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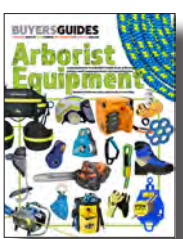
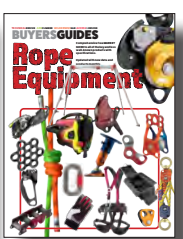
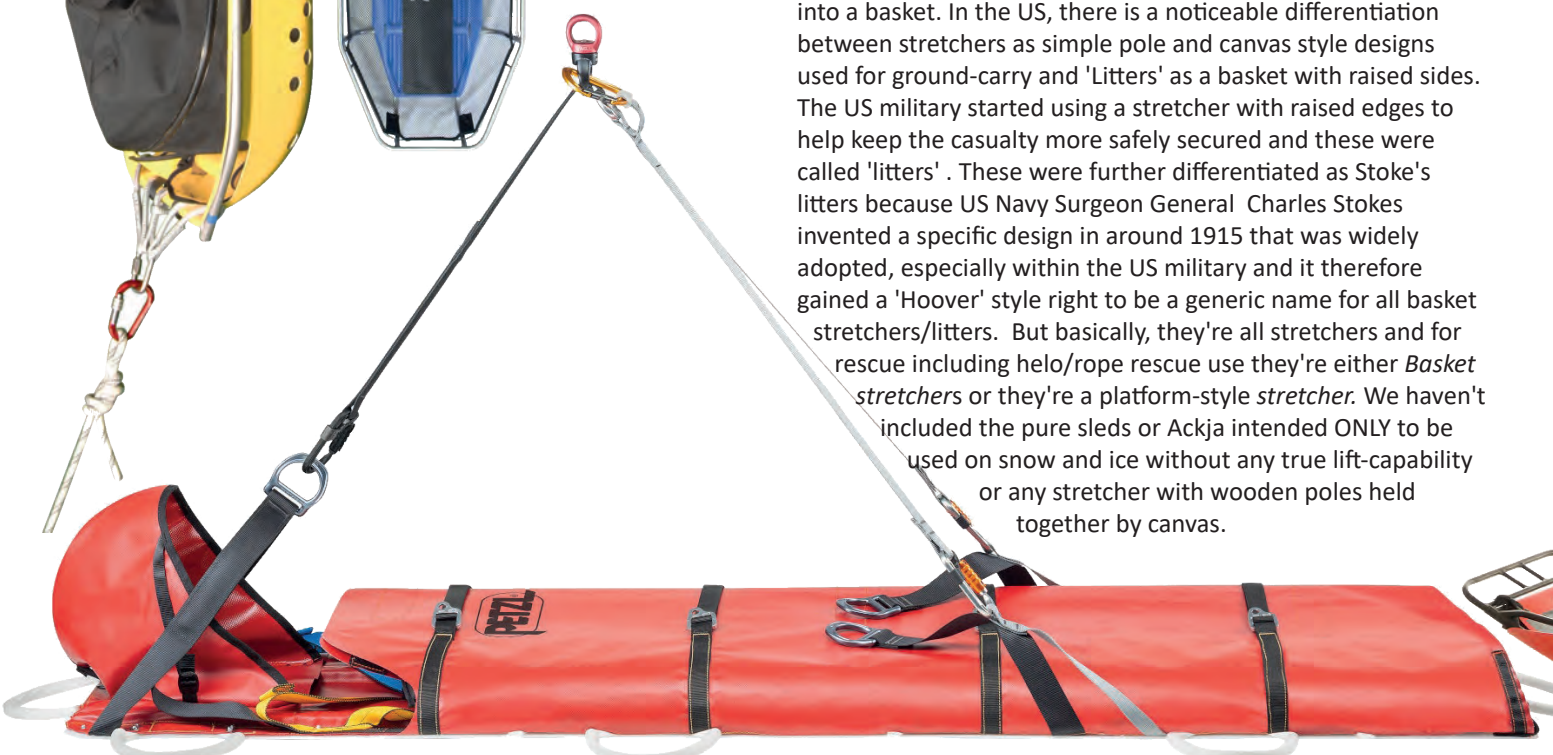


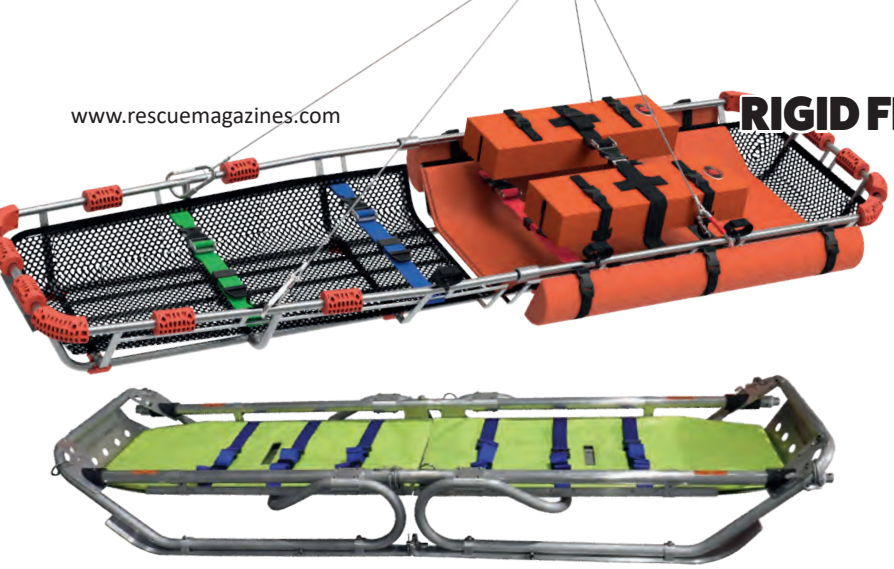


RIGID FRAME STRETCHERS /LITTERS

We'll start this GUIDE with a quick word about terminology because this can catch us out from the start. Firstly, by 'basket' we are not referring to the US Helicopter winch baskets, square frames in which the casualty sits, this Guide is only for stretchers that allow fully prone casualties. In Europe *all* hand-carry, casualty transportation is called a stretcher whether it is the classic Furley-two poles and a canvas sheet or a complex assembly of metal tubes fashioned into a basket. In the US, there is a noticeable differentiation between stretchers as simple pole and canvas style designs used for ground-carry and 'Litters' as a basket with raised sides. The US military started using a stretcher with raised edges to help keep the casualty more safely secured and these were called 'litters' . These were further differentiated as Stoke's litters because US Navy Surgeon General Charles Stokes invented a specific design in around 1915 that was widely adopted, especially within the US military and it therefore gained a 'Hoover' style right to be a generic name for all basket stretchers/litters. But basically, they're all stretchers and for rescue including helo/rope rescue use they're either *Basket stretchers* or they're a platform-style *stretcher.* We haven't included the pure sleds or Ackja intended ONLY to be used on snow and ice without any true lift-capability or any stretcher with wooden poles held together by canvas.



RIGID FRAME STRETCHERS/LITTERS



In the 'modern' rescue era, beginning in the changed much and has spawned a whole load of similar designs. Meanwhile, for metal baskets, galvanised steel turned to stainless steel which is still the standard but there are now many options in aluminium and latterly in titanium and carbon-fibre. The original mountain rescue designs like MacInnes and Bell stretchers are still in use now although the 'companies' themselves have gone and that would be the case with many of the models used 40 or 50 years ago - they would still work perfectly well today if you didn't mind the weight and looked after them. Indeed, *Lyon Equipment* in the UK make and service the *Bell Tangent* (exclusive to Mountain Rescue England & Wales) and updated *MacInnes Mk6* shown above, with a batch having recently been delivered to Scottish Mountain Rescue. The problem with so many of the early designs is that they were invariably 'made-in-the-garage' products, often made to order and most of these have long since disappeared or been swallowed up by a large company. Which is often the best way to ensure not only survival of the product but development or evolution of a design that had stagnated. Think *Cascade* now owned by *Harken Industrial* and *Traverse* now owned by *Ferno*, great products with a more secure future. We had a GUIDE to Stretchers way back in issue 3 of **TECHNICALRESCUE** from 1993/4 and it's amazing to see the similarities, with the metal-frame baskets, *Troll's* (now *SAR Products*) *Alphin* and *Ferno's type 71* and *Paraguard* all in there and looking very similar.

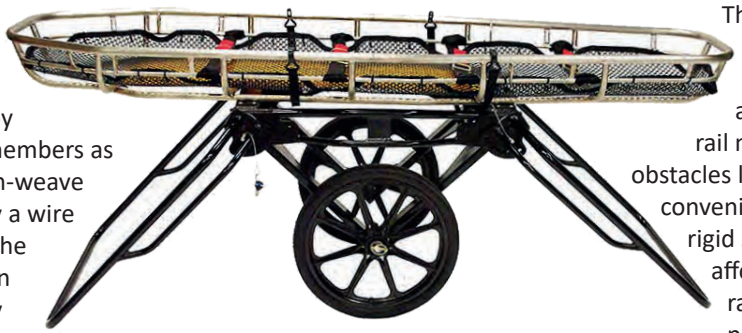
BASIC DESIGN

There are five distinct design types with all except the rotomoulded available as one *or* two piece/split:

- Metal frame basket
- Metal frame basket with shell insert
- Meta flat-top/platform
- Plastic-Rotomoulded shell (one-piece only)
- Metal/carbon-fibre combination Sled

This last group is only included if it is also a hand-carry or suspension-capable model and not a dedicated ground-sled - that's a separate GUIDE.

It didn't take long for the traditional rectangular shape of stretchers/litters to be modified to take account of the human shape with a wider upper body tapering to narrower legs - ala coffins! Rectangular is still favoured by many because it maintains symmetry for sliding and offers extra storage space for oxygen etc. Some, like *Junkin,* take body-ergonmics even further and offer rounded dividers for the legs though that hasn't caught on across many other brands. Apart from the *D90* and any rotomoulded stretchers we might have missed, all of the basket stretchers in this GUIDE have a metal tubular framework- no carbon-fibre frames yet. Even the 'plastic' shell stretchers like the *Ferno71* have their shell supported by at least a top rail if not some cross-members as well. The exposed bottom of an open-weave basket frame is invariably covered by a wire mesh (which can be a literal pain in the ass when strands break) or by a nylon mesh which is softer and more easily removed for cleaning or renewal.



Some may have a PVC-covered thin mattress like the Spencer Dakar above. Others, including metal baskets by *Cascade, CMC/Traverse and Junkin,* also have a kind of short backboard protecting the torso area.

The biggest decision is whether to use a one-piece or two piece frame. Being able to split the frame into two can mean a weak-point which all manufacturers obviously seek to address but in its favour is smaller stowage and transport size. Mil-Spec manufacturer LifeSafety Corporation uses a threaded screw-collar to secure the two halves which they claim to be the strongest split coupling in the world. A variation on this is the *Locsafe* sprung-locking collar (above-left) by Traverse. *Tyromont* have taken a different approach with this hinge or release option (above-right) using locking pins originally seen on the *SAR Products Alpine and Lite* (left) shown here with its two hinged parts but these can be divided into two.

Most split stretchers also divide completely into two so that each half can be carried by a different person. A carrybag, often with rucksack style straps like the SAR products above, is a product that most companies offer as an option or as standard. Not all 'split' stretchers divide in half across the waist section - some have stuck to the principles of the old pole and canvas design and break down into longitudinal sections like the Kong Lecco where the side rails come apart from transverse support bars.

GROUND-TRANSPORT, CARRYING & SLIDING

The advantage of a full-weave basket frame is that it can be carried at any point along the top rail making passing ground obstacles like boulders more convenient not to mention the rigid support and easy sliding afforded by the bottom rails or skids. Full height plastic shells like the Spencer top-left, limit the handholds to specific points though these are numerous However, these openings are designed to be held from above with the hand around the rounded edge of the top rail so pushing and pulling over obstacles is not quite as comfortable or even advisable because you will be pulling against a thin shell rather than the supporting tubular frame. Lower height shells like this Junkin, sit lower down leaving access to the full circumference of the top rail.

Despite being around as long for as long as there have been stretchers, retro-fitted wheels became the new black in Covid times and are often used in conjunction with extension handles. This not only makes transport less arduous it distances rescuers from possible infection. A number of companies including Cascade, Lyon, Kohlbrat and Traverse make a retro-fit wheel system. The *Cascade Advance* and the 'fatter' wheeled *TerraTamer* systems (usefully shown in their ad on page 57, even have an integrated braking system.

Technical rescue professionals around the world rely on the **Traverse Titan Series Rescue Litters** for missions ranging from challenging trails and difficult terrain to over-the-edge access or helicopter rescue.

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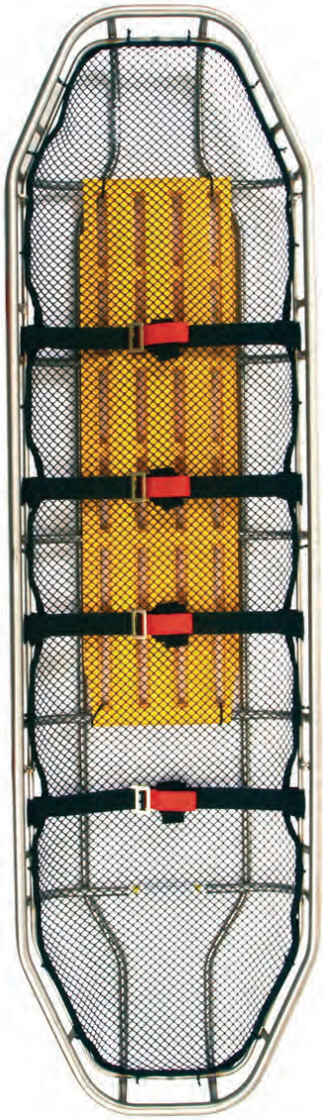
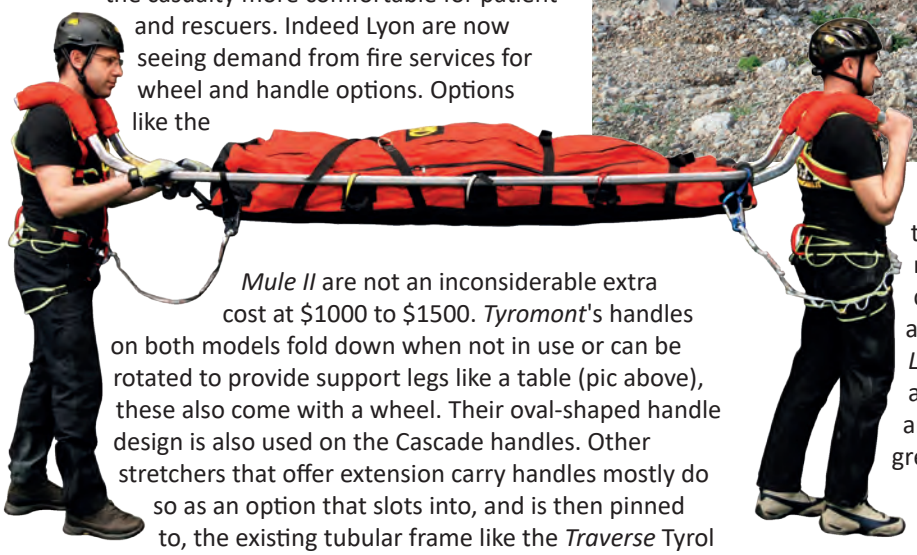


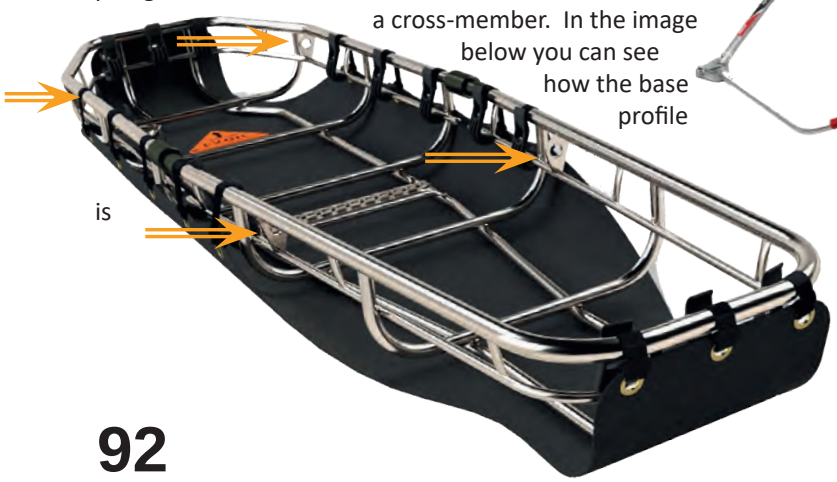
Titan Series Rescue Litters

The *Spencer Dakar* (opposite) has telescoping handles and integral wheels enabling it to be wheeled by one or two persons as well as carried horizontally and/or suspended. Most rigid baskets can utilise systems like *Cascade's Advance* and *Traverse*'s *Tyrol* system (below) while others like *Traverse's Porter* (opposite) and *Mule II* (fatter off-road wheel) are specific to the *Traverse and CMC* models. Such systems have single and/or twin wheels and optional carry arms that rotate to any position including being able to create a stand which makes tending to the casualty more comfortable for patient and rescuers. Indeed Lyon are now seeing demand from fire services for wheel and handle options. Options like the

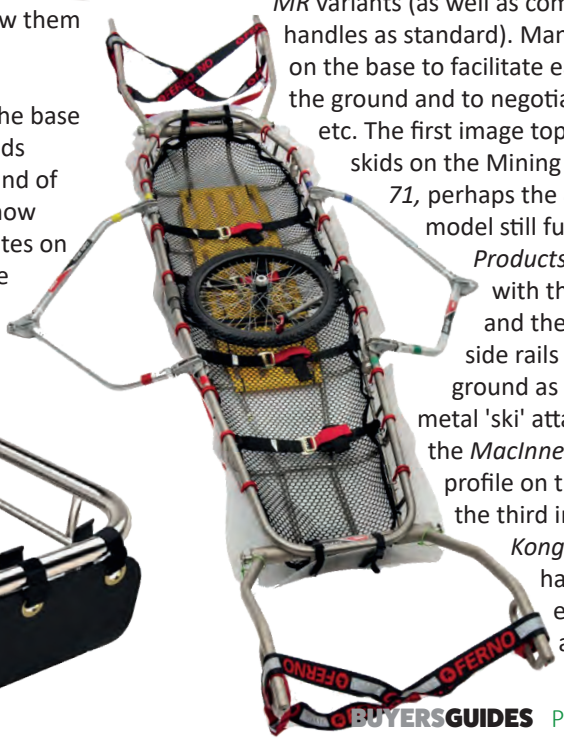


Mule II are not an inconsiderable extra cost at $1000 to $1500. *Tyromont*'s handles on both models fold down when not in use or can be rotated to provide support legs like a table (pic above), these also come with a wheel. Their oval-shaped handle design is also used on the Cascade handles. Other stretchers that offer extension carry handles mostly do so as an option that slots into, and is then pinned to, the existing tubular frame like the *Traverse* Tyrol system shown below-right, *Cascade TerraTamer, Ferno's Paraguard* and *Kong's Lecco and 911*. The *Kong* models are interesting because their extension handles are standard, not an option and have a padded curved handle to allow them to be comfortably carried on the rescuer's shoulders.

Most metal-frame baskets will be constructed so that the base longitudinal supports protrude enough to double as skids but this doesn't work quite so well in tapered designs and of course, an open weave is prone to acting more like a snow plough than skids once a small amount of ice accumulates on a cross-member. In the image below you can see how the base profile is relatively limited with two tubes that are thinner than the top rail and provide relatively inefficient runners. A great many stretchers never get dragged along the ground so this isn't necessarily a problem but for those that want the option, *Lyon Equipment* (below) and *Traverse* (right) have an ancillary skid-sheets that can be strapped to any Titan basket to facilitate easier sliding and greater casualty protection from below.



Cascade specialise in the ultimate style of sled/pulk or Ackja stretchers but also have a ski-plate available as an option for their metal-frame baskets. *SAR Products Alpine/Lite* have a skid-pan as standard on their *MR* variants (as well as coming with extension handles as standard). Many stretchers have skids on the base to facilitate easier sliding across the ground and to negotiate boulders, walls etc. The first image top-right shows wooden skids on the Mining version of the *Ferno 71,* perhaps the *only* wooden skidded model still functioning. The *SAR Products* stretchers together with the *MacInnes* stretcher and the *Tyromont Tyral* have side rails that extend to the ground as skids, reinforced by a metal 'ski' attachment in the case of the *MacInnes* and with a flattened profile on the *Tyral*. Similarly, the third image above is the *Kong Lecco* which also has the two side rails extending to the ground as runners and then



RIGID FRAME STRETCHERS/LITTERS

protects the patient underneath with two aluminium sheets so this slides well, is durable and very protective of the patient. Interestingly, *Spencer*'s flat-top *Dragger* can be being pulled on its skids or flipped upside-down and hand-carried with the rails acting as side protection like a basket stretcher. The *UT2000* offers actual skate attachments as an option for use on snow and ice. In the image above of Ukrainian rescuers in the Carpathians, a dedicated sled stretcher is being used to transport an injured skier. This type of stretcher, also called an Akja or Pulka is NOT lift-capable but you'll note that the common sled handle design has been adopted by some of the hybrid stretchers like the Tyromont and Cascade models. The second image above shows the moulding detail of the *Traverse Advantage*'s shell. This provides great protection for the casualty and slides well over all kinds of surfaces but lacks the durability and strength of metal runners or the efficiency of a *Cascade* style smooth-bottom sled. The fourth example here is *Alp Design*'s *Speleo* stretcher which isn't dealing with snow and ice so much as rock and grit so it needs to be protective, supportive and durable. They've opted to use a full length sheet of carbon-fibre composite of Kevlar and Bakelite plastic.

UPDATING Q1 '26

SUSPENSION, HORIZONTAL & VERTICAL LIFT

For rope and winching operations you have to be very careful to ONLY use the specified lift points which is NOT the same as using anywhere along the top-rail although the *UT2000* and *Ultramedic*'s *Mining* can specifically be loaded anywhere along the top rail. Others can too like the Traverse ranges but they do also have specified tie-in points. Specified load points may be required because of the load angles and may be an isolated section of rail (***Isolated Rail Eye*** in our tables) or an obvious eye, perhaps with a reinforced grommet or an extra reinforced weld-point. For horizontal lift these will be located at the strongest part of a stretcher to rule out folding or buckling under load; roughly the ¼- ¾ length points at the shoulders to mid torso area and the lower leg to thigh area. Rarely, if ever, will a stretcher have horizontal suspension points at the obvious extremities - head and foot. A number of models have separate load-eyes on the inside of the shell like *Traverse*'s *Stratload* eyes above which are oriented slightly differently on the Pinnacle because it is aimed more at vertical extractions. Others have eyes that swivel around the top rail like *Cascade*'s *ALP*s and some Traverse tactical variants. This model from China's *EMSS* shows (left) a quite odd addition of a swivelling eye plate right next to the traditional reinforced grommet-eye. This might be to improve the load angles on the carabiner which can be subjected to some torquing when clipped to rails and through some eyes but backing up via those grommet eyes might not be a bad idea.

ALWAYS FACE CARABINER GATES INWARDS TOWARDS THE CASUALTY

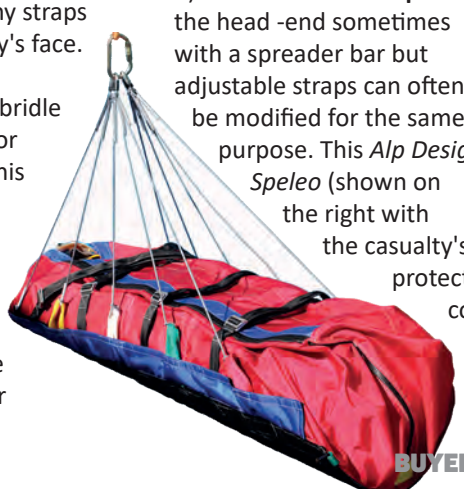
Our definition of 'Vertical' for this article refers to the 90 degree orientation of the stretcher into a complete head-up, feet-down position which is only ever used to negotiate an opening or vertical tube/passage/ cave that won't allow the stretcher to be raised in the preferred horizontal orientation. The Vertical lift point for a head-up extraction may use the regular head-end attachment eyes or there may be a special separate attachment above the head to ensure that any straps don't end up being loaded across the casualty's face.

We could fill an entire GUIDE with stretcher bridle options (and probably will quite soon) but for the purposes of simplicity we will confine this discussion to the three basic options:

1) **Fixed length wire or webbing straps** Like *Junkin*'s quite 'rustic' but robust yellow set (right) and *Kong*'s more refined *Orion* straps (left). There may be 4,6 or even 10 straps (or wires in the case of this *Tyromont* set on their *Tyroll* stretcher (right), which is not a rigid-frame so not in this GUIDE). These will be fixed, non-adjustable lengths with two or more being shorter than the rest to allow the stretcher to orientate level (due to higher upper body weight), slightly head down (preferred for trauma) or slightly head up (preferred for head-injuries). Helicopter litters use their own very specific straps or stainless wire bridles tested and approved as a package. *LSC* has an interesting magnetic-D-rings version (top-right) where the two D-rings separate for storage and loading and magnetically snap together readily for clipping to the winch cable hook. A modification of fixed-length straps is *AlpDesigns* cableway or tyrolean rig (below) using a web spacer between to two connection points to keep the stretcher on the trajectory of the track-line rope.

2) **Adjustable Length Straps,** again 4, 6 or more but each can be adjusted for length for perfect orientation. Some will allow the orientation of a stretcher to be changed mid-lift to allow negotiation of a narrow section or entrance but this can be difficult with the straps loaded. In the *Alp design* model above the arrow shows the tail of the strap that can be pulled to bring the head upright as in the main cave-rescue photo far right. Some teams will use a mini pulley system to provide this temporary change in orientation.

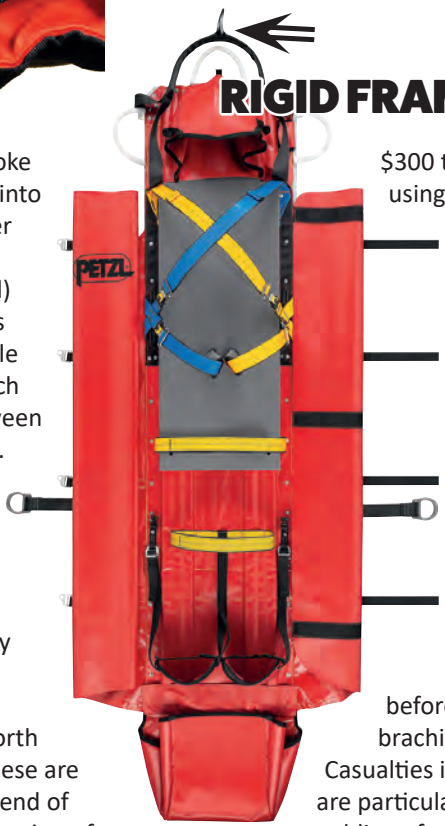
3) **Vertical 'Yoke' Straps** at the head -end sometimes with a spreader bar but adjustable straps can often be modified for the same purpose. This *Alp Design Speleo* (shown on the right with the casualty's protective cover unfurled) has an



ancillary yoke connecting into both the stretcher and the casualty harness (arrowed)

but the stretcher does also have its own single point attachment which you can see in red between the two black yoke straps.

The *Petzl NEST* (right) has a similar head-end 'yoke' attachment (arrowed). Such straps are also very useful for dragging stretchers through restrictive passageways or along the ground and for many teams are probably more frequently used for that purpose than for a vertical-orientation lift.

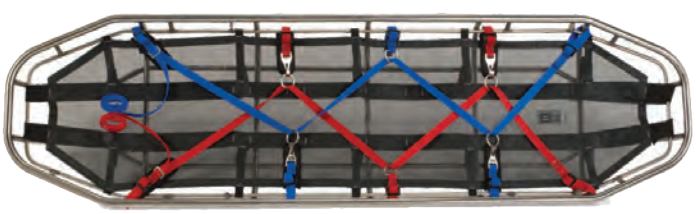


Before we leave attachment points it's worth mentioning control lines and tag-lines. These are ropes connected to the head and or foot-end of a stretcher to assist in positioning and direction of lift during a raising or winching operation or on a tyrolean. In general a tag-line is for orientation, positioning and obstacle negotiation while a control line maintains a constant lowering speed and/or braking action in a more horizontal plane such as a tensioned diagonal/tyrolean traverse.

Where such control or obstacle negotiation is required only temporarily, having ropes attached to the extremities of the stretcher throughout the raise can be a pain, if not a hindrance so consider *Kong*'s idea of a remote bomb-release (pic top) running from the tag-line attachment eye via a short length of cord/webbing to the stretcher handler.

PATIENT SECURITY

Most stretchers utilise webbing straps that run to and from each side of the frame. This simple transverse strapping is fine for flat and low-angle ground transport with no exposure of the casualty to a fall other than being tipped too far to one side. Heli-ops and more extreme vertical operations call for something more substantial. Most transverse straps can be crossed to create shoulder and thigh straps or you can use bespoke straps. *CMC* offer two enhanced tie-in systems costing around



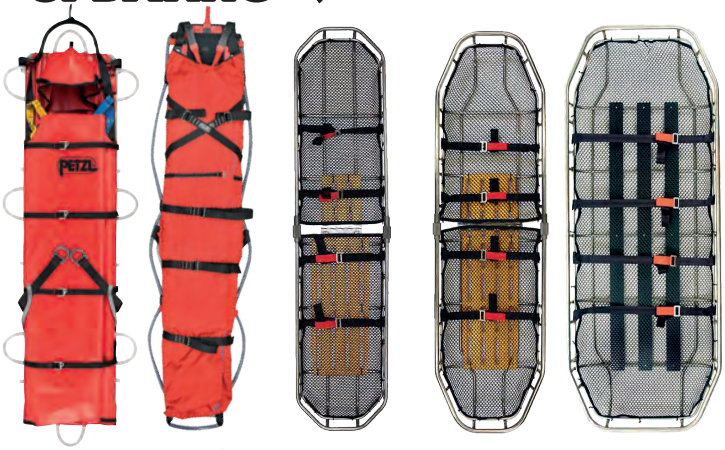
RIGID FRAME STRETCHERS/LITTERS

$300 to replace the age-old ''lashing' of casualties using webbing, often a single length, which was tied backwards and forwards, weaving in and out of the frame in a mystical, passed-down-through-the generations method that not only takes hours but can end up being too loose or too tight. The two-strap system below replaces the traditional lashing for secure ground transport while below that is a more secure, integrated harness with pelvic and shoulder straps which can be used with a spine board. Any at-height risk to the casualty should ideally be mitigated with a harness style restraint which includes should straps, cross-torso, pelvic and leg-restraints. However, you MUST be sure not to over tighten straps. Wait for the patient to inhale before tightening across the torso, ensure that the brachial and femoral arteries aren't occluded etc.

Casualties in a vertical orientation for extended periods are particularly prone to extreme discomfort and any padding of sensitive areas is welcome. Where time allows, time spent making the casualty more comfortable as well as secure is time well spent. In addition to securing casualties with strapping, some have enhanced safety which doubles as 'environmental' protection in the form of large PVC 'wings' that Velcro right across the casualty's torso and upper legs as seen in the Paraguard, ResQMate, Petzl Nest and to some extent, Alp Designs Speleo. When it comes to casualty size, we will deal with bariatrics (oversized) separately except to say that a rigid frame basket will only safely fit a casualty that actually does fit within that basket. Shorter casualties need to be properly secured so that they don't slide and submarine under standard transverse stretcher straps. This is easily achieved by extending the foot strap(s), creating a figure of 8 and looping this over the feet and firmly securing to the side, preferably to an eye or a transverse frame bar just forward of the feet. Many stretchers have a dedicated foot plate like the *Junkin* and *Spencer* on p48 and some shell frames have additional tie-in points offered by rope that runs in and out for the circumference of the shell.

CAVES & CONFINED SPACES

The Nest and Speleo on these pages are obviously ideally suited to manoevring in very limited space confines of a cave. However, not all 'confined spaces' are small. Except



CAVE RESCUE / CON-SPACE REGULAR BARIATRIC

for mines and the largest cave systems, rigid frame basket stretchers are rarely the first choice for confined space rescue. The Mines Rescue version of the *Ferno 71* isn't a con-space stretcher because mines are often large, spacious areas, it's a regular sized stretcher that has intrinsic safety thanks to wooden runners and no metal fittings that might cause a spark. True confined-space doesn't come more confined than cave rescue which often uses rollup stretchers (featuring in the next issue's GUIDE). However, although probably driven by industry, baskets started striking back against roll-ups a while ago when it was realised that width was often the only problem with a solid frame which otherwise slides well and provides better patient protection in a cave or confined space. So with models like the *Titan Pinnacle,* 'thinner' became the alternative for con-space stretchers to the flexibility of something like the old *Neil-Roberston* style, incidentally still produced today mainly for use in ships. Small-footprint stretchers like *Ferno's Paraguard Exel* which has been around almost as long as the *Neil Robertson,* the updated *Resqmate* are aimed more at industry and are great for operating in limited space while providing good back support and the ability to slide easily but patient arms and legs are a little more exposed (even with the wraparound 'wings') than the protection afforded by a basket frame and their entire design is a little complex with numerous nooks and crannies that need to be cleaned post-incident. We have not included the half-board 'stretchers' like *FAST*, the *SpecPack* by *Yates*, *UltraMedic's ConRest* (right), *Actsfafe's HS Skopan* and the *LSP* because although they have a rigid torso component and are excellent options for confined space rescue they don't offer full length protection for the purposes of this GUIDE so will be included in a separate GUIDE to Con-Space Stretchers in **TECHNICALRESCUE** magazine but some may be in next issue's GUIDE to Flexible/Roll-up stretchers in **WSAR**#10 with similar designs like *Tyromont Tyroll's CS.* These models are otherwise well enough equipped to be considered truly capable all-round stretchers though better for rope rescue than for carry-outs! Perhaps the only dedicated cave rescue stretchers designed purposely for caves are the *Petzl NEST* and the *AlpDesign Speleo* (red stretchers far-left). Both are low-profile, platforms with integral casualty protection, integrated body harness and in the case of the *AlpDesign*, a full length -sled style base while the *NEST* uses removable square section alloy tubing to provide extra rigidity, or not if you need to perform a tight manoeuvre around a bend. These are light, narrow and with a height profile limited only by the casualty's nose! In fact, they have all the attributes of a really good mountain rescue and SAR stretcher not much heavier or bulkier than the universally versatile lightweight roll-ups we're looking at next time but sturdier and with significant enhancements. Our teams used *SKED*s for most types of Technical Rescue but if I was to choose again I'd definitely want one of these two as my alternate addition to a full rigid basket.

BARIATRICS

At the other end of the spectrum are bariatric stretchers for super-sized casualties. Before they became a manufactured item we had great success using the platform style *Bell Mountain Rescue* stretcher for bariatric 'rescues' which were often no more than 50 feet from a room in a house to an ambulance. But the *Bell* and *Macinnes* were/ are solid metal frames well able to carry the kinds of load we were getting - 50 to 70 stone (320kg/700lb to 445kg/980lb) at that time and even higher these days! The 'platform' style enables body fat to be contained by 'soft' measures like blankets and strapping that would otherwise NOT fit in any standard basket. We were able to have Peter Bell produce a bariatric version - super-wide and flat-topped which suited the great outdoors but was not so great for the urban environment and any doorways that needed to be negotiated. Sadly, most of these types of 'rescue' involved individuals too large to go through the door anyway and taking out a window was the only option! Dedicated wilderness rescuers won't generally be dealing with such large immobile casualties but any casualty still has the potential to be VERY large, so oversized or wide baskets like the *Traverse Titan 32* above left and *UltraMedic*'s 82cm/32" wide *XXL (right)* are available. Some regular baskets are wider than others like the *D90* (p52) at 68cm/27" wide so can deal with larger casualties. The *UT200* has an option for frame extensions on the sides and ends which could function to better contain a larger patient in what is otherwise a fairly narrow stretcher but its load-rating would preclude true bariatrics.

Obelisk

for Technical Rescue teams

Designed and manufactured by Lyon Equipment specifically for emergency service work.
Adjustable width cross-head with max height of 2200mm for a large, clear working area below the anchor points.

LYON
WORK & RESCUE

ENVIRONMENTAL PROTECTION

This is often most vital in wilderness rescue where the casualty could be in your charge for several hours and subject to exposure and/or hypothermia, or hyperthermia. All Mountain and Cave rescue teams use some form of exposure protection in their stretchers, whether it be dedicated like a waterproof/padded bed, thermal blankets, sleeping bags, waterproof covers or incidental such as a vacuum matress or all of the above. All-encompassing bags are favoured by many

Tyromont's *Injury Protection Bag* (inset-left) is an enhancement of many vacuum mattresses which provide thermal protection as well as immobilisation and splinting. This model is a true 'bag' than can be sealed up around the casualty and can also be carried as kind of 'soft' stretcher separate from the basket. *Kong* have taken this to the next level with an all-encompassing capsule (right) which seals like a drysuit and has a clear face shield with breathing valve. In some instances your protective measures are to stave off heat-stroke and sun burn. You might actually want to use water poured over a casualty's clothing to cool them down and liberal application of a simple sun-block.

HEAD GUARD / DEBRIS PROTECTION

The *Kong Capsule* (pic top right) is perfect for complete protection from cold-water inundation as might occur in canyon rescue with the very real dangers of negotiating a waterfall but there are simpler options for head-protection like the *Kong Visor* (oposite) which attaches to their optional head-foam/cervical management system. Being strapped to a stretcher face up, partway down a crumbly cliff face is a very scary prospect with very real dangers from falling rock, soil and debris and being poked by branches or thorny twigs. In the old days a pair of glasses or goggles were the real minimalist approach but *CMC* broke the mould when they introduced their comprehensively protective clear Lexan Litter-Shield shown on the left in it's alternative, larger, taller format that will fit most stretchers, not just *CMC*'s. This thing is as good today as it was when it was introduced in the 80s able to deflect sizeable chunks of rock that might

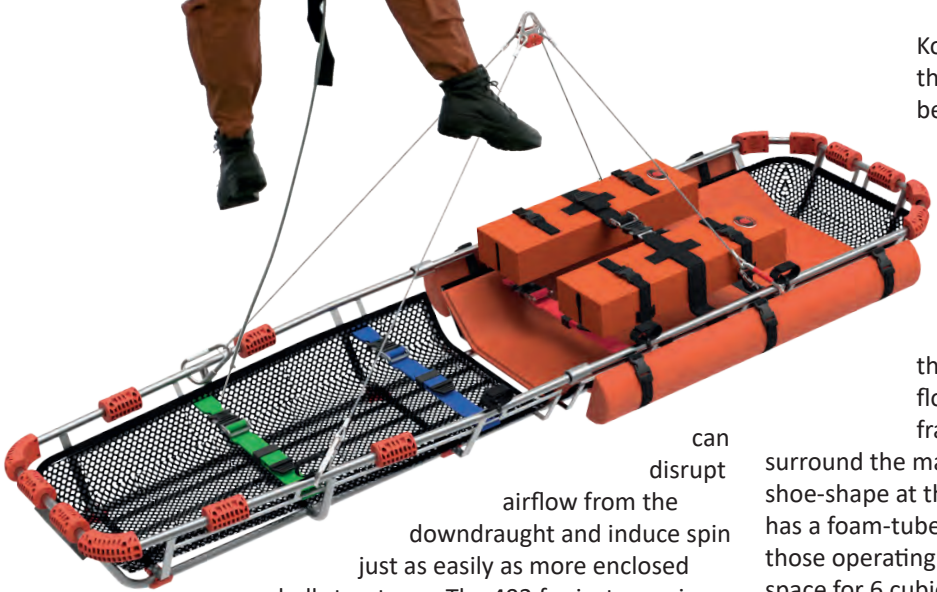
RIGID FRAME STRETCHERS/LITTERS

defeat lighter-weight counter-measures. Indeed Jim Frank says he knows of at least two saves from rockfall thanks to this Lexan Shield. As you might expect, it's not cheap at $470 but a lot cheaper than a new face! Similarly this *MacInnes* cover by *Lyon (right*-which *is* a modern, tougher version of the original genius pram-syle canvas/PVC cover that folded down), uses adherence to the EN Mountaineering Impact standards as the basis for design. This degree of solid protection might be bulky to store and carry were it not for the fact that both designs can simply flip over the end of the stretcher for patient access and during transport or inverted inside the stretcher for storing The simplest option of a face visor like this Kong model, can sit flat in the stretcher for

storage and this 'build-your-own' shield from *Kohlbratt* also stores flat until formed into a sturdy plastic dome but there's a lot to be said for clear screens like the *Tyromont* in the picture opposite-top-left, giving the casualty insight into what's going on. Not always a good thing!

HELICOPTER-USE

The Heli and offshore marine rescue areas of wilderness Search & Rescue tend to be differently equipped to mountain and cave rescue teams often with heavier-duty, Mil-Spec systems and components. One of the key players in this is Life Saving Corporation (LSC) of Florida who produce the iconic 406 Medevac II (below in its 'F' for Flotation variant discussed shortly) and 402 models (left) in stainless steel or Titanium. Despite it's 'slight' appearance the 402 is a true multi-role stretcher that floats, slides and can get into pretty narrow spaces which is why it's favoured by many helicopter crews. The open-weave design of metal baskets

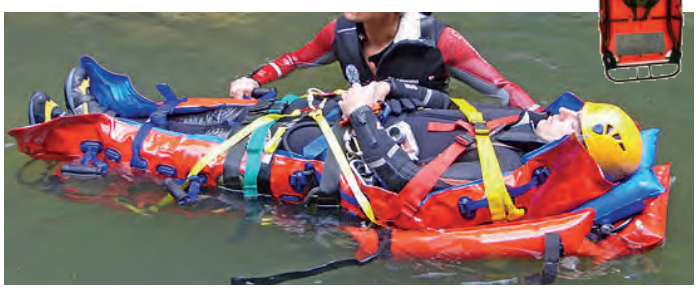


can disrupt airflow from the downdraught and induce spin just as easily as more enclosed shell structures. The 402 for instance, is a helicopter winch op stalwart and is effectively a solid, flat surface that doesn't allow air through at all so you clearly can't over-simplify aerodynamics. As we'll see next time, Tyromont have designed a kind of air-rudder that sits atop one of their stretchers to counter the spin imparted by the rotors on their design. Any stretcher 's aerodynamics can be altered by the way you package your casualty so even those listed in this GUIDE as Heli-compatible may become affected by rotor-wash and rotor-spin under certain conditions. What is vitally important is that only the bridles and accessories specifically made for your heli-stretcher are used - ***there should be no mix and and matching of slings and components from other manufacturers when it come to heli-ops.*** Interestingly Peter Bell's early work with the RAF seemed to indicate that a slight tilt to head up reduced spin as it shed air more readily.

FLOTATION

With just a few exceptions, like the *402* far-left,the Kong Canyon and the *D90* (below-left), most of these stretchers will either sink like a stone or at best, remain on the edge of being neutrally buoyant so will require additional flotation in order to function safely in inland water. This can be quite a convoluted process to fit so if you're a land-based team, don't expect to rock up and deploy within a couple of minutes like coastal and offshore crews can with pre-rigged systems. Pre-planning is necessary. Most of those that offer some form of flotation use round float tubes that strap around the outside of the frame. The *Junkin* and *Cascade* examples above surround the majority of the frame but some are a horse-shoe-shape at the head/torso end only. The *UT200* (below) has a foam-tube option but also offers inflatable supports for those operating in caves and canyons that might not have the space for 6 cubic feet of flotation foam. Priority for placement of floats is the head end, or more particularly, the heaviest part of the body- the upper torso, so most stretchers will orientate slightly or in the case of marine/offshore rescue stretchers having to contend with waves and chop , substantially, feet down. The *UT2000* offers what can only be described as an inflatable upper body lilo for enhanced buoyancy at the vital head-end. (right).

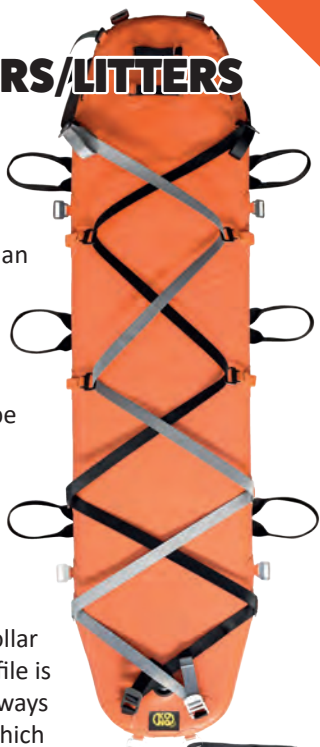
One of Heli-rescue's top models, the Medevac II & IIA 406-F variant shown above left, has a number of flotation aids including a foam torso pad, two lower-profile semi-circular foam tubes on the outer rails and life-jacket style torso pads. Unlike the horse-collar and full circumference flotation offered for stretch-



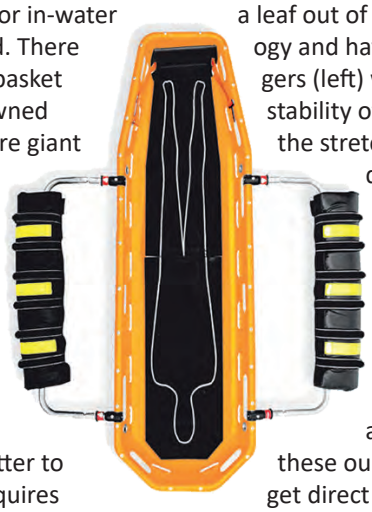
RIGID FRAME STRETCHERS/LITTERS

ers only used for water rescue occasionally in relatively level inland and flood waters, the offshore models are more permanently rigged to orientate the casualty to 'bob' rather than sit like a raft on the top with the risk of waves washing over an upturned face. There are a number of rail attachments around the 406 frame which act as protective buffers but don't increase buoyancy. Nevertheless, this is a feature that many a cliff-rescuer's scraped knuckles would appreciate on ALL basket stretchers.

As mentioned in the PATIENT SECURITY section, straps can be a questionable addition in water. The *D90* is designed for in-water loading and while in or over water, no straps are used. There have been instances of patients strapped into metal basket stretchers during watercraft transport who have drowned after the craft has capsized! While all metal baskets are giant colanders that drain feely, some plastic shells are giant drogue anchors that will retain water. High altitude specialists like the *Cascade* range are more concerned with snow than liquid water so are designed specifically without drain holes so that they function better as a sled able to slide freely on snow and ice. The *UT200* does have drain holes in its plastic shell but these are too small to shed water fast enough in a raising operation out of water - you could initially be lifting hundreds of extra pounds. Better to remove the shell altogether for water ops but this requires tools. For inland rescuers, if you want to combine optional flotation with patient comfort and security ,the *Kong Mattress* (right) might be the way to go. It pumps up (by hand/foot pump) and can secure to the bottom of any basket stretcher providing handles and an assortment of securing straps. Of course any rotomoulded spine board will also provide flotation and an easier transition from casualty loading at the site of injury to loading into the stretcher - it just won't be as comfortable.



Italian company, Spencer Italia, have taken a leaf out of Polynesian technology and have flotation outriggers (left) which guarantee the stability of the casualty while in the stretcher. In the standard collar designs, if the float profile is too narrow there is always a danger of capsize which this system negates..



It also overcomes a patient access problem that may be caused by float add-ons that are too wide - with these ouriggers, rescuers can still get direct access to the casualty's airway should a problem occur.

IN THE FOLLOWING TABLES.....

Any use, feature, accessory or component that is inherent in the stretcher is shown as a solid coloured square ■■■■
If it's an option it is shown as an outline square □□□□

A circle ●in the 'USE' columns indicates that the feature is OK for that purpose but not ideal. We normally use a diamond to indicate this in our GUIDES but felt a diamond ♦ was better used to show which stretchers were tapered. ALL of these stretchers can be used for short-duration carry-out with varying degrees of casualty comfort and rescuer convenience so **Long Range (LR) Carry-Out** is a separate category. Rope rescue in horizontal/prone orientation is a feature of all of these stretchers but load capacity varies.

ORIGIN: The 'manufacturer's country, not necessarily the country of manufacture if they outsource. If we know we put an inset flag to show where it's made but many are quite cagey about this. As it happens, the vast majority of these stretchers are made in the origin country shown.

COST: a rough guide only - includes local taxes. Varies with exchange rates, extra taxes etc. We usually round up to the nearest Pound£/US Dollar$/Euro€. Cost is for basic model with included accessories indicated by a solid square in the appropriate column (optional extras being an outline square).

STRETCHER TYPE

BASKET: a basin shaped stretcher with raised sides that help retain the casualty within it.It may be an open weave frame of tubular metal (or carbon-fibre) or it may be a solid shell, usually some form of plastic, supported by a tubular metal frame.

PLATFORM: A more-or-less flat topped stretcher that doesn't have rigid sides but will usually have more complex integrated straps and/or enveloping flexible 'wings' which encapsulate or partially encapsulate the casualty.

SPLIT/BACK CARRY: SPLIT Refers to a two-piece stretcher that either divides into two separate halves which can be carried by one or two people or is hinged in the middle. Some stretchers, especially cave/con-space stretchers fold down small enough to be back-carried by one person but are not 'SPLIT' in the true sense. ALL split stretchers can be back-carried and most have the provision of a ruck-sack style harness or suitably equipped carry bag which implies it can be carried by one person but some Split steel stretchers are quite heavy and better divided between two if possible. *One half is often longer than the other.*

STRETCHER ATTRIBUTES:

TAPERED ♦ **RECTANGULAR**■ The general shape of a basket stretcher. Tapered means it narrows significantly towards the leg end - similar, dare we say, to a traditional coffin shape. Rectangular is more symmetrical with square ends and no defined head or foot other than as determined by internal fixings (integrated head restraint, harness etc).

ANODIZED POWDER COATED the finish on metal stretchers. ■ =powder coat. Plastic coating is indicated in the NOTES

INHERENTLY BUOYANT: A solid blue square ■=means that the stretcher will float or be neutrally buoyant WITHOUT additional flotation and will float even with a casualty on board, not necessarily like a raft, keeping the casualty dry but it defiantly won't sink unless damaged. Most that 'float' will be neutrally buoyant sitting at or just beneath the water's surface.

WATER DRAINING: ■ Means that water will not pool in the bottom of the stretcher - clearly, metal baskets will sink immediately but drain nicely through the open weave of the frame. This can be a consideration when performing an in-water recovery where your rigging or anchors DON'T have the ability to hold the considerably heavy weight of a water filled or slow draining shell-style basket stretcher. An outline square □ indicates that the shell will drain but may be quite slow through limited size/number of drain holes.

DESIGN LOAD & MBS: Design load is the weight of person that is intended to use the stretcher akin to Working Load Limit. This may be further defined by hroizontal and vertical MBS shown as Hz/Vtcl. The Minimum Breaking Strength/Load - MBS (in burnt orange) is generally 10 or 15 times higher than the WLL. SUSPENSION POINTS- See intro text on page 44

USES:

HORIZONTAL LIFT: Can be suspended on rope/winch cable in horizontal/prone orientation. Does NOT refer to hand-carry

VERTICAL LIFT: Stretcher suspends in head-up/standing posture

HELICOPTER: Stretcher is approved for use in/from helicopters in its own country.

SLED / SLIDE: The ability to slide easily on snow, ice, wet grass etc. without digging in or scraping snow/soil/debris inside the stretcher through openings or between frame bars. Some will convert to an Ackja style sled but we have not included dedicated Ackja/pulka sled-stretchers.

LR GROUND-CARRY: Long Range Ground Carry able to be carried for long distances over mixed terrain. Allows multi-rescuer carry. Has wide, comfortable handles. Supports and protects the casualty when slid over rocks/railings etc.

WATER-CAPABLE ■=Inherently buoyant stretcher.
□=Option to attach flotation (from the same manufacturer.)

CONFINED SPACE: Narrow enough to be used for small spaces

BARIATRIC: Wide & strong enough for *very* large casualties

FEATURES

INTEGRAL C-COLLAR: Cervical protection that will fit to stretcher

INTEGRAL SPINE BOARD: Usually a half-board covering the spine area from head to waist as an integral component

HEAD GUARD: Again, every stretcher in this guide can be fitted with a fits-all head guard so this refers to the manufacturer's supplied head-guard.

WEATHER PROTECTION: waterproof and/or heat-retaining cover

ADJUSTABLE FIXED LENGTH BRIDLE: A set of 2, 4 or 6 straps connecting harness lift points to a central collection point known as a stretcher bridle. Adjustable straps shown as a burnt orange square ■or□ Fixed length straps =□ or ■

INTEGRAL BODY HARNESS: is an addition to regular stretcher straps. Improves casualty safety and positioning by restraining/wrapping the foot, shoulders/chest and waist to the stretcher. These may be quite simple enhancements of regular transverse straps or a complete full body harness with padded femoral and shoulder straps.

EXTENSION HANDLES: are carry handles that fix to the frame

WHEELS: technically, every tubular frame basket in this GUIDE can take one of the 'Fits-All' wheels like the Mule II but this column is for wheels offered by the same manufacturer.
■= single wheel or□ option. ■=2 wheels or□option.

FOOT-PLATE/SUPPORT: a rigid foot plate or separate web-support as provided by a full body harness.

PADDED BASE MAT: between the casualty and the stretcher base-always a waterproof to allow easy cleaning of body-fluids

CARRY BAG/RUCKSACK: A protective cover for the stretcher often with back-carry straps

COLOUR: Primary colour of shell if it has one or of the frame. Where there is a significant, uniform second colour-usually of a protection bag we've shown a smaller square inside the main colour. Some frames are offered with a coloured coating or anodizing but most are bare metal and shown as□

We are proud to have become part of Harken Industrial, a world-class innovator in the work-at-height and rescue industries. It's a partnership that enhances our equipment design and manufacturing capabilities. We understand how important it is to trust your gear and since 1962, we've valued your trust to manufacture and supply it. With Harken Industrial's global support, we'll continue to grow that trust. *Together.*

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IMAGES NOT TO SCALE
COST: Approx, INCLUDES local tax/VAT
USES/ FEATURES: ●= PARTIAL FEATURE and/or OK BUT NOT IDEAL
SHAPE: TAPERED♦ RECTANGULAR■
□□□= Option
N/A = info Not Available/not given

	MODEL	COMPANY	ORIGIN	COST inc tax / VAT	BASKET	FLAT/PLATFORM	SPLIT / TWO-PIECE	TAPERED RECTANGULAR	ANODIZED POWDER-COAT	INHERENTLY BUOYANT WATER DRAINING	WEIGHT	DESIGN LOAD Hrztl/Vertical MBS
	**Barella Speleo**	**ALP DESIGN**		£000 $000 €000	-	■	-	■	-	■	13kg 28.7 lb	150kg 331 lb
	**Advance 200** CRC-RSL-M200-1	**CASCADE RESCUE**		£000 $995 €000	■	-	-	♦	-	-	7.94kg 17.5 lb	>1134kg >2500 lb
	**Advance 200 TT 1-piece** CRC-RSL-M200-1T	**CASCADE RESCUE**		£000 $1800 €000	■	-	-	♦	-	-	6.1kg 16.5 lb	>1134kg >2500 lb
	**Advance 200 MAX** CRC-RSL-M200M-1	**CASCADE RESCUE**		£000 $995 €000	■	-	-	■	-	-	10.9kg 24 lb	>1134kg >2500 lb
	**Advance 200 MAX TT** CRC-RSL-M200M-1T	**CASCADE RESCUE**		£000 $1800 €000	■	-	-	■	-	-	8.16kg 18 lb	>1134kg >2500 lb
	**Advance 200 2-piece** CRC-RSL-M200-2	**CASCADE RESCUE**		£000 $1300 €000	■	-	■	♦	-	-	8.61kg 19 lb	>1134kg >2500 lb
	**Advance 200 TT 2-piece** CRC-RSL-M200-2T	**CASCADE RESCUE**		£000 $1950 €000	■	-	■	♦	-	-	7kg 15.5 lb	>1134kg >2500 lb
	**Advance 200 MAX Split** CRC-RSL-M200M-2	**CASCADE RESCUE**		£000 $1300 €000	■	-	■	■	-	-	11.8kg 26 lb	>1134kg >2500 lb
	**Advance 200 MAX TT Split** CRC-RSL-M200M-2T	**CASCADE RESCUE**		£000 $1950 €000	■	-	■	■	-	-	8.85kg 19.5 lb	>1134kg >2500 lb
	**Advance 200 Carbon TT 2-piece** CRC-RSL-M200-2TC	**CASCADE RESCUE**		£000 $2900 €000	■	-	■	♦	-	-	7.5kg 14 lb	>1134kg >2500 lb
	**Advance 200 MAX Carbon TT Split** CRC-RSL-M200M-2TC	**CASCADE RESCUE**		£000 $2900 €000	■	-	■	■	-	-	6.1kg 16.5 lb	>1134kg >2500 lb
	**Professional Steel Litter** CRC-RSL-**PS**/PSR	**CASCADE RESCUE**		£000 $495 €000	■	-	-	♦	■	■	14kg 31 lb	>1134kg >2500 lb
	**Professional Stainless Litter** CRC-RSL-PSS1/**PSSR1**	**CASCADE RESCUE**		£000 $975 €000	■	-	-	♦ ■		■	11.5kg 25.5 lb	>1134kg >2500 lb

RIGID FRAME STRETCHERS/LITTERS

DIMENSIONS L x Wx H/D SPLIT/ROLLED LENGTH (longest section)	MATERIALS: FRAME BASE/LINER SUSPENSION POINTS	USES: HORIZONTAL LIFT	VERTICAL LIFT	HELICOPTER WINCH	LR GROUND-CARRY	SKIDS/SLIDE	IN-WATER-CAPABLE	EXTREMECONSPACE	BARIATRIC	HEAD IMMOBILISATION SPINE IMMOBILISATION	FACE GUARD WEATHER PROTECTION	BRIDLE ADJ USTABLE BRIDLE FIXED LENGTH	BODY HARNESS EXTENSION HANDLES	WHEEL / 2-WHEELS FOOT-PLATE /SUPPORT	PADDED BASE /MAT CARRY BAG/RUCKSACK	COLOUR OPTIONS	NOTES	WWW.
183x42x10cm 72x16.5x4"	Carbon Fibre/ Kevlar/Bakelite Nylon/Cordura 7x Webbing	■	■	■	■	●	-	■	●	■	■	■ ■	■	-	■ ■	■	Rope handholds run the circumference of the stretcher	alpdesign.it
208x54.6x14cm 82x21.5x5.5"	Stainless Steel Glass Composite 4x Swivel Eyes	■	■	■	■	■	□	-	-	●*	□ □	□ □	□	□	□ □	■	*None supplied but states not needed with rigid shell? Also optional Snowmobile tow-bar	cascade-rescue.com
208x54.6x14cm 82x21.5x5.5"	Titanium Glass Composite 4x Swivel Eyes	■	■	■	■	■	□	-	-	●*	□ □	□ □	□	□	□ □	■	*None supplied but states not needed with rigid shell? Also optional Snowmobile tow-bar	cascade-rescue.com
208x63.5.6x16cm 82x25x6.25"	Stainless Steel Glass Composite 4x Swivel Eyes	■	■	■	■	■	□	-	-	●*	□ □	□ □	□	□	□ □	■	*None supplied but states not needed with rigid shell? Also optional Snowmobile tow-bar	cascade-rescue.com
208x63.5.6x16cm 82x25x6.25"	Titanium Glass Composite 4x Swivel Eyes	■	■	■	■	■	□	-	-	●*	□ □	□ □	□	□	□ □	■	*None supplied but states not needed with rigid shell? Also optional Snowmobile tow-bar	cascade-rescue.com
208x54.6x14cm 82x21.5x5.5" 106.7cm / 40"	Stainless Steel Glass Composite 4x Swivel Eyes	■	■	■	■	■	□	-	-	●*	□ □	□ □	□	□	□ □	■	*None supplied but states not needed with rigid shell? Also optional Snowmobile tow-bar	cascade-rescue.com
208x54.6x14cm 82x21.5x5.5" 106.7cm / 40"	Titanium Glass Composite 4x Swivel Eyes	■	■	■	■	■	□	-	-	●*	□ □	□ □	□	□	□ □	■	*None supplied but states not needed with rigid shell? Also optional Snowmobile tow-bar	cascade-rescue.com
208x63.5.6x16cm 82x25x6.25" 106.7cm / 40"	Stainless Steel Glass Composite 4x Swivel Eyes	■	■	■	■	■	□	-	-	●*	□ □	□ □	□	□	□ □	■	*None supplied but states not needed with rigid shell? Also optional Snowmobile tow-bar	cascade-rescue.com
208x63.5.6x16cm 82x25x6.25" 106.7cm / 40"	Titanium Glass Composite 4x Swivel Eyes	■	■	■	■	■	□	-	-	●*	□ □	□ □	□	□	□ □	■	*None supplied but states not needed with rigid shell? Also optional Snowmobile tow-bar	cascade-rescue.com
208x63.5.6x14cm 82x25x5.5" 106.7cm / 40"	Titanium Carbon-Fiber 4x articulating	■	■	■	■	■	□	-	-	●*	□ □	□ □	□	□	□ □	■	*None supplied but states not needed with rigid shell? Also optional Snowmobile tow-bar	cascade-rescue.com
208x63.5.6x16cm 82x25x6.25" 106.7cm / 40"	Titanium Carbon-Fiber 4x Swivel Eyes	■	■	■	■	■	□	-	-	●*	□ □	□ □	□	□	□ □	■	*None supplied but states not needed with rigid shell? Also optional Snowmobile tow-bar	cascade-rescue.com
211x64.8x16cm 83x25.5x6.25"	19mm/¾" top rail Coated Steel HDPE mesh 4x Swivel Eyes	■	■	■	□	□	□	-	-	■	□ □	□ □	□	□	□ □	■		cascade-rescue.com
211x64x16cm 83x25x6.25"	Stainless Steel HDPE mesh 4x Swivel Eyes	■	■	■	□	□	□	-	-	■	□ □	□ □	□	□	□ □	□		cascade-rescue.com

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SHAPE: TAPERED♦ RECTANGULAR■
□□□= Option
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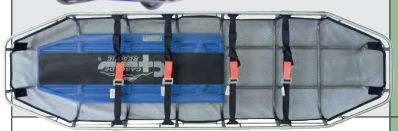
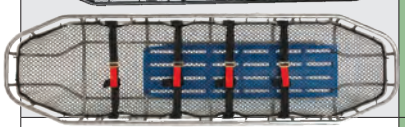
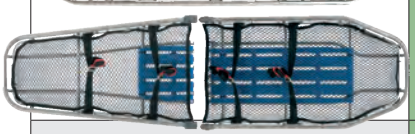
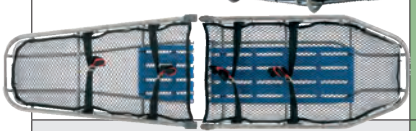
	MODEL	COMPANY	ORIGIN	COST inc tax / VAT	BASKET	FLAT/PLATFORM	SPLIT / TWO-PIECE	TAPERED RECTANGULAR	ANODIZED POWDER-COAT	INHERENTLY BUOYANT WATER DRAINING	WEIGHT	DESIGN LOAD Hrztl/Vertical MBS
	**Professional Stainless Split Litter** CRC-RSL-PSS2/PSSR2	**CASCADE RESCUE**		£000 $1365 €000	■	-	■	♦ ■	-	■	12.5kg 27.5 lb	1134kg 2500 lb
	**Professional Titanium Litter** CRC-RSL-PT1/**PTR1**	**CASCADE RESCUE**		£000 $2350 €000	■	-	-	♦ ■	-	■	7.9kg 17.5 lb	1134kg 2500 lb
	**Professional Titanium Split Litter** CRC-RSL-PT2/PTR2	**CASCADE RESCUE**		£000 $2950 €000	■	-	■	♦ ■	-	■	8.4kg 18.5 lb	1134kg 2500 lb
	**Disaster Response** 726300/1	**CMC PRO**		£000 $419 €000	■	-	-	♦ ■	■	■	15kg 33 lb	408kg 900 lb
	**Disaster Response Con-Space** 726305	**CMC PRO**		£000 $419 €000	■	-	-	■	■	■	14kg 31 lb	408kg 900 lb
	**Stainless Steel Rescue Litter** 726100/1	**CMC PRO**		£000 $999 €000	■	-	-	♦ ■	-	■	14.1kg 31 lb	>11kN >2473 lbf 14/30kN
	**Stainless Steel Split Litter** 726103/4	**CMC PRO**		£000 $1390 €000	■	-	■	♦ ■	-	■	16.3kg 36 lb	>11kN >2473 lbf 14/30kN
	**Titanium Rescue Litter** 726112	**CMC PRO**		£000 $2350 €000	■	-	-	♦	-	■	5.9kg 13 lb	>11kN >2473 lbf 14/30kN
	**Titanium Split Litter** 726117	**CMC PRO**		£000 $2950 €000	■	-	■	♦	-	■	7.3kg 16 lb	>11kN >2473 lbf 14/30kN
	**Field Rescue Stretcher** EDJ-016A	**EMSS**		n/a	■	-	-	■	-	-	18kg 39.7 lb	159kg 350 lb
	**Field Rescue Split Stretcher** EDJ-016B	**EMSS**		n/a	■	-	■	■	-	-	20.5kg 45.2 lb	159kg 350 lb
	**RESCUE STRETCHER** EDJ-016F	**EMSS**		n/a	■	-	■	■	-	-	14kg 31 lb	159kg 350 lb
	**Stainless Steel Stretcher** EDJ-016C	**EMSS**		£000 $000 €1364	■	-	-	■	-	■	13kg 28.7 lb	350kg 772 lb

RIGID FRAME STRETCHERS/LITTERS

DIMENSIONS L x Wx H/D SPLIT/ROLLED LENGTH (longest section)	MATERIALS: FRAME BASE/LINER SUSPENSION POINTS	USES: HORIZONTAL LIFT	VERTICAL LIFT	HELICOPTER WINCH	LR GROUND-CARRY	SKIDS/SLIDE	IN-WATER-CAPABLE	EXTREMECONSPACE	BARIATRIC	HEAD IMMOBILISATION SPINE IMMOBILISATION	FACE GUARD WEATHER PROTECTION	BRIDLE ADJ USTABLE BRIDLE FIXED LENGTH	BODY HARNESS EXTENSION HANDLES	WHEEL / 2-WHEELS FOOT-PLATE /SUPPORT	PADDED BASE /MAT CARRY BAG/RUCKSACK	COLOUR OPTIONS	NOTES	WWW.
211x64x16cm 83x25x6.25" 109cm / 43"	Stainless Steel HDPE mesh 4x Swivel Eyes	■	■	■	□	■	□	-	-	■	□ □	□ □	□	□	□ □	□		cascade-rescue.com
211x64.8x16cm 83x25.5x6.25"	19mm/¾" Top Rail Titanium HDPE mesh 4x Swivel Eyes	■	■	■	□	■	□	-	-	■	□ □	□ □	□	□	□ □	□		cascade-rescue.com
211x64.8x16cm 83x25.5x6.25" 109cm / 43"	19mm/¾" Top Rail Titanium HDPE mesh 4x Swivel Eyes	■	■	■	□	■	□	-	-	■	□ □	□ □	□	□	□ □	□		cascade-rescue.com
210 x62x17cm 82.7x24.4x6.7"	Carbon-Steel Durethane mesh 8 Captive Rail Eyes	■	■	■	-	■	□	-	-	-	□ □	□ ■	□	□	□	■		cmcpro.com
210x46x17cm 82.7x18.1x6.7"	Carbon-Steel Durethane mesh 8Captive Rail Eyes	■	■	■	-	■	□	■	-	-	□ □	□ ■	□	□	□	■		cmcpro.com
211x58x18.5cm 83x23x7.25"	25mm/1" top-rail Stainless Steel Durathane Net 4 Fixed Eyes	■	■	■	-	■	□	-	-	■	□ □	□ ■	□	□	□	□		cmcpro.com
211x58x18.5cm 83x23x7.25" 116cm/45.7"	25mm/1" top-rail Stainless Steel Durathane Net 4 Fixed Eyes	■	■	■	-	■	□	-	-	■	□ □	□ □	□	□	□	□		cmcpro.com
211x58x18.5cm 83x23x7.25"	25mm/1" top-rail Titanium Durathane Net 4 Fixed Eyes	■	■	■	-	■	□	-	-	■	□ □	□ □	□	□	□	□		cmcpro.com
211x58x18.5cm 83x23x7.25" 116cm/45.7"	25mm/1" top-rail Titanium Durathane Net 4 Fixed Eyes	■	■	■	-	■	□	-	-	■	□ □	□ □	□	□	□	□		cmcpro.com
216x61x19cm 85x24x7.5"	Stainless Steel Polyethylene 4x Swivel Eyes 4 Grommet Eyes	■	-	■	●	■	□	-	-	-	-	■	-	■	■	■	Same or similar Chinese models made by Flower Medical, Ruixen Medical etc	emssabc.com
216x61x19cm 85x24x7.5" 130cm/51"	Stainless Steel Polyethylene 4 Swivel Eyes 4 Grommet Eyes	■	-	■	●	■	□	-	-	-	-	■		■	■	■	Same or similar Chinese models made by Flower Medical, Ruixen Medical etc	emssabc.com
220x55x15cm 86.6x21.6x6" 115cm/45.2"	Alumium Alloy HDPE Shell 4 Captive Rail Eyes	■	-	■	■	■	□	●	-	-	-	■	■	-	■	■	Appears to be a direct copy of the UT2000	emssabc.com
212x62x18cm 83.5x24.4x7.1"	Stainless Steel Steel wire mesh 4 Fixed Eyes	■	■	■	-	■	□	-	-	-	-	■	-	-	■	□	Same or similar Chinese models made by Flower Medical, Ruixen Medical etc	emssabc.com

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	MODEL	COMPANY	ORIGIN	COST inc tax / VAT	BASKET	FLAT/PLATFORM	SPLIT / TWO-PIECE	TAPERED RECTANGULAR	ANODIZED POWDER-COAT	INHERENTLY BUOYANT WATER DRAINING	WEIGHT	DESIGN LOAD Hrztl/Vertical MBS
	Stainless Steel Split Stretcher EDJ-016D	EMSS		n/a	■	-	■	■	-	■	18kg 39.7 lb	350kg 772 lb
	Model 71 Model 71M*	FERNO		£000 $000 €989	■	-	-	♦	-	-	10-13kg 22-29 lb	272kg 600 lbf
	Model 71S Split	FERNO		£000 $1055 €1539	■	-	■	♦	-	-	11kg 23 lb	272kg 600 lbf
	Res-Q-Mate	FERNO		£000 $000 €000	-	■	■	■	-	■	17.5kg 38.5 lb	180kg 397 lb
	Paraguard Excel	FERNO		£1950 $000 €000	-	■	■	■	-	■	11.5kg 18 lb	136kg 300 lb

RIGID FRAME STRETCHERS/LITTERS

DIMENSIONS L x Wx H/D SPLIT/ROLLED LENGTH (longest section)	MATERIALS: FRAME BASE/LINER SUSPENSION POINTS	USES: HORIZONTAL LIFT	VERTICAL LIFT	HELICOPTER WINCH	LR GROUND-CARRY	SKIDS/SLIDE	IN-WATER-CAPABLE	EXTREMECONSPACE	BARIATRIC	HEAD IMMOBILISATION SPINE IMMOBILISATION	FACE GUARD WEATHER PROTECTION	BRIDLE ADJ USTABLE BRIDLE FIXED LENGTH	BODY HARNESS EXTENSION HANDLES	WHEEL / 2-WHEELS FOOT-PLATE /SUPPORT	PADDED BASE /MAT CARRY BAG/RUCKSACK	COLOUR OPTIONS	NOTES	WWW.
216x61x18cm 85x24x7.1" 130cm/51"	Stainless Steel Steel wire mesh 4 Fixed Eyes	■	■	■	-	-	-	-	-	-	-	■	-	-	■	□	Same or similar Chinese models made by Flower Medical, Ruixen Medical etc	emssabc.com
218x61x19-25cm 86x24x8-9.8"	Aluminum HDPE Shell 4 Grommet Eyes	■	■	●	■	■	□	-	-	-	-	□ □	-	□ ■	■ □	■	*Mining variant 71-M with plastic-coated frame & non-metalic components	ferno.com ferno.ca
218x61x19cm 86x24x8" 110cm/43.3"	Aluminum HDPE Shell 4 Grommet Eyes	■	■	●	■	■	□	-	-	-	-	□ □	-	□ ■	■ □	■		ferno.com
185x28x10cm 73x11x4" 100cm/ 39.5"	Stainless Steel PVC 4 Web Eyes	■	■	■	■	-	-	■	●	-	● □	□ ■	■ □	■	■ ■	■		ferno.com
182x72x7.5cm 71.6x10.6x2.9" 104cm/41"	Aluminium PVC 4 Stainless D-rings	■	■	■	-	●	-	■	●	-	● □	□ □	■ □	■	■ ■	■		ferno.com

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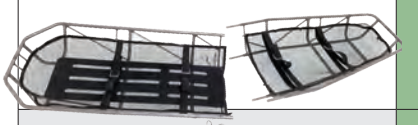
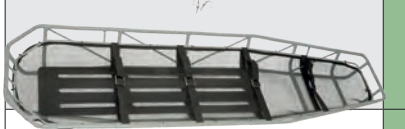
	MODEL	COMPANY	ORIGIN	COST inc tax / VAT	BASKET	FLAT/PLATFORM	SPLIT / TWO-PIECE	TAPERED RECTANGULAR	ANODIZED POWDER-COAT	INHERENTLY BUOYANT WATER DRAINING	WEIGHT	DESIGN LOAD Hrztl/Vertical MBS
	D90	HONOR SAFETY		n/a	■	-	-	♦	-	■ ■	17kg 37.5 lb	270kg 595 lb
	JSA200	JUNKIN SAFETY		$819	■	-	-	■	-	-	14kg 31 lb	544kg 1200 lb
	JSA200-B	JUNKIN SAFETY		$1070	■	-	■	■	-	-	14.5kg 32 lb	544kg 1200 lb
	JSA300	JUNKIN SAFETY		$350	■	-	-	■	□*	■	14kg 31 lb	680kg 1500 lb
	JSA300-B Break Apart	JUNKIN SAFETY		$775	■	-	■	■	□*	■	15.4kg 34 lb	kg 1500 lb
	JSA300-A Civil Defence	JUNKIN SAFETY		$383	■	-	■	■	□*	■	15.4kg 34 lb	kg 1500 lb
	JSA300-CS	JUNKIN SAFETY		$409	■	-	■	■	-	■	10.4kg 23 lb	kg 1500 lb
	MILITARY BASKET MIL-8131/WM	JUNKIN SAFETY		$791	■	-	-	■ ♦	□*	■	13.6/ 14.5*kg 30/32*lb	1136kg 1500 lb
	MILITARY BASKET SPLIT MIL-8131B/WMB	JUNKIN SAFETY		£000 $000 €000	■	-	■	■ ♦	□*	■	13.6/ 14.5*kg 30/32*lb	1136kg 1500 lb
	MILITARY Type II BASKET MIL-7767	JUNKIN SAFETY		$977	■	-	-	■ ♦	■*	■	14.5kg 32 lb	1136kg 1500 lb
	MILITARY Type III BASKET MIL-0452/ SPLIT	JUNKIN SAFETY		$899	■	-	■	■ ♦	-	■	13.6kg 30 lb	1136kg 1500 lb
	UT 2000	KOHLBRAT & BUNZ		£2380	■	-	■	■	-	■*	8kg 17.6 lb	160kg 352 lb
	911 Canyon	KONG		$9150	■	-	■	■	-	■ ■	23kg* 50.7 lb	1500kg 3300 lb (450kg* 990 lb*)

RIGID FRAME STRETCHERS/LITTERS

DIMENSIONS L x Wx H/D SPLIT/ROLLED LENGTH (longest section)	MATERIALS: FRAME BASE/LINER SUSPENSION POINTS	USES: HORIZONTAL LIFT	VERTICAL LIFT	HELICOPTER WINCH	LR GROUND-CARRY	SKIDS/SLIDE	IN-WATER-CAPABLE	EXTREMECONSPACE	BARIATRIC	HEAD IMMOBILISATION SPINE IMMOBILISATION	FACE GUARD WEATHER PROTECTION	BRIDLE ADJ USTABLE BRIDLE FIXED LENGTH	BODY HARNESS EXTENSION HANDLES	WHEEL / 2-WHEELS FOOT-PLATE /SUPPORT	PADDED BASE /MAT CARRY BAG/RUCKSACK	COLOUR OPTIONS	NOTES	WWW.
227x68x21cm 89.6x26.8x8.3"	Stainless Steel Reinforced HDPE 10 Handle/Rail Eyes	■	■	■	■	■	■	-	●	-	-	□	-	-	□	■		honor-safety.com
215x61x19cm 84.5x24x7.5"	Stainless Steel HDPE 10 Captive Rail Eyes	■	■	■	■	■	□	-	-	-	□	□	-	■	■	■ ■	comes with foot-plate. Also badged in red by RockNRescue	junkinsafety.com rocknrescue.com
215x61x19cm 84.5x24x7.5" 128cm/50.4"	Stainless Steel HDPE 10 Captive Rail Eyes	■	■	■	■	■	□	-	-	-	□	□	-	■	■	■ ■	comes with foot-plate	junkinsafety.com
208x62x21.6cm 82x24.5x8.5"	5/8" top rail Steel Steel Mesh 8 Captive Rail Eyes	■	■	■	■	-	□	-	-	□	□	□	-	□	□ □	□ ■ ■	*plastic (Plastisol) coated frame (shown)& with or without leg dividers	junkinsafety.com
208x62x21.6cm 82x24.5x8.5" 112cm/44"	5/8" top rail Steel Steel Mesh 8 Captive Rail Eyes	■	■	■	■	-	□	-	-	□	□	□	-	□	□ □	□ ■ ■	*plastic (Plastisol) coated frame & with or without leg dividers	junkinsafety.com
208x62x21.6cm 82x24.5x8.5" 112cm/44"	5/8" top rail Steel Steel Mesh 8 Captive Rail Eyes	■	■	■	■	-	□	-	-	■	□	□	-	□	□ □	□ ■ ■	*plastic (Plastisol) coated frame & with or without leg dividers. With Footrest	junkinsafety.com
204x46.7x20cm 80.5x18.4x7.75" ?	5/8" top rail Steel Steel Mesh 8 Captive Rail Eyes	■	■	■	■	-	□	■	-	□	□	□	-	□	□ □	□		junkinsafety.com
214x61x19cm 84.25x24x7.5"	19mm/¾" Top Rail Stainless Steel Steel Mesh All Along Top Rail	■	■	■	■	-	-	-		■	-	-	-	□	-	□ ■	*plastic (Plastisol) coated frame*tapered model weighs 2lb less than rectangular model	junkinsafety.com
214x61x19cm 84.25x24x7.5" ?	19mm/¾" Top Rail Stainless Steel Steel Mesh All Along Top Rail	■	■	■	■	-	-	-	-	■	-	-	-	□	-	□ ■	*plastic (Plastisol) coated frame*tapered model weighs 2lb less than rectangular model	junkinsafety.com
214x61x19cm 84.25x24x7.5"	19mm/¾" Top Rail Stainless Steel Steel Mesh All Along Top Rail	■	■	■	■	-	-	-	-	■	-	-	-	□	-	■	* plastic (Plastisol) coated frame as standard	junkinsafety.com
214x61x19cm 84.25x24x7.5" ?	19mm/¾" Top Rail Stainless Steel Steel Mesh All Along Top Rail	■	■	■	■	-	-	-	-	■	-	-	-	□	-	□		junkinsafety.com
180-200*x44x12cm 71-79*x17.3x4.4" 94-104*cm/37-41"	Aluminium Plastic* All Top&Lower Rail	■	■	■	■	■*	□	■	-	□	□ □	□ □	■ □	□ □ ■	□ ■	■ ■	*Shell can be removed *Length with frame extenders. *+Trailer coupling for quadbike towing etc. *Free draining as frame-only	kohlbrat-bunz.com lyonequipment.co.uk
218-320*x60x_cm 85-126*x24x_"	Aluminium Kevlar??Fibre-Glass 8 Reinforced Eyes	■	■	■	■	●	■	-	-	□ □	■ ■	■ ■	■ ■		■ ■	■	*Length with extension handles * Weight and load with detachable handles	kong.it

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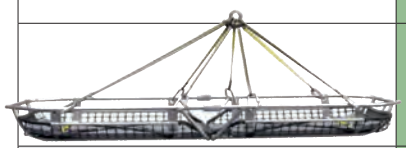
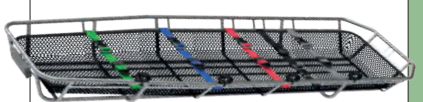
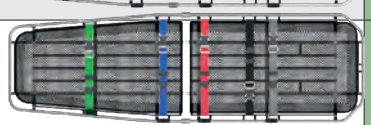
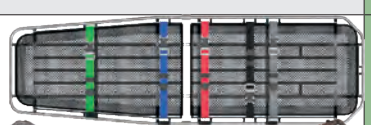
	MODEL	COMPANY	ORIGIN	COST inc tax / VAT	BASKET	FLAT/PLATFORM	SPLIT / TWO-PIECE	TAPERED RECTANGULAR	ANODIZED POWDER-COAT	INHERENTLY BUOYANT WATER DRAINING	WEIGHT	DESIGN LOAD Hrztl/Vertical MBS
	911 Net Full	KONG		$1890 €1660	■	-	■	■	-	■	18kg* 39.7 lb*	1500kg 3300 lb (450kg* 990 lb*)
	911 Shell 880.03	KONG		$4950	■	-	■	■	-	-	18kg* 39.7 lb*	1500kg 3300 lb (450kg* 990 lb*)
	Lecco 2.0	KONG		$4510 €3200	-	■	-	■	-	■	16kg* 35.3 lb*	200kg 440 lb 2100kg 4620 lb
	Lecco XL	KONG		$7625	-	■	-	■	-	■	16kg 35.3 lb	400kg 880 lb
	402	LSC		$1801	-	■	■	■	-	■ ■	14.5kg 32 lb	272kg 598 lb
	402TI	LSC		$2856	-	■	■	■	-	■ ■	10.8kg 24 lb	272kg 598 lb
	404 Medevac II	LSC		$1137	■	-	-	■	-	■	14.5kg 32 lb	>1134kg >2500 lb
	406 Medvac IIA	LSC		$1330	■	-	■	♦	-	■	15.4kg 34lb	>1134kg >2500 lb
	406 D Medevac IIA	LSC		$1291	■	-	■	♦	-	■	14.3kg 31.6 lb	>1134kg >2500 lb
	406 TI Medevac IIA	LSC		$3594	■	-	■	♦	-	■	9.98kg 22 lb	>1134kg >2500 lb
	406 D TI Medevac IIA	LSC		$3668	■	-	■	♦	-	■	9.25kg 20.4lb	>1134kg >2500 lb
	MacInnes Mk6 LMK6-ST	LYON EQUIPMENT		£3300	-	■	■	■	-	■	25kg 55.1 lb	136*-272kg
	Bell Tangent Split MR	LYON EQUIPMENT		n/a*	-	■	■	■	-	■	25kg 55.1 lb	130kg 272kg

RIGID FRAME STRETCHERS/LITTERS

DIMENSIONS L x Wx H/D SPLIT/ROLLED LENGTH (longest section)	MATERIALS: FRAME BASE/LINER SUSPENSION POINTS	USES: HORIZONTAL LIFT	VERTICAL LIFT	HELICOPTER WINCH	LR GROUND-CARRY	SKIDS/SLIDE	IN-WATER-CAPABLE	EXTREMECONSPACE	BARIATRIC	HEAD IMMOBILISATION SPINE IMMOBILISATION	FACE GUARD WEATHER PROTECTION	BRIDLE ADJ USTABLE BRIDLE FIXED LENGTH	BODY HARNESS EXTENSION HANDLES	WHEEL / 2-WHEELS FOOT-PLATE /SUPPORT	PADDED BASE /MAT CARRY BAG/RUCKSACK	COLOUR OPTIONS	NOTES	WWW.
218-320*x60x_cm 85-126*x24x_"	Aluminium HDPE Mesh 8 Reinforced Eyes	■	■	■	■	-	-	-	-	-	□ □	■ □	■	□	□	□	*Length with extension handles * Weight and load with detachable handles	kong.it
218-350*x60x_cm 85-138*x24x_"	Aluminium Fibre-Glass 8 Reinforced Eyes	■	■	-	■	■	-	-	-	-	□ □	□ □	■	□	■ □	■	*Length with extension handles * Weight and load with detachable handles	kong.it
198-310*x47x11cm 78-122*x18.5x4"	Aluminium Nylon 8 Reinforced Eyes	■	■	■	■	■	-	-	●	■ □	□ ■	□ ■	■ ■	□ □ ■	■ ■	□ ■	* Weight with detachable handles	kong.it
198-310*x75x11cm 78-122*x30.5x4"	Aluminium Nylon 8 Reinforced Eyes	■	■	-	■	■	-	-	■	■ □	□ ■	■ ■	-	■ ■ ■	■ ■	□		kong.it
203x42x19cm 80x16.5x7.5" 16.1cm/41"	Stainless Steel Nylon/Cordura 4 Fixed Eyes	■	■	■	-	-	■	■	-	■ ■	□ □	□ ■	■	■	■	■ ■	Integral foot plate	lifesavingsystems.com
203x42x19cm 80x16.5x7.5" 16.1cm/41"	Titanium Nylon/Cordura 4 Fixed Eyes	■	■	■	-	-	■	■	-	■ ■	□ □	□ ■	■	■	■	■ ■	Integral foot plate	lifesavingsystems.com
213x61x18cm 84x24x7"	Stainless Steel HDPE mesh 10 Captive Rail Eyes	■	■	■	■	-	□	-	-	-	□ □	-	-	-	-	□ ■		lifesavingsystems.com
213x61x18cm 84x24x7" 109cm/43"	Stainless Steel HDPE mesh 10 Captive Rail Eyes	■	■	■	■	-	□	-	-	-	□ □	-	-	-	-	□ ■		lifesavingsystems.com
198x61x18cm 78x24x7" 102cm/40"	Stainless Steel HDPE mesh 10Captive Rail Eyes	■	■	■	■	-	□	-	-	-	□ □	-	-	-	-	□ ■		lifesavingsystems.com
213x61x18cm 84x24x7" 109cm/43"	Titanium HDPE mesh 10 Captive Rail Eyes	■	■	■	■	-	□	-	-	-	□ □	-	-	-	-	□ ■		lifesavingsystems.com
198x61x18cm 78x24x7" 102cm/40"	Titanium HDPE mesh 10 Captive Rail Eyes	■	■	■	■	-	□	-	-	-	□	-	-	-	-	□ ■		lifesavingsystems.com
220x66x30cm 86.6x26x11.8"	Aluminium PVC 6 Fixed Eyes	■	■	■	■	■	-	-	●	-	□	□	■	□ ■	□	□	* WLL if using 4 instead of 6 lift eyes. Mk7 discontinued	lyonequipment.co.uk
220x66x30cm 86.6x26x11.8"	Stainless Steel	■	■	■	■	■	-	-	●	-	■	□	■	□ ■	-	□	*Only available via MR England & Wales but cost is similar to MacInnes	lyonequipment.co.uk

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□□□= Option
N/A = info Not Available/not given

	MODEL	COMPANY	ORIGIN	COST inc tax / VAT	BASKET	FLAT/PLATFORM	SPLIT / TWO-PIECE	TAPERED RECTANGULAR	ANODIZED POWDER-COAT	INHERENTLY BUOYANT WATER DRAINING	WEIGHT	DESIGN LOAD Hrztl/Vertical MBS
	Keswick	PERFORMANCE MANUFACTURING		$4500	-	■	-		■*	■	19.9kg 44 lb	1200kg 2647 lb 30kN 6744 lbf
	Nest	PETZL		£2174 €2050	-	■	■	■	-	■	13.1kg 28.8 lb	150kg 331 lb
	DX030/032	PROTEKT		£998	■	-	■	■ ♦	-	■	16kg 35.3 lb	1000kg 2200 lb
	DX031G	PROTEKT		€912	■	-	-	■	-	■	17kg 37.5 lb	1000kg 2200 lb
	DX031/033	PROTEKT		€813	■	-	-	■ ♦	-	■	15kg 33 lb	1000kg 2200 lb
	RSBSA01 RSBSSS01	ROYAX		€557 €532	■	-	-	♦	■ ■	■	7.7kg 17 lb	700kg 1543 lb
	Alpine CR Civil Rescue	SAR PRODUCTS		£1477	-	■	■	♦	■	■	13.45kg 29.7 lb	300kg 661 lb
	Alpine Light CR Civil Rescue	SAR PRODUCTS		£2013	-	■	■	♦	■	■	11kg 24.25 lb	300kg 661 lb
	Alpine MR Mountain Rescue	SAR PRODUCTS		£1785	-	■	■	♦	■	■	18.42kg 40.6 lb	300kg 661 lb
	Alpine Light MR Mountain Rescue	SAR PRODUCTS		£2275	-	■	■	♦	■	■	14.95kg 32.95 lb	300kg 661 lb
	Boston Pro ST04302B	SPENCER		€1050	■	-	-	■ ♦	□	■	17kg 37.5 lb	360kg 794 lb
	Boston Pro ST04303B	SPENCER		€722	■	-	-	■ ♦	□	■	26kg 57.3 lb	360kg 794 lb
	Boston Tec ST04310B ST04311B	SPENCER		€687 €709	■	-	-	■ ♦	□	■	14-23kg 31-51 lb	360kg 794 lb

RIGID FRAME STRETCHERS/LITTERS

DIMENSIONS L x Wx H/D SPLIT/ROLLED LENGTH (longest section)	MATERIALS: FRAME BASE/LINER SUSPENSION POINTS	USES: HORIZONTAL LIFT	VERTICAL LIFT	HELICOPTER WINCH	LR GROUND-CARRY	SKIDS/SLIDE	IN-WATER-CAPABLE	EXTREMECONSPACE	BARIATRIC	HEAD IMMOBILISATION SPINE IMMOBILISATION	FACE GUARD WEATHER PROTECTION	BRIDLE ADJ USTABLE BRIDLE FIXED LENGTH	BODY HARNESS EXTENSION HANDLES	WHEEL / 2-WHEELS FOOT-PLATE /SUPPORT	PADDED BASE / MAT CARRY BAG/RUCKSACK	COLOUR OPTIONS	NOTES	WWW.
208.5x61x28cm 82x24x11.8" 104cm/41"	Aluminium Nylon 4 Captive Rail Eyes	■	■	■	■	■	-	-	-	-	-	-	-	□	-	□	* Partiially anodized	perf-mfg.ca
200x50x5cm 78.7x19.7x2"	Nylon/Aluminium Polyethylene 4 Web Extensions	■	■	-	●	●	-	■	-	-	■ ■	□	■	■	■ ■	■		petzl.com
212.5x58.5x18.5cm 84x23x7.3" 106cm/42"	Stainless Steel Polyester mesh 4 Fixed Eyes	■	■	■	■	-	-	-	-	-	-	■	-	-	-	□		protekt.pl
212.5x58.5x18.5cm 84x23x7.3"	Stainless Steel Aluminium Bed 4 Fixed Eyes	■	■	■	■	-	-	-	-	-	-	■	-	-	-	□		protekt.pl
210x41.5x18.5 cm 83x16.3x7.3"	Stainless Steel Polyester mesh 4 Fixed Eyes	■	■	■	■	-	-	-	-	-	-	■	-	-	-	□		protekt.pl
215x66x20cm 84.6x26x8"	Aluminium Stainless Steel PVC Netting 5 Captive Rail Eyes	■	■	■	■	-	□	-	-	■	□	□	□	-	-	■	Also available in Steel cost €472 weight 16kg/35.2 lb	royax.eu
210x60x12cm 83x23.6x4.7" 105cm/41.3"	Steel Polyethylene bed 4 Fixed Eyes	■	■	■	●	□	-	●	●	-	□	■	■ ■* □	□ ■	■	■ ■		sar-products.com
210x60x12cm 83x23.6x4.7" 105cm/41.3"	Steel Polyethylene bed 4 Fixed Eyes	■	■	■	●	□	-	●	●	-	□	■	■ ■* □	□ ■	■	□ ■		sar-products.com
210x60x12cm 83x23.6x4.7" 105cm/41.3"	Aluminium Polyethylene bed 4 Fixed Eyes	■	■	■	●	■	-	●	●	-	□	■	■ ■* □	□ ■	■	■ ■	Mountain Rescue version is with Handles and skid-pan.	sar-products.com
210x60x12cm 83x23.6x4.7" 105cm/41.3"	Aluminium Polyethylene bed 4 Fixed Eyes	■	■	■	●	■	-	●	●	-	□	■	■ ■* □	□ ■	■	□ ■	Mountain Rescue version is with Handles and skid-pan	sar-products.com
211x65x25cm 83x25.6x9.8"	30mm top rail Aluminium or Steel Polyethylene Board 4 Captive Rail Eyes	■	■	■	■	-	● □*	-	-	□ ■	-	-	-	-	-	□ ■	Titanium version of Pro weighing 9kg available to order	spencer.it
211x65x25cm 83x25.6x9.8"	30mm top rail Stainless Steel Polyethylene Board 4 Captive Rail Eyes	■	■	■	■	-	● □*	-	-	□ ■	-	-	-	-	-	□ ■	*The integral Rock Spine board offers buoyancy but float tubes avaialable as an option	spencer.it
211x65x18.5cm 83x25.6x7.3"	Aluminium or Steel Polyethylene Bed 4 Captive Rail Eyes	■	■	■	■	-	□	-	-	□ ■	-	-	-	-	-	□ ■	Back board has a lever to maintain adjustment angle. Titanium version of this weighing 8kg available to order	spencer.it

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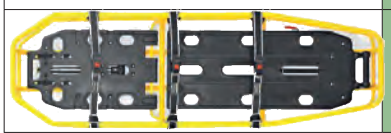
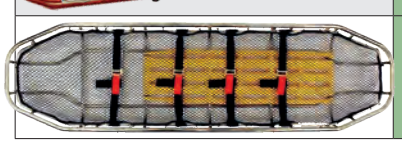
	MODEL	COMPANY	ORIGIN	COST inc tax / VAT	BASKET	FLAT/PLATFORM	SPLIT / TWO-PIECE	TAPERED RECTANGULAR	ANODIZED POWDER-COAT	INHERENTLY BUOYANT WATER DRAINING	WEIGHT	DESIGN LOAD Hrztl/Vertical MBS
	**Boston Light** ST04320B ST04321B	**SPENCER**		€676 €698	■	-	-	■ ♦	□	■	12-22kg 27-49 lb	360kg 794 lb
	**Dakar**	**SPENCER**		€1070	■	-	-	♦	-	-	16.5kg 36 lb	356kg 785 lb
	**Dakota**	**SPENCER**			■	-	-	■	-	■	16.5kg 36 lb	290k 639 lb
	**Dakota Lite** ST04006	**SPENCER**		£370 €430	■	-	-	■	-	■	14.5kg 32 lb	290kg 639 lb
	**Dragger**	**SPENCER**			-	■	-	■	-	■	7kg 15.4 lb	180kg 397 lb
	**Spencer Shell**	**SPENCER**		£780 €570	■	-	-	♦	-	-	12.5kg 27.6 lb	280kg 617 lb
	**Twin Shell**	**SPENCER**		£900 €825	■	-	■	♦	-	-	13.8kg 30.4 lb	280kg 617 lb
	**Advantage** 2073	**TRAVERSE**		$999 €2527	■	-	-	■	-	-	15.6kg 34.4 lb	>11.34kN >2500 lbf
	**Gazelle** 0105/6	**TRAVERSE**		£558	■	-	-	■ ♦	■	■	15kg 33 lb	400kg 882 lb
	**Gazelle Con-Space** 0107	**TRAVERSE**			■	-	-	■	■	■	14kg 31 lb	400kg 882 lb
	**Spartan Split** 2076	**TRAVERSE**			■	-	■	■	-	●	16kg 35 lb	>11.34kN >2500 lbf
	**Spartan Titanium Split** 2076S	**TRAVERSE**		€2825	■	-	■	■	-	●	11kg 25 lb	>11.34kN >2500 lbf
	**Titan** 2070 / 2070T	**TRAVERSE**		€2135	■	-	-	■ ♦	□	■	13.6kg 30 lb	1136kg 2500 lb

RIGID FRAME STRETCHERS/LITTERS

DIMENSIONS L x Wx H/D SPLIT/ROLLED LENGTH (longest section)	MATERIALS: FRAME BASE/LINER SUSPENSION POINTS	USES: HORIZONTAL LIFT	VERTICAL LIFT	HELICOPTER WINCH	LR GROUND-CARRY	SKIDS/SLIDE	IN-WATER-CAPABLE	EXTREMECONSPACE	BARIATRIC	HEAD IMMOBILISATION SPINE IMMOBILISATION	FACE GUARD WEATHER PROTECTION	BRIDLE ADJ USTABLE BRIDLE FIXED LENGTH	BODY HARNESS EXTENSION HANDLES	WHEEL / 2-WHEELS FOOT-PLATE /SUPPORT	PADDED BASE / MAT CARRY BAG/RUCKSACK	COLOUR OPTIONS	NOTES	WWW.
211x55x18.5cm 83x21.6x7.3"	Aluminium or Steel Polyethylene Bed 4 Captive Rail Eyes	■	■	■	-	■	□	■	-	□ ■	□	□ □	-	-	-	□ □	Back board has a lever to maintain adjustment angle. Titanium version of this weighing 7kg available to order	spencer.it
224x64x19cm 88.2x25.2x7.5"	Stainless Steel HDPE shell 4 Grommet Eyes	■	●	-	-	■	□	-	-	□	□	□ □	■	■ ■	■	■	Handles are telescopic	spencer.it
205x57x19cm 81x22.4x7.5"	Carbon Steel Varnished MarinePly 8 Captive Rail Eyes	■	■	■	-	■	□	-	-	□	□	□ □	-	-	-	□		spencer.it
205x48x18.1cm 81x18.9x7.1"	Carbon Steel Varnished MarinePly 8 Captive Rail Eyes	■	■	■	-	■	□	■	-	□	□	□ □	-	-	-	□		spencer.it
189x48x21cm	Aluminium 50mm web bed	■	-	-	●	●	□	-	-	□	-	□ □	-	-	-	□	Has 19cm high skids not visible in image	spencer.it
215x64x20cm	Stainless Steel HDPE shell 4 Grommet Eyes	■	■	■	■	■	□	-	-	□	-	□ □	-	■	■ □	■ ■ ■ ■		spencer.it
214x64x20cm 84.6x25.2x7.5" 118cm /46.45"	Stainless Steel HDPE shell 4 Grommet Eyes	■	■	■	■	■	□	-	-	□	-	□ □	-	-	■ □	■ ■ ■ ■		spencer.it
216x60x19cm 85x23.5x7.5"	22mm/ ⅞" top rail Stainless Steel HDPE Shell 4 Fixed Eyes	■	■	■	■	■	□	-	-	-	-	□ □	-	-	■ □	■	Traverse also had a blue 'Saver' model with plastic shell as 1-piece & split. 10kg. Now discontinued	traverserescue.ca
210x62x18cm 82.5x24.25x7"	Carbon-Steel HDPE Mesh 8 Captive Rail Eyes	■	■	■	□	■	□	-	-	-	-	□ □	-	□	□	■		traverserescue.ca
210x46.4x18cm 82.5x18.25x7"	Carbon-Steel HDPE Mesh 8 Captive Rail Eyes	■	■	■	□	■	□	■	-	-	-	■	-	□	□	■		traverserescue.ca
218x63.2x17.8cm 85.8x25x7"	22mm/ ⅞" top rail Stainless Steel HDPE mesh 4 Strat-points	■	■	■	■	■	□	-	-	-	-	□ □	-	-	□	■		traverserescue.ca
218x63.2x17.8cm 85.8x25x7"	22mm/ ⅞" top rail Titanium HDPE mesh 4 Strat-points	■	■	■	■	■	□	-	-	-	-	□ □	-	-	□	■		traverserescue.ca
212x58x18cm 83.5x23x7.25"	25mm/1" top rail Stainless Steel HDPE mesh 4 Strat-points	■	■	■	□	■	□	-	-	■	-	□ □	■	□	□	□		traverserescue.ca

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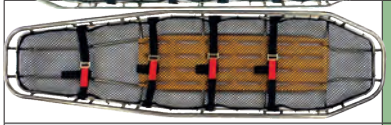
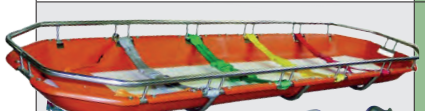
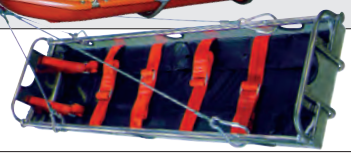
	MODEL	COMPANY	ORIGIN	COST inc tax / VAT	BASKET	FLAT/PLATFORM	SPLIT / TWO-PIECE	TAPERED RECTANGULAR	ANODIZED POWDER-COAT	INHERENTLY BUOYANT WATER DRAINING	WEIGHT	DESIGN LOAD Hrztl/Vertical MBS
	**Titan Split** 2070S / 2070ST	**TRAVERSE**		£1766 €2821	■	-	■	■ ♦	□	■	15kg 33 lb	1136kg 2500 lb
	**Titan 32 Wide**	**TRAVERSE**		£1550 €2527	■	-	-	■	□	■	19.2kg 42.4 lb	1136kg 2500 lb
	**Titan Titanium** 2072 / 2072T	**TRAVERSE**		£2000 €4277	■	-	-	■ ♦	□	■	6.3kg 13.9 lb	1136kg 2500 lb
	**Titan Titanium Split** 2072S / 2072ST	**TRAVERSE**		£3255 €5277	■	-	■	♦ ■	□	■	7.5kg 16.5 lb	1136kg 2500 lb
	**Titan Pinnacle Con-Space** 0153254	**TRAVERSE**		£1135	■	-	-	■	□	■	6.5kg 14.3 lb	1136kg 2500 lb
	**Titan Pinnacle Split Con-Space** 0153255	**TRAVERSE**		£2130	■	-	■	■	□	■	7.5kg 16.5 lb	1136kg 2500 lb
	**Tyral**	**TYROMONT**		€3800	■	-	■	♦	■	■	15kg* 33 lb	250kg 550lb
	**Light***	**TYROMONT**		€2600	■	-	■	♦	■	■	21kg* 46.3 lb	250kg 550lb
	**UltraBasket** SAN-0087	**ULTRAMEDIC**		€899	■	-	-	♦	-	-	12.5kg 27.5 lb	315kg 695 lb
	**UltraBasket Twin** SAN-0087-2	**ULTRAMEDIC**		€1242	■	-	■	♦	-	-	15.5kg 34 lb	315kg 695 lb
	**UltraBasket XXL** SAN-0087-2-XXL	**ULTRAMEDIC**		€1815	■	-	■	■	-	■	36kg 80 lb	400kg 882 lb
	**UltraBasket-M** SAN-0087-1-M	**ULTRAMEDIC**		€1720	■	-	-	■	-	-	12kg 26.5 lb	300kg 661 lb
	**UltraMining** SAN-0090	**ULTRAMEDIC**		€1887	■	-	-	■	-	□	20kg 44 lb	200kg 441 lb

RIGID FRAME STRETCHERS/LITTERS

DIMENSIONS L x Wx H/D SPLIT/ROLLED LENGTH (longest section)	MATERIALS: FRAME BASE/LINER SUSPENSION POINTS	USES: HORIZONTAL LIFT	VERTICAL LIFT	HELICOPTER WINCH	LR GROUND-CARRY	SKIDS/SLIDE	IN-WATER-CAPABLE	EXTREMECONSPACE	BARIATRIC	HEAD IMMOBILISATION SPINE IMMOBILISATION	FACE GUARD WEATHER PROTECTION	BRIDLE ADJ USTABLE BRIDLE FIXED LENGTH	BODY HARNESS EXTENSION HANDLES	WHEEL / 2-WHEELS FOOT-PLATE /SUPPORT	PADDED BASE / MAT CARRY BAG/RUCKSACK	COLOUR OPTIONS	NOTES	WWW.
212x60x19cm 83.5x23.5x7.7" 116cm/45.7"	25mm/1" top rail Stainless Steel HDPE mesh 4 Strat-points	■	■	■	□	■	□	-	-	■	□	□ □	■	□	□	□		traverserescue.ca
212x81x18cm 83.5x32x7.25"	25mm/1" top rail Stainless Steel HDPE mesh 4 Strat-points	■	■	■	□	■	□	-	■	-	□	□ □	□	□	-	□		traverserescue.ca
212x58x18cm 83.5x23x7.25"	25mm/1" top rail Titanium HDPE mesh 4 Strat-points	■	■	■	□	■	□	-	-	■	□	□ □	□	□	□	□		traverserescue.ca
212x60x19cm 83.5x23.5x7.7" 116cm/45.7"	25mm/1" top rail Titanium HDPE mesh 4 Strat-points	■	■	■	□	■	□	-	-	■	□	□ □	□	□	□	□		traverserescue.ca
209.5x48.3x18cm 83.5x19x7.25"	25mm/1" top rail Titanium HDPE mesh 4 Strat-points	■	■	■	□	■	-	■	-	■	□	-	□	□	□	□		traverserescue.ca
209.5x49.5x19cm 83.5x19.5 x7.7" 106.7cm/42"	25mm/1" top rail Titanium HDPE mesh 4 Strat-points	■	■	■	□	■	-	■	-	■	□	-	□	□	□	□		traverserescue.ca
215x56x25cm 84.6x22x9.8" 108cm/42.5"	Aluminium Trocylen Bed 8 Fixed Eyes	■	■	■	■	■	-	-	-	□ □	□ □	□ □	■	■	□ □	□	*Includes Integral ext handles	tyromont.com
200x53x25cm 78.7x20.9x9.8" 100cm/39"	Steel Trocylen Bed All of Top Rail	■	■	■	■	■	-	■	-	□ □	□	□ □	■	■	□ □	■	*inc integral ext handles weighing 5kg. *'Light' refers to the simpler frame structure NOT the weight.	tyromont.com
214x62x19cm 84.25x24.4x7.7"	Aluminium ASA/ABS Plastc 4 Grommet Eyes	■	■	■	■	■	□	-	-	-	□ □	□ □	-	□ ■	■ □	■		ultramedic.de
214x61.5x18.5cm 84.25x24x7.3" 116cm/45.7"	Aluminium ASA/ABS Plastc 4 Grommet Eyes	■	■	■	■	■	□	-	-	-	□ □	□ □	-	□ ■	■ □	■		ultramedic.de
214X81.8X19cm 84.25x32.2x7.7"	Aluminium ASA/ABS Plastc 6 Grommet Eyes	■	■*	■	●	■	-	-	■	-	-	□ □	-	■	■	■	* Load limit is reduced to 200kg in fully vertical orientation	ultramedic.de
218x59x20cm 85.8x23.2x7.9"	Aluminium ASA/ABS Plastc All of Top Rail	■	■	■	■	■	-	-	-	-	□ □	□ □	-	■	■ □	■		ultramedic.de
200x55x30cm 78.7x21.6x11.8"	V2A Stainless Steel 6 Handle/Rail Eyes	■	■	■	■	●	-	■	-	-	□ □	□ □	-	-	□	□		ultramedic.de

FULL-LENGTH FLEXIBLE STRETCHERS

including Plastic Sheet Roll-Up, Heli-Bags, Bags & Inflatable stretchers

Medsled36

This GUIDE is concerned only with full length stretchers and bags that can be rolled up or even screwed up when not in use but can be hand-carried over arduous terrain and/or raised/lowered in a rope rescue or helicopter winching operation. There are no rigid-frame or half-size stretchers in this GUIDE. We have divided the tables into two types:

1) **SHEET PLASTIC ROLL-UP** stretchers a few mil thick that forms a semicircular sleeve around the casualty and can be tightly rolled for storage/transport

2) **FLEXIBLE BAGS** and/or **HELI-BAGS**, a cocoon of tough water-resistant material like ballistic Nylon/Cordura with strapping and handles sewn into it and can be rolled, folded or crammed into a storage bag. Dedicated heli-bags will have multiple certified attachment points for a heli-lift bridle and many have an anti-rotation vane option. In Europe heli-bags are not referred to as stretchers which is often a catch-all term for absolutely anything used to transport a prone casualty whether it be a wooden board, a canvas sheet or the most technical of dedicated devices. Only fully enclosing bags are included in the second part of the tables.

Both of the types described here can require a rigid adjunct to either resist bending or provide extra spinal or ingress protection during transport. In the case of heli-bags this may include a spine board or a vacuum mattress and they are often sold as kits or systems with these extra components. (We have not included vacuum mattresses in this GUIDE). There are also some hybrid designs that don't quite fit one category or the other - the Mittelmann ResQ Cocoon shown opposite is an interesting example. It is unique in this GUIDE as being the only bag integrated into a plastic sheet shell (or is it the other way around) offering significant protection from the elements and rough terrain. We have listed it in the heli-bags table but it could equally be in either table and should probably be in both. The Xtract stretchers are the most flexible cocoon-style bags in this GUIDE and are designed for hand-carry (and drag) evacuation over arduous terrain but are not designed for rope rescue or for helicopter winching.

For the plastic sheet models there is much crossover with the Confined Space Rescue stretchers and we've inevitably modified some of that introduction for this article but we have NOT included the half size stretchers and seats designed specifically for confined space rescue or the purely drag stretchers designed for rapid evacuation over short distances.

None of the heli-bags are designed for in-water rescue and neither plastic sheet or bag stretchers are as robust or as protective against intrusion of sharp edges, wood and debris as a basket stretcher with a full plastic or glass-fibre shell as demonstrated by the Cascade stretcher on this issue's front cover. But they do have low bulk and low weight on their side and with plastic sheet stretchers being true multi-role rescue options they are easily transported to an incident. Plastic sheet stretchers are not necessarily much, if any, cheaper than basket stretchers because some have quite complex manufacturing processes for the 'add-ons' like handles, grommets and strapping but if money is less of an object, all teams, sub-teams and outlying rescue posts/stations can have one available. All of these models can be hand carried by a team over considerable distances with varying degrees of comfort to the rescuers and the casualty. The less comfortable options have a solid circle in the GROUND CARRY column. Whether it is more or less comfortable to carry will depend on the nature of the handles - simple flat webbing or thin rope is less comfortable than an ergonomically designed moulded grip with some width and bulk to it. Wilderness teams manoeuvring casualties over mixed terrain and boulders in particular would probably prefer to be using a basket but if using a roll-up they need it to have enough handles to get six or more rescuers around it. It would also need to have a more rigid spinal support than the simplest roll-ups usually have. This either means that the stretcher incorporates its own rigid reinforcement like the Kohlbrand&Bunz aluminium strips (pic top) or you need to use a spine board which of course then affects casualty comfort on

images not to scale

left to right: Kohlbrand& Bunz RollUp, Pax RTS-Air, Mittelmann Cocoon, CMCPro Helitack Air Bag & Xtract 2

long-carry-outs. A good vacuum mattress can often solve both problems if you're in boulder terrain. Heli bags tend not to be used for carrying log distances - they are more likely to be packaged or re-packaged close to the helicopter landing site but most just as capable as a plastic-sheet stretcher of being carried longer distances.

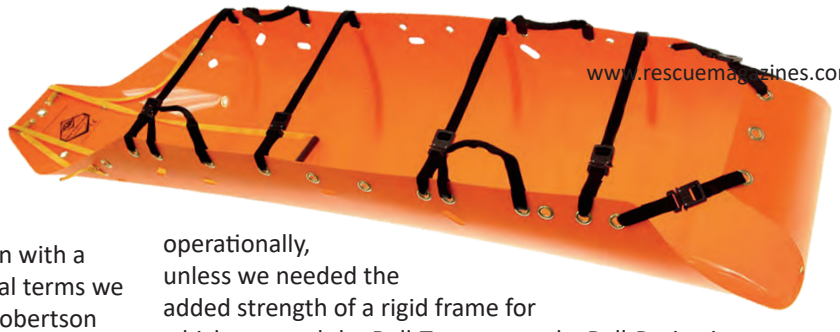
STANDARDS & CERTIFICATIONS

Standards for rescue stretchers in general can be oddly lacking in some countries. Even what is available is not always applicable to the uses these stretchers are put to.

In the US all litters are covered by the UL/NFPA classification for litters and are shown in our tables as an orange square■. In Europe there is the Medical Device Directive 2017/745 (the MDD) to which ALL medical products including stretchers in the EU need to adhere to. This is shown as a black square■. In the UK this is being introduced in 2023 with a new, equivalent Medical Device Regulation (MDR) and UKCA marking.

Some stretchers meet military created performance standards (MIL-SPEC) and have NATO codifications. This is shown as a green square■. Some types of vertical lift stretchers with an integrated full body harness may have been tested as a life-support harness rather than a stretcher. These may not have a Medical Standard or classification listed as they are sold as either PPE or 'Rescue equipment'. These are shown with a mauve square for additional CEs■.

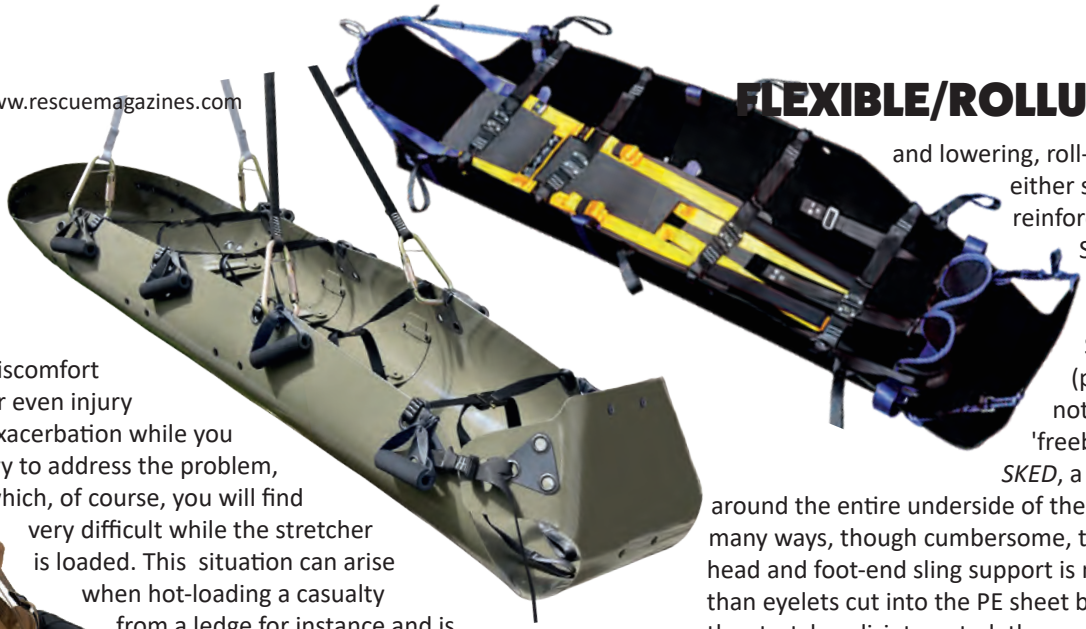
Dedicated Heli-bags and indeed any stretcher used for helicopter operations will fall under the European Aviation Safety Agency (EASA) requirements covering helicopter external loads 'Personal Carrying Device Systems' or PCDS, which can be 'simple' if it is a harness or evacuation triangle/loop or 'complex' if it is a stretcher or cage. These products may be helicopter-model specific, as may the bridles that connect them for lifting. This European aviation certification is referenced as a magenta square■. EASA requirement is addressed in different ways across countries and national operators/providers and can be used to gain FAA approval in the US. EASA Form 1 can only be issued by EASA approved organisations. Ultimately, the responsibility lies with the operator of the aircraft to comply. They have to ensure that anything they transport does not risk the aircraft. Many highly specialist rescue stretchers do not have the full flight certification due to the costs involved against tiny production and sales figures. In such cases the aircraft operators may accept technical information from the manufacturer and carry out their own assessments before allowing them to be lifted. This is why some stretchers listed in our tables are shown as suitable for helicopter winching without having an associated standard. For helicopter operations there is also a requirement for the securing of loose items that may constitute a hazard to the aircraft which is why Heli-bags frequently have pockets and pouches. This comes under our 'other' CE standards with a mauve square■. Outside of Europe and the US there may be other country specific standards and requirements. Users will need to verify suitability with their own regulatory organisations Bear in mind also that many stretchers /bags are NOT suitable for children unless a suitable packaging adjunct is used. A paediatric splint like Ferno's Pedi-Pak and MedKids can be used within a standard adult stretcher. The *Ferno Sauerbag3* and *Xtract* models are flexible cocoons that can be cinched down to fit a child around a metre/3.3' tall. You could also consider using one of the half-size stretchers designed for confined space rescue (see separate Guide).



SHEET PLASTIC (PE) ROLL-UP STRETCHERS

You could say that roll-up stretchers began with a simple canvas sheet but in more technical terms we generally consider the venerable Neil Robertson from over 100 years ago (pic left) to be the first purpose-designed rescue stretcher that could be rolled up. It had longitudinal bamboo rigid inserts, and hemp/manilla rope and canvas that is a contaminant nightmare in the modern world and is still sold today for some reason. It even has some modern competition despite its tendency to roll during extraction from a tight space. Must be a nostalgia thing! This was intended for confined space rescue on board ships but the principle was expanded upon by SKEDco with the first viable modern roll-up stretcher in the late 70's -the iconic orange *SKED (pic above)* . All others are a variation on that same theme using sheet polyethylene (PE) about 3mm thick give or take a mil. We used the SKED for 30 years and can certainly attest to its versatility and ability to endure abuse. However, like so many iconic designs, SKEDco probably sat on their laurels for too long and it remained a quite basic design that was ripe for improvement. In the early nineties, Brian Joplin of South Wales Cave Rescue and a fabricator friend of ours, GEMINI in Hampshire, UK, produced the first real alternative, the *Cocoon* stretcher (pic top-right) which replaced the *SKED*'s circumferential lifting slings with grommeted eyes into which carabiners for a suspension bridle could be clipped. It had integral upper body spine reinforcement with head restraints, an adjustable webbing foot strap and its second version had colour-coded straps so it was decades ahead of its time. It also had a metal spreader bar inside the shell at the head end for vertical raising/lowering instead of the Sked's tedious threading of rope. The spreader needed a bit of refining but this was a great stretcher and probably too well made at that time to be economically viable but it could hold its own against all of the modern variants. In the late nineties, Australian Steve Achilles's *Vertical* (pic below-left) further evolved the *SKED* design by shrouding it in a tough Cordura skin which enabled a full internal body harness with head straps to be added together with six side handles and two vertical lift eyelets. This was also a design element of the more substantial, Welsh-made MIBS much favoured by the UK military in the 90s and shown . Although we maintained *SKEDs* operationally, unless we needed the added strength of a rigid frame for which we used the Bell *Tangents* and a Bell *Bariatric,* the *Vertical* stretcher was, for us, better for rope & con-space rescue with lower bulk than the MIBS and more versatile than the Troll /SAR Products Evac Body Splint shown below. The Saferight, Miller and Heightec 'Evac/Chrysalis' models are also based on this original Troll-Dave Allport concept. The design of the Vertical and the Evac Body Splint are largely unchanged today. The downside with integral straps, and indeed any stitched element, is that they may not be detachable enough to decontaminate; an important consideration in rescue today but our trusty *Vertical* enabled us to slide the poly-sheet out via a Velcro end-closure and put the straps and cover in a washing machine! Fast forward to the noughties and onwards to more recent times and load-bearing grommet eyes and strategic reinforcement became a feature of some while others retained the cut-out webbing slots of the original SKED. Later models like the Task *STR-plus (pic opposite top-right)* incorporate a harness which most roll-ups don't have and very few, if any, can be used for spine-compromised casualties without an adjunct. The original SKED's lack of spinal protection prompted SKEDco to introduce the Oregon Spine Splint, (a variation of the confusingly similar but unrelated KED/Kendrick Extrication Device invented in 1978), as an additional insert that could also be used as a stand-alone spinal management 'vest' for other forms of rescue. SKEDco also quickly saw the need for flotation aids to keep the stretcher buoyant in water and initially used simple Cordura-covered foam chest pads and tubes strapped to each side. Latterly systems like the Medsled on the right in its military variant, use velcro-on floats for the torso and a chest float. Other features of note in specific sheet plastic models include the spine reinforcement bars of the Kohlbrat and UltraRoll models because, if there is one thing you need to be aware of with some flexible sheets is that they become fairly rigid when formed into a tube but can fold or buckle during a horizontal lift if 'point-loaded' either externally or internally across that curve. By that we mean if your stretcher uses a 4-point bridle and you or the casualty either push down on the middle (more or less) of the semi-circular form, or it meets a rail or protrusion underneath, it can buckle as the loaded lift bridle pulls up at the head and foot end. The casualty is in no danger of falling but there could be some

FLEXIBLE/ROLLUP STRETCHERS



discomfort or even injury exacerbation while you try to address the problem, which, of course, you will find very difficult while the stretcher is loaded. This situation can arise when hot-loading a casualty from a ledge for instance and is a good reason why these roll-up stretchers are best loaded while on the ground or a firm surface. The other preventive measure is to insert a spine board. The reinforcement bars of some models overcomes this problem (check the integral spineboard column which, if coloured as a black square, indicates reinforcement but not necessarily full spinal protection without further measures).

Sheet-plastic Roll-up stretchers ALL benefit from being back-rolled as soon as you take them out of the storage bag - if you roll or bend them against the direction they were rolled in, the whole thing will lay flat on the ground rather than keep curling up. The *Slix XL* pictured below right with additional side panels for bariatric patients and the MIBS above it are shown laid flat. All three stretchers on the right show colour-coded strapping and you can contrast the grommet eyes of the Slix and Saviour with the *Kong Rolly*'s (pic below) and *Medsled*'s (pic left) more traditional webbing slots.

Task, Kohlbrat-Bunz and *UltraMedic* have all addressed a problem we regularly saw with roll ups; the constriction of the shoulders as the straps are loaded and pull the sides together with resultant occlusion of the brachial artery causing tingling, discomfort and loss of sensation (which is why it is always a good idea to use a rescuer as your casualty during training - get to feel what the patient feels). *SKED* now have a shoulder board accessory to alleviate this but *Task* (pic top) the *Kohlbratt&Bunz RL* (shown on page 23) and *UltraRoll* (pic above) incorporate transverse spreader bar inserts at the shoulders to stop constriction. The latter two are particularly well specified and also have pelvic and thoracic reinforcement bars. This problem is largely negated in half-size stretchers because they are often cut-away at the arms with no constriction (or protection).

For raising and lowering, roll-ups will have either specified grommet reinforced eyes like the Slix (pic below right) UltraRoll (pic left) and the Saviour *Technical* (pic right) with its noticeably lower 'freeboard', or like the *SKED*, a sling that passes around the entire underside of the stretcher. In many ways, though cumbersome, this traditional head and foot-end sling support is more full-proof than eyelets cut into the PE sheet because even if the stretcher disintegrated, the casualty would still be supported. This is offset by their disadvantage that the slings are exposed to abrasion as they rub over surfaces and the ground and need to be regularly checked and replaced if damaged. Heightec modified this with their POD having webbing that passes under the casualty on the *inside* of the shell.

Vertical lift from the head-end is more common in confined-space rescue, in fact, it is virtually the only occasion that a vertical lift of an injured person can be justified. Our definition of 'vertical' for this article refers to the 80-90 degree orientation of the stretcher into a complete head-up, feet-down position This orientation is required to negotiate an opening or vertical tube/ passage/cave that won't allow the stretcher to be raised in the preferred horizontal orientation. Vertical lift points for a head-up extraction may use the regular head-end attachment eyes or there may be a separate attachment above the head to ensure that any straps don't end up being loaded across the casualty's face. The original SKED had a rather cumbersome but nonetheless foolproof rope attachment that threaded through eyes along the entire body of the stretcher and terminated in a knotted support for the feet.

NB: We have not yet included directly marketed Chinese models but once we get transparency they will add several more better 'design-copyright'

models to this GUIDE.

HELI-BAGS & FLEXIBLE COCOON-STYLE STRETCHERS

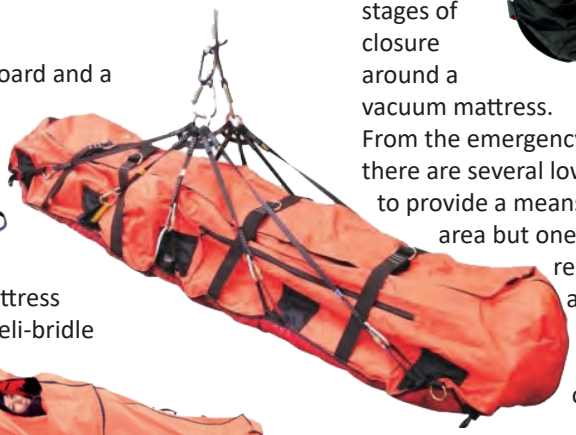
Mountain rescue and helicopter rescue have been the drivers in development of the cocoon style bags and heli-bags simply because the casualty needs a much higher degree of environmental protection and what better than a waterproof capsule that completely envelopes them from toe to head. The bags themselves may be quite simple and designed to be used ONLY in or on a basket or roll-up stretcher but all bags listed in this GUIDE are also able to be used as a stand-alone hand-carry or rope rescue/heli stretcher. All are made of high tenacity materials, generally a PVC coated ballistic nylon (Cordura) or PES/Polyester that is inherently waterproof. But unlike the Kong Canyon capsule mentioned earlier, these are not water or air-*tight* and some may require additional face protection. The yellow Sauerbag3 above shows a common feature - a flexible face cover, (in this case a clear visor flap) that simply folds across the face/head providing the casualty with protection from water, dust and debris with clear visors enabling improved patient monitoring. Since the bags are sewn items they have an accompanying fluid contamination issue but that can be easily addressed using a washing machine - the advantage of being a flexible pile of fabric! This also means that accessory pouches and fabric equipment loops as well as carrying handles and lift bridles eyes can all be sewn into the structure. Zippers are used in most models for the most vital closures since they can withstand the tearing force of helicopter rotor-wash and these will often be covered by a velcro storm flap to improve water and wind resistance.

A complete Heli Bag system might include an outer bag with a vacuum mattress or sheet plastic for rigidity or both (like the Tryol system above). It may also have a 10-point bridle and an anti rotation brake (which we'll discuss later)for heli-winching You can see in these pictures that the casualty is completely enclosed in a waterproof, windproof cocoon.

Incidentally, although BAGS & HELI-BAGs are listed separately in our tables, their flexibility means they can clearly be used to very good effect as a protective capsule within ANY type of stretcher and in particular open-weave baskets which otherwise offer little protection from the elements. There are casualty bags that do not have carry handles and can only be used in conjunction with a basket or similar as the means of carrying but all of those in this GUIDE can either be hand-carried or winched. The PaxBag pictured at the top for instance (which has now been discontinued and replaced by the RTS-Winter) is typical of cocoon style bags that are ideal for use in a basket stretcher but can also function separately because they have their own carry handles.

It is sometimes difficult to differentiate a standalone bag stretcher from a 'system' or 'kit' using one or more additional products as adjuncts to provide rigidity for horizontal lift and/or spinal protection. Tyromont's Tyrol is shown above and this is Kong's EVEREST- the first picture shows it as a stand-alone flexible bag-stretcher with carry handles and a zip-up body/face cover looking like this:

or with their foldable spine board looking like this.....



or with the board and a vacuum mattress and heli-bridle looking like this.....

Kohlbratt & Bunz has several versions of its TRS/HRS with differing functions, an environmentally protective cover with fleece or cotton lining and a simple nylon or more robust Cordura

FLEXIBLE/ROLLUP STRETCHERS

outer shown here in various stages of closure around a vacuum mattress.

From the emergency evacuation and/or military sectors there are several low-bulk bag stretchers. Most are designed to provide a means to drag a casualty clear of the danger area but one or two are a little more complex with reinforcement, and carry handles all -around as well as drag handles at the head. Above is the Xtract 2 shown flat and unrolled. This model has clearly labelled instructions for orientation and strapping.

VACUUM & INFLATABLE STRETCHERS

Most vacuum mattresses can also function well as a stretcher if they have handles and are suitably reinforced. Indeed some, like this Kohbratt Bunz model are designed

to be fully functioning stretchers with straps and handles but most are primarily intended to be used as part of an overall rescuer stretcher system. One model, the PAX LAS comes with a vacuum mattress but we have otherwise NOT included vacuum mattresses in this GUIDE as they will get their own GUIDE later. We have however, included two or three INFLATABLE stretchers, kind of the opposite of vacuum mattresses. One is listed with the sheet roll-ups because it is a flat-platform and two are included in the bag stretchers tables because they have a fully enclosed capsule but the MFC API could go in either table because, as shown in the picture above, it can be used without the cocoon-style cover. These are rare models that have not seen much copying because they require quite a specialist manufacturing with welded seams and height-restrictive stitching strong enough to withstand the <1bar/7psi pressure inflation. They are best and most speedily inflated using compressed air cylinders which takes a minute or so but they can be inflated with a hand or foot pump taking a few minutes longer. These fold down to the size of a small rucksack so are truly flexible stretchers but they are quite bulky when inflated and so have not seen quite the widespread use they might otherwise deserve. They've been around for years from pioneering Welsh manufacturer MFC International which, not surprisingly, makes a number of inflatable products including vehicle extrication air bags. Their key advantages are inherent buoyancy, a high level of casualty protection and thermal insulation. These are far more difficult to puncture than a vacuum mattress being comprised of a relatively thick outer later of neoprene or Hypalon but of course don't have the encapsulation and immobilisation characteristics of a vacuum mattress. These are the only inherently buoyant stretchers in this GUIDE, all others either require the addition of additional floats as previously mentioned or should not be used in water, especially the bags which might have a drogue anchor quality even though some have drainage holes. Adding flotation can be quite time consuming and requires some degree of pre-planning in anticipation of use in water. Most of the sheet-plastic roll-ups use round float tubes that strap around the outside of the frame and/or have a 'thorax' pad to help float the heavy upper body. The Xtract bags which, despite being 'cocoon' in nature are fully open along the top can have a lilo-style air mattress to assist with flotation. In fact we often used to advocate use of the *Thermarest*-style mat because they are low-bulk when deflated, don't require any kind of pump to inflate and provide bother thermal insulation and comfort as well as buoyancy.

.HEAD GUARDS/FACE SHIELDS

Unlike the head guards we mentioned in the last issue for rigid frame stretchers the flexible curve of sheet plastic or soft fabric of a heli-bag don't lend themselves to clip on shields. In the old days a pair of glasses or goggles were the minimalist approach and that is still the simplest option for sheet-plastic stretchers. Bag and sheet-plastic roll-up stretchers provide a degree of head and face protection as they wrap material around the head but not all bags fully cover the face. The partial protection of a curved plastic sheet stretcher is indicated by an orange circle●. Protection which resists stones and debris direct to the face is shown as an orange square ■and typified by the integral full plastic cover of the ECMS (pic left), Sauerbag3 and Cascade while optional add-on protection is provided by Tyromont's flexible 'clear bubble' shield (pic above) and Kohlbratt & Bunz's pop-up opaque shield (right) that has enough connection points and straps to find a secure purchase on most sheet-plastic stretchers. Some will have partial cover AND the option of an additional face-guard.

HELICOPTER-USE

Some of the sheet plastic stretchers can, and indeed are, used for helicopter winch operations but its safe to say that even where they are permitted they aren't the most highly favoured option. There are many examples of uncontrollable spins with SKED-Style stretchers and even some casualty ejections during violent rotations. This isn't unique to roll-up stretchers by any means but Heli-Bags were the first to use a a fold-down anti-rotation vane, a shark-fin looking device that sits on top of the foot-end of a stretcher and gives the winch-person/stretcher handler a means to counter the spin caused by the rotor's down-wash - it's like a manually operated air-brake. The image above shows the Tyromont air-brake deployed and being managed by the winch-person while the title photo on page 22 shows it stowed flat and secured with velcro and the Sauerbag3 on page 26 shows two integral vanes in orange. This principle

could be applied to any stretcher that might exhibit uncontrolled spin but it's the heli-bags that have them as a standard feature or option.

LIFT/HOIST SLINGS & BRIDLES

For rope and winching operations you have to be very careful to ONLY use the specified lift points. In sheet plastic models this may be a grommet-reinforced eye for clipping a carabiner or a slot may be cut in the plastic to take a webbing strap that wraps around the whole stretcher bed. In some cases it may be that the carry-handles double as lift-bridle attachments points and this is particularly the case with heli-bags. It is important to only use specified load points because of the load angles of the slings which may pull and deform the stretcher to the detriment of the casualty if not loaded properly. For horizontal lift these will be located at the strongest part of a stretcher to rule out folding or buckling under load; roughly the ¼- ¾ length points at the shoulders to mid torso area and the lower leg to thigh area. Most of the weight is in the head and torso so you will see the roll-up stretchers in particular concentrating their load points in the upper half of the stretcher. Rarely, if ever, will a stretcher have horizontal suspension points only at the obvious extremities - head and foot as we saw with the original pole & canvas style stretchers. For the stretchers in this list that can be used for rope rescue or winch hoisting the various bridles and lift-strap options were discussed in the previous article in WSAR#9. Helicopter lift straps tend to be fixed rather than adjustable and use 10 not 4-point attachments so that loading remains evenly distributed down the length of the stretcher whereas the plastic-roll-ups tend to use either stretcher-bed-supporting webbing straps like the yellow SKED straps (left) or 6 or4-point bridles like the Kong Orion on the right which is fixed length with shorter head and longer leg straps. Both types mean the stretcher angle is consistent but for other rope operations it is very useful to have a means of changing the position of the stretcher relative to the handler or to change orientation from horizontal to vertical in order to negotiate tight entry or egress points. An adjustable bridle system is shown on page 25 with the Saviour model and on the right is Alp Design's adjustable sling allowing you to raise the head by pulling on the tail (next to the red eye). You could also use a separate mini-pulley system from the head to the collection point to adjust the orientation. Some stretchers have pouches that can keep straps out of the way and this is particularly true of heli-bags which enable all slings and loose components to be stowed well clear of the rotors or snag-hazard that could jeopardise the aircraft. Any bag-stretcher provides useful stowage even inside with the casualty but not many plastic -sheet stretchers have this so use some small tackle bags that can be safely secured and stowed by the patient's feet or next to the O2 cylinder. Before we leave attachment points, it's worth mentioning control lines and tag-lines. These are ropes connected to the head and or foot-end of a stretcher to assist in positioning and direction of lift during a raising or winching operation or on a tyrolean. In general a tag-line is for orientation, positioning and obstacle negotiation while a

IN THE FOLLOWING TABLES.....

Any use, feature, accessory or component that is inherent in the stretcher is shown as a solid coloured square ■■■■
If it's an option it is shown as an outline square □□□□
A circle ●in the 'USE' columns indicates that this feature is only partially present and/or is OK for that purpose but not ideal.
NB: we have previously used a diamond to indicate this in our GUIDES but with issue 9's Basket stretcher GUIDE felt a diamond ♦ was better used to show which stretchers were tapered.
ORIGIN: The 'manufacturer's country, not necessarily the country of manufacture which is shown as an inset flag.
COST: a rough guide only - **includes** local taxes/VAT. Varies with exchange rates, taxes etc. We round up to the nearest Pound£/US Dollar$/Euro€. Most European models show a price that is simply a conversion into Dollars shown in **orange**, this is not the true (higher) import price. Cost is for the basic model with included accessories as indicated by a solid square in the appropriate column (optional extras being an outline square).

STRETCHER ATTRIBUTES:

STANDARDS/CERTIFICATION: a black square ■ indicates meeting the **European Medical Device Directive**. A magenta square ■indicates the **EASA** Aviation standard (check for specific aircraft). A purple square ■ indicates any other European CE/Directives such as body harness, loose items etc. **NFPA** or **ANSI** in the USA/Canada is shown as an orange square ■ and **Mil-Spec** or NATO coding are shown as a green square ■
WEIGHT does not include bag or anything listed as an option
DESIGN LOAD & MBS: Design load is the weight of person that is intended to use the stretcher akin to Working Load Limit. This may be further defined by horizontal *and* vertical weight limits. Minimum Breaking Strength/Load - MBS (in burnt orange) is generally 10 or 15 times higher than the WLL.
DIMENSIONS Length by width with some showing a depth/height from ground. Some widths will be the sheet material opened out rather than the width of the stretcher when it is formed. Some half-size models may be wider than they are long. The stored dimensions may be the bag rather than the rolled stretcher which can be rolled tight at half the bag width.
MATERIALS. FRAME - In the case of roll-ups the main sheet material is often High/Med/Low Density Polyethylene or HDPE/MDPE/LDPE. The BASE LINER or padding may not be present in rolled-sheet stretchers or may be an option in some which is further indicated in the PADDED BASE MAT column.
SUSPENSION POINTS- indicates the number and type of specific attachments for horizontal and vertical raising/lowering. This is NOT the same as the handles/hand-holds unless indicated.

USES & FEATURES:

HORIZONTAL RAISE: Can be suspended on rope/winch cable in horizontal/prone orientation. Does NOT refer to hand-carry
VERTICAL RAISE: Suspends in head-up/standing posture
HELICOPTER: Stretcher is designed for use in/from helicopters in its own country indicated by a solid black square ■ but this is NOT the same as an aviation approval or certification. See separate STANDARDS column where a magenta square ■ shows EASA approval. A solid black circle ● indicates that it is OK but not ideal for winch operations and lacks certification for use in some/many countries.
GROUND-CARRY: ALL of these stretchers can be used for short-duration carrying with varying degrees of casualty comfort and rescuer convenience so this column indicates a suitability for being carried for longer distances over mixed terrain. A solid black square ■ indicates that it allows multi-rescuer carry, has wide, comfortable handles, supports and protects the casualty when slid over rocks/railings etc. A solid black circle ● simply means that it can be carried longer distances but not necessarily with the best comfort and protection of casualty or rescuers.
IN- WATER-CAPABLE: None of these stretchers in inherently buoyant in the sense that it can be used in-water but many of the sheet roll-up models have optionally flotation that can keep the stretcher afloat and oriented in water. None of the bag-cocoons are safe in this regard as they are not sealed capsules and there is no rapid draining of the bag which would otherwise become a drogue anchor if filled with water. □=Optional flotation from the same manufacturer as the stretcher
CAVE/CONFINED SPACE: Narrow enough to be used for confined spaces but only gets a solid black square ■ if it is also capable of being used for rope rescue, if not it's a ●.
BARIATRIC: Two models here are stated as suitable for bariatric casualties marked with a black square ■ with one - the 3ET being specifically designed for this purpose with stronger components and a huge number of handle options plus a reinforcing frame. By definition, truly bariatric casualties are not often encountered in wilderness settings. Some models may fit a *very* large casualty but need to be strong enough to hoist. This is indicated by a black circle ● Four companies have a bariatric option that we could not fit in to the regular tables. These are variations on the model listed with increased size and carrying capacity and are indicated by an outline square □- these models are by Abtech, MIBS, SKED and Spencer.
VACUUM MATTRESS/PADDED BASE MAT: Vacuum mattresses are an add-on option for all stretchers but this refers only to those supplied by the same manufacturer. A padded mat sits between the casualty and the stretcher for improved comfort and is always waterproof to allow easy cleaning of body-fluids
HEAD IMMOBILISATION: Neck and head immobilisation measures but **NOT** the full protection of a cervical collar.
SPINE IMMOBILISATION: Usually a half-board covering the spine area from head to waist as an integral component. Some have reinforcing or a rigid base that resists bending but is **NOT** considered to be definitive spinal protection unless it is a specifically certified adjunct so is indicated by a circle ●.
FACE GUARD: A rigid or semi-rigid face/head guard from the same manufacturer that will protect from stones/debris. Some Heli-bags have a degree of inherent protection with their flexible 'hoods' and most plastic sheets have a partial curve of plastic roll so will have an orange circle ●to indicate this as well as a □for an optional face guard if available.
WEATHER PROTECTION: waterproof and/or heat-retaining cover
ADJUSTABLE FIXED LENGTH BRIDLE: A set of straps connecting harness lift points to a central collection point. Often called a bridle for horizontal lift and a yoke for vertical lift.
Adjustable straps shown as ■or□ if it's an option.
Fixed length straps =■ or□ if it's an option.
INTEGRAL BODY HARNESS: Enhanced strapping that restrains or wraps the foot, shoulders/chest, waist and thighs (leg-loops). Not simply transverse straps crossed over the chest. Femoral and shoulder straps are often padded in a full body harness.
COLOUR-CODED STRAPS: Straps are coloured in pairs to ensure correct connections because the integrity of semi circular roll-ups can be dependant on correct alignment of straps. . Some have partial colouring with the foot and or chest straps and some may have colour-coded foot/torso harness straps but not of the actual stretcher in which case they are shown as ●
FOOT-PLATE/SUPPORT: a rigid foot plate or separate web-support strap or rope - often as a figure 8.
CARRY BAG/RUCKSACK: Protective cover, often with back-straps
COLOUR: Primary colour of shell/frame with an outline secondary colour to indicate trim colour.

FOR THOSE COMMITTED TO OTHERS,

EQUIPMENT COMMITTED TO YOU

Our customers risk their lives to save others. That's the kind of selflessness that calls for nothing but the best gear. At Cascade Rescue, we are committed to making the highest quality safety and rescue equipment. From aerial evacuation equipment to rescue toboggans, trail wheels and rigging kits, everything we make is designed and manufactured with safety, and efficiency, in mind. So whenever the wind is howling, the snow is falling and you are surrounded by darkness, you can trust Cascade Rescue products to help you accomplish your mission - **saving lives.**

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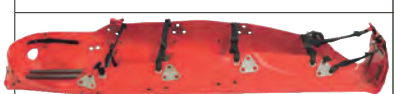
□□□= Option
N/A = info Not Ava...

	MODEL Product Code	COMPANY	ORIGIN	COST inc tax / VAT Simple US$ conversion	WEIGHT	DESIGN LOAD Horizontal /Vertical MBS	DIMENSIONS L x W x H/D SPLIT/ROLLED LENGTH	M F SUSP
	**Evac-Pro+**	**3ET**		£1075 $1411	14kg* 30.8kg*	400kg 880lb 600kg 1320 lb	230x260x2cm 90.5x103x0.8" 70x35cm 28x14"	P300 2 Alu 4 re 2
	**SLIX Rapid Response SLIX RR**	**ABTECH SAFETY**		£432 $525	<6kg <13.2lb	400kg 880lb 150kg 331 lb	?	2 G
	**SLIX 100 SLIX 100XL**	**ABTECH SAFETY**		£695* $912 £965 $1266	11kg 24.2 lb	400kg 880lb 150kg 331 lb	230x91.5cm 90.5x36" 100x33cm 40x13"	8 G
	**Rollable Stretcher** RS100	**ABTECH SAFETY**		£634 $832	8kg 17.6 lb	120kg 264 lb	240x95cm 94.5x37.4" 95x35cm 37.4x14"	10 G
	**MedsledVLR36** MLS36-VLR	**ETHOS**		£650 $700 €750	6.8kg 15 lb	450kg 992 lb	203x92cm 100x36" 92x59cm 36x23"	4 1 Ci H
	**MedsledVLR28** MLS28-VLRPJ	**ETHOS**		£650 $700 €750	4.5kg 10 lb	450kg 992 lb	203x92cm 100x28" 92x51cm 28x20"	4 1 Ci H
	**POD** MS02	**HEIGHTEC**		£904 $1186	9.5kg 21 lb	250kg 550 lb	220x90cm 87x35.4" 90x20cm 35.4x8"	6 G
	**Chrysalis**	**HEIGHTEC**		£1158 $1520	8.65kg 19 lb	260kg 572 lb	215x79cm 85x31" 79x22cm 31x7"	Ny 6 Han
	**RollUP** RL1000 RL2000	**KOHLBRAT & BUNZ (ECMS)**		£875 £1660 $2295 €1985	7.6 to 9.6kg 16.7 to 21.1 lb	150kg 330 lb 600kg 1320 lb	248x92cm 98x36" 92x27cm 36x11"	30 C
	**RollUP** RL3000	**KOHLBRAT & BUNZ (ECMS)**		£1364 $2300 €1990	8.7 to 10.3kg 16.7 to 21.1 lb	150kg 330 lb 600kg 1320 lb	254x92cm 100x36" 92x27cm 36x11"	30 C
	**RollUP** RL4000	**KOHLBRAT & BUNZ (ECMS)**		£1650 $2275 €1960	7.6 to 9.6kg 16.7 to 21.1 lb	150kg 330 lb 600kg 1320 lb	248x92cm 98x36" 92x27cm 36x11"	30 C

FLEXIBLE/ROLLUP STRETCHERS

MATERIALS: FRAME/BAG BASE/LINER TENSION POINTS	USES: STANDARDS	HORIZONTAL RAISE	VERTICAL/90° RAISE	HELI-WINCH	CAVE /CON-SPACE	GROUND-CARRY	IN-WATER-CAPABLE	BARIATRIC	VACUUM MATTRESS	PADDED/THERMAL MAT	HEAD IMMOBILISATION SPINE IMMOBILISATION	FACE GUARD WEATHER PROTECTION	BRIDLE ADJUSTABLE BRIDLE FIXED LENGTH	BODY HARNESS	RIGID REINFORCEMENT	COLOUR-CODED STRAPS	FOOT-STRAP	STORAGE POCKETS	CARRY BAG/RUCKSACK	OTHER COLOURS	NOTES	WWW.
HDPE plastic & PVC uminium Poles etaining eyes 8+ Handles	■	■	■	-	■	●	-	■		■	- -	- ■	- □*	■	-	■	■		■	■	Specialist Bariatric stretcher with 10+ main handles. *Wt excludes heavy-lift hoist kit weighing 14kg inc. alu poles & slings	3et.co.uk
LDPE rommet eyes 6 handles	■	-	-	-	●	●	-	-	-		□ -	● ●	- -	-	-	■	■		■	□		abtechsafety.com
LDPE rommet Eyes 6 Handles	■	■	■	-	■	●	-	■	-		□ □	● ●	- □	-	-	■	■		□	□	*Spinal splint +£605 Bag and bridles +£105 Slix 100 XL is a bariatric version of the 100	abtechsafety.com
LDPE Grommet Eyes 6 Handles	-	■	■	■	■	●	□	●		□	- -	● ●	■ -	-	-	-	■		■	■		abtechsafety.com
HDPE web slots rcumferential ead strap 6 handles	■ ■* ■	■	■	■	■	●	□	●		□		● ● □	- ■	□	-	-	■		■	■ ■ ■	* This stretcher is CE marked but is that the medical directive or an non-associated standard?	medsled.com
HDPE web slots rcumferential ead strap 6 handles	■ ■* ■	●	■	■	■	●	□	-		□		- ●	- ■	□	-	-	■		■	■ ■ ■	* This stretcher is CE marked but is that the medical directive or an non-associated standard?	medsled.com
LDPE rommet Eyes 8 Handles	■	■	■	-	■	-	-	-			- -	● ●	■ -	■	-	●	■		■	□		heightec.com
lon/Polyester PVC dles also for lift straps	■	■	■	-	■	-	-	●			- -	● ●	- ■	■	-	●	■		■	■		heightec.com
HDPE Grommet eyes 8 Handles	■ ■ ■	■	■	■	■	■	□	-		□	□ ●	□ □	□ ■	●	■	-	■		■	■ ■	length adjustable head and foot ends. Option of Cobra, manual feed & plastic quick release buckles. Numerous handle, strap and stiffener supports	kohlbrat-bunz.com ecms-GmbH.de lyonequipment.co.uk
HDPE Grommet eyes 8 Handles	■ ■ ■	■	■	■	■	■	-	-		□	□ ●	● ●	□ □	●	■	-	■		■	■ ■	enclosed head & foot. Option of Cobra, manual feed & plastic quick release buckles. Numerous handle, strap and stiffener supports	kohlbrat-bunz.com ecms-GmbH.de lyonequipment.co.uk
HDPE Grommet eyes 8 Handles	■ ■ ■	■	■	■	■	■	-	-		□	□ ●	● ●	□ □	●	■	-	■		■	■ ■	enclosed head & adjustable foot. Option of Cobra, manual feed & plastic quick release buckles. Numerous handle, strap and stiffener supports	kohlbrat-bunz.com ecms-GmbH.de lyonequipment.co.uk

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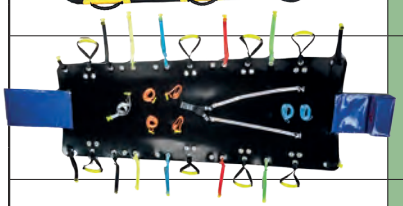
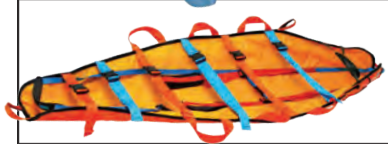
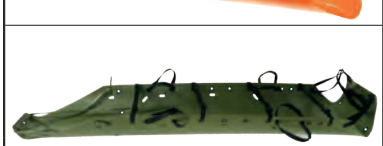
	MODEL Product Code	COMPANY	ORIGIN	COST inc tax / VAT Simple US$ conversion	WEIGHT	DESIGN LOAD Horizontal /Vertical MBS	DIMENSIONS L x W x H/D SPLIT/ROLLED LENGTH	M F SUSP
	**Rolly**	**KONG**		£850 $1150 €995	7.3kg 16 lb	150kg 330 lb 1500kg 3300 lb	245x92cm 96.5x36" 110x35cm 43x14"	4 slo
	**Inflatable Stretcher** WR0196 WRW0196	**MFC INTERNATIONAL**		£714 $937	7kg 15.4 lb 6kg 13.2 lb	150kg 330 lb	204x66x6.7cm 35x35x18cm	Neop
	**Roll-Up LAS (London Ambulance Service)** 268935803S	**PAX (X-CEN-TEC)**		$766 €688	5.76kg 15.7 lb	150kg 330 lb	200x80cm 79x31.5"	Vacu 44 G
	**MIBS mk2** 87302	**RESCUE & MEDICAL**		£775 $1017	3.5kg 7.7 lb	150kg 330 lb	220x76cm 87x30" 76x24cm 30x9.5"	6 W
	**Evacuation Body Splint**	**SAFERIGHT**		$839 A$1120	6kg 13.2 lb		200x80cm 79x31.5" 90x28cm 35.4x11"	2 D 7 Int
	**Evac Body Splint**	**SAR PRODUCTS**		£500 $656	7.2kg 15.8 lb		205x68cm 81x27" 75x30cm 30x12"	2 We Lift-Ca
	**Technical Rescue**	**SAVIOUR MEDICAL**		£755 $991	5.7kg 12.5 lb	200kg 440lb	200x62.5cm 79x25" 70x30cm 28x12"	6 G
	**Tactical**	**SAVIOUR MEDICAL**		£540 $708	5.7kg 12.5 lb	200kg 440lb	200x62.5cm 79x25" 70x30cm 28x12"	6 G
	**SKED** SK-200	**SKEDCO**		£855* $665* €1055*	5kg 11 lb	approx 180kg 400 lb	244x92cm 96x36" 92x20cm 36x8"	10 We 15 gr
	**PJ SKED** SK-215	**SKEDCO**		$831*	4.5kg 10 lb	approx 180kg 400 lb	244x71cm 96x28" 71x20cm 28x8"	10 We 15 gr
	**Total**	**SPENCER**		$590 €530	6kg* 13.2 lb	200kg 440 lb	243x92x3cm 96x36.2x1.2" 95x38cm 37.4x15"	10 We 18 gr

FLEXIBLE/ROLLUP STRETCHERS

MATERIALS: FRAME/BAG BASE/LINER TENSION POINTS	USES: STANDARDS	HORIZONTAL RAISE	VERTICAL/90° RAISE	HELI-WINCH	CAVE/CON-SPACE	GROUND-CARRY	IN-WATER-CAPABLE	BARIATRIC	VACUUM MATTRESS	PADDED/THERMAL MAT	HEAD IMMOBILISATION SPINE IMMOBILISATION	FACE GUARD WEATHER PROTECTION	BRIDLE ADJUSTABLE BRIDLE FIXED LENGTH	BODY HARNESS	RIGID REINFORCEMENT	COLOUR-CODED STRAPS	FOOT-STRAP	STORAGE POCKETS	CARRY BAG/RUCKSACK	OTHER COLOURS	NOTES	WWW.
Nylon ts for lift slings 6 Handles	■	■	■	-	■	■	-	●	-		- -	● ●	□ ■	●	-	-	■		■	■		kong.it
prene/Hypalon 6 handles	■	-	-	-	●	■	■	-	-	■	- -	- -	- -	■	- -	-	■	-	■		Inflatable stretcher requiring 100L of air	mfc-international.com
HDPE uum Mattress rommet Eyes* 8 Handles	■	■	-	-	■	■	-	-	■ □		■ ●	● ●	□ □	■	■	■	■		■		comes with, & designed to be used with the supplied vacuum mattress. *at least 18 of these are used by webbing and handles	pax-bags.com
MDPE Cordura eb Extensions 8 Handles	■ ■	■	■	-	■	■	-	□	-		■ ■	● ●	- □	-	-	■	■		□			rescueandmedical.com
MDPE PVC 8 Handles Drag Handles egrated adj lift straps	-	■	■	■	■	■	-	-	-	■	● ●	● ●	■ -	■	-	●	■		■			saferight.com.au
MDPE PVC/Nylon b Eyes (Head) 6 pable Handles + 1 Drag handle	■	■	■	-	■	■	-	-	-	■	● ●	● ●	■ -	■	-	■	■		■	■		sar-products.com
LDPE rommet Eyes 6 Handles	■	■	■	-	■	■	□	-	-		■ □	● ●	□ ■	■	-	■	■		■	■	includes wrist containment straps.	saviourmedical.com
LDPE rommet Eyes 6 Handles	■	-	-	-	●	■	□	-	-		■ □	● -	□ ■	■	-	■	■		■	■	includes wrist containment straps.	saviourmedical.com
MDPE eb slots inc 4 for ifting slings ommet eyes for head rope* 4 Handles	■ ■	■	■	-	■	■	□	□	-		- □	● ●	- ■	-	□	-	■		■	■	*Add $€157 for Cobra buckles. Basic SKED-no accessories=$510/€780 *Rope fed thru round eye to create anchor eyes at head and foot	skedco.com
MDPE eb slots inc 4 for ifting slings ommet eyes for head rope* 4 Handles	■ ■	■	■	■	■	■	□	□	-		- □	- ●	- ■	-	□	-	■		■		*Cost (but not the wt) includes all straps, Cobra Buckles & Bag. *Rope fed thru round eye to create anchor eyes at head and foot	skedco.com
HDPE eb slots inc 4 for ifting slings ommet eyes for head rope* 4 Handles	■	■	■	-	■	■	-	□	-		- □	● ●	□ ■	-	-	-	-		■	■	*weight excludes rope and straps. *Rope fed thru round eye to create anchor eyes at head and foot	spencer.it

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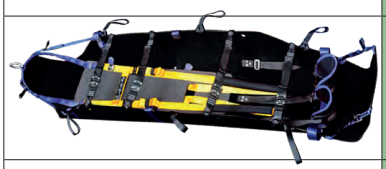
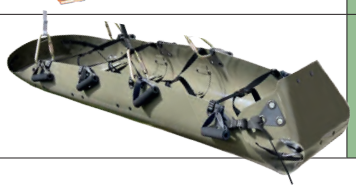
	**STRWind**	**TASK**		$825	9.2kg 20.25 lb	120kg 265 lb	200x90x0.5cm 78x36x0.25" 90x25cm 35x10"	1 1 Hea
	**STRPlusII**	**TASK**		$950	11.2kg 24.6 lb	120kg 265 lb	240x90x0.5cm 95x36x0.25" 90x32cm 35x12.5"	1 1 Hea
	**TRS/VRS** 19-0100/SL TRA19-0100	**TRAVERSE/ FERNO**		£1186 $982 €2125	8kg 18 lb		202x84cm 79.5x33" 84x25cm 33x10"	3 + 7 i lift-r
	**UltraRoll** SAN-9000 SAN9001	**ULTRAMEDIC**		£1396 $1313 €1180*	7.3kg 16 lb	300kg 660 lb	254x92x30cm 100x36x12" 92x27cm 36x11"	30 C

FLEXIBLE/ROLLUP STRETCHERS

MATERIALS: FRAME/BAG BASE/LINER TENSION POINTS	USES: STANDARDS	HORIZONTAL RAISE	VERTICAL/90° RAISE	HELI-WINCH	CAVE/CON-SPACE	GROUND-CARRY	IN-WATER-CAPABLE	BARIATRIC	VACUUM MATTRESS	PADDED/THERMAL MAT	HEAD IMMOBILISATION / SPINE IMMOBILISATION	FACE GUARD / WEATHER PROTECTION	BRIDLE ADJUSTABLE / BRIDLE FIXED LENGTH	BODY HARNESS	RIGID REINFORCEMENT	COLOUR-CODED STRAPS	FOOT-STRAP	STORAGE POCKETS	CARRY BAG/RUCKSACK	OTHER COLOURS	NOTES	www.
HDPE Foam pad 2 Web eyes ad strap + D-ring 6 Handles	-	■	■	-	■	■	-	-	■	-	□ □	- ●	□ □	■	-	●	■	-	■	-	anti-constriction shoulder bar	taskbr.com
HDPE Foam pad 2 Web eyes ad strap + D-ring 6 Handles	-	■	■	■	■	■	-	●	■	-	□ □	● ●	□ □	■	-	●	■	-	■	■	anti-constriction shoulder bar	taskbr.com
MDPE Cordura Web eyes ndependently rated handles	■	■	■	■	■	■	□	-	-	-	- -	● ●	□ □	■	-	●	■	-	■	■		traverserescue.ca
HDPE Grommet eyes 8 Handles	■ ■	■	■	■*	■	■	-	-	-	-	- ■*	● ●	□ □	-	■	■	■	-	■	■	*Specific to Bell UH-1D / NH90/Sea King Mk. 41 *Military version €1380 *Shoulder, thoracic and pelvic rigid supports	ultramedic.de skylotec.com

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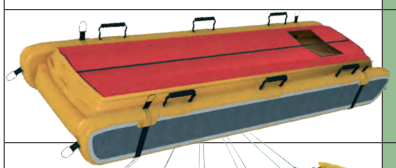
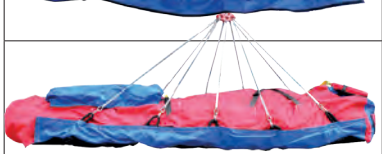
	**StableFlight Heli Bag**	**CASCADE**		$3392*	6.6kg 14.6 lb	140kg 308 lb	208x56cm 82x22" 56x26cm 22x10"	
	**Helitack Air Bag** 724247	**CMC**		$1770	6.6kg 14.5lb		234x76cm 92x30" 58x28cm 21x11"	10 2 S
	**AirRescue Bag**	**ECMS**		$3980 €3576	7.5kg 16.5 lb	165kg 363 lb	190-225*x62x40cm 75-89x24.4x15.8"	8 Hand dles, 4
	**Sauerbag 3**	**FERNO**		?	5kg 11 lb	160kg 352 lb	145-200x60cm 57-79x23.6"	Integ Bridle, 2 ta
	**Helicopter Rescue Sack** HBRS04/03*	**KOHLBRAT & BUNZ**		$1602 €1440	4kg 8.8 lb	150kg 330 lb	220x70cm 86.6x27.6" 80x44x33cm 31.5x17.3x13"	1 10 bri
	**Thermo Rescue Sack** TRSX03/01/02 HRS	**KOHLBRAT & BUNZ**		$1070 €960	2.9kg 6.4 lb	150kg 330 lb	220x70cm 86.6x27.6" 80x44x30cm 31.5x17.3x12"	Quilte 1
	**XTRACT2**	**KINGFISHER MEDICAL**		$370	1.4kg 3 lb	300kg 660 lb	112-213x81.3cm 44-84x32" 30x18x13cm 12x7x5"	Dur 4 C 6 D
	**XTRACT SR**	**KINGFISHER MEDICAL**		$745	3.1kg 7 lb	300kg 660 lb	127-213x81.3cm 50-84x32" 56x23cm 22x9"	Dur HDPE, 4 C 6 D
	**Everest**	**KONG**		£1420 $1850 €1680	4kg 8.8 lb	350kg 770 lb	183x42cm 72x16.3" 95x55cm* 37.4x21.6"	Nyl 1 inc
	**All Terrain Stretcher (API Inflatable)**	**MFC INTERNATIONAL**		£1994* $2617	11.25kg 24.75 lb	200kg 440 lb	215x89x41.5cm 84.7x35x16.3" 70x45x30cm 27.6x17.7x6.4"	4 m 2 to
	**Resq Cocoon***	**MITTELMANN**		$2542 €2285	11.5kg 25.3 lb	140kg 308 lb	220x55cm 87x21.6" 88x42cm 34x16.5"	H Ny 1 2 W 1
	**RTS-4 Seasons** 276780801	**PAX BAGS (X-CEN-TEC)**		$848 €762	4kg 8.8 lb	150kg 330 lb	210x60cm 82.7x23.6"	PAX (PU c PVC c 1

AERO/COCOON STRETCHERS

MATERIALS: FRAME/BAG BASE/LINER TENSION POINTS	USES: STANDARDS	HORIZONTAL RAISE	VERTICAL/90° RAISE	HELI-WINCH	CAVE/CON-SPACE	GROUND-CARRY	IN-WATER-CAPABLE	BARIATRIC	VACUUM MATTRESS	PADDED/THERMAL MAT	HEAD IMMOBILISATION SPINE IMMOBILISATION	FACE GUARD WEATHER PROTECTION	BRIDLE ADJUSTABLE BRIDLE FIXED LENGTH	BODY HARNESS	HELI-CABIN STRAPS	HELI ANTI-ROTATION	COLOUR-CODED STRAPS	FOOT-STRAP	STORAGE POCKETS	CARRY BAG/RUCKSACK	OTHER COLOURS	NOTES	www.
Perlon PES Cordura 10 Handles Cabin straps	■	■	-	■	●	●	-	-	□	□	□ □	■ ■	- ■	■	■	■	-	■	■	■		Price includes all 'options' as standard (inc tag-line) but is $1765 as basic heli-bag	cascade-rescue.com
00D Cordura 10 Handles Steel D-Rings	■	■	■	■	-	■	-	-	□	□	□ □	■ ■	■ □	■	-	-	●		■	■			cmcpro
Perlon PES Cordura dles, 2 Drag Han- Cabin straps,10 bridle eyes	■* ■ ■	■	-	■	●	■	-	-	□	□	□ ● □	■ ■	- ■	●	■ □		■	■	■	■		*with foot extension bag for taller patients *EASA Form 1	ECMS-gmbh.de
Mylar grated 8-point 6 tag line eyes, g-line release systems 6 Handles	? ■ ■	■	-	■	●	■	-	-	□	□	□ □	■ ■	■* -	●*	- ■		●	■*	■	■		*better described as shortening of fixed length bridle * external straps configured as torso, waist and foot strap	ferno.com
10 Handles dle attachments	■ ■ ■ ■	■	-	■	●	■	-	-	□	□	- -	□ ● ■	□ ■	■	□		-	■	-	■	■	*03 version has integrated bridle instead of detachable	kohlbrat-bunz.com lyonequipment.co.uk
ed Cordura/Nylon Cotton 10 Handles	■ ■	-	-	-	●	■	-	-	□	□	- -	■	- -	-	□		-						kohlbrat-bunz.com lyonequipment.co.uk
raelite Fabric Carry handles Drag handles	■ ■	-	-	-	■	■	□	●	-	□	- -	□ ● □*	- □	-	- -		-	■	-	■		*option of protective bag as well as inherent protection of the 'bag-stretcher'.	kinghfishermedical.com
raelite Fabric /closed cell foam Carry handles Drag handles	■ ■	-	-	-	■	■	□	●	-	■	●	□ ● ■	- □	-	- -		●	■	-	■		*option of protective bag as well as inherent protection of the 'bag-stretcher'.	kinghfishermedical.com
on & Cordura 12 Handles Head & Foot	■ ■	■	-	■	●	■	-	-	□	□	□ □	□ ● ■	□ □	□	- □		-	□	■	□*	■ ■	*Transport bag wide enough for folding spine board. Complete kit with board,staps & head immob=$4500	kong.it
Hypalon metal lift eyes owing D-rings 6 Handles	■	■	●	■	●	■	■	-	-	■	□ □	□ □	□ □	■	- -		-	■	-	■		Inflatable stretcher requiring 370l of air. *Smaller version with no cover=£544	mfc-international.com
HDPE Sheet lon/Cordura 0 Web Eyes eb Eyes (head) 10 Handles	■ ■	■	-	■	■	●	-	-	-	□	■ -	■ ■	□ ■	■	- -		■	□		□		*unlike other heli-rescue bags, this one is a hybrid with an HDPE shell	mittelmann.com
X Dura &-Lite coated Nylon & coated Polyester) 10 Handles	■ ■ ■	■	-	■	●	■	-	-	□ ■		□ □	■	- -	-	-		■	?	■			Designed to be used inside/on a rigid frame or roll-up stretcher but can be used separately	pax-bags.com

IMAGES NOT TO SCALE
COST: Approx, INC local tax/VAT
£$€=currency conversion only
USES/ FEATURES: ●= PARTIAL FEATURE and/or OK BUT NOT IDEAL
STANDARDS: ■=EU Med Device. ■=EASA ■=CE ■=NFPA or ANSI ■=Mil-Spec/NATO
□□□= Option
N/A = info Not Available/not given

	MODEL Product Code	COMPANY	ORIGIN	COST inc tax / VAT Simple US$ conversion	WEIGHT	DESIGN LOAD Horizontal /Vertical MBS	DIMENSIONS L x W x H/D SPLIT/ROLLED LENGTH	M F SUSP
	**RTS-Air** 146110801	**PAX BAGS (X-CEN-TEC)**		$6425 €5772	5.2kg 11.4 lb	150kg 330 lb	210x60cm 82.7x23.6"	PAX (PU c PVC c 1
	**RTS-Winter** 275510404	**PAX BAGS (X-CEN-TEC)**		$590 €530	4kg 8.8 lb	150kg 330 lb	200x50x40cm 78.7x19.7x15.8"	(PVC c
	**Inflatable Stretcher**	**SAVATECH (TRELLEBORG)**		?	15kg33 lb	150kg 330 lb 400kg 880 lb	240x70x37cm 94.5x27.6x14.6" 80x58x22cm 31.5x22.8x8.7"	4 m 4 to
	**HRB Bavaria**	**TYROMONT**		$2237 €2010	3.7kg	150kg 330 lb	205x56cm 80.7x22"	10 Ha
	**HRB Christophe II**	**TYROMONT**		$1702 €1530	3.4kg 7.5 lb	150kg 330 lb	205x56cm 80.7x22"	10 Ha
	**HRB Christophe Evo**	**TYROMONT**		$1902 €1710	3.5kg 7.7 lb	150kg 330 lb	210x56cm 82.7x22"	10 Ha
	**HRB Tactical**	**TYROMONT**		$2403 €2160	3.7kg 8.1 lb	150kg 330 lb	205x56cm 80.7x22"	10 Ha
	**Tyroll**	**TYROMONT**		$2303 €2070	10.5kg 23.1 lb	150kg 330 lb	205x60cm 80.7x23.6" 88x35cm 34.6x13.8"	M 10 Ha
	**Injury Protection Bag** 93050	**TYROMONT**		$594 €534	2.4kg 5.3 lb	150kg 330 lb	212x56cm 83.5x22"	
	**Tyral Injury Protection Bag** 93281	**TYROMONT**		$718-990 €645-890	3kg 6.6 lb	150kg 330 lb	205x45cm 80.7x17.7"	
	**Special Rescue Bag** 93281	**TYROMONT**		$708 €636	3.9kg 8.6 lb	150kg 330 lb	212x56cm 83.5x22"	1
	**Thermal Bag** 93281	**TYROMONT**		$562 €505	2kg 4.4 lb	150kg 330 lb	205x55cm 80.7x21.7"	

AERO/COCOON STRETCHERS

MATERIALS: FRAME/BAG BASE/LINER TENSION POINTS	USES: STANDARDS	HORIZONTAL RAISE	VERTICAL/90° RAISE	HELI-WINCH	CAVE /CON-SPACE	GROUND-CARRY	IN-WATER-CAPABLE	BARIATRIC	VACUUM MATTRESS	PADDED/THERMAL MAT	HEAD IMMOBILISATION SPINE IMMOBILISATION	FACE GUARD WEATHER PROTECTION	BRIDLE ADJUSTABLE BRIDLE FIXED LENGTH	BODY HARNESS	HELI-CABIN STRAPS	HELI ANTI-ROTATION	COLOUR-CODED STRAPS	FOOT-STRAP	STORAGE POCKETS	CARRY BAG/RUCKSACK	OTHER COLOURS	NOTES	www.
X Dura &-Lite coated Nylon & coated Polyester) 10 Handles	■ ■ ■	■	-	■	-	■	-	-	□	■	□ □	● ■	- ■	■	■	■	■	?	■		-		pax-bags.com
PAX Light coated Polyester) 8 Handles	■ ■	-	-	-	●	■	-	-	□	□	□ □	● ■	- -	?	-		-	?	■	■	-	Designed to be used inside/ on a rigid frame or roll-up stretcher but can be used separately	pax-bags.com
Hypalon netal lift eyes owing D-rings 6 Handles	■	●	●	●	●	●	■	-	-	■	□ □	■ ■	- -	■	- -		-	■	-	■	-	Thinsulate Thermal insulation	trelleborgslovenija.com
Perlon PES Cordura ndles also used as lift eyes	■ ■ ■	■	●	■	-	■	-	-	□	■	□ □	□ ● ■	- ■	■	■	□	■	●	■	□	-	note differences between these 3?	tyromont.com
Perlon PES Cordura ndles also used as lift eyes	■ ■ ■	■	-	■	-	■	-	-	□	■	□ □	□ ● ■	- ■	-		□	-	●	■	□	-	note differences between these 3?	tyromont.com
Perlon PES Cordura ndles also used as lift eyes	■ ■ ■	■	-	■	●	■	-	-	□	■	□ ● □	□ ● ■	- ■	-		□	-	●	■	□	-	reinforced head and shoulder areas	tyromont.com
Perlon PES Cordura ndles also used as lift eyes	■ ■ ■	■	-	■	-	■	-	-	□	□	□ □	□ ● ■	- □	■		□	●	■	■	□	-		tyromont.com
Perlon PES MDPE sheet ndles also used as lift eyes	■ ■ ■	■	■	■	■	■	-	-	□	□	□ □	□ ● ■	- ■	■	■	□	■	■	-	□	-	A system of components to create the complete stretcher that this data refers to	tyromont.com
Perlon PES 8 Handles	■	-	-	-	-	■	-	-	□	-	- -	● ■	- -	-	-		-	-	-	-	-	Designed to be used inside/ on a rigid frame or roll-up stretcher but can be used separately	tyromont.com
Perlon PES 8 Handles	■	-	-	-	-	■	-	-	□	-	- -	□ ● ■	- -	■	-		■	■	■	□	-	Designed to be used inside the Tyral basket stretcher but can be used separately	tyromont.com
Perlon PES 10 Handles	-	-	-	-	-	■	-	-	□	■	- -	● ■	- -	-	-		-	-	-	-	-	Designed to be used inside/ on a rigid frame or roll-up stretcher but can be used separately	tyromont.com
Perlon PES 6 Handles	-	-	-	-	-	■	-	-	□	-	- -	● ■	- -	-	-		-	-	-	-	-	Designed to be used inside/ on a rigid frame or roll-up stretcher but can be used separately	tyromont.com

UPDATING Q1 '26
HOIST-CAPABLE CON-SPACE RESCUE STRETCHERS

For the purposes of this article we determine 'Confined-Space' to be taken literally in that it is the extremely limited space within a narrow tunnel or shaft, cave, collapsed structure or man-made structure like a wind turbine or ship. Technically a 'confined-space' is any enclosed area not intended for continual occupancy which could include a Russian salt mine with chambers the size of a small town. This is why so many mine-rescue stretchers and even some cave rescue stretchers like the Kong 911 series are modified but full size rigid baskets - they don't need to manoeuvre through small or tight spaces they just need to be tough and, for industrial sites, meet hazardous atmosphere (ignition) safety considerations. We have included a number of fully rigid stretchers that are specifically marketed as 'con-space' stretchers by virtue of the fact that they are much narrower than their standard size counterparts. But it has to be said that for the majority of 'confined-space ' rescues, a regular basket or rigid frame stretcher as listed in our *GUIDE to Rigid Frame Stretchers* in issue 9 of **WILDERNESS**SAR magazine, will do the job and models like the Titan-one piece are as ligt and tough as it gets. Size restriction could be in relation to height rather than width as in a collapse or an underfloor space in which case width of stretcher wouldn't be an issue. So, because this is a largely technical rescue readership with cross-discipline responsibilities, we have limited the stretchers in this GUIDE to those that can be used for raising and lowering in addition to dragging and carrying in the more confined of confined spaces. Incidentally, standards for stretchers can be oddly lacking in most countries, even the US NFPA only applies to certain applications. In Europe there is the *Medical Device* Directive which in the UK is changing in 2023 and means that some brands/models may not be available for use in future. However, UK and key brands will be covered and anything already in service can still be used until it wears out or reaches its end-of-life date. Some with full harness may meet a a standard as a life-support harness rather than a stretcher.
Bear in mind also that many of the stretchers in this GUIDE, particularly the rigid 'chairs', are NOT suitable for children unless a suitable packaging adjunct is used. In case you think we're plagiarising something you've read before, we've used some of the intro from WSAR#9's article.

There are 4 distinct types of con-space stretcher:

1. **RIGID BASKETS** which are metal frames in either one or two pieces and may have a plastic/glass fibre shell insert. One model, the Fastboard is half of a basket stretcher!
2. Rigid-base **PLATFORMS,** often with protective wings like the Petzl Nest which doesn't fold down and the Ferno Paraguard which does fold and pack down to a smaller size for easy transport to the casualty.
3. **ROLLED** sheets of thin plastic (mostly polyethylene) like the Sked, Rolly, Slix, and Saviour which roll into a small tube the width of the sheet and become rigid when formed longitudinally into a tube or semi-circle. Some are halved.
4. **HALF-LENGTH STRETCHERS, VESTS** & **SEATS** like the LSP, Specpack, Conrest and Skogar which provide excellent spinal and hoist packaging but while 'half' the size of a full length stretcher, rarely pack down to less than the deployed length so are on a par with rolled and folded platforms in terms of bulk. Some like the DragNLift right are a cross between a vest and a roll-up while Lyon's LSYNRAS (pic top).is a cross between a roll-up and a seat.

1 BASKET STRETCHERS

Traditional tubular metal construction is used to construct the strongest of all options, the basket stretcher or litter. This can be a one piece construction or a two piece which breaks apart or hinges in the middle making it easier to transport into a confined space. Generally speaking you wouldn't think of a full-length metal basket as the ideal kit for confined space rescue but its rigidity and strength can be a great asset and the models included here have modifications that make them more suitable to con-space - some are thinner than a regular stretcher like Ferno's *Pinnacle*, Junkin's *JSA 300 CS* and Spencer's *Dakota Light* while others are simply suitable for Con-Space by virtue of their existing design parameters or size like the Kohlbrand *UT2000*, SAR *Alpine* and Ultramedic *Ultramining* models remembering that a confined space is not necessarily restricted by width, it can just as easily be a seam or slit a mile

CON-SPACE STRETCHERS/LITTERS

images not to scale

wide but only inches high. All of these stretchers can negotiate uneven rocks and 90 degree edges without affecting the casualty though the open weave design does not lend itself to dragging over small rocks and gravel and would, in such cases, benefit from the addition of a full skid-sheet of polypropylene which is actually the same as many flexible roll-up stretchers that we'll come to shortly. The combination of the two however would generally be considered too bulky and cumbersome in a confined space rather than the wide-open snow fields its designed for. The FAST model shown at the top is a little unusual because it is a rigid half stretcher adapted with harness, strapping and accessories like float-tubes, protective leg shroud and ballistic protection to operate as a half-board-style stretcher. It even offers LED lighting around its perimeter rail, ingeniously simple.

All baskets/litters can be hoisted horizontally and vertically (with appropriately secure strapping) and offer excellent patient protection because they have a rigid frame all around including high sides but it's odd that the only 'confined space rescue' versions of conventional basket stretchers are the open weave metal frames - the addition of a plastic shell that we see in the Ferno *71*, Junkin, Kong *911* or Spencer basket are only on full width models. Ferno's *Advantage* would perhaps have been an ideal Con-Space Stretcher had it been maintained in their range because it is narrow and the plastic shell offers protection from pooled water that is often found in horizontal tunnels/ pipes. Indeed none of the confined space rescue stretchers in this GUIDE protect the casualty from water ingress unless there is the addition of capsule bag like the *Kong, AlpDesign* or *Tyromont* options.

2 RIGID PLATFORM

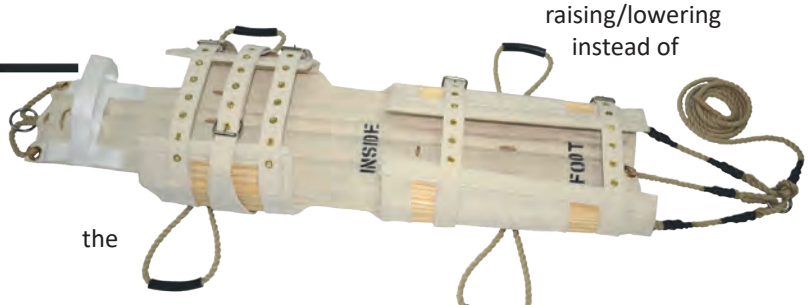
Where a basket stretcher has raised sides so that the casualty lays 'inside' of the stretcher, a rigid platform has the casualty laid on top. However in most cases like the Petzl *NEST*, Ferno *Excel* & *Paraguard* and AlpDesign's *Speleo* there are protective 'wings' that wrap around the casualty and provide environmental protection and security which is reinforced by the usual webbing straps for torso, and legs. Arms/hands can be placed inside the 'leg-wings' if required. Most have head protection/support either in the form of a 'hood' as in the *Nest* or forehead straps like the Excel and/or head blocks like the SpecPac and LSC 402. Some of these have been around as long as there have been stretchers and Ferno have more models than anyone with the *Paraguard* as perhaps the oldest

professional rescue design still in existence. This has been updated of course with the *Excel* version (pic overleaf) and the similar *Res-Q-Mate* both of which can have extension handles not usually associated with confined space rescue. Ferno's lighter *Lifesaver* model (right) , which is a variation on the venerable *Neil Robinson* sits between the roll-up model category s and the rigid platforms. Two models that deserve special mention are the AlpDesign *Speleo* and the Petzl *NEST.* These have been specifically designed for cave rescue which of course lends itself perfectly to any urban-industrial confined space rescue. They are both true multi-role stretchers and although we used the original *SKED* for confined space rescue and then the Traverse/*Vertical* from when it was first introduced in Australia there is no doubt that we would have been trying to get our hands on the *Nest* or *Speleo*.. They are rigid platforms by virtue of optional removable reinforcing 'rods' in the case of the *NEST* (pic below and a full length sheet of carbon-fibre composite of Kevlar and Bakelite plastic in the case of the *Speleo* (top right). You can see from the Excel and Lifesaver stretchers how wings are incorporated into strapping to provide security and protection but the *NEST* and Speleo both take protective wings to a new level with full body protection from water and debris (though not ingress but the Speleo's integral sheet would likely provide as good a level of protection as you could get as it is similar to the kind of protective systems you get in Mountain/Heli Rescue stretcher 'Systems' where multiple separate components are used to create the finished stretcher

The venerable Neil Robertson from 100 years ago with bamboo rigid inserts, and hemp/manilla rope and canvas that is a contaminant nightmare in the modern world is still sold for some reason and even has some modern competition despite its tendency to roll during extraction- must be a nostalgia thing! Others like Kingfisher's *Xtract,* modify that basic concept using a full-length specialised fabric and stiffened inserts for rope or winch operations. SKEDco were the first to produce a viable modern alternative roll-up stretcher in the late 70's with the iconic orange *SKED* and all others are a variation on that same theme using sheet polyethylene about 3mm thick give or take a mil. We used the SKED for 30 years and can certainly attest to its versatility and ability to endure abuse. However, like so many iconic designs, SKEDco probably sat on their laurels for too long and it remained a quite basic design that was ripe for improvement In the early nineties, Brian Joplin of South Wales Cave Rescue and a fabricator friend of ours, GEMINI in Hampshire, UK, produced the first real alternative, the *Cocoon* stretcher (right) which replaced the *SKED*'s circumferential lifting slings with grommeted eyelets into which carabiners for a suspension bridle could be clipped. It had integral upper body spine reinforcement with head restraints, an adjustable webbing foot strap and its second version had colour-coded straps so was decades ahead of its time. It also had a metal spreader bar inside the shell at the head end for vertical raising/lowering instead of the

3 FLEXIBLE/ROLL- UP STRETCHERS

Together with basket stretchers/litters, this category provides the largest range of options and in fact, the GUIDE in WSAR#10 that prompted this GUIDE, features solely flexible and roll-up stretchers.



CON-SPACE STRETCHERS/LITTERS

Sked's tedious threading of rope. The spreader needed a bit of refining but this was a great stretcher and probably too well made at that time to be economically viable but it could hold its own against all of the modern variants. In the late nineties, Australian Steve Achilles's *Vertical* (pic above-right) further evolved the *SKED* design by shrouding it in a tough Cordura skin which enabled a full internal body harness with head straps to be added together with six side handles and two vertical lift eyelets. This was also a design element of the more substantial, Welsh-made MIBS much favoured by the UK military in the 90s. Although we maintained *SKEDs* operationally, unless we needed the added strength of a rigid frame for which we used the Bell *Tangents* and a Bell *Bariatric,* the *Vertical* stretcher was, for us, better for rope & con-space rescue with lower bulk than the MIBS and more versatile than the Troll /SAR Products Evac shown overleaf (3M/Miller bought Troll so still sell the original Evac Body Splint [not included in this GUIDE]. The Heightec Chrysalis is also based on this original Dave Allport concept). The design of the Vertical and the Evac are largely unchanged today. ***The downside with integral straps, and indeed any stitched element, is that they may not be detachable enough to decontaminate an important consideration in rescue today*** but our trusty *Vertical* enabled us to slide the poly-sheet out via a Velcro end-closure and put the straps and cover in a washing machine! Fast forward to the noughties and onwards to more recent times and SKED did indeed evolve to meet the challenge of a number of high quality variations on the *SKED* and *Cocoon* designs. Flat polyethylene sheets of varying densities and grommeted eyes plus reinforcing have been adopted by the Task STR range, *Slix* and *Saviour,* Medsled *VLR*, Kohlbrand *Roll-Up & UltraRoll,* and Kong *Rolly.* Later models like the Task *STR-plus below left,* incorporates a harness which most roll-ups don't have but very few, if any, can can be used for spine-compromised casualties without an adjunct. The original SKED's lack of spinal protection prompted SKEDco to introduce the Oregon Spine Splint, (a variation of the confusingly similar but unrelated KED/Kendrick Extrication Device invented in 1978), as an additional insert that could also be used as a stand-alone spinal management 'vest' for other forms of rescue. SKEDco also quickly saw the need

colour-coded securing straps.

for flotation aids to keep the stretcher buoyant in water and initially used simple Cordura-covered foam chest pads and tubes strapped to each side. Latterly systems like the Medsled on the left in its military variant, use velcro-on floats for the torso. Other features of note in specific roll-up models include the spine reinforcement bars of the Kohlbrat and UltraRoll models (top right) because, if there is one thing you need to be aware of with some flexible sheets is that they become rigid when formed into a tube but can fold or buckle during a horizontal lift if 'point-loaded' either externally or internally across that curce. By that we mean if your stretcher uses a 4-point bridle and you or the casualty either push down on the middle (more or less) of the semi-circular form, or it meets a rail or protrusion underneath, it can buckle as the loaded lift bridle pulls up at the head and foot end. The casualty is in no danger of falling but there could be some discomfort or even injury exacerbation while you try to address the problem, which, of course, you will find very difficult while the stretcher is loaded. This situation can arise when hot-loading a casualty from a ledge for instance and is a good reason why these roll-up stretchers are best loaded while on the ground or a firm surface. The other preventive measure is to insert a spine board. The reinforcement bars of some models overcomes this problem (check the integral spineboard column which, if coloured as a black square, indicates reinforcement but not necessarily full spinal protection without further measures).

Roll-up stretchers ALL benefit from being back-rolled as soon as you take them out of the storage bag - if you roll or bend them against the direction they were rolled in, the whole thing will lay flat on the ground rather than keep curling up. This Slix XL (pic right minus additional side panels for bariatric patients) shows the stretcher laid flat and also the range of grommet attachment eyes and

Task, Kohlbrat-Bunz and UltraMedic have all addressed a problem we regularly saw with roll ups; the constriction of the shoulders as the straps are loaded and pull the sides together with resultant occlusion of the brachial artery causing tingling, discomfort and loss of sensation (which is why it is always a good idea to use a rescuer as your casualty during training - get to feel what the patient feels). SKED now have a shoulder board accessory to alleviate this but Task (left) the RL range and UltraRoll models above incorporate transverse spreader bar inserts at the shoulders to stop constriction. The latter two are particularly well specified and also have pelvic and thoracic reinforcement bars. This problem is largely negated in the half-size stretchers we'll mention next , because they are often cut-away at the arms with no constriction (or protection).

For raising/lowering, roll-ups will often have either specified grommet reinforced eyes like the Slix 100 and RL3000 above, the UltraRoll (top) and the Saviour *Technical* (opposite top) with its noticably lower 'freeboard', or like the *SKED*, a sling that passes around the entire underside of the stretcher. In many ways, though cumbersome, this traditional head and foot-end sling support is more full-proof than eyelets cut into the PE sheet because even if the stretcher disintegrated, the casualty would still be supported. The disadvantage is that the slings are exposed to abrasion as they rub over surfaces and the ground and need to be regularly checked and replaced if damaged. Heightec modified this with their POD having webbing that passes under the casualty on the *inside* of the shell.

Vertical lift from the head-end is more common in confined-space rescue, in fact, it is virtually the only occasion that a vertical lift of an injured person can be justified. Our definition of 'vertical' for this article refers to the 80-90 degree orientation of the stretcher into a complete head-up, feet-down position as with the Ferno *XT-Pro* half-board model pictured on the right.

This orientation is required to negotiate an opening or vertical tube/passage/ cave that won't allow the stretcher to be raised in the preferred horizontal orientation. Vertical lift points for a head-up extraction may use the regular head-end attachment eyes or there may be a separate attachment above the head to ensure that any straps don't end up being loaded across the casualty's face. The original SKED had a rather cumbersome but nonetheless foolproof rope attachment that threaded through eyes along the entire body of the stretcher and terminated in a knotted support for the feet. See later section on suspension for details of bridles and rigging but the next category of stretchers have become masters of vertical lift and rescue from extremely confined spaces.

4 / HALF SIZE/HALF- BOARD & SEAT STRETCHERS

Perhaps the best choice for extreme confined spaces which require vertical and horizontal hoisting/lowering are the models which package the upper-torso and head only, leaving the legs free to negotiate tight confines and bends. This category could be divided into rigid and roll-up as two distinct design variations. We have NOT included the many immobilisation devices like the KED and OSS which could be seen as one step removed from the half-board stretchers we HAVE included especially since Ferno sell a lifting bridle for the KED but this is presumable for short duration raising/ lowering with limited exposure to fall from height. The differences are in the complexity and security of the strapping with half-stretchers like the *LSP* and the *Spec-Pac* having full-suspension hardware and handles whereas an extrication device and most drag 'stretchers' use plastic and Velcro patient restraint straps

Left-to-Right: Cresto Skopan, CMC/ SKED Drag'n Lift, Ultramed Conrest, LSP-Miller, Slix-50, Ferno XT Pro, Tyromont Tyrol CS back-plate (exc stretcher harness), Kong Half Rolly & Task STR-H. Below-Left: Yates/CMC SpecPac & F.A.S.T Fatsboard

and buckles to enable simple lifting and shifting from, for instance a car crash, to a properly configured stretcher or ambulance trolley. In the absence of anything else, an extrication device would certainly help in manoeuvring a casualty within and from a confined space but it would be more makeshift than dedicated to the task and couldn't safely be used for vertical lift/ lowering unlike the models in this GUIDE. The *LSP-Miller* was perhaps the first model to take an extrication 'vest' and make it into very capable 'stretcher', something that would enable vertical hoisting/lowering with full strength webbing and hardware and lifting points incorporated into a rigid backboard. It took a while for others to follow the *LSP*'s lead but we did eventually get some quite sophisticated half-board models like the *Spec-Pac* by Yates/CMC and latterly Ferno's XT-Pro and Ultramedic/Skylotec's *Conrest*. Unique in this selection is the Fastboard, a half-basket stretcger designed to scoop and package a casualty inside a minute with pre-positioned webbing and a single - pull-to-tension and secure harness system, There are also enhanced versions of the more basic metal seats like Cresto's Skopan and the Telson which use an angled seat to better support the casualty during vertical extraction but this is impractical for traditional horizontal carrying so the other half-boards shown here, use wide, padded leg loops which work in vertical *and* horizontal orientation.

The *Drag'n Lift* that features as the main picture on our title page is a Sked/CMC collaboration is a half-sized roll-up (a variation of their basic Drag-stretcher below) with enhanced strapping to enable hoisting.. It's not alone in adopting this enhancement of the most basic roll-up drag-stretchers; the Slix-50, Task STR-H and Kong Rolly are also half-sized roll-up stretchers with enhanced strapping and safety features.

DRAG-ONLY STRETCHERS

Some high-spec roll-ups like the Saviour Tactical, Slix RR and SKED-Drag and Evac-Pro are drag and carry-only, NOT lift capable and are therefore not included in this GUIDE but they do everything you might want a con-space stretcher to do. The most basic 'drag-stretchers' have limited means to secure the casualty for a complex extraction beyond transverse straps and maybe leg straps; they are simply a means of dragging and carrying a casualty for short distances quickly from a place of danger to a place of safety Compare the SKED-Drag on the right with the Drag n'Lift top-left with red and blue lifting straps and metal d-rings. Since dragging is a common part of any protracted rescue many full-spec rescue stretchers incorporate a drag handle as seen here in the Conrest, Tyromont CS and Kong Half Rolly above. Some drag-only mats are quite complex and full length like the Albumat but this too uses Velcro securing so it is suitable for dragging or carrying down stairs and across grass and tarmac but not rocks or rubble or high angles. One or two like the Xtract stretchers are unusual because they have the low bulk and rapid deployment of a drag stretcher and easy to get into tight spaces to package the casualty but are also capable of being hoisted and have a float option. The ability to fold, roll or pack down small for entry is an important consideration for some types of rescue but it is wise to remember that your **ease of entry and access with a packed stretcher is radically different to exiting with a deployed stretcher**. Some might argue that if they take in a full length stretcher even with the access hassles, they at least know that it will fit all of the tightest spaces during egress. The full length SKED for instance rolls down into a cylindrical bag with external pockets which is about 92x23cm /9" x 36".

VACUUM MATTRESSES

We haven't included vacuum mattresses even though some perform a very capable job in a confined space. They would

CON-SPACE STRETCHERS/LITTERS

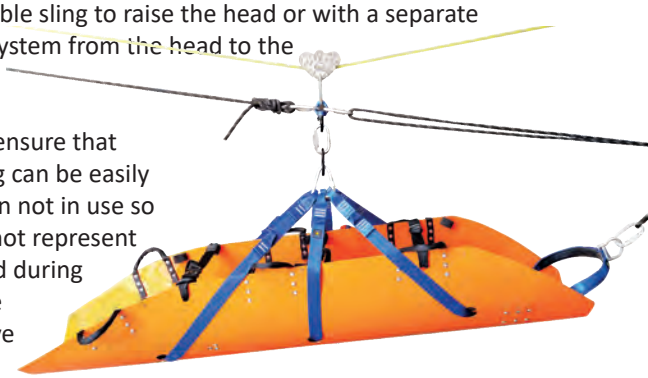
nearly always need some form of reinforcing to be suitable for full rope suspension and should they be punctured, all support integrity is lost. A three-day rescue of a caver in South Wales in Autumn 2021 utilised a vacuum mattress on the *outside* of a rigid board/stretcher because it provides excellent insulation and protection and it was dragged over some pretty rough terrain showing how resilient these things are. But again they can't be used for a hoisting unless reinforced. Some otherwise excellent multi-role stretchers like Kohlbunz'e *RED*, Tyromont's *Tyroll* (not to be confused with the very different *Tyroll CS* in this GUIDE), Ferno's *Sauerbag3* and Kong's *Everest* are really a system of components that combine to become an excellent all-purpose stretcher rather than being a stand-alone rescue stretcher and these are often quite bulky so are geared more towards mountain and helicopter rescue than confined spaces.

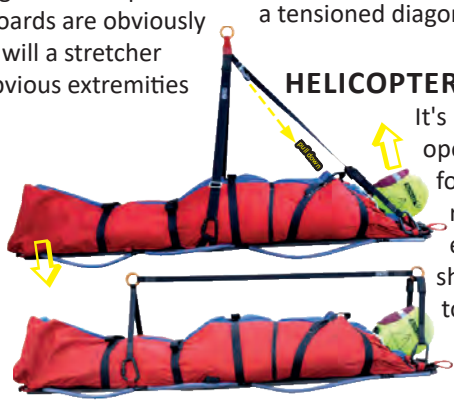
SUSPENSION, HORIZONTAL & VERTICAL LIFT

For rope and winching operations you have to be very careful to ONLY use the specified lift points - this does not necessarily mean a handle or, in the case of a metal basket or platform stretcher, anywhere along the top rail. Specified load points may be required because of the load angles and may be an isolated section of rail (***Isolated Rail Eye*** in our tables) or an obvious eye, perhaps with a reinforced grommet or an extra reinforced weld-point on metal baskets. For horizontal lift these will be located at the strongest part of a stretcher to rule out folding or buckling under load; roughly the ¼- ¾ length points at the shoulders to mid torso area and the lower leg to thigh area. Most of the weight is in the head and torso so you will see the roll-up stretchers in particular concentrating their load points in the upper half of the stretcher while half-boards are obviously ONLY loaded at the head and torso. Rarely, will a stretcher have horizontal suspension points at the obvious extremities - head and foot.

BRIDLES AND SUSPENSION-POINTS

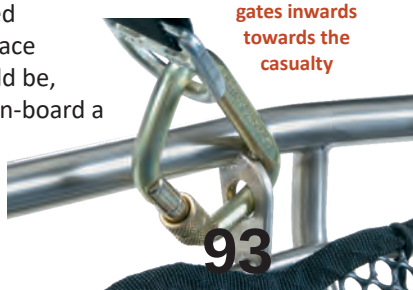
The various bridles and lift-strap options are discussed in depth in the article in WSAR#9 which is available free via our website. Here, we shall simply mention that for confined space rescue it is very useful to have a means of changing the orientation of your stretcher from horizontal to vertical in order to negotiate tight entry or egress points. This is best achieved with a bridle system like the one below that allows you to take in the tail of an adjustable sling to raise the head or with a separate mini-pulley system from the head to the collection point. You will need to ensure that any strapping can be easily secured when not in use so that it does not represent a snag hazard during egress. Some stretcher have pouches or nooks and crannies that can keep straps out of the way but if not, use some small tackle bags that can be safely stowed by the patient's feet or next to the O2 cylinder. Before we leave attachment points though, it's worth mentioning control lines and tag-lines. These are ropes connected to the head and or foot-end of a stretcher to assist in positioning and direction of lift during a raising or winching operation or on a tyrolean. In general a tag-line is for orientation, positioning and obstacle negotiation while a control line maintains a constant lowering speed and/or braking action in a more horizontal plane such as a tensioned diagonal/tyrolean traverse.





HELICOPTER-USE

It's not often the case that a winch operation is required following a con-space rescue but it could be, especially from on-board a ship so you need to ensure that your stretcher



limit the exposure of carabiners by placing inside the frame where possible and face gates inwards towards the casualty

is heli-compatible. LSC's 402 models (left) and Zero Height's Heli (right) are, despite their 'light' appearance, true multi-role stretchers that hoist, float (with adjuncts), slide and can get into pretty narrow spaces which is why the 402 is favoured by so many US helicopter crews. Any stretcher's aerodynamics can be altered by the way you package your casualty so even those listed in this GUIDE as Heli-compatible may be affected by rotor-wash and rotor-spin under certain conditions. What is vitally important is that only the bridles and accessories specifically made for your heli-stretcher are used - ***there should be no mix and and matching of slings and components from other manufacturers when it come to heli-ops.***

Interestingly Peter Bell's early work with the RAF seemed to indicate that a slight tilt to head up reduced spin as it shed air more readily.

ENVIRONMENTAL PROTECTION

In most urban-industrial confined spaces, environmental protection is not quite so essential as it is in mountain and cave rescue where cold, winds and running water can conspire to kill off your casualty just as surely as the original injury. That's not to say that thermal protection in particular may not still be an essential component of your casualty packaging just that the measures can be less extensive than is requited 6000m up a mountain. You may for instance wish to add a Therma-Rest style self-inflating mattress to your stretcher accessories because it also doubles as water floatation. For the ultimate protection, *Kong* have an all-encompassing capsule (right) which seals like a drysuit and has a clear face shield with breathing valve.

HEAD GUARDS/FACE SHIELDS

The *Kong Capsule* is perfect for complete head-to toe protection from cold-water inundation but there are simpler options for head-protection like the *Kong Visor* (above) which attaches to their optional head-foam/cervical management system. Being strapped to a stretcher face up to negotiate a vertical face is a very scary prospect with very real dangers from falling dirt and debris. In the old days a pair of glasses or goggles were the minimalist approach but *CMC* broke the mould when they introduced their comprehensively protective clear Lexan Litter-Shield shown on the right in its alternative, larger, taller format that will fit most basket stretchers, not just *CMC*'s. This thing is as good today as it was when it was introduced in the 80s able to deflect sizeable chunks of debris that might defeat lighter-weight counter-measures. Indeed Jim Frank says he knows of at least two saves from rockfall thanks to this Lexan Shield. Not cheap at $470 but a lot cheaper than a new face! Similarly the *MacInnes* cover by Lyon (pic right) uses adherence to the EN Mountaineering Impact standards as the basis for design. This degree of solid protection might be bulky to store and carry were it not for the fact that both designs can simply flip over the end of the stretcher for patient access and during transport or invert inside the stretcher for storing. The simplest face visor options including *Kohlbratt's* build-your-own flatpack model, store flat until formed into a sturdy plastic dome or curve. Some head immobilsation measures provide a limited degree of face-protection and are shown as ● indicating partial protection. (As a side-note, a variation of the usual head immobilisation measures is LSP's Helmet Immobiliser (right) with an extended, elastic top section).

FLOTATION

Strapping a casualty into a stretcher when in or near water is a tricky decision because, with just a few exceptions, most of these stretchers will either sink like a stone or at best, remain on the edge of being neutrally buoyant so will require additional flotation in order to function safely in water or, in this case, flooded tunnels. They can be quite fiddly to fit so don't expect to rock up and deploy within a couple of minutes like water rescue teams might with pre-rigged systems. Pre-planning is necessary. Where available as an option, most use round float tubes that strap around the outside of the frame and/or have a 'thorax' pad to help float the heavy upper body. The *UT200* above has foam-tube options but also offers these inflatable supports for those operating in confined spaces who don't have room for 6 cubic feet of solid foam. The *UT2000* also offers an inflatable upper body 'lilo' for enhanced buoyancy at the vital head-end also providing warmth and protection as mentioned earlier with the Therma-Rest mattress.

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IN THE FOLLOWING TABLES.....

Any use, feature, accessory or component that is inherent in the stretcher is shown as a solid coloured square ■■■■
If it's an option it is shown as an outline square □□□□
A circle ●in the 'USE' columns indicates that this feature is only partially present and/or is OK for that purpose but not ideal.
NB: we have previously used a diamond to indicate this in our GUIDES but felt a diamond ♦ was better used to show which stretchers were tapered. ALL of these stretchers can be used for short-duration carry-out with varying degrees of casualty comfort and rescuer convenience so **Long Range (LR) Carry-Out** is a separate category. Rope rescue is a feature of ALL of these stretchers but load capacity varies with only the EvacPro+ specifically designed for bariatric casualties.
ORIGIN: The 'manufacturer's country, not necessarily the country of manufacture indicated by an inset flag.
COST: a rough guide only - **includes** local taxes/VAT. Varies with exchange rates, extra taxes etc. We usually round up to the nearest Pound£/US Dollar$/Euro€. Cost is for basic model with included accessories indicated by a solid square in the appropriate column (optional extras being an outline square).

STRETCHER TYPE

FLAT-FOLDABLE: A flat-topped stretcher with a rigid base that folds for storage. Usually has integrated straps and/or enveloping flexible 'wings' which encapsulate or partially encapsulate the casualty.
FLAT-ROLL-UP: A flexible flat sheet that rolls into a tube for storage - most halve in length for storage but some, like the Petzl Nest, halve in width.
HALF-SIZE ONLY: Half-length stretchers, seats or extrication vests with lift-capability. Some also indicated in the ROLL-UP column.
BASKET: a basin shaped stretcher with raised sides that help retain the casualty within it. May be an open weave frame of tubular metal (or carbon-fibre) or it may be a solid shell, usually some form of plastic, supported by a tubular metal frame.
RIGID: Is for stretchers that are fully rigid but are not baskets - usually a half board or platform.
SPLIT: SPLIT Refers to a two-piece stretcher that divides into two separate halves which can be carried by one or two people. Some hinge as well as splitting. Most have the provision of a ruck-sack style harness or suitably equipped carry bag which implies it can be carried by one person but some are better divided between two persons.

STRETCHER ATTRIBUTES:

TAPERED ♦ **RECTANGULAR**■ The general shape. Tapered means it narrows significantly towards the leg end.
CERTFIED: Not necessarily a specific standard as a stretcher but meets the more generic Medical Device Directives in the UK/EU and/or USA/Canada
WEIGHT does not include bag and other options
DESIGN LOAD & MBS: Design load is the weight of person that is intended to use the stretcher akin to Working Load Limit. This may be further defined by horizontal *and* vertical weight limits. Minimum Breaking Strength/Load - MBS (in burnt orange) is generally 10 or 15 times higher than the WLL.
DIMENSIONS Length by width with some showing a depth/height from ground. Some widths will be the sheet material opened out rather than the width of the stretcher when it is formed. Some half-size models may be wider than they are long. The stored dimensions may be the bag rather than the rolled stretcher which can be rolled tight at half the bag width.
MATERIALS. FRAME - In the case of roll-ups the main sheet material is often High/Med/Low Density Polyethylene or HDPE/MDPE/LDPE. The BASE LINER or padding may not be present in rolled-sheet stretchers or may be an option in some baskets which is further indicated in the PADDED BASE MAT column.
SUSPENSION POINTS- indicates the number and type of specific attachments for horizontal and vertical raising/lowering. This is NOT the same as the handles/hand-holds unless indicated.

USES & FEATURES:

HORIZONTAL RAISE: Can be suspended on rope/winch cable in horizontal/prone orientation. Does NOT refer to hand-carry
VERTICAL RAISE: Suspends in head-up/standing posture
HELICOPTER: Stretcher is approved for use in/from helicopters in its own country.
SKIDS/REINFORCED: The ability to slide over hard surfaces without compressing the stretcher and adversely impacting the casualty. Some have skids, others have rigid inserts
LR GROUND-CARRY: LONG RANGE Ground Carry able to be carried for long distances over mixed terrain. Allows multi-rescuer carry. Has wide, comfortable handles. Supports and protects the casualty when slid over rocks/railings etc.
WATER-CAPABLE ■=Inherently buoyant stretcher or flotation is included in the price quoted . □=Optional flotation from the same manufacturer as the stretcher
EXTREME CONFINED SPACE: Narrow enough to be used for confined spaces and in **EXTREME**ly small spaces.
BARIATRIC: Only one model is specifically designed for baritrics but confined-space rescue by definition will hopefully preclude the largest of bariatric patients. Some may fit a *very* large casualty but need to be strong enough to hoist. This is indicated by a circle ●or a bariatric option in this range but not intended for conn-space rescue is indicated by □
HEAD IMMOBILISATION: Neck and head immobilisation measures but **NOT** the full protection of a cervical collar.
SPINE IMMOBILISATION: Usually a half-board covering the spine area from head to waist as an integral component. Some have reinforcing or a rigid base that resists bending but is **NOT** considered to be definitive spinal protection unless it is a specifically certified adjunct so is indicated by a circle ● .
FACE GUARD: A universal face/head guard will fit any stretcher in this GUIDE so this refers to the manufacturer's specifically supplied head/face-guard if one is available.
WEATHER PROTECTION: waterproof and/or heat-retaining cover
ADJUSTABLE FIXED LENGTH BRIDLE: A set of straps connecting harness lift points to a central collection point. Often called a bridle for horizontal lift and a yoke for vertical lift.
Adjustable straps shown as ■or □ if it's an option.
Fixed length straps = ■ or □ if it's an option.
INTEGRAL BODY HARNESS: Enhanced strapping that restrains or wraps the foot, shoulders/chest, waist and thighs (leg-loops). Not simply transverse straps crossed over the chest. Femoral and shoulder straps are often padded in a full body harness.
EXTENSION HANDLES: are carry handles that fix to the frame but rarely used in Con-space rescue except for walk-in/walk-out.
COLOUR-CODED STRAPS: Straps are coloured in pairs to ensure correct connections especially of the body/foot harness. The integrity of semi circular roll-ups can be dependant on correct alignment of straps. Some have partial colouring with the foot and or chest straps coloured differently.
FOOT-PLATE/SUPPORT: a rigid foot plate or separate web-support strap or rope - often as a figure 8.
PADDED BASE MAT: between the casualty and the stretcher and always waterproof to allow easy cleaning of body-fluids
CARRY BAG/RUCKSACK: Protective cover, often with back-straps
COLOUR: Primary colour of shell/frame with an outline secondary colour to indicate trim colour.

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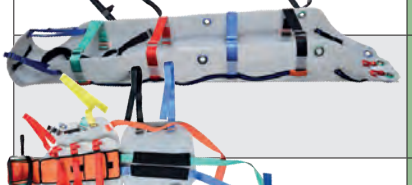
COST: Approx, INCLUDES local tax/VAT
USES/ FEATURES: ●= PARTIAL FEATURE and/or OK BUT NOT IDEAL
SHAPE: TAPERED♦ RECTANGULAR■
□□□= Option
N/A = info Not Available/not given

	MODEL	COMPANY	ORIGIN	COST inc tax / VAT	FLAT- FOLD ABLE	FLAT- ROLL-UP	HALF-SIZE ONLY	BASKET/RIGID/SPLIT	TAPERED RECTANGULAR	CERTIFIED EU/UK USA	WEIGHT	DESIGN LOAD Hrztl/Vertical MBS
	Evac-Pro+	3ET		?	-	■	-	-	■	■	14kg* 30.8kg*	400kg 880lb 600kg 1320 lb
	SLIX100 SLIX100	ABTECH SAFETY		£695*	-	■	-	-	♦	■	11kg 24.2 lb	150kg 331 lb 400kg 880lb
	SLIX 50combi SLIX50com	ABTECH SAFETY		£1342*	-	■	■	-	♦	■	10kg 22 lb	150kg 331 lb 400kg 880lb
	Rollable Stretcher RS100	ABTECH SAFETY		£634	-	■	-	-	♦	■	8kg 17.6 lb	120kg 264 lb
	Barella Speleo	ALP DESIGN		n/a	-	-	-	■	■	■	13kg 28.7 lb	150kg 331 lb
	Disaster Response Con-Space 726305	CMC PRO		$419	-	-	-	■	■	■	14kg 31 lb	408kg 900 lb
	Drag'n Lift SK225	CMC/ SKEDCO		$869* €1720*	-	■	■	-	■	■ ■	5.4kg* 12 lb*	16kN lbf
	LSP MILLER HALF-BACK	CMC/ LIFE SUPPORT PRODUCTS		$1365*	-	-	■	■	♦	■	5kg 11 lb	?
	YATES SPECPAC Yates 900/903 CMC 721903	CMC/ YATES		$1800 €2210	-	-	■	■	♦	■	7.3kg 16 lb	182 kg 400 lb
	HS Skopan	CRESTO		?	-	-	■	■	■	■	7kg 15.4 lb	22kN 4946 lbf
	MedsledVLR36 MLS36-VLR	ETHOS		£650 $700 €750	-	■	-	-	■	■ ■	6.8kg 15 lb	450kg 992 lb
	MedsledVLR28 MLS28-VLRPJ	ETHOS		£650 $700 €750	-	■	-	-	■	■ ■	4.5kg 10 lb	450kg 992 lb
	Bo	FALLSAFE		€646	-	■	-	-	■	■	5.5kg 13.2 lb	140kg 308 lb

CON-SPACE STRETCHERS/LITTERS

DIMENSIONS L x Wx H/D SPLIT/ROLLED LENGTH (longest section)	MATERIALS: FRAME BASE/LINER SUSPENSION POINTS	USES: HORIZONTAL LIFT	VERTICAL LIFT	HELICOPTER WINCH	LR GROUND-CARRY	SKIDS/SLIDE	IN-WATER-CAPABLE	CAVE CON-SPACE	BARIATRIC	HEAD IMMOBILISATION SPINE IMMOBILISATION	FACE GUARD WEATHER PROTECTION	BRIDLE ADJUSTABLE BRIDLE FIXED LENGTH	BODY HARNESS EXTENSION HANDLES	COLOUR-CODED STRAPS FOOT-PLATE/SUPPORT	PADDED BASE / MAT CARRY BAG/RUCKSACK	OTHER COLOURS	NOTES	WWW.
230x260x2cm 90.5x103x0.8" 70x35cm 28x14"	HDPE P300 plastic & PVC 2 Aluminium Poles 4 retaining eyes	■	■	-	-	-	-	■	■	- -	- ■	- □*	■	■ ■	■ ■	■	Specialist Bariatric stretcher with 10+ handles. *Wt excludes heavy-lift hoist kit weighing 14kg inc. alu poles & slings	3et.co.uk
230x91.5cm 90.5x36" 100x33cm 40x13"	LDPE 8 Grommet Eyes	■	■	?	-	●	-	■	□	□ □	● ●	- □	-	■ ■	□	□	*Spinal splint +£605 Bag and bridles +£105	abtechsafety.com
*168/105x88x6cm *66/41.4x35x2.4" 105x20cm 41.4x8"	LDPE 4 Grommet Eyes	■	■	?	-	-	-	■	-	■ ■*	● -	- □	■	■ ■	- -	□	* Length with and without leg skirt *Basic Slix-50 (£794) is minus the spinal splint insert	abtechsafety.com
240x95cm 94.5x37.4" 95x35cm 37.4x14"	LDPE 10 Grommet Eyes	■	■	■	-	●	□	■	●	- -	● ●	■ -	-	- ■	□ ■	■		abtechsafety.com
183x42x10cm 72x16.5x4"	Carbon Fibre/ Kevlar/Bakelite Nylon/Cordura 7 Web Eyes	■	■	■	■	●	-	■	●	- ■	- ■	■ ■	■	- -	■ ■	■	Rope handholds run the circumference of the stretcher	alpdesign.it
210x46x17cm 82.7x18.1x6.7"	Carbon-Steel Durethane mesh 8 Captive Rail Eyes	■	■	■	-	■	□	■	-	- ■	□ □	□ ■	-	□ -	□ -	■		cmcpro.com
?	HDPE Vinyl/foam 2 D-rings (for vertical lift)	-	■	-	-	-	-	■	-	□ □	- -	- □*	■	■ -	● ■	■ ■	*Add $€200 & 1kg/2.2 lb for vertical-lift spreader bar	cmcpro.com skedco.com
87x92cm 34x36" 87x30cm 34x12"	Aluminium 2-ply Cordura 4 metal D-Rings	-	■	-	-	-	-	■	-	■ ■	● -	□ □*	■	■ -	- □	■	*Add $263 for vertical lift straps, Carry Case = $164	cmcpro.com
?	HDPE Vinyl 4 D-rings	■	■	-	■	-	-	■	-	■ ■	● -	■ ■	■	■ -	- ■	■	Yates 903 = intrinsically safe version	cmcpro.com yatesgear.com
124.5x43x24.5cm 49x17x10"	Stainless Steel Nylon 8 Lift-capable hand-holds	■	■	-	■	-	-	■	-	■ ■	- -	- ■	●	- □*	□ □	■	*optional foot support is actually a polythylene sheet to protect legs but incidentally supports feet too.	crestogroup.com
203x92cm 100x36" 92x59cm 36x23"	HDPE 4 web slots 1 Circumferential head strap	■	■	■	-	●	□	■	●		● ●	- ■	□	- ■	□ ■	■ ■ ■		medsled.com
203x92cm 100x28" 92x51cm 28x20"	HDPE 4 web slots 1 Circumferential head strap	●	■	■	-	●	□	■	-		- ●	- ■	□	- ■	□ ■	■ ■ ■		medsled.com
120x90x15cm 47x35.4x6"	HDPE/PVC 3 Alloy D rings	-	■	-	-	-	-	■	-	■ ■	● -	□ □	■	- -	● -	■		fallsafe-online.com

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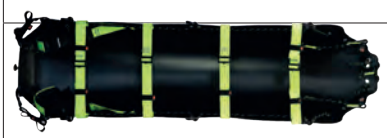
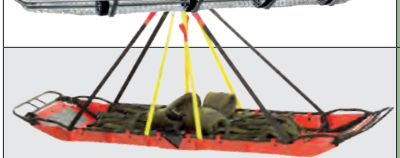
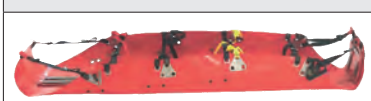
N/A = info Not Available/not given

	MODEL	COMPANY	ORIGIN	COST inc tax / VAT	FLAT- FOLD ABLE	FLAT- ROLL-UP	HALF-SIZE ONLY	BASKET/RIGID/SPLIT	TAPERED RECTANGULAR	CERTIFIED EU/UK USA	WEIGHT	DESIGN LOAD Hrztl/Vertical MBS
	**Fladdermus** FS34108	**FALLSAFE**		€412	-	■	-	-	■	■	6kg 13.2 lb	140kg 308 lb
	**Fastboard**	**F.A.S.T Rescue Solutions**		$2450	-	-	■	■	■	■	10kg 22 lbs	25kN 2549 lbf
	**Res-Q-Mate**	**FERNO**		$2800	■	-	-	■	■	■ ■	17.5kg 38.5 lb	180kg 397 lb
	**Paraguard Excel**	**FERNO**		£1950 $2500	■	-	-	■	■	■ ■	11.5kg 18 lb	136kg 300 lb
	**Lifesaver**	**FERNO**		$900	-	■	-	■	♦	■ ■	6.5kg 14.3 lb	160kg 350 lb
	**Neil Robinson**	**FERNO**		£530	-	■	-	●	♦	-	8kg 17.6 lb	136kg 300 lb
	**XT-Pro***	**FERNO**		£750 $850 €870	-	-	■	■	■	■ ■	3.4kg 7.5 lb	160kg 352.7 lb
	**POD MS02**	**HEIGHTEC**		£958	-	■	-	-	♦	■	9.5kg 21 lb	140kg 308 lb
	**Chrysalis**	**HEIGHTEC**		£1158	-	■	-	-	♦	■	8.65kg 19 lb	260kg 572 lb
	**Telson**	**HEIGHTEC**		£1536	-	-	■	■	■	■	7kg 15.4 lb	140kg 308 lb
	**JSA300-CS**	**JUNKIN SAFETY**		£430 $409	-	-	-	■	■	-	10.4kg 23 lb	681kg 1500 lb
	**UT 2000**	**KOHLBRAT & BUNZ**		£2432	■	-	-	■ ■	■	■	8kg 17.6 lb	160kg 352 lb
	**RollUP** RL1000 RL2000	**KOHLBRAT & BUNZ**		£875 £1660 $2295 €1985	-	■	-	-	♦	■	7.6 to 9.6kg 16.7 to 21.1 lb	150kg 330 lb 600kg 1320 lb

CON-SPACE STRETCHERS/LITTERS

DIMENSIONS L x W x H/D SPLIT/ROLLED LENGTH (longest section)	MATERIALS: FRAME BASE/LINER SUSPENSION POINTS	USES: HORIZONTAL LIFT	VERTICAL LIFT	HELICOPTER WINCH	LR GROUND-CARRY	SKIDS/SLIDE	IN-WATER-CAPABLE	CAVE CON-SPACE	BARIATRIC	HEAD IMMOBILISATION SPINE IMMOBILISATION	FACE GUARD WEATHER PROTECTION	BRIDLE ADJ USTABLE BRIDLE FIXED LENGTH	BODY HARNESS EXTENSION HANDLES	COLOUR-CODED STRAPS FOOT-PLATE/SUPPORT	PADDED BASE /MAT CARRY BAG/RUCKSACK	OTHER COLOURS	NOTES	WWW.
200x50x30cm 79x20x12" 92x30cm 36x12"	HDPE 8 Grommet eyes	■	■	-	-	-	-	■	-	□ □*	- ●	□ □	- -	- ■	- ■		* fits with the Fallsafe Bo immobilastion vest/ stretcher	fallsafe-online.com
115x46x12cm 45x18x4.5"	Polyethylene 5 Lift-capable hand holds	■	■	-	●	■	□	■	-	- ■	- -	- ■	■ -	■ -	- ■	■ ■ ■	Also available in white and with LED lights around inside of top rail.	fastrescuesolutions.com
185x28x10cm 73x11x4" 100x28cm 39.5x11"	Stainless Steel PVC 4 Web Eyes	■	■	■	■	-	-	■	●	- -	- ●	□	■ ■	■ ■	■ ■		Extension handles	ferno.com
182x27x7.5cm 71.6x10.6x2.9" 104x27cm 41x11"	Aluminium PVC 4 Stainless D-rings	■	■	■	-	●	-	■	●	- -	- ●	□ □	■ -	■ ■	■ ■			ferno.com
153x104/40x3cm 60x41/16x1" ?	Plastic Rib Inserts Ballistic Nylon/PVC 2 metal Rings	■	■	-	-	■	-	■	●	■ ■	- ●	□ □	● -	■ ■	□ ■			ferno.com
153x100x4cm 60x40x1.5" 150x18cm 60x7"	Bamboo Rib Inserts Treated Cotton 2 metal Rings	●	■	-	●	●	-	■	●	● ●	- -	- -	- -	- -	- ■		A classic design using traditional materials. Archaic but functional. Available in 2 lengths	ferno.com
83x30x6cm 32.7x11.8"	Carbon Fibre 4 Web eyes 1 Head strap	■	■	■	●	■	□	■	-	■ ■	- -	■ -	■ -	■ -	- ■		*XT- std version excludes hoist capability but can be upgraded inc floats	ferno.com
220x90cm 87x35.4" 90x20cm 35.4x8"	LDPE 6 Grommet Eyes	■	■	-	-	-	-	■	-	- -	● ●	■ -	■ -	- ■	- ■			heightec.com
215x79cm 85x31" 79x22cm 31x7"	Nylon/Polyester PVC 6 Handholds for lift straps	■	■	-	-	-	-	■	●	- -	● ●	- ■	■ -	- ■	- ■			heightec.com
114x38x25cm 45x15x10"	Stainless Steel Foam 10 Lift-capable hand-holds	■	■	-	-	■	-	■	-	● ●	- -	- ■	● -	- -	- -			heightec.com
204x46.7x20cm 80.5x18.4x7.75"	5/8" top rail Steel Steel Mesh 8 Captive Rail Eyes	■	■	■	■	-	□	■	-	□	□	□ □	- -	- □	□ □			junkinsafety.com
180-200*x44x12cm 71-79*x17.3x4.4" 94-104*cm/37-41"	Aluminium Plastic* All Top&Lower Rail	■	■	■	■	■	□	●	-	□ ●	□ □	□ □	■ -	- ■	□ ■	■	*Shell can be removed *Length with frame extenders. Extension handles option	kohlbrat-bunz.com lyonequipment.co.uk
248x92cm 98x36" 92x27cm 36x11"	HDPE 30 Grommet eyes	■	■	■	■	-	□	■	-	□ ●	□ □	□ ■	● -	- ■	□ ■	■	length adjustable head and foot ends. Option of Cobra, manual feed & plastic quick release buckles. Numerous handle, strap and stiffener supports	kohlbrat-bunz.com lyonequipment.co.uk

IMAGES NOT TO SCALE
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SHAPE: TAPERED ♦ RECTANGULAR ■
□□□= Option
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	MODEL	COMPANY	ORIGIN	COST inc tax / VAT	FLAT- FOLD ABLE	FLAT- ROLL-UP	HALF-SIZE ONLY	BASKET/RIGID/SPLIT	TAPERED RECTANGULAR	CERTIFIED EU/UK USA	WEIGHT	DESIGN LOAD Hrztl/Vertical MBS
	RollUP RL3000	KOHLBRAT & BUNZ		£1364 $2300 €1990	-	■	-	-	♦	■	8.7 to 10.3kg 16.7 to 21.1 lb	150kg 330 lb 600kg 1320 lb
	RollUP RL4000	KOHLBRAT & BUNZ		£1650 $2275 €1960	-	■	-	-	♦	■	7.6 to 9.6kg 16.7 to 21.1 lb	150kg 330 lb 600kg 1320 lb
	Rolly	KONG		£850 $1150 €995	-	■	-	-	■	■	7.3kg 16 lb	150kg 330 lb 1500kg 3300 lb
	Half Rolly	KONG		£795 $1075 €930	-	■	■	-	♦	■	5kg* 11 lb	150kg 330 lb 1500kg 3300 lb
	402 402TI	LSC		$1801 $2856	■	-	-	-	■	■ ■	14.5kg 32 lb 10.8kg 24 lb	272kg 598 lb

CON-SPACE STRETCHERS/LITTERS

DIMENSIONS L x Wx H/D SPLIT/ROLLED LENGTH (longest section)	MATERIALS: FRAME BASE/LINER SUSPENSION POINTS	USES: HORIZONTAL LIFT	VERTICAL LIFT	HELICOPTER WINCH	LR GROUND-CARRY	SKIDS/SLIDE	IN-WATER-CAPABLE	CAVE CON-SPACE	BARIATRIC	HEAD IMMOBILISATION SPINE IMMOBILISATION	FACE GUARD WEATHER PROTECTION	BRIDLE ADJUSTABLE BRIDLE FIXED LENGTH	BODY HARNESS EXTENSION HANDLES	COLOUR-CODED STRAPS FOOT-PLATE/SUPPORT	PADDED BASE /MAT CARRY BAG/RUCKSACK	OTHER COLOURS	NOTES	WWW.
254x92cm 100x36" 92x27cm 36x11"	HDPE 30 Grommet eyes	■	■	■	■	■	-	■	-	□ ●	● ●	□ □	●	- ■	□ ■	■ ■	enclosed head & foot. Option of Cobra, manual feed & plastic quick release buckles. Numerous handle, strap and stiffener supports	kohlbrat-bunz.com lyonequipment.co.uk
248x92cm 98x36" 92x27cm 36x11"	HDPE 30 Grommet eyes	■	■	■	■	■	-	■	-	□ ●	● ●	□ □	●	- ■	□ ■	■ ■	enclosed head & adjustable foot. Option of Cobra, manual feed & plastic quick release buckles. Numerous handle, strap and stiffener supports	kohlbrat-bunz.com lyonequipment.co.uk
245x92cm 96.5x36" 110x35cm 43x14"	Nylon 4 slots for lift slings	■	■	?	-	-	-	■	●	- -	● ●	□ ■	●	- ■	- ■	■ ■		kong.it
135x92cm 51x36" 110x30cm 43x12"	Nylon Head-end Rope	-	■	-	-	-	-	■	●	■ -	● ●	□ □	●	- ■*	- ■	■	*6.6kg inc slings and rope which can extend to support feet	kong.it
203x42x19cm 80x16.5x7.5" 107x42cm 42x16.5"	Titanium or SSteel Nylon/Cordura 4 Fixed Eyes	■	■	■	-	-	■	■	-	■ -	□ □	□ ■	■	■ ■	■ ■	■ ■	Integral foot plate	lifesavingsystems.com

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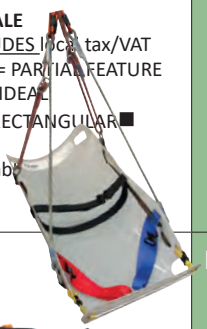
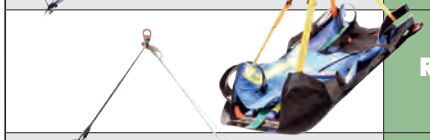
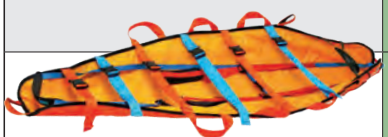
	MODEL	COMPANY	ORIGIN	COST inc tax / VAT	FLAT- FOLD ABLE	FLAT- ROLL-UP	HALF-SIZE ONLY	BASKET/RIGID/SPLIT	TAPERED RECTANGULAR	CERTIFIED EU/UK USA	WEIGHT	DESIGN LOAD Hrztl/Vertical MBS
	Restricted Access Stretcher LSYNRAS mk 3	LYON EQUIPMENT		£900	-	■	-	-	■	■	5kg 11 lb	150kg 331 lb
	Resq Cocoon	MITTELMANN		€2285	-	■	-	-	♦	■	11.5kg 25.3 lb	140kg 308 lb
	Resq Turtle	MITTELMANN		€1726	-	■	■	-	♦	■	7.5kg 16.5 lb	140kg 308 lb
	NEST	PETZL		£2174 $2870 €2050	-	-	-	■	■	■	13.1kg 28.8 lb	150kg 331 lb
	Vertical Rescue	PROMEBA PA-45		£420 €500	■	-	-	■	■	■	6.5kg 14.3 lb	150kg 331 lb
	MIBS mk2 87302	RESCUE & MEDICAL		£775	-	■	-	-	■	■	3.5kg 7.7 lb	?
	Patriot Rap 4 Tactical Rap 4	RITE RESCUE SYSTEMS		$1890	-	■	■	-	♦	■	?	?
	Alpine CR Alpine Light CR CR=Civil Rescue	SAR PRODUCTS		£1845 £2505	■	-	-	-	♦	■	13.45kg 29.7 lb 11kg 24.25 lb	300kg 661 lb
	Evac Body Splint	SAR PRODUCTS		£500	-	■	-	-	♦	■	7.2kg 15.8 lb	300/150kg 661/330 lb
	Technical Rescue*	SAVIOUR MEDICAL		£755	-	■	-	-	♦	■	5.7kg 12.5 lb	200kg 440lb
	SKED SK-200	SKEDCO		£855* $665* €1055*	-	■	-	-	♦	■ ■	5kg 11 lb	None quoted anywhere Likely WLL of 200kg/440lb
	PJ SKED SK-215	SKEDCO		$831*	-	■	-	-	♦	■	4.5kg 10 lb	None quoted anywhere Likely WLL of 200kg/440lb
	Dakota Lite ST04006	SPENCER		£370 €430	-	-	-	■	■	■	14.5kg 32 lb	290kg 639 lb

CON-SPACE STRETCHERS/LITTERS

DIMENSIONS L x W x H/D SPLIT/ROLLED LENGTH (longest section)	MATERIALS: FRAME BASE/LINER SUSPENSION POINTS	USES: HORIZONTAL LIFT	VERTICAL LIFT	HELICOPTER WINCH	LR GROUND-CARRY	SKIDS/SLIDE	IN-WATER-CAPABLE	CAVE CON-SPACE	BARIATRIC	HEAD IMMOBILISATION SPINE IMMOBILISATION	FACE GUARD WEATHER PROTECTION	BRIDLE ADJ USTABLE BRIDLE FIXED LENGTH	BODY HARNESS EXTENSION HANDLES	COLOUR-CODED STRAPS FOOT-PLATE/SUPPORT	PADDED BASE /MAT CARRY BAG/RUCKSACK	OTHER COLOURS	NOTES	WWW.
130x88x0.3cm 51x35x0.1" 88x20/<10*cm 35x8/4"	LDPE 4 Web Eyes	■	●	-	-	-	-	■	-	- -	- -	■ ■	●	■ -	- □	□	*<10cm if not using the storage bag	lyonequipment.com
220x55cm 87x22" 88x42cm 34x16.5"	HDPE Nylon/Cordura 10 Web Eyes 2 Web Eyes (head)	■	■	■	-	-	-	■	-	■ -	■ ■	□ ■	■	■ □	□ □	■	Unlike Sauerbag3, Kong Everest and other 'system' stretchers the Cocoon can be used by itself	mittelmann.com
105x65cm 42x26" 105x22cm 42x9"	HDPE 4 Web straps 1 Head strap	■	●	-	-	-	-	■	-	■ ■	● ■	■ □	■	■ □	- □	■		mittelmann.com
200x50x5cm 78.7x19.7x2"	Nylon/Aluminium Polyurethane/ethylene 2 Web Extensions 1 Head strap	■	■	-	●	●	-	■	-	■ ■	■ ■	□ □	■	- ■	■ □*	■	*Storage bag=£155	petzl.com
190x50x2cm 75x20x0.8" 85x50cm 33.5x20"	Polyester PVC 4 Web Extensions	■	■	-	-	■		■	●	■ -	- ●	- ■	■	- ■	- ■	■		promeba.com
220x76cm 87x30" 76x24cm 30x9.5"	MDPE Cordura 6 Web Extensions	■	■	-	□	-	-	■	□	■ ■	● ●	- □	-	■ ■	- □	■		rescueandmedical.com
137 or*224x81cm 54 or*88x32" 81x20cm 32x9"	Composite Polymer Nomex?/Cordura 2 Metal D-Rings 2 Web Extensions	■	■	-	-	-	-	■	●	- -	- ●	■ -	■		- ■	■ ■ ■	*with leg protector Can evacuate firefighters in breathing apparatus, versions 1 ($1650) to 4 with varying accessories	riterescuesystems.com
210x60x12cm 83x23.6x4.7" 105x60cm 41.3x23.6"	Steel / Aluminium Polyethylene bed 4 Fixed Eyes	■	■	■	■	●	-	-	●	- -	□ -	■ -	■	■ ■	- ■	■ ■ ■	Red = Alpine CR only White = Alpine CR Light only	sar-products.com
205x68cm 81x27" 75x30cm 30x12"	MDPE PVC/Nylon 6 Lift-Capable Hand-holds. 2 Head-end Web Eyes	■	■	-	-	-	-	■	-	● ●	● -	■ -	■	■ ■	■ ■	■ ■		sar-products.com
200x62.5cm 79x25" 70x30cm 28x12"	LDPE 6 Grommet Eyes	■	■	-	□	■*	□	■	-	■ □	● -	□ ■	■	■ ■	- ■	□ ■	includes wrist containment straps. *TACTICAL version with no lifting eyes-£540. *If using optional inserts	saviourmedical.com
x92cm 96x36" 92x20cm 36x8"	MDPE 10 Web slots inc 4 for lifting slings 15 grommet eyes for head rope*	■	■	-	-	-	□	■	□	- □	● ●	- ■	-	- ■	- ■	■ ■	*Add $€157 for Cobra buckles. Basic SKED-no accessories=$510/€780 *Rope fed thru round eye to create anchor eyes at head and foot	skedco.com
244x71cm 96x28" 71x20cm 28x8"	MDPE 10 Web slots inc 4 for lifting slings 15 grommet eyes for head rope*	■	■	■	-	-	□	■	□	- □	- ●	- ■	-	- ■	- ■	■	*Cost (but not the wt) includes all straps, Cobra Buckles & Bag. *Rope fed thru round eye to create anchor eyes at head and foot	skedco.com
205x48x18.1cm 81x18.9x7.1"	Carbon Steel Varnished MarinePly 8 Captive Rail Eyes	■	■	■	■	■	□	■	-	□ ●	- □	□ □	-	□ ■	□ □	□		spencer.it

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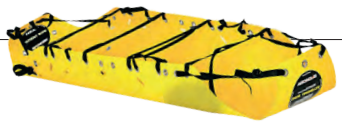	Total	SPENCER		€530	-	■	-	-	♦	■	6kg* 13.2 lb	200kg 440 lb
	STR Wind	TASK		$825	-	■	-	-	♦	-	9.2kg 20.25 lb	120kg 265 lb
	STR Plus II	TASK		$950	-	■	-	-	♦	-	11.2kg 24.6 lb	120kg 265 lb
	H-STR-II	TASK		$750	-	■	■	-	♦	-	6.7kg 14.75 lb	120kg 265 lb
	Gazelle Con-Space 0107	TRAVERSE/ FERNO		£363 $475	-	-	-	■	■	■	14kg 31 lb	408kg 900 lb
	VRS/TRS TRA19-0100	TRAVERSE/ FERNO		£1186 $982 €2125	-	■	-	-	♦	■	8kg 18 lb	250/350kg 550/771 lb
	Titan Pinnacle Con-Space 0153254	TRAVERSE/ FERNO		£1082 $750	-	-	-	■	■	■	6.5kg 14.3 lb	408kg 900 lb
	Titan Pinnacle Split Con-Space 0153255	TRAVERSE/ FERNO		£1282 $1335	-	-	-	■ ■	■	■	7.5kg 16.5 lb	408kg 900 lb
	TyrolICS	TYROMONT		€1500	-	■	■	-	♦	■	7.1kg 15.6 lb	150kg 330 lb
	Conrest SAN9100	ULTRAMEDIC/ SKYLOTEC		£1950 €1965	-	-	■	-	■	■	8/9.1*kg 17.6/20lb	150kg 331 lb
	UltraRoll SAN-9000 SAN9001	ULTRAMEDIC		£1396 €1180*	-	■	-	-	♦	■	7.3kg 16 lb	300kg 660 lb
	UltraMining	ULTRAMEDIC		€2010	-	-		■	■	■	20kg 44 lb	200kg 441 lb
	Heli RH00WA	ZERO HEIGHT SAFETY		£1715	■	-	-	-	■	-	6.2kg 13.6 lb	300kg 660 lb 5kN

CON-SPACE STRETCHERS/LITTERS

DIMENSIONS L x Wx H/D SPLIT/ROLLED LENGTH (longest section)	MATERIALS: FRAME BASE/LINER SUSPENSION POINTS	USES: HORIZONTAL LIFT	VERTICAL LIFT	HELICOPTER WINCH	LR GROUND-CARRY	SKIDS/SLIDE	IN-WATER-CAPABLE	CAVE CON-SPACE	BARIATRIC	HEAD IMMOBILISATION SPINE IMMOBILISATION	FACE GUARD WEATHER PROTECTION	BRIDLE ADJ USTABLE BRIDLE FIXED LENGTH	BODY HARNESS EXTENSION HANDLES	COLOUR-CODED STRAPS FOOT-PLATE/SUPPORT	PADDED BASE /MAT CARRY BAG/RUCKSACK	OTHER COLOURS	NOTES	WWW.
243x92x3cm 96x36.2x1.2" 95x38cm 37.4x15"	HDPE 10 Web slots inc 4 for lifting slings 18 grommet eyes for head rope*	■	■	-	-	-	-	■	□	- □	● ●	□ ■	-	- -	- ■	yellow green	*weight excludes rope and straps. *Rope fed thru round eye to create anchor eyes at head and foot	spencer.it
200x90x0.5cm 78x36x0.25" 90x25cm 35x10"	HDPE Foam pad 12 Web eyes 1 Head strap + D-ring	■	■	-	■	●	-	■	-	□ □	- ●	□ □	■	- ■	■ ■	orange	anti-constriction shoulder bar	taskbr.com
240x90x0.5cm 95x36x0.25" 90x32cm 35x12.5"	HDPE Foam pad 12 Web eyes 1 Head strap + D-ring	■	■	■	■	●	-	■	●	□ □	● ●	□ □	■	- ■	■ ■	black orange	anti-constriction shoulder bar	taskbr.com
120x82x0.5cm 47x32.5x0.25" 90x20cm 35x8"	HDPE 10 Web eyes	■	■	-	●	●	-	■	●	□ □	● ●	□ □	■	● ■	- ■	orange black	anti-constriction shoulder bar	taskbr.com
210x46.4x18cm 82.5x18.25x7"	Carbon-Steel HDPE Mesh 8 Captive Rail Eyes	■	■	■	■	■	□	■	-	- -	- -	□ □	-	- □	- □	black	ideal commercial/ training stretcher	traverserescue.ca
202x84cm 79.5x33" 84x25cm 33x10"	MDPE Cordura 3 Web eyes + 7 independently lift-rated handles	■	■	?	-	●	□	■	-	- -	● ●	□ □	■	● ■	- ■	navy green		traverserescue.ca
209.5x48.3x18cm 83.5x19x7.25"	25mm/1" top rail Titanium HDPE mesh 4 Strat-points	■	■	■	■	■	-	■		- ■	- □	□ □	-	□ -	- □	white		traverserescue.ca
209.5x49.5x19cm 83.5x19.5 x7.7" 106.7x49.5cm 42x19.5"	25mm/1" top rail Titanium HDPE mesh 4 Strat-points	■	■	■	■	■	-	■	-	- ■	- □	□ □	-	□ -	- □	white		traverserescue.ca
107x32cm 42x13"	Polytheylene/ Carbon Fibre Cordura/PVC 3 web eyes*	■	●	-	■	-	-	■	-	■ ■	● ●	□ □	■	■ -	- □	red	*Top handle is drag-only	tyromont.com
102x24x8cm 40x9.4x3"	Aluminium Polyester 5 handle/eyes	■	■	-	■	-	-	■	-	■ ■	- -	□ □	■	■ □	- -	yellow	The orange straps in this image are the chest harness not lift bridle. *Optional separate foot-support	ultramedic.de skylotec.com
254x92x30cm 100x36x12" 92x27cm 36x11"	HDPE 30 Grommet eyes	■	■	■*	■	■	-	■	-	- ■*	● ●	□ □	-	- ■	- ■	orange green	*Specific to Bell UH-1D / NH90/Sea King Mk. 41 *Military version €1380 *Shoulder, thoracic and pelvic rigid supports	ultramedic.de skylotec.com
200x55x30cm 78.7x21.6x11.8"	V2A Stainless Steel 6 Handle/Rail Eyes	■	■	■	■	●	-	■	-	- ■	□ □	□ □	-	- -	- □	white		ultramedic.de skylotec.com
195x40x10cm 90x40x15cm	Aluminium Polyester/Canvas 4 Metal D-rings on fixed straps	■	■	■	-	-	-	■	-	- -	- -	- ■	-	- -	- -	black	Zero also has close copy of the SKED which we have not included	zeroheightsafety.com