch system you might consider *Milwaukee*'s $300 *Hole Hawg* (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 snuggly 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 for 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.*

## 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 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.

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 may 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.

**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.

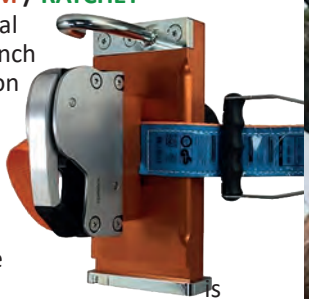
**TRUNK GRIPS** Hard/aggressive teeth or serrations that bite into the bark to find a purchase- shown as a black square ■

**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 is 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 faller 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?

# ARBORIST'S ADVANTAGE

## YOU ARE PACKING IN DECADES OF DEPENDABILITY

Developed by Greg Good and manufactured by Harken, the GRCS is the backcountry at height lifting and control system you can pack in to handle equipment and limbs to and from the canopy. The GRCS secures a self-tailing winch to the tree trunk via its ratchet-tightened steel mounting plate. GRCS. Trust decades of experience to control the heaviest loads.

**LEARN MORE ABOUT GRCS TREE MOUNT SYSTEM**

Made In Wisconsin, USA

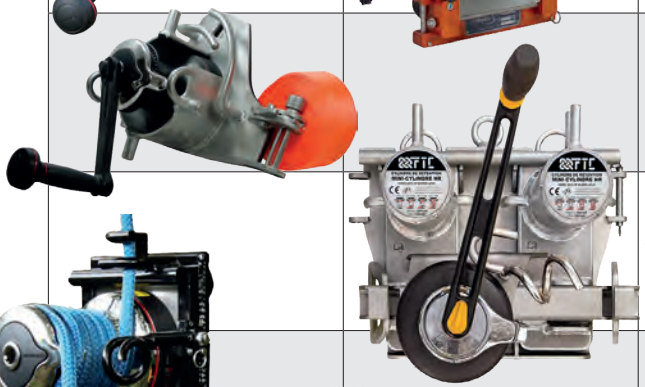
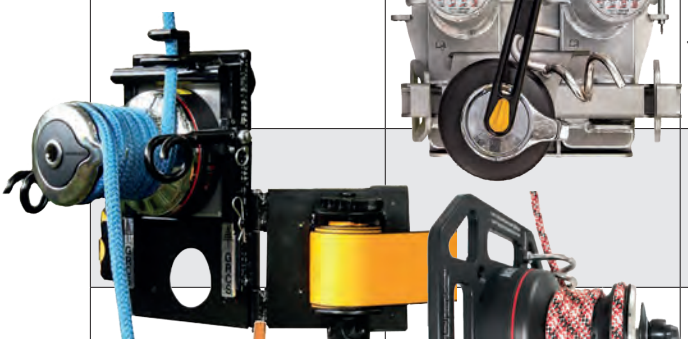
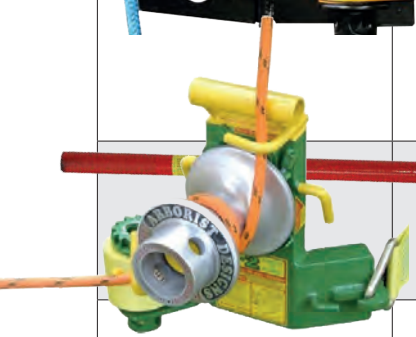
Dead lift rating of 3,000 lbs

Kit comes with the two-speed winch mounted on the plate. Also includes 254 mm aluminum SpeedGrip lock-in winch handle B10ASG

HARKEN™

harken.com

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 £$€ Currency conversion only | WEIGHT exc straps | MATERIALS BASE PLATE CAPSTAN | |
|---|---|---|---|---|---|---|---|---|
| | ATD Winch | ARBOTEAM | 46 | | £4255<br>$5525<br>€4873 | 30.3kg<br>67lb | Steel<br>Aluminium | 48<br>18 |
| | LD1 | ARBPRO | 40 | | £2223<br>$2910<br>€2500 | 21.3kg<br>47lb | Steel<br>Stainless Steel | 60<br>2 |
| | LD2 | ARBPRO | 46 | | £3176<br>$4154<br>€3570 | 26kg<br>57lb | Alloy<br>Alloy | 60<br>2 |
|  | SmartWinch | CPR INNOVATIONS BV | 46 | | £3180<br>$3885<br>€3640 | 23kg<br>51lb | Stainless Steel<br>Stainless Steel | 51<br>1 |
|  | Transformeur | FTC TREE | - | | £3775<br>$4610<br>€4320 | 43kg<br>95lb | Alloy<br>Stainless Steel | 4 |
| | GRCS | HARKEN | 46 | | £2890<br>$3500<br>€3285 | 38.5kg<br>85lb | Alloy &Steel<br>Stainless Steel | 36<br>1 |
| | Traction Winch 500 | HARKEN | 40 | | £1850<br>$2150<br>€2200 | 7kg<br>15.4lb | Alloy<br>Aluminium | 29<br>11.4 |
|  | H2 (Hobbs) | K&R Products | - | | £2386<br>$2520<br>€2735 | 26.3kg<br>58lb | Steel<br>Aluminium | 48<br>1 |
| | Elephant | ODSK/ TAKASHI OSAKA | 40 | | £1074<br>$2210<br>€2032<br>¥330000 | 7.6kg<br>16.75lb | Alloy<br>Aluminium | 28<br>11 |
| | | | | | | | | |

# 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 | PROGRESS CAPTURE SELF-TAILCAMRATCHET | TIE-OFF/ CONTROL POSTS | ROPE GUIDES | TOP/BOTTOM ANCHOR EYE | NOTES | www. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0x370x330mm .9 x 14.5 x 13" | 100mm 3.9" | 12:1 46:1 | 14-16mm 9/16-5/8" | - | 1300kg* 2866lb 2000kg 4400lb | □ | | 1 | □ | ■ ■ | | 7 | ■ | * WLL for hard securing of back plate. Rubber mounting max= 800kg. Cost inc carbon-plastic Case | arboteam.it freeworker.de |
| 0x300x250mm 24 x 12 x 10" | 140mm 5.5" | 13.5:1 40:1 | 12-14mm 1/2-9/16" | 48kN 10791 lbf | 800kg 1764lb 1000kg 2200lb | ■ | ■ | 3 | ■ | ■ ■ | | 2 | ■ | MBS is when used with optional cam. 140mm diam Bollard weighs 11kg | arbpro.it |
| 0x350x250mm 24 x 14 x 10" | 150mm 5.9" | 12:1 46:1 | 12-19mm 1/2-3/4" | 73.5kN 16535 lbf | 1200kg 2645lb 1500kg 3306lb | ■ | ■ | 3 | ■ | ■ ■ | | 4 | ■ | MBS is when used with optional cam. 150mm diam Bollard weighs 5kg | arbpro.it |
| 0x350x250mm 20 x 14 x10" | 101mm 4" | 12:1 46:1 | 8-14mm 5/16-9/16" | 70kN 15736 lbf | 1300kg 2866 lb 700kg 1575 lb | □ | ■ | 1 | □ | | 2 | 3 | ■ | Integral bollard protects capsatn. Straps are tightenend using the winch handle in the riht-hand webbing pin. | cprinnovations.com |
| 450 x 370mm 18 x 14.5" | 93mm 3.7" | 20:1 43:1 | 10-16mm 3/8-5/8" | 100kN 22481 lbf | 816kg 1798lb 2040kg 4500lb | ■ | ■ | 2 | ■ ■ | ■ | 0-4 | 2-6 | ■ | All components can be purchased separately. Model shown includes 2x Bollards and case. | ftc-tree.com |
| 0x230x250mm 14.1 x 9 x 10" | 100mm 3.9" | 12:1 46:1 | <19mm <3/4"" | 91.6kN 20592 lbf | 907kg 2000lb 1360kg 3000lb | ■ | ■ | ■ | ■ | ■ | | 3 | ■ | NB: Now owned by Harken. Base plate is hinged for greater stability on a curved surface. | harken.com |
| 0x290x369mm 4 x 11.4 x 14.5" | 80mm 3.5" | 13.5:1 40:1 | 8-12mm 5/16-1/2" | 25kN 5620 lbf | 500kg 1102lb | | | | | ■ | | 1 | ■ ■ | Also available is a smaller, lighter Rigger 200 but not marketed to arborists | harken.com |
| 3x436x236mm 19 x 19 x 9.3" | *75-152mm 3-6" | 16:1 | 12-19mm 1/2-3/4" | >89kN >20000 lbf | 1360kg 3000lb | | ■ | ■ | □ | ■ | 1 | 2 | ■ | The original arborist lowering device with raising capability. *Has a highly tapered capstan | blairsae.com |
| 9x250x240mm 1.4 x 10 x 9.5" | 80mm 3.5" | 13.5 40:1 | 12mm 1/2" | >40kN >8992 lbf | 400kg 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 £$€ Currency conversion only | WEIGHT exc straps | MATERIALS BASE PLATE CAPSTAN |
|---|---|---|---|---|---|---|
| Classic/Basic | SKYHOOK | 40 | | £3135 $3950 €3610 | 9.3kg 20.5 lb | Alloy Aluminium |
| Lightweight/ Multi-Mission | SKYHOOK | 40 | | £3045 $3840 €3510 | 7.9kg 17.5 lb | Alloy Aluminium |
| RCW3001 | STEIN | - | | £1078 $1400 €1350 | 29kg 64 lb | Steel Steel |
| RCW3002 | STEIN | - | | £1415 $1730 €1625 | 41.7kg 92 lb | Steel Steel |

# HAND POWERED ROPE WINCHES

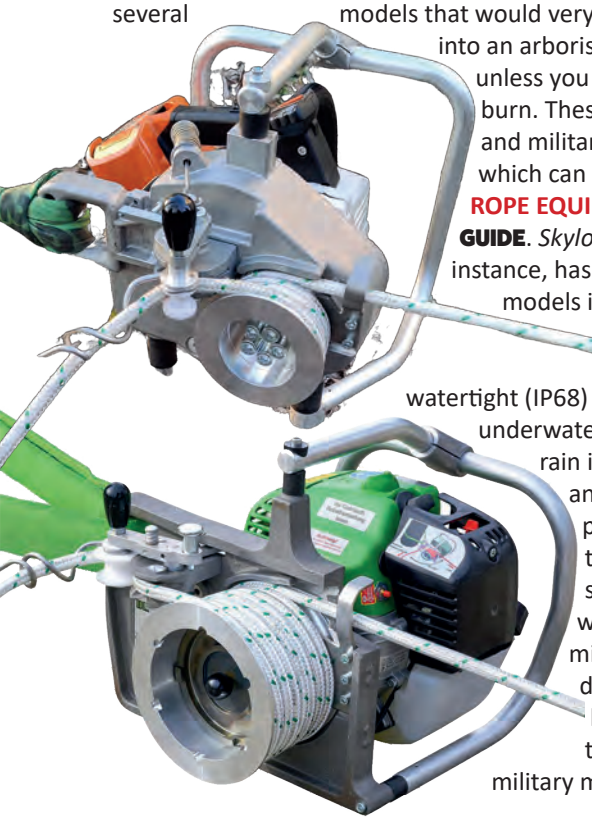
| MAX DIMENSIONS exc handle | CAPSTAN Ø | MA RATIOS | CAPSTAN ROPE Ø | MBS | WLL Max Load for RAISING LOWERING | MODULAR | RUBBER TRUNK GRIPS | ANCHOR STRAP | includes BOLLARD | PROGRESS CAPTURE SELF-TAILCAMRATCHET | TIE-OFF/ CONTROL POSTS | ROPE GUIDES | TOP/BOTTOM ANCHOR EYE | NOTES | www. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8x254x235mm 0 x 10 x 9.25" | 80mm 3.5" | 13.5:1 40:1 | 11-13mm 7/16-1/2" | - | 500kg 1100 lb | ■ | | | | ■ | | 1 | ■ ■ | Price includes (and requires) 'Universal' back plate for efficient attachment to trunks. | skyhookrescue.com |
| ? | 80mm 3.5" | 13.5:1 40:1 | 11-13mm 7/16-1/2" | - | 500kg 1100 lb | ■ | | | | ■ | | 1 | ■ ■ | Lightweight shown attached to accessory H-plate. Bottom anchor eyes on guide roller frame. | skyhookrescue.com |
| 275xmm 11 " | 115mm* 4.5" | 5.4:1 | 8mm 5/16" | - | 681kg 1501 lb 3000kg 6614 lb | ■ | | ■ | □ | ■ | 2 | 2 | ■ ■ | * No capstan - this is the Bollard diameter. Winch has separate 8mm raising rope | steinworldwide.com |
| 365xmm 14.4 x " | 115mm* 4.5" | 5.4:1 | 8mm 5/16" | - | 681kg 1501 lb 3000kg 6614 lb | ■ | | ■ | □ | ■ | 2 x2 | 2 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/Actsafe* 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 overt military models with their new utitlity 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 it 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.

Main Pic: Acstafe's Powered ascenders, whether petrol like this PMX or the battery-drivenACX (inset) , can operate as 'light-duty' winches as well as moving a human load up or down a rope buy direct attachment.
Right: The Japanese *Kenz* models are not yet available outside of Japan but the AWAh Z2R inset pics right. These are smaller than all 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.

## CAPTIVE DRUM WIRE & ROPE WINCHES

It's ironic than 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.

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!

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.

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:

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

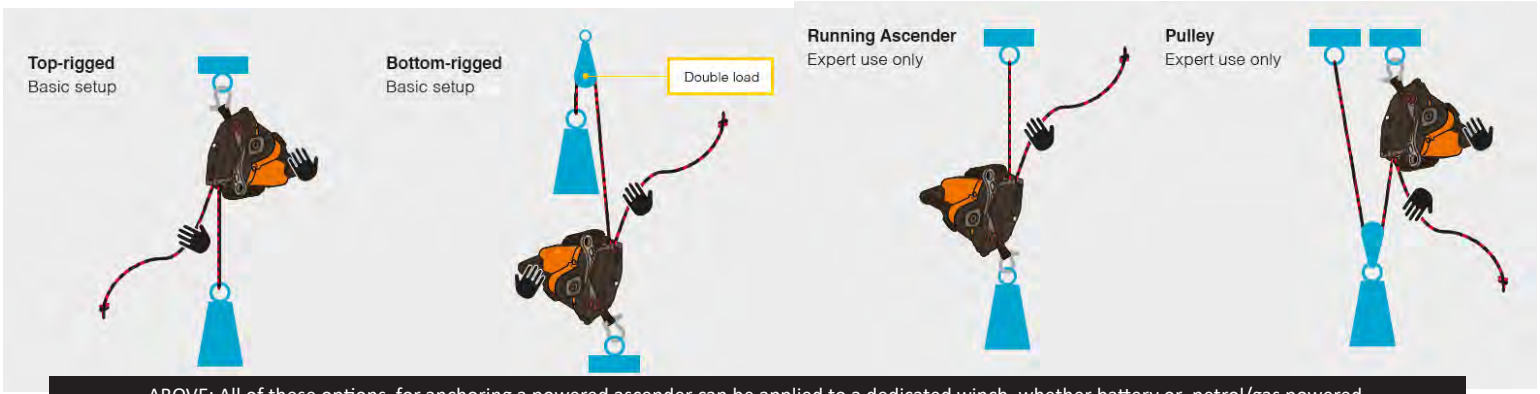
The styles of winch we're discussing could still be said to take some of the skills necessity out of the hands of ground crew; no setting up of pulley systems, not even knot-tying and the powered ascender style of winch doesn't even require the 'feel' of tension on the trail rope for expert control - 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




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

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.

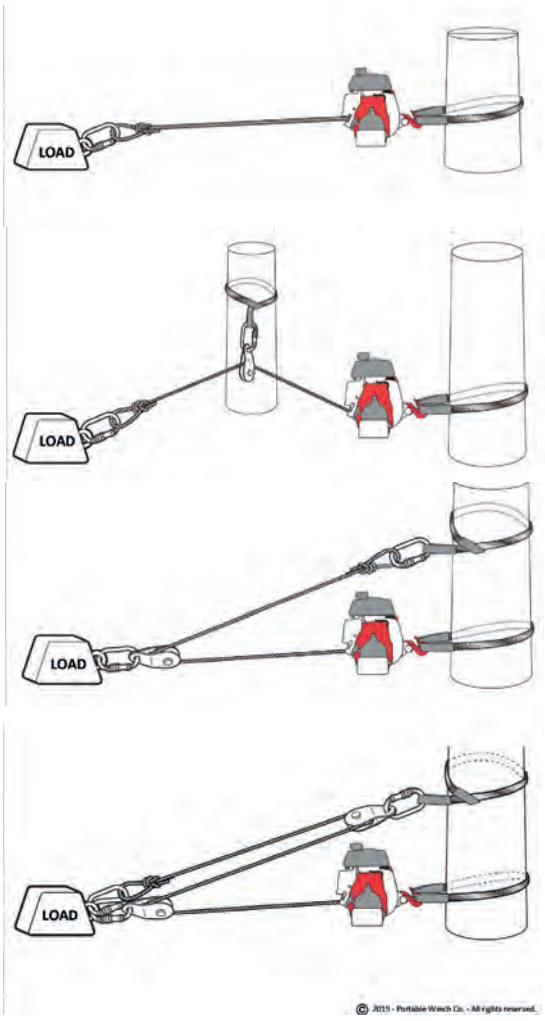
ACE 24
**Rescue / Rigging Device**

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.

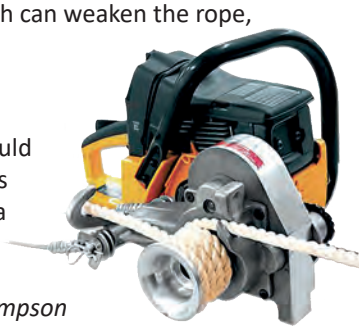
system to hold the load in order to clear an obstruction between the capstan or rope grip and the load. Of course, if you were using the winch to correct a felling angle, then tension needed to be maintained throughout and any necessity to stop taking in could be disastrous. Should have checked the rope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

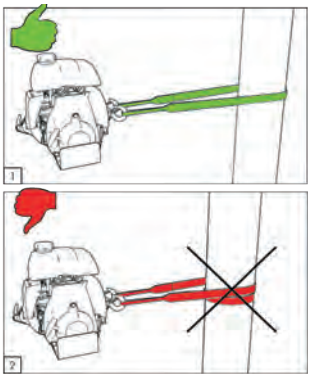



## CHAINSAW WINCH ADAPTERS



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 though gloved hands so that impact forces are negated. If the load comes to a sudden arrest because you've wrapped too may 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.

# POWERED ROPE WINCHES/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 submersible, 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 TECHNICAL**RESCUE** #84 proved to be very good and has now been added to our tables along with AtHeightUK's DW2 /3. Ronin has a smaller, intergrated 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/TAIL ROPE TO BE CONTROLLED IN-THE-HAND AT ALL TIMES DURING RAISING AND LOWERING.

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 Z2R*. This has now been joined by more Pro-oriented *Z3 and Fire-rescue version the Z3FIRE. AtHeightUK now has the DrillWinch 2 and 3 (pic left)* This is a slightly much smaller, *Harken Clutch*-style device with more conventional descender capabilities alongside the drill-driven ascending/winching capability.

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 left)* are fighting back with models that use 'off-the-shelf' *Stihl* and *Husqvarna* batteries used in professional grade chainsaws, blowers and power tools.

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

**COST: Including at least one battery unless stated otherwise. Prices are a**pproximate, 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 my 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 its 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.

# POWERED ROPE WINCHES/ASCENDERS

**Images NOT to Scale**

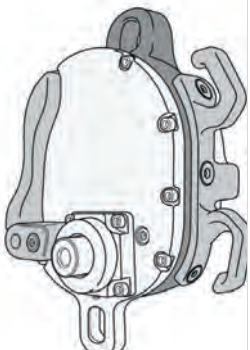
**COSTS:** Approx & inc local tax/VAT £$€ shown in burnt orange are currency conversions only & do not inc shipping, import duty or tax

**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



COMING SOON

| | | | | | |
|---|---|---|---|---|---|
| | **MANUFACTURER** | ASAT | ASAT | ATHEIGHTUK | ATHEIGHTUK |
| | **MODEL VARIANT** | **ACE24** - | **ACE22** - | **Drill Winch Basic** DW2 | **Drill Winch Pro** DW3 |
| | **ORIGIN** | | | | |
| | **COST** | £5680 $9400 €8945 | £7000 $8500 €8085 | £995 $1245 €TBA | £ 1795 $1870 €2052 |
| | **POWER BATTERYPETROL/GAS** | ■ | ■ | ■ | ■ |
| | **WEIGHT inc battery/fuel BATTERY ONLY** | 18 3.4kg<br>39.6 7.5lb | 10.5 2kg<br>32 4.4lb | 2 (+Drill & Battery 3)kg<br>11.8 (+Drill & Battery 6.6)lb | 1.5 (+Drill & Battery 3)kg<br>3.3 (+Drill & Battery 6.6)lb |
| | **MATERIALRESCUEWINCH** | ■ ■ ■ | ■ ■ ■ | ■ ■ ■ | ■ ■ ■ |
| | **STOP/GO CONTROL** | Dial | Dial | Power Drill Trigger | Power Drill Trigger |
| | **WLL (Overload cut-out)** | 260kg<br>572lb | 180kg<br>396lb | 50-200kg<br>110-440lb | 200kg<br>440lb |
| | **DIMENSIONS BATTERY-ONLY** | 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 | 19.5 x 13.7 x 8.9cm<br>7.7 x 5.4 x3.5"<br>Any Hi-torque Drill | 16 x 12 x 8.5cm<br>6.3 x 4.7 x 3.3"<br>Any Hi-torque Drill |
| | **Specfic/Any Rope Ø** | 11mm EN1891A<br>7⁄16" EN1891A | 11-12mm<br>7⁄16" | 8-11mm<br>3⁄8 -7⁄16" | 10.5-11mm<br>5⁄16 -7⁄16" |
| | **RANGE** on 1 charge/tank | 300m 984ft* | 400m 1312ft* | ~200m 656ft | ~200m 656ft |
| | **ASCENT SPEED Metres/feet/minute** | 0-30 m/min<br>0-98.4ft/m | 0-30 m/min<br>0-98.4ft/m | 0-15*m/min<br>0-50ft/min | 0-15*m/min<br>0-50ft/min |
| | **DESCENT SPEED Metres/feet/minute** | 0-40m<br>0-98.4ft/m | 0-40min<br>0-131ft/m | 0-fast - manual | 0-fast - manual |
| | **ENGINE/BATTERY POWER** | 48v Lithium<br>7.5Ah | 44v Lithium<br>5Ah | ANY - spec for Erbauer 18v Lithium ion >5Ah | ANY - spec for Erbauer 18v Lithium ion >5Ah |
| BATTERY | **RECHARGE TIME ON DESCENT** | 60min ■ | <60min ■ | ~30min | ~30min |
| BATTERY | **REMOTEAPP CONTROL RANGE** | ☐150m 492ft - | ☐150m 492ft - | - | - |
| BATTERY | **ON-BOARD CHARGE STATUS** | ■ | ■ | ☐ | ☐ |
| FEATURES | **ANCHOR TOP BOTTOM** | 1 1 | 1 1 | 1 1 | 1 1 |
| FEATURES | **NOISE/SOUND LEVELS** | 70dB | 70dB | <70dB | <70dB |
| FEATURES | **EMERGENCY IMPACT STOP** | ■ - | ■ - | NO | NO |
| FEATURES | **NO-POWER DESCEND** | ■ | ■ | ■-only | ■-only |
| FEATURES | **TEMP RANGE °C/°F** | -30to60°C -10to120°F | -20to60°C -4to120°F | Defined by power drill | Defined by power drill |
| FEATURES | **IP RATING** | 56 - | 54 - | Defined by power drill | Defined by power drill |
| FEATURES | **MID/ END ROPE FEED** | ■ | ■ | ■ | ■ |
| FEATURES | **WARRANTY GOVT ONLY** | 6-12months | 6-12months | 12months | 12months |
| FEATURES | **CARRY CASE c/w ROPE** | ■ ☐ | ■ ☐ | ☐ - | ☐ - |
| FEATURES | **STANDARDS** | | | Machinery Directive 2006/42/EC Annex 4 | Machinery Directive 2006/42/EC Annex 4 |
| | **NOTES** | *@150kg NB: Combination of ascent and descentt increases duration to 700m/2296ft | *@120kg NB: Combination of ascent and descentt increases duration to 400m/1312ft | NEW in 2025<br>Excludes power drill. Inc carry case & 8mm hex keys<br>*Does not power-down-manual descent only | NEW in 2025<br>Excludes power drill. Inc carry case & 8mm hex keys<br>*Does not power-down-manual descent only |
| | **WEBSITE** | asatsafe.com atheightuk.com | asatsafe.com atheightuk.com | atheightuk.com | atheightuk.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** | **AWAH** | **AWAH** | **EDER** | **EDER** |
| | **MODEL VARIANT** | **Z2R** EPC130 | **Z3 PROF** EPC130 | **PowerClimber** EPC130 | **PowerClimber** EPC240 |
| | **ORIGIN** | | | | |
| | **COST** | £1200 $1500 €1400 | £1320 $1800 €1524 | £3560 $4325 €4100 | £3960 $4850 €4570 |
| | **POWER BATTERY PETROL/GAS** | ■ | ■ | ■ | ■ |
| | **WEIGHT inc battery/fuel** **BATTERY ONLY** | 2.37 (+Drill & Battery 3)kg<br>5.2 (Drill & Battery 6.6)lb | 2.3 (+Drill & Battery 3)kg<br>5 (Drill & Battery 6.6)lb | 11.2kg<br>24.6lb | 10.3kg<br>22.7lb |
| | **MATERIAL RESCUE WINCH** | ■ ■ ■ | ■ ■ ■ | ■ - ■ | ■ ■ ■ |
| | **STOP/GO CONTROL** | Power Drill Trigger | Power Drill Trigger | Throttle | Throttle |
| | **WLL (Overload cut-out)** | 200kg<br>441lb | 200kg<br>441lb | 130kg<br>286lb | 240kg<br>528lb |
| | **DIMENSIONS** **BATTERY-ONLY** | 20 x 10.6 x 10cm<br>8 x 4.2 x 4"<br>Any 120-160Nm Drill | 20 x 10.6 x 10cm<br>8 x 4.2 x 4"<br>Any 120-160Nm Drill | 36 x 30 x 27cm<br>14.1 x 11.8 x 10.6"<br>- | 39 x 30 x 28cm<br>15.4 x 11.8 x 11"<br>- |
| | **Specfic/Any Rope Ø** | 9-11mm<br>⅜ -7/16" | 10-11mm<br>5/16 -7/16" | 11-12.9mm<br>7/16-½" | 11-12.9mm<br>7/16-½" |
| | **RANGE** on 1 charge/tank | 175-300m 574-984ft* | 175-300m 574-984ft* | 240m | 240m |
| | **ASCENT SPEED** **Metres/feet/minute** | 0-<60m/min*<br>0-<196ft/min* | 0-<60m/min*<br>0-<196ft/min* | 0-30*m/min<br>0-98ft/min | 0-24-36*m/min<br>0-78-118ft/min |
| | **DESCENT SPEED** **Metres/feet/minute** | 30-120m/min<br>98-328ft/min<br>or MANUAL | 0-Fast - Manual | 18m/min<br>59ft/min | 18m/min<br>59ft/min |
| | **ENGINE/BATTERY POWER** | 18-48v Lithium*<br>min 4Ah optimum 8Ah | 18-48v Lithium*<br>min 4Ah optimum 8Ah | Honda GX50 2stroke<br>47.9cc / 2Hp | Kawasaki TJ53 2stroke<br>53.2cc / 2.68Hp |
| BATTERY | **RECHARGE TIME ON DESCENT** | <90mins* | <90mins* | - | - |
| BATTERY | **REMOTE APP CONTROL RANGE** | - | - | - | - |
| BATTERY | **ON-BOARD CHARGE STATUS** | □ | □ | - | - |
| FEATURES | **ANCHOR TOP BOTTOM** | 1 1 | 1 1 | 1 1 | 1 1 |
| FEATURES | **NOISE/SOUND LEVELS** | 92dB | 92dB | 97dB | >97dB |
| FEATURES | **EMERGENCY IMPACT STOP** | NO | NO | - - | - - |
| FEATURES | **NO-POWER DESCEND** | ■-only | ■-only | ■ | ■ |
| FEATURES | **TEMP RANGE °C/°F** | -15to45°C 5to113°F | -15to45°C 5to113°F | -20to40°C -4to104°F | -20to40°C -4to104°F |
| FEATURES | **IP RATING** | Defined by power drill | Defined by power drill | 55 | 55 |
| FEATURES | **MID/ END ROPE FEED** | ■ | ■ | ■ | ■ |
| FEATURES | **WARRANTY GOVT ONLY** | 12months | 12months | 12months | 12months |
| FEATURES | **CARRY CASE c/w ROPE** | □ - | □ - | - ■ | - ■ |
| | **STANDARDS** | XF494 Fire Service - China | XF494 Fire Service - China | | |
| | **NOTES** | *Uses any brushless Pro Power drill to drive(figs based on MilwaukeeM18)-min 4Ah but 5-8Ah preferable.<br>*@118kg with 5.5Ah battery.<br>Z2=non rescue version Discontinued | *Uses any brushless Pro Power drill to drive(figs based on MilwaukeeM18)-min 4Ah but 5-8Ah preferable.<br>*@118kg with 5.5Ah battery.<br>Z3FIRE with swivel - see ROPE EQPT BUYERSGUIDE | *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 |
| | **WEBSITE** | awah.cn | awah.cn | edertools.com grube.de | edertools.com grube.de |

# POWERED ROPE WINCHES/ASCENDERS

| | EDER | HARKEN | HARKEN | K1PARS | MODE |
|---|---|---|---|---|---|
| | | | | | |
| | **PowerClimber** EPC240-11B | **Lokhead Power Hauler** PWRS-G.COMPACT | **Lokhead Power Hauler** PWRS-B.COMPACT | **KEA-HB-W1/S1** | **Spider Pro** - |
| | | | | | |
| | £4500 $5750 €5205 | £4550 $5750 €5250 | £5690 $7175 €6791 | n/a | £5995 $7300 €6950 |
| | ■ | ■ | ■ | ■ | ■ |
| | 10.5 1.77kg<br>23.1 3.9lb | 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 |
| | ■ ■ ■ | ■ ■ ■ | ■ ■ ■ | ■ ■ ■ | ■ |
| | Throttle | Trigger | long-Trigger & lever* | Throttle | Throttle |
| | 240kg<br>528lb | 273kg<br>600lb | 300kg<br>661lb | 250/120kg<br>551/264lb | 200kg<br>440lb |
| | 30 x 40 x 30cm<br>11.8 x 15.75 x 11.8"<br>- | 55.8 x 41.7 x 36.4cm<br>23 x 16.4 x 14.3"<br>- | 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"<br>- | 33x 26.5x 26.7cm<br>13x10.4x10.5"<br>00cm<br>00" |
| | 11-mm<br>½" | 10-12.7mm<br>5⁄16-½" | 10-12.7mm<br>5⁄16-½" | 10-12.7mm<br>5⁄16-½" | 10.5-13mm typeA<br>5⁄16-½" |
| | TBA | 600m 1968ft* | 550m 1804ft* | 600/550m 1968/1804ft* | 330m 1082ft* |
| | 0--36*m/min<br>0-118ft/min | 0-11-15m/min<br>0-36-49ft/min | 0-13.5m/min<br>0-44.3ft/min | 0-13.5m/min<br>0-44.3ft/min | ≤22m/min<br>72ft/min |
| | 18m/min<br>59ft/min | 0-14m/min<br>0-46ft/min | 0-14m/min<br>0-46ft/min | 0-72m/min<br>0-236ft/min | 37m/min<br>121ft/min |
| | 36v Stihl<br>AP300S 7.2Ah or AP500 8.8Ah | Honda GX35 4stroke<br>35.8cc | 50.4v Lithium ion<br>9Ah | Honda GX35 4stroke<br>35.8cc | 36v Lithium-ion<br>5Ah |
| | 75-150mins | - | 270min | - | 150min |
| | - | - | - - | ☐100m/328ft* - | 100m/328ft ■ |
| | ■ | - | ■ | - | ■ |
| | 1 1 | 1 1 | 1 1 | 1 1 | 1 1 |
| | 104dB | 81.3/96.2dB | 80/90dB | 81.3/96.2dB | >97dB |
| | TBA | ■ - | ■ - | - - | ■ - |
| | ■ | ■ | ■ | ■ | ■ |
| | -10to50°C -10to120°F | -5to40°C 23to104°F | -10to50°C -10to120°F | -5to40°C 23to104°F | -20to50°C -4to122°F |
| | >X4 | 55 | 54 | 55 | 54 |
| | ■ | ■ | ■ | ■ | ■ |
| | 24months (batteries) | 24months | 24months | n/a | n/a |
| | - ■ | ■ ☐ | ■ ☐ | ☐ ☐ | ■ ☐ |
| | | | | | |
| | RESCUE-capable version<br>*36m/min@130kg<br>Supplied with 100m<br>Beal 11 or 12.9mm rope<br>+£300 for 12.9mm | Also Powerseat version with a seat and extension post for human-riding | Also Powerseat version with a seat and extension post for human-riding | S1=speed version<br>*@100kg/328lb<br>*Hybrid device with electronic interface -optional remote control. See ROPE EQPT BUYERS GUIDE for K1PARS battery models | *@90kg/198lb |
| | edertools.com grube.de | harkenindustrial.com | harkenindustrial.com | k1pars.co.kr | modepowerascender.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 | PETRO STEEL | ROPETEK | RONIN |
|---|---|---|---|---|---|
| | MODEL VARIANT | Pesco Smart Spider PSJ120-11 | Pesco Smart Spider PSJ120-8 | Wraptor HD | Lift PN2805-11 |
| | ORIGIN | | | | |
| | COST | £865 $1050 €1000 | £825 $1000 €950 | £3032 $3200 €3500 | £3150 $4207 €4565 |
| | POWER BATTERYPETROL/GAS | ■ | ■ | ■ | ■ |
| | WEIGHT inc battery BATTERY ONLY | 12.5kg integral 27.5lb integral | 11.5kg integral 27.5lb integral | 10.9kg - 24lb - | 11 2.7kg 24 6lb |
| | MATERIALRESCUEWINCH | | ■ - ■ | ■ - ■ | ■ ■ ■ |
| | STOP/GO CONTROL | Rocker Button | Rocker Button | Throttle | Thumbwheel |
| | WLL | ≤ 140kg 309lb | ≤ 120kg 265lb | 141kg 310lb | 182kg(272kg-2-person) 400lb (600lb-rescue-only) |
| | DIMENSIONS BATTERY-ONLY | 37x25.5 x 27.5cm 14.6x10x10.8" integral | 37 x 25.5 x 27.5cm 14.6 x 10 x 10.8" integral | 41 x 26 x 22cm 16.1 x 10.2 x 9" - | 39 x 34 x 28.8 cm 15.4 x 13.4 x 11.4" 24.4 x 11.4 x 9.9cm 9.6 x 4.5 x 3.9" |
| | Specfic/Any Rope Ø | 12-14mm ½-9/16" | 12-14mm ½-9/16" | 11-16mm 7/16-5/8" | 11.5-13mm 7/16-½" |
| | RANGE on 1 charge/tank | 600m 787ft* | 500m 787ft* | approx 227m 500ft | 244m 800ft* or 15mins |
| | ASCENT SPEED Metres/feet/minute | ≤11m/min ≤36ft/min | ≤8/min ≤26ft/min | 0-30m/min 0-100ft/min | 0-27.4m/min 0-90ft/min |
| | DESCENT SPEED Metres/feet/minute | 11m/min 36ft/min | 8/min 26ft/min | 18m/min 59ft/min | 0-45.7m/min 0-150ft/min |
| | ENGINE/BATTERY POWER | 36v Lithium-ion 20Ah | 36v Lithium-ion 15Ah | Honda GX35 4stroke 35.8cc | 28v Lithium-ion 3.5Ah |
| BATTERY | RECHARGE TIME ON DESCENT | 240-360min | N/A | - | 90min |
| BATTERY | REMOTEAPP CONTROL RANGE | ■ - | ■ - | - | 91m/300ft - |
| BATTERY | ON-BOARD CHARGE STATUS | ■ | ■ | - | ■ |
| FEATURES | ANCHOR TOP BOTTOM | - 1 | - 1 | 1 1 | 1 1 |
| FEATURES | NOISE/SOUND LEVELS | n/a | n/a | 89dB | n/a |
| FEATURES | EMERGENCY IMPACT STOP | ■ ■ | ■ ■ | - - | - - |
| FEATURES | NO-POWER DESCEND | ■ | ■ | ■ | ■ |
| FEATURES | TEMP RANGE °C/°F | -20to50°C -4to122°F | -20to50°C -4to122°F | -20to40°C -4to104°F | -20to49°C -4to120°F |
| FEATURES | IP RATING | N/A | N/A | 56 - | 54 - |
| FEATURES | MID/ END ROPE FEED | ■ | ■ | ■ | ■ |
| FEATURES | WARRANTY GOVT ONLY | n/a | n/a | n/a | 12months |
| FEATURES | CARRY CASE c/w ROPE | - ■ | - ■ | - ■* | ■ □ |
| FEATURES | STANDARDS | | | - | CE ANSI |
| | NOTES | *@90kg/198lb Inc. 20m x14mm rope(order longer lengths), remote control, | *@90kg/198lb Inc. 20m x14mm rope(order longer lengths), remote control, NB: may also be a #7 version? | HD=Steel instead of alloy on high wear components plus rollers and bushings on fairlead.Cost+45%! *Comes with 59m/150ft of rope for US orders only. Price inc CMI Ropewalker | *+800ft descent @91kg/200lb Hot-swap batteries $380 ea. Price includes wireless remot control, battery, charger, hard case w/foam. Battery=$510 Just Lift & battery=$3503 MBS >2272kg/5000lb |
| | WEBSITE | smart-spider.com | smart-spider.com | ropetek.com | roninpowerascender.com |

# POWERED ROPE WINCHES/ASCENDERS

| | | | | | |
|---|---|---|---|---|---|
| | **RONIN** | **RONIN** | **SKYLOTEC** | **SKYLOTEC** | **SKYLOTEC** |
| | **Titan Lift (TL)** | **Non-HC Lift** | **Actsafe ACX** POA-001 | **Actsafe ICX** POA-030 | **Actsafe PMX** POA-006 |
| | | | | | |
| | £3950 $5307 €4520 | £3150 $4207 €4565 | £15320 $22780 €15000 | *£5250 *$7100 *€6000 | £9200 $11200 €8650 |
| | ■ | ■ | ■ | ■ | ■ |
| | 8.6 2.3kg<br>19 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 |
| b | 182kg(272kg-2-person) 400lb<br>(600lb-rescue-only) | 182kg(272kg-2-person) 400lb<br>(600lb-rescue-only) | 220kg<br>485lb | 185kg<br>407lb | 250kg<br>551lb |
| | 29.8 x 34.3 x 28.6cm<br>11.75 x 13.5 x 11.25"<br>24.4 x 11.4 x 9.9cm<br>9.6 x 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 x29 x 28cm<br>19.3 x 11.4 x 11.1"<br>- |
| | 11.5-13mm<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" |
| | 244m 800ft* | 244m 800ft* | 550m 1965ft* | 230m 754ft* | 750m 2460ft |
| | 0-27.4m/min<br>0-90ft/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 |
| | 0-68m/min<br>0-150ft/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 |
| | 48v 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 |
| | 120min | 120min | 90min ■ | 80/90min - | - |
| | 91m/300ft* - | 91m/300ft - | □150m 492ft ■ | ■ | - |
| | ■ | ■ | ■ | ■ | - |
| | 1 1 | 1 1 | 1 1 | - 1 | 1 1 |
| | n/a | n/a | 76dB | n/a | 89dB |
| | ■ - | - - | ■ - | ■ - | - - |
| | ■ | ■ | ■ | ■ | ■ |
| | -20to49°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 |
| | ■ □ | ■ □ | ■ □ | □ □ | □ □ |
| | CE ANSI | CE | CE ANSI | CE | CE |
| | *+800ft descent @91kg/200lb<br>Hot-swap batteries $470 ea.<br>Hands-free braking.<br>MBS >2272kg/5000lb<br>*EMI: Electronic shielding<br>Price inc battery,case & remote control. Battery=$550 | Material handling only - Can perform human-lifting but certified and marked as material only. Price inc 2x batteries, case & remote control<br>MBS >2272kg/5000lb | Replacement battery<br>£3212/$3900/€2100<br>* @100kg/220lb<br>optional rechargeable driver as power source | * Price Excludes 'off-the-shelf' Husqvarna BLixxx battery(~>£240)<br>* @100kg<br>*not-load-rated for a rescue load but can use remote control to carry out single person rescue. | *@100kg/220lb |
| | roninpowerascender.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**

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

SKYLOTEC

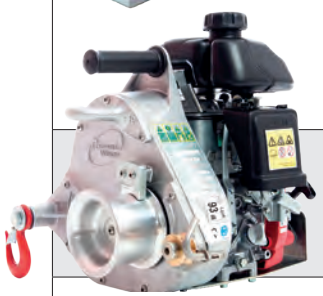
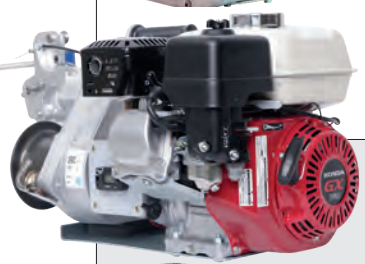
**IMAGES NOT TO SCALE**
**COST:** Approx & inc VAT/Taxes
height x width x Depth
**WLL/**PULL SPEED: Direct to load-No Mechanical advantage
**SPEEDS** Engine speeds as a number, VARIABLE
**LOWERING:** Manual lowering = ■
Powered lowering ■

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

# POWERED ROPE WINCHES

| POWER SOURCE BATTERY PETROL/GAS | ROPE Ø | MAX SOUND LEVEL | IP | STANDARDS | WLL PULL SPEED Both =Max for direct single line pull no-drag | SPEEDS/VARIABLE | REMOTE CONTROL | HUMAN-RIDING | PROGRESS CAPTURE | LOWERING | DURATION & NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Al-Ko Solo 2-stroke 50.8cc | 10-12mm ⅜-½" | 112db | IP44 | CE | 815kg 26m/min 1797lb 85ft/min | 1 | - | - | - | ■ | thermal treatments to extend component life: adaptable acceleration and braking from the operator. | docma.it |
| Al-Ko Solo 2-stroke 50.8cc | 10-12mm ⅜-½" | 112dB | IP44 | CE | 1050kg 20m/min 2315lb 66ft/min | 1 | - | - | - | ■ | thermal treatments to extend component life: adaptable acceleration and braking from the operator. | docma.it |
| Honda GX50 4-stroke 48cc | 10-12mm ⅜-½" | 98dB | IP44 | CE | 865kg 14m/min 1907lb 46ft/min | 1 | - | - | - | ■ | thermal treatments to extend component life: adaptable acceleration and braking from the operator. | docma.it |
| Al-Ko Solo 2-stroke 50.8cc | 80m/262ft 5mm 1/4" | 112dB | IP44 | CE | 1485kg 20m/min 3267lb 59ft/min | 1 | - | - | - | - | Automatic rope rewind when unloaded | docma.it |
| Honda GX50 4-stroke 48cc | 80m/262ft 5mm 1/4" | 105dB | IP44 | CE | 1260kg 19m/min 2772lb 59ft/min | 1 | - | - | - | - | Automatic rope rewind when unloaded | docma.it |
| Al-Ko Solo 2-stroke 50.8cc | 80m/262ft 5mm 1/4" | 112dB | IP44 | CE | 1485kg 20m/min 3267lb 59ft/min | 1 | - | - | - | - | | docma.it |
| Kawaski TJ53 2-stroke 65cc | 8-10mm 5/16-⅜" | 115dB | IP44 | CE | 400kg 29m/min 882lb 95ft/min | 1 | - | - | - | ■ | DISCONTINUED still available while stocks last | eder-maschinenbau.de grube.de |
| Active 6.5 2-stroke 3.3 KW /4.5 HP | 8-10mm 5/16-⅜" | 115dB | IP44 | CE | 400kg 40m/min 882l 131ft/min | 1 | - | - | - | ■ | | eder-maschinenbau.de grube.de |
| Honda GX35 4-Stroke 35.8cc 1KW / 1.3HP | 8-12mm 5/16-½" | 106dB | IP44 | CE | 500kg 12m/min 1102lb 40ft/min | 1 | - | - | - | ■ | Rubber grip feet allow direct tree attachment | eder-maschinenbau.de grube.de |
| Active 6.5 2-stroke 62cc 3.3KW / 4.5 HP | 8-10mm 5/16-⅜" | 115dB | IP44 | CE | 1200kg 14m/min 2646lb 46ft/min | 1 | - | - | - | ■ | | eder-maschinenbau.de grube.de |
| 36v Li-ion Stihl Battery 7.2 or 8.8Ah 1.7kW | 8-10mm 5/16-⅜" | n/a | IPX4 | CE | 1200kg 13m/min 2646lb 42ft/min | 1 | - | - | - | ■ | | eder-maschinenbau.de grube.de |

**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, VAR
**LOWERING:** Manual lowering =
Powered lowering

| | MODEL | COMPANY | ORIGIN | COST inc tax currency conversion only | WT | MAX DIMENSIONS CAPSTAN |
|---|---|---|---|---|---|---|
| | Nordforest/ Powerwinch 1800 | EDER /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 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 WINCH CO. | | £1320<br>$1540*<br>€1375 | 9.5kg<br>21lb | 308 x 316 x 309mm<br>12.1 x 12.4 x 12.2"<br>76mm<br>3" |
| | PCW4000 | PORTABLE 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 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 (High Speed) | PORTABLE 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 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" |
| | PCH2000 | PORTABLE 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" |

# POWERED ROPE WINCHES

| POWER SOURCE<br>BATTERY<br>PETROL/GAS | ROPE Ø | MAX SOUND LEVEL | IP | STANDARDS | WLL<br>PULL SPEED<br>Both =Max<br>for direct single line pull<br>no-drag | SPEEDS/VARIABLE | REMOTE CONTROL | HUMAN-RIDING | PROGRESS CAPTURE | LOWERING | DURATION<br>&<br>NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Active 6.5<br>2-stroke<br>62cc<br>4.5 HP | 12-14mm<br>½-9/16" | 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>⅜" | 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.<br>*price inc 50m rope & rigging eqpt. | portablewinch.com |
| 80/82v Li-ion<br>Battery<br>1KW | 10mm*<br>⅜" | 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>⅜" | 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>⅜-½" | 105dB | IP44 | CE | 1000kg 12m/min<br>2200 lb 40ft/min | 2* | - | - | - | ■ | *price inc 50m rope & rigging eqpt. Optional 85mm capstan increases peed to 18m/min / 60ft/min | portablewinch.com |
| Honda GHX50<br>4-stroke<br>50cc | 10-13mm<br>⅜-½" | 105dB | IP44 | CE | 350kg 36m/min<br>771 lb 118ft/min | 2* | - | - | - | ■ | $2119 with rope/rigging kit. Optional 85mm capstan increases peed 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 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 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>5/16-⅜" | 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>5/16-⅜" | 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 Petrol/gas chainsaw<br>less than 57cc | 8-10mm<br>5/16-⅜" | Depends on C'Saw | Depends on C'Saw | - | 1136kg 7.6m/min<br>2500lb 25ft/min | ■ | - | - | - | ■ | Attaches to your chainsaw via a 3/8" drive sprocket.<br>5 year warranty | capstanropewinch.com |

UPDATED Jun '25

# ARBORIST 10.5-13.5mm CLIMBING ROPES

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

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 FF0. 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 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.

# ARBORIST CLIMBING ROPES

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 an 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 - **LAID ROPE**. Laid rope is like Rapunzle'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) 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 kernamantle 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 pummelling. 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 it's 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 are11.2 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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## CUT/ABRASION RESISTANT

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**UL Classified Life Safety Rope, NFPA 2500 (1983) - General Use**

| | |
|---|---|
| Minimum Breaking Strength: | 8,992 lbf. (40.0 kN) |
| Certified Diameter: | 11.0mm |
| Elongation @ 300 lbf. | 4.3% |
| Elongation @ 600 lbf. | 7.1% |
| Elongation @ 1000 lbf. | 9.3% |

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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 drenaLIN*E 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 assum 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 sewr 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 to150kg 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

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!

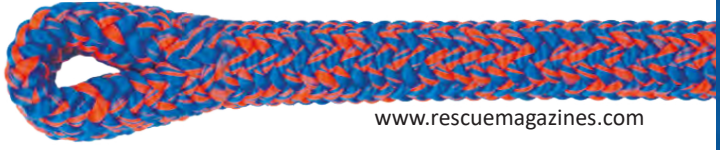
## IN THE FOLLOWING TABLES.....:

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





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 se 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 fo 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.

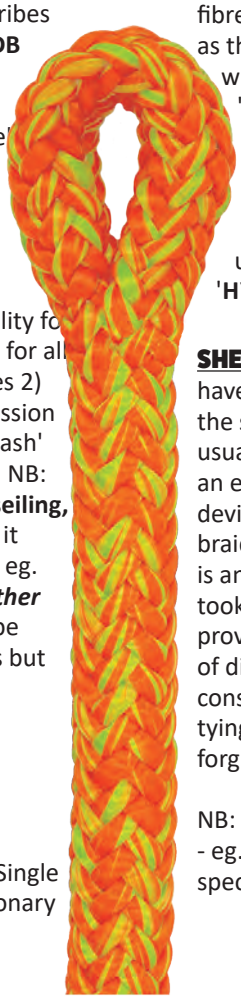
**SRT/SRS/DRT** & **DdRT/MRS:** generally speaking Single and Double Rope Technique (now called SRS- Stationary Rope Systems) require low stretch rope for which kernmantle semi-static and static ropes are perfect. The more supple 32 and 24 strand double braid can also do that job well but are better 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-stabilsed 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

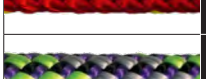
### Rope Tech Gloves

**A PERFECT FIT FOR EVERY GRIP**

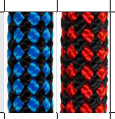
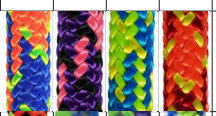
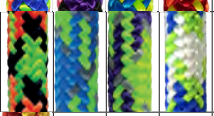
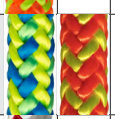
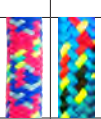
Ultra-lightweight design: 0.221 lbs
7 sizes: XXS, XS, S, M, L, XL, XXL
Materials: synthetic leather, cowhide, spandex

**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

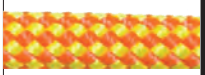
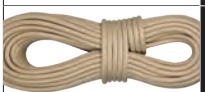
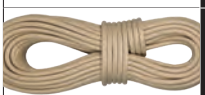
| | MODEL<br>Product Code | COMPANY | ORIGIN | COST<br>per Metre<br>/3.28ft<br>US$ per Foot | Ø<br>mm<br>Inches" | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE | STANDARDS | NUMBER OF FALLS<br>EASE of TYING<br>Sherrill Rating | SHEATH<br>OUTER STRANDS | SPLICEABLE<br>PRE-SPLICED<br>PRE-SEWN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Arborist 32str KM**<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 | ■ |
| | **Arborist 32str KM**<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 | ■ |
| | **Arborist 32str KM**<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 | ■ |
| | **Arborist 24str***<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 | ■■ |
| | **Arborist 24str***<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 | ■<br>■■ |
| | **Arborist 32str KM**<br>TowerLine | ALLGEAR | | £2.90<br>$3.62<br>$1.10<br>€3.30 | 12.7<br>½" | 99g<br>6.7lb | Polyester<br>Polyester | ANSI | | 32<br>KM | ■ |
| | **Arborist 24str***<br>Neolite II,<br>SafetyLite II | ALLGEAR | | £3.05<br>$3.85<br>$1.18<br>€3.50 | 12.7<br>½" | 112g<br>7.5lb | Polyester<br>Polyester | ANSI | | 24<br>DB | ■■ |
| | **Arborist 16str***<br>Bazooka,<br>Neolite, SafetyLite | ALLGEAR | | £3.25<br>$4.10<br>$1.25<br>€3.75 | 12.7<br>½" | 112g<br>7.5lb | Polyester<br>Nylon | ANSI | | 16 | ■<br>■■ |
| | **Arborist 12str***<br>Forestry Pro Glo,<br>Forestry Pro | ALLGEAR | | £3.10<br>$3.90<br>$1.20<br>€3.60 | 12.7<br>½" | 109g<br>7.3lb | Polyester<br>Polyester | ANSI | | 12 | ■<br>■■ |
|  | **Endurance**<br>Aya, LuckyLine | ATLANTIC 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 | ■ |
| | **GripFlex-24** | ATLANTIC 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 | ■<br>■ |
| | **Antidote**<br>Fusion, Fury, Formula | ATLANTIC BRAIDS | | £2.35<br>$2.95<br>$0.90<br>€2.70 | 11.8<br>½" | n/a | Polyester<br>Polyester | n/a | | 24<br>DB | ■ |
| | **GripFlex-16** | ATLANTIC BRAIDS | | £2.80<br>$3.40<br>$1.10<br>€3.30 | 12.7<br>½" | 112g<br>7.5lb | Polyester<br>Nylon | n/a | | 16 | ■ |
| | **Endurance** | ATLANTIC BRAIDS | | £2.70<br>$3.10<br>$1.00<br>€3.10 | 12.7<br>½" | 118g<br>7.9lb | Polyester<br>Nylon | n/a | | 32<br>KM | ■ |
| | **GripFlex-12** | ATLANTIC BRAIDS | | £2.70<br>$3.10<br>$1.00<br>€3.10 | 13<br>½" | 134g<br>9lb | Polyester<br>Polyester | n/a | | 12 | ■ |
| | **Dynastat** | 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 | | | | ELONGATION % | | | | | | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EYE CAN THREAD THRU HARDWARE | HYBRID HARDWARE | SRT/SRS MRS/DdRT | MBL MINIMUM Break Load Spliced Sewn Knotted | ABL AVERAGE Break Load Spliced Sewn Knotted | SHRINKAGE % | SHEATH SLIPPAGE (MILKING) % | @10% MBS @50-150 kg @300LB/136K @540 lb/245kg | SHEATH % | OTHER COLOURS | | | | | | |
| - | - | ■ | 35.2kN 7920lbf | 39.1kN 8800lbf | | | 15% | | | | | | Model names equates to colour options. | allgearinc.com |
| - | - | ■ | 31.2kN 7020lbf | 39.1kN 7800lbf | | | 3% | |  | | | | *Model names equates to colour options. | allgearinc.com |
| - | - | ■ | 27.2kN 6120lbf | 30.3kN 6800lbf | | | 3% | | | | | | *Model names equates to colour options. | allgearinc.com |
| ■ | - | ■ | - | 28kN 6300lbf | | | 3% | |  | | | | *Model names equates to colour options. | allgearinc.com |
| ■ | ■ | ■■ | - | 29.8kN 6700lbf | - | | 4.9% | - |  | | | | *Model names equates to colour options. Atlas discontinued | allgearinc.com |
| - | - | ■ | 32.8kN 7380lbf | 26.7kN 8200lbf | | | 3% | | | | | | | allgearinc.com |
| - | ■ | ■■ | - | 34.7kN 7800lbf | | | n/a | | | | | | *Model names equates to colour options. | allgearinc.com |
| - | - | ■ | 33.4kN 7500lbf | 40.9kN 9200lbf | | | 3% | |  | | | | *Model names equates to colour options. | allgearinc.com |
| - | - | ■ | 29.2kN 6570lbf | 36.5kN 7300lbf | | | 3% | | | | | | *Model names equates to colour options. | allgearinc.com |
| - | ■ | ■ | 37.5kN 8300lbf | 4000kg 8800lb | | | 7% | | | | | | | atlanticbraids.com |
| - | - | ■■ | - | 30.5kN 6850lbf 27.5kN 6180lbf | 0.4% | | 2.3% | 45% | | | | | | atlanticbraids.com |
| - | - | ■ | 31.1kN 7000lbf | 5170kg 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 9200lbf | | | n/a | n/a | | | | | | atlanticbraids.com |
| - | - | ■ | 48kN 10600lbf | 5170kg 11400lb | | | 7% | n/a | | | | | | atlanticbraids.com |
| - | - | ■ | - | 3040kg 6700lb | | | n/a | n/a | | | | | | atlanticbraids.com |
| - | - | ■ | 25kN 6744lbf 16/19kN 3597/4271lbf | - | 0% | 0.8% | 2% | 44% | | | | | DISCONTINUED *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

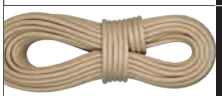
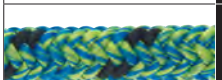
| | MODEL<br>Product Code | COMPANY | ORIGIN | COST<br>per Metre<br>/3.28ft<br>US$ per Foot | Ø<br>mm<br>Inches" | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE | STANDARDS | NUMBER OF FALLS<br>EASE of TYING<br>Sherrill Rating | SHEATH<br>OUTER STRANDS | SPLICEABLE<br>PRE-SPLICED<br>PRE-SEWN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 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>½" | 92g<br>6.1lb | Polyester<br>Nylon | CE A | - | DB | ■<br>■ |
| | Bonsai | BEAL | | £3.75<br>$4.75<br>$1.55<br>€4.30 | 13mm<br>½" | 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>½" | 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

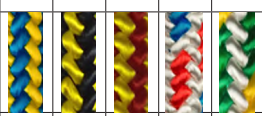
| SUITABLE FOR | | | MINIMUM BREAKING LOAD/STRENGTH | | | | ELONGATION % | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EYE CAN THREAD THRU HARDWARE | HYBRID HARDWARE | SRT/SRS MRS/DdRT | MBL MINIMUM Break Load Spliced Sewn Knotted | ABL AVERAGE Break Load Spliced Sewn Knotted | SHRINKAGE % | SHEATH SLIPPAGE (MILKING) % | @10% MBS @50-150 kg @300LB/136K @540 lb/245kg | SHEATH % | OTHER COLOURS | | | | | NOTES | WWW. |
| - | ■ | ■■ | 34kN 7643lbf 19.5/24kN 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 6812lbf 18/18kN 4047/4047lbf | - | 2.8% | 0 | 3.8% | 44% | | | | | | | bealplanet.com |
| - | - | ■ | 27kN 7399lbf 16/22kN 3597/4945lbf | - | 2.8% | 0 | 4% | 69% | | | | | | sheath & core bonded | bealplanet.com |
| - | - | ■ | 34kN 7643lbf 18/25kN 4047/5620lbf | - | 4.5% | 0 | 4.2% | 61% | | | | | | sheath & core bonded | bealplanet.com |
| - | ■ | ■ | 30kN 6744lbf 19/23kN 4271/5171lbf | - | 2% | 0 | 5% | 82% | | | | | | Unicore Rope, sheath and core bonded. Discontinued? | bealplanet.com |
| - | ■ | ■ | 35.5kN 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 6500lbf | - | - | - | 3.8% | - | | | | | | | bluewaterropes.com |
| - | ■ | ■ | 31.5kN 7081lbf | - | - | - | 3.1% | 50% | | | | | | | bluewaterropes.com |
| - | ■ | ■ | 27.1kN 6092lbf | - | - | - | 2.6% | 47% | | | | | | Specially designed for mechanical devices | bluewaterropes.com |
| - | ■ | ■ | 37.1kN 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 7541lbf | - | - | - | 3.4% | 48% | | | | | | | bluewaterropes.com |
| - | ■ | ■■ | 40.5kN 9107lbf | - | - | - | 3.1% | 42% | | | | | | | bluewaterropes.com |
| - | ■ | ■ | 35.2kN 7913lbf | - | - | - | 1.2% | 51.6% | | | | | | | bluewaterropes.com |
| - | ■ | ■ | 35.9kN 8061lbf | - | - | - | 2.7% | 46% | | | | | | | bluewaterropes.com |
| - | ■ | ■ | 32.9kN 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

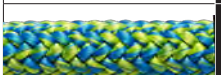
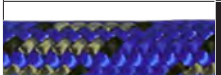
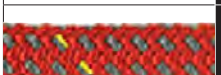
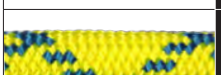
| | MODEL<br>Product Code | COMPANY | ORIGIN | COST<br>per Metre<br>/3.28ft<br>US$ per Foot | Ø<br>mm<br>Inches" | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE | STANDARDS | NUMBER OF FALLS<br>EASE of TYING<br>Sherrill Rating | SHEATH<br>OUTER STRANDS | SPLICEABLE<br>PRE-SPLICED<br>PRE-SEWN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **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>½" | 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>½" | 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>½" | 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>½" | 127g<br>8.51lb | Technora/<br>Polyester<br>Nylon | NFPA<br>ANSI | - | 32<br>KM | ■ |
| | **Assaultline/ BWII+** | **BLUEWATER** | | £3.05<br>$3.80<br>$1.15<br>€3.50 | 13mm<br>½" | 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>½" | 137g<br>10.1lb | Polyester<br>Polyester | NFPA<br>ANSI | - | 32<br>KM | - |
| | **Arbor Boss 24** | **BUCCANEER ROPE CO** | | n/a | 11mm<br>7/16" | 92g<br>6.2lb | Polyester<br>Polyester | - | - | 24<br>DB | - |
| | **Abor Boss 16**<br>O-Glow, Blue Thunder, Black Thunder, Red Thunder, Patriot, Green&Ylw | **BUCCANEER ROPE CO** | | £2.00<br>$2.50<br>$0.75<br>€2.30 | 12mm<br>½" | 112g<br>7.5lb | Polyester<br>Polyester | - | - | 16<br>DB | - |
| | **Arbor Boss 12** | **BUCCANEER ROPE CO** | | n/a | 12mm<br>½" | 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>½" | 105g<br>7.5lb | | | <5 | | |
| | **Bulwark Safety X**<br>**Semi-Static** | **COASTLINE 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 CORDAGE** | | n/a | 12mm<br>½" | 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 | - |

# ARBORIST CLIMBING ROPES

| SUITABLE FOR | | | MINIMUM BREAKING LOAD/STRENGTH | | | | ELONGATION % | | | | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EYE CAN THREAD THRU HARDWARE | HYBRID HARDWARE | SRT/SRS MRS/DdRT | MBL MINIMUM Break Load Spliced Sewn Knotted | ABL AVERAGE Break Load Spliced Sewn Knotted | SHRINKAGE % | SHEATH SLIPPAGE (MILKING) % | @10% MBS @50-150 kg @300LB/136K @540 lb/245kg | SHEATH % | OTHER COLOURS | | | |
| - | ■ | ■ | 32.1kN 7216lbf | - | 0% | - | 1.9% | 53%* | | | Teflon-coated, double sheath-*core sheath= 39.4%. Technora over polyester sheathed nylon Up to 934 deg F | bluewaterropes.com |
| - | ■ | ■ | 40 kN 8993lbf | - | - | - | 2.8% | 53% | | | highly abrasion-resistant. Black=military only | bluewaterropes.com |
| - | ■ | ■ | 35.1kN 7891lbf | - | - | - | 1.2% | 41% | | | Very low elongation, not for MRS/DdRT. Suited to ziplines. | bluewaterropes.com |
| - | ■ | ■ | 32kN 7223lbf | - | 0% | - | 5.3% | 53%* | | | Teflon-coated, double sheath-*core sheath= 39.4%. Technora over polyester sheathed nylon Up to 934 deg F | bluewaterropes.com |
| - | - | ■ | 44.4kN 9983lbf | - | - | - | 2.2% | 45% | | | *White with red or blue thread is a whopping 20% cheaper than these figures | bluewaterropes.com |
| - | - | - | 43.4kN 9840lbf | - | - | - | 2% | 46% | | | | bluewaterropes.com |
| - | ■ | ■ | 49.8kN 11203lbf | - | 0% | - | 2.5% | 53%* | | | Teflon-coatd, double sheath-*core sheath= 39.4%. Technora over polyester sheathed nylon Up to 934 deg F | bluewaterropes.com |
| - | ■ | ■ | 44.4kN 10000lbf | - | 1.9% | - | 3.8% | 53% | | | | bluewaterropes.com |
| - | ■ | ■ | 47.5kN 10677lbf | - | - | - | 1% | 39% | | | Very low elongation, not for MRS/DdRT. Suited to ziplines. | bluewaterropes.com |
| - | ■ | ■ | - | 16kN 3600lbf | - | - | - | - | | | | bucrope.com |
| - | - | ■ | - | 31.1kN 7000lbf | - | - | - | - |  | | also available as 5/8" 16mm see rigging ropes | bucrope.com |
| - | - | ■ | - | 29.8kN 6700lbf | - | - | - | - | | | also available as 5/8" 16mm see rigging ropes | bucrope.com |
| | | | | | 0.2 | | 2.4% | | | | | camp.it |
| - | ■ | ■ | 37.92kN 8294lbf | - | - | - | 2% | - | | | note that 2 different spec sheets exist for these ropes with different spec. | coastlinegroup.ca |
| - | ■ | ■ | 49.56kN 10927lbf | - | - | - | n/a | - | | | note that 2 different spec sheets exist for these ropes with different spec | coastlinegroup.ca |
| - | ■ | ■ | 33kN 7419lbf 23kN 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

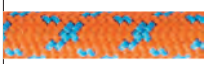
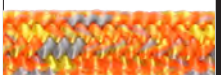
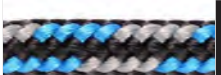
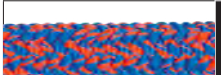
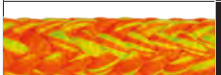
| | MODEL<br>Product Code | COMPANY | ORIGIN | COST<br>per Metre<br>/3.28ft<br>US$ per Foot | Ø<br>mm<br>Inches" | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE | STANDARDS | NUMBER OF FALLS<br>EASE of TYING<br>Sherrill Rating | SHEATH<br>OUTER STRANDS | SPLICEABLE<br>PRE-SPLICED<br>PRE-SEWN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 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>½" | 103g<br>6.2lb | Polyester<br>Nylon | CE A | 0.87 | 16 | ■<br>■ |
| | Rush | COUSIN-<br>TRESTEC | | £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-<br>TRESTEC | | £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-<br>TRESTEC | | £4.25<br>$5.40<br>$1.65<br>€4.55 | 12.2mm<br>½" | 105g<br>7lb | Polyester<br>Polyester | CE A | 0.7 | 16<br>DB | ■ |
|  | Lignum | COUSIN-<br>TRESTEC | | £4.10<br>$5.50<br>$1.70<br>€4.60 | 12.5mm<br>½" | 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 Ac-<br>cess | 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>½" | 108g<br>7.2lb | Nylon<br>Nylon | CE A<br>ANSI | - | 24<br>KM | - |
|  | Tango StatX<br>Yellow, Blue | DRAYER | | £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 | DRAYER | | £3.10<br>$3.90<br>$1.20<br>€3.50 | 12.8mm<br>½" | 104g<br>7lb | Polyester<br>Nylon | CE A | - | 16 | ■ |
| | Tango Ergo<br>Brasil | DRAYER | | £3.30<br>$4.20<br>$1.30<br>€3.80 | 13.5mm<br>35⁄64" | 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 | ■ |

# ARBORIST CLIMBING ROPES

| SUITABLE FOR | | | MINIMUM BREAKING LOAD/STRENGTH | | | | ELONGATION % | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EYE CAN THREAD THRU HARDWARE | HYBRID HARDWARE | SRT/SRS MRS/DdRT | MBL MINIMUM Break Load Spliced Sewn Knotted | ABL AVERAGE Break Load Spliced Sewn Knotted | SHRINKAGE % | SHEATH SLIPPAGE (MILKING) % | @10% MBS @50-150 kg @300LB/136K @540 lb/245kg | SHEATH % | OTHER COLOURS | | | | NOTES | WWW. |
| - | ■ | ■ | 30kN 6744lbf 21kN 4721lbf | - | 2.7% | 0 | 2% | 43% | | | | | Pink Dragon version is a limited edition for breast Cancer Awareness | cordescourant.com |
| ■ | ■ | ■■ | 30kN 6744lbf 19kN 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 7868kN 23kN 5171lbf | - | 1% | 0.1% | 1.8% | 57% | | | | | | cordescourant.com |
| ■ | - | ■ | 31kN 6969lbf 23.5kN 5283lbf | - | 2.8% | 0.4% | 2.8% | 67% | | | | | Captive rope marker within splice. Japora/Ozora discontinued | cordescourant.com |
| - | ■ | ■ | 34.1kN 7666lbf >15kN 3372lbf | - | 2.5% | 0.3% | 1.8% | 39% | | | | | | cousin-trestec.com |
| ■ | ■ | ■■ | 30.7kN 6902lbf >15kN 3372lbf | - | 0.5% | 0 | 2.8% | 55% | | | | | | cousin-trestec.com |
| ■ | - | ■■ | 30.1kN 6767lbf >15kN 3372lbf | - | 0.2% | 0 | 2.4% | 58.8% | | | | | | cousin-trestec.com |
| ■ | ■ | ■ | 34.6kN 7778lbf >15kN 3372lbf | - | 0.1% | 0 | 3.1% | 61.6% | | | | | Lignum red is a Freework-er (germany)special | cousin-trestec.com |
| - | ■ | ■ | 31.9kN 7171lbf >15kN 3372lbf | 34.3kN 7711lbf | 0.3% | 2.6% | 3.2% | 51% | | | | | 'Response LSK' name also used by 2 competitors. Also in black, white with yellow/blue fleck *Actual test diam=11.4mm | donaghys.com |
| - | ■ | ■ | 31.9kN 7171lbf >15kN 3372lbf | 34.3kN 7711lbf | - | - | 3.2% | 51% | | | | | XT uses heat-set Nylon core. *Actual test diam=11.4mm | donaghys.com |
| ■ | ■ | ■ | 28kN 6300lbf | - | 1.5% | 0 | <3.0% | n/a | | | | | | donaghys.com |
| ■ | ■ | ■ | 35.2kN 7868lbf | - | - | - | - | n/a | | | | | | donaghys.com |
| - | ■ | ■ | 46.4kN 10431lb | - | 2.7% | 0 | 1.2% | 43% | | | | | | drayer.de |
| - | ■ | ■■ | 36kN 8093lb | - | - | - | 2.2% | n/a | | | | | | drayer.de |
| - | - | ■ | 36.7kN 8260lbf | - | - | - | <2.2% | n/a | | | | | | drayer.de |
| - | - | ■■ | 29kN 6520lbf 17kN 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

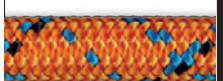
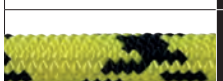
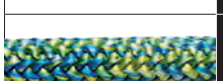
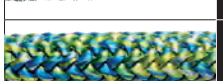
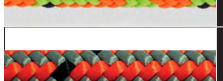
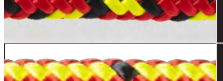
| | MODEL<br>Product Code | COMPANY | ORIGIN | COST<br>per Metre<br>/3.28ft<br>US$ per Foot | Ø<br>mm<br>Inches" | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE | STANDARDS | NUMBER OF FALLS<br>EASE of TYING<br>Sherrill Rating | SHEATH<br>OUTER STRANDS | SPLICEABLE<br>PRE-SPLICED<br>PRE-SEWN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Woodpecker** | EDELRID | | £4.90<br>$5.90<br>$1.80<br>€5.55 | 11.7mm<br>29/64" | 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>15/32" | 96g<br>6.4lb | Polyester<br>Nylon | CE A<br>ANSI | - | 32<br>KM | ■ |
| | **X-P*E**<br>Bahamas, Aruba, 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 BRAIDS | | n/a | 10.5mm<br>13/32" | 79g<br>5.3lb | Nylon<br>Nylon | CE A | - | 24<br>KM | - |
|  | **Silva-Tex 24** | ENGLISH BRAIDS | | £3.55<br>$4.50<br>$1.40<br>€4.05 | 11.5mm<br>7/16" | 93g<br>6.2lb | Polyester<br>Nylon | CE A | 0.9 | 24<br>DB | ■<br>■ |
| | **Silva-Tex 16** | ENGLISH BRAIDS | | n/a | 12.4mm<br>½" | 131g<br>8.8lb | Polyester<br>Polyester | CE A | - | 16<br>KM | - |
|  | **Silva-Tex 16HD** | ENGLISH 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>29/64" | 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>13/32" | 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>7/16" | 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>■ |

# ARBORIST CLIMBING ROPES

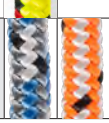
| SUITABLE FOR | | | MINIMUM BREAKING LOAD/STRENGTH | | | | ELONGATION % | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EYE CAN THREAD THRU HARDWARE | HYBRID HARDWARE | SRT/SRS MRS/DdRT | MBL MINIMUM Break Load Spliced Sewn Knotted | ABL AVERAGE Break Load Spliced Sewn Knotted | SHRINKAGE % | SHEATH SLIPPAGE (MILKING) % | @10% MBS @50-150 kg @300LB/136K @540 lb/245kg | SHEATH % | OTHER COLOURS | | | | | NOTES | WWW. |
| ■ | ■ | ■ ■ | 25kN 5620lbf 16kN 3597lbf | - | 0 | - | 2.1% | 55% | | | | | | Web-eye termination is virtually the same diameter as rope. | edelrid.de |
| - | ■ | ■ | 40kN 8992lbf 22kN 4946lbf | - | 0.8% | - | 1.9% | 47% | | | | | | Made from recycled yarn | edelrid.de |
| - | - | ■ | 25kN 5620lbf 23/16kN 5171/3597lbf | - | - | - | 2.2% | 65% | | | | | | red/yelw is 'highlight' a Freeworker exclusive colour | edelrid.de |
| - | - | ■ | 33kN 7400lbf 18.9kN 4249lbf | - | 1.2% | - | 2.4% | 56% | | | | | | Sheath is 100% recycled material | edelrid.de |
| - | - | ■ ■ | 22.4kN 5036lbf | - | 2.5% | - | | | | | | | | | englishbraids.com |
| ■ | - | ■ ■ | 31.6kN 7104lbf 25.6kN 5755lbf | - | 2.5% | - | 2.8% | 49% | | | | | | Model sometimes listed by stockists as 11.7 | englishbraids.com |
| - | - | ■ | 30.4kN 2960lbf 24.1kN 5418lbf | - | 0 | - | - | - | | | | | | | englishbraids.com |
| - | - | ■ ■ | 37.4kN 8408lbf 25.4kN 5710lbf | - | 0 | - | - | - | | | | | | | englishbraids.com |
| ■ | ■ | ■ ■ | 28.9kN 6497lbf 22.12kN 4973lbf | - | 1% | 0% | 2.8% | 68% | | | | | | Original Berry colour discontinued.Evo replaces previous version which had nylon core | ftc-tree.com |
| ■ | ■ | ■ ■ | 35kN 7868lbf 21.9kN 4923lbf | - | 1.4% | 0% | 3.4% | 55.7% | | | | | | | ftc-tree.com |
| - | - | ■ | 34kN 7643lbf 15kN 3372lbf | - | 2.8% | 0.4% | 2.4% | 67% | | | | | | | ftc-tree.com |
| - | - | ■ | 28.8kN 6474lbf 15kN 3372lbf | - | 0.6% | 0% | 2.9% | 56.3% | | | | | | | gleistein.com |
| ■ | - | - | 33kN 7419lbf | - | 1.5% | 4.5% | 4.3% | 54% | | | | | | Has water-repellant treatment | gleistein.com |
| - | - | ■ | 34.2kN 7693lbf | - | 1.6% | 0% | 3.4% | 52% | | | | | | | gleistein.com |
| - | - | ■ | 32kN 7194lbf 30.6kN 6879lb | - | - | - | 2% | - | | | | | | Sport version (yachting) has mottled sheath - black mixed with red, blue, green or white. | gleistein.com |
| - | - | ■ | 29.4kN 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

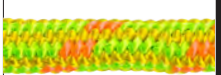
| | MODEL<br>Product Code | COMPANY | ORIGIN | COST<br>per Metre<br>/3.28ft<br>US$ per Foot | Ø<br>mm<br>Inches" | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE | STANDARDS | NUMBER OF FALLS<br>EASE of TYING<br>Sherrill Rating | SHEATH<br>OUTER STRANDS | SPLICEABLE<br>PRE-SPLICED<br>PRE-SEWN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 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>½" | 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>½" | 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>■■ |
|  | Safe Vision | LIROS | | £4.50<br>$5.50<br>$1.70<br>€5.00 | 12.8mm<br>½" | 102g<br>6.8lb | Polyester<br>Nylon | CE A | | 24<br>DB | ■<br>■■ |
| | Maverick | MARLOW 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 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>■■ |
| | Venom | MARLOW 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>■■ |
| | Vesper | MARLOW ROPES | | £4.45<br>$5.60<br>$1.70<br>€5.10 | 11.8mm<br>15/32" | 107.9g<br>7.2lb | Polyester<br>Polyester | CE A<br>UKCA | 1.0 | 24<br>DB | ■<br>■■ |
| | Typhoon | MARLOW ROPES | | £TBA<br>$TBA<br>$TBA<br>€TBA | 12.2mm<br>½" | 110g<br>7.2lb | Polyester<br>Polyester | CE A<br>UKCA | | 16<br>KM | ■<br>■ |
|  | Gecko2<br>Blue Ocean* | MARLOW ROPES | | £4.55<br>$5.75<br>$1.80<br>€5.30 | 13mm<br>½" | 125.4g<br>8.4lb | Polyester<br>Polyester | CE A<br>UKCA<br>ANSI | 0.8 | 16 | ■<br>■■ |

# ARBORIST CLIMBING ROPES

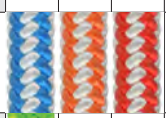
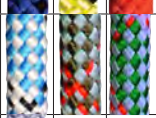
| SUITABLE FOR | | | MINIMUM BREAKING LOAD/STRENGTH | | | | ELONGATION % | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EYE CAN THREAD THRU HARDWARE | HYBRID HARDWARE | SRT/SRS MRS/DdRT | MBL MINIMUM Break Load Spliced Sewn Knotted | ABL AVERAGE Break Load Spliced Sewn Knotted | SHRINKAGE % | SHEATH SLIPPAGE (MILKING) % | @10% MBS @50-150 kg @300LB/136K @540 lb/245kg | SHEATH % | OTHER COLOURS | NOTES | WWW. |
| ■ | - | ■ ■ | 28.8kN 6474lbf 15kN 3372lbf | - | 0.6% | 0 | 2.9% | 56.3% | | | harkieglobal.com |
| ■ | - | ■ ■ | 27.7kN 6227lbf 15kN 3372lbf | - | 0.35% | 0 | 2.6% | 60% | | | harkieglobal.com |
| - | ■ | ■ ■ | 24kN 5395lbf 18/18kN 4047/4047lbf | - | <5% | - | 2.2% | 58% | | *price includes one spliced eye - not available without | husqvarna.com |
| - | ■ | ■ ■ | 35kN 7868lbf 18/20kN 4047/4496lbf | - | - | - | 2.3% | 42% | | | husqvarna.com |
| - | ■ | ■ ■ | | 34kN 7643lbf | - | - | 3.8% | - | | | husqvarna.com |
| - | - | ■ | 36.7kN 8260lbf 24kN 5395lbf | 28.9kN 6497lbf | - | - | 4.6% | - | | | husqvarna.com |
| - | ■ | ■ | 34kN 7643lbf 22kN 4946lbf | - | - | 0% | 3.8% | 46% | | | liros.com |
| - | ■ | ■ | 46.4kN 10431lbf | - | - | - | 1.5% | 54% | | may be discontinued? | liros.com |
| - | ■ | ■ ■ | 37kN 8318lbf 29/24kN 6520/5395lbf | - | - | - | 2.5% | 54% | | Branded as 'Reef' by Honey Brothers UK. Listed as 12mm by some | liros.com |
| - | - | ■ ■ | 45kN 10116lbf 33/30kN 7400/6744lbf | - | - | - | 2.2% | 51% | | Listed as 13mm by some | liros.com |
| ■ | ■ | ■ ■ | 35kN 7868lbf 18.8/22.9kN 4226/5148lbf | 35.7kN 8025lbf 23.3kN 5148lbf | 0 | - | 2.5% | 52% | | New for 2024 | marlowropes.com |
| - | ■ | ■ | - | 36.8kN 8273lbf 18.9/20.6kN 4249/6755lbf | 0 | - | 1.2% | 55.6% | | ABL Sewn= 27.8kN 6250 lbf | marlowropes.com |
| ■ | ■ | ■ ■ | - | 33.5kN 7531lbf 17.7/26.2kN 3979/5890lbf | 4.5% | 0 | 3.7% | 42% | | ABL Sewn= 28.3kN 6362 lbf | marlowropes.com |
| ■ | ■ | ■ ■ | - | 20.7kN 4654lbf 16.4/20.3kN 3686/4563lbf | 0 | - | 2.2% | 52% | | ABL Sewn= 24.9kN 5597 lbf Electric pink is a RockNRescue (USA) special. | marlowropes.com |
| ■ | ■ | ■ | 32.8kN 7868lbf 19.1/22.9kN 4293/5148lbf | 20.7kN 4654lbf | | | 1.5% | 76% | | New for 2024 | marlowropes.com |
| ■ | - | ■ | - | 32.1kN 7216lbf 18.4/28.3kN 4136/6362lbf | 0 | 0 | 1.5% | 73% |  | *Uses recycled blue-Ocean yarn ABL Sewn= 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

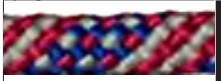
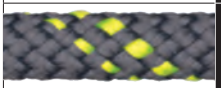
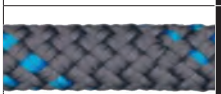
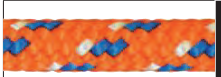
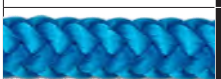
| | MODEL<br>Product Code | COMPANY | ORIGIN | COST<br>per Metre<br>/3.28ft<br>US$ per Foot | Ø<br>mm<br>Inches" | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE | STANDARDS | NUMBER OF FALLS<br>EASE of TYING<br>Sherrill Rating | SHEATH<br>OUTER STRANDS | SPLICEABLE<br>PRE-SPLICED<br>PRE-SEWN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **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>½" | 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>½" | 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 | ■■ |
| | **Arborist 16** | PELICAN ROPE | | £3.10<br>$3.75<br>$1.15<br>€3.50 | 12.7mm<br>½" | 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>½" | 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>CI 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>CI 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 | | | | ELONGATION % | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EYE CAN THREAD THRU HARDWARE | HYBRID HARDWARE | SRT/SRS MRS/DdRT | MBL MINIMUM Break Load Spliced Sewn Knotted | ABL AVERAGE Break Load Spliced Sewn Knotted | SHRINKAGE % | SHEATH SLIPPAGE (MILKING) % | @10% MBS @50-150 kg @300LB/136K @540 lb/245kg | SHEATH % | OTHER COLOURS | | | | | NOTES | WWW. |
| | ■ | ■ | 39.1kN 8800lbf | - | - | - | 1.6% | 51% | | | | | | Notch transitioning ropes back to Sterling | notchequipment.com |
| ■ | - | ■ | 37.1kN 8340lbf 28kN 6300lbf | - | - | - | 2.1% | 54% | | | | | | Semi-reflective Gold fleck thread. Notch transitioning ropes back to Sterling | notchequipment.com |
| | | ■ | 29.8kN 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 7868lbf | - | - | - | 3.4% | 72% | | | | | | Notch transitioning ropes back to Sterling | notchequipment.com |
| - | ■ | ■ | 23.86kN 5360lb 43.6kN 9801lbf | - | - | - | 2.8% | - | | | | | | 'Response LSK' is a name used by two other companies. Also 11& 10.5mm see Rope Eqpt-BUYERSGUIDE | novabraid.com |
| - | - | ■ | 31.1k 7000lbf 24kN 5400lbf | - | - | - | 5% | - | | | | | | *conflicting wt data on some sites & data sheets | pelicanrope.com |
| ■ | ■ | ■ | 31kN 7000lbf 24kN 5400lbf | - | - | 0 | - | - | | | | | | | pelicanrope.com |
| ■ | ■ | ■■ | - | 28kN 6300lb | - | - | - | - | | | | | | | pelicanrope.com |
| - | - | ■ | 32.4k 7150lbf 24kN 5400lbf | - | - | - | - | - |  | | | | | | pelicanrope.com |
| ■ | ■ | ■■ | 27kN 6000lbf 15/15kN 3372/3372lbf | - | - | - | 2.7% | 53% | | | | | | *Only available with eye Mk1=11.6mm, mk2=Better compatibility with ZigZag | petzl.com |
| ■ | ■ | ■ | 30kN 6744lb-f15/19kN 3372/4271lbf | - | - | - | 3.1% | 62% | | | | | | *Only available with eye(s) FF 0.3 Impact force 5.2kN. 8x FF1 falls | petzl.com |
| - | - | ■ | 31.1kN 7000lbf | - | 1.8% | 1.6% | 7.2% 3.4% 5.8% | 49.7% | | | | | | | pmirope.com |
| - | ■ | ■■ | 32.7kN 7209lbf | - | 3.2% | - | 3.4-4.4% 1.6% | 50.4% | | | | | | Also solid blue and solid red (no fleck) | pmirope.com |
| - | ■ | ■ | 42.9kN 9644lbf | - | 2% | 0 | 4.7% 1.3% | - |  | | | | | intertwined sheath & core | pmirope.com |
| - | ■ | ■■ | 32.7kN 7209lbf | - | 3.2% | 0.1% | 3.9% | 50.4% | | | | | | variant of EZ Bend | pmirope.com |
| - | ■ | ■ | 32.8kN 7388lbf | - | - | 0 | 1.44-2.2% 1% | - | | | | | | | pmirope.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

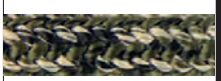
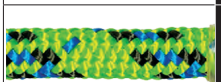
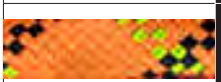
| | MODEL<br>Product Code | COMPANY | ORIGIN | COST<br>per Metre<br>/3.28ft<br>US$ per Foot | Ø<br>mm<br>Inches" | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE | STANDARDS | NUMBER OF FALLS<br>EASE of TYING<br>Sherrill Rating | SHEATH<br>OUTER STRANDS | SPLICEABLE<br>PRE-SPLICED<br>PRE-SEWN |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | EZ Bend 12.5 | 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 | - |
| | Isostatic 13 | 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 | - |
| | Mercury CE | SAMSON ROPE | | £3.00<br>$3.75<br>$1.15<br>€3.50 | 11mm<br>7/16" | 89g<br>6lb | Polyester<br>Nylon | CE A | 8 | 32<br>KM | - |
| | V-24<br>Cool, Hot | SAMSON ROPE | | £3.00<br>$3.75<br>$1.15<br>€3.50 | 11mm<br>7/16" | 85g<br>5.9lb | Polyester<br>Nylon | CE B | - | 24<br>DB | ■<br>■ |
| | Velocity<br>Velocty SD* | SAMSON ROPE | | £3.20<br>$3.95<br>$1.20<br>€3.65 | 11mm<br>7/16" | 83g<br>5.6lb | Polyester<br>Nylon | CE A | 10 | 24<br>DB | - |
| | Predator<br>Predator-X | SAMSON ROPE | | £3.40<br>$4.25<br>$1.35<br>€3.90 | 11mm<br>7/16" | 83.5g<br>5.6lb | Polyester<br>Nylon | - | - | 24<br>DB | ■<br>■ |
|  | HyperStatic | SAMSON ROPE | | £2.70<br>$3.60<br>$1.10<br>€3.30 | 11.3mm<br>7/16" | 106g<br>7.1lb | Polyester<br>Polyester | - | - | 32<br>KM | - |
|  | HyperStatic | SAMSON ROPE | | £2.90<br>$3.65<br>$1.15<br>€3.35 | 11.7mm<br>29/64 | 106g<br>7.1lb | Polyester<br>Polyester | - | - | 32<br>KM | - |
|  | Hyperclimb<br>Hot,Cool | SAMSON ROPE | | £2.70<br>$3.30<br>$1.00<br>€3.10 | 11.7mm<br>29/64" | 97g<br>6.5lb | Polyester<br>Polyester | - | - | 24<br>DB | - |
| | Voyager<br>Voyager SD* | SAMSON ROPE | | £3.65<br>$4.45<br>$1.35<br>€4.00 | 11.8mm<br>15/32" | 97g<br>6.5lb | Polyester<br>Nylon | - | 10 | 24<br>DB | ■<br>■■ |
| | ArborFreak<br>ArborFreak SD* | SAMSON ROPE | | £3.10<br>$3.90<br>$1.20<br>€3.30 | 12mm<br>½" | 115g<br>7.7lb | Polyprop/Polyester<br>Nylon | - | - | 16 | ■<br>■ |
| | V-24<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>■ |
|  | True...<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 | - |
| | Arbor-Plex<br>Ascender | SAMSON ROPE | | £2.10<br>$2.55<br>$0.80<br>€2.35 | 12mm<br>½" | 101g<br>6.88lb | Polyprop/Polyester<br>- | - | - | 12 | - |
| | Ascender | SAMSON ROPE | | £2.65<br>$3.30<br>$1.00<br>€3.05 | 12mm<br>15/32" | 109g<br>7.3lb | Polyester<br>Nylon | - | 10 | 16 | ■<br>■■ |

# ARBORIST CLIMBING ROPES

| SUITABLE FOR | | | MINIMUM BREAKING LOAD/STRENGTH | | | | ELONGATION % | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EYE CAN THREAD THRU HARDWARE | HYBRID HARDWARE | SRT/SRS MRS/DdRT | MBL MINIMUM Break Load Spliced Sewn Knotted | ABL AVERAGE Break Load Spliced Sewn Knotted | SHRINKAGE % | SHEATH SLIPPAGE (MILKING) % | @10% MBS @50-150 kg @300LB/136K @540 lb/245kg | SHEATH % | OTHER COLOURS | NOTES | WWW. |
| | | | - | - | - | - | - | - | | Also in solid black | pmirope.com |
| - | - | ■ | 45.9kN 10319lbf | - | - | 0 | 1.44-2.2% 1.2% | - | | | pmirope.com |
| - | ■ | ■ | 38.25kN 8600lbf | - | - | - | 3.7% | - | | Heat stabilised nylon core | samsonrope.com |
| | ■ | ■ | 28kN 6294lb | - | - | - | 2.9% | - | | CE=Unspliced only | samsonrope.com |
| | ■ | ■ | - | 33kN 7400lb 27kN 6000lb | - | - | 3% | - | | *with DRY treatment to restrict water uptake. | samsonrope.com |
| | ■ | ■ | - | 27kN 6000lb | - | - | 2.1% | - | | | samsonrope.com |
| - | ■ | ■ | 28.5kN 6400lb | - | - | - | 1.2% | - | | Very tough, low stretch rope more suited for rescue or ziplines | samsonrope.com |
| - | ■ | ■ | - | 30.25kN 6800lb | - | - | 1.2% | - | | Very tough, low stretch rope more suited for rescue or ziplines | samsonrope.com |
| - | ■ | ■■ | 32kN 7193lbf | 28.9kN 6500lbf | - | - | 1.6% 1.3% | 50% | | Sold by Bartlett as the green Antidote. | samsonrope.com |
| ■ | ■ | ■ | 43kN 9667lbf | 41.8kN 9400lbf 36kN 8000lbf | - | * | 3% 1.99% | 50% | | Sold by Bartlett as the green BioHazard. *with DRY treatment to restrict water uptake | samsonrope.com |
| - | - | ■■ | | 36.28kN 8157lbf | - | - | 3% | - | | *with DRY treatment to restrict water uptake. Replaced ARBORMASTER | samsonrope.com |
| - | ■ | ■ | 32kN 7193lbf | - | - | - | 2.9% | - | | CE=Unspliced only *there is a slight difference between kg/lb and KN/lbf | samsonrope.com |
| - | - | ■ | 32.5kN 7306lbf | - | - | - | 2.6% | - | | | samsonrope.com |
| - | - | ■ | 32kN 7100lbf | - | - | - | 3% | - | | Ascender has 50% green fleck $1/ft | samsonrope.com |
| - | - | ■■ | - | 29kN 6800lbf | - | - | 2.1% | - | | | samsonrope.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

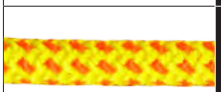
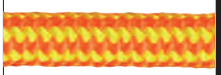
| | MODEL<br>Product Code | COMPANY | ORIGIN | COST<br>per Metre<br>/3.28ft<br>US$ per Foot | Ø<br>mm<br>Inches" | WEIGHT<br>g/m<br>lb/100' | MATERIALS:<br>SHEATH<br>CORE | STANDARDS | NUMBER OF FALLS<br>EASE of TYING<br>Sherrill Rating | SHEATH<br>OUTER STRANDS | SPLICEABLE<br>PRE-SPLICED<br>PRE-SEWN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 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, 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>7/16" | 90g<br>6lb | Polyester<br>Nylon | CE A<br>UIAA | - | KM | ■<br>■ |
| | Cougar LSK | SOUTHERN ROPES | | £1.55<br>$2.00<br>$0.60<br>€1.80 | 11.7mm<br>29/64" | 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>7/16" | 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>7/16" | 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>7/16" | 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>7/16" | 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>7/16" | 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>■ |

# ARBORIST CLIMBING ROPES

| SUITABLE FOR | | | MINIMUM BREAKING LOAD/STRENGTH | | | | ELONGATION % | | | | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EYE CAN THREAD THRU HARDWARE | HYBRID HARDWARE | SRT/SRS MRS/DdRT | MBL MINIMUM Break Load Spliced Sewn Knotted | ABL AVERAGE Break Load Spliced Sewn Knotted | SHRINKAGE % | SHEATH SLIPPAGE (MILKING) % | @10% MBS @50-150 kg @300LB/136K @540 lb/245kg | SHEATH % | OTHER COLOURS | | | |
| - | ■ | ■ | 32kN 7200lbf | - | - | - | | - | | | samsonrope.com | |
| - | - | ■■ | 46kN 10341lbf | 36kN 8000lbf | - | - | 3% | - | | | *with DRY treatment to restrict water uptake | samsonrope.com |
| - | ■ | ■■ | 36kN 8093lbf | - | - | - | 3% | - | | | | samsonrope.com |
| - | ■ | ■ | - | 33kN 7418lbf | - | - | 2.9% | - | | | CE=Unspliced only | samsonrope.com |
| - | ■ | ■ | - | 36.5kN 8200lbf | - | - | 2.1% | - | | | | samsonrope.com |
| - | - | ■■ | 29kN 6520lbf | - | - | - | 1.3% | - | | | | samsonrope.com sherrilltree.com |
| ■ | ■ | ■■ | 30kN 6744lbf 18/15kN 4047/3372lbf | - | 1% | 0.5% | 3% | - | | | | singingrock.com |
| ■ | ■ | ■ | 28kN 6300lbf | - | 1.5% | 0 | <3.0% | - | | | See also ROPE EQPT BUYERS GUIDE for Response LSK ropes | southernropes.com |
| - | ■ | ■ | 30.5kN 6856b | - | - | - | 3.4% 1.9% | - | | | Also available in White with black fleck. Addiction=special colour | sterlingrope.com |
| - | - | ■■ | 36kN 8092lbf | - | - | 0.9% | 3.6% | - | | | | sterlingrope.com |
| - | - | ■ | 37kN 8140lbf 24.1kN 5418lb | - | - | 0.9% | 2.8% 1.9% | - | | | cut-resistant twin sheath- for lanyard climbing/ flip-lines rather than full length climbing rope. *approx | sterlingrope.com |
| ■ | ■ | ■■ | 30kN 6744lbf 25.5kN 5732lbf | - | 3.8% | 0.3% | 3.8% 1.5% 4% | - | | | | sterlingrope.com |
| - | ■ | ■■ | 45kN 10116lbf | - | - | - | 2.2% | - | | | *white rope= less 8% | sterlingrope.com |
| - | - | ■ | 40.4kN 9081lb | - | - | - | 2.6% 1.1% | - | | | *white rope= less 8% | sterlingrope.com |
| - | ■ | ●■ | 40.1kN 9014lbf | - | - | - | 3.6% | - | | | Cut & heat resistant | sterlingrope.com |
| ■ | ■ | ■■ | 32kN 7193lbf 27.2kN 5732lbf | - | - | 0.5% | 4.2% 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 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 | SPLICEABLE<br>PRE-SPLICED<br>PRE-SEWN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **ACR-24**<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>■ |
| | **ACR-16**<br>Scorpius, Utility | **STEIN** | | £5.45<br>$6.75<br>$2.05<br>€6.35 | 12.4mm<br>½" | 98g*<br>6.6lb | Polyester<br>Polyester | CE A | - | 16<br>KM | ■<br>■ |
|  | **Timber Evo** | **TENDON (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>■ |
|  | **Timber Evo** | **TENDON (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>■ |
| | **Timber Evo** | **TENDON (LANEX)** | | £3.80<br>$4.85<br>$1.50<br>€4.40 | 12.5mm<br>½" | 104g<br>7 lb | Polyester<br>Nylon | CE A | - | 24<br>DB | ■ |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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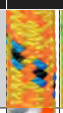
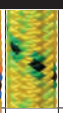
# ARBORIST CLIMBING ROPES

| SUITABLE FOR | | | MINIMUM BREAKING LOAD/STRENGTH | | | | ELONGATION % | | | | | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EYE CAN THREAD THRU HARDWARE | HYBRID HARDWARE | SRT/SRS MRS/DdRT | MBL MINIMUM Break Load Spliced Sewn Knotted | ABL AVERAGE Break Load Spliced Sewn Knotted | SHRINKAGE % | SHEATH SLIPPAGE (MILKING) % | @10% MBS @50-150 kg @300LB/136K @540 lb/245kg | SHEATH % | OTHER COLOURS | | | | |
| ■ | ■ | ■■ | >22kN 4946lbf 15/15kN 3372/3372lbf | - | - | - | - | - |  |  | | MBL Sewn= 15kN 3372lbf | steinworldwide.com |
| ■ | - | ■ | 25kN 5620lbf 15/15kN 3372/3372lbf | - | - | - | - | - | | | | * 12.4mm 16 braid =same wt as 11.7mm 24DB MBL Sewn= 15kN 3372lbf | steinworldwide.com |
| - | - | ■■ | 30kN 6744lbf | 18kN 4047lbf | 0.7% | 0 | 3.1% | 57% | | | | Embedded RFID chip | mytendon.com |
| - | ■ | ■■ | 30kN 6744lbf | 18kN 4047lbf | 1% | - | 3% | 54% | | | | Evo replaced the original 'Timber green' Embedded RFID chip | mytendon.com |
| - | - | ■■ | 39kN 8598lbf | 22kN 4946lbf | 0.6% | 0 | 3% | 48% | | | | Embedded RFID chip | mytendon.com |
| | | | | | | | | | | | | | expansion row |
| | | | | | | | | | | | | | expansion row |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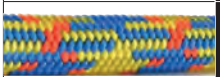
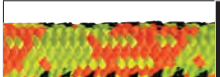
**IMAGES NOT TO SCALE**
**COST**: excludes eyes unless specified in NOTES.
INCLUDES local taxes/VAT.
£$€=Currency Conversion
If not sold by m/ft, price is shortest length x10% & rounded up.

●=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 | SPLICEABLE<br>PRE-SPLICED<br>PRE-SEWN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **KMIII**<br>**KMII Max** | 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 | |
| | **Platinum**<br>**Arbor Access** | 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 | ■ |
| | **Chameleon** | 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 | - |
| | **Chameleon** | 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 | - |
| | **Patron Tree Access** | 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 | |
| | **KMIII**<br>**KMII Max** | 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 | |
| | **Fly**<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>■■ |
| | **Tachyon**<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>■ |
| | **Xstatic** | 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 | ■ |
|  | **drenaLINE*** | 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 | ■ |
| | **Arbor Elite** | TEUFELBERGER | | £3.90<br>$5.00<br>$1.55<br>€4.55 | 12.7mm<br>½" | 105.6g<br>7.1lb | Polyester<br>Nylon | CE A | 0.56 | 16 | - |
| | **Braided Safety Blue**<br>Ultra Vee, Hi Vee,<br>T-Vee, White | TEUFELBERGER | | £4.35<br>$5.80<br>$1.80<br>€5.30 | 12.7mm<br>½" | 105.6g<br>7.1lb | Polyester<br>Nylon | ANSI | 0.56<br>10 | 16 | ■ |
| | **KMIII**<br>**KMII Max** | TEUFELBERGER<br>/MAXIM | | £4.50<br>$5.55<br>$1.75*<br>€5.10 | 12.7/13mm<br>½" | 117.5g<br>7.9lb | Polyester<br>Nylon | CE A<br>NFPA | - | 32<br>KM | - |
|  | **Nebula/**<br>**Liana** | 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 | ■ |
| | **Static Climbing** | 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 | - |
| | **Safe +** | 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 | | | | ELONGATION % | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EYE CAN THREAD THRU HARDWARE | HYBRID HARDWARE | SRT/SRS MRS/DdRT | MBL MINIMUM Break Load Spliced Sewn Knotted | ABL AVERAGE Break Load Spliced Sewn Knotted | SHRINKAGE % | SHEATH SLIPPAGE (MILKING) % | @10% MBS @50-150 kg @300LB/136K @540 lb/245kg | SHEATH % | OTHER COLOURS | NOTES | WWW. |
| - | - | ■ | 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>5800lb<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 |

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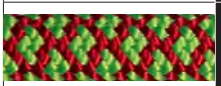
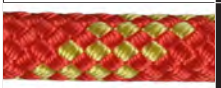
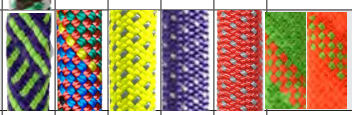
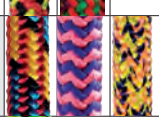
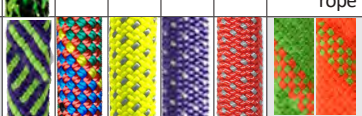
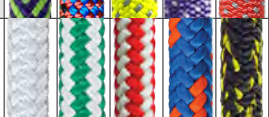
If not sold by m/ft, price is shortest length x10% & rounded up.

●=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 | SPLICEABLE<br>PRE-SPLICED<br>PRE-SEWN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **SafeVision** | TREERUNNER (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 | ■ |
|  | **Picus** | TREERUNNER (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 | ■ |
|  | **Static Climbing** | TREERUNNER (GRUBE) | | £3.00<br>$3.75<br>$1.20<br>€3.40 | 12mm<br>½" | 80g<br>5.4lb | Polyester<br>Nylon | CE A | | 32<br>KM | - |
| | **Climbing** | TREERUNNER (GRUBE) | | £4.25<br>$5.40<br>$1.70<br>€4.85 | 12mm<br>½" | 117g<br>7.8lb | Polyester<br>Nylon | CE A | | 24<br>DB | ■ |
| | **XTC-48**<br>R.I.N.G. | YALE 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 | ■ |
| | **XTC-24-CE**<br>Blaze, Bandit | YALE 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 | ■<br>■ |
| | **XTC-48**<br>Kernmaster Phantom x2, Explore, Scandere x3 | YALE 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 | ■<br>■ |
| | **XTC-48**<br>BiFrost | YALE CORDAGE | | £3.10<br>$3.85<br>$1.20<br>€3.55 | 11mm<br>7/16" | 90g<br>6.lb | Polyester<br>Polyester | ANSI | | 48<br>KM | ■ |
| | **XTC-48**<br>R.I.N.G. | YALE 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 | ■ |
| | **XTC-24**<br>Xylem, ArborMax Gator/Flame | YALE 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 | ■<br>■ |
| | **XTC-24**<br>Blue Moon,Focus, Prism, Arrow Frog, | YALE 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 | ■<br>■ |
| | **XTC-24-CE**<br>Sunburst, , BlueTongue, Calamine, Energize | YALE 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 | ■<br>■ |
| | **XTC-24-CE**<br>Imori | YALE CORDAGE | | £3.10<br>$3.90<br>$1.20<br>€4.00 | 12mm<br>½" | 105g<br>7lb | Polyester<br>Nylon | CE A<br>ANSI | | 24<br>DB | ■<br>■ |
| | **XTC-48**<br>Kernmaster Phantom x2, Explore, Scandere x3 | YALE CORDAGE | | £4.50<br>$4.50<br>$1.40<br>€5.20 | 13mm<br>½" | 113g<br>7.6lb | Polyester<br>Nylon | CE A<br>ANSI | | 48<br>KM | ■<br>■ |
| | **XTC-16**<br>Fire, Spearmint, Plus Poseidon, Salamander | YALE CORDAGE | | £3.00<br>$3.75<br>$1.15<br>€4.05 | 13mm<br>½" | 112g<br>7.5lb | Polyester<br>Nylon | CE A<br>ANSI | 10 | 16 | ■<br>■ |
| | **XTC-12**<br>**Buzzline** | YALE CORDAGE | | £2.10<br>$2.60<br>$0.80<br>€2.40 | 13mm<br>½" | 100g<br>6.7lb<br>123g<br>8lb | Polyester | CE B<br>ANSI | 8 | 12 | ■ |

# ARBORIST CLIMBING ROPES

| SUITABLE FOR | | | MINIMUM BREAKING LOAD/STRENGTH | | | | ELONGATION % | | | | | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EYE CAN THREAD THRU HARDWARE | HYBRID HARDWARE | SRT/SRS MRS/DdRT | MBL MINIMUM Break Load Spliced Sewn Knotted | ABL AVERAGE Break Load Spliced Sewn Knotted | SHRINKAGE % | SHEATH SLIPPAGE (MILKING) % | @10% MBS @50-150 kg @300LB/136K @540 lb/245kg | SHEATH % | OTHER COLOURS | | | | |
| - | ■ | ■ | 37kN 8318lbf 22kN 4946lbf | | 2.5% | | 2.5% | 54% | | | | | grube.de |
| ■ | ■ | ■■ | 35kN 7868lbf 18/16.5kN 4047/3709lbf | | <5% | | 2.3% 2.3% | 58% | | | | | grube.de |
| - | ■ | ■ | 39kN 8767lbf | | | | 2.8% | | | | | | grube.de |
| ■ | ■ | ■■ | 34.5kN 7755lbf | | | | 2% | | | | | Tornado discontinued | grube.de |
| - | ■ | ■ | 30kN 6730lbf | | | | 2.4% | | | | | Red inner braid highlights wear through the outer sheath | yalecordage.com |
| - | ■ | ■ | | 25kN 5600lbf | | | 2.2% | | | | | CE = slightly more elongation than ANSI so better suited to MRS than SRS | yalecordage.com |
| - | ■ | ■ | | 31.6kN 7104lbf | | | 3% | |  | | | Scandere uses higher tenacity sheath | yalecordage.com |
| - | ■ | ■ | | 30kN 6760lbf | | | 1.5% | | | | | | yalecordage.com |
| - | ■ | ■ | | 30kN 6730lbf | | | 2.4% | | | | | Red inner braid highlights wear through the outer sheath | yalecordage.com |
| - | ■ | ■■ | | 29.5kN 6600lbf | - | 0 | 1.4% | - | | | | ANSI versions of XTC. Xylem for Pacific NW region. Arbormax Gator/ Flame unique to Baileys. | yalecordage.com |
| - | ■ | ■■ | | 29.5kN 6600lbf | - | 0 | 1.4% | - | | | | ANSI versions of XTC. Arbormax Gator/Flame unique to Baileys. | yalecordage.com |
| - | ■ | ■■ | | 29.5kN 6600lbf | - | | 1.4% | - |  | | | CE version of XTC Hedera, Poison Ivy, Poison Hivy, , Neon Ivy discontinued | yalecordage.com |
| - | ■ | ■ | | 28kN 6200lbf | | | 2% | | | | | CE =slightly more elongation than ANSI . Texturised surface makes rope feel larger | yalecordage.com |
| ■ | - | ■ | 36kN 7920lbf | 40kN 8800lbf | | | 3% | |  | | | Scandere uses higher tenacity sheath | yalecordage.com |
| - | - | ■ | | 28kN 6200lbf | | | 1.4% | |  | | | Fire, Posoidon & Salamander around 10% dearer eg.€4.40 | yalecordage.com |
| - | - | ■ | | 26.7kN 6000lbf 33kN 7400lbf | | | 1.5% | | | | | Single (hollow) braid with no core | yalecordage.com |

UPDATED Jul '25

# 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", 9/16" 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'. FF0 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

# RIGGING ROPES

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.

**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 = 2500 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 134% or

- 3400 x 1.34 = 4,556 lbs.

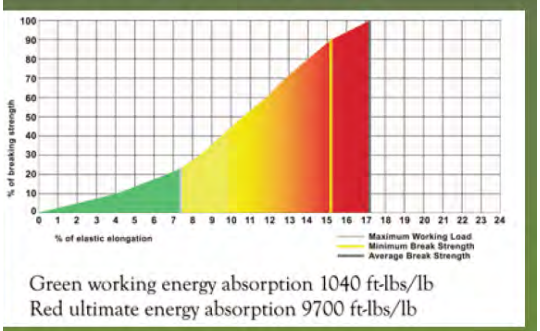
To illustrate the importance of energy capacity of ropes we will take a look at using a high energy absorption line.

**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.

**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 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"-½"). Rigging rope on the other hand can be anything from 5mm 3⁄16" to 64+mm 2½". Most arborists choose a general rigging rope of moderate diameter - 12, 13 or 14mm (½"-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≤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.

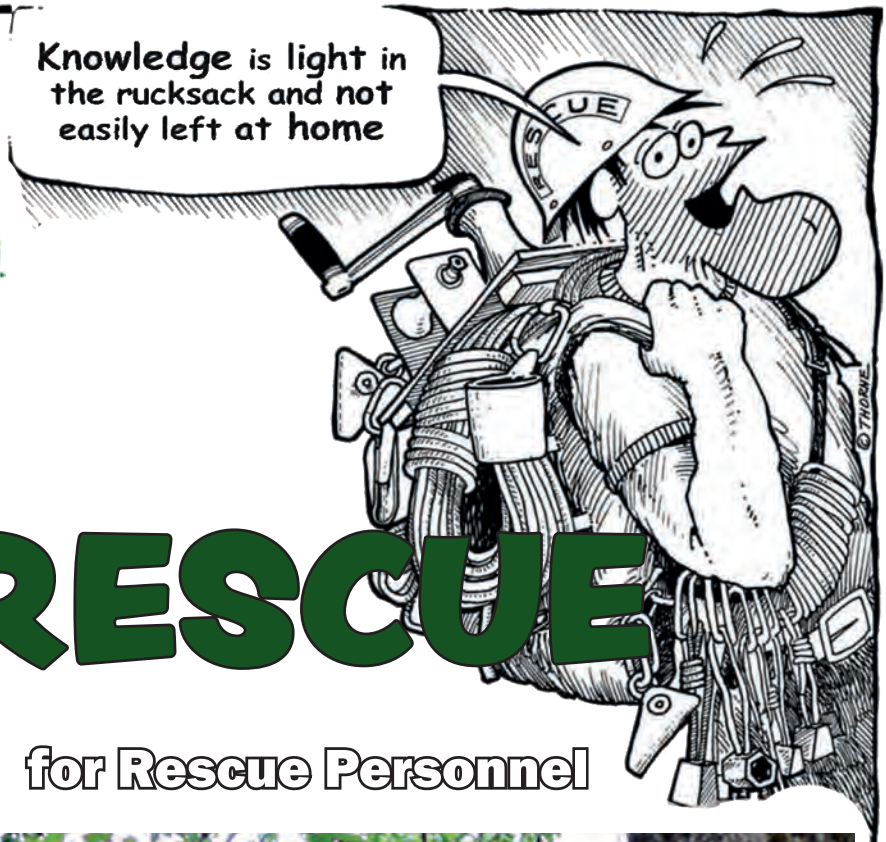
**MBL** is Minimum Breaking Load (or MBS -Minimum Breaking Strength). For lowering ropes that are going to be subjected to shock loading, the units of force KiloNewtons (roughly 1kN to 100kg and LB-Force (same as LBs) are more appropriate but for ease of calculations you can still simply think of them 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.



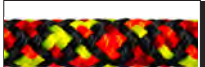
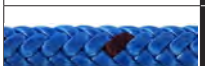

COMPREHENSIVE

# 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

| Images NOT to Scale ~ = Approximate £$€ = Currency Conversion Cost exc eyes, inc VAT/Tax DB=Double Braid, KM=KernMantle/Single Braid HB=Hollow Braid DS=Double Strand □=Option. ●=OK but not ideal | MODEL & Ø VARIANT | COMPANY | ORIGIN | COST per Metre /3.28ft US$ per Foot Currency conversion only | Ø mm Inches" | Other Ø in series | WEIGHT g/m lb/100' | CONSTRUCTION MATERIALS: SHEATH CORE |
|---|---|---|---|---|---|---|---|---|
| | Husky .5 | ALLGEAR | | £3.10 $3.70 $1.15 €3.70 | 13mm ½" | - | 127g 8.5lb | Polyester Nylon |
| | Husky I | ALLGEAR | | £4.00 $4.60 $1.45 €4.70 | 14mm 9/16" | - | 164g 11lb | Polyester Nylon |
| | Husky II | ALLGEAR | | £5.00 $5.20 $1.65 €5.50 | 16mm ⅝" | - | 209g 14lb | Polyester Nylon |
| | Husky III | ALLGEAR | | £6.00 $6.55 $2.00 €7.00 | 19mm ¾" | - | 246g 16.5lb | Polyester Nylon |
| | Husky IV | ALLGEAR | | £8.50 $10.40 $3.20 €10.30 | 22mm ⅞" | - | 395g 26.5lb | Polyester Nylon |
| | Husky V | ALLGEAR | | £9.75 $11.60 $3.60 €12.00 | 25mm 1" | - | 574g 38.5lb | Polyester Nylon |
| | Husky Multi-Pro Raging Blue | ALLGEAR | | £3.60 $4.50 $1.40 €4.30 | 13mm ½" | - | 127g 8.5lb | Polyester Nylon |
|  | Husky Multi-Pro Raging Red | ALLGEAR | | £5.40 $6.50 $2.05 €6.30 | 16mm ⅝" | - | 188g 12.6lb | Polyester Nylon |
| | Husky Multi-Pro Raging Orange | ALLGEAR | | £6.55 $8.50 $2.65 €7.90 | 19mm ¾" | - | 209g 14lb | Polyester Nylon |
| | Forestry Pro | ALLGEAR | | £2.90 $3.60 $1.10 €3.40 | 13mm ½" | - | 87g 5.8lb | Polyester Polyester |
| | Forestry Pro | ALLGEAR | | £3.15 $3.90 $1.20 €3.70 | 16mm ⅝" | - | 177g 11.85lb | Polyester Polyester |
| | Forestry Pro | ALLGEAR | | £4.70 $5.85 $1.80 €5.50 | 19mm ¾" | - | 239g 16lb | Polyester Polyester |
|  | Wonder Rope | ALLGEAR | | £2.60 $3.25 $1.00 €3.00 | 12.7 ½" | - | 91g 6.1lb | Polyester Polyester |
| | Wonder Rope | ALLGEAR | | £3.90 $4.90 $1.50 €4.55 | 16mm ⅝" | - | 177g 11.9lb | Polyester Polyester |
| | PRO FORCE | ALL GEAR | | £6.05 $7.65 $2.35 €7.10 | 13mm ½" | - | 112g 7.5lb | Polyester HMPE |
| | PRO FORCE | ALL GEAR | | £7.10 $9.00 $2.75 €8.35 | 14mm 9/16" | - | 157g 10.5lb | Polyester HMPE |
| | PRO FORCE | ALL GEAR | | £12.00 $15.00 $4.60 €14.00 | 16mm ⅝" | - | 194g 13lb | Polyester HMPE |

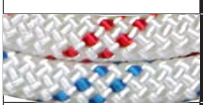
# ARBORIST RIGGING ROPES

| ON | | | | SUITABLE FOR | | | | MINIMUM/AVERAGE BREAKING LOAD/STRENGTH | | | ELONGATION | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TREATED FIBRES BONDED SHEATH | SHEATH BRAID /PLAIT | LIFE SUPPORT STAND-ARDS (only for multi-role ropes) | HAND SPLICEABLE PRE-SPLICED PRE-SEWN | CLIMBING | LOWERING | IMPACT LOWER | STATIC RIGGING | MBL Minimum Break Load Spliced Sewn | ABL Average Break Load Spliced Sewn | WLL Spliced Sewn *Average | @10% MBS @30% MBS @50%MBS @300lbf/136kg @540 lbf/245kg | OTHER COLOURS | | NOTES | WWW. |
| ■ | DB | | ■■ | - | ■ | ■ | ● | | 46.7kN 10500lbf | 2100lb 1890lb | 7% | | | | allgearinc.com |
| ■ | DB | | ■■ | - | ■ | ■ | ● | | 62.2kN 14000lbf | 2800lb 2520lb | 7% | | | | allgearinc.com |
| ■ | DB | | ■■ | - | ■ | ■ | ● | | 86kN 19500lbf | 3900lb 3510lb | 7% | | | | allgearinc.com |
| ■ | DB | | ■■ | - | ■ | ■ | ● | | 102kN 23000lbf | 4600lb 4140lb | 7% | | | | allgearinc.com |
| ■ | DB | | ■■ | - | ■ | ■ | ● | | 142kN 32000lbf | 6400lb 5760lb | 7% | | | | allgearinc.com |
| ■ | DB | | ■■ | - | ■ | ■ | ● | | 169kN 38000lbf | 7600lb 6840lb | 7% | | | | allgearinc.com |
| ■ | DB | | ■■ | - | ■ | ■ | ● | | 46kN 10500lbf | 2100lb 1890lb | 7% | | | | allgearinc.com |
| ■ | DB | | ■■ | - | ■ | ■ | ● | | 86kN 19500lbf | 3900lb 3510lb | 7% | | | | allgearinc.com |
| ■ | DB | | ■■ | - | ■ | ■ | ● | | 102kN 23000lbf | 4600lb 4140lb | 7% | | | | allgearinc.com |
| - | 12 KM | | | ■ | ■ | ■ | ■ | | 32kN 7300lbf | | | | | red/ylw version still sold by some stockists | allgearinc.com |
| - | 12 KM | | | - | ■ | ■ | ■ | | 48kN 11000lbf | | | | | | allgearinc.com |
| - | 12 KM | | | - | ■ | ■ | ■ | | 80kN 18000lbf | | | | | | allgearinc.com |
| ■ | 12 KM | | ■ | - | ■ | ■ | ■ | | 32kN 7300lbf | | | | | | allgearinc.com |
| ■ | 12 KM | | ■ | - | ■ | ■ | ■ | | 48kN 11000lbf | | | | | | allgearinc.com |
| ■ | DB | | ■ | - | ■ | - | ■ | | 82kN 18500lbf | 3700lb 3300lb | 0.5% 1% | | | | allgearinc.com |
| ■ | DB | | ■ | - | ■ | - | ■ | | 95kN 21500lbf | 4300lb 3870lb | 0.5% 1% | | | | allgearinc.com |
| ■ | DB | | ■ | - | ■ | - | ■ | | 137kN 31000lbf | 6200lb 5580lb | 0.5% 1% | | | | allgearinc.com |
| | | | | | | | | | | | | | | | expansion Row |

| Images NOT to Scale<br>~ = Approximate<br>£$€ = Currency Conversion<br>Cost exc eyes, inc VAT/Tax<br>DB=Double Braid,<br>KM=KernMantle/Single Braid<br>HB=Hollow Braid<br>DS=Double Strand<br>□=Option.<br>●=OK but not ideal | MODEL & Ø<br>VARIANT | COMPANY | ORIGIN | COST<br>per Metre<br>/3.28ft<br>US$ per Foot<br>Currency conversion only | Ø<br>mm<br>Inches" | Other<br>Ø<br>in series | WEIGHT<br>g/m<br>lb/100' | CONSTRUCTI<br>MATERIALS:<br>SHEATH<br>CORE |
|---|---|---|---|---|---|---|---|---|
| | Husky-12 Multi Pro 9.5 | ALL GEAR | | £5.70 $7.20 $2.20 €6.65 | 9.5mm<br>⅜" | - | 120g<br>8lb | Polyester<br>- |
| | Husky-12 Multi Pro 13 | ALL GEAR | | £6.75 $8.50 $2.60 €7.80 | 13mm<br>½" | - | 120g<br>8lb | Polyester<br>- |
| | Husky-12 Multi Pro 16 | ALL GEAR | | £8.40 $10.60 $3.25 €9.75 | 16mm<br>⅝" | - | 228g<br>15.3lb | Polyester<br>- |
| | Husky-12 Multi Pro 19 | ALL GEAR | | £14.25 $18.00 $5.50 €17.00 | 19mm<br>¾" | - | 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>⅜" | - | 70g<br>4.7lb | Polyester<br>- |
| | Husky-12 13 | ALL GEAR | | £3.00 $3.70 $1.15 €3.40 | 13mm<br>½" | - | 120g<br>8lb | Polyester<br>- |
| | Husky-12 16 | ALL GEAR | | £4.40 $5.50 $1.70 €5.05 | 16mm<br>⅝" | - | 209g<br>14lb | Polyester<br>- |
| | Husky-12 19 | ALL GEAR | | £5.75 $7.00 $2.15 €6.45 | 19mm<br>¾" | - | 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>½" | - | 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>⅝" | - | 200g<br>13.5lb | Polyester<br>Polyester |
| | AB-Double (Barb) 19 | ATLANTIC BRAIDS | | £5.15 $6.50 $2.00 €6.00 | 19mm<br>¾" | - | 260g<br>17.8lb | Polyester<br>Polyester |
| | AB-Double (Barb) 22 | ATLANTIC BRAIDS | | £7.75 $9.80 $3.00 €9.00 | 22mm<br>⅞" | - | 390g<br>26lb | Polyester<br>Polyester |
| | AB-Double Nylon 13 | ATLANTIC BRAIDS | | N/A | 13mm<br>½" | 18 sizes<br>6.5-64mm<br>¼-2½" | 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>¼-2½" | 142g<br>9.5lb | Nylon<br>Nylon |
| | AB-Double Nylon 16 | ATLANTIC BRAIDS | | N/A | 16mm<br>⅝" | 18 sizes<br>6.5-64mm<br>¼-2½" | 180g<br>12lb | Nylon<br>Nylon |

# ARBORIST RIGGING ROPES

| ON | | | | SUITABLE FOR | | | | MINIMUM/AVERAGE BREAKING LOAD/STRENGTH | | | ELONGATION | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TREATED FIBRES BONDED SHEATH | SHEATH BRAID /PLAIT | LIFE SUPPORT STANDARDS (only for multi-role ropes) | HAND SPLICEABLE PRE-SPLICED PRE-SEWN | CLIMBING | LOWERING | IMPACT LOWER | STATIC RIGGING | MBL Minimum Break Load Spliced Sewn | ABL Average Break Load Spliced Sewn | WLL Spliced Sewn *Average | @10% MBS @30% MBS @50%MBS @300lbf/136kg @540 lbf/245kg | OTHER COLOURS | | NOTES | WWW. |
| ■ | 12 HB | | ■■ | - | ■ | ■ | ■ | | 26.7kN 6000lbf | - | 4% | | | | allgearinc.com |
| ■ | 12 HB | | ■■ | - | ■ | ■ | ■ | | 49kN 11000lbf | - | 4% | | | | allgearinc.com |
| ■ | 12 HB | | ■■ | - | ■ | ■ | ■ | | 71.2kN 16000lbf | - | 4% | | | | allgearinc.com |
| ■ | 12 HB | | ■■ | - | ■ | ■ | ■ | | 93.4kN 21000lbf | - | 4% | | | | allgearinc.com |
| ■ | 12 HB | | ■■ | - | ■ | ■ | ■ | | 142kN 32000lbf | - | 4% | | | | allgearinc.com |
| ■ | 12 HB | | ■ | - | ■ | ■ | - | | 26.7kN 6000lbf | - | 7% | | | Used mainly for various types of slings | allgearinc.com |
| ■ | 12 HB | | ■ | - | ■ | ■ | - | | 49kN 11000lbf | - | 7% | | | Used mainly for various types of slings | allgearinc.com |
| ■ | 12 HB | | ■ | - | ■ | ■ | - | | 71kN 16000lbf | - | 7% | | | Used mainly for various types of slings | allgearinc.com |
| ■ | 12 HB | | ■ | - | ■ | ■ | - | | 93.4kN 21000lbf | - | 7% | | | Used mainly for various types of slings | allgearinc.com |
| ■ | 12 HB | | ■ | - | ■ | ■ | - | 32.9kN 7399lbf | 178kN 40000lbf | - | 7% | | | Used mainly for various types of slings | allgearinc.com |
| □ | DB | | ■ | - | ■ | - | ■ | 40.5kN 9095lbf | 47.6 kN 10700lbf | - | | | | | atlanticbraids.com |
| □ | DB | | ■ | - | ■ | - | ■ | 50.3 kN 11300lbf | 59.2 kN 13300lbf | - | | | | | atlanticbraids.com |
| □ | DB | | ■ | - | ■ | - | ■ | 70kN 15725lbf | 82.3kN 18500lbf | - | | | | | atlanticbraids.com |
| □ | DB | | ■ | - | ■ | - | ■ | 76.4kN 17170lbf | 89.9kN 20200lbf | - | | | | | atlanticbraids.com |
| □ | DB | | ■ | - | ■ | - | ■ | 109.3kN 24565lbf | 128.6kN 28900lbf | - | | | | | atlanticbraids.com |
| □ | DB | | ■ | | ■ | ■ | | | 36.9kN 8300lbf | - | | | | Yellow fleck | atlanticbraids.com |
| □ | DB | | ■ | | ■ | ■ | | | 52kN 11700lbf | - | | | | Yellow fleck | atlanticbraids.com |
| □ | DB | | ■ | | ■ | ■ | | | 67.6kN 15200lbf | - | | | | Yellow fleck | atlanticbraids.com |

| Images NOT to Scale ~ = Approximate £$€ = Currency Conversion Cost exc eyes, inc VAT/Tax DB=Double Braid, KM=KernMantle/Single Braid HB=Hollow Braid DS=Double Strand □=Option. ●=OK but not ideal | MODEL & Ø VARIANT | COMPANY | ORIGIN | COST per Metre /3.28ft US$ per Foot Currency conversion only | Ø mm Inches" | Other Ø in series | WEIGHT g/m lb/100' | CONSTRUCT MATERIALS: SHEATH CORE |
|---|---|---|---|---|---|---|---|---|
| | AB-Double Nylon 19 | ATLANTIC BRAIDS | | N/A | 19mm ¾" | 18 sizes 6.5-64mm ¼-2½" | 202g 13.6lb | Nylon Nylon |
| | AB-Double Poly 13 | ATLANTIC BRAIDS | | N/A | 13mm ½" | 19 sizes 5-64mm ¼-2½" | 128g 8.6lb | Polyester Polyester |
| | AB-Double Poly 14 | ATLANTIC BRAIDS | | N/A | 14mm 9/16" | 19 sizes 5-64mm ¼-2½" | 155g 11lb | Polyester Polyester |
| | AB-Double Poly 16 | ATLANTIC BRAIDS | | N/A | 16mm ⅝" | 19 sizes 5-64mm ¼-2½" | 207g 13.9lb | Polyester Polyester |
| | AB-Double Poly 19 | ATLANTIC BRAIDS | | N/A | 19mm ¾" | 19 sizes 5-64mm ¼-2½" | 260g 17.8lb | Polyester Polyester |
| | Bonsai 13 BCSE13 | BEAL | | £3.95 $5.20 $1.60 €4.70 | 13mm ½" | - | 98g 6.6lb | Nylon Nylon |
| | BWII+ 13 | BLUEWATER ROPES | | £3.95 $4.85 $1.50 €4.55 | 13mm ½" | 5 sizes 8-13mm 5/16-½" | 124g 9.1lb | Polyester Nylon |
|  | Safeline 12.5 | BLUEWATER ROPES | | £4.45 $5.45 $1.70 €5.15 | 12.5mm ½" | 4 sizes 9-15.5mm ⅜-⅝" | 108g 8.2lb | Polyester Nylon |
| | Safeline 15.5 | BLUEWATER ROPES | | £6.25 $7.70 $2.45 €7.25 | 15.5mm ⅝" | 4 sizes 9-15.5mm ⅜-⅝" | 164g 12.02lb | Polyester Nylon |
| | Power Pull 12 | BUCCANEER ROPE CO | | n/a | 12mm ½" | - | 119g 8lb | Polyester Polyester |
| | Power Pull 14 | BUCCANEER ROPE CO | | £3.15 $4.00 $1.25 €3.65 | 14mm 9/16" | - | 157g 10.5lb | Polyester Polyester |
| | Power Pull 16 | BUCCANEER ROPE CO | | £3.95 $5.00 $1.55 €4.50 | 16mm ⅝" | - | 201g 13.5lb | Polyester Polyester |
| | Power Pull 18 | BUCCANEER ROPE CO | | n/a | 18mm ¾" | | 276g 18.5lb | Polyester Polyester |
| | Tiger 12 | BUCCANEER ROPE CO | | n/a | 12mm ½" | 8 sizes 6-25mm ¼-1" | 119g 8lb | Polyester Polyester |
| | Tiger 14 | BUCCANEER ROPE CO | | n/a | 14mm 9/16" | 8 sizes 6-25mm ¼-1" | 151g 10.1lb | Polyester Polyester |
| | Tiger 16 | BUCCANEER ROPE CO | | n/a | 16mm ⅝" | 8 sizes 6-25mm ¼-1" | 188g 12.6lb | Polyester Polyester |
| | Tiger 18 | BUCCANEER ROPE CO | | n/a | 18mm ¾" | 8 sizes 6-25mm ¼-1" | 268g 18lb | Polyester Polyester |

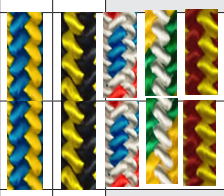
# ARBORIST RIGGING ROPES

| ION | | | | SUITABLE FOR | | | | MINIMUM/AVERAGE BREAKING LOAD/STRENGTH | | | ELONGATION | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TREATED FIBRES BONDED SHEATH | SHEATH BRAID /PLAIT | LIFE SUPPORT STAND-ARDS (only for multi-role ropes) | HAND SPLICEABLE PRE-SPLICED PRE-SEWN | CLIMBING | LOWERING | IMPACT LOWER | STATIC RIGGING | MBL Minimum Break Load Spliced Sewn | ABL Average Break Load Spliced Sewn | WLL Spliced Sewn *Average | @10% MBS @30% MBS @50%MBS @300lbf/136kg @540 lbf/245kg | OTHER COLOURS | | NOTES | WWW. |
| □ | DB | | ■ | - | ■ | ■ | - | | 101.8kN 22890lbf | - | | | | Yellow fleck | atlanticbraids.com |
| □ | DB | | ■ | - | ■ | - | ■ | 44kN 10000lbf | 52kN 11750lbf | - | | | | Green fleck | atlanticbraids.com |
| □ | DB | | ■ | - | ■ | - | ■ | | 59kN 13293lbf | - | | | | Green fleck | atlanticbraids.com |
| □ | DB | | ■ | - | ■ | - | ■ | 69kN 15725lbf | 82kN 18500lbf | | | | | Green fleck | atlanticbraids.com |
| □ | DB | | ■ | - | ■ | - | ■ | 76kN 17170lbf | 89kN 20200lbf | | | | | Green fleck | atlanticbraids.com |
| | KM | CE-A | ■ | ■ | ■ | ■ | ■ | 34kN 6743lbf | | 25kN 5620lbf | 4.2% | | | | beal-planet.com |
| | 32 KM | CE A NFPA | ■ | ● | ■ | - | ■ | 44.4kN 9983lbf | | | 3.9% | | | | bluewaterropes.com |
| | 16 KM | CE A NFPA ANSI UIAA | ■ | ● | ■ | - | ■ | 44.4kN 9983lbf | | | 2.2% | | | White rope is slightly cheaper | bluewaterropes.com |
| | 16 KM | NFPA | ■ | ● | ■ | - | ■ | 58.9kN 13237lbf | | | 1.6% | | | | bluewaterropes.com |
| ■ | DB | | ■ | ● | ■ | ● | ■ | - | 43.6kN 9800lbf | | | | | | bucrope.com |
| ■ | DB | | ■ | ● | ■ | ● | ■ | - | 57.8kN 13000lbf | | | | | | bucrope.com |
| ■ | DB | | ■ | ● | ■ | ● | ■ | - | 73.8kN 16600lbf | | | | | | bucrope.com |
| ■ | DB | | | ● | ■ | ● | ■ | - | 82.3kN 18500lbf | | | | | | bucrope.com |
| | | | ■■ | - | ■ | ■ | ■ | - | 44.5kN 10000lbf | | | | | | bucrope.com |
| | | | ■■ | - | ■ | ■ | ■ | - | 66.7kN 15000lbf | | | | | very difficult to find any Buccaneer ropes. stocked by very few arb stores | bucrope.com |
| | | | ■■ | - | ■ | ■ | ■ | - | 80kN 18000lbf | | | | | | bucrope.com |
| | | CE | ■■ | - | ■ | ■ | ■ | - | 106.7kN 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

| | MODEL & Ø VARIANT | COMPANY | ORIGIN | COST per Metre /3.28ft US$ per Foot Currency conversion only | Ø mm Inches" | Other Ø in series | WEIGHT g/m lb/100' | CONSTRUCTION MATERIALS: SHEATH CORE |
|---|---|---|---|---|---|---|---|---|
| | Tiger Plus 12 | BUCCANEER ROPE CO | | n/a | 12mm ½" | 10 sizes 6-30mm ¼-1¼" | 119g 8lb | Polyester HMPE |
| | Tiger Plus 14 | BUCCANEER ROPE CO | | n/a | 14mm 9/16" | 10 sizes 6-30mm ¼-1¼" | 151g 10.1lb | Polyester HMPE |
| | Tiger Plus 16 | BUCCANEER ROPE CO | | n/a | 16mm ⅝" | 10 sizes 6-30mm ¼-1¼" | 188g 12.6lb | Polyester HMPE |
| | Tiger Plus 18 | BUCCANEER ROPE CO | | n/a | 18mm ¾" | 10 sizes 6-30mm ¼-1¼" | 268g 18lb | Polyester HMPE |
| | Arbor Boss 16 12 | BUCCANEER ROPE CO | | £2.00 $2.50 $0.75 €2.30 | 12mm ½" | - | 112g 7.5lb | Polyester Polyester |
| | Arbor Boss 16 16 | BUCCANEER ROPE CO | | n/a | 16mm ⅝" | - | 161g 10.8lb | Polyester Polyester |
| | Bulwark SafetyX Semi-Static | COASTLINE CORDAGE | | n/a | 12.5mm ½" | 4 sizes 8- 12.5mm 5/16 -½" | 98g 6.7lb | Polyester Nylon |
| | Bulwark SafetyX Static | COASTLINE CORDAGE | | n/a | 12.5mm ½" | 3 sizes 9.5- 12.5mm ⅜ -½" | 112g 6.6lb | Polyester Polyester |
| | Cortex 12 790 | COUSIN-TRESTEC | | £2.95 $3.55 $1.10 €3.30 | 12mm ½" | - | 108g 7.2lb | Polyester Polyester |
| | Cortex 14 790 | COUSIN-TRESTEC | | £3.40 $4.10 $1.30 €3.80 | 14mm 9/16" | - | 154g 10.3lb | Polyester Polyester |
| | Cortex 16 790 | COUSIN-TRESTEC | | £3.75 $4.70 $1.50 €4.30 | 16mm ⅝" | - | 202g 13.5lb | Polyester Polyester |
| | Lowering BraidLine 12 | COUSIN-TRESTEC | | £3.30 $4.10 $1.30 €3.80 | 12mm ½" | 14 sizes 6-32mm ¼ -1 ¼" | 105g 7lb | Polyester Polyester |
| | Lowering BraidLine 14 | COUSIN-TRESTEC | | £4.35 $5.40 $1.65 €5.00 | 14mm 9/16" | 14 sizes 6-32mm ¼ -1 ¼" | 136g 9.1lb | Polyester Polyester |
| | Lowering BraidLine 16 | COUSIN-TRESTEC | | £5.50 $6.80 $2.10 €6.30 | 16mm ⅝" | 14 sizes 6-32mm ¼ -1 ¼" | 178g 11.9lb | Polyester Polyester |
| | Lowering BraidLine 18 | COUSIN-TRESTEC | | £6.90 $9.00 $2.80 €8.00 | 18mm ¾" | 14 sizes 6-32mm ¼ -1 ¼" | 237g 15.9lb | Polyester Polyester |
| | Maona 12 | COURANT | | £2.10 $2.50 $0.76 €2.20 | 12mm ½" | - | 112g 7.5lb | Polyester Polyester |
| | Maona 14 | COURANT | | £2.45 $3.30 $1.00 €3.00 | 14mm 9/16" | - | 149g 10lb | Polyester Polyester |
| | Maona 16 | COURANT | | £2.70 $3.75 $1.15 €3.25 | 16mm ⅝" | - | 184g 12.3lb | Polyester Polyester |

# ARBORIST RIGGING ROPES

| ON | | | | SUITABLE FOR | | | | MINIMUM/AVERAGE BREAKING LOAD/STRENGTH | | | ELONGATION | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TREATED FIBRES BONDED SHEATH | SHEATH BRAID /PLAIT | LIFE SUPPORT STANDARDS (only for multi-role ropes) | HAND SPLICEABLE PRE-SPLICED PRE-SEWN | CLIMBING | LOWERING | IMPACT LOWER | STATIC RIGGING | MBL Minimum Break Load Spliced Sewn | ABL Average Break Load Spliced Sewn | WLL Spliced Sewn *Average | @10% MBS @30% MBS @50%MBS @300lbf/136kg @540 lbf/245kg | OTHER COLOURS | | NOTES | WWW. |
| | ? | | ■ | - | ■ | - | ■ | 36.5kN 8205lbf | 85.4kN 19200lbf | | | | | | bucrope.com |
| | ? | | ■ | - | ■ | - | ■ | 47kN 10566lbf | | | | | | very difficult to find any Buccaneer ropes. stocked by very few arb stores | bucrope.com |
| | ? | | ■ | - | ■ | - | ■ | 59kN 13263lbf | 149.5kN 33600lbf | | | | | | bucrope.com |
| | ? | | ■ | - | ■ | - | ■ | ? | 195.7kN 44000lbf | | | | | | bucrope.com |
| | 16 DB | | - | ■ | ● | ● | ● | | 31.1kN 7000lbf | | |  | | | bucrope.com |
| | 16 DB | | - | ● | ■ | ■ | ● | | 44.5kN 10000lbf | | | | | | bucrope.com |
| | 32 KM | NFPA | - | ● | ■ | ● | ■ | 22kN 4956lbf | | 7.7kN 1724lbf | 2% | | | | coastlinegroup.ca |
| | 32 KM | NFPA | - | ● | ■ | - | ■ | 44kN 9862lbf | | | 1.8% | | | | coastlinegroup.ca |
| | 32 KM | | - | ● | ■ | - | ■ | 36.5kN 8205lbf | | | | | | | cousin-trestec.com |
| | 32 KM | | - | ● | ■ | - | ■ | 47kN 10566lbf | | | | | | | cousin-trestec.com |
| | 32 KM | | - | ● | ■ | - | ■ | 59kN 13263lbf | | | | | | | cousin-trestec.com |
| | 16 DB | | ■ | ● | ■ | ■ | ● | 29kN 6519lbf | | | | | | | cousin-trestec.com |
| | 16 DB | | ■ | ● | ■ | ■ | ● | 44kN 9891lbf | | | | | | | cousin-trestec.com |
| | 16 DB | | ■ | ● | ■ | ■ | ● | 59kN 13263lbf | | | | | | | cousin-trestec.com |
| | 16 DB | | ■ | ● | ■ | ■ | ● | 78kN 17535lbf | | | | | | | cousin-trestec.com |
| | 24 DB | | ■ | - | ■ | ■ | ■ | 37/40kN 8300/ 8999lbf | | 5.7kN 1281lbf | | | | | mycourant.com |
| | 24 DB | | ■ | - | ■ | ■ | ■ | 48/52kN 10800/ 11700lbf | | 7.4kN 1660lbf | | | | | mycourant.com |
| | 24 DB | | ■ | - | ■ | ■ | ■ | 62/68kN 14000/ 152000lbf | | 9.85kN 2201lbf | | | | | mycourant.com |

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# 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

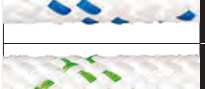
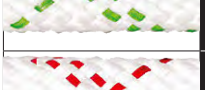
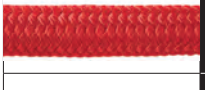
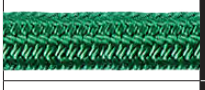
PETZL®

Access the inaccessible®

| | MODEL & Ø VARIANT | COMPANY | ORIGIN | COST per Metre /3.28ft US$ per Foot Currency conversion only | Ø mm Inches" | Other Ø in series | WEIGHT g/m lb/100' | CONSTRUCTION MATERIALS: SHEATH CORE |
|---|---|---|---|---|---|---|---|---|
| | **AKA** 12 MHD..ABC... | COURANT | | £2.10 $2.50 $0.76 €2.20 | 12mm ½" | - | 126g 8.44lb | Polyester Polyester |
| | **AKA** 14 MXD..ALC... | COURANT | | £2.10 $2.50 $0.76 €2.20 | 12mm ½" | - | 162g 10.85lb | Polyester Polyester |
| | **AKA** 16 MYD..ACC... | COURANT | | £2.10 $2.50 $0.76 €2.20 | 12mm ½" | - | 192g 12.8lb | Polyester Polyester |
| | **AKA** 18 MZD..AGC... | COURANT | | £2.10 $2.50 $0.76 €2.20 | 12mm ½" | - | 232g 15.5lb | Polyester Polyester |
| | **SLR StableBraid** 12 | DONAGHYS | | £000 $000 $000 €000 | 12mm ½" | - | 122g 8.2lb | Polyester Polyester |
| | **SLR StableBraid** 14 | DONAGHYS | | £000 $000 $000 €000 | 14mm 9/16" | - | 164g 11lb | Polyester Polyester |
| | **SLR StableBraid** 16 | DONAGHYS | | £000 $000 $000 €000 | 16mm 5/8" | - | 208g 13.95lb | Polyester Polyester |
| | **Rhino** 14 (Yachtmaster XS) | DONAGHYS | | £000 $000 $000 €2.46 | 14mm 9/16" | - | ~150g ~10lb | Polyester Polyester |
| | **Rhino** 16 (Yachtmaster XS) | DONAGHYS | | £000 $000 $000 €2.95 | 16mm 5/8" | - | 0g 0lb | Polyester Polyester |
| | **Euro Rig** 12 | ENGLISH BRAIDS | | £000 $000 $000 €000 | 12mm ½" | - | 0g 0lb | Polyester Polyester |
| | **Euro Rig** 14 | ENGLISH BRAIDS | | £000 $000 $000 €000 | 14mm 9/16" | - | 0g 0lb | Polyester Polyester |
| | **Euro Rig** 16 | ENGLISH BRAIDS | | £000 $000 $000 €000 | 16mm 5/8" | - | 0g 0lb | Polyester Polyester |
| | **Rig Tex 24** 12 | ENGLISH BRAIDS | | £4.80 $5.00 $1.55 €4.70 | 12mm ½" | 7 sizes 10 - 24mm 3/8 -7/8" | 117g 7.8lb | Polyester Polyester |
| | **Rig Tex 24** 14 | ENGLISH BRAIDS | | £5.60 $6.90 $2.20 €6.50 | 14mm 9/16" | 7 sizes 10 - 24mm 3/8 -7/8" | 156g 10.5lb | Polyester Polyester |
| | **Rig Tex 24** 16 | ENGLISH BRAIDS | | £7.15 $8.85 $2.80 €8.30 | 16mm 5/8" | 7 sizes 10 - 24mm 3/8 -7/8" | 195g 13lb | Polyester Polyester |
| | **Rig Tex 24** 18 | ENGLISH BRAIDS | | £000 $000 $000 €000 | 18mm ¾" | 7 sizes 10 - 24mm 3/8 -7/8" | 234g 15.7lb | Polyester Polyester |
| | **Rig Tex 12** 12 | ENGLISH BRAIDS | | £000 $000 $000 €000 | 12mm ½" | - | 0g 0lb | Polyester - |
| | **Rig Tex 12** 14 | ENGLISH BRAIDS | | £000 $000 $000 €000 | 16mm 5/8" | - | 0g 0lb | Polyester - |
| | **Rig Tex 12** 16 | ENGLISH BRAIDS | | £000 $000 $000€000 | 20mm ¾" | - | 0g 0lb | Polyester - |

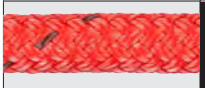
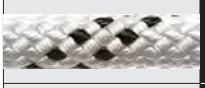
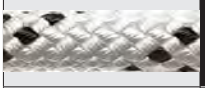
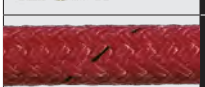
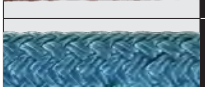
# ARBORIST RIGGING ROPES

| ON | | | | SUITABLE FOR | | | | MINIMUM/AVERAGE BREAKING LOAD/STRENGTH | | | ELONGATION | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TREATED FIBRES BONDED SHEATH | SHEATH BRAID /PLAIT | LIFE SUPPORT STANDARDS (only for multi-role ropes) | HAND SPLICEABLE PRE-SPLICED PRE-SEWN | CLIMBING | LOWERING | IMPACT LOWER | STATIC RIGGING | MBL Minimum Break Load Spliced Sewn | ABL Average Break Load Spliced Sewn | WLL Spliced Sewn *Average | @10% MBS @30% MBS @50%MBS @300lbf/136kg @540 lbf/245kg | OTHER COLOURS | | NOTES | WWW. |
| | 24 DB | | ■ | - | ■ | ■ | ■ | 35/38kN 7868/ 8542lbf | | 5.4kN 1213lbf | | | | Sheath=54% | mycourant.com |
| | 24 DB | | ■ | - | ■ | ■ | ■ | 45/48kN 10116/ 10790lbf | | 6.85kN 1539lbf | | | | Sheath=54% | mycourant.com |
| | 24 DB | | ■ | - | ■ | ■ | ■ | 55/58kN 12364/ 3038lbf | | 8.28kN 1861lbf | | | | Sheath=49% | mycourant.com |
| | 24 DB | | ■ | - | ■ | ■ | ■ | 65/68kN 14612/ 15287lbf | | 9.71kN 2182lbf | | | | Sheath=46% | mycourant.com |
| | - DB | | | - | ■ | ● | ■ | 35kN 7866lbf | | | | | | | donaghys.com |
| | - DB | | | - | ■ | ● | ■ | 44.2kN 9936lbf | | | | | | | donaghys.com |
| | - DB | | | - | ■ | ● | ■ | 55kN 12300lbf | | | | | | | donaghys.com |
| | 24 DB | | ■ | - | ■ | - | ■ | - | 41.2kN 9259lbf | | | | | | donaghys.com |
| | 24 DB | | ■ | - | ■ | - | ■ | - | 61.78kN 9259lbf | | | | | | donaghys.com |
| | 32 KM | | | - | ■ | ■ | ■ | 40.2kN 9040lbf | 36.3kN 8100lbf | | 2.4% | | | | englishbraids.com |
| | 32 KM | | | - | ■ | ■ | ■ | 48.5kN 10900lbf | 43.7kN 9800lbf | | 2.4% | | | | englishbraids.com |
| | 32 KM | | | - | ■ | ■ | ■ | 55.9kN 12560lbf | 49.8kN 11100lbf | | 2.4% | | | | englishbraids.com |
| | 24 DB | CE | | - | ■ | ■ | ● | 43kN 9666lbf | | | 5% | | | | englishbraids.com |
| | 24 DB | CE | | - | ■ | ■ | ● | 60kN 13488lbf | | | 5% | | | | englishbraids.com |
| | 24 DB | CE | | - | ■ | ■ | ● | 72.5kN 16298kN | | | 5% | | | | englishbraids.com |
| | 24 DB | CE | | - | ■ | ■ | ● | 75kN 16860kN | | | 5% | | | | englishbraids.com |
| ■ | 12 HB | CE | | - | ■ | ■ | ● | | | | | | | | englishbraids.com |
| ■ | 12 HB | CE | | - | ■ | ■ | ● | | | | | | | | englishbraids.com |
| ■ | 12 HB | CE | | - | ■ | ■ | ● | | | | | | | | englishbraids.com |

| Images NOT to Scale<br>~ = Approximate<br>£$€ = Currency Conversion<br>Cost exc eyes, inc VAT/Tax<br>DB=Double Braid,<br>KM=KernMantle/Single Braid<br>HB=Hollow Braid<br>DS=Double Strand<br>□=Option.<br>●=OK but not ideal | MODEL & Ø<br>VARIANT | COMPANY | ORIGIN | COST<br>per Metre<br>/3.28ft<br>US$ per Foot<br>Currency conversion only | Ø<br>mm<br>Inches" | Other<br>Ø<br>in series | WEIGHT<br>g/m<br>lb/100' | CONSTRUCT<br>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>9/16" | - | 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>9/16" | - | 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>9/16" | - | 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

| ION | | | | SUITABLE FOR | | | | MINIMUM/AVERAGE BREAKING LOAD/STRENGTH | | | ELONGATION | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TREATED FIBRES BONDED SHEATH | SHEATH BRAID /PLAIT | LIFE SUPPORT STANDARDS (only for multi-role ropes) | HAND SPLICEABLE PRE-SPLICED PRE-SEWN | CLIMBING | LOWERING | IMPACT LOWER | STATIC RIGGING | MBL Minimum Break Load Spliced Sewn | ABL Average Break Load Spliced Sewn | WLL Spliced Sewn *Average | @10% MBS @30% MBS @50%MBS @300lbf/136kg @540 lbf/245kg | OTHER COLOURS | | NOTES | WWW. |
| ■ | 20 DB | CE | ■■ | - | ■ | ■ | ● | 45kN 10116lbf | | 6.4kN 1438lbf | 6.5% | | | | ftc-tree.com |
| ■ | 20 DB | CE | ■■ | - | ■ | ■ | ● | 55kN 12364lbf | | 7.8kN 1753lbf | | | | | ftc-tree.com |
| ■ | 20 DB | CE | ■■ | - | ■ | ■ | ● | 67kN 15062lbf | | 9,5kN 2136lbf | | | | | ftc-tree.com |
| ■ | 20 DB | CE | ■■ | - | ■ | ■ | ● | 76kN 17085lbf | | 11kN 2473lbf | | | | | ftc-tree.com |
| | 16 DB | CE | ■■ | - | ■ | ■ | ■ | 29 30kN 6520lbf 6744lbf | | 4.1 4.3kN 922lbf 967lbf | | | | | ftc-tree.com |
| | 16 DB | CE | ■■ | - | ■ | ■ | ■ | 40 42kN 8992lbf 9442lbf | | 5.7 6kN 1281lbf 1348lbf | | | | | ftc-tree.com |
| | 16 DB | CE | ■■ | - | ■ | ■ | ■ | 52 55kN 11690lbf 12365lbf | | 7.4 7.8kN 1663lbf 1799lbf | | | | | ftc-tree.com |
| | 16 DB | CE | ■■ | - | ■ | ■ | ■ | 70 72kN 15737lbf 16186lbf | | 10 10kN 2248lbf 2248lbf | | | | | ftc-tree.com |
| | 16 DB | CE | ■■ | - | ■ | - | ■ | 78 86kN 17535lbf 19333lbf | | 11 12.2kN 2742lbf 2697lbf | | | | | ftc-tree.com |
| | 24 DB | CE | ■■ | - | ■ | ■ | ● | 33kN 7418lb | | | 4.3% | | | | gleistein.com |
| | 24 DB | CE | ■■ | - | ■ | ■ | ■ | 67.7/75.2kN 15219lbf 16905lb | | | 2.5% | | | | gleistein.com |
| ■ | ? | | ■■ | - | ■ | ■ | ■ | 45kN 10116lbf | | | | | | | harkieglobal.com |
| ■ | ? | | ■■ | - | ■ | ■ | ■ | 70kN 15736lbf | | | | | | | harkieglobal.com |
| ■ | ? | | ■■ | - | ■ | ■ | ■ | 85kN 19108lbf | | | | | | | harkieglobal.com |
| ■ | 20 DB | | ■ | - | ■ | ■ | ● | 45kN 10116lbf | | | | | | | liros.com |
| ■ | 20 DB | | ■ | - | ■ | ■ | ● | 55kN 12364lbf | | | | | | | liros.com |
| ■ | 20 DB | | ■ | - | ■ | ■ | ● | 67kN 15062lbf | | | | | | | liros.com |
| ■ | 20 DB | | ■ | - | ■ | ■ | ● | 76kN 17085lbf | | | | | | | liros.com |

| Images NOT to Scale<br>~ = Approximate<br>£$€ = Currency Conversion<br>Cost exc eyes, inc VAT/Tax<br>DB=Double Braid,<br>KM=KernMantle/Single Braid<br>HB=Hollow Braid<br>DS=Double Strand<br>□=Option.<br>●=OK but not ideal | MODEL & Ø<br>VARIANT | COMPANY | ORIGIN | COST<br>per Metre<br>/3.28ft<br>US$ per Foot<br>Currency conversion only | Ø<br>mm<br>Inches" | Other<br>Ø<br>in series | WEIGHT<br>g/m<br>lb/100' | CONSTRUCTION<br>MATERIALS:<br>SHEATH<br>CORE |
|---|---|---|---|---|---|---|---|---|
| | Draco 12 | MARLOW | | £2.20 $2.70 $2.70 €2.60 | 12mm<br>½" | | 100.6g<br>6.75lb | Polyester<br>Polyester |
| | Draco 14 | MARLOW | | £2.45 $300 $3.00 €3.00 | 14mm<br>9/16" | | 130.4g<br>8.74lb | Polyester<br>Polyester |
| | Draco 16 | MARLOW | | £3.10 $3.85 $3.85 €3.70 | 16mm<br>⅝" | | 197g<br>13.21lb | Polyester<br>Polyester |
| | Raptor Rigging 12 | MARLOW | | £3.90 $4.85 $1.50 €4.60 | 12mm<br>½" | | 111g<br>7.44lb | Polyester<br>Polyester |
| | Raptor Rigging 14 | MARLOW | | £4.20 $5.25 $1.65 €5.00 | 14mm<br>9/16" | | 156g<br>10.43lb | Polyester<br>Polyester |
|  | Raptor Rigging 16 | MARLOW | | £5.35 $6.65 $2.05 €6.30 | 16mm<br>⅝" | | 193g<br>12.94lb | Polyester<br>Polyester |
| | Raptor Rigging 18 | MARLOW | | £6.55 $8.15 $2.50 €7.70 | 18mm<br>¾" | | 232g<br>15.54lb | Polyester<br>Polyester |
|  | Marlowbraid 12 | MARLOW | | £4.20 $5.25 $1.65 €5.00 | 12mm<br>½" | 10 sizes<br>6-24mm<br>¼-15/16" | 100g<br>6.71lb | Polyester<br>Polyester |
|  | Marlowbraid 14 | MARLOW | | £5.95 $7.40 $2.30 €7.00 | 14mm<br>9/16" | 10 sizes<br>6-24mm<br>¼-15/16" | 145g<br>9.72lb | Polyester<br>Polyester |
| | Marlowbraid 16 | MARLOW | | £8.10 $10.10 $3.10 €9.50 | 16mm<br>⅝" | 10 sizes<br>6-24mm<br>¼-15/16" | 190g<br>12.74lb | Polyester<br>Polyester |
| | Marlowbraid 18 | MARLOW | | £9.10 $11.35 $3.50 €10.65 | 18mm<br>¾" | 10 sizes<br>6-24mm<br>¼-15/16" | 235g<br>15.76lb | Polyester<br>Polyester |
| | Doublebraid 12 | MARLOW | | £4.10 $5.40 $1.65 €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 $2.45 €7.30 | 14mm<br>9/16" | 7 sizes<br>6-18mm<br>¼-¾" | 156g<br>10.43lb | Polyester<br>Polyester |
| | Doublebraid 16 | MARLOW | | £7.80 $10.20 $3.10 €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 $3.40 €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 $0.85 €2.60 | 12mm<br>½" | - | 137g<br>9.2lb | Polyester<br>Polyester |
|  | The Ape 14 | PELICAN ROPE | | £2.80 $3.50 $1.08 €3.25 | 14mm<br>9/16" | - | 157g<br>10.5lb | Polyester<br>Polyester |
|  | The Ape 16 | PELICAN ROPE | | £3.10 $3.90 $1.20 €3.60 | 16mm<br>⅝" | - | 204g<br>13.7lb | Polyester<br>Polyester |

# ARBORIST RIGGING ROPES

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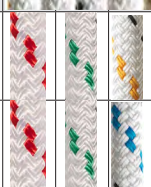
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TREATED FIBRES BONDED SHEATH | SHEATH BRAID /PLAIT | LIFE SUPPORT STAND-ARDS (only for multi-role ropes) | HAND SPLICEABLE PRE-SPLICED PRE-SEWN | CLIMBING | LOWERING | IMPACT LOWER | STATIC RIGGING | MBL Minimum Break Load Spliced Sewn | ABL Average Break Load Spliced Sewn | WLL Spliced Sewn *Average | @10% MBS @30% MBS @50%MBS @300lbf/136kg @540 lbf/245kg | OTHER COLOURS | | NOTES | WWW. |
| | 16 DB | | ■ | - | ■ | ● | ■ | 35.2kN 7914lbf | 38.4kN 8619lbf | | | | | | marlowropes.com |
| | 16 DB | | ■ | - | ■ | ● | ■ | 49.4kN 11102lbf | 54.9kN 12337lbf | | | | | | marlowropes.com |
| | 16 DB | | ■ | - | ■ | ● | ■ | 74.1kN 16645lbf | 81.9kN 18408lbf | | | | | | marlowropes.com |
| ■ | 24 DB | | ■■ | - | ■ | ● | ■ | 38.7 43kN 9650lbf | 42 46.7kN 10500lbf | 5.5kN* 1240lbf* | 5% 1.7% | | | | marlowropes.com |
| ■ | 24 DB | | ■■ | - | ■ | ● | ■ | 49.1 54.6kN 12300lbf | 53.5 59.4kN 13300lbf | 7kN* 1590lbf* | 5% 1.7% | | | | marlowropes.com |
| ■ | 24 DB | | ■■ | - | ■ | ● | ■ | 58.8 65.3kN 14700lbf | 63.8 70.9kN 15900lbf | 8.4kN* 1890lbf* | 5% 1.7% | | | | marlowropes.com |
| ■ | 24 DB | | ■■ | - | ■ | ● | ■ | 64.3 71.4kN 16000lbf | 69.8 77.6kN 17400lbf | 9.2kN* 2060lbf* | 5% 1.7% | | | | marlowropes.com |
| - | 16 | | ■ | - | ■ | - | ■ | 40.2kN 9007lbf | 43.7kN 9790lbf | | | | |  | marlowropes.com |
| - | 16 | | ■ | - | ■ | - | ■ | 49.3kN 11051lbf | 53.6kN 12012lbf | | | | | | marlowropes.com |
| - | 16 | | ■ | - | ■ | - | ■ | 65.2kN 14630lbf | 72.8kN 16324lbf | | | | | | marlowropes.com |
| - | 16 | | ■ | - | ■ | - | ■ | 92kN 20625lbf | 100kN 22419lbf | | | | | | marlowropes.com |
| - | 24 DB | | ■■ | - | ■ | ■ | ■ | 43kN 9650lbf | 46.7kN 10500lbf | | |  | | | marlowropes.com |
| - | 24 DB | | ■■ | - | ■ | ■ | ■ | 54.6kN 12300lbf | 59.4kN 13300lbf | | |  | | | marlowropes.com |
| - | 24 DB | | ■■ | - | ■ | ■ | ■ | 65.3kN 14700lbf | 70.9kN 15900lbf | | | | | | marlowropes.com |
| | 24 DB | | ■■ | - | ■ | ■ | ■ | 71.4kN 16000lbf | 77.6kN 17400lbf | | |  | | | marlowropes.com |
| ■ | DB | | ■■ | - | ■ | ● | ■ | 48.9kN 11000lbf | | | | | | | pelicanrope.com |
| ■ | DB | | ■■ | - | ■ | ● | ■ | 62.3kN 14000lbf | | | | | | | pelicanrope.com |
| ■ | DB | | ■■ | - | ■ | ● | ■ | 75.6kN 17000lbf | | | | | | | pelicanrope.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 VARIANT | COMPANY | ORIGIN | COST per Metre /3.28ft US$ per Foot Currency conversion only | Ø mm Inches" | Other Ø in series | WEIGHT g/m lb/100' | CONSTRUCTION MATERIALS: SHEATH CORE |
|---|---|---|---|---|---|---|---|---|
| | The Ape 18 | PELICAN ROPE | | £3.90 $4.90 $1.50 €4.55 | 18mm ¾" | - | 271g 18.2lb | Polyester Polyester |
| | The Ape 25 | PELICAN ROPE | | £7.25 $9.15 $2.80 €8.45 | 25mm 1" | - | 529g 35.5lb | Polyester Polyester |
| | Matador 12 | PELICAN ROPE | | £2.65 $3.40 $1.05 €3.15 | 12mm ½" | | 116g 7.8lb | Polyester Nylon |
| | Matador 14 | PELICAN ROPE | | £3.15 $3.95 $1.21 €3.65 | 14mm 9/16" | | 172g 11.55lb | Polyester Nylon |
| | Matador 16 | PELICAN ROPE | | £3.90 $4.90 $1.50 €4.55 | 16mm ⅝" | | 293g 19.65lb | Polyester Nylon |
| | Matador 18 | PELICAN ROPE | | £5.00 $6.35 $1.95 €5.90 | 18mm ¾" | | 385g 25.8lb | Polyester Nylon |
| | Access Pro 11 | PMI | | £2.20 $2.70 $0.85 €2.55 | 11mm 7/16" | - | 84g 5.6lb | Polyester Nylon |
| | Hudson Cl Pro EZ Bend11 | PMI | | £3.70 $4.20 $1.30 €3.95 | 11mm 7/16" | 5 sizes 9-16mm ⅜-⅝" | 80g 5.4lb | Nylon Nylon |
| | Hudson Cl Pro EZ Bend 12.5 | PMI | | £4.30 $5.30 $1.65 €5.00 | 12.5mm ½" | 5 sizes 9-16mm ⅜-⅝" | 104g 7lb | Nylon Nylon |
| | Hudson Cl Pro EZ Bend Unicore 12.5 | PMI | | £4.30 $5.30 $1.65 €5.00 | 12.5mm ½" | 2 sizes 11-12.5mm 7/16-½" | 107g 7.2lb | Nylon Nylon |
| | Hudson Cl Pro EZ Bend 16 | PMI | | £5.30 $6.60 $2.00 €5.00 | 16mm ⅝" | 5 sizes 9-16mm ⅜-⅝" | 145g 10.3lb | Nylon Nylon |
| | Hudson Cl Pro Max Wear/Pit Rope | PMI | | £2.90 $3.60 $1.15 €3.40 | 11mm 7/16" | 4 sizes 9-12.5mm ⅜-½" | 83.46g 5.6lb | Nylon Nylon |
| | Extreme Pro Unicore 11 | PMI | | £3.15 $3.90 $1.25 €3.65 | 11mm 7/16" | 2 sizes 11-12.5mm 7/16-½" | 100g 6.7lb | Polyester Nylon |
| | Extreme Plus Unicore 12.5 | PMI | | £3.50 $4.20 $1.30 €3.95 | 12.5mm ½" | 2 sizes 11-12.5mm 7/16-½" | 113g 7.6lb | Polyester Nylon |
| | Opus 11 | PMI | | £1.90 $2.35 $0.75 €2.20 | 11mm 7/16" | - | 85g 5.7lb | Nylon Nylon |
| | Dura-Shield General Use 12.5 | PMI | | £10.50 $13.10 $4.00 €12.30 | 12.5mm ½" | 3 sizes 8-12.5mm 7/16-½" | 110.9g 7.43lb | Technora Nylon |
| | Isostatic 11.5 | PMI | | £4.85 $6.00 $1.80 €4.55 | 11.5mm 7/16" | - | 96g 6.4lb | Polyester Polyester |
| | Isostatic 13 | PMI | | £4.85 $6.00 $1.80 €4.55 | 13mm ½" | - | 125g 8.4lb | Polyester Polyester |

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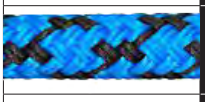
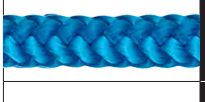
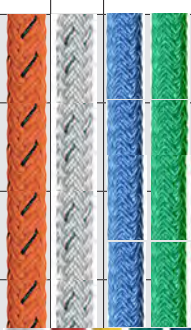
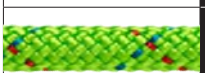
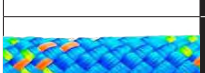
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TREATED FIBRES BONDED SHEATH | SHEATH BRAID /PLAIT | LIFE SUPPORT STANDARDS (only for multi-role ropes) | HAND SPLICEABLE PRE-SPLICED PRE-SEWN | CLIMBING | LOWERING | IMPACT LOWER | STATIC RIGGING | MBL Minimum Break Load Spliced Sewn | ABL Average Break Load Spliced Sewn | WLL Spliced Sewn *Average | @10% MBS @30% MBS @50%MBS @300lbf/136kg @540 lbf/245kg | OTHER COLOURS | | NOTES | WWW. |
| ■ | DB | | ■■ | - | ■ | ● | ■ | 35kN 21000lbf | | | | | | | pelicanrope.com |
| ■ | DB | | ■■ | - | ■ | ● | ■ | 52kN 40000lbf | | | | | | | pelicanrope.com |
| ■ | DB | | ■ | - | ■ | ■ | ■ | 44.5kN 10000lbf | | | | | | | pelicanrope.com |
| ■ | DB | | ■ | - | ■ | ■ | ■ | 54.3kN 12200lbf | | | | | | | pelicanrope.com |
| ■ | DB | | ■ | - | ■ | ■ | ■ | 71.1kN 16000lbf | | | | | | | pelicanrope.com |
| ■ | DB | | ■ | - | ■ | ■ | ■ | 11.2kN 25000lbf | | | | | | | pelicanrope.com |
| - | 32 KM | CI CE A NFPA-T | | ■ | ■ | ● | ■ | 27kN 6066lbf | | | - 3% | | | | pmirope.com |
| - | 16 KM | CI. CE A NFPA-T ANSI BERRY | | ■ | ■ | ● | ■ | 33.3kN 7480lbf | | | - 1% | | | | pmirope.com |
| - | 16 KM | CI. CE A ANSI NFPA-G | | ■ | ■ | ● | ■ | 45.1kN 10145lbf | | | - 1% | | | Also in reflective, solid blue, black, red & OD | pmirope.com |
| ■ | 16 KM | CI. CE A ANSI NFPA-G | | ■ | ■ | ● | ■ | 44.5kN 10009lbf | | | 3-4.4% 0.7% | | | Cl=Classic Old Glory (shown) may cost more | pmirope.com |
| - | 16 KM | CI CE A ANSI NFPA-G | ■ | ● | ■ | ● | ■ | 69.1kN 16330lbf | | | 3.6-4.8% 0.3% | | | Blue&Ylw colours=$.2.30/ft | pmirope.com |
| - | 16 KM | CI. NFPA-T | | ● | ■ | ● | ■ | 32.4kN 7291lbf | | | - 1.5% | | | Pit rope =White stiffer than EZbend. no data yet for 12.5mm version | pmirope.com |
| ■ | 16 KM | CI NFPA-T ANSI BERRY | | ■ | ■ | ● | ■ | 42.3kN 9521lbf | | | - 1.7% | | | | pmirope.com |
| ■ | 16 KM | ANSI. NFPA-G | | ■ | ■ | ● | ■ | 46.4kN 10431lbf | | | - 1.3% | | | | pmirope.com |
| - | 40 KM | CI CE A ANSI NFPA-T | | ■ | ■ | ● | ■ | 30.6kN 6871lbf | | | - 2.9% | | | | pmirope.com |
| - | 32 KM | CI NFPA | | ■ | ■ | ■ | ■ | 34.3kN 7703lbf | | | 8.8% 2.5% | | | Cut resistant sheath | pmirope.com |
| - | 32 KM | ANSI NFPA-T | | ● | ■ | - | ■ | 32.2kN 7239lbf | | | 1.44-2.2% 0.9% | | | Unicore =sheath bonded to core | pmirope.com |
| - | 32 KM | ANSI NFPA-T | | ● | ■ | - | ■ | 44.2kN 9944lbf | | | 1.44-2.2% 2.1% | | | Unicore =sheath bonded to core | pmirope.com |

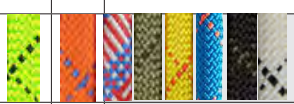
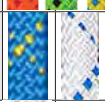
| Images NOT to Scale<br>~ = Approximate<br>£$€ = Currency Conversion<br>Cost exc eyes, inc VAT/Tax<br>DB=Double Braid,<br>KM=KernMantle/Single Braid<br>HB=Hollow Braid<br>DS=Double Strand<br>□=Option.<br>●=OK but not ideal | MODEL & Ø<br>VARIANT | COMPANY | ORIGIN | COST<br>per Metre<br>/3.28ft<br>US$ per Foot<br>Currency conversion only | Ø<br>mm<br>Inches" | Other<br>Ø<br>in series | WEIGHT<br>g/m<br>lb/100' | CONSTRUCTION<br>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>9/16" | - | 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>9/16" | 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>9/16" | 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>7/16" | - | 95g<br>6.4lb | Technora<br>Polyester |

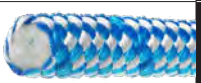
# ARBORIST RIGGING ROPES

| ON | | | | SUITABLE FOR | | | | MINIMUM/AVERAGE BREAKING LOAD/STRENGTH | | | ELONGATION | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TREATED FIBRES BONDED SHEATH | SHEATH BRAID /PLAIT | LIFE SUPPORT STAND-ARDS (only for multi-role ropes) | HAND SPLICEABLE PRE-SPLICED PRE-SEWN | CLIMBING | LOWERING | IMPACT LOWER | STATIC RIGGING | MBL Minimum Break Load Spliced Sewn | ABL Average Break Load Spliced Sewn | WLL Spliced Sewn *Average | @10% MBS @30% MBS @50%MBS @300lbf/136kg @540 lbf/245kg | OTHER COLOURS | | NOTES | WWW. |
| ☐ | DB | | ■ | - | ■ | - | ■ | 40.5kN 9095lbf | 47.6 kN 10700lbf | | | | | | rocknarbor.com |
| ☐ | DB | | ■ | - | ■ | - | ■ | 50.3 kN 11300lbf | 59.2 kN 13300lbf | | | | | | rocknarbor.com |
| ☐ | DB | | ■ | - | ■ | - | ■ | 70kN 15725lbf | 82.3kN 18500lbf | | | | | | rocknarbor.com |
| - | DB | | | ● | ■ | ● | ■ | | 39kN 8767lbf | | | | | Overload indicated by misaligned diagonal threads. | rocknarbor.com |
| - | 12 HB | | ■ | ● | ■ | ■ | ● | 71kN 16000lbf | | | | | | | rocknarbor.com |
| - | 12 HB | | ■■ | ● | ■ | ■ | ● | 23.5kN 5291lbf | 26.6kN 6000lbf | 5.3kN 1200lbf | 3% | | | | samsonrope.com |
| - | 12 HB | | ■■ | ● | ■ | ■ | ● | | 40kN 9000lbf | 8kN 1800lbf | 3% | | | | samsonrope.com |
| - | 12 HB | | ■■ | ● | ■ | ■ | ● | | 53kN 12000lbf | 10.6kN 2400lbf | 3% | | | | samsonrope.com |
| ■ | DB | | ■ | - | ■ | ■ | ● | 39.5kN 8900lbf | 46.7kN 10500lbf | | 2.4% |  | | *Wt with coating | samsonrope.com |
| ■ | DB | | ■ | - | ■ | ■ | ● | 49.8kN 11200lbf | 58.7kN 13200lbf | | 2.4% | | | * Wt with coating | samsonrope.com |
| ■ | DB | | ■ | - | ■ | ■ | ● | 61.8kN 13900lbf | 72.5kN 16300lbf | | 2.4% | | | *Wt with coating | samsonrope.com |
| ■ | DB | | ■ | - | ■ | ■ | ● | 87kN 19600lbf | 10.2kN 2300lbf | | 2.4% | | | *Wt with ating | samsonrope.com |
| ☐ | DB | | ■ | - | ■ | - | ■ | 39kN 8800lbf | 46kN 10400lbf | | 1.1 | | | | samsonrope.com |
| ☐ | DB | | ■ | - | ■ | - | ■ | 50kN 11300lbf | 59kN 13300lbf | | 1.1 | | | | samsonrope.com |
| ☐ | DB | | ■ | - | ■ | - | ■ | 61kN 13900lbf | 72kN 16300lbf | | 1.1 | | | | samsonrope.com |
| ☐ | DB | | ■ | - | ■ | - | ■ | 76kN 17300lbf | 90kN 20400lbf | | 1.1 | | | | samsonrope.com |
| | 12 HB | | ■ | ■ | ● | - | ■ | | 32kN 7300lbf | 3.2kN 730lbf | 2.6% | | | | samsonrope.com |
| - | 32 KM | NFPA ANSI | | ● | ■ | - | ■ | 36kN 8090lbf | | | 2.1% | | | Super-tough, cut & heat resistant tactical/rescue rope | sterlingrope.com |

| Images NOT to Scale<br>~ = Approximate<br>£$€ = Currency Conversion<br>Cost exc eyes, inc VAT/Tax<br>DB=Double Braid,<br>KM=KernMantle/Single Braid<br>HB=Hollow Braid<br>DS=Double Strand<br>☐=Option.<br>●=OK but not ideal | MODEL & Ø<br>VARIANT | COMPANY | ORIGIN | COST<br>per Metre<br>/3.28ft<br>US$ per Foot<br>Currency conversion only | Ø<br>mm<br>Inches" | Other<br>Ø<br>in series | WEIGHT<br>g/m<br>lb/100' | CONSTRUCTI<br>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>½" | - | 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>⅝" | - | 202g<br>13.5lb | Polyester<br>Nylon |
| | **Atlas** 18 | STERLING | 🇺🇸 | £6.80 $8.40 $2.60 €7.90 | 18mm<br>¾" | - | 258kN<br>17.3lb | Polyester<br>Nylon |
| | **Kraken** 13 | STERLING | 🇺🇸 | £2.70 $3.30 $1.10 €3.10 | 12mm<br>½" | 5 sizes<br>13-22mm<br>⅜-⅞" | 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>⅜-⅞" | 173g<br>11.6lb | Polyester<br>Polyester |
| | **Kraken** 17 | STERLING | 🇺🇸 | £3.90 $4.80 $1.50 €4.50 | 17mm<br>⅝" | 5 sizes<br>13-22mm<br>⅜-⅞" | 221g<br>14.8lb | Polyester<br>Polyester |
| | **Kraken** 19 | STERLING | 🇺🇸 | £4.75 $5.85 $1.80 €5.50 | 19.1mm<br>¾" | 5 sizes<br>13-22mm<br>⅜-⅞" | 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>⅜-5⁄8" | 97g<br>6.5lb | Polyester<br>Polyester |
| | **HTP (Rig)** 12 | STERLING | 🇺🇸 | £4.95 $6.10 $1.90 €5.75 | 12.5mm<br>½" | 5 sizes<br>9-16mm<br>⅜-5⁄8" | 119g<br>8lb | Polyester<br>Polyester |
| | **HTP (Rig)** 16 | STERLING | 🇺🇸 | £5.35 $6.50 $2.10 €6.20 | 16mm<br>⅝" | 5 sizes<br>9-16mm<br>⅜-5⁄8" | 186g<br>12.5lb | Polyester<br>Polyester |
| | **Omega** 12 | STEIN | 🇬🇧 | £3.05 $3.75 $1.20 €3.55 | 12mm<br>½" | - | | 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>⅝" | - | | Polyester<br>Nylon |
| | **Omega** 20 | STEIN | 🇬🇧 | £7.65 $9.85 $3.00 €9.25 | 20mm<br>¾" | - | | Polyester<br>Nylon |
| | **Timber Evo** 12.5 | TENDON | 🇨🇿 | £3.60 $4.50 $1.45 €4.15 | 12.5mm<br>½" | 3 sizes<br>11-12.5mm<br>¼-1¾" | 104g<br>7lb | Polyester<br>Nylon |
| | **Timber** 15 | TENDON | 🇨🇿 | £4.50 $5.20 $1.60 €4.80 | 15mm<br>⅝" | - | 174g<br>11.7lb | Polyester<br>Nylon |

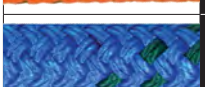
# ARBORIST RIGGING ROPES

| ON | | | SUITABLE FOR | | | | MINIMUM/AVERAGE BREAKING LOAD/STRENGTH | | | ELONGATION | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TREATED FIBRES BONDED SHEATH | SHEATH BRAID /PLAIT | LIFE SUPPORT STAND-ARDS (only for multi-role ropes) | HAND SPLICEABLE PRE-SPLICED PRE-SEWN | CLIMBING | LOWERING | IMPACT LOWER | STATIC RIGGING | MBL Minimum Break Load Spliced Sewn | ABL Average Break Load Spliced Sewn | WLL Spliced Sewn *Average | @10% MBS @30% MBS @50%MBS @300lbf/136kg @540 lbf/245kg | OTHER COLOURS | NOTES | WWW. |
| - | 32 KM | NFPA ANSI | | ■ | ■ | ● | ■ | 40.1kN 9014lbf | | | 3.6% | | cut & heat resistant greater stretch than HTP rope | sterlingrope.com |
| - | 32 DB | | ■■ | - | ■ | ■ | ■ | 48kN 10800lbf 40kN 9000lbf | 51kN 11500lbf | | 0.9% 4.1% | | | sterlingrope.com |
| - | 32 DB | ANSI | ■■ | - | ■ | ■ | ■ | 61.2kN 18000lbf 49kN 11050lbf | 61kN 13750lbf | | 0.8% 4.5% | | | sterlingrope.com |
| - | 32 DB | | ■■ | - | ■ | ■ | ■ | 80kN 18000lbf 67.8kN 15250lbf | 86.3kN 19400lbf | | 0.4% 4.5% | | | sterlingrope.com |
| - | 32 DB | | ■■ | - | ■ | ■ | ■ | 80.7kN 18147lbf | 100kN 22480lbf | | 0.3% 4.3% | | | sterlingrope.com |
| ■ | 24 | | ■■ | - | ■ | ● | ■ | 47.9kN 10750lbf | 56.4kN 12650lbf | 5.6kN 1265lbf | 1.8% | | Previously sold as Notch Kraken | sterlingrope.com |
| ■ | 24 | | ■■ | - | ■ | ● | ■ | 56.6kN 12700lbf | 66.4kN 14900lbf | 6.6kN 1490lbf | 1.8% | | | sterlingrope.com |
| ■ | 24 | | ■■ | - | ■ | ● | ■ | 70kN 15700lbf | 82.5kN 18500lbf | 8.2kN 1850lbf | 1.8% | | | sterlingrope.com |
| ■ | 24 | | ■■ | - | ■ | ● | ■ | 29.2kN 20000lbf | 104,8kN 23500lbf | 10.5kN 2350lbf | 1.8% | | | sterlingrope.com |
| - | 32 DB | ANSI NFPA | ■ | ● | ■ | - | ● | 30.5kN 6856lbf | | 6.1kN 1371lbf | 4% |  | | sterlingrope.com |
| - | 32 DB | ANSI NFPA | ■ | ● | ■ | - | ■ | 40.4kN 9081lbf | | 8.1kN 1820lbf | 2% | | | sterlingrope.com |
| - | 32 DB | NFPA | ■ | - | ■ | - | ■ | 57.8kN 12993lbf | 53kN 12000lbf | 11.6kN 2495lbf | 2.8% |  | 'RIG'=HTP in Black/ Pink and White/ Pink | sterlingrope.com |
| | 32 KM | | ■■ | ● | ■ | ■ | ■ | 34.4kN 7738lbf | 36.3kN 8160lbf | | 2.4% | | May also be 10mm version with red fleck | steininternational.com |
| | 32 KM | | ■■ | - | ■ | ■ | ■ | 48.5kN 10900lbf | 43.7kN 9824lbf | | 2.4% | | | steininternational.com |
| | 32 KM | | ■■ | - | ■ | ■ | ■ | 55.9kN 12560lbf | 49.8kN 11195lbf | | 2.4% | | | steininternational.com |
| | 32 KM | | ■■ | - | ■ | ■ | ■ | 75.5kN 16950lbf | 68.6kN 15421lbf | | 2.4% | | | steininternational.com |
| | 24 DB | CE A | | ■ | ■ | ■ | ● | 39kN 8598lbf | | | 3% | | Embedded RFID chip | mytendon.com |
| | 24 DB | CE A | | - | ■ | ■ | ■ | 61kN 13713lb | | | | | | mytendon.com |

| Images NOT to Scale<br>~ = Approximate<br>£$€ = Currency Conversion<br>Cost exc eyes, inc VAT/Tax<br>DB=Double Braid,<br>KM=KernMantle/Single Braid<br>HB=Hollow Braid<br>DS=Double Strand<br>☐=Option.<br>●=OK but not ideal | MODEL & Ø<br>VARIANT | COMPANY | ORIGIN | COST<br>per Metre<br>/3.28ft<br>US$ per Foot<br>Currency conversion only | Ø<br>mm<br>Inches" | Other<br>Ø<br>in series | WEIGHT<br>g/m<br>lb/100' | CONSTRUCTION<br>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>9/16" | | 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>13/16" | | 285g<br>19.16lb | Polyester<br>Polyester |
| | tREX 11 | TEUFELBERGER | | £4.20 $5.00 $1.55 €4.80 | 11.1mm<br>7/16" | 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>13/16" | 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>9/16" | 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>13/16" | 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>¼-15/16" | 122g<br>7.8lbs | Polyester<br>Polyester |
| | Double Esterlon | YALE CORDAGE | | £4.00 $4.20 $1.30 €4.65 | 14mm<br>9/16" | 9 sizes<br>6-24mm<br>¼-15/16" | 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>¼-15/16" | 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>¼-15/16" | 268g<br>16.7lb | Polyester<br>Polyester |

# ARBORIST RIGGING ROPES

| ON | | | | SUITABLE FOR | | | | MINIMUM/AVERAGE BREAKING LOAD/STRENGTH | | | ELONGATION | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TREATED FIBRES BONDED SHEATH | SHEATH BRAID /PLAIT | LIFE SUPPORT STAND-ARDS (only for multi-role ropes) | HAND SPLICEABLE PRE-SPLICED PRE-SEWN | CLIMBING | LOWERING | IMPACT LOWER | STATIC RIGGING | MBL Minimum Break Load Spliced Sewn | ABL Average Break Load Spliced Sewn | WLL Spliced Sewn *Average | @10% MBS @30% MBS @50%MBS @300lbf/136kg @540 lbf/245kg | OTHER COLOURS | | NOTES | WWW. |
| | 32 DB | CE | ■■ | ● | ■ | ■ | ■ | 30 35kN 6740lbf 7860lbf | | | | | | | teufelberger.com |
| | 32 DB | CE | ■■ | ● | ■ | ■ | ■ | 44.2 52kN 9930lbf 11680lbf | | | | | | | teufelberger.com |
| | 32 DB | CE | ■■ | ● | ■ | ■ | ■ | 53.5 63kN 12000lbf 14160lbf | | | | | | | teufelberger.com |
| | 32 DB | CE | ■■ | ● | ● | ■ | ■ | 65.4 66kN 14700lbf 17300lbf | | | | | | designed primarily for whoopie slings | teufelberger.com |
| | 32 DB | CE | ■■ | ● | ● | ■ | ■ | 91kN 20500lbf | | | | | | designed primarily for whoopie slings | teufelberger.com |
| ■ | 12 HB | | ■■ | - | ■ | ■ | ■ | 30 34kN 6740lbf 7640lbf | | | | | | | teufelberger.com |
| ■ | 12 HB | | ■■ | - | ■ | ■ | ■ | 39 44kN 8765lbf 9890lbf | | | | | | | teufelberger.com |
| ■ | 12 HB | | ■■ | - | ■ | ■ | ■ | 59 66kN 13260lbf 14835lbf | | | | | | | teufelberger.com |
| ■ | 12 HB | | ■■ | - | ■ | ■ | ■ | 81 91kN 18205lbf 20455lbf | | | | | | | teufelberger.com |
| ■ | 24 DB | | ■■ | - | ■ | ■ | ■ | 32 37kN 7190lbf 8310lbf | | | | | | | teufelberger.com |
| ■ | 24 DB | | ■■ | - | ■ | ■ | ■ | 47 42.2kN 10566lbf 9500lbf | | | | | | | teufelberger.com |
| ■ | 24 DB | | ■■ | - | ■ | ■ | ■ | 55 65kN 12360lbf 14610lbf | | | | | | | teufelberger.com |
| ■ | 24 DB | | ■■ | - | ■ | ■ | ■ | 74 87kN 16630lbf 19550lbf | | | | | | | teufelberger.com |
| □ | 24 DB | | ■■ | - | ■ | ■ | ■ | 43kN 9720lbf | 48kN 10800lbf | 9kN 2160lbf | | | | | yalecordage.com |
| □ | 24 DB | | ■■ | - | ■ | ■ | ■ | 53kN 11961lbf | 59kN 13290lbf | 11kN 2658lbf | | | | | yalecordage.com |
| □ | 24 DB | | ■■ | - | ■ | ■ | ■ | 68kN 15300lbf | 75kN 17000lbf | 15kN 3400lbf | | | | | yalecordage.com |
| □ | 24 DB | | ■■ | - | ■ | ■ | ■ | 83kN 18720lbf | 92kN 20800lbf | 18kN 4160lbf | | | | | yalecordage.com |

| Images NOT to Scale ~ = Approximate £$€ = Currency Conversion<br>Cost exc eyes, inc VAT/Tax<br>DB=Double Braid, KM=KernMantle/Single Braid<br>HB=Hollow Braid<br>DS=Double Strand<br>☐=Option.<br>⬤=OK but not ideal | MODEL & Ø VARIANT | COMPANY | ORIGIN | COST per Metre /3.28ft US$ per Foot Currency conversion only | Ø mm Inches" | Other Ø in series | WEIGHT g/m lb/100' | CONSTRUCTION MATERIALS: SHEATH CORE |
|---|---|---|---|---|---|---|---|---|
| | **Optimus** 10 | YALE CORDAGE | | £4.75 $6.00 $1.80 €5.55 | 10mm 5/16" | - | 00g 4lb | Polyester - |
| | **Optimus** 13 | YALE CORDAGE | | £3.10 $3.90 $1.20 €3.60 | 13mm ½" | - | 00g 9.2lb | Polyester - |
| | **Optimus** 16 | YALE CORDAGE | | £3.90 $4.90 $1.50 €4.55 | 16mm 5/8" | - | 00g 11.7lb | Polyester - |
| | **Optimus** 19 | YALE CORDAGE | | £5.20 $6.55 $2.00 €6.05 | 19mm ¾" | - | 00g 16lb | Polyester - |
| | **Optimus** 22 | YALE CORDAGE | | £4.75 $6.00 $1.80 €5.55 | 22mm ⅞" | - | 00g 25lb | Polyester - |
| | **Polydyne** 12 | YALE CORDAGE | | £3.10 $3.90 $1.20 €3.60 | 12mm ½" | 14 sizes 6-36mm ¼-1½" | 113g 7.6lb | Polyester Nylon |
| | **Polydyne** 14 | YALE CORDAGE | | £4.15 $5.25 $1.60 €4.85 | 14mm 9/16" | 14 sizes 6-36mm ¼-1½" | 144g 9.7lb | Polyester Nylon |
| | **Polydyne** 16 | YALE CORDAGE | | £4.65 $5.90 $1.80 €5.45 | 16mm 5/8" | 14 sizes 6-36mm ¼-1½" | 198g 13.3lb | Polyester Nylon |
|  | **Polydyne** 18 | YALE CORDAGE | | £5.95 $7.50 $2.30 €6.95 | 18mm ¾" | 14 sizes 6-36mm ¼-1½" | 250g 16.8lb | Polyester Nylon |
| | **Portland Braid** 13 | YALE CORDAGE | | £4.00 $4.90 $1.50 €4.60 | 13mm ½" | 18 sizes 6-63mm ¼-2⅝" | 118g 7.9lb | Polyester Polyester |
| | **Portland Braid** 14 | YALE CORDAGE | | £4.60 $5.65 $1.75 €5.30 | 14mm 9/16" | 18 sizes 6-63mm ¼-2⅝" | 149g 10lb | Polyester Polyester |
| | **Portland Braid** 16 | YALE CORDAGE | | £5.10 $6.45 $2.00 €5.95 | 16mm 5/8" | 18 sizes 6-63mm ¼-2⅝" | 194g 13lb | Polyester Polyester |
| | **Portland Braid** 18 | YALE CORDAGE | | £6.00 $7.60 $2.35 €7.00 | 19mm ¾" | 18 sizes 6-63mm ¼-2⅝" | 244g 16.4lb | Polyester Polyester |
| | **Yalex** 13 | YALE CORDAGE | | £2.60 $3.20 $1.00 €3.00 | 13mm ½" | 17 sizes 6-50mm ¼-2" | 125g 0lb | Polyester - |
| | **Yalex** 14 | YALE CORDAGE | | £2.95 $3.60 $1.10 €3.40 | 14mm 9/16" | 17 sizes 6-50mm ¼-2" | 153g 0lb | Polyester - |
| | **Yalex** 16 | YALE CORDAGE | | £3.40 $4.20 $1.30 €3.95 | 16mm 5/8" | 17 sizes 6-50mm ¼-2" | 173g 0lb | Polyester - |
| | **Yalex** 18 | YALE CORDAGE | | £4.75 $6.00 $1.80 €5.55 | 19mm ¾" | 17 sizes 6-50mm ¼-2" | 231g 0lb | Polyester - |

# ARBORIST RIGGING ROPES

| CONSTRUCTION | | | | SUITABLE FOR | | | | MINIMUM/AVERAGE BREAKING LOAD/STRENGTH | | | ELONGATION | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TREATED FIBRES BONDED SHEATH | SHEATH BRAID /PLAIT | LIFE SUPPORT STANDARDS (only for multi-role ropes) | HAND SPLICEABLE PRE-SPLICED PRE-SEWN | CLIMBING | LOWERING | IMPACT LOWER | STATIC RIGGING | MBL Minimum Break Load Spliced Sewn | ABL Average Break Load Spliced Sewn | WLL Spliced Sewn *Average | @10% MBS @30% MBS @50%MBS @300lbf/136kg @540 lbf/245kg | OTHER COLOURS | | NOTES | WWW. |
| ■ | 12 HB | | ■ | ● | ■ | - | ■ | 24kN 5400lbf | 26.7kN 6000lbf | 5.3kN 1200lbf | 1% | | | | yalecordage.com |
| ■ | 12 HB | | ■ | - | ■ | - | ■ | 54kN 12150lbf | 60kN 13500lbf | 12kN 2700lbf | 1% | | | | yalecordage.com |
| ■ | 12 HB | | ■ | - | ■ | - | ■ | 00kN 17100lbf | 00kN 19000lbf | 17kN 3800lbf | 1% | | | | yalecordage.com |
| ■ | 12 HB | | ■ | - | ■ | - | ■ | 100kN 22500lbf | 111.2kN 25000lbf | 22.2kN 5000lbf | 1% | | | | yalecordage.com |
| ■ | 12 HB | | ■ | - | ■ | - | ■ | 144.1kN 32400lbf | 160.1kN 36000lbf | 32kN 7200lbf | 1% | | | | yalecordage.com |
| | 24 DB | | ■■ | - | ■ | ■ | - | 44kN 9900lbf | 49kN 11000lbf | 9.8kN 2200lbf | 3% | | | | yalecordage.com |
| | 24 DB | | ■■ | - | ■ | ■ | - | 60kN 13500lbf | 66.7kN 15000lbf | 13.3kN 3000lbf | 3% | | | | yalecordage.com |
| | 24 DB | | ■■ | - | ■ | ■ | - | 75.7kN 17010lbf | 84kN 18900lbf | 17kN 3780lbf | 3% | | | | yalecordage.com |
| | 24 DB | | ■■ | - | ■ | ■ | - | 104kN 23400lbf | 115.7kN 26000lbf | 23.1kN 5200lbf | 3% | | | | yalecordage.com |
| □ | 32 DB | | | - | ■ | - | ■ | 44.5kN 10000lbf | 40kN 9000lbf | 8.9kN 2000lbf | 1.1% | | | | yalecordage.com |
| □ | 32 DB | | | - | ■ | - | ■ | 55.4kN 12450lbf | 49.8kN 11205lbf | 11kN 2490lbf | 1.1% | | | | yalecordage.com |
| □ | 32 DB | | | - | ■ | - | ■ | 67.5kN 15180lbf | 60.8kN 13662lbf | 13.5kN 3036lbf | 1.1% | | | | yalecordage.com |
| □ | 32 DB | | | - | ■ | - | ■ | 84kN 18900lbf | 75.7kN 17010lbf | 16.8kN 3780lbf | 1.1% | | | | yalecordage.com |
| ■ | 12 HB | | ■ | - | ■ | - | ■ | 61.5kN 13833lbf | 68.4kN 15370lbf | 13.7kN 3074lbf | 1% | | | | yalecordage.com |
| ■ | 12 HB | | ■ | - | ■ | - | ■ | 75.5kN 16974lbf | 83.4kN 18860lbf | 16.8kN 3772lbf | 1% | | | | yalecordage.com |
| ■ | 12 SB | | ■ | - | ■ | - | ■ | 83.7kN 18810lbf | 93kN 20900lbf | 18.6kN 4180lbf | 1% | | | | yalecordage.com |
| ■ | 12 HB | | ■ | - | ■ | - | ■ | 108kN 24300lbf | 120.1kN 27000lbf | 24kN 5400lbf | 1% | | | | yalecordage.com |
| | | | | | | | | | | | | | | | |

UPDATED Jun '25

ARBORIST climbing

# PRUSIK/HITCH CORD

**NB: PRICES BEING UPDATED Q3 '25**

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 buy 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.

**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!**

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'.

Right: *FTC TREE*'s *Phoenix* cord has now been replaced by the *Neon* and *Argon*

## 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 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 on12mm 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.

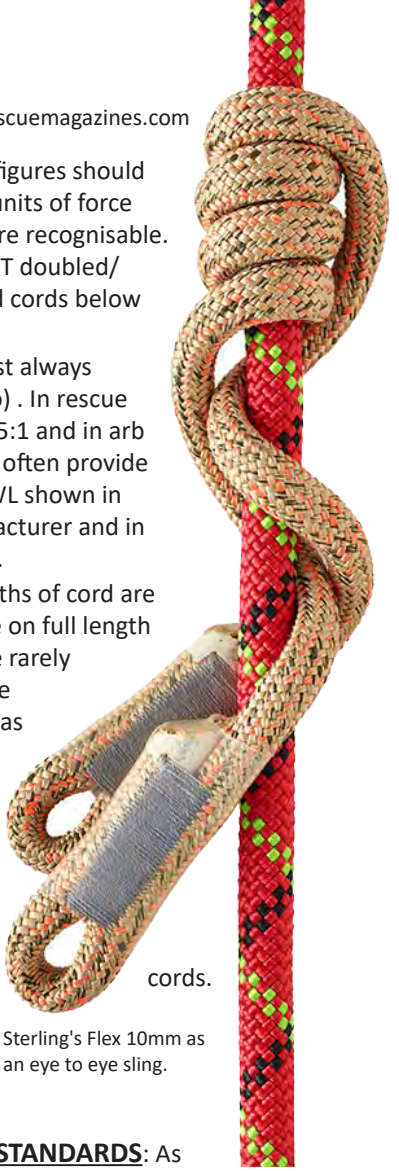
A solid circle ● in the '**SUITABLE FOR**' columns indicates that the cord is not totally suited to that role but it's OK. In the case of the HEAT-RESIST column you will only see the solid square for cord that is either predominantly sheathed in Technora or similar specialist fibre or there are such 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 between4 & 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 cords.



Sterling's Flex 10mm as an eye to eye sling.

## 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" |

**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 the new BlueWater Ropes

# 11mm Tech-G

## CUT/ABRASION RESISTANT

The newest addition to BlueWater' ArmorTech rope series! Tech-G features a Technora® Aramid sheath with a core rope of polyester and nylon for the ultimate ease and predictability of handling. Tech-G remains round in mechanical devices even under extreme circumstances.

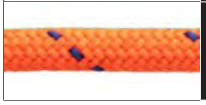
Dual Sheath for the ultimate in safety

**UL Classified Life Safety Rope, NFPA 2500 (1983) - General Use**

| | |
|---|---|
| Minimum Breaking Strength: | 8,992 lbf. (40.0 kN) |
| Certified Diameter: | 11.0mm |
| Elongation @ 300 lbf. | 4.3% |
| Elongation @ 600 lbf. | 7.1% |
| Elongation @ 1000 lbf. | 9.3% |

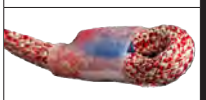
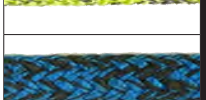
BlueWater Ropes
209 Lovvorn Road, Carrollton Georgia 30117
Tel: (770) 834-7515 > (800) 533-7673
www.BlueWaterRopes.com
email: info@BlueWaterRopes.com

ArmorTech and Tech-G are registered trademarks of BlueWater Ropes. Technora is a registered trademark of Teijin Aramid.

| Images NOT to Scale<br>COST: £$€ = Currency Conversion ONLY excludes eyes unless specified in NOTES. INC local taxes/VAT. Some not sold by m/ft, price shown is proportion of shortest length x10% and rounded up.<br>SHEATH: DB=Double Braid, KM=KernMantle | | | | COST | STATE | EYE to EYE COSTS | | | SIZE | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MODEL | COMPANY | ORIGIN | COST<br>per Metre<br>/3.28ft<br>US$ 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<br>mm | WEIGHT<br>g/m<br>lb/100'<br>ITEM | |
| | 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>3.50z | |
| | 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 | |

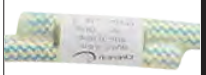
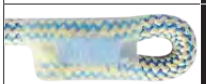
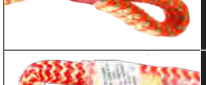
# ARBORIST HITCH CORD

| CONSTRUCTION | | | STANDARDS | SUITABLE FOR | | | MINIMUM BREAKING LOAD | | SWL/WLL | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MATERIALS: SHEATH CORE | SHEATH BRAID/ PLAIT | HAND SPLICEABLE PRE-SPLICED PRE-SEWN | STANDARDS | CLIMBING | BRAKING | HEAT RESIST | MBL Minimum Break Load Spliced Sewn | ABL Average Break Load Spliced Sewn | WLL Spliced Sewn *Average | OTHER COLOURS | | | NOTES | WWW. |
| ester/Technora Vectran | DB | ■ | ANSI | ■ | ■ | ■ | - | 24kN 5400lbf | 186kg 410lb | | | | | allgearinc.com |
| ester/Technora Vectran | DB | ■ | ANSI | ■ | ■ | ■ | - | 28kN 6300lbf | 186kg 410lb | | | | | allgearinc.com |
| nora/Vectran/ Polyester - | 16 | ■ ■ | ANSI | ■ | ■ | ■ | - | 27.5kN 6200lbf | 281kg 620lb | | | | | allgearinc.com |
| nora/Vectran/ Polyester - | 12 | ■ ■ | ANSI | ■ | ■ | ■ | - | 44.48kN 10000lbf | 454kg 1000lb | | | | | allgearinc.com |
| Polyester aron (Kevlar) | 32 KM | ■■ | ANSI | ■ | ■ | ● | 24kN 5400lbf | | 245kg 540lb | | | | | allgearinc.com |
| yester/Kevlar Polyester | 24 DB | ■ ■■ | ANSI | ■ | ■ | ● | 22kN 4945lbf | | 230kg 506lb | | | | also 65, 75, 80 & 85cm | arbpro.it |
| yester/Aramid Nylon | KM | ■ | ANSI | ■ | ■ | ● | 18kN 4046lbf | | | | | | | bealplanet.com |
| yester/Aramid Nylon | KM | ■ | ANSI | ■ | ■ | ● | 22kN 4945lbf | | | | | | | bealplanet.com |
| yester/Aramid Nylon | KM | ■ | ANSI | ■ | ■ | ● | 18kN 4046lbf | | | | | | | bealplanet.com |
| nora/Polyester Nylon | 32 KM | ■ | NFPA | ■ | ■ | | 19.7kN 4428lbf | | | | | | | bluewaterropes.com |
| Technora Polyester | 24 DB | ■ ■ | ANSI | ■ | ■ | ■ | 11.12kN 2500lbf | | | | | | | bluewaterropes.com |
| Technora Polyester | 24 DB | ■ ■ | ANSI | ■ | ■ | ■ | 19.5kN 4400lbf | | | | | | black=$34 | bluewaterropes.com |
| Nylon Nylon | 32 KM | ■ | - | ■ | ■ | | 12.4 9.3kN 2800lbf 2100lbf | | | | | | 19.4% elongation @300lbs | bluewaterropes.com |
| Nylon Nylon | 32 KM | ■ | - | ■ | ■ | | 17.7 10.4kN 4000lbf 2360lbf | | | | | | 17.9% elongation @300lbs | bluewaterropes.com |
| Nylon Nylon | 32 KM | ■ | - | ■ | ■ | | 17.7 11.1kN 4000lbf 2500lbf | | | | | | 19.8% elongation @ 300lbs | bluewaterropes.com |
| Polyester Polyester | 12 | ■ | - | ■ | ■ | | 8kN 1798lbf | | | | | | | cmcpro.com |

| Images NOT to Scale<br>COST: £$€ = Currency Conversion ONLY excludes eyes unless specified in NOTES. INC local taxes/VAT. Some not sold by m/ft, price shown is proportion of shortest length x10% and rounded up.<br>SHEATH: DB=Double Braid, KM=KernMantle | MODEL | COMPANY | ORIGIN | COST<br>COST per Metre /3.28ft US$ per Foot | STATE<br>OFF-REEL<br>1x EYE<br>2xEYES<br>SLING<br>BOUND<br>LOOP | EYE to EYE COSTS<br>COST<br>MANUFACTURED LENGTHS<br>£$€ = Currency Conversion ONLY<br>Specific Item Weight | SIZE<br>Ø mm | WEIGHT<br>WEIGHT g/m lb/100'<br>ITEM | |
|---|---|---|---|---|---|---|---|---|---|
| | Prusik 7<br>293017/37 | CMC | | £2.40<br>$2.95<br>$0.90<br>€2.70 | ■ | - | 7mm<br>9/32" | 75g<br>5lb | N |
| | Prusik 8<br>293018/38 | CMC | | £3.30<br>$2.70<br>$1.00<br>€2.70 | ■ | - | 8mm<br>5/16" | 74g<br>5lb | |
| | Prusik 9<br>293039 | CMC | | £2.95<br>$3.75<br>$1.15<br>€3.40 | ■ | - | 9mm<br>3/8" | 89g<br>6.1lb | |
| | Aztek Prusik 6<br>295001/2/12 | CMC | | -<br>-<br>-<br>- | ■ | 22.8cm/9" £00 $16 €00<br>106.6cm/42" £00 $24 €00 | 6mm<br>1/4" | 55.8g<br>0oz | |
| | Bound<br>383 386 | CMC | | -<br>-<br>-<br>- | ■■ | 46cm/18" £00 $21 €00<br>63.5cm/25" £00 $21 €00 | | 48/62g<br>1.7/2.2oz | |
| | Phoenix 8 | COURANT | | £0<br>$4.85<br>$1.49<br>€0 | ■■ | 65cm/00" £00 $00 €00<br>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 | Pol |
| | Phoenix Elipse 8<br>1of2 | COURANT | | -<br>-<br>-<br>- | ■ | 40cm/00" £00 $00 €00<br>60cm/00" £00 $00 €00<br>80cm/00" £00 $00 €00 | 8mm<br>5/16" | 0g<br>0lb | Pol |
| | Phoenix Elipse 8<br>2of2 | COURANT | | -<br>-<br>-<br>- | ■ | 120cm/00" £00 $00 €00<br>150cm/00" £00 $00 €00<br>200cm/00" £00 $00 €00 | 8mm<br>5/16" | 0g<br>0lb | Pol |
| | Phoenix 10 | COURANT | | £0<br>$5.50<br>$1.70<br>€0 | ■■ | 65cm/00" £00 $00 €00<br>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 | 10mm<br>25/64" | 0g<br>0lb | Pol |
|  | Armadillo 10<br>CT2277 | COUSIN-TRESTEC | | £6.15<br>$7.80<br>$2.45<br>€7.05 | ■■ | 70cm/28" £00 $00 €00<br>90cm/35" £00 $00 €00 | 10mm<br>5/16" | 59g<br>3.9lb | Poly |
| | Armor-Prus Poly 8 | DONAGHYS | | £0<br>$11.40<br>$3.50<br>€0 | ■■ | 70cm/28" £00 $00 €39<br>90cm/35" £00 $00 €41 | 8mm<br>5/16" | 69g<br>4.6lb | Poly |
| | Armor-Prus Poly 10 | DONAGHYS | | £0<br>$0<br>$0<br>€0 | ■■ | 00cm/00" £00 $00 €00<br>00cm/00" £00 $00 €00 | 10mm<br>25/64" | 78g<br>5.25lb | Poly |
| | Armor-Prus Performance 8 | DONAGHYS | | £0<br>$13.00<br>$4.00<br>€0 | ■■ | 00cm/00" £00 $00 €00<br>00cm/00" £00 $00 €00 | 8mm<br>5/16" | 69g<br>4.6lb | Poly<br>UH |
|  | Armor-Prus Performance 10 | DONAGHYS | | £0<br>$16.40<br>$5.00<br>€0 | ■■ | 00cm/00" £00 $00 €00<br>00cm/00" £00 $00 €00 | 10mm<br>25/64" | 78g<br>5.25lb | Poly<br>UH |
| | Tibor Loop 8<br>8820804/5/602000 | EDELRID | | £0<br>$9.65<br>$2.95<br>€0 | ■■ | 40cm/00" £00 $00 €00<br>50cm/00" £00 $00 €00<br>60cm/00" £00 $00 €00 | 8mm<br>5/16" | 0g<br>0lb | Pol<br>Pol |

# ARBORIST HITCH CORD

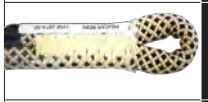
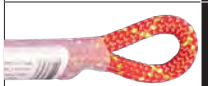
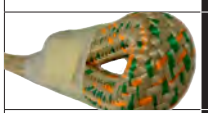
| CONSTRUCTION | | | STANDARDS | SUITABLE FOR | | | MINIMUM BREAKING LOAD | | SWL/WLL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MATERIALS: SHEATH CORE | SHEATH BRAID/ PLAIT | HAND SPLICEABLE PRE-SPLICED PRE-SEWN | STANDARDS | CLIMBING | BRAKING | HEAT RESIST | MBL Minimum Break Load Spliced Sewn | ABL Average Break Load Spliced Sewn | WLL Spliced Sewn *Average | OTHER COLOURS | | | NOTES | WWW. |
| Nylon<br>ylon/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 |
| yester/Aramid<br>Nylon | 24<br>DB | ■ | CE | ■ | ■ | ● | 24kN<br>5280lbf | | 0kg<br>0lb | | | | | vertical-living.mycourant.com |
| yester/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 |
| yester/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 |
| yester/Aramid<br>Nylon | 16<br>DB | ■ | CE | ■ | ■ | ● | 28kN<br>6160lbf | | 0kg<br>0lb | | | | | vertical-living.mycourant.com |
| ester/Technora<br>Nylon | 32<br>DB | ■ | CE | ■ | ■ | ● | 22kN<br>4945lbf | | 0kg<br>0lb | | | | 0.76 knotability | bealplanet.com |
| yester/Technora<br>Polyester | DB | ■<br>■ | ANSI | ■ | ■ | ● | 23kN<br>0lbf | | 0kg<br>0lb | | | | | bealplanet.com |
| yester/Technora<br>Polyester | DB | ■<br>■ | ? | ■ | ■ | ● | 32kN<br>0lbf | | 0kg<br>0lb | | | | | bluewaterropes.com |
| yester/Technora<br>MwPE/Kevlar | DB | ■<br>■ | ANSI | ■ | ■ | ■ | 28kN<br>6160lbf | | 0kg<br>0lb | | | | | bluewaterropes.com |
| yester/Technora<br>MwPE/Kevlar | DB | ■<br>■ | ? | ■ | ■ | ■ | 43kN<br>0lbf | | 0kg<br>0lb | | | | | bluewaterropes.com |
| yester/Aramid<br>yester/Aramid | 16<br>KM | ■ | CE<br>ANSI | ■ | ■ | ■ | 18kN<br>4840lbf | | 0kg<br>0lb | | | | | edelrid.com |

| Images NOT to Scale<br>COST: £$€ = Currency Conversion ONLY excludes eyes unless specified in NOTES. INC local taxes/VAT. Some not sold by m/ft, price shown is proportion of shortest length x10% and rounded up.<br>SHEATH: DB=Double Braid, KM=KernMantle | MODEL | COMPANY | ORIGIN | COST<br>COST<br>per Metre<br>/3.28ft<br>US$ per Foot | STATE<br>OFF-REEL<br>1x EYE<br>2xEYES<br>SLING<br>BOUND<br>LOOP | EYE to EYE COSTS<br>COST<br>MANUFACTURED LENGTHS<br>£$€ = Currency Conversion ONLY<br>Specific Item Weight | SIZE<br>Ø<br>mm | WEIGHT<br>WEIGHT<br>g/m<br>lb/100'<br>ITEM | |
|---|---|---|---|---|---|---|---|---|---|
| | Tibor 8 Open<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 |
|  | Tibor 10 Loop<br>8820804/5/602000 | EDELRID | | -<br>-<br>-<br>- | ■ | 60cm/00" £00 $00 €00<br>70cm/00" £00 $00 €00 | 10mm<br>25/64" | 0g<br>0lb | Poly<br>Poly |
|  | Tibor 10 Open<br>882070702000 | EDELRID | | -<br>-<br>-<br>- | ■ | 80cm/00" £00 $00 €00<br>90cm/00" £00 $00 €00 | 10mm<br>25/64" | 0g<br>0lb | Poly<br>Poly |
| | Silva Prusik 9 | ENGLISH BRAIDS | | | | | 9mm<br>3/8" | 66.7g<br>0lb | |
| | Prusik Pro 8 | ENGLISH BRAIDS | | | | | 8mm<br>5/16" | 44.8g<br>0lb | |
| | Argon 8 | 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 |
| | Néon 10 | FTC TREE | | -<br>-<br>-<br>- | ■ | 70cm/28" £28 $36 €32<br>90cm/35" £28 $36 €32 | 10mm<br>25/64" | 68g<br>2.4oz | Tech |
| | Inco 10 | GLEISTEIN | | -<br>-<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 |
|  | Timber 8 | 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 |
| | Timber 10 | LANEX (TENDON) | | £0<br>$5.00<br>$1.55<br>€0 | ■■ | | 10mm<br>25/64" | 73g | Poly |
| | Safe Prusik 8/ Runner 8 | 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" | | Pol |
| | Safe Prusik XTR 9<br>1of2 | 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>Dyn |
| | Safe Prusik 9.1 | 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 |
| | Safe Prusik 10 | 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<br>120cm/47"£00 $00 €00 | 10mm<br>25/64" | | Pol |

# ARBORIST HITCH CORD

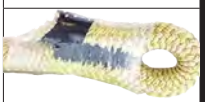
| CONSTRUCTION | | | STANDARDS | SUITABLE FOR | | | MINIMUM BREAKING LOAD | | SWL/WLL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MATERIALS: SHEATH CORE | SHEATH BRAID/ PLAIT | HAND SPLICEABLE PRE-SPLICED PRE-SEWN | STANDARDS | CLIMBING | BRAKING | HEAT RESIST | MBL Minimum Break Load Spliced Sewn | ABL Average Break Load Spliced Sewn | WLL Spliced Sewn *Average | OTHER COLOURS | | | NOTES | WWW. |
| yester/Aramid<br>yester/Aramid | 16<br>KM | ■ | CE<br>ANSI | ■ | ■ | ■ | 18kN<br>4840lbf | | 0kg<br>0lb | | | | | edelrid.com |
| yester/Aramid<br>yester/Aramid | 16<br>KM | ■ | CE<br>ANSI | ■ | ■ | ■ | 22kN<br>4945lbf | | 0kg<br>0lb | | | | | edelrid.com |
| yester/Aramid<br>yester/Aramid | 16<br>KM | ■ | CE<br>ANSI | ■ | ■ | ■ | 18kN<br>4840lbf | | 0kg<br>0lb | | | | | edelrid.com |
| | | | | | | | | | | | | | | englishbraids.com |
| | | ■ | CE | | | | 31.4kN | | | | | | | englishbraids.com |
| nnora/Polyster<br>Nylon | 32<br>KM | ■ | CE | ■ | ■ | ● | 18kN<br>4840lbf | | | | | | 75,80,85 & 110cm available soon. Phoenix Discontinued | ftc-tree.com |
| nnora/Polyster<br>Nylon | 16 | ■ | CE | ■ | ■ | ● | 18kN<br>4840lbf | | | | | | 75,80,85 & 110cm available soon. Phoenix Discontinued | ftc-tree.com |
| ester/Technora<br>Polyester | 24 | ■ | CE | | | | | | | | | | | gleistein.com |
| ester/Technora<br>Polyester | KM | ■ | CE | ■ | ■ | ● | 22kN<br>4945lbf | | | | | | | mytendon.com |
| ester/Technora<br>Polyester | KM | ■ | ■ | ■ | ■ | ● | | | | | | | | mytendon.com |
| yester/Aramid<br>Polyester | 20 | ■ | CE | ■ | ■ | ● | 24kN<br>5390lbf | | | | | | | liros.com |
| yester/Aramid<br>neema/Aramid | 24 | ■ | CE | ■ | ■ | ■ | 23kN<br>5156lbf | | | | | | | liros.com |
| yester/Aramid<br>Polyester | 20 | ■ | CE | ■ | ■ | ● | 28.6kN<br>6424lbf | | | | | | | liros.com |
| yester/Aramid<br>Polyester | 20 | ■ | CE | ■ | ■ | ● | 22.2kN<br>4998lbf | | | | | | | liros.com |

**Images NOT to Scale**
**COST**: £$€ = Currency Conversion ONLY excludes eyes unless specified in NOTES. INC local taxes/VAT. Some not sold by m/ft, price shown is proportion of shortest length x10% and rounded up.
SHEATH: DB=Double Braid, KM=KernMantle

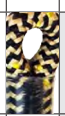
| | MODEL | COMPANY | ORIGIN | COST<br>COST per Metre /3.28ft US$ per Foot | STATE<br>OFF-REEL 1x EYE 2xEYES SLING BOUND LOOP | EYE to EYE COSTS<br>COST MANUFACTURED LENGTHS £$€ = Currency Conversion ONLY Specific Item Weight | | | | SIZE<br>Ø mm | WEIGHT<br>WEIGHT g/m lb/100' ITEM | N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Viper 8**<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 |
| | **Viper II 8**<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 |
| | **Boa 9**<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 | |
| | **Boa 9** Blue Ocean*<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 |
| | **Wrap Star 8.1** | 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 | Polye |
| | **Wrap Star 10.1** | 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 | Polye |
| | **Bulldog 8** | PELICAN ROPE | | -<br>-<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" | | Polye |
|  | **Bulldog 10** | PELICAN ROPE | | -<br>-<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" | | Polye |
| | **Technora Prusik 6** | PELICAN ROPE | | -<br>-<br>- | | - | - | - | - | 6mm<br>1/4" | 33.7g<br>2.2lb | |
| | **Technora Prusik 8.7** | 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 | |
| | **Segment 8** | PETZL | | -<br>-<br>- | | | | | | 8mm<br>5/16" | 43g<br>2.8lb | |
| | **Prusik 7**<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 | |
|  | **Prusik 8**<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 | |
| | **Lumi-Line 7**<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 | |
|  | **Eye & Eye VT 8** | 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" | ? | Polye<br>Poly |
| | **Tuff Cord 7** | PMI | | £2.65<br>$3.30<br>$1.05<br>€3.15 | | | | | | 7mm<br>9/32" | 38g<br>10.86lb | |

# ARBORIST HITCH CORD

| CONSTRUCTION | | | STANDARDS | SUITABLE FOR | | | MINIMUM BREAKING LOAD | | SWL/WLL | OTHER COLOURS | | | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MATERIALS: SHEATH CORE | SHEATH BRAID/ PLAIT | HAND SPLICEABLE PRE-SPLICED PRE-SEWN | STANDARDS | CLIMBING | BRAKING | HEAT RESIST | MBL Minimum Break Load Spliced Sewn | ABL Average Break Load Spliced Sewn | WLL Spliced Sewn *Average | | | | | |
| ester/Vectran lypropylene | 24 | ■ | CE UKCA | ■ | ■ | ● | | 20.3N 4563lbf 27.2kN 6107lbf | | | | | | marlowropes.com |
| ester/Vectran Vectran | 24 | ■ | CE UKCA | ■ | ■ | ● | | 38.16kN 8578lbf 27.4kN 6159lbf | | | | | | marlowropes.com |
| Polyester Polyester | 16 | ■ | CE UKCA | ■ | ● | | | 25.4kN 5710lbf 27.4kN 6159lbf | | | | | | marlowropes.com |
| yester (rPET)* yester (rPET) * | 16 | ■ | CE UKCA | ■ | ● | | | 26kN 5842lbf 27.4kN 6159lbf | | | | | *Blue Ocean made from recycled polyester (rPET) | marlowropes.com |
| ester/Technora HMPE | 24 DB | ■ | | ■ | ■ | ● | 5560lbf | | | | | | See also ROPE LOGIC for 9.1mm version of Wrap Star | notchequipment.com |
| ester/Technora HMPE | 24 DB | ■ | | ■ | ■ | ● | 6023lbf | | | | | | same price as 8.1 | notchequipment.com |
| ester/Technora Technora | KM | ■ | | ■ | ■ | ■ | 5400lbf | | | | | | | pelicanrope.com |
| ester/Technora Nylon | KM | ■ | | ■ | ■ | ● | | | | | | | | pelicanrope.com |
| Technora Nylon | | | | ■ | ■ | ■ | 2900lbf | | | | | | | pelicanrope.com |
| Technora Nylon | | ■ | | ■ | ■ | ■ | 6000lbf | | | | | | Also available as Hip-Prusik Lanyard with integral hook /carabiner options | pelicanrope.com |
| Polyester Nylon | 32 KM | ■ | CE NFPA UKCA | ■ | ● | | 13.5kN | | | | | | | petzl.com |
| Nylon Nylon | KM | ■ | UIAA | ■ | ● | | 10.7kN 2405lbf | | | | | | Both versions are bound slings but Single stitch is more supple, easier to pack down | pmirope.com |
| Nylon Nylon | KM | ■ | UIAA | ■ | ● | | 20kN 4496lbf | | | | | | Both versions are bound slings but Single stitch is more supple, easier to pack down | pmirope.com |
| Nylon Nylon | KM | | UIAA | ■ | ● | | 10.7kN 2405lbf | | | | | | Will glow in the dark for up to 10hrs after exposure to strong light source. 25' sewn cordelette | pmirope.com |
| ester/Technora /PP/Dyneema | 32 KM | ■ | | ■ | ■ | ■ | | 14.2kN 3192lbf | | | | | | pmirope.com |
| Nylon Nylon | KM | | CI | ■ | ■ | | 11kN 2473lbf | | | | | | Suoer-tight sheath over lower stretch core 5.1%@300lb | pmirope.com |

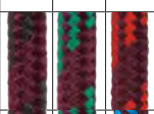
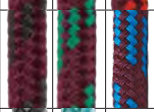
| Images NOT to Scale<br>COST: £$€ = Currency Conversion ONLY excludes eyes unless specified in NOTES. INC local taxes/VAT. Some not sold by m/ft, price shown is proportion of shortest length x10% and rounded up.<br>SHEATH: DB=Double Braid, KM=KernMantle | MODEL | COMPANY | ORIGIN | COST<br>COST<br>per Metre<br>/3.28ft<br>US$ per Foot | STATE<br>OFF-REEL<br>1x EYE<br>2xEYES<br>SLING<br>BOUND<br>LOOP | EYE to EYE COSTS<br>COST<br>MANUFACTURED LENGTHS<br>£$€ = Currency Conversion ONLY<br>Specific Item Weight | SIZE<br>Ø<br>mm | WEIGHT<br>WEIGHT<br>g/m<br>lb/100'<br>ITEM | |
|---|---|---|---|---|---|---|---|---|---|
| | ArmorPrus 8 | ROPE LOGIC/ 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/ 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/ TEUFELBERGER | | - | ■ | 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/ TEUFELBERGER | | - | ■ | 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/ TEUFELBERGER | | - | ■ | 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/ TEUFELBERGER | | - | ■■ | 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/ YALE | | - | ■ | 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 Line10 | ROPE LOGIC/ YALE | | - | ■ | 76cm/30" £30 $38 €35 | 10mm<br>25/64" | n/a | Tech |
| | Veritas 8 | ROPE LOGIC/ YALE | | - | ■ | 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/ YALE | | - | ■ | 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/ TEUFELBERGER | | - | ■ | 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 | Tec |
| | Flex 8 | ROPE LOGIC/ STERLING | | - | ■ | 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/ STERLING | | - | ■ | 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/ SAMSON | | - | ■ | 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 | Pol |
| | Wrap Star 9.1 | ROPE LOGIC/ NOTCH | | - | ■ | 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 |

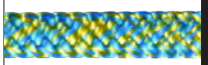
# ARBORIST HITCH CORD

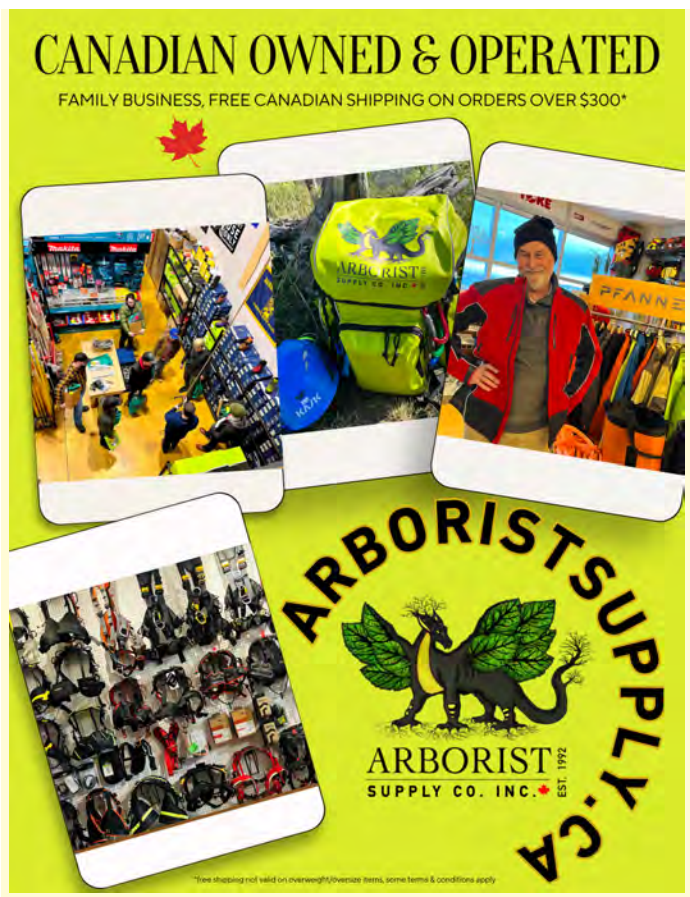
| CONSTRUCTION | | | STANDARDS | SUITABLE FOR | | | MINIMUM BREAKING LOAD | | SWL/WLL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MATERIALS: SHEATH CORE | SHEATH BRAID/ PLAIT | HAND SPLICEABLE PRE-SPLICED PRE-SEWN | STANDARDS | CLIMBING | BRAKING | HEAT RESIST | MBL Minimum Break Load Spliced Sewn | ABL Average Break Load Spliced Sewn | WLL Spliced Sewn *Average | OTHER COLOURS | | | NOTES | WWW. |
| yester/Technora MwPE/Kevlar | DB | ■ ■ | ANSI | ■ | ■ | ■ | | 28kN 6160lbf | | | | | Also available with pre-attached ISC ring | ropelogic.com |
| yester/Technora MwPE/Kevlar | DB | ■ ■ | ANSI | ■ | ■ | ■ | | 43kN 9400lbf | | | | | | ropelogic.com |
| yester/Technora nnora/Dyneema | 32 KM | ■ | ANSI | ■ | ■ | ■ | 24kN 5395lbf | | | | | | | ropelogic.com |
| yester/Technora nnora/Dyneema | 32 KM | ■ ■ | ANSI | ■ | ■ | ■ | 40.8kN 9172lbf | | | | | | | ropelogic.com |
| yester/Aramid Polyester | 32 KM | ■ ■ | | ■ | ■ | ● | 18kn 4046lbf | | | | | | | ropelogic.com |
| yester/Aramid Polyester | 32 KM | ■ ■ | | ■ | ■ | ● | 25kn 5620lbf | | | | | | Spliced version shown | ropelogic.com |
| nnora/Polyester Vectran | | ■ ■ | | ■ | ■ | ■ | 24kN 5400lbf | 35.5kN 8000lbf | 362kg 800lbf | | |  | also available as 'Old-School' version | ropelogic.com |
| nnora/Polyester Vectran | | ■ ■ | | ■ | ■ | ■ | | 48.9kN 11000lbf | 498kg 1100lbf | | | | | ropelogic.com |
| nnora/Polyester Polyester | | ■ ■ | | ■ | ■ | ● | 24kN 5400lbf | | 2.4kN 540lbf | | | | Uses recycled polyester fibres so colours vary | ropelogic.com |
| nnora/Polyester Polyester | | ■ ■ | | ■ | ■ | ● | 23.2kN 5220lbf | | | | | | spiced version shown. Uses recycled polyester fibres so colours vary | ropelogic.com |
| hnora/Nomex Vectran | | ■ ■ | | ■ | ■ | ■ | 26.7kN 6000lbf | 20kN 4500lbf | | | | | spliced version shown | ropelogic.com |
| yester/Technora Polyester | | ■ | | ■ | ■ | ● | 24.1kN 5418lbf | | | | | | | ropelogic.com |
| Twaron Polyester | | ■ | | ■ | ■ | ● | 31kN 6968lbf | | | | | | | ropelogic.com |
| yester/Aramid - | | ■ | | ■ | ■ | ● | | 39.1kN 8500lbf | 3.1kN 880lbf | | | | | ropelogic.com |
| yester/Technora HMPE | 24 DB | ■ | | ■ | ■ | ● | 24.4kN 5500lbf | | | | | | | ropelogic.com |
| | | | | | | | | | | | | | | |

| Images NOT to Scale<br>COST: £$€ = Currency Conversion ONLY excludes eyes unless specified in NOTES. INC local taxes/VAT. Some not sold by m/ft, price shown is proportion of shortest length x10% and rounded up.<br>SHEATH: DB=Double Braid, KM=KernMantle | | | | COST | STATE | EYE to EYE COSTS | SIZE | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|
| | MODEL | COMPANY | ORIGIN | COST<br>per Metre<br>/3.28ft<br>US$ 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<br>mm | WEIGHT<br>g/m<br>lb/100'<br>ITEM | |
| | 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>-<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 |
| | Prusik Sling 8<br>W2601R085 | SINGING ROCK | | -<br>-<br>-<br>- | ■ | 38cm/15" £11 $16 €13 | 8mm<br>5/16" | 48g<br>1.7oz | Poly |
| | Timber 10<br>W2610 | SINGING ROCK | | -<br>-<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 |
| | Prusik Sling10<br>W2602Y085 | SINGING ROCK | | -<br>-<br>-<br>- | ■ | 38cm/15" £13 $19 €15 | 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" | | |

# ARBORIST HITCH CORD

| CONSTRUCTION | | | STANDARDS | SUITABLE FOR | | | MINIMUM BREAKING LOAD | | SWL/WLL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MATERIALS: SHEATH CORE | SHEATH BRAID/ PLAIT | HAND SPLICEABLE PRE-SPLICED PRE-SEWN | STANDARDS | CLIMBING | BRAKING | HEAT RESIST | MBL Minimum Break Load Spliced Sewn | ABL Average Break Load Spliced Sewn | WLL Spliced Sewn *Average | OTHER COLOURS | | | NOTES | WWW. |
| Polyester Polyester | DB | ■ | | ■ | ● | | | 23kN 5000lbf | 1.9kN 430lbf | | | | | samsonrope.com |
| mid (Technora) mid (Technora) | DB | | | ■ | ■ | ■ | | 19kN 4200lbf | | | | | | samsonrope.com |
| mid (Technora) mid (Technora) | DB | ■ | | ■ | ■ | ■ | | 24kN 5300lbf | | | | | | samsonrope.com |
| Polyester nnora (Aramid) | DB | ■■ | | ■ | ■ | ● | | 35kN 7800lbf | |  | | | | samsonrope.com |
| Polyester nnora (Aramid) | DB | ■■ | | ■ | ■ | ● | | 45kN 10000lbf | |  | | | | samsonrope.com |
| lyester/Aramid - | 12 SB | ■■■ | ANSI | ■ | ■ | ■ | | 39.1kN 8500lbf | 3.1kN 880lbf | | | | | samsonrope.com |
| yester/Technora Polyester | KM | ■ | CE | ■ | ■ | ● | 18kN 4046lbf | | | | | | | singingrock.com |
| yester/Technora Polyester | KM | ■ | CE | ■ | ■ | ● | 18kN 4046lbf | | | | | | | singingrock.com |
| yester/Technora Polyester | KM | ■ | CE | ■ | ■ | ● | 20kN 4496lbf | | | | | | | singingrock.com |
| yester/Technora Polyester | KM | ■ | CE | ■ | ■ | ● | 18kN 4046lbf | | | | | | | singingrock.com |
| Polyester Polyester | DB | | | ■ | ■ | | 7kN 1573lbf | | | | | | 5mm also available | southernropes.com |
| Polyester Polyester | DB | | | ■ | ■ | | 9.5kN 2137lbf | | | | | | 5mm also available | southernropes.com |
| Polyester Polyester | DB | | | ■ | ■ | | 12.5kN 2823lbf | | | | | | 5mm also available | southernropes.com |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

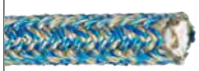
| Images NOT to Scale<br>COST: £$€ = Currency Conversion ONLY excludes eyes unless specified in NOTES. INC local taxes/VAT. Some not sold by m/ft, price shown is proportion of shortest length x10% and rounded up.<br>SHEATH: DB=Double Braid, KM=KernMantle | | | | COST | STATE | EYE to EYE COSTS | SIZE | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|
| | MODEL | COMPANY | ORIGIN | COST<br>per Metre<br>/3.28ft<br>US$ 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<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 $28 €22<br>65cm/26" £18 $28 €22<br>70cm/28" £22 $31 €27<br>75cm/30" £22 $31 €27 | 9mm<br>3/8" | | |
| | Copious Bee Line 10 | STEIN | | -<br>-<br>-<br>- | ■ | 75cm/30" £30 $33 €36<br>85cm/33" £30 $33 €36 | 10mm<br>25/64" | | |
| | Copious A-Tec 9 | STEIN | | -<br>-<br>-<br>- | ■ | 65cm/26" £24 $33 €29<br>70cm/28" £24 $33 €29<br>75cm/30" £24 $33 €29<br>85cm/33" £24 $33 €29 | 9mm<br>3/8" | | |
| | Copious P-Tec 9 | STEIN | | -<br>-<br>-<br>- | ■ | 75cm/30" £24 $33 €21<br>85cm/33" £24 $33 €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 $25 €23<br>48cm/19" £21 $26 €24 | 6.8mm<br>9/32" | 1.8lb | |
| | RIT 8 | STERLING | | -<br>-<br>-<br>- | ■ | 60cm/24" £24 $31 €29<br>70cm/28" £22 $28 €22<br>76cm/30" £22 $28 €22<br>81cm/32" £22 $28 €22 | 8mm<br>5/16" | | |
| | RIT 9 | STERLING | | £5.80<br>$7.50<br>$2.60<br>€6.90 | ■ | 70cm/28" £26 $34 €31<br>76cm/30" £26 $34 €31<br>81cm/32" £26 $34 €31<br>91cm/36" £26 $34 €31 | 9mm<br>3/8" | 4.2lb | |



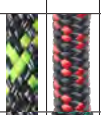
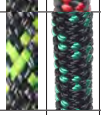
# ARBORIST HITCH CORD

| CONSTRUCTION | | | STANDARDS | SUITABLE FOR | | | MINIMUM BREAKING LOAD | | SWL/WLL | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MATERIALS: SHEATH CORE | SHEATH BRAID/ PLAIT | HAND SPLICEABLE PRE-SPLICED PRE-SEWN | STANDARDS | CLIMBING | BRAKING | HEAT RESIST | MBL Minimum Break Load Spliced Sewn | ABL Average Break Load Spliced Sewn | WLL Spliced Sewn *Average | OTHER COLOURS | | | NOTES | WWW. |
| Polyester Polyester | 16 SB | ■■■ | CE | ■ | ■ | | | 22.5kN | | | | | | steinworldwide.com |
| | | | | ■ | ■ | ■ | | | | | | | | steinworldwide.com |
| Polyester Polyester | 24 DB | ■ | CE | ■ | ■ | | | | | | | | | steinworldwide.com |
| vester/Technora Polyester | 24 DB | ■ | CE | ■ | ■ | ● | | | | | | | | steinworldwide.com |
| Twaron - | HB | ■■ | | ■ | ■ | ■ | 14 18.4kN 3147lbf 4136lb | | 1.4kN 314lbf | | | | Off the reel as RIT 900 | sterlingrope.com |
| Twaron Polyester | HB | ■■ | | ■ | ■ | ■ | | | | | | | | sterlingrope.com |
| Twaron Polyester | HB | ■ | ANSI | ■ | ■ | ■ | 31kN 6968lbf | | | | | | Off the reel as RIT Response Search Rope | sterlingrope.com |

Images NOT to Scale
COST: £$€ = Currency Conversion ONLY excludes eyes unless specified in NOTES. INC local taxes/VAT. Some not sold by m/ft, price shown is proportion of shortest length x10% and rounded up.
SHEATH: DB=Double Braid, KM=KernMantle

| | MODEL | COMPANY | ORIGIN | COST per Metre /3.28ft US$ per Foot | STATE OFF-REEL 1x EYE 2xEYES SLING BOUND LOOP | EYE to EYE COSTS COST MANUFACTURED LENGTHS £$€ = Currency Conversion ONLY Specific Item Weight | SIZE Ø mm | WEIGHT g/m lb/100' ITEM | |
|---|---|---|---|---|---|---|---|---|---|
| | 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 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 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 5/16" | 49.1g 3.3lb | Tec |
| | 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 5/16" | 52.1g 3.5lb | Poly 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 11/32" | 59.5g 4lb | Poly 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 25/64" | 62.5g 4.2lb | Poly Tech |
| | Ocean 8 | TEUFELBERGER | | £7.75<br>$5.70<br>$1.75<br>€5.20 | ■ ■ | 60cm/24" £28 - -<br>66cm/26" £19 $24 €22<br>70cm/28" £20 $25 €23<br>76cm/30" £20 $25 €23<br>81cm/32" - $25 €23<br>90cm/35" £28 - - | 8mm 5/16" | 50.1g 3.37lb | Pol |
| | 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 25/64" | 72.1g 4.75lb | Pol |
| | 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 5/16" | 50g 3.36lb | |
| | Sirius 10 | TEUFELBERGER | | £0<br>$0<br>$0<br>€0 | ■ | | 10mm 25/64" | 71g 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 25/64" | 72g 4.7lb | Pol |
| | Bee line 10 Poly | YALE | | £6.00<br>$7.90<br>$2.40<br>€7.20 | ■ ■ | | 10mm 25/64" | 72g 4.8lb | Tech |
| | Bee Line 8 Vectran | YALE | | £6.50<br>$7.45<br>$2.26<br>€6.80 | ■ ■ | | 8mm 5/16" | 55g 3.7lb | Tech |
| | Bee Line 10 Vectran | YALE | | £6.90<br>$8.50<br>$2.60<br>€7.75 | ■ ■ | | 10mm 25/64" | 71g 4.8lb | Tech |
| | Veritas 8 | YALE | | £5.00<br>$6.50<br>$2.00<br>€6.00 | ■ ■ | | 8mm 5/16" | | Tech |
| | Veritas 10 | YALE | | - | ■ | 70cm/28" £24 $30 €28<br>76cm/30" £24 $30 €28<br>81cm/32" £24 $30 €28 | 10mm 25/64" | | Tech |

# ARBORIST HITCH CORD

| CONSTRUCTION | | | STANDARDS | SUITABLE FOR | | | MINIMUM BREAKING LOAD | | SWL/WLL | | | | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MATERIALS: SHEATH CORE | SHEATH BRAID/ PLAIT | HAND SPLICEABLE PRE-SPLICED PRE-SEWN | STANDARDS | CLIMBING | BRAKING | HEAT RESIST | MBL Minimum Break Load Spliced Sewn | ABL Average Break Load Spliced Sewn | WLL Spliced Sewn *Average | OTHER COLOURS | | | | |
| yester/Technora Polyester | | ■ | | ■ | ■ | ■ | 24.1kN 5418lbf | | | | | | | sterlingrope.com |
| yester/Technora Polyester | | ■ | ANSI | ■ | ■ | ■ | 39kN 8767lbf | 24.1kN 5418lbf | | | | | | sterlingrope.com |
| chnora/Nomex Vectran | KM | ■■ | ANSI | ■ | ■ | ■ | 26.7kN 6000lbf | 20kN 4500lbf | | | | | | teufelberger.com |
| yester/Technora nnora/Dyneema | 32 KM | ■ | ANSI | ■ | ■ | ■ | 24kN 5395lbf | | | | | | | teufelberger.com |
| yester/Technora nnora/Dyneema | 32 KM | ■■■ | ANSI | ■ | ■ | ■ | 32.5kN 7305lbf | | 3.42kN 770lbf | | | | *Sherrill-34.2kN? | teufelberger.com |
| yester/Technora nnora/Dyneema | 32 KM | ■■■ | ANSI | ■ | ■ | ■ | 40.8kN* 9170lbf | | 4.32kN 972lbf | | | | *Sherrill-43kN? | teufelberger.com |
| yester/Aramid Polyester | 32* KM | ■ | CE ANSI | ■ | ■ | ● | 22kN 4945lbf | | 2.2kN 500lbf | | | | *Sherrill-24str? | teufelberger.com |
| yester/Aramid Polyester | 32 KM | ■ | ANSI | ■ | ■ | ● | 32.9kN 7400lbf | | 3.2kN 7400lbf | | | | | teufelberger.com |
| Polyester Polyester | 32 KM | | CE ANSI | ■ | ■ | | 14.4kN 3235lbf | | |  | | | | teufelberger.com |
| Polyester Polyester | 32 KM | | ANSI | ■ | ■ | | 24kN 5395lbf | | |  | | | | teufelberger.com |
| yester/Aramid Polyester | 32 KM | ■ | CE | ■ | ■ | ● | 32.9kN 7400lbf | | 170kg 374lb | | | | | treehog.co.uk |
| nnora/Polyester Polyester | | ■■■ | | ■ | ■ | ■ | | ?kN ?lbf | ?lbf | | | | Black version cost more | yalecordage.com |
| nnora/Polyester Vectran | | ■■■ | | ■ | ■ | ■ | 24kN 5400lbf | 35.5kN 8000lbf | 362kg 800lbf | | | | Black version cost more | yalecordage.com |
| nnora/Polyester Vectran | | ■■■ | | ■ | ■ | ■ | | 48.9kN 11000lbf | 498kg 1100lbf | | | | Black version cost more | yalecordage.com |
| nnora/Polyester Polyester | 24 DB | ■■■ | | ■ | ■ | ● | 24kN 5400lbf | | 2.4kN 540lbf | | | | Uses random lengths of coloured 5KD polyester | yalecordage.com |
| nnora/Polyester Polyester | 24 DB | ■■■ | | ■ | ■ | ● | | | | | | | Uses random lengths of coloured 5KD polyester | yalecordage.com |

UPDATED Jun '25

# ARBORIST SIT HARNESSES

## with Bridge and/or Sit Strap

**Non-bridge SRT harnesses being added in Q4 2025**

**2024**: Harnesses was the first GUIDE we had in ARBCLIMBER in issue 1, written in 2011, published in 2012 and in the intervening 12or 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 Willans 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 Willans, 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.*

Images NOT to scale

*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 Harness 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*

# ARBORIST SIT HARNESSES

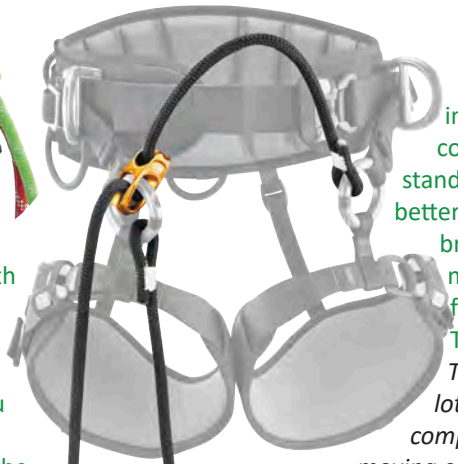
New in 2024 - DMM's *Kinisi Max* now has simpler (and cheaper) *Pro* version without the cammed bridge - not much difference in weight.

*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.

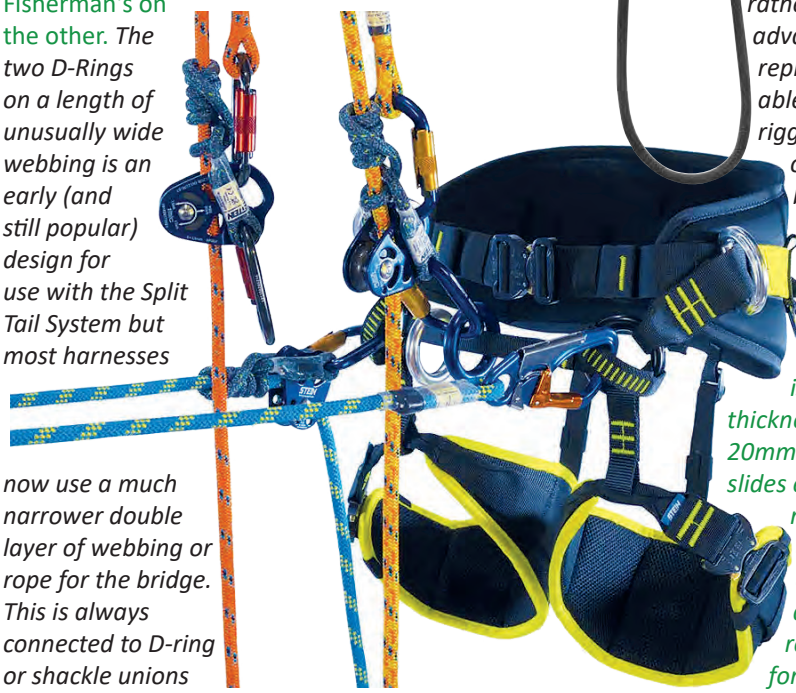
## THE FLOATING (SUSPENSION) BRIDGE

*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*



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 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 adjsutable length bridge shown on the left. We have already mentioned the Edelrid ajustment 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 it's 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 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 Austrialpin 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 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 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.*

## 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.*

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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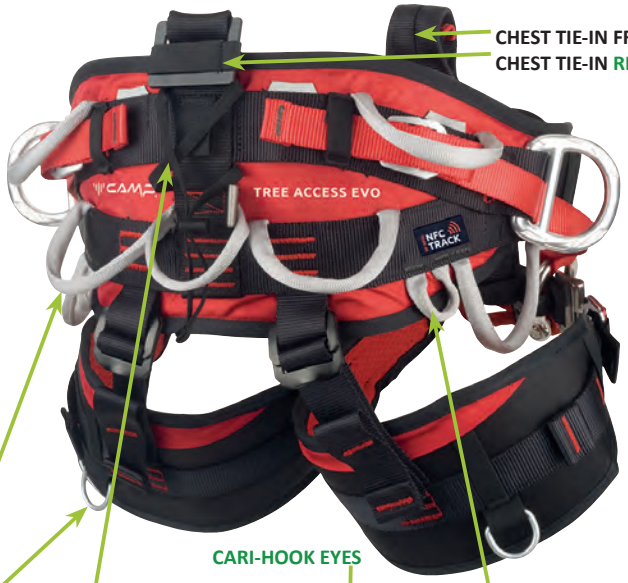
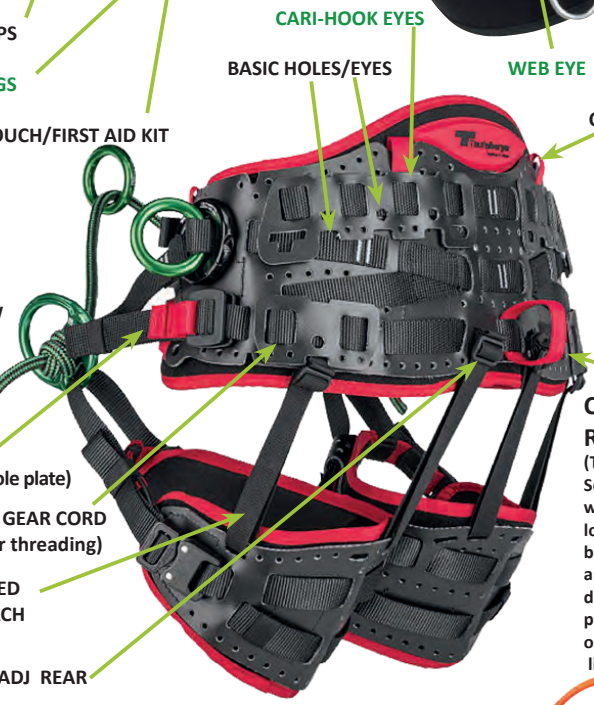
## FEMALE HARNESSES

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 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 arborsim 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*

# ARBORIST SIT HAR

*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 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 generallly 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 BELTPADDING 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

**FITTINGS and ACCESSORIES SHOWN MAY BE AN ADDITIONAL COST**

**KEY:**

**COST:** Approx, inc local tax/VAT
£$€=currency conversion only
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**N/A**: info Not Given
**STANDARDS**: EN358 = ■
EN813= ■ ANSI Z133= ■
ASTMF887= ■ CANADA= ■
AUS/NZ = ■ EAC = ■

| | | |
|---|---|---|
| | MANUFACTURER | |
| | MODEL VARIANT | |
| | ORIGIN | |
| | COST inc VAT/tax conv-only | |
| | WEIGHT | |
| | MAX LOAD | |
| | WAIST SIZES | 2 |
| | LEG SIZES | 3 |
| | STANDARDS | |
| LIFE SUPPORT | CHEST HARNESS ATTACH PTS | |
| LIFE SUPPORT | BUCKLES WAIST/LEGS | |
| LIFE SUPPORT | BRIDGE TYPE REPLACEABLE | |
| LIFE SUPPORT | BRIDGE LENGTHS ADJUSTABLE | |
| LIFE SUPPORT | CONNECTION to BRIDGE | |
| LIFE SUPPORT | BRIDGE UNION LENGTH ADJ | |
| LIFE SUPPORT | SRT D-RING/EYE REAR BELAY | |
| LIFE SUPPORT | POLE STRAP D's FOLD FLAT | |
| GEAR ATTACH | GEAR LOOPS SEWN EYES | |
| GEAR ATTACH | CUSTOM GEAR CORD EYES | |
| GEAR ATTACH | BASIC HOLES/EYES RINGS | |
| GEAR ATTACH | CARI-HOOK CARI-HOOK EYES | |
| GEAR ATTACH | CHAINSAW EYE/RINGHOOK | |
| GEAR ATTACH | ATTACH POUCH/FIRST AID | |
| WAIST | WAIST PADDING SWAMI | |
| WAIST | WAIST BELT WEBBING PADDING | |
| WAIST | WAIST ADJUST | |
| LEG | LEG LOOP HEIGHT PADDING | |
| LEG | ELASTICATED REAR LEG RISER | |
| LEG | LEG RISER ADJ REAR FRONT | |
| EXTRAS | RFID CHIP WEAR INDICATE | |
| EXTRAS | FIRST AID TRAUMA KIT | |
| EXTRAS | SIT STRAP BOSUNS CHAIR | |
| EXTRAS | OTHER SRT MODELS | |
| | NOTES | *2 |
| | WEBSITE | |

# ARBORIST SIT HARNESSES

| ARB PRO | BASHLIN | BASHLIN | BUCKINGHAM | BUCKINGHAM |
|---|---|---|---|---|
| **Tree Access 3.0** | **639 BBL 640 BBL** | **639 BBS 640 BBS** | **Agility** 1480 | **BuckTree Alto Verde** |
| | | | | |
| £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/DblBack | ISC Fast-Clip | Fast-Clip |
| 20mm Webbing ■ | Fixed 44mm Webbing no | Integrated sit strap no | Sewn segmented Rope ■ | Tied Rope ■ |
| 25/30cm no | 30cm/12" no | 51cm/20" no | 30cm/12" ■ | 30cm/12" ■ |
| Sliding Ring | 2x Sliding AlloySteel D-Rings | 2x Fixed AlloySteel D-Rings | Sliding Ring | Sliding Ring |
| Shackle ■ | Sewn/Fixed no | Sewn/Fixed no | 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 x6.8kg/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" |
| - | - | - | ■ | ■ |
| ■ - | - - | - - | ■ ■ | - ■ |
| - ■ | - - | - - | - - | - - |
| - - | - - | - - | - □ | - □ |
| - □ | - - | ■ - | - - | - - |
| - | - | - | - | - |
| 2 sewn load-bearing eyes on bridge union shackle | 639 orange stitch=Alu<br>*Not designated eyes but 4 to 8 Cari-Hooks can be installed on belt | 640 white stitch=Steel<br>*Not designated eyes but 4 to 8 Cari-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 |

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| | | | | | |
|---|---|---|---|---|---|
| | **MANUFACTURER** | **BUCKINGHAM** | **BUCKINGHAM** | **BUCKINGHAM** | **BUCKINGHAM** |
| | **MODEL VARIANT** | **Buck Craft** 17911 | **Ergovation SRT** 16906/ 2/4 | **ErgoLite** 17906 J17906 | **Ergo Pro** 17905 |
| | **ORIGIN** | ■ | ■ | ■ | ■ |
| | **COST** inc VAT/tax conv-only | £390 $487 €449 | £802 $1001 $1240 €923 | £754 $942 €869 | £651 $813 €750 |
| | **WEIGHT** | 2.1kg/4.6lb | 2.95kg/6.5lb 6.8lb | 2.3kg/5.1lb | 2.6kg/5.8lb |
| | **MAX LOAD** | 159kg / 350lb | 140kg/310lb | 159kg / 350lb | 159kg / 350lb |
| | **WAIST SIZES** | 4 sizes 71-112cm/28-44" | 4 sizes 71-112cm/28-44" | 4 sizes 71-112cm/28-44" | 4 sizes 71-112cm/28 |
| | **LEG SIZES** | n/a | n/a | n/a | n/a |
| | **STANDARDS** | ■ | ■ ■ ■ | ■ ■ ■ | ■ |
| LIFE SUPPORT | **CHEST HARNESS ATTACH PTS** | ☐ ■ | ☐ ■ | ☐ ■ | ☐ ■ |
| LIFE SUPPORT | **BUCKLES WAIST/LEGS** | AA Cobra Fast-Clip | Fast-Clip | Fast-Clip | Double D |
| LIFE SUPPORT | **BRIDGE TYPE REPLACEABLE** | 2x ⅜"Tied Ropes ■ | 7/16"Tied Rope (6 other options) ■ | Jacketed Rope ■ | 11mm Tied Rope ■ |
| LIFE SUPPORT | **BRIDGE LENGTHS ADJUSTABLE** | 102cm/40" ■ | 44cm/17.25" ■ | 30cm/12" no | n/a ■ |
| LIFE SUPPORT | **CONNECTION to BRIDGE** | Sliding Ring | Sliding Ring (6 other options) | - | Sliding Ring |
| LIFE SUPPORT | **BRIDGE UNION LENGTH ADJ** | 3-hole+D-ring plate ■ | 3-hole plate ■ | Shackle ■ | 4-hole plate ■ |
| LIFE SUPPORT | **SRT D-RING/EYE REAR BELAY** | - - - | - ☐ - | - - - | - ■ ■ |
| LIFE SUPPORT | **POLE STRAP D's FOLD FLAT** | ■ | ■ | ■* | ■ |
| GEAR ATTACH | **GEAR LOOPS SEWN EYES** | 3 - | 6 3* | 5 1 | 4 - |
| GEAR ATTACH | **CUSTOM GEAR CORD EYES** | - | - | - | - |
| GEAR ATTACH | **BASIC HOLES/EYES RINGS** | - 2 (+2 waist attach rings) | - - | - 2 | - 2 |
| GEAR ATTACH | **CARI-HOOK CARI-HOOK EYES** | ☐ 2 | ☐ - | ☐ 4 +8 on seat | - 4 |
| GEAR ATTACH | **CHAINSAW EYE/RINGHOOK** | - 2 x6.8kg/15lb | - - | - - | - ☐ |
| GEAR ATTACH | **ATTACH POUCH/FIRST AID** | ■ | ■ | ■ | ■ |
| WAIST | **WAIST PADDING SWAMI** | Thermo-Form - | Drilex foam ■ | Drilex foam ■ | Drilex foam ■ |
| WAIST | **WAIST BELT WEBBING PADDING** | 45mm/1.75" 20.3cm/8" | 45mm/1.75" 22.9cm/9" | 45mm/1.75" 19cm/7.5" | 45mm/1.75"17.5cm |
| WAIST | **WAIST ADJUST** | Central(ish) | Central +2 side | Central +2 side | 2x side |
| LEG | **LEG LOOP HEIGHT PADDING** | 45mm/1.75" 12cm/5" | 45mm/1.75" 15cm/6" | 45mm/1.75" 15cm/6" | 45mm/1.75" 14cm/5 |
| LEG | **ELASTICATED REAR LEG RISER** | - | - | - | - |
| LEG | **LEG RISER ADJ REAR FRONT** | ■ - | ■ - | ■ - | ■ ■ |
| EXTRAS | **RFID CHIP WEAR INDICATE** | - - | - - | - - | - - |
| EXTRAS | **FIRST AID TRAUMA KIT** | - ☐ | - ☐ | - ☐ | - ☐ |
| EXTRAS | **SIT STRAP BOSUNS CHAIR** | - - | - ☐ | - ■ | - - |
| EXTRAS | **OTHER SRT MODELS** | - | - | - | - |
| | **NOTES** | 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. | |
| | **WEBSITE** | buckinghammfg.com | buckinghammfg.com | buckinghammfg.com | buckinghammfg.co |

| | BUCKINGHAM | BUCKINGHAM |
|---|---|---|
| | Master 5.0 1490 1490T | Navigator 1470 |
| | | |
| | £460 $574 $771 €530 | £539 $673 €621 |
| | 2.3kg/5.05lb | 2.8kg/6.15lb |
| | 159kg / 350lb | 159kg / 350lb |
| -44" | 4 sizes 71-112cm/28-44" | 4 sizes 71-112cm/28-44" |
| | n/a | n/a |
| | ■ | ■ |
| | □ ■ | □ ■ |
| | Fast-Clip Pin&Hole | AA Cobra Fast-Clip |
| ■ | Sewn Dyneema Tape ■ | 2xTied Ropes ■ |
| | n/a no | 102cm/40" ■ |
| | Sliding Ring | Sliding Ring |
| | Sewn eyes | 3-hole plate |
| | - 4*x ■ - | - 4x ■ - |
| | ■ | ■ |
| | 4 2 (on legs) | 4 - |
| | - | - |
| | - 7 | - 6 |
| | - 4 | - 4 |
| | 2 x 2 x6.8kg/15lb | - 2 x6.8kg/15lb |
| | ■ | ■ |
| | Drilex foam - | Thermo-form - |
| /7" | 25mm/1"17.5cm/7" | 45mm/1.75" 20.3cm/8" |
| | 2x side | 1x Side |
| 5.5" | 45mm/1.75" 10cm/4" | 45mm/1.75" 15cm/6" |
| | ■ | ■ |
| | ■ - | ■ - |
| | - - | - - |
| | -□ | -□ |
| | - - | - - |
| | - | - |
| | *DRT & SRT soft eyes for various work and positioning options | *DRT & SRT soft eyes for various work and positioning options |
| om | buckinghammfg.com | buckinghammfg.com |

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| | | | | | |
|---|---|---|---|---|---|
| | **MANUFACTURER** | **CAMP** | **CAMP** | **CLIMAX** | **COURANT** |
| | **MODEL VARIANT** | **Tree Access Evo** | **Tree Access ST** (was ANSI) | **Atlas Tree Basic** | **Koala** |
| | **ORIGIN** | ■ | ■ | ■ | ■ |
| | **COST** inc VAT/tax conv-only | £315 $420 €380 | £374 $450 €420 | £140 $174 €169 | £333 $543 €372 |
| | **WEIGHT** | 1.96-2.03kg/4.3-5.5lb | 2.23kg / 4.9lb | 1.52kg/3.3lb | 1.5-1.7kg/ 3.3-3.74lb |
| | **MAX LOAD** | 140kg/310lb | 140kg/310lb | 140kg/310lb | 150kg/330lb |
| | **WAIST SIZES** | 2 sizes 80-135cm/31-53" | 2 sizes 80-135cm/31-53" | 1 size 80-127cm/31-50" | 3 sizes 60-120cm/23-47" |
| | **LEG SIZES** | 2 sizes 50-75cm/20-30" | 2 sizes 50-75cm/20-30" | 1 size 65-80cm/25-31" | 3 sizes 55-100cm/21-39" |
| | **STANDARDS** | ■ ■ ■ ■ | ■ ■ ■ ■ | ■ ■ | ■ ■ |
| LIFE SUPPORT | **CHEST HARNESS ATTACH PTS** | ☐ ■ | ☐ ■ | ☐ ■ | ☐ ■ |
| LIFE SUPPORT | **BUCKLES WAIST/LEGS** | 3-Bar/STS Fast-Clip | 3-Bar/STS Fast-Clip | Fast-Clips | AA Cobra Fast Clips |
| LIFE SUPPORT | **BRIDGE TYPE REPLACEABLE** | Sewn Jacketed Rope ■ | *2xSewn Jacketed Ropes ■ | Jacketed webbing no | Sewn Rope ■ |
| LIFE SUPPORT | **BRIDGE LENGTHS ADJUSTABLE** | 25/30* 32/37/42cm no | 25/30* 32/37/42cm no | n/a no | 1 or 2x 25/30/35cm no |
| LIFE SUPPORT | **CONNECTION to BRIDGE** | Sliding Ring | Sliding Ring | Sliding Ring | Sliding Ring |
| LIFE SUPPORT | **BRIDGE UNION LENGTH ADJ** | Shackles+ Rope eyes ■ | Shackles+ Rope eyes ■ | Rings | Openable Rings ■ |
| LIFE SUPPORT | **SRT D-RING/EYE REAR BELAY** | - ■ - | ■ ■ - | - ■+swivel - | - - - |
| LIFE SUPPORT | **POLE STRAP D's FOLD FLAT** | ■ | ■ | ■ | ■ |
| GEAR ATTACH | **GEAR LOOPS SEWN EYES** | 8* 4 | 8* 1 | 3 | 8 x10kg 4 |
| GEAR ATTACH | **CUSTOM GEAR CORD EYES** | - | - | - | - |
| GEAR ATTACH | **BASIC HOLES/EYES RINGS** | - 2* | - - | - - | - - |
| GEAR ATTACH | **CARI-HOOK CARI-HOOK EYES** | ☐ 6 | ☐ 6 | - - | ☐ 4 x15kg |
| GEAR ATTACH | **CHAINSAW EYE/RINGHOOK** | - - | 1 x15kg | - - | - - |
| GEAR ATTACH | **ATTACH POUCH/FIRST AID** | ■ | ■ | - | ■ |
| WAIST | **WAIST PADDING SWAMI** | Mesh/Foam - | Mesh/Foam - | Mesh/Foam - | Thermo-form - |
| WAIST | **WAIST BELT WEBBING PADDING** | 44mm/1.75" 19cm/7.5" | 44mm/1.75" 19cm/7.5" | 45mm/1.75" 15cm/6" | 45mm/1.75" 19cm/7.5" |
| WAIST | **WAIST ADJUST** | Double Sided | Double Sided | Double Sided | Central+both sides |
| LEG | **LEG LOOP HEIGHT PADDING** | 33mm/1.5" 14cm/5.5" | 44mm/1.75" 14cm/5.5" | 45mm/1.75"10cm/4" | 25mm/1"18cm/7.25" |
| LEG | **ELASTICATED REAR LEG RISER** | - | - | ■ | ■ |
| LEG | **LEG RISER ADJ REAR FRONT** | ■ - | ■ - | ■ - | ■ ■ |
| EXTRAS | **RFID CHIP WEAR INDICATE** | ■ - | ■ - | - - | - ■ (bridge rope) |
| EXTRAS | **FIRST AID TRAUMA KIT** | ☐ - | ☐ - | ☐ - | ☐ |
| EXTRAS | **SIT STRAP BOSUNS CHAIR** | ☐ ☐ | ☐ ☐ | -☐ | -☐ |
| EXTRAS | **OTHER SRT MODELS** | ■ | ■ | ■ | ■ |
| | **NOTES** | *inc 2 small loops *Metal rings are on leg loops web* or 10.5mm Rope bridge | *bridge is 10.5mm rope &/or web* & can have 3-way swivel *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 |
| | **WEBSITE** | camp.it | camp.it | productosclimax.com | mycourant.com |

# ARBORIST SIT HARNESSES

| DMM | DRAGON ARB | DRAYER/HABERKORN | DRAYER/HABERKORN | EDELRID |
|---|---|---|---|---|
| Kinisi Max Pro | Dragon 2 TH030B | TREE AUSTRIA 3.2 | TREE AUSTRIA Pro | Tree Rex Triple Lock |
| | | | | |
| £650580 $850760 €770690 | £215 $270 €260 | £385 $515 €430 | £430 $576 €490 | £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 20mmWebbing | 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 *PRO* bridge is knotted (and cheaper). Most components replaceable. | | | | *Can be purchased without SRT insert. Primary bridge adjusts via prusic (included). *2 on legs |
| dmmwales.com | buxtons.net/dragon | drayer.de | drayer.de | edelrid.com |

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| | | | | | |
|---|---|---|---|---|---|
| | **MANUFACTURER** | **EDELRID** | **HARKIE** | **HONEYWELL/KOMET** | **HONEYWELL/KOMET** |
| | **MODEL VARIANT** | **TreeRaptor** | **Ascend A1** | **Butterfly II** | **DragonFly II** |
| | **ORIGIN** | | | | |
| | **COST** inc VAT/tax conv-only | £330 $420 €350 | £253 $315 €305 | £275 $432 €347 | £350 $436 €422 |
| | **WEIGHT** | 1.5kg/3.3lb | 1.94kg/4.3lb | 2.3kg/5lb | 2.35kg/5lb |
| | **MAX LOAD** | 150kg/330lb | 100kg/220lb | 140kg / 308lb | 140kg / 308lb |
| | **WAIST SIZES** | 2 sizes 68-121cm/26-47" | 3 sizes 75-132cm/30-52" | 3 sizes 76-138cm/28-54" | 3 sizes 76-138cm/28-54" |
| | **LEG SIZES** | 2 sizes 50-72cm/20-29" | 3 sizes 40-100cm/16-39" | 3 sizes 40-100cm/16-39" | 3 sizes 40-100cm/16-39" |
| | **STANDARDS** | ■ ■ ■ ■ | ■ ■ | ■ ■ ■ | ■ ■ ■ |
| LIFE ATTACH | **CHEST HARNESS ATTACH PTS** | ☐ - | - - | ☐ - | ☐ - |
| LIFE ATTACH | **BUCKLES WAIST/LEGS** | Edelrid Buckles | AA Cobra Fast Clip | Fast Clip | Fast Clip |
| LIFE ATTACH | **BRIDGE TYPE REPLACEABLE** | 2x Tied Ropes ■ | Dbl Web ■ | Webbing ■ | Webbing ■ |
| LIFE ATTACH | **BRIDGE LENGTHS ADJUSTABLE** | 110cm/44"no | 25/30/35cm no | 25/30/35cm/ **no** | 25/30/35cm **no** |
| LIFE ATTACH | **CONNECTION to BRIDGE** | Sliding Ring | 2x Sliding Rings | Sliding Ring | - |
| LIFE ATTACH | **BRIDGE UNION LENGTH ADJ** | 3-hole+D-ring Plates ■ | Shackle - | Shackle ■ | Shackle ■ |
| LIFE ATTACH | **SRT D-RING/EYE REAR BELAY** | - - ■ | - - - | - - - | - - - |
| LIFE ATTACH | **POLE STRAP D's FOLD FLAT** | ■ | ■ | ■ | ■ |
| GEAR ATTACH | **GEAR LOOPS SEWN EYES** | 4x 25kg - | 3 - | 4 - | 4 - |
| GEAR ATTACH | **CUSTOM GEAR CORD EYES** | ■ x 10kg | - | - | - |
| GEAR ATTACH | **BASIC HOLES/EYES RINGS** | 3x 10kg | - - | - 2 | - 2 |
| GEAR ATTACH | **CARI-HOOK CARI-HOOK EYES** | ☐ 2-4* | 1x L Caritool 2 | - 2 | - 2 |
| GEAR ATTACH | **CHAINSAW EYE/RINGHOOK** | - - | - - | - ☐ | - ☐ |
| GEAR ATTACH | **ATTACH POUCH/FIRST AID** | ■ | - | - | - |
| WAIST | **WAIST PADDING SWAMI** | Mesh/ Foam - | Mesh/Foam - | Thermo-form - | Thermo-form - |
| WAIST | **WAIST BELT WEBBING PADDING** | 45mm/1.75" 20cm/7.9" | 45mm/1.75" 20cm/7.9" | 45mm/1.75" 17.5cm/7" | 45mm/1.75" 17.5cm/7" |
| WAIST | **WAIST ADJUST** | Centre | Central | Single Side | Single Side |
| LEG | **LEG LOOP HEIGHT PADDING** | 28mm/1.1"15cm/5.9" | 45mm/1.75" 23.5cm/9.25" | 45mm/1.75"15cm/6" | 45mm/1.75"15cm/6" |
| LEG | **ELASTICATED REAR LEG RISER** | ■ | ■ | ■ | - |
| LEG | **LEG RISER ADJ REAR FRONT** | ■ ■ | ■ ■ | ■ ■ | ■ - |
| EXTRAS | **RFID CHIP WEAR INDICATE** | ■ ■ | - - | - - | - - |
| EXTRAS | **FIRST AID TRAUMA KIT** | ☐ | ☐ ☐ | - - | - - |
| EXTRAS | **SIT STRAP BOSUNS CHAIR** | - - | - - | - - | ■ |
| EXTRAS | **OTHER SRT MODELS** | ■ | - | - | - |
| | **NOTES** | New in 2024<br>*2 on legs | DISCONTINUED.<br>Hi-Viz panels on leg loops | Morpho models Discontinued | Integrated sit strap version of the Butterfly, interchangeable with the Butterfly's leg-loops |
| | **WEBSITE** | edelrid.com | harkieglobal.com | sps.honeywell.com | sps.honeywell.com |

# ARBORIST SIT HARNESSES

| | | | | |
|---|---|---|---|---|
| | | | | |
| **HUSQVARNA** | **JMP INTER** | **JMP INTER** | **NEOFEU** | **NOTCH** |
| **Climbing Harness** | **Treewor C U UC** | **Treeman SRT** | **ARB'O** | **Sentinel** |
| | | | | |
| £679 $650 €555 | £280 $352 €337 | £227 $283 €274 | £281 $350 €325 | £415 $450 €540 |
| 2.5kg / 5.5lb | 1.4-1.6kg/3-3.5lb | 1.43-1.64kg/3.2-3.6lb | 1.75kg/3.8lb | 1.8-2kg/4.1-4.2lb |
| 150kg / 330lb | 150kg/330lbs | 150kg/330lbs | 140kg/308lb | 140kg/308lb |
| 1 size | 2 sizes 70-110cm/ | 2 sizes 70-110cm/27-43" | 4 sizes 65-135*cm/25-53" | 2 sizes 71-112cm/28-44" |
| 1 size | 2 sizes 45-70cm/ | 2 sizes 45-70cm/18-27" | 4 sizes 45-90*cm/18-35" | 2 sizes 58-94cm/23-37" |
| | | | | |
| - - | | | | - |
| AA Cobra Fast Clip | Fast Clip | Fast Clip | Fast Clip | Hooked Fast Clip |
| 2x Tied Rope | Sewn webbing | Tied Rope | 2x Tied *Rope | 1x Tied Rope |
| 123/180cm | 25 30 35cm/ no | 35/45cm | 35/45cm | 24/27" |
| Sliding Ring | Sliding Ring | Sliding Ring | 2 x Sliding Rings | Sliding Ring |
| 5-hole + D-ring Plate | Openable Ring | 3-hole plate | 3 hole Rig-Plates | 3 hole Rig-Plates |
| - - - | - - - | - - | - - - | - - - |
| | | | | |
| - 4 | 4 | 4 - | 2 1 | 8 1 |
| | - | - | - | - |
| -12 | - 2 | - 2 | - 6 + 4 on legs* (x10kg) | - 2 |
| - 12 | - 2 | - 4 | - 6 | - 4 |
| 1 - | - - | - - | - | - |
| | | | - | |
| Mesh/Foam | Mesh/Foam - | | Mesh/Foam | Mesh/Foam |
| 25mm/1"24cm/9.5" | 44mm/1.75" 17.5cm/7" | 45mm/1.75" 24cm/9.5" | 44mm/1.75" 24cm/9.5" | 45mm/1.75" 20cm/7.9" |
| Central | Central | Single Side | 1x Side | 1x Side |
| 25mm/1" 17.5cm/7" | 44mm/1.75"15cm/6" | 45mm/1.75" 16cm/6.3" | 44mm/1.75" 11cm/4.3" | 25mm/1"14.5cm/5.6" |
| | | | | |
| - | - | - | | - |
| - - | - - | - - | - - | - - |
| - - | - - | - - | - - | - - |
| - - | - - | - - | - | - - |
| - | - | - | - | - |
| All life-support attachment points are coloured blue. Waist buckle has dust cover. | UC (Comfort) has thicker padding | | *reinforced Plastic rings 10kg *largest XXL size on request ***Aramid** & Nylon bridges included | Also Black/Lime Green. Chainsaw hook can be moved to either side.DISCONTINUED |
| husqvarna.com | jmpinter.com | jmpinter.com | neofeu.com | notchequipment.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 = ■

| | | | | | |
|---|---|---|---|---|---|
| | MANUFACTURER | NOTCH | PETZL | PETZL | PROTEKT |
| | MODEL VARIANT | Catalyst | Seqouia | Seqouia SRT | Tree Up TH-O20 |
| | ORIGIN | | | | |
| | COST inc VAT/tax conv-only | £415 $450 €540 | £365 $450 €386 | £389 $520 €440 | £140 $175 €170 |
| | WEIGHT | 2.1kg/4.7lb | 1.48-1.6kg/3.26-3.5lb | 1.58-1.7kg/3.5-3.75lb | 1.45kg/3.2lb |
| | MAX LOAD | 140kg/308lb | 140kg/308lb | 140kg/308lb | 100kg/220lb |
| | WAIST SIZES | 2 sizes 80-132cm/31-52" | 3 sizes 65-120cm/25-47" | 3 sizes 65-120cm/25-47" | 3 sizes 75-132cm/30-52" |
| | LEG SIZES | 2 sizes 60-82cm/23-32" | 3 sizes 44-65cm/17-26" | 3 sizes 44-65cm/17-26" | 3 sizes 40-90cm/16-35" |
| | STANDARDS | ■ ■ ■ ■ | ■ ■ ■ +UKCA | ■ ■ ■ +UKCA | ■ ■ |
| LIFE CRITICAL | CHEST HARNESS ATTACH PTS | ☐ - | ☐ - | ☐ ■ | ☐ - |
| LIFE CRITICAL | BUCKLES WAIST/LEGS | Fast Clip | Petzl FAST & FAST LT+ | Petzl DblBack & FAST LT+ | AA Cobra Fast Clip |
| LIFE CRITICAL | BRIDGE TYPE REPLACEABLE | 1x Tied Rope ■ | 1 or 2 Sewn Rope ■ | 1 or 2 Sewn Rope ■ | Double 20mmWeb ■ |
| LIFE CRITICAL | BRIDGE LENGTHS ADJUSTABLE | 24/27" ■ | 25/30/35cm no | 25/30/35cm no | 25/30/35cm no |
| LIFE CRITICAL | CONNECTION to BRIDGE | Sliding Ring (wear indicator) | * | * | Sliding Ring |
| LIFE CRITICAL | BRIDGE UNION LENGTH ADJ | 3 hole Rig-Plates | 2 holes +D-ring Plates ■ | 2 holes +D-ring Plates ■ | Shackles |
| LIFE CRITICAL | SRT D-RING/EYE REAR BELAY | - - - | - - - | - ■ - | - - - |
| LIFE CRITICAL | POLE STRAP D's FOLD FLAT | ■ | ■ | ■ | ■ |
| GEAR ATTACH | GEAR LOOPS SEWN EYES | 4 2 (above each side-D) | 9 2 | 9 2 | - 3 |
| GEAR ATTACH | CUSTOM GEAR CORD EYES | - - | - | - | - |
| GEAR ATTACH | BASIC HOLES/EYES RINGS | - - | - - | - - | - - |
| GEAR ATTACH | CARI-HOOK CARI-HOOK EYES | - 2 | ☐ 5 | ☐ 5 | ☐ 2to4 |
| GEAR ATTACH | CHAINSAW EYE/RINGHOOK | ■ - | - - | - - | - |
| GEAR ATTACH | ATTACH POUCH/FIRST AID | ■ | ■ | ■ | - |
| WAIST | WAIST PADDING SWAMI | Thermo-form - | Thermo-form - | Thermo-form - | Mesh/Foam - |
| WAIST | WAIST BELT WEBBING PADDING | 45mm/1.75" 18cm/7" | 44mm/1.75" 19cm/7.5" | 44mm/1.75" 19cm/7.5" | 45mm/1.75" 20cm/7.9" |
| WAIST | WAIST ADJUST | 1x Side | 1x Side | double sided | Central |
| LEG | LEG LOOP HEIGHT PADDING | 25mm/1"15cm/6" | 25mm/1" 16cm/6.3" | 25mm/1" 16cm/6.3" | 45mm/1.75" 23.5cm/9.25" |
| LEG | ELASTICATED REAR LEG RISER | ■ | ■ | ■ | ■ |
| LEG | LEG RISER ADJ REAR FRONT | ■ ■ | ■ - | ■ - | ■ ■ |
| EXTRAS | RFID CHIP WEAR INDICATE | - ■ ■ | - - | - - | - - |
| EXTRAS | FIRST AID TRAUMA KIT | - - | - - | - - | - - |
| EXTRAS | SIT STRAP BOSUNS CHAIR | - - | - ☐ | - ☐ | ■ - |
| EXTRAS | OTHER SRT MODELS | - | ■ | ■ | ■ |
| | NOTES | Sentinel replacememnt from 2024. Bridge ring hs wear indicator | * Option Ring or Swivel 180cm Adjustable bridge option | * Option Ring or Swivel 180cm Adjustable bridge option | Bridge attachment webbing length adjusted via rear buckle |
| | WEBSITE | notchequipment.com | Petzl.com | Petzl.com | protekt.pl |

# ARBORIST SIT HARNESSES

| | | | | |
|---|---|---|---|---|
| | | | | |
|  |  |  |  |  |
| **PROTEKT** | **PROTEKT** | **R-EASY CLIMBER** | **ROCK EMPIRE** | **ROCK EMPIRE** |
| **Tree Up** TH-030mX | **Tree Up** TH-050mX | **Fox** **Fox Leather** | **Sherman** | **Skill Tree** |
| | | | | |
| £190 $240 €230 | £190 $240 €230 | £309 $385 €354 €384 | £266 $346 €316 | £220 $275 €250 |
| 1.94kg/4.3lb | 2.6kg/5.7lb | 1.6kg/3.5lb 1.7kg/3.7lb | 1.88-1.95kg/4.1-4.3lb | 1.79kg/3.94lb |
| 140kg/308lb | 140kg/308lb | 140kg/308lb | 140kg/308lb | 140kg/308lb |
| 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" | 2 sizes 70-130cm/27-51" |
| 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" | 2 sizes 54-80cm/21-31.5" |
| | | | | |
| - | - | - - | - - | - - |
| AA Cobra Fast Clip | AA Cobra Fast Clip | Fast Clip | Fast-Clip | Fast-Clip |
| 20mm Webbing | 20mm Webbing | 1/2 Sewn Rope(s) | 2x 11mmTied Rope | 1x 11mmTied Rope |
| 25/30/35cm no | 25/30/35cm no | 25/30/35cm no | 130cm/51" | 130cm/51" |
| Sliding Ring | Sliding Ring | Sliding Ring | Sliding Ring | Sliding Ring |
| Shackles | Shackles | Openable rings | 3 hole Plates | 2 hole Plates |
| - - - | - - - | - - - | - - - | - - - |
| | | | | |
| - 3 | - 3 | 11* | 7 3 | 6 2 |
| - | - | - | 5 | - |
| - - | - - | - - | - 4 | - 2 |
| 2to4 | 2to4 | - 6 | 2 | 11 |
| - | - | - - | - - | - - |
| - | - | | - | - |
| Mesh/Foam - | Mesh/Foam - | Thermo-form - | Mesh/Foam - | Mesh/Foam - |
| 45mm/1.75" 20cm/7.9" | 44mm/1.75" 20cm/7.9" | 45mm/1.75"20cm/7.9" | 4x30mm/4x1.25" 22cm/8.7" | 44+30mm/1.25" 17.5cm/7" |
| Central | Central | 1x Side | 1x Side | 1x Side |
| 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" | 44mm/1.75" 12.5cm/55" |
| | | | | - |
| | | - | | |
| - - | - - | - - | - - | - - |
| - - | - - | - - | - | - - |
| - - | - | - - | - - | - - |
| | | - | | |
| 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 | Introduced in 2024 | |
| protekt.pl | protekt.pl | r-eshop.com | rockempire.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 = ■

| | | | | | |
|---|---|---|---|---|---|
| | MANUFACTURER | SHERRILL TREE | SIMARGHU | SIMARGHU | SINGING ROCK |
| | MODEL VARIANT | Edge II | Fire - Male | Gemini - Female | Arbo Master |
| | ORIGIN | | | | |
| | COST inc VAT/tax conv-only | £385 $480-510 €465 | £380 $480 €460 | £380 $480 €460 | £270 $340 €310 |
| | WEIGHT | 1.9kg/4.2lb | 2.5-2.6kg/5.5-5.7lb | 2.3kg/5lb | 1.7kg/3.7lb |
| | MAX LOAD | 159kg/350lb | 140kg/308lb | 140kg/308lb | 120kg/264lb |
| | WAIST SIZES | 4 sizes 71-112cm/28-44" | 2 sizes 69-107cm/27-42" | 1 size 66-86cm/26-34" | 2 sizes 65-130cm/25-51" |
| | LEG SIZES | n/a | 1 size 43-69cm/17-27" | 1 size 43-69cm/17-27" | 2 sizes 45-75cm/18-29" |
| | STANDARDS | ■ | ■ ■ | ■ ■ | ■ ■ |
| LIFE CRITICAL | CHEST HARNESS ATTACH PTS | - - | ☐ - | ☐ - | ☐ - |
| LIFE CRITICAL | BUCKLES WAIST/LEGS | AA Cobra Fast Clip | Fast-Clip | Fast-Clip | Fast-Clip |
| LIFE CRITICAL | BRIDGE TYPE REPLACEABLE | 1x Tied Rope ■ | 1x Tied Rope ■ | 1x Tied Rope ■ | 2x Tied Ropes ■ |
| LIFE CRITICAL | BRIDGE LENGTHS ADJUSTABLE | 102cm/40" ■ | 130cm/51" ■ | 130cm/51" ■ | 130cm/51" ■ |
| LIFE CRITICAL | CONNECTION to BRIDGE | Sliding Ring | Sliding Ring | Sliding Ring | Sliding Ring |
| LIFE CRITICAL | BRIDGE UNION LENGTH ADJ | 3 holes +D-ring ■ | 3 holes +D-ring ■ | 3 holes +D-ring ■ | 1 hole +D-ring Plate ■ |
| LIFE CRITICAL | SRT D-RING/EYE REAR BELAY | - - - | - - - | - - - | - - - |
| LIFE CRITICAL | POLE STRAP D's FOLD FLAT | ■ | 2x pairs ■ | ■ | ■ |
| GEAR ATTACH | GEAR LOOPS SEWN EYES | 5 3 | 4 2 | 2 2 | 4 x5kg 2 x5kg |
| GEAR ATTACH | CUSTOM GEAR CORD EYES | - | - | - | ■ x5kg |
| GEAR ATTACH | BASIC HOLES/EYES RINGS | - 2 | - - | - - | - 2 x10kg |
| GEAR ATTACH | CARI-HOOK CARI-HOOK EYES | - 4 | - 2 | - 4 | ☐ 6 |
| GEAR ATTACH | CHAINSAW EYE/RINGHOOK | - - | ■ | ■ | 1 x35kg |
| GEAR ATTACH | ATTACH POUCH/FIRST AID | ■ | ■ | ■ | ■ |
| WAIST | WAIST PADDING SWAMI | Mesh/Foam - | Thermo-form - | Thermo-form - | Mesh/Foam - |
| WAIST | WAIST BELT WEBBING PADDING | 45mm/1.75" 20cm/7.9" | 45mm/1.75" 20cm/7.9" | 45mm/1.75" 20cm/7.9" | 40mm/1.5" 20cm/8" |
| WAIST | WAIST ADJUST | 1x Side | 1x Central | 1x Central | Single Side |
| LEG | LEG LOOP HEIGHT PADDING | 25mm/1"14.6cm/5.7" | 25mm/1"14.6cm/5.7" | 25mm/1"14.6cm/5.7" | 40mm/1.5" 15cm/6" |
| LEG | ELASTICATED REAR LEG RISER | ■ | - | - | ■ |
| LEG | LEG RISER ADJ REAR FRONT | ■ - | ■ ■ | ■ ■ | ■ - |
| EXTRAS | RFID CHIP WEAR INDICATE | - - | ■ - | ■ - | - - |
| EXTRAS | FIRST AID TRAUMA KIT | - - | ☐ ☐ | ☐ ☐ | ☐ - |
| EXTRAS | SIT STRAP BOSUNS CHAIR | - - | - - | - - | - - |
| | OTHER SRT MODELS | - | - | - | ■ |
| | NOTES | 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 from waist to legs . Bridge union adjust via buckle on waist-rear | additional neoprene pouch on leg loops for small items |
| | WEBSITE | sherrilltree.com | simarghu.com | simarghu.com | singingrock.com |

| | |
|---|---|
| | |
| | |
| **SKYLOTEC** | **STEIN** |
| **Ignite Arb** | **Vega Plus VS2** |
| | |
| £415 $520 €476 | £431 $595 €520 |
| 2.47-3.48kg/5.4-7.7lb | 1.9kg/4.2lb |
| 150kg/330lb | 150kg/330lb |
| 2 sizes 60-125cm/24-49" | 3 sizes 76-98cm/ |
| 2 sizes 60-85cm/24-33" | N/A |
| | + UKCA |
| - | - - |
| Fast-Clip | AA Cobra Fast-Clip |
| Sewn Webbing | Sewn 20mm Webbing |
| 20/25/30cm no | 25/30/35cm no |
| Sliding Ring | 2x Sliding Rings |
| Inverted D-Ring | Openable Ring - |
| - - - | - - - |
| | |
| 6 4 | 3 8 +2 on Leg Loops |
| - | |
| - - | - 2 |
| 6 | - ? |
| | |
| | |
| Thermo-form - | Mesh/Foam - |
| 44mm/1.75" 22cm/8.7" | 45mm/1.75" 20cm/8" |
| Single Side | Double Central |
| 44mm/1.75" 15.5cm/6.1" | 45mm/1.75" 15cm/6" |
| | |
| | - |
| - - | - |
| - | - |
| - | - - |
| | - |
| Replaced the celebrated Kolibri | |
| Skylotec.com | steinworldwide.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 = ■

| | MANUFACTURER | TEUFELBERGER | TEUFELBERGER | TREE HOG | TREE HOG |
|---|---|---|---|---|---|
| | MODEL VARIANT | TreeMOTION Essential X | TreeMOTION Pro X | Razorback TH5000 | TH7000 |
| | ORIGIN | | | | |
| | COST inc VAT/tax conv-only | £356 $500 €440 | £472 $625 €582 | £270 $340 €325 | £300 $380 €360 |
| | WEIGHT | 2kg/2.2lb | 2.3kg/5lb | 2.5kg/5.5lb | 2.6kg/5.7lb |
| | MAX LOAD | 150kg/330lb | 150kg/330lb | 100kg/220lb | 100kg/220lb |
| | WAIST SIZES | 3 sizes 69-129cm/27-50" | 3 sizes 69-129cm/27-50" | 3 sizes 76-140cm/26-52" | 3 sizes 76-140cm/26-52" |
| | LEG SIZES | 3 sizes 38-87cm/15-34" | 3 sizes 38-87cm/15-34" | 3 sizes 50-90cm/20-35" | 3 sizes 50-90cm/20-35" |
| | STANDARDS | ■ ■ ■ ■ ■ ■ | ■ ■ ■ ■ ■ ■ | ■ ■ | ■ ■ |
| LIFE CRITICAL | CHEST HARNESS ATTACH PTS | ☐ ■ | ☐ ■ | - - | - - |
| LIFE CRITICAL | BUCKLES WAIST/LEGS | Cobra/Cobra (Fast-Clips) | Cobra/Cobra (Fast-Clips) | Fast-Clip | Fast-Clip |
| LIFE CRITICAL | BRIDGE TYPE REPLACEABLE | 1or2 Tied or sewn Rope ■ | 1 or 2 Tied or sewn Rope ■ | Sewn 20mmWebbing ■ | Sewn 20mmWebbing ■ |
| LIFE CRITICAL | BRIDGE LENGTHS ADJUSTABLE | 123/180cm 40/45/50cm ■ | 123/180cm 40/45/50cm ■ | 25/30/35cm no | 25/30/35cm no |
| LIFE CRITICAL | CONNECTION to BRIDGE | Sliding Ring | Sliding Ring | 2x Sliding Rings | 2x Sliding Rings |
| LIFE CRITICAL | BRIDGE UNION LENGTH ADJ | 2x Hole + D plates ■ | 2x Hole + D plates ■ | Shackles | Shackles |
| LIFE CRITICAL | SRT D-RING/EYE REAR BELAY | - - - | - - - | - - - | - - - |
| LIFE CRITICAL | POLE STRAP D's FOLD FLAT | ■ | ■ | ■ | ■ |
| GEAR ATTACH | GEAR LOOPS SEWN EYES | - - | - - | 3 - | 3 - |
| GEAR ATTACH | CUSTOM GEAR CORD EYES | ■ | ■ | - | - |
| GEAR ATTACH | BASIC HOLES/EYES RINGS | numerous - | numerous - | - - | - - |
| GEAR ATTACH | CARI-HOOK CARI-HOOK EYES | - 8 | - 12 | ☐ 2to4 | ☐ 2to4 |
| GEAR ATTACH | CHAINSAW EYE/RINGHOOK | ■ | ■ | - | - |
| GEAR ATTACH | ATTACH POUCH/FIRST AID | ■ | ■ | - | - |
| WAIST | WAIST PADDING SWAMI | Mesh/Foam - | Thermo-form ■ | Mesh/Foam - | Mesh/Foam - |
| WAIST | WAIST BELT WEBBING PADDING | 25mm/1" 23cm/9" | 25mm/1" 23cm/9" | 44mm/1.75" 20cm/7.9" | 44mm/1.75" 20cm/7.9" |
| WAIST | WAIST ADJUST | 1x Central (Cobra) | 1x Central (Cobra) | 1x Central | 1x Central |
| LEG | LEG LOOP HEIGHT PADDING | 25mm/1" 14.5cm/5.7" | 25mm/1" 14.5cm/5.7" | 44mm/1.75" 23.5cm/9.25" | 44mm/1.75" 23.5cm/9.25" |
| LEG | ELASTICATED REAR LEG RISER | ■ | ■ | ■ | ■ |
| LEG | LEG RISER ADJ REAR FRONT | ■ ■ | ■ ■ | ■ ■ | ■ ■ |
| EXTRAS | RFID CHIP WEAR INDICATE | - - | - - | - - | - - |
| EXTRAS | FIRST AID TRAUMA KIT | - - | - - | ☐ - | ☐ - |
| EXTRAS | SIT STRAP BOSUNS CHAIR | - - | - - | - - | ■ - |
| | OTHER SRT MODELS | replaces 4 previous treeMOTIONS | replaces 4 previous treeMOTIONS | - | - |
| | NOTES | X= 2025 version - more replaceable components, openable bridge-riser union, improved stitching etc. Green=load-bearing, Red=gear only | X= 2025 version as Essential X + more gear attach options + enhanced padding. Green=load-bearing, Red=gear only | Bridge union length adjusted via rear buckle. Updating late 2023. Also with yellow trim | Bridge union length adjusted via rea buckle. TH7000 has an integrated sit-strap. Updating late 2023 |
| | WEBSITE | teufelberger.com | teufelberger.com | treehog.co.uk | treehog.co.uk |

# ARBORIST SIT HARNESSES

| | | | | |
|---|---|---|---|---|
| | | | | |
| | | | | |
| **TREE RUNNER** | | **WEAVER** | **WEAVER** | **WEAVER** |
| **Tree Rider** | | **Denali** | **Stratus** 08100 | **WLC-790** |
| | | | | |
| £270 $340 €320 | | £417 $520 €495 | £361 $450 €430 | £420 $523 €501 |
| 1.53kg / 3.4lb | | 2.95kg/6.5lbs | 2kg /4.5lbs | 3.63kg/8lbs |
| 140kg/308lb | | 140kg/308lb | 140kg/308lb | 140kg/308lb |
| 3 sizes 65-115cm/26-45" | | 1 size 26-48" | 3 sizes 28-46" | 4 sizes 30-48" |
| 3 sizes 55-80cm/21.6-31.5" | | 61cm/ <24" | 51-86cm/20-34" | 61cm/ <24" |
| | | | | |
| | | - | | - |
| AA Cobra Fast-Clip | | AA Cobra Fast-Clip/Rollbar | ISC Fast-Clip | Pin&Hole/Fast-Clip |
| 50mm Webbing no | | Double Rope | Tied Rope | Tied Doubled Rope |
| Fixed 50mm Web no | | 35cm/14" | 35cm/14" | 35cm/14" |
| Sliding D-Ring | | Sliding Ring | - | - |
| sewn-fixed | | 4-hole Rig plates | 4-hole Rig plates | 4-hole Rig plates |
| -2x - | | - - - | - - - | - - - |
| | | | | |
| 2 (Dyneema) - | | - 6* | 3 - *18 + 6 on legs | 2 - |
| 4 | | | - | - |
| - 6 | | - 2 | - 4 | - 6 |
| - 2 | | - 4 | - (use the 24 sewn eyes) | - 2 |
| - | | - | - | 2 2 |
| - | | | | |
| Moulded Foam - | | Moulded Air-Flex Foam - | Reinforced Mesh/Foam - | Memory Foam - |
| 50mm/2" 20cm/7.9" | | Dbl-50mm/2" 23cm/9" | 25mm/1" 23cm/9" | 50mm/2" 23cm/9" |
| 1x Side | | 1x Central + 4x side adj | 1x Central | 1x Side |
| 50mm/2" 8.5cm/3.4" | | 50mm/2" 17.8cm/7" | 25mm/1" 23cm/9" | 50mm/2" 10cm/4" |
| | | | | |
| - | | | | |
| - - | | - | - - | - - |
| - - | | - | - | - |
| - - | | - - | - - | - |
| - | | - | - | - |
| | EXPANSION COLUMN | *arranged as a daisy chain | *arranged as daisy chains | Also in all-black |
| 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 = ■

| | | | | | |
|---|---|---|---|---|---|
| | **MANUFACTURER** | WEAVER | WEAVER | WEAVER | WEAVER |
| | **MODEL VARIANT** | WLC-760 | WLC-700 730 | WLC-530 560 | WLC-500 |
| | **ORIGIN** | | | | |
| | **COST** inc VAT/tax conv-only | £362 $451 €431 | £297 $370 $410 €354 | £242 $302 $305 €290 | £237 $295 €282 |
| | **WEIGHT** | 3.2kg/7lb | 3.63kg/8lbs | 2.72kg/6lbs | 2.72kg/6lbs |
| | **MAX LOAD** | 140kg/308lb | 140kg/310lb | 140kg/310lb | 140kg/310lb |
| | **WAIST SIZES** | 5 sizes 66-122cm/26-48" | 5 sizes 66-122cm/26-48" | 4 sizes 76-122cm/30-48" | 4 sizes 76-122cm/30-4 |
| | **LEG SIZES** | 61cm/<24" | 61cm/<24" | 51-68cm/20-27" | 41-61cm/16-24" |
| | **STANDARDS** | ■ ■ | ■ ■ | ■ ■ | ■ ■ |
| LIFE CRITICAL | CHEST HARNESS ATTACH PTS | ☐ ■ | ☐ - | ☐ ■ | ☐ ■ |
| LIFE CRITICAL | BUCKLES WAIST/LEGS | Pin&Hole/Fast-Clip | Pin&Hole/Fast-Clip | Pin&Hole | Pin&Hole |
| LIFE CRITICAL | BRIDGE TYPE REPLACEABLE | Tied Doubled Rope ■ | Web-covered rope ■ | Fixed 50mm Webbing no | Integrated sit strap n |
| LIFE CRITICAL | BRIDGE LENGTHS ADJUSTABLE | 35cm/14" ■ | 25cm/10" ■ | 12" no | - - |
| LIFE CRITICAL | CONNECTION to BRIDGE | - | - | 1 (2)x Sliding D-Rings | 2x fixed D-Rings |
| LIFE CRITICAL | BRIDGE UNION LENGTH ADJ | 4-hole Rig plates ■ | ISC Al ring ■ | Sewn no | Sewn no |
| LIFE CRITICAL | SRT D-RING/EYE REAR BELAY | - - - | - - - | - - - | - - - |
| LIFE CRITICAL | POLE STRAP D's FOLD FLAT | ■ | ■ | ■ | ■ |
| GEAR ATTACH | GEAR LOOPS SEWN EYES | 2 - | 2 - | 2 - | 2 - |
| GEAR ATTACH | CUSTOM GEAR CORD EYES | - | - | - | - |
| GEAR ATTACH | BASIC HOLES/EYES RINGS | - 6 | - 6 | - 6 | - 6 |
| GEAR ATTACH | CARI-HOOK CARI-HOOK EYES | - 2 | - 2 | - 2 | - 2 |
| GEAR ATTACH | CHAINSAW EYE/RINGHOOK | 2 2 | 2 2 | 2 2 | 2 2 |
| GEAR ATTACH | ATTACH POUCH/FIRST AID | ■ | ■ | ■* | ■* |
| WAIST | WAIST PADDING SWAMI | Memory Foam - | Memory Foam - | Leather/Memory Foam - | Leather/Memory Foa |
| WAIST | WAIST BELT WEBBING PADDING | 50mm/2" 23cm/9" | 50mm/2" 17.8cm/7" | 50mm/2" 15.2cm/6" | 50mm/2" 15.2cm/6" |
| WAIST | WAIST ADJUST | 1x Side | 1x Side | 1x Side | 1x Side |
| LEG | LEG LOOP HEIGHT PADDING | 50mm/2" 10cm/4" | 50mm/2" 10cm/4" | 50mm/2" 7.6cm/3" | 50mm/2" 7.6cm/3" |
| LEG | ELASTICATED REAR LEG RISER | ■ | ■ | - | - |
| LEG | LEG RISER ADJ REAR FRONT | ■ ■ | ■ ■ | ■ - | ■ - |
| EXTRAS | RFID CHIP WEAR INDICATE | - - | - ■ | - - | - - |
| EXTRAS | FIRST AID TRAUMA KIT | ☐ - | ☐ - | ☐ - | ☐ - |
| EXTRAS | SIT STRAP BOSUNS CHAIR | - - | - ■ | - - | - - |
| | **OTHER SRT MODELS** | - | - | - | - |
| | **NOTES** | Endura braid rope bridge. Also in all-black | the 730 has an integrated sit strap | WLC-560 has two sliding D-Rings WLC530 has one. £ cost increases with size of harness | £ cost increases with size of harn *2 of the rings are intended for p stowage. |
| | **WEBSITE** | weaverarborist.com | weaverarborist.com | weaverarborist.com | weaverarborist.com |

| | | |
|---|---|---|
| | | |
| | WEAVER | WILLANS |
| | WLC-330 | T22/2 WP |
| | | |
| | £225 $280 €268 | £210 $262 €250 |
| | 2.72kg/6lbs | 4kg/8.8lb |
| | 140kg/310lb | n/a |
| 48" | 5 sizes 66-122cm/26-48" | 3 sizes 61-142cm/24-56" |
| | n/a | n/a |
| | | |
| | ☐ | NO |
| | Pin&Hole | Fast-Clip+Roll-bar buckle |
| o | Fixed 50mm Webbing no | Integrated sit strap no |
| | 12" no | - - |
| | Sliding D-Ring | 2x fixed D-Rings |
| | Sewn no | Sewn no |
| | - - - | - - - |
| | ■ | ■ |
| | 2 - | - - |
| | - | - |
| | - 5 | - 4 |
| | - 2 | - - |
| | 2 2 | - - |
| | ■* | - |
| m - | Leather/Foam - | Basic - |
| " | 50mm/2" 15.2cm/6" | 50mm/2" 12cm/5"28cm/11" |
| | 1x Side | 1x Side adjust |
| | 50mm/2" None | 50mm/2" NO |
| | - | - |
| | ■ - | - |
| | - - | - |
| | ☐ - | - - |
| | - - | ■ - |
| | - | - |
| ness. pouch | £ cost increases with size of harness. *2 of the rings are intended for pouch stowage. | WP version has reinforced wider padding on the waist than standard version |
| n | weaverarborist.com | willansltd.co.uk |

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www.singingrock.com

**UPDATED Jun '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**

New in 2025 is *Edelrid*'s multi-role helmets the *Tectum* and *Tectum Air* (pic left) and *Singing Rock's Blast* (below)

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!

**'Working At Height' is NOT the same as 'Climbing'**

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 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 W**SAR** magazine #11's GUIDE.

## 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$^2$ of total shell area for EN397 whereas for climbing it needs to be well ventilated in excess of 4cm$^2$ of area. However, that does mean there is crossover if a shell has between 4 and 4.5cm$^2$ 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

PETZL STRATO Vent Hi-Viz

STIHL Advance X

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 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. Kask have now added a green buckle to more readily differentiate EN12492 compliance

**UPDATED Jun '25**

1

2

4

5

1 Hard Shell
2 Hard-Shell Hybrid
3 Soft Shell (not shown)
4 Hybrid (hard shell-In-Mold)
5 In-Mold (In-Mould)

## 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 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 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 to Ukraine charities having to cope with devastation caused to civilians and civilian infrastructure by the 2022 invasion by Russia.

## 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 Elevator 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.**

Back to past history and after an initial flirtation with motorcycle helmets 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 pimple-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

Ukraine-colours version of Protos

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 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 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 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

# CLIMBING HELMETS

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 snuggly 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 above).

## MULTI-ROLE HELMETS

Arborist climbing helmets pretty much ARE multi-role helmets as exemplified by the *Pfanner Protos.* Even this non-climbing, forestry helmet (right) 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 *Leef*) 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 *Leef* 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

□○□○□○□○ outline square or circle = OPTION

**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 - (●● blue outline = a variant) 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

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(side/front/rear) impact or deformation (LD) testing and vents greater than 4cm² 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 ♦

**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 PRO[TECTION]**: **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 an 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 with no real regard for its performance capabilities years after its purchase, which may be significantly reduced. One thing you can keep a 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 (top) uses a clip on shell to alter the colour from the basic white.

**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

| MODEL Variant/ AKA | COMPANY | ORIGIN | COST BARE HELMET COMBO inc Tax £$€ currency conversion only | WEIGHT (BARE HELMET) | SIZES | CONSTRUCTION SHELL INNER STRAPS/HEADBAND |
|---|---|---|---|---|---|---|
| Ares<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>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 Heightmaster 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 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>Tactical Extreme<br>MH4 Tactical | FUTURE 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 |

| STANDARDS | | | | | | | EYE PRO | | | Goggle Visor | | | EAR | FEATURES | | | | CRADLE | | CHIN | | COLOURS | NOTES | WEBSITE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TEMP RANGE °C °F | EN50365 LT HT | ANSI Z89.1 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 | >50daN Release | | | |
| -20 -4 +50 122 | ■ ■ - | ■ - - | - ■ ● | - - | ■ | ● | □ - | □ - | - - | □ | □ | - | ■ - | no | - □ | - - | 4 | ■ | ■ | ■ | - | | *+ Lateral deformation tests ●MIPS not yet EAC MIPS version has enhanced anti-rotational head cradle. ●only Red, White or Yellow Has NFC Track/ID tag | camp.it |
| -20 -4 +50 122 | ■ - - | ■ - - | - - | - - | ● | ■ | □ - | □ - | - - | □ | □ | - | ■ - | ■ ● | - □ | - - | 4 | ■ | ■ | - | ■ | | PLUS was originally called Ares Air ANSI. Has NFC Track/ID tag | camp.it |
| -20 -4 +50 122 | - - - | - - - | - ■ | - - | ■ | no | □ - | □ - | - - | □ | □ | - | ■ - | ■ ● | - □ | - - | 4 | ■ | ■ | ■ | - | | Same construction as Ares and listed as suitable for rope climbing but only has EN397 certification/additional tests. Has NFC Track/ID tag. | camp.it |
| -20 -4 +50 122 | - - - | - - - | - ■ | - - | ● | ● | □ - | - - | - - | □ | - | - | ■ - | ■ - | - □ | - - | 4 | ■ | ■ | - | ■ | | Mesh visor is outsourced. Has NFC Track/ID tag | camp.it |
| -20 -4 +50 122 | - ■ - | - - - | - ■ | - - | ■ | ● | - - | - - | □ - | - | - | - | ■ - | no | - □ | - - | 4 | ■ | ■ | ■ | - | | Mesh visor is outsourced. Has NFC Track/ID tag | camp.it |
| -40 | ■ ■ - | ■ - - | ■ - | - ■ | ● | ● | □ □ * | □ - | □ - | □ | □ | - | ■ - | ◆ | □ □ | □ * - | 4 | ■ | ■ | - | ■ | | *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 -22 +50 122 | ■ - - | - ■ - | ■ | - - | ● | ● | - - | - - | □ - | - | - | - | ■ - | no | □ □ | - - | 4 | ■ | ■ | ■ | - | | Edelrid now supply visors & ear defenders but Serius takes all standard accessories. Includes a set of replacement padding | edelrid.com |
| -30 -22 +50 122 | ■ - - | - - ■ | ■ | - - | ● | ● | □ - | □ - | □ - | □ | □ | - | ■ - | no | □ ■ | □ □ | 4 | ■ | ■ | ■ | - | | NEW in 2025 Accessories inc. front sun brim, full sun brim, visor protector. | edelrid.com |
| -30 -22 +50 122 | ■ - - | - - ■ | - - - | - - | ● | ■ | □ - | □ - | □ - | □ | □ | - | ■ - | ■ ■ | □ ■ | □ □ | 4 | ■ | ■ | - | ■ | | NEW in 2025 Accessories inc. front sun brim, full sun brim, visor protector. | edelrid.com |
| | - - - | - - - | - - - | ■ | - | ■ | □ □ | □ - | □ - | □ | - | - | ■ ■ | ■ ■ | □ ■ | - - | 2 1 | ■ | ■ | - | ■ | | Standards for Forestry also include FS/ATV1 Quad/ATV for military include NFPA, Marine, firefighting, & Technical Rescue *COLOURS: Forestry also navy blue. Military=Black only | future-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**= blue or □◇○ if it's a[illegible]tion

| | MODEL Variant/ AKA | COMPANY | ORIGIN | COST BARE HELMET COMBO inc Tax £$€ currency conversion only | WEIGHT (BARE HELMET) | SIZES | CONSTRUCTION SHELL INNER STRAPS/HEADBAND |
|---|---|---|---|---|---|---|---|
| | **Duon Air** MH02 **Duon (unvented)** MH02 | HEIGHTEC | | £83 £80 $104 €96 | 350g 12.3oz 550g | 52-66cm 20.7-26" | HARD SHELL ABS Polyester Web-only Polyester/Nylon |
| | Elevation | HUSQVARNA | | £121 $170 €160 | 450g 15.9oz | 51-62cm 20-24.4" | HARD SHELL HYBRID ABS EPS Nylon/Nylon |
| | Spire | HUSQVARNA | | £121 $170 €160 | 470g 16.6oz | 52-63cm 20.7-24.8" | HARD SHELL HYBRID Polypropylene EPS Nylon/Nylon |
| | Spire Vent **Spire Vent X** | HUSQVARNA | | £135 £180 $170 €126 | 470g 16.6oz | 52-63cm 20.7-24.8" | HARD SHELL HYBRID Polypropylene EPS Nylon/Nylon |
| | EVO 5 | JSP | | £79 $101 €95 | 480g 16.9oz | 53-64cm 21-25" | HARD SHELL ABS EPP Polyester/HDPE |
| | EVO (ASCEND) Vista Shield **Vista Lens** | JSP | | £110 $136 €130 | 415g 14.6oz | 53-64cm 21-25" | HARD SHELL ABS EPP Polyester/HDPE |
| | EVO Lite Skyworker AJS260 | JSP | | £32 $41 €38 | 382g 13.5oz | 53-64cm 21-25" | HARD SHELL ABS EPP Polyester/HDPE |
| | Superplasma PL WHE00108/109-201 **Superplasma AQ** WHE00104/105 | KASK | | £86 $130 €80 | 420g 14.8oz 390g 13.75oz | 51-6263cm 20-24.424.8" | HARD SHELL HYBRID Polypropylene EPS Nylon/Nylon |
| | Superplasma HD WHE00036/37 **Superplasma HP /HP Visor** WHE00106/107 | KASK | | £105 $130 €120 | 450g 13.3oz | 51-6263cm 20-24.424.8" | HARD SHELL HYBRID ABS EPS Polyester/Nylon |
| | Primero (EN) **Primero Air (EN)** WHE00113/24 | KASK | | £70 £86 $90 €80 €95 | 460g 13.3oz | 52-63cm 20.7-24.8" | HARD SHELL HYBRID Polypropylene EPS Nylon/Nylon |

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| STANDARDS | | | | | | | EYE PRO | | | Goggle Visor | | | EAR | FEATURES | | | | CRADLE | | CHIN | | COLOURS | NOTES | WEBSITE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TEMP RANGE °C °F | EN50365 LT HT | ANSI Z89.1 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 | >50daN Release | | | |
| | - ■ - | - - - | - - - | - | ■* ■* | ■* ●* | □ - | □ - | - - | □ | - | - | ■ | ■ ■ no | □ □ | - - | 4 - | ■ | ■ | ■* | ■* | ■ □ ■ ■ ■ | *the same chin strap buckle can be switched between hi & low strength to fully or partially meet both standards. | heightec.com |
| -30 -22 +50 122 | - - - | ■ - - | ■ - - | - - | - | ● | □ - | - - | - - | □ | □ | □ | □ - | ■ ● | - ■ | - - | 4 - | ■ | ■ | - | ■ | ■ | adaptor needed for Husqvarna ear defenders on Elevation. | husqvarna.com |
| -30 -22 +50 122 | - - ■ | - - ■ | ■ - - | - - | - | ● | □ - | - - | - - | □ | □ | □ | □ - | - | - ■ | - - | □ - | ■ | ■ | - | ■ | ■ | adaptor needed for Husqvarna ear defenders on Spire. Spire Vent=EN model in Grey Spire=unvented ANSI model in Orange | husqvarna.com |
| -30 -22 +50 122 | - - - | - - - | - - - | - - | - | ■ | □ - | - - | □ - | □ | □ | □ | □ - | ◆ | - ■ | - - | 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. | jspsafety.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. | jspsafety.com |
| -40 | ■ ■ - | ■ - - | - - - | - - | ● | ■ | - □* | - □* | □ - | - | - | - | ■ - | ■ | □ □ | □ - | □ □ | ■ | ■ | - | ■ | ■ ■ ■ □ ■ | *meets some EN397 impact requirements. NB: EvoLite Forestry is not a climbing helmet | jspsafety.com |
| -30 -22 +50 122 | - - - | - - - | - - - | ■ - | ■ | ■ ● | □ - | □ - | □ - | □ | □ | □ | □ - | ■ ● | □ □ | □ - | 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 -22 +50 122 | - - - | ■ - - | ■ - - | ■ - | ● | ■ ● | □ - | □ - | ■ - | □ | □ | □ | □ - | ■ ● | □ □ ■ | □ - | 5 | ■ | ■ | - | ■ | * * * * * ■ | *Also in Hi-Viz + (Lime US) with fluorescent shell, luminous clips,reflective decals-add10% to cost .Upgraded in 2025 HP= EU-only, NOT ANSI. White, Yellow or Red HP VISOR has Hi-Viz decals & goggles. | kask-safety.com |
| -30 -22 +50 122 | ■ - - | - - - | - - ■ | - - | ■ | ● | □ - | □ - | □ - | □ | □ | □ | ■ - | ■ ● | ■ □ | □ □ | 4 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**= blue or □◇○ i

| | MODEL Variant/ AKA | COMPANY | ORIGIN | COST BARE HELMET COMBO inc Tax £$€ currency conversion only | WEIGHT (BARE HELMET) | SIZES | CONSTRUCTION SHELL INNER STRAPS/HEADBAND |
|---|---|---|---|---|---|---|---|
| | **PrimeroPL** WHE00115/16 | KASK | | £70 $90 €80 | 420g 14.8oz | 52-63cm 20.7-24.8" | HARD SHELL HYBRID Polypropylene EPS Nylon/Nylon |
| | **Primero (US)** WHE00117/18 **Primero Air (US)** WHE00119/20 | KASK | | £107 $135 $150 €125 | 460g 13.3oz 430g 15.2oz | Universal | HARD SHELL HYBRID Polypropylene EPS Nylon/Nylon |
| | **Zenith X** WHE00073/4/7 | KASK | | £90 $135 $330 €102 | 490g 17.3oz | 52-63cm 20.7-24.8" | HARD SHELL HYBRID Polypropylene EPS Nylon/Nylon |
| | **Zenith X Air** WHE00075/6/8 **Zenith X PL** WHE00079/80/81 | KASK | | £100 £115 $150 $330 €103 | 490g 17.3oz | 52-63cm 20.7-24.8" | HARD SHELL HYBRID Polypropylene EPS Nylon/Nylon |
| | **Zenith X2 Air** WHE00099/100 **Zenith X2** WHE00097/98 | KASK | | $154 $150 | 470g 16.6oz 460g 16.1oz | 52-63cm 20.7-24.8" | HARD SHELL HYBRID Polypropylene EPS Nylon/Nylon |
| | **Leef** 997002..... | KONG | | £100 $139 €130 | 230g 8.1oz | 54-61cm 21.3-24" | IN-MOLD polycarbonate EPS Nylon/Nylon |
| | **Mouse (Sport/Tactical)** 99716..... | KONG | | £62 £116 $95 €64 | 380g 13.4oz | 52-64cm 20.7-25.2" | HARD SHELL ABS Web/EPS Polyester |
| | **Spin** 99720..... | KONG | | £60 $85 €70 | 385g 13oz | 52-62cm 20.7-24.4" | HARD SHELL ABS EPS/Web/Foam Polyester |

| STANDARDS | | | | | | | EYE PRO | | | Goggle Visor | | | EAR | FEATURES | | | | CRADLE | | CHIN | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TEMP RANGE °C °F | EN50365 LT HT | ANSI Z89.1 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 CLOSABLE | ID/LOGO REFLECT | NAPE GUARD UV | LAMP CLIPS BRKT | SLIDE COG ADJUST | REPLACE PADDING | <25daN Release | >50daN Release | COLOURS | NOTES | WEBSITE |
| -30<br>-22<br>+50<br>122 | -<br>-<br>- | ■<br>-<br>- | -<br>-<br>- | -<br>- | ♦ | ■ | □<br>- | □<br>- | ■<br>- | □ | □ | □ | □<br>- | ■<br>● | □<br>□<br>■ | □<br>- | 5 | ■ | ■ | ■ | - | ■ ✱<br>✱<br>■ ■ | Primero PL is Europe only.<br>*Also in Hi-Viz (white shown in pic) + fluro Yellow EU -add10% to cost. | kask-safety.com |
| -30<br>-22<br>+50<br>122 | ■<br>■<br>■ | -<br>■<br>■ | ■<br>■<br>- | -<br>- | - | ♦ | □<br>- | □<br>- | □<br>- | □ | □ | □ | ■<br>- | ■<br>● | ■<br>□ | □<br>□ | 4<br>2 | ■ | ■ | - | ■ | ■ □<br>■ ✱<br>■ ■<br>■ | *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 | ■<br>■<br>- | -<br>-<br>■ | ■<br>■<br>- | -<br>- | ■ | ♦ | □<br>- | □<br>- | □<br>- | □ | □ | □ | -<br>- | no | ■<br>□ | □<br>□ | 4<br>2 | ■ | ■ | ■ | - | ✱ ✱<br>✱ ✱<br>✱ ✱ | *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 | ■<br>■<br>- | -<br>- | ■<br>■<br>- | -<br>- | ■ | ♦<br>■ | □<br>- | □<br>- | □<br>- | □ | □ | □ | -<br>- | ■ | ■<br>□ | □<br>□ | 4<br>2 | ■ | ■ | ■ | - | ✱ ✱<br>✱ ✱<br>✱ ✱ | *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 | -<br>-<br>- | -<br>-<br>■* | -<br>-<br>- | -<br>- | - | ■ | □<br>- | □<br>- | □<br>- | □ | □ | □ | □<br>- | ■<br>no | ■<br>□ | □<br>- | 4<br>2 | ■ | ■ | - | ■ | ✱ ✱<br>✱ ■<br>✱ ✱<br>■ ■ ■ | *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 | -<br>-<br>- | -<br>-<br>- | -<br>-<br>- | -<br>- | - | ■ | □<br>- | □<br>- | -<br>- | □ | □ | - | -<br>- | ■ | -<br>- | -<br>- | 4 | ■ | ■ | - | ■ | ■ ■<br>□ ■<br>■ ■ | Kong Accessory slot required for ear defenders and visors | kong.it |
| -30<br>-22<br>+50<br>122 | -<br>■<br>- | -<br>-<br>- | -<br>-<br>- | -<br>- | □ | ■ | □<br>- | □<br>- | □<br>- | □ | □ | - | ■<br>- | ■<br>● | □<br>□ | -<br>- | 2<br>1 | ■ | ■ | □ | ■ | ✱ ■<br>□ ✱<br>■ | *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 | -<br>-<br>- | ■<br>-<br>- | -<br>-<br>- | -<br>- | ■ | no | □<br>- | -<br>- | -<br>- | □ | □ | - | ■<br>- | ♦ | -<br>- | -<br>- | 4 | ■ | ■ | ■ | - | ■ ■<br>□ ■<br>■ | Listed as suitable for climbing arborists but only has EN397 certification/additional tests. | kong.it |

**Images NOT to scale**
**Visors** etc. are example of what can be fitted not necessarily what is supplied
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£$€=Currency Conversion Only
**STANDARDS:** ●●●● = partial adherence
**VENTS:** ■=closable ●=mesh ◆=minimal **EAR:** ◆= Will fit most accessories but
□□□ = **OPTION**
**VARIANT**= blue or □◇○ if it

| | MODEL Variant/ AKA | COMPANY | ORIGIN | COST BARE HELMET COMBO inc Tax £$€ currency conversion only | WEIGHT (BARE HELMET) | SIZES | CONSTRUCTION SHELL INNER STRAPS/HEADBAND |
|---|---|---|---|---|---|---|---|
| | F2-X-Trem | MSA-GALLET MSA-CAIRNS | | £177 $175 €160 | 700-750g 24.7-26-5oz | 52-65cm 20.5-25.6" | HARD SHELL FR Thermoplastic Polyester/Nylon/ Plastane Flame-retard mix |
| | F2XR | MSA-GALLET MSA-CAIRNS | | £160 $235 €150 | 700-750g 24.7-26-5oz | 52-65cm 20.5-25.6" | HARD SHELL FR Thermoplastic Polyester/Nylon/ Plastane Flame-retard mix |
| | V-Guard H1 TriVent Non-Vented | MSA | | £96 $95 €85 | 515g 18.2oz | 52-64cm 20.5-25.2" | HARD SHELL HD PolyEthylene EPS Polyester/Nylon |
| | MP2 | PAB | | £150 $170 €160 | 820g 29oz | 52-64cm 20.5-25.2" | HARD SHELL FR Thermoplastic Heat Resist Foam Flame retardent |
| | R5SLV | PACIFIC HELMETS | | £195 $230 €215 | n/a | 52-65cm 20.5-25.6" | HARD SHELL Kevlar composite None (Web Cradle) Polyester/Nylon |
| | R6V Dominator | PACIFIC HELMETS | | £290 $350 €325 | 1003g 36.2oz | 52-65cm 20.5-25.6" | HARD SHELL Kevlar composite None (Web Cradle) Polyester/Nylon |
| | Strato Hi Viz | PETZL | | £77 £87 $130 $140 €95 €107 | 415-425*g 14.6-15oz | 53-63cm 20.9-24.8" | HARD SHELL HYBRID ABS EPP/EPS Polyester/Nylon |
| | Strato Vent Hi Viz | PETZL | | £77 £87 $130 $140 €95 €107 | 415-425*g 14.6-15oz | 53-63cm 20.9-24.8" | HARD SHELL HYBRID ABS EPP/EPS Polyester/Nylon |
| | Vertex Hi Viz | PETZL | | £93 £100 $100 $110 €83 €102 | 490-495*g 17.3-17.5oz | 53-63cm 20.9-24.8" | HARD SHELL ABS None (Web Cradle) Polyester/Nylon |
| | Vertex Vent Hi Viz | PETZL | | £93 £100 $100 $110 €83 €102 | 490-495*g 17.3-17.5oz | 53-63cm 20.9-24.8" | HARD SHELL ABS None (Web Cradle) Polyester/Nylon |

# CLIMBING HELMETS

| STANDARDS | | | | | | | EYE PRO | | | Goggle Visor | | | EAR | FEATURES | | | | CRADLE | | CHIN | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TEMP RANGE °C °F | EN50365 LT HT | ANSI Z89.1 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 CLOSABLE | ID/LOGO REFLECT | NAPE GUARD UV | LAMP CLIPS BRKT | SLIDECOG ADJUST | REPLACE PADDING | <25daN Release | >50daN Release | COLOURS | NOTES | WEBSITE |
| -30 -22 +60 122 | - - - | * | * | - - | ■ | ■ ● * | □ - | □ - | □ - | □ | □ | - | ■ - | ■ | □ ■ | □ - | 2+ * | ■ | ■ | - | ■ | | *Unvented version meets NFPA & EN Technical Rescue standards with offset impact testing *Also Hi-Viz Yellow, Orange and Photoluminescent. Actual Goggles not visor-goggles | msasafety.com |
| -30 -22 +60 122 | - - - | * | * | - - | ■ | ■ ● * | - □ | □ - | □ - | □ | □ | - | ■ - | ■ | □ ■ | □ - | 2+ * | ■ | ■ | - | ■ | | *Unvented version meets NFPA & EN Technical Rescue standards with offset impact testing *Also Hi-Viz Yellow, Orange and Photoluminescent. *integrated rear & optional front lighting. Clip-in ear guards | msasafety.com |
| -30 -22 +50 122 | - - ■ | ■ - ■ | ■ ■ ■ | - - | ■ | ■ ● | □ - | □ - | □ - | □ | □ | - | ■ - | ◆ ● | □ ■ | □ ■ | 3 | ■ | ■ | - | ■ | | Unvented version meets electrical insulation requirements. *Also Hi-Viz Yellow. Rescue whistle integrated into chin-strap. | msasafety.com |
| -30 -22 +50 122 | - ■ - | ● | - | - - | ● | ■ ■ | - □ | - - | - - | □ | - | - | ■ - | ◆ | □ ■ | □ - | 1+ □ * | ■ | ■ | □ | ■ | | Technical Rescue Helmet NBL MP1 Pro does not have ear defender slots/mounts. *Luminous *Option Velcro light fixtures | pab.hr |
| -30 -22 +50 122 | - - - | ■ - - | ■ ■ - | - - | ■ | ■ | - □ | □ - | □ - | □ | □ | - | □ | ■ ■ | □ □ | □ - | 3 | ■ | ■ | □ | ■ | 20 inc | Simplest R5S version has a clean shell, no vents and no accessories. R5T version has integral lighting mount. Shell (only) will withstand >250°C /500°F | pacifichelmets.com |
| -30 -22 +50 122 | - - - | ■ - - | ■ ■ - | - - | ● | ■ | - □ | □ - | □ - | □ | □ | - | □ | ■ ■ | □ □ | □ - | * | ■ | ■ | - | ■ | 20 inc * | 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 -22 +50 122 | ■ - - | - - * | ■ ■ - | - ■ | ■ | ■ | □ - | □ - | □ - | □ | □ | - | ■ - | - | □ □ | □ - | 4 | ■ | ■ | ■ | ■ | | *Hi-Viz Yellow & Orange with luminous clips. *Supplied with both EN397&12492 chinstraps. Meets EN12492 except vent requirements | petzl.com |
| -30 -22 +50 122 | - * - | ■* - - | ■ ■ - | - ■ | ■ | ■ | □ - | □ - | □ - | □ | □ | - | ■ - | ■ | □ □ | □ - | 4 | ■ | ■ | ■ | ■ | | *Hi-Viz Yellow & Orange with luminous clips. *Supplied with both EN397&12492 chinstraps. | petzl.com |
| -30 -22 +50 122 | - - - | ■* - - | ■ ■ - | - ■ | ■ | ■ | □ - | □ - | □ - | □ | □ | - | ■ - | - | □ □ | □ - | 4 | ■ | ■ | ■ | ■ | | *Hi-Viz Yellow & Orange with luminous clips. *Supplied with both EN397 &12492 chinstraps. Meets EN12492 except vent requirements | petzl.com |
| -30 -22 +50 122 | - * - | ■* - - | ■ ■ - | - ■ | ■ | ■ | □ - | □ - | □ - | □ | □ | - | ■ - | ■ | □ □ | □ - | 4 | ■ | ■ | ■ | ■ | | *Hi-Viz Yellow & Orange with luminous clips. *Supplied with both EN397 &12492 chinstraps. *Vents must be closed to meet ANSI C, then does not fully meet EN12492. | petzl.com |

**Images NOT to scale**
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**STANDARDS:** ●●●●= partial adherence
**VENTS:** ■=closable ●=mesh ◆=minimal
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□□□ = OPTION
VARIANT= blue or □◇○ if it's an option

| | MODEL Variant/ AKA | COMPANY | ORIGIN | COST BARE HELMET COMBO inc Tax £$€ currency conversion only | WEIGHT (BARE HELMET) | SIZES | CONSTRUCTION SHELL INNER STRAPS/HEADBAND |
|---|---|---|---|---|---|---|---|
| | Protos Integral Arboris<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 |
| | Dynamo Hybrid<br>RC05H..<br>Dynamo/Plus<br>RC05/P.. | ROCK 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 |
| | Blast<br>W9607 | SINGING ROCK | | £65<br>$101<br>€69 | 420g<br>14.8oz | 53-61cm<br>20.9-24" | HARD SHELL HYBRID<br>ABS/Polycarbonate<br>EPS<br>Polyester/Nylon |
| | Flash Aero<br>W9602<br>Flash<br>W9601 | SINGING 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 |
| | Inceptor GRX Mnt<br>BE590..<br>GRX Mnt HighVoltage | 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>Polyster/Nylon |
| | 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 |
| | 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 |
| | 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 |
| | Advance X-Climb | STIHL 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 |
| | Arborist | STIHL 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 |

# CLIMBING HELMETS

| STANDARDS | | | | | | | EYE PRO | | | Goggle Visor | | | EAR | FEATURES | | | | CRADLE | | CHIN | | COLOURS | NOTES | WEBSITE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TEMP RANGE °C °F | EN50365 LT HT | ANSI Z89.1 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 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 | -<br>■<br>- | ■<br>-<br>- | -<br>-<br>- | -<br>-<br>- | ● | ■ | -<br>□ | □<br>- | □<br>- | □ | □ | - | ■<br>- | ■<br>■ | □<br>□ | □<br>- | □ | ■ | ■ | □ | ■ | 28+ inc | Climber version is basic shell.<br>Huge colour range inc solid and contrast & Hi-Viz.<br>GoPro-style bracket available<br>EN397 with optional chin strap | protos.at |
| -40<br>-40<br>50<br>122 | ■<br>■<br>■ | ■ | -<br>-<br>- | -<br>- | ● | ■<br>● | □<br>- | □<br>- | □<br>- | □ | □ | - | ■<br>- | ■<br>● | □<br>□ | -<br>- | 4 | ■ | ■ | □ | ■ | | ALL components replaceable!<br>+ Florescent orange, green yellow, Hi-Viz Yellow, Luminous & matt black.<br>Dynamo is vented. Plus has mesh-covered vents | rockhelmets.com |
| -10<br>-22<br>50<br>122 | -<br>-<br>- | -<br>-<br>- | -<br>-<br>- | -<br>- | ■ | - | □<br>- | -<br>- | □<br>- | □ | - | - | ■<br>- | ■ | -<br>■ | -<br>- | 4 | ■ | ■ | ■ | ■ | | NEW in 2025<br>steel mesh vent covers.<br>Cradle/chinstarp fold into shell for storage | singingrock.com |
| -10<br>-22<br>50<br>122 | -<br>■<br>- | -<br>-<br>- | -<br>-<br>- | -<br>- | ●<br>■ | ■<br>● | □<br>- | □<br>- | □<br>- | □ | - | - | ■<br>- | ■<br>no | -<br>■ | -<br>- | 4 | ■ | ■ | ■ | ■ | | Flash Aero - Red or White only<br>* High Vis Yellow as per Blast above | singingrock.com |
| -30<br>-22<br>50<br>122 | ■<br>■<br>■ | -<br>-<br>- | -<br>-<br>- | ■<br>- | ●<br>■ | ■<br>● | □<br>- | □<br>- | -<br>- | □ | □ | - | ■<br>- | ■<br>● | □<br>□ | □<br>- | 4 | ■ | ■ | □ | ■* | | Also other EN357 versions in additional colours red, blue, yellow and Hi-Viz<br>*Buckle is a magnetic clip. | skylotec.com |
| -30<br>-22<br>50<br>122 | ■<br>-<br>- | -<br>-<br>- | -<br>-<br>- | -<br>- | ■ | ■ | □<br>- | -<br>- | -<br>- | □ | □ | - | ■<br>- | ■<br>no | -<br>□ | -<br>- | 4 | ■ | ■ | ■ | ■ | | Aries=unvented dielectric version.<br>Euro slot adapter supplied.<br>Also Aries Air to EN397 but no dielectric standards | skylotec.com |
| -30<br>-22<br>50<br>122 | -<br>-<br>- | -<br>-<br>- | -<br>-<br>- | -<br>- | - | ■ | □<br>- | -<br>- | -<br>- | □ | □ | - | ■<br>- | ■ | -<br>□ | -<br>- | 4 | ■ | ■ | - | ■ | | TO BE DISCONTINUED<br>Euro slot adapter supplied | climbingtechnology.com |
| -30<br>-22<br>50<br>122 | -<br>-<br>- | -<br>-<br>- | -<br>-<br>- | -<br>- | ■ | ■ | □<br>- | □<br>- | □<br>- | □ | □ | - | ■<br>- | ■ | □<br>□ | -<br>- | 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 | -<br>-<br>- | -<br>-<br>- | -<br>-<br>- | -<br>- | ● | ■ | *<br>- | *<br>- | □<br>- | * | * | * | ■<br>- | ■<br>● | -<br>■ | □<br>■ | 4 | ■ | ■ | - | ■ | | *NB additional accessories / visors from Stihl and 3M | stihl.com<br>stihl.co.uk |
| -30<br>-22<br>50<br>122 | -<br>-<br>- | ■<br>-<br>- | ■<br>-<br>- | -<br>- | - | ● | *<br>- | *<br>- | □<br>- | * | * | * | □<br>- | ■<br>● | □<br>□ | □<br>- | 5 | ■ | ■ | - | ■ | | *NB additional accessories / visors from Kask.<br>Not available in the 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 adherence
**VENTS:** ■=closable ●=mesh ◆=minimal **EAR:** ◆= Will fit most accessories but check
□□□ = **OPTION**
**VARIANT**= blue or □◇○ **if it's an option**

| | MODEL Variant/ AKA | COMPANY | ORIGIN | COST BARE HELMET COMBO inc Tax £$€ currency conversion only | WEIGHT (BARE HELMET) | SIZES | CONSTRUCTION SHELL INNER STRAPS/HEADBAND |
|---|---|---|---|---|---|---|---|
| | | STIHL 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 |
| | 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 Back Country | TEAM WENDY | | £245<br>$221*<br>€250 | 630g*<br>22.2oz | 53-63cm<br>20.9-24.8" | HARD SHELL HYBRID<br>Lexan Polycarbonate 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 |
| | 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 Exo | ZERO HEIGHT SAFETY | | £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 |
| | 02<br>Pinnacle Exo<br>ZPE01/02/A02/HV | ZERO HEIGHT SAFETY | | £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 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 |

# CLIMBING HELMETS

| STANDARDS | | | | | | | EYE PRO | | | Goggle Visor | | | EAR | FEATURES | | | | CRADLE | | CHIN | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TEMP RANGE °C °F | EN50365 LT HT | ANSI Z89.1 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 CLOSABLE | ID/LOGO REFLECT | NAPE GUARD UV | LAMP CLIPS BRKT | SLIDECOG ADJUST | REPLACE PADDING | <25daN Release | >50daN Release | COLOURS | NOTES | WEBSITE |
| -30 -22 +50 122 | - * - | * - - | - - - | - - | ■ | ■ | * - | * - | □ - | * | * | * | ■ - | ■ ■ | □ □ | □ - | 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 |
| -30 -22 +50 122 | - - - | ■ - ■ | ■ | ■ - | ● | ■ | □ - | - - | - - | □ | - | - | ■ no | ■ | □ □ | □ - | 4 | ■ | ■ | □ | ■ | ■ ■ ■ ■ ■ ■ | Includes a MIPS style enhanced impact system called Brainshield. Non-vented version in white, grey ylw or orange. Embedded NFC chip with emergency information | studson.com |
| -20 -4 +54 130 | - - - | - - - | - - - | ■ - | ● | ■ | □ - | - - | - - | □ | - | - | □* ■ | ■ ■ | □ □ | - - | 1* | ■ | ■ | □ | ■* | ■ ■ ■ ■ ■ ■ | *Weight & cost is without rails. Add £$€40 and 90g for rails. *Buckle is a magnetic clip * requires $£€10 adapter. Peltor ear defender adaptor | teamwendy.com |
| -30 -22 +50 122 | ■ ■ ■ | - - - | - - - | - - | ■ | ■ | - - | □ - | □ - | □ | □ | - | ■ - | ■ ■ | □ □ | - ■ | 4 | ■ | ■ | - | ■ | ■ ■ ■ ■ ■ | Add approx 10% for reflective on standard helmet, Hi-Viz comes with reflective in price. | 3m.com |
| -30 -22 +50 122 | - - - | - - - | - - - | - - | ■ | ● | - - | □ - | □ - | - | - | - | ■ - | ■ | □ □ | □ - | 4 | ■ | ■ | □ | □ | ■ ■ ■ ■ ■ ■ | Version shown is the Forestry to illustrate visor and ear defenders but shows the basic Pheos not Pheos Alpine. | uvex-safety.com |
| -30 -22 +50 122 | - - - | - - - | - - - | - - | ● | ■ ● | - - | □ - | □ - | □ | - | - | ■ - | ■ ■ | □ □ | - - | 1* | ■ | ■ | - | ■ | ■ ■* □ | *Rear clip recesses flush to the shell when not in use | uvex-safety.com |
| -30 -22 +50 122 | - - - | - - - | - - - | - ■ | ● | ■ ● | - - | □ - | - - | □ | - | - | ■ - | ■ ■ | - □ | - - | 4 | ■ | ■ | □ | ■ | * * □ * ■ | MIPS version =enhanced anti-rotational impact protection | uvex-safety.com |
| -40 -40 +50 122 | ■ ■ ■ | - - - | - ■ - | ■ - | ■ | ■ ● | □ - | □ - | □ - | □ | □ | - | ■ - | ■ ● | □ ■ | □ - | 4 | ■ | ■ | □ | ■ | * * ■ □ ■ ■ ■ ■ | Apex Exo is EN12492 only *Fluoro Orange & Lime *Direct fit half face visors available EN166 | zeroheightsafety.com |
| -40 -40 +50 122 | ■ ■ ■ | - - ■ | - - - | ■ - | ■ | ■ ● | □ - | □ - | □ - | □ | □ | - | ■ - | ■ ● * | □ □ | □ - | 4 | ■ | ■ | □ | ■ | ■ □ ■ □ ■ ■ ■ □ | Zertec 02 =unvented & ANSI E (20,000v) + EN50395 <1500vDC. Zertec has NFC chip with emergency contact details. *Exo does NOT use Koroyd and has mesh vents.*Fluoro Orange & Lime, luminous white | zeroheightsafety.com |
| -30 -22 +50 122 | ■ ■ ■ | - - - | - - - | - - | ■ | ■ | □ - | □ - | - - | □ | □ | - | ■ - | ■ no | □ □ | □ - | 4 1 | ■ | ■ | □ | ■ | ■ ■ ■ ■ ■ ■ | Also rebadged by CRESTO *Hi-Viz yellow. ELECTRO in Blue, White Yellow & Hi-Viz yellow | zekler.com |

UPDATED Jun'25

# 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

Photo by Notch Equipment

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 manufactuers 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

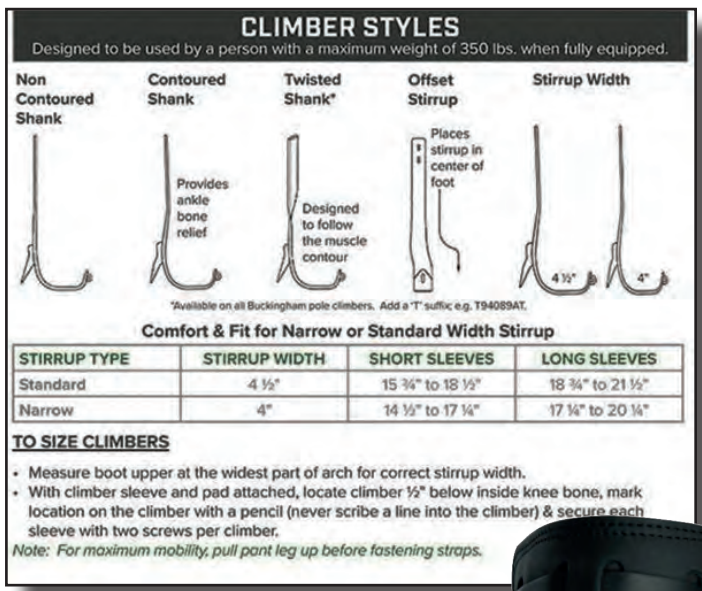
# CLIMBING SPIKES/SPURS

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.

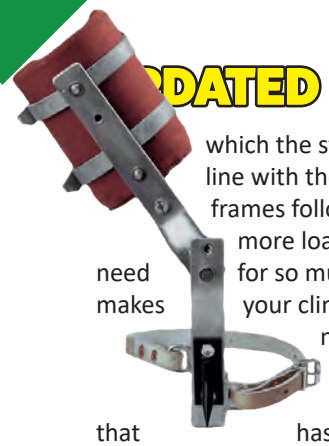
We have NOT included the '*Bistel*' Talons as they are a very poor quality imitation of the *Distel* and do not come even close to meeting the ASTM load test and we have also omitted T*omchy* and one from *Amazon* and *Walmart - Cohu* brand because it looks too poorly made to be a professional item using 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.

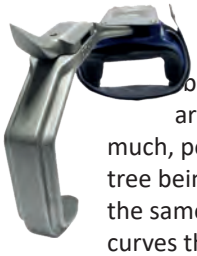
## FRAME /SHAFT/SHANK DESIGN

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 alumunium 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 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.

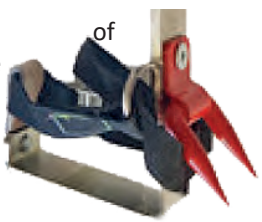
## CUFF

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.

# ARBORIST'S ADVANTAGE

## YOU ARE PACKING IN DECADES OF DEPENDABILITY

Developed by Greg Good and manufactured by Harken, the GRCS is the backcountry at height lifting and control system you can pack in to handle equipment and limbs to and from the canopy. The GRCS secures a self-tailing winch to the tree trunk via its ratchet-tightened steel mounting plate. GRCS. Trust decades of experience to control the heaviest loads.

**LEARN MORE ABOUT GRCS TREE MOUNT SYSTEM**

Made In Wisconsin, USA

Dead lift rating of 3,000 lbs

Kit comes with the two-speed winch mounted on the plate. Also includes 254 mm aluminum SpeedGrip lock-in winch handle B10ASG

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harken.com

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.

C= L= T= D= Q=

**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 Austrialpin Cobra that speeds up donning and doffing.

**THREAD BUCKLE:** webbing is threaded through a ladder od 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 inc Tax/VAT | MATERIAL Frame/Shaft Gaff/Spur | SHAPE Shaft/ Stirrup | HEIGHT ADJUST Option 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-Gaff BD12 | BASHLIN | | £225-425<br>$280-$540<br>€260-500 | STEEL<br>Steel | Straight<br>Offset | 15-18"<br>18-21" |
| Permanent-Gaff BD12C | BASHLIN | | £225-425<br>$285-$540<br>€260-500 | STEEL<br>Steel | Twisted<br>Offset | 15-18"<br>18-21" |
| Permanent-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 | 16¼-18¾"<br>19¼-21¾" |
| BuckAlloy<br>A94K2FG<br>+94..variants | BUCKINGHAM | | £755<br>$955<br>€880 | ALLOY<br>Steel | Straight<br>Offset | 16¼-18¾"<br>19¼-21¾" |
| BuckAlloy<br>A95089<br>+95..variants | BUCKINGHAM | | £575<br>$730<br>€675 | ALLOY<br>Steel | Straight<br>Offset | 16¼-18¾"<br>19¼-21¾" |
| BuckLite<br>TBG94K2V-BL<br>TB94K2V-BL | BUCKINGHAM | | £584<br>$990<br>€915<br>$1121<br>$1048 | TITANIUM<br>Steel | Profiled<br>Offset | 16¼-18¾"<br>19¼-21¾" |

# CLIMBING SPIKES/SPURS

| GAFF/SPUR Option | | | CUFF SHAPE Option | WEIGHT PAIR | WLL/ SWL MBS | FASTENINGS ■=Cuff ■=Foot | | | | | CUFF PADDING | | | | | | OTHER COLOUR | | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHORT | MED/ HYBRID | LONG | | | | VELCRO | CLICK BUCKLE | THREAD BUCKLE | LEATHER/EYELET | PLASTIC/ EYELETS | LEATHER/FELT/ WOOL | THERMO-FOAM/EVA | MESH LINER | METAL INSERT | GAFF COVER | STORAGE BAG | CUFF | FRAME | | |
| 41mm 1.6" | - | 63mm 2.5" | C T, L | 2.2-3.86kg 4.75-8.5lb | - | □ | - | - | - | ■ ■ | ■ | □ | □ | □ | ■ | - | - | ■ ■ | Price & wt vary with colour strap/pad options. Velcro C pads=3.5lbs Basic L pads=0.5lbs Inc gaff gauge | bashlin.com |
| 41mm 1.6" | - | 63mm 2.5" | C T, L | 2.7-4.5kg 6-10lb | - | □ | - | - | - | ■ ■ | ■ | □ | □ | □ | ■ | - | ■ | - | Price & wt vary with colour strap/pad options. Velcro C pads=3.5lbs Basic L pads=0.5lbs Inc gaff gauge | bashlin.com |
| 41mm 1.6" | - | 63mm 2.5" | C T, L | 2.7-4.5kg 6-10lb | - | □ | - | - | - | ■ ■ | ■ | □ | □ | □ | ■ | - | ■ | - | Price & wt vary with colour strap/pad options. Velcro C pads=3.5lbs Basic L pads=0.5lbs Inc gaff gauge | bashlin.com |
| 41mm 1.6" | - | 63mm 2.5" | C T, L | 2.5-4.3kg 5.5-9.5lb | - | □ | - | - | - | ■ ■ | ■ | □ | □ | □ | ■ | - | ■ | - | Price & wt vary with colour strap/pad options. Velcro C pads=3.5lbs Basic L pads=0.5lbs Inc gaff gauge | bashlin.com |
| 41mm 1.6" | - | 63mm 2.5" | C T, L | 2.5-4.3kg 5.5-9.5lb | - | □ | - | - | - | ■ ■ | ■ | □ | □ | □ | ■ | - | ■ | - | Price & wt vary with colour strap/pad options. Velcro C pads=3.5lbs Basic L pads=0.5lbs Inc gaff gauge | bashlin.com |
| 41mm 1.6" | - | 63mm 2.5" | C T, L | 2.5-4.3kg 5.5-9.5lb | - | □ | - | - | - | ■ ■ | ■ | □ | □ | □ | ■ | - | ■ | ■ | Price & wt vary with colour strap/pad options. Velcro C pads=3.5lbs Basic L pads=0.5lbs Inc gaff gauge | bashlin.com |
| 44mm 1.75" | 54mm 2.1" | 62mm 2.4" | C D, L | 1.45kg 3.2lb | 159kg 350 lb | ■ ■ | - | - | - | □ □ | ■ | - | - | □ | □ | - | ■ ■ | ■ | All frames , pads, straps and gaffs are interchangeable between models *Europe | buckinghammfg.com |
| 44mm 1.75" | 54mm 2.1" | 62mm 2.4" | D L, C | 1.86kg 4.1lb | 159kg 350lb | ■ | ■ | - | - | □ □ | ■ | □ | - | □ | ■ | - | - | - | All frames , pads, straps and gaffs are interchangeable. GRIP gaffs, see intro for discussion. | buckinghammfg.com |
| 44mm 1.75" | 54mm 2.1" | 62mm 2.4" | L C D | 1.3kg 2.8lb | 159kg 350lb | □ □ | - | - | - | ■ ■ | ■ | - | - | □ | □ | - | - | ■* | All frames , pads, straps and gaffs are interchangeable between models. *GRIP gaffs, see intro for discussion. | buckinghammfg.com |
| 44mm 1.75" | 41mm 1.6" | 71mm 2.75" | D L, C | 1.6kg 3.5lb | 159kg 350 lb | ■ ■ | □ | - | - | □ □ | ■ | □ | - | ■ | ■ | - | ■ | - | 'SG' in product Code=Safety Green Hi-Viz GRIP gaffs, see intro for discussion. | buckinghammfg.com |

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 inc Tax/VAT | MATERIAL Frame/Shaft Gaff/Spur | SHAPE Shaft/ Stirrup | HEIGHT ADJUST Option Increments |
|---|---|---|---|---|---|---|
| **BuckLite Twisted Shank-Pole** TBG94K1VT-BL | BUCKINGHAM | | £815 $1035 €995 | TITANIUM Steel | Twisted Offset | 16¼-18¾" 19¼-21¾" |
| **BuckLite Permanent Gaff** TB81429R TB87479 | BUCKINGHAM | | £745 $940 €890 $883 | TITANIUM Steel | Profiled Offset | 16¼-18¾" 19¼-21¾" |
| **Buck Steel Offset** SB95K2V-BL SBG95089Q2 | BUCKINGHAM | | £410 $405 €375 $737 $577 | STEEL Steel | Profiled Offset | 16¼-18¾" 19¼-25¾" |
| **Buck Steel Straight Stirrup** SB93059 | BUCKINGHAM | | £360 $400 €370 | STEEL Steel | Profiled | 16¼-18¾" 19¼-21¾" |
| **Buck Steel Permanent Gaff** 87479 (Pole) | BUCKINGHAM | | £310 $390 €360 $370 | STEEL Steel | Profiled | 16¼-18¾" 19¼-21¾" |
| **Alu Classic* Alu3 Alu Comfort** | DISTEL | | £375 $420 €355 | ALU PTFE-coated Steel | Slight Profile | 34.3-47.8cm 6mm/¼" |
| **Alu Comfort Plus Alu DMM** | DISTEL | | £335 $395 €375 | ALU PTFE-coated Steel | Slight Profile Offset | 34.3-47.8cm 12mm/½" |
| **Tree Punk** | Distel | | £371 £525 €375 | ALU PTFE-coated Steel | Slight Profile Offset | 34.3-47.8cm 12mm/½" |
| **Carbon** | DISTEL | | £582 $723 €700 | CARBON FIBRE PTFE-coated Steel | Slight Profile Offset | 34-37.8cm 6mm/¼" |
| | | | | | | |

# CLIMBING SPIKES/SPURS

| GAFF/SPUR Option | | | CUFF SHAPE Option | WEIGHT PAIR | WLL/ SWL MBS | FASTENINGS ■=Cuff ■=Foot | | | | | CUFF PADDING | | | | | | OTHER COLOUR | | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHORT | MED/ HYBRID | LONG | | | | VELCRO | CLICK BUCKLE | THREAD BUCKLE | LEATHER/EYELET | PLASTIC/ EYELETS | LEATHER/FELT/ WOOL | THERMO-FOAM/EVA | MESH LINER | METAL INSERT | GAFF COVER | STORAGE BAG | CUFF | FRAME | | |
| 44mm 1.75" | 41mm 1.6" | 71mm 2.75" | C D, L | 1.4kg 3.1lb | 159kg 350lb | ■ ■ | - | - | - | □ □ | ■ | □ | - | ■ | ■ | - | - | - | All frames , pads, straps and gaffs are interchangeable between models | buckinghammfg.com |
| 38mm 1.5" | - | 79mm 3.1" | L C D | 1kg 2.3lb | 159kg 350lb | - | - | - | - | ■ ■ | ■ | □ | - | □ | □ | - | - | - | All frames , pads, straps and gaffs are interchangeable between models | buckinghammfg.com |
| 44mm 1.75" | 41mm 1.6" | 71mm 2.75" | C L, D | 2.2kg 4.8lb | 159kg 350lb | ■ □ | - | - | - | □ ■ | ■ | □ | - | ■ | ■ | - | ■ | - | Hi Viz Safety Green option with Big-Buck Pads | buckinghammfg.com |
| 44mm 1.75" | 41mm 1.6" | 71mm 2.75" | L C D | 2.8kg 6.2lb | 159kg 350lb | □ □ | - | - | - | ■ ■ | - | □ | - | □ | □ | - | - | - | All frames , pads, straps and gaffs are interchangeable between models. 23 deg gaff angle | buckinghammfg.com |
| 40mm 1.6" | - | 78mm 3.1" | L C D | 2.8kg 6.2lb | 159kg 350lb | □ □ | - | - | - | ■ ■ | ■ | □ | - | □ | □ | - | - | - | All frames , pads & straps are interchangeable between models | buckinghammfg.com |
| 31mm 1.2" | 40mm 1.6" | 47mm 1.85" | FibreGlass Q | 2.04kg 4.5lb | 330kg | ■ □ | □ □ | - | - | ■* | - | ■ | - | - | - | - | - | - | *Alu Classic has been DISCONTINUED *Weaver straps | distelforst.de |
| 31mm 1.2" | 40mm 1.6" | 47mm 1.85" | FibreGlass Q | 2.08kg 4.6lb | 330kg | ■ ■ | □ □ | - | - | □* | - | ■ | - | - | - | - | ■ | - | Vibram rubber on underside of stirrup. *Weaver straps | distelforst.de |
| 31mm 1.2" | - | 47mm 1.85" | FibreGlass Q | 2.08kg 4.6lb | 330kg | ■ | - | - | ■ | □* | - | ■ | - | - | - | - | ■ | - | Vibram rubber on underside of stirrup. *Weaver straps | distelforst.de |
| 31mm 1.2" | 40mm 1.6" | 47mm 1.85" | Plastic Q | 1.66kg 3.6 lb | 330kg | ■ ■ | □ □ | - | - | □* | - | ■ | - | - | - | - | - | - | Vibram rubber on underside of stirrup. *Weaver straps | distelforst.de |
| | | | | | | | | | | | | | | | | | | | | |

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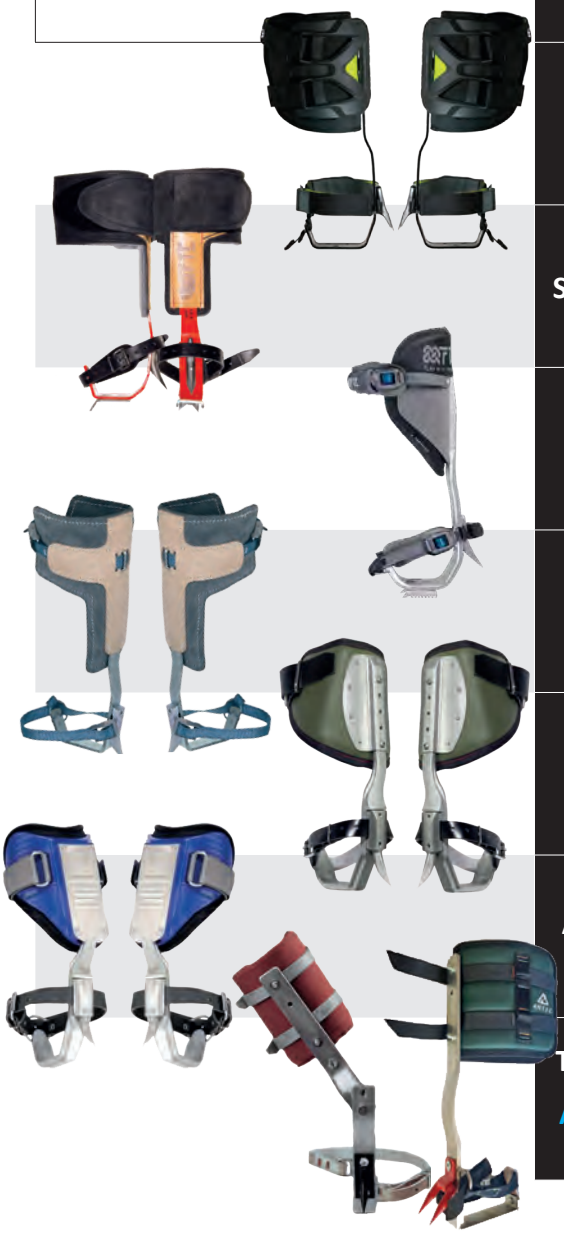
£$€ = Currency conversion only exc. shipping, duties etc
FASTENING: Top Cuff=☐ Bottom/Foot Strap= ■
OPTION= ☐or ☐



| MODEL | COMPANY | ORIGIN | COST inc Tax/VAT | MATERIAL Frame/Shaft Gaff/Spur | SHAPE Shaft/ Stirrup | HEIGHT ADJUST Option Increments |
|---|---|---|---|---|---|---|
| Talon | EDELRID | | £375 $625 €400 | powder-coated STEEL Steel | Profiled Offset | 35.5-45.7cm 14-18" 5mm /¼" |
| Sting & Stay | FTC TREE | | £260 $315 €300 | STAINLESS STEEL Stainless Steel | Profiled | S-15.5" L=16.5" none |
| Klik 'N Ka | FTC TREE | | £475 $605 €520 | ALU Stainless Steel | Profiled | 42-48cm 16.8-19.2" 12mm/½" |
| Griffe 1 | HONEYWELL MILLER/ KOMET | | £255 $315 €300 | ALU Stainless Steel | Profiled | ? |
| 1014991 | HONEYWELL MILLER/ KOMET | | £555 $685 €650 | ALU Stainless Steel | Profiled Offset | ■ 3 |
| Axess/Axis 1014990 | HONEYWELL MILLER/ANTEC | | £565 $690 €662 | ALU Stainless Steel | Profiled Offset | NO |
| Twin Spikes 3139/1/2 Articulated 3358 | HONEYWELL MILLER/ANTEC | | $412 €392 $480 €457 | ALU Steel Twin Steel | Profiled articulated | ■ 2 |

# CLIMBING SPIKES/SPURS

| GAFF/SPUR Option | | | CUFF SHAPE Option | WEIGHT PAIR | WLL/ SWL MBS | FASTENINGS ■=Cuff ■=Foot | | | | | CUFF PADDING | | | | GAFF COVER | STORAGE BAG | OTHER COLOUR | | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHORT | MED/ HYBRID | LONG | | | | VELCRO | CLICK BUCKLE | THREAD BUCKLE | LEATHER/EYELETS | PLASTIC/ EYELETS | LEATHER/FELT/ WOOL | THERMO-FOAM/EVA | MESH LINER | METAL INSERT | | | CUFF | FRAME | | |
| 43mm 1.7" | - | 70mm 2.75" | Plastic D | 2.5kg 5.5lb | - | ■ ■ | - | - | - | - | - | ■ | - | - | - | - | - | - | Plastic is recycled rope scraps | edelrid.de |
| - | 50mm 2" | - | Leather T | 3kg 6.6lb | - | ■ | - | - | ■ | - | ■ | - | ■ | - | □ | - | - | - | 2 sizes available for < or > than 1.75m height. Has instep spikes | ftc-tree.com |
| - | 50mm 2" | - | FibreGlass Q | 1.8kg 4lb | - | - | ■ ■ | - | - | - | - | ■ | - | - | □ | - | - | - | New for 2024 | ftc-tree.com |
| 40mm 1.6" | - | - | Leather T | 2.4kg 5.3lb | - | - | - | - | □ □ | ■* ■* | - | - | ■ | - | □ | - | - | ■ | *Image shows Cam-'buckles' on calf and foot straps | sps.honeywell.com |
| 40mm 1.6" | - | ■ | Leather D | N/A | - | - | - | - | ■ ■ | □ □ | ■ | ■ | - | ■ | □ | - | - | - | Miller Komet now owned by Honeywell. Good luck finding spikes on the Honeywell website | sps.honeywell.com |
| 40mm 1.6" | - | - | ABS D | 2.6kg 5.8lb | - | ■ | - | - | ■ | - | - | ■ | - | ■ | □ | - | - | - | | sps.honeywell.com |
| - | - | - | Cordura C | 3.2kg 7 lb | - | - | - | - | □ □ | ■* ■* | - | ■ | - | - | □ | - | - | - | *Cam-'buckles' on calf & foot straps. May be discontinued but still being sold. | sps.honeywell.com |

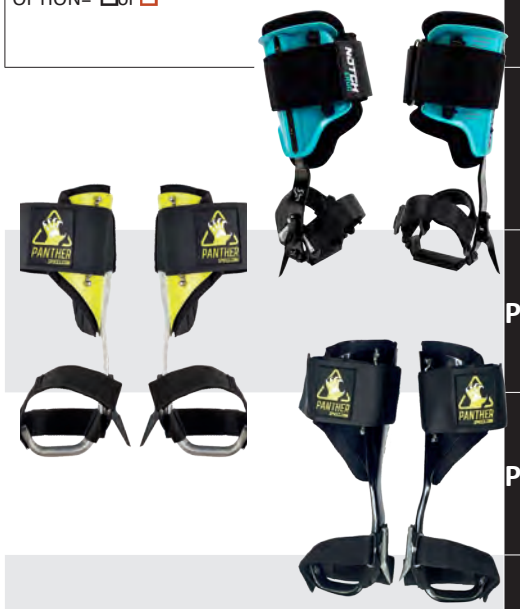
images = one of a range of options - NOT to scale.
£$€ = Currency conversion only exc. shipping, duties etc
FASTENING: Top Cuff=☐ Bottom/Foot Strap=■
OPTION= ☐or ☐

| MODEL | COMPANY | ORIGIN | COST inc Tax/VAT | MATERIAL Frame/Shaft Gaff/Spur | SHAPE Shaft/ Stirrup | HEIGHT ADJUST Option Increments |
|---|---|---|---|---|---|---|
| FOR33 101603700006 | IRUDEK | | | ALU Steel | Straight Straight | Fixed TBA |
| K2 | KIWIKLIMBER | | £430/475 $540/599 €586/536 | CARBON-FIBRE Titanium* | Profiled | 34.3-47.8cm 6mm/¼" |
| Klein-Claw & Hydra-Cool 2214..variants | KLEIN TOOLS | | £425 $330 €305 | STEEL Steel | Profiled | 38-48cm 15-19" 43-53cm 17-21" 6mm/¼" |
| 1907..variants | KLEIN TOOLS | | £320 $300 €270 | STEEL Steel | Slight Profile | 38-48cm 15-19" 43-53cm 17-21" 6mm/¼" |
| 1972..variants | KLEIN TOOLS | | £300 $280 €255 | STEEL Steel | Slight Profile | 38-48cm 15-19" 43-53cm 17-21" 6mm/¼" |
| 1986..variants | KLEIN TOOLS | | £301 $270 €250 | STEEL Steel | Slight Profile | 38-48cm 15-19" 43-53cm 17-21" 6mm/¼" |
| Carbon Fiber | NOTCH GECKO | | £642 $850 €761 | CARBON FIBER Steel | Slight Profile Offset | 37.5-53cm 14¾-21" 6mm/¼" |
| Carbon Fiber 2.0 | NOTCH GECKO | | £750 $950 €850 | CARBON FIBER Steel | Slight Profile Offset | 37.5-53cm 14¾-21" 6mm/¼" |
| Aluminium 2. DMM* | NOTCH GECKO | | £435 $550 €492 | ALU Steel | Profiled | 37.5-53cm 14¾-21" 6mm/¼" |
| Steel | NOTCH GECKO | | £276 $350 €313 | powder-coated STEEL Steel | Profiled Offset | 37.5-53cm 14¾-21" 6mm/¼" |

# CLIMBING SPIKES/SPURS

| GAFF/SPUR Option | | | CUFF SHAPE Option | WEIGHT PAIR | WLL/ SWL MBS | FASTENINGS ■=Cuff ■=Foot | | | | | CUFF PADDING | | | | | | OTHER COLOUR | | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHORT | MED/ HYBRID | LONG | | | | VELCRO | CLICK BUCKLE | THREAD BUCKLE | LEATHER/EYELETS | PLASTIC/ EYELETS | LEATHER/FELT/ WOOL | THERMO-FOAM/EVA | MESH LINER | METAL INSERT | GAFF COVER | STORAGE BAG | CUFF | FRAME | | |
| TBA | TBA | TBA | Leather L | 3.8kg 8.4lb | TBA | - | - | - | ■ ■ | | ■ ■ | - | - | - | - | - | - | - | | irudek.com |
| 48mm 1.8" | - | 60mm 2.3" | FibreGlass Q | 2kg 4.4lb | 95kg 210lb | ■ ■ | □ □ | - | - | - | - | ■ | - | - | □ | □ | * | - | *Titanium gaffs lightest on the mkt Cost $159 MBS 700-1600kg *+Custom graphics | kiwiklimbers.com |
| 38mm 1.5" | 40mm 1.6" | 70mm 2.75" | Leather C | 3.9kg 8.6lb | 136kg 300lb | ■ | - | - | - | ■ | ■ | ■ | ■ | - | □ | - | - | - | Hydra-Cool pads. All frames , pads, straps and gaffs are interchangeable between models | kleintools.com |
| 38mm 1.5" | 40mm 1.6" | 70mm 2.75" | Leather D C, L | 3.5kg 7.7lb | 136kg 300lb | ■ □ | - | - | □* | ■ | ■ | ■ | - | ■ | □ | - | - | - | *Weaver leather All frames , pads, straps and gaffs are inter-changeable between models | kleintools.com |
| 38mm 1.5" | 40mm 1.6" | 70mm 2.75" | Leather C, L | 2.7kg 6lb | 136kg 300lb | - | - | - | - | ■ ■ | ■ | - | - | - | □ | - | - | - | All frames , pads, straps and gaffs are interchangeable between models | kleintools.com |
| 39mm 1.6" | 40mm 1.6" | 70mm 2.75" | Leather C, L | 2.7kg 6lb | 136kg 300lb | - | - | - | - | ■ ■ | ■ | - | - | - | □ | - | - | - | All frames , pads, straps and gaffs are interchangeable between models | kleintools.com |
| 43mm 1.7" | - | 63mm 2.5" | Fiber-Glass Q | 2kg 4.4lb | 159kg 350lb | ■ □ | ■ | - | - | - | ■ | ■ | - | - | □ | □ | - | - | ASTM F887 | notchequipment.com |
| 47mm 1.86" | - | 63mm 2.5" | Fiber-Glass Q | 2.1kg 4.7lb | 159kg 350lb | ■ □ | ■ | - | - | - | ■ | ■ | - | - | □ | □ | - | - | ASTM F887 | notchequipment.com |
| 43mm 1.75" | - | 63mm 2.5" | Fiber-Glass Q | 2.4kg 5.3lb | 159kg 350lb | ■ □ | □ | - | ■ | - | ■ | ■ | - | - | □ | □ | - | - | ASTM F887 *DMM forged shaft version discontinued | notchequipment.com |
| 43mm 1.75" | - | 63mm 2.5" | Fiber-Glass Q | 2.7kg 5.9lb | 159kg 350lb | ■ □ | □ | - | ■ | - | ■ | ■ | - | - | □ | □ | - | - | ASTM F887 | notchequipment.com |

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 inc Tax/VAT | MATERIAL Frame/Shaft Gaff/Spur | SHAPE Shaft/ Stirrup | HEIGHT ADJUST Option Increments |
|---|---|---|---|---|---|---|
| Ergo Steel | NOTCH | | £276<br>$360<br>€322 | powder-coated 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 FIBRE<br>AlloySteel | Profiled | 41-47cm<br>16-18.5"<br>20mm/ ¾" |
| | | | | | | |
| TREEUP Iron Spikes<br>DR100 | PROTEKT | | £160<br>$205<br>€185 | powder-coated STEEL<br>Steel | Profiled | 33-48cm<br>13-19" |
| TREEUP DR1/DR4<br>SP501/SP504 | PROTEKT | | £205<br>$255<br>€235 | powder-coated STEEL<br>Steel | Profiled<br>offset | 45cm<br>NO |
| TREEUP DR2/DR3<br>SP505/SP506 | PROTEKT | | £230<br>$290<br>€265 | powder-coated STEEL<br>Steel | Profiled | 45cm<br>■7 |
| TREEUP DR2A/DR3A<br>SP502/SP503 | PROTEKT | | £265<br>$335<br>€305 | ALU<br>Steel | Slight Profile | 45cm<br>■7 |
| TREEUP DR3A<br>SP503 | PROTEKT | | £265<br>$340<br>€310 | ALU<br>Steel | Slight Profile | ■7 |
| Climb Right 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 Option | | | CUFF SHAPE Option | WEIGHT PAIR | WLL/ SWL MBS | FASTENINGS ■=Cuff ■=Foot | | | | | CUFF PADDING | | | | | | OTHER COLOUR | | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHORT | MED/ HYBRID | LONG | | | | VELCRO | CLICK BUCKLE | THREAD BUCKLE | LEATHER/EYELETS | PLASTIC/ EYELETS | LEATHER/FELT/ WOOL | THERMO-FOAM/EVA | MESH LINER | METAL INSERT | GAFF COVER | STORAGE BAG | CUFF | FRAME | | |
| 43mm 1.75" | - | 63mm 2.5" | HDPE Q | 2.9kg 6.4lb | 159kg 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 1.7" | 53mm 2" | 63mm 2.5" | Fiber-Glass Q | 2.1kg 4.6 lb | 150kg 330lb | ■ ■ | - | - | □ | □ | ■ | - | □ | - | ■ | □ | ■ ■ ■ ■ | ■ | *Sold as RC1 Climbers by Rock'nArb | pantherspikes.com |
| 43mm 1.7" | 53mm 2" | 63mm 2.5" | Fiber-Glass Q | 1.67kg 3.67 lb | 150kg 330lb | ■ ■ | - | - | □ | □ | ■ | - | □ | - | ■ | □ | ■ ■ ■ ■ | ■ | 35-48cm calf | pantherspikes.com |
| | | | | | | | | | | | | | | | | | | | | Expansion Row |
| 40mm 1.6" | - | 60mm 2.3" | Plastic D | 3.16kg 7lb | - | ■ ■ | - | - | - | - | - | ■ | - | - | □ | ■ | ■ | ■ ■ ■ | | protekt.pl |
| 40mm 1.6" | - | 60mm 2.3" | Leather L C | 3.88kg 8.5lb | - | - | - | - | - | ■ ■ | ■ | - | ■ | - | □ | □ | | | All frames , pads, straps and gaffs fit all models. Comes with Short & Long gaffs | protekt.pl |
| 40mm 1.6" | - | 60mm 2.3" | Leather L C | 3.85kg 8.5lb | - | - | - | - | - | ■ ■ | ■ | - | ■ | - | □ | □ | | | All frames , pads, straps and gaffs fit all models. Comes with Short & Long gaffs | protekt.pl |
| 40mm 1.6" | - | 60mm 2.3" | Leather L | 2.56kg 5.6lb | - | - | - | - | - | ■ ■ | ■ | - | ■ | - | □ | □ | | | All frames , pads, straps and gaffs fit all models. Comes with Short & Long gaffs | protekt.pl |
| 40mm 1.6" | - | 60mm 2.3" | Leather C | 2.76kg 6lb | - | - | - | - | - | ■ ■ | ■ | - | ■ | - | □ | □ | | | All frames , pads, straps and gaffs fit all models. Comes with Short & Long gaffs | protekt.pl |
| 40mm 1.6" | - | 67mm 2.6" | Alu C L, D | 2.2kg 4.9lb | <160kg <350lb | ■ | - | - | - | ■ | ■ | □ | □ | - | □ | - | | | Textured base to stirrup | spyderman.com |

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 inc Tax/VAT | MATERIAL Frame/Shaft Gaff/Spur | SHAPE Shaft/ Stirrup | HEIGHT ADJUST Option Increments |
|---|---|---|---|---|---|---|
| Elevate | STEIN | UK | £385<br>$500<br>€470 | ALU<br>Steel | 5° Offset | 37.5-53cm<br>14¾-21"<br>6mm/ ¼" |
| X2 | STEIN | UK | £323<br>$480<br>€445 | ALU<br>Steel | Straight | ■<br>x7 |
| TH1000 | TREEHOG/ ARBORTEC | UK | £240<br>$310<br>€295 | STEEL<br>Steel | Slight Profile | 45cm<br>NO |
| TH1005<br>TH1003 | TREEHOG/ ARBORTEC | UK | £360<br>$415<br>€380<br>£354 | ALU<br>Steel | Slight Profile | 45cm<br>■<br>x7 |
| Alu Plus<br>71-284 | TREERUNNER (GRUBE) | DE | £421<br>$553<br>€500 | ALU<br>STEEL | Slight Profile & Twist | 37-47cm |

# CLIMBING SPIKES/SPURS

| GAFF/SPUR Option | | | CUFF SHAPE Option | WEIGHT PAIR | WLL/ SWL MBS | FASTENINGS ■=Cuff ■=Foot | | | | | CUFF PADDING | | | | | | OTHER COLOUR | | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHORT | MED/ HYBRID | LONG | | | | VELCRO | CLICK BUCKLE | THREAD BUCKLE | LEATHER/EYELETS | PLASTIC/ EYELETS | LEATHER/FELT/ WOOL | THERMO-FOAM/EVA | MESH LINER | METAL INSERT | GAFF COVER | STORAGE BAG | CUFF | FRAME | | |
| 43mm 1.7" | - | 63mm 2.5" | Fiber-Glass Q | 2.4kg 5.3lb | 159kg 350lb | ■ □ | □ | - | ■ | - | ■ | ■ | - | - | □ | □ | | ■ | | steinworldwide.com |
| 43mm 1.7" | - | 67mm 2.6" | Leather Alu C | 2.2kg 4.8lb | 125kg 275lb | ■ | - | - | - | ■ | - | ■ | - | - | ■ | ■ | | ■ | Grip surfaces on underside of stirrups | steinworldwide.com |
| 40mm 1.6" | - | 60mm 2.3" | Leather L | 3.88kg 8.5lb | - | - | - | - | □ □ | ■ □ | ■ | - | ■ | - | □ | □ | | | comes with 2 sets of gaffs | treehog.co.uk |
| 40mm 1.6" | - | 60mm 2.3" | Leather C L | 2.56-2.76kg 5.6-6lb | - | - | - | - | ■ ■ | - | ■ | - | - | ■ | □ | □ | | | comes with 2 sets of gaffs | treehog.co.uk |
| 40mm 1.6" | - | 60mm 2.3" | Leather/ GRP Plastic T | 2.28kg 5lb | - | - | - | - | ■* ■* | - | ■ | - | - | ■ | □ | □ | | | *Weaver leather | grube.eu |

UPDATED Apr '25

# ROPE/GEAR BAGS TRANSPORT & ORGANISERS PACKS

The first part of this guide covers packs and bags over 30 liters which are the 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 on the 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 strngth 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 370 & 376. [Yellow highlights indicate 'being compiled' or subject to change]

Rope 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

# TRANSPORT PACKS

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 p366 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.

See-through pockets in mesh or plastic are again a feature of most some back systems. like the L*otus*, are as good as any long-range expedition pack. Load bearing (hauling/carrying) handles/eyes are clearly marked in red on this one. 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.

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 a wheeled version called the *Lazy Mule* and you presumably used the roll-top closure a s 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 duffle and duffles (or duffels) 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-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 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.

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 *Teufelbereger* 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 s section.

www.rescuemagazines.com

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 Arbsession's GearTote+ which also has a couple of nifty features we don't yet see n others - the ouside 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 duffle-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 Buckpack* 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/ore 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/150ftx 12.7mm/½"=76m/250'x11mm7/16"= 91m/300'x9mm/⅜"

**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 ther 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 Koompassia*.
**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**
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**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>APTB50 | Rolly Box 225<br>- | GearTote+ 72<br>- |
| | ORIGIN | UK | IT | IT | US |
| | 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 |
| SPECIFICATIONS | NOMINAL/INTENDED ROPE CAPACITY | 45m x 11mm<br>100' x ½" | 45-55m x 11mm<br>100-135' x ½" | 2x 80m+1x160m x 11mm<br>2x 160'+1x320' x ½" | 2x 25m x 11mm<br>2x 75' x ½" |
| SPECIFICATIONS | WEIGHT empty | 2.1kg<br>4.6lb | 1.5kg<br>3.3lb | ? | approx 2.2kg<br>5lb |
| SPECIFICATIONS | 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 STRAPS 1xSHOULDER WAIST BELT [PADDED] | [■]- [■] | [■]-- | - - - | [■]-- |
| TRANSPORT | BACK/LUMBAR PADDING | ■ ■ | ■ ■ | - - | ■ ■ |
| TRANSPORT | DETACH STOW CARRY STRAPS | - - | - - | - - | ■ |
| TRANSPORT | REINFORCED SIDES (Free-standing) | - | ■ | ■ | ■ |
| TRANSPORT | CARRY HANDLES WLL ENDS SIDE | 1 - | 2 - | - - | - 1 |
| TRANSPORT | ADDITIONAL HAUL WLL SEWN EYES RINGS | | 1 - | - - | 1 - |
| STOW EQUIPMENT | BAG OPENS OUT to DISPLAY KIT | NO | NO | PARTIAL | PARTIAL |
| STOW EQUIPMENT | HELMET/BOOT [SAW] POCKET/POUCH CORD/WEB | ■ | ■ | ■ [■] | ■ [■] |
| STOW EQUIPMENT | INTERNAL PARTITION +ROPE TOOL BAG | - - - | - - - | ■□□ | ■■- |
| STOW EQUIPMENT | GEAR (individual) EYES EXTERNAL INTERNAL | ? | 11 | - - | 16 20+16 in lid |
| STOW EQUIPMENT | GEAR LOOPS [STRAPS] EXTERNAL INTERNAL | - - | - - | - - | - - |
| POCKETS | TOTAL POCKETS EXTERNAL INTERNAL | 2 1 | *3 3* | 6 1 + 30L pouch | 2 * 2 + 10L pouch |
| POCKETS | of which..MESH/CLEAR EXTERNAL INTERNAL | ? | ■1 | - 1 * | - - |
| POCKETS | CLOSURE VELCRO POP ZIPPED DRAW-CORD BUCKLE | ? | - - | ■3 | ■1 |
| FEATURES | WATERPROOF VENT HOLES DRAIN HOLES | ■-■ | ■-■ | ■-- | ■-- |
| FEATURES | LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | ■ | ■+■ | ■ | ■ |
| FEATURES | LOCKABLE ID PANEL END/SIDE STRAPS | - ■ ■- | ■ ■ - ■ | - - - ■ | - - - - |
| FEATURES | REFLECTIVE TRIM TARPAULIN RAINCOVER | --- | --- | --- | --- |
| | OUTER MATERIALS | PES/PVC | PVC | 680 g/m² PVC | 900D PVC |
| | OTHER COLOURS | ■ | - | ■ ■ | |
| | NOTES | | *inc slide-in 5L pouch on each side. *Side straps allow variable volume *Sml zipped security pocket | Wheeled trolley optional. 30L pouch has 2 dividers Clear sleeve in back of box. | Lid pouch detaches as rope bag for 75'x1/2" *2 exterior pockets intended for throwline cubes |
| | WEBSITE | arbortec.com | arbpro.it | arpro.it | arbsession.com |

# TRANSPORT/ORGANISERS

| BEAL | BEAL | BUCKINGHAM | BUCKINGHAM | CAMP SAFETY | CAMP SAFETY |
|---|---|---|---|---|---|
| **Combi-Pro 40**<br>BSAC | **Combi-Pro 80**<br>BSAC | **Buckpack Pro 90**<br>4377 Garage 4378 | **Eqpt Bag Wheels**<br>41333 | **Hold 40**<br>2789 | **Spacecraft 45**<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 |
| 40L/10gal Pro access | 80L/21.1gal Pro Access | 90L/23.8gal Pro Arb | 0L Pro Arb | 40L/10gal Pro Access | 45L/11.8gal Pro Access |
| 40m x 10.5mm<br>80' x ½" | 60m x 10.5mm<br>120' x ½" | 300m x 11mm<br>600' x ½" | 0m 0' | 100m x 11mm<br>200' x ½" | 150m x 11mm<br>300' x ½" |
| 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" |
| [■]-[■] | [■]-[■] | [■]-- | [■]-- | [■]-- | [■]-■ |
| ■■ | ■■ | ■■ | -- | ■■ | ■■ |
| -- | -- | -■ | -- | -- | -- |
| ■ | ■ | ■ | - | - | ■ |
| 1+1 1 | 1+1 1 | *5 - | 2 - | 3 1 | - 1 |
| 1 - | 2 - | 1 - | | 1x50kg - | 1x50kg - |
| YES | YES | PARTIAL | PARTIAL | PARTIAL | YES |
| -- | -- | ■[■] | [2]2- | -- | -- |
| ■ - | ■ ■ | ■- | ----- | --- | --- |
| -10+popper loops | -15+7 | 16 35 | -■-1 | 14 - | 3 30 |
| 2* 7* | 2* 7* | *5 - | ------ | - 2 | - - |
| 0 4 | 0 4 | *7 4 | 3 1 | 3 - | 3 * |
| ■3* | ■3* | -- | 1 - | 1 - | - - |
| - 3 | - 3 | ■5 ■2 | ■2 | ■2 | ■1 |
| ●-- | ●-- | ●-- | ■-■ | ■-■ | ■-- |
| ■ | ■ | ■+■ | ■ | ■ | ■+■ |
| -■-- | -■-- | -■-- | -■■- | -■■- | -■■■ |
| ■-- | ■■- | --- | --- | --- | --- |
| PVC 1100g/m² | PVC 1100g/m² | Vinyl,Cordura, Kevlar | 44oz Vinyl | 500D PVC | 500D PVC |
| ■ | ■ | - | ■ | - | - |
| 80L=pull-out rope tarp. sturdy enough to be a light handle. *6-loops detachable clear pouch can be for water | 80L=pull-out rope tarp. *sturdy enough to be a light handle. *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 |

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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 | | | | |
| | 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 |
| SPECIFICATIONS | VOLUME L/US Gallon intended market | 13L/3.4gal Pro Rescue | 37L/9.7gal Pro Rescue | 37L/9.7gal Pro Rescue | 42L0L/11gal Pro Rescue |
| SPECIFICATIONS | NOMINAL/INTENDED ROPE CAPACITY | 25m x 11mm<br>50' x ½" | 100m x 11mm<br>200' x ½" | 122m x 11mm<br>400' x 7/16" | 100m x 11mm<br>200' x ½" |
| SPECIFICATIONS | WEIGHT empty | 879g<br>1.9lb | 998g<br>2.25lb | 2.37kg<br>5.2lb | 2.8kg<br>6.2lb |
| SPECIFICATIONS | 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" |
| TRANSPORT | 2xBACK STRAPS 1xSHOULDER WAIST BELT [PADDED] | - - - | [■] - - | [■] - [■] | [■] - [■] |
| TRANSPORT | BACK/LUMBAR PADDING | - - | - - | ■■ | ■■ |
| TRANSPORT | DETACH STOW CARRY STRAPS | - - | - ■ | ■(waist belt) ■ | - - |
| TRANSPORT | REINFORCED SIDES (Free-standing) | ■ | - | - | - |
| TRANSPORT | CARRY HANDLES WLL ENDS SIDE | 1 - | 1 2 | 1 2 | - 1 |
| TRANSPORT | ADDITIONAL HAUL WLL SEWN EYES RINGS | - - | - - | - - | - - |
| STOW EQUIPMENT | BAG OPENS OUT to DISPLAY KIT | PARTIALLY | PARTIALLY | YES | YES |
| STOW EQUIPMENT | HELMET/BOOT [SAW] POCKET/POUCH CORD/WEB | - - | - - | - - | - - |
| STOW EQUIPMENT | INTERNAL PARTITION +ROPE TOOL BAG | - - - | - - - | - - - | - - - |
| STOW EQUIPMENT | GEAR (individual) EYES EXTERNAL INTERNAL | 3 - | 16 ? | 12 +16 web eyes 20 | 6 24 |
| STOW EQUIPMENT | GEAR LOOPS [STRAPS] EXTERNAL INTERNAL | 2 - | - 2 | - 1 | 1 2 |
| POCKETS | TOTAL POCKETS EXTERNAL INTERNAL | 4 - | 1 2 | 4 7 | 2 7 |
| POCKETS | of which..MESH/CLEAR EXTERNAL INTERNAL | 1 - | - - | - 6 | - - |
| POCKETS | CLOSURE VELCRO POP ZIPPED DRAW-CORD BUCKLE | ■3 ■1 | ■3 | ■10 | ■2 ■6 |
| FEATURES | WATERPROOF VENT HOLES DRAIN HOLES | ● - - | ■ - - | ● - - | ■ - ■ |
| FEATURES | LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | | ■ | ■ | ■ |
| FEATURES | LOCKABLE ID PANEL END/SIDE STRAPS | ■ ■ - ■ | - ■ - - | ■ ■ - ■ | - ■ ■* - |
| FEATURES | 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 fleec-lined for glasses/phone | | *Lid buckles act as end-to-end compression straps. Padded side pockets. Whistle on sternal buckle. 3 lash panels. 2xToggled bungies on lid. |
| | WEBSITE | cmcpro.com | cmcpro.com | cmcpro.com | cmcpro.com |

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AP SYSTEM

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| | | | | | |
|---|---|---|---|---|---|
| | 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<br>- |
| | ORIGIN | | | | |
| | 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 |
| SPECIFICATIONS | 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" |
| SPECIFICATIONS | WEIGHT empty | 2.7kg<br>6lb | 3.4kg<br>7.5lb | 3.25kg<br>7.15lb | 1.6kg<br>3.5lb |
| SPECIFICATIONS | 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 STRAPS 1xSHOULDER WAIST BELT [PADDED] | [■]-[□] | [■]-[■] | [■]- - | [■]-[□] |
| TRANSPORT | BACK/LUMBAR PADDING | ■■ | ■■ | ■ - | ■■ |
| TRANSPORT | DETACH STOW CARRY STRAPS | - - | - - | - - | ■ - |
| TRANSPORT | REINFORCED SIDES (Free-standing) | ■ | ■ | ■ | ■ |
| TRANSPORT | CARRY HANDLES WLL ENDS SIDE | 1 x200kg 4 x200kg | 2 x200kg 4 x200kg | 1 2 | 1 - |
| TRANSPORT | ADDITIONAL HAUL WLL SEWN EYES RINGS | 1 x300kg - | 1 x300kg - | - 1 x210kg | 0 - |
| STOW EQUIPMENT | BAG OPENS OUT to DISPLAY KIT | ■ | YES | ■ | NO |
| STOW EQUIPMENT | HELMET/BOOT [SAW] POCKET/POUCH CORD/WEB | - ■ | - ■ | - ■ | - - |
| STOW EQUIPMENT | INTERNAL PARTITION +ROPE TOOL BAG | YES + ■ | YES + ■ | YES + ■ | - - - |
| STOW EQUIPMENT | GEAR (individual) EYES EXTERNAL INTERNAL | 6+4 20+19molle | 5+4 29+19molle | - 13 (+4 poppered) | 10 + 2 3 |
| STOW EQUIPMENT | GEAR LOOPS [STRAPS] EXTERNAL INTERNAL | - [2] | 2 [2] | - 3 | 2 [*2] - |
| POCKETS | TOTAL POCKETS EXTERNAL INTERNAL | *1 11 | *1+*2+*1 11 | - 5 | 2 - |
| POCKETS | of which..MESH/CLEAR EXTERNAL INTERNAL | - 8 | - 8 | - 5 elasticated | 2 - |
| POCKETS | CLOSURE VELCRO POP ZIPPED DRAW-CORD BUCKLE | ■11 ■1 | ■11 ■2 ■2 | | ■2 |
| FEATURES | WATERPROOF VENT HOLES DRAIN HOLES | ●-? | ●- - | ■■- | ■■■ |
| FEATURES | LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | ■■ | ■■ | ■ | ■ |
| FEATURES | LOCKABLE ID PANEL END/SIDE STRAPS | - ■- ■ | - ■- ■ | - - ■■ | - ■- - |
| FEATURES | REFLECTIVE TRIM TARPAULIN RAINCOVER | ■- - | ■- - | ■- - | ■- - |
| | OUTER MATERIALS | 1680D Ballistic nylon YKK zips | 1680D Ballistic nylon YKK zips | PVC | 1680D Ballistic nylon YKK zips |
| | OTHER COLOURS | ■■■ | ■ * | | ■■ |
| | 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 |

www.arbclimber.com

| EDELRID | FRANCITAL | HUSQVARNA |
|---|---|---|
| PE Backpack 45<br>883101000170 | Hercule 60<br>AC034 | Gear Pack 70<br>534 10 18-02 |
| | | |
| £108 $160* €110 | £170 $224 €200 | £185 $260 €250 |
| BACKPACK | BACKPACK | BACKPACK |
| L/11.8gal Pro Rescue | - Pro Arb | 70L/18.4gal Pro Arb |
| 90m x 11mm<br>180' x ½" | 30kg/66lb | 75m x 11mm<br>150' x ½" |
| 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 |
| ■2 ■3 | ■1 ■1 | ■4 ■1 |
| ●-? | | ●- - |
| ■ | ■ | ■+■ |
| - - - - | - - ■■ | - - ■* - |
| ■-- | --- | ■-- |
| Ballistic Nylon | Cordura/Alu frame | 900D |
| ■ * | | |
| - 2 metal rings if not used<br>o attach shoulder straps<br>*Black version lacks<br>eflective - 12% cheaper | Forestry pack intended to carry chainsaw, fuel, helmet subsistence etc. | Additional zipped side entry.<br>Integral first aid pocket.<br>*Lid buckles act as end-to-end compression straps |
| edelrid.com | francital.com | husqvarna.com |


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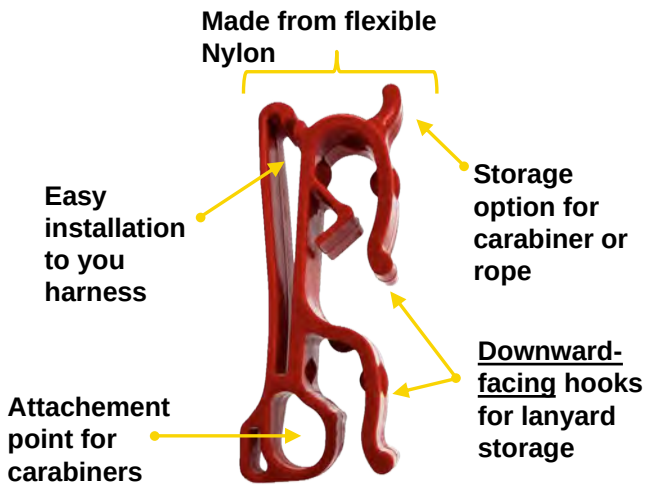


*Not a PPE - Max 10 Kg | Patent pending*

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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 | £460480 $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 |
| SPECIFICATIONS | NOMINAL/INTENDED ROPE CAPACITY | 100m x10.5mm<br>150' x ½" | 80m x 11mm<br>160' x ½" | n/a | 120m x 11mm<br>245' x ½" |
| SPECIFICATIONS | WEIGHT empty | 2.6kg<br>5.8lb | 1.91kg<br>4.2lb | 2.47kg<br>5.5lb | 1.2kg<br>2.7lb |
| SPECIFICATIONS | 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 | 2xBACK STRAPS 1xSHOULDER WAIST BELT [PADDED] | [■]-- | --- | [■]-[■] | --- |
| TRANSPORT | BACK/LUMBAR PADDING | ■■ | -- | ■■ | -- |
| TRANSPORT | DETACH STOW CARRY STRAPS | - ■ | -- | ■- | -- |
| TRANSPORT | REINFORCED SIDES (Free-standing) | - | - | ■ | - |
| TRANSPORT | CARRY HANDLES WLL ENDS SIDE | 1 2 | 1 - | 1 44kg/88lb - | 0 - |
| TRANSPORT | ADDITIONAL HAUL WLL SEWN EYES RINGS | 1 - | -- | -- | 0 - |
| STOW EQUIPMENT | BAG OPENS OUT to DISPLAY KIT | YES | YES | NO/YES | NO |
| STOW EQUIPMENT | HELMET/BOOT [SAW] POCKET/POUCH CORD/WEB | - □ | -- | - [■] | -- |
| STOW EQUIPMENT | INTERNAL PARTITION +ROPE TOOL BAG | -□- | -■■ | --- | --- |
| STOW EQUIPMENT | GEAR (individual) EYES EXTERNAL INTERNAL | 5 24 | - 20 | ?? | 13 - |
| STOW EQUIPMENT | GEAR LOOPS [STRAPS] EXTERNAL INTERNAL | -- | -- | ?? | -- |
| POCKETS | TOTAL POCKETS EXTERNAL INTERNAL | 6 6 | - 7 | 2 - /2 3 | 6 - |
| POCKETS | of which..MESH/CLEAR EXTERNAL INTERNAL | 2 6 | - 1 | -- | 2 - |
| POCKETS | CLOSURE VELCRO POP ZIPPED DRAW-CORD BUCKLE | ■5 ■4 | ■5 | ■2 /■3 | ■4 |
| FEATURES | WATERPROOF VENT HOLES DRAIN HOLES | ■-■ | ■-- | ●-- | ■-? |
| FEATURES | LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | ■+■ & ■+■top | ■ | ■ & ■ /■ | ■ |
| FEATURES | LOCKABLE ID PANEL END/SIDE STRAPS | ■■-- | ---- | ---- /---■ | ■■-- |
| FEATURES | REFLECTIVE TRIM TARPAULIN RAINCOVER | --- | ■-- | --- | |
| | OUTER MATERIALS | - | PVC | 420D Ballistic Nylon Auminium 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 EQPT | NOTCH EQPT | PROTEKT | ROCK EMPIRE | SILVER BULL | SKYLOTEC |
|---|---|---|---|---|---|
| Approach 50<br>99327 | Pro Access 60<br>53444 | Trans Backpack 40<br>Ax075 | Beetle Bag II 55<br>- | Multiuse 63<br>- | Actsafe SAR<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 Pro Arb | 60L/15.8gal Pro Arb | 40L/10gal Pro Access | 52.5L/13.9gal Sport | 63L/16.6gal Pro Arb | |
| 120m x 11mm<br>245' x ½" | 75m x 11mm<br>150' x ½" | 100m x 11mm<br>200' x ½" | 80-100m x 11mm<br>160-200' x ½' | 100m x 11mm<br>200' x ½' | 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 |
| 7.1 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 x40 x 25cm<br>25 x 15.75 x 10" | 70 x40 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.pl | 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 VARIANT** | **WonderWall 33 23** - | **Vertac 40** MDBAGVERTAC40BK | **Vertac 60** MDBAGVERTAC60BK | **Baby Mule 23** - |
| | **ORIGIN** | | | | |
| | **COST** (inc Tax/VAT) (currency conversion only) | £0 $0 €183100 | £142 $180 €166 | £158 $200 €185 | £0 $0 €183 |
| | **STYLE/FUNCTION** | BACKPACK | BUCKET/BACKPACK | BUCKET/BACKPACK | ORGANISER |
| SPECIFICATIONS | **VOLUME** L/US Gallon intended market | 23L Sport/Pro Access | 40L/10gal Pro Access | 60L Pro Access | 23L Pro Access |
| SPECIFICATIONS | **NOMINAL/INTENDED ROPE CAPACITY** | | >75m x 11mm >150' x ½' | >100m x 11mm >200' x ½' | |
| SPECIFICATIONS | **WEIGHT empty** | 1.85kg 0lb | 1.35kg 3lb | 1.55kg 3.41lb | 1.85kg 4.1lb |
| SPECIFICATIONS | **DIMENSIONS** (unfilled) | 50 x 23 x 20cm 19.6 x 9 x 7.8" | 56 x 34 x 22.5cm 22 x 13.3 x 9" | 72.5 x 33.2 x 26.4cm 28.5 x 13 x 10.3" | 50 x 20 x 23cm 19.6 x 7.8 x 9" |
| TRANSPORT | 2xBACK STRAPS 1xSHOULDER WAIST BELT [PADDED] | [■]-[■] | [■]-■ | [■]-■ | [■]-- |
| TRANSPORT | BACK/LUMBAR PADDING | | ■■ | ■■ | ■■ |
| TRANSPORT | DETACH STOW CARRY STRAPS | - ■ | - ■ | - ■ | ■- |
| TRANSPORT | REINFORCED SIDES (Free-standing) | - | ■ | ■ | ■ |
| TRANSPORT | CARRY HANDLES WLL ENDS SIDE | 22.7kg/50lb 0 - | 2* 50lb - | 2* 60lb - | 1 - |
| TRANSPORT | ADDITIONAL HAUL WLL SEWN EYES RINGS | | 0 - | 0 - | 1 - |
| STOW EQUIPMENT | BAG OPENS OUT to DISPLAY KIT | | PARTIAL | PARTIAL | PARTIAL |
| STOW EQUIPMENT | HELMET/BOOT [SAW] POCKET/POUCH CORD/WEB | | - - | - - | ■ ■ |
| STOW EQUIPMENT | INTERNAL PARTITION +ROPE TOOL BAG | - - - | - - - | - - - | - - - |
| STOW EQUIPMENT | GEAR (individual) EYES EXTERNAL INTERNAL | | - 6 | - 6 | 22 - |
| STOW EQUIPMENT | GEAR LOOPS [STRAPS] EXTERNAL INTERNAL | 1 (top for rope) - | - - | - - | 1 [2] |
| POCKETS | TOTAL POCKETS EXTERNAL INTERNAL | | 1 4 | 1 4 | 3 3 |
| POCKETS | of which..MESH/CLEAR EXTERNAL INTERNAL | | - 3 | - 3 | - - |
| POCKETS | CLOSURE VELCRO POP ZIPPED DRAW-CORD BUCKLE | ■2 + ■1 | ■4 ■1 | ■4 ■1 | ■4 ■1 |
| FEATURES | WATERPROOF VENT HOLES DRAIN HOLES | | ■-■ | ■-■ | ■-- |
| FEATURES | LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | | ■ | ■ | ■ |
| FEATURES | LOCKABLE ID PANEL END/SIDE STRAPS | | - ■ - - | - ■ - - | |
| FEATURES | REFLECTIVE TRIM TARPAULIN RAINCOVER | | | | ■-■ |
| | **OUTER MATERIALS** | recycled 600D Ripstop | recycled 600D Ripstop | recycled 600D Ripstop | 600D PVC, 600D PU |
| | **OTHER COLOURS** | | | | |
| | **NOTES** | Hydration pouch NFC Chip | *+Rucksack straps can join to become duffle carry handles Integral NFC Chip. Keys clip in top pocket | *+Rucksack straps can join to become duffle carry handles Integral NFC Chip. 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 |
|---|---|---|---|---|---|
| Mule 80 - | Lazy Mule 80 - | ? | Chasm 40 08411-40-00 | Cavern 70 08410-00 | Pro Gear 70 - |
| | | | | | |
| £325 $275 €314 | £338 $324 €326 | | £130 $148 €135 | £135 $160 €146 | £177 $220 €206 |
| ORGANISER | WHEELED ORGANISER | | BACKPACK | - | BUCKET/BACKPACK |
| 0L/21.1gal Pro Access | 80L/21.1gal Pro Access | Pro Access | 40L/10gal Pro Arb | 70L/18.5gal Pro Arb | 70L/18.5galL 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" | >100m x 11mm<br>>200' x ½" | 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" | | 51 x 308 x 25cm<br>20 x 12 x 10" | 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 - |
| - - | - - | | - - | - - | - - |
| ■1 | ■1 | | ■4 | ■3* ■1 | ■4 |
| ●-- | ●-- | | ■* ■■ | ■* ■■ | ●■■ |
| ■ | ■ | | ■+■* | ■+■* | ■ |
| - - ■- | - - ■- | | - - ■- | - - ■- | - - - ■ |
| -- - | -- - | | ■-■* | ■-■* | |
| 500D PVC, 600D PU | 600D PVC, 600D PU | | HD Nylon Tarp | HD Nylon Tarp | 1680D Ballistic Nylon |
| | | | | | - |
| ditional zipped side entry. 0L Gear Mule pack can be ached. 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 | grube.de | weaverarborist.com | weaverarborist.com | nugreenstore.com |

# DUFFLE / DUFFEL BAGS

Duffle 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 duffle and organisers like *Sliver Bull's Multi-Use*, *Singing Rock's Movement* and *Sterling's Vertac* except to say that you can tell a duffle 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.

**Images NOT to Scale**
**£$€** any price in 'burnt-orange' is a **Currency conversion only**-exc shipping, duties,taxes etc.
**BACK STRAPSHANDLES** [in brackets]=padded
**COMP STRAPS** = Compression straps allow you to take in slack and reduce the volume
**HAUL**=has eye to take entire wt of bag & contents
**EYES=Sewn eyes and/or rings**
**STORE 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 |
| | MODEL litres/liters VARIANT |
| | ORIGIN |
| | COST (inc Tax/VAT) Currency conversion only |
| SPECIFICATIONS | VOLUME L/US Gallon intended market |
| SPECIFICATIONS | LIFTED LOAD CAPACITY |
| SPECIFICATIONS | WEIGHT empty |
| SPECIFICATIONS | DIMENSIONS ht x w x depth |
| FEATURES | BACK STRAPS HANDLES COMP-STRAPS |
| FEATURES | POCKETS Ext/Int EYES Ext/Int STORE SAW |
| FEATURES | WATERPROOF IDPANEL DRAIN/VENT HAUL |
| FEATURES | LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP |
| FEATURES | OUTER MATERIALS REFLECTIVE TRIM |
| | OTHER COLOURS & NOTES |
| | WEBSITE |

**Images NOT to Scale**
**£$€** any price in 'burnt-orange' is a **Currency conversion only**-exc shipping, duties,taxes etc.
**BACK STRAPSHANDLES** [in brackets]=padded
**COMP STRAPS** = Compression straps allow you to take in slack and reduce the volume
**HAUL**=has eye to take entire wt of bag & contents
**EYES=Sewn eyes and/or rings**
**STORE 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 |
| | MODEL litres/liters VARIANT |
| | ORIGIN |
| | COST (inc Tax/VAT) Currency conversion only |
| SPECIFICATIONS | VOLUME L/US Gallon intended market |
| SPECIFICATIONS | LIFTED LOAD CAPACITY |
| SPECIFICATIONS | WEIGHT empty |
| SPECIFICATIONS | DIMENSIONS ht x w x depth |
| FEATURES | BACK STRAPS HANDLES COMP-STRAPS |
| FEATURES | POCKETS Ext/Int EYES Ext/Int STORE SAW |
| FEATURES | WATERPROOF IDPANEL DRAIN/VENT HAUL |
| FEATURES | LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP |
| FEATURES | OUTER MATERIALS REFLECTIVE TRIM |
| | OTHER COLOURS & NOTES |
| | WEBSITE |

# DUFFLE/DUFFEL BAGS

| | | | | |
|---|---|---|---|---|
| **AAK SAFETY** | **ARBORTEC** | **ARBORTEC** | **ARBORTEC** | **ARBORTEC** |
| **Transport 80**<br>29104 | **Anaconda 90**<br>- | **Mamba 40**<br>- | **Mamba 70**<br>AT101 | **Mamba 90**<br>AT101 |
| n/a | £126 $140 €127 | £87 $105 €96 | £104 $125 €107 | £117 $141 €120 |
| 80L/21.1gal Pro Rescue | 90L/23.8gal Pro Arb | 40L/10.6gal Pro Arb | 70L/18.5gal Pro Arb | 90L/23.8gal Pro Arb |
| - - | <350m x11mm 700'x½"* | 13.6kg 30lb | <270m x11mm 540'x½"* | <350m x11mm 700'x½"* |
| 1.4kg 3.1lb | 2.1kg 4.6lb | 2.3kg 5lb | 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" | 50 x 33 x 28cm<br>19.7 x 13 x 11" | 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 | 2 * 4 2 |
| 1 * - - - - | 3 - 10+4 - - | 1 3 14 6 - | 1 4 14 6 - | 1 4 14 6 - |
| - - | - - | - - | - - | - - |
| | + + | | | + + |
| NYLON & PVC - | Welded PES/PVC | 680 g/m² PVC | Polyester/PVC | Polyester/PVC |
| *Backstraps stow in an outside pocket | green version is £6 less but NOT reflective | inner key hook | *if handles used as backstraps. Reinforced base protects spikes *if whole bag used for rope. inner key hook | *if handles used as backstraps. Reinforced base protects spikes *if whole bag used for rope. inner key hook |
| aaksafety.no | arbortec.com | arbortec.com | arbortec.com | arbortec.com |

| | | | | |
|---|---|---|---|---|
| **ARBPRO** | **ARBPRO** | **BUCKINGHAM** | **CAMP SAFETY** | **CRESTO** |
| **Cruiser 60**<br>- | **Cruiser 80**<br>- | **Big Mouth Wheeled**<br>47333B3R5S 47333B3R5SW3 | **Shipper 90**<br>2791 | **PACQ 10**<br>9446 |
| £122 $161 €141 | £00 $00 €00 | £312548 $409716* €360812 | £125 $160 €147 | £00 $0 €0 |
| 60L/15.8gal Pro Arb/Travel | 80L/21.1gal Pro Arb/Travel | approx130L/29gal Pro Arb | 90L/20gal Pro Access | |
| - - | - - | - - | - - | - - |
| 1.8kg 4lb | 3kg 6.6lb | 3.4 4.5kg 7.5 10lb | 2kg 4.5lb | |
| 20 x 70 x 80cm<br>7.9 x 27.5 x 31.4" | 25 x 90 x 60cm<br>10 x 35 x 23.6" | 56 x 51 x 48cm<br>22 x 20 x 19" | 70 x 40cm<br>27.6 x 16" | 39 x 22 x 11cm<br>15.3 x 8.6 x 4.3" |
| 2 * 2 - | 2 * 2 - | 1 2 - | 2 4 4 | - 2 - |
| 2 * 1 * 8 - - | 2 * - 8 - - | 2 - - - - | 1 1 - - - | - - - - - |
| - - - | - - - | - - 1 | - - - | - - - |
| - - - - | - - - - | - - - - - | - - - - | - - - - |
| 680 g/m² PVC | 680 g/m² PVC | 44oz Vinyl | 500&600D Polyester- | Polyester- |
| *Removable backstraps stow in parate pocket.**Boot/wet pocket accessible via outside zipper | *Removable backstraps stow in separate pocket.**Boot/wet pocket accessible via outside zipper | wheeled model now in black/ green only. *Also Lockable version | | Very simple and small bag for harness and perrsonal PPE |
| arbpro.it | arbpro.it | buckinghammfg.com | camp.it | crestosafety.com |

**Images NOT to Scale**
£$€ any price in 'burnt-orange' is a **Currency conversion only**-exc shipping, duties,taxes etc.
**BACK STRAPSHANDLES** [in brackets]=padded
**COMP STRAPS** = Compression straps allow you to take in slack and reduce the volume
**HAUL**=has eye to take entire wt of bag & contents
**EYES=Sewn eyes and/or rings**
**STORE 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** | FTC TREE | FTC TREE | FTC TREE | HUSQVAR |
| | **MODEL** litres/liters **VARIANT** | Duffle 60<br>Duffle | Duffle 80<br>Duffle | Koompassia 60 80<br>KOP60 KOP80 | Xplorer Duf<br>- |
| | **ORIGIN** | | | | |
| | **COST** (inc Tax/VAT) Currency conversion only | £64 $64 €56 | £80 $85 €75 | £000 $000 €127137 | £100 $0 € |
| SPECIFICATIONS | **VOLUME** L/US Gallon intended market | 60L/15.8gal Pro Arb | 80L/21.1gal Pro Arb | 6080L/15.823.8gal Pro Arb | 55L/145gal Pr |
| SPECIFICATIONS | **LIFTED LOAD CAPACITY** | - - | - - | - - | 0kg 0lb |
| SPECIFICATIONS | **WEIGHT empty** | 1kg 2.2lb | 1.2kg 2.6lb | 2.152.3kg 4.75lb | 0kg 0lb |
| SPECIFICATIONS | **DIMENSIONS** ht x w x depth | 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" | 65-5070-55x35x2230cm<br>26-2028-22 x 14 x 912" | 0 x 0 x 0c<br>0 x 0 x 0' |
| FEATURES | **BACK STRAPS HANDLES COMP-STRAPS** | -24 | -24 | 32 2 | -- - |
| FEATURES | **POCKETS Ext/Int EYES Ext/Int STORE SAW** | -- -- - | -- -- - | 3*- -- - | -- -- - |
| FEATURES | **WATERPROOF IDPANEL DRAIN/VENT HAUL** | --- | --- | --- | ---- |
| FEATURES | **LID** VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | +- | +- | --- | ------ |
| | **OUTER MATERIALS REFLECTIVE TRIM** | 1680D PVC-coated polyester | 1680D PVC-coated polyester | 50% TPU - 50% PVC | Ripstop TP |
| | **OTHER COLOURS & NOTES** | - | - | *1 pocket=helmet/other stuff. Cobra metal buckles. Discontinued 90L BLUE stock still available. | - |
| | **WEBSITE** | ftc-tree.com | ftc-tree.com | ftc-tree.com | husqvarna.c |

**Images NOT to Scale**
£$€ any price in 'burnt-orange' is a **Currency conversion only**-exc shipping, duties,taxes etc.
**BACK STRAPSHANDLES** [in brackets[]=padded]
**COMP STRAPS** = Compression straps allow you to take in slack and reduce the volume
**HAUL**=has eye to take entire wt of bag & contents
**EYES=Sewn eyes and/or rings**
**STORE 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** | PROTEKT | RAB | RAB | RAB |
| | **MODEL** litres/liters **VARIANT** | AX301 50<br>- | Expedition II Kitbag 30<br>QAP56 | Expedition II Kitbag 50<br>QAP57 | Expedition II K<br>QAP58 |
| | **ORIGIN** | | | | |
| | **COST** (inc Tax/VAT) Currency conversion only | £0 $0 €0 | £100 $132 €116 | £115 $152 €134 | £125 $165 € |
| SPECIFICATIONS | **VOLUME** L/US Gallon intended market | 50L/13.2gal Pro Access | 30L/8gal Travel | 50L/13.2gal Travel | 80L/21.1gal T |
| SPECIFICATIONS | **LIFTED LOAD CAPACITY** | 0m 0' | - - | - - | - - |
| SPECIFICATIONS | **WEIGHT empty** | 1.08kg 2.38lb | 0.71kg 1.6lb | 0.9kg 2lb | 1.08kg 2. |
| SPECIFICATIONS | **DIMENSIONS** ht x w x depth | 0 x 0 x 0cm<br>0 x 0 x 0" | 53 x 29 x 25cm<br>21 x 11.4 x 10" | 55 x 32 x 27cm<br>21.7 x 12.6 x 10.6" | 74 x 36 x 33<br>29 x 14.2 x |
| FEATURES | **BACK STRAPS HANDLES COMP-STRAPS** | [1] 2 - | [2] 4 4 | [2] 4 4 | [2] 4 4 |
| FEATURES | **POCKETS Ext/Int EYES Ext/Int STORE SAW** | 13 -- - | -2 12- - | -2 12- - | -2 12- - |
| FEATURES | **WATERPROOF IDPANEL DRAIN/VENT HAUL** | --- | --- | --- | --- |
| FEATURES | **LID** VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | | | | |
| | **OUTER MATERIALS REFLECTIVE TRIM** | Polyester | 600D TPU/Polyester - | 600D TPU/Polyester - | 600D TPU/Poly |
| | **OTHER COLOURS & NOTES** | | YKK#10 chunky main zip | YKK#10 chunky main zip | YKK#10 chunky m |
| | **WEBSITE** | protekt.pl | rab.equipment | rab.equipment | rab.equipme |

# DUFFLE/DUFFEL BAGS

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| RNA | HUSQVARNA | NATIVE ARB | PETZL | PETZL | PROTEKT |
| fel 55 | Xplorer Trolley 90 | Kit Bag 100 | Duffel 65 | Duffel 85 S045AA02 | AX028 50 |
| | | | | | |
| 91 | £156 $0 €91 | £82 $103 €96 | £144 $140 €150 | £156 $160 €160 | £0 $0 €0 |
| o Arb | 90L/23.8gal Pro Arb | 100L/26.4gal Pro Arb | 65L/17.2gal Pro Access | 85L/22.5gal Pro Access | 50L/13.2gal Pro Access |
| | 0kg 0lb | 0kg 0lb | 0kg 0lb | 340m x11mm 680'x½" | 0m 0' |
| | 0kg 0lb | 2.2kg 4.4lb | 1.35kg 3lb | 1.55kg 3.4lb | 0kg 0lb |
| m<br>" | 0 x 0 x 0cm<br>0 x 0 x 0" | 75 x 45 x 30cm<br>26 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" | 60 x 30 x 30cm<br>23 x 12 x 12" |
| | | | 2 4 4 | [2] 4 4 | -4 - |
| | | | 1*2 8- - | 1*5 8- - | -- -- - |
| | | | | | |
| | | | | | |
| U- | Ripstop TPU - | 1000D TPE Nylon | TPU (PVC-free) | TPU (PVC-free) | PVC - |
| | - | Internal zip pocket for keys/ phone 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 | |
| om | husqvarna.com | nativearb.co.uk | petzl.com | petzl.com | protekt.pl |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| | RAB | ROCKnARB | ROCKnRESCUE | ROCKnRESCUE | SAR PRODUCTS |
| Kitbag 80 | Expedition II Kitbag 120 QAP59 | Tech Duffle 60 | Tech Duffle 60 | Classic Duffle ? | Transport 35 B0018 |
| | | | | | |
| €145 | £135 $178 €157 | £0 $84 €0 | £0 $109 €0 | £0 $50 €0 | £0 $0 €0 |
| ravel | 120L/31.7gal Travel | 60L/15.8gal Pro Arb | 60L/15.8gal Pro Rescue | 0L | 60L/15.8gal Pro Rescue |
| | - - | 0kg 0lb | 0kg 0lb | 0kg 0lb | 0kg 0lb |
| 4lb | 1.15kg 2.5lb | 0kg 2.2lb | 0kg 2.1lb | 0kg 0lb | 1kg 2.2lb |
| 3cm<br>12" | 86 x 43 x 38cm<br>34 x 17 x 15" | 0 x 0 x 0cm<br>0 x 0 x 0" | 61 x 30 x 30cm<br>24 x 12 x 12" | 68.6 x 29.2cm<br>27 x 11.5 | 0 x 0cm<br>0 x 0 |
| | [2] 4 4 | | | | [2] 4 - |
| - | -2 12- - | | | | -- -- - |
| | | | | | |
| | | | | | |
| vester - | 600D TPU/Polyester - | 1000D coated nylon- | 1000D coated nylon- | 1000D coated nylon- | PVC - |
| ain zip | YKK#10 chunky main zip | | | | Hi- viz ylw or orange on request |
| ent | rab.equipment | rocknarbor.com | rocknrescuecom | rocknrescuecom | sar-products.com |

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**BACK STRAPSHANDLES** [in brackets]=padded
**COMP STRAPS** = Compression straps allow you to take in slack and reduce the volume
**HAUL**=has eye to take entire wt of bag & contents
**EYES=Sewn eyes and/or rings**
**STORE 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** | SAR PRODUCTS | SAR PRODUCTS | SINGING ROCK | SINGING R |
| | **MODEL** litres/liters VARIANT | Transport 63<br>B0032 | Transport 63<br>B0032 | Tarp Duffle 70<br>C0046BB70 | Tarp Duffle<br>C0046BB90 |
| | **ORIGIN** | | | | |
| | **COST** (inc Tax/VAT) Currency conversion only | £0 $50 €0 | £0 $50 €0 | £0 $0 €0 | £103 $0 € |
| SPECIFICATIONS | **VOLUME** L/US Gallon intended market | 63L/16.6gal Pro Rescue | 63L/16.6gal Pro Rescue | 70L/18.5gal Pro Access | 90L/23.8gal Pro |
| SPECIFICATIONS | **LIFTED LOAD CAPACITY** | 0kg 0lb | 0kg 0lb | 20kg/40.4lb | 23kg/50.6 |
| SPECIFICATIONS | **WEIGHT empty** | 1.4kg 0lb | 1.4kg 0lb | 1.82kg 4lb | 2.27kg 5l |
| SPECIFICATIONS | **DIMENSIONS** ht x w x depth | 0 x 0cm<br>0 x 0 | 0 x 0cm<br>0 x 0 | 59 x 35 x 34cm<br>23 x 13.8 x 13.4" | 69 x 40 x 33<br>27 x 15.7 x |
| FEATURES | **BACK STRAPS** HANDLES COMP-STRAPS | 2 4 - | 2 4 - | [1]4 6 | [1]4 4 |
| FEATURES | **POCKETS** Ext/Int EYES Ext/Int STORE SAW | -- -- - | -- -- - | 2 2 8- - | 2 2 8- - |
| FEATURES | WATERPROOF IDPANEL DRAIN/VENT HAUL | --- | --- | --- | --- |
| FEATURES | **LID** VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | | | | |
| FEATURES | **OUTER MATERIALS** REFLECTIVE TRIM | PVC - | PVC - | PVC - | PVC - |
| | **OTHER COLOURS & NOTES** | Hi- viz ylw or orange on request | Hi- viz ylw or orange on request | - | - |
| | **WEBSITE** | sar-products.com | sar-products.com | singingrock.com | singingrock.c |

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**BACK STRAPSHANDLES** [in brackets]=padded
**COMP STRAPS** = Compression straps allow you to take in slack and reduce the volume
**HAUL**=has eye to take entire wt of bag & contents
**EYES=Sewn eyes and/or rings**
**STORE 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** | STEIN | STEIN | STEIN | TREEHO |
| | **MODEL** litres/liters VARIANT | Metro 40<br>- | Metro 70<br>- | Metro 90<br>- | HiVis Kit Ba<br>TH4002 |
| | **ORIGIN** | | | | |
| | **COST** (inc Tax/VAT) Currency conversion only | £60 $90 €71 | £72 $100 €85 | £84 $110 €100 | £74 $97 € |
| SPECIFICATIONS | **VOLUME** L/US Gallon intended market | 40L/10.6gal Pro Arb | 70L/18.5gal Pro Arb | 90L/23.8gal Pro Arb | 70L/18.5gal Pr |
| SPECIFICATIONS | **LIFTED LOAD CAPACITY** | 10kg 22lb | 10kg 22lb | 10kg 22lb | <270m x11mm 54 |
| SPECIFICATIONS | **WEIGHT empty** | 1.23kg 2.7lb | 1.69kg 3.7lb | 2kg 4.4lb | 2.5kg 5.5l |
| SPECIFICATIONS | **DIMENSIONS** ht x w x depth | 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" | 60 x 35 x 30<br>24 x 14 x 1 |
| FEATURES | **BACK STRAPS** HANDLES COMP-STRAPS | [2]4 4 | [2]4 4 | [2]4 4 | 2 4 2 |
| FEATURES | **POCKETS** Ext/Int EYES Ext/Int STORE SAW | 1- 16- - | 1- 18- - | 1- 20- - | 1 4 14 6 |
| FEATURES | WATERPROOF IDPANEL DRAIN/VENT HAUL | --- | --- | --- | --- |
| FEATURES | **LID** VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | | | | |
| FEATURES | **OUTER MATERIALS** REFLECTIVE TRIM | PVC - | PVC - | PVC - | PVC |
| | **NOTES** | | | | No-frills version of the Mamba. *if whole bag u |
| | **WEBSITE** | steinworldwide.com | steinworldwide.com | steinworldwide.com | treehog.co. |

| | | | | | |
|---|---|---|---|---|---|
| OCK | SINGING ROCK | SINGING ROCK | SIP PROTECTION | SKYLOTEC | SKYLOTEC |
| e 90 | Tarp Duffle 120<br>C0046BB120 | Movement 110<br>C0073BY00 | Atlas 90<br>- | Duffle M ?<br>ACS-0176 | Duffle L ?<br>ACS-0176 |
| | | | | | |
| €0 | £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/23.8galPro Arb | 90L/23.8gal Pro Access | 0L/0gal Pro Access |
| lb | 23kg/50.6lb | 0kg 0lb | 0kg 0lb | 0kg 0lb | 0kg 0lb |
| b | 2.65kg 5.8lb | 4.6kg 10.1lb | 0kg 0lb | 0kg 0lb | 1.4kg 0lb |
| 3cm<br>13" | 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- - | -- -- - | -- -- - | -- -- - | -- -- - |
| | --- | ---- | ---- | ---- | ---- |
| | | ------ | ------ | ------ | ------ |
| | PVC - | PVC | -- | -- | -- |
| | - | reinforced edges/corners | - | - | - |
| com | singingrock.com | singingrock.com | - | skylotec.com | skylotec.com |

G
g 70
88
o Arb
40'x½"*
b
0cm
2"
-
e Arbortec
sed for rope.
uk

# 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 *Reecoil* 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....as per p356 except..

**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/150ftx 12.7mm/½"=76m/250'x11mm7/16"= 91m/300'x9mm/⅜" 100m/328' x11mm =60mx 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

| | | |
|---|---|---|
| | **Images NOT to Scale**<br>£$€ any price in 'burnt-orange' is a **Currency conversion only**-exc shipping, duties,taxes etc.<br>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<br>**STORE SAW=pouch or scabbard for hand saw**<br>POP= Popper or press stud<br>BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle<br>PES = Polyester<br>=Partial feature or OK but not ideal<br>= Option | |
| | **MANUFACTURER** | AAK SAFETY |
| | **MODEL** litres/liters **VARIANT** | Backpack 35<br>29104 |
| | **ORIGIN** | |
| | **COST** (inc Tax/VAT) Currency conversion only | n/a |
| SPECIFICATIONS | **VOLUME** L/US Gallon intended market | 35L/9.2gal Pro Access |
| SPECIFICATIONS | **NOMINAL ROPE/LOAD CAPACITY** | - - |
| SPECIFICATIONS | **WEIGHT** empty | 0.9kg 2lb |
| SPECIFICATIONS | **DIMENSIONS** | 50 x 30 x 15cm<br>0 x 12 x " |
| FEATURES | **BACK STRAPS HANDLES HAUL EYE(S)** | 2 - - |
| FEATURES | **POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW** | - 1 * - - - |
| FEATURES | **WATERPROOF ID-PANEL DRAIN/VENT** | - - - |
| FEATURES | **LID** VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | - - - - - |
| | **OUTER MATERIALS REFLECTIVE TRIM** | PVC/Nylon - |
| | **OTHER COLOURS** | |
| | **NOTES** | * inner document pocket or to insert back-padding |
| | **WEBSITE** | aaksafety.no |

| | | |
|---|---|---|
| | **Images NOT to Scale**<br>£$€ any price in 'burnt-orange' is a **Currency conversion only**-exc shipping, duties,taxes etc.<br>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<br>**STORE SAW=pouch or scabbard for hand saw**<br>POP= Popper or press stud<br>BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle<br>PES = Polyester<br>=Partial feature or OK but not ideal<br>= Option | |
| | **MANUFACTURER** | ARBORTEC |
| | **MODEL** litres/liters **VARIANT** | Cobra 65<br>AT107 |
| | **ORIGIN** | |
| | **COST** (inc Tax/VAT) Currency conversion only | £221 $295 €252 |
| SPECIFICATIONS | **VOLUME** L/US Gallon intended market | 65L/17.1gal Pro Arb |
| SPECIFICATIONS | **NOMINAL ROPE/LOAD CAPACITY** | 45m x 11mm 100' x ½" |
| SPECIFICATIONS | **WEIGHT** empty | 3.6kg 7.9lb |
| SPECIFICATIONS | **DIMENSIONS** | 61.5 x 37cm<br>24.2 x 14.6" |
| FEATURES | **BACK STRAPS HANDLES HAUL EYE(S)** | - 7 - |
| FEATURES | **POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW** | 3 1 44 - - |
| FEATURES | **WATERPROOF ID-PANEL DRAIN/VENT** | - - 4 |
| FEATURES | **LID** VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | + |
| | **OUTER MATERIALS REFLECTIVE TRIM** | PES/PVC |
| | **OTHER COLOURS** | |
| | **NOTES** | Rope feed hole in lid |
| | **WEBSITE** | arbortec.com |

# ROPE/GEAR BAGS

| ARS | ARS | ARBORTEC | ARBORTEC | ARBORTEC | ARBORTEC |
|---|---|---|---|---|---|
| Breakout - | Breakout - | oo AT105 | Viper 60 AT102 | Cobra 35 AT105 | Cobra 55 AT106 |
| £205 $0 €0 | £220 $0 €0 | £0 $0 €0 | £74 $0 €0 | £108 $142 €130 | £184 $213 €209 |
| 0L Pro Rescue | 0L Pro Rescue | 0L Pro Arb | 60L Pro Arb | 35L Pro Arb | 55L/14.5gal Pro Arb |
| 200' x ½' | 300' x ½' | 0m 0' | 0m 0' | 45m x 11mm 100' x ½" | 45m x 11mm 100' x ½" |
| 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 |
| ------ | ------ | + | + | + | + |
| 1000D Cordura | 1000D Cordura | PES/PVC | PES/PVC | PES/PVC | PES/PVC |
| | | | | | |
| ag 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 |

| ARBPRO | ARBPRO | ARBPRO |
|---|---|---|
| ucket Bag Air 28 - | Bucket Backpack 40 2P654 | Bucket Backpack 60 - |
| £0 $0 €64 | £98 $110 €106 | £101 $120 €110 |
| 28L/7.4gal Pro Arb | 40L/10.6galPro Arb | 60L/15.8gal Pro Arb |
| 0m 0' | 0m 0' | 0m 0' |
| 906g 0lb | 1.5kg 3.3lb | 0kg 0lb |
| 40 x 30 x 30cm<br>15.7 x 12 x 12" | 55 x 35 x 20cm<br>22 x 13.7 x 7.9" | 56 x 32 x 23cm<br>22 x 12.6 x 9.1" |
| 12 | 22 | 22 |
| 1- 8- - | 2- 8- - | 2- 8- - |
| -1 | | |
| | | |
| 680 g/m² PVC+ Mesh | 680 g/m² PVC | 680 g/m² PVC |
| | | |
| AIR has mesh sides | | |
| arbpro.it | arbpro.it | arbpro.it |

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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

| | MANUFACTURER | ARBPRO | ARBPRO | ARBPRO | ARBPRO |
|---|---|---|---|---|---|
| | MODEL litres/liters VARIANT | Bucket Backack 75 - | Bucket Bag 28 - | Bucket Bag 40 - | Bucket Bag 75 - |
| | ORIGIN | | | | |
| | COST (inc Tax/VAT) Currency conversion only | £108 $120 €118 | £60 $70 €64 | £98 $110 €106 | £108 $130 €118 |
| SPECIFICATIONS | VOLUME L/US Gallon intended market | 75L Pro Arb | 28L/7.4gal Pro Arb | 40L/10.6gal Pro Arb | |
| SPECIFICATIONS | NOMINAL ROPE/LOAD CAPACITY | - - | - - | - - | - - |
| SPECIFICATIONS | WEIGHT empty | 3.4kg 7.5lb | 906g 0lb | 0kg 0lb | 2kg 4.4lb |
| SPECIFICATIONS | DIMENSIONS | 60 x 45 x 30 cm<br>0 x 0" | 40 x 30cm<br>15.7 x 12" | 60 x 30cm<br>23.6 x 12" | 60 x 45 x 30cm<br>23.6 x 17.7 x 12" |
| FEATURES | BACK STRAPS HANDLES HAUL EYE(S) | 2 2 ■ | 1 2 ■ | - 2 ■ | 2 2 ■ |
| FEATURES | POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW | 2 - 8 - - | 1 - 8 - - | - - 8 - - | 2 - - - - |
| FEATURES | WATERPROOF ID-PANEL DRAIN/VENT | ■■■ | ●■■ | ●■■ | ●■■ |
| FEATURES | LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | ■ | ■ | ■ | ■ |
| | OUTER MATERIALS REFLECTIVE TRIM | 680 g/m² PVC | 680 g/m² PVC+ Mesh | 680 g/m² PVC | 680 g/m² PVC |
| | OTHER COLOURS | ■ ■ ■ | ■ ■ | ■ ■ | ■ ■ |
| | NOTES | Rope feed hole in lid | AIR has mesh sides | | |
| | WEBSITE | arbpro.it | arbpro.it | arbpro.it | arbpro.it |

**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

| | MANUFACTURER | BEAL | BEAL | BEAL | BEAL |
|---|---|---|---|---|---|
| | MODEL litres/liters VARIANT | Genius Bucket 20 - | ProWork 35 BSAC | ProWork 45 BSAC | ProWork 60 BSAC |
| | ORIGIN | | | | |
| | COST (inc Tax/VAT) Currency conversion only | £0 $0 €0 | £101 $0 €110 | £131 $0 €131 | £137 $0 €137 |
| SPECIFICATIONS | VOLUME L/US Gallon intended market | 20L/5.3gal Pro Access | 35L/9gal Pro Access | 45L/11.8gal Pro Access | 60L/15.8gal Pro Access |
| SPECIFICATIONS | NOMINAL ROPE/LOAD CAPACITY | 0m 0' | 0m 0' | 0m 0' | 0m 0' |
| SPECIFICATIONS | WEIGHT empty | 0kg 0lb | 0kg 0lb | 0kg 0lb | 0kg 0lb |
| SPECIFICATIONS | 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" |
| FEATURES | BACK STRAPS HANDLES HAUL EYE(S) | - - - | - 4 - | - - - | - - - |
| FEATURES | POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW | - - - - - | 4 - - - - | - - - - - | - - - - - |
| FEATURES | WATERPROOF ID-PANEL DRAIN/VENT | - - - | - - - | - - - | - - - |
| FEATURES | LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | - - - - - - | ■ | - - - - - - | ■■ |
| | OUTER MATERIALS REFLECTIVE TRIM | - - | | PVC | PVC |
| | OTHER COLOURS | | | | ■ |
| | NOTES | - | Rope feed hole in lid | | |
| | WEBSITE | beal-planet.com | beal-planet.com | beal-planet.com | beal-planet.com |

# ROPE/GEAR BAGS

| ARBSESSION |
|---|
| Rope Bbag M 28 |
| |
| £20 $25 €23 |
| 28L/7.4gal Pro Arb |
| m/200' x 12.7mm/½" |
| 453g 1lb |
| 40.6 x 30.5cm<br>16 x 12" |
| -2- |
| -- -- - |
| ---- |
| |
| 600D Polyester - |
| |
| |
| arbsession.com |

| ARBSESSION |
|---|
| Rope Bag L 32 |
| |
| £28 $35 €32 |
| 32L Pro Arb |
| 76m/250' x 12.7mm/½" |
| 544g 1.2lb |
| 43 x 33 cm<br>17 x 13" |
| -2- |
| -- -- - |
| ---- |
| |
| 600D Polyester - |
| |
| |
| arbsession.com |

| ARBSESSION |
|---|
| RopeTote 28 |
| |
| £45 $55 €52 |
| 28L/7.4gal Pro Arb |
| 60m/200' x 12.7mm/½" |
| 900g 2lb |
| 40.6 x 30.5cm<br>16 x 12" |
| -2- |
| -- 8- - |
| ---- |
| |
| 900D Vinyl - |
| |
| reinforced version.Apron folds down outside of bag |
| arbsession.com |

| BUCKINGHAM |
|---|
| Std Rope bag |
| |
| £0 $0 €0 |
| 0L Pro Arb |
| 68kg/150lb |
| 0kg 1lb |
| 0 x 0cm<br>15 x 12" |
| --- |
| -- -- - |
| --- |
| |
| Canvas |
| |
| - |
| buckinghammfg.com |

| BUCKINGHAM |
|---|
| Std Rope Bag |
| |
| £0 $0 €0 |
| 0L Pro Arb |
| 0m 0' |
| 0kg 1.6lb |
| 0 x 0cm<br>15 x 12" |
| --- |
| -- -- - |
| --- |
| |
| Canvas |
| |
| Hard Plastic base |
| buckinghammfg.com |

| BUCKINGHAM |
|---|
| 0000 |
| |
| £0 $0 €0 |
| 0L Pro Arb |
| 0m 0' |
| 0kg 0lb |
| 0 x 0cm<br>0 x 0" |
| --- |
| -- -- - |
| --- |
| |
| Canvas |
| |
| - |
| buckinghammfg.com |

| BUCKINGHAM |
|---|
| Buckpack Wheels |
| 4470 |
| |
| £0 $365 506 €0 |
| 0L Pro Arb |
| 0m 0' |
| 0kg 0lb |
| 0 x 0 x 0cm<br>0 x 0 x 0" |
| --- |
| -- -- - |
| ---- |
| ------ |
| Canvas/Vinyl & Rubber |
| |
| Black bag higher cost Vinyl.<br>*Optional wheels/handle |
| buckinghammfg.com |

| BUCKINGHAM |
|---|
| Big Buckpack Wheels |
| 4471 |
| |
| £0 $395 535 €0 |
| 0L Pro Arb |
| 0m 0' |
| 0kg 0lb |
| 0 x 0 x 0cm<br>0 x 0 x 0" |
| --- |
| -- -- - |
| ---- |
| ------ |
| Vinyl-coated Nylon |
| |
| * Wheels=detachable option<br>Solid handle with wheels. |
| buckinghammfg.com |

| BUCKINGHAM |
|---|
| Buck Haul Bag |
| 4380 |
| |
| £0 $382* €0 |
| 0L Pro Arb |
| 0m 0' |
| 0kg 0lb |
| 0 x 0 x 0cm<br>0 x 0 x 0" |
| --- |
| -- -- - |
| ---- |
| ------ |
| 44oz Vinyl |
| |
| Hi-viz version is $401 |
| buckinghammfg.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

| | MANUFACTURER | BUCKINGHAM | BUCKINGHAM | BUCKINGHAM | CAMP SAFETY |
|---|---|---|---|---|---|
| | MODEL litres/liters VARIANT | Buck Haul Bag XL 4370 | RopePro Deluxe L 4374 | RopePro Deluxe XL 4373 | SuperCargo 40 2915. |
| | ORIGIN | | | | |
| | COST (inc Tax/VAT) Currency conversion only | £0 $478 €0 | £96 $159 €0 | £0 $183 €0 | £220 $350 €0 |
| SPECIFICATIONS | VOLUME L/US Gallon intended market | 0L Pro Arb | 0L Pro Arb | 0L Pro Arb | 40L/10.6gal Pro Access |
| SPECIFICATIONS | NOMINAL ROPE/LOAD CAPACITY | 0m 0' | 76m x 12.7mm 250' x ½" | 152m x 12.7mm 500' x ½" | 80kg/176lb |
| SPECIFICATIONS | WEIGHT empty | 0kg 0lb | 1.1kg 2.4lb | 0kg 0lb | 2.9g 6.4lb |
| SPECIFICATIONS | DIMENSIONS | 0 x 0 x 0cm<br>0 x 0 x 0" | 41 x 41 x 36cm<br>16 x 16 x 14 " | 59 x 56 x 36cm<br>23 x 22 x 14" | 63 x 34 x 28cm<br>24.8 x 13.4 x 11" |
| FEATURES | BACK STRAPS HANDLES HAUL EYE(S) | - - - | - - - | - - - | 2 2 4 |
| FEATURES | POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW | - - - - - | - - - - - | - - - - - | - - - - - |
| FEATURES | WATERPROOF ID-PANEL DRAIN/VENT | - - - - | - - - - | - - - - | - - - - |
| FEATURES | LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | - - - - - - | - - - - - - | - - - - - - | - - - - - - |
| | OUTER MATERIALS REFLECTIVE TRIM | 44oz Vinyl | | | 4500D TPU |
| | OTHER COLOURS | | | | |
| | NOTES | | Top, closable rope feed hole | Top, closable rope feed hole | *Handles inc 4 haul/gear loops. *4 eyes for backstraps |
| | WEBSITE | buckinghammfg.com | buckinghammfg.com | buckinghammfg.com | camp.it |

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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

| | MANUFACTURER | CAMP SAFETY | COURANT | COURANT | COURANT |
|---|---|---|---|---|---|
| | MODEL litres/liters VARIANT | Cargo 40 2785 | Cross Rope Light 17 00 | Host 36 PSECBYA | Cross Rope 36 - |
| | ORIGIN | | | | |
| | COST (inc Tax/VAT) Currency conversion only | £60 $80 €0 | £0 $0 €0 | £58 $0 €64 | £66 $98 €89 |
| SPECIFICATIONS | VOLUME L/US Gallon intended market | 40L/10.6gal Pro Access | 17L/4.5gal Pro Access | 36L/9.5gal Pro Access | 23-36L/6-9.5gal Pro Access |
| SPECIFICATIONS | NOMINAL ROPE/LOAD CAPACITY | 0m 0' | 0m x 0mm 0' x ½" | 45m x 12mm | 45m x 12mm |
| SPECIFICATIONS | WEIGHT empty | 0kg 2.1lb | 00g 0lb | 0.91kg 2lb | 1.1kg 2.4lb |
| SPECIFICATIONS | 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" | 45 x 32 x 19cm<br>18 x 13 x 7.5" |
| FEATURES | BACK STRAPS HANDLES HAUL EYE(S) | 2 - 1 | - - - | - - - | - - - |
| FEATURES | POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW | - 1 - 2 - | - - - - - | - - - - - | - - - - - |
| FEATURES | WATERPROOF ID-PANEL DRAIN/VENT | - | - - - - | - - - - | - - - - |
| FEATURES | LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | + | - - - - - - | - - - - - - | - - - - - - |
| | OUTER MATERIALS REFLECTIVE TRIM | 500D PVC | | 1680D nylon & mesh | 1680D Ballistic nylon/mesh |
| | OTHER COLOURS | | | | |
| | NOTES | | | Buckles/straps for clipping to Cross/Dock bags | Expands (upwards).Zips open both ends. zipped rope hole |
| | WEBSITE | camp.it | mycourant.com | mycourant.com | mycourant.com |

# ROPE/GEAR BAGS

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| CAMP SAFETY | CAMP SAFETY | CAMP SAFETY | CAMP SAFETY | CAMP SAFETY | CAMP SAFETY |
| Super Cargo 70 | Transport 20 | Transport 30 | Trucker 30 | Trucker 45 | Trucker 60 |
| 2775. | 00 | 00 | 00. | 00. | 00 |
| £246 $450 €0 | £0 $0 €0 | £0 $0 €0 | £105 $0 €124 | £119 $0 €139 | £129 $0 €162 |
| 0L/18.5gal Pro Access | 20L/5.3gal Pro Access | 30L/7.9gal Pro Access | 30L/7.9gal Pro Access | 45L/11.8gal Pro Access | 60L/15.8gal Pro Access |
| 80kg/176lb | 0m 0' | 0m 0' | 0m x 0mm 0' x ½" | 0m x 0mm 0' x ½" | 0m x 0mm 0' x ½" |
| 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" |
| 224 | 22- | --- | --- | --- | --- |
| -- -- - | -- -- - | -- -- - | -- -- - | -- -- - | -- -- - |
| ---- | --- | --- | --- | --- | --- |
| ------ | ------ | ------ | ------ | ------ | ------ |
| 4500D TPU | -- | -- | - | - | - |
| | | | | | |
| Handles inc 4 haul/gear ps. *4 eyes for backstraps | | | - | - | - |
| camp.it | camp.it | camp.it | camp.it | camp.it | camp.it |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| COURANT | COURANT | CLIMBING TECHNOLOGY | CLIMBING TECHNOLOGY | CLIMBING TECHNOLOGY | CLIMBING TECHNOLOGY |
| Cargo 40 | Cargo 50 | Carrier 18 | Carrier 22 | Carrier 37 | Carrier Bag 35 |
| - | - | 6X96018 | 6X96022 | 6X96037 | 7X971 |
| £0 $0 €0 | £0 $0 €0 | £0 $0 €0 | £0 $0 €0 | £0 $0 €0 | £0 $0 €110 |
| 0L/10.6gal Pro Access | 0L Pro Access | 18L/5gal Pro Access | 22L/00gal Pro Access | 37L/00gal Pro Access | 35L/00gal Pro Access |
| 0m x 0mm 0' x ½" | 0m x 0mm 0' x ½" | 0m 0' | 0m 0' | 0m 0' | 0m x 0mm 0' x ½" |
| 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" |
| --- | --- | 2-1 | 2-1 | 2-1 | [2]-1 |
| -- -- - | -- -- - | -1 -- - | -1 -- - | -1 -- - | -1 72 1 |
| ---- | ---- | ●-- | ●-- | ●-- | ■--- |
| ------ | ------ | ■ | ■ | ■ | ■+Lid |
| | | 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 |

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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

| | | | | |
|---|---|---|---|---|
| | **MANUFACTURER** | CLIMBING TECHNOLOGY | CLIMBING TECHNOLOGY | CLIMBING TECHNOLOGY |
| | **MODEL** litres/liters **VARIANT** | Azimuth 25-35 2785 | Craggy 40-50 2785 | Zenith 70-85 7X96970 |
| | **ORIGIN** | | | |
| | **COST** (inc Tax/VAT) Currency conversion only | £0 $0 €110 | £0 $0 €110 | £0 $0 €110 |
| SPECIFICATIONS | **VOLUME** L/US Gallon intended market | 25-35L Pro Access | 40-50L Pro Access | 70-85L Pro Access |
| SPECIFICATIONS | **NOMINAL ROPE/LOAD CAPACITY** | 0m x 0mm 0' x ½" | 0m x 0mm 0' x ½" | 0m x 0mm 0' x ½" |
| SPECIFICATIONS | **WEIGHT** empty | 1.2kg 0lb | 1.9kg 0lb | 2.7kg 0lb |
| SPECIFICATIONS | **DIMENSIONS** | 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" |
| FEATURES | **BACK STRAPS HANDLES HAUL EYE(S)** | 2-1 | 2-1 | 2-1 |
| FEATURES | **POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW** | -1 72 1 | -1 22 1 | -1 22 1 |
| FEATURES | **WATERPROOF ID-PANEL DRAIN/VENT** | ■--- | ■--- | ■--- |
| FEATURES | **LID** VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | ■+■ | ■+■ | ■+■ |
| | **OUTER MATERIALS REFLECTIVE TRIM** | PVC-coated polyester | PVC-coated polyester | PVC-coated polyester |
| | **OTHER COLOURS** | | | |
| | **NOTES** | Expandable from 25 to 25L | Expandable from 40 to 50L. Removeable padded back | Expandable from 40 to 50L. Removeable padded back |
| | **WEBSITE** | climbingtechnology.com | climbingtechnology.com | climbingtechnology.com |

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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

| | | | | | |
|---|---|---|---|---|---|
| | **MANUFACTURER** | DMM | DMM | DMM | DMM |
| | **MODEL** litres/liters **VARIANT** | Transit 30 - | Transit 45 - | Porter 45 - | Porter 70 - |
| | **ORIGIN** | | | | |
| | **COST** (inc Tax/VAT) Currency conversion only | £60 $75 €70 | £70 $85 €80 | £90 $0 €90 | £100 $110 €100 |
| SPECIFICATIONS | **VOLUME** L/US Gallon intended market | 30L/7.9gal Pro Access | 45L/11.8gal Pro Access | 45L/11.8gal Pro Access | 70L/18.5gal Pro Access |
| SPECIFICATIONS | **NOMINAL ROPE/LOAD CAPACITY** | 0m 0' | 0m 0' | 0m 0' | 0m 0' |
| SPECIFICATIONS | **WEIGHT** empty | 0kg 0lb | 0kg 0lb | 1.25kg 0lb | 1.42kg 0lb |
| SPECIFICATIONS | **DIMENSIONS** | 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" |
| FEATURES | **BACK STRAPS HANDLES HAUL EYE(S)** | --- | --- | --- | --- |
| FEATURES | **POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW** | -- -- - | -- -- - | -- -- - | -- -- - |
| FEATURES | **WATERPROOF ID-PANEL DRAIN/VENT** | ---- | ---- | ---- | ---- |
| FEATURES | **LID** VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | ------ | ------ | ------ | ------ |
| | **OUTER MATERIALS REFLECTIVE TRIM** | 600D PVC | 600D PVC | 600D PVC | 600D PVC |
| | **OTHER COLOURS** | | | | |
| | **NOTES** | - | - | - | - |
| | **WEBSITE** | dmmwales.com | dmmwales.com | dmmwales.com | dmmwales.com |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| **CRESTO** | **CRESTO** | **CRESTO** | **CRESTO** | | |
| **Rope Bag M ?** | **Rope Bag L ?** | **Rope Bag XL ?** | **PACQ Backpack ?** | | |
| 012260242 | 012260243 | 012260244 | 9450 | | |
| | | | | | |
| £00 $0 €0 | £00 $0 €0 | £00 $0 €0 | £00 $0 €0 | | |
| | | | | | |
| 0kg 0lb | 0kg 0lb | 0kg 0lb | 0kg 0lb | | |
| | | | | | |
| 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" | | |
| 2 1 1 | 2 1 1 | 2 1 1 | 2 2 - | | |
| -- 3+1 ring- - | -- 5+1 ring- - | -- 6+1 ring- - | -- -- - | | |
| ■--- | ■--- | ■--- | ■--- | | |
| ■ | ■ | ■ | ■ | | |
| 'Polymar' ■ | 'Polymar' ■ | 'Polymar' ■ | Polyester- | | |
| | | | | | |
| | | | | | |
| crestosafety.com | crestosafety.com | crestosafety.com | crestosafety.com | | |

| DRAYER | DRAYER | DRAYER |
|---|---|---|
| **Stable 22** | **Stable 30** | **Stable 40** |
| - | - | - |
| ■ | ■ | ■ |
| £43 $55 €50 | £63 $81 €73* | £65 $84 €76* |
| 22L/5.9gal Pro Arb | 30L/7.9gal Pro Arb | 40L/10.4gal Pro Arb |
| 0m 0' | 0m 0' | 0m 0' |
| 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" | 0 x 0 x 0cm<br>0 x 0 x 0" |
| -2 1 | 2 2 1 | 2 2 1 |
| -- -- - | 1- 10- - | 1- 10- - |
| ---- | ---- | ---- |
| ■ | ■ | ■ |
| 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 |

ARBOGEAR

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FOR ARBORISTS

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gear for professional tree climbing

www.arbogear.com

## Images NOT to Scale

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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

| | | | | | |
|---|---|---|---|---|---|
| | MANUFACTURER | CLIMBING TECHNOLOGY | CLIMBING TECHNOLOGY | CLIMBING TECHNOLOGY | DMM |
| | MODEL litres/liters VARIANT | Azimuth 25-35 2785 | Craggy 40-50 2785 | Zenith 70-85 7X96970 | Transit 30 - |
| | ORIGIN | | | | |
| | COST (inc Tax/VAT) Currency conversion only | £0 $0 €110 | £0 $0 €110 | £0 $0 €110 | £60 $75 €70 |
| SPECIFICATIONS | VOLUME L/US Gallon intended market | 25-35L Pro Access | 40-50L Pro Access | 70-85L Pro Access | 30L/7.9gal Pro Access |
| SPECIFICATIONS | NOMINAL ROPE/LOAD CAPACITY | 0m x 0mm 0' x ½" | 0m x 0mm 0' x ½" | 0m x 0mm 0' x ½" | 0m 0' |
| SPECIFICATIONS | WEIGHT empty | 1.2kg 0lb | 1.9kg 0lb | 2.7kg 0lb | 0kg 0lb |
| SPECIFICATIONS | DIMENSIONS | 53 x 29 x 20cm 0 x 0 x 0" | 57 x 34 x 22cm 0 x 0 x 0" | 70 x 36 x 30cm 0 x 0 x 0" | 0 x 0 x 0cm 0 x 0 x 0" |
| FEATURES | BACK STRAPS HANDLES HAUL EYE(S) | 2-1 | 2-1 | 2-1 | --- |
| FEATURES | POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW | -1 72 1 | -1 22 1 | -1 22 1 | -- -- - |
| FEATURES | WATERPROOF ID-PANEL DRAIN/VENT | ■--- | ■--- | ■--- | ---- |
| FEATURES | LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | ■+■ | ■+■ | ■+■ | ------ |
| | OUTER MATERIALS REFLECTIVE TRIM | PVC-coated polyester | PVC-coated polyester | PVC-coated polyester | 600D PVC |
| | OTHER COLOURS | | | | |
| | NOTES | Expandable from 25 to 25L | Expandable from 40 to 50L. Removeable padded back | Expandable from 40 to 50L. Removeable padded back | - |
| | WEBSITE | chnology.com | climbingtechnology.com | climbingtechnology.com | dmmwales.com |

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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

| | | | | | |
|---|---|---|---|---|---|
| | MANUFACTURER | EDELRID | EDELRID | EDELRID | EYOLF |
| | MODEL litres/liters VARIANT | KurtHaulbag 55 721860552210 | Kask 28 721860552210 | Kask 55 721860552210 | Emmer 25 L34 |
| | ORIGIN | | | | |
| | COST (inc Tax/VAT) Currency conversion only | £130 $0 €0 | £0 $0 €0 | £0 $0 €0 | £41 $52 €48 |
| SPECIFICATIONS | VOLUME L/US Gallon intended market | 55L/14.5gal Pro Rescue | 28L/7.4gal Pro Access | 55L/14.5gal Pro Access | 25L/6.6gal Pro Access |
| SPECIFICATIONS | NOMINAL ROPE/LOAD CAPACITY | 0m 0' | 0m 0' | 0m 0' | 0m 0' |
| SPECIFICATIONS | WEIGHT empty | 0kg 0lb | 0kg 0lb | 0kg 0lb | 0g 0lb |
| SPECIFICATIONS | DIMENSIONS | 0 x 0 x 0cm 0 x 0 x 0" | 0 x 0 x 0cm 0 x 0 x 0" | 0 x 0 x 0cm 0 x 0 x 0" | 30 x 34cm 0 x 0 x 0" |
| FEATURES | BACK STRAPS HANDLES HAUL EYE(S) | --- | --- | --- | -2- |
| FEATURES | POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW | -- -- - | -- -- - | -- -- - | -- -- - |
| FEATURES | WATERPROOF ID-PANEL DRAIN/VENT | ---- | ---- | ---- | ---- |
| FEATURES | LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | ------ | ------ | ------ | ■ |
| | OUTER MATERIALS REFLECTIVE TRIM | 44oz Vinyl | 44oz Vinyl | 44oz Vinyl | 1000D Cordura - |
| | OTHER COLOURS | | | | ■■■ |
| | NOTES | - | - | - | - |
| | WEBSITE | edelrid.com | edelrid.com | edelrid.com | eyolf.ca |

# ROPE/GEAR BAGS

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| **DMM** | **DMM** | **DMM** | **DRAYER** | **DRAYER** | **DRAYER** |
| **Transit 45** | **Porter 45** | **Porter 70** | **Stable 22** | **Stable 30** | **Stable 40** |
| £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 |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| **EYOLF** | **EYOLF** | **EYOLF** | **EYOLF** | **EYOLF** | **EYOLF** |
| **Emmer 35**<br>L36 | **Emmer 45**<br>L38 | **Sml 10** | **Med 23**<br>L61 | **Lg 37**<br>L62 | **XL 64**<br>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

| | | | | | |
|---|---|---|---|---|---|
| | **MANUFACTURER** | FTC TREE | FTC TREE | HARKIE | HARKIE |
| | **MODEL** litres/liters VARIANT | Cylindric 40 - | Cylindric 60 - | Champion 38 H2240 | Champion 55 H2240 |
| | **ORIGIN** | | | | |
| | **COST** (inc Tax/VAT) Currency conversion only | £45 $54 €62 | £54 $64 €68 | £151 $200 €180 | £201 $266 €238 |
| SPECIFICATIONS | **VOLUME** L/US Gallon intended market | 40L/10.6gal Pro Arb | 60L/15.8gal Pro Arb | 38L/10gal Pro Arb | 55L/14.5gal Pro Arb |
| SPECIFICATIONS | **NOMINAL ROPE/LOAD CAPACITY** | 60m/197' x 14mm | 90m/295' x 14mm | 0m 0' | 0m 0' |
| SPECIFICATIONS | **WEIGHT** empty | 600g 1.3lb | 900g 2lb | 0kg 0lb | 0kg 0lb |
| SPECIFICATIONS | **DIMENSIONS** | 83 x 23 x 23cm 32.7 x 9.1 x 9.1" | 92 x 32 x 32cm 36.2 x 12.6 x 12.6" | 50 x 30 x 25cm 19.7 x 12 x 13.8" | 50 x 38 x 29cm 19.7 x 15 x 11.4" |
| FEATURES | **BACK STRAPS HANDLES HAUL EYE(S)** | [2]1- | [2]1- | 2 2 - | - - - |
| FEATURES | **POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW** | - - - - - | - - - - - | - - - - - | - - - - - |
| FEATURES | **WATERPROOF ID-PANEL DRAIN/VENT** | ■ - - - | ■ - - - | - - - - | - - - - |
| FEATURES | **LID** VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | ■ + ■ | ■ + ■ | - - - - - - | - - - - - - |
| | **OUTER MATERIALS REFLECTIVE TRIM** | 1680D PVC | 1680D PVC | PVC | PVC |
| | **OTHER COLOURS** | | | ■ | ■ |
| | **NOTES** | Virtually, but not quite, watertight | Virtually, but not quite, watertight | - | - |
| | **WEBSITE** | ftec-tree.com | ftc-tree.com | harkieglobal.com | harkieglobal.com |

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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

| | | | | | |
|---|---|---|---|---|---|
| | **MANUFACTURER** | KONG | KONG | KONG | KONG |
| | **MODEL** litres/liters VARIANT | RopeBag 28 - | Genius II 30 - | Linnhà 40 982522000KK | RopeBag 43 - |
| | **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 | 28L/7.4gal Pro | 30L/7.9gal Pro | 40L/10.6gal Canyoning | 43L/11.4gal Pro Access |
| SPECIFICATIONS | **NOMINAL ROPE/LOAD CAPACITY** | 0m 0' | 0m 0' | 0m 0' | 0m 0' |
| SPECIFICATIONS | **WEIGHT** empty | 0kg 0lb | 0.85kg 0lb | 0kg 0lb | 0kg 0lb |
| SPECIFICATIONS | **DIMENSIONS** | 0 x 0 x 0cm 0 x 0 x 0" | 0 x 0 x 0cm 0 x 0 x 0" | 0 x 0 x 0cm 0 x 0 x 0" | 0 x 0 x 0cm 0 x 0 x 0" |
| FEATURES | **BACK STRAPS HANDLES HAUL EYE(S)** | - - - | - - - | - - - | - - - |
| FEATURES | **POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW** | - - - - - | - - - - - | - - - - - | - - - - - |
| FEATURES | **WATERPROOF ID-PANEL DRAIN/VENT** | - - - - | - - - - | - - - - | - - - - |
| FEATURES | **LID** VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | - - - - - - | - - - - - - | - - - - - - | - - - - - - |
| | **OUTER MATERIALS REFLECTIVE TRIM** | - - | PVC | - - | - - |
| | **OTHER COLOURS** | | | | |
| | **NOTES** | - | - | - | - |
| | **WEBSITE** | Kong.it | kong.it | Kong.it | Kong.it |

# ROPE/GEAR BAGS

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|---|---|---|---|---|---|
| | | | | | |
| **HARKIE** | **HARKIE** | **HUSQVARNA** | **HUSQVARNA** | **KONG** | **KONG** |
| **Sentry 47**<br>H2260 | **Sentry 60**<br>H2265 | **Rope Bag 28**<br>596 93 63-11 | **Xplorer Backpack**<br>596 93 63-11 | **RopeTube 17**<br>982525000KK | **Lirung 25**<br>982521000KK |
| | | | | | |
| £221 $292 €262 | £246 $325 €291 | £61 $82 €73 | | £0 $0 €0 | £0 $0 €0 |
| 47L/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 ½" | 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" |
| 2 2 | 2 2 | - - - | - - - | - - - | - - - |
| 2 - 6 - - | 2 - 6 - - | - - - - - | - - - - - | - - - - - | - - - - - |
| - - | - - | - - - - | - - - - | - - - - | - - - - |
| carabiner | carabiner | - - - - - - | - - - - - - | - - - - - - | - - - - - - |
| PVC | PVC | - - | - - | - - | - - |
| | | | | | |
| - | - | - | - | - | - |
| harkieglobal.com | harkieglobal.com | husqvarna.com | husqvarna.com | Kong.it | Kong.it |

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|---|---|---|---|---|---|
| | | | | | |
| **KONG** | **KONG** | **LYON EQUIPMENT** | **LYON EQUIPMENT** | **LYON EQUIPMENT** | **LYON EQUIPMENT** |
| **WorkBag 50**<br>982528N00KK | **OmniBag 60**<br>- | **Rope Bag 20**<br>LSB 20.. | **Rope Bag 30**<br>LSB 30.. | **Rope Bag Lid 40**<br>LSB 40.. | **Industrial Access 55**<br>LSB 55. |
| | | | | | |
| £0 $0 €0 | £0 $0 €0 | £70 $0 €0 | £78 $0 €0 | £82127 $0 €0 | £108 $0 €0 |
| 0L /13.2galPro Access | 60L/15.8gal Pro Access | 20L/5.3gal Pro Access | 30L/7.9gal Pro Access | 40L/10.6galPro 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'x½" |
| 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 x22cm<br>20 x 8.6 x 8.6" | 59x 38 x 15cm<br>13.2 x 15 x 5.9" |
| - - - | - - - | - - - | 2 1 - | - - - | 2 2 - |
| - - - - - | - - - - - | - - - - - | - - - - - | - - - - - | - - - - - |
| - - - - | - - - - | - - - - | - - - - | - - | - - - |
| - - - - - - | - - - - - - | | | + 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 |

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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

| | | | | | |
|---|---|---|---|---|---|
| | MANUFACTURER | LYON EQUIPMENT | LYON EQUIPMENT | LYON EQUIPMENT | NATIVE ARB |
| | MODEL litres/liters VARIANT | Essentials 30<br>LSB ES30.. | Essentials 40<br>LSB ES40.. | Essentials 60<br>LSB ES60.. | Rig Bag 55<br>RB1 |
| | ORIGIN | | | | |
| | COST (inc Tax/VAT) Currency conversion only | £51 $67 €61 | £56 $74 €66 | £80 $105 €95 | £102 $134 €121 |
| SPECIFICATIONS | VOLUME L/US Gallon intended market | 30L/7.9gal Pro Access | 40L/10.6gal Pro Access | 60L/15.8gal Pro Access | 55L/14.5gal Pro Arb |
| SPECIFICATIONS | NOMINAL ROPE/LOAD CAPACITY | 25kg 100m x 11mm | 25kg 150m x 11mm | 25kg 200m x 11mm 100'x½" | 0m 0' |
| SPECIFICATIONS | WEIGHT empty | 500g 1.1lb | 620g 1.4lb | 1.19kg 2.6lb | 0kg 0lb |
| SPECIFICATIONS | DIMENSIONS | 50 x 28 x 23cm<br>20 x 11 x 9" | 52 x 33 x 28cm<br>20.5 x 13 x 11" | 60 x 35 x 30cm<br>24 x 14 x 12" | 45 x 36cm<br>17.7 x 14.2" |
| FEATURES | BACK STRAPS HANDLES HAUL EYE(S) | 2 1 - | 2 1 - | 2 2 - | - 2 - |
| FEATURES | POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW | -- -1 - | -- -1 - | -- -1 - | -- 282 - |
| FEATURES | WATERPROOF ID-PANEL DRAIN/VENT | ■■- | ■■- | ■■- | ■-- |
| FEATURES | LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | ■+■ Lid | ■+■ Lid | ■+■ Lid | ■ Cap |
| | OUTER MATERIALS REFLECTIVE TRIM | 620g PVC - | 620g PVC - | 620g PVC - | 1000d PVC-free TPE Nylon |
| | OTHER COLOURS | ■ | ■ | ■ | |
| | NOTES | - | - | Also sold under the *G-Force* brand | Integral rope cleaner on this and the twin-rope bag |
| | WEBSITE | lyonequipment.com | lyonequipment.com | lyonequipment.com | nativearb.co.uk |

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**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

| | | | | | |
|---|---|---|---|---|---|
| | MANUFACTURER | NOTCH | NOTCH | PALMU | PETZL |
| | MODEL litres/liters VARIANT | Pro 250 28<br>00 | Pro 450 35<br>99383 | Rope Bag 32<br>00 | Bucket 15<br>- |
| | ORIGIN | | | | |
| | COST (inc Tax/VAT) Currency conversion only | £50 $75 €72 | £72 $95 €91 | £66 $89 €78 | £41 $50 €42 |
| SPECIFICATIONS | VOLUME L/US Gallon intended market | 28L/7.4gal Pro Arb | 35L/9.2gal Pro Arb | 32L/8.2gal Pro Access | 15L/4gal Pro Access |
| SPECIFICATIONS | NOMINAL ROPE/LOAD CAPACITY | 20kg 76m/250' x½" | 20kg 137m/450' x½" | 50kg 80m x11.5mm | 50kg 45m x11mm 88'x½" |
| SPECIFICATIONS | WEIGHT empty | 815g 1.8lb | 915g 2lb | 1.2kg 2.64lb | 465g 1lb |
| SPECIFICATIONS | DIMENSIONS | 40.5 x 30.5cm<br>16 x 12" | 50 x 30cm<br>20 x 12" | 32 x 32 x 32cm<br>12.6 x 12.6 x 12.6" | 30 x 25cm<br>11.8 x 9.8" |
| FEATURES | BACK STRAPS HANDLES HAUL EYE(S) | - 2 - | 2 2 - | 2 2 - | - 2 1 |
| FEATURES | POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW | -- -- - | -- 10- - | 2 - 18- - | 1 1 - 2 - |
| FEATURES | WATERPROOF ID-PANEL DRAIN/VENT | ●-- | ●■- | ●-■ | ■■- |
| FEATURES | LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | ■ | ■ | ■ | ■■ |
| | OUTER MATERIALS REFLECTIVE TRIM | 600D Nylon | 600D Nylon | PVC | TPU (PVC-free) |
| | OTHER COLOURS | | | | ■■ |
| | NOTES | | | vent mesh in lid | *two loops intended for tieo=ing in the rope ends. |
| | WEBSITE | notchequipment.com | notchequipment.com | palmubags.com | |

# ROPE/GEAR BAGS

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|---|---|---|---|---|---|
| | | | | | |
| **NATIVE ARB** | **NEVER LET GO** | **NEVER LET GO** | **NEVER LET GO** | **NEVER LET GO** | **NEVER LET GO** |
| **win Rope Bag 55** TRB1 | **Ascent Bucket 30** 101360 | **Ascent Carry 50** 101730 | **Ascent Haul 70** 101666 | **RopePro Bucket 30** 101680 | **RopePro 50** 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 17.7 x 14.2" | 40 x 32cm 15.7 x 12.6" | 57 x 32cm 22.5 x 12.6" | 71 x 36 x 35cm 28 x 14.2 x 13.8" | 40 x 32cm 15.7 x 12.6" | 58 x 32 x 26cm 22.8 x 12.6 x 10.2" |
| -2- | -1+1*+1/1 | 21*+2/2 | 21*+4/4 | -2/2 | 22- |
| 2- 202 - | --86/2- | -1 14 6/2- | -1 6/2 5/2- | -- 10/1 6/4*- | 21 -9/4*- |
| --- | | | | | |
| Cap | | | | | |
| 00d PVC-free TPE Nylon | Megatex - | Megatex - | Megatex - | Innervis - | Innervis - |
| | | | | | |
| ompartments 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** | |
| **Bucket 30** | **Bucket 45** | **Transport 30** | **Transport 45** | **Transport 60** | |
| £58 $70 €60 | £76 $90 €78 | £108 $0 €115 | £126 $0 €134 | £150 $0 €158 | |
| 0L/7.9gal Pro Access | 45L/11.8gal Pro Access | 30L/7.9gal Pro Access | 45L/11.8gal Pro Access | 60L/15.8gal Pro Access | |
| kg 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 15.8 x 11.8" | 45 x 35cm 17.7 x 13.8" | 53 x 29 x 23cm 20.9 x 11.4 x 9" | 58 x 32.5 x 28cm 22.8 x 12.8 x 11" | 65 x 35 x 30cm 25.6 x 13.8 x 11.8" | |
| 221 | 221 | [2]3+1inside- | [2]3+1inside- | [2]3+1inside- | |
| 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 eo=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 | |

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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

| | | | | | |
|---|---|---|---|---|---|
| | MANUFACTURER | PROTEKT | PROTEKT | PROTEKT | PROTEKT |
| | MODEL litres/liters VARIANT | Arborist Basket 15 AX701 | Arborist Basket 30 AX701 | AX011T/K 42 - | AX011N/D 42 - |
| | 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 | 15L/3.9gal Pro Access | 30L/8gal Pro Access | 42L/11gal Pro Access | 42L/11gal Pro Access |
| SPECIFICATIONS | NOMINAL ROPE/LOAD CAPACITY | 0m 0' | 0m 0' | 0m 0' | 0m 0' |
| SPECIFICATIONS | WEIGHT empty | 0kg 0lb | 0kg 0lb | 720 /650g 0lb | 600/850g 0lb |
| SPECIFICATIONS | DIMENSIONS | 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" |
| FEATURES | BACK STRAPS HANDLES HAUL EYE(S) | 1 2 1 | 1 2 1 | 2-1 / 2-2 | 2 1- |
| FEATURES | POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW | -- 6- - | -- 6- - | -- -- - | -- 3- -/-- -- - |
| FEATURES | WATERPROOF ID-PANEL DRAIN/VENT | -■ | -■ | -■ | -■/■■■ |
| FEATURES | LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | ■ | ■ | ■/■ | ■ |
| | OUTER MATERIALS REFLECTIVE TRIM | PVC & Mesh - | PVC & Mesh - | Reinforced PVC- | Reinforced PVC- |
| | OTHER COLOURS | | | ■■ | ■■ |
| | NOTES | 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 |
| | WEBSITE | protekt.pl | protekt.pl | protekt.pl | protekt.pl |

**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

| | | | | | |
|---|---|---|---|---|---|
| | MANUFACTURER | PROTEKT | PROTEKT | REECOIL | REECOIL |
| | MODEL litres/liters VARIANT | Arborist Backpack 80 Ax080 | AX012 ARBO 100 - | Rope Bag 28 - | Rope Bag 45 - |
| | ORIGIN | | | | |
| | COST (inc Tax/VAT) Currency conversion only | £0 $0 €0 | £0 $0 €0 | £94 $131 €0 | £123 $167 €0 |
| SPECIFICATIONS | VOLUME L/US Gallon intended market | 80L/21.1gal Pro Arb | 100L/26.4gal Pro Access | 28L/7.4gal Pro Arb | 45L/11.8gal Pro Arb |
| SPECIFICATIONS | NOMINAL ROPE/LOAD CAPACITY | | 0m 0' | 100m 0' x 11mm0" | 200m 0' x 11mm0" |
| SPECIFICATIONS | WEIGHT empty | 2.6kg 5.7lb | 1.48kg 0lb | 1.7kg 0lb | 0kg 0lb |
| SPECIFICATIONS | DIMENSIONS | 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" |
| FEATURES | BACK STRAPS HANDLES HAUL EYE(S) | --- | 2-- | 2 2■ | 2 2■ |
| FEATURES | POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW | -- -- - | -1 6- - | -- 16/2 ■ | -- 16/2 ■ |
| FEATURES | WATERPROOF ID-PANEL DRAIN/VENT | ■--- | ---- | ■■-■ | ■■-■ |
| FEATURES | LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | ■ | ■ | ■■ | ■■ |
| | OUTER MATERIALS REFLECTIVE TRIM | -- | Reinforced PVC- | -- | -- |
| | OTHER COLOURS | | ■■ | | |
| | NOTES | - | Also AX012 plain bag | - | - |
| | WEBSITE | protekt.pl | protekt.pl | rockempire.com | rockempire.com |

| PROTEKT | PROTEKT | PROTEKT | PROTEKT | PROTEKT | PROTEKT |
|---|---|---|---|---|---|
| AX011SP /S 45 | AX040 | AX070 | AX070L | AX074 | AX071 |
| £0 $0 €0 | £0 $0 €0 | £0 $0 €0 | £0 $0 €0 | £0 $0 €0 | £0 $0 €0 |
| 6L/11.8gal Pro Access | 40L/10gal Pro Access | 70L/18.5gal Pro Access | 70L/18.5gal Pro Access | 74L/19.5gal Pro Access | 71L/18.7gal Pro Access |
| 0m 0' | 0m 0' | 0m 0' | 0m 0' | 0m 0' | 0m 0' |
| 1.64/1.2kg 0lb | 0kg 0lb | 0kg 0lb | 0kg 0lb | 0kg 0lb | 0kg 0lb |
| 3 x 38/36 x 25/22cm<br>18 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- -- -/-- -- - | -- -- - | -- -- - | -- -- - | -- -- - | -- -- - |
| - | - | --- | --- | --- | --- |
| + | | carabiner | | ----- | |
| Reinforced PVC- | Reinforced PVC- | Reinforced PVC- | Reinforced PVC- | Reinforced PVC- | Reinforced PVC- |
| | | | | | |
| AX011S has no pockets | - | - | - | - | - |
| protekt.pl | protekt.pl | protekt.pl | protekt.pl | protekt.pl | protekt.pl |

| ROCK EMPIRE | ROCK EMPIRE | ROCK EMPIRE | ROCK EMPIRE | ROCKnARB | ROCKnARB |
|---|---|---|---|---|---|
| Cargo Reep 30 | Cargo 35<br>CWV035 | Cargo 55<br>CWV055 | Cargo Roll 55<br>CVR055 | Mnt Ape Bull 30<br>RMA001 | Plain Jane II ?<br>RPJ015 |
| £0 $0 €0 | £0 $0 €0 | £0 $0 €0 | £0 $0 €0 | £0 $46 €0 | £0 $30 €0 |
| 27L/6.8gal Pro Access | 31.9L/8.4gal Pro Access | 52.4L/13.8gal Pro Access | 52.4L/13.8gal Pro Access | 30L/7.9gal Pro Arb | 0L/0gal Pro Arb |
| 0m 0' | 0m 0' | 0m 0' | 0m 0' | 0m 200'x3/4" | 0m 200' x 1/2" |
| 390g 0lb | 805g 0lb | 805g 0lb | 805g 0lb | 0kg 0lb | 0kg 0lb |
| 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- - | -- -- - | -- -- - | -- -- - | -- -- - | -- -- - |
| --- | --- | --- | --- | --- | --- |
| | | | | | |
| -- | -- | -- | -- | 600D Polyester - | 600D Polyester - |
| | | | | | |
| - | - | - | - | Dbl reinforced bottom | Dbl reinforced bottom |
| singingrock.com | singingrock.com | singingrock.com | singingrock.com | rocknarbor.com | rocknarbor.com |

**Images NOT to Scale**
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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

| | MANUFACTURER | ROCKnARB | ROCKnARB | ROCKnARB | SILVER BULL |
|---|---|---|---|---|---|
| | MODEL litres/liters VARIANT | Arborist Storage ? RBA00.. | Arborist Storage ? RBA00.. | Poseidon Rigger ? RPB093 | Net Sml 21 - |
| | ORIGIN | | | | |
| | COST (inc Tax/VAT) Currency conversion only | £0 $36 €0 | £0 $38 €0 | £0 $215 €0 | £40 $0 €0 |
| SPECIFICATIONS | VOLUME L/US Gallon intended market | 0L/0gal Pro Arb | 0L/0gal Pro Arb | 0L/0gal Pro Rescue | 21L/5.5gal Pro Arb |
| SPECIFICATIONS | NOMINAL ROPE/LOAD CAPACITY | 0m 150'x ½" | 0m 200'x ½" | 0m 200'x ½" | 0m 0' |
| SPECIFICATIONS | WEIGHT empty | 0kg 1.5lb | 0kg 0lb | 0kg 2.2lb | 0kg 0lb |
| SPECIFICATIONS | DIMENSIONS | 0 x 0 x 0cm 0 x 0 x 0" | 0 x 0 x 0cm 0 x 0 x 0" | 0 x 0 x 0cm 0 x 0 x 0" | 35 x 28cm 13.8 x 11" |
| FEATURES | BACK STRAPS HANDLES HAUL EYE(S) | - - - | - - - | [2] 1 - | - - - |
| FEATURES | POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW | 4 - - - - | 4 - - - - | 2 - 10 14 - | - - - - - |
| FEATURES | WATERPROOF ID-PANEL DRAIN/VENT | - - | - - | - | - - - - |
| FEATURES | LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | | | + | - - - - - - |
| | OUTER MATERIALS REFLECTIVE TRIM | 1000D coated nylon- | 1000D coated nylon- | 1000D coated nylon- | - - |
| | OTHER COLOURS | | | | |
| | NOTES | - | - | - | - |
| | WEBSITE | rocknarbor.com | rocknarbor.com | rocknarbor.com | - |

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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

| | MANUFACTURER | SILVER BULL | SILVER BULL | SILVER BULL | SILVER BULL |
|---|---|---|---|---|---|
| | MODEL litres/liters VARIANT | Rig - | Rig 44 - | (Pro) Rig 60 - | Day Pack - |
| | ORIGIN | | | | |
| | COST (inc Tax/VAT) Currency conversion only | £66 $0 €90 | £69 $0 €94 | £83 $0 €113 | £0 $0 €0 |
| SPECIFICATIONS | VOLUME L/US Gallon intended market | 33L/8.7gal Pro Arb | 44L/11.6gal Pro Arb | 60L/15.8gal Pro Arb | 0L/0gal Pro Arb |
| SPECIFICATIONS | NOMINAL ROPE/LOAD CAPACITY | 0m 0' | 0m 0' | 0m 0' | 0m 0' |
| SPECIFICATIONS | WEIGHT empty | 0kg 0lb | 0kg 0lb | 0kg 0lb | 0kg 0lb |
| SPECIFICATIONS | DIMENSIONS | 35 x 28 cm 13.8 x 11" | 40 x 32cm 15.7 x12.6" | 46 x 45cm 18 x 17.7" | 0 x 0 x 0cm 0 x 0 x 0" |
| FEATURES | BACK STRAPS HANDLES HAUL EYE(S) | - - - | - - - | - - - | - - - |
| FEATURES | POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW | - - - - - | - - - - - | - - - - - | - - - - - |
| FEATURES | WATERPROOF ID-PANEL DRAIN/VENT | - - - - | - - - - | - - - - | - - - - |
| FEATURES | LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | - - - - - - | - - - - - - | - - - - - - | - - - - - - |
| | OUTER MATERIALS REFLECTIVE TRIM | - - | - - | - - | - - |
| | OTHER COLOURS | | | | |
| | NOTES | - | - | | - |
| | WEBSITE | - | - | | - |

| SILVER BULL |
|---|
| Basic Sml 21 |
| |
| £36 $0 €0 |
| 21L/5.5gal Pro Arb |
| 0m 0' |
| 0kg 0lb |
| 30 x 30cm<br>12 x 12" |
| --- |
| -- -- - |
| ---- |
| ------ |
| -- |
| |
| - |
| - |

| SILVER BULL |
|---|
| Basic Med 28 |
| |
| £40 $0 €0 |
| 44L/11.6gal Pro Arb |
| 0m 0' |
| 0kg 0lb |
| 40 x 30cm<br>15.7 x 12" |
| --- |
| -- -- - |
| ---- |
| ------ |
| -- |
| |
| - |
| - |

| SILVER BULL |
|---|
| Basic lg 35 |
| |
| £42 $0 €0 |
| 33L/8.7gal Pro Arb |
| 0m 0' |
| 0kg 0lb |
| 50 x 30cm<br>19.7 x 12" |
| --- |
| -- -- - |
| ---- |
| ------ |
| -- |
| |
| - |
| - |

| SILVER BULL |
|---|
| Basic XL 43 |
| |
| £50 $0 €0 |
| 44L/11.6gal Pro Arb |
| 0m 0' |
| 0kg 0lb |
| 60 x 33cm<br>23.6 x 13" |
| --- |
| -- -- - |
| ---- |
| ------ |
| -- |
| |
| - |
| - |

| SILVER BULL |
|---|
| scabbard Bag |
| |
| £0 $0 €90 |
| L/0gal Pro Arb |
| 0m 0' |
| 0kg 0lb |
| 79 x 39cm<br>31 x 15.4" |
| --- |
| -- -- - |
| ---- |
| ------ |
| -- |
| |
| - |
| - |

| SILVER BULL |
|---|
| Mesh |
| |
| £78 $0 €113 |
| 0L/0gal Pro Arb |
| 0m 0' |
| 0kg 0lb |
| 46 x 34cm<br>18.1 x 13.4" |
| --- |
| -- -- - |
| ---- |
| ------ |
| -- |
| |
| - |
| - |

| SILVER BULL |
|---|
| Twinline |
| |
| £68 $0 €113 |
| 0L/0gal Pro Arb |
| 60+45m 0' |
| 0kg 0lb |
| 46 x 34cm<br>18 x 13.4" |
| --- |
| -- -- - |
| ---- |
| ------ |
| -- |
| |
| - |
| - |

| SINGING ROCK |
|---|
| Carry Bag 28 |
| |
| £0 $0 €0 |
| 28+10L/7.4+2.6gal Pro Access |
| 0m 0' |
| 0kg 0lb |
| 0 x 0 x 0cm<br>0 x 0 x 0" |
| --- |
| -- -- - |
| ---- |
| ------ |
| -- |
| |
| - |
| singingrock.com |

| SINGING ROCK |
|---|
| Rescue Bag 30 |
| |
| £0 $0 €0 |
| 28+10L/7.4+2.6gal Pro Access |
| 0m 0' |
| 0kg 0lb |
| 0 x 0 x 0cm<br>0 x 0 x 0" |
| --- |
| -- -- - |
| ---- |
| ------ |
| -- |
| |
| - |
| singingrock.com |

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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

| | 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 |
| SPECIFICATIONS | NOMINAL ROPE/LOAD CAPACITY | 0m 0' | 0m 0' | 0m 0' | 0m 0' |
| SPECIFICATIONS | WEIGHT empty | 0kg 0lb | 0kg 0lb | 0kg 0lb | 0kg 0lb |
| SPECIFICATIONS | 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" |
| FEATURES | BACK STRAPS HANDLES HAUL EYE(S) | - - - | - - - | - - - | - - - |
| FEATURES | POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW | - - - - - | - - - - - | - - - - - | - - - - - |
| FEATURES | WATERPROOF ID-PANEL DRAIN/VENT | - - - | - - - | - - - | - - - |
| FEATURES | 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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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

| | 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 |
| SPECIFICATIONS | NOMINAL ROPE/LOAD CAPACITY | 0m 0' | 0m 0' | 0m 0' | 0m 0' |
| SPECIFICATIONS | WEIGHT empty | 0kg 0lb | 0kg 0lb | 0kg 0lb | 0kg 0lb |
| SPECIFICATIONS | 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" |
| FEATURES | BACK STRAPS HANDLES HAUL EYE(S) | - - - | - - - | - - - | - - - |
| FEATURES | POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW | - - - - - | 1 - 2 4 - - | - - - - - | - - - - - |
| FEATURES | WATERPROOF ID-PANEL DRAIN/VENT | - - - | ●-■ | ●-■ | ●-■ |
| FEATURES | 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

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| **SKYLOTEC** | **SKYLOTEC** | **SKYLOTEC** | **SKYLOTEC** | **SKYLOTEC** | **SKYLOTEC** |
| **Classic 9**<br>ACS-0009-1 | **Classic 22**<br>ACS-0009-2 | **Classic 30**<br>ACS-0009-3 | **Classic 38**<br>ACS-0009-4 | **Tool Bag Pro Lift 25**<br>ACS-0133-2 | **Tool Bag Pro Lift 40**<br>ACS-0133-4 |
| | | | | | |
| £20 $0 €21 | £24 $0 €27 | £26 $0 €29 | £29 $0 €31 | £00 $00 €00 | £00 $0 €00 |
| 9L/5.8gal Pro Access | 22L/5.8gal Pro Access | 30L/6.6gal Pro Access | 38L/10galPro Access | 25L/6.6galPro Access | 40L/10galPro Access |
| 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 |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| **STEIN** | **STEIN** | **STEIN** | **STERLING ROPES** | **STERLING ROPES** | **STERLING ROPES** |
| **Utility 50** | **Voyager 60** | **Utility 70** | **RopeBag S 17**<br>MDBAGROPEBM17 | **RopeBag M 31**<br>MDBAGROPEBM31 | **Rope Bag L 45**<br>MDBAGROPEBL45 |
| | | | | | |
| £60 $0 €0 | £108 $140 €0 | £90 $0 €0 | £52 $60 €61 | £63 $70 €74 | £76 $80 €90 |
| 50L/13.2galPro Arb | 60L/15.8gal Pro Arb | 70L/18.5gal Pro Arb | 17L/4.5gal Pro Access | 31L/8.1gal Pro Access | 45L/11.89gal Pro Access |
| 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. 2L front pocket | Will fit 3xVault 15L+ bleed control in a stack. | - | - | - |
| steinworldwide.com | steinworldwide.com | steinworldwide.com | sterlingrope.com | sterlingrope.com | sterlingrope.com |

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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

| | | | | | |
|---|---|---|---|---|---|
| | MANUFACTURER | TEUFELBERGER | TEUFELBERGER | TEUFELBERGER | TEUFELBERGER |
| | MODEL litres/liters VARIANT | Rope Bucket 25 | Rope Bucket 30 | Rope Bucket 50 | Rope Bucket 80 |
| | ORIGIN | | | | |
| | COST (inc Tax/VAT) Currency conversion only | £0 $210 €170 | £0 $225 €185 | £0 $330 €0 | £0 $370 €276 |
| SPECIFICATIONS | VOLUME L/US Gallon intended market | 25L/6.6gal Pro Access | 50L/13.2gal Pro Access | 50L/13.2gal Pro Access | 80L/21.1gal Pro Access |
| SPECIFICATIONS | NOMINAL ROPE/LOAD CAPACITY | 0m 0' | 0m 0' | 0m 0' | 0m 0' |
| SPECIFICATIONS | WEIGHT empty | 0kg 0lb | 0kg 0lb | 0kg 0lb | 0kg 0lb |
| SPECIFICATIONS | DIMENSIONS | 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" |
| FEATURES | BACK STRAPS HANDLES HAUL EYE(S) | -2- | -2- | 22- | 22- |
| FEATURES | POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW | -- MultipleMultiple - | -- MultipleMultiple - | -- MultipleMultiple - | -- MultipleMultiple - |
| FEATURES | WATERPROOF ID-PANEL DRAIN/VENT | --■ | --■ | --■ | --■ |
| FEATURES | LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | ■ | ■ | ■ | ■ |
| | OUTER MATERIALS REFLECTIVE TRIM | 44oz Vinyl | -- | -- | -- |
| | OTHER COLOURS | | | | |
| | NOTES | 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 |
| | WEBSITE | teufelberger.com | teufelberger.com | teufelberger.com | teufelberger.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

| | | | | | |
|---|---|---|---|---|---|
| | MANUFACTURER | TREERUNNER | TREERUNNER | WEAVER ARBORIST | WEAVER ARBORIST |
| | MODEL litres/liters VARIANT | Vented Rope Bag 31 | Spring Bag 54 | Basic 26 | DeLuxe 22<br>08-07185 |
| | ORIGIN | | | | |
| | COST (inc Tax/VAT) Currency conversion only | £0 $0 €40 | £0 $0 €44 | £41 $0 €0 | £73 $0 €0 |
| SPECIFICATIONS | VOLUME L/US Gallon intended market | 31L/8.1gal Pro Arb | 54L/14.2gal Pro Arb | 26L/6.8gal Pro Arb | 22L/5.8gal- Pro Arb |
| SPECIFICATIONS | NOMINAL ROPE/LOAD CAPACITY | 0m 0' | 0m 0' | 0m 0' | 75m x 11mm >150' x ½" |
| SPECIFICATIONS | WEIGHT empty | 600g 0lb | 0kg 0lb | 0kg 0lb | 0kg 0lb |
| SPECIFICATIONS | DIMENSIONS | 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" |
| FEATURES | BACK STRAPS HANDLES HAUL EYE(S) | 22- | 12- | --- | - 2- |
| FEATURES | POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW | 1- -1 - | 1- -4 - | -- -- - | -- -- - |
| FEATURES | WATERPROOF ID-PANEL DRAIN/VENT | ---■ | --■ | ●-■ | ●-■ |
| FEATURES | LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP | ■ | ■ | ■ | ■ |
| | OUTER MATERIALS REFLECTIVE TRIM | Ballistic Nyon - | Tarpaulin(PVC) - | -- | 1200D Polyester |
| | OTHER COLOURS | | | ■ | ■ |
| | NOTES | - | 3 height adjustments straps. Mesh lid | - | * 1 eye= shoulder+storage strap secured by 2 small fastex buckles |
| | WEBSITE | grube.de | grube.de | - | weaverarborist.com |

# ROPE/GEAR BAGS

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| TEUFELBERGER | TREEHOG | TREERUNNER | TREERUNNER | TREERUNNER | TREERUNNER |
| Bucket Mule | Rope&Kit Bag 40 TH4000 | Rope Bag 28 | Rope Tarp Bag 24 | Rope Tarp Bag 28 | Rope Tarp Bag 32 |
| £45 $0 €0 | £50 $0 €0 | £36 $0 €35 | £38 $0 €42 | £47 $0 €44 | £51 $0 €48 |
| 0L Pro Access | 40L/10gal Pro Arb | 28L/7.4gal Pro Arb | 24L/6.3gal Pro Arb | 28L/7.4gal Pro Arb | 32L/8.4gal Pro Arb |
| 0m 0' | 0m 0' | 0m 0' | 0m 0' | 0m 0' | 0m 0' |
| 0kg 0lb | 0kg 0lb | 570g 1.25lb | 908g 2lb | 1.05kg 2.3lb | 1.09kg 2.4lb |
| 100 x 31 x 30cm<br>39.4 x 12 x 12" | 0 x 0 x 0cm<br>0 x 0 x 0" | 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 |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| WEAVER ARBORIST | WEAVER ARBORIST | WEST COAST CLIMBER | WEST COAST CLIMBER | WEST COAST CLIMBER | |
| ull Rope Deploy 52 08-07161. | All Purpose 84 08-07185 | Rocket Mini 36 | Classic 45 | Rocket 55 | |
| £71 $0 €0 | £73 $90 €0 | £101 $125 €117 | £42 $52 €49 | £117 $146 €137 | |
| 52L/13.7gal Pro Arb | 84L/22.2gal Pro Arb | 36L/9.5gal Pro Arb | 45L/11.9gal Pro Arb | 55L/14.5gal Pro Arb | |
| 0m 200' x ⅝" | | 75m x 11mm >150' x ½" | 150m x 11mm 300' x ½" | 150m x 11mm >300' x ½" | |
| 0kg 0lb | 1.22kg 2.7lb | 0kg 0lb | 0kg 0lb | 0kg 0lb | |
| 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- - | |
| ●-■ | ●-■ | ●-■ | ●-■ | ●-■ | |
| ■ | ■ | ■ | ■ | ■ | |
| 1200D Polyester | 1200D Polyester | 1680D Ballisic Nylon | 1000D Cordura | 1680D Ballisic Nylon | |
| | | | ■■■ | | |
| eld closed by 2 small fastex buckles | Side zip allows access and visibily 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 *Skylotec* 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.

**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 | |
| 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" | 90c |
| EXTENDED LENGTH | 120cm /48" | 135cm /53" | 125cm /49.2" | 140 |
| MATERIAL | Nylon | Nylon | Nylon | Polyest |
| WEBBING WIDTH / Ø | 25mm / 1" | 13-20mm / 0.5-0.8" | 28mm / 1.1" | 25 |
| 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 |
| HARNESS TERMINATION | Inverted loop | Snap alloy carabiner | Snap alloy carabiner | Inver |
| TOOL-END TERMINATION | Sml steel ring | Inverted loop | Inverted loop | Sev |
| STANDARDS | ANSI | | | |
| NOTES | * The tear-away element de-ploys at 90kg of force.<br><br>Also available without terminal steel ring (as a sewn eye for your own carabiner/connector) | 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. | As per the Sawer with a more robust webbing but the same breakaway facility via the small integral carabiner. | Intergrated ruptures a (dropped op |
| WEBSITE | buckinghammfg.com | camp.it | camp.it | edel |

| ELRID saw ABS | HARKIE Chainsaw | HUSQVARNA Anti-Shock | HUSQVARNA 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 | |
| ■ | ■ | - | ■ | |
| ■ | ■ | ■ | ■ | |
| m /35.4" | 90cm /35.4" | 73cm /28.7" | 50cm /19.7" | |
| cm/55.1" | 130cm /51" | 135cm /53" | 125cm /49.2" | |
| ter & Nylon | Polyester | Polyester & Nylon | Nylon | |
| mm/1" | 25mm/1" | 25mm/1" | 25mm / 1" | |
| g / 3.3oz | 110g/3.9oz | 140g/5oz | 140g / 4.9oz | |
| 44lb 240kg | 30kg /66lb | 20kg /44lb >200kg/440lb | 10kg /22lb 200kg | |
| eel ring | Steel ring | Alloy ring | Alloy ring | |
| rted loop | Loop | Shock absorber | Shock absorber | |
| wn eye | Inverted loop | Inverted loop + Alloy ring | Inverted loop + Alloy ring | |
| | | | | |
| d shock absorber at 2.4kN impact or trapped saw/ perator.) | | integrated shock absorber. Ruptures at 2 kn | General purpose, relatively short lanyard | |
| lrid.com | harkie.co.uk | husqvarna.com | husqvarna.com | |

**Images NOT to Scale**

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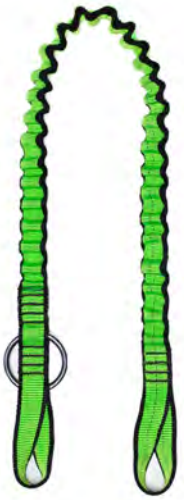
For reference 1kN=102kg of force or 225 pound-force



| 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 | - |
| HARNESS 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**

## *Your essential news source for the tree care industry.*

Frank doesn't miss a month, because he knows that his boss wants him to be up on all the latest news and events! There might be a couple of issues at the office for everyone to read – but if you, like Frank, don't want to share, you can get your paws on your very own copy delivered to your doorstep every month for free!

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**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 | NEVER LET GO | NEVER LET GO | NOTCH | NO |
|---|---|---|---|---|
| MODEL VARIANT | Super Bungee Chainsaw | Super Bungee Tool | Quick Cinch Sml | Quick C |
| PRODUCT CODE | 101610 101623 | 101419 | NQCCL-17 | NQC |
| ORIGIN | | | | |
| COST approx retail inc tax | £4465 $6088 €5378 | £77 $104 €93 | £29 $33 €37 | £32 $ |
| BREAKAWAY | no | no | no | n |
| CHAINSAW/HEAVY TOOL | ■ | ■ | ● | |
| LIGHT CHAINSAW | ■ | ■ | ■ | |
| RETRACTED LENGTH | 80cm/31.5" | 160cm/63" | 80cm/31.5" | 80cm/ |
| EXTENDED LENGTH | 200cm/78" | 340cm/133" | 152cm/60" | 152cn |
| MATERIAL | Nylon | Nylon | Nylon | Nyl |
| WEBBING WIDTH / Ø | 25mm/1" | 25mm/1" | 17mm/0.8" | 25mr |
| WEIGHT | 110/3.9oz 210g/7.4oz | 345g/12.2oz | 230g / 8oz | 270g / |
| SWL MBS | 10kg / 22lbs | 20kg / 44lbs | 15kg / 33lbs | 25kg / |
| CONNECTER/SHORTEN | Sewn eye Steel ring | - | Steel ring | Steel |
| HARNESS TERMINATION | Loop | NOT for HARNESS | Inverted loop | Inverte |
| TOOL-END TERMINATION | Inverted Loop | Inverted Loop | Sml steel ring + sewn | Sml steel r |
| 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 a common prob climbers attemp a chainsaw that choked to the s d-shaped faster The quick cinch simple attachm having to girth h chainsaw to the d-ring. |
| WEBSITE | Neverletgo.com | Neverletgo.com | notchequipment.com | notchequip |

| TCH | NOTCH | PETZL |
|---|---|---|
| Cinch Lg | Modular | TOOLEASH |
| CL-25 | VSG99426 | S049AA00 |
| 37 €39 | £40 $40 €48 | £25 $35 €25 |
| o | ■ | no |
| ■ | ■ | - |
| ■ | ■ | ■ |
| /31.5" | 99cm /39" | 40cm/15.75" |
| n/60" | 167.6cm/66" | 105cm/41.3" * |
| lon | 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>blem faced by<br>pting to remove<br>has been<br>mall metal<br>ing buckle.<br>system allows<br>ent, without<br>nitch your<br>small metal | Clip-on tool lanyards allow for fast-switching between tools. | * This extends to up to 120cm with the addition of one of three sizes of optional leash extensions to make switching between tools easier. |
| pment.com | notchequipment.com | petzl.com |

**Images NOT to Scale**

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For reference 1kN=102kg of force or 225 pound-force

| BRAND | REECOIL | REECOIL | REECOIL | ROC |
|---|---|---|---|---|
| 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 | | * equates to 12kg dropped 1.5m to remain below the WLL of 107kg/235lb.<br><br>Designed for heavier, rear-handled saws. Once girth-hitched to the handle there is a carabiner eye protruding for direct harness attachment | Carabiner not included<br><br>Available in Pink ■ for Breast-Cancer Foundation | Carabi<br><br>Also available |
| WEBSITE | reecoil.com | reecoil.com | reecoil.com | rockn |

# CHAINSAW LANYARDS

| K n ARB | SAFEWAZE | SINGING ROCK | SINGING ROCK | SKYLOTEC |
|---|---|---|---|---|
| aider | Med Heavy Duty Tether | Tool Holder | Tool Holder MAX | Stropp |
| - | 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 |
| ■ | ■ | - | ■ | ● |
| ■ | ■ | ■ | ■ | ■ |
| cm/36" | 127cm /50" 66.6" | 70cm /33.5" | 85cm /33.5" | 70cm/27.6" |
| 7cm/50" | 168cm /66" 80.5" | 130cm /51" | 150cm / 59" | 120cm/47.2" |
| Nylon | Polyester | Nylon & Polyester | Nylon & Polyester | Polyester |
| 5mm/1" | 25mm/1" | 10mm/0.4" | 16mm/0.6" | 25mm/1" |
| 3g/7.2oz | 200g /7.1oz | 30g /1oz | 95g / 3.4oz | 120g/4.2oz |
| 3kg/15lb | 16kg/35lb | 3kg/6.6lb 25kg/55lb | 10kg/22lb 300kg/660lb | 10kg/22lb |
| eel ring | - | Stainless steel ring | Stainless steel ring | Steel ring |
| rted loop | Inverted loop | Sewn eye | Sewn eye | Loop |
| eye + alu | Captive Swivel Carabi-ner | Inverted loop | Inverted loop | Sml steel ring |
| | ANSI-ISEA-121 | | | |
| ner included<br>e in Neon Green ■ | 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. |
| arbor.com | safewaze.com | singingrock.com | singingrock.com | skylotec.com |

**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 | STEIN | TANGO | TANGO | TEUFE |
|---|---|---|---|---|
| MODEL VARIANT | Bungee Tool Lanyard | Slim | Vario Plus | Anti-Shoc |
| PRODUCT CODE | 5060483280110 | 15012340005 | 15012340010 | |
| ORIGIN | | | | |
| COST approx retail inc tax | £22 $30 €26 | £20 $35 €21 | £41 $54 €48 | £5064 $ |
| BREAKAWAY | no | ■ | ■ | |
| CHAINSAW/HEAVY TOOL | ■ | ■ | ■ | |
| LIGHT CHAINSAW | ■ | ■ | ■ | |
| RETRACTED LENGTH | 95cm /37.4" | 70cm /27.6" | 75cm /29.5" | 73cr |
| EXTENDED LENGTH | 140cm /55" | 140cm /55" | 140cm /55" | 135c |
| MATERIAL | Treated Nylon | Polyester | Polyester | Polyest |
| WEBBING WIDTH / Ø | 25mm/1" | 15mm/0.6" | 15mm/0.6" | 25 |
| WEIGHT | 140g/5oz | 72g/2.5oz | 107g/3.8oz | 14 |
| SWL MBS | 20kg /44lb | 70-140*kg /154-308lb | 70kg /154lb | 20 >224 |
| CONNECTER/SHORTEN | Steel ring | Steel ring | Steel ring | All |
| HARNESS TERMINATION | Inverted loop | Loop | Small loop + 2x sml rings | Shock abs |
| TOOL-END TERMINATION | Inverted loop | 1 or 2 small rings | Detachable loop | Inverted lo |
| STANDARDS | | | | |
| NOTES | Nylon is treated to be water, oil and grease repellant | *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 *Teufelberge* lanyard was the carrying lanyar shock absorber falls or gets stu (static) reaches absorber tears after 70 cm of p the shock of up climber's harne *MBS from 224 |
| WEBSITE | steininternational.com | drayer.de | drayer.de | teufelb |

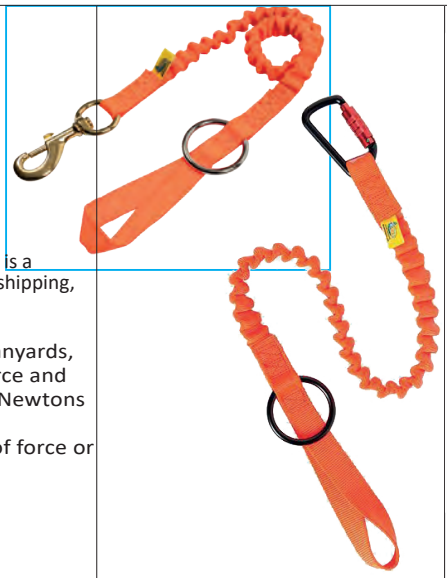
| ELBERGER | TREEHOG | TREEHOG | TREEHOG | TREERUNNER |
|---|---|---|---|---|
| ck Ring +Krab | Standard | Heavy Duty | Mini loop Clip | Chainsaw Strop/overload |
| | TH1111 | TH1112 | TH11156 | 71-778 |
| | | | | |
| 6685 €5875 | £16 $20 €21 | £26 $35 €30 | £14 $19 €15 | £14 $19 €20 |
| ■ | no | no | no | ■ |
| ■ | ■ | ■ | ● | ■ |
| ■ | ■ | ■ | ■ | ■ |
| m /28.7" | 85cm /34" | 90cm /35.4" | 70cm/27.6" | 68cm / 27" |
| cm /53.1" | 120cm /48" | 130cm /51.2" | 130cm /51.2" | 115cm / 45" |
| ter & Nylon | Polyester | Polyester | Polyester | Polyester |
| mm/1" | 25mm/1" | 25mm/1" | 25mm / 1" | 15mm / 0.6" |
| 0g/5oz | 110g/3.9oz | 213g/7.5oz | 190g/7.5oz | 120g/4.2oz |
| kg /44lb<br>kg/494lb* | 30kg /66lb | 30kg /66lb | 30kg /66lb | 35-70kg /77-lb |
| oy ring | Steel ring | Steel ring | Steel ring | Steel ring |
| sorber-Option<br>crab | Loop | Loop | Loop | Loop |
| oop + sml steel<br>ring | Inverted loop | Inverted loop | Inverted loop | Sewn eye+1 or 2 sml rings |
| | | | | |
| r *Antishock* tool<br>e first chainsaw<br>d with an integrated<br>. If the chainsaw<br>ck and the impact<br>2 kn, the antishock<br>open completely<br>pull to mitigate<br>to 1.5 Kn on the<br>ess.<br>4 to 240kg of force. | | | | Breakaway rings can be used together to double the 35kg limit to 70kg |
| berger.com | treehog.co.uk | treehog.co.uk | treehog.co.uk | grube.eu |

**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 | 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 |
| HARNESS 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><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 |

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THINK ADVANTAGE**

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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

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 f 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 coverall 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.

*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.*

**Images below NOT to scale**

## CHARGERS

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 Sthl 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.

## 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 strimmers

■= **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

ⓘ=**Special Tools** - Other rescue-specific equipment detailed in the NOTES section

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.

NEW

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**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<br>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 | LEN |
|---|---|---|---|---|---|---|---|---|---|---|
| | 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 |

| NGTH | WIDTH | DEPTH | RECHARGE Min to Max Time Charger-dependant / No of CHARGE CYCLES | MULTI CHARGERS | REPRESENTATIVE ENDURANCE | WARRANTY (Years) | LED CHARGE STATUS | IN-USE COOLING | WfFi/BLUETOOTH | IPRATING (WATERPROOF) | OP TEMPERATURE °C°F | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 77mm 7" | 89mm 3.5" | 45mm 1.8" | 30-90-mins 1500 | 2 & 4-port Standard 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 7" | 89mm 3.5" | 45mm 1.8" | 30-90-mins | 2 & 4-port Standard Rapid | | | ■ | - | - | - | - | | dewalt.com |
| 54mm 10" | 114mm 4.5" | 75mm 3" | 60-mins | 2 & 4-port Standard Rapid | | | ■ | - | - | - | - | | dewalt.com |
| 78mm 7" | 89mm 3.5" | 45mm 1.8" | 45-90mins | 2 & 4-port Standard Rapid | | | ■ | - | - | - | - | | dewalt.com |
| 78mm 7" | 89mm 3.5" | 75mm 3" | 60-185mins | 2 & 4-port Standard Rapid | | | ■ | - | - | - | - | | dewalt.com |
| 78mm 7" | 89mm 3.5" | 75mm 3" | 90mins | 2 & 4-port Standard Rapid | | | ■ | - | - | - | - | | dewalt.com |
| 78mm 7" | 89mm 3.5" | 75mm 3" | 90mins | 2 & 4-port Standard Rapid | | | ■ | - | - | - | - | | dewalt.com |
| 78mm 7" | 89mm 3.5" | 75mm 3" | 60mins | 2 & 4-port Standard Rapid | | | ■ | - | - | - | - | | dewalt.com |
| 78mm 7" | 89mm 3.5" | 75mm 3" | 60mins | 2 & 4-port Standard Rapid | | | ■ | - | - | - | - | | dewalt.com |
| 78mm 7" | 89mm 3.5" | 75mm 3" | | 2 & 4-port Standard Rapid | | | ■ | - | ✱ | - | - | Also available as an oil-resistant version. Bluetooth is an option | dewalt.com |
| 78mm 7" | 89mm 3.5" | 00mm 00" | | 2 & 4-port Standard Rapid | | | ■ | - | ✱ | - | - | Bluetooth is an option | dewalt.com |

| 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<br>NB: 20v/60v in the US is 18v/54v in Europe | COMPANY | FITS TOOLS FOR:... | ORIGIN | COST inc tax / VAT | WEIGHT | BATTERY TYPE<br>VOLTAGE | AmpHours Ah | Energy/ Work-Hours Wh | LEN |
|---|---|---|---|---|---|---|---|---|---|---|
| | 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 | 0<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 |

| NGTH | WIDTH | DEPTH | RECHARGE Min to Max Time Charger-dependant / No of CHARGE CYCLES | MULTI CHARGERS | REPRESENTATIVE ENDURANCE | WARRANTY (Years) | LED CHARGE STATUS | IN-USE COOLING | WFfi/BLUETOOTH | IPRATING (WATERPROOF) | OP TEMPERATURE °C°F | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 37mm 7.4" | 34mm 1.3" | 46mm 1.8" | 60mins | | | | ■ | - | - | - | - | | dewalt.com |
| 37mm 7.4" | 150mm 5.9" | 66mm 2.62" | 75mins | multi voltage charger | 70cuts 4x4 PT Spruce | | ■ | - | - | - | - | Enhanced power to weight/Ah ratio +50% | dewalt.com |
| | | | | | | | | | | | | | |
| 25mm 4.9" | 85mm 3.3" | 90mm 3.5" | 40-90mins | | | | - | - | - | - | - | | dewalt.com |
| 88mm .433 | 87mm 3.543" | 97mm 3.813" | 60-140mins | | | | - | - | - | - | - | | dewalt.com |
| 88mm .433" | 87mm 3.543" | 97mm 3.813" | 80-180mins | | | | ■ | - | - | - | - | | dewalt.com |
| 92mm 563" | 111mm 4.375" | 97mm 3.813" | 100-233mins | | | | ■ | - | - | - | - | | dewalt.com |
| 0mm 00" | 00mm 00" | 00mm 00" | 30mins | | | | - | - | - | - | - | discontinued | dewalt.com |
| 84mm .25" | 137mm 5.375" | 126mm 4.938" | 90mins | | | | ■ | - | - | - | - | | dewalt.com |
| 84mm .25" | 137mm 5.375" | 126mm 4.938" | 130mins | | | | ■ | - | - | - | - | | dewalt.com |
| 84mm .25" | 137mm 5.375" | 126mm 4.938" | 60mins | | | | - | - | - | - | - | | dewalt.com |

| 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<br>NB: 20v/60v in the US is 18v/54v in Europe | COMPANY | FITS TOOLS FOR:... | ORIGIN | COST inc tax / VAT | WEIGHT | BATTERY TYPE<br>VOLTAGE | AmpHours Ah | Energy/ Work-Hours Wh | LEN |
|---|---|---|---|---|---|---|---|---|---|---|
| | E-Force<br>LBP-36-80 | ECHO | ■ | | £145<br>$00<br>€00 | 1.8kg<br>2.2lb | Li ion<br>36/40v | 2Ah | 150 Wh | |
| | E-Force<br>LBP-36-150 | ECHO | ■ | | £145<br>$00<br>€00 | 1.8kg<br>3.9lb | Li ion<br>36/40v | 4Ah | 150 Wh | 0( |
| | E-Force<br>LBP-56V125<br>LBP-50-150 | ECHO | ■<br>■ | | £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 |
| | E-Force<br>LBP-56V250<br>LBP-50-250 | ECHO | ■<br>■ | | £290<br>$250<br>€300 | 1.8kg<br>4lb | Li ion<br>56/50.4v | 4.5/5Ah | 252 Wh | 18<br>7 |
| | E-Force<br>LBP-56V400A<br>LBP-50-400 | ECHO | ■<br>■ | | £299<br>$350<br>€356 | | Li ion<br>56/50.4v | 9Ah | 400 Wh | 222<br>8 |
| | ARC 56v<br>BA1400T | EGO | ■<br>■ | | £120<br>$187<br>€0 | 1.3g<br>2.9lb | Li ion<br>56v | 2.5Ah | 140 Wh | 19<br>7 |
| | ARC 56v<br>BA2242T | EGO | ■<br>■ | | £190<br>$330<br>€0 | 2.1kg<br>4.7lb | Li ion<br>56v | 4Ah | 224 Wh | 19<br>7 |
| | ARC 56v<br>BA2800T | EGO | ■<br>■ | | £240<br>$330<br>€0 | 2.25g<br>5lb | Li ion<br>56v | 5Ah | 280 Wh | 19<br>7 |
| | ARC 56v<br>BA3360T | EGO | ■<br>■ | | £0<br>$0<br>€0 | 2.8g<br>6.2lb | Li ion<br>56v | 6Ah | 336 Wh | 19<br>7 |
| | ARC 56v<br>BA4200T | EGO | ■<br>■ | | £0<br>$0<br>€0 | 2.9kg<br>6.4lb | Li ion<br>56v | 7.5Ah | 420 Wh | 19<br>7 |
| | ARC 56v<br>BA4480T | EGO | ■<br>■ | | £00<br>$00<br>€00 | 3kg<br>6.7lb | Li ion<br>56v | 8Ah | 448 Wh | 19<br>7 |

| NGTH | WIDTH | DEPTH | RECHARGE Min to Max Time Charger-dependant / No of CHARGE CYCLES | MULTI CHARGERS | REPRESENTATIVE ENDURANCE | WARRANTY (Years) | LED CHARGE STATUS | IN-USE COOLING | WiFi/BLUETOOTH | IPRATING (WATERPROOF) | OP TEMPERATURE °C°F | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 60mins | Standard | | | ■ | - | - | | | | echotools.com |
| 0mm<br>00" | 00mm<br>00" | 00mm<br>00" | 120mins | Standard | | | ■ | - | - | | | | echotools.com |
| 34mm<br>.24" | 88mm<br>3.46" | 66mm<br>2.6" | 38-75mins | Dual-port.<br>Rapid.<br>Ultra-Rapid. | | | ■ | - | - | | 0-45<br>32-113 | | echotools.com |
| 34mm<br>.24" | 88mm<br>3.46" | 100mm<br>3.96" | 60-150mins | Dual-port.<br>Rapid.<br>Ultra-Rapid. | | | ■ | - | - | | 0-45<br>32-113 | NB: will not fit 2500T Top-handle CSaw | echotools.com |
| 2.2mm<br>.75" | 88mm<br>3.46" | 107mm<br>4.25" | 60-225mins | Dual-port<br>Rapid.<br>Ultra-Rapid. | | | ■ | - | - | | 0-45<br>32-113 | NB: will not fit 2500T Top-handle CSaw | echotools.com |
| 95mm<br>.67" | 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" with 12" bar C'Saw | 3 | ■ | - | BT | X4 | | 2Ah DISCONTINUED<br>*An off grid, remote charging bank for 2 batteries at a time | egopowerplus.com |
| 95mm<br>.67" | 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" with 12" bar C'Saw | 3 | ■ | | BT | X4 | | *An off grid, remote charging bank for 2 batteries at a time | egopowerplus.com |
| 95mm<br>.67" | 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" with 12" bar C'Saw | 3 | ■ | | BT | X4 | | *An off grid, remote charging bank for 2 batteries at a time | egopowerplus.com |
| 95mm<br>.67" | 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" with 12" bar CSX3000 C'Saw | 3 | ■ | - | BT | X4 | | *An off grid, remote charging bank for 2 batteries at a time | egopowerplus.com |
| 95mm<br>.67" | 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" with 12" bar C'Saw | 3 | ■ | | BT | X4 | | *An off grid, remote charging bank for 2 batteries at a time | egopowerplus.com |
| 95mm<br>.67" | 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" with 20" bar CSX5000 C'Saw | 3 | ■ | | | X4 | | *An off grid, remote charging bank for 2 batteries at a time | egopowerplus.com |

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=CSaw =Trade-Tools =DiscCutter
=OPE =Rescue Tools =Lighting
ⓘ=Special Tools
●=PARTIAL FEATURE
= Option

| | SERIES MODEL<br>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 | LEN |
|---|---|---|---|---|---|---|---|---|---|---|
| | ARC 56v<br>BA5600T | EGO | | | £470<br>$00<br>€00 | 3.5kg<br>7.7lb | Li ion<br>56v | 10Ah | 560 Wh | 19<br>7 |
| | ARC 56v<br>BA6720T | EGO | | | £560<br>$00<br>€00 | 3.65kg<br>8lb | Li ion<br>56v | 12Ah | 672 Wh | 19<br>7 |
| | 24v<br>G24B2 /<br>2926707 | GREENWORKS | | | £0<br>$0<br>€75 | 500g<br>1.1lb | Li ion<br>24v | 2Ah | 43.6 Wh | |
| | 24v<br>G24B2 /<br>2926707 | GREENWORKS | | | £0<br>$0<br>€0 | 500g<br>1.1lb | Li ion<br>24v | 2Ah | 43.6 Wh | |
| | 24v<br>G24B2 /<br>2926707 | GREENWORKS | | | £0<br>$0<br>€0 | 500g<br>1.1lb | Li ion<br>24v | 4Ah | 000 Wh | |
| | 24/48v<br>BAM706 | GREENWORKS | | | £0<br>$100<br>€0 | 789g<br>1.74lb | Li ion<br>24-48v | 2Ah | 86.4 Wh | |
| | 24v<br>BAM704 | GREENWORKS | | | £0<br>$150<br>€0 | 1.4kg<br>3.17lb | Li ion<br>24-48v | 4Ah | 172.8 Wh | |
| | 24/48v<br>48B4AH | GREENWORKS | | | £0<br>$180<br>€0 | 1.4kg<br>3.17lb | Li ion<br>24-48v | 4Ah | 172.8 Wh | |
| | 60v<br>60BD200 | GREENWORKS | | | £0<br>$0<br>€145 | 1.24g<br>2.7lb | Li ion<br>60v | 2Ah | `120 Wh | |
| | 60v<br>G60B4 /<br>2918407 | GREENWORKS | | | £0<br>$180<br>€0 | 1.9g<br>4.2lb | Li ion<br>60v | 4Ah | 240 Wh | |
| | 60v<br>G60B4 /<br>2918407 | GREENWORKS | | | £0<br>$0<br>€0 | 0g<br>0lb | Li ion<br>60v | 6Ah | 324 Wh | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 95mm .67" | 157mm 6.2" | 109mm 4.3" | 70-190mins | 2,3 &6-port. Power Bank* Standard Rapid Turbo | 600 cuts in 2x2" with 12" bar C'Saw | 3 to 5 | ■ | - | - | X4 | | *An off grid, remote charging bank for 2 batteries at a time | egopowerplus.com |
| 95mm .67" | 157mm 6.2" | 109mm 4.3" | 75-230mins | 2,3 &6-port. Power Bank* Standard Rapid Turbo | 720 cuts in 2x2" with 12" bar C'Saw | 3 to 5 | ■ | - | - | X4 | | *An off grid, remote charging bank for 2 batteries at a time | egopowerplus.com |
| | | | 60mins | Dual-port Standard | | | | | | 67 | | Waterproof | greenworkstools.com greenworkstools.eu |
| | | | 60mins | Dual-port Standard | | | | | | | | | greenworkstools.com greenworkstools.eu |
| | | | 60mins | Dual-port Standard | | - | | | | | | | greenworkstools.com greenworkstools.eu |
| | | | 30mins | Dual-port Standard | | - | | | | | | | greenworkstools.com greenworkstools.eu greenworkscommercial.com |
| | | | 60mins | Dual-port Standard | | - | | | | | | | greenworkstools.com greenworkstools.eu greenworkscommercial.com |
| | | | 120mins | | | - | | | | | | | greenworkstools.com greenworkstools.eu greenworkscommercial.com |
| | | | <60mins | | | - | | | | | | | greenworkstools.com greenworkstools.eu greenworkscommercial.com |
| | | | <120mins | | | - | | | | | | | greenworkstools.com greenworkstools.eu greenworkscommercial.com |
| | | | <120mins | | | - | | | | | | | greenworkstools.com greenworkstools.eu greenworkscommercial.com |

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|---|---|---|---|---|---|---|---|---|---|---|
| | Commercial 82BD250 | GREENWORKS | | | | | Li ion 82v | 2.5Ah | | |
| | Commercial 82BD400 | GREENWORKS | | | | | Li ion 82v | 4Ah | | |
| | Commercial- 82BD500 | GREENWORKS | | | £145 $495 €00 | 1.8kg 2.2lb | Li ion 82v | 5Ah | 656 Wh | 0 |
| | Commercial 82BD600 | GREENWORKS | | | | | Li ion 82v | 6Ah | | |
| | Power+ 82BD750 | GREENWORKS | | | £145 $495 €00 | 1.8kg 2.2lb | Li ion 82v | 7.5/8Ah | 656 Wh | 0 |
| | Commercial 82BD1000 | GREENWORKS | | | | | Li ion 82v | 10Ah | | |
| | Commercial 82BD1200 | GREENWORKS | | | | | Li ion 82v | 10Ah | | |
| | | | | | | | | | | |
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | 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 |
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■=CSaw ■=Trade-Tools ■=DiscCutter ■=OPE ■=Rescue Tools ■=Lighting
ⓘ=Special Tools
●=PARTIAL FEATURE
□□□= Option

| | SERIES MODEL<br>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 | LEN |
|---|---|---|---|---|---|---|---|---|---|---|
| | Aspire<br>P4A 18-B45 | HUSQVARNA | ■■ | | £70<br>$105<br>€90 | 360g<br>12.7oz | Li ion<br>18v | 2.5 Ah | 45 Wh | 11<br>4 |
| | Aspire<br>P4A 18-B72 | HUSQVARNA | ■■ | | £95<br>$135<br>€115 | 660g<br>1.4lb | Li ion<br>18v | 4 Ah | 72 Wh | 116<br>4 |
| | Aspire<br>P4A 18-B108 | HUSQVARNA | ■■ | | £120<br>$165<br>€115 | 800g<br>1.76lb | Li ion<br>18v | 6 Ah | 108 Wh | 13<br>5 |
| | 100<br>40-B70 | HUSQVARNA | ■■■■ | | £100<br>$135<br>€115 | 800g<br>1.76lb | Li ion<br>36v | 2 Ah | 75.6 Wh | 13<br>5 |
| | 100<br>40-B140 | HUSQVARNA | ■■■■ | | £150<br>$205<br>€170 | 1.25k<br>2.7lb | Li ion<br>36v | 4 Ah | 144 Wh | 13<br>5 |
| | BLi<br>BLi30 | HUSQVARNA | ■■■■ ⓘ | | £280<br>$310<br>€320 | 1.9kg<br>4.2lb | Li ion<br>36v | 7.5/7.7 Ah | 270 Wh | 13<br>5 |
| | BLi<br>BLi100 | HUSQVARNA | ■■■■ ⓘ | | £170<br>$230<br>€195 | 840g<br>1.85lb | Li ion<br>36v | 2.6 Ah | 00 Wh | 13<br>5 |
| | BLi<br>BLi200 | HUSQVARNA | ■■■■ ⓘ | | £240<br>$325<br>€350 | 1.3kg<br>2.8lb | Li ion<br>36v | 5.2 Ah | 180 Wh | 13<br>5 |
| | BLi<br>BLi200X | HUSQVARNA | ■■■■ ⓘ | | £260<br>$350<br>€300 | 1.3kg<br>2.8lb | Li ion<br>36v | 5.2 Ah | 180 Wh | 13<br>5 |
| | BLi<br>BLi300 | HUSQVARNA | ■■■■ ⓘ | | £340<br>$460<br>€395 | 1.9kg<br>4.2lb | Li ion<br>36v | 9/9.4 Ah | 324 Wh | 15<br>5 |
| | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4mm 4.5" | 81mm 3.1" | 45mm 1.7" | | | | | - | - | - | - | - | Not technically a pro battery but will power a range of 18v trade tools - | husqvarna.com |
| 6.5mm 4.5" | 84mm 3.3" | 64mm 2.5" | | | | | - | - | - | - | - | | husqvarna.com |
| 2mm 5.2" | 117mm 4.6" | 98mm 3.8" | >600 | | | | - | - | - | - | - | | husqvarna.com |
| 2mm 5.2" | 117mm 4.6" | 98mm 3.8" | >600 | | | - | ■ | - | - | - | - | ⓘ Powered ascender/ winch | husqvarna.com |
| 2mm 5.2" | 117mm 4.6" | 98mm 3.8" | >600 | | | - | ■ | - | - | - | - | ⓘ Powered ascender/ winch | husqvarna.com |
| 2mm 5.2" | 155mm 6.1" | 98mm 3.8" | >600 | 8-bank | | - | ■ | - | - | - | - | ⓘ Powered ascender/ winch | husqvarna.com |
| 2mm 5.2" | 115.6mm 4.5" | 98mm 3.8" | 1500 | | | - | ■ | - | - | - | - | ⓘ Powered ascender/ winch | husqvarna.com |
| 2mm 5.2" | 115.6mm 4.5" | 98mm 3.8" | 1500 | | | - | ■ | - | - | - | - | ⓘ Powered ascender/ winch | husqvarna.com |
| 2mm 5.2" | 115.6mm 4.5" | 98mm 3.8" | 1500 | | | - | ■ | - | - | - | - | ⓘ Powered ascender/ winch | husqvarna.com |
| 5mm 5.2" | 115.6mm 4.5" | 98mm 3.8" | | | | - | ■ | - | - | - | - | ⓘ Powered ascender/ winch | husqvarna.com |
| | | | | | | | | | | | | | |

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| | SERIES MODEL<br>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 | LEN |
|---|---|---|---|---|---|---|---|---|---|---|
| | BLiX<br>40-B140X | HUSQVARNA | ■■■■ ⓘ | | £210<br>$<br>€ | 800g<br>1.76lb | Li ion<br>36v | 4 Ah | 75.6 Wh | 13<br>5 |
| | BLiX<br>40-B220X | HUSQVARNA | ■■■■ ⓘ | | £310<br>$<br>€ | 1.4kg<br>3lb | Li ion<br>36v | 6 Ah | 216 Wh | 13<br>5 |
| | BLiX<br>40-B330X | HUSQVARNA | ■■■■ ⓘ | | £420<br>$560<br>€520 | 1.9kg<br>4.2lb | Li ion<br>36v | 9 Ah | 324 Wh | 15<br>6 |
| | BLiX<br>40-B540X | HUSQVARNA | ■■■■ ⓘ | | £650<br>$000<br>€000 | 2.86kg<br>6.3lb | Li ion<br>36v | 15 Ah | 540 Wh | 15<br>6 |
| | Residential<br>KAB02 | KRESS | ■■■ | | £35<br>$00<br>€00 | 420g<br>00lb | Li ion<br>20v | 2 Ah | 36 Wh | 00<br>0 |
| | Residential<br>KAB04 | KRESS | ■■■ | | £50<br>$00<br>€00 | 660g<br>00lb | Li ion<br>20v | 4 Ah | 72 Wh | 00<br>0 |
| | Residential<br>KAB08 | KRESS | ■■■ | | £115<br>$00<br>€00 | 1kg<br>2.2lb | Li ion<br>20v | 8 Ah | 144 Wh | 00<br>0 |
| | Cyber System<br>KAC800 | KRESS | ■■■ | | £300<br>$00<br>€00 | 1.56kg<br>3.4lb | Li ion<br>60v | 4 Ah | 240 Wh | 00<br>0 |
| | Cyber System<br>KAC804 | KRESS | ■■■ | | £600<br>$00<br>€00 | 3kg<br>6.6lb | Li ion<br>60v | 4 Ah | 240 Wh | 00<br>0 |
| | Cyber System<br>KAC810 | KRESS | ■ | | £1400<br>$00<br>€00 | 7.7kg<br>17lb | Li ion<br>60v | 2.6 Ah | 660Wh | 00<br>0 |
| | Cyber System<br>KAC815 | KRESS | ■ | | £1500<br>$00<br>€00 | 8.1kg<br>18lb | Li-ion<br>60v | 25 Ah | 1500 Wh | 00<br>0 |

| NGTH | WIDTH | DEPTH | RECHARGE Min to Max Time Charger-dependant / No of CHARGE CYCLES | MULTI CHARGERS | REPRESENTATIVE ENDURANCE | WARRANTY (Years) | LED CHARGE STATUS | IN-USE COOLING | WfFi/BLUETOOTH | IPRATING (WATERPROOF) | OP TEMPERATURE °C°F | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2mm .2" | 117mm 4.6" | 98mm 3.85" | >600 | | | | ■ | | ■ | X4 | - | On-board temp gauge. ⓘ Powered ascender/ winch | husqvarna.com |
| 2mm .2" | 117mm 4.6" | 98mm 3.85" | | | | | ■ | | ■ | X4 | - | On-board temp gauge. ⓘ Powered ascender/ winch | husqvarna.com |
| 5mm .1" | 130.5mm 5.1" | 93mm 3.6" | | | | | ■ | | ■ | X4 | - | On-board temp gauge. ⓘ Powered ascender/ winch | husqvarna.com |
| 5mm .1" | 130.5mm 5.1" | 93mm 3.6" | | | | | ■ | | ■ | X4 | - | On-board temp gauge. ⓘ Powered ascender/ winch | husqvarna.com |
| 0mm 00" | 00mm 00" | 00mm 00" | 20-60 | 2-bank<br>2-bank Rapid<br>Standard | | | ■ | ■ | | - | - | | kress.com |
| 0mm 00" | 00mm 00" | 00mm 00" | 30-120 | 2-bank<br>2-bank Rapid<br>Standard | | | ■ | ■ | | - | - | | kress.com |
| 0mm 00" | 00mm 00" | 00mm 00" | 32-? | 2-bank<br>2-bank Rapid<br>Standard | | - | ■ | ■ | | - | - | | kress.com |
| 0mm 00" | 00mm 00" | 00mm 00" | 8 - 1200 | 2-bank<br>4-Bank<br>Standard<br>5kW Power Pack | | 5 | ■ | ■ | ■ | X5 | 5-40 | Ultra-fast charging | kress.com |
| 0mm 00" | 00mm 00" | 00mm 00" | 8 -12 3000 | 2-bank<br>4-Bank<br>Standard<br>5kW Power Pack | | 5 | ■ | ■ | ■ | X5 | 5-40 | Ultra-fast charging | kress.com |
| 0mm 00" | 00mm 00" | 00mm 00" | 8 -25 3000 | 2-bank<br>4-Bank<br>Standard<br>5kW Power Pack | | 8 | ■ | ■ | ■ | X5 | 5-40 | Mowers only<br>Ultra-fast charging | kress.com |
| 0mm 00" | 00mm 00" | 00mm 00" | 8 - 3000 | 2-bank<br>4-Bank<br>Standard<br>5kW Power Pack | | 8 | ■ | ■ | ■ | X5 | 5-40 | Mowers only<br>Ultra-fast charging | kress.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<br>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 | LEN |
|---|---|---|---|---|---|---|---|---|---|---|
| | Professional<br>KA3000 | KRESS | ■■■ | ■■■ | £120<br>$00<br>€00 | 1.55kg<br>3.4lb | Li ion<br>60v | 2 Ah | 108 Wh | 00<br>0 |
| | Professional<br>KA3002 | KRESS | ■■■ | ■■■ | £200<br>$00<br>€00 | 2.75kg<br>6.05lb | Li ion<br>60v | 4 Ah | 240 Wh | 00<br>0 |
| | Professional<br>KA3018 | KRESS | ■■■ | ■■■ | £370<br>$00<br>€00 | 0kg<br>0lb | Li ion<br>60v | 8 Ah | 144 Wh | 00<br>0 |
| | XGT<br>BL4020 | MAKITA | ■■■■ | ■ | £75<br>$00<br>€00 | 690g<br>1.5lb | Li ion<br>40v | 2 Ah | 72 Wh | 11<br>4 |
| | M18<br>BL4025 | MAKITA | ■■■■ | ■ | £90<br>$00<br>€00 | 710g<br>1.5lb | Li ion<br>40v | 2.5 Ah | 90 Wh | 11<br>4 |
| | XGT<br>BL4040F | MAKITA | ■■■■ | ■ | £150<br>$00<br>€00 | 1kg<br>2.2lb | Li ion<br>40v | 4 Ah | 144 Wh | 13<br>5. |
| | XGT<br>BL4050F | MAKITA | ■■■■ | ■ | £180<br>$00<br>€00 | 1.3kg<br>2.8lb | Li ion<br>40v | 5 Ah | 180 Wh | 15 |
| | XGT<br>BL4080F | MAKITA | ■■■■ | ■ | £265<br>$00<br>€00 | 1.9kg<br>4.2lb | Li ion<br>40v | 8 Ah | 288 Wh | 15 |
| | 36Liion<br>BL3622A | MAKITA | ■ | ■ | £00<br>$00<br>€00 | 1.33kg<br>2.9lb | Li ion<br>40v | 2.2 Ah | 80 Wh | 16<br>6 |
| | 36Liion<br>BL3626 | MAKITA | ■ | ■ | £00<br>$00<br>€00 | 1.34kg<br>2.95lb | Li ion<br>40v | 2.6 Ah | 94 Wh | 16<br>6 |
| | 36Liion<br>BL6440 | MAKITA | ■ | ■ | £00<br>$00<br>€00 | 2.2kg<br>4.4lb | Li-ion<br>64v | 4 Ah | 230.4 Wh | 19<br>7 |

| NGTH | WIDTH | DEPTH | RECHARGE Min to Max Time Charger-dependant / No of CHARGE CYCLES | MULTI CHARGERS | REPRESENTATIVE ENDURANCE | WARRANTY (Years) | LED CHARGE STATUS | IN-USE COOLING | WiFi/BLUETOOTH | IPRATING (WATERPROOF) | OP TEMPERATURE °C°F | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0mm 00" | 00mm 00" | 00mm 00" | 25-40mins | 2-bank Standard Rapid | | | ■ | ■ | - | - | - | | kress.com |
| 0mm 00" | 00mm 00" | 00mm 00" | 50-80mins | 2-bank Standard Rapid | | | ■ | ■ | - | - | - | | kress.com |
| 0mm 00" | 00mm 00" | 00mm 00" | ?mins | 2-bank Standard Rapid | | - | ■ | ■ | - | - | - | Not available in UK/Aus Canada or USA | kress.com |
| 8mm .6" | 77mm 3" | 65mm 2.5" | 22-30mins | 2-bank Rapid Standard Back/Power Pack | | | ■ | ■ | ● * | - | - | *Digital coms between battery and tool regarding staus and power draw etc. | makitatools.com |
| 8mm .6" | 77mm 3" | 65mm 2.5" | 28-38mins | 2-bank Rapid Standard Back/Power Pack | | | ■ | ■ | ● * | - | - | *Digital coms between battery and tool regarding staus and power draw etc. | makitatools.com |
| 3mm 23" | 82mm 3.22" | 71mm 2,8" | 45-67mins | 2-bank Rapid Standard Back/Power Pack | | - | ■ | ■ | ● * | - | - | *Digital coms between battery and tool regarding staus and power draw etc. | makitatools.com |
| 2mm 6" | 79mm 3.1" | 92mm 3.6" | 50-85mins | 2-bank Rapid Standard Back/Power Pack | | - | ■ | ■ | ● * | - | - | *Digital coms between battery and tool regarding staus and power draw etc. | makitatools.com |
| 2mm 6" | 85mm 3.3" | 94mm 3.7" | 76mins | 2-bank Rapid Standard Back/Power Pack | | - | ■ | ■ | ● * | - | - | *Digital coms between battery and tool regarding staus and power draw etc. | makitatools.com |
| 5mm .5" | 102mm 4" | 85mm 3.3" | | 2-bank Rapid Standard Back/Power Pack | | - | ■ | - | - | - | - | DISCONTINUED | makitatools.com |
| 2mm .3" | 102mm 4" | 85mm 3.3" | | 2-bank Rapid Standard Back/Power Pack | | - | ■ | - | - | - | - | DISCONTINUED | makitatools.com |
| 0mm .4" | 90mm 3.5" | 172mm 6.77" | | | | - | ■ | - | - | - | - | Mower only | makitatools.com |

| 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<br>NB: 20v/60v in the US is 18v/54v in Europe | COMPANY | FITS TOOLS FOR:... | ORIGIN | COST inc tax / VAT | WEIGHT | BATTERY TYPE<br>VOLTAGE | AmpHours Ah | Energy/ Work-Hours Wh | LEN |
|---|---|---|---|---|---|---|---|---|---|---|
| | LXT<br>BL1820B | MAKITA | | ● | £00<br>$00<br>€00 | 380g<br>13oz | Li ion<br>18v | 2 Ah | 36 Wh | 11<br>4 |
| | LXT<br>BL1830B | MAKITA | | ● | £00<br>$00<br>€00 | 640g<br>1.4lb | Li ion<br>18v | 3 Ah | 54 Wh | 11<br>4 |
| | LXT<br>BL1840B | MAKITA | | ● | £00<br>$00<br>€00 | 640g<br>1.4lb | Li ion<br>18v | 4 Ah | 72 Wh | 11<br>4 |
| | LXT<br>BL1850B | MAKITA | | ● | £00<br>$00<br>€00 | 640g<br>1.4oz | Li ion<br>18v | 5 Ah | 90 Wh | 11<br>4 |
| | LXT<br>BL1860B | MAKITA | | ● | £00<br>$00<br>€00 | 660g<br>1.45lb | Li ion<br>18v | 6 Ah | 108 Wh | 11<br>4 |
| | M18 Red Lithium<br>XC1.5 | MILWAUKEE | | | £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 | | | £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 | | | £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 | | | £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 | | | £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 | | | £00<br>$00<br>€00 | 1.03kg<br>2.27lb | Li ion<br>18v | 6 Ah | 00 Wh | 00<br>0 |

| NGTH | WIDTH | DEPTH | RECHARGE Min to Max Time Charger-dependant / No of CHARGE CYCLES | MULTI CHARGERS | REPRESENTATIVE ENDURANCE | WARRANTY (Years) | LED CHARGE STATUS | IN-USE COOLING FAN | WiFi/BLUETOOTH | IPRATING (WATERPROOF) | OPERATING TEMP °C°F | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3mm .4" | 75mm 3" | 45mm 00" | 22-45 mins | 2-bank Rapid Standard Back/Power Pack | | | ■ | - | - | - | - | | makitatools.com |
| 3mm .4" | 75mm 3" | 62mm 2.4" | 24-60 mins | 2-bank Rapid Standard Back/Power Pack | | | ■ | - | - | - | - | | makitatools.com |
| 3mm .4" | 75mm 3" | 62mm 2.4" | 36-90 mins | 2-bank Rapid Standard Back/Power Pack | | | ■ | - | - | - | - | | makitatools.com |
| 3mm .4" | 75mm 3" | 62mm 2.4" | 45-110 mins | 2-bank Rapid Standard Back/Power Pack | | | ■ | - | - | - | - | | makitatools.com |
| 3mm .4" | 75mm 3" | 62mm 2.4" | 55-130 mins | 2-bank Rapid Standard Back/Power Pack | | | ■ | - | - | - | - | | makitatools.com |
| 0mm 0" | 00mm 00" | 00mm 00" | 21 mins 21 mins 31 mins | 2,3,4 & 6-bank Super Rapid Standard | | - | ■ | - | - | - | -20 | | milwaukee.com |
| 0mm 0" | 00mm 00" | 00mm 00" | 27 mins 27 mins 42 mins | 2,3,4 & 6-bank Super Rapid Standard | | - | ■ | - | - | - | -20 | | milwaukee.com |
| 0mm 0" | 00mm 00" | 00mm 00" | 34 mins 34 mins 57 mins | 2,3,4 & 6-bank Super Rapid Standard | | - | ■ | - | - | - | -20 | | milwaukee.com |
| 0mm 0" | 00mm 00" | 00mm 00" | 48 mins 48 mins 76 mins | 2,3,4 & 6-bank Super Rapid Standard | | - | ■ | - | - | - | -20 | | milwaukee.com |
| 0mm .1" | 50mm 2" | 80mm 3.1" | 60 mins 60 mins 105 mins | 2,3,4 & 6-bank Super Rapid Standard | | - | ■ | - | - | - | -20 | | milwaukee.com |
| 0mm 0" | 00mm 00" | 00mm 00" | 70 mins 70 mins 125 mins | 2,3,4 & 6-bank Super Rapid Standard | | - | ■ | - | - | - | -20 | | milwaukee.com |

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|---|---|---|---|---|---|---|---|---|---|---|
| | MX Fuel<br>RedLithium Forge XC8 | MILWAUKEE | | | £00<br>$00<br>€1154 | 4.4kg<br>9.8lb | Li ion<br>00v | 8 Ah | 00 Wh | 27<br>1( |
| | MX Fuel<br>RedLithium Forge XC12 | MILWAUKEE | | | £00<br>$00<br>€1546 | 0g<br>0oz | Li ion<br>00v | 12 Ah | 00 Wh | 0(<br>( |
| | M18 Red Lithium<br>High Output CP3 | MILWAUKEE | | | £130<br>$120<br>€166 | 0g<br>0oz | Li ion<br>18v | 3 Ah | 00 Wh | 0(<br>( |
| | M18 Red Lithium<br>High Output XC5.5 | MILWAUKEE | | | £197<br>$00<br>€00 | 0g<br>0oz | Li ion<br>18v | 5.5 Ah | 00 Wh | 0(<br>( |
| | M18 Red Lithium<br>High Output XC6 | MILWAUKEE | | | £00<br>$00<br>€00 | 0g<br>0oz | Li ion<br>18v | 6 Ah | 00 Wh | 0(<br>( |
| | M18 Red Lithium<br>High Output XC8 | MILWAUKEE | | | £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 | | | £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 | | | £00<br>$00<br>€00 | 0g<br>0oz | Li ion<br>18v | 5 Ah | 00 Wh | 0(<br>( |
| | M18 Red Lithium<br>Forge XC6 | MILWAUKEE | | | £311<br>$00<br>€00 | 0g<br>0oz | Li ion<br>18v | 6 Ah | 00 Wh | 0(<br>( |
| | M18 Red Lithium<br>Forge XC8 | MILWAUKEE | | | £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 | | | £270<br>$250<br>€361 | 1.54kg<br>3.4lb | Li ion<br>18v | 12 Ah | 00 Wh | 14<br>5 |

| NGTH | WIDTH | DEPTH | RECHARGE Min to Max Time Charger-dependant<br>No of CHARGE CYCLES | MULTI CHARGERS | REPRESENTATIVE ENDURANCE | WARRANTY (Years) | LED CHARGE STATUS | IN-USE COOLING FAN | WFFi/BLUETOOTH | IPRATING (WATERPROOF) | OP TEMPERATURE °C°F | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 74mm<br>0.8" | 180mm<br>7.1" | 96mm<br>3.8" | 45mins | RedLi Super | | | ■ | ■ | ■ | | | | milwaukee.com |
| 0mm<br>00" | 00mm<br>00" | 00mm<br>00" | 0 mins | | | | ■ | ■ | ■ | | | | milwaukee.com |
| 0mm<br>00" | 00mm<br>00" | 00mm<br>00" | 35 mins<br>35 mins<br>65 mins | 2,3,4 & 6-bank<br>Super<br>Rapid<br>Standard | | | ■ | - | - | - | -28 | | milwaukee.com |
| 0mm<br>00" | 00mm<br>00" | 00mm<br>00" | 35 mins<br>35 mins<br>65 mins | 2,3,4 & 6-bank<br>Super<br>Rapid<br>Standard | | | ■ | - | - | - | -28 | | milwaukee.com |
| 0mm<br>00" | 00mm<br>00" | 00mm<br>00" | 35 mins<br>65 mins<br>123 mins | 2,3,4 & 6-bank<br>Super<br>Rapid<br>Standard | | | ■ | - | - | - | -28 | | milwaukee.com |
| 38mm<br>.46" | 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 |
| 52mm<br>.99" | 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 |
| 0mm<br>00" | 00mm<br>00" | 00mm<br>00" | 0 mins | 2,3,4 & 6-bank<br>Super<br>Rapid<br>Standard | | - | ■ | - | - | - | -28 | | milwaukee.com |
| 0mm<br>00" | 00mm<br>00" | 00mm<br>00" | 0 mins | 2,3,4 & 6-bank<br>Super<br>Rapid<br>Standard | | - | ■ | - | - | - | -28 | | milwaukee.com |
| 95mm<br>5.6" | 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 |
| 47mm<br>5.8" | 0mm<br>00" | 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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■=CSaw ■=Trade-Tools ■=DiscCutter
■=OPE ■=Rescue Tools ■=Lighting
ⓘ=Special Tools
●=PARTIAL FEATURE
□□□= Option

| | SERIES MODEL<br>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 | LEN |
|---|---|---|---|---|---|---|---|---|---|---|
| | Power Now<br>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<br>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<br>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<br>AK 10 | STIHL | ■ | 🇩🇪 | £119<br>$00<br>€00 | 800g<br>1.76lb | Li ion<br>36v | 1 Ah | 72 Wh | 0<br>( |
| | AK<br>AK 20 | STIHL | ■ | 🇩🇪 | £120<br>$00<br>€00 | 1.2g<br>2.64lb | Li ion<br>36v | 2 Ah | 144 Wh | 0<br>( |
| | AK<br>AK30 | STIHL | ■ | 🇩🇪 | £140<br>$00<br>€00 | 1.3kg<br>2.86lb | Li ion<br>36v | 3 Ah | 180 Wh | 0<br>( |
| | AP (Pro)<br>AP 100 | STIHL | ■■■■ⓘ | 🇩🇪 | £126<br>$00<br>€00 | 1.3kg<br>2.86lb | Li ion<br>36v | 2Ah | 94 Wh | 0<br>( |
| | AP (Pro)<br>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 | 0<br>( |
| | AP (Pro)<br>AP 300 | STIHL | ■■■■ⓘ | 🇩🇪 | £288<br>$00<br>€00 | 1.8kg<br>4lb | Li ion<br>36v | 3Ah | 227 Wh | 0<br>( |
| | AP (Pro)<br>AP 300 S | STIHL | ■■■■ⓘ | 🇩🇪 | £288<br>$00<br>€00 | 1.8kg<br>4lb | Li ion<br>36v | 7.2Ah | 281 Wh | 0<br>( |
| | AP (Pro)<br>AP 500 S | STIHL | ■■■■ⓘ | 🇩🇪 | £385<br>$00<br>€00 | 2kg<br>4.4lb | Li ion<br>00v | 8.8 Ah | 337 Wh | 0<br>( |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 70mm 6.6" | 105mm 4.1" | 50mm 1.9" | 30-90 mins ≥1000 | Rapid Standard | ≤250cuts @2-3" | | ■ | - | | | -20 40 -4 104 | | oregon.com |
| 70mm 6.6" | 105mm 4.1" | 50mm 1.9" | 55-135 mins ≥1000 | Rapid Standard | ≤400cuts @2-3" | | ■ | | | | -20 40 -4 104 | | oregon.com |
| 70mm 6.6" | 105mm 4.1" | 50mm 1.9" | 75-200 mins ≥1000 | Rapid Standard | ≤600cuts @2-3" | | ■ | | | | -20 40 -4 104 | | oregon.com |
| 0mm 00" | 00mm 00" | 00mm 00" | | | | | ■ | - | - | - | - | | stihl.com |
| 0mm 00" | 00mm 00" | 00mm 00" | | | | | ■ | - | - | - | - | | stihl.com |
| 0mm 00" | 00mm 00" | 00mm 00" | | | | - | ■ | - | - | - | - | | stihl.com |
| 0mm 00" | 00mm 00" | 00mm 00" | | | | - | ■ | - | - | X4 | - | ⓘ Powered ascender/ winch | stihl.com |
| 0mm 00" | 00mm 00" | 00mm 00" | 45-200 mins | | 161T CSaw-42mins | - | ■ | - | ■ | X4 | - | ⓘ Powered ascender/ winch 200S=Wifi-capable | stihl.com |
| 0mm 00" | 00mm 00" | 00mm 00" | 75-250 mins | | 161T CSaw-50mins | - | ■ | - | - | X4 | - | ⓘ Powered ascender/ winch | stihl.com |
| 0mm 00" | 00mm 00" | 00mm 00" | 45-300 mins | | 161T CSaw-60mins | - | ■ | - | □ | X4 | - | ⓘ Powered ascender/ winch 300S has Wifi-option | stihl.com |
| 0mm 00" | 00mm 00" | 00mm 00" | 55-355 mins 2530 over 10yrs | | 161T CSaw-74mins | - | ■ | - | - | X4 | - | | stihl.com |

| 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 ■=OPE ■=Rescue Tools ■=Lighting<br>ⓘ=Special Tools<br>●=PARTIAL FEATURE<br>□□□= Option | SERIES<br>MODEL<br>NB: 20v/60v in the US is 18v/54v in Europe | COMPANY | FITS TOOLS FOR:... | ORIGIN | COST inc tax / VAT | WEIGHT | BATTERY TYPE<br>VOLTAGE | AmpHours Ah | Energy/ Work-Hours Wh | LEN |
|---|---|---|---|---|---|---|---|---|---|---|
| | OO<br>00 | HITACHI/ KOKI | | | £00<br>$00<br>€00 | 1.8kg<br>0oz | Li ion<br>36v | 3Ah | 227 Wh | 0( |
| | OO<br>00 | HITACHI/ KOKI | | | £00<br>$00<br>€00 | 1.8kg<br>0oz | Li ion<br>36v | 3Ah | 281 Wh | 0( |
| | OO<br>00 | HITACHI/ KOKI | | | £00<br>$00<br>€00 | 0g<br>0oz | Li ion<br>00v | 5 Ah | 337 Wh | 0( |
| | OO<br>00 | HITACHI/ KOKI | | | £00<br>$00<br>€00 | 0g<br>0oz | Li ion<br>00v | 0 Ah | 00 Wh | 0( |
| | OO<br>00 | HITACHI/ KOKI | | | £00<br>$00<br>€00 | 0g<br>0oz | Li ion<br>00v | 0 Ah | 00 Wh | 0( |
| | E-Power<br>E450 | STIGA | ■ | | £190<br>$00<br>€00 | 0g<br>0oz | Li ion<br>48v | 4 Ah | 00 Wh | 0( |
| | Max Flex-Force<br>L135 | TORO | | | £135<br>$00<br>€00 | 0g<br>0oz | Li ion<br>54/60v | 2.5 Ah | 135 Wh | 0( |
| | Max Flex-Force<br>L216 | TORO | | | £205<br>$00<br>€00 | 0g<br>0oz | Li ion<br>54/60v | 4 Ah | 216 Wh | 0( |
| | Max Flex-Force<br>L405 | TORO | | | £325<br>$00<br>€00 | 0g<br>0oz | Li ion<br>54/60v | 7.5 Ah | 405 Wh | 0( |
| | OO<br>00 | OO | | | £190<br>$00<br>€00 | 0g<br>0oz | Li ion<br>48v | 0 Ah | 00 Wh | 0( |
| | | | | | | | | | | |

| NGTH | WIDTH | DEPTH | RECHARGE Min to Max Time Charger-dependant<br>No of CHARGE CYCLES | MULTI CHARGERS | REPRESENTATIVE ENDURANCE | WARRANTY (Years) | LED CHARGE STATUS | IN-USE COOLING FAN | WfFi/BLUETOOTH | IPRATING (WAITERPROOF) | OP TEMPERATURE °C°F | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0mm 00" | 00mm 00" | 00mm 00" | | | | | ■ | | | | | | stihl.com |
| 0mm 00" | 00mm 00" | 00mm 00" | | | | | ■ | | | | | | stihl.com |
| 0mm 00" | 00mm 00" | 00mm 00" | | | | | ■ | | | | | | stihl.com |
| 0mm 00" | 00mm 00" | 00mm 00" | | | | | ■ | | | | | | OO.com |
| 0mm 00" | 00mm 00" | 00mm 00" | | | | | ■ | | | | | | OO.com |
| 0mm 00" | 00mm 00" | 00mm 00" | 120-220 mins<br>- | | | - | ■ | | | | | | OO.com |
| 0mm 00" | 00mm 00" | 00mm 00" | | | | - | ■ | | | | | | OO.com |
| 0mm 00" | 00mm 00" | 00mm 00" | | | | - | ■ | | | | | | OO.com |
| 0mm 00" | 00mm 00" | 00mm 00" | 60 mins<br>- | | | - | ■ | | | | | | OO.com |
| 0mm 00" | 00mm 00" | 00mm 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 glive 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.

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 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.

**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!

**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 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 all-leather or leather and cotton, may have a simple, open 'skirt' which many find more 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.

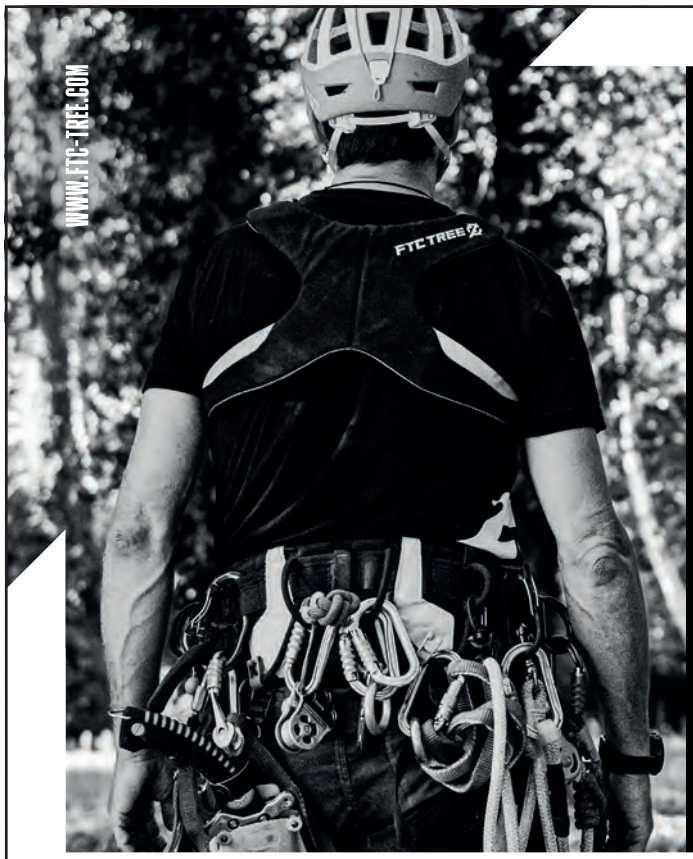
| size | inch* | cm* | size | inch* | cm* |
|---|---|---|---|---|---|
| XS | 7 | 18 | XS | 6 | 15 |
| S | 7.5 - 8 | 20 | S | 6.5 | 16.5 |
| M | 8.5 - 9 | 23 | M | 7 | 18 |
| L | 9.5 - 10 | 25 | M/L | 7.5 | 19 |
| XL | 10.5 - 11 | 28 | L | 8 | 20 |
| XXL | 11.5 - 12 | 30 | XL | 8.5 | 23 |

## 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 or12. 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 tacticle 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 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!




WORK HARD.
CLIMB HARD.
PLAY HARD.

To gear up for a hard day's work and end our day with a smile. That's our chance as arborists: to have a unique and thrilling job, the opportunity to mix working, climbing and playing!

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**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 Cut-resistance but not full chainsaw protection

| MODEL | COMPANY | ORIGIN | COST For 1x PAIR approx, rounded up inc. VAT/Tax | Update with Differentiated materials MATERIAL | SIZES | STANDA |
|---|---|---|---|---|---|---|
| **AT875** | ARBORTEC FORESTWEAR | UK | £48 $59 €55 | Cowhide, Polyester, Rubber, Kevlar | 8,9,10,11 | EN38 EN388 |
| **X-Pert** AT900 | ARBORTEC FORESTWEAR | UK | £47 $57 €54 | Leather | 79,9,10, 11,12 | EN38 EN388 |
| **XT Chainsaw** AT1550 | ARBORTEC FORESTWEAR | UK | £47 $57 €54 | Leather | 8,9,10,11 | EN38 EN388 |
| **Pro Climber** AT950/75 | ARBORTEC FORESTWEAR | UK | £42 $49 €51 | Leather | 8,9,10,11 | EN38 EN388 |
| Handguard | ARBPRO | IT | £00 $00 €35 | Griptech reinforced Goat leather Stretch Nylon | 8,9,10,11, 12 | EN388- EN4 |
| **Classic** CW400 | CUTTERS | UK | £23 $00 €00 | Full Grain leather, Cordura | 8,9,10,11 S,M,L,XL | EN38 |
| **Pro Winter** CW500 | CUTTERS | UK | £29 $00 €00 | Amara synthetic leather, Spandex, PVC, Thin-sulate | 8,9,10,11 S,M,L,XL | EN38 |
| **Pro Summer** CW600 | CUTTERS | UK | £25 $00 €00 | Amara synthetic leather, Spandex, PVC | 8,9,10,11 S,M,L,XL | EN38 |
| **Tegera** 951 | EJENDAL | SE | £39 $00 €00 | 1-1.2mm Cowhide, Polyester, Dyneema | 8,9,10,11 S,M,L,XL | EN38 EN388 |
| **Pro-Gloves** | ELVEX | US | $43 $00 €00 | Cowhide & Suede, Polyester fibres | M,L,XL | EN38 EN388 |

# CHAINSAW PROTECTIVE GLOVES

| | USES | | | | PROTECTION | | | | | | | | WRIST/CUFF | | | | FEATURES | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARDS | 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 | ALT CUT IMPACT | VELCRO | ELASTICATED | PULL-ON/HANG TAB | WATERPROOF | ENHANCED GRIP in WET | ANTI-VIBRATION | SWEAT-WIPE | PRE SHAPED | REINFORCED PALM | REINFORCED KNUCKLES | REINFORCED FINGERS | WARRANTY (YEARS) | OTHER COLOURS | NOTES | WWW. |
| 1-7<br>3222 | ■ | | | ■ | 1 | ■ | - | 3 | 3 | 4 | 2 | -<br>- | | □ | | □ | | ■ | ■ | | ■ | ■ | ■ | ? | ■<br>■<br>■ | Replaced the 850 Rubber palm grip. Reflective knuckle band.Kevlar stitching | arbortec.com |
| 1-7<br>3122 | ■ | | | | 1 | ■ | - | 2 | 2 | 3 | 2 | -<br>- | ■ | ■ | | ■ | | | | ■ | | | | | | AT500 Forester & AT950 Pro Climber have been discontinued. | arbortec.com |
| 1-7<br>3122 | ■ | ● | | | 0 | ■ | - | 3 | 1 | 2 | 2 | -<br>- | | | ■ | | ■ | | | ■ | ■ | ■ | | | | Hi-Viz, breathable 4-way stretch back. Non-restrictive cut-away cuff for comfort | arbortec.com |
| 1-7<br>3122 | ■ | ■ | | | 1 | ■ | ■ | 3 | 1 | 2 | 2 | -<br>- | ■ | ■ | ■ | | ■ | ■ | ■ | ■ | ■ | | ■ | | ■ | Hi-Viz, Kevlar stitching. while stocks last DISCONTINUED as are AT500 Forester & Treehog TH040 | arbortec.com |
| -4142<br>20 | ■ | ● | | | 0 | ? | | 4 | 1 | 4 | 2 | -<br>- | ■ | ■ | ■ | | ■ | | | ■ | ■ | ■ | | | | | arbpro.it |
| 1-7 | ■ | | | ■ | 0 | ■ | - | | | | | -<br>- | | □ | | □ | | | | ■ | ■ | | ■ | | | 14-layers of cut-resistant fibres | cutterworkwear.com |
| 1-7 | ■ | ● | ■ | | 0 | ■ | - | | | | | -<br>- | | □ | | □ | ■ | | | ■ | ■ | | | | | 4-way stretch, 14-layers of cut-resistant fibres | cutterworkwear.com |
| 1-7 | ■ | | | | 0 | ■ | - | | | | | -<br>- | ■ | ■ | | | ■ | | | ■ | | | ■ | | | 14-layers of cut-resistant fibres | cutterworkwear.com |
| 1-7<br>3122 | ■ | ● | | | 1 | ■ | ■ | 3 | 1 | 2 | 2 | -<br>- | ■ | ■ | | □ | | | | ■ | | | | | | Hi-Viz, Reflective piping, Multi-layers of Dyneema | ejendals.com |
| 1-7<br>4244 | ■ | | | ■ | 1 | ■ | - | 4 | 2 | 4 | 4 | -<br>- | ■ | | | □ | | | ■ | | ■ | | ■ | | | Prolar™ chainsaw padding | elvex.com |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | expansion row |

**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 good
○ Good [illegible] protection

| MODEL | COMPANY | ORIGIN | COST For 1x PAIR approx, rounded up inc. VAT/Tax | Update with Differentiated materials MATERIAL | SIZES | STAND |
|---|---|---|---|---|---|---|
| Anti-Vibration Chainsaw | FORESTER / ECHO-USA | | £00 $23 €00 | Goatskin Leather, Nylon/Poly Spandex, Neoprene, Kevlar-Lined | M-XXL | |
| Knitted Chainsaw | FORESTER | | £00 $26 €28 | Goatskin Leather, Nylon/Poly Spandex, Kevlar-Lined | M-XXL | |
| Arbor | FORESTER | | £00 $23 €00 | 70% leather 20% polyester spandex 10% polyester nylon | S-XXL | EN3 |
| HD Leather | FORESTER | | £00 $23 €00 | Leather | S-XXL | EN3 |
| High Impact | FORESTER | | £00 $23 | 50% Goat Skin 50% Kevlar | S-XXL | EN388 |
| Chain 304 | FRANCITAL | | £26 $00 €25 | | 8,9,10,11 M-XXL | EN38 EN3 |
| Chain 216 | FRANCITAL | | £25 $00 €00 | Leather | 8,9,10,11 M-XXL | EN38 EN388 |
| Pro | GO PART | | £13 $00 €00 | Kid Leather Polyester | 8,9,10,11 M-XXL | EN38 EN3 |
| 454 | HARKIE | | £33 $00 €34 | | 8-12 S-XXL | EN38 EN388 |
| Functional | HUSQVARNA | | £39 $30 €42 | | 8,9,10,11 | EN38 EN3 |
| Technical | HUSQVARNA | | £42 $00 €00 | Goatskin, Polyester, Neoprene,Spandex, Terry-cloth | 8,9,10,11 | EN38 EN3 |

Add Touchscreen compatible column

# CHAINSAW PROTECTIVE GLOVES

| ARDS | USES: CHAINSAW | USES: CLIMBING | USES: COLD WEATHER | USES: UTILITY | PROTECTION: CUT EN / ANSI | PROTECTION: PROTECT LEFT HAND | PROTECTION: PROTECT RIGHT HAND | PROTECTION: ABRASION EN / ANSI | PROTECTION: BLADE CUT EN / ANSI | PROTECTION: TEAR EN / ANSI | PROTECTION: PUNCTURE EN / ANSI | PROTECTION: ALT CUT IMPACT | WRIST/CUFF: VELCRO | WRIST/CUFF: ELASTICATED | WRIST/CUFF: PULL-ON TAB | FEATURES: WATERPROOF | FEATURES: ENHANCED GRIP in WET | FEATURES: ANTI-VIBRATION | FEATURES: SWEAT-WIPE | FEATURES: PRE SHAPED | FEATURES: REINFORCED PALM | FEATURES: REINFORCED KNUCKLES | FEATURES: REINFORCED FINGERS | WARRANTY (YEARS) | OTHER COLOURS | NOTES | WWW. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ○ | | | | NO | ■ | ■ | 3 | 3 | 4 | 2 | - - | ■ | ■ | | | ■ | ■ | ■ | | ■ | ■ | ■ | 1 | ■ ■ | rebadged by ECHO USA in Orange. 2 layers of Kevlar | forestershop.com 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 Cut-resistance but not full chainsaw protection

| MODEL | COMPANY | ORIGIN | COST For 1x PAIR approx, rounded up inc. VAT/Tax | Update with Differentiated materials MATERIAL BACK of HAND | SIZES | STAND |
|---|---|---|---|---|---|---|
| | MILWAUKEE | | £60 $00 €70 | Goat Leather TPU Dotted nylon Polyspandex, polyester, nylon | 8,9,10,11 S,M, L,XL | EN381 EN3 EN4 |
| Chainsaw 91305 | OREGON | | £20 $20 €24 | 55% Leather 25% Nylon 10% Spandex 5% Polyester 5% Para-aramid | 8,9,10,11 S,M, L,XL | EN381 EN388- |
| Fiordland | OREGON | | £30 $00 €36 | 24% Leather 47% Nylon 9% Poly/Cotton 15% PVC 5% Para-aramid | 9,10,11 M, L,XL | EN381 EN3 EN4 |
| Fiordland Winter | OREGON | | £26 $35 €00 | Leather | 9,10,11 M, L,XL | EN381 EN3 EN4 |
| OAK A290 | PORTWEST | | £14 $00 €00 | 60% leather 25% polyester 10% polyethylene 5% elastic | 9-10 M-L | EN38 EN3 EN4 |
| Function MS Protect | STIHL | | £30 $00 €00 | Leather, Textile, Elastic | 8-11 S-XL | EN38 EN3 EN4 |
| Dynamic MS Protect/ Pro-Mark | STIHL | | £42 $00 €00 | Leather, Textile, Elastic | 8-11 S-XL | EN38 EN3 EN4 |
| | | | | | | |

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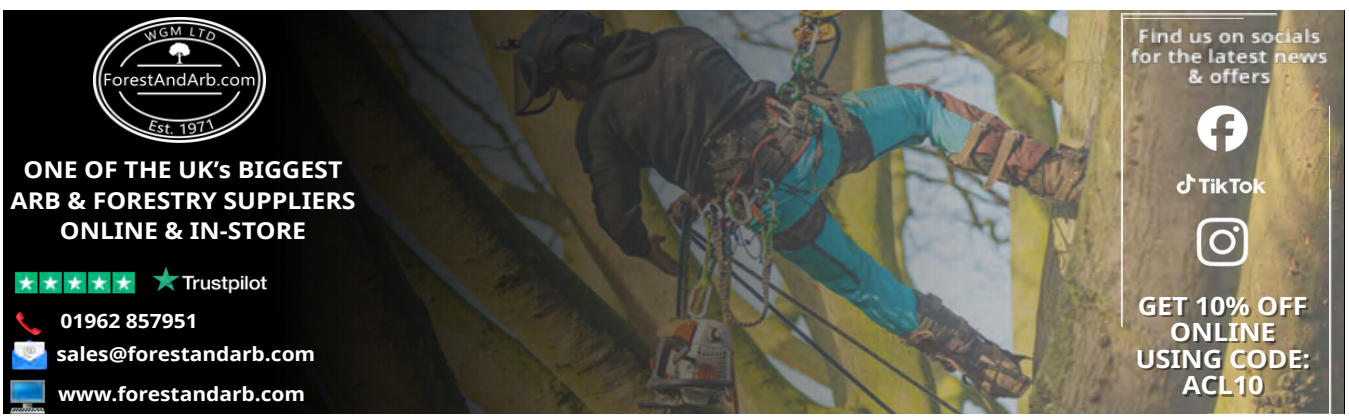
# CHAINSAW PROTECTIVE GLOVES

| | USES | | | | PROTECTION | | | | | | | | WRIST/CUFF | | | | FEATURES | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARDS | 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 | ALT 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) | OTHER COLOURS | NOTES | WWW. |
| -7 A<br>88<br>20 | ■ | | ■ | ■ | 0 | ■ | | 2 | 1 | 2 | 2 | - - | ■ | | | | | | | | ■ | ■ | ■ | | | Touchscreen compatible | oregonproducts.com<br>blount.com |
| -7 A<br>-3142 | ■ | - | - | ■ | 0 | ■ | ■* | 3 | 1 | 4 | 2 | - - | - | ■ | - | - | - | - | - | - | ■ | ■ | - | 1 | ■ | *10% cheaper with Left hand pro only | oregonproducts.com<br>blount.com |
| -7 A<br>88<br>20 | ■ | | ■ | ■ | 0 | ■ | | | | | | - - | ■ | | | | | | | | ■ | ■ | ■ | | | | oregonproducts.com<br>blount.com |
| -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 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |



**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
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● OK but not Ideal
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| MODEL | COMPANY | ORIGIN | COST For 1x PAIR approx, rounded up inc. VAT/Tax | Update with Differentiated materials MATERIAL | SIZES | STAND |
|---|---|---|---|---|---|---|
| SS-15 010 25 0_ | STEIN | | £20 $00 €00 | Leather, Rubber | 8,9,10 | EN381 EN3 |
| 2XD3/2 | SIP PROTECTION | | £24 $00 €29 | 60% polyamide 40% polyurethane Rubber PVC/PU | 8,9,10, 11,12 | EN381 EN388 EN4 |
| 2SA5 | SIP PROTECTION | | £38 $00 €36 | cowhide leather, aramid yarn | 8,9,10, 11,12 | EN381 EN388 EN4 |
| Infinity | SOLIDUR | | £39 $00 €35 | | | |
| Cidre | SOLIDUR | | £00 $00 €20 | | | |
| Magic | SOLIDUR | | £00 $00 €30 | | | |
| Sequoia | SOLIDUR | | £00 $00 €38 | | | |
| Endura | SUPERIOR GLOVE/ LUMBERWORKS | | £00 $39 €00 | Goatskin Leather, Nylon lycra, Kevlar | 9,10,11 M, L,XL | |
| Titan XT Kevlar | YOUNGSTOWN | | £00 $44 €00 | Sythetic Leather, Kevlar, Elastic, Nylon | 7-12 S-XXXL | ANSi/ |
| WINTER + Kevlar | YOUNGSTOWN | | £00 $50 €00 | Sythetic Leather, Waterproof/ breathable membrane, Clarino Palm, Kevlar-Liner | 7-12 S-XXXL | ANSI/ |
| CR5 Hybrid Kevlar | YOUNGSTOWN | | £00 $55 €00 | Sythetic Leather, Kevlar, Elastic, Nylon | 7-12 S-XXXL | ANSI/ |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L-7 A 88 | ■ | - | - | - | 0 | ■ | - | | | | | - - | ■ | - | - | | ■ | - | ■ | ■ | ■ | ■ | | | □ | heavy duty threads | steinworldwide.com |
| L-7 A 3131 20 | ■ | ● | - | ■ | 1 | ■ | ■ | 3 | 1 | 3 | 1 | - - | ■ | ■ | ■ | | ■ | - | - | ■ | ■ | ■ | ■ | | | Also 2XD2 with pro in left hand only costs €24 | sip-protection.com |
| L-7 A 3132 20 | ■ | - | - | - | 1 | ■ | ■ | 3 | 1 | 3 | 2 | - - | ■ | ■ | - | ■ | ■ | - | - | - | - | ■ | | | | Also 2SA4 without rubber grip palm €36 & 2SB5 as gauntlet €42 | sip-protection.com |
| | ■ | ● | | | 1 | ■ | ■ | 3 | 2 | 3 | 2 | - - | ■ | ■ | | | | | | ■ | ■ | | ■ | | | | solidur.fr solidur.co.uk |
| | ■ | | | ■ | 1 | ■ | - | 3 | 2 | 4 | 3 | - - | | ■ | | | | | | | ■ | ■ | | | | | solidur.fr solidur.co.uk |
| | ■ | ● | | | 1 | ■ | - | 3 | 2 | 3 | 2 | - - | ■ | ■ | | | | | | | ■ | ■ | ■ | | | | solidur.fr solidur.co.uk |
| | ■ | | | ■ | 2 | ■ | - | 3 | 2 | 4 | 4 | - - | | ■ | | | | | | | ■ | ■ | | | | | solidur.fr solidur.co.uk |
| | ■ | - | - | - | 0* | ■ | - | | | | | - - | ■ | ■ | - | ■ | - | - | ■ | ■ | ■ | - | ■ | | | Hi-Viz, 8-layer Kevlar stops 3140ft/ min .*Equivalent to Class 0. Not for EU | superiorglove.com |
| ISEA | ○ | ● | - | ■ | A5 | ■ | ■ | | | | | - - | - | ■ | - | | - | - | ■ | ■ | ■ | ■ | ■ | | | Hi-Viz, Reflective panels. Impact pads on back 360°Kevlar | ytgloves.com |
| ISEA | ○ | - | ■ | ■ | A4 | ■ | ■ | | | | | - - | ■ | ■ | - | ■ | ■ | - | ■ | ■ | ■ | - | ■ | | | Water, wind & cutproof. 360°Kevlar Terry cloth outer thumb for brow/ nose-wiping! | ytgloves.com |
| ISEA | ■ | - | - | ■ | A5 | ■ | ■ | | | | | - - | - | ■ | - | | - | - | ■ | ■ | ■ | ■ | ■ | | | Hi-Viz, Reflective finger-tips. 360°Kevlar Terry cloth outer thumb for brow/ nose-wiping! | ytgloves.com |

# CHAINSAW PROTECTIVE TROUSERS

Title pic: *Arbortec Breatheflex* range of trousers are available as protective and non-protective versions.
Top-right Their collaboration with *Realtree* has resulted in striking colour and pattern options but we're not sure how well the lime and orange will hide you from a bear! Below-Left: *Cloggers Zero range* is one of several in this guide that have pockets etc designed for use with a harness. Some, like *Husqvarna*, go one step further and have strategically placed protective fibres in their climber's trousers that will pull out and clog when others might compress and be trapped by the harness leg loops.
Left/Right: In stark contrast to the high viz colours of most chainsaw and climbing trousers like the *Francital Prior Move Pro* on the left there are a number of 'urban camouflage' protective trousers that look like regular denim jeans like this *Englebert Strauss* pair.

Believe it or not, there was a time when the use of chainsaw protective trousers was frowned upon by climbers if not blatantly dismissed as far too restrictive in the canopy and best left to the ground crew. In the early days, we did have a point because trousers with active protection were five times heavier than regular trousers/pants, two or three times the bulk and had the stretch of a suit of armour such that, when going for that next dynamic step up, you found your knee got stuck mid-step and you had to cling on to regain your footing. These days of course, not only is it 'the law' and common sense to protect your legs when using sharp-ass cutting implements but the quality of trousers and the design in terms of stretch/mobility, ventilation and light weight are outstanding. The choice too is quite remarkable with the most prolific manufacturers: *Arbortec Forestwear, Francital, Solidur, ProfiForest* and *Sip Protection* producing well over two thirds of the more than 130 models we've listed in our full **Guide to Chainsaw Protective Trousers** in our ARBORIST BUYERS GUIDE.

**Protection against a moving, cutting chain is categorically a life-critical consideration. If you cut into your leg, you can bleed out in minutes**

Don't forget that this not only captures all of the models on the market, and provides a real-time update to this article but, being digital-only, it is updated throughout the year with new models, price and specification changes. This ArbClimber article introduction covers all chainsaw protective trousers but the tables are concerned only with trousers offering 360° protection which, for type C, includes the rear leg and what we're calling type A+ includes the rear calf. Despite the fact that most trousers called 'Arborist' are type A only, we have limited this guide to Type C/A+ for two reasons: 1) unlike North America and Europe, rear leg protection is advised to UK arborists when using a chainsaw aloft and we too would steer climbers that way knowing what a chainsaw cut to the back of your leg can result in - 70ft up a tree, hanging on a rope/lanyard is no place to get a serious injury and 2) we simply could not include the 26 or so pages it took to include all trousers that we have in our BUYERS GUIDE.

Nothwithstanding our previous warning, If you're a dynamic climber and prefer lighter, less restrictive trousers you will want

to check out the A/Front-only trousers as by far the wider choice. While some, like *Arbortec,* offer most as both A and C, others consider their climber-related design with rear ventilation for light and comfort to be the key concern and concentrate on type A only. *SIP Protection* for instance has 23 models and only one of these is a Type C. *Husqvarna, Pfanner, Francital and Stihl* etc. also engineer type A models specifically for freedom of movement on rope. There are also **non-protective trousers** because you won't always be using a chainsaw or you may be climbing for inspection or competition. In these instances, non-protective specialist climbers trousers like *Clogger's Spider*, *ArbPro's Sigma*, *Arbortec's Breatheflex* range and *SIP's Gecko* are worth checking out. However, back to our protection lecture and don't forget that chainsaw protection doesn't only guard against a hit from a running chainsaw, some will improve your chances against an impale, a miscued handsaw stroke, a bear attack and even a heavy and/or point-ended branch impact which may not take a chunk out and instead leave you with a huge bruise (but beware of internal injury on this one not evident by any surface bleeding!). Protective trousers are mostly from Europe but there is a divergence between the UK and Europe on whether type C or type A are best for arborists,. **Type A (Front Protection) covering the front of the legs only** are suitable for ground crew and foresters but most widely used by arborists particularly on the European mainland and in North America.

**Type C (360° Protection)**: provides all-around leg protection and is suitable for all but in EU and N.America aimed at foresters and ground workers while in the UK they are aimed at climbing arborists because of the unusual cutting positions and greater chance of a chainsaw rotating onto the back of the ankle or calf. Ironically, the very reasons many European and US/Canadian manufacturers consider them better for ground workers who might brash around the legs or be more prone to stumbling. Perhaps the best compromise is the so-called **Type A+** unofficial category adopted mainly by *Arbortec* and *Clogger* that have all around protection around the calf but not the upper leg so they are much lighter than type C. All now include stretch panels of strategically located material (including 'baggy' knees) that permit relatively unrestricted movement so, let's be honest, there are three reasons you'll choose, what you choose: 1) They're the type you've used for years and you like 'em. 2) You hate 'em and someone recommended another type. 3) You're trusting their cut-protection credentials and choosing based on the colour because you really like that Stihl and Englebert Straus have pairs that look like denim or *Arbortec*'s *Realtree* hunting-style camo (pics-title page opposite). NB: All current denim trousers areType A/front-only.

Gloves and boot protection is important but with a decent first aid kit these are survivable as long as you remain conscious, even if you are a lone climber in the canopy. That's also true of a leg injury but being a larger area carrying your femoral and radial arteries there is much greater scope for rapid exsanguination that can only really be controlled by application of a tourniquet - hence the need for climbers to carry a CAT in their first Aid kit.

Unlike boot protection which frequently disappointed us in its ability to prevent a moving chain from getting through to your foot, trousers are much, much more effective because they contain larger and more extensive areas of chainsaw binding material, whether that is Aramid/Kevlar, Dyneema or nylon fibres. All of the top arborist trouser manufactures produce trousers that will definitely stop a chain on runout and some will even work on full throttle remembering of course that you are generally using a smaller saw, (and these days battery with higher torque) when working aloft. With the contortions you have to employ to get into a decent cutting position there is much greater scope for injury to the backs of a climbers leg so type C trousers may be mandated. Ironically these are the very trouser types that originally led to resistance against wearing them for climbing and only when lighter weight Type A trousers with front-only protection became common did many climbers get back on board with some then moving up to the greater levels of protection afforded by Type C and/or Class 2 and 3 as well as the most common class 1 trousers. While any chainsaw user can use any type of chainsaw trouser and it will be better than your old denim jeans, there are clearly different types of user - Climbers, ground crew, emergency workers, foresters and utility workers in cherry pickers for instance. There are also different work environments - hot and cold climates, wet and dry (which can both be hot or cold), working on a garden lawn, a remote and congested forest floor, a manoeuvrable hydraulic platform or hanging from a rope in the tree's canopy. These uses may require that your trousers are also highly visible such as road and Rail workers or that they are as well ventilated and lightweight as possible for hot-dry climates. Indeed with a few exceptions it is only type A and A+ that allows the rear zipped vents and a main reason for many climbers sticking to 1A protection. 'Comfort' is not restricted to the cut protection and flexibility that this allows. There is also the question of whether it keeps you dry in the wet, (See EN343-3), whether it is well ventilated or can be seen in low light and when working in areas where others need to see you like roads and railways.

## FEATURES:

**MATERIALS:** modern chainsaw trousers have evolved from those early suits of armour in two ways in particular - stretch fabrics to allow less restricted movement and breathability. Its no surprise that the waist, the high waist band to preven 'builders bum' and stop drafts and the larger trouser panels around the thighs and crotch have incorporated elastic fabrics but so too have the reinforced areas of the knee and seat. These high wear areas have combinations of heavy duty nylon/*Cordura* - in heavier weights than the main fabrics but they also incorporate even harder wearing fabrics like *Aramid* in combination with stretch fabrics like *Spandex* to try and cancel each other out in the stretchy/not-at-all-stretchy battle. The ankle is also reinforced because it can get a lot of abuse from your boots and especially your spikes but that doesn't need the addition of stretch fabrics so it can be all-tough. The seat can be a high wear area if you take a lot of tea breaks or drive in your chainsaw trousers but equally you lean on your backside during climbing more than you'd expect and the harness being in continual loaded contact is a real point of wear. All of this stretch and tear resistance is married with breathability and comfort so these are a pretty complex arrangement of fabrics - there are 4 or 5 different fabrics on show in this pair of SiP Canopy trousers. Breathability is introduced by adding cooling and moisture wicking materials like *Coolmax* and humble cotton into the inner lining and even sandwiching the cut protective layers as these are often bundles of fibres that are inherently aerating as you move, in fact you could almost see this as a kind of bellows sucking and blowing air as you move.

**REFLECTIVE:** Not just high-viz which you can see just by looking at the pictures but has reflective strips or piping or highlights that pick up and reflect light so that the trousers are highlighted in low light or in the dark when an ambient light source is shined in the general direction.

**ANTI-TICK:** An elasticated or velcro-closed hem or gaiter is good in the cold and wet and for keeping out ticks. Some are designed as a secondary gaiter inside the hem and running several inches up but this can be hot and heavier for climbers so some are a detachable gaiter like these *Francital Hades* (listed as such in the 'features' panel in the tables). Closing the hem to restrict access of snow and ticks may be via elastication

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# New Generation *of* protective pants

*Design, comfort and durability without compromise*

Arbpro® lowering & climbing gear

CLIMB TECH

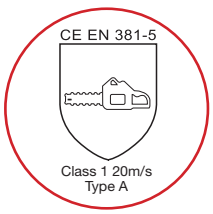
## GAMMA

*Detachable gaiters*

*Adjustable leg width*

*Ventilation zippers*

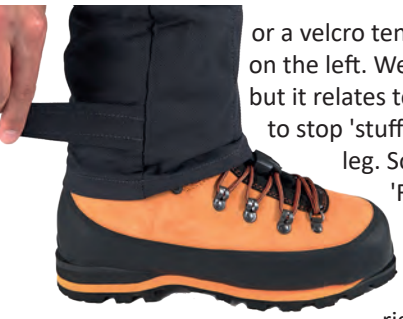
*4 Way stretch fabric*




*Chainsaw protection Class 1 Type A*

*Top quality fabrics made by:* keprotec® schoeller® Switzerland

**For more informations visit our web site** **www.arbpro.it**



or a velcro tensioning strap as in the *Clogger* pic on the left. We have listed this as TICK prevention but it relates to any hem that closes on the boot to stop 'stuff' and critters getting up your inside leg. Some will mention in their 'FEATURES' notes in our tables that the hem has a vertical zip like the *Pfanner* pair bottom-right - this makes for easier boot donning/doffing.

**BOOT HOOK:** Many hems have a boot hook to stop the trouser leg riding up. This clips to the laces just around the transition from upright to horizontal.

**ATTACH BRACES:** a bespoke attachment point(s) like buttons, loops or *Velcro* etc. to attach braces/suspenders/shoulder straps securely to the trousers. Trousers that have a raised waist at the rear (kidney warmer) like these *Husqvarna Functionals* usually incorporate an attachment point that not only secures the braces/suspenders but keeps that raised waist section upright.

**ZIP VENTS:** Working hard in a pair of multi-layered, relatively heavy trousers generates a lot of heat and moisture so most type A/front-only protection trousers have an opening on the thighs that can be unzipped to allow better air circulation and exhaust some moisture. This is often negated in type C trousers by the layer of chainsaw protection on the rear of the legs which is why many European manufacturers consider type C to be less suitable for climbers. The UK disagrees and reckons you just adjust to the discomfort of increased heat and sweat because it's better than bleeding out from a cut to the back of your legs. Type A+ with Calf protection can, and most often does, have rear vents in the thigh area.

**CLIMBING:** What's the difference between a pair of chainsaw trousers used on the ground and a pair used by climbers? Well, sometimes, not a lot. Again, the different approach by the UK with the greater chainsaw protection of type C is recommended for climbers is in stark contrast to Europe and North America where lighter, front-only protection trousers are deemed most suitable for climbers because they're lighter and they allow more freedom of movement. There are other features that will get the trousers a **CLIMBING**- suitable green square, Harness-compatible pockets - only climbers will be wearing a harness so, by default , these must be climbers trousers - that is of course the manufacturers interpretation, as are all of the trousers that have a green square in this row - we're not subjectively telling you that they are suitable for climbing, the manufacturer is, so some will certainly be better for climbing than others.

Class 2 and class 3 trousers will be heavier and bulkier because they have higher chain speed protection which will usually mean more bundles of fibres or more layers. Even n the UK it is not deemed great for climbing to have this degree of protection at the expense of comfort and dexterity. Type A+ however, with chainsaw protection on the calf rather than all the way up the back of the leg may well be the best compromise and somewhere that the UK and Europe/ North America can come together and agree. *Clogger* in New Zealand, don't care either way because they provide the equivalent of type C and type A as options on all their main trouser ranges.

## POCKETS

The problem with pockets on chainsaw trousers is that they fill up with sawdust and debris unless they have efficient closures. So you see that most pockets have either a zip, and often a waterproof sealed zip, or a *Velcro* or press stud flap. Most trousers have various combinations of the following:

**HAND POCKETS**: one or two side (some describe this as front) slant or hand pockets - these are mostly angled downwards for easier hand entry but some are square and they are pretty much all zip closures. However, you will forget to close those zips on a regular basis so many are 'reversible' so that you can pull the pocket out like an old sock and tip out all the accumulated sawdust.

**CARGO**: A side or thigh mounted cargo pocket with a flap over the opening - this is usually the largest pocket.

**RULER/TOOL POUCH:** which is long and thin and often flapped like the *Pfanner* on the left or open at the top like the *Solidur* model right and may be located within the cargo or on the outside of it. This *Solidur* pic-right also shows a tool loop which is a receptacle for your scrench and in its simplest form is just a loop or tab of material with a slit opening and the screwdriver end is secured in the ruler pouch/pocket or into web loops as with this *Solidur*.

**REAR POCKET** - usually zipped though some may have a securable flap. Almost always square with the trouser waist.

**PHONE POUCH/POCKET** - sized to fit a large smartphone these days rather than a late nineties *Nokia* and often also inside another pocket. This will usually have a sealed zip that stops water getting in.

NEW

# PROFESSIONAL QUALITY. POWERFUL CUTTING. BATTERY POWERED.

AP SYSTEM

**PROFESSIONAL PERFORMANCE:**
**THE MSA 220 TC-O BATTERY-POWERED CHAINSAW.**

AVAILABLE AT YOUR LOCAL **STIHL APPROVED DEALER**

The MSA 220 TC-O is STIHL's most powerful battery arborist chainsaw to date. It's the first STIHL chainsaw that has an LED display and integrated oil sensor, which provides key information during operation. With equivalent cutting performance to the petrol MS 201 TC-M and long-service life, arborist professionals can take on the tough tree maintenance and removal jobs.

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.

**SMART, EFFICIENT, COMFORTABLE COMMUNICATION:**
**STIHL ADVANCE PROCOM.**

FIND OUT MORE AT **STIHL.CO.UK**

**FIRST AID**: Not common but *Solidur* have made that high waist we mentioned previously into a first aid pocket - genius (as long as it's all the soft first aid stuff like plasters and trauma dressings, wouldn't fancy a defibrillator sticking in my back!)

## CHAINSAW & SAFETY STANDARDS

In terms of Chainsaw protection there are three European Standards and two North American standards that specifically deal with chainsaw protection of trousers: EN 381 5, and EN11393 and the multi-faceted KWF in Europe with the latter two referencing EN381.5 rather than being specific cut test standards, in fact KWF is more of a prestige or quality assurance 'badge'. ASTM F1897 and the newer ASTM 3325 in North America. The European standards specify differing chain speeds from 16 to 28metres per second whereas the US ASTM F1897 specifies only 14m/s and the more Canadian-adopted ASTM 3325 with the higher 20m/s resistance. It's no real surprise that the vast majority of US retailers sell the higher rated and more specifically cut-tested European trousers. Australia and New Zealand have AS/NZS 4453.3:1997 also 20 m/s chainspeed.

**EN 381-5 – Chainsaw Protective Clothing** – Leg Protection
This standard covers leg protection for chainsaw users, ensuring materials can resist chainsaw cuts. Performance classes are based on chain speed which broadly relates to a chain on runout (finger off the trigger) not at full revs:

- **Class 0 (16m/s) (normally for gloves)**
- **Class 1 (20 m/s)**
- **Class 2 (24 m/s)**
- **Class 3 (28 m/s)**

**In addition there are locational 'Types' of trouser protection indicating where the specific protection barriers are located:**
**Type A**: protective layers/materials are positioned only on the the front of the legs
**Type B**: 'Chaps' or open-backed, shaped 'covers' that go over the top of any type of work trousers.
**Type C**: protective layers/materials positioned at the front and the back of the legs, - 360° coverage.

**EN ISO 11393-21 – Protective Clothing for Chainsaw Users**
This standard may be mutually exclusive with EN381-5 since it incorporates its test methods for protective clothing designed to protect against chainsaw injuries. Key parameters are:

- Cut resistance (tested using a chainsaw at different speeds)
- Abrasion and tear resistance
- Ergonomic design and comfort
- Material durability and flexibility
- Coverage areas (e.g., trousers, jackets, gaiters, gloves, boots)

**KWF/KWF-Profi** - German forestry 'quality-assurance' version of EN11393 inc waterproofing. Profi=professional
In North America different standards apply which are more akin to EN11393 with seven requirements including one cut test.
**AS/NZS 4453.3:1997** - Australia & New Zealand broadly following EN 381-5 Class 1 testing (20m/s).

**ASTM F1897 – Leg Protection for Chainsaw Users**
**1. Cut Resistance Testing:** The protective material is tested against a moving chainsaw to evaluate its ability to slow down or stop the chain. The test is performed at a chain speed of 2750 feet/minute (fpm) (≈ 14 m/s). If the chainsaw does not cut through the innermost layer, the clothing passes the test.
**ASTM F3325** For lighter chainsaw clothing but actually uses the higher 20m/s so aligns more with Canadian requirements.
**2. Coverage and Design:** Minimum coverage for protection:
**Chaps:** Must cover the front and sides of the legs.
**Pants:** Must have full-leg protection, including the back if designed for arborists.
**Leggings:** Must provide at least 180° coverage around the leg (Equivalent to EN 381-5 type A).
Garments should not have gaps or unprotected areas where a chainsaw could easily penetrate.
**3. Material Requirements:** Must include multiple layers of cut-resistant fibers that can clog the chainsaw's drive system upon contact. Common materials used: Kevlar®, Ballistic Nylon & Engtex® high-performance fibers
**4. Water and Oil Resistance:** Protective clothing must be resistant to water and petroleum-based oils, as these substances can degrade fabric performance. Some designs include a water-repellent outer layer to maintain durability in wet conditions.
**5. Labelling and Certification:** All chainsaw protective clothing must have a label indicating compliance with ASTM F1897.
The label should also specify:

- Manufacturer information
- Garment type (chaps, pants, leggings, etc.)
- Chain speed rating (e.g., 2750 fpm)

**Associated Standards which don't include a cut test other than to reference a requirement for ASTM F1897 include:**

**ANSI Z133 – Safety Standards for Arboriculture**
Requires chainsaw operators to wear leg protection (chaps or pants) meeting ASTM F1897. Covers helmet, eye, ear, hand & foot protection for tree workers.
**OSHA 1910.266 – Logging Operations Standard**
Requires chainsaw chaps or pants meeting ASTM F1897 for loggers. Specifies other PPE requirements (helmet, gloves, boots, hearing protection, etc.)Mandates chainsaw training.
Canada: **CSA Z195 – Protective Footwear**
Requires chainsaw protective boots to have cut-resistant material around the foot and ankle.

**CSA Z96 – High-Visibility Safety Apparel**
Relevant for chainsaw operators working in roadside or forestry environments. Defines visibility requirements for jackets, vests, and coveralls. Various provinces, like BC, Alberta, and Ontario, enforce workplace chainsaw safety rules and often require chainsaw protective gear that meets or exceeds ASTM F1897 and OSHA 1910.266.

## PERIPHERAL EUROPEAN STANDARDS

There is the German KWF trademark for forestry equipment referencing EN 318.5 but also requiring water resistance and durability plus a whole load of associated European standards that are not directly related to chainsaw protection but cover other comfort and safety issues like visibility. We've listed these

associated standards here so's you are clear on what is and isn't relevant to your work conditions.

**EN ISO 13688 – Protective Clothing general performance** in terms of ergonomics, markings, compatibility with other safety gear, sizing, use of inert fabrics and colours etc.

**EN 13758-3 – UV Protective Clothing**

**EN ISO 20471-9 – High-Visibility Clothing**

Minimum surface area of fluorescent material (yellow, orange, or red). Retro-reflective tape properties (brightness and performance),Colorfastness and washing durability Design requirements (placement of reflective materials)

Performance classes (Class 1, 2, or 3) based on risk levels

**RIS-3279-TOM -** Hi-visibility clothing as required by the RAIL industry and including prescribed reflective panels

**EN 343-3 – Waterproof Clothing**

This standard defines waterproof and breathable clothing for protection against rain and wet conditions. Key parameters:

Water penetration resistance (Waterproofness) – Class 1 to 4

Water vapour resistance (Breathability) – Class 1 to 4

Seam strength and durability, resistance to hydrostatic pressure, impact of washing on waterproof performance. Note that we also list ● **REPEL WATER** (enhanced material or a coating ) separately since not all will apply for the **EN343** standard even if the product is waterproof.

## NORTH AMERICA VS. EUROPE

| Feature | ASTM F1897 (USA) | EN 381-5 (Europe) |
|---|---|---|
| Tested Chain Speed | 2750 fpm (~14 m/s) | Class 1: 20 m/s, Class 2: 24 m/s, Class 3: 28 m/s |
| Protection Area | Front and sides of the legs | Type A (front), Type C (full-leg) |
| Material Used | Kevlar, Ballistic Nylon, Engtex | Multi-layer synthetic fabrics |
| Oil/Water Resistance | Required | Not always specified |
| Certification Required | Label with ASTM F1897 compliance | CE marking with EN 381 certification |

### COMFORT AND BREATHABILITY:

- Ventilation zippers, moisture-wicking fabric, and reinforced knee and ankle areas for durability.
- Lightweight and flexible designs improve comfort for prolonged use.
- Chaps offer better ventilation, trousers vary in airflow. Type A trousers include ventilation zips for breathability.
- North American chaps provide better breathability, but European trousers offer superior all-around protection but can be heavier due to the extra protection measures.

### ADDITIONAL FEATURES COMMON TO BOTH:

- Water-resistant or waterproof coatings for wet conditions.
- High-visibility colours or reflective strips for added safety.
- Reinforced seams and stretch panels for better mobility.

# CHAINSAW TROUSERS

Chainsaw protective trousers in North America and Europe serve the same purpose; preventing injuries by stopping or slowing down a running chainsaw, But they follow different safety standards, classifications, and design requirements.

In Europe they must be CE-certified, but some manufacturers make US variant trousers that comply with ASTM requirements -remember that the Canadians tend to use ASTM (F3325) with a slightly higher chain speed requirement of 20m/s.

Finally, some of these entries aren't simply trousers, hey may be **overalls** or **jump-suits** like *Pfanner*'s eft, which integrates the trousers into a top section r they may have just a bib in the same style as kiing Salopettes. We have not included chaps in his guide as they are mostly front protection nly and are prone to snagging so not generally sed by arborists. Nevertheless these can be an option for you to consider so are included in the **BUYERS GUIDE**. Also worth a look is the modular concept as used by *Arbortec* with the *ArborFlex* system. A base protective layer provide 1A, 1A+ or 1C protection (which can be worn by itself) and this is married to an outer (skin) in your colour choice. These can all be worn as standalone or a system.

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

**Protection** The level ***(or equivalent level to EN381-5 in brackets eg.(1C))*** of chainsaw cut protection with variants in cyan eg. 1A

**SERIES**: Is often the same as the Model name if there are few others or only one model in the range. Some trousers are better known by their series name.

**REFLECTIVE**: Active reflective material -not just high viz colour

**BOOT HOOK**: Often elasticated, an attachment from the trouser hem to the boot or its laces to stop the trousers riding up. Not the same as **ANTI-TICK** where the hem/gaiter closes around the ankle to prevent snow & critters climbing up the inside of the leg.

**ZIP VENTS:** Zipped opening on leg's rear to help cool the wearer- NOT normally on type C because of rear thigh coverage although but A+ with calf only usually has vents.

**CLIMBING**: These have features such as elasticated panels and expanding knee area that allow dynamic moving and acute bending at the knee necessary for dynamic climbing. They also have pockets that are accessible wearing while a harness.

**POCKETS:** we have listed the spark-plug wrench/screwdriver/sprocket-cover wrench as a '**scrench' (screwdrver/wrench)**

**FEATURES:** Because the materials and definitions vary so much and there is a fair degree of subjectivity in how they view their own materials and combinations, we also use the manufactures own description of features.

**OTHER COLOURS:** We have usually shown a different coloured rear and front so 'other colours' is all other colour options aside from the one or two shown at the top of each column.

Husqvarna

NEW

PROFESSIONAL 2-YEAR WARRANTY

# Redefining standards

Designed for tree care professionals, by tree care professionals, our new T540 XP® Mark III features a remastered design for increased reliability, maneuverability and power. And it pairs perfectly with our new arborist climbing gear, creating an ecosystem of arborist solutions so you can be **up early, down safely.**

**Exceptional** power-to-weight ratio

Engineered for **durability**

AutoTune™ 3.0 delivers **peak performance**

NEW **Climbing gear**

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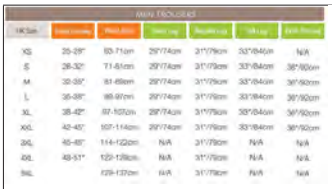
ARBOR



**IMAGES NOT TO SCALE**
COST: inc local tax/VAT
£$€=currency conversion only
**LEGSIZES: S Short R Regular L Long/Tall XL Extra Long/Tall**

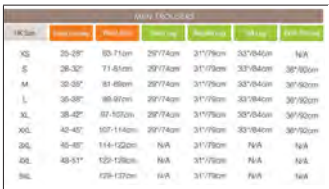
**STANDARDS:**
EN3815= Chainsaw Cut Pro
ENISO11393-2= Chainsaw safety
ASTM F1897 USA= Cut Pro+
ASTM Canada= Cut Pro+
AS/NZS 4453.3= Cut Pro+
KWF-Profi= Forestry safety
ANSI Z133= Gen Arboriculture
ENISO13688= Safety Clothing
EN 343-3 = Waterproofing
RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

**EN CUT PROTECTION:**
**Class 1: 20m/s**
**Class 2:**
**Class 3:**
**Level A=**Front leg. **A+**= +Calf
**Level C=**front & back leg
**WATER REPELLENT:**
**CLIMBING:** Flexible enough to allow dynamic climbing

| MANUFACTURER | ARBORTEC FORESTWEAR | ARBORTEC FORESTWEAR | ARBORTEC FORESTWEAR | ARBORTEC F |
|---|---|---|---|---|
| MODEL PROTECTION VARIANT | AT4050 AT4010 1C 1A | AT4050F AT4010F 1C 1A | AT4010 USA UL 1A | AT401 |
| SERIES | BREATHFLEX | BREATHFLEX | BREATHFLEX | BREAT |
| PRODUCT CODE(S) | AB344497 AB345451 AB345414 | AB344497 AB345451 AB345414 | AB364005..025 | AB34 |
| ORIGIN | | | | |
| COST inc VAT/tax conv-only | £342298 $445386 €350305 | £342298 $445386 €350305 | £298 $000 €000 | £315 $4 |
| WEIGHT per pair (m/lg R) | 1.5 1.2kg / 3.3 2.64lb | 1.5 1.2kg / 3.3 2.64lb | | 1.6kg |
| STANDARDS REPEL WATER | | | | |
| WAIST & LEG SIZES FEMALE | S-5XL S, R, L, XL | S(6)-2XL(22-24) R | S-5XL S, R, L, XL | XS-3X |
| MATERIALS - OUTER<br>LINER<br>CUT PROTECTION | Polyester, Nylon, Kevlar<br>Nylon<br>6 layers-Trio strand *Gridlock* | Polyester, Nylon, Kevlar<br>Nylon<br>6 layers-Trio strand *Gridlock* | | Polyester, N<br>Ny<br>6 layers-Trio s |
| POCKETS | Dbl-flap Cargo & phone pockets. 2xTool pouches. 2xrear & 2x front zip | Dbl-flap Cargo & phone pockets. 2xTool pouches. 2xrear & 2x front zip | Dbl-flap Cargo & phone pockets. 2xTool pouches. 2xrear & 2x front zip | Zip Cargo & phone pouches. 2xrear & |
| REFLECTIVE ZIP VENTS BOOT HOOK | | | | |
| ATTACH BRACES ANTI-TICK CLIMBING | * | * | | |
| FEATURES | Reinforced at high tension seams.<br>Kevlar lower leg.<br>Quality YKK zipper inc. pockets<br>Downward-facing Pocket Zips.<br>Compatible with climbing harness.<br>Reinforced lining around ankle.<br>*Rear Vent zip on Level A Only | Reinforced at high tension seams.<br>Kevlar lower leg.<br>Quality YKK zipper inc. pockets<br>Downward-facing Pocket Zips.<br>Compatible with climbing harness.<br>Reinforced lining around ankle.<br>*Rear Vent zip on Level A Only | Reinforced at high tension seams.<br>Kevlar lower leg.<br>Quality YKK zipper inc. pockets<br>Downward-facing Pocket Zips.<br>Compatible with climbing harness.<br>Reinforced lining around ankle. | AT4015 is a Design<br>protection to the f<br>rear from ankle to<br>Reinforced at high<br>Kevlar crotch & lov<br>Downward-facing<br>Compatible with cl<br>Reinforced lining a<br>Velcro waist size ad |
| OTHER COLOURS | | | | green/b |
| NOTES | | Female cut | | |
| WEBSITE | arbortec.com | arbortec.com | arbortec.com | arbort |

# CHAINSAW TROUSERS

| ORESTWEAR | ARBORTEC FORESTWEAR | ARBORTEC FORESTWEAR | ARBORTEC FORESTWEAR | ARBORTEC FORESTWEAR |
|---|---|---|---|---|
| 15 1A+ | AT4040 AT4020 2C 2A | AT4035 AT4030 3C 3A | ATHV4050 ....40...35 1C 2C 3C | ATHV4040 4050 2C 3C |
| THFLEX | BREATHFLEX | BREATHFLEX | BREATHFLEX | BREATHFLEX |
| 45580 | AB345470 AB345433 | AB344573 AB344555 | AB344942..633 | AB344942..633 |
| 08 €000 | £418248 $541322 €000000 | £378248 $490322 €461431 | £342420 $441542 €408500 | £303382 $000 €000 |
| / 3.5lb | 1.9 1.4kg / 4.2 3.1lb | 2.3 1.8kg / 5 4lb | 1.9 1.4kg / 4.2 3.1lb | |
| | | | | |
| XL R,L | S-5XL S, R, L, XL | S-5XL S, R, L, XL | XS-3XL R,L | XS-3XL R,L |
| lylon, Kevlar<br>lon<br>trand *Gridlock* | Polyester, Nylon, Kevlar<br>Nylon<br>6 layers-Trio strand *Gridlock* | Polyester, Nylon, Kevlar<br>Nylon<br>6 layers-Trio strand *Gridlock* | Polyester, Nylon, Kevlar<br>Nylon<br>6 layers-Trio strand *Gridlock* | |
| pockets. 2xTool<br>2x front zip | Dbl-flap Cargo & phone pockets.<br>2xTool pouches. 2xrear & 2x front zip | Dbl-flap Cargo & phone pockets.<br>2xTool pouches. 2xrear & 2x front zip | Zip Cargo & phone pockets. 2xTool<br>pouches. 2xrear & 2x front zip | Zip Cargo & phone pockets. 2xTool<br>pouches. 2xrear & 2x front zip |
| | | | | - |
| | * | * | | |
| A Plus pants (saw<br>ront of the leg and<br>knee)<br>tension seams.<br>ver leg.<br>Pocket Zips.<br>imbing harness.<br>round ankle.<br>djustment. | Reinforced at high tension seams.<br>Kevlar lower leg.<br>Quality YKK zipper inc. pockets<br>Downward-facing Pocket Zips.<br>Compatible with climbing harness.<br>Reinforced lining around ankle.<br>*Rear Vent zip on Level A Only | Reinforced at high tension seams.<br>Kevlar lower leg.<br>Quality YKK zipper inc. pockets<br>Downward-facing Pocket Zips.<br>Compatible with climbing harness.<br>Reinforced lining around ankle.<br>*Rear Vent zip on Level A Only | High Vis (UK Railways Approved)<br>Reinforced at high tension seams.<br>Kevlar crotch & lower leg.<br>Downward-facing Pocket Zips.<br>Compatible with climbing harness.<br>Reinforced lining around ankle.<br>Zipped Cargo and phone pockets.<br>Velcro waist size adjustment. | High Vis (UK Railways Approved)<br>Reinforced at high tension seams.<br>Kevlar crotch & lower leg.<br>Downward-facing Pocket Zips.<br>Compatible with climbing harness.<br>Reinforced lining around ankle.<br>Zipped Cargo and phone pockets.<br>Velcro waist size adjustment. |
| lack only | green/black only | green/black only | orange only | |
| | | | Price for 2C, 3C =£ | |
| ec.com | arbortec.com | arbortec.com | arbortec.com | arbortec.com |



**IMAGES NOT TO SCALE**
COST: inc local tax/VAT
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**LEGSIZES: S Short R Regular L Long/Tall XL Extra Long/Tall**

**STANDARDS:**
EN3815= Chainsaw Cut Pro
ENISO11393-2= Chainsaw safety
ASTM F1897 USA= Cut Pro+
ASTM Canada= Cut Pro+
AS/NZS 4453.3= Cut Pro+
KWF-Profi= Forestry safety
ANSI Z133= Gen Arboriculture
ENISO13688= Safety Clothing
EN 343-3 = Waterproofing
RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

**EN CUT PROTECTION:**
**Class 1: 20m/s**
**Class 2:**
**Class 3:**
**Level A=**Front leg. **A+**= +Calf
**Level C=**front & back leg

**WATER REPELLENT:**
**CLIMBING:** Flexible enough to allow dynamic climbing

| MANUFACTURER | ARBORTEC FORESTWEAR | ARBORTEC FORESTWEAR | ARBORTEC FORESTWEAR | ARBORTEC F |
|---|---|---|---|---|
| MODEL PROTECTION VARIANT | AT4061 1A | AT4070 AT4060 1C 1A | ATHV4070 ATHV4060 1C | AT4070 AT |
| SERIES | BREATHFLEX PRO (USA) | BREATHFLEX PRO | BREATHEFLEX PRO | BREATHEFLE |
| PRODUCT CODE(S) | | AB345554 to..8079 AB345538 to | AB346154 AB346164 | AB36517x AB |
| ORIGIN | | | | |
| COST inc VAT/tax conv-only | £357 $330 €000 | £392357 $508463 €410360 | £392357 $508463 €410360 | £414378 $537 |
| WEIGHT per pair (m/lg R) | | 1.5 1.2kg / 3.3 2.64lb | 1.5 1.2kg / 3.3 2.64lb | 1.5 1.2kg / |
| STANDARDS REPEL WATER | | | | |
| WAIST & LEG SIZES FEMALE | XS-3XL R,L | XS-3XL R,L | XS-3XL R,S, L, XL | XS-3X |
| MATERIALS - OUTER<br>LINER<br>CUT PROTECTION | | Polyester, Nylon, Kevlar<br>Nylon<br>6 layers-Trio strand *Gridlock* | Nylon, Kevlar<br>Nylon<br>6 layers-Trio strand *Gridlock* | Nylon,<br>Ny<br>6 layers-Trio s |
| POCKETS | Zipped Cargo and phone pockets. | 2x zip side, 2x zip front/thigh, 1 zip rear | 2x zip side, 2x zip front/thigh, 1 zip rear | 2x zip side, 2x zip f rear |
| REFLECTIVE ZIP VENTS BOOT HOOK | | | | |
| ATTACH BRACES ANTI-TICK CLIMBING | | * | * | * |
| FEATURES | Reinforced at high tension seams.<br>Kevlar reinforcement at lower leg.<br>Downward-facing Pocket Zips.<br>Compatible with climbing harness.<br>Reinforced lining around ankle.<br>Velcro side adjusters: Adjust the waist size to suit. | Reinforced at high tension seams.<br>Kevlar crotch & lower leg.<br>Downward-facing Pocket Zips.<br>Compatible with climbing harness.<br>Reinforced lining around ankle.<br>Velcro waist size adjustment.<br>YKK zips<br>*Rear Vent zip on Type A Only | High Vis (UK Railways Approved)<br>Reinforced at high tension seams.<br>Kevlar crotch & lower leg.<br>Downward-facing Pocket Zips.<br>Compatible with climbing harness.<br>Reinforced lining around ankle.<br>Velcro waist size adjustment.<br>YKK zips<br>*Rear Vent zip on Type A Only | *REALTREE* pattern<br>Reinforced at high<br>Kevlar reinforceme<br>Downward-facing<br>Compatible with cl<br>Reinforced lining a<br>Velcro side adjuste<br>waist size to suit.YK<br>*Rear Vent zip on |
| OTHER COLOURS | | | | |
| NOTES | USA/Canada Only | The 2xMulticolour options have plain blue rears. | | Pattern version o |
| WEBSITE | arbortec.com | arbortec.com | arbortec.com | arbort |

# CHAINSAW TROUSERS

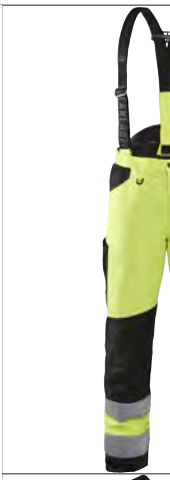
| ORESTWEAR | ARBORTEC FORESTWEAR | ARBORTEC FORESTWEAR | ARBORTEC FORESTWEAR | ARBORTEC FORESTWEAR |
|---|---|---|---|---|
| 4060 1C 1A | AT4060 USA UL 1A | AT4062 Vented 1A 1C | AT4070 AT4060 FREESTYLE | AT4090 AT4080 1C 1A |
| EX REALTREE | BREATHEFLEX REALTREE | BREATHEFLEX | BREATHEFLEX | DEEP FOREST |
| 3463.66.42.88 | AB3651..14..72..93 | AB366006...026.. | AB346496 AB346513 | AB346743.794.691..717.768.665 |
| 7490 €410360 | £378 $000 €000 | £305 $405 €349 | £406388 $526503 €381364 | £497444 $644575 €520460 |
| 3.3 2.64lb | | 1.2kg / 2.64lb | 1.5 1.2kg / 3.3 2.64lb | 1.8 1.6kg / 4 3.5lb |
| | | | | |
| XL R,L | XS-3XL R,L | XS-3XL R,L | XS-3XL S,R,L | XS-3XL S,R,L |
| Kevlar<br>lon<br>trand *Gridlock* | | Nylon, Kevlar<br>Nylon<br>6 layers-Trio strand *Gridlock* | Nylon, Kevlar<br>Nylon<br>6 layers-Trio strand *Gridlock* | Nylon, Kevlar<br>Nylon<br>6 layers-Trio strand *Gridlock* |
| ront/thigh, 1 zip | Zipped Cargo and phone pockets. | 1x Cargo, 2x zip side, 1x zip rear | 2x zip side, 2x zip front/thigh, 1x zip rear | 2x zip side, 1x flap cargo/thigh, 2x zip rear |
| | | | | |
| | | * | * | * |
| collaboration<br>tension seams.<br>ent at lower leg.<br>Pocket Zips.<br>imbing harness.<br>round ankle.<br>rs: Adjust the<br>KK zips.<br>Type A Only | *REALTREE* pattern collaboration<br>Reinforced at high tension seams.<br>Kevlar reinforcement at lower leg.<br>Downward-facing Pocket Zips.<br>Compatible with climbing harness.<br>Reinforced lining around ankle.<br>Velcro side adjusters: Adjust the waist size to suit. | 4 large ventilation panels, front & back, max airflow, for hot climates.<br>Reinforced at high tension seams.<br>Kevlar Knee Reinforcement.<br>Downward-Facing pockets.<br>Harness compatible zips.<br>Extra-stretchy crotch panel.<br>Adj waistband with high back.<br>YKK zips.<br>*Rear Vent zip on Type A Only | Low elasticated waist, offset seams and articulated knees for extra flexibility and comfort. Crotch = Kevlar & stretch fabric that allows for flexibility aloft. Strong, flexible outer materials.New tailored fitting.<br>YKK zips<br>Belt loops. Low back. Adjustable waistband.<br>*Rear vent zips on Type A only | Heavier duty fabrics.<br>Double Stitching. Avoid tears, rips, & seam failure for longer-lasting wear.<br>Kevlar reinforced Reinforced Ankles and Knees. YKK zips.<br>3 strand Gridlock Lite=breathable chainsaw blocking fabric.<br>Removable & replaceable Gaiter.<br>*Rear Vent zip on Type A Only |
| | | | | |
| f Breatheflex Pro | USA/Canada Only | USA/Canada Only | | |
| ec.com | arbortec.com | arbortec.com | arbortec.com | arbortec.com |

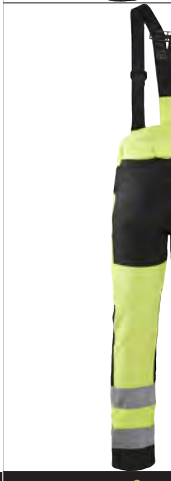
**IMAGES NOT TO SCALE**
**COST:** inc local tax/VAT
£$€=currency conversion only
**LEGSIZES: S Short R Regular L Long/Tall XL Extra Long/Tall**

**STANDARDS:**
EN3815= Chainsaw Cut Pro
ENISO11393-2= Chainsaw safety
ASTM F1897 USA= Cut Pro+
ASTM Canada= Cut Pro+
AS/NZS 4453.3= Cut Pro+
KWF-Profi= Forestry safety
ANSI Z133= Gen Arboriculture
ENISO13688= Safety Clothing
EN 343-3 = Waterproofing
RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

**EN CUT PROTECTION:**
**Class 1: 20m/s**
**Class 2:**
**Class 3:**
**Level A=**Front leg. **A+**= +Calf
**Level C=**front & back leg

**WATER REPELLENT:**
**CLIMBING:** Flexible enough to allow dynamic climbing





| MANUFACTURER | ARBORTEC FORESTWEAR | ARBORTEC FORESTWEAR | ARBPRO | BLÅKL |
|---|---|---|---|---|
| MODEL PROTECTION VARIANT | AT4250 AT4215.10 Base 1C 1A+ | AT41..Outer Pro/Storm/HV | Gamma 1A | |
| SERIES | ARBORFLEX-SKINS | ARBORFLEX SKINS | CLIMBTECH | |
| PRODUCT CODE(S) | AB346155 AB343056 | AB343233-AB343189 | - | |
| ORIGIN | | | | |
| COST inc VAT/tax conv-only | £199187 $259243 €212208 | £159-214 $206-278 €225-280 | £287 $355 €328 | £000 $0 |
| WEIGHT per pair (m/lg R) | 1.2kg / 2.64lb | 0.6kg / 1.32lb | 1.34kg/3.1lb | 00kg |
| STANDARDS REPEL WATER | ( outer skin options) | NO Cut Pro Storm= H- | | |
| WAIST & LEG SIZES FEMALE | XS-3XL R, L | XS-3XL R, L | XS-3XL S,R,L | 00-00S 00- |
| MATERIALS - OUTER<br>LINER<br>CUT PROTECTION | Polyester,Nylon, Kevlar<br>Nylon<br>6 layers-Trio strand *Gridlock* | Polyester, Nylon, Kevlar<br>Nylon mesh<br>NONE | 00% oo<br>00% oo<br>Engtex Avertic Pro | 00%<br>00%<br>100 |
| POCKETS | No | 2x zip Side, 1 Flapped Cargo, 2x zip Rear | 1 Rear zip, 3 front zip, 1 zip cargo, 1 sml Flap pouch | |
| REFLECTIVE ZIP VENTS BOOT HOOK | | | | |
| ATTACH BRACES ANTI-TICK CLIMBING | | * | | |
| FEATURES | Arborflex base protective layer (colour-coded C=green, A+=Orange, A=Red) worn with *Arborflex Skins* of your choice Med/Pro/Storm). High-quality stretch fabrics for greater movement. Moisture-wicking Flex top shorts for comfort. Very lightweight chainsaw blocking material. Reinforced lining around the ankle area. YKK zips. | Arborflex Skins have no cut protection. They provide an outer skin to the protective base layer. All can be worn separately. Outer Skins= LIGHT/Standard- light & breathable MID: seat & low-leg Reinforcement (grn) PRO: HeavyDuty Reinforcement, STORM, Waterproof. YKK zips. HV and HV+STORM: High Viz Orange | Includes braces. 4 way stretch fabric with high resistance to abrasion. Slim design and light weight. Ventilation zippers in the back. Detachable gaiters Zipped/gusseted ankle/hem | |
| OTHER COLOURS | | STORM PRO LT | | |
| NOTES | | | Gear loop designed for 'Scrench' | |
| WEBSITE | arbortec.com | arbortec.com | arbpro.it | blaklad |

# CHAINSAW TROUSERS

| LÄDER | CAN-SWE | CAN-SWE | CLOGGER | CLOGGER |
|---|---|---|---|---|
| | Poly Pro Backpad (2A+) | Seismic (3A+) | DefenderPro WoMans (1A+ | Ascend WoMans (1C 1A) |
| | FALLERS | PROMAX | - | - |
| | P001B | M002 | TC21DPRZW-RT TC21DPRZ-RT | TU71BW TU71B |
| | | | | |
| 00 €273 | £128 $165 €153 | £147 $190 €175 | £289 $375 €344 | £370 $480 €441 |
| /00lb | 0.92kg/2.2lb | 1.36kg/3lb | 1.1kg/2.4lb | 1.3kg/2.6lb |
| | *WCB PPE 1-1997 TCS3600 | *WCB PPE 1-1997 TCS4100 | * | * |
| 00R 00-00L | S28-XXL44" R30" | S28-XXL44" R30" | XXS-2XL S,R,L | XS-3XL S,R,L |
| % oo<br>% oo<br>% oo | 13oz Stretch Polyester<br>Polyester<br>Kevlar | 600D Polyester front/ Polyester<br>Polyester | Cordura Nylon Ripstop<br>Mesh<br>6 lyr Arrestex HP + UHMWPE fibres | HTP Nylon Ripstop<br>Mesh<br>6 lyr Arrestex HP + UHMWPE fibres |
| | 2x flap-covered hip pockets | 2x flap-covered hip pockets | 2x zip hip, 2x zip thigh,1x lg rear | 2x zip hip, 2x zip thigh,1x lg rear |
| | | | | |
| ☐ | | | | * |
| | Fabric is Heavy Double Knit 13oz Stretch Polyester for added durability Knit provides excellent ventilation and movement. Nylon reinforced crotch with extra bar tacking. Hip pockets are ergonomically located to prevent hang ups during cutting and bending. Signature pocket flaps keep chips out and allow quick easy access. Intended for ground workers. | Nylon reinforced crotch with extra bar tacking. Nylon reinforced seat patch. Full wrap protection extends around the calf. Belt Loops. Hip pockets are ergonomically located to prevent hang ups during cutting and bending. Signature pocket flaps keep chips out and allow quick easy access 50% Woven 600 Denier Polyester front. 50% polyester knit back Intended for ground workers | Mostly but not exclusively, for ground work, Tough outer still full stretch, light and cool to wear. 2 zipped rear vents. Hip pockets pull out to easily remove saw dust. Zipped thigh pocket ofor phone etc - accessible while wearing a harness.Sealed zips to stop dust ingress. Special zipper pulls on the pockets to make accessing your pockets easy even when wearing gloves. Wide belt loops to fit up to a 2 inch belt. Opening at hems to remove debris. Additional calf chainsaw protection | Thigh pocket can be inverted to remove saw dust. Lower pockets accessible wearing harness. Strong, durable zippers with seal to reduce sawdust damage. Zip- pulls on pockets. Snag-resistant plastic Boot hooks. Wide belt loops to fit up to a 50mm belt.Mesh lining for enhanced breathability. Hi-visibility orange highlights. Zip vents on type A only |
| | | | | |
| | *Meets a B.C. std exceeding chain speed of ASTM-F1897 & F3325 but not so certified | *Meets a B.C. std exceeding chain speed of ASTM-F1897 & F3325 but not so certified | *Minus $30 for Type A (front-only) pro. *Waterproof from the knees | *Minus $30 for Type A (front-only) pro. *Waterproof from the knees |
| der.com | canswe.com | canswe.com | clogger.co.nz | clogger.co.nz |

**IMAGES NOT TO SCALE**
COST: inc local tax/VAT £$€=currency conversion only
**LEGSIZES: S Short R Regular L Long/Tall XL Extra Long/Tall**

**STANDARDS:**
EN3815= Chainsaw Cut Pro
ENISO11393-2= Chainsaw safety
ASTM F1897 USA= Cut Pro+
ASTM Canada= Cut Pro+
AS/NZS 4453.3= Cut Pro+
KWF-Profi= Forestry safety
ANSI Z133= Gen Arboriculture
ENISO13688= Safety Clothing
EN 343-3 = Waterproofing
RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

**EN CUT PROTECTION:**
**Class 1: 20m/s**
**Class 2:**
**Class 3:**
**Level A=**Front leg. **A+**= +Calf
**Level C=**front & back leg
WATER REPELLENT:
CLIMBING: Flexible enough to allow dynamic climbing

| MANUFACTURER | CLOGGER | CLOGGER | CLOGGER |
|---|---|---|---|
| MODEL PROTECTION VARIANT | Wildfire WoMens | Tree Crew WoMens | Denim WoMens |
| SERIES | O 000 | O 000 | O |
| PRODUCT CODE(S) | | | |
| ORIGIN | | | |
| COST inc VAT/tax conv-only | £000 $470-510 €000 | £000 $255 €000 | £000 $380 €000 |
| WEIGHT per pair (m/lg R) | 00kg/00lb | 00kg/00lb | 00kg/00lb |
| STANDARDS REPEL WATER | | | |
| WAIST & LEG SIZES FEMALE | 00-00S 00-00R 00-00L | 00-00S 00-00R 00-00L | 00-00S 00-00R 00-00L |
| MATERIALS - OUTER<br>LINER<br>CUT PROTECTION | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo |
| POCKETS | | | |
| REFLECTIVE ZIP VENTS BOOT HOOK | | | |
| ATTACH BRACES ANTI-TICK CLIMBING | | | |
| FEATURES | | | |
| OTHER COLOURS | | | |
| NOTES | | | |
| WEBSITE | clogger.co.nz | clogger.co.nz | clogger.co.nz |

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# STRONGER.
# MORE CHIPS.

TP

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**Level A=**Front leg. **A+**= +Calf
**Level C=**front & back leg
WATER REPELLENT:
CLIMBING: Flexible enough to allow dynamic climbing

| MANUFACTURER | CLOGGER | CLOGGER | CLOGGER | CO |
|---|---|---|---|---|
| MODEL PROTECTION VARIANT | Zero Ultra WoMans (1C 1A) | Zero Gen2 WoMans (1C 1A) | Arcmax Gen3 WoMans (1A+ | |
| SERIES | ZERO | ZERO | - | |
| PRODUCT CODE(S) | TU73ZW TU73Z | TU71ZW TU71Z | TU91FW TU91F | |
| ORIGIN | | | | |
| COST inc VAT/tax conv-only | £393 $510* €468 | £343 $445 €409 | £378 $490 €450 | £81 $0 |
| WEIGHT per pair (m/lg R) | 1.05kg/2lb5oz | 1kg/2.2lb | 1.23kg/2.7lb | |
| STANDARDS REPEL WATER | | | +NFPA & ENA NENS 09-2014 | |
| WAIST & LEG SIZES FEMALE | XXS- XXXL S, R, L | XS-3XL S,R,L | XS-3XL S,R,L | S-4X |
| MATERIALS - OUTER<br>LINER<br>CUT PROTECTION | Ripstop nylon & stretch lycra<br>Mesh<br>6 lyr Arrestex HP + UHMWPE | HTP Nylon Ripstop<br>Mesh<br>6 lyr Arrestex HP + UHMWPE | Stretch FR<br>Mesh<br>6 lyr Arrestex FR + Vectran fibres | 65% polyeste |
| POCKETS | 2x zip hip, 2x zip thigh, zip phone pocket, 1x rear zip. | 2x hip pockets, 2x thigh, 1x phone pocket on thigh | 2 zipped hip pockets and a zipped pocket on the left thigh | |
| REFLECTIVE ZIP VENTS BOOT HOOK | | | | |
| ATTACH BRACES ANTI-TICK CLIMBING | | | | |
| FEATURES | Abrasion resistant fabric on knee, inside calf & ankle. Dyneema© fabric on calfs to protect against hanging C'Saw. Elasticized waist.Lock stitched seams and reinforced stress points. Waist to ankle coverage. Extra on left side. Scannable© NFC. Deep & Harness Accessible pockets; Ankle cinches. 50mm belt loops. Opening at hems to remove debris. High viz panels front and rear. YKK zips | Proven over many years.2x high-efficiency fixed side vents for max cooling airflow. Breathable outer uses Nilit® Breeze fibers to wick heat from the body. 140% 4-way stretch for max flex & ultra-low weight. Hi-tenacity nylon ripstop outer with Dyneema right calf to counter hanging chainsaw wear. Upgraded zippers and FlexZone in the seat seam for extra give. DWR water-resistant | *Arrestex FR* inc Vectran cross woven to counter multi-directional strike. Waist to ankle coverage with extra on the left side. Front pro with 360 calf wrap. Outer rated to 11 cal/cm2 - ASTM F1959 -arc resistance &EN ISO 15025-fire resistance. 4-way 120% stretch FR outer with 60% increase tear strength.Abrasion resistant knee. Flexible seat-seam. Elasticized waist. Lock stitched seams & stress points reinforced. Strong, zippers sealed to sawdust. 50mm belt loops. | 1 back pocket with front pockets, elast textile inserts, high pocket, side openi ventilation, side po flap closure, suspe flap which covers t with protective ma |
| OTHER COLOURS | | | | |
| NOTES | *Minus $30 for Type A (front-only) protection | *Minus $30 for Type A (front-only) protection | Intended more for ground workers but has rear calf pro | |
| WEBSITE | clogger.co.nz | clogger.co.nz | clogger.co.nz | |

# CHAINSAW TROUSERS

| FRA | ECHO | ECHO | ECHO | ENGLEBERT STRAUSS |
|---|---|---|---|---|
| | Arborist Pants 1A | Performance Flex 1A | Pro-Tech 1A | Cotton Touch 1A |
| | PERFORMANCE | PERFORMANCE | PRO-TECH | O |
| | 000 | 1TSYF0PT3 1TPYF0PAS | 1TNYFOPE5 | 60200 |
| 00 €000 | £125 $000 €130 | £185 $000 €000 | £255 $000 €000 | £168 $000 €000 |
| | 00kg/00lb | 00kg/00lb | 00kg/00lb | 1.6kg/3.52lb |
| | | | | |
| XL R | 32-46" L | S-XXLL | | |
| r – 35% cotton | Stretch nylon<br>?<br>8 layers Dyneema oo | 93% Nylon 7% Elastane<br>00% oo<br>100% oo | 100% Cordura<br>Ventilation mesh<br>6 layers Dyneema oo | |
| | two front, two back and one cargo. | side and back pockets with zippers, plus left thigh and spark plug pockets | 2x Side and 1x back pocket with zip-pers, left thigh (ruler) and scrench/ | |
| | | | | |
| | | | | |
| velcro, 2 wide<br>ticated waist, fluo<br>back waist, rule<br>ngs with zip for<br>ocket with velcro<br>nder buttons, the<br>he zip is reinforced<br>terial | Elastic waist and gusseted crotch. Articulated knees help to reduce pull at the waist. meet OSHA 1910-266. Pockets: | Maximum protection alongside good flexibility and comfort. Pezaflex aqua waterproof reinforcement on knees. | High visibility with reflective elements.Pezaflex aqua waterproof reinforcement on knees. Robust weather resistance with integrated mesh ventilation. Hook for base of leg onto on laces. | Zipped rear thighs |
| | | | | |
| | | | | |
| | echo-usa.com | echotools.com | echotools.com | engelbert-strauss.com |

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**LEGSIZES: S Short R Regular L Long/Tall XL Extra Long/Tall**

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ASTM Canada= Cut Pro+
AS/NZS 4453.3= Cut Pro+
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EN 343-3 = Waterproofing
RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

**EN CUT PROTECTION:**
**Class 1: 20m/s**
**Class 2:**
**Class 3:**
**Level A=**Front leg. **A+**= +Calf
**Level C=**front & back leg
WATER REPELLENT:
CLIMBING: Flexible enough to allow dynamic climbing

| MANUFACTURER | ENGLEBERT STRAUSS | ENGLEBERT STRAUSS | ENGLEBERT STRAUSS | ENGLEBER |
|---|---|---|---|---|
| MODEL PROTECTION VARIANT | Denim Jeans 1A | Forestry KWF | Forestry Bib&Brace KWF | Visio |
| SERIES | O | O | O | C |
| PRODUCT CODE(S) | 60205 | 60156 | 60177 | 601 |
| ORIGIN | | | | |
| COST inc VAT/tax conv-only | £174 $000 €000 | £141 $000 €000 | £152 $000 €000 | £216 $0 |
| WEIGHT per pair (m/lg R) | 1.7kg/3.75lb | 1.6kg/3.52lb | 1.8kg/3.96lb | 1.66kg |
| STANDARDS REPEL WATER | | | | |
| WAIST & LEG SIZES FEMALE | | 30-48 S,R,L 4-26 S,R, L | | |
| MATERIALS - OUTER<br>LINER<br>CUT PROTECTION | | 93% Polyester 7% Elastane<br>100% Polyester<br>100% Polyester | 93% Polyester 7% Elastane<br>100% Polyester<br>100% Polyester | 90% Polyester<br>88% Polyeste<br>100% P |
| POCKETS | | | | |
| REFLECTIVE ZIP VENTS BOOT HOOK | | | | |
| ATTACH BRACES ANTI-TICK CLIMBING | | ■ | | |
| FEATURES | | Cam-Buckle belt 7 belt loops<br>Zipped rear thighs<br>High Waist<br>Cordura Reinforced Knees, seat & ankles.<br>Reflective highlights | Zipper 7<br>Zipped rear thighs.<br>Reflective highlights | Button Waist |
| OTHER COLOURS | | | ■ | |
| NOTES | | Gear loop designed for 'Scrench' | Gear loop designed for 'Scrench' | Gear loop desig |
| WEBSITE | engelbert-strauss.com | engelbert-strauss.com | engelbert-strauss.com | engelbert-s |

| T STRAUSS | FRANCITAL | FRANCITAL | FRANCITAL | FRANCITAL |
|---|---|---|---|---|
| on 1A | Arbois HV 1C | Biot HV 1A 3A | Booster 1A | Cadiz 2A |
| O | TYPE C | O | GOLD | CLASS II |
| 181 | NR011 | FL317 | FL561 | F1202 |
| 00 €000 | £185 $205 €188 | £000 $000 €101138 | £000 $000 €000 | £000 $000 €166 |
| /3.65lb | 1.4kg/3.08lb | 1.6kg/3.52lb | 00kg/00lb | 00kg/00lb |
| | * | | | |
| | S-2XL R82cm | XS-3XL S,R,L | XS-3XL S,R,L | XS-3XL S,R,L |
| r 10% Elastane<br>r 12% Elastine<br>olyester | 93% Polyester 7% Elastane<br>Cotton<br>8-Layer Polyester/Polyprop | 93% Polyester 7% Elastane<br>100% Polyester<br>100% Polyester | 00% oo<br>00% oo<br>100% oo | 93% Polyester 7% Elastane<br>100% Polyester<br>100% Polyester |
| | 2x slant, 1x Ruler | | | |
| | | | | |
| | | | | |
| t 7 Belt loops | Elasticated waist. Polyester - cotton fabric 70/30 240 gr/m² water-repellent (fluorocarbon finish). Double-sided fabric 70% polyester exterior side for greater machine resistance and 30% cotton on the interior side of the fabric for comfort. 8-layer chain saw protection system. Rear high band 70 mm. | Cam-Buckle belt 7 belt loops<br>Zipped rear thighs<br>High Waist<br>Cordura Reinforced Knees, seat & ankles.<br>Reflective highlights. | High-Viz Panels | |
| | | | | |
| ned for 'Scrench' | *TOM - Orange only | | | |
| strauss.com | francital.com | francital.com | francital.com | francital.com |

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**Class 2:**
**Class 3:**
**Level A=**Front leg. **A+**= +Calf
**Level C=**front & back leg

**WATER REPELLENT:**
**CLIMBING:** Flexible enough to allow dynamic climbing

| MANUFACTURER | FRANCITAL | FRANCITAL | FRANCITAL | FRAN |
|---|---|---|---|---|
| MODEL PROTECTION VARIANT | Cervin R 1A | Cervin Pro 1A | Everest R 1A+ 1A | Hades H |
| SERIES | ECO/GOLD | PLATINUM/ECO | ECO | PLATI |
| PRODUCT CODE(S) | FL584D | FL511B FL584D | FL567DM FL567D | FL502 |
| ORIGIN | | | | |
| COST inc VAT/tax conv-only | £000 $000 €176 | £000 $000 €238 | £202 $194 €185 178 | £245230 $262 |
| WEIGHT per pair (m/lg R) | 00kg/00lb | 1.2kg/2.4lb | 1.1kg/2.4lb | 1.641.2kg |
| STANDARDS REPEL WATER | | | | |
| WAIST & LEG SIZES FEMALE | XS-3XL S,R,L | XS-3XL S,R,L | XS-3XL R82,L87cm | S-3XL R8 |
| MATERIALS - OUTER<br>LINER<br>CUT PROTECTION | 00% oo<br>00% oo<br>100% oo | Cordura, nylon & Elastane<br>Cotton<br>5-Layer *Sofly* | Cordura, nylon & Elastane<br>Cotton<br>5-Layer *Sofly* | Polyester<br>Cot<br>5-Laye |
| POCKETS | | 2x slant zip, 2x Ruler 1x Scrench , 1x zip wallet, 1x rear zip, 2x tool | 2x slant zip, 1x Ruler & Scrench , 1x rear zip, 1x left front leg cargo | 2x slant Zip, 1x F<br>1x rea |
| REFLECTIVE ZIP VENTS BOOT HOOK | | ( ) | | |
| ATTACH BRACES ANTI-TICK CLIMBING | | | | |
| FEATURES | | Elasticated waist. Extended rear waist.<br>Multi-purpose, very resistant trousers (mix of Polyamide CORDURA® for solidity and Elastan stretch comfort).<br>96% Polyamide ECONYL® Regenerated Nylon 4% Elastane<br>Rear zip vents on type A only | Eco=-recycled nylon, unbleached lining, Fluor-free water-repellent finish. features reduced to a minimum<br>Easily repairable accessories.<br>Elasticated waist. Extended rear waist<br>Lower leg & knee=2-way stretch fabric.<br>UV protective<br>. | Global Recycled Sta<br>Certified Core Fabr<br>recycled fiber 4% E<br>rocarbons: *Sofishie*<br>=4x more durable t<br>PFC-free Water-rep<br>Elasticated waist. E<br>waist<br>Removable gaitors<br>*Rear Vent zip on T |
| OTHER COLOURS | | | (All-black) 1A+ only | |
| NOTES | | Cervin Pro/Queribus discontnued as type C | Cervin Pro/Queribus discontnued as type C | *TOM - O |
| WEBSITE | francital.com | francital.com | francital.com | francit |

# CHAINSAW TROUSERS

| CITAL | FRANCITAL | FRANCITAL | FRANCITAL | FRANCITAL |
|---|---|---|---|---|
| IV 1C 1A | Helios 1A | Hera Femme 1A | Hermes 1A+ 1A | HV 1A |
| INUM | GOLD | PLATINUM | PLATINUM | CLASS III |
| FL501 | FL596 | FL104F | FL560MM 1560M | FL317 |
| 2248 €240227 | £000 $000 €168 | £000 $000 €205 | £260245 $270262 €248240 | £000 $000 €153 |
| g/3.62.6lb | 00kg/00lb | 00kg/00lb | 1.07kg/2.35lb | 00kg/00lb |
| * | | | | |
| 82,L87cm | XS-3XL S,R,L | 34-54cm R,L | XS-23XL S77,R82,L87cm | S-3XL R,L |
| , Elastane<br>tton<br>r *Sofly* | 00% oo<br>00% oo<br>100% oo | Cordura% oo<br>00% oo<br>100% oo | 90% Nylon 10% Elastane<br>Cotton<br>5-Layer *Sofly* | 00% oo<br>00% oo<br>100% oo |
| Ruler, 1x rear zip,<br>r cargo | | 2x Zip Slant , 1xcargo with Ruler<br>2x Rear | 2x slant/side zip, 1x Rear zip, 1x Ruler, 1x cargo | 2x slant Zip, 1x Ruler, 1x rear,<br>1x wound dressing |
| | | | | |
| * | | | | |
| andard (GRS)<br>ic: 96% Polyester<br>Elastane, 0% fluo-<br>*eld* reinforcements<br>than Cordura.<br>pellent treatment<br>Extended rear<br><br>Type A Only | | 4-way & 2-way stretch fabrics | 2 & 4-way stretch fabric.<br>Elasticated waist. Extended rear waist Lower leg and knee supports in two-way stretch fabric.<br>Elastic drawstring at the bottom of trousers.<br>Pockets usable with harness.<br>Removable gaiters with hook | *Sofishield* reinforcement areas 4x more robust than Cordura |
| | | | | |
| range only | | | Type A Add €8 for Short & Long | |
| al.com | francital.com | francital.com | francital.com | francital.com |

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**LEGSIZES: S Short R Regular L Long/Tall XL Extra Long/Tall**

**STANDARDS:**
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EN 343-3 = Waterproofing
RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

**EN CUT PROTECTION:**
**Class 1: 20m/s**
**Class 2:**
**Class 3:**
**Level A=**Front leg. **A+**= +Calf
**Level C=**front & back leg
**WATER REPELLENT:**
**CLIMBING:** Flexible enough to allow dynamic climbing

| | | | | |
|---|---|---|---|---|
| **MANUFACTURER** | **FRANCITAL** | **FRANCITAL** | **FRANCITAL** | **FRAN** |
| **MODEL PROTECTION VARIANT** | **HV Salopettes 1A** | **Kraken 1A** | **Lugo 2A** | **Muzi** |
| **SERIES** | **CLASS III** | **PLATINUM** | **CLASS II** | **ECO/** |
| PRODUCT CODE(S) | FL335 | FL566 | FL201 | FL5 |
| **ORIGIN** | | | | |
| **COST** inc VAT/tax conv-only | £000 $000 €164 | £000 $000 €224 | £000 $000 €154 | £000 $0 |
| **WEIGHT per pair** (m/lg R) | 00kg/00lb | 00kg/00lb | 00kg/00lb | 1.6kg |
| **STANDARDS REPEL WATER** | | | | |
| **WAIST & LEG SIZES FEMALE** | S-3XL R,L | XS-3XL S,R,L | XS-4XL R,L | XS-3XL |
| **MATERIALS - OUTER**<br>**LINER**<br>**CUT PROTECTION** | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo | 93% Polyester 7% Elastane<br>100% Polyester<br>100% Polyester | 96% Cordura<br>00%<br>100 |
| **POCKETS** | 2x slant Zip, 1x Ruler, 1x rear, 1x wound dressing | | 2x slant/side, 1x Cargo (with ruler), 1x rear | |
| **REFLECTIVE ZIP VENTS BOOT HOOK** | | | | |
| **ATTACH BRACES ANTI-TICK CLIMBING** | | | | |
| **FEATURES** | *Sofishield* reinforcement areas 4x more robust than Cordura | | Button for Braces.<br>High waist. | 2 hand pockets wit<br>1 anti-reverse rule<br>1 spanner-holder r<br>zip pocket rear left<br>2 tool hooks. Butto<br>Belt with loops.<br>Bib with two pocke<br>flap,<br>elastic shoulder str<br>buckle |
| **OTHER COLOURS** | | | | |
| **NOTES** | | | Cost more for 3&4XL. 4XL=green-only | |
| **WEBSITE** | francital.com | francital.com | francital.com | francit |

# CHAINSAW TROUSERS

| CITAL | FRANCITAL | FRANCITAL | FRANCITAL | FRANCITAL |
|---|---|---|---|---|
| o R 1A | Opoul HV 1A 1C | Prior 1C 1A | Prior 3A | Prior Move Pro 1C 1A* |
| GOLD | O | ECO | CLASS III | SILVER |
| 94D | 000 | FL001B | FL310B | FL513 |
| 00 €196 | £000 $000 €118.80 | £168 $165 €152 | £000 $000 €124.13 | £188 $184 €169 |
| /00lb | 1.6kg/3.52lb | 1.5kg/3.3lb | 1.2kg/00lb | 1.5kg/3.3lb |
| | | | | |
| L S,R,L | XS-3XL S,R,L | XS-3XL S77,R82,L87cm | | XS-2XL R82cm |
| ® 4% elastan<br>% oo<br>% oo | | Coated Polyester<br>Cotton<br>5 Layer SOFLY | 00% oo<br>00% oo<br>100% oo | Coated Flex Rip-Stop Nylon/<br>Poly Cotton<br>5 Layer SOFLY |
| | | 2x slant/side zip, 1x Ruler, 1x scrench | | 2x slant/side zip, 1x Ruler, 1x scrench |
| | | | | |
| | | | | |
| th downward zips.<br>r pocket.<br>ear right leg.<br>leg<br>ons for straps.<br><br>ets closed with a<br><br>raps with plastic | Zipped rear thighs | Semi-elasticated waist with loops and extended (high) rear waist.<br>Double-sided fabric 70% polyester exterior side for greater resilience and 30% cotton on the interior for comfort.Crotch has two-way stretch for more comfort and endurance.<br>Cordura Reinforced Knees, seat & ankles. High-Viz Panels | High Waist<br>Cordura Reinforced Knees, seat & ankles.<br>High-Viz Panels | SOFIGUARD® water-repellent finish, 6.6/7% Elastane provides all-way stretch Mono Rip textured fabric<br>Double-sided fabric 70% polyester exterior side for greater resilience and 30% cotton on the interior for comfort.<br>Wide dorsal bib (waist/kidney). |
| | | | | |
| | | Also available as overalls | | *Also available as Class 2 & 3 |
| al.com | francital.com | francital.com | francital.com | francital.com |

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**STANDARDS:**
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ENISO13688= Safety Clothing
EN 343-3 = Waterproofing
RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

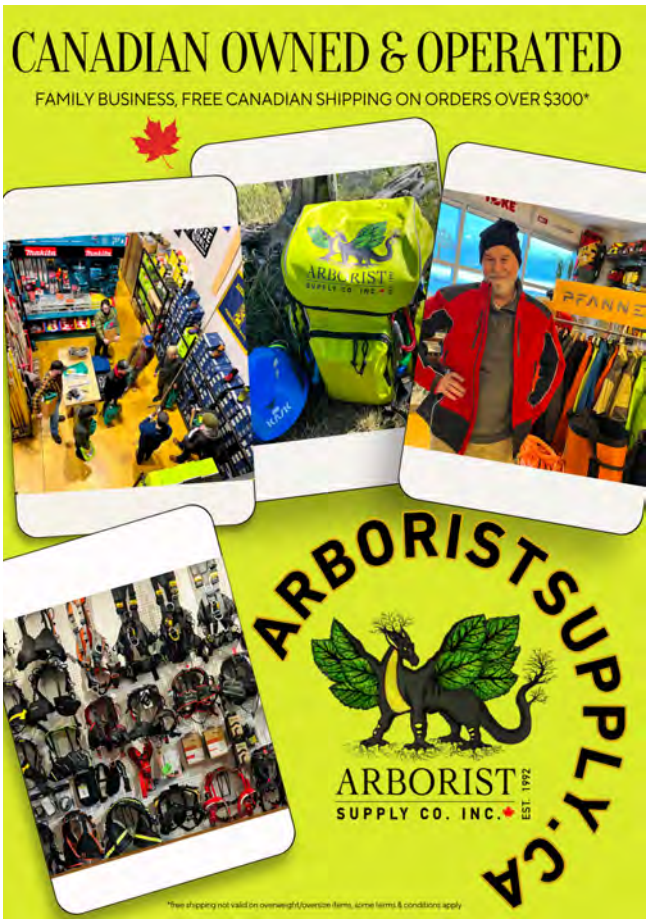
**EN CUT PROTECTION:**
**Class 1: 20m/s**
**Class 2:**
**Class 3:**
**Level A=**Front leg. **A+**= +Calf
**Level C=**front & back leg

**WATER REPELLENT:**
**CLIMBING:** Flexible enough to allow dynamic climbing

| MANUFACTURER | FRANCITAL | FRANCITAL | FRANCITAL | GRUBE TI |
|---|---|---|---|---|
| MODEL PROTECTION VARIANT | Prior Salopettes 1A | Prior Salopettes3A | Sestriere Pro 1A | All Round |
| SERIES | SILVER | CLASS III | PLATINUM | |
| PRODUCT CODE(S) | FL002B | FL302B | FL590A | 0 |
| ORIGIN | | | | |
| COST inc VAT/tax conv-only | £000 $000 €93 | £000 $000 €93 | £000 $000 €252 | £000 $0 |
| WEIGHT per pair (m/lg R) | 00kg/00lb | 00kg/00lb | 00kg/00lb | 1.35k |
| STANDARDS REPEL WATER | | | | |
| WAIST & LEG SIZES FEMALE | XS-3XL S,R,L | XS-3XL S,R,L | XS-4XL R,L | XS-3XL S7 |
| MATERIALS - OUTER<br>LINER<br>CUT PROTECTION | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo | Polyester/Ny<br>100% P<br>5lyr 69% PPYL |
| POCKETS | | | | |
| REFLECTIVE ZIP VENTS BOOT HOOK | | | | |
| ATTACH BRACES ANTI-TICK CLIMBING | ■ | ■ | ■ | |
| FEATURES | High-Viz Panels | High-Viz Panels | | Upper Material: 6<br>Polyamide, Up<br>89% Polyester, 11<br>100% Polypropy<br>Polyamide, 13% A<br>tane (Spandex), N<br>Polyurethane, Cu<br>Polypropylene<br>Tested by the G<br>Association's test |
| OTHER COLOURS | ■ | ■ | | |
| NOTES | | | | |
| WEBSITE | francital.com | francital.com | francital.com | grub |

# CHAINSAW TROUSERS

| MBERMAN | GRUBE TIMBERMAN | |
|---|---|---|
| d Light 1A | All Round Hi-Viz1A | |
| O<br>00 | O<br>000 | |
| 00 €000 | £000 $000 €299 | |
| g/00lb | 1.35kg/00lb | |
| | | |
| 75,R82,L87 | XS-3XL S75,R82,L87 | |
| lon/Spandex<br>olyester<br>31% Polyester | Polyester/Nylon/Spandex<br>100% Polyester<br>5lyr 69% PPYL 31% Polyester | |
| | | |
| | | |
| | | |
| 8% Polyester, 32%<br>per Material 2<br>% Elastane, Lining<br>lene, Trim, 75%<br>ramide, 12% Elas-<br>Membrane, 100%<br>t Protection 69%<br>31% Polyester,<br>ermany Forestry<br>ting agency (FPA), | Upper Material: 68% Polyester, 32% Polyamide, Upper Material 2 89% Polyester, 11% Elastane, Lining 100% Polypropylene, Trim, 75% Polyamide, 13% Aramide, 12% Elas-tane (Spandex), Membrane, 100% Polyurethane, Cut Protection 69% Polypropylene 31% Polyester, Tested by the Germany Forestry Association's testing agency (FPA), | |
| | | |
| | | |
| e.eu | grube.eu | |



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ANSI Z133= Gen Arboriculture
ENISO13688= Safety Clothing
EN 343-3 = Waterproofing
RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

**EN CUT PROTECTION:**
**Class 1: 20m/s**
**Class 2:**
**Class 3:**
**Level A=**Front leg. **A+**= +Calf
**Level C=**front & back leg

**WATER REPELLENT:**
**CLIMBING:** Flexible enough to allow dynamic climbing

| MANUFACTURER | HUSQVARNA | HUSQVARNA | HUSQVARNA | HUSQV |
|---|---|---|---|---|
| MODEL PROTECTION VARIANT | Classic 1A | Carpenter Classic 1A | Classic 1A | Function |
| SERIES | ENTRY | FUNCTIONAL | FUNCTIONAL | FUNCT |
| PRODUCT CODE(S) | 529519444 | 529519644 | 529518944 | 52951.185 |
| ORIGIN | | | | |
| COST inc VAT/tax conv-only | £115 $000 €000 | £130 $000 €135 | £121 $000 €125 | £115 $000 |
| WEIGHT per pair (m/lg R) | 00kg/00lb | 00kg/00lb | 00kg/00lb | 1.35 1.6 |
| STANDARDS REPEL WATER | | | | |
| WAIST & LEG SIZES FEMALE | XS-3XL S,R,L | 44-64 S,R,L | XS-3XL S,R,L | XS-3XL |
| MATERIALS - OUTER<br>LINER<br>CUT PROTECTION | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo | Cord<br>Micro P<br>100 |
| POCKETS | | | | |
| REFLECTIVE ZIP VENTS BOOT HOOK | | | | |
| ATTACH BRACES ANTI-TICK CLIMBING | | | | |
| FEATURES | | | | Extended reinfo lower leg . Breatha Rear legs ventila waist and buttons attachment. Feat protection pad • knees • High ba |
| OTHER COLOURS | | | | |
| NOTES | Intended for very occasional use | | | |
| WEBSITE | husqvarna.com | husqvarna.com | husqvarna.com | husqvar |

# CHAINSAW TROUSERS

| VARNA | HUSQVARNA | HUSQVARNA | HUSQVARNA | HUSQVARNA |
|---|---|---|---|---|
| nal 1A 2A | Extreme (1A) | Extreme Arborist (1A) | Robust (1A) | Waist/Hip Type C 1C 1A |
| TIONAL | TECHNICAL | TECHNICAL | TECHNICAL | TECHNICAL |
| 546 ..18846 | 537643246 | 537642542 | 537642746 | 595000754 594999059 |
| 0 €200270 | £380 $000 €470 | £369 $000 €460 | £309 $000 €370 | £349 $380 €350 |
| 5kg/00lb | 00kg/00lb | 00kg/00lb | 1.2kg/00lb | 1.63kg/3.5lb |
| L S,R,L | XS-3XL S,R,L | XS-3XL S,R,L | XS-3XL S,R,L | XS46cm-3XL64cm S,R,L |
| dura<br>olyester<br>% oo | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo | Cordura/Nylon/ Lycra<br>Polyester<br>5 layer Tekora |
| | | | | 1x Zip side-leg |
| | | | | |
| | | | | |
| rcement on the able. 3 zip pockets. tion, Back elastic suitable for brace ures:• Reinforced Reinforcement on ck • Fit - Straight | | | | Lightweight, four-way stretch fabrics and a range of smart comfort and design features including pre-bent knees help you get more from every shift. Stretch fabric upper front & rear legs. *Teflon*-coated Kevlat/*Cordura-Heavy* reinforced knees, crotch & lower legs 45% Cordura®/30% Nylon/25% Kevlar. *Rear Vent zip on Type A Only |
| | | | | |
| | | | | |
| rna.com | husqvarna.com | husqvarna.com | husqvarna.com | husqvarna.com |

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**EN CUT PROTECTION:**
**Class 1: 20m/s**
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**Level A=**Front leg. **A+**= +Calf
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**WATER REPELLENT:**
**CLIMBING:** Flexible enough to allow dynamic climbing

| MANUFACTURER | KIYARI | MONTBELL | NOTCH EQUIPMENT | ORE |
|---|---|---|---|---|
| MODEL PROTECTION VARIANT | 1A | | Armorflex II | Wai |
| SERIES | | | - | |
| PRODUCT CODE(S) | | | NA2CP | 2954.. |
| ORIGIN | | | | |
| COST inc VAT/tax conv-only | £210 $000 €000 | | £309 $270 €000 | £309 $0 |
| WEIGHT per pair (m/lg R) | 1.04kg/00lb | | 00kg/00lb | 00kg, |
| STANDARDS REPEL WATER | | | | |
| WAIST & LEG SIZES FEMALE | 32-36" R | | 28-30" 32-34" 36-38" 30,32,34 | S-3XL |
| MATERIALS - OUTER<br>LINER<br>CUT PROTECTION | 00% oo<br>00% oo<br>100% oo | | 88% cordura, 12% Elastane/ DWR<br>100% Polyester<br>5-Layer Avertic Engtex | 00%<br>00%<br>100 |
| POCKETS | | | 2x zip angled front with pull tabs<br>2x side cargo/phone. | |
| REFLECTIVE ZIP VENTS BOOT HOOK | | | * | |
| ATTACH BRACES ANTI-TICK CLIMBING | | | | |
| FEATURES | | | Scannable NFC tag technology.<br>DWR finish repels water, oil & dirt<br>Articulated knee protection with Armortex® abrasion resistant fabrics<br>Large cooling rear vents *NOT zipped.<br>Elastic waistband.<br>UL classified in accordance with ASTM standard for leg protection<br>Meets ANSI, ASTM Class C | • 6 Layer prote<br>• Abrasion re<br>stretch p<br>• Lightweight:<br>• Zipper pocke<br>double tool p<br>• Zipper ventila<br>le |
| OTHER COLOURS | | | - | |
| NOTES | | | | |
| WEBSITE | | | notchequipment.com | oregonpro |

# CHAINSAW TROUSERS

| GON | OREGON | OREGON | OREGON |
|---|---|---|---|
| peao | Yukon 1C 1A | Yukon + 1A | Fjordland 1A |
| | - | | |
| 66..69 | 295397..295435.. | 295466..67 | 295466..67 |
| 00 €000 | £155135 $237220 €150130 | £309 $000 €000 | £309 $000 €000 |
| /00lb | 1.25kg/2.75lb | 00kg/00lb | 00kg/00lb |
| | | | |
| S,R,L | S30"-XXL40" S,R,L | XS-3XL S,R,L | XS-3XL S,R,L |
| % oo<br>% oo<br>% oo | Polyester<br>Polyester<br>5-Layer | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo |
| | 2x large front, 1x slanted rear (with hook and loop closure) | | |
| | | | |
| | | | |
| ctive material<br>sistant 4-way<br>polyester<br>1,38kg (size M)<br>ets at front and<br>pocket at back<br>tions at back of<br>gs | 5-layer protective material<br>Abrasion resistant 2 & 4-way stretch polyester<br>2 large front pockets &and one back pocket<br>Lightweight: 1,05 kg (size M Type A trousers) | • 6 cutting resistant protective layers<br>• 35% cotton for comfort, breathability and sweat control<br>• 65% polyester for high durability<br>• Oil, fuel and heat resistant<br>• Lightweight: 1.15 kg (size M Class 1) | |
| | | | |
| | | | |
| ducts.com | oregonproducts.com | oregonproducts.com | oregonproducts.com |

| Size | Chest width | Waist | inside Leg Lengths Short | Reg | Long/Tall |
|---|---|---|---|---|---|
| 2XS | 78 | 74 | 80 | 87 | 75 |
| XS | 84 | 80 | 80 | 87 | 75 |
| S | 96 | 86 | 80 | 87 | 75 |
| M | 102 | 92 | 80 | 87 | 75 |
| L | 108 | 98 | 80 | 87 | 75 |
| XL | 116 | 104 | 80 | 87 | 75 |
| XXL | 124 | 110 | 80 | 87 | 75 |
| 3XL | 132 | 116 | 80 | 87 | 75 |
| 4XL | 138 | 122 | 80 | 87 | 75 |

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**Level A=**Front leg. **A+=** +Calf
**Level C=**front & back leg

**WATER REPELLENT:**
**CLIMBING:** Flexible enough to allow dynamic climbing

| MANUFACTURER | PFANNER | PFANNER | PFANNER | PFAN |
|---|---|---|---|---|
| MODEL PROTECTION VARIANT | Arborist Slimfit 1A | Arborist 1C 1A | Ventilation 1C 1A | Jumps |
| SERIES | 00 | ARBORIST | VENTILATION | 0 |
| PRODUCT CODE(S) | 0000 | 106651 102218 | 102078 101761 | 102 |
| ORIGIN | | | | |
| COST inc VAT/tax conv-only | £306 $000 €000 | £336 $405€350326 | £340288 $438 €408 | £000 $0 |
| WEIGHT per pair (m/lg R) | 1.33kg/00lb | 1.63kg/3.6lb | 1.2-1.95kg/2.6-4.3lb | 2kg/ |
| STANDARDS REPEL WATER | | | | |
| WAIST & LEG SIZES FEMALE | XXS-3XL S,R,L | XXS-3XL S-75,R-80,L-87cm | XS-3XL S-75,R-80,L-87cm | S-XL |
| MATERIALS - OUTER<br>LINER<br>CUT PROTECTION | 92% Nylon 8% Elastine<br>100 % polyester (Cocona)<br>Dyneema | 100% Nylon (Rear 10% Elastine)<br>Polyester Cocona<br>Engtex Avertic Pro | Coated Nylon (Rear 10% Elastine)<br>Polyester Cocona<br>Engtex Avertic Pro | 00%<br>00%<br>100 |
| POCKETS | | 2x side zip, 1x phone, 1x cargo, 1x rear zip | 2x side zip, 1x flapped phone/cargo, 1x ruler pouch, 1x rear zip | |
| REFLECTIVE ZIP VENTS BOOT HOOK | | (Orange Hi-Viz version-only) | | |
| ATTACH BRACES ANTI-TICK CLIMBING | | | | |
| FEATURES | StretchAIR® technology KlimaAIR® in the waistband area Gladiator® Extreme reinforcements for optimum protection on the front and inside of the leg (type A) Removable, elastic gaiters Preformed knee area Reflective Paspol stripes | Pfanner's StretchAIR® and KlimaAIR® fabrics for freedom of movement. Soft fibre lining for skin comfort. Keprotec® reinforcement front & inside legs protect against climbing spikes. Avertic Pro cut protection from Engtex. Waistband mesh improves ventilation. Preformed, tear-proof Keprotec knees. Soft comfort lining. | Very lightweight (1.2kg size medium) Removable gaiters - Summer version doesn't come with gaiters or coating. Waistband mesh improves ventilation. Tear-proof Gladiator fabric in the front. Pre-shaped knee reinforcements. Soft comfort lining. Zip Vents on Type A only | Stretch-AIR® and with chainsaw p way up to the ch fabric allows fo Klima-AIR® helps temperature. Com body size adjuste the shoulders. De prevent debris in knee reinfo |
| OTHER COLOURS | | | | |
| NOTES | Olive & Blue colours shown are Slimfit | | | |
| WEBSITE | pfanner-austria.at | pfanner-austria.at | pfanner-austria.at | pfanner-a |

# CHAINSAW TROUSERS

| NNER | PFANNER | PFANNER | PFANNER | PFANNER |
|---|---|---|---|---|
| suit 1A | Gladiator 2A | Gladiator II/Extreme 1A | Keprotec Light 1A | Impact Clearing Pants 1A |
| 00 | 00 | 00 | 00 | 00 |
| 182 | 102192 | 102155 102192 | 102193-140 | 101756 |
| 00 €000 | £300 $000 €000 | £318 $000 €000 | £210 $000 €000 | £000 $000 €000 |
| 4.4lb | 1.71kg/00lb | 1.43kg/00lb | 1.32kg/00lb | 00kg/00lb |
| R,L | XS-3XL S,R,L | XS-2XL S,R | S-XL R | XS-3XL S,R,L |
| % oo<br>% oo<br>% oo | 00% oo<br>00% oo<br>100% oo | Nylon, Aramid, PU, Elastane<br>Polyester Cocona | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo |
| | | | | |
| Klima-AIR® fabrics protection all the best. Stretch-AIR® or stretch while regulate the body nfort lining. Upper d via velcro tabs at tachable leg cuffs gress. Pre-shaped orcements. | Water-repellent, oil repellent and abrasion resistant, Gladiator fabric in the front and Stretch AIR fabric in the back. Pre-shaped knee reinforcements. Inside leg cuff is reinforced. Detachable internal gaiters provide protection from ticks and stop dirt and sawdust getting into boots. | Outer fabric is reinforced with Kevlar threads giving these trousers water, abrasion, oil and heat resistant qualities with excellent durability. Keprotec knee reinforcements. Pfanner's StretchAIR and KlimaAIR fabrics plus gentle-on-the-skin Cocona fibre Ventilation zips at the back of the knees allow for further wearing comfort. | | StretchAIR® technology<br>Gladiator® fabric on the front<br>Impact protection in the front area<br>Ventilation insert at the waistband<br>Vents on the back of the leg<br>Preformed knee reinforcement |
| | | | | |
| austria.at | pfanner-austria.at | pfanner-austria.at | pfanner-austria.at | pfanner-austria.at |

ProfiForest Size Chart

| Size | A chest circumference | B Waist circumference of the pants | C stride length normal | extended | shortened |
|---|---|---|---|---|---|
| XXS | 78 | 74 | 80 | 87 | 75 |
| XS | 84 | 80 | 80 | 87 | 75 |
| S | 96 | 86 | 80 | 87 | 75 |
| M | 102 | 92 | 80 | 87 | 75 |
| L | 108 | 98 | 80 | 87 | 75 |
| XL | 116 | 104 | 80 | 87 | 75 |
| XXL | 124 | 110 | 80 | 87 | 75 |
| 3XL | 132 | 116 | 80 | 87 | 75 |
| 4XL | 138 | 122 | 80 | 87 | 75 |

**IMAGES NOT TO SCALE**
**COST:** inc local tax/VAT
£$€=currency conversion only
**LEGSIZES: S Short R Regular L Long/Tall XL Extra Long/Tall**

**STANDARDS:**
EN3815= Chainsaw Cut Pro
ENISO11393-2= Chainsaw safety
ASTM F1897 USA= Cut Pro+
ASTM Canada= Cut Pro+
AS/NZS 4453.3= Cut Pro+
KWF-Profi= Forestry safety
ANSI Z133= Gen Arboriculture
ENISO13688= Safety Clothing
EN 343-3 = Waterproofing
RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

**EN CUT PROTECTION:**
**Class 1: 20m/s**
**Class 2:**
**Class 3:**
**Level A=**Front leg. **A+**= +Calf
**Level C=**front & back leg
**WATER REPELLENT:**
**CLIMBING:** Flexible enough to allow dynamic climbing

| MANUFACTURER | PROFIFOREST | PROFIFOREST | PROFIFOREST | PROFIF |
|---|---|---|---|---|
| MODEL PROTECTION VARIANT | Extreme 1A | Extreme Womans 1A | Arborist 1C 1A | Cool |
| SERIES | - | - | - | |
| PRODUCT CODE(S) | 11-021/20 | 11-021/20 | 17-019 / 10 | 11-02 |
| ORIGIN | | | | |
| COST inc VAT/tax conv-only | £000 $000 €270 | £000 $000 €245 | £276 $357 €268 | £221-244 $288 |
| WEIGHT per pair (m/lg R) | 00kg/00lb | 00kg/00lb | 1.6kg/3.5lb | 1.45kg |
| STANDARDS REPEL WATER | | | | |
| WAIST & LEG SIZES FEMALE | XS-4XL S,R,L | XS-4XL S,R,L | XS-4XL S, R82, L cm | XXS-4XL |
| MATERIALS - OUTER<br>LINER<br>CUT PROTECTION | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo | 92% Cordura, 8% spandex<br>100% Polyester<br>48% Polyester, 52% PP | 92% Cordura<br>100% P<br>48% Polyes |
| POCKETS | | | Scrench pocket, Ruler pouch. 2x Zip front (1xeach side), 1x Cargo, 1 rear | Scrench pocket, Ru front (1xeach side) |
| REFLECTIVE ZIP VENTS BOOT HOOK | | | | |
| ATTACH BRACES ANTI-TICK CLIMBING | | | | |
| FEATURES | Protective trousers of the highest quality, manufactured based on the experience of forest workers who work in the toughest conditions. To make work in the forest even easier, we have used a new stretch protective insert that meets the standard 11393-2 Class 1 - 20 m/s with just 5 layers. | Protective trousers of the highest quality, manufactured based on the experience of forest workers who work in the toughest conditions. To make work in the forest even easier, we have used a new stretch protective insert that meets the standard 11393-2 Class 1 - 20 m/s with just 5 layers. | Developed for work at heights with 360° reinforced legs. The trousers are reinforced in places where arborists need it most. Good ventilation. Water-repellent, dirt & abrasion resistant. Functional lining with Coolmax fibers<br>Ventilation gaps on back of trousers<br>Anti-Tick hems. Removable gaiters.<br>3M Reflective highlights. YKK zips. | For higher risk fact<br>Despite higher leve<br>the user remains c<br>climates.<br>Materials used are<br>and resistant to dir<br>Comfortable Coolm<br>lation on rear of le<br>Anti-Tick hems. Re<br>3M Reflective high |
| OTHER COLOURS | | | | |
| NOTES | | | | |
| WEBSITE | profiforest.eu | profiforest.eu | profiforest.eu | profifo |

# CHAINSAW TROUSERS

| FOREST | PROFIFOREST | PROFIFOREST | PROFIFOREST | PROFIFOREST |
|---|---|---|---|---|
| 1C 1A | Flex 1A | BlueLight 1A | Classic 1A | Basic 1A |
| - | - | - | - | - |
| 21/20 | 11-021/20 | 11-021/20 | 11-021/20 | 11-021/20 |
| | | | | |
| 3-316 €266-292 | £000 $000 €122 | £000 $000 €256 | £000 $000 €57 | £000 $000 €92 |
| g/3.2lb | 00kg/00lb | 00kg/00lb | 00kg/00lb | 00kg/00lb |
| | | | | |
| R 82cm | XXS-4XL S,R,L | XXS-4XL S,R,L | XXS-4XL S,R,L | XXS-4XL S,R,L |
| , 8% spandex<br>olyester<br>ster, 52% PP | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo |
| uler pouch. 2x Zip<br>, 1x Cargo, 1 rear | | | | |
| | | | | |
| | ■ | ■ | ■ | ■ |
| ors at work<br>el of protection,<br>ooler in warmer<br><br>water-repellent<br>rt and abrasion.<br>nax lining & venti-<br>gs<br>movable gaiters.<br>lights. YKK zips. | | | | |
| | | | | |
| | | | | |
| rest.eu | profiforest.eu | profiforest.eu | profiforest.eu | profiforest.eu |

ProfiForest Size Chart

| Size | A chest circumference | B Waist circumference of the pants | C stride length normal | extended | shortened |
|---|---|---|---|---|---|
| XXS | 78 | 74 | 80 | 87 | 75 |
| XS | 84 | 80 | 80 | 87 | 75 |
| S | 96 | 86 | 80 | 87 | 75 |
| M | 102 | 92 | 80 | 87 | 75 |
| L | 108 | 98 | 80 | 87 | 75 |
| XL | 116 | 104 | 80 | 87 | 75 |
| XXL | 124 | 110 | 80 | 87 | 75 |
| 3XL | 132 | 116 | 80 | 87 | 75 |
| 4XL | 138 | 122 | 80 | 87 | 75 |

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£$€=currency conversion only
LEGSIZES: S Short R Regular L Long/Tall XL Extra Long/Tall

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EN 343-3 = Waterproofing
RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

**EN CUT PROTECTION:**
**Class 1: 20m/s**
**Class 2:**
**Class 3:**
**Level A=**Front leg. **A+**= +Calf
**Level C=**front & back leg
WATER REPELLENT:
CLIMBING: Flexible enough to allow dynamic climbing

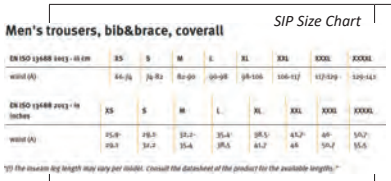
| MANUFACTURER | PROFIFOREST | PROFIFOREST | PROFIFOREST | PROFIF |
|---|---|---|---|---|
| MODEL PROTECTION VARIANT | Innovation 1A | Kevlar 1A | Summer 1A | Visib |
| SERIES | - | - | - | |
| PRODUCT CODE(S) | 11-021/20 | 11-021/20 | 17-019 / 10 | 11-02 |
| ORIGIN | | | | |
| COST inc VAT/tax conv-only | £000 $000 €276 | £000 $000 €315 | £000 $000 €268 | £000 $0 |
| WEIGHT per pair (m/lg R) | 00kg/00lb | 00kg/00lb | 00kg/00lb | 00kg, |
| STANDARDS REPEL WATER | | | | |
| WAIST & LEG SIZES FEMALE | XS-4XL S,R,L | XS-4XL S,R,L | XS-4XL S,R,L | XXS-4X |
| MATERIALS - OUTER<br>LINER<br>CUT PROTECTION | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo | 00%<br>00%<br>100% |
| POCKETS | | | | |
| REFLECTIVE ZIP VENTS BOOT HOOK | | | | |
| ATTACH BRACES ANTI-TICK CLIMBING | ■ | ■ | ■ | ■ |
| FEATURES | | | | |
| OTHER COLOURS | | | | |
| NOTES | | | | |
| WEBSITE | profiforest.eu | profiforest.eu | profiforest.eu | profifo |

# CHAINSAW TROUSERS

| | | | | |
|---|---|---|---|---|
| | | | | |
| | | | | |
| FOREST | OO | OO | OO | OO |
| le 1A | oo 1A | oo 1A | oo 1A | oo 1A |
| - | - | - | - | - |
| 21/20 | 11-021/20 | 11-021/20 | 11-021/20 | 11-021/20 |
| 00 €266 | £000 $000 €122 | £000 $000 €122 | £000 $000 €122 | £000 $000 €122 |
| /00lb | 00kg/00lb | 00kg/00lb | 00kg/00lb | 00kg/00lb |
| | | | | |
| L S,R,L | XXS-4XL S,R,L | XXS-4XL S,R,L | XXS-4XL S,R,L | XXS-4XL S,R,L |
| % oo<br>% oo<br>% oo | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo |
| | | | | |
| | | | | |
| ■ | ■ | ■ | ■ | ■ |
| | | | | |
| | | | | |
| | | | | |
| rest.eu | oo.com | oo.com | oo.com | oo.com |

SIP Size Chart

Men's trousers, bib&brace, coverall



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**LEGSIZES: S Short R Regular L Long/Tall XL Extra Long/Tall**

**STANDARDS:**
EN3815= Chainsaw Cut Pro
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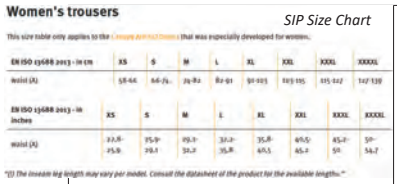
EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

**EN CUT PROTECTION:**
**Class 1: 20m/s**
**Class 2:**
**Class 3:**
**Level A=**Front leg. **A+=** +Calf
**Level C=**front & back leg
**WATER REPELLENT:**
**CLIMBING:** Flexible enough to allow dynamic climbing

| MANUFACTURER | SIP PROTECTION | SIP PROTECTION | SIP PROTECTION | SIP PRO |
|---|---|---|---|---|
| MODEL PROTECTION VARIANT | Arborist Tall 1A | Arborist HV 1A | Canopy Air GO Donna 1A | Canopy A |
| SERIES | PROGRESS | PROGRESS | (WOMANS) INNOVATION | INNOV |
| PRODUCT CODE(S) | 1SNA 1SNB | | | |
| ORIGIN | | | | |
| COST inc VAT/tax conv-only | £000 $000 €338370 | £000 $000 €349 | £000 $000 €330 | £000 $0 |
| WEIGHT per pair (m/lg R) | 00kg/00lb | 00kg/00lb | 1.6kg/00lb | 00kg, |
| STANDARDS REPEL WATER | | | | |
| WAIST & LEG SIZES FEMALE | XS-XXL R82,(L88)cm | XS-XXL R82,(L88)cm | XS-3XL S,R,L | XS-3XL |
| MATERIALS - OUTER<br>LINER<br>CUT PROTECTION | 87% Cordura® 13% elastane<br>Polyester mesh<br>6-layer Dyneema | 87% Cordura® 13% elastane<br>Polyester mesh<br>6-layer Dyneema | 96% Cordura® 4% elastan<br>00% oo<br>100% oo | 00%<br>00%<br>100% |
| POCKETS | 2x zip slant, 1x Cargo, 1x splashproof zipped phone/waterproof lining | 2x zip slant, 1x Cargo, 1x splashproof zipped phone/waterproof lining | | |
| REFLECTIVE ZIP VENTS BOOT HOOK | | | | |
| ATTACH BRACES ANTI-TICK CLIMBING | | | | |
| FEATURES | Zip Front fly with press stud.<br>Elasticated waist with belt<br>Armortex® Light (30,7% para-aramid - 60,6% polyamide - 6,5% elasthane - 2,2% polyurethane ±340g/m2) knee reinforcements<br>Water/dirt repellent Teflon-coated TeXXion (±240g/m2)<br>Full stretch Armortex-ip light reinforcements | Zip Front fly with press stud.<br>Elasticated waist with belt<br>Armortex® Light (30,7% para-aramid - 60,6% polyamide - 6,5% elasthane - 2,2% polyurethane ±340g/m2) knee reinforcements<br>Water/dirt repellent Teflon-coated TeXXion (±240g/m2)<br>Full stretch Armortex-ip light reinforcements | 2 hand pockets with downward zips.<br>1 anti-reverse ruler pocket.<br>1 spanner-holder rear right leg.<br>zip pocket rear left leg<br>2 tool hooks. Buttons for straps.<br>Belt with loops.<br>Bib with two pockets closed with a flap,<br>elastic shoulder straps with plastic buckle | |
| OTHER COLOURS | | | | |
| NOTES | | | | |
| WEBSITE | sip-protection.com | sip-protection.com | sip-protection.com | sip-protec |

# CHAINSAW TROUSERS

| TECTION | SIP PROTECTION | SIP PROTECTION | SIP PROTECTION | SIP PROTECTION |
|---|---|---|---|---|
| Air Go 1A | Canopy W Air 1A | Flex 1A | Forest W Air 1A | Innovator 1A |
| VATION | INNOVATION | FLEX | INNOVATION | INNOVATION |
| | 000 | 1XSPN2PT3 | 1SBWA2PH5 | 000 |
| | | | | |
| 00 €317 | £000 $000 €295 | £000 $000 €125 | £000 $000 €295 | £000 $000 €243 |
| /00lb | 00kg/00lb | 00kg/00lb | 00kg/00lb | 1.6kg/00lb |
| | | | | EN11393 |
| L S,R,L | 00-00 S, R, L | 00-00 S, R, L | 00-00 S, R, L | 00-00 S, R, L |
| % oo<br>% oo<br>% oo | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo | 96% Cordura® 4% elastan<br>00% oo<br>100% oo |
| | | | | |
| | | | | |
| | | | | |
| | | | | 2 hand pockets with downward zips.<br>1 anti-reverse ruler pocket.<br>1 spanner-holder rear right leg.<br>zip pocket rear left leg<br>2 tool hooks. Buttons for straps.<br>Belt with loops.<br>Bib with two pockets closed with a flap,<br>elastic shoulder straps with plastic buckle |
| | | | | |
| | | | | |
| ction.com | sip-protection.com | sip-protection.com | sip-protection.com | sip-protection.com |


Women's trousers

SIP Size Chart

**IMAGES NOT TO SCALE**
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£$€=currency conversion only
**LEGSIZES: S Short R Regular L Long/Tall XL Extra Long/Tall**

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ASTM F1897 USA= Cut Pro+
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ANSI Z133= Gen Arboriculture
ENISO13688= Safety Clothing
EN 343-3 = Waterproofing
RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

**EN CUT PROTECTION:**
**Class 1: 20m/s**
**Class 2:**
**Class 3:**
**Level A=**Front leg. **A+**= +Calf
**Level C=**front & back leg

WATER REPELLENT:
CLIMBING: Flexible enough to allow dynamic climbing

| MANUFACTURER | SIP PROTECTION | SIP PROTECTION | SIP PROTECTION | SIP PRO |
|---|---|---|---|---|
| MODEL PROTECTION VARIANT | Ninja 1A | Perthus 1C | Perthus Flash 1A 3A | PROGre |
| SERIES | EVO | BASE PRO | BASEPRO | OC |
| PRODUCT CODE(S) | 1SPOA2PTH | 1RP6A2PAS | 1RQ1.. 1RQ3.. | |
| ORIGIN | | | | |
| COST inc VAT/tax conv-only | £000 $000 €208 | £159 $245 €190 | £000 $000 €120164 | £000 $0 |
| WEIGHT per pair (m/lg R) | 1.8kg/3.96lb | 1.75kg/3.85lb | 00kg/00lb | 00kg, |
| STANDARDS REPEL WATER | | | | |
| WAIST & LEG SIZES FEMALE | 00-00 S, R, L | S-3XL S, R, L | 00-00 S, R, L | XS-3X |
| MATERIALS - OUTER<br>LINER<br>CUT PROTECTION | 93% Polyester 7% Elastane<br>100% Polyester<br>100% Polyester | Polyester<br>Cotton<br>6-Layer | 00% oo<br>00% oo<br>100% oo | 00%<br>00<br>100 |
| POCKETS | | 2x front-slant, 1x rear zip, 1x cargo/ ruler pouch & scrench holder | | |
| REFLECTIVE ZIP VENTS BOOT HOOK | | | | |
| ATTACH BRACES ANTI-TICK CLIMBING | | | | |
| FEATURES | | Bib in back with attachment for braces<br>Front fly with zip closure & button<br>Elasticated waist with belt and attachment for suspenders classic SIP Protection triple needle stitching in the back seam | | |
| OTHER COLOURS | | | | |
| NOTES | | NB: This is the only type C in Sip's current range, *Samourai* =now A-only | | |
| WEBSITE | sip-protection.com | sip-protection.com | sip-protection.com | sip-protec |

# CHAINSAW TROUSERS

| TECTION | SIP PROTECTION | SIP PROTECTION | SIP PROTECTION | SIP PROTECTION |
|---|---|---|---|---|
| ssion 2A | PROGression Flash 2A | Reflex 1A | Samourai 1A | Samourai HV 1A |
| OO | OOO | FLEX | PROGRESS | PROGRESS |
| | | 1XRPNAPT3 | 1SRLNAPTP | 1SALA2PTH |
| | | | | |
| 00 €374 | £000 $000 €349 | £000 $000 €157 | £000 $000 €298 | £000 $000 €330 |
| /00lb | 00kg/00lb | 00kg/00lb | 1.6kg/00lb | 00kg/00lb |
| | | | EN11393 | |
| L S,R,L | XS-3XL S,R,L | 00-00 S, R, L | 00-00 S, R, L | 00-00 S, R, L |
| % oo<br>% oo<br>% oo | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo | 96% Cordura® 4% elastan<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo |
| | | | | |
| | | | | |
| | | | | |
| | | | 2 hand pockets with downward zips.<br>1 anti-reverse ruler pocket.<br>1 spanner-holder rear right leg.<br>zip pocket rear left leg<br>2 tool hooks. Buttons for straps.<br>Belt with loops.<br>Bib with two pockets closed with a flap,<br>elastic shoulder straps with plastic buckle | |
| | | | | |
| | | | | |
| ction.com | sip-protection.com | sip-protection.com | sip-protection.com | sip-protection.com |

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ENISO13688= Safety Clothing
EN 343-3 = Waterproofing
RIS-3279-TOM= Hi-Viz Rail
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**Class 3:**
**Level A=**Front leg. **A+**= +Calf
**Level C=**front & back leg

**WATER REPELLENT:**
**CLIMBING:** Flexible enough to allow dynamic climbing

| MANUFACTURER | SIP PROTECTION | SIP PROTECTION | SIP PROTECTION |
|---|---|---|---|
| MODEL PROTECTION VARIANT | T-Flex 1A+ | Ventoux2 2A | Ventoux 3 3A |
| SERIES | FLEX | | |
| PRODUCT CODE(S) | 1XRU | | |
| ORIGIN | | | |
| COST inc VAT/tax conv-only | £157 $241 €187 | £000 $000 €132 | £000 $000 €149 |
| WEIGHT per pair (m/lg R) | 1.8kg/3.96lb | 00kg/00lb | 00kg/00lb |
| STANDARDS REPEL WATER | | | |
| WAIST & LEG SIZES FEMALE | XS-2XL R82cm | 00-00 S, R, L | 00-00 S, R, L |
| MATERIALS - OUTER<br>LINER<br>CUT PROTECTION | Coated Nylon<br>Polyester mesh<br>6-layer Dyneema | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo |
| POCKETS | 2x front-slant, 1x rear zip, 1x cargo/ ruler pouch & scrench holder | | |
| REFLECTIVE ZIP VENTS BOOT HOOK | | | |
| ATTACH BRACES ANTI-TICK CLIMBING | | | |
| FEATURES | Zip Front fly with press stud.<br>Elasticated waist with belt<br>Anti-tick elasticated gaiter with metal lace hook to fix on shoe laces<br>6 layer front protective inlay and additional calf protection, Waterproof anti-wicking fabric on the hem, on top of the protective inlay.<br>2-way stretch fabric with 7%Elastane | | |
| OTHER COLOURS | | | |
| NOTES | | | |
| WEBSITE | sip-protection.com | sip-protection.com | sip-protection.com |

SOLIDUR
1946

# PERSONAL PROTECTIVE EQUIPMENT
## for professionals working outdoors

**FRPAUS**
ASTM F1897-20 with
360°calf protection
Size: XS to 4XL

## SOFRESH

- Chainsaw protective pants
- 5 layers protection
- 6 ventilation panels,
placed on the front & back

**FRPA**
EN 11393
Size: S to 4XL

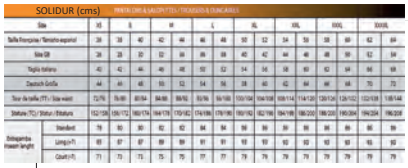
**SHER**
Size: XS to 2XL

## SHERMAN

- Working pants, 4 ways stretch
no chainsaw protection
- Preformed knee in Armortex®
- Leg reinforcement in Cordura®

**www.solidur.fr** @solidur1946

Photo credit: © SOLIDUR - AdobeStock | # 344511538

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**LEGSIZES: S Short R Regular L Long/Tall XL Extra Long/Tall**

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EN3815= Chainsaw Cut Pro
ENISO11393-2= Chainsaw safety
ASTM F1897 USA= Cut Pro+
ASTM Canada= Cut Pro+
AS/NZS 4453.3= Cut Pro+
KWF-Profi= Forestry safety
ANSI Z133= Gen Arboriculture
ENISO13688= Safety Clothing
EN 343-3 = Waterproofing
RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

**EN CUT PROTECTION:**
**Class 1: 20m/s**
**Class 2:**
**Class 3:**
**Level A=**Front leg. **A+=** +Calf
**Level C=**front & back leg
**WATER REPELLENT:**
**CLIMBING:** Flexible enough to allow dynamic climbing

| MANUFACTURER | SOLIDUR | SOLIDUR | SOLIDUR | SOLI |
|---|---|---|---|---|
| MODEL PROTECTION VARIANT | Comfy 1C 1A | Climb LE 1A+ | Hi-Viz Trousers 1C 1A 2A | Hi-Viz Tro |
| SERIES | - | CLIMB | GLOW | GL |
| PRODUCT CODE(S) | COPA1C COPA | CLIPH | HVPA1C HVPA | HVP |
| ORIGIN | | | | |
| COST inc VAT/tax conv-only | £204190 $265250 €200187 | £305 $395 €303 | £108 $000 €190 | £000 $0 |
| WEIGHT per pair (m/lg R) | 1.7kg/3.74lb | 1.2kg/2.64lb | 1.25kg/2.75lb | 1.5kg |
| STANDARDS REPEL WATER | | | | |
| WAIST & LEG SIZES FEMALE | XS-4XL S, R, L, XL | S-2XL S, R, L | XS/78-4XL/86 S, R, L, XL | XS/78-4XL |
| MATERIALS - OUTER<br>LINER<br>CUT PROTECTION | 245 g/m² polycotton/Kevlar<br>140 g/m² CoolMax®<br>5 layer polyester | 88%Cordura/Kevlar 12%Spandex<br>55%CoolMax®45%Coolpass®<br>4 layer Polyester 160g/m² | 150g/m² high viz polyester<br>Polyester stretch-mesh<br>5 layer Polyester 160g/m² | 150g/m² high<br>Polyester st<br>5 layer Polye |
| POCKETS | 2x Front-slant, 1x Scrench, Ruler pouch | 2x Front, 1x Scrench, Ruler pouch tool-holder. First Aid pouch.1x Cargo | 2x front-slant, 1x scrench, Ruler pouch & | 2xfront-slant, 1xscr tool-holder loop. |
| REFLECTIVE ZIP VENTS BOOT HOOK | | | | |
| ATTACH BRACES ANTI-TICK CLIMBING | * | | * | |
| FEATURES | Low bulk 5 layer protective material. Armortex® Kevlar® reinforcement to knees and right thigh. Teflon® Shield+ waterproof and oil/dirt repellent coating. Cordura® knees/seat/ankes. Zip detachable gaiters Type C DISCONTINUED in France but available in the UK as a special. *Rear Vent zip on Type A Only | Lightweight 4 -layer protection. Knee reinforcement in Armortex and Kevlar, right thigh in Cordura Rear leg material Ripstop and breathable mesh. Removable gaiters. Dirt and water repellent Teflon treated RIRI® button closure. Zipsol® system for extra pockets. Cargo pocket on the left leg has dust flap. High back. Elasticated waistband | High visibility orange &water-repellent, Lining: Stretchy polyester mesh, promoting breathability and comfort. Reflective strips: 3M. Anti-snag hooks Stretch lining and elasticated waistband for freedom of movement. Wraparound bib back . Zipsol® system for adding accessories *Rear Vent zip on Type A Only | 3M High Visibility T Zipsol® system for sories Elasticated waistba Buttons for suspen Back wraparound b |
| OTHER COLOURS | | | 4XL=orange only | |
| NOTES | Authentic Type C DISCONTINUED | Type C HVPA1C DISCONTINUED being replaced by ULTRALIGHT Q3'25 | Type C HVPA1C DISCONTINUED being replaced by ULTRALIGHT Q3'25 | TOM & 4XL= |
| WEBSITE | solidur.fr solidur.co.uk | solidur.fr solidur.co.uk | solidur.fr solidur.co.uk | solidur.fr |

# CHAINSAW TROUSERS

| SOLIDUR | SOLIDUR | SOLIDUR | SOLIDUR | SOLIDUR |
|---|---|---|---|---|
| **ousers 3A** | **Sallopettes 1A** | **Trousers 1A** | **Trousers 3A 2A** | **Salopettes 1A** |
| **OW** | **GLOW** | **AUTHENTIC** | **AUTHENTIC** | **AUTHENTIC** |
| PA3A | HVSA | AJPA | AJPA | AUSA |
| 00 €142 | £000 $000 €120 | £89 $000 €80140 | £89 $000 €78 | £00 $000 €95 |
| /00lb | 00kg/00lb | 1.031.4kg/00lb | 00kg/00lb | 00kg/00lb |
| | | | | |
| /86 S, R, L | XS/78-4XL/86 S, R, L | XS-4XL S, R, L | XS-4XL S, R, L | XS-4XL S, R, L |
| n viz polyester<br>retch- mesh<br>ster 160g/m² | 150g/m² high viz polyester<br>Polyester stretch- mesh<br>5 layer Polyester 160g/m² | 180g/m² Eco polyester<br>Polyester mesh<br>5 layer polyester 160g/m² | Eco Polyester Twill 180g/m²<br>Polyester Mesh 55g/m²<br>5 layer Polyester 160g/m² | Eco Polyester Twill 180g/m²<br>Polyester Mesh 55g/m²<br>5 layer Polyester 160g/m² |
| rench, Ruler pouch | 2xfront-slant, 1xscrench, Ruler pouch tool-holder loop. | 2xfront-slant, 1xscrench, Ruler pouch tool-holder loop. | 2xfront-slant, 1xscrench, Ruler pouch | 2xfront-slant, 1xscrench, Ruler pouch |
| | | | | |
| | | | | |
| Tape<br>additional acces-<br><br>nd<br>ders<br>ib | high visibility, anti-snatch hook<br>Elasticated waistband, wraparound bib back, straps<br>Water-repellent treated fabric<br>3M High Visibility Tape<br>Anti-snag fixing hook<br>Zipsol® system for additional acces-sories<br>1 non-return meter pocket<br>1 tool holder flange | Ergonomic cut and stretch lining provides excellent freedom of movement.<br>Elasticated waist.<br>Anti-tick hem-tightening system.<br>Water-repellent fabric. | Hydrophobic polyester outer material<br>2 Italian pockets<br>Ruler pocket<br>Plug spanner pocket<br>Stretch lining | Solidur AUTHENTIC Chainsaw Trousers.<br>Hydrophobic polyester outer material<br>2 Italian pockets<br>Ruler pocket<br>Plug spanner pocket<br>Stretch lining |
| | | | | |
| =orange only | TOM & 4XL=orange only | Type C discontinued | | |
| solidur.co.uk | solidur.fr solidur.co.uk | solidur.fr solidur.co.uk | solidur.fr solidur.co.uk | solidur.fr solidur.co.uk |

**IMAGES NOT TO SCALE**
COST: inc local tax/VAT
£$€=currency conversion only
**LEGSIZES: S Short R Regular L Long/Tall XL Extra Long/Tall**

**STANDARDS:**
EN3815= Chainsaw Cut Pro
ENISO11393-2= Chainsaw safety
ASTM F1897 USA= Cut Pro+
ASTM Canada= Cut Pro+
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KWF-Profi= Forestry safety
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ENISO13688= Safety Clothing
EN 343-3 = Waterproofing
RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

**EN CUT PROTECTION:**
**Class 1: 20m/s**
**Class 2:**
**Class 3:**
**Level A=**Front leg. **A+**= +Calf
**Level C=**front & back leg
**WATER REPELLENT:**
**CLIMBING:** Flexible enough to allow dynamic climbing

| MANUFACTURER | SOLIDUR | SOLIDUR | SOLIDUR | SOLI |
|---|---|---|---|---|
| MODEL PROTECTION VARIANT | Comfy 1A 1C | Felin 1A | Trousers 1C | Infini |
| SERIES | - | - | AUTHENTIC | |
| PRODUCT CODE(S) | COPA COPA1C | 60181 | AUPA1C | INPA I |
| ORIGIN | | | | |
| COST inc VAT/tax conv-only | £204 $000 €187200 | £103 $000 €000 | £000 $000 €140 | £245 $0 |
| WEIGHT per pair (m/lg R) | 1.7kg/00lb | 00kg/00lb | 1.4kg/3.1lb | 00kg/ |
| STANDARDS REPEL WATER | | | | |
| WAIST & LEG SIZES FEMALE | XS-4XL S, R, L, XL | XS-4XL S, R, L | XS-4XL S, R, L | XS-4XL |
| MATERIALS - OUTER<br>LINER<br>CUT PROTECTION | 245 g/m² polycotton/Kevlar<br>140 g/m² CoolMax®<br>5 layer polyester | 00% oo<br>00% oo<br>100% oo | 180g/m² Eco polyester<br>polyester mesh<br>5 layer polyester 160g/m² | Cordura<br>Cool<br>100 |
| POCKETS | | | 2x front-slant, 1x scrench, Ruler pouch & | |
| REFLECTIVE ZIP VENTS BOOT HOOK | | | | |
| ATTACH BRACES ANTI-TICK CLIMBING | | | | |
| FEATURES | Low bulk 5 layer protective material.<br>Armortex® Kevlar® reinforcement to knees and right thigh.<br>Teflon® Shield+ waterproof and oil/ dirt repellent coating.<br>Cordura® protection for vulnerable areas. Zip detachable gaiters with hooks for tick protection | Solidur FELIN Stretch EN381-5 Type A Chainsaw Trousers FEPA<br>Retail Price Reg. £93.00+ VAT<br>Sizes XS - 4XL<br>Also available in long / short and Class 3<br>Solidur FELIN Chainsaw Trousers<br>Low bulk 5 layer chainsaw cut protec-tive material<br>4 way stretch outer material | Ergonomic cut and stretch lining provides excellent freedom of movement.<br>Elasticated waist.<br>Anti-tick hem-tightening system.<br>Water-repellent fabric. | Low bulk 5 layer p<br>Armortex® Kevlar®<br>knees and<br>Teflon® Shield+ w<br>dirt repelle<br>Cordura® protect<br>are |
| OTHER COLOURS | | | | |
| NOTES | | | Type C DISCONTINUED | |
| WEBSITE | solidur.fr solidur.co.uk | solidur.fr solidur.co.uk | solidur.fr solidur.co.uk | solidur.fr |

# CHAINSAW TROUSERS

| | | | | |
|---|---|---|---|---|
| | | | | |
| | | | | |
| DUR | SOLIDUR | SOLIDUR | SOLIDUR | SOLIDUR |
| ty 3A | Sofi 1A | Infinity 1A | Infinity 3A | So Strong 1A |
| - | - | - | - | - |
| NPA3A | FRPA | INPA INPA3A | INPA INPA3A | STPA |
| 00 €000 | £189 $000 €000 | £245 $000 €225 | £245 $000 €000 | £ $000 €230 |
| /00lb | 00kg/00lb | 00kg/00lb | 00kg/00lb | 1.35kg/00lb |
| | | | | |
| L S, R, L | XS-4XL S, R, L | XS-4XL S, R, L,XL | XS-4XL S, R, L | XS-4XL S, R, L |
| a/Kevlar<br>lmax<br>% oo | 00% oo<br>00% oo<br>100% oo | Cordura/Kevlar<br>Coolmax<br>100% oo | Cordura/Kevlar<br>Coolmax<br>100% oo | Cordura/Kevlar<br>Coolmax<br>100% oo |
| | | | | |
| | | | | |
| | | | | |
| rotective material.<br>® reinforcement to<br>right thigh.<br>aterproof and oil/<br>ent coating.<br>ion for vulnerable<br>eas. | Solidur SOFRESH Class 1 Type A Summerweight Chainsaw Trousers Retail Price £157.50 + VAT<br>Sizes S - 4XL<br>Long / short also available S - 2XL<br>Solidur SOFRESH Summerweight Ventilated Chainsaw Trousers<br>Breathable mesh front and back<br>EN381-5 Class 1 Design Type A protection against chainsaw cuts | Low bulk 5 layer protective material.<br>Armortex® Kevlar® reinforcement to knees and right thigh.<br>Teflon® Shield+ waterproof and oil/dirt repellent coating.<br>Cordura® protection for vulnerable areas.<br>Removable anti-tick gaitors. | Low bulk 5 layer protective material.<br>Armortex® Kevlar® reinforcement to knees and right thigh.<br>Teflon® Shield+ waterproof and oil/dirt repellent coating.<br>Cordura® protection for vulnerable areas. | Front fabric: Armortex® 325gr/m² (50% Kevlar®, 31% Nomex®, 19% PU)<br>Lining: Coolmax® 130gr/m²<br>Back fabric: Cordura® stretch 215gr/m² (30% Kevlar®, 30% Cordura®, 20% Nomex®, 18% Polyester, 2% Spandex)<br>Back knee fabric: Polyester Ripstop® stretch 4-way 160gr/m²<br>Breathable mesh band: 210gr/m²<br>Optimal protection: |
| | | | | |
| | | | | |
| solidur.co.uk | solidur.fr solidur.co.uk | solidur.fr solidur.co.uk | solidur.fr solidur.co.uk | solidur.fr solidur.co.uk |

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**LEGSIZES: S Short R Regular L Long/Tall XL Extra Long/Tall**

**STANDARDS:**
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EN 343-3 = Waterproofing
RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

**EN CUT PROTECTION:**
**Class 1: 20m/s**
**Class 2:**
**Class 3:**
**Level A=**Front leg. **A+**= +Calf
**Level C=**front & back leg

**WATER REPELLENT:**
**CLIMBING:** Flexible enough to allow dynamic climbing

| MANUFACTURER | STEIN | STEIN | | ST |
|---|---|---|---|---|
| MODEL PROTECTION VARIANT | Sentinel Rail 1C | Sentinel 1C 1A | | Dynamic Ov |
| SERIES | SENTINEL | SENTINEL | | O |
| PRODUCT CODE(S) | SS-1130155... | SS-1141523... | | 602 |
| ORIGIN | | | | |
| COST inc VAT/tax conv-only | £323 $419 €385 | £298 $385 €356 | | £000 $0 |
| WEIGHT per pair (m/lg R) | 1.82kg/4lb | 1.76kg/3.9lb | | 00kg, |
| STANDARDS REPEL WATER | | | | |
| WAIST & LEG SIZES FEMALE | S-4XL R, L | Sm-XXL R | | 00-00 |
| MATERIALS - OUTER<br>LINER<br>CUT PROTECTION | Cordura/Elastane/Armortex<br>?<br>6 Layer | Cordura/Elastane/Armortex<br>?<br>6 Layer | | 00%<br>00%<br>100% |
| POCKETS | 2x Side zipped, 1x Rear zip, press-stud left leg cargo | 2x Side zipped, 1x Rear zip, press-stud left leg cargo | | |
| REFLECTIVE ZIP VENTS BOOT HOOK | | | | |
| ATTACH BRACES ANTI-TICK CLIMBING | | | | |
| FEATURES | 6-layer European Protective Material<br>Multi-directional material for increased movement and comfort (89% PES, 11% Elastane). Pre-formed Armortex KFM abrasion resistant knees (waterproof)<br>YKK zips throughout. 75mm Reflec-tives.<br>Armortex KFM Re-enforced belt loops. | 6-layer European Protective Material<br>Multi-directional material for increased movement and comfort (89% PES, 11% Elastane). Pre-formed Armortex KFM abrasion resistant knees (waterproof)<br>YKK zips throughout.<br>ArmortexKFM Re-enforced belt loops.<br>Tri-Loop brace system. Wide waist | | |
| OTHER COLOURS | | | | |
| NOTES | Krieger name discontinued<br>Long leg add £10 | Krieger name discontinued | | |
| WEBSITE | steininternational.com | steininternational.com | | stihl |

# CHAINSAW TROUSERS

| IHL | STIHL | STIHL | STIHL | STIHL |
|---|---|---|---|---|
| veralls 1A 1C | Function Ergo | Advance X Light | Advance X Treem | Protect |
| OO | OO | OO | OO | OO |
| 200 | 60200 | 60200 | 60200 | 60200 |
| | | | | |
| 00 €000 | £000 $000 €000 | £204 $000 €000 | £381 $000 €000 | £144 $000 €000 |
| /00lb | 00kg/00lb | 00kg/00lb | 00kg/00lb | 00kg/00lb |
| | | | | |
| S, R, L | 00-00 S, R, L | 00-00 S, R, L | 00-00 S, R, L | 00-00 S, R, L |
| % oo<br>% oo<br>% oo | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo |
| | | | | |
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| | | | | |
| | | | | |
| .com | stihl.com | stihl.com | stihl.com | stihl.com |

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**LEGSIZES: S Short R Regular L Long/Tall XL Extra Long/Tall**

**STANDARDS:**
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ENISO11393-2= Chainsaw safety
ASTM F1897 USA= Cut Pro+
ASTM Canada= Cut Pro+
AS/NZS 4453.3= Cut Pro+
KWF-Profi= Forestry safety
ANSI Z133= Gen Arboriculture
ENISO13688= Safety Clothing
EN 343-3 = Waterproofing
RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

**EN CUT PROTECTION:**
**Class 1: 20m/s**
**Class 2:**
**Class 3:**
**Level A=**Front leg. **A+**= +Calf
**Level C=**front & back leg
**WATER REPELLENT:**
**CLIMBING:** Flexible enough to allow dynamic climbing

| MANUFACTURER | STIHL USA | STIHL (STIHL USA) | STIHL | STIHL |
|---|---|---|---|---|
| MODEL PROTECTION VARIANT | Advance Arborist 1A 1C | Dynamic 1C (1C) | Dynamic Winter (1C) | Functio |
| SERIES | OO | DYNAMIC | DYNAMIC (USA) | O |
| PRODUCT CODE(S) | 60200 | 008834225.. | 008834225. | 60 |
| ORIGIN | | | | |
| COST inc VAT/tax conv-only | £000 $000 €000 | £188 $243 €225 | £155 $170 €160 | £381 $0 |
| WEIGHT per pair (m/lg R) | 00kg/00lb | 1.64kg/3.6lb | 1.7kg/3.75lb | 00kg |
| STANDARDS REPEL WATER | | ( USA) | | |
| WAIST & LEG SIZES FEMALE | 00-00 S, R, L | S34"-XL38" R32.5" | S30"-XL46" R32.5" | 00-00 |
| MATERIALS - OUTER<br>LINER<br>CUT PROTECTION | 00% oo<br>00% oo<br>100% oo | Nylon, Spandex<br>100% Polyester<br>6-layer *Engtex Avertic Pro* | Treated Nylon, Spandex<br>Thinsulate<br>6-layer *Engtex Avertic Pro* | 00<br>00<br>100 |
| POCKETS | | 2x side slant, 1x rear zip, 1x Lg left leg cargo with phone pouch inside | 2x side slant, 1x rear zip, 1x Lg left leg cargo with phone pouch inside | |
| REFLECTIVE ZIP VENTS BOOT HOOK | | | | |
| ATTACH BRACES ANTI-TICK CLIMBING | | | | |
| FEATURES | | Fully elasticated trousers with freedom of movement in the seat and crotch, kidney protection and fitted with ventilation zips and ventilation material on the back of the upper thighs.<br>Reinforced knees, seat and ankle with Aramid | Fully elasticated trousers with freedom of movement in the seat and crotch, kidney protection and fitted with ventilation zips and ventilation material on the back of the upper thighs.<br>Reinforced knees, seat and ankle with Aramid. a long leg zipper for easy boot removal. | |
| OTHER COLOURS | | | | |
| NOTES | | Tan colour (Coyote)=USA only<br>Also available in EU as overalls | | |
| WEBSITE | stihlusa.com | stihl.com | stihl.com | stihlus |

# CHAINSAW TROUSERS

| | | | | |
|---|---|---|---|---|
| | | | | |
| | | | | |
| **L USA** | **STIHL** | **TREEHOG** | | |
| **n Denim** | **X-Flex 1C** | **THHV1670 1C** | | |
| **OO** | **ADVANCE** | - | | |
| 200 | 008834223... | AB301420....344 | | |
| | | | | |
| 00 €000 | £293 $378 €285 | £222 $265 €266 | | |
| /00lb | 1.3kg/2.86lb | 1.8kg/3.96lb | | |
| | | (+HV= ) | | |
| S, R, L | S34"-XXXL46" S, R32.5" | S-3XL S, R, L | | |
| % oo<br>% oo<br>% oo | 89% polyester, 11% elastane<br>100% Polyester<br>6-layer *Engtex Avertic Pro* | 93% Polyester 7% Elastane<br>100% Polyester<br>100% Polyester | | |
| | 2x side slant, 1x rear zip, 1x Phone<br>1x zip cargo-left, 1x flap cargo-right | 2x zip Side, 1 zip front<br>2 zip rear | | |
| | | (HV ) | | |
| | | | | |
| | Full elasticated crotch with ProElast for greater freedom of movement. Quick drying fabrics.Elastic and breathable, with elasticated and waterproof knee protection Thorn and water resistance in the lower leg area, dirt resistant, long ventilation zippers on the back of the legs | - Bi-Stretch breathable crotch panel.<br>- Raised kidney panel.<br>- Elasticated waist with wide belt loops. | | |
| | | | | |
| | | TH1670 also available as 1A in Grey.<br>THHV1670 add 5% to price | | |
| sa.com | stihl.com | treehog.co.uk | | |

# Choosing the correct chainsaw trouser

Selecting the appropriate chainsaw trousers is essential for ensuring safety, as leg injuries are the most common type of chainsaw-related harm. At Arbortec, we offer a comprehensive range of chainsaw trousers designed to meet the diverse needs of arboricultural professionals and related industries.

## Protection Levels & Certification

The primary factor when choosing arborist trousers is the required level of protection. Our trousers meet a minimum of Class 1 (20m/s) standards, with additional options for Class 2 (24m/s) and Class 3 (28m/s) to accommodate higher chainsaw speeds. We also provide a range conforming to UL standards for the US & Canada. 2025 has seen the introduction of the Vented Trouser, certified to UL standards, designed for optimal comfort in warmer climates.

## Design Options

Design A (Type A) – Frontal protection with 5 cm rear coverage, ideal for standard forest and arb jobs
Design A Plus – Enhanced Design A with added calf protection, offering 180° coverage to the lower leg.
Design C (Type C) – Full leg protection for comprehensive safety during demanding jobs

## Safety Meets Style

In addition to top-tier protection, our trousers are available in a wide range of colours, allowing you to express your style without compromising on safety.

**For a full list of styles, colours, and specifications, visit arbortec.com.**

ARBORTEC
FORESTWEAR

# **Arbortec** - innovative options for all applications

## BREATHEFLEX

Design A Design C

An affordable option for any arborist/groundie seeking a trouser to cover all eventualities. The original limes are available to Class 3!!

**CLASS:** 1, 2, 3 (UL available please see website for colours)
**DESIGN/TYPE:** A, A+, C
**FIT:** STRAIGHT
**FLEXIBILITY:**
**DURABILITY:**
**COLOURS:** 8
**RAIL APPROVED OPTION:** YES
**SIZES:*** XS-5XL. Short, Regular, Tall, Extra Tall

## BREATHEFLEXPRO

Design A Design C

The most popular trouser in the industry. Designed for professionals with a wealth of benefits and features for all daily forest & arb tasks

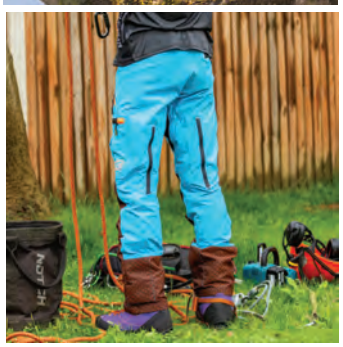
**CLASS:** 1, 2. (UL available please see website for colours)
**DESIGN/TYPE:** A, C
**FIT:** SLIM
**FLEXIBILITY:**
**DURABILITY:**
**COLOURS:** 14
**RAIL APPROVED OPTION:** YES
**SIZES:*** XS-3XL, Short, Regular, Tall, Extra Tall

## PROFREESTYLE

Design A Design C

A super flexible chainsaw trouser with a tailored fit. The perfect trouser for treework but equally great whatever your day entails.

**CLASS:** 1 (UL available please see website for colours)
**DESIGN/TYPE:** A, C
**FIT:** ATHLETIC
**FLEXIBILITY:**
**DURABILITY:**
**COLOURS:** 4
**RAIL APPROVED OPTION:** NO
**SIZES:*** XS-3XL, Short, Regular, Tall



## DEEPFOREST

Design A Design C

A heavy duty chainsaw trouser using the latest technology & superior fabrics, delivering the ultimate in comfort with maximum safety.

**CLASS:** 1
**DESIGN/TYPE: A, C**
**FIT:** ATHLETIC
**FLEXIBILITY:**
**DURABILITY:**
**COLOURS:** 3
**RAIL APPROVED OPTION:** Coming Soon!
**SIZES:*** XS-3XL, Short, Regular, Tall

## VentedUL

Vented Pants for uncompromising protection and comfort, plus additional ventilation for the warmest of working environments.

**CONFORMS TO:** ASTM F1897-20 - leg protection for chain saw users certified for the USA & ASTM F3325-20 Class C - leg protection or chain saw users certified for Canada
**FIT:** STRAIGHT
**FLEXIBILITY:**
**DURABILITY:**
**VENTILATION PANELS: 4**
**COLOURS:** 3
**SIZES:*** XS-3XL Regular, S-3XL Tall

*Sizes are available in at least one colour option within the range. For full colour options, specification and sizes visit **arbortec.com.**

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**LEGSIZES: S Short R Regular L Long/Tall XL Extra Long/Tall**

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ASTM Canada= Cut Pro+
AS/NZS 4453.3= Cut Pro+
KWF-Profi= Forestry safety
ANSI Z133= Gen Arboriculture
ENISO13688= Safety Clothing
EN 343-3 = Waterproofing
RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

**EN CUT PROTECTION:**
**Class 1: 20m/s**
**Class 2:**
**Class 3:**
**Level A=**Front leg. **A+**= +Calf
**Level C=**front & back leg

**WATER REPELLENT:**
**CLIMBING:** Flexible enough to allow dynamic climbing

| MANUFACTURER | CLOGGER | CLOGGER | CLOGGER | CLOG |
|---|---|---|---|---|
| MODEL PROTECTION VARIANT | Zero 1A | Defender Pro 1A | Defender Pro Arborist 1A | ArcMax |
| SERIES | OO | OO | OO | O |
| PRODUCT CODE(S) | 000 | 000 | 000 | 0 |
| ORIGIN | | | | |
| COST inc VAT/tax conv-only | £000 $000 €000 | £000 $000 €000 | £000 $000 €000 | £000 $0 |
| WEIGHT per pair (m/lg R) | 00kg/00lb | 00kg/00lb | 00kg/00lb | 00kg, |
| STANDARDS REPEL WATER | | | | |
| WAIST & LEG SIZES FEMALE | XS-3XL S,R,L | XS-3XL S,R,L | XS-3XL S,R,L | XS-3XL |
| MATERIALS - OUTER<br>LINER<br>CUT PROTECTION | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo | 00%<br>00%<br>100% |
| POCKETS | | | | |
| REFLECTIVE ZIP VENTS BOOT HOOK | | | | |
| ATTACH BRACES ANTI-TICK CLIMBING | | | | |
| FEATURES | | | | |
| OTHER COLOURS | | | | |
| NOTES | | | | |
| WEBSITE | clogger.co.nz | OO.com | OO.com | OO. |

# CHAINSAW LEGGINGS/CHAPS

| | | | | |
|---|---|---|---|---|
| | | | | |
| | | | | |
| GGER | CLOGGER | OO | OO | OO |
| gen3 1A | Wildfire 1A | OOO 1A | OOO 1A | OOO 1A |
| OO | OO | OO | OO | OO |
| 00 | 000 | 000 | 000 | 000 |
| | | | | |
| 00 €000 | £000 $000 €000 | £000 $000 €000 | £000 $000 €000 | £000 $000 €000 |
| /00lb | 00kg/00lb | 00kg/00lb | 00kg/00lb | 00kg/00lb |
| | | | | |
| L S,R,L | XS-3XL S,R,L | XS-3XL S,R,L | XS-3XL S,R,L | XS-3XL S,R,L |
| % oo<br>% oo<br>% oo | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo | 00% oo<br>00% oo<br>100% oo |
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| | | | | |
| com | OO.com | OO.com | OO.com | OO.com |

**IMAGES NOT TO SCALE**
**COST:** inc local tax/VAT
£$€=currency conversion only
**LEGSIZES: S Short R Regular L Long/Tall XL Extra Long/Tall**

**STANDARDS:**
EN3815= Chainsaw Cut Pro
ENISO11393-2= Chainsaw safety
ASTM F1897 USA= Cut Pro+
ASTM Canada= Cut Pro+
AS/NZS 4453.3= Cut Pro+
KWF-Profi= Forestry safety
ANSI Z133= Gen Arboriculture
ENISO13688= Safety Clothing
EN 343-3 = Waterproofing
RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

**EN CUT PROTECTION:**
**Class 1: 20m/s**
**Class 2:**
**Class 3:**
**Level A=**Front leg. **A+**= +Calf
**Level C=**front & back leg

**WATER REPELLENT:**
**CLIMBING:** Flexible enough to allow dynamic climbing

| MANUFACTURER | FRANCITAL | FRANCITAL | PROFIFOREST | ORE |
|---|---|---|---|---|
| MODEL PROTECTION VARIANT | Prior Leggings 1A 1C | Elne 1A | - 1A | Universal |
| SERIES | Silver | O | - | |
| PRODUCT CODE(S) | 000 | 000 | 11-021/20 | 2954 |
| ORIGIN | | | | |
| COST inc VAT/tax conv-only | £000 $000 €151 | £000 $000 €101 | £000 $000 €270 | £309 $0 |
| WEIGHT per pair (m/lg R) | 1.8kg/3.96lb | 1.66kg/3.65lb | 00kg/00lb | 00kg, |
| STANDARDS REPEL WATER | | | | |
| WAIST & LEG SIZES FEMALE | XS-3XL S,R,L | XS-3XL S,R,L | XXS-4XL S,R,L | XS-3XI |
| MATERIALS - OUTER<br>LINER<br>CUT PROTECTION | 93% Polyester 7% Elastane<br>100% Polyester<br>100% Polyester | 90% Polyester 10% Elastane<br>88% Polyester 12% Elastine<br>100% Polyester | 00% oo<br>00% oo<br>100% oo | 00%<br>00%<br>100 |
| POCKETS | | | | |
| REFLECTIVE ZIP VENTS BOOT HOOK | | | | |
| ATTACH BRACES ANTI-TICK CLIMBING | | | ■ | |
| FEATURES | Zipper 7<br>Zipped rear thighs.<br>Reflective highlights | Button Waist 7 Belt loops | | |
| OTHER COLOURS | | | | |
| NOTES | | | | |
| WEBSITE | francital.com | francital.com | profiforest.eu | oregonpro |

# CHAINSAW LEGGINGS/CHAPS

| | | | | |
|---|---|---|---|---|
| | | | | |
| | | | | |
| GON | SOLIDUR | SOLIDUR | SOLIDUR | SOLIDUR |
| Chaps 1A | Authentic Chaps 1A 1C | Authentic Chaps 3A | Glow Chaps 1A | Glow Chaps 3A |
| | - | - | - | - |
| 66..67 | AJPA | AJPA | HVJA | HVJA3 |
| 00 €000 | £89 $000 €78 | £000 $000 €133 | £000 $000 €105 | £000 $000 €142 |
| /00lb | 1.2kg/00lb | 00kg/00lb | 00kg/00lb | 00kg/00lb |
| | ■ | ■ | ■ | ■ |
| L S,R,L | XS-4XL S, R, L | XS-4XL S, R, L | XS-3XLS, R, L | XS-3XLS, R, L |
| % 00<br>% 00<br>% 00 | Eco Polyester Twill 180g/m²<br>Polyester Mesh 55g/m²<br>5 layers Polyester 160g/m² | Eco Polyester Twill 180g/m²<br>Polyester Mesh 55g/m²<br>5 layers Polyester 160g/m² | 150g/m² high viz polyester<br>Stretch mesh polyster<br>5 layers Polyester 160g/m² | 150g/m² high viz polyester<br>Stretch mesh polyster<br>9 layers Polyester 160g/m² |
| | | | | |
| | ■ | ■ | ■ | ■ |
| | Class 2 and Class 3<br>Solidur AUTHENTIC Chainsaw Trousers.<br>Hydrophobic polyester outer material<br>2 Italian pockets<br>Ruler pocket<br>Plug spanner pocket<br>Stretch lining | Class 2 and Class 3<br>Solidur AUTHENTIC Chainsaw Trousers.<br>Hydrophobic polyester outer material<br>2 Italian pockets<br>Ruler pocket<br>Plug spanner pocket<br>Stretch lining | Solidur GLOW EN381-5 Class 1 Type A Chainsaw Trousers HVPAOR<br>Retail Price £90.00 + VAT<br>Sizes XS - 3XL<br>Also available in yellow HVPA and Class 3<br>Solidur GLOW High Visibility Orange Chainsaw Trousers<br>EN381-5 Class 1 Design Type A protection against chainsaw cuts | Stretch lining and quick-release waistband. Full-length zippers make the leggings easy to put on and take off & simple adjustment. The non-return ruler pocket and tool loop provide quick access to necessary gear, while MOLLE loops allow for additional accessories or tools for added convenience.<br>2 side pockets, 1 rule pocket, 1 plug |
| | ■ | ■ | | |
| | | | | |
| ducts.com | solidur.fr solidur.co.uk | solidur.fr solidur.co.uk | solidur.fr solidur.co.uk | solidur.fr solidur.co.uk |

# NON-PROTECTIVE CLIMBING TROUSERS

The problem with chainsaw protection is that it adds weight, bulk and cost to an item of clothing that, for climbers, needs to be as unrestrictive as possible. There are many arb jobs that don't involve chainsaw use, at least not for more than a judicious cut or two or use hand saws or pruners instead. Other jobs like inspections, pre-large-scale contract rigging and competitions don't have any cutting risk at all so lighter and more flexible trousers that sill exhibit the useful bits like venting, high-vis, differential wear and stretch fabrics, gaiters, boot-hooks and useful pockets, are called for.

This is very much more the domain of contract climbers and competition (and perhaps recreational) climbers than it is the utility crews and forestry workers so the choices are far fewer than for protective trousers. A handful specialist of manufacturers in Europe and Clogger in New Zealand have currently cornered the market though others will cotton on to the demand and will appreciate the free reign in design afforded by NOT incorporating standards prescribed chainsaw protection. It's no surprise that the most prolific manufacturers.

Temperature reduction is perhaps the biggest bonus with bespoke climbing trousers; well ventilated, lighter materials that are directly breathable rather than more protective trousers which are 'breathable' but with additional barrier materials between your skin and the outside air. That's not to say that these are 'fragile' trousers - if they are designed for climbing they will incorporate defensive fabrics that are hard wearing in all the usual high-wear areas and will not easily tear. This is where there is a distinction between arborists climbing trousers and the plethora of outdoor/climbing trousers intended more for rock climbers and mountaineers - they have the same dynamic capabilities but not the anti-snag and working properties of arb trousers.

**IMAGES NOT TO SCALE**
**COST:** inc local tax/VAT
£$€=currency conversion only
**LEGSIZES: S Short R Regular L Long/Tall XL Extra Long/Tall**
**STANDARDS**:
KWF-Profi= Forestry safety
ENISO13688= Safety Clothing
EN 343-3 = Waterproofing
RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
AANSI Z133= Gen Arboriculture
ANSI107 & CSAZ96= Visibility

**WATER REPELLENT**:
**CLIMBING**: Flexible enough to allow dynamic climbing

| MANUFACTURER | ARBORTEC FORESTWEAR | ARBORTEC |
|---|---|---|
| MODEL PROTECTION VARIANT | AT4110 - | AT |
| SERIES | BREATHFLEX | BREATH |
| PRODUCT CODE(S) | | |
| ORIGIN | | |
| COST inc VAT/tax conv-only | £234 $000 €000 | £234 $ |
| WEIGHT per pair (m/lg R) | | |
| STANDARDS REPEL WATER | | |
| WAIST & LEG SIZES FEMALE | XS-3XL R,L | XS-3 |
| MATERIALS - OUTER<br>LINER<br>REINFORCEMENT | | |
| POCKETS | Zipped Cargo and phone pockets. | Zipped Cargo an |
| REFLECTIVE ZIP VENTS BOOT HOOK | | |
| ATTACH BRACES ANTI-TICK CLIMBING | | |
| FEATURES | Reinforced at high tension seams.<br>Kevlar reinforcement at lower leg.<br>Downward-facing Pocket Zips.<br>Compatible with climbing harness.<br>Reinforced lining around ankle.<br>Velcro side adjusters: Adjust the waist size to suit. | Reinforced at hig<br>Kevlar reinforcer<br>Downward-facin<br>Compatible with<br>Reinforced lining<br>Velcro side adjus<br>waist size to suit |
| OTHER COLOURS | | |
| NOTES | USA/Canada Only | USA/Ca |
| WEBSITE | arbortecforestry.com | arbortec |

# NON-PROTECTIVE CLIMBING TROUSERS

| | | | | |
|---|---|---|---|---|
| | | | | |
| | | | | |
| FORESTWEAR | ARBPRO | ARBPRO | Clogger | FRANCITAL |
| 4160 - | Sigma - | Delta - | Spider - | Monvert R |
| HFLEX PRO | - | - | | ECO |
| | 000 | 000 | ooo | FL594D |
| $000 €000 | £000 $000 €000 | £000 $000 €000 | £000 $000 €000 | £000 $000 €110 |
| | 00kg/00lb | 00kg/00lb | 00kg/00lb | 00kg/00lb |
| | | | | |
| 3XL R,L | XS-2XL S,R,L, XL | XS-2XL S,R,L, XL | XS-3XL S,R,L | XS-3XL S,R,L |
| | 53% Polyamide, 39% Polyester, 8% Elasthane<br>100% Polyester<br>63% Polyamide, 37% Elastane | 52% Nylon, 40% Poly, 8% Spandex<br>70% Nylon, 7% Polyester, 9% Kevlar, 14/% Spandex | 00% oo<br>00% oo<br>None | 96% Cordura® 4% elastan<br>00% oo<br>100% oo |
| d phone pockets. | | | | |
| | | | | |
| | Braces included | Braces included | | |
| gh tension seams.<br>ment at lower leg.<br>g Pocket Zips.<br>climbing harness.<br>around ankle.<br>sters: Adjust the<br>. | | | | Removable gaitors |
| | | | | |
| anada Only | | | | |
| forestry.com | arbpro.it | arbpro.it | oregonproducts.com | francital.com |

**IMAGES NOT TO SCALE**
**COST:** inc local tax/VAT
£$€=currency conversion only
**LEGSIZES: S Short R Regular L Long/Tall XL Extra Long/Tall**

**STANDARDS:**
KWF-Profi= Forestry safety
ENISO13688= Safety Clothing
EN 343-3 = Waterproofing
RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
AANSI Z133= Gen Arboriculture
ANSI107 & CSAZ96= Visibility

**WATER REPELLENT:**
**CLIMBING:** Flexible enough to allow dynamic climbing

| MANUFACTURER | NOTCH | PFANNER | OO | O |
|---|---|---|---|---|
| MODEL PROTECTION VARIANT | SonicII - | Gladiator - | OO - | O |
| SERIES | SONIC | OUTDOOR | OUTDOOR | |
| PRODUCT CODE(S) | sonic2 | 1SSPN2PTP | 1SSVA2PH5 | o |
| ORIGIN | | | | |
| COST inc VAT/tax conv-only | £000 $198 €000 | £210 $000 €225 | £000 $000 €193 | £89 $0 |
| WEIGHT per pair (m/lg R) | 00kg/1.2lb | 00kg/00lb | 00kg/00lb | 1.2kg |
| STANDARDS REPEL WATER | | | | |
| WAIST & LEG SIZES FEMALE | 28-30" 32-34" 36-38" 30,32,34 | XS-3XL R85cm | XS-3XL R85cm | XS-4XL |
| MATERIALS - OUTER<br>LINER<br>CUT PROTECTION | 88% cordura, 12% Elastane/ DWR<br>100% Polyester<br>None | 00% oo<br>00% oo<br>None | 00% oo<br>00% oo<br>None | Eco Polyester<br>Polyester M<br>No |
| POCKETS | 2x zip angled front with pull tabs<br>2x side cargo/phone. | | | |
| REFLECTIVE ZIP VENTS BOOT HOOK | | | | |
| ATTACH BRACES ANTI-TICK CLIMBING | | | | |
| FEATURES | High abrasion resistant Cordura®<br>4 way stretch fabric allows greater freedom of movement & flexibility<br>Excellent breathability<br>DWR finish repels water, oil & dirt<br>Knee protection = Armortex® abrasion-resistant fabrics<br>Grey color keeps cool in high temps.<br>Elastic waistband. Aluminum button | | | |
| OTHER COLOURS | | | | |
| NOTES | | | | |
| WEBSITE | notchequipment | sip-protection.com | sip-protection.com | solidur.fr |

# NON-PROTECTIVE CLIMBING TROUSERS

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| | | | | |
| O | OO | OO | | |
| O - | OO - | OO - | | |
| - | CLIMB | - | | |
| oo | ooo | 000 | | |
| 00 €112 | £000 $000 €175 | £000 $000 €112 | | |
| /00lb | 500g/1.1lb | 00kg/00lb | | |
| | | | | |
| S, R, L | XS-4XL S, R, L | XS-3XL S,R,L | | |
| Twill 180g/m² | Cordura/Spandex | 100% oo | | |
| lesh 55g/m² | Polyester Mesh 55g/m² | 100% oo | | |
| one | None | None | | |
| | | | | |
| | | | | |
| | | | | |
| | 88% Cordura® and 12% Spandex®, with a weight of 275g and Teflon® treatment for four-way stretch.<br>Pockets:<br>4 front pockets, 1 back pocket with body fabric bottom.<br>Fasteners:<br>YKK zipper for long lasting strength. | | | |
| | | | | |
| | | | | |
| solidur.co.uk | solidur.fr solidur.co.uk | solidur.fr solidur.co.uk | | |

**IMAGES NOT TO SCALE**
**COST:** inc local tax/VAT
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**LEGSIZES: S Short R Regular L Long/Tall XL Extra Long/Tall**

**STANDARDS:**
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RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
AANSI Z133= Gen Arboriculture
ANSI107 & CSAZ96= Visibility

**WATER REPELLENT:**
**CLIMBING:** Flexible enough to allow dynamic climbing

| MANUFACTURER | SIP PROTECTION | SIP PROTECTION | SIP PROTECTION | SOLI |
|---|---|---|---|---|
| MODEL PROTECTION VARIANT | Gecko - | Progress - | 1SSV - | Sherr |
| SERIES | OUTDOOR | OUTDOOR | OUTDOOR | |
| PRODUCT CODE(S) | 1SS5A2PTP | 1SSPN2PTP | 1SSVA2PH5 | oc |
| ORIGIN | | | | |
| COST inc VAT/tax conv-only | £000 $000 €000 | £000 $000 €226 | £000 $000 €193 | £89 $0 |
| WEIGHT per pair (m/lg R) | 00kg/00lb | 00kg/00lb | 00kg/00lb | 1.2kg |
| STANDARDS REPEL WATER | | | | |
| WAIST & LEG SIZES FEMALE | XS-XL R82cm | XS-3XL R85cm | XS-3XL R85cm | XS-4XL |
| MATERIALS - OUTER<br>LINER<br>CUT PROTECTION | 00% oo<br>00% oo<br>None | 00% oo<br>00% oo<br>None | 00% oo<br>00% oo<br>None | Eco Polyester<br>Polyester M<br>No |
| POCKETS | | | | |
| REFLECTIVE ZIP VENTS BOOT HOOK | | | | |
| ATTACH BRACES ANTI-TICK CLIMBING | | | | |
| FEATURES | | | | |
| OTHER COLOURS | | | | |
| NOTES | | | | |
| WEBSITE | sip-protection.com | sip-protection.com | sip-protection.com | solidur.fr |

# NON-PROTECTIVE CLIMBING TROUSERS

| DUR | SOLIDUR | SOLIDUR |
|---|---|---|
| man - | Climb - | SRT Kanop - |
| - | CLIMB | - |
| oo | ooo | 000 |
| 00 €112 | £000 $000 €175 | £000 $000 €112 |
| /00lb | 500g/1.1lb | 00kg/00lb |
| | | |
| S, R, L | XS-4XL S, R, L | XS-3XL S,R,L |
| Twill 180g/m² lesh 55g/m² one | Cordura/Spandex Polyester Mesh 55g/m² None | 100% oo 100% oo None |
| | | |
| | | |
| ■ | ■ | ■ |
| | 88% Cordura® and 12% Spandex®, with a weight of 275g and Teflon® treatment for four-way stretch. Pockets: 4 front pockets, 1 back pocket with body fabric bottom. Fasteners: YKK zipper for long lasting strength. | |
| ■ | ■ | |
| | | |
| solidur.co.uk | solidur.fr solidur.co.uk | solidur.fr solidur.co.uk |


Typhoon 12.2mm climbing line

Brochure

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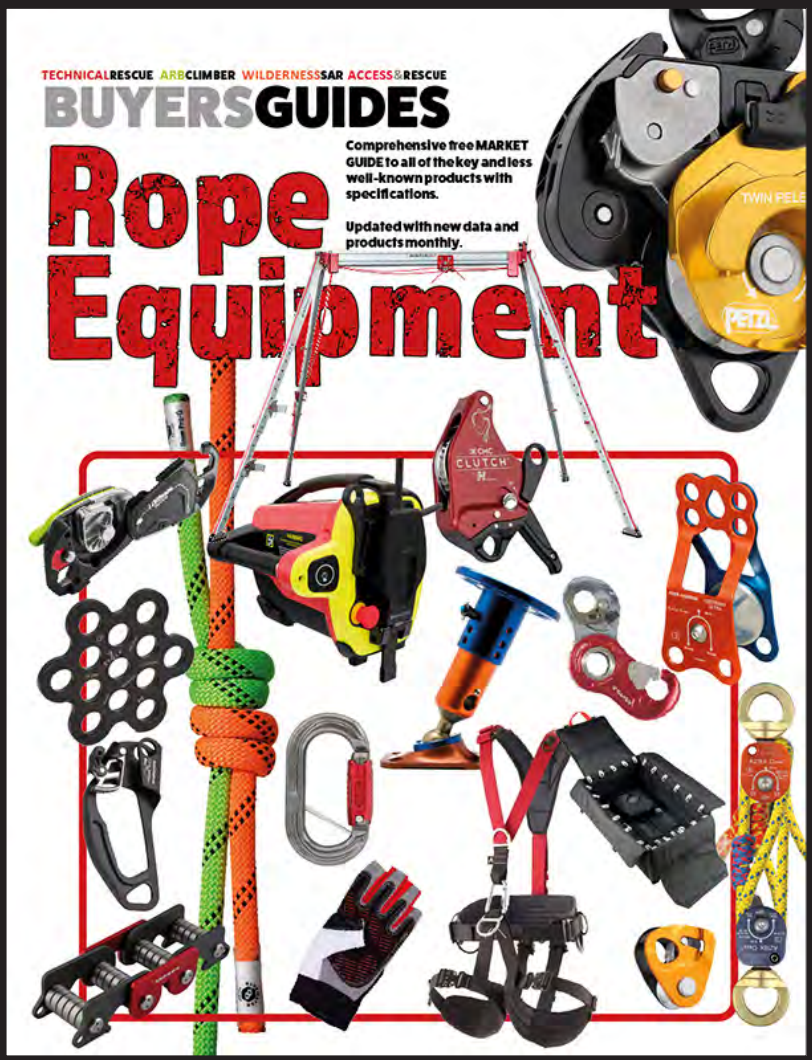

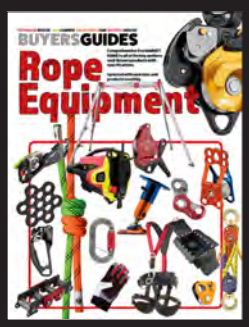

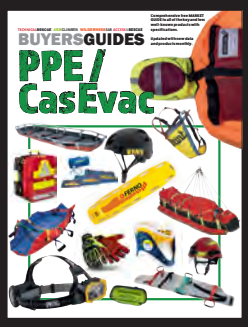

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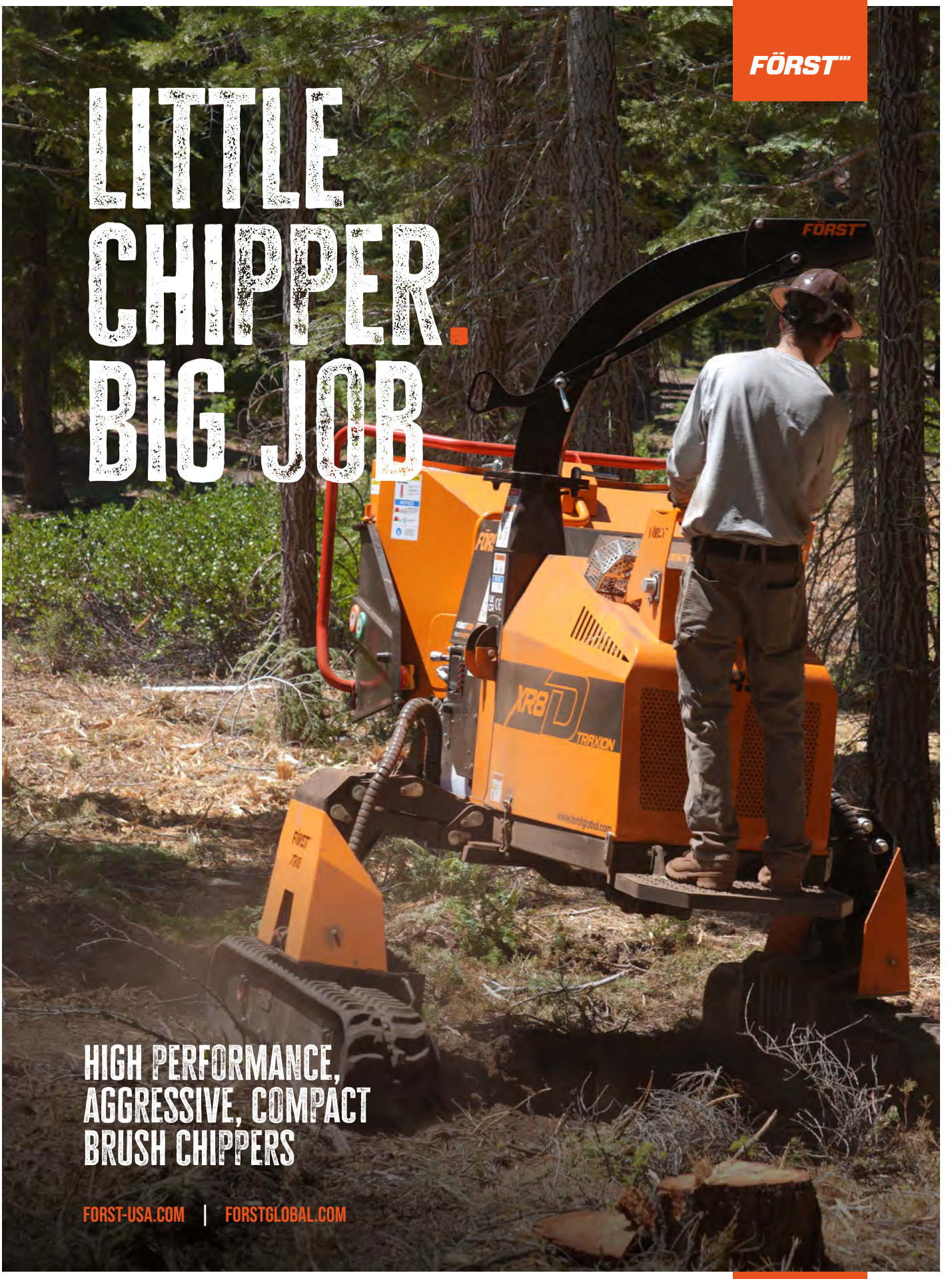
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XR8D
TRAXION
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