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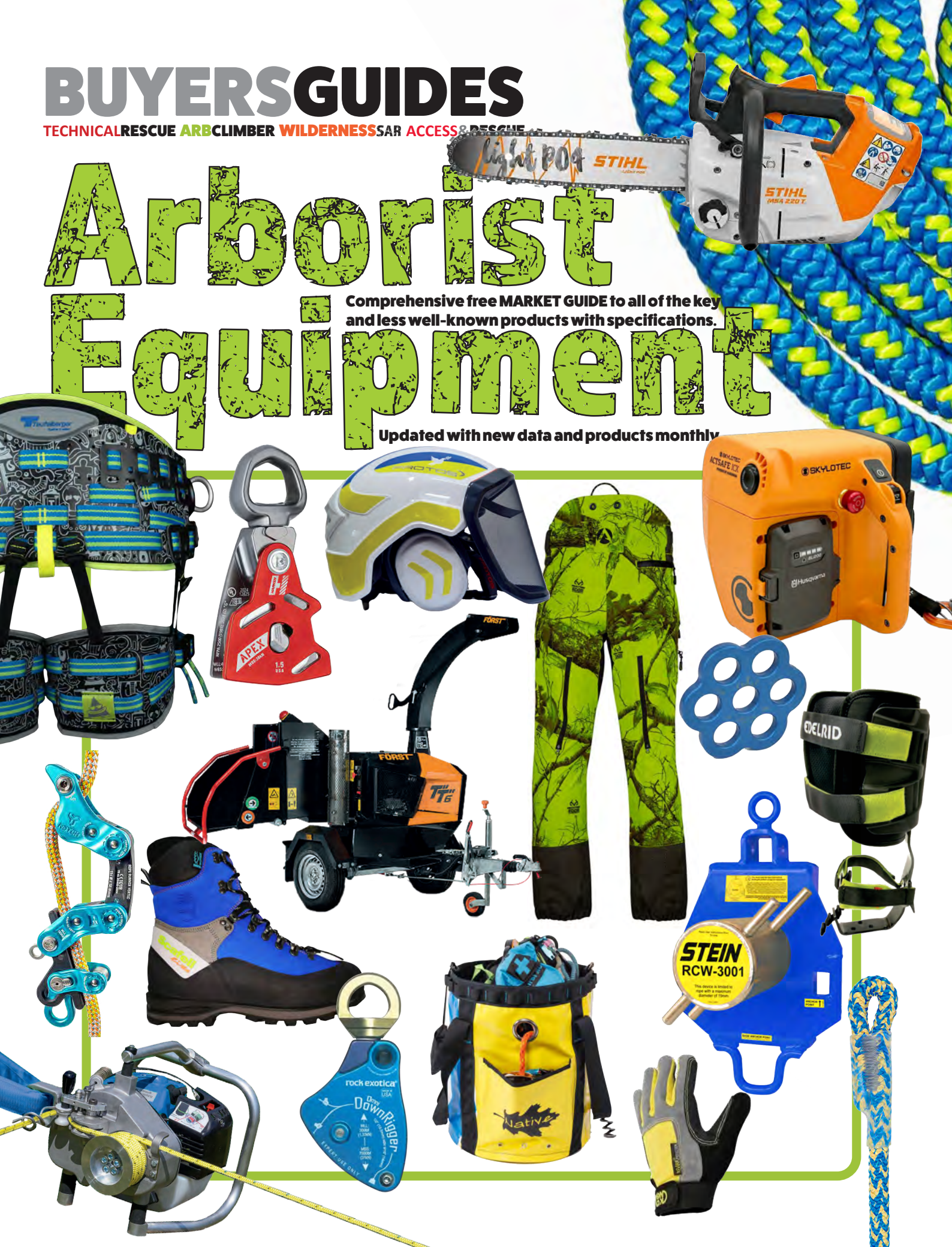

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Arborist Equipment

OTHER ROPES AND HARDWARE.....

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

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We have begun to replace some rope equipment not specifically related to arb with chainsaws, trousers, boots & chippers. Products ~~crossed out in red~~ below will, or can now, be found in the ROPE EQUIPMENT BUYERSGUIDE which contains many items of arb climbing eqipment .
(Now Compiling/Due 2026)

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

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

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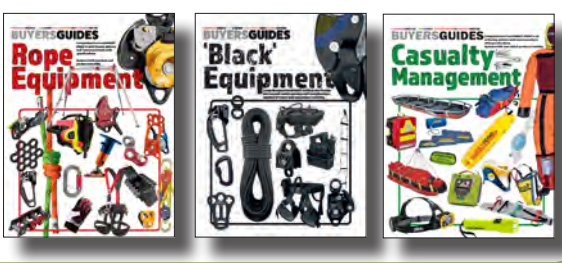

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ARBORIST EQPT
UPDATING late 2025
In 2025 we began to add PPE, Chippers and chainsaws to this **BUYERSGUIDE:**
Some rope equipment NOT specific to arb work can now be found in the ROPE EQUIPMENT **BUYERSGUIDE** eg. Progress Capture Devices, Lever Cam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

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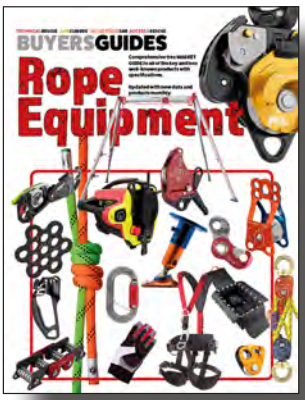

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KEY TO TABLES:

CONVERSION RATE USED Q4 '25= 1.31 US$ to the GBP£
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Across all of our BUYERS GUIDE tables, some of the data entries are quite complex in appearance and you do need to refer to the individual keys to fully understand the information in the tables. Note that in the print magazine we have tended to round down lbf (pounds force) from KiloNewtons as a straight 2.2lb:1kg conversion but these GUIDES use the actual lbf to KN conversion which is a little higher at almost 225lbf:1kN

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

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

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

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

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

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

LATEST PRODUCTS

SWIVEL PULLEY/ CARABINER	HYBRID DESCENDER	HYBRID DESCENDER	MICRO PULLEY	HYBRID DESCENDER	HYBRID DESCENDER
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LANYARD SHORTENER	**POWER ASCENDER AUTO DESCENDER**	**POWER ASCENDER AUTO DESCENDER**	**TOOL CARRIER**	**SWIVEL PULLEY**	**SWIVEL PULLEY**
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BLUEWATER ROPES							Pulleys, Ropes, Prusik Cord
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HEXAROPE							Rig plates, Lowering Bollards, Impact blocks
HUSQVARNA							Tool Hooks, Bags, Carabiners
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KONG ITALY							Impact Pulleys, Pulleys, Ascenders, PCDs, Descenders, Swivels, Rig Plates, Tool Hooks, Bags, Harnesses, Helmets, Gloves
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PMI ROPE							Ropes, Bags, Gloves
ROCK EXOTICA							Pulleys, Ascenders, PCDs, Descenders, Swivels, Rig Plates, Tool Hooks, High Directionals
SINGING ROCK							Pulleys, Ascenders, PCDs, Descenders, Swivels, Rig Plates, Tool Hooks, Ropes, Harnesses, Helmets, Bags, Gloves
SKYLOTEC inc Actsafe & Climbing Technology							Pulleys, Ascenders, PCDs, Descenders, Swivels, Rig Plates, Tool Hooks, Ropes, Bags, Harnesses, Helmets, Gloves
STIHL							Harnesses, Helmets
TEUFELBERGER							Ropes, Harnesses, Pulleys, Bags
TP CHIPPERS (Linddana)							Chippers (compiling 2025)
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HARNESS TOOL CARRIERS

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

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

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

The *Petzl CARITOOL* (above) is plastic (or more accurately, glass-reinforced plastic) and has changed just a bit from the first Guide with just the yellow all black with just the yellow anti-snag cover version rather than the original all-black. The *Evo* continues to be a sport model aimed t mountaineers but it does the same job and fixes to wider range of belt widths. *Courant's Large Honos* (above right) comes in a fetching blue, red or yellow (as does the small version) and is unusual in having a wire retaining loop on the webbing hook as well as a sliding plastic keeper on the gate that you can move down to act as a lock. The latest metal tool-holding incarnations are alloy and becoming quite complex with locking gates and screw-on belt attachment (Left). Some of the older models can still hold their own though and this *Treerunner* folding model (right) overcomes the problem of taking up space unnecessarily and unwanted hang-ups by folding flat to the harness when not in use.

Some of the plastic models have '*Not Load Bearing*' emblazoned on them. Not surprising since they're plastic but so do the latest generation of metal carriers. This warning refers to the possibility of someone hooking their fadass directly onto one and trying to hang on it. Non-living loads like your tools are absolutely fine.

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

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

Ultimately, the highest strength and toughest items are the chainsaw hooks from *Treerunner/Protekt* and Krok (russian models currently sanctioned so not listed) and the latest generation of all-alloy models like *CMI's Shembiners, DMM's Vault, Rock Exotica's Transporter* and the newest model, *Notch's Swinger* (pic above-right) which has a locking gate that opens outwards and inwards. (NB: the *Husqvarna* all metal hook was replaced by the interesting plastic-cased hook shown on the right aimed at forestry rather than arb and by a *CariHook made by Petzl*). They're undoubtedly the most robust options, it's just a question of whether the extra cost, weight and bulk on your harness is preferable to the cheap and light plastic models. Many harnesses have sewn tabs specifically to take a *Caritool* or other suitably sized carabiner and the iconic Teufelburger *TreeMotion* harnesses are basically one big *Caritool* carrier. But as we've mentioned, the big difference between a standard carabiner and the models in this guide is that they are purpose-designed tool carriers with a stabilising element that keeps them firm and correctly oriented on ANY suitably sized harness accessory webbing. Most models have an integral keeper along the spine that clips over the webbing but others like the *Singing Rock Porter* (left) , *CT Truck* and *Camp Hub* have a simple straight, often flattened, spine with an add-on rubber 'keeper' that weighs about 4g if you're counting and enables the hook to fit most harness webbing more firmly. Be aware that no tool clip will fit ALL webbing, some will fit the now standard 45mm but not the older standard 50mm/2" webbing. One model, the *Petzl Caritool Evo* (right) has, as the name suggest, evolved since our last GUIDE and now has an elastic cord to fit the widest range of webbing in our guide. All of these dedicated tool hooks are designed to firmly grasp webbing and limit rotation of the hook when clipping or unclipping gear. The original *Caritool* has plastic barbs on its web clip, the *Camp Hub* has a profiled and ribbed spine, the *Courant Honos* has a retaining clip to 'lock' the webbing into the retainer as does the *Treehog TH1035* (top right) and the new *Edelrid SML3* (right). Some of the metal carriers are actually screwed onto your harness so they ain't going anywhere, actually, two plates are screwed together onto the accessory webbing rather than actually screwing into life-support webbing but you knew what we meant. This immobility is particularly important when you're hanging on with one hand while trying to clip or unclip vital equipment including your chainsaw. The best carriers need to be unobtrusive on the harness, easy to clip and unclip but also be absolutely secure both in terms of the attachment to the harness and keeping the equipment safe when it's clipped in, no matter what mystical or vigorous manoeuvring you undertake on the rope. A lighter-duty plastic model will break more

UPDATED Jul '25

readily when overloaded so is less of a hang-up risk than the heavier-duty models which can carry a small elephant. Some models have had the keeper on the nose removed. The gate will still close to keep your carried items safe but if loaded over 110kg or 150kg respectively for the two models will bend and release you. The *CAMP Kilo* too will release at 150kg in the event of a hang-up. On the other hand, if you've just cut your rope and are about to hurtle through the canopy to certain death, you might be glad of the open hook and strength of something like a *Shembiner* or Eyolf's Hake snagging a branch on the way down.

If you look at the Petzl *Caritool* and the *Courant Honos* in the title pictures you'll notice an eye in the top left corner and at the bottom, respectively and you'll also find this or some form of captive eye on other models like the *Treehog* and the *Reecoil* hook which is more of a tool hanger. The eye is for attaching a cord or full size lanyard to your gear so that you don't immediately drop it as soon as you've taken it off the hook. In the case of the *Shembiner XL* left you have the best of all worlds because it has eyes you can tie cord into, a large eye at the bottom for clipping a chainsaw lanyard into and the hook itself with a large opening, therefore easy to drop your saw onto but it has a slight 'barb' to stop your saw falling off if you invert. The other steel chainsaw hooks are easier to clip into than to unclip, as is the case with all tool clips with a sprung gate, but that's on the valid assumption that you'll need to stow the saw faster, having made a cut, than prior to the cut when you have the time to go through the fiddlier process of unhooking. Skylotecs' *CT Hammer Lodge (*left) has a little plastic clip to hold the gate open should you prefer and the nose of the hook is nicely rounded so as not to snag anything on the way in or out.

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

IMAGES NOT TO SCALE **COSTS**: Any £$€ shown in burnt orange are currency conversions only and will not include shipping, import duty or tax. Alu Alu = aluminium or aluminium Alloy								
MANUFACTURER	BLACK DIAMOND	BUCKINGHAM	BUCKINGHAM	CAMP	CAMP	CMI	CMI	
MODEL VARIANT	Ice Clipper ---	2402G ---	BuckCarrier 2402B	Hub ---	Kilo ---	Shembiner ---	Shembiner XL ---	Shen
ORIGIN								
COST (inc VAT/Tax)	£10 $12 €11	£9 $11 €10	£45 $56 €55	£9 $13 €11	£31 $43 €36	£31 $36 €34	£42 $48 €46	£55
WEIGHT	35g 1.2oz	284g 10oz	68g 2.4oz	36g 1.3oz	52g 1.8oz	47g 1.6oz	60g 2.15oz	
MAX LOAD	5kg 11lb	11-16kg 25-35lb*	6.8kg 15lb	5kg 11lb	20kg 44lb	n/a	n/a	
GATE CLEARANCE	65mm 2.6"	23mm 0.9"	10mm 0.4"	23mm 0.9"	25mm 1"	14mm 0.55"	31mm 1.22"	
DIMENSIONS	105 x 50mm 4.1x2"	120 x 63mm 4.75 x 2.5"	114 x 45mm 4.5 x 1.75"	116 x 58mm 4.6 x 2.3"	118 x 72mm 4.6 x 2.9"	104 x 55mm 4.08 x 2.2"	127 x 76mm 5 x 3"	12 4.
FITS to WEB SIZE...	≥60mm ≥2.4"	≥50mm ≥2"	≥50mm ≥2"	≥45mm ≥1.75"	≥45mm ≥1.75"	≥50mm ≥2"	≥50mm ≥2"	≥
LOCKING STANDARD	-	-	-	-	-	-	-	
MATERIAL FRAME **GATE**	Plastic Stainless Steel	Polymer Polymer	Alu Alu	Plastic Stainless Steel	AluStainless Steel	Alu	Alu	
NOTES		*depending on whether the gate is closed	Comes with spacers. Can be secured with zip-tie	Rubber web keeper	Releases at 150kg in event of hang up. fixes with bolts			Web at prev
WEBSITE	blackdiamondequipment.com	buckinghammfg.com	buckinghammfg.com	camp.it	camp.it	cmigearusa.com	cmigearusa.com	cmig

HARNESS TOOL CARRIERS

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

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

IN THE FOLLOWING TABLES:

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

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

MATERIALS: Some manufacturers use the word 'nylon' instead of 'Plastic'. While they are outwardly the same, nylon is a specifically produced DuPont product.

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

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

FITS to WEB SIZE: those that simply slot over the top are not as limited as those like the *Vault* or *Camp's Kilo* that have a definite containment area. Rubber keepers are also more forgiving of webbing width but on the whole , most are designed for 45mm/1.75" or 50mm/2".

LOCKING: mean that the carrier can be looked once you've loaded something in so that, no matter what, it ain't going anywhere. Some might also lock it when not in use as an anti-snag precaution. STANDARD: generally none except where the hook is a modified carabiner but ANSI/ISEA 121-2018 – Dropped Object Prevention Solutions will become common.

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

IMAGES NOT TO SCALE
COSTS: Any £$€ shown in burnt orange are currency conversions only and will not include shipping, import duty or tax.
Alu Alu = aluminium or aluminium Alloy

MANUFACTURER	EYOLF	GRIVEL	HONEYWELL	HONEYWELL	HUSQVARNA	HUSQVARNA	ISC	
MODEL VARIANT	Hake	Carryabiner	Chainsaw hook	Ch'saw hook Lg	Carry Hook	Chainsaw Hook	Nessie TC100	
ORIGIN								
COST (inc VAT/Tax)	£15 $18 €16	£13 $19 €15	£51 $50 €49	£40 $50 €46	£15 $18 €16	£12 $17 €15	£24 $30 €28	£2
WEIGHT	56g 2oz	63g 2.2oz	260g 9.2oz	190g 6.7oz	25g 0.9oz	65g 2.3oz	52g 1.8oz	
MAX LOAD	n/a	100kg* 220lb	20kg 44lb	20kg 44lb	5kg 11lb	n/a	10kg 22lb	
GATE CLEARANCE	33mm 1.3"	27mm 1.75"	50mm 2"	54mm 2.1"	20mm 0.8"	60mm 2.4"	13mm ½"	
DIMENSIONS	110 x 43mm 4.3 x 1.7"	120 x 75mm 4.7 x 3"	160 x 67mm 6.3 x 2.6"	192 x 110mm 7.5 x 4.3"	114 x 54mm 4.5 x 2.13"	150 x 80mm 6 x 3"	?	17 6
FITS to WEB SIZE...	≤80mm ≤3.15"	≤45mm ≤1.75"	45mm 1.75"	Any	≤45mm ≤1.75"	≤80mm ≤3.15"	≤50mm ≤2"	
LOCKING STANDARD	-	- CE, UIAA	-	-	-	-	-	
MATERIAL FRAME GATE	Alu	Hot-forged alu Stainless Steel	Alu Alu	Alu Alu	Glass Fibre Plastic Stainless Steel	Plastic Stainless Steel	Polymer	
NOTES	lanyard/accessory hook holes=7mm	a fully rated carabiner modified as a tool carrier. *Max Load=10% of Gate-Open strength		slides into web loop via hook-nose first		Intended for forestry rather than arb. Also loop-hook version	For LANYARDS Also Blue, Green or Lime colours	Atta loo
WEBSITE	eyolf.ca	grivel.com	sps.honeywell.com	sps.honeywell.com	husqvarna.com	husqvarna.com	iscwales.com	

IMAGES NOT TO SCALE
COSTS: Any £$€ shown in burnt orange are currency conversions only and will not include shipping, import duty or tax.
Alu Alu = aluminium or aluminium Alloy

MANUFACTURER	PROTEKT	PROTEKT	REECOIL	ROCK EMPIRE	ROCK EXOTICA	ROCK EXOTICA	SINGING ROCK	SIN
MODEL VARIANT	TU300	AY100	Drill-Grab	Helper	Transporter	TransporterXL	Porter	P
ORIGIN								
COST (inc VAT/Tax)	£5 $7 €8	£5 $8 €6	£11 $13 €12	£6 $8 €7	£85 $81 €100	£94 $90 €110	£7 $12 €8	£1
WEIGHT	80g 2.8oz	31g 1oz	40g 1.4oz	28g 1oz	95g 3.4oz	142g 5oz	32g 1.13oz	
MAX LOAD	50kg 110lb	25kg 55lb	Hook 5kg 11lb Eye*3.5kg 7.7lb	5kg 1.1lb	23kg 50 lb	23kg 50 lb	5kg 11lb	
GATE CLEARANCE	27mm 1"	23mm 0.9"	45mm 1.75"	18mm 0.7"	32mm 1.25"	48mm 1.9"	23mm 0.9"	
DIMENSIONS	112 x 50mm 4.4 x 2"	110 x 50mm 4.3 x 2"	90 x 74mm 3.5 x 2.9"	115 x 54mm 4.5 x 2.1"	142 x 80mm 5.6 x 3.15"	145 x 86mm 5.7 x 3.4"	112 x 53mm 4.4 x 2.1"	14 5
FITS to WEB SIZE...	T=35mm 1.4" wide	≤60mm ≤2.4"	≤45mm ≤1.75"	≤45mm ≤1.75"	≤50mm ≤2"	145mm 5.7"	≤75mm 3"	
LOCKING STANDARD	- -	- -	- -	- -	■	■	- -	
MATERIAL FRAME GATE	Steel	Plastic Stainless Steel	Plastic	Plastic Stainless Steel	Alu Alu	Alu Alu	Plastic Stainless Steel	Stai
NOTES	Top T-section retains hook within loop		* Lanyard eye for chainsaw or tool being used			180kg MBS	rubber web keeper	Intro
WEBSITE	protekt.com	protekt.com	reecoil.com	rockempire.com	rockexotica.com	rockexotica.com	singingrock.com	sing

HARNESS TOOL CARRIERS

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

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

UPDATED Aug '25

MULTI-POINT ANCHOR/ RIGGING PLATES

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

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

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

KNOTLESS RIGGING & RINGS

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

Images in this introduction NOT to scale

www.arbclimber.com

HexaRope's Hexa Ring and *HandsUp* (right) at the end of this Guide. These are basically knot replacements to save you time and give the rope a smoother surface for tightening rather than rigging organisers. There are aslo rigging organisers incorporated into carabiners like this *Grivel Vlad, and* into pulleys like *Rock Exotica*'s huge *Kootenay Carriage* knot-passing pulley and their more diminutive *Hydra* right. Find these in the PULLEYS guide. Finally, we haven't included the so-called splicing plates (*MSA* pic left) but they could certainly be used as organiser plates despite their in-line characteristics which limits your options somewhat.

PLATE DESIGN

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

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

LOADING

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

One thing that is often overlooked is that the quoted Minimum Breaking Strength of, for instance 45kN, refers to any ONE eye acting as the main collection eye and it may ONLY refer to the main collection eye. So it doesn't mean that you can load ALL of the eyes to 45kN at the same time because clearly one or more eyes needs to be connected to an anchor and would be overwhelmed once it's own capacity of 45kN

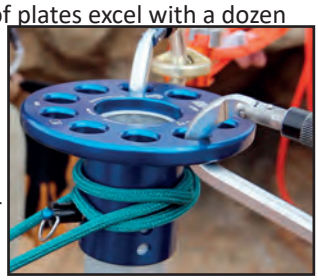
is exceeded. You must treat that MBS figure as the maximum total load that can be **TRANSMITTED** through the plate **via the main collection eye** - therefore, in the 45kN example, if you had 6 eyes evenly connecting to ONE central collection eye, each of those eyes should only be loaded to 750 kg/1650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

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

APPLICATIONS

1) MAIN ANCHOR

Enables connection of all the various ropes and safeties and haul systems etc. into their own positions on the same collection point which can then be attached to one or several anchors. This is where the largest of plates excel with a dozen or more eyes to utilise. The bigger plates have large indents to help reduce weight but some, like the now discontinued *Rock Exotica Se7en*, pushed these indents all the way through to create irregular holes that look as though they can be pushed into action using either webbing or very large carabiners. However, be careful that such 'holes' are actually designed to take load. If they're surrounded



ROCK EXOTICA

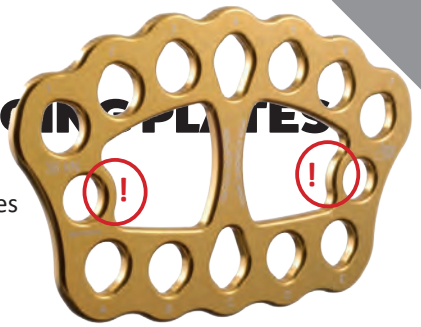
Rock Thompson and his band of metal wizards deserve special mention because, along with *DMM* they have come up with rigging ideas that are well outside of the conventional box. These aren't necessarily the most applicable to arb but it's actually arb work and to some extent rope access that is pushing the technical boundaries of rigging rather than rescue. So there are four 'plates' worthy of separate mention although the term 'plate', implying something rather flat, can only be applied to the Bolt. We were quite excited by the prospect of the **Bolt** with a removable stainless anchor pin (or bolt) meaning that you could load hardware like pulleys and cams directly without the need for a carabiner. However, having got our mitts on one we quickly realised that this was only a bonus once you have a set-up that you're never going to change while in use because you obviously can't remove any of the hardware that's placed directly on that pin/bolt once loaded. In the case of pulleys you also can't add in rope unless you laboriously thread it from one end. So it does require a degree of pre-planning but if you get that right first time the Bolt does indeed save on carabiners, working space and can improve orientation of your hardware. This has, however spawned the new SMC Origin TT (pic title page) designed for twin tensioned rope (a rescue thing) which has a two-part bolt allowing at least one of the two sets of connections to be removed/added during work though you would need to be mindful of load balance.

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

simultaneously. It is again, all about pre-planning and systematic loading rather than winging it, so the UFO wasn't really a 'rig-&-forget' tool. However, smart cookies that they are, R.E. introduced the Rockstar in 2013 to take over from the UFO and it has fewer 'walls' to impede the carabiner hang so there's less potential for torquing of the carabiners.

The largest offering in our list is the beautifully crafted **AZORP** and we don't just say that because it was designed by our US Rope Editor Reed Thorne. In Rock's hands Reed's original napkin design is again a work of art. It consists of two separate plates that pin together to form a giant cotton reel or rope drum-looking device. I'm not sure that it was part of Reed's original thinking (because this was intended as an accessory for a tripod head or monopod system) but 3D aficionados will already have spotted the potential for passing a rope though the spindle intended for metal pole and having your own rope-festival going on. As a set of wheels, it will sit nicely on the ground still allowing access to most of the upper holes . At the very least if you stand it back on end, the bottom plate acts as a foot keeping the top plate off the floor so that your carabiners load nicely in free space rather than jammed against the ground. Finally, you can separate the two halves and have two entirely functional plates albeit with a round lump hanging out the middle of each. Having discussed this with Reed, he's quite keen to see you incorporating a short extension pole so that you can experiment with jamming between two trees with the AZORP rigged in the middle. If your rigging looks like the set-up below you're probably trying to do too much in one go! AZORP is available in the US & Canada through CMC RESCUE and worldwide via Rock Exotica stockists. Check out TECHNICAL RESCUE 71 for several pages of ideas using the AZORP.

ANCHORS/RIGGING PLATES



by a thickness of material equal to or greater than the regular eyes then you're probably OK.

2) BRIDGE STRAP ORGANISER

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

3) MAIN HARNESS CONNECTION (PICK-OFF RIG)

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

4) HIGHLINE/ZIPLINE 'TROLLEY' ORGANISER.

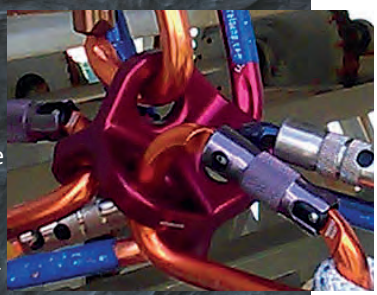
A plate makes a great trolley attachment for connecting pulleys to the main rope and pulleys, control lines to either side and your own array of connections beneath. *ISC*'s photo in the titles shows what we mean by 'trolley organiser'. Of course some pulleys, notably the *Kootenay Carriage* and *DMM*'s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

5) HAUL SYSTEMS

A plate can give you better alignment of your prusik (if you are using it for progress capture) bypassing the top pulley and onto the rope. Quite often you see the prusik bent around the pulley block in an effort to connect back into the main supporting carabiner. Your belay and redirect pulley(s) can also be better separated and provide more direct alignment with the load. Use swivels or swivel-integrated pulleys to ensure the carabiners or pulley eye aren't subjected to inappropriate torque loading during the haul.

3-D RIGGING

Nothing to be afraid of here, 3-D rigging is simply the means to rig or deviate at 90 degrees to your anchor point(s) at the same time as your other ropes or connections continue in the usual directions away from the anchor. *DMM* and those cunning *Treemagineers* who, incidentally, are far too clever for their own good, started the 3D rigging 'trend' with the awesome *Hubs*. These were originally confusingly sized as a medium and large implying that there should be a small - maybe they always intended to create a smaller one but ran out of T7075 alloy because these are almost as bulky as those old steel bearing plates mentioned earlier.
2- dimensional rigging allows you to connect to an anchor at one end and then distribute out at the other end. You might change the angle that the connection comes into the plate but the loading is ultimately 2- dimensional, transmitted from front to back through the flat or flattish plate. You can rig 3-dimensionally through most standard plates but the contact edges are thin and loadings are outside of the norm which is why many of the plates listed in our tables don't have the '3-D' column ticked. What the **Hub** did was to provide the fattest, most smoothly rounded holes on the planet, in particular the central hole, to allow direct connection of a rope and webbing. In this case it allows the rope to pass straight through, in effect you thread the *Hub* onto the rope which can then allow you to position the side loaded eyes wherever needed or redirect the ropes running through it as in the picture on the right. CNC milling and/or hot-forging of the eyes gives them this large, smooth radius and allows direct use of rope and webbing without the need for carabiners. Some 2-D plates are better suited to 3-D rigging than others for instance the *ISC Halo*, *SMC Vortex* and the *Grivel 9* which is concave or convex depending on which side you view it from. 3-D rigging as originally envisaged by *Treemagineers*, usually takes the form of the hub running along a rope and then rigging lines radiating out laterally to that. The centre eye has an enlarged lip for really smooth and high-strength rope-running and the external eyes can take carabiners or direct web connection. *Rock Exotica*'s own take on things was an actual three-dimensional lump of rigging plate - the *UFO* and *Rockstar* (right) . These require carabiners connection but again enable your ropes and webbing to fly off in all directions, 360 degrees and maintain an acceptable loading on all components (aside from the risk of torquing discussed previously) see pic below. Talking of torque , Canadian company *Eyolf* has the *SnoFlake L* and *Kong* have the *DiscoHub* as large, round multi-holed flat plates that could exhibit a torque problem on all but the outer eyes. Specialist 3D anchors like the *Hub* and *Rockstar* and *CMI*'s *Neptune*, can obviously still be used as a regular 2-dimensional rig-point but this is much easier with the flat *Hub* than it is with the *Rockstar* where you need to monitor the carabiner contact points. The French *HexaRing* (top-right) is more of a rope protector and is intended to provide a heavy-duty smooth surface for dropping heavy wood sections (anchor/whoopie on the outside, lowering rope thru the middle). Despite the high MBS, is NOT for human loads and, like the Notch Bone and Hands-UP is more of a knot replacement than a true organiser.



STANDARDS

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

CONCLUSIONS

Back to operational stuff and don't assume that any old rigging plate will suit your task - the chances are you'll have a set rig that seldom changes and you should be able to predetermine the number of top and bottom eyes you will need to negate torquing or 'unbalancing' the plate. A bit of see-sawing due to load coming on and off of various components is expected and fine but if torquing remains a problem (twisting under load) then simply add a swivel, there are now several excellent designs available. Also think about using load release straps like a *Mariners Hitch* for critical tensioned elements that might need to be slackened off independently of other components on your plate. Don't be afraid to invert the plate if it suits your purposes to improve directional loading. Nobody mandates that the concave face or the small eyes have to point towards the load or vice-versa – use whatever orientation best fits your system.

In the following tables, £$€ Prices shown in orange are a currency conversion guide only. They do not take into account shipping and import duty etc. that will increase the price**.**
The **Smallest Dimension of the Largest Eye** refers to the largest round bar section that can fit because many of these are an odd shape or tapered.

RISK.

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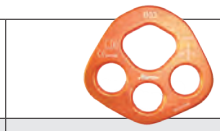
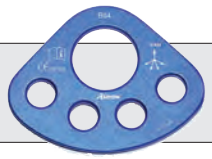
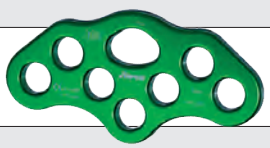
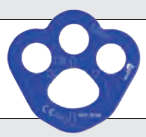
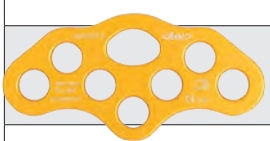
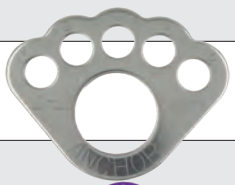
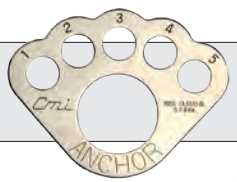
MBS/MBL Min Break Load approx 10x WLL Working Load Limit
LARGE EYES= largest round /shaped hole - NB: may be cosmetic!
ALU = Aluminium Alloy. ~ = Approximate
● =OK but not ideal

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

ANCHOR/RIGGING PLATES

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

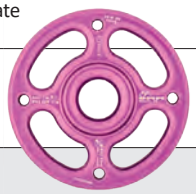
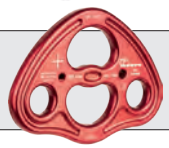
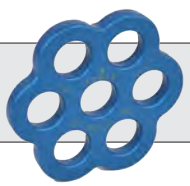
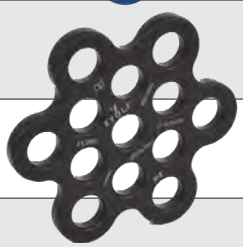
images approximately to scale
£$€=Currency conversion only - no tax/shipping etc.
MBS/MBL Min Break Load approx 10x WLL Working Load Limit
LARGE EYES= largest round /shaped hole - NB: may be cosmetic!
ALU = Aluminium Alloy. ~ = Approximate
● =OK but not ideal

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

ANCHOR/RIGGING PLATES

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

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

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

ANCHOR/RIGGING PLATES

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

images approximately to scale
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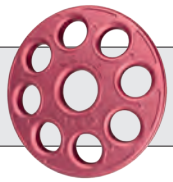
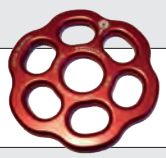
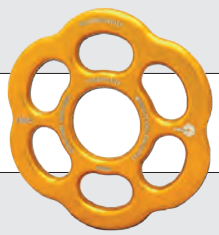
MBS/MBL Min Break Load approx 10x WLL Working Load Limit
LARGE EYES= largest round /shaped hole - NB: may be cosmetic!
ALU = Aluminium Alloy. ~ = Approximate
● =OK but not ideal

	MODEL	COMPANY	ORIGIN	COST	WEIGHT	MATERIAL	PLA DEP
	Tris	GRIVEL		£12 $14 €13	39g 1.4oz	Alu	10m 0.3
	Four	GRIVEL		£14 $17 €16	55g 1.9oz	Alu	10m 0.3
	Nine	GRIVEL		£19 $23 €22	149g 5.3oz	Alu	10m 0.3
	Vlad	GRIVEL		£33 $40 €35	90g 3.2oz	Alu	-
	Shuttle	GRIVEL		£19 $18 €17	86g 3oz	Alu	10m 0.3
	Origin TT	HARKEN		£270 $250 €320	521g 18.4oz	Alu & Stainless Steel	12.7 0.5
	Small Rigging Plate RP300	ISC		£20 $30 €22	93g 3.3oz	Alu	9.8 0.3
	Med Rigging Plate RP310	ISC		£29 $45 €37	202g 7oz	Alu	9.5 0.3
	Large Rigging Plate RP320	ISC		£78 $103 €93	422g 14.8oz	Alu	10m 0.3
	Small Halo RP302	ISC		£41 $54 €49	118g 4.1oz	Alu	7.8 0.3
	Med Halo RP303	ISC		£50 $70 €80	221g 7.8oz	Alu	9.8 0.3
	Large Halo RP304	ISC		£79 $106 €94	337g 11.9oz	Alu	12.8 0.5
	3-Rig	KONG		£23 $28 €26	95g 0oz	Alu	10m .39
	4-Rig	KONG		£27 $34 €32	150g 0oz	Alu	10m 0.3

ANCHOR/RIGGING PLATES

TE TH	DIMENSIONS	STANDARDS	MBS approx 10x WWL	MIN HOLE DIAM	SMALLEST DIMENSION of LARGEST EYE	HOLES LARGE EYE(S)	3D	OTHER COLOURS	NOTES	WWW.
										expansion row
nm 9"	60 x 60mm 2.4 x 2.4"	CE	29kN 6519 lbf	19mm 0.75"	19mm 0.75"	3	●	-		grivel.com
nm 9"	79 x 59mm 3.1 x 2.3"	CE	30kN 6744 lbf	19mm 0.75"	19mm 0.75"	4	●	-	Concave profile, Individually marked.	grivel.com
nm 9"	104mm 4.1"	CE	30kN 6744 lbf	19mm 0.75"	25mm 1"	8 +1	●	-	Concave profile, Individually marked	grivel.com
	120 x 82mm 4.7 x 3.2	CE	12*-30kN 6744lbf	22mm 0.9"	22mm** 0.9"	3 +1	-	-	*Minor axis - loading across the gate. Double gate with 15mm opening. **round bar capacity	grivel.com
nm 9"	125 x 87mm 4.9 x 3.4"	CE UIAA	20kN 4496 lbf	19mm 0.75"	13mm 0.5"	3 +1 +2*	●	-	Also Belay/descender. Concave profile. 2 Rope slots for 7.3-13mm rope.Similar to Kong Full. Large eye 51mm long. Individually marked.	grivel.com
mm 5"	190x114mm 7.5 x 4.5"	CE NFPA G UKCA	45kN 10116lbf	n/a	n/a	4 +3	-	-	See also SMC/Harken	harken.com
mm 8"	91 x 84mm 3.5 x 3.3"	CE NFPA-G	36kN 8093 lbf	20mm 0.75"	36mm 1.4"	3 +1	-	-	Individually marked.	iscwales.com
mm 7"	166 x 108mm 6.5 x 4.25"	CE NFPA G	40kN 8993 lbf	20mm 0.75"	38mm 1.5"	7 +1	-	-	Individually marked.	iscwales.com
nm 9"	249 x 150mm 9.8 x 5.9"	CE NFPA G	45kN 10116 lbf	20mm 0.75"	66mm 2.6"	13 +1	-	-	Individually marked.	iscwales.com
mm 1"	115mm 4.5"	CE NFPA G	40kN 8992 lbf	20mm 0.75"	29mm 1.14"	6 +1	■	-	Individually marked. Outer eyes are 27mm/1" wide	iscwales.com
mm 8"	144mm 5.72"	CE NFPA G	50kN 11240 lbf	25mm 1"	39mm 1.5"	6 +1	■	-	Individually marked. Outer eyes are 36mm/1.4" wide	iscwales.com
mm 5"	165mm 6.5"	CE NFPA G	70kN 15736 lbf	28mm 1.1"	52mm 2"	6 +1	■	-	Individually marked. Outer eyes are 39mm/1.5" wide	iscwales.com
nm 9"	96 x 76mm "	CE	36kN 8093 lbf	20mm 0.75"	24mm 0.95"	3 +1	●	-	Stronger version-replaced the Tris	kong.it
nm 9"	125.5 x 90mm "	CE	36kN 8093 lbf	20mm 0.75"	32mm 1.25"	4 +1	●	-	Stronger version-replaced the Poker	kong.it
										expansion row
										expansion row

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MBS/MBL Min Break Load approx 10x WLL Working Load Limit
LARGE EYES= largest round /shaped hole - NB: may be cosmetic!
ALU = Aluminium Alloy. ~ = Approximate
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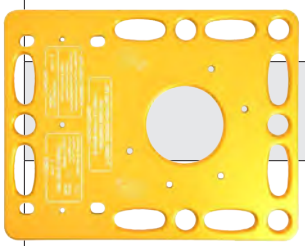
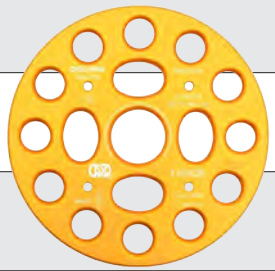
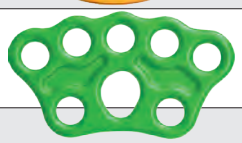
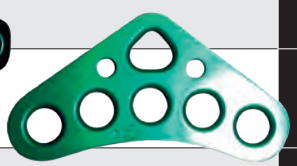
	MODEL	COMPANY	ORIGIN	COST	WEIGHT	MATERIAL	PLA DEP
	Full	KONG		£34 $42 €39	90g 3.2oz	Alu	10m 0.3
	Rally	KONG		£38 $40 €36	180g 6.3oz	Alu	10m 0.3
	Rally Bent	KONG		£24 $36 €30	180g 6.3oz	Alu	10m 0.3
	BigRig	KONG		£243 $302 €280	1.5kg 3.3lb	Alu	10m 0.3
	DiscoRig	KONG		£68 $86 €74	390g 13.75oz	Alu	10m 0.3
	3 Hole FA6003605	KRATOS SAFETY		£28 $35 €32	53g 1.9oz	Alu	6m 0.2
	5-Hole FA6003605	KRATOS SAFETY		£34 $42 €40	210g 7.4oz	Alu	7m 0.2
	Stretcher	MSA		£92 $120 €107	330g 11.6oz	Alu	8.6 0.3
	Stealth	MSA		£69 $90 €81	250g 8.7oz	Alu	8m 0.3
	Hec	ONBOARD SYSTEMS		n/a	1.75lb 0.8kg	Stainless Steel	n/

ANCHOR/RIGGING PLATES

TE TH	DIMENSIONS	STANDARDS	MBS approx 10x WWL	MIN HOLE DIAM	SMALLEST DIMENSION of LARGEST EYE	HOLES LARGE EYE(S)	3D	OTHER COLOURS	NOTES	WWW.
nm 9"	125 x 90mm 4.9 3.5"	CE	30kN 6744 lbf	20mm 0.75"	20mm 0.75"	3 +1 +2*	■	■	Also a fully capable belay plate/ descender *Slots for single or double ropes 8-12mm Large eye 30m wide	kong.it
nm 9"	160 x 56mm	CE	36kN 8093 lbf	20mm 0.75"	20mm 0.75"	10	-	-		kong.it
nm 9"	139.5 x 56mm	CE	36kN 8093 lbf	20mm 0.75"	20mm 0.75"	10	-	-		kong.it
nm 9"	295 x	CE	36kN 8093 lbf	20mm 0.75"	50mm 2"	5 8xoval +1 +8bolt	■	-	Intended as an adjunct to Kong's tripod winch but will function anywhere as a rig plate and will fit 50mm scaffold tube	kong.it
nm 9"	187mm	CE	36kN 8093 lbf	20mm 0.75"	38mm 1.5"	12 +5	■	-		kong.it
m 5"	103 x 83mm 4 x 3.25"	CE NFPA	36kN 8093 lbf	19mm 0.75"	25mm 1"	3 +1	-	-		kratossafety.com
m 8"	149 x 98mm 5.9 x 3.8"	CE NFPA	45kN 10116 lbs	19mm 0.75"	27mm 1.1"	7 +1	-	-		kratossafety.com
mm 4 "	254 x 95mm 10 x 3.75"	NFPA G	54kN 12200lbs	25mm 1"	25mm 1"	10 +2*	-	-	* 2 accessory eyes	msanet.com
m 2"	184 x 89mm 7.25 x 3.5"	NFPA G	48kN 11000lbs	22mm 0.8"	24mm 0.93"	4 +1 +2*	-	-	* 2 accessory eyes	msanet.com
a	n.a	FAA	3.56kN 800lbf	n/a	n/a	6 +2	-	-	specialist item for military and civil aircraft industries (FAA)	onboardsystems.com
										expansion row
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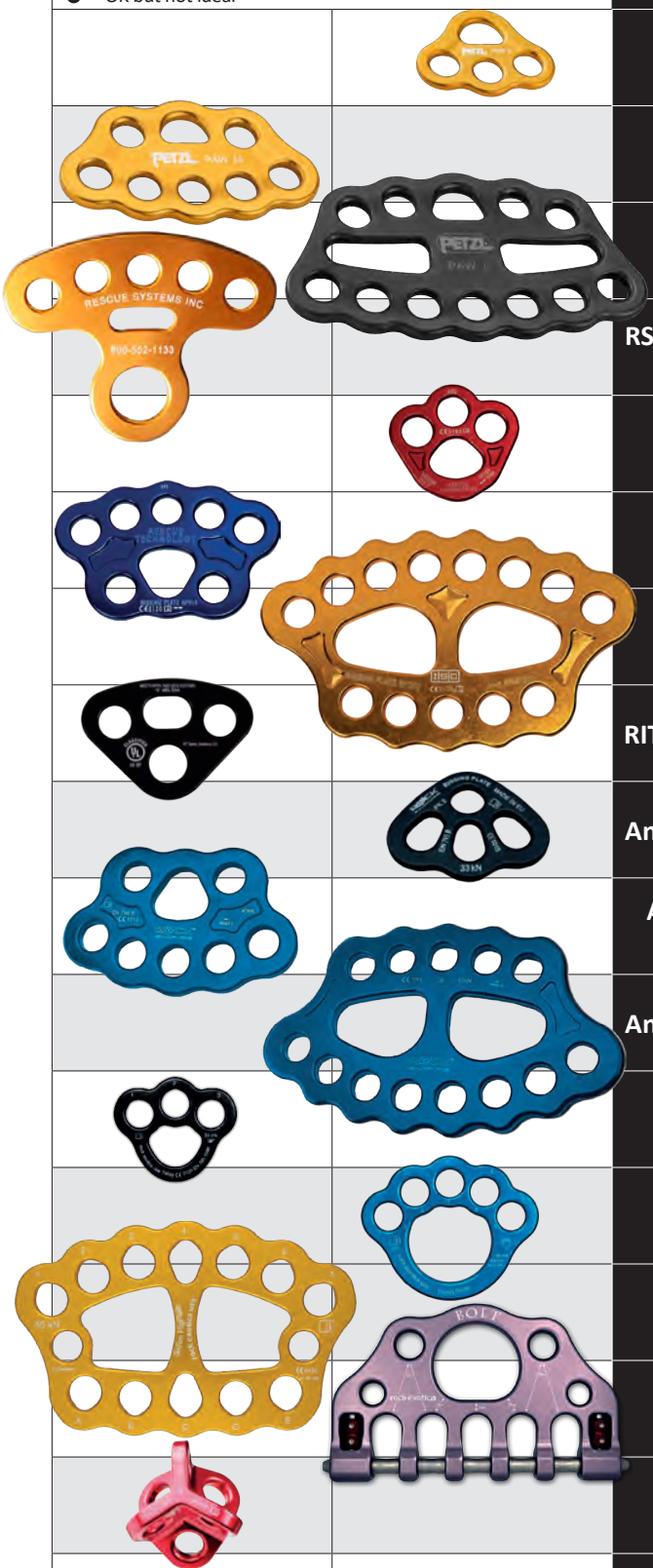

MODEL	COMPANY	ORIGIN	COST	WEIGHT	MATERIAL	PLA DEP
Paw S	PETZL		£26 $32 €29	60g 2.1oz	Alu	6m 0.2
Paw M	PETZL		£46 $55 €54	210g 7.4oz	Alu	6m 0.2
Paw L	PETZL		£72 $83 €83	350g 12.3oz	Alu	10m .39
RSI Anchor Plate 603210	RESCUE SYSTEMS inc		£55 $71 €68	211g 8oz	Alu	10m .39
Micro	RESCUE TECHNOLOGY		£26 $33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

ANCHOR/RIGGING PLATES

ATE PTH	DIMENSIONS	STANDARDS	MBS approx 10x WWL	MIN HOLE DIAM	SMALLEST DIMENSION of LARGEST EYE	HOLES LARGE EYE(S)	3D	OTHER COLOURS	NOTES	WWW.
m 4"	96 x 75mm 3.8 x 2.95"	CE, NFPA G UKCA	36kN 8093lbf	19mm 0.75"	24mm 0.93"	3 +1	-	■	Previous version also in red	petzl.com
m 4"	160 x 90mm 6.3 x 3.5"	CE, NFPA G UKCA	36kN 8093 lbf	19mm 0.75"	35mm 1.4"	7 +1	-	■	Individually marked. Large eye 40mm wide Previous version also in blue	petzl.com
nm 9"	221 x 120mm 8.7 x 4.7"	NFPA G	36kN 8093 lbf	19mm 0.75"	35mm 1.4"	12 +2	-	■	Individually marked. Voids not to be used	petzl.com
nm 9"	178 x 137mm 7 x 5.4"	CE, NFPA G UKCA	48kN 11000 lbf	20mm 0.75"	36mm 1.4"	5 +1*	-	■	*+1 central slot - can be used as brake-plate for 1/2" rope	petzl.com
mm 8"	91 x 84mm 3.5 x 3.3"	CE NFPA-G	36kN 8093 lbf	20mm 0.75"	36mm 1.4"	3 +1	-	-	Individually marked.	rescuetech1.com
mm 7"	166 x 108mm 6.5 x 4.25"	CE NFPA G	40kN 8993 lbf	20mm 0.75"	38mm 1.5"	7 +1	-	-	Individually marked.	rescuetech1.com
nm 9"	249 x 150mm 9.8 x 5.9"	CE NFPA G	45kN 10116 lbf	20mm 0.75"	66mm 2.6"	13 +2	-	-	Individually marked. Large central eyes not intended for load	rescuetech1.com
m 2"	121 x 83mm 4.75 x 3.25"	NFPA G	55kN 12365 lbf	22mm 0.8"	25mm 1"	3 +1	-	-	Apex eye is slightly larger at just over 25mm. Large eye is 35mm wide	ritsafetysolutions.com
m 4"	80 x 65mm 3.2 x 2.6"	CE	33kN 7419 lbf	20mm 0.75"	22mm 0.9"	1 +3	-	-	Individually marked.	rockempire.cz
nm 9"	159 x 100mm 6.25 x 3.9"	CE	40kN 8993 lbf	20mm 0.75"	38mm 1.5"	7 +1	-	-	Individually marked.	rockempire.cz
nm 9"	248 x 149mm 9.8 x 5.9"	CE	50kN 11240lbf	20mm 0.75"	66mm 2.6"	13 +2	-	-	Individually marked. Large central eyes not intended for load	rockempire.cz
mm 5"	84 x 72mm 3.3 x 2.8"	CE	33kN 7419lbf	19mm 0.75"	25.4mm 1"	3 +1	-	-	All Rock Exotica plates are machined flat from oversized material	rockexotica.com
mm 9"	123 x 101mm 4.9 x 4"	CE NFPA G	36kN 8093lbf	19mm 0.75"	57mm 2.25"	5 +1	-	-	V5 Discontinued	rockexotica.com
mm 7"	238 x 152mm 9.4 x 6"	CE NFPA G	36kN 8093lbf	22mm 0.87"	24mm 0.93"	12* +2 +2	-	●	Original Large Rig-Plate. *10 of the 12 are teardrop. Central large spaces are not intended for loading so Large Eye diameter is length of remaining 2 smaller eyes	rockexotica.com
nm 7"	203 x 127mm 8 x 5"	NO	36kN 8093lbf	19mm 0.75"	53mm 2.1"	9 +1	-	-	Stainless steel pin retained by sprung 'keepers' either end. Lower holes- 18mm opening with 21mm interior space. Top 2 eyes 20.7mm/0.8"	rockexotica.com
mm 5"	75 x 93mm 3 x 3.7"	CE NFPA G	36kN 8093lbf	20mm 0.77"	20mm 0.77"	9	■		Rockstar and UFO are machined from a solid lump of alloy	rockexotica.com
										expansion row

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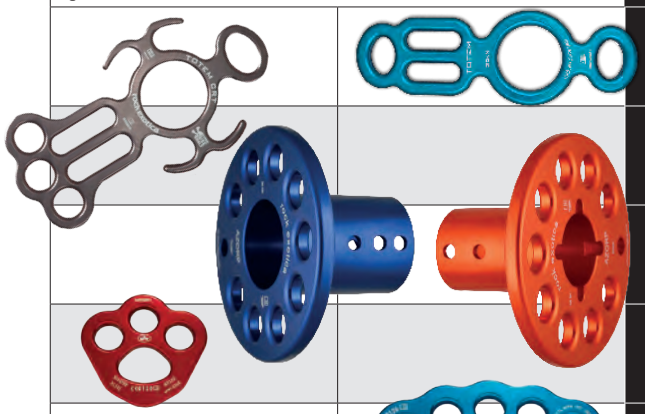
	MODEL	COMPANY	ORIGIN	COST	WEIGHT	MATERIAL	PLA DEP
	Totem F10	ROCK EXOTICA		£40 $48 €45	128g 4.5oz	Alu	10r 0.3
	Totem CRT DISCONTINUED	ROCK EXOTICA/ RICH CARLSON		£40 $48 €46	278g 9.8oz	Alu	12r 0.4
	AZORP	ROCK EXOTICA		£281 $343 €897	1400g 3 lb	7075 Alu	12r 0.4
	SMALL RS015	SAR PRODUCTS		£20 >$27 >€24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

ANCHOR/RIGGING PLATES

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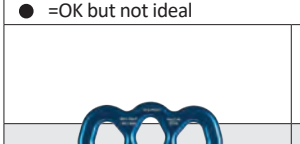
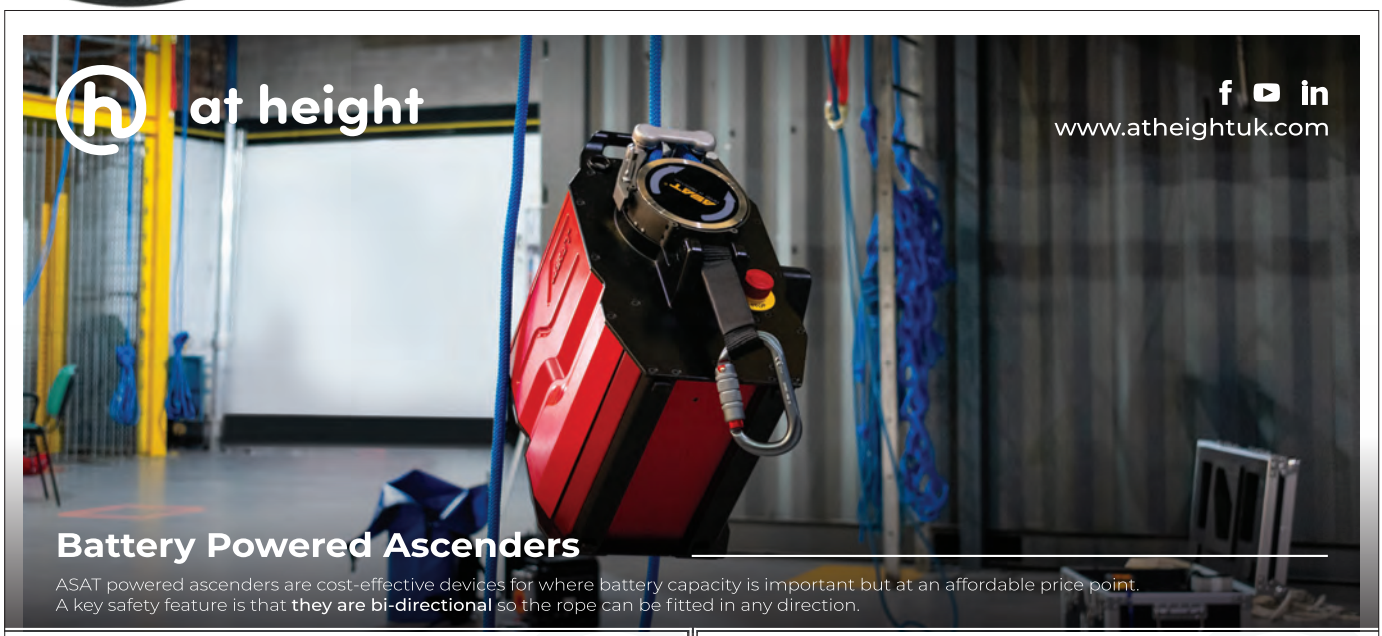
mm 9"	190 x 64mm 7.5 x 2.5"	NO	30kN 6744lbf	18mm 0.72	44mm 1.7"	2 +2* +1	●		*Accepts 10.5-13mm ropes for abseil/belay with carabiner adjunct. elliptical eyes 26 x 18mm	rockexotica.com
mm 7"	216 x 121mm 8.5 x 4.8"	NO	36kN 8093lbf	21mm 0.8"	48mm 1.9"	3 +2* +2	●		DISCONTINUED *Accepts 10.5-13mm ropes. Two fabric/rope rigging bollards. Rich Carlson design.	canyonsandcrags.com
mm 7"	165 x >140mm 6.5 x >5.5"	NFPA G	67kN 15062lbf	22mm 0.9"	50mm 2"	18 +1 +2	■		So good it gets in twice. AZORP kit inc. two rig plates, pins and bag. Rope can be passed through central spindle. Outer sleeve opening 60mm	rockexotica.com cmcrescue.com
mm 8"	91 x 84mm 3.5 x 3.3"	CE NFPA-G	36kN 8093lbf	20mm 3/4"	36mm 1.4"	3 +1	-	-	Individually marked.	sarproducts.com
mm 7"	166 x 108mm 6.5 x 4.25"	CE NFPA G	40kN 8993lbf	20mm 3/4"	38mm 1.5"	7 +1	-	-	Individually marked.	sarproducts.com
mm 9"	249 x 150mm 9.8 x 5.9"	CE NFPA G	45kN 10116lbf	20mm 3/4"	66mm 2.6"	13 +1	-	-	Individually marked.	sarproducts.com
mm 9"	58 x 58mm 2.3 x 2.3"	Machinery Directive '06	50kN 11240lbf	14mm 0.5"	14mm 0.5"	4	■		Accepts 12-13mm rope. Individually marked. *MBS equates to use with carabiners/ webbing. Rope-only connection = 25kN	shizll.com
mm 5"	76 x 76mm 3 x 3"	Machinery Directive '06	100kN* 22480lbf	17mm 0.7"	17mm 0.7"	4	■		accepts 14-16mm rope. Individually marked. *MBS equates to use with carabiners/ webbing. Rope-only connection = 50kN	Shizll.com
m 5"	100 x 82mm 4 x 3.25"	CE	36kN 8093lbf	20mm 0.75"	26mm 1"	3 +1	-	-	Individually marked	singingrock.com
m 3"	153 x 88mm 6 x 3.5"	CE	50kN 11240lbf	20mm 0.75"	26mm 1"	7 +1	-	-	Individually marked	singingrock.com
mm 8"	226 x 94mm 8.9 x 3.7"	CE	55kN 11240lbf	19mm 0.75"	32mm 1.26"	10 +2	-	-	Individually marked	singingrock.com
m 5"	103 x 83mm 4 x 3.25"	CE	36kN 8093lbf	20mm 0.75"	30mm 1.2"	3 +1	-	■	Individually marked. CLIMBING TECHNOLOGY now owned by SKYLOTEC	skylotec.com climbingtechnology.com
m 8"	149 x 98mm 5.9 x 3.8"	CE	45kN 10116lbs	20mm 0.75"	30mm 1.2"	7 +1	-	■	Individually marked. CLIMBING TECHNOLOGY now owned by SKYLOTEC	skylotec.com climbingtechnology.com
mm 8"	152 x 122mm 6 x 4.8"	No	70kN 15736 lbf	20mm 0.8"	40mm 1.57"	3 +1 +3*	■		* 3 Webbing eyes Designed for Slack-lining/ Tight-rope walking! Largest eye 42mm wide.	slacklinetechnology.com
										expansion row
										expansion row
										expansion row

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

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



ACE 22
Personal Device

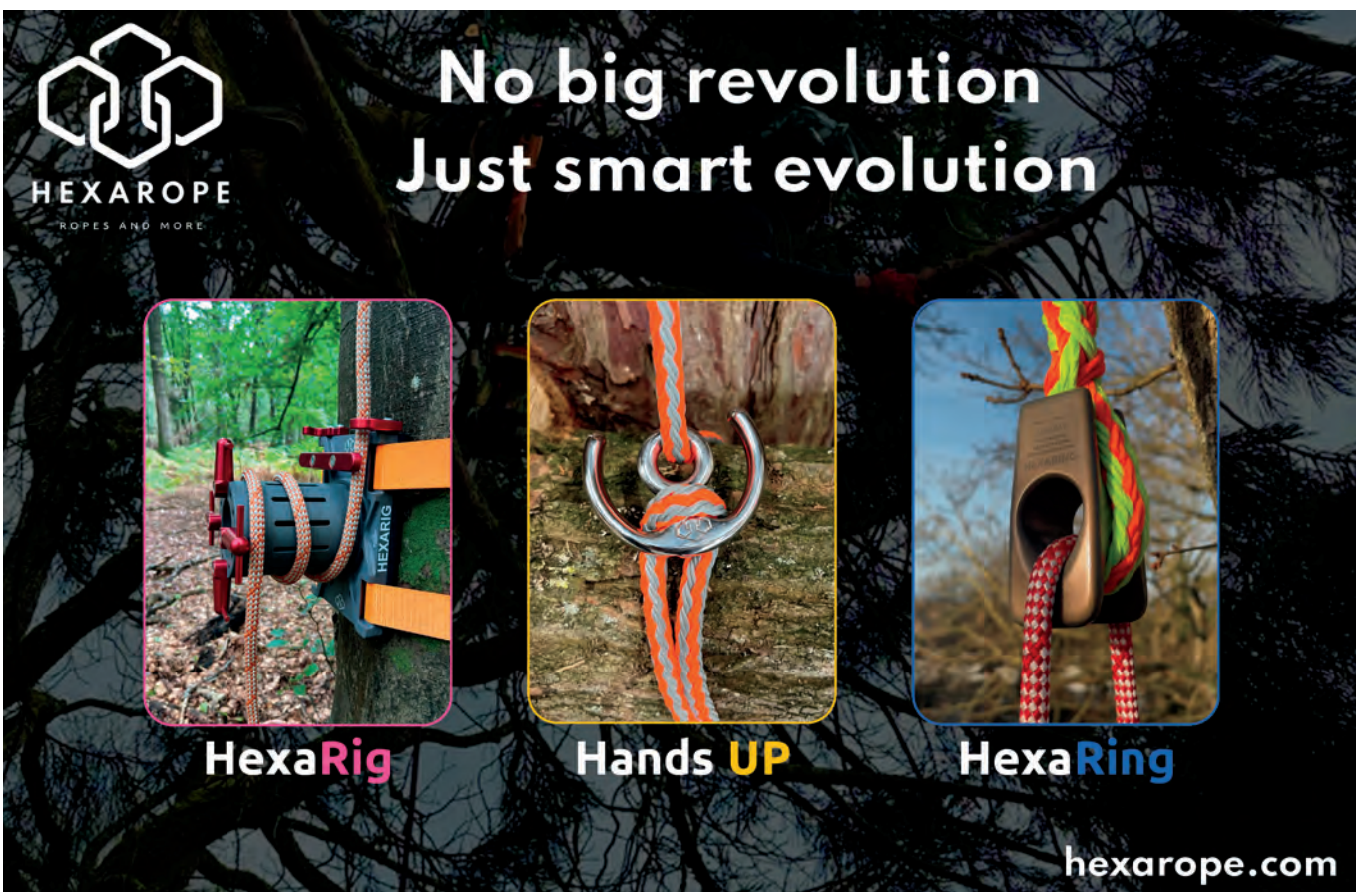
ACE22 is a compact lightweight 'personal' device, weighing 11kg. It has an expected battery life of 350m general use @ 140kg load and a maximum rated load of 180kg.
It features a remote control function including two-way communication.

ACE 24
Rescue / Rigging Device

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

ANCHOR/RIGGING PLATES

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



UPDATED Sep '25

KNOTLESS RIGGING & RINGS

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

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

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

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

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

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

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

KNOTLESS RIGGING & RINGS

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

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

HARDENED, ANODIZED & POLISHED

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

IN THE FOLLOWING TABLES:

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

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

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

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

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

KNOTLESS RIGGING & RINGS

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

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SHEAVE= Rings with an outside rope channel ('U'-shape)
ALU = Aluminium Alloy.
~ = Approximate
● ● ● =OK but not ideal
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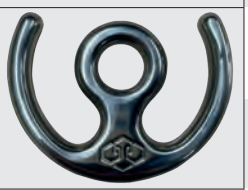
	MODEL	COMPANY	ORIGIN	COST	WEIGHT	MATERIAL	IN RO CAPA SHE
	Friction Ring FR1	FTC		£25 $33 €28	50g 1.76oz	Machined Alu	14 0.
	Friction Ring FR2	FTC		£33 $44 €37	136g 4.8oz	Machined Alu	20 0.
	Friction Ring FR3	FTC		£49 $65 €55	395g 13.9oz	Machined Alu	28 1.
	Hands Up Sml HX02282	HEXAROPE		£24 $32 €27	136g 4.8oz	SUS316 Stain-less Steel alloy	12 0.4
	**Hands Up Med** HX02283	HEXAROPE		£37 $52 €44	252g 8.9oz	SUS316 Stain-less Steel alloy	15 0.
	Hands Up Lg HX02284	HEXAROPE		£60 $85 €72	487g 1lb 1.2oz	SUS316 Stain-less Steel alloy	18 0.
	HexaRing Med HX06448	HEXAROPE		£72 $98 €83	185g 6.5oz	Alu 7075-T6	
	HexaRing Lg HX06449	HEXAROPE		£101 $137 €116	400g 14.1oz	Alu 7075-T6	
	HexaRing XL HX06450	HEXAROPE		£156 $216 €178	634g 1lb 6.4oz	Alu 7075-T6	
	Saturn Ring 1 RIN2528	ISC		£41 $56 €48	302g 10.6oz	Machined Alu	25 1
	Saturn Ring 2 RIN3238	ISC		£72 $97 €85	591g 1lb 4.8oz	Machined Alu	32 1.1
	Saturn Ring 3 RIN4452	ISC		£143 $193 €168	1073g 2lb 5.8oz	Machined Alu	44 1.1
	Alu Ring sml RIN0010	ISC		£6 $8 €7	44g 1.5oz	Alu	
	Alu Ring lg RIN0011	ISC		£8 $13 €11	59g 2oz	Alu	
	Steel Ring sml RIN0012	ISC		£7 $9 €8	118g 4.1oz	Steel	
	Steel Ring lg RIN0013	ISC		£9 $14 €12	155g 5.5oz	Steel	
	Ana Sml 930028O00KK	KONG		£12 $17 €14	40g 1.4oz	Alu	
	Ana Lg 930046N00KK	KONG		£13 $18 €15	60g 2.1oz	Alu	

KNOTLESS RIGGING & RINGS

NER OPE ACITY EAVE	HOLE / INNER Ø	LENGTH/ OUTER Ø BAR Ø	STANDARDS	MBS in non-pulley mode approx 10x WWL	KNOTLESS RIGGING	IMPACT/RIGGING	PPE / BRIDGE RING	OPENABLE	HARDENED	ANODIZED	OTHER COLOURS	NOTES	WWW.
-mm 55"	20mm 0.79"	50mm 2"	CE not PPE	65kN 14613lbf		■ ■			■				ftc-tree.com
mm .8"	28mm 1.1"	70mm 2.76"	CE not PPE	135kN 30349lbf		■ ■			■				ftc-tree.com
mm .1"	38mm 1.5"	89mm 3.5"	CE not PPE	240kN 53954lbf		■ ■			■				ftc-tree.com
mm 47"	15mm 0.6"	75mm 3"	not PPE	39kN 8768 lbf	■	■ ■			■		-	Knot replacement (cinching) plate for impact lowering for 9-12mm rope	hexarope.com
mm .6"	19mm 0.75"	90mm 3.54"	not PPE	60kN 13488 lbf	■	■ ■			■		-	Knot replacement (cinching) plate for impact lowering for 9-12mm rope	hexarope.com
mm .7"	25mm 1"	148mm 5.8"	not PPE	96kN 21582lbf	■	■ ■			■		-	Knot replacement (cinching) plate for impact lowering for 9-12mm rope	hexarope.com
-	27mm 1"	89 x 41mm 3.5 x 1.6"	not PPE	200kN* 44962lbf		■ ■			■		-	*Designed for impact lowering. Max recommended rope 12mm *Rim-style outer for rope/sling loop	hexarope.com
-	35mm 1.4"	115 x 51mm 4.53 x 2"	not PPE	300kN* 67443lbf		■ ■			■		-	*Designed for impact lowering.Max recommended rope 16mm. *Rim-style outer for rope/sling loop	hexarope.com
-	38.2mm 1.5"	130 x 55mm 5.1 x 2.2"	not PPE	400kN* 89924lbf		■ ■			■		-	*Designed for impact lowering.Max recommended rope 20mm. *Rim-style outer for rope/sling loop	hexarope.com
mm 1"	28mm 1.1"	88mm 3.5"	CE not PPE	140kN 31473lbf		■ ■				■			iscwales.com
mm 25"	38mm 1.5"	112mm 4.4"	CE not PPE	200kN 44961lbf		■ ■				■			iscwales.com
-mm 25"	52mm 2"	138mm 5.43"	CE not PPE	300kN 67442lbf		■ ■				■			iscwales.com
-	27 x 12mm 1.1 x 0.47"	51mm 2"	CE	25kN 5620lbf		■	■ ■			■			iscwales.com
-	45 x 12mm 1.8 x 0.47"	70mm 2.75"	CE	25kN 5620bf		■	■ ■			■			iscwales.com
-	27 x 12mm 1.1 x 0.47"	51mm 2"	not PPE	70kN 15736lbf		■ ■							iscwales.com
-	45 x 12mm 1.8 x 0.47"	70mm 2.75"	not PPE	70kN 15736lbf		■ ■							iscwales.com
-	28mm 1.1"	50mm 2"	CE	25kN 5620lbf		●	■ ■			■	■		kong.it
-	46mm 1.8"	67mm 2.6"	CE	25kN 5620lbf		■	■ ■			■			kong.it

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

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

KNOTLESS RIGGING & RINGS

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

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SHEAVE= Rings with an ouside rope channel ('U'-shape)
ALU = Aluminium Alloy.
~ = Approximate
● ● ● =OK but not ideal
CE Not PPE= EU Machinery Directive

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

KNOTLESS RIGGING & RINGS

...ER PE ...CITY ...AVE	HOLE / INNER Ø	LENGTH / OUTER Ø BAR Ø	STANDARDS	MBS in non-pulley mode approx 10x WWL	KNOTLESS RIGGING	IMPACT/RIGGING	PPE / BRIDGE RING	OPENABLE	HARDENED	ANODIZED	OTHER COLOURS	NOTES	WWW.
	28mm 1.1"	0mm 0"	CE	25kN 5620lbs		●	■ ■			■			singingrock.com
	46mm 1.8"	0mm 0"	CE	25kN 5620lbs		■	■ ■			■			singingrock.com
	28mm 1.1"	52 x 12mm 2.1 x 0.47"		25kN 5620lbs		●	■ ■					Also steel versions but Climbing Technology brand phasing out under Slylotec	skylotec.com
	46mm 1.8"	72 x 13mm 2.8 x 0.5"		25kN 5620lbs		■	■ ■					Also steel versions but Climbing Technology brand phasing out under Slylotec	skylotec.com
	28mm 1.1"	43 x 12.7mm 1.7 x 0.5"		32kN 7914lbs		■	■ ■			■			Harken.com smcgear.com
...mm 5"	13.5mm 0.5"	240x150mm 9.5 x 6.9"	No PPE	60kN 13488 lbf	■	■				■		Also branded for STEIN. Also used as a Knotless rigging device. * 4 accessory cord holes individually numbered	steinworldwide.com
...mm 7"	28mm 1.1"	52 x 12mm 2.1 x 0.47"		25kN 5620lbs		●	■ ■			■			treehog.co.uk
...mm 5"	46mm 1.8"	70 x 12mm 2.7 x 0.5"		25kN 5620lbs		■	■ ■			■			treehog.co.uk
...mm 7"	20mm 0.8"	40mm 1.6"		00kN 00lbs		● ●				■			treehog.co.uk
...mm 5"	20mm 0.8"	46mm 1.8"		00kN 00lbs		● ■				■			treehog.co.uk
...mm 2"	20mm 0.8"	54mm 2.1"		00kN 00lbs		■ ■				■			treehog.co.uk
...mm "	28mm 1.1"	70mm 2.75"		00kN 00lbs		■ ■				■			treehog.co.uk
...mm 5"	20mm 0.8"	59.3mm 2.34"		75kN 16861lbs		● ●			■		■*	*Black=Hardened cost $44	tylaska.com
...mm 8"	28mm 1.1"	75.9mm 3"		100kN 22481lbs		■ ■			■		■*	*Blue=Anodized not Hardened cost $49. Also XTR20 & DTR20 with wider sheaves to be added	tylaska.com
...mm 1"	38.1mm 1.5"	101mm 4"		125kN 28100lbs		■ ■			■		■*	*orange=Anodized not Hardened cost $83	tylaska.com
...mm 8" ...mm 5"	52mm 2.1"	137mm 5.4"		396kN 89025lbs		■ ■			■				tylaska.com
...mm 8" ...mm 9"	33mm 1.3"	170mm 6.7"		110kN 24729lbs		■ ■			■				tylaska.com
...mm 1"	38mm 1.5"	279x101mm 11 x 4"		195kN 43838lbs		■ ■			■			Also LFB10 & LFB20 with smaller dimensions to be added	tylaska.com

UPDATED Aug '25

SWIVELS for LIFE SUPPORT

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

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

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

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

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

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

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

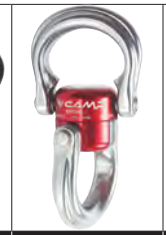
Swivels have evolved into an individual asset for direct attachments to hardware , rope/slings and harness bridges, not just for haul systems and anchoring so its uses are myriad..... don't leave home without one.

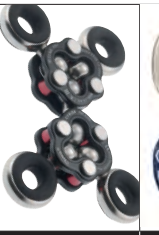
IN THE FOLLOWING TABLES:

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

LIFE SUPPORT SWIVELS

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





MANUFACTURER	ART	BEAL	BLACK DIAMOND	CAMP	CAMP	CAMP	CAMP	CAMP
MODEL VARIANT	Twister -	Twist-Air B -	Rotor Swivel -	Swivel 1393	Enigma 3259	Gyro 1 3260	Gyro 3 2940	Gyro 4 3109
ORIGIN								
COST	£51 $70 €60	£48 $65 €55	£65 $74 €63	£50 $64 €55	£104 $140 €119	£46 $62 €53	£81 $120 €95	£111 $145 €126
WEIGHT	58g 2oz	88g 3.1oz	83g 2.9oz	150g 5.3oz	116g 4.1oz	76g 2.7oz	155g 5.5oz	265g 9.3oz
MAX LOAD	25/28kN* 0lbf	22kN 4945lbf	26kN 5845lbf	35kN 7868lbf	23kN 5170lbf	25kN 0lbf	26kN 5845lbf	26kN 5845lbf
LOWER/MAX EYE SIZE	18mm 0.7"	18mm 0.7"	25mm 1"	23mm 0.9"	18-36mm 0.7"	10-16mm 0.4-0.6"	10-16mm 0.4-0.6"	10-16mm 0.4-0.6"
DIMENSIONS heightt x width	78 x 30mm 3.1 x1.2"	86 x 39mm 3.4 x 1.5"	85 x 40mm 3.3 x 1.6"	110 x 55mm 4.3 x 2.1"	100 x 51mm 4 x 2"	73 x 35mm 2.9 x 1.4"	80 x 90mm 3.2 x 3.5"	125 x 90mm 4.9x 3.5"
BEARING/BUSHING	■	■	■	■	■	Steel Ball/Socket	Steel Ball/Socket	Steel Ball/Socket
OPENABLE	-	■	-	-	■	-	-	-
STANDARDS	CE	CE	CE	CE EAC	CE EAC ANSI	CE ANSI EAC	CE ANSI EAC	CE ANSI EAC
MATERIAL	Machined Alu	Alu	Alu	Alu	Alu St Steel	Allu, Steel, St Steel	Alu, Steel, St Steel	Alu, Steel, St Steel
OTHER COLOURS/ NOTES	*28kN max load, tested with 25kN. Does not twist under load				■ Collapsible, take-apart	plastic inserts for tighter 10mm fit	plastic inserts for tighter 10mm fit	plastic inserts for tighter 10mm fit
WEBSITE	climb-art.de	beal-planet.com	blackdiamondequipment.com	camp.it	camp.it	camp.it	camp.it	camp.it

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MANUFACTURER	DMM	DMM	DMM	EDELRID	EDELRID	EDELRID	EDELRID	EDELRID
MODEL VARIANT	Nexus Bow-D SW470	Nexus D-D SW480	Nexus Bow-Bow SW490	Cupid -	Cupid Mix -	Cupid Mini -	Conecto -	Vortex -
ORIGIN								
COST	£90 $130 €115	£90 $130 €115	£90 $130 €115	£85 $107 €90	TBA	£47 $64 €55	£77 $104 €89	£52 $62 €56
WEIGHT	103g 3.6oz	95g 3.4oz	110g 3.9oz	105g 3.7oz	TBAg TBAoz	TBAg TBAoz	155g 5.5oz	88g 3.1oz
MAX LOAD	26kN 5845lbf	26kN 5845lbf	26kN 5845lbf	20kN 4496lbf	20kN 4496lbf	TBAkN TBAbf	15kN 3372lbf	22kN 4945lbf
LOWER/MAX EYE SIZE	16 20-30mm 0.6 0.8-1.2"	16mm 0.6"	20-30mm 0.8-1.2"	25mm 1"	25mm 1"	TBA	20mm 0.8"	18mm 0.7"
DIMENSIONS heightt x width	103 x 48mm 4 x 1.9"	97 x 35mm 3.8 x1.4"	108 x 48mm 4.25 x 1.9"	95 x 50mm 3.7 x 2"	95 x 50mm 3.7 x 2"	TBA	100 x52mm 4 x 2"	86 x 39mm 3.4 x 1.5"
BEARING/BUSHING	■	■	■	■	■	■	■	■
OPENABLE	■	■	■	■	■	-	■	-
STANDARDS	CE	CE	CE	CE	CE	CE	CE	CE
MATERIAL	Body Milled Alu	Body Milled Alu	Body Milled Alu	Hot forged Alu	Hot forged Alu	Hot forged Alu	Hot forged Alu	Alu
OTHER COLOURS/ NOTES	■	■	■	Replaced Conecto. Gate opening=12mm	New in 2025. Captive lower eye resists torque	New in 2025	DISCONTINUED	
WEBSITE	dmmwales.com	dmmwales.com	dmmwales.com	edelrid.com	edelrid.com	edelrid.com	edelrid.com	edelrid.com

LIFE SUPPORT SWIVELS

CMC/RE	CMC/RE	CMI	CMI	CONTERRA	DMM	DMM	DMM	DMM	DMM
Rescue -	ProSeries -	Rescue -	Cali Swivel2 -	TiRadius -	Axis L -	Axis S -	Mini SW400	Focus D SW440	Focus Bow SW450
71 $89 €82	£102 $127 €117	£101 $122 €116	£104 $126 €119	£119 $145 €137	£80 $110 €100	£70 $95 €75	£63 $85 €69	£79 $118 €98	£79 $118 €98
125g 4.4oz	184g 6.5oz	159g 5.6oz	204g 7.2oz	83g 2.9oz	184g 6.5oz	117g 4.2oz	48g 1.7oz	64g 2.3oz	72g 2.5oz
36kN 8093lbf	36kN 8093lbf	40kN 9000lbf	43.6kN 9800lbf	38kN 8500lbf	50kN 11240lbf	36kN 8093lbf	26kN 5845lbf	26kN 5845lbf	26kN 5845lbf
25mm 1"	30mm 1.2"	30mm* 1.2"	20 18mm 0.8 0.7"	25mm 1"	20-38mm 0.8-1.1"	18-30mm 0.7-1.2"	16mm 0.6"	10-16 16mm 0.4-0.6"	10-16 20-30mm 0.4-0.6 0.8-1.2"
93 x 49mm 3.75x1.9"	114 x 50mm 4.5 x2"	108 x 45mm 4.25 x 1.75"	100 x 76.2mm 4 x 3"	76.2 x 32mm 3 x 1.25"	96 x60mm 3.8 x 2.4"	80 x 50mm 3.2 x 2"	66 x 32mm 2.6 x 1.3"	76.5 x 35mm 3 x 1.4"	82 x 48mm 3.2 x 1.9"
■	■	■	■	■	■	■	■	■	■
-	-	-	-	-	-	-	-	■	■
NFPA	NFPA	NFPA		NFPA	CE	CE	CE	CE	CE
Machined Alu	Machined Alu	Machined Alu	Machined Alu	Titanium	Hot forged Alu	Hot forged Alu	Body Milled Alu	Body Milled Alu	Body Milled Alu
		*max bar size 20mm/0.8"	■ ■		■	■	■	■	■
cmcpro.com	cmcpro.com	cmigearusa.com	cmigearusa.com	conterra-inc.com	dmmwales.com	dmmwales.com	dmmwales.com	dmmwales.com	dmmwales.com

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

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

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

LIFE SUPPORT SWIVELS

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

UPDATED Nov '25

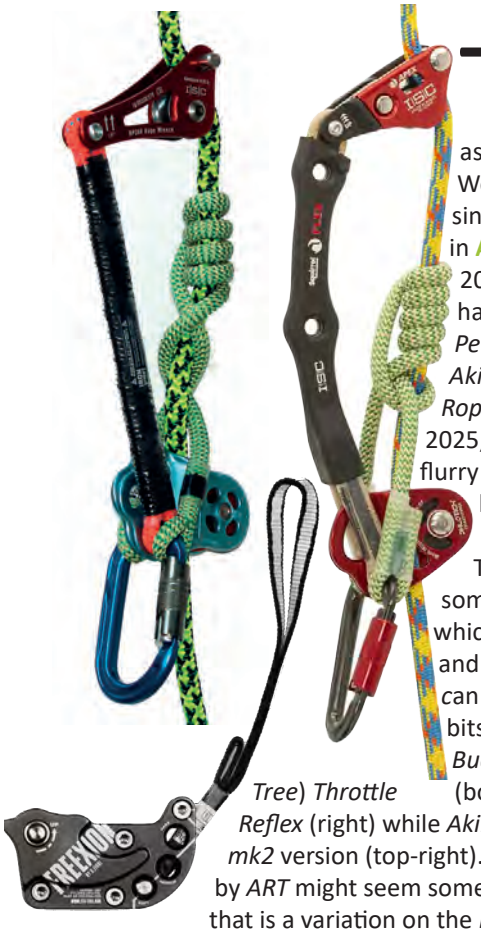
Images NOT to scale

MECHANICAL FRICTION DEVICES

HYBRID ASCENT/ DESCENT DEVICES

NEW in 2025
Above: **RockExotica Akimbo²**

Right:**ISC Reflex** unquestionably inspired by the *ZigZag* but key differences to the *ZigZag* of note are mid-line attachable and SRT-use without a tether/ adjunct



This Guide deals with stand-alone hardware for ascending/descending/ Work positioning and since its first publication in **ARBCLIMBER**#10 in 2017 market leaders have remained the *Petzl Zig Zag* (right), *Akimbo* (Top-right) and *RopeRunner* (Below-Left). 2025, however, has seen a flurry of four new models but all are variations on those original designs. They say imitation is some form of flattery, in which case *Rock Exotica* and *Petzl* in particular can feel flattered to bits by the introduction of *Buckingham*'s (*Buck-Tree*) *Throttle* (bottom-right) and *ISC's Reflex* (right) while *Akimbo* itself now has a *mk2* version (top-right). The striking *Blackbird* by *ART* might seem something unique but even that is a variation on the *Rope Runner* albeit with a robust new outline and frame.

The more traditional and modern equivalent systems utilise a prusik cord and some associated hardware like the *Hitch Climber, Rope Wrench, HitchHiker* etc. and proponents will say that these are better systems. They are certainly cheaper and generally lighter. *FTC* has introduced the *Freexion (*above-left) but it's *ISC* in Wales that has probably done most to enhance Kev Binghams original *Wrench* concept with various tether adjuncts enabling SRS working with their adjustable cam *Apex* and their *Squirrel* and *Chipmunk* tethers.

The systems above-left are typical of a current prusik system utilising either a Bachmann's or Klemheist or, in this case the highly favoured Valdotain Tresse. They have a *Rope Wrench* and *Apex* attached to stiffened 'tethers' and both are straddling a *HitchClimber* pulley attached to your rope bridge or main hard-point connection. The *Wrench* diverts load away from the hitch and makes it easier to control as an SRT/SRS rather than MRS/ DdRT system. The whole system is relatively inexpensive but it's quite an expansive set up and takes time to set up and/or change around relative to the subject of this Guide, multiscenders. Above is *Petz*l's answer to the *Wrench*, the *Chicane* and you can see how both options require the same amount of supporting kit and length items to create a more efficient ascent system. For a multiscender to be more efficient than simply foot-locking the rope around your boot ***you'll need a foot and/or knee ascender*** but at its most basic

NEW in 2025
BuckTree Throttle

MECHANICAL FRICTION DEVICES

NEW in 2025
ART
Blackbird

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

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

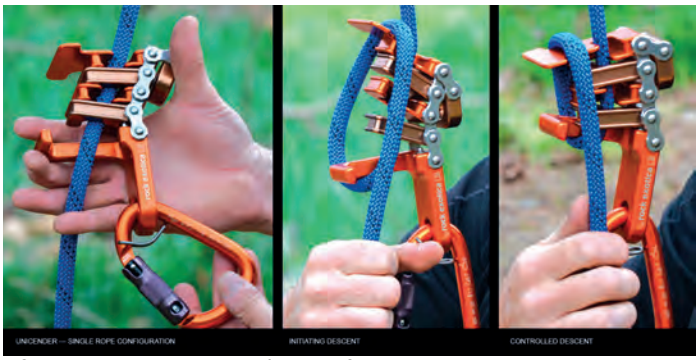
As a definition, 'Hybrid' is not strictly accurate as the term could equally be applied to a few other items of rope hardware that fit more than one usage category like the *CMC MPD* as a descender/lowering/progress capture device or *SMC Advance HX* and *Petzl Traxion*s as pulley/progress capture devices, but are in no way similar to the 'Hybrids' in this article which are used routinely as combination ascender/descenders and for work positioning . Even that definition is a little misleading because *Petzl*'s *GriGri, Notch's Glide*, the *Taz Love* and indeed many autolocking descenders can be used for progress-capture and therefore as a make-shift ascender as well as descender and for work positioning due to their easy take-in of slack (slack-tending). But they won't tend slack automatically when you pull them up the rope. Nope, you are required to physically pull the tail/trail-rope through those devices as you ascend which is one of two things that sets them apart from multiscenders or mechanical Friction Devices which are used in place of a prusik-hitch ascending system which was the Holy Grail that multiscenders aspired to. Not that it has ever been acceptable to descend at speed using unmitigated rope prusiks but that's what a lot of old-timers did (do?). The safer option is to switch to a dedicated ascender so really, the 'Holy Grail' is to effectively replace an ascender or prusik hitch system AND a descender with one device and these are more accurately described as 'multiscenders'. Incidentally, it might seem like the concept of 'multiscenders' (with an 's') is new but we were discussing them in UK caving circles back in the early eighties. Not forgetting of course that pretty much everything we do in SRT, including the original commercial development of autolock descenders by *Petzl* with the *STOP*, stems from caving. However, some devices highlighted in this article may have more to do with the original *Jumar*s than the *Stop* descender,

take a look at the silver ascender left, from an Iranian climbing group that credits this device as the fore-runner of the iconic yellow *Swiss Jumar* so is presumably from midway through the last century - does that chain link style grip look familiar?

In terms of development of the artificial prusik we should probably credit *ART* with that because their original *LockJack* has been around for a good many years. I remember picking one of the early versions up from the lads at *Royal Kew Gardens* Arb section back in the nineties and it's still hung in my workshop but it didn't look anything like the slick *SpiderJack 3.0* you see above. It has taken a long time between Hubert Kowalewski's first model and now to kick-start the development of 'artificial prusiks' and that has everything to do with the dramatic switch from traditional tree climbing methods with rope-on-rope systems to 'technical' climbing using an ever widening array of hardware and sophistication. Once companies from the technical ropes arena like *DMM, Petzl, Rock Exotica, ISC* etc. got involved, expansion and development mushroomed. And yet.... When you look at the hybrids in this Guide it's perhaps a little surprising that not only are there not many, but the majority, starting with *ART* but later typified by Morgan Thompson's *Unicender* and Kev Bingham's *RopeRunner* have been developed within the arb industry before being taken on by the metal wizards. Admittedly, in the case of the *Unicender,* which, for many years was the only such device available, it was an obvious and short route from Morgan's original idea to his namesake's company taking on development and production but nevertheless it was still an idea born outside of the rope access and rescue mainstream. Kev Bingham's *RopeRunner* is available in a US version made by *CMI* and the sumptuous *Pro* version by *Notch* and this has clearly become a popular competitior to the *ZigZag* along with Jamie Merrit's *Akimbo* made by *Rock Exotica (*now with a mk2 variant). All have gone from garage prototype to an 'elite' level of production and perhaps Gordon Svedberg's *Bulldog* devices and *Climbing Innovation's XF* will go the same way but it hadn't really made much of an inroad between the original version of this article in 2017 and this 2025 update. As of 2025 the key models remain the *Petzl's ZigZag*, *Rope Runner* and the *Akimbo* (and probably now the *Throttle, Blackbird, Akimbo² and Reflex*). Following in *ART*'s footsteps the *ZigZag* has most closely followed doubled rope technique (DdRT/MRS) and the traditional functioning of a closed-loop/split-tail prusik systems. This is in contrast to the *Rope Runner* and *Akimbo* which are more SRT/SRS than DdRT/MRS though will adapt to it. The *Blackbird* and *Throttle* buck the trend, so to speak, because they have added eyes that DO allow easy MRS use. The *ZigZag* failed to achieve universal acceptance before

the new kids on these block arrived and this was partly exacerbated by its inability to permit mid-rope attachment and to an early mishap and recall which spooked the market. It's fair to say that the *ZigZag* missed its original window which might have made it as universally common in the arb world as the *GriGri* became in the sport climbing world. Another concern to Petzl will be *ISC's Reflex* (above), launched in a quite saturated market but it has addressed SRT-use and mid-line attachment.

All of the devices in this Guide appeal to the techies and repel the traditionalists. Techies are the shiny-metal fetishists who will always be happy to buy and experiment with anything new that weighs more than a traditional prusik and is...well....shiny so devices like the *Blackbird, Throttle* and *Reflex* will always sell with or without tangible improvements over the original designs. And for most of these devices you need to be a bit



of a techie because they're not for beginners. Any thoughts of making life easier for those who weren't overly proficient with traditional methods could result in an early visit to the ER. Take a look at *Unicender*'s various control functions in the pictures overleaf. Once you're used to them and especially if you've used a range of other technical devices it all comes together quite easily. Novices on the other hand should cut their teeth on rope prusik systems first and especially using the *Rope Wrench* which was Kev Bingham's revelation in diverting part of the load away from the knot (or indeed any compact multiscender) and making them much easier to control.
Outside of Germany there has been a preponderance of 'chain-link' style devices since this is the primary way for metal to function in a similar way to a prusik. The *Unicender* is a chain link, *Zig-Zag* is a chain link, *RopeRunner* and *Bulldog Bone* are sideways chain-links and *Akimbo/Throttle* are alien chain links. The Germans on the other hand, in the guise of those complex metal artisans *ART*, have continued to evolve their original *RopeJack* with the *SpiderJack* and now have a cross between the *Akimbo* and *Rope Runner* called the *Blackbird*. Their existing range might look intimidatingly complex but all five current *ART* DdRT devices are actually quite straightforward modifications to the *LockJack*'s original locking mechanism enhanced by various handles and casings and *Dyneema* (in the case of *LockJack 2.1*). Their function is as smooth as their design curves, in fact, the slack tending on *ART* devices is so efficient that the *SpiderJack3* has a secondary lock that you can engage (black handle in the pic on the previous page). This is not to prevent slippage, but to prevent rope take-in when moving around the canopy. Even without the weight of trail-rope beneath the *Lockjack* it will self-tend so efficiently that you might be at your required work position and simply adjust your hips for comfort, only to find that *LockJack* has shortened more rope and put you slightly out of position! Hence the extra locking position - brilliant when you have to add a feature because your device is TOO efficient. *SpiderJack3* also added a pulley for more efficient redirection of the trail rope when limb-walking and was orientated to make it easier to use with left or right hand.
The one thing we can say for sure about ALL hybrid devices is that they must squeeze the rope between two metal elements somewhere along the line. Whether that's in a camming action, a simple squeeze or a moving chain link where the hole's alignment alters the friction, it means that there are varying degrees of friction within your system that also affect:
1) how well it functions as an ascender, and allied with this...
2) how efficient it is in NOT losing progress and efficiency to drop-back
3) how forgiving the start-stop function is
4) how easily it switches between modes
The ground-breaking *LockJack*s seemed to suffer more than others with wear to 'metal components' which, to be fair, can be replaced easily enough but in their second version they introduced that rather odd second rope-contact point made of wood . It just shows that you can't beat natural materials and in this case the robust nature of a tough hardwood adds a second friction brake to mitigate wear on the original metal cam/pins. In fact, the wood is really the primary friction plate since it's the first contact point and climbers proficient with its use can apply finite levels of friction such that spectacular fliers of dozens if not hundreds of feet are possible. Proficiency is the key to smooth starts on *LockJack*s but the *Zig Zag* and *Akimbo* have an action that seems to give much gentler transition from stopped to moving (in descent) mode. Certainly far smoother than the *Unicender* and *RopeRunner* which take more getting used to. (*Akimbo2* seems to have addressed its original adjustment difficulties). Smoother starts are not surprising with the *Zig-Zag* or Lockjacks since they are DdRT devices (unless the *ZigZag* is used with the *Chicane* SRT adjunct) but *Akimbo* functions this way on single rope as does the new *ISC Reflex* which may yet become the favoured route in the arb industry. The *Akimbo* also exhibits minimal drop back in ascent mode, something the *Unicender* is also adept at but others struggle with. You can get used to working with drop-back but it's better when there isn't much. ART's latest offering the *Blackbird* probably indicates that *Akimbo/RopeRunner* style devices have overtaken *Lockjacks*?

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

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

akimbo²

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£$€ in burnt orange =currency conversion only & exc shipping, duty & tax
COST: ~ & inc local tax/VAT
WLL: If no WLL is given by manufacturer we show a Max Load based on ~10:1 safety ratio
HYPHEN- = not applicable
N/A = Not Available/not given
● =OK but not ideal
~ = Approximate

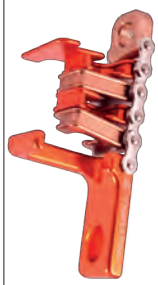
MANUFACTURER	ART	ART	ART	ART	ART
MODEL VARIANT	Blackbird	Lockjack Basic (aka Sport)	Lockjack 2 (swivel)	SpyderJack 2.1 Dyneema Velcro	SpyderJack 3
ORIGIN					
COST inc VAT/Tax £$€ = =currency conversion only	£550 $600 €550	£246 $330 €286	£280 $350 €315	£230-267 $350-390 €280-316	£406 $520 €425
WEIGHT (System)	609g 1lb 9oz	268g 9.5oz	310g 11oz	241/281g 8.5 /9.9oz	511g 1lb 1oz
MBS/MBL	TBAkN TBAlbf	23kN 5170lbf	23kN 5170lbf	16kN 3597lbf	25kN* 5620lbf
WLL (Specific Ropes)	150kg 330lb	200kg 440lb	200kg 440lb	200kg 440lb	200kg 440lb
MIN Rope Diameter	11.2mm 7/16"	11mm 7/16"	11mm 7/16"	11mm 7/16"	11mm/12mm* 7/16"/1/2"
MAX Rope Diameter	13mm 1/2"	13mm 1/2"	13mm 1/2"	13mm 1/2"	12mm/14mm* 1/2"/ 9/16"
HEIGHT (System)	300mm 11.8"	150/220*mm 6/8.7"	150/220mm 6/8.7"	127/89*mm 5/3.5"	195/93mm 7.6/3.6"
SRT / SRS	■	-	-	-	-
DRT /SRS	-	-	-	-	-
DdRT / MRS	■	■	■	■	■
ASCEND	■	■	■	■	■
DESCEND	■	■	■	■	■
ADJUST FRICTION	■	●	●	●	●
MIDLINE ATTACH	■	■	■	-	-
INTEGRAL SWIVEL	■	-	■	-	■
ATTACH to CHEST	■	●	●	-	-
STANDARDS (System)	EN 12841 B/C	CE	CE	CE	CE
FRAME MATERIAL	Alu	Alu	Alu	Alu	Stainless Steel
RECOMMENDED ROPES **NOTES**	NEW in 2025 Two-person (rescue) capable in SRT mode. Capable of left or right handed use.	*system=with rope & knob. Fixed carabiner eye. All components replaceable . Approved for two person load	*system=with rope & knob. Swivel carabiner eye. All components replaceable. Approved for two person load	*difficult to say what is length and what is width! Available with Dyneema extender allows for quick carabiner change	*difficult to say what is le and what is width! All wearing parts are replaceable. Approved for two pers load. *supplied with 3 cam which need to be swap in for different rope siz *NB some stockists quoting 23kN- ART sta 25kN. Add approx10% for las cut of your logo
WEBSITE	climb-art.de	climb-art.de	climb-art.de	climb-art.de	climb-art.de

MECHANICAL FRICTION DEVICES

	BUCKTREE	CLIMBING INNOVATIONS	CMI/ SINGING TREE	GORDON SVEDBERG	ISC WALES	
	Throttle	HitchHiker XF	Rope Runner	Bulldog Bone Adjustable	Reflex MH285	
	£369 $500 €530	£230 $300 €250	£289 $350 €333	£320 $385 €366	£320 $430 €360	
	535g 1lb 3oz	n/a	246g 8.67oz	433g 14.4oz	567g 15oz	
	-	-	22.7kN 5103lbf	-	12kN 2698lbf	
	140kg 308lbf	<227kg* <500lb	125kg 275lb	<113kg <250lb	50-200kg 110-440lbf	
	11mm 7/16"	9mm 3/8"	11mm 7/16"	10.5mm 7/16"	11mm 7/16"	
	13mm ½"	14mm 9/16"	13mm ½"	12mm ½"	13mm ½"	
	TBA	150/230mm 6/9"	160 mm 6.3"	175mm 6.9"	200mm (max ext) 7.9"	
	■	■	■	■	■	
	-	-	-	-	-	
	■	●	●	●	■	
	■	■	■	■	■	
	■	■	■	■	■	
	■	●	●	-	-	
	■	■	■	■	■	
	-	-	-	-	■*	
	■	■	■	■*	■	
	ANSI	NO	CE	NO	CE	
	Alu/StSteel	Alu/Steel	Alu /Steel	Alu/Steel	Alu/StSteel	
	NEW in 2025 Attach midline and operate on SRS and MRS systems (without requiring the use of tools) the *Throttle* has addressed some of the issues associated with other devices. See their website for a list of recommended ropes	runs on 24 strand & Kernmantle, requires 8-10mm cord for climbing hitch 2 versions - with and without captive eye. Works 180to90°	EN 1891 type A low stretch kernmantle ropes	The BDB is constantly evolving and hard to keep track of - monitor @surveyor on Treebuzz for more info (outside of Japan) . Image shows the Japanese made adjustable version. *via a tied cord loop	NEW in 2025 EN 1891 type A low stretch kernmantle ropes. Can be used with Apex/ Flex tethers for finite control in SRT mode * Swivel can hold two carabiners or 2 rope bridges and can be field detached/replaced	
	buckinghammfg.com	climbing-innovations.com	cmigearusa.com	works-odsk.com	iscwales.com	

Images NOT to Scale
£$€ in burnt orange =currency conversion only & exc shipping, duty & tax
COST: ~ & inc local tax/VAT
WLL: If no WLL is given by manufacturer we show a Max Load based on ~10:1 safety ratio
HYPHEN- = not applicable
N/A = Not Available/not given ●
=OK but not ideal
~ = Approximate

MANUFACTURER	NOTCH	NOTCH	PETZL	PETZL	ROCK EXOTICA
MODEL VARIANT	Rope Runner Pro	Rope Runner Vertec	Zig Zag	Zig Zag Plus	Akimbo
ORIGIN					
COST inc VAT/Tax £$€ = =currency conversion only	£376 $440 €395	£445 $495 €543	£228 $335 €210	£270 $395 €296	£410 $415 €485
WEIGHT (System)	425g 15oz	453g 15.9oz	365g 12.9oz	425g 15oz	261g 9.2oz
MBS/MBL	-	-	-	-	23kN 5,170lbf
WLL (Specific Ropes)	140kg 308lbf	130kg 286lbf	140kg 308lbf	140kg 308lbf	100/130kg 220/286lb
MIN Rope Diameter	11mm 7/16"	11mm 7/16"	11.5mm 7/16"	11.5mm 7/16"	11.5mm 7/16"
MAX Rope Diameter	13mm ½"	13mm ½"	13mm ½"	13mm ½"	13mm ½"
HEIGHT (System)	158mm 6.2"	155mm 6.1"	115*-248/290mm 4.5*-7.9/"	127*258/300mm 5*-10.1/11.8"	~85*-200mm ~3.4*-7.9"
SRT / SRS	■	■	●*	●*	■
DRT /SRS	-	■	-	-	-
DdRT / MRS	●	●	■	■	●
ASCEND	■	■	■	■	■
DESCEND	■	■	■	■	■
ADJUST FRICTION	●	■	-	-	●
MIDLINE ATTACH	■	■	-	-	■
INTEGRAL SWIVEL	-	-	-	■	-
ATTACH to CHEST	■	■	■	■	■
STANDARDS (System)	CE	CE	CE ANSI	CE ANSI	CE
FRAME MATERIAL	Alu	Alu	Alu/Steel	Alu/Steel	Alu
RECOMMENDED ROPES **NOTES**	Centre chest attachment, smoother edges and drop-free mid-line rope attach	Tool-free friction adjustment. 7 friction settings. Centre chest attachment, smoother edges and drop-free mid-line rope attach	* height when in use for SRT EN 1891 type A low stretch kernmantle ropes * length with *Chicane* for SRT Cost=Add £168/$193/€174	* height when in use for SRT EN 1891 type A low stretch kernmantle ropes * length with *Chicane* for SRT Cost=Add £168/$193/€174	* height when in use Check website for list o specific ropes to use. Breakaway chest attachment when pulle downwards (ie. when n ascending-same on AK²
WEBSITE	notchequipment.com	notchequipment.com	petzl.com	petzl.com	rockexotica.com

			
	ROCK EXOTICA	ROCK EXOTICA	ROPETEK
	Akimbo²	Unicender	HitchHiker 2
	£426 $425 €505	£408 $415 €490	£245 $300 €280
	301g 10.6oz	310g 10.9oz	275/545g 9.6oz/1.2lb
	23kN 5,170lbf	31kN 6969lbf	25kN 5620lbf
	100/130kg 220/286lb	<545kg* <1200lb	<522kg* <1150lb
	11.5mm 7/16"	11mm 7/16"	11.5mm 7/16"
	12.7mm ½"	13mm ½"	13mm ½"
	~90*-208mm ~3.6*-8.2"	155mm 6.1"	105mm 4.15"
	■	■	■
	-	-	-
	●	■	●
	■	■	■
	■	■	■
	■	■	●
	■	■	■
	-	-	-
	■	■	■
	CE	CE	NO
	Alu	Machined Alu	Steel & Alu
	NEW in 2025 * height when in use. no specific rope brand requirements Replaceable cams Sprung top arm (not cam)	*Load at which ropes slips thru SRT Barrel attachment available to improve frictional adjustment. Not officially sold in Europe.	*Load at which prusik slips $495 as system with cord. 24 strand and Kernmantle requires 8-10mm cord for climbing hitch *Comes with steel carabiner. Ropetek no longer supply cord but some stockists do.
	rockexotica.com	rockexotica.com	ropetek.com

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PETZL TREE CARE SOLUTIONS

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

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

PETZL®

Access the inaccessible®

UPDATED Aug '25

AUTOLOCKING, 2-WAY LANYARD/ FLIPLINE AJUSTERS

AKA **ROPE SHORTENERS**

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

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

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

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

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

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

ROPE SHORTENERS

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

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

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

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

IN THE FOLLOWING TABLES:.....

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

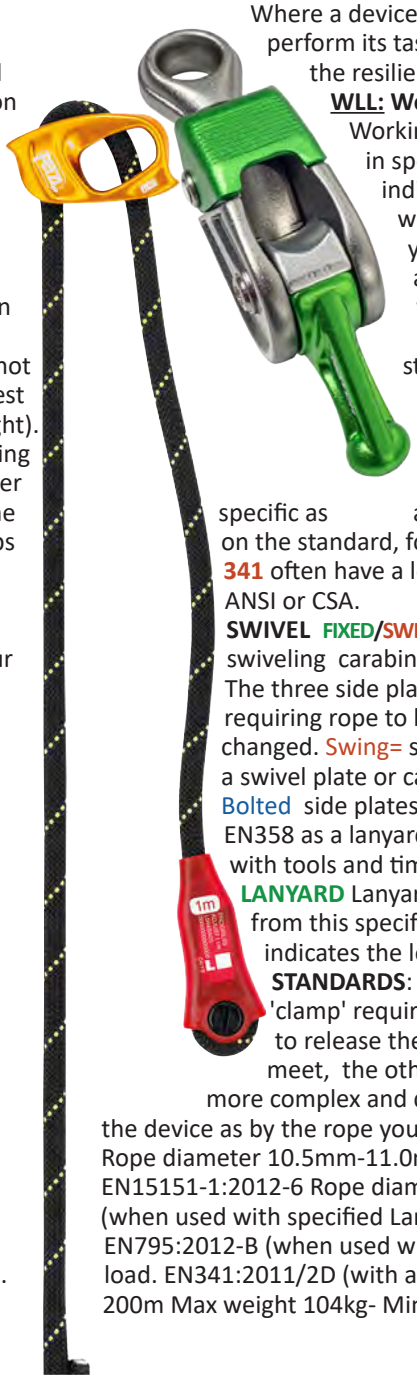
COST: Prices are a rough guide only - it can vary due to exchange rates, taxes etc. and we usually round the price up. Chinese devices may need import duty added.

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

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

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

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



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

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

MAXIMUM figure for the larger rope in the device's range. This figure is not as specific as an MBL and can vary depending on the standard, for instance ropes meeting **EN 341** often have a lower WLL than those meeting ANSI or CSA.

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

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

STANDARDS: Aside from EN567 as a rope 'clamp' requiring at least two actions to release the rope which all of these meet, the other relevant standards are more complex and determined not so much by the device as by the rope you put in it. EN12841:2006-C Rope diameter 10.5mm-11.0mm Max weight 130kg. EN15151-1:2012-6 Rope diam 9.9mm-11.3mm. EN358:2018 (when used with specified Lanyard) Max weight 150kg. EN795:2012-B (when used with specified lanyard) 1-person load. EN341:2011/2D (with approved pre-threaded rope) 1x 200m Max weight 104kg- Min weight 40kg

Images NOT to Scale						
MANUFACTURER	ABTECH	ANPEN	ART	ART	CAMP	
MODEL VARIANT	ROPE RAT ABRAT	P15 -	Positioner Basic -	Positioner 2 Swivel -	Druid Pro 2P654	C
ORIGIN						
COST (inc Tax) **DEVICE-ONLY** **Inc. Integral LANYARD**	- £144* $177 €165	£111 $135* €125 -	£103 $165 €110 -	£125 $200 €140 -	£135 $220 €113 -	£296
WEIGHT exc lanyard	346g 12.2oz	245g 8.6oz	175g 6.2oz	175g 6.2oz	280g 9.9oz	
MAX LOAD- WLL MBS	191kg 16kN 420lb 3597lbf	250kg 16kN 551lb 3597lbf	200kg 23kN 441lb 5170lbf	200kg 23kN 441lb 5170lbf	200kg 12kN 441lb 2697lbf	-
ROPE RANGE Ø	11mm 7/16"	9.5-11mm 3/8 - 7/16"	11-13mm* 7/16 - 1/2"	11-13mm* 7/16 - 1/2"	10-11mm 3/8-7/16"	10
DIMENSIONS ht x w x depth	114 x 73 x 24mm 4.5 x 2.9 x 0.9"	140 x 50mm 5.5 x 2"	120 x 45 x 38mm 4.7 x 1.8 x 1.5"	135 x 45 x 38mm 5.3 x 1.8 x 1.5"	118 x 76 x 46mm 4.7 x 3 x 1.8"	150 5.9 x
SWIVEL FIXED/SWING/BOLTED	-	-	-			
LANYARD RELEASE UNDER LOAD	2*/5/10m					
USES: PCD BELAY DESC ASC	-					
FRAME CAM HANDLE	Alu S.Steel Alu	Alu Alu Plastic	Alu Alu Alu	Alu Alu Alu	Alu S.Steel Alu	A
STANDARDS (with lanyard)	CE ANSI	GA494-2004	CE ANSI	CE ANSI	CE	
OTHER COLOURS			-	-	-	
NOTES	Rebranded by many companies	*FOB China	*Change cam for wire core rope 12-13mm	*Change cam for wire core rope 12-13mm	Std Druid version has dbl lock	
WEBSITE	abtechsafety.com	enanpen.com	smcgear.com	cmcpro.com	camp.it	cm

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

ROPE SHORTENERS

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

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

UPDATED Nov '25

PULLEYS
for General Rope-Use

IMAGES NOT TO SCALE

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

1) **General Purpose Swivel Cheek Pulleys**
2) **General Purpose Fixed Cheek Pulleys**
3) **PMPs** or **Prusik Minding Pulleys**
4) **HitchClimbing Pulleys**: Unique to arborism. Developed for use in a Doubled rope 'prusik' hitch climbing system. Any small pulley with multiple top eyes is in this category.
5) **Swivel Pulleys** (integral swivel and locking cheek)
6) **Carabiner-Pulleys** a sheave is integrated into the carabiner - almost always lighter duty options.
7) **Stand-Alone Sheaves**: often using a shackle/carabiner as the axle.
8) **Progress Capture Pulleys** with an integral cam
9) **Carriage/Trolley Pulleys** for use on ziplines, tyroleans and cableways
10) **Tandem pulleys** - (a sub-set of 9) above) two pulley sheaves mounted along the same rope-line but on separate axles within a frame (as distinct from a double pulley where the sheaves are side by side on the same axle).
11) **Knot-Passing Pulleys** . Aka *Kootenay Carriage* and is a vast nylon sheave about a foot wide within a swivel frame with numerous attachment holes. Intended as a highline trolley where ropes have been joined and would therefore not fit through most regular trolleys.
12) **Impact Pulleys** ultra heavy-duty pulleys designed to arrest a falling load (section of tree). The top connection point is a solid pin or bollard rather than an eye in the pulley cheeks.
13) **Shear Load Pulleys**. Designed to divert load and impart friction in a lowering system with a non-rotating sheave
14) **All of the Above**: Well, not quite but *Rock Exotica/CMC*'s latest *SwivaBiner* is about as close as we currently are to an all-round rope tool. *Rock Exotica* actually has a utility version of the *Omni-Block* that can take an impact load so if they married that to their *SwivaBiner* instead of this regular *Omni* and added a progress capture cam they would indeed be all the way there! *Petzl's Twin Release* and a number of other Progress Capture Pulleys or Devices (PCP/PCD) are indeed pulleys with an integral cam (and in the case of the *Twin-Release* a release/descent handle) and often a one-way ratcheted pulley but these are quite heavy, expensive and complex items used in systems but if you're in the market for a high-end pulley system heck out PCPs in the **ROPE EQPT BUYERSGUIDE** for some cam-pulley combinations.

IN THE FOLLOWING TABLES.....

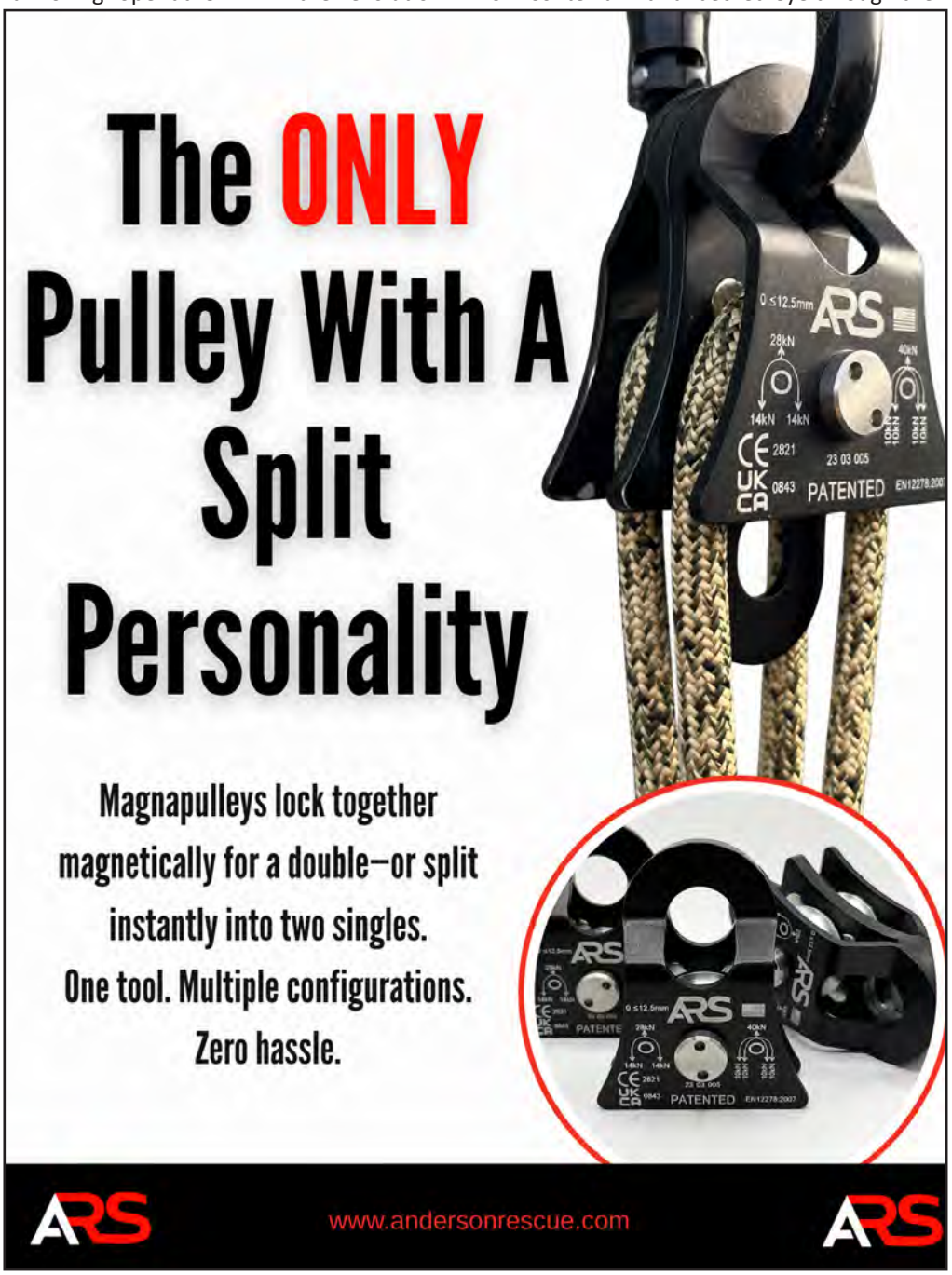
SHEAVE(WHEEL)**/TREAD DIAMETER Ø**: The diameter of the wheel. ***This can vary from the outer edge to the bottom of the rope channel (tread)and many companies do not state which figure they are using so there can be quite a difference. this figure gives you an idea of the overall size of pulley.*** The smaller the wheel the greater the proportion of

diameter would be lost in the rope channel ie. a 1" diameter sheave could lose 30% of that diameter when measured to the bottom of the rope channel (tread) whereas a 4" diameter sheave may only lose around 8% of the total diameter. On *Petzl*'s micro-pulleys for instance, the same 20mm sheave is shown as 30mm on other models-with the same size sheave. Use as large a diameter as possible because the tighter the bend on the rope the more it impacts the strength of the rope. If you are able to use a 4" or greater sheave you would lose none of the rope's in-line strength. **We will update all pulleys to show which dimension is being used - any in green are verified as being the minimum or tread diameter.**

PRUSIK TEND LOCK BECKET: '**Pruslik tend**' is more usually called **prusik-minding** and refers to the ability of the pulley to halt a prusik knot's upward slide on a moving rope rather than it get jammed in between the sheave and the wheel, the prusik then locks when the rope is released in the opposite direction. For arborists using large diameter rope ANY small pulley would prusik-mind as the bulky knot runs up against the sheaves but the true definition of prusik-minding requires smaller rope diameters to run up against a purpose designed squaring and sometimes a slight inward curve on the bottom part of the pulley frame. Unlike a regular round-bottom pulley, these can often stand on their flatter base. Some designs are more complex like the *CAMP Sphinx* with an extension to its frame and some like the Omni (see Swivel Pulley Guide) have a teardrop extension on one side. All arborist micro-pulleys will prusik mind because of the large diameter of rope being used, most do not have explicit prusik-minding design features so they are show as OK= ●

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

BECKET is a load-bearing bottom connection point - usually an obvious eye but it may be an extension of the frame as with the bottom of the *DMM Pinto* pulleys. The title image shows the *RevolutionFR* from *Conterra* with a 'becket' eye through the



Images NOT to Scale £$€ Currency Conversion-only Prusik-Tend. Most show as OK ● because they only work for larger diameter ropes. XX XX XX = Check data/Update								
MANUFACTURER	ART	CMI	CMI	CMI	CMI	DMM	DMM	DMM
MODEL VARIANT	Cocoon 5 -	RP141	RP151	RP161RS -	RollnAnchor -	HitchClimber Eccentric pul500	Rigger pul400	Rigger be pul410
ORIGIN								
COST (inc Tax) Conversion-only	£106$176€150	£55 $78 €60	£63 $85 €73	£90$120 €104	£121$160 €140	£62 $85 €72	£62 $85 €72	£90$115
WEIGHT	177g 6.2oz	44g 1.5oz	113g 4oz	204/226g 7.2/8oz	160g 5.6oz	176g 6.2oz	176g 6.2oz	198g 3.5oz
MAX LOAD- WLL MBS	- 29kN - 6520lbf	3.1 31.1kN 700 7000lbf	3.1 31.1kN 700 7000lbf	8.8 44kN 1980 9900lbf	- 36kN - 8000lbf	6 32kN 1349 6744lbf	8 40kN 1798 8992lbf	8 40k 1798 89
MAX ROPE Ø	≤14mm ≤9⁄16"	≤12.7mm ≤½"	≤12.7mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	7-14mm 5⁄16-9⁄16"	7-14mm 5⁄16-9⁄16"	7-14m 5⁄16-9⁄1
SHEAVE/TREAD Ø	30mm 1.2"	32mm 1.25"	32mm 1.25"	32mm 1.25"	23mm 0.92"	28mm 1.1"	28mm 1.1"	28mm 1.1"
DIMENSIONS ht x w x depth	90 x 42 x 36mm 3.5 x 1.6 x 1.4"	76x70x51mm 2.8x2.75x2"	102x76x51mm 3.75x2.8x2"	114x50x32mm 4.5 x 2 x 1.25"	114 x 45mm 4.5 x 1.75"	96x76x44mm 3.8x2.8x1.7"	94x68x33mm 3.7x2.7x1.3"	124x68x3 4.9 x2.7x
PRUSIK TEND LOCK BECKET	● - -	■ - -	■ - -	■ - -	● - ■	● - - - -	● - -	● - ■
BUSHING BEARING PIN	■	■	■	■	■	■	■	■
CHEEKS - SWIVEL FIXED	■	■	■	■	■	■	■	■
EFFICIENCY								
CHEEK SHEAVE AXLE	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu
STANDARDS	CE	ANSI	?	CE	?	CE	CE NFPA	CE NF
OTHER COLOURS	-	-	-	-	-	■ ■ ■ ■	■	■
NOTES	rope feeds directly onto top pin			RS=removable axle/ sheave +$2	Referred t as 'RA'	For HitchClimber prusik system		
WEBSITE	climb-art.de	cmigearusa.com	cmigearusa.com	cmigearusa.com	cmigearusa.com	dmmwales.com	dmmwales.com	dmmwales

obvious eye but it may be an extension of the frame as with the bottom of the *DMM Pinto* pulleys. The title image shows the *RevolutionFR* from *Conterra* with a 'becket' eye through the middle (similar to some Impact Pulleys)- expect to see more of this. Note that you cannot load the joining bar beneath the sheave of some models unless it specifically says so.

BUSH/BEARING/PIN The efficiency part of a pulley that tries to minimize friction under load. Bushings are the grunts of the industry, able to take abuse but not quite as efficient as a bearing. Bearings are ball bearing or needle rods that rotate against each other under load. They require more care than a bushing but are more efficient. A PIN is a simple axle with no frictional assistance beyond you daring to add a blob of grease (nor recommended in life-support rope activities). These will be simple pulley sheaves with a shackle bar or a carabiner acting as the axle. However, one or two models, notably the *PulleyOne* by *AtHeight* and the *Ultralight* by *ISC* might appear to be simple pin (or carabiner axles) but they both have independent bearings so they are not simply a passive 'PIN'.

Ball bearings and needle bearings are often shown simply as bearings and we may not have differentiated. Unless you are operating at extreme speed or extreme loads you are unlikely to notice the difference. Needle bearing are not quite as efficient as ball-bearings but they are able to take a higher load and even a bit of shock loading (not recommended) which ball bearings and are almost as robust as bushings. *CMI* use a lot of needle bearings which are effectively a pile of cylinders rotating against each other so the load is better spread than with the point-loaded (but friction-reducing) ball bearings.

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

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

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

extracted ARBORIST MICRO PULLEYS

	DMM	EDELRID	ISC	NOTCH	OMEGA PACIFIC	PROTEKT	ROCK EMPIRE	ROCK EXOTICA	
	HitchClimber Triple Attach pul100	Puck 854050003290	Phlotich RP282BRBS	Rook NRSP	Octavia -	TREE UP TU 421	Arboro AP-030-B	Hydra P4	
ecket	£50 $68 €58	£53 $71 €60	£38 $52 €44	£122 $152 €144	£50 $60 €58	£23 $28 €27	£00 $00 €52	£ 134 $182 €155	
	133g 4.7oz	164g 5.8oz	145g 5oz	189g 6.7oz	166g 5.85oz	160g 5.6oz	140g 4.9oz	189g 6.7oz	
N 92lbf	6 30kN 1349 6744lbf	8 40kN 1798 8992lbf	- 30kN - 6744lbf	2.8 28kN 629 6295lbf	- 32kN - 4945lbf	5 25kN 1124 5620lbf	- 30kN - 6744lbf	5 28kN 1124 6295lbf	
m	≤14mm ≤9/16"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	8-14mm 5/16-9/16"	≤13.5mm ≤17/32"	≤13mm ≤½"	≤13mm ≤½"	
n	28mm 1.1"	28mm 1.1"	42/30mm 1.6/1.2"	53mm 2.1"	44/30mm 1.7/1.2"	38mm 1.5"	?mm ?"	35/25mm 1.4/1"	
3mm x1.3"	94x68x33mm 3.7x2.7x1.3"	98x68x33mm 3.8x2.7x1.3"	97x69x34mm 3.8x2.7x1.3"	112x63.5x33mm 4.6 x 2.5 x 1.3"	94x69x31mm 3.7x2.7x1.2"	90x70x37mm 3.5x2.75x1.5"	000x00x00mm 00x 00 x 00"	112x63.5x33mm 4.4x 2.5 x 1.3"	
	● - -	● - -	● - -	● - -	● - -	● - -	● - -	● - -	
	■	■	■	■	■	■	■	■	
	■	■	■	■	■	■	■	■	
		94%		>90%			?%	>90%	
StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu Alu	Alu Alu StSt	Alu Alu StSt	
PA	CE	CE	CE UKCA	ANSI CE	CE	CE	CE UIAA	CE	
	■ For HitchClimber prusik system		■■■■■ For HitchClimber prusik system	-	-	■■ Updated model'23	- NEW in 2025	-	
s.com	dmmwales.com	edelrid.com	iscwales.com	notchequipment.com	omega-pacific.com	protekt.pl	rockempire.com	rockexotica.com	

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

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

Simple currency conversions are shown in orange. These are a rough guide only. They exclude import duty/shipping so the actual price will probably be much higher

This spread shows extracted arb-specific pulleys mostly for use with climbing hitches in Moving/Doubled Rope Systems (DdRT/ MRS),some for redirect. However, many of these are excellent for all manner of rope rigging not just in the arb sector.

	SINGING ROCK	SKYLOTEC	STEIN	STEIN	TEUFELBERGER
	Miky RK806BB00	CT Orbiter A 2P665	Skywalker -	Skywalker Pro -	Glide-Hitch -
	£35 $48 €41	£30 $41 €35	£40 $55 €48	£51 $75 €60	£42 $56 €47
	105g 3.7oz	104g 3.7oz	100g 3.5oz	145g 5oz	125g 4.4oz
	- 28kN - 6295lbf	5 30kN 1124 6744lbf	- 36kN - 8093lbf	- 30kN - 6744lbf	7 35kN 1574 7868lbf
	≤13mm ≤½"	8-13mm 5/16-½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"
	29mm 1.2"	19mm 0.75"	38mm 1.5"	42/30mm 1.6/1.2"	28.5/17mm 1.1/0.7"
	76x55x34mm 3x2.2x1.3"	71x58x32mm 2.8x2.3x1.3"	74x60x29mm 2x1.77x1.1"	97x69x34mm 3.8x2.7x1.3"	98x35x32mm 3.8x1.4x1.3"
	● - -	■ -	● - -	● - -	■ - -
	■	■	■	■	■
	■	■	■	■	■
	81%	80%	-		
	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt
	CE	CE	CE	CE UKCA	CE UIAA UKCA
	-	-	■	■	-
	Updated model'25	NB: this CT data differs from Skylotec's		For HitchClimber prusik system	For HitchClimber prusik system
	singingrock.com	skylotec.com	stein.com	stein.com	stein.com

Images NOT to Scale £$€ Currency Conversion-only XX XX XX = Check/Update								
MANUFACTURER	ALPIDEX	ANPEN	ANPEN	ANPEN	ANPEN	ARS ANDERSON RESCUE SOLUTIONS	ARS ANDERSON RESCUE SOLUTIONS	ARS ANDERSON RESCUE S
MODEL VARIANT	Mobile 107	U29 -	U28 -	U01 -	U02 2155	Magna Single	Magna Becket	Magna Do
ORIGIN								
COST (inc Tax) Conversion-only	£14 $20 €16	£28 $44 €38	£45 $61 €52	£18 $24 €20	£27 $36 €31	£75 $98 €86	£91 $120 €104	£145 $185
WEIGHT	87g 3.1oz	360g 12.7oz	407g 14.4oz	280g 9.9oz	500g 17.6oz	227g 8oz	255g 9oz	454g 16oz
MAX LOAD- WLL MBS	- 20kN - 4496lbf	- 32kN - 7195lbf	- 32kN - 7195lbf	- 32kN - 7195lbf	- 32kN - 7195lbf	- 28kN - 0lbf	- 26kN -5845lbf	- 40kN - 8992
MAX ROPE Ø	≤11mm ≤7/16"	8-13mm 5/16-1/2"	8-13mm 5/16-1/2"	8-13mm 5/16-1/2"	8-13mm 5/16-1/2"	≤11mm ≤7/16"	≤11mm ≤7/16"	≤11mm ≤7/16"
SHEAVE/TREAD Ø	20mm 0.8"	48mm 1.9"	48mm 1.9"	48mm 1.9"	48mm 1.9"	25mm 1"	25mm 1"	25mm 1"
DIMENSIONS ht x w x depth	72 x 40 x 28mm 2.8x1.6x1.1"	110 x 73mm 4.3 x 2.9"	176 x 94mm 7 x 3.7"	121 x 82 x36mm 4.7 x 3.2x 1.4"	147x82x60mm 5.8 x3.2x2.4"	76x63x26mm 3 x 2.5 x 1"	105x63x26mm 4.1 x 2.5 x 1"	76x63x53 3 x 2.5 x
PRUSIK TEND LOCK BECKET	- - -	- - -	- - -	- - -	- - ■	■ - -	■ - ■	■ - -
BUSHING BEARING PIN	■	■	■	■	■	■	■	■
CHEEKS - SWIVEL FIXED	■	■	■	■	■	■	■	■
EFFICIENCY	-	-	-	-	-	-	-	-
CHEEK SHEAVE AXLE	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu	Alu Alu
STANDARDS	CE	CE	CE	CE	CE	CE UKCA	CE UKCA	CE UKC
OTHER COLOURS	■■■■■■■■■	■■■■	■■	■	■	-	-	-
NOTES						Magnetic cheeks to form double sheave	Magnetic cheeks to form double sheave	Magnetic-car into single p
WEBSITE	alpidex.com	en.anpen.net	en.anpen.net	en.anpen.net	en.anpen.net	andersonrescue.com	andersonrescue.com	andersonresc

Images NOT to Scale £$€ Currency Conversion-only XX XX XX = Check/Update								
MANUFACTURER	BEAL	BEAL	BEAL	BLACK DIAMOND	BLUEWATER	BLUEWATER	BLUEWATER	BLUEWA
MODEL VARIANT	Transf'air 1B -	Transf'air 2 -	Transf'air 2B -	RP102D	Micro Pulley 61000	Mini Pulley -	Mini Dbl Pulley 610121	Mini Dbl P 610122
ORIGIN								
COST (inc Tax) Conversion-only	£43 $57 €49	£57 $77 €66	£72 $98 €84	£25 $34 €30	£12 $15 €13	£17 $22 €19	£21 $28 €25	£23 $30
WEIGHT	280g 9.9oz	475g 17oz	500g 17.6oz	76g 2.7oz	120g 4.2oz	50g 1.8oz	80g 2.8oz	85g 3oz
MAX LOAD- WLL MBS	5 30kN 1125 6744lbf	10 30kN 2250 6744lbf	10 30kN 2250 6744lbf	- 17kN - 3822lbf	- 22kN - 2445lbf	- 24kN - 5396lbf	- 24kN - 5396lbf	- 24kN - 5396
MAX ROPE Ø	≤16mm ≤5/8"	≤16mm ≤5/8"	≤16mm ≤5/8"	n/a n/a	≤13mm 1/2"	≤8mm ≤5/16"	≤8mm ≤5/16"	≤8mm ≤5/16"
SHEAVE/TREAD Ø	48mm 1.9"	2x 48mm 2x 1.9"	2x 48mm 2x 1.9"	n/a n/a	21mm 0.825"	21mm 0.825"	2x 21mm 2x 0.825"	2x 21m 2x 0.82
DIMENSIONS ht x w x depth	118x83x36mm 4.6x3.3x 1.4"	150x83x60mm 4.6x3.3x2.4"	150x83x60mm 4.6x3.3x2.4"	n/a n/a	81x36mm 3.2x 1.4"	73x39x25mm 2.9x1.5x 0.9"	73 x 39mm 2.9 x 1.5"	91 x 39 3.6 x 1.
PRUSIK TEND LOCK BECKET	- - -	- - ■	- - ■	- - -	- - -	■ - -	■ - -	■ - ■
BUSHING BEARING PIN	■	■	■	■	■	■	■	■
CHEEKS - SWIVEL FIXED	■	■	■	■	■	■	■	■
EFFICIENCY	-	-	-	-	-	-	-	-
CHEEK SHEAVE AXLE	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Nylon Alu	Alu Alu ZStl	Alu Alu StSt	Alu Alu StSt	Alu Alu
STANDARDS	CE UIAA	CE UIAA	CE UIA	CE	CE UIAA	CE	CE	CE
OTHER COLOURS	-	-	-	-	■	-	-	-
NOTES								
WEBSITE	beal-planet.com	beal-planet.com	beal-planet.com	blackdiamond.com	bluewaterropes.com	bluewaterropes.com	bluewaterropes.com	bluewaterrop

	ARS ANDERSON RESCUE SOLUTIONS	ART	ART	AT HEIGHT JAMMY DESIGN	AUSTRIALPIN	BEAL	BEAL	BEAL	BEAL
	Magna Double Becket	Link 2 -	Turnbase PSA -	PulleyOne P36	AL02B -	Transf'air Mini -	Transf'airf Fixe -	Transf'air FixeB -	Transf'air 1 -
€166	£178 $224 €204	£49 $67 €57	£82 $111 €945	£83 $92 €85	£13 $20 €15	£28 $38 €33	£24 $32 €27	£42 $57 €49	£38 $51 €44
g	510g 18oz	135g 4.8oz	160g 5.6oz	140g 5oz	48g 1.7oz	120g 4.2oz	90g 3.2oz	120g 4.2oz	270g 9.5oz
N lbf	- 40kN - 8992lbf	- N/AkN -N/Albf	- 24kN -5396lbf	- 36kN - 8093lbf	4 15kN 899 3372lbf	5 20kN 1125 4496lbf	5 20kN 1125 4496lbf	5 20kN 1125 4496lbf	5 30kN 1125 6744lbf
m	≤11mm ≤7⁄16"	≤14mm ≤9⁄16"	≤14mm ≤9⁄16"	≤11.5mm ≤7⁄16"	≤12mm ≤½"	≤11mm ≤7⁄16"	≤12mm ≤½"	≤13mm ≤½"	≤16mm ≤⅝"
n	25mm 1"	22mm 0.9"	27mm 1.1"	50/42mm 2/1.6"	19mm 0.75"	28mm 1.1"	20mm 0.8"	28mm 1.1"	48mm 1.9"
3mm 2.1"	105x63x53mm 0 x 2.5 x 2.1"	74 x 35mm 2.9 x 1.4"	115x48x38mm 4.5 x 1.9 x 1.5"	70x75x18mm 2.75 x 3 x 07"	70 x 36mm 2.75 x 1.4"	80 x 68 x 36mm 3.1 x 2.7 x 1.4"	82 x 45 x 21mm 3.2 x 1.8 x 0.8"	82 x 45 x 21mm 3.2 x 1.8 x 0.8"	118 x 83 x 36mm 4.6 x 3.3 x 1.4"
	■ - ■	- - -	- - ■	- - -	- - -	- - -	- - -	- - -	- - -
	■	■	■	■	■	■	■	■	■
	■	■	■	■	■	■	■	■	■
	-	-	-	-	-	-	-	-	-
Alu	Alu Alu Alu	Stst Alu StSt	Alu Alu Alu	Alu Alu -	AluPolymerAlu	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt
CA	CE UKCA	CE	CE	CE	CE	CE UIAA	CE UIAA	CE UIAA	CE UIAA
	-	-	-	-	□	-	-	-	-
n divide ulleys	Magnetic-can divide into single pulleys	redirect for ART Rope Guide	inc. bridging spindle for becket	Clip through axle					
ue.com	andersonrescue.com	climb-art.de	climb-art.de	atheightuk.com	austrialpin.at	beal-planet.com	beal-planet.com	beal-planet.com	beal-planet.com
ATER	CAMP	CAMP	CAMP	CAMP	CAMP	CAMP	CAMP	CAMP	CAMP
Pulley 2	Andry 0108	Sphinx 2152	Sphinx Pro 2153	Tethys 2154	Tethys Pro 2155	Dryad 2156	Dryad Pro 2157	Naiad 2158	Naiad Pro 2159
€26	£14 $19 €16	£26 $35 €30	£32 $43 €37	£31 $36 €31	£32 $43 €37	£52 $70 €60	£61 $83 €71	£50 $67 €58	£58 $78 €67
	100g 3.5oz	95g 3.4oz	85g 3oz	100g 3.5oz	90g 3.2oz	170g 6oz	155g 5.5oz	280g 9.9oz	300g 10.6oz
N lbf	- 22kN 0 4945lbf	4 24kN 899 5396lbf	6 25kN - 5620lbf	4 24kN 899 5396lbf	6 25kN - 5620lbf	4 24kN 899 5396lbf	7 26kN 1574 5845lbf	7 44kN 1574 9892lbf	10 46kN 0 10341lbf
n	≤12mm ≤ ½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤16mm ≤⅝"	≤16mm ≤⅝"
mm 25"	36/26mm 1.4/1"	28mm 1.1"	28mm 1.1"	28mm 1.1"	28mm 1.1"	2x 28mm 2x 1.1"	2x 28mm 2x 1.1"	49mm 2"	49mm 2"
mm 5"	75 x 36 x 30mm 3 x 1.4 x 1.2"	86x50x29mm 3.4x2x1.1"	86x50x29mm 3.4x2x1.1"	78x61x29mm 3x2.4x1.1"	78x61x29mm 3x2.4x1.1"	102x61x49mm 4x2.4x2"	102x61x49mm 4x2.4x2"	149x96x31mm 5.9x3.8x1.2"	149x96x31mm 5.9x3.8x1.2"
	- - -	■ - -	■ - -	■ - -	■ - -	■ - ■	■ - ■	■ - ■	■ - ■
	■	■	■	■	■	■	■	■	■
	■	■	■	■	■	■	■	■	■
	70%	80%	92%	80%	92%	80%	92%	90%	97%
StSt	ZStl Nylon ZSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt
	CE	CE EAC	CE EAC	CE EAC	CE EAC	CE EAC	CE EAC	CE EAC	CE EAC
	-	■	■	■	-	-	-	-	-
	designed for safety net tensioning								
es.com	camp.it	camp.it	camp.it	camp.it	camp.it	camp.it	camp.it	camp.it	camp.it

Images NOT to Scale £$€ Currency Conversion-only XX XX XX = Check/Update								
MANUFACTURER	CAMP	CAMP	CMC	CMC	CMC	CMC	CMC	CMC
MODEL VARIANT	Janus 2160	Janus Pro 2161	Protech sngle 300501	Protech dbl 300502	HD2 300441	HD2 Double 300442	HD4 300461	Rescue s 30030
ORIGIN								
COST (inc Tax) Conversion-only	£66 $89 €76	£79 $104 €99	£52 $71 €61	£88 $119 €102	£149 $184 €172	£202 $249 €232	£234 $289 €270	£59 $80
WEIGHT	405g 14.3oz	425g 15oz	94g 3.3oz	156g 5.5oz	367g 13oz	605g 1.3lb	850g 1.9lb	145g 5.1oz
MAX LOAD- WLL MBS	8 38kN 0 8543lbf	12 42kN 2698 9442lbf	- 36kN - 8093lbf	- 36kN - 8093lbf	- 50kN - 11240lbf	- 50kN - 11240lbf	- 46kN - 10341lbf	- 52k - 1169
MAX ROPE Ø	≤16mm ≤⅝"	≤16mm ≤⅝"	≤11mm ≤7⁄16"	≤11mm ≤7⁄16"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13m ≤½"
SHEAVE/TREAD Ø	2x 49mm 2"	2x 49mm 2"	25mm 1"	2x 25mm 2x 1"	65/57mm 2.6/2.2"	2x 65/57mm 2x 2.6/2.2"	100/95mm 4/3.7"	38mm 1.5"
DIMENSIONS ht x w x depth	147 x 100 x 54mm 5.8 x 4x 2.1"	147 x 100 x 54mm 5.8 x 4 x 2.1"	76 x 62 x 19mm 3 x 2.45 x 0.75"	100 x 62 x 37mm 3.95 x 2.45 x 1.45"	145 x 107 x 30mm 5.7 x 4.2 x 1.2"	165 x 95 x 50mm 6.5 x 3.75 x 2"	197 x 140 x 30 mm 7.75 x 5.5 x 1.2"	89 x 64 x 2 3.5 x 2.5 x
PRUSIK TEND LOCK BECKET	■ - ■	■ - ■	■ - -	■ - -	■ - ■	■ - -	■ - ■	- - -
BUSHING BEARING PIN	■	■	■	■	■	■	■	■
CHEEKS - SWIVEL FIXED	■	■	■	■	■	■	■	■
EFFICIENCY	90%	97%						
CHEEK SHEAVE AXLE	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu
STANDARDS	CE EAC	CE EAC	CE	CE	NFPA	NFPA	NFPA	NFPA
OTHER COLOURS	■	-	-	-	-	-	-	-
NOTES			machined alloy	machined alloy	Discontinued	Discontinued	Discontinued	
WEBSITE	camp.it	camp.it	cmcpro.com	cmcpro.com	cmcpro.com	cmcpro.com	cmcpro.com	cmcpro.c

Images NOT to Scale £$€ Currency Conversion-only XX XX XX = Check/Update								
MANUFACTURER	CMI	CMI	CMI	CMI	CMI	CMI	CMI	CMI
MODEL VARIANT	RP104BB	RC104	RC105	RP105	RP105D	RC106	RP106BB	RP106
ORIGIN								
COST (inc Tax) Conversion-only	£98 $126 €115	£103 $134 €111	£70 $92 €85	£95 $125 €108	£152 $200 €172	£124 $143 €130	£124 $164 €141	£199 $263
WEIGHT	283g 10oz	397g 14oz	454g 1lb 0oz	595g 1lb 5oz	1049g 2lb 5oz	490g 1lb 1oz	612g 1lb 6oz	1043 1lb 5.
MAX LOAD- WLL MBS	7.5 37.8kN 1700 8500lbf	7.5 37.8kN 1700 8500lbf	7.5 37.8kN 1700 8500lbf	14.2 71.2kN 3200 16000lbf	17.8 88.9kN 4000 20000lbf	7.5 37.8kN 1700 8500lbf	14.2 71.2kN 3200 16000lbf	17.8 88. 4000200
MAX ROPE Ø	16mm ⅝"	16mm ⅝"	16mm ⅝"	16mm ⅝"	16mm ⅝"	16mm ⅝"	16mm ⅝"	16mm ⅝"
SHEAVE/TREAD Ø	60mm 2.4"	60mm 2.4"	60mm 2.4"	75mm 3"	75mm 3"	60mm 2.4"	75mm 3"	75mm 3"
DIMENSIONS ht x w x depth	108x83x 25mm 4.25x3.25x1"	111x89x25mm 4.4 x 3.5 x 1"	152x83x25mm 6 x 3.25 x1"	165x108x26mm 6.5 x 4.25 x 1"	184x108x50mm 7.25 x 4.25 x 2"	152x83x25mm 6 x 3.25 x1"	165x108x26mm 6.5 x 4.25x1"	184x108x 7.25 x 4.2
PRUSIK TEND LOCK BECKET	- - -	- - -	- - ■	- - -	- - ■	- - ■	- - -	- - ■
BUSHING BEARING PIN	■* ■	■	■	■	■	■	■* ■	■
CHEEKS - SWIVEL FIXED	■	■	■	■	■	■	■	■
EFFICIENCY	95.6%	95.6%	91.4%	92.1%	n/a	95.6%	94.1%	94.1
CHEEK SHEAVE AXLE	StSt Alu StSt	StSt Steel StSt	StSt Steel StSt	StSt Alu StSt	StSt Alu StSt	StSt Steel StSt	StSt Alu StSt	StSt Alu
STANDARDS	CE	CE	CE	CE	CE	CE	CE	CE
OTHER COLOURS	-	-	-	-	-	-	-	-
NOTES	* Needle Bearing	wire cable-able *needle bearing	Wire cable-able	bush		wire cable-able *needle bearing	*needle bearing Ball Bearing +£10	
WEBSITE	cmigearusa.com	cmigearusa.com	cmigearusa.com	cmigearusa.com	cmigearusa.com	cmigearusa.com	cmigearusa.com	cmigearus

	CMC	CMI	CMI	CMI	CMI	CMI	CMI	CMI	CMI
ingle 1	Rescue dbl 300302	RP101	RP101D	RP102	RP102D	RC102	RP103	RP103BB	RC103
€68	£94 $127 €108	£41 $52 €45	£68 $85 €79	£60 $82 €70	£118 $148 €128	£73 $92 €84	£84 $109 €99	£90 $118 €105	£88 $115 €102
g z	249g 8.8oz	170g 6oz	n/a	198g 7oz	510g 1lb 2oz	340g 12oz	198g 7oz	198g 7oz	340g 12oz
N lbf	- 45kN - 10116lbf	5.3 26.7kN 1200 6000lbf	5.3 26.7kN 1200 6000lbf	5.3 26.7kN 1200 6000lbf	5.3 26.7kN 1200 6000lbf	5.3 26.7kN 1200 6000lbf	5.3 26.7kN 1200 6000lbf	5.3 26.7kN 1200 6000lbf	5.3 26.7kN 1200 6000lbf
m	≤13mm ≤½"	≤16mm ≤⅝"	≤16mm ≤⅝"	≤16mm ≤⅝"	≤16mm ≤⅝"	≤16mm ≤⅝"	≤16mm ≤⅝"	≤16mm ≤⅝"	≤16mm ≤⅝"
n	2x 38mm 2x 1.5"	60mm 2.4"	60mm 2.4"	60mm 2.4"	2x 60mm 2.4"	60mm 2.4"	60mm 2.4"	60mm 2.4"	60mm 2.4"
23mm x 0.9"	117 x 64 x 43mm 4.6 x 2.5 x 1.7"	108 x 83 x 25mm 4.25 x 3.25 x 1"	165 x 89 x 25mm 6.5 x 3.5 x 1"	108 x 83 x 25mm 4.25 x3.25 x 1"	165 x 89 x 25mm 6.5 x 3.5 x 1"	111 x 89 x 25mm 4.4 x 3.5 x 1"	108 x 83 x 25mm 4.25 x 3.25x1"	108 x 83 x 25mm 4.25 x 3.25 x 1"	111 x 89 x 25mm 4.4 x 3.5 x 1"
	- -	- - -	- -	- - -	- -	- - -	- - -	- - -	- - -
							*		*
		93.3	93.3	91.4	n/a	91.4	95.6	n/a	95.6%
StSt	Alu Alu StSt	Alu Celcon StSt	Alu Celcon StSt	Alu Alu StSt	Alu Alu StSt	Alu Steel StSt	Alu Alu StSt	Alu Alu StSt	Alu Steel StSt
A	NFPA	-	-	-	-	-	-	-	CE
	-		-	-	-	-	-	-	-
			Discontinued				* Needle Bearing		* Needle Bearing
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CMI PULLEYS NUMBERING 130,131, 145, 146,160.162 = Impact Blocks 139 & 143 = Trolleys. 141&151 =p64 No 128 or 150

	CMI	CMI	CMI	CMI	CMI	CMI	CMI	CMI	
D	RP107	RP108BB	RP109	RP110	RP110BB	RP110D	RP111	RP112BB	
€226	£101 $133 €115	£133 $175 €151	£37 $49 €43	£38 $50 €43	£48 $64 €55	£62 $82 €71	£66 $87 €75	£101 $134 €116	
g oz	822g 1lb 13oz	822g 1lb 13oz	71g 2.4oz	71g 2.5oz	71g 2.4oz	113g 4oz	318g 11.2oz	318g 11.2oz	
.9kN 00lbf	14.2 71.2kN 3200 16000lbf	14.2 71.2kN 3200 16000lbf	6.2 31.1kN 1400 7000lbf	6.2 31.1kN 1400 7000lbf	6.2 31.1kN 1400 7000lbf	6.2 31.1kN 1400 7000lbf	- 37.8kN 1700 8500lbf	7.5 37.8kN 1700 8500lbf	
n	16mm ⅝"	16mm ⅝"	≤12.7mm ≤½"	≤12.7mm ≤½"	≤12.7mm ≤½"	≤12.7mm ≤½"	16mm ⅝"	16mm ⅝"	
n	100mm 4"	100mm 4"	31mm 1.25"	31mm 1.25"	31mm 1.25"	2x 31mm 1.25"	60mm 2.4"	60mm 2.4"	
50mm 5 x 2"	190x127x26mm 7.5 x 5 x1"	190x127x26mm 7.5 x 5 x1"	70x41x24mm 2.75x1.6x1"	70x41x24mm 2.75x1.6x1"	70x41x24mm 2.75x1.6x1"	89x41x46mm 3.5 x1.6x1.8"	146x75x25mm 5.75 x 3 x1	152x83x25mm 6 x 3.25 x1	
	- - -	- - -	■ - -	■ - -	■ - -	- -	- -	- -	
		*						*	
%	93.7%	95.6%	84.1%	84.1%	?%	133.6%	91.4%	95.6%	
StSt	StSt Alu StSt	StSt Alu StSt	AluNylonAlu	AluAluAlu	AluAluAlu	Alu Alu Alu	StSt Alu StSt	StSt Alu StSt	
	-	-	CE	ANSI	ANSI	CE	CE	CE	
	-	-	-	-	■	■	-	-	
		*needle bearing Ball Bearing +£10		Alu sheave version shown	Alu sheave version shown			*needle bearing Ball Bearing +£13	
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Images NOT to Scale £$€ Currency Conversion-only XX XX XX = Check/Update								
MANUFACTURER	CMI	CMI	CMI	CMI	CMI	CMI	CMI	CMI
MODEL VARIANT	RP113	RP114	RP115	RP116	RP116BB	RP117NFPA	RP118NFPA	RP118
ORIGIN								
COST (inc Tax) Conversion-only	£20 $26 €23	£47 $61 €48	£39 $51 €44	£45 $59 €51	£54 $72 €56	£54 $72/97 €55	£66 $87/97 €73	£60 $79
WEIGHT	43g 1.5oz	284g 10oz	198g 7oz	184g 6.5oz	184g 6.5oz	227g 8oz	340g 12oz	340g 12oz
MAX LOAD- WLL MBS	4.5 22.2kN 1000 5000lbf	6.6 33.3kN 1500 7500lbf	6.6 33.3kN 1500 7500lbf	6.6 33.3kN 1500 7500lbf	6.6 33.3kN 1500 7500lbf	7.1 35.5kN 1600 8000lbf	7.1 35.5kN 1600 8000lbf	7.1 35. 1600 80
MAX ROPE Ø	≤13mm ≤½"	≤12.7mm ≤½"	≤12.7mm ≤½"	≤12.7mm ≤½"	≤12.7mm ≤½"	≤12.7mm ≤½"	≤12.7mm ≤½"	≤12.7 ≤½"
SHEAVE/TREAD Ø	31mm 1.25"	60mm 2.4"	50mm 2"	50mm 2"	50mm 2"	50mm 2"	50mm 2"	50mm 2"
DIMENSIONS ht x w x depth	75x38x20mm 3 x 1.5 x 0.8"	127x 0x24mm 5 x 2.5 x 0.9"	127x 0x24mm 5 x 2.5 x 0.9"	127x 0x24mm 5 x 2.5 x 0.9"	127x 0x24mm 5 x 2.5 x 0.9"	127x 0x21mm 5 x 2.5 x 0.8"	127x 0x21mm 5 x 2.5 x 0.8"	127x 0x2 5 x 2.5 x
PRUSIK TEND LOCK BECKET	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
BUSHING BEARING PIN	■	■	■	■*	■	■*	■	■
CHEEKS - SWIVEL FIXED	■	■	■	■	■	■	■	■
EFFICIENCY	86.4%	89.2%	89.2%	90.6%	90.6%	90.6%	89.2%	89.2
CHEEK SHEAVE AXLE	Alu Nylon StSt	Alu StSt StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	StSt Alu StSt	StSt StSt StSt	StSt Alu
STANDARDS	CE	CE	CE	-	-	Exceeds NFPA but no cert	Exceeds NFPA but no cert	
OTHER COLOURS	-	■	-	-	-	-	-	-
NOTES				*Needle Bearing		*Needle Bearing. Ball Bearing +£11 $14		Alloy she version of
WEBSITE	cmigearusa.com	cmigearusa.com	cmigearusa.com	cmigearusa.com	cmigearusa.com	cmigearusa.com	cmigearusa.com	cmigearus

Images NOT to Scale £$€ Currency Conversion-only XX XX XX = Under Review								
MANUFACTURER	CMI	CMI	CMI	CMI	CMI	CMI	CMI	CMI
MODEL VARIANT	RP124NFPA	RP125	RP125NFPA	RP126	RP127	RP129NFPA	RP132NFPA	RP133N
ORIGIN								
COST (inc Tax) Conversion-only	£208 $275 €237	£ 241 $318 €274	£301 $ 397 €342	£68 $89 €77	£112 $148 €128	£130 $172 €148	£80 $105 €91	£130 $172
WEIGHT	1792g 3lb 15oz	1792g 3lb 15oz	1792g 3lb 15oz	363g 12.8oz	476g 16.8oz	737g 1lb 10oz	397g 14oz	703g 1lb 9
MAX LOAD- WLL MBS	22.2 111.2kN 5000 25000lbf	22.2 111.2kN 5000 25000lbf	22.2 111.2kN 5000 25000lbf	- 44.5kN - 10000lbf	- 44.5kN - 10000lbf	14.2 71kN 3200 16000lbf	7.1 35.5kN 1600 8000lbf	11.5 57 2600 130
MAX ROPE Ø	≤16mm ≤⅝"	≤16mm ≤⅝"	≤16mm ≤⅝"	≤13mm ≤½"	≤13mm ≤½"	≤12.7mm ≤½"	≤12.7mm ≤½"	≤12.7 ≤½"
SHEAVE/TREAD Ø	2x 100mm 2x 4"	2x 100mm 2x 4"	2x 100mm 2x 4"	51mm 2"	2x 51mm 2x 2"	75mm 3"	50mm 2"	50mm 2"
DIMENSIONS ht x w x depth	229x121x52mm 9 x 4.75 x 2"	229x121x52mm 9 x 4.75 x 2"	229x121x52mm 9 x 4.75 x 2"	152x70x22mm 6 x 2.75 x 0.8"	152x70x22mm 6 x 2.75 x 0.8"	172x132x22mm 6.75x5.2x0.8"	127x100x31mm 5 x 4 x 1.2"	172x133x 6.75x5x
PRUSIK TEND LOCK BECKET	- - ■	- - ■	- - ■	- ■ -	- ■ -	■ - -	■ - -	■ -
BUSHING BEARING PIN	■	■*	■*	■	■	■	■	■
CHEEKS - SWIVEL FIXED	■	■	■	■	■	■	■	■
EFFICIENCY	-	-	-	-	-	91.7%	90.7	-
CHEEK SHEAVE AXLE	StSt Alu StSt	StSt Alu StSt	StSt Alu StSt	StSt Alu StSt	StSt StSt StSt	StSt Alu StSt	StSt Alu StSt	StSt Alu
STANDARDS	NFPA		NFPA	-	-	CE	*	*
OTHER COLOURS	-	-	-	-	-	-	-	-
NOTES	NFPA +£61 $78	* Needle Bearing	* Needle Bearing	Intended as a ropes course pulley			*Not NFPA but exceeds test	*Not NFPA exceeds t
WEBSITE	cmigearusa.com	cmigearusa.com	cmigearusa.com	cmigearusa.com	cmigearusa.com	cmigearusa.com	cmigearusa.com	cmigearus

									Expansion Column
	CMI	CMI	CMI	CMI	CMI	CMI	CMI	CMI	
BA	RP119BB	RP120	RP120A	RP121	RP122NFPA	RP122SS	RP123NFPA	RP123SS	
€68	£85 $112 €96	£90 $119 €102	£81 $107 €94	£19 $22 €53	£101 $133/144	£150 $198 €171	£112 $147 €127	£166 $220 €190	
g	397g 14oz	589g 20.8oz	397g 14oz	284g 10oz	998g 2lb 4oz	998g 2lb 4oz	998g 2lb 4oz	1633g 3lb 10oz	
5kN 00lbf	9.7 48.9kN 2200 11000lbf	9.7 48.9kN 2200 11000lbf	9.7 48.9kN 2200 11000lbf	- 30.2kN - 6800lbf	17.8 88.9kN 4000 20000lbf	17.8 88.9kN 4000 20000lbf	17.8 88.9kN 4000 20000lbf	17.8 88.9kN 4000 20000lbf	
nm	≤12.7mm ≤½"	≤12.7mm ≤½"	≤12.7mm ≤½"	≤16mm ≤⅝"	≤16mm ≤⅝"	≤16mm ≤⅝"	≤16mm ≤⅝"	≤16mm ≤⅝"	
n	2x 50mm 2x 2"	2x 50mm 2x 2"	2x 50mm 2x 2"	50mm 2"	100mm 4"	100mm 4"	100mm 4"	100mm 4"	
1mm 0.8"	165x66x37mm 6.5x2.6x 1.5"	165x66x37mm 6.5x2.6x 1.5"	165x66x37mm 6.5x2.6x 1.5"	140x108x31mm 5.5x4.25x1.2"	203x121x26mm 8 x 4.75 x 1"	203x121x26mm 8 x 4.75 x 1"	203x121x26mm 8 x 4.75 x 1"	203x121x26mm 8 x 4.75 x 1"	
	- - ■	- - ■	- - ■	■ - -	- - -	- - -	- - -	- - -	
	■*	■	■	■	■	■	■	■	
	■	■	■	■	■	■	■	■	
%	185.7%	172.9%	172.9%	89.2%	92.3%	92.3%	95%	95%	
StSt	StSt Alu StSt	StSt StSt StSt	StSt Alu StSt	StSt Alu ZPS	StSt Alu StSt	StSt StSt StSt	StSt Alu StSt	StSt StSt StSt	
	-	-	-	-	Exceeds NFPA but no cert	-	NFPA	-	
	-	-	-	-	-	-	-	-	
ave RP118	*Needle Bearing Ball Bearing +£10 $30				NFPA +£20 $26		NFPA +£14 $20		
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									Expansion Column
	CMI	CMI	CMI	CMI	CMI	CMI	CMI	CMI	
FPA	RP134	RP135	RP137	RP137D	RP138	RP140	RP142	RP144	
€148	£255 $337 €290	£282 $372 €320	£56 $73 €63	£62 $84 €72	£112 $148 €128	£46 $60 €52	£19 $25 €22	£64 $84 €73	
g oz	2382g 3lb 4oz	2382g 3lb 4oz	91g 3.2oz	136g 4.8oz	1270g 2lb 13oz	91g 3.2oz	71g 2.5oz	85g 3oz	
.8kN 00lbf	26.6 133kN 6000 30000lbf	26.6 133kN 6000 30000lbf	3.1 31.1kN 700 7000lbf	3.1 31.1kN 700 7000lbf	13.3 66.7kN 3000 15000lbf	3.1 31.1kN 700 7000lbf	18kN 800 4047lbf	- 35.5kN - 8000lbf	
nm	≤16mm ≤⅝"	≤16mm ≤⅝"	≤12.7mm ≤½"	≤12.7mm ≤½"	≤16mm ≤⅝"	≤12.7mm ≤½"	≤12.7mm ≤½"	≤12.7mm ≤½"	
n	3x 100mm 3x 4"	3x 100mm 3x 4"	32mm 1.25"	2x 32mm 2x 1.25"	100mm 4"	32mm 1.25"	32mm 1.25"	32mm 1.25"	
40mm 1.6"	203x121x72mm 8x4.75x2.8"	203x121x72mm 8x4.75x2.8"	76x70 x25mm 3 x 2.75 x 1"	95x70x45mm 3.75x2.75x1.8"	222x178x26mm 8.75 x7 x 1"	64 x 44.5mm 2.5 x 1.75"	70x48x20mm 2.75x1.9x08."	63x38mm 2.5x1.5"	
	- - -	- - -	■ - -	■ - ■	■ - -	- - -	- - -	- - -	
	■	■*	■	■	■	■	■	■	
	■	■	■	■	■	■	■	■	
StSt	StSt Alu StSt	StSt Alu StSt	Alu Alu Alu	Alu Alu Alu	StSt Alu StSt	Alu Alu StSt	Alu Nylon StSt	StSt Alu StSt	
	-	-	CE	CE	CE	CE	CE	CE	
	-	-	-	-	-	-	■	-	
A but test		* Needle Bearing							
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Images NOT to Scale £$€ Currency Conversion-only								
MANUFACTURER	CMI	CMI	CMI	CMI	CMI	CMI	CMI	CMI
MODEL VARIANT	RP147	RP148	RP149C	RP152	RP153	RP154	RP155	RP156
ORIGIN								
COST (inc Tax) Conversion-only	£108 $143 €123	£108 $143 €123	£118 $155 €134	£69 $91 €77	£103 $136 €116	£92 $121 €103	£137 $136 €117	£54 $72 €6
WEIGHT	408g 14.4oz	408g 14.4oz	6921068g 12lb 96oz	199g 7oz	340g 12oz	363g 12.8oz	635g 1lb 6.4oz	199g 7oz
MAX LOAD- WLL MBS	12.4 62kN 2800 14000lbf	12.4 62kN 2800 14000lbf	14.2 71.2kN 3200 16000lbf	8.7 43kN 1960 9800lbf	12.4 62kN 2780 14000lbf	8.8 44kN 1980 9900lbf	12.4 61kN 2780 13900lbf	5.8 28kN 1300 6500
MAX ROPE Ø	≤9mm cable ≤⅜" cable	≤12.7mm cable ≤½" cable	25mm 1"	≤12.7mm ≤½"	≤12.7mm ≤½"	≤12.7mm ≤½"	≤12.7mm ≤½"	≤12.7mm ≤½"
SHEAVE/TREAD Ø	50mm 2"	50mm 2"	70mm 2.75"	51mm 2"	2x 51mm 2x 2"	75mm 3"	2x 75mm 2x 3"	51mm 2"
DIMENSIONS ht x w x depth	127x50x25mm 5 x 2 x 1"	127 x 50x25mm 5 x 2.5 x 1"	165 x 108 x 36mm 6.5 x 4.25 x1.4"	100 x 75 x 23mm 4 x 3 x 0.9"	127 x 76mm 5 x 3"	152 x 100 x 23mm 6 x 4 x 0.9"	178 x 100 x 42mm 7 x 4 x 1.7"	100 x 70 x 23m 4 x 2.75 x 0.
PRUSIK TEND LOCK BECKET	- - -	- - -	- - -	■ - -	■ - ■	■ - -	■ - ■	- - -
BUSHING BEARING PIN	■	■	■	■	■	■	■	■
CHEEKS - SWIVEL FIXED	■	■	■	■	■	■	■	■
EFFICIENCY	n/a	n/a	n/a	93.3%	93.3%	n/a	n/a	n/a
CHEEK SHEAVE AXLE	StSt StSt StSt	StSt StSt StSt	StSt Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu St
STANDARDS	CE	CE	CE	CE	CE	CE	CE	CE
OTHER COLOURS	-	-	-	-	-	-	-	-
NOTES	cheek gap lets rope direct to sheave	cheek gap lets rope direct to sheave	C-Cable +£ $121					
WEBSITE	cmigearusa.com	cmigearusa.com	cmigearusa.com	cmigearusa.com	cmigearusa.com	cmigearusa.com	cmigearusa.com	cmigearusa.c

Images NOT to Scale £$€ Currency Conversion-only								
MANUFACTURER	CONTERRA	COURANT	COURANT	DMM	DMM	DMM	DMM	DMM
MODEL VARIANT	Revolution FR RPFR	Mova Eccentric	Orbit22 -	Polo pul600	Pinto 2 pul110	Pinto Rig 2 PUL120	Gyro pul230	Gyro PM PUL231
ORIGIN								
COST (inc Tax) Conversion-only	£66 $90 €77	£16 $21 €18	£12 $17 €14	£55 $67 €64	£42 $57 €49	£60 $90 €70	£84 $ 114 €97	£75 $93 €8
WEIGHT	188g 6.6oz	85g 3.4oz	110g 4.3oz	17g 0.6oz	117g 4.1oz	222g 6.4oz	225g 8.9oz	234g 9.2oz
MAX LOAD- WLL MBS	- 38kN - 8543lbf	- 20kN - 4496lbf	- 22kN - 4946lbf	15kN 3372lbf	10 50kN 2248 11240lbf	10 50kN 2248 11241lbf	10 50kN 2248 11241lbf	10 50kN 2248 11241
MAX ROPE Ø	8-13mm 5/16-½"	≤11mm ≤7/16"	≤13mm ≤½"	2-6mm 3/32-¼"	≤14mm ≤9/16"	≤16mm ≤⅝"	≤13mm ≤½"	≤13mm ≤½"
SHEAVE/TREAD Ø	50mm 2"	20mm 0.8"	21mm 0.825"	18mm 0.7"	20.4mm 0.8"	28.7mm 1.13"	38mm 1.5"	38mm 1.5"
DIMENSIONS ht x w x depth	190x102x51mm 7.5x3.75x2"	73 x 43 x 28mm 2.9 x 1.7 x 1.1"	85x44x29mm 3.4 x 1.7 x 1.1"	48x23x12mm 1.9x0.9x0.5"	95x45x32mm 3.7x1.8x1.3"	115x60x37mm 4.5x2.4x1.5"	97x68x31mm 3.8 x 2.7 x 1.2"	97x70x31m 3.8 x 2.7 x 1.
PRUSIK TEND LOCK BECKET	■ - ■	- - -	- - -	- - -	- - ■	- - ■	- - -	■ - -
BUSHING BEARING PIN	■	■	■	■	■	■	■	■
CHEEKS - SWIVEL FIXED	■	■	■	■	■	■	■	■
EFFICIENCY	184%	n/a	n/a	n/a	n/a	n/a	n/a	n/a
CHEEK SHEAVE AXLE	Alu Alu StSt	Alu Alu Alu	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu St
STANDARDS	NFPA	CE	CE	CE	CE NFPA	CE NFPA	CE	CE
OTHER COLOURS	-	-	-	■	■	■		
NOTES	centre eye=becket				replaced Pinto in 2024	replaced Rig in 2024	originally for 12mm rope, uprated to 13	originally for 12r rope, uprated to
WEBSITE	conterra.com	mycourant.com	mycourant.com	dmmwales.com	dmmwales.com	dmmwales.com	dmmwales.com	dmmwales.c

PULLEYS

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

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MANUFACTURER	EDELRID	EDELRID	EDELWEISS	EDELWEISS	EDELWEISS	EDELWEISS	EDELWEISS	EDELW
MODEL VARIANT	Roll Single 88908	Roll Double 88909	Rotor 0	Rotor 113R 0	Trafic 111 0	Trafic 116 0	Trafic 116R 0	Traffic 2 0
ORIGIN								
COST (inc Tax) Conversion-only	£75 $93 €73	£88 $122 €110	£17 $26 €24	£38 $48 €45	£23 $31 €29	£31 $41 €38	£39 $46 €43	£46 $61
WEIGHT	210g 7.4oz	345g 12.2oz	85g 3oz	85g 3oz	142g 5oz	270g 9.5oz	280g 9.9oz	475g 17oz
MAX LOAD- WLL MBS	- 32kN - 7194lbf	- 50kN - 11241lbf	- 20kN - 4496lbf	- 20kN - 4496lbf	- 20kN - 4496lbf	5 30kN 1124 6744lbf	5 30kN 1124 6744lbf	5 30k 1124 67
MAX ROPE Ø	≤13mm ≤½"	≤13mm ≤½"	8-12mm ≤5⁄16-7⁄16"	8-13mm ≤5⁄16-½"	8-11mm ≤5⁄16-7⁄16"	≤16mm ≤⅝"	≤16mm ≤⅝"	≤16m ≤⅝"
SHEAVE/TREAD Ø	50mm 2"	2x 50mm 2"	20mm 08"	28mm 1.1"	28mm 1.1"	48mm 1.9"	48mm 1.9"	2x 48m 2x 1.9
DIMENSIONS ht x w x depth	147 x 70 x 30mm 5.8 x 2.7 x 1.2"	150 x 70 x 30mm 6 x 2.7 x 1.2"	82 x 45 x 29mm 3.2 x 1.77 x 1.1"	82 x 45 x 29mm 3.2 x 1.77 x 1.1"	80 x 68 x 36mm 3.1 x 2.7 x 1.4"	118 x 83 x 36mm 4.6 x 3.3 x 1.4"	118 x 83 x 36mm 4.6 x 3.3 x 1.4"	150 x 83 x 4.6 x 3.3 x
PRUSIK TEND LOCK BECKET	- - ■	- - ■	- - -	- - -	- - -	- - -	- - -	- - ■
BUSHING BEARING PIN	■	■	■	■	■	■	■	■
CHEEKS - SWIVEL FIXED	■	■	■	■	■	■	■	■
EFFICIENCY	96%	96%	n/a	n/a	n/a	n/a	n/a	n/a
CHEEK SHEAVE AXLE	Alu Alu Alu	Alu Alu Alu	Alu Alu ZstI	Alu Alu ZstI	Alu Alu ZstI	Alu Alu ZstI	Alu Alu ZstI	Alu Alu
STANDARDS	CE	CE	CE	CE	CE UIAA	CE	CE	CE
OTHER COLOURS	-	-						
NOTES	DISCONTINUED	DISCONTINUED						
WEBSITE	edelrid.com	edelrid.com	edelweiss-ropes.com	edelweiss-ropes.com	edelweiss-ropes.com	edelweiss-ropes.com	edelweiss-ropes.com	edelweiss-rop

Images NOT to Scale £$€ Currency Conversion-only								
MANUFACTURER	HARKEN	HARKEN/SMC	HARKEN/SMC		HEIGHTEC	HEIGHTEC	HEIGHTEC	ISC
MODEL VARIANT	CRx 241006	Apex Direct 1.1 16501	Apex Direct 1.5 165110		PO1 -	PO2 -	PO4 -	UltraLi LK101A
ORIGIN								
COST (inc Tax) Conversion-only	TBA	£78 $88 €80	£80 $92 €84		£22 $30 €20	£522 $65 €56	£77 $94 €88	**£51 $76**
WEIGHT	TBA	122g 4.3oz	208g 7.3oz		90g 3.2oz	174g 6.1oz	282g 9.9oz	218g 7.7oz
MAX LOAD- WLL MBS	TBA	6 24kN 1349 5395lbf	9.5 38kN 2136 8543lbf		2.6 26kN 0 5845lbf	3 30kN 674 6744lbf	3 30kN 674 6744lbf	- 40k - 8992
MAX ROPE Ø	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"		≤12mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13m ≤½"
SHEAVE/TREAD Ø	32/19mm 1.25/0.8"	38/28mm 1.5/1.1"	50/38mm 2/1.5"		21mm 0.825"	50mm 2"	50mm 2"	32/21m 1.2/0.
DIMENSIONS ht x w x depth	TBA	72 x 60 x 28mm 2.8 x 2.3 x 1.1"	97 x 74 x 28mm 3.8 x 2.9 x 1.1"		82x45x29mm 3.2 x 1.77 x 1.1"	114x70x30mm 4.5 x 2.75 x 1.2"	114x70x30mm 4.5 x 2.75 x 1.2"	70x57x32 2.75 x 2.3
PRUSIK TEND LOCK BECKET	■ - -	■ ■ -	■ ■ -		- - -	- - -	- - -	■
BUSHING BEARING PIN	TBA	■	■		■	■	■	■
CHEEKS - SWIVEL FIXED	■	■	■		■	■	■	■
EFFICIENCY	TBA	-	-		n/a	n/a	n/a	n/a
CHEEK SHEAVE AXLE	Alu Nylon StSt	Alu Alu StSt	Alu Alu StSt		Alu Alu ZstI	Alu Nylon StSt	StStNylonStSt	StSt Alu
STANDARDS	CE	CE UKCA	CE UKCA		CE	CE	CE	CE UK
OTHER COLOURS	■	-	-					*with she
NOTES	not for high-speeds	See Also Swivel Pulleys	See Also Swivel Pulleys			PO3 discontinued		
WEBSITE	harken.com	harken.com	harken.com		heightec.com	heightec.com	heightec.com	iscwales.c

EISS	EDELWEISS	EYOLF	EYOLF	EYOLF	FIXE	FUSION CLIMB	FUSION CLIMB	FUSION CLIMB	FUSION CLIMB
216	Trafic 216R 0	Katrol S P20	Katrol V P10	Katrol L P40	Aux 746	Micro 746	Nuro 418	Strux 8152	Secura Dbl 8155
€57	£63 $77 €73	£23 $27 €26	£31 $37 €35	£46 $55 €52	£37 $47 €44	£12 $14 €13	£16 $24 €23	£17 $23 €22	£36 $43 €40
g	500g 17.6oz	66g 2.3oz	88g 3.1oz	258g 9.1oz	91g 3.2oz	142g 5oz	85g 3oz	280g 9.9oz	500g 17.6oz
N 44lbf	5 30kN 1124 6744lbf	- 15kN - 3372lbf	- 30kN - 6744lbf	- 36kN - 8093lbf	- 20kN - 4496lbf	- 20kN - 4496lbf	- 20kN - 4496lbf	2 34kN 0 00lbf	2 32kN 0 4945lbf
m	≤16mm ≤⅝"	≤11mm ≤7⁄16"	≤11mm ≤7⁄16"	≤13mm ≤½"	≤13mm ≤½"	8-11mm ≤5⁄16-7⁄16"	8-12mm ≤5⁄16-7⁄16"	9-14mm ⅜-9⁄16"	9-15mm ⅜-9⁄16"
mm 9"	2x 48mm 2x 1.9"	32/19mm 1.25/0.8"	32/19mm 1.25/0.8"	54/37mm 2.1"	21mm 0.825"	28mm 1.1"	28mm 1.1"	50mm 2"	50mm 2"
60mm x 2.4"	150 x 83 x 60mm 4.6 x 3.3 x 2.4"	77 x 50 x 28mm 3 x 1.6 x 1.1	75 x 42 x 29mm 3 x 1.6 x 1.2"	119 x 76 x 37mm 4.7 x 3 x 1.45"	82 x 45 x 29mm 3.2 x 1.77 x 1.1"	80 x 68 x 36mm 3.1 x 2.7 x 1.4"	82 x 45 x 29mm 3.2 x 1.77 x 1.1"	118 x 83 x 36mm 4.6 x 3.3 x 1.4"	150x83x 60mm 4.6 x 3.3 x 2.4"
	- - ■	■ - -	- - -	■ - -	- - -	- - -	- - -	- - -	- - ■
	■	■*	■*	■	■	■	■	■	■
	■	■	■	■	■	■	■	■	■
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Zstl	Alu Alu Zstl	Alu Alu St	Alu Alu St	Alu Alu St	Alu Alu Zstl	Alu Alu Zstl	Alu Alu Zstl	Alu Alu Zstl	Alu Alu Zstl
	CE	CE	CE	CE	CE	CE	CE	CE	CE
		■		■		■	■	■	■
		New in 2024 *Needle Bearing	New in 2024 *Needle Bearing	New in 2024					
pes.com	edelweiss-ropes.com	eyolf.ca	eyolf.ca	eyolf.ca	fixeclimbing.com	iusionclimb.com	iusionclimb.com	fusionclimb.com	fusionclimb.com

	ISC	ISC	ISC	ISC	ISC	ISC	ISC	ISC	ISC
nk L 12	UltraLink S LK100A12	Eiger Micro RP037	Eiger sm RP012	Eiger sm dbl RP030	Eiger Redirect RP031	Eiger m RP032	Eiger m dbl RP033	Eiger m dbl RP034	Rope Wrench RP281
€79	£51 $76 €79	£25 $36 €32	£24 $36 €38	£35 $46 €40	£29 $40 €35	£33 $45 €39	£46 $68 €52	£38 $50 €45	£24 $36 €29
* z	208g* 7.3oz	92g 3.25oz	87g 3oz	153g 5oz	124g 4oz	158g 6oz	284g 10oz	180g 6oz	76g 2.7oz
N lbf	- 40kN - 8992lbf	0 28kN 0 6294lbf	- 36kN - 8093lbf	- 36kN - 8093lbf	- 30kN - 6744lbf	- 36kN - 8093lbf	- 36kN - 8093lbf	- 36kN - 8093lbf	- 36kN - 8093lbf
m	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"
mm 8"	32/21mm 1.2/0.8	30/20mm 1.2/0.8"	32/22mm 1.6/0.9"	32/22mm 1.6/0.9"	2x 32/22mm 2x 1.6/0.9"	50/42mm 2/1.65"	2x 50/42mm 2x 2/1.65"	50/42mm 2/1.65"	32/22mm 1.6/0.9"
2mm* x 1.3"	68x55x32mm* 2.65 x 2.1 x 1.3"	88x45x34mm 3.5 x 1.8 x 1.4"	74x45x32mm 3x1.75x1.3"	94x45x54mm 3.75 x 1.75 x 2.1"	72x45x50mm 3 x 1.75 x 2"	90x52x34mm 3.5 x 2.1 x 1.4"	110x52x56mm 4.3 x 2 x 2.2"	126x52x34mm 5 x 2 x 1.4"	75x45x32mm 3x 1.75 x 1.3"
	■	- - ■	- - -	- - ■	- - -	- - -	- - ■	- - ■*	- - -
	■	■	■	■	■	■	■	■	■
	■	■	■	■	■	■	■	■	■
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
StSt	StStl Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt
CA	CE UKCA	CE UKCA	CE UKCA	CE UKCA	CE UKCA	CE UKCA	CE UKCA	CE UKCA	CE UKCA
eave	-	■	-	-	-	-	-	-	■
		bridge can be used as a textile becket						*Fully load-bearing double ended eyes	won't rotate >200kg load
com	iscwales.com	iscwales.com	iscwales.com	iscwales.com	iscwales.com	iscwales.com	iscwales.com	iscwales.com	iscwales.com

Images NOT to Scale £$€ Currency Conversion-only								
MANUFACTURER	ISC	ISC	ISC	ISC	ISC	ISC	ISC	ISC
MODEL VARIANT	Prusik sm RP060	Prusik sm RP060	Prusik sm dbl RP061	Prusik sm dbl RP061	Prusik m RP063	Prusik m RP063	Prusik m dbl RP064	Prusik m RP064
ORIGIN								
COST (inc Tax) Conversion-only	£36 $43 €54	£67 $107 €99	£54 $77 €84	£67 $107 €99	£50 $65 €60	£55 $81 €75	£66 $108 €100	£92 $140
WEIGHT	214g 8oz	396g 14oz	340g 12oz	674g 24oz	280g 9.9oz	584g 20.6oz	555g 20oz	1036 37oz
MAX LOAD- WLL MBS	- 40kN - 8992lbf	- 40kN - 8992lbf	- 40kN - 8992lbf	- 40kN - 8992lbf	- 50kN - 11240lbf	- 50kN - 11240lbf	- 50kN - 11240lbf	- 50k - 1124
MAX ROPE Ø	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13m ≤½"
SHEAVE/TREAD Ø	50/42mm 2/1.65"	50/42mm 2/1.65"	2x 50/42mm 2x 2/1.65"	2x 50/42mm 2x 2/1.65"	50/42mm 2/1.65"	50/42mm 2/1.65"	2x 50/42mm 2x 2/1.65"	2x 50/4 2x 2/1.
DIMENSIONS ht x w x depth	103x70x34mm 4.1 x 5.1 x 1.4"	103x70x34mm 4.1 x 5.1 x 1.4"	128x70x58mm 5 x 5.1 x 2.3"	128x70x58mm 5 x 5.1 2.3"	130x 88x35mm 5.1 x 3.5 x 1.4"	130x88x35mm 5.1 x 3.5 x 1.4"	158x88x58mm 6.2 x 3.5 x 2.3"	158x88x5 6.2 x 3.5
PRUSIK TEND LOCK BECKET	■ - -	■ - -	■ - ■	■ - ■	- - -	- - -	■ - ■	■ -
BUSHING BEARING PIN	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■
CHEEKS - SWIVEL FIXED	■	■	■	■	■	■	■	■
EFFICIENCY	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
CHEEK SHEAVE AXLE	Alu Alu StSt	StSt StSt StSt	Alu Alu StSt	StSt StSt StSt	Alu Alu StSt	Alu StSt StSt	Alu Alu StSt	Alu Alu
STANDARDS	CE NFPA UKCA	CE NFPA UKCA	CE NFPA UKCA	CE NFPA UKCA	CE NFPA UKCA	CE NFPA UKCA	CE NFPA UKCA	CE NFPA
OTHER COLOURS	■	-	■	-	■	-	■	■
NOTES								
WEBSITE	iscwales.com	iscwales.com	iscwales.com	iscwales.com	iscwales.com	iscwales.com	iscwales.com	iscwales.c

Images NOT to Scale £$€ Currency Conversion-only								
MANUFACTURER		KAILAS	KAILAS	KONG	KONG	KONG	KONG	KONG
MODEL VARIANT		Mini K010613	Rescue 0	Turbo Roll 0	Swing 993N(P)	Swing Steel 994	Mini Twin Evo 0	Refle 0
ORIGIN								
COST (inc Tax) Conversion-only		**£27 $35 €31**	**£73 $89 €82**	**£48 $25 €24**	**£25 $32 €27**	**£27 $40 €35**	£70 $87 €81	£82 $111
WEIGHT		155g 5.5oz	367g 13oz	65g 2.3oz	120g 4.2oz	162g 5.7oz	171g 60oz	270 9.5oz
MAX LOAD- WLL MBS		8 28kN 17986295lbf	8 50kN 179811240lbf	- 26kN - 5845lbf	- 30kN - 6744lbf	- 30kN - 6744lbf	- 32kN - 7194lbf	- 26k - 5845
MAX ROPE Ø		≤12mm ≤½"	7-13mm 9/32-½"	≤11mm ≤7/16"	≤11mm ≤7/16"	≤11mm ≤7/16"	≤13mm ≤½"	≤13m ≤½"
SHEAVE/TREAD Ø		26mm 1"	51mm 2"	40.5/27mm 1.6/1"	40.5/27mm 1.6/1"	40.5/27mm 1.6/1"	2x 35mm 2x 1.5"	60m 2.4"
DIMENSIONS ht x w x depth		81 x 58 x 29mm 3.2 x 2.3 x 1.1"	121 x 85x 23mm 4.8 x 3.3 x 0.9"	98 x 30 x 26mm 3.9 x 1.2 x 1"	77 x 52 x 26mm 3 x 2 x 1"	77 x 52 x 26mm 3 x 2 x 1"	106 x 62 x 47mm 4.2 x 2.4 x 1.9"	154 x 80 x 6 x 3.1 x
PRUSIK TEND LOCK BECKET		■ - -	■ - -	- - ■	- - -	- - -	■ - ■	- -
BUSHING BEARING PIN		■	■	■	■	■	■	■
CHEEKS - SWIVEL FIXED		■	■	■	■	■	■	■
EFFICIENCY		94%	94%	93%	87%	87%	91%	96%
CHEEK SHEAVE AXLE		Alu Alu StSt	S.Steel Alu	Alu Nylon StSt	AluNylonStSt	AluNylonStSt	Alu Alu StSt	Alu Alu
STANDARDS		CE UIAA	CE NFPA	CE EAC	CE UIAA	CE UIAA	CE UIAA	CE UI
OTHER COLOURS		-	-		□	□	■	-
NOTES				alloy red side plate version discontinued	Polished model=$21	PHASING OUT		*Fully load-b double ende
WEBSITE		kailasgear.com	kailasgear.com	kong.it	kong.it	kong.it	kong.it	kong.

	ISC	ISC	ISC	ISC	ISC	ISC	ISC	ISC	ISC
dbl	Prusik m RP065	Prusik m RP065	Prusik lg RP066	Prusik lg RP066	Prusik lg dbl RP067	Prusik lg dbl RP067	Prusik lg RP068	Prusik xl RP069	Double Rescue RP700701
€130	£53 $78 €72	£63 $93 €86	£52 $66 €61	£67 $96 €89	£84 $129 €120	£109 $160 €138	£53 $78 €72	£67 $107 €99	£78 $120 €110
g z	0g 0oz	620g 22oz	463g 1lb	896g 2lb	818g 29oz	1.62kg 3.6lb	477g 1lb1oz	466g 16oz	660g 23oz
N 0lbf	- 50kN - 11240lbf	- 50kN - 11240lbf	- 70kN - 15736lbf	- 50kN - 11240lbf	- 70kN - 15736lbf	- 50kN - 11240lbf	- 70kN - 15736lbf	- 70kN - 15736lbf	- 3040kN - 67448992lbf
m	≤13mm ≤½"	≤13mm ≤½"	≤16mm ≤⅝"	≤16mm ≤⅝"	≤16mm ≤⅝"	≤16mm ≤⅝"	≤16mm ≤⅝"	≤20mm ≤¾"	10-13mm 25/64-½"
2mm 65"	50/42mm 2/1.65"	50/42mm 2/1.65"	67/55mm 2.6/2.16"	67/55mm 2.6/2.16"	2x 67/55mm 2x 2.6/2.16"	2x 67/55mm 2x 2.6/2.16"	67/55mm 2.6/2.16"	80mm 3"	2x 67/55mm 2x 2.6/2.16"
8mm x 2.3"	157x88x34mm 6.1 x 3.5 x 1.4"	157x88x34mm 6.1 x 3.5 x 1.4"	156x105x37mm 6.1 x 4 x 1.47"	156x105x37mm 6.1 x 4.1 x 1.47"	180x105x60mm 7 x 4.1 x 2.4"	203x106x60mm 8 x 4.2 x 2.4"	180x105x35mm 7 x 4.1 x 1.4"	156x105x54mm 6.1 x 4.1 x 2.1"	154 x 74 x 62mm 6 x 3 x 2.4"
	■ - ■	■ - ■	■ - -	■ - -	■ - ■	■ - ■	■ - ■	■ - -	■ - -
	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■
	■	■	■	■	■	■	■	■	■
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
StSt	Alu Alu StSt	StSt StSt StSt	Alu Alu StSt	StSt StSt StSt	Alu Alu StSt	StSt StSt StSt	Alu Alu StSt	Alu Alu StSt	Alu StSt StSt
UKCA	CE NFPA UKCA	CE NFPA UKCA	CE NFPA UKCA	CE NFPA UKCA	CE NFPA UKCA	CE NFPA UKCA	CE NFPA UKCA	CE NFPA UKCA	CE NFPA UKCA
	■	-	■	-	■	-	■	■	■
			Bushing option same spec as bearing		Bushing option same spec as bearing		Bushing option same spec as bearing		700=1-way sheave
com	iscwales.com	iscwales.com	iscwales.com	iscwales.com	iscwales.com	iscwales.com	iscwales.com	iscwales.com	iscwales.com

G	KONG	KONG	LRV8	NOTCH	OMEGA PACIFIC	PALM	PETZL	PETZL	PETZL
x	Extra-Roll 0	Twin 0	P3Ta	Micro P52	Revo Ice -	Whitewater 12602	Mobile PO3	Fixe P05	Oscillante P02
1 €90	£47 $68 €57	£60 $87 €65	AU$185 $120	£30 $42 €35	**£21 $28 €24**	£37 $50 €43	£23 $31 €27	£24 $33 €28	£18 $24 €21
g z	245g 8.6oz	490g 1lb 1oz	486g 19oz	73g 2.56oz	52g 1.83oz	90g 3.2oz	75g 2.6oz	90g 3.2oz	42g 1.5oz
N lbf	- 30kN - 6744lbf	- 50kN - 11240lbf	24 120kN 5395 26977lbf	- 31kN - 6900lbf	- 22kN - 4945lbf	5 30kN 1124 6744lbf	5 15kN 1124 3372lbf	5 23kN 1124 5171lbf	4 15kN 899 3372lbf
m	≤13mm ≤½"	≤13mm ≤½"	8-24mm 5/16-<1"	≤12.9mm ≤½"	≤12.7mm ≤½"	≤11mm ≤7/16"	7-13mm 9/32-½"	7-13mm 9/32-½"	7-11mm 9/32-7/16"
n	60mm 2.4"	2x 60mm 2x 2.4"	60/52mm 2.4/2"	33mm 1.3"	20mm 0.8"		21mm 0.8"	21mm 0.8"	25mm 1"
29mm 1.1"	110 x 83 x 29mm 4.3 x 3.2 x 1.1"	132 x 83 x 54mm 5.2 x 3.2 x 2.1"	140x80x60mm 5.5x3.2x2.4"	76 x 43mm 3 x 1.7"	67 x 45 x 28mm 2.6 x 1.8 x 1.1"	75 x 63mm 3 x 2.5"	64 x46 x29mm 2.5 x 1.8 x 1.15"	76 x 44 x 29mm 3 x 1.75 x 1.15"	68 x 47 x 26mm 2.7 x 1.9 x 1"
*	- - -	- - ■	- - -	- - -	■ - -	■ - -	■ - -	- - -	- - -
	■	■	■	■	■	■	■	■	■
	■	■	■	■	■	■	■	■	■
	96%	96%	-	n/a	n/a	n/a	71%	71%	71%
StSt	Alu Alu* StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	AluNylonStSt	Alu Alu Alu	Alu Alu StSt	Alu Alu StSt	AluNylonAlu
AA	CE EAC UIAA	CE UIAA	CE NFPA	ANSI	CE	CE UIAA UKCA	CE UIAA UKCA	CE UKCA	CE UIAA UKCA
	■	■		■	-		-	■ ■	■
pearing ed eyes	*Nylon sheave option discontinued		Remake of SRTe original						Emergency pulley
it	kong.it	kong.it	lrv8.com.au	notchequipment.com	omega-pacific.com	palmequipmenteurope.com	petzl.com	petzl.com	petzl.com

Images NOT to Scale £$€ Currency Conversion-only								
MANUFACTURER	PETZL	PETZL	PETZL	PETZL	PETZL	PETZL	PETZL	PROCLI
MODEL VARIANT	Partner P52	Mini P59	Gemini P66	Jag P45	Rescue P50	Minder P60	Twin P65	USR-PFB-
ORIGIN								
COST (inc Tax) Conversion-only	£40 $54 €46	£48 $64 €55	£87 $118 €101	£67 $91 €78	£60 $81 €70	£59 $79 €68	£ 26 $171 €146	£13 $16
WEIGHT	56g 2oz	80g 2.8oz	135g 4.8oz	120g 4.2oz	185g 6.5oz	295g 10.4oz	450g 15.8oz	85g 3.5oz
MAX LOAD- WLL MBS	4 15kN 899 3372lbf	5 23kN 1124 5171lbf	6 23kN 1349 5171lbf	6 22kN 1349 4945lbf	8 36kN 1798 8093lbf	8 35kN 1798 7868lbf	8 35kN 1798 7868lbf	- 22k - 4945
MAX ROPE Ø	7-11mm 9/32-7/16"	7-11mm 9/32-7/16"	7-11mm 9/32-7/16"	8-11mm 5/16-7/16"	7-13mm 9/32-1/2"	7-13mm 9/32-1/2"	7-13mm 9/32-1/2"	≤13m ≤1/2"
SHEAVE/TREAD Ø	25mm 1"	25mm 1"	2x 25mm 1"	2x 28mm 1.1"	46/38mm 1.8/1.5"	51mm 2"	2x 51mm 2"	32/21r 1.25/0.8
DIMENSIONS ht x w x depth	68 x 47 x 26mm 2.7 x 1.9 x 1"	78 x 60 x 25mm 3 x 2.4 x 1"	96 x 60 x 43mm 5.5 x 3.5 x 1.7"	70 x 40 x 44mm 2.75 x 1.6 x 1.7"	96 x 70 x 32mm 3.8 x 2.75 x 1.3"	124 x 90 x 31mm 4.9 x 3.5 x 1.2"	143 x 90 x 51mm 5.6 x 3.5 x 2"	80.5 x 44 x 3.2 x 1.7 x
PRUSIK TEND LOCK BECKET	- - -	■ - -	■ - ■	- - -	- - -	■ - -	■ - ■	- - -
BUSHING BEARING PIN	■	■	■	■	■	■	■	■
CHEEKS - SWIVEL FIXED	■	■	■	■	■	■	■	■
EFFICIENCY	91%	91%	91%	91%	95%	97%	97%	n/a
CHEEK SHEAVE AXLE	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu	Alu Alu
STANDARDS	CE UIAA UKCA	CE	CE NFPA	CE NFPA	CENFPAUIAAUKCA	CE NFPA	CE NFPA	CE UIA
OTHER COLOURS	■	-	-	-	■	-	-	
NOTES				designed to be part of Jag mini-haul kit				
WEBSITE	petzl.com	petzl.com	petzl.com	petzl.com	petzl.com	petzl.com	petzl.com	usrigging.

Images NOT to Scale £$€ Currency Conversion-only								
MANUFACTURER	RNR	RNR	RNR	RNR	RNR	RNR	RNR	RNR
MODEL VARIANT	Poseidon PMP 2"	Poseidon PMP 2"Double	Poseidon PMP 3"	Poseidon PMP 3"Double	Poseidon 2"	Poseidon 2"Double	Poseidon 4"	Poseid 4" Doub
ORIGIN								
COST (inc Tax) Conversion-only	£35 $48 €41	£75 $101 €86	£90 $121 €104	£134 $181 €155	£39 $48 €45	£64 $78 €73	£86 $106 €99	£141 $174
WEIGHT	210g 7.4oz	354g 12.5oz	374g 13.2oz	652g 1.44lb	204g 7.2oz	340g 12oz	703g 1.55lb	1270 2.8lb
MAX LOAD- WLL MBS	- 43kN - 9800lbf	- 62kN - 1400lbf	- 44kN - 9900lbf	- 61kN - 13900lbf	- 28.9kN - 6500lbf	- 40kN - 1100lbf	- 35.6kN - 8000lbf	- 60k - 1350
MAX ROPE Ø	≤13mm ≤1/2"	≤13mm ≤1/2"	≤13mm ≤1/2"	≤13mm ≤1/2"	≤13mm ≤1/2"	≤13mm ≤1/2"	≤16mm ≤5/8"	≤16m ≤5/8"
SHEAVE/TREAD Ø	50mm 2"	2x 50mm 2x 2"	75mm 3"	2x 75mm 2x 3"	50mm 2"	2x 50mm 2x 2"	100mm 4"	2x 100 2x 4
DIMENSIONS ht x w x depth	100 x 23mm 4 x 3 x 0.9"	127 x 76mm 5 x 3"	152x100x23mm 6 x 4 x 0.9"	178 x 100mm 7 x 4"	100x70x23mm 4 x 2.75x0.9"	140x70x43mm 5.5x2.75x1.7"	203x114x28mm 8 x 4.5 x 1.1"	229x114x5 9 x 4.5 x
PRUSIK TEND LOCK BECKET	■ - -	■ - ■	■ - -	■ - ■	- - -	- - ■	- - -	- - ■
BUSHING BEARING PIN	■	■	■	■	■	■	■	■
CHEEKS - SWIVEL FIXED	■	■	■	■	■	■	■	■
EFFICIENCY	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
CHEEK SHEAVE AXLE	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu
STANDARDS	-	-	-	-	-	-	-	-
OTHER COLOURS	-	-	-	-	-	-	-	-
NOTES								
WEBSITE	rocknarbor.com	rocknarbor.com	rocknarbor.com	rocknarbor.com	rocknarbor.com	rocknarbor.com	rocknarbor.com	rocknarbo

									expansion column
MB	PROCLIMB	PROCLIMB	PROCLIMB	PROTEKT	PROTEKT	PROTEKT	PROTEKT	PROTEKT	
-AU	USR-PMS-AU	USR-PSW-AU	USR-PTW-AU	TREE UP TU 420	TREE UP TU 430	TREE UP TU 431	TREE UP TU 440	TREE UP PL 101	
€15	£17 $22 €19	£31 $42 €36	£45 $60 €52	£26 $33 €30	£34 $42 €39	£40 $49 €45	£83 $101 €95	£78 $52 €48	
z	130g 5.1oz	247g 8.7oz	425g 15oz	120g 4.2oz	257g 9oz	470g 16.6oz	153g 5.4oz	450g 15.8oz	
N lbf	- 20kN - 4496lbf	5 30kN 1124 6744lbf	5 30kN 1124 6744lbf	5 25kN 1124 5620lbf	6 30kN 1349 6744lbf	6 30kN 1349 6744lbf	5 25kN 1124 5620lbf	5 30kN 1124 6744lbf	
m	≤11mm ≤7/16"	≤16mm ≤5/8"	≤16mm ≤5/8"	≤13.5mm ≤1/2"	≤15mm ≤5/8"	≤15mm ≤5/8"	≤10mm ≤25/64"	8-12mm* 5/16-1/2"	
mm 325"	37/25mm 1.5/1"	30.5mm* 1.2"	2x 30.5mm* 2x 1.2"	34/24mm 1.3/0.9"	60mm 2.4"	2x 60mm 2x 2.4"	30/22mm 1.2/0.9"	108mm 4.25"	
29mm x 1.2"	80 x 57 x 33mm 3.2 x 2.2 x 1.3"	121x82x30.5mm* 4.8 x 3.2 x 1.2"	143 x 82x 57mm* 5.6 x 3.2 x 2.1"	86 x 44 x 40mm 3.4 x 1.7 x 1.6"	122 x 80 x 38mm 4.8 x3.1 x 1.5"	162 x 80 x 63mm 6.4 x 3.1 x 2.5"	85 x 40 x 39mm 3.3 x 1.6 x 1.6"	133x128x56mm 5.2 x 5 x 2.2"	
	■ - -	- - -	- - ■	- - -	- - -	- - ■	- - -	- - -	
	■	■	■	■	■	■	■	■	
	■	■	■	■	■	■	■	■	
	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
Zstl	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Nylon StSt	
AA	CE UIAA	CE* UIAA	CE*UIAA	CE	CE	CE	CE	CE	
	-			■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■	-	
		*Spec does not match scaling.	*Spec does not match scaling.	Updated model '23			<21mm Webbing on hidden load pin	*or 6mm cable	
com	usrigging.com	usrigging.com	usrigging.com	protekt.pl	protekt.pl	protekt.pl	protekt.pl	protekt.pl	
R	RNR	ROCK EMPIRE	ROCK EMPIRE	ROCK EMPIRE	ROCK EMPIRE	ROCK EXOTICA	ROCK EXOTICA	ROCK EXOTICA	ROCK EXOTICA
on ble	Poseidon 3"Companion Dbl	Mini ZWP018	Small SS ZWP121	Big ZWP119	Big Double ZWP121	1.1" Mini P21	1.1" Mini Dbl P21D	1.5" Rescue P22	1.5" Rescue Dbl P22D
4 €163	£113 $139 €130	£24 $31 €28	£20 $25 €23	£41 $51 €47	£72 $89 €83	£55 $68 €64	£93 $115 €108	£61 $75 €70	£106 $130 €122
g lb	737g 1lb 10oz	88g 3.5oz	130g 5.1oz	250g 9.8oz	440g 17.3oz	83g 2.9oz	141g 5oz	144g 5.1oz	254g 9oz
N lbf	- 53.4kN - 12000lbf	- 24kN - 5395lbf	- 20kN - 4496lbf	8 36kN 1798 8093lbf	8 36kN 1798 8093lbf	5 30kN 1124 6744lbf	8 36kN 1798 8093lbf	8 36kN 1798 8093lbf	8 36kN 1798 8093lbf
m	≤12.7mm ≤1/2"	≤12mm ≤1/2"	≤11mm ≤7/16"	≤13mm ≤1/2"	≤13mm ≤1/2"	≤11mm ≤7/16"	≤11mm ≤7/16"	≤13mm ≤1/2"	≤13mm ≤1/2"
mm "	2x 75mm 2x 3"	21mm 0.825"	37/25mm 1.5/1"	50mm 1.9"	2x 33mm 2x 1.3"	28mm 1.1"	2x 28mm 2x 1.1"	38mm 1.5"	2x 38mm 2x 1.5"
54mm 2.1"	190x102x51mm 7.5x3.75x2"	82x45x29mm 3.2 x 1.77 x 1.1"	80 x 57 x 33mm 3.2 x 2.2 x 1.3"	117 x 82 x 35mm 4.6 x 3.2 x 1.3"	107 x 80 x 35mm 4.2 x 3.1 x 1.4"	76 x 62 x 19mm 3 x2.45 x0.75"	100 x 62 x 37mm 3.95x2.45x1.45"	89 x 64 x 23mm 3.5 x 2.5 x 0.9"	117 x 64 x 43mm 4.6 x 2.5 x 1.7"
	- - ■	- - -	■ - -	- - -	- - ■	■ - -	■ - ■	■ - -	■ - ■
	■	■	■	■	■	■	■	■	■
	■	■	■	■	■	■	■	■	■
	184%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
StSt	Alu Alu StSt	Alu Alu Zstl	Alu Alu StSt	Alu Alu StSt	Alu StSt StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt
	NFPA*	CE	CE UIAA	CE UIAA	CE UIAA	CE UIAA	CE UIAA	CE UIAA	CE UIAA
	-	-	-	-	-	-	-	-	-
	*Not NFPA but exceeds test					Machined alloy	Machined alloy	Machined alloy	Machined alloy. 2"model discontinued
r.com	rocknarbor.com	rockempire.cz	rockempire.cz	rockempire.cz	rockempire.cz	rockexotica.com	rockexotica.com	rockexotica.com	rockexotica.com

Images NOT to Scale £$€ Currency Conversion-only								
MANUFACTURER	SINGING ROCK	SINGING ROCK	SINGING ROCK	SINGING ROCK	SINGING ROCK	SINGING ROCK	SKEDCO	SKED
MODEL VARIANT	Small RK800	Extra RK801	Extra+ RK808	Twin RK802	Extra HD RK810RX00	Twin HD RK811RX00	Micro Dbl 712M	3"Dou 711
ORIGIN								
COST (inc Tax) Conversion-only	£20 $30 €30	£37 $50 €33	£44 $55 €40	£64 $90 €72	£69 $93 €79	£110 $148 €126	£60 $81 €69	£ 152 $20
WEIGHT	92g 3.3oz	257g 9.5oz	276g 9.7oz	421g 14.9oz	TBAg TBAoz	TBAg TBAoz	113g 4oz	708 1lb 9
MAX LOAD- WLL MBS	- 22kN - 4946lbf	6 32kN 1349 7194lbf	6 32kN 1349 7194lbf	6 32kN 1349 7194lbf	16.7 72kN 3754 16186lbf	16.7 72kN 3754 16186lbf	6.2 31.1kN 1400 7000lbf	- 53.4 - 1200
MAX ROPE Ø	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤12.7mm ≤½"	≤12.7 ≤½
SHEAVE/TREAD Ø	29mm 1.1"	56mm 2.2"	56mm 2.2"	2x 56mm 2x 2.2"	67mm 2.6"	2x 67mm 2x 2.6"	32mm 1.25"	2x 75 2x 3
DIMENSIONS ht x w x depth	76 x 44 x 34mm 3 x 1.7 x 1.3"	117 x 88 x 28mm 4.6 x 3.5 x 1."	146 x 88 x 33mm 5.7 x 3.5 1.3"	141 x 88 x 54mm 0 x 3.5 x 2.1"	144 x 108 x 38mm 5.7 x 4.25 1.5"	172 x 108 x 64mm 0 x 4.25 x 2.5"	89 x 41 x 46mm 3.5 x 1.6 x 1.8"	152 x 102 5.75 x 3.7
PRUSIK TEND LOCK BECKET	- - -	■ - -	■ - ■	■ - ■	■ - -	■ - ■	- - ■	- - -
BUSHING BEARING PIN	■	■	■	■	■	■	■	■
CHEEKS - SWIVEL FIXED	■	■	■	■	■	■	■	■
EFFICIENCY	81%	94%	94%	94%	86%	86%	133.6%	184
CHEEK SHEAVE AXLE	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	AluAluAlu	Alu Alu
STANDARDS	CE	CE	CE	CE	CE	CE	ANSI	NFP
OTHER COLOURS	■	■	■	■	-	-	-	-
NOTES					New 2025	New 2025		*Not NFP exceeds
WEBSITE	singingrock.com	singingrock.com	singingrock.com	singingrock.com	singingrock.com	singingrock.com	skedco.com	skedco.

Images NOT to Scale £$€ Currency Conversion-only								
MANUFACTURER	SKYLOTEC	SKYLOTEC	SKYLOTEC	SKYLOTEC	SKYLOTEC	SMC/HARKEN	SMC/HARKEN	SMC/HA
MODEL VARIANT	CT Orbiter T 2P662	Darios -	Pollux -	Castor -	Castor Dbl -	CRX Crevasse RP030	Tiny Rescue RP030	Adv Tech Dbl NFPA
ORIGIN								
COST (inc Tax) Conversion-only	£84 $104 €99	£76 $103 €88	£85 $115 €99	£102 $138 €118	£115 $150 €135	£15 $20 €17	£34 $47 €40	£80 $10
WEIGHT	310g 10.9oz	100g 3.5oz	290g 10.2oz	310g 10.9oz	540g 19oz	52g 1.8oz	66g 2.3oz	154 5.44
MAX LOAD- WLL MBS	12kN 50kN 269811240lbf	- 30kN - 6744lbf	- 36kN - 8093lbf	- 36kN - 8093lbf	- 48kN - 10791lbf	- 22kN - 4946lbf	- 26kN - 5845lbf	- 34 - 764
MAX ROPE Ø	≤13mm ≤½"	≤14mm ≤9⁄16"	≤13mm ≤½"	≤13mm ≤½"	≤14mm ≤9⁄16"	≤13mm ≤½"	≤13mm ≤½"	7-12.5 9⁄32-½
SHEAVE/TREAD Ø	2x 39mm 2x 1.5"	44mm 1.7"	64/51mm 2.5/2"	64/51mm 2.5/2"	2x 64/51mm 2x 2.5/2"	30mm 1.2"	30mm 1.2"	2x 35 2x 1.3
DIMENSIONS ht x w x depth	137x70x55mm 5.4x2.7x2.2"	85 x 50 x 32mm 3.3 x2x 1.25"	130 x 80 x 35mm 5.1 x 3.1 x1.4"	170 x 80 x 35mm 6.7 x 3.1 x 1.4"	170 x 80 x 60mm 6.7 x 3.1 x 2.4"	69 x 45 x 25mm 2.7 x 1.75 x 1"	75 x 45x 25mm 3 x 1.75 x 1"	75 x 61 x 3 x 2.4
PRUSIK TEND LOCK BECKET	- ■	- - -	- - -	- ■	- ■	■ - -	- - -	■ -
BUSHING BEARING PIN	■	■	■	■	■	■	■	■
CHEEKS - SWIVEL FIXED	■	■	■	■	■	■	■	■
EFFICIENCY	96%	-	-	-	-	-	-	-
CHEEK SHEAVE AXLE	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	AluDelrin StSt	Alu Alu StSt	Alu Alu
STANDARDS	CE UIAA	CE	CE	CE	CE	CE	CE	NFP
OTHER COLOURS	-	-	■	■	■	■	-	-
NOTES								Intended as AdvanceTec
WEBSITE	climbingtechnology.com	skylotec.com	skylotec.com	skylotec.com	skylotec.com	smcgear.com	smcgear.com	smcgear

CO	SKEDCO	SKYLOTEC	SKYLOTEC	SKYLOTEC	SKYLOTEC	SKYLOTEC	SKYLOTEC	SKYLOTEC	SKYLOTEC
ible	3" Double Bck 712	CT Orbiter S 2P660	CT Dual 2P668	CT Orbiter M 2P664	CT Orbiter L 2P666	CT Orbiter H 2P667	CT Up Roll 2P671	CT Orbiter F 2P663	CT Orbiter D 2P661
6 €176	£152 $206 €176	£37 $50 €43	£20 $27 €23	£20 $28 €24	£94 $127 €109	£109 $148 €126	£79 $107 €92	£22 $31 €26	£65 $89 €76
g oz	737g 1lb 10oz	180g 6.4oz	123g 4.3oz	90g 3.2oz	445g 15.7oz	465g 16.4oz	115g 4oz	100g 3.5oz	215g 7.6oz
kN 0lbf	- 53.4kN - 12000lbf	8kN 32kN 1798 7194lbf	5 30kN 1124 6744lbf	5 30kN 1124 6744lbf	12kN 45kN 269810116lbf	12kN 45kN 269810116lbf	5 30kN 1124 6744lbf	5 30kN 1124 6744lbf	8kN 32kN 1798 7194lbf
mm "	≤12.7mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	8-11mm 5⁄16-7⁄16"	≤13mm ≤½"	≤13mm ≤½"
mm "	2x 75mm 2x 3"	19mm 0.75"	2x 19mm 2x 0.75"	19mm 0.75"	3x 39mm 3x 1.5"	3x 39mm 3x 1.5"	2x 25mm 1 x 1""	39mm 1.5"	39mm 1.5"
x 51mm 75 x 2"	190 x 102 x 51mm 7.5 x 3.75 x 2"	110 x 70 x 32mm 4.3 x 2.7 x 1.3"	73 x 49 x 52mm 2.9 x 2 x 2"	73 x 48 x 29mm 2.9 x 1.9 x 1.1"	108 x 70 x 78mm 4.2 x 2.7 x 3.1"	139 x 70 x 78mm 5.5 x 2.7 x 3.1"	89x36x44mm 3.5x1.4x1.7"	85x48x29mm 3.3x1.9x1.1"	140x70x32mm 5.5x2.7x 1.3"
-	- - ■	- - -	- - -	- - -	- - -	- - ■	- - ■	- - -	- - -
	■	■	■	■	■	■	■	■	■
	■	■	■	■	■	■	■	■	■
%	184%	96%	80%	80%	96%	96%	90%	80%	96%
StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt
A*	NFPA*	CE UIAA	CE	CE UIAA	CE UIAA	CE UIAA	CE	CE UIAA	CE UIAA
	-	-	-	-	-	-	-	-	-
PA but test	*Not NFPA but exceeds test				Discontinued		designed for 'UP' pulley system		
.com	skedco.com	skylotec.com	skylotec.com	skylotec.com	dimbingtechnology.com	dimbingtechnology.com	dimbingtechnology.com	dimbingtechnology.com	dimbingtechnology.com

ARKEN	SMC/HARKEN	SMC/HARKEN	SMC/HARKEN	SMC/HARKEN	SMC/HARKEN	SMC/HARKEN	SMC/HARKEN
Mate 154801	JR (Jigger Rescue) 1590	JRB (with Becket) 15970	Micro 15300	Micro Double 15305	Swiftwater 147000	2" PMP NFPA1527	2" PMP Dbl NFPA1528
8 €92	£34 $47 €40	£32 $43 €37	£29 $39 €33	£80 $108 €92	£44 $60 €51	£61 $83 €70	£66 $90 €77
g oz	89g 3.2oz	94g 3.3oz	99g 3.5oz	164g 5.8oz	170g 6oz	179g 6.3oz	295g 10.4oz
kN 4lbf	- 22kN - 4946lbf	- 22kN - 4946lbf	- 22kN - 4946lbf	- 40kN - 8992lbf	- 34kN - 7644lbf	- 36kN - 8093lbf	- 46kN - 10341lbf
5mm 2"	≤9mm ≤⅜"	≤9mm ≤⅜"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"
mm 37"	2x 30mm 2x 1.2"	2x 30mm 2x 1.2"	35mm 1.37"	2x 35mm 2x 1.37"	50mm 2"	50mm 2"	2x 50mm 2x 2"
46mm x 1.8"	72 x 45 x 40mm 2.8 x 1.75 x 1.5"	91 x 45 x 40mm 3.6 x 1.75 x 1.5"	95 x 65 x 28mm 3.75 x 2.5 x 1.1"	118 x 65 x28mm 4.65 x 2.5 x 1.1"	100 x 75 x 32mm 4 x 3 x 1.25"	101 x 74 x 35mm 4 x 2.9 x 1.4"	130 x 74 x 56mm 5.1 x 2.9 x 2.2"
-	■ - -	■ - ■	■ - -	■ - ■	■ - -	■ - -	■ - ■
	■	■	■	■	■	■	■
	■	■	■	■	■	■	■
	-	-	-	-	-	-	-
StSt	AluNylonStSt	AluNylonStSt	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu
PA	UIAA	UIAA	NFPA	NFPA	UIAA	NFPA	NFPA
	■	■	-	-	-	■	■
s part of ch HX Kit							
r.com	smcgear.com	smcgear.com	smcgear.com	smcgear.com	smcgear.com	smcgear.com	smcgear.com

Images NOT to Scale £$€ Currency Conversion-only							
MANUFACTURER	SMC	SMC	SMC	SMC	SMC	SMC	SPIDER
MODEL VARIANT	2"RussAnderson NFPA1500	2"RussAnderson NFPA1505	3" PMP RP281	3" PMP Dbl NFPA1505	3"RA Single NFPS1510	4"RA Double NFPA15705	Highline -
ORIGIN							
COST (inc Tax) Conversion-only	£56 $80 €65	£45 $61 €52	£89 $120 €103	£132 $179 €153	£63 $85 €73	£207 $280 €239	£30 $41 €35
WEIGHT	244g 8.6oz	244g 8.6oz	354g 12.5oz	590g 20.8oz	454g 16oz	1142g 40.3oz	91g 3.2oz
MAX LOAD- WLL MBS	- 29kN - 6520lbf	- 29kN - 6520lbf	-38kN - 8543lbf	- 48kN - 10791lbf	- 51kN - 11465lbf	- 63kN - 14163lbf	4 20kN 899 4497lbf
MAX ROPE Ø	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤16mm ≤⅝"	24-26mmWEB 1-1.1"WEB
SHEAVE/TREAD Ø	50mm 2"	50mm 2"	75mm 3"	2x 75mm 2x 3"	75mm 3"	2x 100mm 2x 4"	25mm 1"
DIMENSIONS ht x w x depth	117 x 63 x 36mm 4.6 x 2.5 x 1.4"	117 x 63 x 36mm 4.6 x 2.5 x 1.4"	149 x 106 x 35mm 5.8 x 4.2 x 1.4"	180 x 106 x 56mm 7.1 x 4.2 x 2.2"	168 x 91 x 38mm 6.6 x 3.6 x 1.5"	252 x 117 x 61mm 9.9 x 4.6 x 2.4"	79 x 44mm 3.1 x 1.7"
PRUSIK TEND LOCK BECKET	- - -	- - -	- -	- -	- - -	- -	- - -
BUSHING BEARING PIN							
CHEEKS - SWIVEL FIXED							
EFFICIENCY	-	-	-	-	-	-	
CHEEK SHEAVE AXLE	StSt Alu StSt	StSt Alu StSt	Alu Alu Alu	Alu Alu Alu	StSt Alu StSt	StSt Alu StSt	Alu Alu StSt
STANDARDS	NFPA	NFPA	NFPA	NFPA	NFPA	NFPA	NOT PPE
OTHER COLOURS	-	-	-	-	-	-	
NOTES							Load transport only
WEBSITE	smcgear.com	smcgear.com	smcgear.com	smcgear.com	smcgear.com	smcgear.com	spider-slacklines.com

Images NOT to Scale £$€ Currency Conversion-only							Expansion Column
MANUFACTURER	STEIN	TRANGO	TREEHOG	TREERUNNER	TREERUNNER	TREERUNNER	
MODEL VARIANT	Rope Wrench Pulley -	Rock Prodigy	Fixed Pulley THPUL1	Fixed Pulley 71-248	Small Pulley 71-247	Large Pulley 71-993	
ORIGIN							
COST (inc Tax) Conversion-only	£17 $23 €20	£30 $40 €45	£25 $34 €29	£15 $20 €17	£14 $19 €16	£22 $39 €36	
WEIGHT	76g 2.7oz	91g 3.2oz	91g 3.2oz	110g 3.9oz	116g 4oz	285g 10oz	
MAX LOAD- WLL MBS	- 36kN - 8093lbf	- 26kN - 5845lbf	- 22kN - 4946lbf	- 20kN - 4497lbf	- 20kN - 4497lbf	6 42kN 1349 6744lbf	
MAX ROPE Ø	≤13mm ≤½"	≤12mm ≤½"	≤13mm ≤½"	≤12mm ≤½"	≤12mm ≤½"	≤15mm ≤⅝"	
SHEAVE/TREAD Ø	32/22mm 1.6/0.9"	24/17mm 0.9/0.7"	21mm 0.825"	40/35mm 1.6/1.4"	40/35mm 1.6/1.4"	60mm 2.4"	
DIMENSIONS ht x w x depth	75 x 45 x 32mm 3x 1.75 x 1.3"	57 x 35x 30mm 2.3 x 1.3 x 1.2"	57 x 58 x 32mm 2.3 x 2.7 x 1.3"	82 x 35mm 3.1 x 1.4"	80 x 56mm 3.1 x 2.2"	122 x 82 x 38mm 4.8 x 3.1 x 1.5"	
PRUSIK TEND LOCK BECKET	- - -	- - -	- - -	- -	- -	- - -	
BUSHING BEARING PIN							
CHEEKS - SWIVEL FIXED							
EFFICIENCY	n/a	-	-	n/a	n/a	n/a	
CHEEK SHEAVE AXLE	Alu Alu Alu	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	Alu Alu StSt	
STANDARDS	CE UKCA	CE	CE	CE	CE	CE	
OTHER COLOURS		-	-				
NOTES	won't rotate >200kg load						
WEBSITE	stein.com	trango.com	treehog.co.uk	grube.eu	grube.eu	grube.eu	

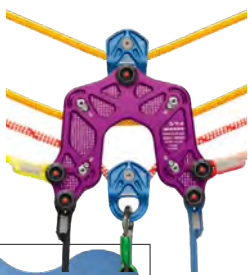
TANDEM PULLEYS

for Zip-Lines

UPDATED Sep '25

Tandem pulleys have sheaves that are in-line rather than side-by-side as we see with MA system pulleys. Most of these can be used to create MA systems but their rigid, wide profile make them impracticable. There are a number of other devices in the '**TROLLEY/CARRIAGES GUIDE** in **ROPE EQUIPMENT BUYERSGUIDE**. In-line tandem pulleys were originally for tyrolean traverses in mountaineering. Now, arborists use them on high-load zip or speed lines to move branches and wood away from the tree. In the burgeoning field of high-ropes, activity/play areas use them for high speed zip-lines and in rescue they are used to access or evacuate. In arb they are used only for material handling and not as often as they could be in favour of simpler and cheaper single pulleys or just sliding carabiners. Nevertheless, we have included Tandems in this **ARBORIST BUYERSGUIDE** for those shifting heavy wood sections or seeking a better load spread on a more efficient pulley combination, many of which have steel sheaves intended for wire cables but with the benefit of very high wear resistance if using a rope. All of these models can take multiple attachments in the main eye to allow for two control lines as well as the load itself to be clipped in. Some have separate control line eyes like the CMI and ISC models or more complex basal eyes like the *Petzl Reeve*, *SMC Shuttles* and *CMI LHT* for use with a separate rigging plate. Several have a top eye to allow connection to a redundant system (second or safety zip-line) which is rarely the case for arborists using it for material handling unless it is a higher risk, higher load removal. Many of these designs are variations on the *Petzl Tandem* which has been around for decades for mountaineering and is a design that has barely changed. Most use bearings instead of bushings because high-speed efficiency is the name of the game rather than any degree of dynamic absorbency which can be achieved by the zip-line rope itself which, although tensioned, is often of significant enough length to absorb the necessary impact load 'dropped' on it though this should obviously be kept to a minimum. Most speed- lines are low-load, high speed affairs where multiple branches can be shifted out of the canopy using the now familiar speed-line kits with multiple pre-sewn slings with carabiners. Tandem pulleys are for more serious, high-load rigging using 13mm/½" low stretch rope.

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



Images NOT to Scale £$€ Currency Conversion-only					
MANUFACTURER	ALPIDEX	BEAL	CAMP	CAMP	CMI
MODEL VARIANT	Tandem 2P654	Transf'air Twin B -	Wing2 -	Flyte 3121	Trolley HD (+ Plate)
ORIGIN					
COST (inc Tax) Conversion-only	£33 $45 €37	£65 $88 €64	£100 $135 €115	£75 $102 €87	£308 $416 €354
WEIGHT	280g 9.9oz	290g 13.8oz	347g 12.2oz	280g 9.9oz	1.9kg* 2.4lb*
MAX LOAD- WLL MBS	10 20kN 2248 4497lbf	8 30kN 1798 6744lbf	6 15kN 1349 3372lbf	10 20kN 2248 4497lbf	- 62.3kN - 14000lbf
MAX ROPE CABLE Ø	13 12mm ½ ½"	≤13 12mm ≤½ ½"	≤13 12mm ≤½ ½"	≤13 12mm ≤½ ½"	≤16mm ≤⅝"
SHEAVE/TREAD Ø	2x 27mm 2x 1.1"	2x 27mm 2x 1.1"	2x 26mm 2x 1"	2x 27mm 2x 1.1"	2x 75mm 2x 3"
DIMENSIONS ht x w x depth	83 x 108 x 28mm 3.3 x 4.2 x 1.1"	108 x 78 x 36mm 4.3 x 3.1 x 1.4"	125 x 75 x 30mm 5 x 3 x 1.2"	83 x 108 x 28mm 3.3 x 4.2 x 1.1"	75 x 127 x 26*mm 9.5 x 6 x 1"
BUSHING BEARING PIN	■	■	■	■	■
CHEEKS - SWIVEL FIXED	■	■	■	■	■
EFFICIENCY	?	?	n/a	n/a	n/a
CHEEK SHEAVE AXLE	Alu StSt StSt	Alu StSt StSt	Alu StSt StSt	Alu StSt StSt	Alu Alu StSt
STANDARDS	CE	CE	CE	CE	CE
MAX SPEED	-	33mph 15m/s	45mph 20m/s	45mph 20m/s	60mph 27m/s
NOTES	7 Colour options		DISCONTINUED Sprung gate. Hooks each end are to store backups during travel		*Exc mandatory use of CMI Maxi-Plate attached to bottom pins
WEBSITE	alpidex.com	beal-planet.com	camp.it	camp.it	cmigear.com

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

Images NOT to Scale £$€ Currency Conversion-only						
MANUFACTURER	KONG	KONG	KONG	PETZL	PETZL	
MODEL VARIANT	Pamir Fast 94600(4/N)401KK	MegaZip 91200ON00KK	Zip Evo Hook 826040400KK 826050400KK	Tandem P21	Tandem Speed P21 SPE	
ORIGIN						
COST (inc Tax) Conversion-only	£187/€216/$253	£219 $297 €253	£100 $135 €104	£44 $60 €51	£65 $88 €75	£180
WEIGHT	365g 12.9oz	1310g 2lb 14oz	440 470g 15.5 16.6 oz	195g 6.9oz	270g 9.5oz	
MAX LOAD- WLL MBS	8 30kN 1798 6744lbf	- 21kN - 4721lbf	- 22kN - 5000lbf	10 24kN 2248 5395lbf	10 24kN 2248 5395lbf	-
MAX ROPE CABLE Ø	≤13 13mm ≤½ ½"	12-16mm ½-⅝"	≤13mm ≤½"	≤13mm ≤½"	≤13 13mm ½ ½"	7
SHEAVE/TREAD Ø	2x 37mm 2x 1.5"	2x 55mm 2x 2.16"	2x 40mm 2x 1.6"	2x 21mm 2x 0.8"	2x 27.5mm 2x 1.1"	2x 2
DIMENSIONS ht x w x depth	86.5 x 113 x 29mm 3.4 x 4.5 x 1.1"	200 x 215 x 35mm 7.9 x 8.5 x 1.4"	200 x 170 x 35mm 7.9 x 6.7 x 1.4"	75 x 108 x 32mm 3 x 4.2 x 1.25"	75 x 108 x 32mm 3 x 4.2 x 1.25"	132 5.
BUSHING BEARING PIN	■	■	■	■	■	
CHEEKS - SWIVEL FIXED	■	■	■	■	■	
EFFICIENCY	n/a	n/a	95%	71%	95%	
CHEEK SHEAVE AXLE	Alu StSt StSt	Alu Steel StSt	Alu StSt StSt	Alu Alu StSt	Alu StSt StSt	Alu
STANDARDS	CE	CE	CE	CE UIAA UKCA	CE UIAA UKCA	CE N
MAX SPEED mph m/s	-			22mph 10m/s	89mph 20m/s	
NOTES	Top-cap=finger protector. Also available in Blue		Sprung safety gate for sheaves. Hook version (shown) avoids safety backup wear on wire cable			
WEBSITE	kong.it	kong.it	kong.it	petzl.com	petzl.com	pe

TANDEM PULLEYS/TROLLEYS

DELRID	**EDELWEISS**	**FIXE**	**FUSION CLIMB**	**FUSION CLIMB**	**ISC**	**KAILAS**
Warp 020001380	**?**	**DB2 Cable** 418	**Advent GT Tactical** FP-8160-SS-SILBLK	**Tesa Speed** FP-8154-7-BLU	**ZipSpeed SL** RP075	**Trolley Double** -
$120 €105	£55 $68 €38	£75 $92 €86	£73 $89 €84	£62 $84 €72	£145 $230 €200	£105 $130 €120
300g 10.6oz	290g 10.2oz	291g 10.3oz	765g 1lb 11oz	311g 11oz	875g 1lb 14oz	372g 13.1oz
kN 32kN 8 7194lbf	8 30kN 1798 6744lbf	10 20kN 2248 4497lbf	- 50kN - 11240lbf	10 24kN 2248 5395lbf	- 40kN - 8992lbf	12 26kN 2697 5845lbf
3 12mm ≤½ ½"	≤13 12mm ≤½ ½"	≤13 12mm ≤½ ½"	9-13 8-12mm ⅜-½ 15⁄16-½"	9-13 8-12mm ⅜-½ 15⁄16-½"	≤13,16 &20mm ≤½, ⅝ & ¾"	≤13 12mm ≤½ ½"
x 28mm 2x 1.1"	2x 27mm 2x 1.1"	2x 27mm 2x 1.1"	2x 50/40mm 2x 2/1.6"	2x 35/27mm 2x 1.4/1.1"	2x 50/75mm 2x 2/3"	2x 28mm 2x 1.1"
x 100mm 3 x 3.9"	78 x 108 x 36mm 3.1 x 4.3 x 1.4"	83 x 108 x 28mm 3.3 x 4.2 x 1.1"	100 x 168 x 39mm 3.9 x 6.6 x 1.5"	78.5 x 108 x 27mm 3.1 x 4.25 x 1.1"	111x206x31mm 4.4 x 8.1 x 1.2"	87 x 104 x 31mm 3.4 x 4.1 x 1.2"
■	■	■	■	■	■	■
■	■	■	■	■	■	■
92%	n/a	n/a	n/a	n/a	n/a	n/a
StSt StSt	Alu StSt StSt	Alu StSt StSt	StSt Alu StSt	Alu Alu StSt	Alu StSt StSt	Alu Alu StSt
CE	CE	CE	CE	CE ANSI	CE	CE
-	33mph 15m/s	-		89mph 20m/s	69mph 30.8m/s	
			Tactical version=Black		Also available with 13&16mm cable sheaves & 75mm/3" rope sheaves	
elrid.com	fixeclimbing.com	fusionclimb.com	fusionclimb.com	iscwales.com	kailas.com	kong.it

PETZL	**PROTEKT**	**ROCK EMPIRE**	**SINGING ROCK**	**SKYLOTEC**	**SMC**	**SMC**
Reeve P21 SPE	**Tree-Up Dbl Transport** CD101	**Tandem** ZWP120	**Tandem** RK803	**CT Duetto** 2P654	**Shuttle** 156302	**Shuttle Extreme** 156304
$244 €208	£40 $50 €46	£87 $118 €73	£59 $80 €59	£66 $89 €55	£51 $90 €59	£98 $132 €112
650g 1lb 7oz	250g 8.8oz	280g 9.9oz	290g 10.2oz	290g 13.8oz	162g 5.7oz	227g 8oz
- 36kN 8093lbf	4.8 24kN 1079 5395lbf	- 20kN - 4496lbf	5 25kN 1124 5620lbf	10 25kN 2248 5620lbf	- 26kN - 5845lbf	- 26kN - 5845lbf
-13mm /32- ½"	≤13mm ≤/2"	≤13 12mm ≤½ ½"	≤13 12mm ≤½ ½"	≤13 12mm ≤½ ½"	≤13 13mm ≤½ ½"	≤13 13mm 1≤/2 ½"
x 38mm 2x 1.5"	2x 28mm 2x 1.1"	2x 27mm 2x 1.1"	2x 28mm 2x 1.1"	2x 27mm 2x 1.1"	2x 35mm 2x 1.37"	2x 35mm 2x 1.37"
x 195mm 2 x 7.7"	90 x 103 x 36.5mm 35.4 x 4 x 1.4"	83 x 108 x 28mm 3.3 x 4.2 x 1.1"	80 x 101mm 31.4 x 4"	80 x 100 x 33mm 3.2 x 3.9 x 1.3"	82 x 108 x 27mm 3.2 x 4.25 x 1.1"	82 x 108 x 27mm 3.2 x 4.25 x 1.1"
■	■	■	■	■	■	■
■	■	■	■	■	■	■
95%	n/a	n/a	n/a	90%	n/a	n/a
StSt StSt	Alu StSt StSt	Alu StSt StSt	Alu StSt StSt	Alu StSt StSt	Alu StSt StSt	Alu StSt StSt
FPA UKCA	CE			CE	-	-
				-	-	-
					DISCONTINUED	Replaceable bearings. For high volume jobs
etzl.com	protekt.pl	rockempire.com	singingrock.com	skylotec.com	smcgear.com	smcgear.com

UPDATED Nov '25

SWIVEL PULLEYS

& CARABINER/PULLEY SWIVELS

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

TThe ultimate in *Swiss-Army Knife* optimism is the *RockExotica SwivaBiner* and *Swivo* from *RE/CMC* where a full size carabiner sits on top of a swivel, on top of a pulley. The carabiner takes the place of the swivel eye which usually requires you to clip in a carabiner making the whole assembly longer so the *Swivabiner* and *Swivo* are saving some space and the whole assembly is replacing 3 separate items. Not sure that the three separate items wouldn't be more useful but the *Swivabiner*s are pretty flash none-the less. We've used a *SwivaEye* (which is the 'biner and swivel bit minus the pulley) since Rock invented them and it has been a real workhorse in all kinds of weird and wonderful situations that it was never intended for. *Petzl* have followed the single carabiner-swivel concept with their own variation using their '*Open*' swivel. This does allow connection to other 'closed' components as a carabiner does but only with the more time-consuming job of removing an Allen bolt. It is however, considerably smaller than a carabiner and only barely larger than a closed swivel. (see pic comparison right) The logical extension of the *Swiv-A-Biner* pulley concept is of course, to have two pulleys on a swivel - so double blocks with a becket completes the carabiner-swivel series nicely with *Rock Exotica* and their proxy series by *CMC* still having this particular field to themselves.

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

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

IN THE FOLLOWING TABLES.....

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

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

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

OMNI 2.0”
DOUBLE

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

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

THE NEWEST OF THE OMNI FAMILY

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

rock exotica

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

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

SWIVEL PULLEYS

	CMC	CMC	CMC	CMC	CMC	CMC	CMI
	1.5 Double 300432	**2.0 PMP Single** 300437	**2.0 PMP Double** 300438	2.6 PMP Single 300436	Swivo 300450	Swivo Dbl 300452	**MicroTrolley** RP161RS
	- $155 -	- $130 -	- $195 -	- $225 -	- $140 -	- $175 -	£91 $110/114 €105
	411g 14.5oz	348g 12.3oz	591g 20.9oz	850g 29.9oz	209g 7.4oz	308g 11oz	204/226g 7.2/8oz
	8 36kN 1798 8093lbf	8 36kN 1798 8093lbf	10 40kN 2248 8992lbf	20 80kN 4496 17984lbf	- 23kN - 5170lbf	- 23kN - 5170lbf	8.8 44kN 1980 9900lbf
	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"
	2x 38mm 2x 1.5"	51mm 2"	2x 51mm 2x 2"	66mm 2.6"	28mm 1.1"	2x 28mm 2x 1.1"	32mm 1.25"
n	160 x 64 x 57mm 6.3 x 2.5 x 2.3"	148 x 76 x 32mm 5.8 x 3 x 1.3"	180 x 76 x 57mm 7 x 3 x 2.3"	191 x 92.5 x 42mm 7.5 x 3.6 x 1.6"	163 x 64 x 30mm 6.4 x 2.5 x 1.2"	185 x 66 x 53mm 7.7 x 2.6 x 2"	114 x 50 x 32mm 4.5 x 2 x 1.25"
	-	-			-		- -
	>90%	>90%	>90%	>90%	>90%	>90%	
	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu	Alu Alu StSt
	CE	-	CE	CE	CE	-	CE
	-	-	-	-	-	-	-
					NEW Replaced Swivabiner	NEW Replaced Swivabiner	RS=removable axle/sheave
	cmcpro.com	cmcpro.com	cmcpro.com	cmcpro.com	cmcpro.com	cmcpro.com	cmigearusa.com
	PETZL	PETZL	PETZL	PETZL	ROCK EXOTICA	ROCK EXOTICA	ROCK EXOTICA
	Spin S1 Open 2P654	**Spin L1** L1	**Spin L2 dbl** L2D	**Spin L1D 1-way** L2	**Omni Block 1.1** P54	**Omni Block 1.1 dbl** P54D	**Omni Block 1.5** P51
	£65 $75 €70	£90 $110 €100	£144 $175 €160	£168 $205 €190	£110 $98 €122	£150 $135 €162	£122 $105 €142
	160g 5.6oz	290g 10.2oz	480g 1lb 9oz	425g 15oz	140g 4.9oz	245g 8.6oz	260g 9.2oz
	5 23kN 1124 8093lbf	6 36kN 1348 8093lbf	6 36kN 1348 8093lbf	6 36kN 1348 8093lbf	5 23kN 1124 8093lbf	7.25 30kN 1630 6744lbf	8 36kN 1798 8093lbf
	7-11mm 9/32-7/16"	8-13mm 5/16-½"	8-13mm 5/16-½"	8-13mm 5/16-½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"
	25mm 1"	38mm 1.5"	2x 38mm 2x 1.5"	38mm 1.5"	28mm 1.1"	2x 28mm 2x 1.1"	38mm 1.5"
	105x48x33mm 4.1 x 1.9 x 1.3"	150x70mm 5.9 x 2.75"	180 x 70 x 70mm 7 x 2.75 x 2.75"	150x74mm 5.9 x 2.9"	112 x 51x 30mm 4.4 x 2 x 1.2"	135 x 51 x 53mm 5.3 x 2 x 2"	135 x 64 x 32mm 5.3 x 2.5 x 1.3"
	-	-	-		-		-
	91%	95%	95%	93% one-way	>90%	>90%	>90%
	Alu StSt StSt	Alu StSt StSt	Alu StSt StSt	Alu StSt StSt	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu
AA	CE NFPA UKCA	CE NFPA UKCA	CE NFPA UKCA	CE NFPA UKCA	CE	CE	CE
ave	red warning mark if sheave is not locked	red warning mark if sheave is not locked	Red warning mark if sheave is not locked	Red warning mark. One way faceted sheave			
	petzl.com	petzl.com	petzl.com	petzl.com	rockexotica.com	rockexotica.com	rockexotica.com

UPDATED Sep '25

www.rescuemagazines.com

Images NOT to Scale						
MANUFACTURER	ROCK EXOTICA	ROCK EXOTICA	ROCK EXOTICA	ROCK EXOTICA	ROCK EXOTICA	ROCK EXOTICA
MODEL VARIANT	Omni Block 1.5 SS P51 SS	Omni Block 1.5 P51 SH	Omni Block 1.5 dbl P51 D	Omni Block 2 P53	Omni Block 2 dbl P53 D	Omni Block 2.6 P55
ORIGIN						
COST (inc Tax) Conversion-only	£100 $90 €87	£122 $105 €142	£150 $160 €190	£150 $134 €162	£225 $202 €263	£256 $235 €223
WEIGHT	303g 10.7oz	303g 10.7oz	411g 14.5oz	348g 12.3oz	591g 20.9oz	850g 29.9oz
MAX LOAD- WLL MBS	8 36kN 1798 8093lbf	8 36kN 1798 8093lbf	8 36kN 1798 8093lbf	8 36kN 1798 8093lbf	10 40kN 0lbf	20 80kN 4496 17984lbf
MAX ROPE Ø	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"	≤13mm ≤½"
SHEAVE/TREAD Ø	38mm 1.5"	38mm 1.5"	2x 38mm 2x 1.5"	51mm 2"	2x 51mm 2x 2"	66mm 2.6"
DIMENSIONS ht x w x depth	135 x 64 x 32mm 5.3 x 2.5 x 1.3"	135 x 64 x33mm 6.3 x 2.5 x 1.3"	160 x 64 x 58mm 6.3 x 2.5 x 2.3"	148 x 76 x 32mm 5.8 x 3 x 1.3"	180 x 76 x 57mm 7 x 3 2.3"	191 x 92.5 x 42mm 7.5 x 3.6 x 1.6"
PRUSIK TEND LOCK BECKET	- ■ -	- ■ -	- ■ ■	■ ■ -	■ ■ ■	■ ■ -
BUSHING BEARING PIN	■	■	■	■	■	■
CHEEKS - SWIVEL FIXED	■	■	■	■	■	■
EFFICIENCY	>90%	>90%	>90%	>90%	>90%	>90%
CHEEK SHEAVE AXLE	Alu StSteel Alu	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu
STANDARDS	CE	-	CE	-	CE	CE
OTHER COLOURS	■	-	■	■	■	-
NOTES		DISCONTINUED				
WEBSITE	rockexotica.com	rockexotica.com	rockexotica.com	rockexotica.com	rockexotica.com	rockexotica.com

Images NOT to Scale						
MANUFACTURER	ROCK EXOTICA	ROCK EXOTICA	RE / CMC	ROCK EXOTICA	ROCK EXOTICA	ROCK EXOTICA
MODEL VARIANT	1.1 Swivabiner P54 SB B	1.1 Swivabiner dbl P54D SB B	AZTEK P41 / 300321	Material Handling Omni 2.6 MHP55	Material Handling Omni 4.5 MHP58	**Hydra** P4
ORIGIN						
COST (inc Tax) Conversion-only	£135 $137 €150	£190 $170 €220	£105 $127 €121	£207 $250 €238	£392 $475 €451	£127 $120 €134
WEIGHT	140g 4.9oz	300g 10.5oz	226g 7.9oz	850g 29.9oz	2.65kg 5.8lb	189g 6.7oz
MAX LOAD- WLL MBS	5 23kN 1124 5170lbf	7 28kN 1573 6295lbf	9 36kN 2023 8093lbf	20 100kN 4500 22500lbf	26.6 133.4kN 6000 30000lbf	5 28kN 1124 6295lbf
MAX ROPE Ø	≤13mm ≤½"	≤13mm ≤½"	8mm 5⁄16"	9-13mm ⅜-½"	9-19mm ⅜-¾"	≤13mm ≤½"
SHEAVE/TREAD Ø	28mm 1.1"	2x 28mm 2x 1.1"	2x 28mm 2x 1.1"	75 66mm 2.95 2.6"	114 95mm 4.5 3.75"	53mm 2.1"
DIMENSIONS ht x w x depth	168 x 51 x 30mm 6.6 x 2 x 1.2"	195 x 51 x 53mm 7.7 x 2 x 2"	104 x 50mm 4.1 x 2"	191 x 92.5 x 37mm 7.5 x 3.6 x 1.5"	0 x 0mm 0 x 0"	112 x 63.5 x 33mm 4.4 x 2.5 x 1.3"
PRUSIK TEND LOCK BECKET	■ ■ -	■ ■ ■	■ - -	■ ■ -	■ ■ -	- - -
BUSHING BEARING PIN	■	■	■	■	■	■
CHEEKS - SWIVEL FIXED	■	■	■	■	■	■
EFFICIENCY	>90%	>90%	>90%	>90%	>90%	>90%
CHEEK SHEAVE AXLE	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu	Alu Alu Alu	Alu Alu StSt
STANDARDS	CE	CE	CE	ASME	ASME	CE
OTHER COLOURS	-	-	■ ■	-	-	-
NOTES			grey= quick release pin orange=side becket screw	non-human loads	non-human loads	
WEBSITE	rockexotica.com	rockexotica.com	rockexotica.com	rockexotica.com	rockexotica.com	rockexotica.com

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CHAINSAW

MSA 220 TC-O
CHAINSAW

AP SYSTEM

UPDATED Jun '25

IMPACT PULLEYS

aka RIGGING BLOCKS & DISMANTLING PULLEYS

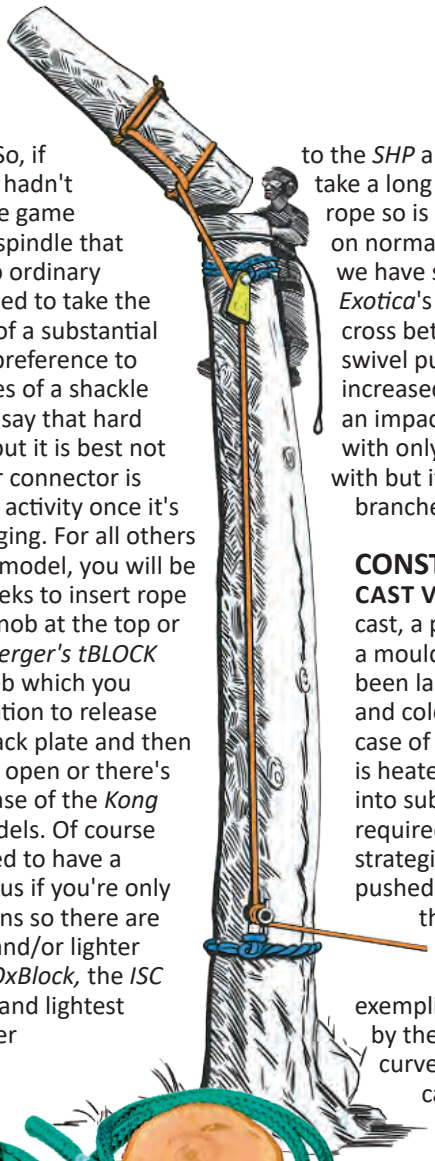
ABOVE Left to right- approximately to scale: DMM Large Impact Block, ISC 3/4" medium and 5/8" small and DMM XS Impact Block. Top right (NOT to scale) the DMM Small Impact Block. Note the hollow spindle on the DMM which is also seen in the Arbortec and TreeUp models. This is for 3D rigging allowing a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

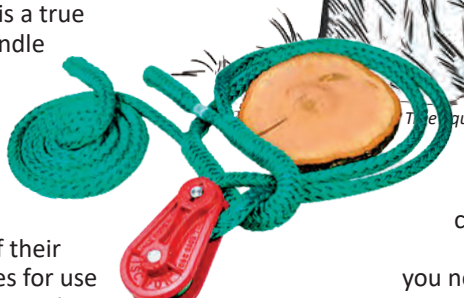
Seldom do we see such a diversity of names or category titles for one product as we do for these heavyweights. Are they blocks or pulleys and are they snatch, impact, rigging or just plain ol' arborist? We're going to go with 'IMPACT' as a true description for what sets them apart from regular pulleys and the term PULLEY because that too is a more accurate modern description. I bet we still intersperse this article with 'Block' out of habit and because even DMM still use the term. But 'Block' is really an archaic term from days of huge wooden ships with giant canvas sails that were so heavy they could only be raised with the mechanical advantage afforded by a set of 'blocks' These didn't necessarily have moving sheaves, they might just have had a shiny wooden bar over which the rope ran with somewhat less efficiency than it would over a moving wheel. Nevertheless, with rope running over a couple of sets of such 'blocks' replete with shiny wood or proper revolving wooden wheels there was mechanical advantage enough to make hauling far easier than it would have been with a single rope from hand to load. So, 'PULLEYS' it is. You'll normally find Impact Pulleys separated from 'Climbing' gear in the catalogues and instead listed under the 'Rigging' sections but this too is a little misleading because virtually any large pulley can be used for rigging in the true sense of attaching and securing stuff to stuff for the purposes of doing stuff. The term 'ARBORIST' is a fair one because it's arborists rather than any other rope access area that has driven development of this hardware genre and the remarkable DMM Arborist Rigging Blocks that turned them from ugly, cast lumps into works of art. This guide is for pulleys that are specifically designed to have heavy lumps of wood dropped on them as a first line of arrest before being lowered to the ground, hence the term 'Impact'. It's this heavily abusive task that normally mandates that an impact pulley uses bushing rather than bearings because although bearings are more efficient due to there being less surface contact they don't like shock loading because the steel ball-bearing or 'needles' are effectively point-loaded and rammed into the inner face of the bearing housing and each other during impact. Nevertheless, needle may trump ball-bearings for this particular task with their longer contact area. You can of course use any of the IMPACT PULLEYS for regular rigging tasks but not only are they generally bigger and heavier, they may not be quite as efficient for regular high-speed rope running tasks as bearing pulleys, that's if you can even tell the difference.

WHAT DOES IT DO?

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

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





NON-ARBORIST BLOCKS

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

ISC produce a **shear reduction pulley (**below) which we haven't included in this Guide since it's not intended for impact loading but you may want to know more about it because there ARE situations where this might be handy. It has all the appearance of a regular stainless steel cheek impact block . That's not a slip of the tongue, this actually is 'block' because the sheave is fixed and if it doesn't rotate it's certainly not a 'pulley' . The idea is to impart friction rather than minimise it as a pulley does so you can see where this might actually be applicable to a dynamic arrest situation? It's not unlike the *Notch AFB* (far right) in this regard but minus the extra-wrap options. However, the *AFB* is NOT designed for negative rigging impact loads. Back to the *SHP* and its top bobbin is designed to take a long Maillon Rapide rather than a rope so is narrower in diameter than those on normal impact pulleys. More recently we have seen the introduction of *Rock Exotica*'s *Downrigger* (right) which is a cross between an impact block and a swivel pulley with a one-way sheave for increased friction on lowering. This is not an impact block for large timber sections with only 300lbs of working load to work with but it will function nicely for smaller sections and branches.

CONSTRUCTION

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

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

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

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

UPDATED Jun '25

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

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

SOMETHING DIFFERENT

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

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

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

StraightPoint in conjunction with *DMM* produce perhaps the most useful 'oddity' with an 80KN impact pulley with built-in load cell monitor (right) that sends data to your phone or other wi-fi device. What could be more useful in such high-stress loading with all the implications of rope and equipment damage than knowing what you've actually dropped. It's often the case that the first chunk is your indicator for everything that follows because you've had a sighter of the approximate load per foot but this device gives you an exact figure, time after time so that pretty soon you and your crew will become the world's top experts at predicting wood weight. What's more, just to add to this extra safety, the readings can be taken from a range of 700m/2300ft so you can stand at a very safe distance if you don't trust your climber's rigging skills. The only necessary drawback with this design is that the cheeks are fixed so rope has to be fed through and it's large and costs quite a lot.

IN THE FOLLOWING TABLES:

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

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

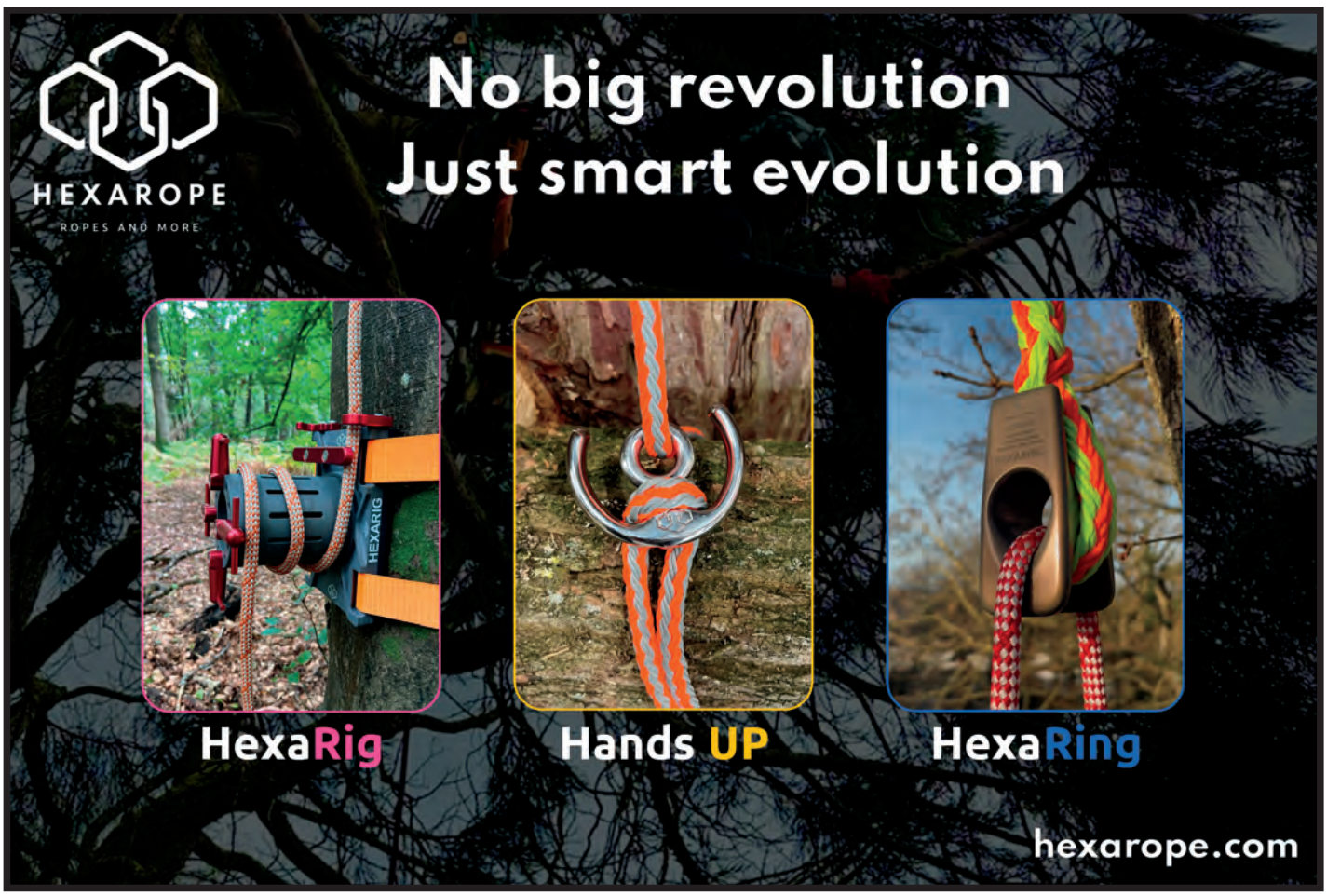
Some of the '**depth/thickness**' figures may or may not include the release button. Despite the obvious bulk of some release knobs some give depth as just the body of the pulley!

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

In the **STANDARDS** column the CE generally refers to the Machinery Directive which is NOT applicable to PPE.

At the risk of stating the obvious, don't forget that the **WLL Working Load Limit** on the main sheave is the cumulative total of load on *each* side of the rope as it enters and exits the sheave.

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



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

IMPACT PULLEYS

	CMI	CMI	CMI	CMI	DMM	DMM	DMM
Block	5/8" Rig Block RP130	3/4" Rig Block RP131	3/4" Rig Block RP145	1" Rig Block RP146	XS Arb Impact P201	S Arb Impact P201	L Arb Impact -
£229	£177 $218 €205	£279 $345 €322	£134 $166 €155	£401 $497 €464	£330 $450 €399	£290 $400 €339	£450 $650 €569
	1.04kg 2.3lb	2.5kg 5.6lb	1.66kg 3.65lb	2.3kg 6.6lb	0.78kg 1.72lb	1.86kg 4.1lb	3.47kg 7.6lb
f	125kN 28000 lbf	178kN 40,000lbf	125kN 28,000lb	302kN 68,000lbf	100kN 22,480lbf	200kN 44,961lbf	300kN 67,443 lbf
	1818kg 4000 lb	2597kg 5714lb	1818kg 4000lb	6169kg 13600lb	2039kg 4496lb	4078kg 8992lb	6118kg 13488lb
	16mm ⅝"	19mm ¾"	19mm ¾"	25mm 1"	16mm ⅝"	16mm ⅝"	20mm ¾"
	19mm ¾"	25mm 1"	25mm 1"	28mm 1 ⅛"	20mm ¾"	22mm 0.9"	27mm 1.06"
5"	165mm / 6.5"	178mm / 7"	165mm / 6.5"	235mm / 9.25"	137mm / 5.4"	180mm / 7"	225mm / 8.85"
"	102mm / 4"	127mm / 5"	102mm / 4"	152mm / 6"	82mm / 3.3"	100mm / 4"	120mm / 4.7"
75"	45mm / 1.75"	63mm / 2.5"	63mm / 2.5"	76mm / 3"	55mm / 2.2"	80mm / 3.15"	97mm / 3.82"
teel	Alu Alu Stainless Steel Plate	Alu Alu Stainless Steel Plate	Alu Alu Stainless Steel Plate	Alu Alu Stainless Steel Plate	Alu Alu Stainless Steel Milled	Alu Alu Stainless Steel Hot Forged	Alu Alu Stainless Steel Hot Forged
	■	■	■	■	■	■	■
	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
	■	■	■	□	■	■	■
					CE	CE	ANSI CE
					■		
	■	■	■		■	■	■
	■	■	■	■	■	■	■
				cotter-pin locking closure	10mm Hollow spindle/ axle	Solid spindle/axle	Hollow spindle/axle
com	cmigearusa.com	cmigearusa.com	cmigearusa.com	cmigearusa.com	dmmwales.com	dmmwales.com	dmmwales.com

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SPECIFICATIONS / CHEEK RELEASE

MANUFACTURER	FTC TREE	FTC TREE	ISC	ISC	ISC	ISC
MODEL VARIANT	MIni Eclipes 2 -	Eclipse 3 -	1/2" Compact/ Mini Block RP048	1/2" Rig Block RP051	5/8" Small Rig Block RP162	5/8"Med Block RP054
ORIGIN						
COST	£139 $172 €160	£184 $228 €212	£105 $201 €149	£168 $220 €199	£168 $220 €198	£202 $250 €
WEIGHT	650g 1.43lb	1.04kg 2.3lb	490g 1.08lb	1.54kg 3.4lb	1.49kg 3.3lb	2.16kg 4.75lb
MBS of Pulley	100kN 22,480 lbf	150kN 33,721lbf	85kN 18,000 lbf	100kN 22,480lbf	100kN 22,480lbf	150kN 33,721lb
WLL	2039kg 4496lb	3059kg 6744lb	1700kg 3748lb	2039kg 4496lb	2039kg 4496lb	3312kg 7286 lb
MAX ROPE Ø	16mm ⅝"	18mm <¾"	13mm ½"	13mm ½"	16mm ⅝"	16mm ⅝"
TOP ANCHOR WIDTH	24mm <1"	26mm 1"	16mm ⅝"	19mm ¾"	25mm 1"	25mm 1"
HEIGHT	189mm / 7.4"	189mm / 7.4"	125mm / 4.9"	190mm / 7.5"	190mm / 7.5"	230mm / 9
WIDTH	65mm / 2.6"	93mm / 3.7"	76mm / 3"	99mm / 3.9"	99mm / 3.9"	124mm / 4
DEPTH	65mm / 2.6"	65mm / 2.6"	75mm / 3"	108mm / 4.25"	108mm / 4.25"	108mm / 4.
CHEEK MATERIAL **SHEAVE MATERIAL** **AXLE MATERIAL** **CONSTRUCTION**	Alu Alu Stainless Steel Plate	Alu Alu Stainless Steel Plate	Alu Alu Stainless Steel Forged	Alu Alu Stainless Steel Forged	Stainless Steel Nylon Stainless Steel Forged*	Alu Nylon Stainless St Forged*
BEARING/BUSHING	■	■	■	■	■	■
BUTTON	-	-	-	-	-	-
SPRUNG	-	-	■	■	■	■
SCREW	■	■	-	-	-	-
STANDARDS	CE	CE	CE	CE	CE	CE
OTHER CHEEK COLOURS			■			
TOP SHEAVE COLOUR	■	■	■	■	■	■
MAIN SHEAVE COLOUR	■	■	■	■	■	■
NOTES	Dyneema lanyard to prevent locking pin loss	Dyneema lanyard to prevent locking pin loss	Red Anchor bollard Phasing out		*Older versions are cast	*Older version cast
WEBSITE	ftc-tree.com	ftc-tree.com	iscwales.com	iscwales.com	iscwales.com	iscwales.co

IMPACT PULLEYS

Rig							
	ISC	ISC	ISC	ISC	ISC	ISC	ISC
	5/8" Flame RP056	3/4" Med Rig Block RP055	3/4" Large Rig Block RP057	200-Series Compact RP248	200-Series Small RP251	200-Series Med R255	200-Series Large RP257
€233	£132 $171 €162	£153 $270 €244	£198 $300 €280	£175 $240 €205	£210 $300 €249	£240 $340 €282	£444 $560 €513
	1.64kg 3.6lb	2.3kg 5.1lb	2.3kg 5.1lb	0.61kg 1.3lb	2.3kg 5.1lb	2.7kg 5.9lb	5kg 11lb
bf	100kN 22,480lbf	150kN 33,721lbf	200kN 44,962lbf	100kN 22,480lbf	250kN 67,422lbf	300kN 67,443lbf	380kN 85,257lbf
	2039kg 4496lb	3059kg 6744lb	4078kg 8992lb	2039kg 4496lb	5099kg 11240lb	6118kg 13488lb	7600kg 17085lb
	16mm ⅝"	19mm ¾"	19mm ¾"	14mm 9/16"	16mm ⅝"	20mm ¾"	26mm 1"
	25mm 1"	29mm 1.25"	29mm 1.25"	16mm ⅝"	25mm 1"		32mm 1¼"
9"	182mm / 7.2"	230mm / 9"	300mm / 11.8"	125mm / 4.9"	178mm / 7"	222mm / 8.7"	283mm / 11.1"
.9"	99mm / 3.9"	124mm / 4.9"	158mm / 6.2"	69mm / 2.7"	99mm / 4"	123mm / 4.8"	156mm / 6.15"
25"	57mm / 2.25"	108mm / 4.25"	*108mm / 4.25"	65mm / 2.6"	93mm / 3.7"	93mm / 3.7"	95mm / 3.7"
teel *	Alu Alu Stainless Steel Plate	Alu Alu Stainless Steel Forged	Alu Alu Stainless Steel Cast	Alu Alu Stainless Steel Hot Forged	Alu Alu Stainless Steel Hot Forged	Alu Alu Stainless Steel Hot Forged	Alu Alu Stainless Steel Hot Forged
	■	■	■	■	■	■	■
	-	-	-	■	■	■	-
	-	■	■	■	■	■	-
	■	-	-	-	-	-	■
	CE	CE	CE	CE UKCA	CE UKCA	CE UKCA	CE UKCA
					■	■	-
	■	■	■	■	■	■	■
	■	■	■	■	■	■	■
s are		*Older versions are cast	*Depth exc sprung release.				Hollow spindle/axle
om	iscwales.com	iscwales.com	iscwales.com	iscwales.com	iscwales.com	iscwales.com	iscwales.com

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

ICA	STEIN	STRAIGHTPOINT	TEUFELBERGER	TREEUP (PROTEKT)	TREEUP (PROTEKT)	TREEUP (PROTEKT)	TREEUP (PROTEKT)
er	SS-1H6056 -	LOAD CELL Impact Block RP054	t-BLOCK 7083229	Small TU400 TU401	Small TU402 TU403	Large TU404 TU405	Large TU406 TU407
345	£144 $179 €165	£3600>$5000€4163	£215 $335 €287	£116 $160 €132	£116 $160 €132	£168 $220 €192	£168 $220 €192
	1.55kg 3.49lb	6kg 13.2lb	1.6kg 3.52lb	1.36kg 2.86lb	1.4kg 3lb	2.3kg 5lb	2.5kg 5.5 lb
	100kN 22480lbf	60kN 13,488 lbf	225kN 50,582 lbf	100kN 22,481 lbf	100kN 22,481 lbf	100/125kN 22481/28101lbf	100/125kN 22481/28101lbf
	2039kg 4496lb	1224kg 2698 lb	4588kg 10116 lb	2039kg 4496lb	2039kg 4496lb	2039/2549kg 4496/5620 lb	2039/2549kg 4496/5620 lb
	16mm ⅝"	20mm ¾"	16mm ⅝"	18mm <¾"	18mm <¾"	<30mm <1.2"	<30mm <1.2"
n	25mm 1"	20mm ¾"	?	18mm <¾"	18mm <¾"	<30mm <1.2"	<30mm <1.2"
6"	182mm / 7.1"	348mm / 13.7"	167mm / 13.7"	176mm / 6.9"	176mm / 6.9"	238mm / 9.4"	238mm / 9.4"
5"	100mm / 3.9"	131mm / 5.16"	96mm / 5.16"	96mm /4.1"	96mm /4.1"	85mm / 3.4"	85mm / 3.4"
4"	37mm / 1.45"	89mm / 3.5"	76mm / 3.5"	81mm / 3.46"	81mm / 3.46"	115mm / 4.5"	115mm / 4.5"
eel d	Alu Alu Stainless Steel Plate	Alu StSteel Stainless Steel Milled	Alu Alu Stainless Steel Hot Forged	Alu Alu Stainless Steel Forged	Alu Alu Stainless Steel Forged	Alu Alu Stainless Steel Forged	Alu Alu Stainless Steel Forged
	■	■	■	■	■	■	■
	-	-	-	-	-	-	■
	■	■	■	-	■	■	■
	-	-	-	■	-	-	-
	CE	CE	CE	CE	CE	CE	CE
		-	-	■ ■	■ ■	■ ■	■ ■
	■	■	■	■	■	■	■
	■	■	■	■	■	■	■
LOADS for swivel first.. otated age	Discontinued as STEIN but still available	Made by DMM. Integral wireless load cell monitor. Top screw-bolt to allow anchor sling attachment	Co Designed with FTC TREE of France. Teflon Bearing	20mm Hollow with option of half-turn or full unscrew release (401/403) Sold in the US as ESA	20mm Hollow with option of half-turn or full unscrew release (401/403) Sold in the US as ESA	30mm Hollow with option of half-turn or full unscrew release (405).	Solid spindle each with option of half-turn or full unscrew release (407).
om	steinworldwide.com	straightpoint.com	teufelberger.com	protekt.pl	protekt.pl	protekt.pl	protekt.pl

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FTC TREE

NON-HANDLED ASCENDERS

CHEST ASCENDERS
HAND ASCENDERS

Last time we thanked Mountaineers for the handled ascenders but the chest ascender in the form of *Petzl's Croll* and the rope grab or lever-cam ascender in the form of the *Gibbs* are firmly back in the cavers' camp having first appeared as manufactured products in the 60s and 70s. You can find a full Guide to **LEVER CAM ASCENDERS** in the **ROPE EQUIPMENT BUYERSGUIDES** as a separate development because they are rarely used as rope climbing ascenders by arborists and instead used in secondary systems and for hauling. It must be clearly stated at the outset, that we consider ANY toothed cam ascender, which is necessarily aggressive in order to grip even a wet or icy rope during ascending, to be best used ONLY for ascending/rope climbing. That's why the R*ope Grabs Guide* includes models like the *Petzl Rescuecender*(2) and *CMC Ascender*(7) with a range of alternative uses while these hand and chest ascenders don't-they are pretty much PPE-only. The risk of imparting shock load or much higher loads than you might intend when using them as a back up or a haul-cam is great and potentially catastrophic. This can even be the case in something as seemingly benign as a flip-line because you could slip and fall onto it but this is admittedly unlikely to do much more than damage the sheath. Nevertheless, a more forgiving smooth or ribbed cam wouldn't and is a better choice or better still a bespoke lanyard shortener featured in the guide on page 56. This does not alter the fact that with good management you could easily use most of these devices and especially the six 'emergency' ascenders we've included for all of the uses shown in the rope grab/lever cam guide. But we wouldn't want to recommend ANY of those other uses in this hand/chest ascenders Guide - it's up to you to decide if you're OK to use toothed cams as lanyard adjusters or haul cams etc. When you ascend you regularly generate 2kN of load simply because of the 'bounce' and dynamic activity of moving so it wouldn't take much of a harsh sit-back to start pushing 4 or 5kN. If you can generate such forces in ascending, anything more in activities that can or do accumulate extra force is likely to be too close for comfort so why take the chance? Ascenders for ascending because they grip all kinds of rope in all kinds of conditions and rope grabs with their more rope-friendly cams for all the other jobs (including ascending in most cases!).

Petzl Croll 1975

Petzl Croll Lg 2025

Clog 1960s

(Clog/)ISC RP229 2025

Clog/Wild Country 2023

Gibbs 1965

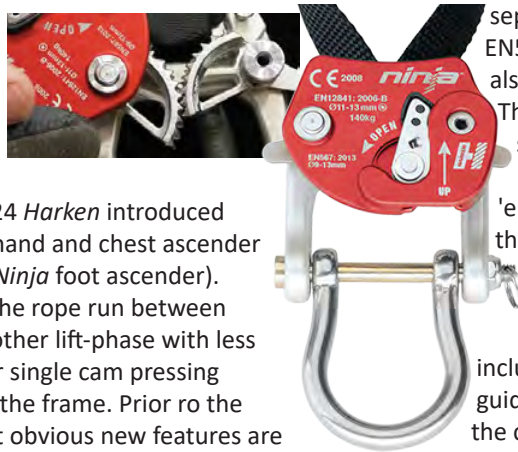
Gibbs 2023

HAND ASCENDERS

HISTORY

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

MODERN DESIGN



That's not to say there haven't been developments and improvements in cam design and safety. In 2024 *Harken* introduced their *Ninja* double cam hand and chest ascender (a modification of their *Ninja* foot ascender). *Harken* say that having the rope run between two cams means a smoother lift-phase with less resistance than a regular single cam pressing against a flat surface on the frame. Prior ro the *Ninja*, perhaps the most obvious new features are *CAMP*'s rollers on their *Turbo-Chest* (3 -of which more later), and the incorporation of a swivel-eye in the Czech, *Rock Empire Chest Up* (4) and *Skylotec*'s *Get Up* (5). *Skylotec*'s is a 180° integral shackle bolted to the frame while *Rock Empire*'s is a 360° swivel incorporated 'within' the frame with the addition of a bolt-on retainer. It will be interesting to see how this stands up to prolonged wear. All four of these models and a few others also exhibit the modern trend towards a 'tab' on the safety cam to enable easier manipulation of the cam for large or gloved hands. If you're looking for something different, these and *Kong's Futura Body* (9) with it's diminutive size and angled and twisted bottom eye along with *Beal/Edelweiss's Hold-Up/ B16* (6) with their extraneous eye or the similarly extruded *Kalias Chest-Up* model might be worth a look. What's with the preponderance of 'Up'-named models these days?

EXCLUSIONS

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

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

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

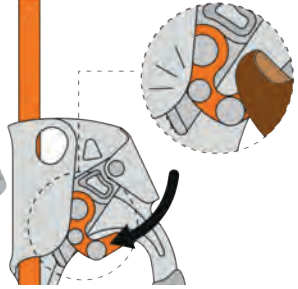
- Progress Capture in haul systems
- Lanyard/Flip line/Rope length adjusters
- Top Ascender
- Self Belay/Fall Arrest (maybe but beware!)

OTHER FEATURES...

TOP EYE: That obvious top eye can serve the same purpose it did on the handled models but for chest ascenders it is a specific chest harness attachment point, so, the other uses are:
1) to clip a carabiner around the rope thus ensuring the ascender cannot detach completely
2) as a hauling aid or to anchor for hauling - in this function the little man symbol or 'UP' arrows should be upside down!

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

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



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

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

CHINESE & RUSSIAN MANUFACTURE

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

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

ARBORIST USE of ASCENDERS/CAMS

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

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

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

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

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

IN THE FOLLOWING TABLES:

ORIGIN:

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

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

WEIGHT: for a single ascender/cam without a carabiner

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

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

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

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

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

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

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

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

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

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

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

See the lever-cam section for further, different data headings.

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

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

HAND & CHEST ASCENDERS

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

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

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

HAND & CHEST ASCENDERS

MATERIALS ALLOY SHELL CAM	CAM	ROPE DIAM RANGE	WLL/ MBS	(Bottom) EYE DIAM	CAM-PARK	ANTI-CAM INVERT	SERIAL NO	HAND/BASIC	CHEST/offset	COLOURS LEFT	COLOURS RIGHT	NOTES	WWW.
xtruded Alu tainless Steel -		8-13mm 5/16 -½"	100kg 220lb	*15mm 0.6"	■	■	■	-	■	■		*15x18mm	edelweiss-ropes.com
Stamped Alu Alu		8-12mm 5/16 -<½"	100kg 220lb 4kN 900lbf	20mm 0.8"	■	■	■	-	■	■		Also *Fixe 'Dome'* model with no anti-cam invert which is the same model as Climax *Nahuel*	fixeclimbing.com
Stamped Alu Cast Steel		9-13mm ⅜ -½"	140kg 308lb	>35mm >1.4"	-	-		■	■	■	■	Two cams - one either side of the rope. Use as chest and hand ascender. Has 2 release triggers to make down-climbing easier.	harken.com
Stamped Alu ardened Steel		9-13mm ⅜ -½"	100kg 220lb	15mm 0.6"	■	■	■	■	-		■		heightec.com
Stamped Alu ardened Steel		10.5-12mm 7/16-<½"	100kg 220lb	*<50mm <2"	■	■	■	-	■	■		*Fixes direct to chest harness webbing but can still be detached. Only sold with chest harness.	heightec.com
Stamped Alu ardened Steel		10-13mm ⅜ -½"	100kg 220lb	16mm 0.6"	■	■	■	-	■	■			heightec.com
Stamped Alu ardened Steel		8-13mm 5/16 -½"	100kg 220lb 5kN 1124lbf	*17mm 0.7"	■	-	-	-	■	■ ■		*17 x 21 mm Good luck finding this-see Kong for original model!	honeywellsafety.com
Stamped Alu tainless Steel		9-13mm ⅜ -½"	140kg 308lb 2.5kN 562lbf	*17mm 0.7"	■	-	■	-	■			Also rebadged by Checkmate, Stein, WestfallPro and others. *17 x 21 mm	iscwales.com

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■=Leverage Cam (see p104)

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

HAND/CHEST ASCENDERS

MATERIALS ALLOY SHELL CAM	CAM	ROPE DIAM RANGE	WLL/ MBS	(Bottom) EYE DIAM	CAM-PARK	ANTI-CAM INVERT	SERIAL NO	HAND/BASIC	CHEST/offset	COLOURS LEFT	COLOURS RIGHT	NOTES	WWW.
Milled Alu tainless Steel		8-13mm 5/16 -½"	140kg 308lb	20mm 0.8"	■	■	-	-	■	■		Discontinued but some still available from Russo-Asian stockists	Kailasgear.com
Stamped Alu ardened Steel		8-13mm 5/16 -½"	100kg 220lb 5kN 1124lbf	*17mm 0.7"	■	-	-	-	■	■ ■		*17 x 21 mm	kong.it
Extruded Alu ardened Steel		9-12mm ⅜ -< ½"	100kg 220lb	*15mm 0.6"	■	■	■	-	■	■		*Lower eye is twisted and angles backward and measures 18 x 15 mm	kong.it
Stamped Alu ardened Steel		11-13mm 7/16 -½"	100kg 220lb	14mm 0.55"	■	■	-	■	-	■ ■	■ ■	Being Phased Out. can be retrofitted to Kong winches and with a handle etc.	kong.it
Stamped Alu Alu		10-12mm ⅜-<½"	4kN 899lbf 15kN 1686lbf	13mm 0.5"	■	-	-	■	■		■		kratossafety.com
Stamped Alu tainless Steel		8-11mm 5/16 -7/16"	140kg 308 lb	16mm* 0.6"	■	-	■	■	-		■	*28 x 16mm	petzl.com
Stamped Alu tainless Steel		8-11mm 5/16 -7/16"	140kg 308 lb	22mm 0.9"	■	-	■	-	■	■		stainless steel wear resistant plate fitted	petzl.com
Stamped Alu tainless Steel		8-13mm 5/16 -½"	140kg 308 lb	22mm 0.9"	■	-	■	-	■	■			petzl.com
Stamped Alu Steel		8-12mm 5/16 -<½"	4kN 899lbf	21mm* 0.8	■	-	-	-	■	■	■	21.8x23mm Also badged as Proverti	protekt.pl
Extruded Alu Steel		8-13mm 5/16 -½"	100kg 220 lb	20mm* 0.8"	■	-	-	■	-	■	■	*27x20mm Also badged (made by?) GT	protekt.pl
													Expansion Row
													Expansion Row

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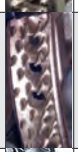
■=Leverage Cam (see p104)

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

HAND & CHEST ASCENDERS

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

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/Pin:00mm, length of the bolt/pin
USES: ●=OK but not ideal
■=Leverage Cam (see p104)

MODEL	COMPANY	ORIGIN	COST Currency conversion	WEIGHT	DIMENSIONS Width x Height x Depth	STANDARDS	A
Hoist (AB20)	SKYLOTEC (ANTHRON)		£62 $70 €67	150g 5.3oz	104 x 75 x 30mm 4.1 x 3 x 1.2"	EN567 EN12841B UIAA	S
Get Up H-210	SKYLOTEC		£101 $125 €115	123g 4.3oz	129 x 122 x 66mm 5 x 4.8 x 2.6"	EN567 EN12841B	S
RB16AAA	SOB		£59 $74 €67	138g 4.9oz	107 x 80 x 30mm 4.2 x 3.2 x 1.2"	EN567 EN12841B	S
RP229	STEIN		£42 $53 €49	130g 4.6oz	116 x 75 x 24mm 4.6 x 3 x 1"	EN567	S St
Chest	US CLIMB		£61 $75 €70	159g 5.6oz	101 x 88 x 33mm 4 x 3.5 x 1.3"	EN567 UIAA	S
Ropeman 1	WILD COUNTRY		£60 $75 €68	62g 2.2oz	55 x 36 x 31mm 2.1 x 1.4 x 1.2"	EN567 UIAA	Ho
Ropeman 2	WILD COUNTRY		£65 $81 €75	92g 3.25oz	55 x 36 x 31mm 2.1 x 1.4 x 1.2"	EN567 UIAA	Ho St
OCA H-XS01	XINDA (BINFEN OUTDOOR)		£22 $27* €25	112g 3.9oz	102 x 72 x 32mm 4 x 2.8 x 1.3"	EN567 UIAA	S St
Chest HXS03	XINDA (BINFEN OUTDOOR)		£18 $22* €21	150g 5.3oz	115 x 75mm 4.5 x 3"	EN567	S St
PCA (DeLuxe) HXS02	XINDA (BINFEN OUTDOOR)		£21 $26* €24	150g 5.3oz	115 x 95mm 4.5 x 3.7"	EN567	S

HAND & CHEST ASCENDERS

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

UPDATED Aug '25

HANDLED ASCENDERS

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

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

IT'S ALL ABOUT TECHNIQUE

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

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

HANDLED ASCENDERS

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

OTHER HANDLED ASCENDER FEATURES

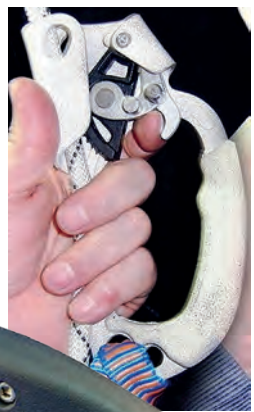
That obvious top eye has traditionally been used to clip a carabiner serving three purposes:

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

2) to clip a carabiner around the rope thus ensuring the ascender cannot detach completely

3) as a hauling aid or to anchor for use in a haul system.

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



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

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

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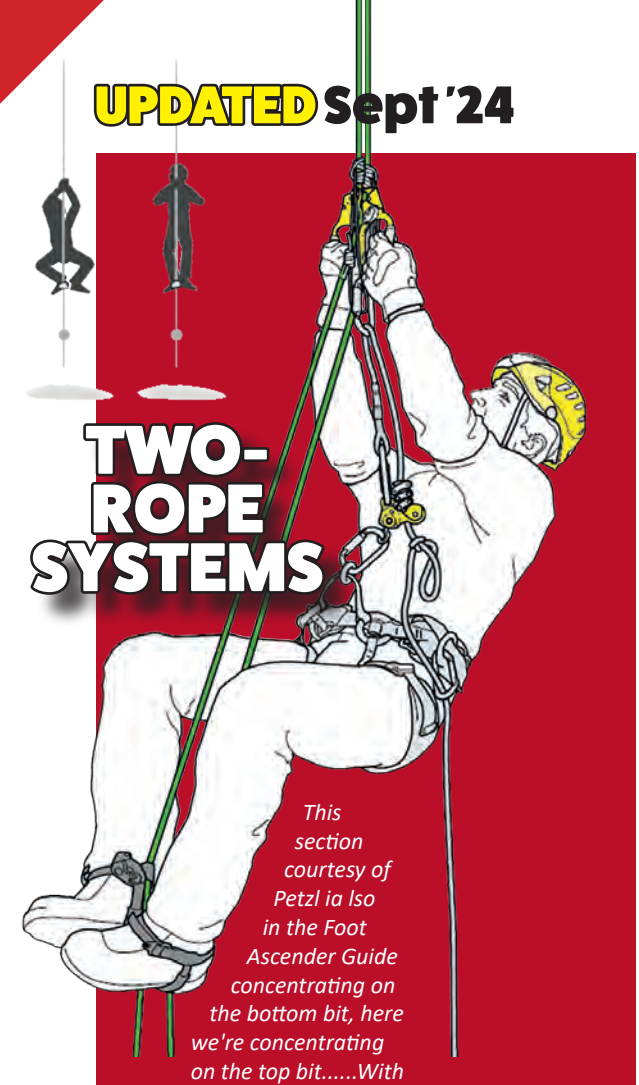


TWO-ROPE SYSTEMS

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

pin and remove it while the *Kong Trender* (pic left) has a carbine hook attached to a short wire to similarly stop the cam disengaging. On both these models, the pin/carbine hook are in addition to the normal cam safety catch that you see on other ascenders and the *Kong* even has a debris trap above the cams so these seem like quite extraordinary measures. I can't remember if these were on the very first versions and one wonders if there was unintentional cam opening on the first versions that prompted installation of these backups? Nevertheless, for arborists and the greater risk of debris from above opening or jamming the cam, these are reassuring extra measures.

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

CHINESE & RUSSIAN MANUFACTURE

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

HANDLES & ERGONOMICS

Given the amount of load you'll be applying to the handle it's important that this fits nicely in the hand even with a glove on; provides appropriate grip and remains comfortable when you apply load for a sustained period. The first thing you'll need to ascertain is whether your hand will actually fit comfortably in the gap provided. You will see a number of models with quite prominent finger indents rather than a uniformly round handle grip. Compare the *Climbing Technology* and *ISC* handles above right with the more conventional *Black Diamond* handle above Left.. If they fit your hand then these will offer both comfort and enhanced purchase and efficiency, particularly noticeable when pushing up when you're tiring. The top protrusion is the most pronounced feature on many models and acts in a similar fashion to the hilt of a sword; it stops your hand sliding up the handle and has your index and middle fingers nestled either side as per the picture on the left However, in true Goldilocks tradition, if your hand is a little too large or too small these prominent ridges can be uncomfortable. Try the grip in your stockist - some may even give you the opportunity to apply some weight on rope which is worth doing and comparing. Just because a handle has no Loch Ness monster curves doesn't necessarily mean it's not as good. Many purists will swear by the cleaner lines of a smooth handle and in the case of the *BD Index* top-left, the black inner face is a more tactile material than simply a smooth plastic so they might argue that they provide just as much grip as the green ISC handle above, just in a different way.

Other quirkyness in handles comes from *Beal/Edelweiss's HandsUp/A16* (left) which carries on where *Kong*'s now discontinued *ProCave* (right) started with a 'shelf' to allow your second hand to be used on the same ascender hence there is no left hand version. *Black Diamond*'s now discontinued *N-Force* (top-right) had a pivotal attachment to the cam at the top and bottom of the handle. This was another innovation first used by Kong in the early eighties and then dispensed with so it's odd that *BD* felt it had enough merit to make a return

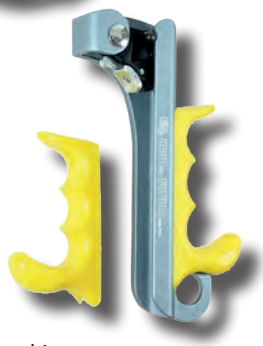
HANDLED ASCEN

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

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

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

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



DOUBLES

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

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

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

It is more unusual for both *CMI* and *Komet* (above left), in the new guise of *Honeywell,* to have opted for double cams on a single handed ascender. *CMI's Twin* has the ability to move both cams with one 'trigger' finger via a split ring which seems a little bit of an afterthought in terms of design but does nevertheless do the trick. Both of the Italian models have opted to have a debris shield on top of the cams - this is to stop ingress of hard material or vegetation that might stop the cams from closing properly - a possibly catastrophic scenario. Odd that this isn't found on EVERY ascender since all have this same failure potential and particularly during tree climbing.

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

The Ascender standard En567 is carried out on single rope so it's a little misleading in terms of the side-by-side models (top 4 pics above)intended to be used on two ropes at all times whereas the back-to-back models can still be used more easily as single rope ascenders. Petzl had this to say about the CE listed in theirs (and CT's) entry: *the Ascentree is not EN567 or 12841 as Petzl do not consider that ascenders used on a 'doubled rope' can fall within the current EN standards. These standards are written for devices used on a single rope, which is clearly not how they are used. To test on a single rope would not be representative and could give false data. Petzl have carried out their own testing in realistic scenarios and offer the product knowing that it has an appropriate level of performance for the techniques illustrated in the product instructions.*

IN THE FOLLOWING TABLES:

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

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

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

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

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

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

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

WLL: is the weight of person actually climbing or the weight that can be pulled/hauled before either the rope begins to tear or the cam enclosure unfolds. This was a problem with early stamped models and is now mitigated by a small button or 'crease' in the frame which stops the cam from flipping upwards under high load resulting in an unstoppable downward slide - on that ascender at least - this is why some systems like the Texas Rig, tie the second ascender to the first ascender via a harness tie-in. Incidentally, Skylotec/Anthron and the Russian KROK quote 15, 20 and 18kN (the KROK website figures are different to model images) as a breaking strength of the frame and 4kN as a Working Load Limit which presumably DOES NOT account for rope failure. ***Some of these ascenders list a Working Load Limit of 100kg/220lb which is probably simply a nod to minimum standards requirements but, for a fully kitted climber is way too low for operational requirements in a work/rescue environment. These have a huge safety margin to the actual MBS but you could still have insurance problems if something goes wrong and you are deemed to be applying, let's say a 120kg load to an ascender showing 100kg as the working load limit?***

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

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

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

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

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

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

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

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

HANDLED ASCENDERS

Eyes being added in'25

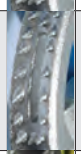
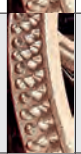
MATERIALS SHELL CAM GRIP	CAM	STANDARDS	ROPE DIAM RANGE	WLL/ MBS	TOP EYE BOTTOM EYE	CAM -PARK	ANTI CAM-INVERT	COLOURS LEFT	COLOURS RIGHT	NOTES	WWW.
Extruded Alu Stainless Steel Plastic		CE NFPA AS/NZ	10.5-13mm 13/32 -½"	600kg* 1323lbf	00mm 00" 00mm 00"	■	■	■ ■	■ ■	NB: Originally also a 16mm version in red. Previously SRTe.and may be DISCONTINUED. *600kg is to cam-failure	3m.com.au
Stamped Alu Steel Plastic/Rubber		CE	8-13mm 5/16 -½"	120kg 265lb	00mm 00" 00mm 00"	■	■	■	■		alpidex.com
Stamped Alu Steel Plastic/Rubber		CE	8-13mm 5/16 -½"	5kN 1124lbf	00mm 00" 00mm 00"	■	■	■ ■	■ ■	A14=More substantial handle and plastic covered cam release	en.anpen.net
Stamped Alu Steel Rubber		CE	9-13mm 3/8 -½"	100kg 220lb	00mm 00" 00mm 00"	■	■	■	■		atheightuk.com
					00mm 00" 00mm 00"						Expansion row
Stamped Alu Steel Rubber		CE	8-13mm 5/16 -½"	100kg 220lb	00mm 00" 00mm 00"	■	■	*	■	*single ascender only, not a pair. Comfort grip on cam enclosure when gripped with second hand	pro.beal-planet.com
Stamped Alu Steel Plastic/Rubber	n/a	CE	8-13mm 5/16 -½"	n/a	00mm 00" 00mm 00"	■		■	■	previous models grey	blackdiamondequipment.com
Stamped Alu Hardened Steel Rubber		CE EAC	8-13mm 5/16 -½"	120kg 265lb	00mm 00" 00mm 00"	■		■ ■	■ ■		camp.it
Stamped Alu Hardened Steel Rubber		CE EAC	8-13mm 5/16 -½"	120kg 265lb	00mm 00" 00mm 00"	■		■ ■	■ ■		camp.it
Stamped Alu Hardened Steel Plastic		NFPA*	9-16mm 3/8-5/8"	17.8kN 4000lbf	00mm 00" 00mm 00"	■	■	■	■	Hard-coated cam with lifetime warranty, *Also an NFPA version available +$10	cmigearusa.com
Extruded Alu Hardened Steel Rubber		NFPA*	9-16mm 3/8-5/8"	20.4kN 4600lbf	00mm 00" 00mm 00"	■		■ ■	■ ■	Hard-coated cam with lifetime warranty *NFPA version +$10	cmigearusa.com
Extruded Alu Hardened Steel None		NFPA*	9-16mm 3/8-5/8"	20.4kN 4600lbf	00mm 00" 00mm 00"	■		■ ■	■ ■	Hard-coated cam with lifetime warranty *NFPA version +$10	cmigearusa.com

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

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

Eyes being added in '25

HANDLED ASCENDERS

MATERIALS SHELL CAM GRIP	CAM	STANDARDS	ROPE DIAM RANGE	WLL/ MBS	TOP EYE BOTTOM EYE	CAM -PARK	ANTI CAM-INVERT	COLOURS LEFT	COLOURS RIGHT	NOTES	WWW.
Stamped Alu Stainless Steel Rubber		CE UIAA	8-13mm 5/16 -½"	140kg 308lb	43 x 21mm 1.7 x 0.8" 35 x 15mm 1.8 x 0.6"	■	■	■	■		edelrid.de
Stamped Alu Hardened Steel Plastic		CE	8-13mm 5/16 -½"	100kg 220lb	00mm 00" 00mm 00"	■	■		■	single ascender only, not a pair.	edelweiss-ropes.com
Stamped Alu Steel Rubber		CE UIAA	8-12mm 5/16 -½"	20kN 2039lbf	00mm 00" 00mm 00"	■	■	■ ■	■ ■	As far as we can tell, the Industry has a slightly different cam and cam safety - less aggressive teeth perhaps?	fixeclimbing.com
Stamped Alu Steel Plastic		CE	8-13mm 5/16 -½"	2kN 450lbf 100kg 220lb	15mm 0.6" 26 x 16mm 1 x 0.6"	■	■	■ ■	■ ■	NB: carbon Fibre pattern not actually made of carbon-fi-bre.	fusionclimb.com
Stamped Alu Steel Plastic		CE UIAA	8.3-13mm 5/16 -½"	20kN 2039lbf	00mm 00" 00mm 00"	■	-	■	■		grivel.com
Stamped Alu Steel Plastic		CE UIAA	8.3-13mm 5/16 -½"	n/a	00mm 00" 00mm 00"	■	-	■	■	Ropes from 7.3-13mm for descent	grivel.com
Stamped Alu Hardened Steel Nylon		CE	9-13mm ⅜ -½"	100kg 220lb	15mm 0.6" 15mm 0.6"	■	■	■	■		heightec.com
Stamped Alu Hardened Steel Plastic		CE NFPA	8-13mm 5/16 -½"	100kg 220lb 5kN 1124lbf	00mm 00" 00mm 00"	■	■	■	■		honeywellsafety.com
Extruded Alu HardenedSteel Plastic		CE	9-13mm ⅜ -½"	140kg 308 lb 2.5kN 562lbf	00mm 00" 00mm 00"	■	-	■	■		iscwales.com
Extruded Alu HardenedSteel Plastic		CE	9-13mm ⅜ -½"	140kg 308lb 2.5kN 562lbf	00mm 00" 00mm 00"	■	■	■	■	Ultrasafe version has cam arc restiction/Anti-cam-invert pin	iscwales.com
											Expansion Row
											Expansion Row

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

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

Eyes being added in '25

HANDLED ASCENDERS

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

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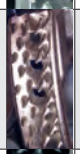
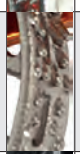
N/A: info Not Available/not given
COLOURS =Body colour.

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

Eyes being added in '25

HANDLED ASCENDERS

MATERIALS SHELL CAM GRIP	CAM	STANDARDS	ROPE DIAM RANGE	WLL/ MBS	TOP EYE BOTTOM EYE	CAM -PARK	ANTI CAM-INVERT	COLOURS LEFT	COLOURS RIGHT	NOTES	WWW.
Stamped Alu Stainless Steel Plastic		CE	8-13mm 5/16 -½"	2kN 450lbf 140kg 308lb	15mm 0.6" 26 x 16mm 1 x 0.6"	■	■	■ ■ ■	■ ■ ■ ■ ■		sepeak.net (often difficult to access)
Stamped Alu Stainless Steel Plastic		CE UIAA	8-13mm 5/16 -½"	120kg 265 lb 12kN 2698 lbf	00mm 00" 00mm 00"	■	-	■	■		singingrock.com
Stamped Alu Steel Rubber 'cork' compound		CE NFPA	9-13mm 3/8-½"	4kN 899lbf 18kN 4047 lbf	00mm 00" 00mm 00"	■	■		■ ■	Skylotec Germany owns Anthron Slovenia	skylotec.com
Stamped Alu Steel Plastic/Rubber		CE	8-13mm 5/16 -½"	140kg 308lb	00mm 00" 00mm 00"	■	■	■	■		climbingtechnology.com
Stamped Alu Steel Plastic/Rubber		CE	8-13mm 5/16 -½"	140kg 308lb	00mm 00" 00mm 00"	■	■	■	■		climbingtechnology.com
Stamped Alu Steel Plastic		CE	8-13mm 5/16 -½"	100kg 220lb	00mm 00" 00mm 00"	■	■	■	■	optimum rope=10-13mm [arborists reported cam-rope interface problems with the SOB foot ascender - beware!]	chinasob.com
Extruded Alu Steel Plastic		CE*	9-13mm 3/8-½"		00mm 00" 00mm 00"	■	-	■	■	DISCONTINUED ?	swiss-rescue.de
Stamped Alu Steel Plastic		CE	8-13mm 5/16 -½"	4kN 899lbf	15mm 0.6" 14mm 0.6"	■	■	■	■	purple Left colour discontinued	trango.com
Stamped Alu Steel Plastic		CE	8-13mm 5/16 -½"	100kg 220lb	00mm 00" 00mm 00"	■	■	■	■		grube.de
Stamped Alu StainlessSteel Rubber		CE UIAA	8-12mm 5/16 -½"	150kg 3lb	00mm 00" 00mm 00"	■	-	■ ■ ■	■ ■ ■ ■		xindaoutdoor.com
											Expansion Row
											Expansion Row

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WLL: May be Max Load based 1 ratio
N/A: info Not Available/not gi
COLOURS =Body colour.

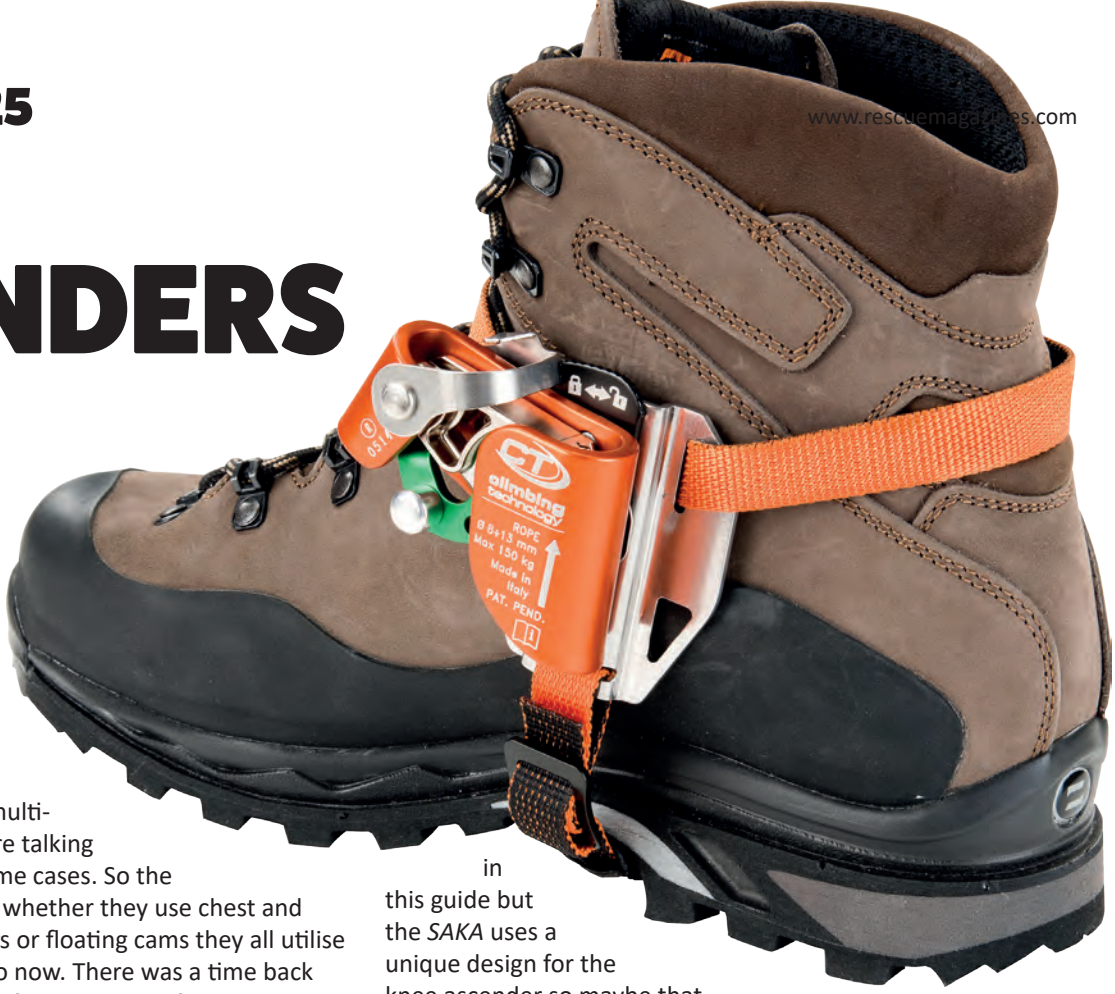
MODEL	COMPANY	ORIGIN	COST	WEIGHT	DIMENSIONS Width x Height x Depth
A10 AB	ANPEN		£107 $130 €120	540g 19.4oz	205 x 155mm 8 x 6.1"
Expedition Double	CMI		£172 $213 €196	369g 13oz	208 x 178 x 35mm 8 x 7 x 1.4"
Expedition Twin	CMI		£211 $258 €237	432g 15oz	208x106x51mm 8.2x4.2x2"
Double	HONEYWELL MILLER/KOMET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

TWIN CAM & TWIN HANDLED ASCENDERS

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

UPDATED Jul '25

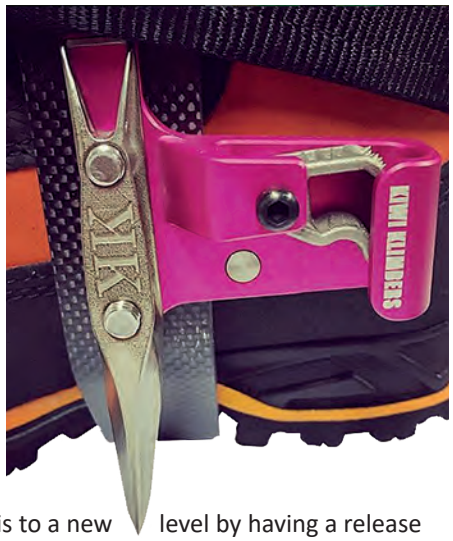
FOOT ASCENDERS



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

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

FOOT ASCENDERS



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

And then came bolt-on models. These will directly attach to either your boot or your spurs/spikes/gaffs. These have advantages over a webbing harness of NOT coming loose during work and being quicker and easier to put on and take off. In the case of spikes, some, like the *KiwiKlimber*s above, are semi-permanently bolted on- not that you can't take them off but it requires tools and isn't the intention so when you're not using the ascender - it's still there. Luckily it's not very obtrusive and remains the sturdiest of all foot ascender options. Latterly *CAMP* have joined the spike party with their *TurboSpike*. The *CT* model has an intermediate mounting plate (right) between the spike and the ascender (left) which is designed to resist the rotational forces that you would get when applying weight during the 'stand' phase. Again, a little bulky but it needs to be to provide a firm fix.

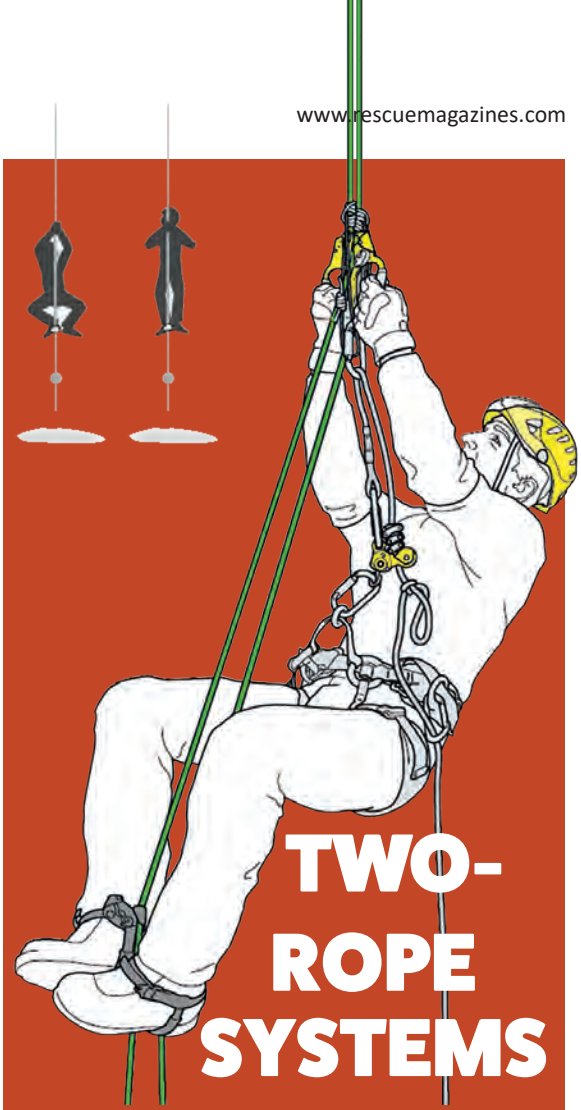
The midway option between direct attachment and harness attachment is a harness with an intermediate plate (right) . This seems a little superfluous, after all, you could just attach a CT foot ascender directly to the harness but this plate has a considerably smaller profile than the ascender so the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

IT'S ALL ABOUT TECHNIQUE

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

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

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



TWO-ROPE SYSTEMS

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

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

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EVOSTY

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Steel toe

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

SUMMARY OF FOOT ASCENDER TYPES:

1) BOOT HARNESS FOOT ASCENDER

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

2) DIRECT TO BOOT ASCENDER

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

3) INTERMEDIATE BOOT-PLATE ASCENDER

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

4) DIRECT TO SPUR/GAFF ASCENDER

Your climbing spikes are already a bulky item so what's a few extra ounces/grams? Directly fixed ascenders make this whole assembly a versatile option and there's no chance of inefficiency caused by a slackening web harness. Currently three options; KiwiKlimbers are directly bolted while CT use an intermediate plate and CAMP uses a strap and bolts (right).

4) DOUBLE CAM

ASCENDER (for single rope)

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

In the following TABLES,
Foot ascenders ARE NOT PPE so the usual life safety ***STANDARDS*** don't apply.
We've used the term '***MAX LOAD***' rather than the more usual WLL or SWL because the manufacturers have used differing terms but this is the Working load limit not MBS.
'***ANTI CAM-INVERT***' refers to a cam restraint or cam safety at the top &/or bottom that stops it opening wide enough to release the rope.
CRAB EYE is a carabiner hole which can act as a safety catch with a crab clipped in.
CAM-PARK means the cam can be locked in the open position so as not to contact the rope.

KNEE-CAM SYSTEMS

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

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

MODEL	COMPANY	ORIGIN	COST	WT inc strap	SHELL	CAM	
A13	ANPEN		£41 $50 €46	136g 4.8oz 170g 6oz	Stamped Alu	Cast Steel	
QuickStep	ARBPRO		£85 $106 €95	130g 4.6oz	Stamped Alu	Cast Steel	
Turbo-Foot Evo Turbo Spike	CAMP		£81105 $99131 €92110	97g 3.4oz 135g 4.8oz	Stamped Alu	Cast Steel	
Foot Ascender	CMI		£90 $110 €102	320g 11.2oz 324g 11.4oz	Extruded Alu	Cast Steel	
Foot Cruiser	EDELRID		£55 $83 €60	142g 5oz 160g 5.6oz	Stamped Alu	Cast Steel	
Tree Cruiser	EDELRID		£65 $93 €65	134g 4.7oz	Stamped Alu	Cast Steel	
Ninja	HARKEN		£102 $114 €112	136g 4.8oz 177g 6.2oz	Stamped Alu	Cast Steel	
Stryder RP227X	ISC		£51 $87 €80	130g 4.6oz 202g 7.1oz	Stamped Alu	Stainless Steel	
Spikescender 2	KIWI KLIMBER		£152 $188 €173	n/a	Alu	Titanium	
Futura	KONG		£59 $90 €67	72g 2.5oz 130g 4.6oz	Stamped Alu	Stainless Steel	

FOOT ASCENDERS

DIMENSIONS Width x Height x Depth	ROPE DIAM RANGE	MBS	MAX LOAD	RIGHT LEFT	Anti Cam Invert	Carabiner Eye	Cam Park	Inc Foot Harness	Fits to Spurs	Fits to Boot Plate	COLOURS LEFT	COLOURS RIGHT	NOTES	WWW.
72 x 51mm 2.8 x 2"	8-13mm 5/16 -½"	4.9kN 1102lbf	140kg 308lb	■ ■	-	■	■	■	-	-	■	■ ■		en.anpen.net
83 x 65mm 3.3 x 2.6"	8-13mm 5/16 -½"	-	150kg 330lb	■ ■	■	-	■	□	■	■	■	■	Fits direct to ArbPro QuickStep Boots with adapter plate or separate adapter for spurs ($60) or universal web boot harness	arbpro.it
67 x 69 x 25mm 2.6 x 2.7 x 1"	8-13mm 5/16 -½"	-	150kg 330lb	■ ■	■	■	■	■	■	-	■	■	Non-Evo version precludes the safety lock. Rollers in the rope channel reduce friction.Turbo Spike version fits direct to Distal spikes	camp.it
80 x 56 x 32mm 3.1 x 2.2 x 1.3"	9-16mm 3/8 -5/8"	3.5kN 800lbf	-	■ ■	■	-	■		-	-	■	■	ANSI Hard-coated cam	cmigear.com
82 x 62 x 37mm 3.3 x 2.6"	8-13mm 5/16 -½"	-	-	■ ■	■	■	■	■	-	-	■	■	green cam safety cover is removable	edelrid.com
127 x 80 x 45mm 5 x 3.2 x 1.8"	8-13mm 5/16 -½"	-	-	■ ■	■	-	■		■	-	■	■	Fits to the Edelrid Talon Spurs green cam safety cover is removable	edelrid.com
83 x 74 x 27mm 3.3 x 3 x 1.1"	8-13mm 5/16 -½"	-	150kg 330lb	■ ■	-	-	-	■	-	-	■	■	Rope guide above cams	harken.com
75 x 52 x 28mm 3 x 2 x 1.1"	8-13mm 5/16 -½"	2.5kN 562lbf	140kg 308lb	■ ■	■	-	■	■	-	-	■	■	Extended (removable) cam safety allows kick-release of cam	iscwales.com
75 x 36 x 74mm 3 x 1.4 x 3"	10-12.5mm 25/64 -½"	6kN 1348lbf	150kg 331lb	■ ■	■	-	-		■	-		■ ■ ■ ■ ■	Versions Can be retro-fitted to KK Carbons or Distel / Gecko, Notch, Buck, Baslin Stein, Climbright & Edelrid spurs/gaffs. Cam safety is a 'button that can be pushed in to load rope	kiwiklimbers.com
78 x 57 x 25mm 3.1 x 2.2 x 1"	8-13mm 5/16 -½"	-	150kg 330lb	■ ■	-	■	-	■	-	-	■	■	metal boot stirrup prevents torsional rotation-greater efficiency	kong.it

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

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

FOOT ASCENDERS

DIMENSIONS Width x Height x Depth	ROPE DIAM RANGE	MBS	MAX LOAD	RIGHT LEFT	Anti Cam Invert	Carabiner Eye	Cam Park	Inc Foot Harness	Fits to Spurs	Fits to Boot Plate	COLOURS LEFT	COLOURS RIGHT	NOTES	WWW.
80 x 73 x 27mm 3.2 x 3 x 1.1"	**8-13mm 5/16 -½"**		**152kg 337lb**	-	-	-	■ ■	■	-	-	■	■	**Rope guide above cams**	notchequipment.com
64 x 45 x 23mm 2.5 x 1.8 x 0.9"	**8-13mm 5/16 -½"**		**150kg 331lb**	□*	-	□*	■ ■	■	-	-	■	■	*Pantin* is now on perhaps its 3rd or 4th variant. *optional plastic Safety catch screws into cam to provide rope safety and cam-off option (£6)	petzl.com
72 x 54 x 30mm 2.8 x 2.1 x 1.2"	**8-13mm 5/16 -½"**		**120kg 264lb**	■	-	■	■ ■	■	-	-	■	■	Stainless steel back plate	singingrock.com
73 x 51 x 27mm 3.3 x 2.6 x 1.1"	**8-13mm 5/16 -½"**		**150kg 331lb**	■	-	■	■ ■	■	-	-	■	■	**Speleo version 'S' is 10g lighter with harness**	Skylotec.com
73 x 51 x 27mm 3.3 x 2.6 x 1.1"	**8-13mm 5/16 -½"**		**150kg 331lb**	■	-	-	■ ■	■	-	-	■	■	**Same as QSA but is a Caver's minimalist version with no safety catch**	Skylotec.com
73 x 65 32mm 3.3 x 2.6 1.3"	**8-13mm 5/16 -½"**		**150kg 331lb**	■	-	■	■ ■	□	■	-	■	■	**Has an integrated back plate for mounting to adapter. Requires separate adapter for spurs ($60/€45) or harness for boots ($26/€24)**	skylotec.com
75 x 52 x 25mm 3 x 2 x 1"	**8-13mm 5/16 -½"**	**2.5kN 562 lbf**	**140kg 308lb**	-	-	■	■ ■	■	-	-	■	■	Made by ISC Wales Extended (removable) cam safety allows kick-release of cam	steinworldwide.com
73 x 47 x 27mm 2.9 x 1.85 x 1.1"	**8-13mm 5/16 -½"**		**140kg 308lb**	-	■	■	■ ■	■	-	-	■ ■ ■		*FOB China	n/a
64 x 70 x 24mm 2.5 x 2.8 x 1"	**8-13mm 5/16 -½"**		**150kg 330lb**	■	■	■	■ ■	■	-	-	■	■	BEWARE: This copy of a CAMP Turbo may list a CE but foot ascenders DO NOT comply with PPE standards. ***FOB China**	n/a
75 x 47 x 25mm 3 x 1.85 x 1"	**8-13mm 5/16 -½"**		**150kg 331lb**	-	■	-	■ ■	■	-	-	■ ■ ■	■ ■	***FOB China** One of many Chinese models with the same design under under various names, New Doar,Camnal & Wildken	xindaoutdoor.com

UPDATED Jul '25

FIXED & FLYING BOLLARDS

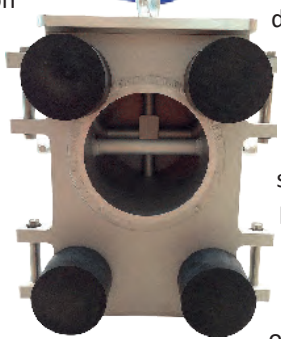
for LOWERING

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

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

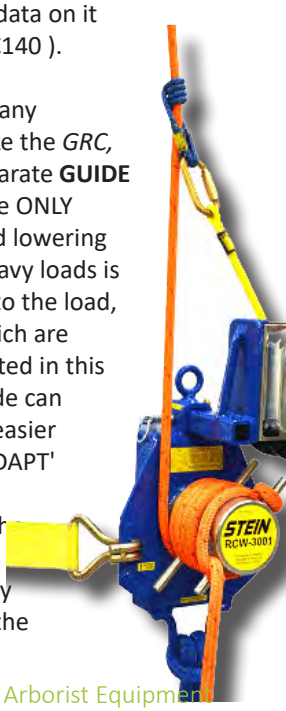
The same function applies to our second and heavier option which is a 'FIXED' bollard with a large tube mounted (welded) to a backing plate with the whole assembly anchored firmly to the tree's trunk usually with ratchet straps.

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

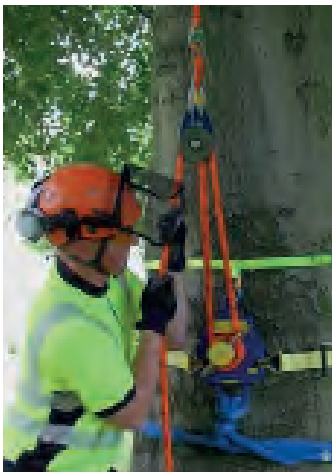


For dismantling jobs you would be able to cut a flat section into the bark with your chainsaw or if you don't like the client, there are plates with teeth or serrations which dig into the bark to provide a firm fixing (see pic of orange Obermeier Forst Technik model bottom left which isn't in our tables because we couldn't get any data on it other than cost being around €140).

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



LOWERING BOLLARDS



picture on the left showing the same Stein model but instead of a winch we have a 2:1 mechanical advantage pulley incorporated to assist with raising or tensioning. One model, the *Transformeur* (right) from *FTC TREE* in France, is a fully modular system allowing one or two bollards to be fixed to a back plate and then a winch to also be added. This is possibly the most versatile system we have yet seen although it's not cheap at €3500 for the complete system including bombproof case, ratchets and straps, winch, 2x bollards (which can be used independently) and a back plate with replaceable rubber feet. You can buy each component separately starting with just one bollard and building on that so it may well cover just about every scenario you can come up with.

AUTO-LOCKING LOWERING DEVICES

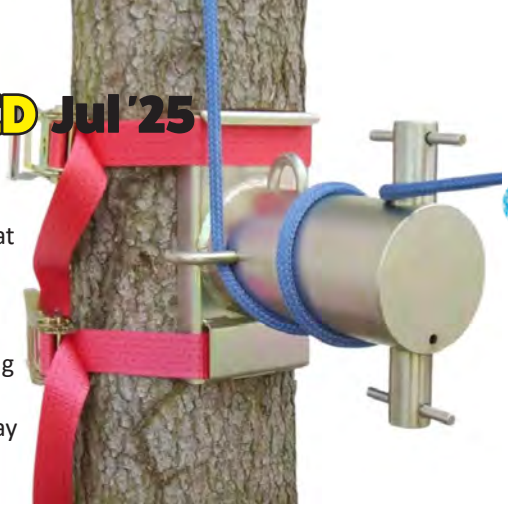
One key type of 'Flying/Floating' lowering device NOT included here because the sheave or 'drum' rotates is an alternative you may also want to consider. It's the now tried and trusted *CMC MPD*. This should never be as robust as any of the bollards in this guide because it has mechanically interfacing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

PORT-A-WRAPS

The term *Port-A-Wrap* is, of course a product name that has come to describe this whole genre. Indeed, most of the companies making and selling them actually use '*Port-A-Wrap*' in the name so somebody at *Buckingham* must have slipped up on patent or trade name registering. The concept is simple and comes from the ancient art of wrapping rope around the tree's trunk or a branch to provide enough friction to arrest and lower a branch, section or entire trunk. As a manufactured device though, this concept probably has mountain rescue to thank because I'm pretty sure the tube style lowering device was in play back in the 50's and 60's at least. We're not laying claim to anything but in the late 80's we adapted the idea of the *Thor Anchor*, a metal 'tree' substitute bolted to Mt. Thor in the US for long lowers/ raises, to create a 4" diameter *Thor Tube*. This was about two feet long and was rigged as a flying anchor (through the tube itself) to give us the maximum strength of rope possible for heavy arrest and lowering so I suppose it was a giant version of a *Port-A-Wrap*. So giant, that if we still had it today we'd probably be arrested for manufacturing a pipe bomb. But the principle is the same and wrapping your rope around the widest diameter smooth surface possible will always offer the maximum residual rope strength and be the simplest option for lowering a heavy weight whether it incorporates a manufactured device or a Eucalyptus trunk. The main reason for switching to bespoke devices is continuity of performance and minimising damage to either the target tree or an adjacent tree. *HexaRope*'s *Hexarig* below is the latest model providing a whopping 4.7" diameter tube in machined aircraft alloy so there are no welds. Aluminium is lighter but steel and stainless steel in particular are tougher even if the aluminium is coated. Mud is the killer. Heavy woods like Eucalyptus will seriously tax your metal especially in sandy/ sandstone areas where the ropes will pick up abrasive particles and you will find wear points that will accelerate renewal which is why this *Hexarig* can have the tube reversed when it starts to show wear.

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

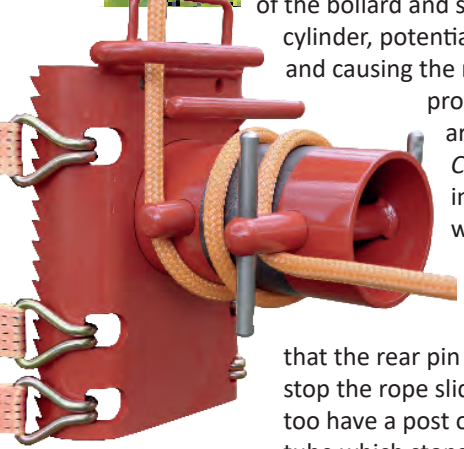
can make the device truly fixed by using that to anchor it as well. The friction posts act as redirects allowing the ground crew to stand well away from the danger (drop) zone and still control the arrest and lower.

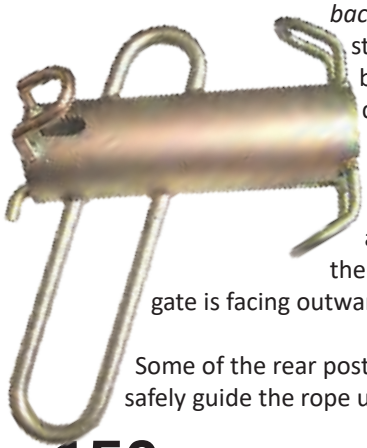


PINS, POSTS & GUIDES

The forward posts are for redirect and tie-off so that you can lock off the load and move away. On some bollards you'll notice the posts have additional 'T' pins through them, often removable. These stop the rope from coming off the redirect or lock-off posts. However, there will be times when you may actually want to flick the rope off the pin to adjust lowering tension while standing clear of the drop-zone, hence the ability to remove some of them as with this German *Obilasser* model (above).

Posts at the rear of the cylinders are primarily rope-guides and on some models are curved or bent while on larger models there are dedicated open 'hook' style guides which allow the rope to pass easily into them. Both the post and the hook will guide the vertical section of rope onto the rear of the bollard and stop it sliding forward on the cylinder, potentially overlaying other strands and causing the rope to jam and impede rope progress. Hook-style guides are most clearly seen in this *Courant Hulk* guide (left and in the *Treerunner* model (left) with top guides on the left *and* the right depending on which side of the drum you want the rope to enter. Note that the rear pin also acts as a rope guide to stop the rope sliding forward. *Port-A-Wrap*s too have a post or two set at the rear of the tube which stops the rope sliding off the *back* of the cylinder. Still another style of *Port-A-Wrap* exemplified by the *Stein RC1000* and the now discontinued and oddly asymmetric *ISC* models (large version shown left) has closed eyes which can be used as rope guides by connecting a carabiner into the eye and then the rope - make sure the carabiner gate is facing outwards towards the ground crew.





Some of the rear posts are shaped or bent to more safely guide the rope upwards or into the bollard

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

ODDITIES.....

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

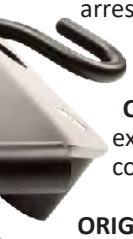
Notch 6-Pack: The newest device and obviously owes at least some inspiration to the Hulk. it has 6 fixed bollards and 10 friction settings via 2 entry and 2 hook-shaped exit fairleads. Like the Hulk, this is large at almost 2 feet long but offers a versatile lowering option

LOWERING BOLLARDS

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

McDermott Crown Brake

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



IN THE FOLLOWING TABLES:.....

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

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

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

MAX ROPE DIAMETER Given by the manufacturer. This should be dictated by the diameter of the cylinder maximising the bend radius but also by the gap at the rear rope guide.

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

A solid black square ■ in the **Anchor Strap** column indicates that the device comes complete with the necessary strapping (whether you want it or not!)

An outline square ☐ in the **Anchor Strap** column indicates that bespoke strapping is available as an option.

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

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

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

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

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

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

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

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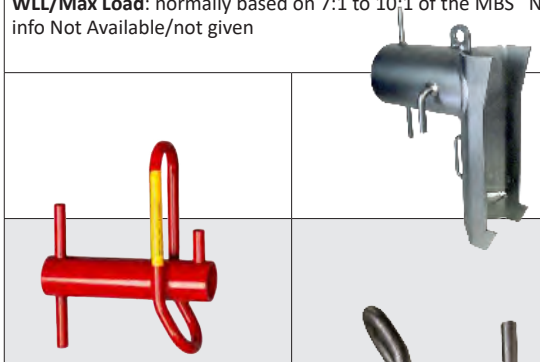
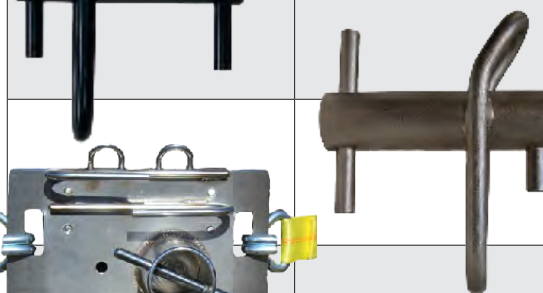
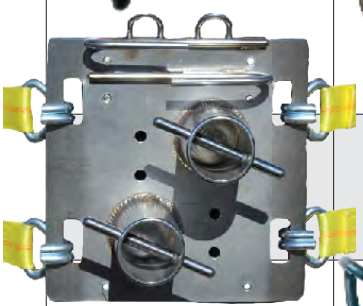
WLL/Max Load: normally based on 7:1 to 10:1 of the MBS N/A: info Not Available/not given

	MODEL	COMPANY	ORIGIN	COST inc tax	WEIGHT exc straps	MATERIALS	DI
	Mini Bollard	ART		£234 $286 €268	2.6kg 5.7lb	Stainless Steel	30 1
	Port-A-Wrap Mini/ Rescue Mini 601	BUCKINGHAM		£160 $210 €170	0.9kg 2lb	Nickel-plated Steel	14 5
	Port-A-Wrap III Medium 601	BUCKINGHAM		£190 $225 €220	1.8kg 4lb	Nickel-plated Steel	18
	Port-A-Wrap III Large	BUCKINGHAM		£200 $243 €240	3.2kg 7lb	Nickel-plated Steel	24 9
	Port-A-Wrap XL	BUCKINGHAM		£300 $350 €350	8.3kg 18lb	Nickel-plated Steel	33 1
	LCD	CMI		£660 $657 €775	7.66kg 16.9lb	Stainless Steel	305 12
	Hulk	COURANT		£310 $399 €352	4.3kg 9.5lb	Alloy Bollards Stainless Steel posts, HT & Coated Steel Back Plate	30 1
	Rigging Bollard SIlver	FREEWORKER		£222 $312 €292	7.1kg 15.6lb	Stainless Steel	30 1
	Obilasser	FREEWORKER		£354 $465 €405	8.55kg 18.9lb	Galvanised Steel, Stainless pins	30
	Micro	FTC TREE		£336 £400 €385	1.7kg 3.75lb	Aluminium	22 8
	Mini	FTC TREE		£540 $706 €620	3.6kg 7.9lb	Aluminium	34 1

LOWERING BOLLARDS

MAX MENSIONS	BOLLARD Ø	MAX ROPE Ø	MBS	WLL (Max Working Load)	FLYING	FIXED	TRUNK GRIPS	RUBBER BARK PROTECTION	ANCHOR STRAP(s)	WINCH ADAPT	TIE-OFF/ CONTROL POSTS	ROPE GUIDES	TOP/BOTTOM ANCHOR EYE	NOTES	WWW.
00 x 206mm 1.8 x 8.1"	90mm 3.5"	14mm 9/16"	-	1000kg 2204lb	-	■	■	-	-	-	2	2	■ ■		climb-art.de
40 x165mm .5" x 6.5"	33.5mm 1.32"	12.7mm ½"	31kN 7000 lbf	450kg 1000lb	■	-	-	-	-	-	2	1	■ ■	Price is for polished. Black powder-coated also available Red with integral Tenex rope for RESCUE = $250.	buckinghammfg.com
4 x 228mm 7.25 x 9"	48mm 1.9"	16mm ⅝"	53kN 12000lbf	907kg 2000lb	■	-	-	-	-	-	2	1	■ ■	Also available as black powder-coated	buckinghammfg.com
1 x 280mm 9.5" x 11"	61mm 2.4"	18mm ¾"	53kN 12000lbf	907kg 2000lb	■	-	-	-	-	-	2	1	■ ■	Also branded as 'ArborMax 601LN'	buckinghammfg.com
30 x 55mm 13" x 14"	89mm 3.5"	22mm ⅞"	6.7kN 60000lbf	2720kg 6000lb	■	-	-	-	-	-	2	1	■ ■		buckinghammfg.com
x 305 x 15mm 2 x 12 x 6"	?	19mm ¾"	-	2720kg 6000lb	-	■	-	-	■	-	4	2	■ -	LCD=Lowering Control Device	cmigearusa.com
00 x 330mm 11.8 x 13"	60mm 2.36"	14mm 9/16"	25kN 5620lbf	500kg 1102lb	■	-	-	-	-	-	-	3	■ ■	Sheaves/bollards can be rotated to even out wear or replaced	mycourant.com
00 x 160mm 1.8 x 6.3"	112mm 4.4"	16mm ⅝"	-	500kg 1102lb	-	■	-	-	□	-	2	2	■		freeworker.de
5 x 160mm 12 x 6.3"	140mm 5.5"	19mm ¾"	-	1400kg 3086lb	-	■	-		□	-	2	2	■	Removable pins	freeworker.de
4 x 163mm 8.8 x 6.4"	75mm 3"	14mm 9/16"	36.2kN 8819 lbf	800kg 1764lbf	-	■	-	■	■	-	2	2	■ ■	Comes with storage box and 9m ratchet strap	ftc-tree.com
40 x 120mm 3.2 x 4.7"	100mm 4"	16mm ⅝"	49kN 11023lbf	1000kg 2204lbf	-	■	-	■	■	■	2	2	■	Comes with storage box and 9m ratchet strap	ftc-tree.com

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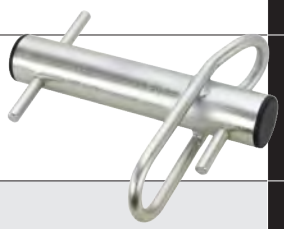
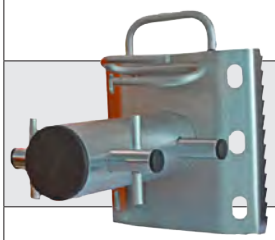
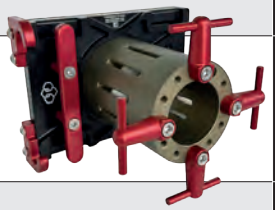
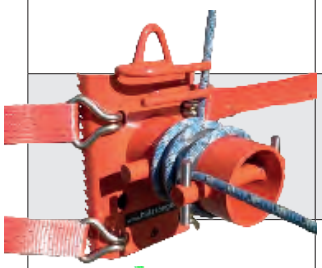
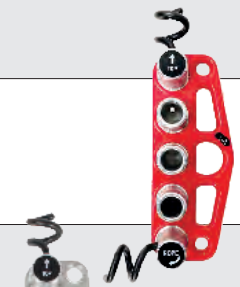
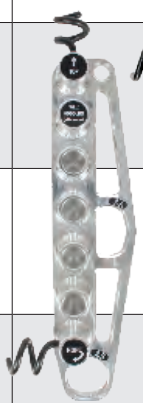
	MODEL	COMPANY	ORIGIN	COST inc tax	WEIGHT exc straps	MATERIALS	DI
	Flying Capstan H2611	HARKIE		£149 $195 $163	1.92kg 4.2 lb	Galvanised Steel	26
	Heavy Duty Capstan H2621	HARKIE		£302 $395 $346	6.45kg 14.2 lb	Galvanised Steel	33 13
	Hexarig HX02648	HEXAROPE		£1300 $1680 €1320	5.9kg 13 lb	Machined Alu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

LOWERING BOLLARDS

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

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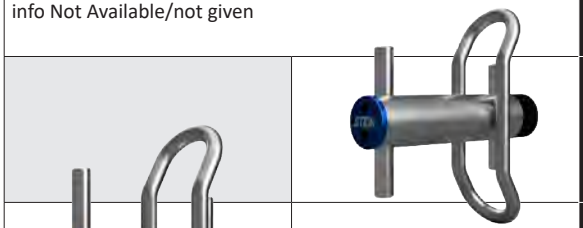
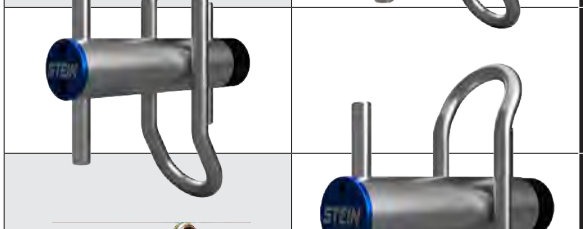
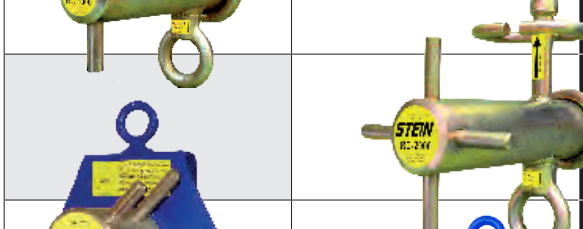
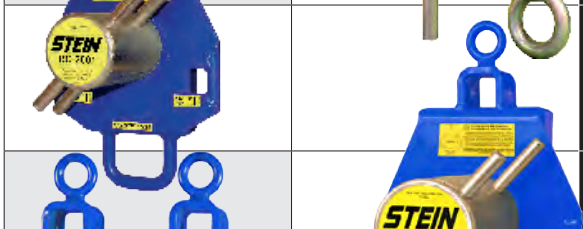
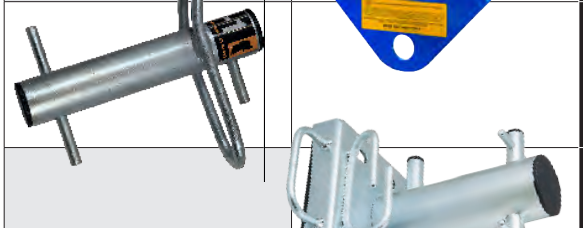
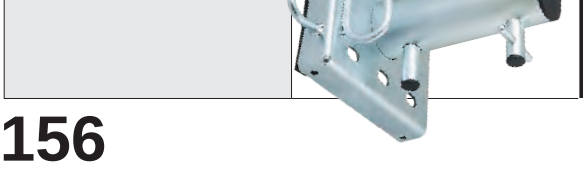
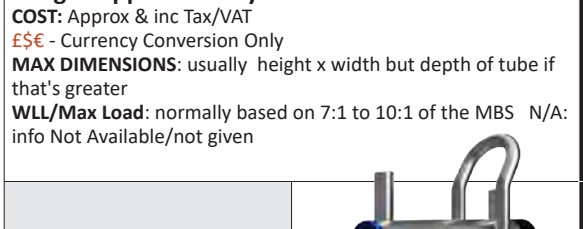
	MODEL	COMPANY	ORIGIN	COST inc tax	WEIGHT exc straps	MATERIALS	DI
	Floating Friction Device LD750	STEIN		£162 $212 €00	3.6kg 7.9lb	Aluminium	22 8
	Floating Friction Device LD1000	STEIN		£198 $260 €000	3.6kg 7.9lb	Aluminium	24 9
	Floating Friction Device LD1250	STEIN		£234 $307 €280	4.4kg 9.75lb	Aluminium	24 9
	RC1000	STEIN		£240 $200* €287	3.6kg 7.9lb	Plated Steel	24 9
	RC2000	STEIN		£282 $240* €337	6.2kg 13.7lb	Plated Steel	28 11
	RC2001	STEIN		£450 $560 €537	5.8kg 12.8lb	Plated & powder-coated Steel	18 7
	RC(W)3001	STEIN		£660 $930 €787	13.3kg 29lb	Plated & powder-coated Steel	27 10
	RC(W)3002	STEIN		£1020 $1095 €1216	26kg 57.3lb	Plated & powder-coated Steel	41 16
	SMB1000	STEIN		£298 $399 €356	4.4kg 9.7lb	Plated & powder-coated Steel	31 1
	TH LD1	TREEHOG		£126 $165 €151	1.92kg 4.2lb	Galvanised Steel	26
	TH LD2	TREEHOG		£300 $395 €358	7.3kg 16lb	Galvanised Steel	37 14

LOWERING BOLLARDS

MAX MENSIONS	BOLLARD Ø	MAX ROPE Ø	MBS	WLL (Max Working Load)	FLYING	FIXED	TRUNK GRIPS	RUBBER BARK PROTECTION	ANCHOR STRAP(s)	WINCH ADAPT	TIE-OFF/ CONTROL POSTS	ROPE GUIDES	TOP/BOTTOM ANCHOR EYE	NOTES	WWW.
20 x 250mm 3.7 x 9.8"	51mm 2"	13mm ½"	-	750kg 1653lb	■	-	-	■	-	-	2	2	■ ■	Inc removable / replaceable protection rubber cap Steel version (Inverta-Wrap) discontinued	steinworldwide.com
45 x 300mm .7 x 11.8"	61mm 2.4"	14mm 9/16"	-	1000kg 2204lb	■	-	-	■	-	-	2	2	■ ■	Inc removable / replaceable protection rubber cap	steinworldwide.com
45 x 300mm .7 x 11.8"	74mm 2.9"	16mm 5/8"	-	1250kg 2755lb	■	-	-	■	-	-	2	2	■ ■	Inc removable / replaceable protection rubber cap	steinworldwide.com
45 x 300mm .7 x 11.8"	61mm 2.4"	14mm 9/16"	-	1000kg 2204lb	■	-	-		-	-	2	1	■ ■	US$ price less than GB£	steinworldwide.com
35 x 370mm 1.2 x 14.6"	76mm 3"	16mm 5/8"	-	2000kg 4409lb	■	-	-		-	-	4	1	■ ■	US$ price less than GB£	steinworldwide.com
35 x 325mm .3 x 12.8"	76mm 3"	16mm 5/8"	-	2000kg 4409lb	-	■	-	■	-	■	4	-	■ ■		steinworldwide.com
75 x 480mm 0.8 x 18.9"	115mm 4.5"	19mm ¾"	-	3000kg 6614lb	-	■	-	■	-	■	4	-	■ ■	(W) refers to winch capable adapation, this is otherwise the same model previously listed as 'RC'.	steinworldwide.com
10 x 480mm 6.1 x18.9"	115mm 4.5"	19mm ¾"	-	3000kg 6614lb	-	■	-	■	-	■	8	-	■ ■	Winch piggybacks to lowering line temporarily bypassing (not replacing) the lowering bollard.	steinworldwide.com
10 x 210mm 2.2 x 8.3"	73mm 2.9"	14mm 9/16"	-	1000kg 2204lb	-	■	-	■	■	-	4	1	■ ■	(W) refers to winch capable adapation, this is otherwise the same model previously listed as 'RC'.	steinworldwide.com
65 x 230mm 10.4 x 9"	75mm 3"	12mm ½"	30kN 6744lbf	600kg 1323lb	■	-	-	■	-	-	2	1	■ ■	Comes in zip-up canvas bag	arbortec.com
70 x 385mm 4.6 x 15.2"	75mm 3"	14mm 9/16"	50kN 11240lbf	1000kg 2204lb	-	■	-	■	■	-	2	4	■	comes in PVC pack	arbortec.com

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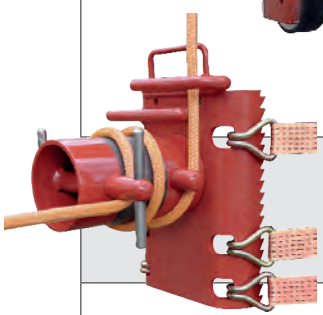
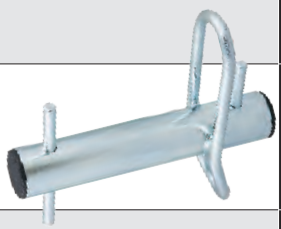
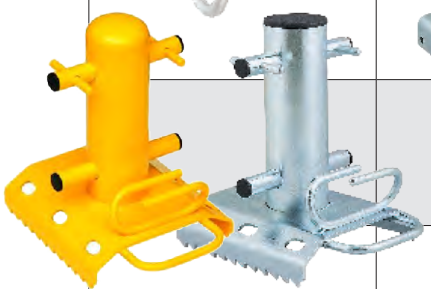
	TH LD3	TREEHOG		£305 $400 $365	6.45kg 14.2lb	Galvanised Steel	33 13
	TH LD5 3.0T	TREEHOG		£440 $540 €505	5.8kg 12.8lb	Stainless Steel	25
	Port-A-Wrap (71-817)	TREERUNNER		£195 $236 €220	2.6kg 5.7lb	Stainless Steel	25 9
	P500 (71-879)	TREERUNNER		£280 $321 €335	5.8kg 12.8lb	Powder-coated Steel	32 1
	Poller Classic (71-818)	TREERUNNER		£255 $334 €310	9.1kg 20lb	Powder-coated Steel	30 11
	P3000 (71-877)	TREERUNNER		£455 $595 €459	16kg 35.3lb	Powder-coated Steel	47 1
	Port-A-Wrap-TU200	TREE-UP (PROTEKT)		£115 $150 €138	1.92kg 4.2lb	Galvanised Steel	26
	Port-A-Wrap TU201	TREEUP (PROTEKT)		£105 $137 €125	2.32kg 5.1lb	Stainless Steel	26 10
	Port-A-Wrap TU100	TREEUP (PROTEKT)		£274 $336 €315	7.3kg 16lb	Galvanised Steel	37 14
	Port-A-Wrap TU110	TREEUP (PROTEKT)		£254 $312 €291	6.45kg 14.2lb	Galvanised Steel	33 13
	Ultralight TU101	TREEUP (PROTEKT)		£367 $450 €421	5.8kg 12.8lb	Stainless Steel	25 9

LOWERING BOLLARDS

MAX DIMENSIONS	BOLLARD Ø	MAX ROPE Ø	MBS	WLL (Max Working Load)	FLYING	FIXED	TRUNK GRIPS	RUBBER BARK PROTECTION	ANCHOR STRAP(s)	WINCH ADAPT	TIE-OFF/ CONTROL POSTS	ROPE GUIDES	TOP/BOTTOM ANCHOR EYE	NOTES	WWW.
85 x 300mm 3.2 x 11.8"	75mm 3"	14mm 9/16"	50kN 11240lbf	1000kg 2204lb	-	■	■	-	■	-	2	3	■	May be discontinued comes in PVC pack	arbortec.com
50 x 200mm 9.8 x 7.9"	75mm 3"	14mm 9/16"	150kN 33721lbf	3000kg 6614lb	-	■	-	■	■	-	2	3*	■	*Top anchor eye is designated as a rope guide by manufacturer.Comes in PVC pack	arbortec.com
50 x 310mm 9.8 x 12.2"	60mm 2.36"	18mm 3/4"	-	1000kg 2204lb	■	-	-	-	-	-	3	-	■ ■		grube.de
20 x 220mm 12.6 x 8.7"	76mm 3"	16mm 5/8"	-	500kg 1102lb	-	■	-	■	□	-	4	2	■ ■		grube.de
00 x 380mm 1.8 x 14.9"	76mm 3"	16mm 5/5"	-	500kg 1102lb	-	■	-	-	□	-	3	2	■		grube.de
70 x 380mm 8.5 x14.9"	140mm 5.5"	20mm 3/4"	-	3000kg 6613lb	-	■	■	-	□	-	4	2	■		grube.de
55 x 230mm 10.4 x 9"	75mm 3"	14mm 9/16"	50kN 11240lbf	1000kg 2204lb	■	-	-	■	-	-	3	-	■ ■	Comes with storage bag Also available in Yellow.	treeup.pl
60 x 282mm 0.2 x 11.1"	108mm 4.25"	20mm 3/4"	50kN 11240lbf	1000kg 2204lb	■	-	-	■	-	-	3	-	■ ■		treeup.pl
70 x 385mm 4.6 x 15.1"	75mm 3"	14mm 9/16"	50kN 11240lbf	1500kg 3306lb	-	■	-	■	■	-	4	1	■	Comes with storage bag. Also available in Yellow with dome-top capstan	treeup.pl
85 x 300mm 3.2 x 11.8"	75mm 3"	14mm 9/16"	50kN 11240lbf	1500kg 3306lb	-	■	■		■	-	4	1	■	Comes with storage bag. Also available in Yellow with dome-top capstan.	treeup.pl
50 x 200mm 9.8 x 7.9"	75mm 3"	14mm 9/16"	150kN 33721 lbf	3000kg 6613lb	-	■	-	■	■	-	4	1*	■	*Top anchor eye is designated as a rope guide by manufacturer (with carabiner?)	treeup.pl

magazines.com

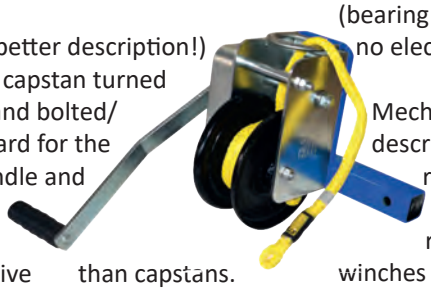
HAND-POWERED ROPE WINCHES

including COMBINATION WINCH/BOLLARDS

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

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

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



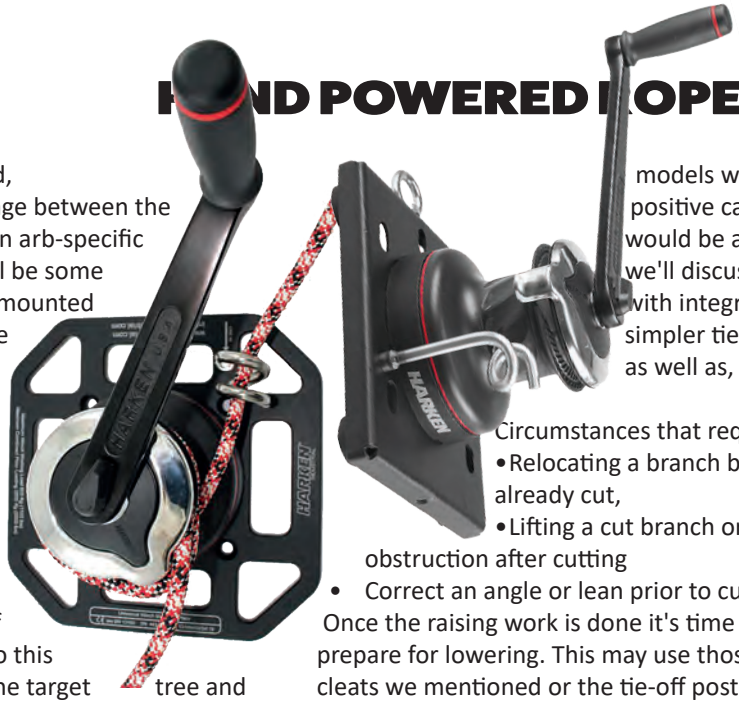
The difference between a winch and a static bollard as we featured in last issue's GUIDE is that they have a handle and some cogs connected to the inside of the capstan to offer varying degrees of mechanical advantage allowing you to *lift* heavy weights as well as lower. This GUIDE focuses only on manual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

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

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

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

HAND POWERED ROPE WINCHES



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

RAISING & LOWERING

The style of winch we're discussing could still be said to take some of the skills necessity out of the hands of ground crew; no setting up of pulley systems, no tying of knots even. It will always be secured to the base of a tree so as long as your crew can pick a good site (not too close to the ground and not directly in an impact area), you're sorted. The winch will almost always be attached to the target tree or very close to it and the rope (NOT WIRE CABLE) will be redirected to the load branch or trunk section via a snatch or impact block/pulley. The ground crew stand to one side when lowering in the same way as the static bollards and use a handle to wind the bejesus out of the rope when raising. Because the loads can be quite high you must ensure that you are adequately capturing the progress you make after the manic winding. Capstans generally have their own progress capture (called **Self-Tailing** or, more appropriately, CAPTIVE self-tailing which is a pair of gripping 'lips' at the top of the capstan which will hold the rope if you have enough turns to absorb the weight. You can see this most clearly in the Sterling Rope ad a few pages on where the Harken capstan is shown in profile with the two gripping surfaces and the silver coloured rope guide and in the GRCS pic overleaf. This works best on the largest rope in the winch's range and may be augmented or replaced in some

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

Circumstances that require raising include

- Relocating a branch being cut or that is already cut,
- Lifting a cut branch or trunk over an obstruction after cutting
- Correct an angle or lean prior to cutting

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

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

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

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

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

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

Note that our figures are for the Capstan/winch version NOT the interchangeable rigging bollard (where there is one) unless specifically listed as such. Rope capacity diameters for instance, are often a couple of mil larger for the bollard than they are for the capstan. A noticeable exception to this is the *FTC TREE Transformeur* which might sound very heavy at 43kg but that includes two, count 'em, two bollards AND the winch on the same assembly all of which can be removed from the plate as required - you could for instance have just one bollard on the back plate or none at all and the weight would go down accordingly. The Stein 3002 also offers two bollards but these are fixed so the basic weight of the unit is quite high at 42kg but the 15kg winch attachment is easily separated.

GEAR RATIO versus POWER RATIO :

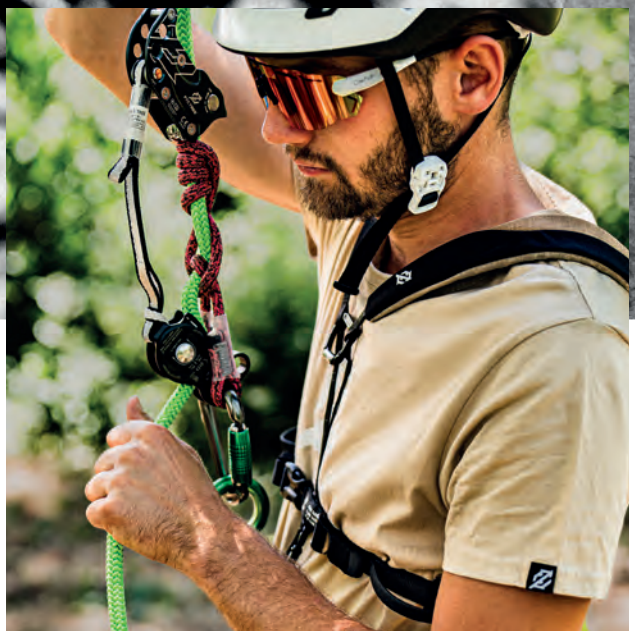
We're listing this as **MA** or **MECHANICAL ADVANTAGE** which correlates to the Power ratio. While the actual gear ratio on, for instance a Harken winch may be 2:1 and 6:1 as it is on the Rigger 500, this actually translates to the much higher 'Power' ratio of 13:1 and 40:1. You calculate the 'Power'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

DRILL ADAPTERS

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

NATE RANGE FOR SRT

BUILT LIGHT.
WORN TIGHT.
WORKS HARD.



#WEARANDFORGET

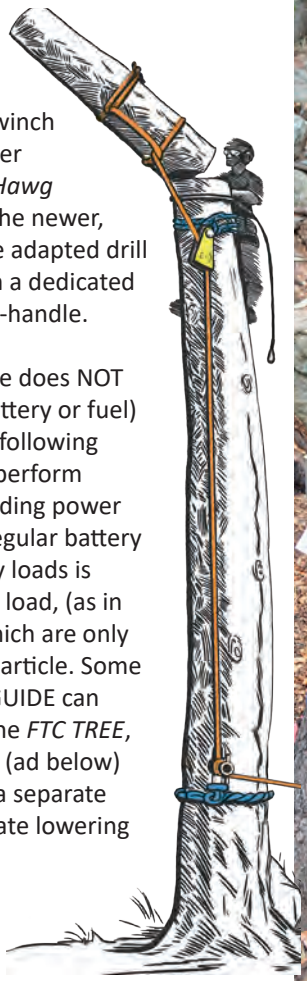
@ftctree

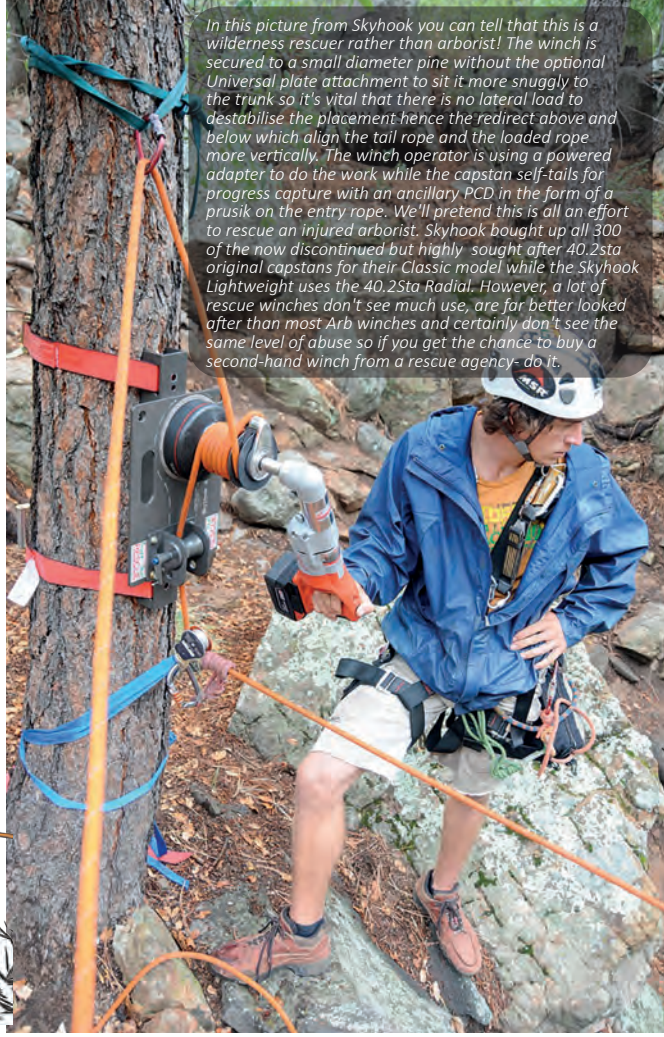
FTC TREE

UPDATED Oct '25

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

Just to be clear, this guide does NOT include any powered (battery or fuel) winches, they are in the following GUIDE The tables in this Guide are devices which perform heavy-duty lowering *and* raising using manual winding power albeit that some can augment this action with a regular battery power drill. The job of dynamically arresting heavy loads is generally left to Impact blocks rigged closer to the load, (as in our diagram on the right courtesy of *Wesspur*), which are only then lowered on the kinds of devices listed in this article. Some of the fixed bollards we included in the previous GUIDE can be retro-fitted with a drum winch for raising like the *FTC TREE*, *Stein* and *KROK* models. *Stein* (top) and *FTC TREE* (ad below) are unique in this selection because they can use a separate winching rope allowing you to rig up to two separate lowering ropes AND a raising rope at the same time.





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

SAFE OPERATING TECHNIQUE

The standard bollard devices are solid lumps of metal that you are very unlikely to damage in a controlled lowering even if it gets sideswiped by the section being lowered. However, a winch has extraneous components that are much more susceptible to damage - the handle for instance if left in and the side cheeks on a drum winch or the top lip and control surfaces on a capstan. These are expensive as well so it's best to ensure that you position it so that it is offset and the lowered section comes down to one side. In the case of the *ATD* and the *Smartwinch* (above), the integral bollard provides a protective shroud for the capstan but if the handle is in place on either the capstan or, in this case, the web tensioner, this would still be a weak-point. Don't forget to factor in that your load may start out in a controlled lower but end up in freefall should an operator or component fail.

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

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

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

HAND POWERED ROPE WINCHES

IN THE FOLLOWING TABLES:.....

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

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

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

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

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

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

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

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

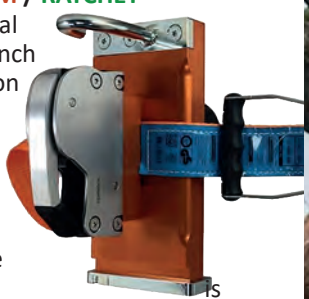
ANCHOR STRAPS: A solid black square ■ indicates that the device comes complete with the necessary strapping (whether you want it or not!). An outline square ☐ indicates that bespoke strapping is available as an option.

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

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

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

PROGRESS CAPTURE - SELF-TAIL / CAM / RATCHET



A black square ■ indicates an integral 'jamming' action on the top of the winch drum called self-tailing and common on *Harken* models.
An orange square ■ indicates an add-on camming option like this from *Arbpro* Italy and the black one below from *ATD*.
A Green square ■ indicates a simple ratchet cam where a cog-like wheel is stopped from going backwards by some form of 'catch'. This is typical on the *Stein* models.

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

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

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

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

ARBORIST'S ADVANTAGE

YOU ARE PACKING IN DECADES OF DEPENDABILITY

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

LEARN MORE ABOUT GRCS TREE MOUNT SYSTEM

Made In Wisconsin, USA

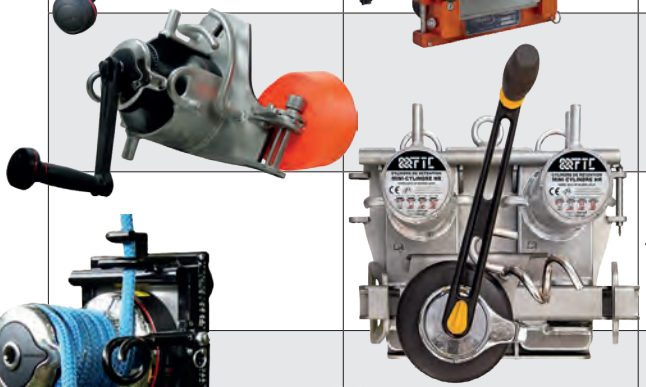
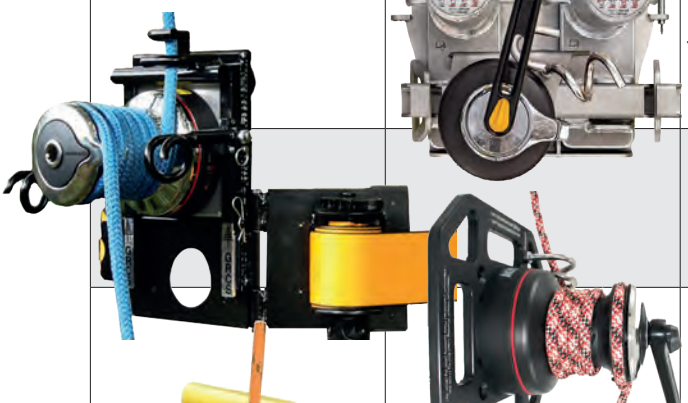
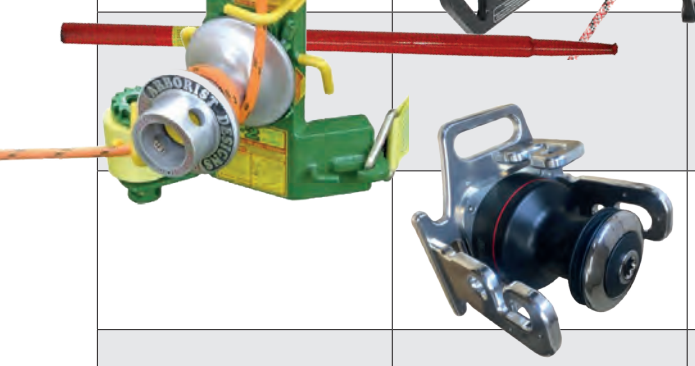
Dead lift rating of 3,000 lbs

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

HARKEN™

harken.com

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

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

HAND POWERED ROPE WINCHES

MAX DIMENSIONS exc handle	CAPSTAN Ø	MA RATIOS	CAPSTAN ROPE Ø	MBS	WLL Max Load for RAISING LOWERING	MODULAR	RUBBER TRUNK GRIPS	ANCHOR STRAP	BOLLARD includes	PROGRESS CAPTURE SELF-TAILCAMRATCHET	TIE-OFF/ CONTROL POSTS	ROPE GUIDES	TOP/BOTTOM ANCHOR EYE	NOTES	www.
0x370x330mm .9 x 14.5 x 13"	100mm 3.9"	12:1 46:1	14-16mm 9/16-5/8"	-	1300kg* 2866lb 2000kg 4400lb	□		1	□	■ ■		7	■	* WLL for hard securing of back plate. Rubber mounting max= 800kg. Cost inc carbon-plastic Case	arboteam.it freeworker.de
0x300x250mm 24 x 12 x 10"	140mm 5.5"	13.5:1 40:1	12-14mm 1/2-9/16"	48kN 10791 lbf	800kg 1764lb 1000kg 2200lb	■	■	3	■	■ ■		2	■	MBS is when used with optional cam. 140mm diam Bollard weighs 11kg	arbpro.it
0x350x250mm 24 x 14 x 10"	150mm 5.9"	12:1 46:1	12-19mm 1/2-3/4"	73.5kN 16535 lbf	1200kg 2645lb 1500kg 3306lb	■	■	3	■	■ ■		4	■	MBS is when used with optional cam. 150mm diam Bollard weighs 5kg	arbpro.it
0x350x250mm 20 x 14 x10"	101mm 4"	12:1 46:1	8-14mm 5/16-9/16"	70kN 15736 lbf	1300kg 2866 lb 700kg 1575 lb	□	■	1	□		2	3	■	Integral bollard protects capsatn. Straps are tightenend using the winch handle in the riht-hand webbing pin.	cprinnovations.com
450 x 370mm 18 x 14.5"	93mm 3.7"	20:1 43:1	10-16mm 3/8-5/8"	100kN 22481 lbf	816kg 1798lb 2040kg 4500lb	■	■	2	■ ■	■	0-4	2-6	■	All components can be purchased separately. Model shown includes 2x Bollards and case.	ftc-tree.com
0x230x250mm 14.1 x 9 x 10"	100mm 3.9"	12:1 46:1	<19mm <3/4""	91.6kN 20592 lbf	907kg 2000lb 1360kg 3000lb	■	■	■	■	■		3	■	NB: Now owned by Harken. Base plate is hinged for greater stability on a curved surface.	harken.com
0x290x369mm 4 x 11.4 x 14.5"	80mm 3.5"	13.5:1 40:1	8-12mm 5/16-1/2"	25kN 5620 lbf	500kg 1102lb					■		1	■ ■	Also available is a smaller, lighter Rigger 200 but not marketed to arborists	harken.com
3x436x236mm 19 x 19 x 9.3"	*75-152mm 3-6"	16:1	12-19mm 1/2-3/4"	>89kN >20000 lbf	1360kg 3000lb		■	■	□	■	1	2	■	The original arborist lowering device with raising capability. *Has a highly tapered capstan	blairsae.com
9x250x240mm 1.4 x 10 x 9.5"	80mm 3.5"	13.5 40:1	12mm 1/2"	>40kN >8992 lbf	400kg 881lb		■	■		■	3*	3*	■ ■	Guides designed as 'hyperbars that double as tie-off posts	works-odsk.jp
															Expansion Row

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

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

HAND POWERED ROPE WINCHES

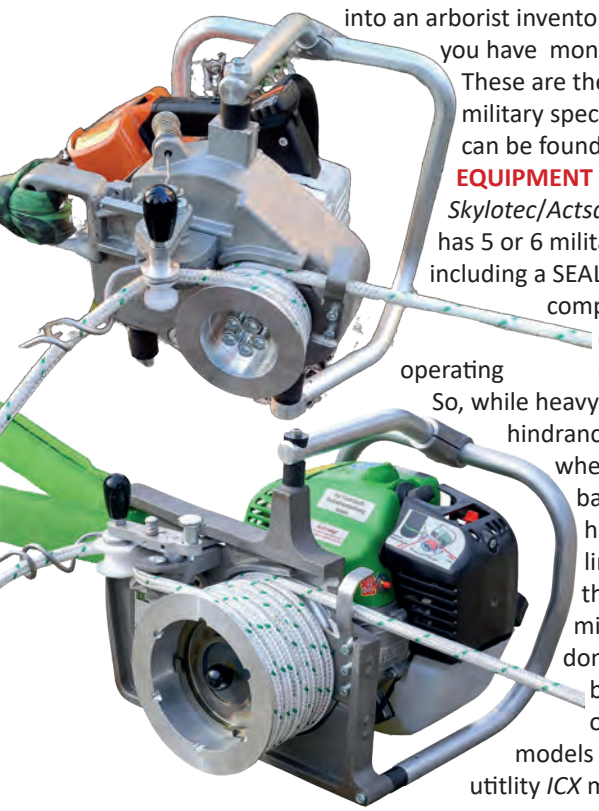
MAX DIMENSIONS exc handle	CAPSTAN Ø	MA RATIOS	CAPSTAN ROPE Ø	MBS	WLL Max Load for RAISING LOWERING	MODULAR	RUBBER TRUNK GRIPS	ANCHOR STRAP	includes BOLLARD	PROGRESS CAPTURE SELF-TAILCAMRATCHET	TIE-OFF/ CONTROL POSTS	ROPE GUIDES	TOP/BOTTOM ANCHOR EYE	NOTES	www.
8x254x235mm 0 x 10 x 9.25"	80mm 3.5"	13.5:1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

POWERED ROPE WINCHES/ASCENDERS

(no wire-rope winches)

Independently anchored, fibre rope winches

A few years ago powered rope winches might only have consisted of a handful of small petrol/gas powered models that were effectively a chainsaw or brushcutter engine attached to a capstan. Now, we not only have a wider range of specifically designed petrol capstan winches like the Portable Winch Co. range, we also have a whole heap of battery powered models that use a rotating grip or jaw instead of a capstan. All such models can use any length of rope within their operating limits - often limited by temperature in the case of battery power. We need to say straight away that the number of battery winches is artificially bolstered by the meteoric rise of powered ascenders because they can all be used for ascending a rope AND as a conventional but light-duty winch because it's the same job - hauling a weight on a rope. There are now 2 (soon to be 3) dedicated battery rope winches of note, from *Eder* and *PWC*, the rest are either wire-rope models which we'll discuss shortly, or powered ascenders that can be used as a winch, dragging a suitably sized rope through its cleated circular 'jaw' instead of around a large capstan while fixed to an anchor. Within the battery genre there are now several models that would very rarely make it into an arborist inventory at all unless you have money to burn.



These are the rescue and military spec models which can be found in the **ROPE EQUIPMENT BUYERS GUIDE**. *Skylotec/Actsafe* for instance, has 5 or 6 military models including a SEAL model which is completely watertight (IP68) , even operating underwater. So, while heavy rain is no hindrance to any winch, whether petrol or battery, they do have saturation limits which these overtly military model don't. *Skylotec* have balanced these overt military models with their new utitlity *ICX* model using the *Husqvarna* battery platform and therefore of particular interest to arborists.

We must stress once more, that **battery powered ascenders used as winches have a very much lower load capacity than petrol/gas/battery dedicated winches** like Portable Winch Co's new Stihl battery powered APW6000 above (out in 2026).

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

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

ABOVE: Germany's Grube/Eder 1800 model and above it their 1200 battery version using a readily available Stihl36v battery. Note the black knob on the left is sprung or sometimes screw-threaded and is to allow installation of the rope into a redirect. The knob inside the capstan allows it to be changed or replaced.
TOP RIGHT: Canada's Portable Winch Co. has a battery models using Briggs&Stratten/Cramer 82v and Stihl 36v batteries .

POWERED ROPE WINCHES/ASCENDERS

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

Main Pic: Acstafe's Powered ascenders, whether petrol like this PMX or the battery-drivenACX (inset) , can operate as 'light-duty' winches as well as moving a human load up or down a rope buy direct attachment.
Right: The Japanese *Kenz* models are not yet available outside of Japan but the AWAh Z2R inset pics right. These are smaller than all others as a consequence of using an electric drill to do the work something we've seen in rescue with the Skyhook listed in our manual winches Guide. This means that your 'motor' is a readily available and considerably cheaper alternative to a bespoke battery.

CAPTIVE DRUM WIRE & ROPE WINCHES

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

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

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

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

PULLING, RAISING & LOWERING

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

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

Once the raising work is done it's time to lock off the load and prepare for lowering. This may use those an integral cam, some form of tie-off post for the raising rope or in the case of powered ascenders the rope is permanently grasped and a direction change from raise to lower in initiated by the flip of a switch or button. Remember that a cam would require you to take load off before it will release the rope for lowering so you're either going to need that winch again to take in enough rope to release the cam or you might piggyback a small pulley system to allow the load transfer. Tie-off posts are the same as you always have with a bollard, a few sturdy wraps and a strong hand grasp as you gently unwrap until the load comes on and remains manageable. With capstan winches this then becomes a self-tailing action where several wraps wound around the shiny surface allow one person to hold the load and gently run the rope through gloved hands to lower. *FTC TREE* provide these handy figures for the load holding ability of a new 12mm rope when wrapped around their 100mm mini-bollard with the operator(s) feeling a weight/resistance on the rope of around 30-40kg/67-90lb:

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

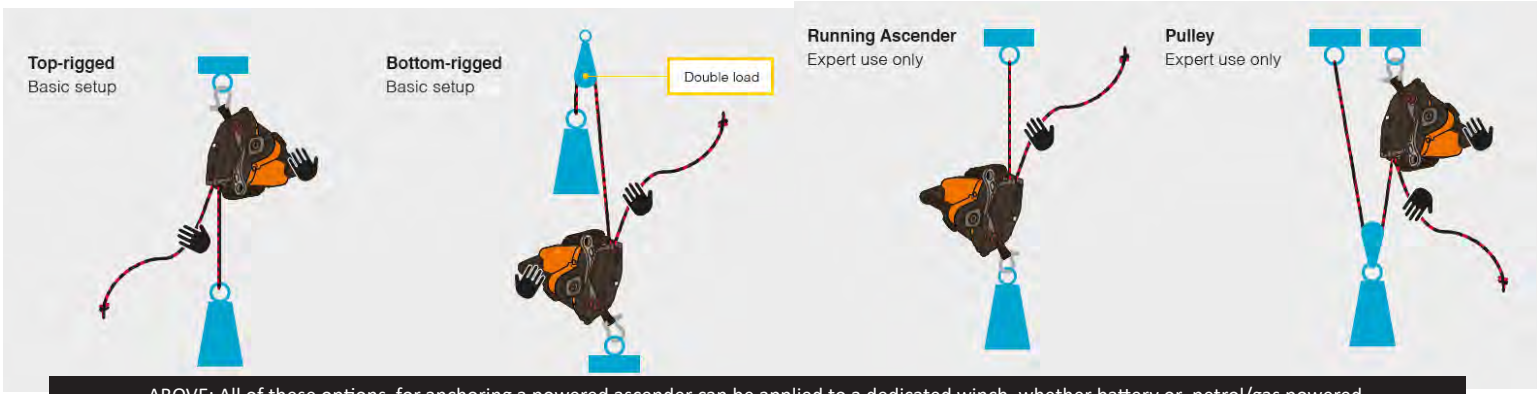
The styles of winch we're discussing could still be said to take some of the skills necessity out of the hands of ground crew; no setting up of pulley systems, not even knot-tying and the powered ascender style of winch doesn't even require the 'feel' of tension on the trail rope for expert control -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

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

1) make sure that you take in slack and initiate lift with the trigger/throttle in a controlled manner not like a teenager over-revving a motorcycle and wheelying up the road as if he meant to do it.

2) Just as you do with a descender, maintain contact and control of the trail rope as it enters/exits the capstan or drum/grip. This also means ensuring the correct number of wraps if it's a capstan and ensuring that there are no kinks or knots in the

POWERED ROPE WINCHES/ASCENDERS



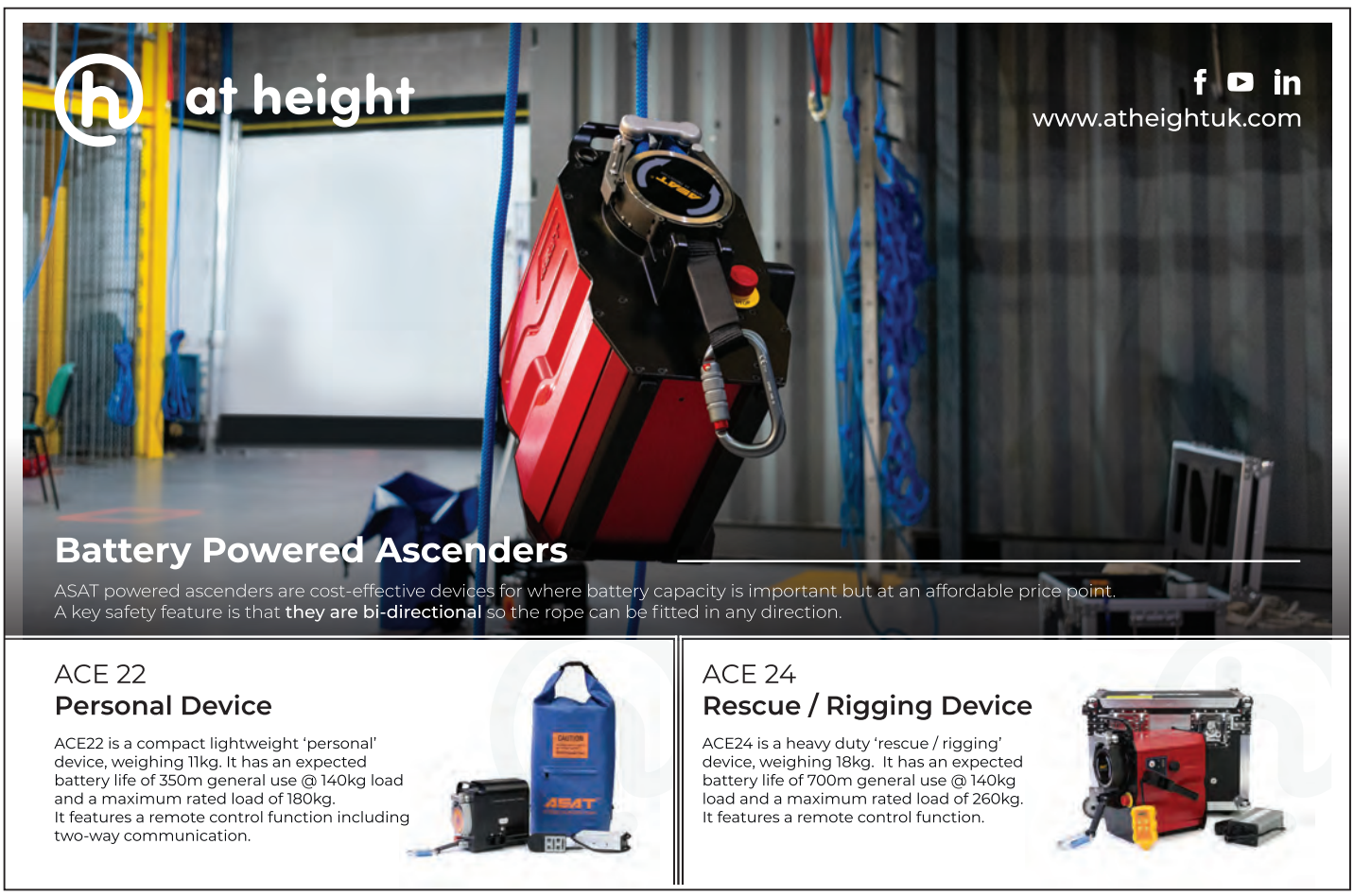
ABOVE: All of these options for anchoring a powered ascender can be applied to a dedicated winch, whether battery or petrol/gas powered. However, petrol/gas models shown below in Portable Winch Co.'s diagrams, are primarily designed to be used on or near the ground in a horizontal orientation. You could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

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

WHAT COULD POSSIBLY GO WRONG?

The rope could snap! Most winches have no mechanical clutch mechanism to mitigate the powerful pulling action should a jam occur . Most will cut out if loaded to the maximum or overloaded but that's not much consolation with the more powerful models. For capstan models your rope handling skills around the capstan are therefore important. You should have hold of the trail rope at all times and have enough wraps on the drum so that if you release tension on the rope the wraps will start to run under load. This acts as your safety 'clutch' should the load jam or be heavier than expected and heavier than your safety margins were anticipating. As you take in on the trail rope, it tightens the wraps on the drum causing it to grip and start taking in. If it slips continuously you need an extra wrap.

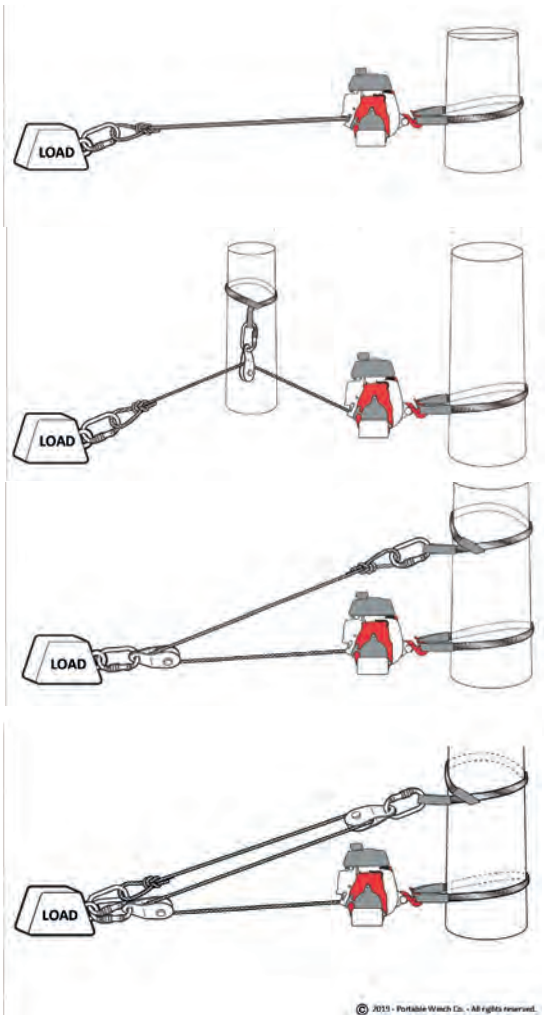
Clearly, you cannot allow a knot or kink to enter the winch or capstan from either direction. If you see or feel a potential obstruction in the rope you will need to immediately stop taking in and ensure the load remains secured if it is off the ground. You may need to employ a secondary, manual pulley



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

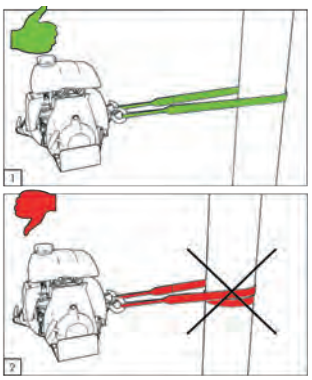
Many winches are supplied with an anchor sling and some, like the *Portable Winch Co*., has two swivel hooks spaced across the front of the winch instead of the single attachment eye that most have. This demands that you DO NOT take an extra 'wrap' of the sling around the anchor (2.right) because, once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

Pulling can look the same as raising except in one key element - progress-capture. For instance, two models from *Portable Winch Co. (PCH1000 and PCH2000*) quote two different figures; one for pulling and one for raising. Here is why; when pulling a load horizontally, the engine has the chance to ramp up to its maximum capacity and therefore pull heavier weights. Whereas, when raising a load from mid air, the engine has to provide all its power at this very instant in order to keep raising the load. Those two lifting winches are equipped with a progress-capture cam that is integrated into their frame. It is designed to hold the load during resetting or if the tail of the rope has been accidentally released. In this last case, there will necessarily be an aggressive compressing action from the progress-capture, which can weaken the rope, but at least, the load and workers will be safe.



CHAINSAW WINCH ADAPTERS

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



SAFE OPERATING TECHNIQUE

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

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

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

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

POWERED ROPE WINCHES/ASCENDERS

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

On the *Ronin* model (left) you can see the obvious anchor eyes top and bottom which can be used to anchor the device before pulling rope through or paying out/lowering under power. This is a key difference between powered ascenders and capstan winches, capstans take in under power and lower by hand, whereas ascenders maintain grip on the rope and power both ways. As always with battery power there is no noise or fumes during operation and control is much more finite enabling a skilled operator to tweak lifting and lowering operations within fine margins. None of them are as powerful as petrol/gas winches however and none should be used for dragging because of the excessive spikes in load that can occur. Bravely in the face of the battery onslaught, German winch company *EDER* followed *Skylotec/Actsafe* and *RopeTek* in creating a gas/petrol powered human-riding ascender, the *Power Climber* that now has a battery model that, usefully for arborists, uses *Stihl AP* batteries. Stealing a march on *Eder* was *Skylotec/Actsafe*'s *ICX* ascender (pic bottom left) a co-development with *Husqvarna* using their battery platform which, like the *Stihl* platform, is used for pro chainsaws, blowers, trimmers etc. making even wider use of your specific battery. This seems like the obvious way to go rather than bespoke batteries that only fit the powered ascender and are not readily available from your local hardware store. The *ICX* also has powered, rather than just inertia, descent.

We have included ONLY models costing less than (approx) £15K/$20K. Our Guide to Power Ascenders in the ROPE EQPT **BUYERS GUIDE** includes many other models and variants with higher load capacities, greater water ingress protection and in some cases submersible, aimed at rescue and military/govt agencies. They include *Atlas Devices* (which we had previously included in the first version of this Guide in **ARBCLIMBER**#16 but they haven't yet brought out a model aimed at the utility market) and more of the *KOPARS* South Korean range that is interesting if not rather 'boxy' .
The *Kenz* models mentioned on page 191 were new for 2023/24 and use a regular (quality brand) power drill as the driver. Currently only available in Japan but watch this space. The similar Chinese model by AWAH reviewed in TECHNICAL**RESCUE** #84 proved to be very good and has now been added to our tables along with AtHeightUK's DW2 /3. Ronin has a smaller, intergrated battery model, the *TL*, with less range than the *Lift* but smaller and lighter and they also have a new materials-handling model not for humans which stands out in its white livery (Inset pic far top-left).
Finally there are four Chinese ranges - *ASAT* we are familiar with as a rope equipment manufacturer, *Petro Steel* -not so much. They appear to be an agri-chemical company with fingers in many mechanical pies but these are decidedly affordable if not a little too good to be true. However as a portable winch rather than for life-support - they may be worth investigating. The more capable *Mode* model seems to have some connection with *Petro-steel* but there is some litigation on copyright infringement going on. BOTH CAPSTAN AND ASCENDER STYLE WINCHES REQUIRE THE TRAIL/TAIL ROPE TO BE CONTROLLED IN-THE-HAND AT ALL TIMES DURING RAISING AND LOWERING.

LEFT: By far the cheapest alternative for powered ascending and/or winching is a stand-alone one-way ratchet hauling 'pulley' that accepts a regular high-power drill onto its drive axle to provide a powered ascending capability. There are now at least two professional spec and a number of lesser known options. See TR84 for review of the *AWAH Z2R*. AWAH also has the more Pro-oriented *Z3 and Fire-rescue version the Z3FIRE*. *AtHeightUK* now has the *DrillWinch DW2-Basic* and *DW3-Pro (top right)* a slightly smaller, *Harken Clutch*-style device with more conventional descender capabilities alongside the drill-driven ascending/winching capability.

Previous Page: *Ronin*'s *Lift* was the first to try and make powered ascenders available to the masses with smaller, well priced devices. including their *Non HEC Lift* above intended for material handling-onlly rather than human transport.

Skylotec's *Actsafe iCX* (pic-left), *Eder's PowerClimber* (pic Below) *and Portable Winch Co's* new *6000 winch* use 'off-the-shelf' *Stihl* and *Husqvarna* batteries used in professional grade chainsaws, blowers and power tools. This represents an excellent option for cross-platform use of a common battery system saving money and simplifying battery anagement.

IN THE FOLLOWING TABLES:.....

COST: Including at least one battery unless stated otherwise. Prices are approximate, include VAT@20% &/or US State Sales Tax. We generally round up the cost to the nearest Pound£, US Dollar$ or Euro€. **£$€ in orange is a currency conversion only.**
ORIGIN: Is the parent company - an inset flat may indicate the manufacturer's country if different but we don't always know.
WEIGHT: Includes battery unless otherwise indicated but **does not include fuel** for petrol/gas models.
MAX DIMENSIONS CAPSTAN DIAMETER: Height by width by depth but not necessarily in that order! **For the capstan,** it's all about avoiding tight radius bends and the wider the capstan diameter the better it is for your rope The magic figure is 4"/100mm, this is the diameter at which you will lose virtually NO strength in your rope due to bending fibres.
SOUND LEVEL (LWA): Liquid-fuel engines have similar sound levels to chainsaws and the levels quoted my not be the maximum depending on the work the engine is subjected to and its age and efficiency. Figured quoted are for new engines. However, battery power is different because there is literally NO NOISE when it's not working (ie. it does not idle like a petrol engine) and even when it does work the maximum noise is considerably less than an engine. So low in fact that most manufacturers don't even give a noise level in their stats.
ROPE DIAMETER: Given by the manufacturer as range but the optimum size is often in the middle. Some require a specific type and/or brand of rope. As we are now seeing with descenders this is the only way to be specific about the performance specifications quoted.
WLL & HAUL (ASCEND) SPEED: This is for a single rope in direct contact with the load with the speed shown with maximum load. Both figures will be affected by using a 2:1 or travelling pulley rig, speeds will effectively be halved and loads will be doubled but only in a perfect, frictionless world. **Speeds will also be altered using different size capstans.** Hauling rope in is the same whether you're dragging a log, lifting a branch or ascending the rope. The difference is in the degree of interference that might increase load and severely reduce the speed and load figures quoted. Dragging along the ground obviously imparts a lot more friction than a person ascending the rope. Similarly a little more friction is imparted with every deviation of the rope, this might be quite efficient over a bearing pulley or quite inefficient directly over a branch.
SPEEDS/VARIABLE: Most capstan winches have one set speed. This can be altered by gripping the rope or changing the capstan diameter but some have 2 speeds and battery powered winches using a 'trigger' or throttle can have finite control from zero to top speed so that you can make smooth starts/restarts
HUMAN-RIDING: Obviously all powered ascenders are intended for human transport but despite their increased capacity only very few winches are suitably certified.
POWERED ASCENDERS are listed separately but with the same parameters as the regular winches apart from extra battery information, **CONTROLLED DESCENT SPEED** and **RESCUE-CAPABLE** in terms of a two-person load. It's fair to say that in a dire emergency you could do the maths on the max load on any winch and decide if its worth the risk Winches have **PROGRESS CAPTURE** to indicate some form of rope cam at the rope entry point preventing drop back during hauling and/or at end of hauling operation - something POWER ASCENDERS all have.
WERING: ■ = manual control with a capstan, ■ =Lowering under power as a reverse of ascending/hauling.

POWERED ROPE WINCHES/ASCENDERS

Images NOT to Scale

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

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

N/A = info Not Available/not given.

●= OK but not ideal

☐☐☐= Option

	MANUFACTURER	ASAT	ASAT	ATHEIGHTUK	ATHEIGHTUK
	MODEL VARIANT	**ACE24** -	**ACE22** -	**Drill Winch Basic** DW2	**Drill Winch Pro** DW3
	ORIGIN				
	COST	£5680 $9400 €8945	£7000 $8500 €8085	£995 $1245 €1150	£ 1795 $1870 €2052
	POWER BATTERY PETROL/GAS	■	■	■	■
	WEIGHT inc battery/fuel BATTERY ONLY	18 3.4kg 39.6 7.5lb	10.5 2kg 32 4.4lb	2 (+Drill & Battery 3)kg 11.8 (+Drill & Battery 6.6)lb	1.5 (+Drill & Battery 3)kg 3.3 (+Drill & Battery 6.6)lb
	MATERIAL RESCUE WINCH	■ ■ ■	■ ■ ■	■ ■ ■	■ ■ ■
	STOP/GO CONTROL	Dial	Dial	Power Drill Trigger	Power Drill Trigger
	WLL (Overload cut-out)	260kg 572lb	180kg 396lb	50-200kg 110-440lb	200kg 440lb
	DIMENSIONS BATTERY-ONLY	30x23x35cm 11.8 x 9.1 x 13.8" n/a	26x16x24cm 10 x 6.3 x 9.4" n/a	19.5 x 13.7 x 8.9cm 7.7 x 5.4 x3.5" Any Hi-torque Drill	16 x 12 x 8.5cm 6.3 x 4.7 x 3.3" Any Hi-torque Drill
	Specfic/Any Rope Ø	11mm EN1891A 7/16" EN1891A	11-12mm 7/16"	8-11mm 3/8 -7/16"	10.5-11mm 5/16 -7/16"
	RANGE on 1 charge/tank	300m 984ft*	400m 1312ft*	~200m 656ft	~200m 656ft
	ASCENT SPEED Metres/feet/minute	0-30 m/min 0-98.4ft/m	0-30 m/min 0-98.4ft/m	0-15*m/min 0-50ft/min	0-15*m/min 0-50ft/min
	DESCENT SPEED Metres/feet/minute	0-40m 0-98.4ft/m	0-40min 0-131ft/m	0-fast - manual	0-fast - manual
	ENGINE/BATTERY POWER	48v Lithium 7.5Ah	44v Lithium 5Ah	ANY - spec for Erbauer 18v Lithium ion >5Ah	ANY - spec for Erbauer 18v Lithium ion >5Ah
BATTERY	**RECHARGE TIME ON DESCENT**	60min ■	<60min ■	~30min	~30min
BATTERY	**REMOTE APP CONTROL RANGE**	☐150m 492ft -	☐150m 492ft -	-	-
BATTERY	**ON-BOARD CHARGE STATUS**	■	■	☐	☐
FEATURES	**ANCHOR TOP BOTTOM**	1 1	1 1	1 1	1 1
FEATURES	**NOISE/SOUND LEVELS**	70dB	70dB	<70dB	<70dB
FEATURES	**EMERGENCY IMPACT STOP**	■ -	■ -	NO	NO
FEATURES	**NO-POWER DESCEND**	■	■	■-only	■-only
FEATURES	**TEMP RANGE °C/°F**	-30to60°C -10to120°F	-20to60°C -4to120°F	Defined by power drill	Defined by power drill
FEATURES	**IP RATING**	56 -	54 -	Defined by power drill	Defined by power drill
FEATURES	**MID/ END ROPE FEED**	■	■	■	■
FEATURES	**WARRANTY GOVT ONLY**	6-12months	6-12months	12months	12months
FEATURES	**CARRY CASE c/w ROPE**	■ ☐	■ ☐	☐ -	☐ -
	STANDARDS			Machinery Directive 2006/42/EC Annex 4	Machinery Directive 2006/42/EC Annex 4
	NOTES	*@150kg NB: Combination of ascent and descentt increases duration to 700m/2296ft	*@120kg NB: Combination of ascent and descentt increases duration to 400m/1312ft	NEW in 2025 Excludes power drill. Inc carry case & 8mm hex keys *Does not power-down-manual descent only	NEW in 2025 Excludes power drill. Inc carry case & 8mm hex keys *Does not power-down-manual descent only
	WEBSITE	asatsafe.com atheightuk.com	asatsafe.com atheightuk.com	atheightuk.com	atheightuk.com

Images NOT to Scale

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

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

N/A = info Not Available/not given.

● = OK but not ideal

□□□ = Option

	MANUFACTURER	AWAH	AWAH	EDER	EDER
	MODEL VARIANT	Z2R EPC130	Z3 PROF EPC130	PowerClimber EPC130	PowerClimber EPC240
	ORIGIN				
	COST	£1200 $1500 €1400	£1320 $1800 €1524	£3560 $4325 €4100	£3960 $4850 €4570
	POWER BATTERY PETROL/GAS	■	■	■	■
	WEIGHT inc battery/fuel BATTERY ONLY	2.37 (+Drill & Battery 3)kg 5.2 (Drill & Battery 6.6)lb	2.3 (+Drill & Battery 3)kg 5 (Drill & Battery 6.6)lb	11.2kg 24.6lb	10.3kg 22.7lb
	MATERIAL RESCUE WINCH	■ ■ ■	■ ■ ■	■ - ■	■ ■ ■
	STOP/GO CONTROL	Power Drill Trigger	Power Drill Trigger	Throttle	Throttle
	WLL (Overload cut-out)	200kg 441lb	200kg 441lb	130kg 286lb	240kg 528lb
	DIMENSIONS BATTERY-ONLY	20 x 10.6 x 10cm 8 x 4.2 x 4" Any 120-160Nm Drill	20 x 10.6 x 10cm 8 x 4.2 x 4" Any 120-160Nm Drill	36 x 30 x 27cm 14.1 x 11.8 x 10.6" -	39 x 30 x 28cm 15.4 x 11.8 x 11" -
	Specfic/Any Rope Ø	9-11mm ⅜ -⅞"	10-11mm ⅝ -⅞"	11-12.9mm ⅞-½"	11-12.9mm ⅞-½"
	RANGE on 1 charge/tank	175-300m 574-984ft*	175-300m 574-984ft*	240m	240m
	ASCENT SPEED Metres/feet/minute	0-<60m/min* 0-<196ft/min*	0-<60m/min* 0-<196ft/min*	0-30*m/min 0-98ft/min	0-24-36*m/min 0-78-118ft/min
	DESCENT SPEED Metres/feet/minute	30-120m/min 98-328ft/min or MANUAL	0-Fast - Manual	18m/min 59ft/min	18m/min 59ft/min
	ENGINE/BATTERY POWER	18-48v Lithium* min 4Ah optimum 8Ah	18-48v Lithium* min 4Ah optimum 8Ah	Honda GX50 2stroke 47.9cc / 2Hp	Kawasaki TJ53 2stroke 53.2cc / 2.68Hp
BATTERY	RECHARGE TIME ON DESCENT	<90mins*	<90mins*	-	-
BATTERY	REMOTE APP CONTROL RANGE	-	-	-	-
BATTERY	ON-BOARD CHARGE STATUS	□	□	-	-
FEATURES	ANCHOR TOP BOTTOM	1 1	1 1	1 1	1 1
FEATURES	NOISE/SOUND LEVELS	92dB	92dB	97dB	>97dB
FEATURES	EMERGENCY IMPACT STOP	NO	NO	- -	- -
FEATURES	NO-POWER DESCEND	■-only	■-only	■	■
FEATURES	TEMP RANGE °C/°F	-15to45°C 5to113°F	-15to45°C 5to113°F	-20to40°C -4to104°F	-20to40°C -4to104°F
FEATURES	IP RATING	Defined by power drill	Defined by power drill	55	55
FEATURES	MID/ END ROPE FEED	■	■	■	■
FEATURES	WARRANTY GOVT ONLY	12months	12months	12months	12months
FEATURES	CARRY CASE c/w ROPE	□ -	□ -	-■	-■
	STANDARDS	XF494 Fire Service - China	XF494 Fire Service - China		
	NOTES	*Uses any brushless Pro Power drill to drive(figs based on MilwaukeeM18)-min 4Ah but 5-8Ah preferable. *@118kg with 5.5Ah battery. Z2=non rescue version Discontinued	*Uses any brushless Pro Power drill to drive(figs based on MilwaukeeM18)-min 4Ah but 5-8Ah preferable. *@118kg with 5.5Ah battery. Z3FIRE with swivel - see ROPE EQPT BUYERSGUIDE	*36m/min@130kg Supplied with 100m Beal 11 or 12.9mm rope +£300 for 12.9mm	RESCUE-capable version *36m/min@130kg Supplied with 100m Beal 11 or 12.9mm rope +£300 for 12.9mm
	WEBSITE	awah.cn	awah.cn	edertools.com grube.de	edertools.com grube.de

POWERED ROPE WINCHES/ASCENDERS

	EDER	HARKEN	HARKEN	K1PARS	MODE
	PowerClimber EPC240-11B	**Lokhead Power Hauler** PWRS-G.COMPACT	**Lokhead Power Hauler** PWRS-B.COMPACT	**KEA-HB-W1/S1**	**Spider Pro** -
	£4500 $5750 €5205	£4550 $5750 €5250	£5690 $7175 €6791	n/a	£5995 $7300 €6950
	10.5 1.77kg 23.1 3.9lb	13.5kg 29.8lb	21.6 3.6kg 47.5 7.9lb	13.5/13kg 29.7/28.6lb	14.3 00kg 31.5 00lb
	Throttle	Trigger	long-Trigger & lever*	Throttle	Throttle
	240kg 528lb	273kg 600lb	300kg 661lb	250/120kg 551/264lb	200kg 440lb
	30 x 40 x 30cm 11.8 x 15.75 x 11.8" -	55.8 x 41.7 x 36.4cm 23 x 16.4 x 14.3" -	41.7 x 53.8 x 36.4cm 16.4 x 21.2 x 14.3" 24 x 13.4 x 9.3cm 9.5 x 5.3 x 3.7"	45 x 24 x 30cm 17.7 x 9.5 x 12" -	33x 26.5x 26.7cm 13x10.4x10.5" 00cm 00"
	11-mm ½"	10-12.7mm 5⁄16-½"	10-12.7mm 5⁄16-½"	10-12.7mm 5⁄16-½"	10.5-13mm typeA 5⁄16-½"
	TBA	600m 1968ft*	550m 1804ft*	600/550m 1968/1804ft*	330m 1082ft*
	0--36*m/min 0-118ft/min	0-11-15m/min 0-36-49ft/min	0-13.5m/min 0-44.3ft/min	0-13.5m/min 0-44.3ft/min	≤22m/min 72ft/min
	18m/min 59ft/min	0-14m/min 0-46ft/min	0-14m/min 0-46ft/min	0-72m/min 0-236ft/min	37m/min 121ft/min
	36v Stihl AP300S 7.2Ah or AP500 8.8Ah	Honda GX35 4stroke 35.8cc	50.4v Lithium ion 9Ah	Honda GX35 4stroke 35.8cc	36v Lithium-ion 5Ah
	75-150mins	-	270min	-	150min
	-	-	- -	☐100m/328ft* -	100m/328ft
		-		-	
	1 1	1 1	1 1	1 1	1 1
	104dB	81.3/96.2dB	80/90dB	81.3/96.2dB	>97dB
	TBA	-	-	- -	-
	-10to50°C -10to120°F	-5to40°C 23to104°F	-10to50°C -10to120°F	-5to40°C 23to104°F	-20to50°C -4to122°F
	>X4	55	54	55	54
	24months (batteries)	24months	24months	n/a	n/a
	-	☐	☐	☐	☐
	RESCUE-capable version *36m/min@130kg Supplied with 100m Beal 11 or 12.9mm rope +£300 for 12.9mm	Also Powerseat version with a seat and extension post for human-riding	Also Powerseat version with a seat and extension post for human-riding	S1=speed version *@100kg/328lb *Hybrid device with electronic interface -optional remote control. See ROPE EQPT BUYERS GUIDE for K1PARS battery models	*@90kg/198lb
	edertools.com grube.de	harkenindustrial.com	harkenindustrial.com	k1pars.co.kr	modepowerascender.com

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□□□= Option

	MANUFACTURER	PETRO STEEL	PETRO STEEL	ROPETEK	RONIN
	MODEL VARIANT	Pesco Smart Spider PSJ120-11	Pesco Smart Spider PSJ120-8	Wraptor HD	Lift PN2805-11
	ORIGIN				
	COST	£865 $1050 €1000	£825 $1000 €950	£3032 $3200 €3500	£3150 $4207 €4565
	POWER BATTERYPETROL/GAS	■	■	■	■
	WEIGHT inc battery BATTERY ONLY	12.5kg integral 27.5lb integral	11.5kg integral 27.5lb integral	10.9kg - 24lb -	11 2.7kg 24 6lb
	MATERIALRESCUEWINCH		■ - ■	■ - ■	■ ■ ■
	STOP/GO CONTROL	Rocker Button	Rocker Button	Throttle	Thumbwheel
	WLL	≤ 140kg 309lb	≤ 120kg 265lb	141kg 310lb	182kg(272kg-2-person) 400lb (600lb-rescue-only)
	DIMENSIONS BATTERY-ONLY	37x25.5 x 27.5cm 14.6x10x10.8" integral	37 x 25.5 x 27.5cm 14.6 x 10 x 10.8" integral	41 x 26 x 22cm 16.1 x 10.2 x 9" -	39 x 34 x 28.8 cm 15.4 x 13.4 x 11.4" 24.4 x 11.4 x 9.9cm 9.6 x 4.5 x 3.9"
	Specfic/Any Rope Ø	12-14mm ½-9⁄16"	12-14mm ½-9⁄16"	11-16mm 7⁄16-5⁄8"	11.5-13mm 7⁄16-½"
	RANGE on 1 charge/tank	600m 787ft*	500m 787ft*	approx 227m 500ft	244m 800ft* or 15mins
	ASCENT SPEED Metres/feet/minute	≤11m/min ≤36ft/min	≤8/min ≤26ft/min	0-30m/min 0-100ft/min	0-27.4m/min 0-90ft/min
	DESCENT SPEED Metres/feet/minute	11m/min 36ft/min	8/min 26ft/min	18m/min 59ft/min	0-45.7m/min 0-150ft/min
	ENGINE/BATTERY POWER	36v Lithium-ion 20Ah	36v Lithium-ion 15Ah	Honda GX35 4stroke 35.8cc	28v Lithium-ion 3.5Ah
BATTERY	RECHARGE TIME ON DESCENT	240-360min	N/A	-	90min
BATTERY	REMOTEAPP CONTROL RANGE	■ -	■ -	-	91m/300ft -
BATTERY	ON-BOARD CHARGE STATUS	■	■	-	■
FEATURES	ANCHOR TOP BOTTOM	- 1	- 1	1 1	1 1
FEATURES	NOISE/SOUND LEVELS	n/a	n/a	89dB	n/a
FEATURES	EMERGENCY IMPACT STOP	■ ■	■ ■	- -	- -
FEATURES	NO-POWER DESCEND	■	■	■	■
FEATURES	TEMP RANGE °C/°F	-20to50°C -4to122°F	-20to50°C -4to122°F	-20to40°C -4to104°F	-20to49°C -4to120°F
FEATURES	IP RATING	N/A	N/A	56 -	54 -
FEATURES	MID/ END ROPE FEED	■	■	■	■
FEATURES	WARRANTY GOVT ONLY	n/a	n/a	n/a	12months
FEATURES	CARRY CASE c/w ROPE	- ■	- ■	- ■*	■ □
FEATURES	STANDARDS			-	CE ANSI
	NOTES	*@90kg/198lb Inc. 20m x14mm rope(order longer lengths), remote control,	*@90kg/198lb Inc. 20m x14mm rope(order longer lengths), remote control, NB: may also be a #7 version?	HD=Steel instead of alloy on high wear components plus rollers and bushings on fairlead.Cost+45%! *Comes with 59m/150ft of rope for US orders only. Price inc CMI Ropewalker	*+800ft descent @91kg/200lb Hot-swap batteries $380 ea. Price includes wireless remot control, battery, charger, hard case w/foam. Battery=$510 Just Lift & battery=$3503 MBS >2272kg/5000lb
	WEBSITE	smart-spider.com	smart-spider.com	ropetek.com	roninpowerascender.com

POWERED ROPE WINCHES/ASCENDERS

	RONIN	RONIN	SKYLOTEC	SKYLOTEC	SKYLOTEC
	Titan Lift (TL)	Non-HC Lift	Actsafe ACX POA-001	Actsafe ICX POA-030	Actsafe PMX POA-006
	£3950 $5307 €4520	£3150 $4207 €4565	£15320 $22780 €15000	*£5250 *$7100 *€6000	£9200 $11200 €8650
	■	■	■	■	■
	8.6 2.3kg 19 5lb	11 3kg 24 6.6lb	13 2.5kg 28.9 5.5lb	7.4 1.31kg 16.3 2.9lb	21kg - 28.7lb -
	■ ■ ■	■ - ■	■ ■ ■	■ * ■	■ ■ ●
	Thumbwheel	Thumbwheel	Throttle	Thumbwheel	Throttle
b	182kg(272kg-2-person) 400lb (600lb-rescue-only)	182kg(272kg-2-person) 400lb (600lb-rescue-only)	220kg 485lb	185kg 407lb	250kg 551lb
	29.8 x 34.3 x 28.6cm 11.75 x 13.5 x 11.25" 24.4 x 11.4 x 9.9cm 9.6 x 4.5 x 3.9"	39 x 34 x 28.8 cm 15.4 x 13.4 x 11.4" 24.4 x 11.4 x 9.9cm 9.6 x 4.5 x 3.9"	33 x 28 x 27cm 13 x 11 x 11" 30 x 12 x 11cm 12 x 4.7 x 4.3"	25.5 x 24.9 x 21.7cm 10 x 9.8 x 8.5" 11.6 x 13.2 x 9.8cm 4.6 x 5.2 x 3.8"	49 x29 x 28cm 19.3 x 11.4 x 11.1" -
	11.5-13mm 7/16-1/2"	11.5-13mm 7/16-1/2"	11mm 7/16"	11mm 7/16"	11-12.9mm 7/16-1/2"
	244m 800ft*	244m 800ft*	550m 1965ft*	230m 754ft*	750m 2460ft
	0-27.4m/min 0-90ft/min	0-27.4m/min 0-90ft/min	0-24m/min 0-78ft/min	0-24m/min 0-78ft/min	1-17m/min 3.3-56ft/min
	0-68m/min 0-150ft/min	0-68m/min 0-150ft/min	0-25m/min 0-82ft/min	1-24m/min 3.3-78ft/min	1-18m/min 3.3-59ft/min
	48v Lithium-ion 3Ah	28v Lithium-ion 3.5Ah	56.1v Lithium n/a Ah	Husqvarna 36v Lithium 5.2Ah	Honda GX35 4stroke 35.8cc
	120min	120min	90min ■	80/90min -	-
	91m/300ft* -	91m/300ft -	□150m 492ft ■	■	-
	■	■	■	■	-
	1 1	1 1	1 1	- 1	1 1
	n/a	n/a	76dB	n/a	89dB
	■ -	- -	■ -	■ -	- -
	■	■	■	■	■
	-20to49°C -4to120°F	-20to49°C -4to120°F	-20to40°C -4to104°F	-10to40°C 14to104°F	-20to40°C -4to104°F
	54 -	54 -	55	55	56
	■	■	■	■	■
	12months	12months	12months -	12months -	12months
	■ □	■ □	■ □	□ □	□ □
	CE ANSI	CE	CE ANSI	CE	CE
	*+800ft descent @91kg/200lb Hot-swap batteries $470 ea. Hands-free braking. MBS >2272kg/5000lb *EMI: Electronic shielding Price inc battery,case & remote control. Battery=$550	Material handling only - Can perform human-lifting but certified and marked as material only. Price inc 2x batteries, case & remote control MBS >2272kg/5000lb	Replacement battery £3212/$3900/€2100 * @100kg/220lb optional rechargeable driver as power source	* Price Excludes 'off-the-shelf' Husqvarna BLixxx battery(~>£240) * @100kg *not-load-rated for a rescue load but can use remote control to carry out single person rescue.	*@100kg/220lb
	roninpowerascender.com	roninpowerascender.com	skylotec.com	skylotec.com	skylotec.com

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

ActSafe PMX

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

ActSafe ACX

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

SKYLOTEC

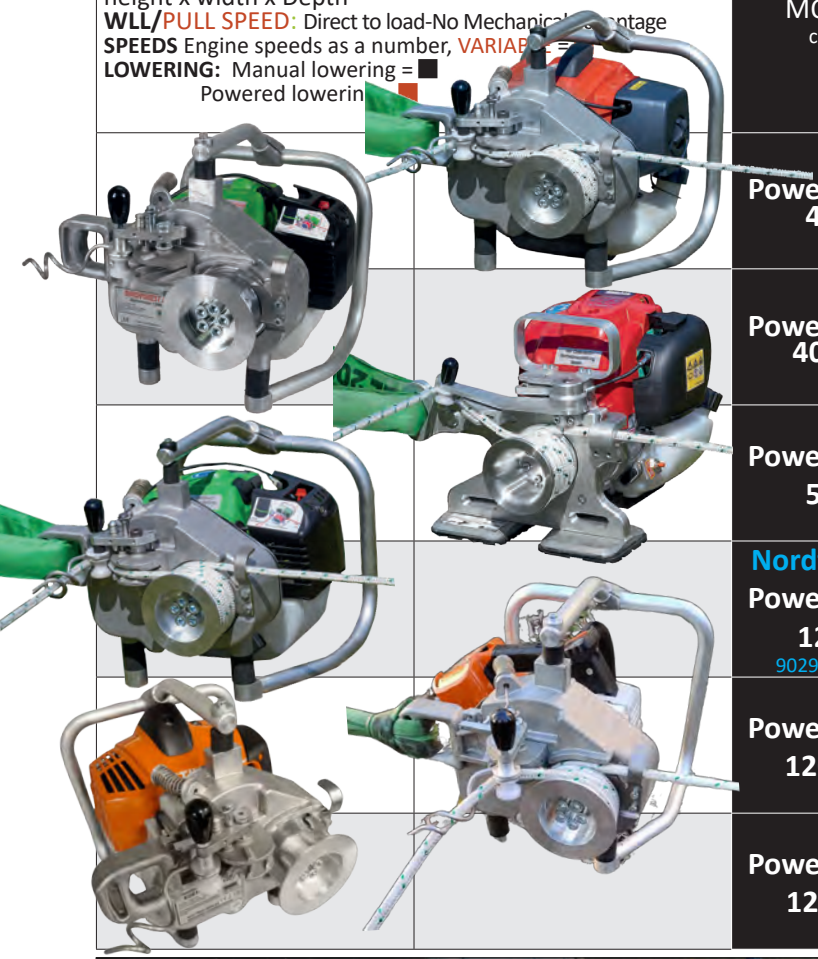
IMAGES NOT TO SCALE
COST: Approx & inc VAT/Taxes
height x width x Depth
WLL/PULL SPEED: Direct to load-No Mechanical advantage
SPEEDS Engine speeds as a number, VARIABLE = ■
LOWERING: Manual lowering = ■
Powered lowering

MODEL code	COMPANY	ORIGIN	COST inc tax currency conversion only	WT inc batt	MAX DIMENSIONS CAPSTAN
VF80 Bolt	**DOCMA**	■ ■	£1380 $1783 €1500	10.5kg 23lb	346 x 350 x 253mm 13.6 x 13.8 x 10" 65mm / 2.56"
VF105 Red Iron	**DOCMA**	■ ■	£1500 $1938 €1615	10.5kg 23lb	346 x 350 x 253mm 13.6 x 13.8 x 10" 65mm / 2.56"
VF900-4 Nippon	**DOCMA**	■ ■	£1500 $1850 €1695	10.85kg 24lb	350 x 350 x 290 mm 13.8 x 13.8 x 11.4" 51mm / 2"
VF155 Auto	**DOCMA**	■ ■	£1780 $2120 €2060	25kg 51.4lb	595 x 360 x 360cm 3.4 x 14.2 x 14.2" 00mm / 00"
VF155 Auto-4	**DOCMA**	■ ■	£2150 $2600 €2463	25.35kg 55.8lb	595 x 385 x 360cm 3.4 x 15.1 x 14.2" 00mm / 00"
Manual Ultralight VF155	**DOCMA**	■ ■	£1600 $2000 €1850	20.5kg 55lb	560 x 360 x 360cm 22 x 14.2 x 14.2" 00mm / 00"
VF400 Fast Shark 980026	**DOCMA**	■ ■	£000 $000 €000	13.5kg 30lb	390 x 390 x 255mm 15.3 x 15.3 x 10" 00mm / 00"
VF400 Fast Shark GX50 980027	**DOCMA**	■ ■	£000 $000 €000	13.5kg 30lb	390 x 390 x 255mm 15.3 x 15.3 x 10" 00mm / 00"
VF1200 Red Shark 980025	**DOCMA**	■ ■	£000 $000 €000	15.8kg 34.75lb	390 x 395 x 275mm 15.3 x 15.5 x 10.8 00mm / 00"
VF1400 Red Shark	**DOCMA**	■ ■	£000 $000 €000	00kg 00lb	390 x 390 x 255mm 15.3 x 15.3 x 10" 00mm / 00"

POWERED ROPE WINCHES

	POWER SOURCE BATTERY PETROL/GAS	ROPE Ø	MAX SOUND LEVEL	IP	STANDARDS	1:1 WLL PULL SPEED Both =Max for direct single line pull no-drag	SPEEDS/VARIABLE	REMOTE CONTROL	HUMAN-RIDING	PROGRESS CAPTURE	LOWERING	DURATION & NOTES	WWW.
n	Al-Ko Solo 2-stroke 50.8cc	10-12mm ⅜-½"	112db	IP44	CE	815kg 26m/min 1797lb 85ft/min	1	-	-	?	■	thermal treatments to extend component life: adaptable acceleration and braking from the operator.	docma.it
n	Al-Ko Solo 2-stroke 50.8cc	10-12mm ⅜-½"	112dB	IP44	CE	1050kg 20m/min 2315lb 66ft/min	1	-	-	?	■	thermal treatments to extend component life: adaptable acceleration and braking from the operator.	docma.it
n	Honda GX50 4-stroke 48cc	10-12mm ⅜-½"	98dB	IP44	CE	865kg 14m/min 1907lb 46ft/min	1	-	-	?	■	thermal treatments to extend component life: adaptable acceleration and braking from the operator.	docma.it
n	Al-Ko Solo 2-stroke 50.8cc	80m/262ft 5mm 1/4"	112dB	IP44	CE	1485kg 20m/min 3267lb 59ft/min	1	-	-	?	-	Automatic rope rewind when unloaded	docma.it
n	Honda GX50 4-stroke 48cc	80m/262ft 5mm 1/4"	105dB	IP44	CE	1260kg 19m/min 2772lb 59ft/min	1	-	-	?	-	Automatic rope rewind when unloaded	docma.it
n	Al-Ko Solo 2-stroke 50.8cc	80m/262ft 5mm 1/4"	112dB	IP44	CE	1485kg 20m/min 3267lb 59ft/min	1	-	-	?	-		docma.it
m	Al-Ko Solo 2-stroke 50.8cc	12mm ½"	00dB	IP44	CE	450kg 40.4m/min 990lb 132ft/min	1	-	-	?	-		docma.it
m	Honda GX50 4-stroke 48cc	12mm ½"	00dB	IP44	CE	450kg 40.4m/min 990lb 132ft/min	1	-	-	?	-		docma.it
m	Honda GX50 4-stroke 48cc	12mm ½"	00dB	IP44	CE	1195kg 11.3m/min 2629lb 37ft/min	1	-	-	?	■	Rubber grip feet allow direct tree attachment	docma.it
m	Al-Ko Solo 2-stroke 50.8cc	12mm ½"	00dB	IP44	CE	1405kg 11.3m/min 3091lb 37ft/min	1	-	-	?	■		docma.it

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



MODEL code	COMPANY	ORIGIN	COST inc tax currency conversion only	WT inc batt	MAX DIMENSIONS CAPSTAN
Powerwinch 400	EDER		£1554 $1900 €1450	13kg 28.7lb	340x420x350mm 13.4x16.5x13.8" 51mm / 2"
Powerwinch 400-1	EDER		£1254 $1792 €1600	13kg 28.7lb	370 x 330 x 340mm 14.6 x 13 x 13.4" 80mm / 3.15"
Powerwinch 500	EDER		£1630 $1900 €1720	8.5kg 18.7lb	330 x 290 x 360mm 13 x 11.4 x 14" 65mm / 2.56"
Nordforest/ Powerwinch 1200 9029397935	EDER /GRUBE		£1630 $1900 €1720	13kg 28.6lb	370 x 330 x 340mm 14.5 x 13 x 13.4" 80mm / 3.15"
Powerwinch 1200 B	EDER		£1800 $2000 €1850	13kg 28.6lb	400 x 308 x 340mm 15.7 x 12.1 x 13.4 80mm / 3.15"
Powerwinch 1200 S	EDER		£1500 $2300 €1960	13.6kg 30lb	400 x 308 x 340mm 15.7 x 12.1 x 13.4 80mm / 3.15"

at height

www.atheightuk.com

DW3
Drill Winch

The Drill Winch by At Height is an easy to use device suitable for lifting and lowering loads and people. Controlled lifting by using a high torque drill and controlled lowering by using the lever handle. It can be used attached to a high anchor point for example in confined space applications, or attached to a low anchor point and rigged through a deviation pulley or used personally by attaching to your harness.

Photo Credit:
Peter Schepers
www.access-specialist.nl

POWERED ROPE WINCHES

POWER SOURCE BATTERY PETROL/GAS	ROPE Ø	MAX SOUND LEVEL	IP	STANDARDS	1:1 WLL PULL SPEED Both =Max for direct single line pull no-drag	SPEEDS/VARIABLE	REMOTE CONTROL	HUMAN-RIDING	PROGRESS CAPTURE	LOWERING	DURATION & NOTES	WWW.
Kawaski TJ53 2-stroke 65cc	8-10mm 5/16-3/8"	115dB	IP44	CE	400kg 29m/min 882lb 95ft/min	1	-	-	?	■		eder-maschinenbau.de
Active 6.5 2-stroke 3.3 KW /4.5 HP	8-10mm 5/16-3/8"	115dB	IP44	CE	400kg 40m/min 882l 131ft/min	1	-	-	?	■		eder-maschinenbau.de
Honda GX35 4-Stroke 35.8cc 1KW / 1.3HP	8-12mm 5/16-1/2"	106dB	IP44	CE	500kg 12m/min 1102lb 40ft/min	1	-	-	?	■	Rubber grip feet allow direct tree attachment	eder-maschinenbau.de
Active 6.5 2-stroke 62cc 3.3KW / 4.5 HP	8-10mm 5/16-3/8"	115dB	IP44	CE	1200kg 14m/min 2646lb 46ft/min	1	-	-	?	■		eder-maschinenbau.de grube.de
36v Li-ion Stihl Battery 7.2 or 8.8Ah 1.7kW	8-10mm 5/16-3/8"	n/a	IPX4	CE	1200kg 13m/min 2646lb 42ft/min	1	-	-	?	■		eder-maschinenbau.de
Stihl 2-stroke 57.1cc 2.8KW / 3.8 HP	8-10mm 5/16-3/8"	115dB	IP44	CE	1200kg 13m/min 2646lb 42ft/min	1	-	-	?	■		eder-maschinenbau.de

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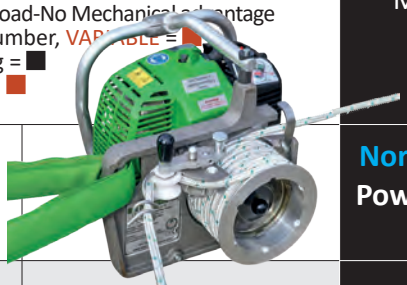
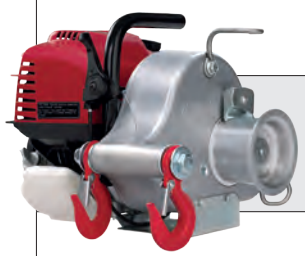
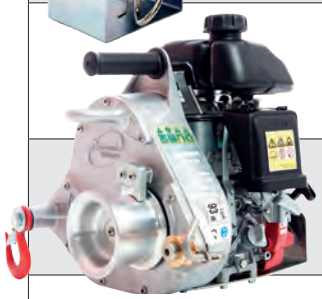
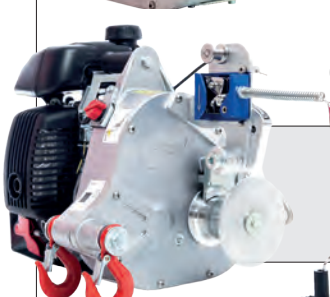
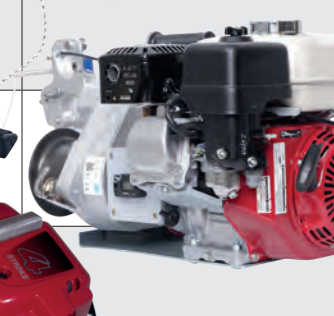
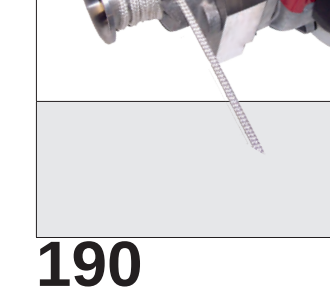
WLL/PULL SPEED: Direct to load-No Mechanical advantage
SPEEDS Engine speeds as a number, VARIABLE = ■
LOWERING: Manual lowering = ■
Powered lowering ■

	MODEL code	COMPANY	ORIGIN	COST inc tax currency conversion only	WT inc batt	MAX DIMENSIONS CAPSTAN
	Nordforest/ Powerwinch 1800	EDER /GRUBE		£2450 $2990 €2750	14kg 30.1lb	385 x 365 x 325mm 15.15 x 14.4 x 12.8 130mm / 5.12"
	PCW3000	PORTABLE WINCH CO.		£1600 $1480* >€1400	9.5kg 20lb	350 x 289 x 261mm 13.8 x 11.4 x 10.3" 76mm / 3"
	PCW3000-Li	PORTABLE WINCH CO.		£1320 $1540* €1375	9.512.1kg 2127lb	308 x 316 x 309mm 12.1 x 12.4 x 12.2" 76mm / 3"
	PCW4000	PORTABLE WINCH CO.		£2159 $1950* >€2150	12kg 26.5lb	420 x 300 x 285mm 16.5 x 11.75 x 11.25 76mm / 3"
 	PCW5000	PORTABLE WINCH CO.		£2400 $1800* >€1605	16kg 35lb	371 x 366 x 366mm 14.6 x 14.4 x 14.4 57mm or 85mm 2.25" or 3.35"
	PCW5000 HS (High Speed)	PORTABLE WINCH CO.		£3000 $2170 €3200	16kg 35lb	371 x 366 x 366mm 14.6 x 14.4 x 14.4 57mm or 85mm 2.25" or 3.35"
	APW6000	PORTABLE WINCH CO.		TBA	1315kg 28.633lb	396 x 280 x 265mm 15.6 x 11 x 10.4"
	PCH1000	PORTABLE WINCH CO.		£3600 $2900 $2975	19kg 42lb	505 x 366 x 366mm 20x14.4x14.4" 57mm or 85mm 2.25" or 3.35"
	PCH2000	PORTABLE WINCH CO.		£4600 $3700 €5300	34.5kg 76lb	560 x 483 x 356mm 22 x 19 x 14" 108mm / 4.25"
	SP1-CW	SIMPSON		£990 $1200 €1150	8.2kg 18lb	305 x 380 x 205mm 12 x 15 x 12" 64mm / 2.5"
	SP2-CW	SIMPSON		£1100 $1300 €1250	8.2kg 18lb	305 x 380 x 205mm 12 x 15 x 12" 64mm / 2.5"
	CS-CW	SIMPSON		£660 $800 €760	4.1kg 9lb + Chsaw	178 x 203 x 127mm 7 x 8 x 5" + size of saw 64mm / 2.5"

POWERED ROPE WINCHES

POWER SOURCE BATTERY PETROL/GAS	ROPE Ø	MAX SOUND LEVEL	IP	STANDARDS	1:1 WLL PULL SPEED Both =Max for direct single line pull no-drag	SPEEDS/VARIABLE	REMOTE CONTROL	HUMAN-RIDING	PROGRESS CAPTURE	LOWERING	DURATION & NOTES	WWW.
Active 6.5 2-stroke 62cc 4.5 HP	12-14mm ½-9/16"	115dB	IP44	CE	1800kg@12m/min 3968lb@79ft/min	2	-	-	-	■	2 -speeds also 900kg@ 24m/min	eder-maschinenbau.de grube.de
Honda GX35 4-Stroke 35.8cc	10mm* 3/8"	108dB	IP44	CE	700kg 10m/min 1543 lb 33ft/min	1	-	-	-	■	*10mm / 3/8" rope ensures that 3 to 4 wraps are possible. With a 12mm fewer wraps are possible. *price inc 50m rope & rigging eqpt.	portablewinch.com
B&S/Kramer 80/82v Li-ion 4Ah Battery 1.5-2KW	10mm* 3/8"	n/a	IPX3	CE	1000kg 11.6m/min 2200 lb 38ft/min	3	-	-	-	■	*10mm = 3 to 4 wraps are possible. 12-16mm = fewer wraps. Uses Briggs&Stratton or Cramer batteries. *price inc 50m rope & rigging eqpt.	portablewinch.com
Honda GHX50 4-stroke 50cc	10mm* 3/8"	105dB	IP44	CE	1000kg 13.4m/min 2200 lb 44ft/min	?	-	-	■	■	Improved Integral Progress Capture Cam on '23 model. *10mm/ 3/8" rope = 3 to 4 wraps possible. 12mm= fewer wraps. *price inc 50m rope & rigging eqpt.	portablewinch.com
Honda GHX50 4-stroke 50cc	10-13mm 3/8-½"	105dB	IP44	CE	1000kg 12m/min 2200 lb 40ft/min	2*	-	-	-	■	*price inc 50m rope & rigging eqpt. Optional 85mm capstan increases peed to 18m/min / 60ft/min	portablewinch.com
Honda GHX50 4-stroke 50cc	10-13mm 3/8-½"	105dB	IP44	CE	350kg 36m/min 771 lb 118ft/min	2*	-	-	-	■	$2119 with rope/rigging kit. Optional 85mm capstan increases peed to 18m/min / 60ft/min	portablewinch.com
36v Li-ion Stihl Battery 7.2 or 8.8Ah 1.7-3kW 4HP	12mm ½"	?	IPX4	CE	*1500kg 16m/min 3300lb 57ft/min	?	-	-	■	■	**ARRIVING SPRING 2026** using Stihl AP 36v AP300S or AP500S. *AP300S=1300kg pulling power.	portablewinch.com
Honda GHX50 4-stroke 50cc	12-13mm ½"	105dB	IP44	CE M3 (ISO)	775kg 12m/min 1710lb 40ft/min LIFT 250kg/550lb*	2*	-	-	■	■	Certified for INDUSTRIAL use Optional 85mm capstan increases speed to 18m/min / 60ft/min	portablewinch.com
Honda GX160 4-stroke 160cc	12-13mm ½"	100dB	IP44	CE M3 (ISO)	1150kg 20m/min 2535lb 66ft/min LIFT 450kg/992lb	1	-	-	■	■	Certified for INDUSTRIAL use M3 is an industrial rating from M1toM6 indicating the hours of use versus the degree of loading	portablewinch.com
Honda GX35 4-Stroke 35.8cc	8-10mm 5/16-3/8"	108dB	IP44	-	907kg 6.7m/min 2000lb 22ft/min	?	-	-	-	■	Same as SP2-CW with GX35 motor. 5 year warranty	capstanropewinch.com
Honda GX50 4-Stroke 50cc	8/10mm 5/16-3/8"	105dB	IP44	-	1088kg 6.7m/min 2398lb 22ft/min	?	-	-	-	■	Same as SP1-CW with GX50 motor. 5 year warranty	capstanropewinch.com
Battery or Petrol/gas chainsaw less than 57cc	8-10mm 5/16-3/8"	Depends on C'Saw	Depends on C'Saw	-	1136kg 7.6m/min 2500lb 25ft/min	■	-	-	-	■	Attaches to your chainsaw via a 3/8" drive sprocket. 5 year warranty	capstanropewinch.com

UPDATED Jan '26

ARBORIST 10.5-13.5mm CLIMBING ROPES

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

There was a time, mostly in the last century, when a climbing rope for tree work meant 12mm, 3-strand nylon....white when new, grey as old underpants once used a bit and quite elastic compared to modern ropes, in fact 'climbing' ropes can be a misleading term because for the entire sport and industrial sectors, climbing means dynamic (shock-absorbing following multiple FF2 falls) whereas these are mostly low stretch that should aim to stay below FF0. We are seeing a move towards calling the kernmantle SRT ropes 'access' ropes as distinct from climbing implying that SRT/SRS is starting to be differentiated from 'climbing'.

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

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

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

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

USES

Simply put, uses are..... climbing up, in and around a tree.... and perhaps ziplines and rigging if you didn't have any rigging line or have more money than sense. There is a lot of nonsense talked about the relative merits of braided ropes as compared to kernmantle with some making the rather ludicrous statement that arb ropes have to be tougher than rock/mountain climbing ropes because they're being used in trees. I can assure you that there ain't no amount of tree contact that is going to be more aggressive than a 90 degree concrete, granite or sandstone edge; wood and bark is, in contrast, a walk in the park for most static kernmantle ropes. In fact the toughest rope in this guide is probably the Sterling Tech12, with Technora sheath. Largely aimed at special forces operations, their cut resistance (and heat-resistance) is of particular use to arborists. Virtually every kernmantle rope in our ROPE EQUIPMENT **BUYERS**GUIDE could have been in this guide to Arborist Climbing Ropes but we'll stick to only those kernmantles actively marketed to arborists. Of course this does mean that companies are free to interpret what is and isn't suitable - Bluewater for instance, have most of their ropes listed while Petzl only has two despite having several other ropes that are just as suitable as many that are listed in this GUIDE. The difference is in the handling and knot-tying characteristics since kernmantle is often far stiffer than braided ropes. But not that stiff. I remember reading an article on arborist ropes a few years back that mentioned something about not being able to tie knots in kernmantle which will come as a huge shock to the rope access and rescue community. It also pointed out correctly that Kevlar ropes don't fare too well when bent over a tight radius but don't let that colour your perception of the modern Aramid and Twaron mixed fibre ropes which are much more capable and are daily being bent over small descender cams, carabiners and pulley wheels. The key differences are that KM static and low stretch ropes tend to be less dynamic than braided. This is better when you're ascending and descending when 'bounce' equates to inefficiency but it's not so forgiving in a fall. Otherwise it comes down to personal preference and historical allegiances. We have a differentiation in these tables between SRT (SRS*) and DdRT (MRS) and the manufacturers have dutifully ticked one or the other but this is somewhat misleading because any of the more flexible kernmantles can (and are) used in a doubled (DdRT) or moving rope system (MRS). With the exception of the really hard wearing ropes like *HTP*, *KMIII Max, Patron Plus* (not included) and *PMI MaxWear* I would have ticked all other kernmantles as DdRt and SRT. The same cannot be said for

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

ARBORIST CLIMBING ROPES

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

ROPE DIAMETER can be a contradiction because not only do quoted diameters often vary by a couple of mm either side even before load is applied, but a number of manufacturers seem to have lost their calculators or they are simply rounding the figures off so that you may see a 1/2" rope given as anywhere between 12mm and 13mm when in fact, to be precise it should be 12.7mm. We have quoted most figures as per the manufacturers' spec but if they only list one we've given the conversion figure as well. The key difference for arborists in choosing an 11mm/ 7/16th (or perhaps even a 10mm) over a 1/2" rope is in how it feels in the hand and how it operates in modern devices like pulleys, descenders, ascenders and with prusiks etc. Some brands like *Edelrid, Mammut, Tendon* and *Marlow* use the runner thread to readily identify diameter so that 9mm would be one marker thread, two threads would be 10 or 10.5mm, three threads is 11mm and four threads is 12mm. This isn't uniform throughout the industry so you cannot simply assume that any 3-marker thread rope is 11mm but within those ranges that adopt this marking it makes life easier, particularly where there could be a difference in standards between two similar sized ropes which could adversely affect your legal position in the event of an accident. Generally speaking, 12 to 16 strand ropes are soft and knobblier than a 24 to 48 strand rope which is smoother an operates well in hardware.

CONSTRUCTION: At the risk of going back to basics just a bit too far ,we had better recap exactly what differentiates a kernmantle from a double braid and a static from a low stretch rope and how they differ from your mum's washing line. If they don't differ from your mum's washing line you need to upgrade your life insurance policy. Traditionally rope has been constructed by twisting bundles of fibre together - **LAID ROPE**. Laid rope is like Rapunzle's hair - pre-twisted strands of fibre (or hair) make a larger bundle of fibre which can then be spiralled or braided so that it forms an interlocking spiral of rope (or hair) fibres. You can see all the 'workings' of a laid rope, you can push stuff through the middle of a laid rope and, in the case of the industry standard **3-STRAND** Nylon, you can cut or contaminate all of your load-bearing fibres because they're all exposed. Oh, and it's quite an elastic rope because all the fibres are spiralled so in any given linear inch of rope there is actually 2 inches of rope (or whatever the figure happens to be) wrapped up in those twists. Variations on 3-strand include **MULTIPLAIT** (**Solid Braid**) in which some of the bundles are plaited in one direction and others the opposite way - this circumvents the unfortunate inclination of a spiralled rope to want to twist back to its virginal, parallel state. All of the more complex designs attempt to balance the direction of spiralled fibres so that they no longer have the inclination to untwist - this is known as an S-twist and a Z-twist. The next step up from 3-strand and multiplait is to cover all those exposed fibres with a sheath •BRAIDED rope. Typically in yachting and your mum's washing line this may be simply to protect the core or even just to add colour to an otherwise bland rope - people with large boats like to colour-coordinate - don't mistake these ropes for a working arb rope - they are NOT the same. In the arb world and in our tables, braided ropes are differentiated by the number of plaits in their weave (also known as 'bobbins' or 'carriers' as we have referred to it in our tables) - either 12, 16 or 24 with 12 and 16-strand covers bearing most of the load. Most, if not all 24-strands are found in our next class of rope; the Double Braids. The outer cover may be woven tighter or looser depending on how you want it to handle with tighter weaves giving a stiffer, more durable rope and looser weave an easier knot tying and handling rope.

BRAID-on-BRAID or **DOUBLE BRAID** are best sellers in the arb industry (or at least the favourites since the best sellers may well still be an industrial bulk purchaser taking several hundred miles of 3-strand). These ropes are either the 16-strand or equally highly coloured 24-strand double braids. Double braids have a woven outer cover and a woven inner which shares the load. In fact, in some cases the sheath and the core are more or less the same thing so you will see sheath percentages in these tables at up to 80%of the total load bearing capacity of the rope.

KERNMANTLE has a single, load-bearing, tightly woven sheath covering and comes from the German for KERN meaning core and MANTLE meaning sheath. A woven protective sheath covers a core of twisted/plaited multiple (separate) fibres. Broadly speaking we talk of static ropes as having a parallel bundle core and dynamic rope as having a spiralled core although even static ropes will have some spiralled fibres and bundles. The latest rope from Marlow is the Typhoon (right) at 12.2mm with a 16-plait sheath over a multi-twisted core so technically it's a kernamantle with the handling of a double braid. The job of the sheath is to protect the core from abrasion and heat damage and traditionally this meant that three-quarters or so of the rope's total load bearing capacity remained intact within the core while the sheath took a pummelling. Over the years this has changed somewhat so that sheaths now often constitute around 40% of the total rope strength making them A) an even more vital load-bearing element than they traditionally have been and B) a huge influence on the handling characteristics of the rope. It used to be that a soft, easily tied rope wasn't so good at withstanding abuse and you needed something like the Sterling HTP with it's iron bar-like characteristics to withstand a sharp granite edge or to highline

the Grand Canyon. Nowadays, it's not so clear cut but manufacturers are always striving to make a rope with the best handling, easiest knot tying and able to take whatever abuse you throw at it. The sheath carrier, plait or bobbin count on more flexible Kernmantles tends to be the higher numbers, typically 40-48 while stiffer, more abrasion resistant ropes will be around 32 or 24 but in reality it's again not that clear-cut - best to go to your local store and fondle the rope for yourself. If you really want to go all out in the bombproof stakes there's a rope by *Tendon (Lanex*) that has stainless steel fibres as part of its sheath to prevent it being cut. This is a bit of a departure from the more usual Kevlar-Aramid-type fibres and an interesting concept for law enforcement and a possibility for arborists wielding a chainsaw. It is not marketed in any way as an arborist rope by Tendon but if you can put up with the stiffer handling and increased cost we see no reason why you can't have a more cut-resistant rope. It's not as heavy as you might expect at only a couple of grams per metre more than Aramid.

Low profile eyes like this Teufelberger DrenaLINE are designed to be able to pass through of thread-thru hardware like the Petzl ZigZag.

UNIFIED & BONDED SHEATH/CORE ROPES

This is the integration of some core fibres of kernmantle into the weave of the sheath. This is not an attempt to share load but rather to eliminate one of the drawbacks of a separate sheath; slippage, creep or milking which can be exacerbated by a prusik or the cams of a descender squeezing and bunching the sheath as it is pulled through under load. This remains a preoccupation for arborists as braided ropes are generally more susceptible to milking. Kernmantles are now mostly pre-shrunk to help eliminate milking which annoyed cavers used to soaking their new ropes in the bath in an effort to shrink the sheath onto the core and have an excuse not to have a bath themselves. Some ropes have the sheath bonded or glued to the core or , in the case of Arbor-Access, the sheath strands are partially woven into the fibres of the core so that it can no longer move differentially when subjected to high loads using compressing cam hardware. Ropes like *Meetic* from *Courant*, *Link-Tec* from *Edelrid*, *Platinum* from Teufelberger/ *New England* and *Unicore* from *Beal* & *PMI* are examples. Cost is higher but if you've had problems with sheath slippage this could be the answer but remember that, while this construction can limit milking and may improve durability, there will be some downsides otherwise ALL ropes would be made this way - some ropes may exhibit 'dimpling' under excessive load or the bonding agent may eventually flake off but they are worth a look.

11.4-11.8 Ropes for Hybrid Devices

The best range for hybrid hardware is from 11.4mm or 9/20" to 11.8mm or 15/32" - let's just call it 0.46". This is give or take a mm or two because there are11.2 and 11.9 ropes that work well. You might have noticed that virtually all of the new climbing ropes in the past few years have been within this magic diameter band. We had the *Cousin Trestec 11.6mm Atrax* on the cover of issue 10 in 2016 and our last three reviews have been the 11.7 & 11.8mm *Teufelberger DrenaLINE & Xstatic, FTC TREE's 11.7mm Argiope* (now *Evo* and *Edelrid's 11.7 Woodpecker.* This sounds European driven but the writing was on the wall several years back when *Sterling, Bluewater* and *New England Ropes/Teufelberger* started to produce 11.5mm ropes for the access and rescue markets to bridge the gap between the standard 11mm and the US Fire service requirement for heavier duty 13mm ropes. You'd think that might be 12mm since it's smack in the middle but it still needed to be accessible to the plethora of technical hardware without stepping up to completely different models necessary for the 13mm ropes. Ditto arborists who, in the past decade, have seen a steady shift from prussic systems to hardware-based systems. After a generation of using 12mm 1/2" ropes, the switch to SRT/ SRS, which most suited 11mm ropes, led to a similar realisation that the crossover hardware from rescue and access didn't really like the much fatter and softer traditional arb ropes but equally most arborists don't really want 10.5mm 'string'. What they wanted was something that would work for BOTH and the 11.7/11.8mm diameters fit that bill. *Yale* immediately stepped up with their 11.7mm *XTC24* ropes and simultaneously kicked off (or joined) an odd trend among US arb rope manufacturers to produce the same rope as if each colour is a different model. Not sure if that's genius or annoying. *Teufelberger* has just the one *Tachyon* in 5 different colourways while *Yale, Samson*, and *All Gear* have what looks like several options for an 11.7mm rope but it's the one model in different colours. These ropes all have the advantage of being the diameter that most future hardware will be designed for (give or take a few mm).

Most of these new hybrid-compatible ropes are intended specifically to be used with hardware - that means some form of constant camming or compressing of the rope which can cause ropes with a looser or coarser braid (sheath) to milk so that you can end up with a whole load of sheath hanging off the end of your rope or a concertina effect as the extra sheath runs up against an end termination. Tighter braids will grip the core more firmly and be less inclined to milk but this is virtually always at the expense of handling and knotability - they're simply stiffer. It's worth noting that the use of sewn terminations is for anchoring only, they're not designed to be used as an end-stop termination to stop you abseiling off the end. Most will be fine but you'll notice that the softer,smaller eyes like *Petzl FLOW* and *Teufelberger's spLIFE FTC TREE's SlimTECH, Courant's Japora, Cousin's Atrax* and *Edelrid's Woodpecker* shown in the titles are actively designed to go through devices so they're no use as an end-stop! This ability to feed a spliced end through a device like the *Petzl* ZigZag may just influence the design of future devices which might otherwise have avoided the threading option in favour of more complicated opening systems. The *ZigZag* probably

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11mm Tech-G

CUT/ABRASION RESISTANT

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

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

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

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has the smallest rope-path so if your rope can get through this it might be quicker to thread mid-line attachable devices like *Akimbo, Unicender* and *RopeRunner* than fiddling about opening them. In the rope images on these intro pages you can see the differences in bulk between the high-strength sewn eyes like the Sterling Scion in blue and the *Teufelberger drenaLIN*E shown above threaded through a *Petzl ZgZag*. *FTC TREE*'s second type of splice on *Argiope* (title pic) is sealed beneath a protective black plastic cover which protects the rope marking and helps differentiate the two ends of a double spliced rope. Perhaps the most unusual termination is on *Edelrid's Woodpecker* which is basically a length of webbing sewn onto the rope with a gap at the top for an eye. This has a quoted minimum breaking load of 15kN and *Edelrid* say it is the lowest bulk yet available. Genius.

DEFINITIONS & TABLE CATEGORIES

MATERIALS for arb ropes tend to be the opposite of the rest of the rope industry in that polyester is the dominant material with nylon only getting a look-in because of the increase in kernmantle sales. Nylon or Polyamide has good strength to weight ratio and shock absorption, doesn't melt at too low a temperature (around 460° F or 238° C), can operate in wet and ice (albeit at reduced capacity) and is pretty robust when it comes to being dragged over rough edges. Polyester can withstand abuse from Nylon's nemesis acid which doesn't tend to be a consideration for arborists but it's also a bit tougher than nylon, has a slightly higher melting point (around 480° F or 249° C) and retains more strength when wet. There are some other specialist materials used in rope manufacture - principal amongst these is Aramid/Kevlar/Technora/ Twaron - all variations on the ballistic material theme that can make a rope extremely tough and highly resistant to heat, bullets and chainsaws. Well actually just heat really, bullets go round and chainsaws think about it for a bit longer than with standard ropes and then go straight through the middle. But these toughened ropes certainly have potential and *Sterling* ropes obviously think so since they have 2 or 3 such ropes in their arborist line-up. Since you can't tell a polyester from a nylon just by looking at it some manufacturers like PMI use special marking to denote material - in PMI's case barber-pole' sheath runners denote nylon and a cross-pattern denotes polyester content, this is a simple idea that we would like to see adopted more widely. Teufelberger's Platinum is currently Green for polyester and blue for nylon with both of their orange Access-Abor ropes being polyester.

MBL is Minimum Breaking Load (or MBS -Minimum Breaking Strength) and this may be given in kiloNewtons (kN), kilograms (kg), pounds (lbs) or lbs of force (lbf). The units of force are kN and lbf but they pretty much equate to the more recognisable kg and lb. For some reason a lot of arborist ropes are quoted with an ***average strength*** rather than the minimum strength. This is a figure you'll rarely see us quote in ARBCLIMBER unless we really have to because it's a misleading figure that should never have become standard use. An average is NOT the worst-case scenario figure - the rope could and by definition, has, failed at a lower figure. When dealing with life-support equipment base your calculations on the ***minimum*** that it will fail (Minimum Breaking Load) and you won't go far wrong but don't forget that even that figure is when the rope is dry, brand new and in a straight line with no bends in it. Some only quote a figure for spliced rope which we can assum will be less than similar rope quoting an in-line strength. Also, double-check with the manufacturer because we come across an awful lot of distributors with different strength figures for the same rope largely because it's not clear whether they are quoting Average or Minimum Breaking Load. We've included the European favourite of breaking strength in a figure 8 knot an indication of the strength reduction of tied knots over sewr or spliced terminations which retain much greater strength. For instance *Courant's Komora* rope has an MBL of 30kN in a straight line with no bends but with a splice this figure drops to 19 kN. That's often still better than around 15kN with a tied Expect MBL to reduce by at least 10% when spliced.

ELONGATION/STRETCH

We often see (and use)the terms 'Low-stretch' and 'static' ropes interchangeably but there is technically a difference between 'Static' which the US Cordage Institute describes as having 6% elongation at 10% MBS and 'Semi-static' which has between 6 and 10% stretch at 10% MBS. Arborists didn't take much notice of such terminology until there started to be more crossover with kernmantle access and rescue ropes but it's still not a defining term even though elongation percentages should be. We're showing up to four figures (when given) for elongation or stretch. The first is the industry standard degree of stretch at 10% of the minimum breaking load. This is some harsh treatment and would rarely concern a climbing rope unless you're huge, it's more for rigging ropes being subjected to high loads and, even worse, dynamic loads. The second figure in blue used mostly in Europe is for Static Elongation at 50 to150kg loading over a set time period. The third figure in burnt orange is the US norm for stretch at 136kg/300lbs and this is much more indicative of a climber's body mass. Finally we've included the US ANSI Z133 driven figure of 540lb in green, not because we necessarily agree that arborists have put on a lot of weight over Christmas but because the operating weight of a climber has generally increased substantially in recent years with all the hardware, full body harnesses, chainsaw protective clothing and even helmets, a *Protos* with accessories is a helluva lot heavier than a 1970's builder's helmet. In rescue, we've increased our figure for a rescue load twice in the last 30 years as average bodyweights and kit increased so 245kg/540lbf could well be the kind of weight that a working arborist might attain when wet and fully kitted but a competition or recreational climber very rarely would!

In Europe, the use of a sub-13mm/ 1/2" rope is nothing new, in fact 1/2" and above was unusual with 12mm being closer to an Arborist norm. In the US this has become such a measure of the minimum that the US standard ANSI specifically states that any arb rope UNDER 1/2" require specialist training before use! That means ALL of the hybrid-specialised ropes. A case of standards not keeping up with developments? Equally the NFPA standard lists rope to within 0.5mm which is why you see such a discrepancy in the definition of a 7/16" rope - some 11mm

can be listed as anything from 10.8 to 11.6. *BWII* ropes comply with the updated ANSI Z359.15 standard for a single anchored lifeline which you would think is a definition that could be applied to arb ropes. A whole can o'worms we don't want to open right now!

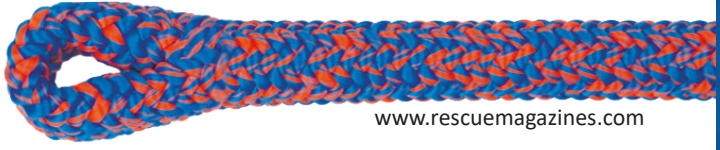
IN THE FOLLOWING TABLES.....:

The data in these tables is always ridiculously difficult to compile because there is so much conflicting information even within the same company with catalogues or websites saying one thing and the stockists saying another. In the end we've had the various companies sign off their own listings but even so there's a lot of data not given for some of our entries, the best we can do is tell you the ropes exist! Some of the data we list in our rescue titles is not listed here - the US tends not to quote the NUMBER OF FALLS or a KNOTTED BREAKING STRENGTH. The latter because of the arb preference for sewn or spliced terminations. Surprisingly these are often weaker than the knotted figure. *Teufelberger's spLIFE* is stronger than the *Slaice* it replaced which, for instance, came in at 16.5kN on the 35kN *drenAline* but 18kN in a knot. The advantage of any splice is much lower bulk than a knot and many can be fed through hardware but there can still be a significant strength loss. The number of Factor 1 falls is rarely quoted in arb so we've omitted it but it can be a telling figure. A large number of falls may mean the rope is more elastic which is obviously safer in a fall but increases 'bounce' during ascending and is generally less abrasion resistant.

COST: Some manufacturers do not give a retail price, in which case we list an approximate retail price based on their key distributors. Not all ropes are sold by the metre invariably because of pre-sewn/spliced eyes so they are sold in set lengths. We've used the cost of the shortest length sold, added 10% and rounded up to get a price. By-the-metre/foot, is the most expensive way to buy rope so these may not be exact but they give you a rough idea. Prices are per metre and **per foot** as an additional US $Dollar figure. All prices **EXCLUDE Splices/ Sewn eyes** which add around £15/$20/€17 unless otherwise stated. We usually round the prices up but if it seems a little precise it will be a manufacturers stated retail cost. We also now show a straight currency conversion in burnt-orange £$€ - this NOT an accurate cost because it precludes import duty and bulk shipping but it again gives you a rough idea for comparison. If the cost is *not* shown in burnt orange it means it is actually sold for that price in either the US, Europe or the UK. We will update and upgrade (accuracy) of prices throughout the year to try and keep pace with any larger fluctuations.

WEIGHT - This is the WEIGHT or MASS per metre and per 100feet. We have made conversions based on a linear mass density conversion rounded to one decimal place (we occasionally sneak in two if it's .25 for a quarter).

MATERIALS: Arborist ropes tend to be primarily Polyester sheath with a polyester or nylon core. Nylon is referred to in Europe as *polyamide* because Nylon is Dupont's trade name and differentiated by some as such or as Nylon 66 or Perlon. Polyester reduces stretch in the sheath and increases durability to some extent. Nylon absorbs more water than Polyester but is stronger when wet and provides more elasticity so it's often



used for the core material.

EASE of TYING is really 'FLEXIBILITY' and should more correctly be defined as the '*coefficient of* **knotability** *as a ratio of 1.1 times the rope diameter*' but we couldn't fit that in the header. It refers to deformation of a rope in an overhand knot subjected to a 10kg load but is basically how easy it is to tie a knot. This is again not quoted by everyone but ranges from 0.6 for the easiest to tie to 1.1 for the hardest. Ropes closer to 1 hold their shape well, work well in mechanical devices and are easier to untie. However, we're not sure how much notice to take since the *Argiope* at 1. is far easier to tie than *DrenaLINE* at 0.6? *SherrillTree* offer a different guide with a 1 to10 scale where 10 is excellent knotability - this is shown in burnt orange.

NUMBER OF FALLS: This is a category more commonly seen in dynamic ropes but none of these lower-stretch ropes are truly static - they will all stretch to some degree and some provide an indication of the number of factor 1 falls your rope can take before it needs to be retired because the elasticity is compromised.

SHEATH CONSTRUCTION: This is expressed as the number of carriers/threads used to construct the outer 'jacket' or braid. The lower the number, the more flexible the rope will be. Most of the ropes in this category are 24-braid and are **DB** or double braids meaning the core package (comprised of multiple bundles of fibres) has its own woven sheath. The core bundles can be separate from each and parallel or twisted together in a plait or braid. Kernmantle (**KM**) is technically any rope with a sheath over a separate core but is more usually a single 32 or 48 carrier sheath over parallel core fibres with less stretch than traditional arb ropes. One manufacturer describes a *Double Braid Kernmantle* which we would term **DB** rather than **KM**.

SPLICEABLE: indicates whether the rope can be se spliced or hand-spliced shown as black square ■, whether it is available with a pre-spliced eye ■ or a sewn eye ■.

SUITABLE FOR:.....

HYBRID HARDWARE indicates a particular suitability fo use with hybrids and descenders beyond the norm for all these ropes. This means 1) that it will fit key devices 2) that the sheath won't milk or bunch under compression 3) that the rope stays quite round and doesn't 'squash' and 4)it maintains these attributes through its life. NB: **ALL of the ropes in this GUIDE can be used for abseiling, ascending, hauling and even ziplines** but some do it better than others and with greater safety margins eg. ***toothed ascenders are best with 32-48 carriers rather than the knobblier 12-16 carriers.*** Equally, all can be used for climbing using Stationary or Moving ropes but again with varying degrees of effectiveness.

Many splices and compact sewn eyes can be **FED THROUGH HARDWARE** but there's a significant strength loss.

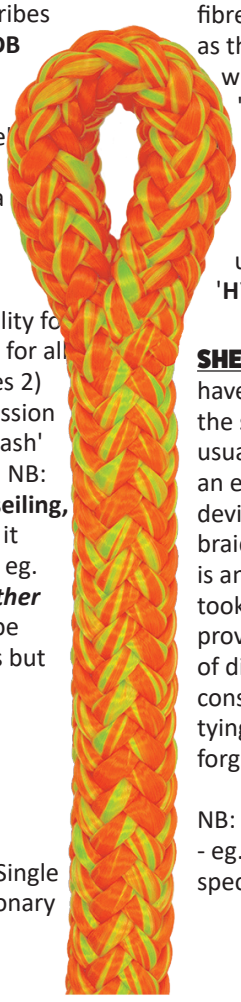
SRT/SRS/DRT & **DdRT/MRS:** generally speaking Single and Double Rope Technique (now called SRS- Stationary Rope Systems) require low stretch rope for which kernmantle semi-static and static ropes are perfect. The more supple 32 and 24 strand double braid can also do that job well but are better suited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

STANDARDS: CE and ANSI pretty much cover the arb market in Europe and USA but some ropes crossing over from rescue may also have an NFPA rating. CE in this case is EN1891 and divided into class A and B ropes. While the physical diameter of rope can be the same (8.5-16mm), class A ropes have a higher MBL at min-22kN compared to 18kN for class B but class B can have less sheath slippage at 15mm compared to 30mm for a class A so this can make a class B preferable with some hardware. Class A will tend to be tougher and stronger but class B can be just as good, if not better if you take good care of it. 15kN is a minimum for knot/splice/sewn strength so where quoted may not be the max strength of that particular rope, just the minimum to meet the standard. **ANSI Z133 requires climbing ropes to be ½" but it does accept 11mm 7/16"for arborist 'trained in the use" of this thinner rope.** The 'newly' defined ANSI Z359.15 Single Anchor Lifeline standard may now also be relevant to SRT/SRS applications in arb. The **CI** & **BERRY** designations are unique to the USA and are not standards as much as compliance to the **US Cordage Institute** and **military** requirements for 100% home produced ropes. These are not mandated for arborists but since many of these ropes cross over to other sectors we have started to list them.

SHRINKAGE in water. Some ropes are pre-shrunk or use fibres that won't shrink which is not necessarily the same as thermo-stabilsed or 'heat-set' rope although that process will help reduce overall shrinkage. Untreated Nylon does 'retract' a little unless factory pre-shrunk. This harks back to the days when the first thing you did with a new rope was chuck it in the bath overnight. This figure is not the same as Sheath Slippage which is where the sheath 'milks' some extra length in relation to the core and ends up with a dubious looking end. The ropes listed in the '**HYBRID HARDWARE**' column will specifically NOT do this.

SHEATH %. This is the opposite to CORE percentage so we haven't bothered listing both - do the math(s). The higher the sheath percentage the stiffer the rope. It will therefore usually have a much higher initial resistance to abrasion over an edge or sheath creep under high loads from a camming device. Most arb ropes used a much coarser braid, in fact a braid covering a braided core hence Double Braid and this is anything from 12 and 16 to 24. More recently, as SRT/SRS took hold, the Kernmantle norms for 32 carrier sheaths has provided greater abrasion resistance and inhibits ingress of dirt and debris with its tighter weave. Traditional arb constructions provide a much softer feel and easy knot tying and though less abrasion resistant, trees are far more forgiving than rock, metal and concrete.

NB: **MODEL NAMES** often differentiate the colour options - eg. *ALL GEAR* & *YALE* ropes - each named rope denotes a specific colour and only that colour.



PMI ROPE:

WHERE TECHNICAL EXCELLENCE MEETS DAILY SAFETY

PMIROPE.COM

Advantage Helmet

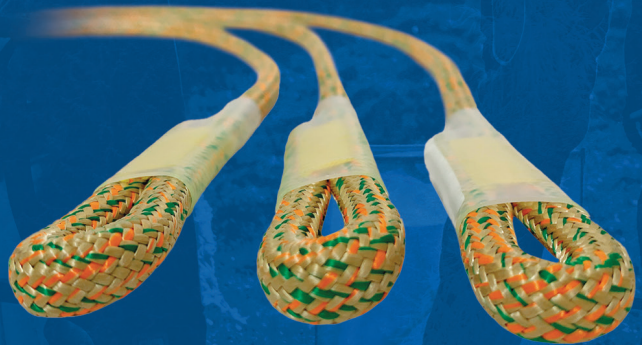
**THINK SAFETY.
THINK ADVANTAGE**

Kevlar® head protection
Choice of different colors
ANSI Z89.1 TYPE 1, CLASS G (2200V)
TYPE 1 & 2, EN 397, NFPA 1951

Extreme Pro Rope

**TOP-TIER TERMINATION:
CRAFTED FOR THE PROS**

Unicore® technology
MBS: 42.9 kN (9644 lbf)
Core - 100% Nylon 6.6
Sheath - 100% Polyester



Eye and Eye Prusik

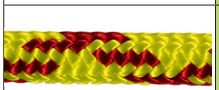
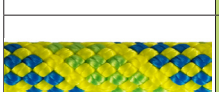
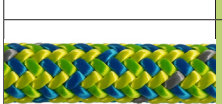
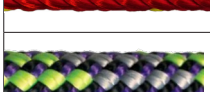
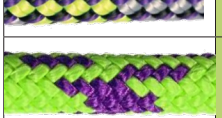
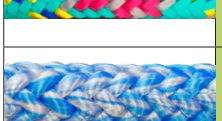
**BUILT FOR HIGH-LOAD
PRECISION AND EASE**

Eye MBS: 14.2 kN (3192 lbf)
Basket MBS: 27.6 kN (6204 lbf)
Technora/polyester sheath

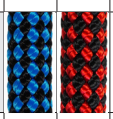
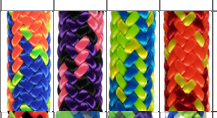
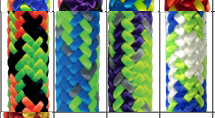
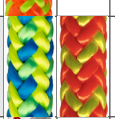
Rope Tech Gloves

A PERFECT FIT FOR EVERY GRIP

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

IMAGES NOT TO SCALE **COST**: excludes eyes unless specified in NOTES. INCLUDES local taxes/VAT. £$€=Currency Conversion If not sold by m/ft, price is shortest length x10% & rounded up. ●=OK but not ideal DB=Double Braid KM=Kernmantle Tying 10=hardest to tie	MODEL VARIANT Product Code	COMPANY	ORIGIN	COST per Metre /3.28ft US$ per Foot	Ø mm Inches"	WEIGHT g/m lb/100'	MATERIALS SHEATH CORE	STANDARDS	NUMBER OF FALLS EASE of TYING Sherrill Rating	SHEATH OUTER STRANDS	SPLICEABLE PRE-SPLICED PRE-SEWN
	Arborist 32str KM Crossfire	**ALLGEAR**		£2.75 $3.44 $1.05 €3.15	11 7/16"	89g 6.1lb	Polyester Nylon	ANSI		32 KM	■
	Arborist 32str KM Finish Line, Blue Finish-Line, Red Finish Line,	**ALLGEAR**		£2.90 $3.60 $1.10 €3.30	11 7/16"	89g 6.1lb	Polyester Nylon	ANSI		32 KM	■
	Arborist 32str KM Tower Line	**ALLGEAR**		£2.90 $3.60 $1.10 €3.30	11 7/16"	89g 6.1lb	Polyester Polyester	ANSI		32 KM	■
	**Arborist 24str*** Rocketline, Ramborista Purple Haze, Blue Craze, CherryBomb, Sunburst	**ALLGEAR**		£3.40 $4.25 $1.30 €3.90	11.2 7/16"	89g 6.1lb	Polyester Polyester	ANSI		24/12 DB	■■
	Arborist 24str* CherryBomb2, Inferno, BlueCraze2, MardiGras2, Atlas	**ALLGEAR**		£4.30 $5.40 $1.65 €4.95	11.8 15/32"	89g 6.1lb	Polyester Polyester	ANSI	-	24/12 DB	■ ■■
	**Arborist 32str KM** TowerLine	**ALLGEAR**		£2.90 $3.62 $1.10 €3.30	12.7 ½"	99g 6.7lb	Polyester Polyester	ANSI		32 KM	■
	**Arborist 24str*** Neolite II, SafetyLite II	**ALLGEAR**		£3.05 $3.85 $1.18 €3.50	12.7 ½"	112g 7.5lb	Polyester Polyester	ANSI		24 DB	■■
	Arborist 16str* Bazooka, Neolite, SafetyLite	**ALLGEAR**		£3.25 $4.10 $1.25 €3.75	12.7 ½"	112g 7.5lb	Polyester Nylon	ANSI		16	■ ■■
	Arborist 12str* Forestry Pro Glo, Forestry Pro	**ALLGEAR**		£3.10 $3.90 $1.20 €3.60	12.7 ½"	109g 7.3lb	Polyester Polyester	ANSI		12	■ ■■
	**Endurance** Aya, LuckyLine	**ATLANTIC BRAIDS**		£2.70 $3.10 $1.00 €3.10	11.1 7/16"	89g 6lb	Polyester Nylon	n/a		32 KM	■
	**GripFlex-24**	**ATLANTIC BRAIDS**		£2.70 $3.10 $1.00 €3.10	11.7 29/64"	98g 6.6lb	Polyester Polyester	ANSI	0.37	24 DB	■ ■
	Antidote Fusion, Fury, Formula	**ATLANTIC BRAIDS**		£2.35 $2.95 $0.90 €2.70	11.8 ½"	n/a	Polyester Polyester	n/a		24 DB	■
	**GripFlex-16**	**ATLANTIC BRAIDS**		£2.80 $3.40 $1.10 €3.30	12.7 ½"	112g 7.5lb	Polyester Nylon	n/a		16	■
	Endurance	**ATLANTIC BRAIDS**		£2.70 $3.10 $1.00 €3.10	12.7 ½"	118g 7.9lb	Polyester Nylon	n/a		32 KM	■
	GripFlex-12	**ATLANTIC BRAIDS**		£2.70 $3.10 $1.00 €3.10	13 ½"	134g 9lb	Polyester Polyester	n/a		12	■
	Dynastat	**BEAL**		£2.40 $3.10 $1.00 €2.75	10.5 13/32"	75g 5lb	Nylon Nylon/Vectran	CE A*	0.82	16 KM	■

ARBORIST CLIMBING ROPES

SUITABLE FOR			MINIMUM BREAKING LOAD/STRENGTH		SHRINKAGE %	SHEATH SLIPPAGE (MILKING) %	ELONGATION %	SHEATH %	OTHER COLOURS	NOTES	WWW.
EYE CAN THREAD THRU HARDWARE	HYBRID HARDWARE	SRT/SRS MRS/DdRT	MBL MINIMUM Break Load Spliced Sewn Knotted	ABL AVERAGE Break Load Spliced Sewn Knotted			@10% MBS @50-150 kg @300LB/136K @540 lb/245kg				
-	-	■	35.2kN 7920lbf	39.1kN 8800lbf			15%			Model names equates to colour options.	allgearinc.com
-	-	■	31.2kN 7020lbf	39.1kN 7800lbf			3%			*Model names equates to colour options.	allgearinc.com
-	-	■	27.2kN 6120lbf	30.3kN 6800lbf			3%			*Model names equates to colour options.	allgearinc.com
■	-	■	-	28kN 6300lbf			3%			*Model names equates to colour options.	allgearinc.com
■	■	■■	-	29.8kN 6700lbf	-		4.9%	-		*Model names equates to colour options. Atlas discontinued	allgearinc.com
-	-	■	32.8kN 7380lbf	26.7kN 8200lbf			3%				allgearinc.com
-	■	■■	-	34.7kN 7800lbf			n/a			*Model names equates to colour options.	allgearinc.com
-	-	■	33.4kN 7500lbf	40.9kN 9200lbf			3%			*Model names equates to colour options.	allgearinc.com
-	-	■	29.2kN 6570lbf	36.5kN 7300lbf			3%			*Model names equates to colour options.	allgearinc.com
-	■	■	37.5kN 8300lbf	4000kg 8800lb			7%				atlanticbraids.com
-	-	■■	-	30.5kN 6850lbf 27.5kN 6180lbf	0.4%		2.3%	45%			atlanticbraids.com
-	-	■	31.1kN 7000lbf	5170kg 11400lb			n/a	n/a		Status being established Seems widely available but not listed by ATL - Also 11.1 & 12.7mm	atlanticbraids.com
-	-	■	-	40.9kN 9200lbf			n/a	n/a			atlanticbraids.com
-	-	■	48kN 10600lbf	5170kg 11400lb			7%	n/a			atlanticbraids.com
-	-	■	-	3040kg 6700lb			n/a	n/a			atlanticbraids.com
-	-	■	25kN 6744lbf 16/19kN 3597/4271lbf	-	0%	0.8%	2%	44%		DISCONTINUED *Conforms to Semi-static (EN1891)and Dynamic (EN892) Standards	bealplanet.com

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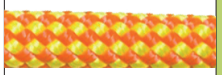
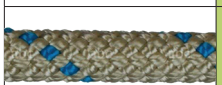
If not sold by m/ft, price is shortest length x10% & rounded up.

●=OK but not ideal
DB=Double Braid
KM=Kernmantle
Tying 10=hardest to tie

	MODEL VARIANT Product Code	COMPANY	ORIGIN	COST per Metre /3.28ft US$ per Foot	Ø mm Inches"	WEIGHT g/m lb/100'	MATERIALS SHEATH CORE	STANDARDS	NUMBER OF FALLS EASE of TYING Sherrill Rating	SHEATH OUTER STRANDS	SPLICEABLE PRE-SPLICED PRE-SEWN
	Industrial	BEAL		£3.60 $3.20 $1.15 €2.90*	11mm 7/16"	74g 5lb	Polyester Nylon	CE A	-	32 KM	■
	Biloba	BEAL		£3.60 $4.50 $1.35 €4.10	11.5mm 7/16"	89g 6 lb	Polyester Nylon	CE A	-	DB	■
	Ginko	BEAL		£3.55 $4.50 $1.40 €4.10	12mm ½"	92g 6.1lb	Polyester Nylon	CE A	-	DB	■ ■
	Bonsai	BEAL		£3.75 $4.75 $1.55 €4.30	13mm ½"	100g 7.3lb	Polyester Polyester	CE A ANSI	-	DB	■
	Baobab	BEAL		£4.75 $6.00 $1.85 €5.45	13.5mm ½"	89g 6 lb	Polyester Nylon	CE A	-	DB	■
	Armortech	BLUEWATER		£6.75 $8.50 $2.60 €7.80	10.5mm 27/64"	76g 5.1lb	Technora/ Polyester Nylon	ANSI	-	32 KM	■
	Assaultline/ BWII+	BLUEWATER		£3.35 $4.20 $1.28 €3.85	10.5mm 27/64"	78g 5.2lb	Polyester Nylon	CE A NFPA	-	32 KM	■
	Protac	BLUEWATER		£3.35 $4.22 $1.30 €3.85	10.5mm 27/64"	72g 4.8lb	Polyester Nylon	CE B	-	32 KM	-
	SpecStatic	BLUEWATER		£3.25 $4.10 $1.25 €3.75	10.5mm 27/64"	88g 6 lb	Polyester Polyester	NFPA ANSI	-	32 KM	-
	Armortech	BLUEWATER		£6.80 $8.60 $2.70 €7.85	11mm 7/16"	91g 6lb	Technora/ Polyester Nylon	ANSI	-	32 KM	■
	DGR	BLUEWATER		£3.10 $3.90 $1.20 €3.60	11mm 7/16"	85g 5.7lb	Polyester Nylon	NFPA ANSI	-	KM	-
	Pro G	BLUEWATER		£3.70 $4.65 $1.42 €4.25	11mm 7/16"	92g 6.2lb	Polyester Nylon	NFPA	-	48 KM	-
	Protac	BLUEWATER		£3.50 $4.40 $1.35 €4.05	11mm 7/16"	80g 5.44lb	Polyester Nylon	CE A NFPA UIAA	-	32 KM	-
	Safeline	BLUEWATER		£3.76 $4.75 $1.45 €4.35	11mm 7/16"	88g 5.86lb	Polyester Nylon	CE A NFPA UIAA	-	16 KM	■
	Assaultline/ BWII+	BLUEWATER		£3.00 $3.80 $1.15 €3.50	11.4mm 7/16"	89g 6.1lb	Polyester Nylon	CE A NFPA UIAA	-	32 KM	■

ARBORIST CLIMBING ROPES

SUITABLE FOR			MINIMUM BREAKING LOAD/STRENGTH		SHRINKAGE %	SHEATH SLIPPAGE (MILKING) %	ELONGATION %	SHEATH %	OTHER COLOURS					NOTES	WWW.
EYE CAN THREAD THRU HARDWARE	HYBRID HARDWARE	SRT/SRS MRS/DdRT	MBL MINIMUM Break Load Spliced Sewn Knotted	ABL AVERAGE Break Load Spliced Sewn Knotted			@10% MBS @50-150 kg @300LB/136K @540 lb/245kg								
-	■	■■	34kN 7643lbf 19.5/24kN 4384/5395lbf	-	1.1%	0.8%	2.1%	36%						Also 10.5 & 12mm versions - see Rope Eqpt BUYERS GUIDE. White costs 4% less	bealplanet.com
■	■	■■	30.3kN 6812lbf 18/18kN 4047/4047lbf	-	2.8%	0	3.8%	44%							bealplanet.com
-	-	■	27kN 7399lbf 16/22kN 3597/4945lbf	-	2.8%	0	4%	69%						sheath & core bonded	bealplanet.com
-	-	■	34kN 7643lbf 18/25kN 4047/5620lbf	-	4.5%	0	4.2%	61%						sheath & core bonded	bealplanet.com
-	■	■	30kN 6744lbf 19/23kN 4271/5171lbf	-	2%	0	5%	82%						Unicore Rope, sheath and core bonded. Discontinued?	bealplanet.com
-	■	■	35.5kN 8000lbf	-	0%	-	3.2%	48%*						Teflon-coated, double sheath-*+core sheath. Technora over polyester sheathed nylon Up to 934 deg F	bluewaterropes.com
-	■	■	28.9kN 6500lbf	-	-	-	3.8%	-							bluewaterropes.com
-	■	■	31.5kN 7081lbf	-	-	-	3.1%	50%							bluewaterropes.com
-	■	■	27.1kN 6092lbf	-	-	-	2.6%	47%						Specially designed for mechanical devices	bluewaterropes.com
-	■	■	37.1kN 8331lbf	-	0%	-	3.6%	53%*						Teflon-coated, double sheath-*+core sheath. Technora over polyester sheathed nylon Up to 934 deg F	bluewaterropes.com
-	■	■	33.5kN 7541lbf	-	-	-	3.4%	48%							bluewaterropes.com
-	■	■■	40.5kN 9107lbf	-	-	-	3.1%	42%							bluewaterropes.com
-	■	■	35.2kN 7913lbf	-	-	-	1.2%	51.6%							bluewaterropes.com
-	■	■	35.9kN 8061lbf	-	-	-	2.7%	46%							bluewaterropes.com
-	■	■	32.9kN 7399lbf	-	1.9%		2.9%	53%							bluewaterropes.com

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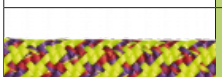
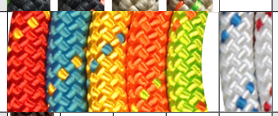
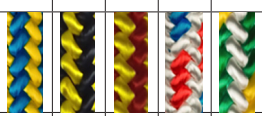
●=OK but not ideal
DB=Double Braid
KM=Kernmantle
Tying **10**=hardest to tie

	MODEL VARIANT Product Code	COMPANY	ORIGIN	COST per Metre /3.28ft US$ per Foot	Ø mm Inches"	WEIGHT g/m lb/100'	MATERIALS SHEATH CORE	STANDARDS	NUMBER OF FALLS EASE of TYING Sherrill Rating	SHEATH OUTER STRANDS	SPLICEABLE PRE-SPLICED PRE-SEWN
	Armortech	BLUEWATER ROPES		£7.55 $9.50 $2.90 €8.70	11.5mm 7⁄16"	97g 6.55lb	Technora/ Polyester Nylon	ANSI	-	32 KM	■
	Technora Assaultline	BLUEWATER ROPES		£3.25 $4.05 $1.20 €3.70	11.5mm 7⁄16"	92g 6.2lb	Technora Polyester	NFPA	-	32 KM	■
	SpecStatic	BLUEWATER ROPES		£3.45 $4.35 $1.35 €4.00	11.5mm 7⁄16"	100g 7.3lb	Polyester Polyester	NFPA ANSI	-	32 KM	-
	Armortech	BLUEWATER ROPES		£8.75 $11.00 $3.50 €10.00	12mm ½"	98g 6.55lb	Technora/ Polyester Nylon	ANSI	-	32 KM	■
	Safeline White Safeline	BLUEWATER ROPES		£4.35 $5.50* $1.70* €5.05	12.5mm ½"	108g 8.21lb	Polyester Nylon	CE A NFPA ANSI UIAA	-	16 KM	■
	Protac	BLUEWATER ROPES		£4.05 $5.10 $1.60 €4.70	13mm ½"	114g 8.41lb	Polyester Nylon	CE A NFPA UIAA	-	32 KM	
	Armortech	BLUEWATER ROPES		£9.10 $11.50 $3.60 €10.50	13mm ½"	127g 8.51lb	Technora/ Polyester Nylon	NFPA ANSI	-	32 KM	■
	Assaultline/ BWII+	BLUEWATER ROPES		£3.05 $3.80 $1.15 €3.50	13mm ½"	89g 6.1lb	Polyester Nylon	CE A NFPA	-	32 KM	■
	SpecStatic	BLUEWATER ROPES		£4.00 $5.00 $1.55 €4.60	13mm ½"	137g 10.1lb	Polyester Polyester	NFPA ANSI	-	32 KM	-
	Arbor Boss 24	BUCCANEER ROPE CO		n/a	11mm 7⁄16"	92g 6.2lb	Polyester Polyester	-	-	24 DB	-
	Abor Boss 16 O-Glow, Blue Thunder, Black Thunder, Red Thunder, Patriot, Green&Ylw	BUCCANEER ROPE CO		£2.00 $2.50 $0.75 €2.30	12mm ½"	112g 7.5lb	Polyester Polyester	-	-	16 DB	-
	Arbor Boss 12	BUCCANEER ROPE CO		n/a	12mm ½"	112g 7.5lb	Polyester Polyester	CI	-	12 DB	-
	Frazen 2817	CAMP		£00 $00 $00 €00	12.2mm ½"	105g 7.5lb			<5		
	Bulwark Safety X Semi-Static	COASTLINE CORDAGE		£2.25 $2.80 $0.85 €2.60	11mm 7⁄16"	82g 5.5lb	Polyester Nylon	NFPA	-	32 KM	-
	Bulwark Safety X Semi-Static	COASTLINE CORDAGE		n/a	12mm ½"	98g 6.7lb	Polyester Nylon	NFPA	-	32 KM	-
	Rebel	COURANT		£2.40 $3.90 $1.20 €2.75	11mm 7⁄16"	88g 5.9lb	Polyester Nylon	NFPA ANSI	1.18	32 KM	-

ARBORIST CLIMBING ROPES

SUITABLE FOR			MINIMUM BREAKING LOAD/STRENGTH		SHRINKAGE %	SHEATH SLIPPAGE (MILKING) %	ELONGATION %	SHEATH %	OTHER COLOURS					NOTES	WWW.
EYE CAN THREAD THRU HARDWARE	HYBRID HARDWARE	SRT/SRS MRS/DdRT	MBL MINIMUM Break Load Spliced Sewn Knotted	ABL AVERAGE Break Load Spliced Sewn Knotted			@10% MBS @50-150 kg @300LB/136K @540 lb/245kg								
-	■	■	32.1kN 7216lbf	-	0%	-	1.9%	53%*						Teflon-coated, double sheath-*core sheath= 39.4%. Technora over polyester sheathed nylon Up to 934 deg F	bluewaterropes.com
-	■	■	40 kN 8993lbf	-	-	-	2.8%	53%						highly abrasion-resistant. Black=military only	bluewaterropes.com
-	■	■	35.1kN 7891lbf	-	-	-	1.2%	41%						Very low elongation, not for MRS/DdRT. Suited to ziplines.	bluewaterropes.com
-	■	■	32kN 7223lbf	-	0%	-	5.3%	53%*						Teflon-coated, double sheath-*core sheath= 39.4%. Technora over polyester sheathed nylon Up to 934 deg F	bluewaterropes.com
-	-	■	44.4kN 9983lbf	-	-	-	2.2%	45%						*White with red or blue thread is a whopping 20% cheaper than these figures	bluewaterropes.com
-	-	-	43.4kN 9840lbf	-	-	-	2%	46%							bluewaterropes.com
-	■	■	49.8kN 11203lbf	-	0%	-	2.5%	53%*						Teflon-coatd, double sheath-*core sheath= 39.4%. Technora over polyester sheathed nylon Up to 934 deg F	bluewaterropes.com
-	■	■	44.4kN 10000lbf	-	1.9%	-	3.8%	53%							bluewaterropes.com
-	■	■	47.5kN 10677lbf	-	-	-	1%	39%						Very low elongation, not for MRS/DdRT. Suited to ziplines.	bluewaterropes.com
-	■	■	-	16kN 3600lbf	-	-	-	-							bucrope.com
-	-	■	-	31.1kN 7000lbf	-	-	-	-						also available as 5/8" 16mm see rigging ropes	bucrope.com
-	-	■	-	29.8kN 6700lbf	-	-	-	-						also available as 5/8" 16mm see rigging ropes	bucrope.com
					0.2		2.4%								camp.it
-	■	■	37.92kN 8294lbf	-	-	-	2%	-						note that 2 different spec sheets exist for these ropes with different spec.	coastlinegroup.ca
-	■	■	49.56kN 10927lbf	-	-	-	n/a	-						note that 2 different spec sheets exist for these ropes with different spec	coastlinegroup.ca
-	■	■	33kN 7419lbf 23kN 5171lbf	-	2.2%	0	2.5%	41%							cordescourant.com

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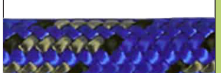
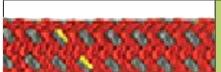
●=OK but not ideal
DB=Double Braid
KM=Kernmantle
Tying 10=hardest to tie

	MODEL VARIANT Product Code	COMPANY	ORIGIN	COST per Metre /3.28ft US$ per Foot	Ø mm Inches"	WEIGHT g/m lb/100'	MATERIALS SHEATH CORE	STANDARDS	NUMBER OF FALLS EASE of TYING Sherrill Rating	SHEATH OUTER STRANDS	SPLICEABLE PRE-SPLICED PRE-SEWN
	Squir v2	COURANT		£2.20 $3.77 $1.15 €2.82	11.5mm 7⁄16"	91g 6.1lb	Polyester Nylon	CE A	0.74	32 KM	-
	Komora	COURANT		£4.25 $6.00 $1.83 €4.90	11.7mm 7⁄16"	94g 6.3lb	Polyester Nylon	CE A	0.82	16	■
	Kalimba	COURANT		£5.00 $6.20 $1.90 €5.60	11.9mm 29⁄64"	100g 6.7lb	Polyester Nylon	CE A ANSI	0.6	24 DB	■
	Kanopa	COURANT		£4.40 $5.55 $1.70 €5.05	12.1mm ½"	103g 6.2lb	Polyester Nylon	CE A	0.87	16	■ ■
	Rush	COUSIN-TRESTEC		£2.05 $2.60 $0.80 €2.30	11mm 7⁄16"	74g 5lb	Nylon Nylon	CE A	1.1	32 KM	
	Atrax	COUSIN-TRESTEC		£3.65 $4.75 $1.45 €4.75	11.6mm 7⁄16"	102g 6.9lb	Polyester Polyester	CE A	1.03	24 DB	■ ■
	Black Widow	COUSIN-TRESTEC		£4.25 $5.40 $1.65 €4.55	12.2mm ½"	105g 7lb	Polyester Polyester	CE A	0.7	16 DB	■
	Lignum	COUSIN-TRESTEC		£4.10 $5.50 $1.70 €4.60	12.5mm ½"	115g 7.7lb	Polyester Polyester	CE A	0.9	24 DB	■
	Response LSK	DONAGHYS		£2.30 $3.10 $0.95 €2.75	11mm* 7⁄16"	91g 6.1lb	Polyester Nylon	CE A ANSI	1.18	32 KM	-
	Response XT	DONAGHYS		n/a	11mm* 7⁄16"	91g 6.1lb	Nylon Nylon	CE A ANSI	1.18	32 KM	-
	Cougar Arbor Access	DONAGHYS		£3.40 $4.40 $1.35 €3.80	11.7mm 29⁄64"	93g 6.25lb	Polyester Polyester	CE A ANSI	10	24 DB	■ ■
	NRG	DONAGHYS		£3.40 $4.40 $1.35 €3.80	12mm ½"	108g 7.2lb	Nylon Nylon	CE A ANSI	-	24 KM	-
	Tango StatX Yellow, Blue	DRAYER		£3.00 $3.60 $1.10 €3.30	11.5mm 7⁄16"	100g 6.7lb	Polyester Nylon	CE A	0.74	32 KM	■
	Tango Vision Fox, Flash	DRAYER		£3.10 $3.90 $1.20 €3.50	12.8mm ½"	104g 7lb	Polyester Nylon	CE A	-	16	■
	Tango Ergo Brasil	DRAYER		£3.30 $4.20 $1.30 €3.80	13.5mm 35⁄64"	106g 7.1lb	Polyester Nylon	CE A	-	24 DB	■
	PowerStatic II	EDELRID		£3.20 $4.10 $1.25 €3.30	11mm 7⁄16"	81g 5.4lb	Nylon Nylon	CE A	0.9	24 KM	■

ARBORIST CLIMBING ROPES

SUITABLE FOR			MINIMUM BREAKING LOAD/STRENGTH		SHRINKAGE %	SHEATH SLIPPAGE (MILKING) %	ELONGATION %	SHEATH %	OTHER COLOURS	NOTES	WWW.
EYE CAN THREAD THRU HARDWARE	HYBRID HARDWARE	SRT/SRS MRS/DdRT	MBL MINIMUM Break Load Spliced Sewn Knotted	ABL AVERAGE Break Load Spliced Sewn Knotted			@10% MBS @50-150 kg @300LB/136K @540 lb/245kg				
-	■	■	30kN 6744lbf 21kN 4721lbf	-	2.7%	0	2%	43%		Pink Dragon version is a limited edition for breast Cancer Awareness	cordescourant.com
■	■	■■	30kN 6744lbf 19kN 4271lbf	-	1%	0	2.5%	68%		most don't sell with a splice eye which adds around $20/£15. Some stockist list as 11.8mm	cordescourant.com
■	■	■■	35kN 7868kN 23kN 5171lbf	-	1%	0.1%	1.8%	57%			cordescourant.com
■	-	■	31kN 6969lbf 23.5kN 5283lbf	-	2.8%	0.4%	2.8%	67%		Captive rope marker within splice. Japora/Ozora discontinued	cordescourant.com
-	■	■	34.1kN 7666lbf >15kN 3372lbf	-	2.5%	0.3%	1.8%	39%			cousin-trestec.com
■	■	■■	30.7kN 6902lbf >15kN 3372lbf	-	0.5%	0	2.8%	55%			cousin-trestec.com
■	-	■■	30.1kN 6767lbf >15kN 3372lbf	-	0.2%	0	2.4%	58.8%			cousin-trestec.com
■	■	■	34.6kN 7778lbf >15kN 3372lbf	-	0.1%	0	3.1%	61.6%		Lignum red is a Freework-er (germany)special	cousin-trestec.com
-	■	■	31.9kN 7171lbf >15kN 3372lbf	34.3kN 7711lbf	0.3%	2.6%	3.2%	51%		'Response LSK' name also used by 2 competitors. Also in black, white with yellow/blue fleck *Actual test diam=11.4mm	donaghys.com
-	■	■	31.9kN 7171lbf >15kN 3372lbf	34.3kN 7711lbf	-	-	3.2%	51%		XT uses heat-set Nylon core. *Actual test diam=11.4mm	donaghys.com
■	■	■	28kN 6300lbf	-	1.5%	0	<3.0%	n/a			donaghys.com
■	■	■	35.2kN 7868lbf	-	-	-	-	n/a			donaghys.com
-	■	■	46.4kN 10431lb	-	2.7%	0	1.2%	43%			drayer.de
-	■	■■	36kN 8093lb	-	-	-	2.2%	n/a			drayer.de
-	-	■	36.7kN 8260lbf	-	-	-	<2.2%	n/a			drayer.de
-	-	■■	29kN 6520lbf 17kN 3822lbf		0.2%		4.3%	61%		Thermo-shield coating.	edelrid.de

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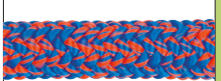
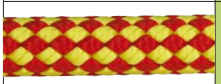
	MODEL VARIANT Product Code	COMPANY	ORIGIN	COST per Metre /3.28ft US$ per Foot	Ø mm Inches"	WEIGHT g/m lb/100'	MATERIALS SHEATH CORE	STANDARDS	NUMBER OF FALLS EASE of TYING Sherrill Rating	SHEATH OUTER STRANDS	SPLICEABLE PRE-SPLICED PRE-SEWN
	Woodpecker	EDELRID		£4.90 $5.90 $1.80 €5.55	11.7mm 29/64"	95g 6.3lb	Polyester Nylon	CE A ANSI	1.0	24 KM	■
	Bucco	EDELRID		£3.50 $4.40 $1.35 €4.00	11.8mm 15/32"	96g 6.4lb	Polyester Nylon	CE A ANSI	-	32 KM	■
	X-P*E Bahamas, Aruba, Seychelles	EDELRID		£3.75 $3.90 $1.20 €4.30	12.3mm ½"	118g 7.9lb	Polyester Polyester	CE A	0.8 10	16	■
	Jacamar	EDELRID		£4.60 $6.30 $1.95 €5.70	12.5mm ½"	108g 7.2lb	Polyester Nylon	CE A ANSI	-	24 DB	■
	Silva-Tex 24 Light	ENGLISH BRAIDS		n/a	10.5mm 13/32"	79g 5.3lb	Nylon Nylon	CE A	-	24 KM	-
	Silva-Tex 24	ENGLISH BRAIDS		£3.55 $4.50 $1.40 €4.05	11.5mm 7/16"	93g 6.2lb	Polyester Nylon	CE A	0.9	24 DB	■ ■
	Silva-Tex 16	ENGLISH BRAIDS		n/a	12.4mm ½"	131g 8.8lb	Polyester Polyester	CE A	-	16 KM	-
	Silva-Tex 16HD	ENGLISH BRAIDS		n/a	12.7mm ½"	114g 7.7lb	Polyester Nylon	CE A	-	16 KM	-
	Argiope Evo Blue, Berry	FTC TREE		£4.05 $5.15 $1.60 €4.65	11.7mm 29/64"	103g 6.9lb	Polyester Polyester	CE A	0.7	16	■ ■
	Nigma	FTC TREE		£3.20 $4.00 $1.25 €3.60	12mm ½"	105g 7lb	Polyester Polyester	CE A	1	24 DB	■ ■
	Argiope Acid	FTC TREE		£4.50 $5.50 $1.70 €5.00	12.1mm ½"	104g 7lb	Polyester Nylon	CE A	0.87	16	■ ■
	GeoStatic NE	GLEISTEIN		£2.40 $3.00 $1.00 €2.70	10.5mm 13/32"	67g 4.5lb	Polyester Polyester	CE A	-	32 KM	■
	GeoArbor Lizard Golden Viper	GLEISTEIN		£2.70 $3.50 $1.10 €3.10	11mm 7/16"	82g 5.5lb		CE A	-	DB	■
	GeoArbor Twin	GLEISTEIN		£4.00 $5.00 $1.55 €4.50	12mm ½"	90g 6lb	Nylon Nylon	CE A	-	24 DB	-
	GeoTwin Gemini X	GLEISTEIN		£5.20 $6.55 $1.85 €6.00	12mm ½"	100g 6.7lb	Polyester Polyester	CE A	-	24 DB	■ ■
	GeoArbor Cougar Cobia, Barracuda	GLEISTEIN		£4.75 $5.90 $1.85 €5.35	12mm ½"	88g 5.9lb	Polyester Polyester	CE A	-	16 KM	■ ■

ARBORIST CLIMBING ROPES

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EYE CAN THREAD THRU HARDWARE	HYBRID HARDWARE	SRT/SRS MRS/DdRT	MBL MINIMUM Break Load Spliced Sewn Knotted	ABL AVERAGE Break Load Spliced Sewn Knotted			@10% MBS @50-150 kg @300LB/136K @540 lb/245kg				
■	■	■ ■	25kN 5620lbf 16kN 3597lbf	-	0	-	2.1%	55%		Web-eye termination is virtually the same diameter as rope.	edelrid.de
-	■	■	40kN 8992lbf 22kN 4946lbf	-	0.8%	-	1.9%	47%		Made from recycled yarn	edelrid.de
-	-	■	25kN 5620lbf 23/16kN 5171/3597lbf	-	-	-	2.2%	65%		red/yelw is 'highlight' a Freeworker exclusive colour	edelrid.de
-	-	■	33kN 7400lbf 18.9kN 4249lbf	-	1.2%	-	2.4%	56%		Sheath is 100% recycled material	edelrid.de
-	-	■ ■	22.4kN 5036lbf	-	2.5%	-					englishbraids.com
■	-	■ ■	31.6kN 7104lbf 25.6kN 5755lbf	-	2.5%	-	2.8%	49%		Model sometimes listed by stockists as 11.7	englishbraids.com
-	-	■	30.4kN 2960lbf 24.1kN 5418lbf	-	0	-	-	-			englishbraids.com
-	-	■ ■	37.4kN 8408lbf 25.4kN 5710lbf	-	0	-	-	-			englishbraids.com
■	■	■ ■	28.9kN 6497lbf 22.12kN 4973lbf	-	1%	0%	2.8%	68%		Original Berry colour discontinued.Evo replaces previous version which had nylon core	ftc-tree.com
■	■	■ ■	35kN 7868lbf 21.9kN 4923lbf	-	1.4%	0%	3.4%	55.7%			ftc-tree.com
-	-	■	34kN 7643lbf 15kN 3372lbf	-	2.8%	0.4%	2.4%	67%			ftc-tree.com
-	-	■	28.8kN 6474lbf 15kN 3372lbf	-	0.6%	0%	2.9%	56.3%			gleistein.com
■	-	-	33kN 7419lbf	-	1.5%	4.5%	4.3%	54%		Has water-repellant treatment	gleistein.com
-	-	■	34.2kN 7693lbf	-	1.6%	0%	3.4%	52%			gleistein.com
-	-	■	32kN 7194lbf 30.6kN 6879lb	-	-	-	2%	-		Sport version (yachting) has mottled sheath - black mixed with red, blue, green or white.	gleistein.com
-	-	■	29.4kN 6609lbf	-	1.7%	0%	2.6%	69%		Cobia and Barracuda appear to be discontinued?	gleistein.com

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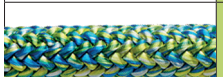
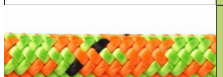
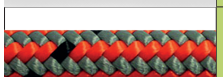
	Trojan	HARKIE		£3.15 $4.00 $1.25 €3.65	11.7mm 29/64"	105g 7lb	Polyester Polyester	CE A	-	24 DB	■
	Warrior	HARKIE		£3.15 $4.00 $1.25 €3.65	12mm ½"	109g 7.3lb	Polyester Polyester	CE A	-	16	■
	Climbing Rope	HUSQVARNA		£7.00* $8.90 $2.71 €8.10	11.5mm 7/16"	94g 6.3lb	Polyester Nylon	CE A ANSI	-	24 DB	■ ■
	Climbing Rope	HUSQVARNA		£5.10 $6.60 $2.00 €6.00	11.8mm 15/32"	96.5g 6.5lb	Polyester Nylon	CE A ANSI	-	32 KM	■
	Stryka	HUSQVARNA		£4.50 $5.50 $1.70 €5.10	11.5mm 7/16"	92.4g 6.2lb	Polyester Nylon	CE A ANSI		24 DB	■
	Kalix	HUSQVARNA		£4.75 $6.00 $1.85 €5.50	12.9mm ½"	118g 7.9lb	Polyester Nylon	CE A ANSI		16	■
	Safe Nordic	LIROS		£2.40 $3.50 $1.10 €2.75	11.5mm 7/16"	80g 5.4lb	Nylon Nylon	CE A	1	32 DB	■
	Safe Plus	LIROS		£3.25 $4.00 $1.25 €3.50	11.5mm 7/16"	100g 6.7lb	Polyester Nylon	CE A	-	32 DB	■
	Safe Vision (Reef)	LIROS		£3.70 $4.65 $1.45 €4.25	11.8mm 15/32"	82g 5.5lb	Polyester Nylon	CE A	0.7	24 DB	■ ■■
	Safe Vision	LIROS		£4.50 $5.50 $1.70 €5.00	12.8mm ½"	102g 6.8lb	Polyester Nylon	CE A		24 DB	■ ■■
	Maverick	MARLOW ROPES		£6.00 $7.50 $2.30 €7.00	11.5mm 7/16"	93g 0lb	Polyester Nylon	CE A UKCA	- -	24 KM	■ ■
	Vega	MARLOW ROPES		£3.10 $4.50 $1.40 €3.60	11.7mm 29/64"	101g 6.8lb	Polyester Polyester	CE B UKCA	0.9 10	24 KM	■ ■■
	Venom	MARLOW ROPES		£3.55 $4.90 $1.50 €4.10	11.8mm 15/32"	89.7g 6lb	Nylon Nylon	CE A UKCA	0.6	24 DB	■ ■■
	Vesper	MARLOW ROPES		£4.45 $5.60 $1.70 €5.10	11.8mm 15/32"	107.9g 7.2lb	Polyester Polyester	CE A UKCA	1.0	24 DB	■ ■■
	Typhoon	MARLOW ROPES		£TBA $TBA $TBA €TBA	12.2mm ½"	110g 7.2lb	Polyester Polyester	CE A UKCA		16 KM	■ ■
	Gecko2 Blue Ocean*	MARLOW ROPES		£4.55 $5.75 $1.80 €5.30	13mm ½"	125.4g 8.4lb	Polyester Polyester	CE A UKCA ANSI	0.8	16	■ ■■

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EYE CAN THREAD THRU HARDWARE	HYBRID HARDWARE	SRT/SRS MRS/DdRT	MBL MINIMUM Break Load Spliced Sewn Knotted	ABL AVERAGE Break Load Spliced Sewn Knotted			@10% MBS @50-150 kg @300LB/136K @540 lb/245kg				
■	-	■ ■	28.8kN 6474lbf 15kN 3372lbf	-	0.6%	0	2.9%	56.3%			harkieglobal.com
■	-	■ ■	27.7kN 6227lbf 15kN 3372lbf	-	0.35%	0	2.6%	60%			harkieglobal.com
-	■	■ ■	24kN 5395lbf 18/18kN 4047/4047lbf	-	<5%	-	2.2%	58%		*price includes one spliced eye - not available without	husqvarna.com
-	■	■ ■	35kN 7868lbf 18/20kN 4047/4496lbf	-	-	-	2.3%	42%			husqvarna.com
-	■	■ ■		34kN 7643lbf	-	-	3.8%	-			husqvarna.com
-	-	■	36.7kN 8260lbf 24kN 5395lbf	28.9kN 6497lbf	-	-	4.6%	-			husqvarna.com
-	■	■	34kN 7643lbf 22kN 4946lbf	-	-	0%	3.8%	46%			liros.com
-	■	■	46.4kN 10431lbf	-	-	-	1.5%	54%		may be discontinued?	liros.com
-	■	■ ■	37kN 8318lbf 29/24kN 6520/5395lbf	-	-	-	2.5%	54%		Branded as 'Reef' by Honey Brothers UK. Listed as 12mm by some	liros.com
-	-	■ ■	45kN 10116lbf 33/30kN 7400/6744lbf	-	-	-	2.2%	51%		Listed as 13mm by some	liros.com
■	■	■ ■	35kN 7868lbf 18.8/22.9kN 4226/5148lbf	35.7kN 8025lbf 23.3kN 5148lbf	0	-	2.5%	52%		New for 2024	marlowropes.com
-	■	■	-	36.8kN 8273lbf 18.9/20.6kN 4249/6755lbf	0	-	1.2%	55.6%		ABL Sewn= 27.8kN 6250 lbf	marlowropes.com
■	■	■ ■	-	33.5kN 7531lbf 17.7/26.2kN 3979/5890lbf	4.5%	0	3.7%	42%		ABL Sewn= 28.3kN 6362 lbf	marlowropes.com
■	■	■ ■	-	20.7kN 4654lbf 16.4/20.3kN 3686/4563lbf	0	-	2.2%	52%		ABL Sewn= 24.9kN 5597 lbf Electric pink is a RockNRescue (USA) special.	marlowropes.com
■	■	■	32.8kN 7868lbf 19.1/22.9kN 4293/5148lbf	20.7kN 4654lbf			1.5%	76%		New for 2024	marlowropes.com
■	-	■	-	32.1kN 7216lbf 18.4/28.3kN 4136/6362lbf	0	0	1.5%	73%		*Uses recycled blue-Ocean yarn ABL Sewn= 27kN 6069 lbf	marlowropes.com

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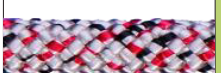
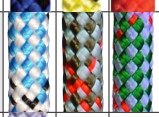
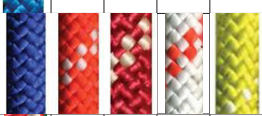
	Response LSK	NOVABRAID		n/a	11.7mm 29⁄64"	107g 7.2lb	Polyester Nylon	CE A ANSI	-	48 KM	■
	Arborist 24 Yellow Jacket	PELICAN ROPE		£3.30 $4.00 $1.20 €3.75	11mm 7⁄16"	83.5g* 5.6lb	Polyester Nylon			24	■ ■■
	Arborist Pro	PELICAN ROPE		£3.60 $4.40 $1.35 €4.10	11.8mm 15⁄32"	119g 8lb	Polyester Nylon			24	■
	Tree Viper	PELICAN ROPE		£3.80 $3.45 $1.05 €3.25	11.8mm 15⁄32"	84.8g 5.7lb	Polyester Nylon	CE A ANSI	-	24	■■
	Arborist 16	PELICAN ROPE		£3.10 $3.75 $1.15 €3.50	12.7mm ½"	125g 8.4lb	Polyester Nylon			16	■ ■■
	FLOW (mk2)	PETZL		£4.30* $5.35 $1.65 €5.30	11.8mm 15⁄32"	103g 6.8lb	Polyester Polyester	CE A ANSI	-	24 DB	■ ■
	CONTROL (mk2)	PETZL		£4.10 $5.00* $1.65* $5.70	12.5mm ½"	115g 7.7lb	Polyester Polyester	CE A ANSI	-	24 DB	■ ■
	Access Pro	PMI		£3.40 $4.15 $1.30 €3.90	11mm 7⁄16"	84g 5.6lb	Polyester Nylon	CE A NFPA	1.1	32 KM	
	EZ Bend 11	PMI		£3.30 $4.00 $1.25 €3.75	11mm 7⁄16"	80g 5.4lb	Nylon Nylon	CE A CI NFPA ANSI BERRY	0.9	16 KM	
	Extreme Pro	PMI		£3.30 $4.00 $1.25 €3.75	11mm 7⁄16"	100g 6.7lb	Polyester Nylon	ANSI NFPA		32 KM	■
	Patriot	PMI		£4.20 $5.20 $1.60 €4.85	11mm 7⁄16"	80g 5.4lb	Nylon Nylon	CE A CI NFPA ANSI BERRY	0.9	16 KM	-
	Isostatic 11.5	PMI		£4.00 $4.50 $1.40 €4.20	11.5mm 7⁄16"	96g 6.4lb	Polyester Polyester	ANSI NFPA		32 KM	-
	EZ Bend 12.5	PMI		£4.30 $5.30 $1.65 €5.00	12.5mm ½"	107g 12.74lb	Nylon Nylon	CE CI ANSI NFPA	-	16 KM	-
	Isostatic 13	PMI		£4.75 $6.00 $1.80 €5.55	13mm ½"	125g 8.4lb	Polyester Polyester	ANSI NFPA	-	32 KM	-
	Mercury CE	SAMSON ROPE		£3.00 $3.75 $1.15 €3.50	11mm 7⁄16"	89g 6lb	Polyester Nylon	CE A	8	32 KM	-
	V-24 Cool, Hot	SAMSON ROPE		£3.00 $3.75 $1.15 €3.50	11mm 7⁄16"	85g 5.9lb	Polyester Nylon	CE B	-	24 DB	■ ■

ARBORIST CLIMBING ROPES

SUITABLE FOR			MINIMUM BREAKING LOAD/STRENGTH		SHRINKAGE %	SHEATH SLIPPAGE (MILKING) %	ELONGATION %	SHEATH %	OTHER COLOURS	NOTES	WWW.
EYE CAN THREAD THRU HARDWARE	HYBRID HARDWARE	SRT/SRS MRS/DdRT	MBL MINIMUM Break Load Spliced Sewn Knotted	ABL AVERAGE Break Load Spliced Sewn Knotted			@10% MBS @50-150 kg @300LB/136K @540 lb/245kg				
-	■	■	23.86kN 5360lb 43.6kN 9801lbf	-	-	-	2.8%	-		'Response LSK' is a name used by two other companies. Also 11& 10.5mm see Rope Eqpt-BUYERSGUIDE	novabraid.com
-	-	■	31.1k 7000lbf 24kN 5400lbf	-	-	-	5%	-		*conflicting wt data on some sites & data sheets	pelicanrope.com
■	■	■	31kN 7000lbf 24kN 5400lbf	-	-	0	-	-			pelicanrope.com
■	■	■■	-	28kN 6300lb	-	-	-	-			pelicanrope.com
-	-	■	32.4k 7150lbf 24kN 5400lbf	-	-	-	-	-			pelicanrope.com
■	■	■■	27kN 6000lbf 15/15kN 3372/3372lbf	-	-	-	2.7%	53%		*Only available with eye Mk1=11.6mm, mk2=Better compatibility with ZigZag	petzl.com
■	■	■	30kN 6744lb-f15/19kN 3372/4271lbf	-	-	-	3.1%	62%		*Only available with eye(s) FF 0.3 Impact force 5.2kN. 8x FF1 falls	petzl.com
-	-	■	31.1kN 7000lbf	-	1.8%	1.6%	7.2% 3.4% 5.8%	49.7%			pmirope.com
-	■	■■	32.7kN 7209lbf	-	3.2%	-	3.4-4.4% 1.6%	50.4%		Also solid blue and solid red (no fleck)	pmirope.com
-	■	■	42.9kN 9644lbf	-	2%	0	4.7% 1.3%	-		intertwined sheath & core	pmirope.com
-	■	■■	32.7kN 7209lbf	-	3.2%	0.1%	3.9%	50.4%		variant of EZ Bend	pmirope.com
-	■	■	32.8kN 7388lbf	-	-	0	1.44-2.2% 1%	-			pmirope.com
			-	-	-	-	-	-		Also in solid black	pmirope.com
-	-	■	45.9kN 10319lbf	-	-	0	1.44-2.2% 1.2%	-			pmirope.com
-	■	■	38.25kN 8600lbf	-	-	-	3.7%	-		Heat stabilised nylon core	samsonrope.com
	■	■	28kN 6294lb	-	-	-	2.9%	-		CE=Unspliced only	samsonrope.com

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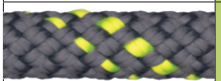
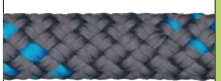
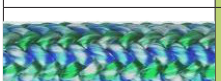
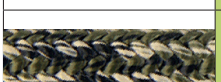
INCLUDES local taxes/VAT.
£$€=Currency Conversion
If not sold by m/ft, price is shortest length x10% & rounded up.
●=OK but not ideal
DB=Double Braid
KM=Kernmantle
Tying 10=hardest to tie

	MODEL VARIANT Product Code	COMPANY	ORIGIN	COST per Metre /3.28ft US$ per Foot	Ø mm Inches"	WEIGHT g/m lb/100'	MATERIALS SHEATH CORE	STANDARDS	NUMBER OF FALLS EASE of TYING Sherrill Rating	SHEATH OUTER STRANDS	SPLICEABLE PRE-SPLICED PRE-SEWN
	Velocity Cool, Hot Velocty SD*	SAMSON ROPE		£3.20 $3.95 $1.20 €3.65	11mm 7/16"	83g 5.6lb	Polyester Nylon	CE A	10	24 DB	-
	Predator Predator-X	SAMSON ROPE		£3.40 $4.25 $1.35 €3.90	11mm 7/16"	83.5g 5.6lb	Polyester Nylon	-	-	24 DB	■ ■
	HyperStatic	SAMSON ROPE		£2.70 $3.60 $1.10 €3.30	11.3mm 7/16"	106g 7.1lb	Polyester Polyester	-	-	32 KM	-
	HyperStatic	SAMSON ROPE		£2.90 $3.65 $1.15 €3.35	11.7mm 29/64	106g 7.1lb	Polyester Polyester	-	-	32 KM	-
	Hyperclimb Hot,Cool	SAMSON ROPE		£2.70 $3.30 $1.00 €3.10	11.7mm 29/64"	97g 6.5lb	Polyester Polyester	-	-	24 DB	-
	Voyager Voyager SD* Cool, Tangent	SAMSON ROPE		£3.65 $4.45 $1.35 €4.00	11.8mm 15/32"	97g 6.5lb	Polyester Nylon	-	10	24 DB	■ ■■
	ArborFreak ArborFreak SD* Pine, Danube, Redwood	SAMSON ROPE		£3.10 $3.90 $1.20 €3.30	12mm ½"	115g 7.7lb	Polyprop/Polyester Nylon	-	-	16	■ ■
	V-24 Cool, Hot	SAMSON ROPE		£3.25 $4.05 $1.30 €3.75	12mm ½"	100g 6.7lb	Polyester Nylon	CE A	-	24 DB	■ ■
	True... Blue, White	SAMSON ROPE		£2.65 $3.30 $1.00 €3.05	12mm ½"	131g 8.8lb	Polyester -	-	-	12	■
	Arbor-Plex	SAMSON ROPE		£2.10 $2.55 $0.80 €2.35	12mm ½"	101g 6.88lb	Polypropylene/ Polyester -	-	-	12	■
	Ascender	SAMSON ROPE		£2.65 $3.30 $1.00 €3.05	12mm 15/32"	109g 7.3lb	Polyester Nylon	-	10	16	■ ■■
	Hyperstatic	SAMSON ROPE		£4.00 $5.00 $1.54 €4.60	12.5mm ½"	121g 8.1lb	Polyester Polyester	-	-	32 KM	-
	Vortex Vortex SD*	SAMSON ROPE		£3.40 $4.25 $1.30 €3.90	12.7mm ½"	113g 7.6lb 7.9lb	Polyester Nylon	-	10	24 DB	■ ■
	V-16 Hot,Cool	SAMSON ROPE		£3.40 $4.25 $1.30 €3.90	12.8mm ½"	110g 7.4lb	Polyester Nylon	CE A	-	16	-
	V-24 Cool, Hot	SAMSON ROPE		n/a	13mm ½"	112g 7.5lb	Polyester Nylon	CE A	-	24 DB	■ ■
	PREDATOR PREDATOR-X	SAMSON ROPE		n/a	13mm ½"	119g 8lb	Polyester Nylon	-	-	24 DB	■ ■

ARBORIST CLIMBING ROPES

SUITABLE FOR			MINIMUM BREAKING LOAD/STRENGTH		SHRINKAGE %	SHEATH SLIPPAGE (MILKING) %	ELONGATION %	SHEATH %	OTHER COLOURS	NOTES	WWW.
EYE CAN THREAD THRU HARDWARE	HYBRID HARDWARE	SRT/SRS MRS/DdRT	MBL MINIMUM Break Load Spliced Sewn Knotted	ABL AVERAGE Break Load Spliced Sewn Knotted			@10% MBS @50-150 kg @300LB/136K @540 lb/245kg				
	■	■	-	33kN 7400lb 27kN 6000lb	-	-	3%	-		*with DRY treatment to restrict water uptake.	samsonrope.com
	■	■	-	27kN 6000lb	-	-	2.1%	-			samsonrope.com
-	■	■	28.5kN 6400lb	-	-	-	1.2%	-		Very tough, low stretch rope more suited for rescue or ziplines	samsonrope.com
-	■	■	-	30.25kN 6800lb	-	-	1.2%	-		Very tough, low stretch rope more suited for rescue or ziplines	samsonrope.com
-	■	■■	32kN 7193lbf	28.9kN 6500lbf	-	-	1.6% 1.3%	50%		Sold by Bartlett as the green Antidote.	samsonrope.com
■	■	■	43kN 9667lbf	41.8kN 9400lbf 36kN 8000lbf	-	*	3% 1.99%	50%		Sold by Bartlett as the green BioHazard. *with DRY treatment to restrict water uptake	samsonrope.com
-	-	■■		36.28kN 8157lbf	-	-	3%	-		*with DRY treatment to restrict water uptake. Replaced ARBORMASTER	samsonrope.com
-	■	■	32kN 7193lbf	-	-	-	2.9%	-		CE=Unspliced only *there is a slight difference between kg/lb and KN/lbf	samsonrope.com
-	-	■	32.5kN 7306lbf	-	-	-	2.6%	-			samsonrope.com
-	-	■	32kN 7100lbf	-	-	-	3%	-			samsonrope.com
-	-	■■	-	29kN 6800lbf	-	-	2.1%	-			samsonrope.com
-	■	■	32kN 7200lbf	-	-	-		-			samsonrope.com
-	-	■■	46kN 10341lbf	36kN 8000lbf	-	-	3%	-		*with DRY treatment to restrict water uptake	samsonrope.com
-	■	■■	36kN 8093lbf	-	-	-	3%	-		Discontinued?	samsonrope.com
-	■	■	-	33kN 7418lbf	-	-	2.9%	-		Discontinued?	samsonrope.com
-	■	■	-	36.5kN 8200lbf	-	-	2.1%	-			samsonrope.com

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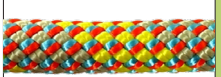
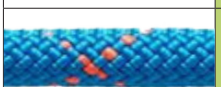
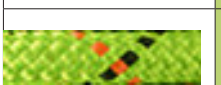
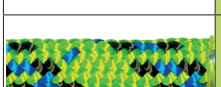
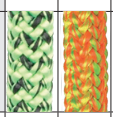
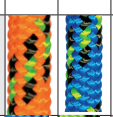
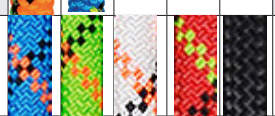
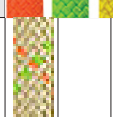
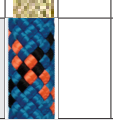
●=OK but not ideal DB=Double Braid KM=Kernmantle Tying 10=hardest to tie

	MODEL VARIANT Product Code	COMPANY	ORIGIN	COST per Metre /3.28ft US$ per Foot	Ø mm Inches"	WEIGHT g/m lb/100'	MATERIALS SHEATH CORE	STANDARDS	NUMBER OF FALLS EASE of TYING Sherrill Rating	SHEATH OUTER STRANDS	SPLICEABLE PRE-SPLICED PRE-SEWN
	IVY Silver Ivy, Tango Ivy, Midnight Ivy	SAMSON ROPE SHERRILL TREE		£3.05 $3.80 $1.15 €3.50	11.7mm ½"	102g 6.8lb	Polyester Polyester	-	10	24 DB	■ ■
	Tilia L0460	SINGING ROCK		£4.00 $4.40 $1.35 €3.95	11.5mm 7/16"	90g 6lb	Polyester Nylon	CE A UIAA	-	KM	■ ■
	Cougar LSK	SOUTHERN ROPES		£1.55 $2.00 $0.60 €1.80	11.7mm 29/64"	93g 6.25lb	Polyester Polyester	CE A ANSI	10	24 DB	■ ■
	Dragon	STERLING ROPE originally branded NOTCH		£3.40 $4.25 $1.30 €3.90	11.1mm 7/16"	81g 5.4lb	Polyester Nylon		5	32 KM	
	Banshee	STERLING ROPE originally branded NOTCH		£3.30 $4.00* $1.25* €3.75	11.7mm 7/16"	95g 6.4lb	Polyester Nylon	-	10	24 DB	■ ■
	Ogre	STERLING ROPE originally branded NOTCH		£3.25 $3.95 $1.20 €3.70	12mm ½"	113g 7.6lb	Polyester Polyester		9	12 KM*	■ ■
	Sasquatch	STERLING ROPE originally branded NOTCH		£2.50 $3.00 $1.00 €2.80	12.8mm ½"	112g 7.5lb	Polyester Nylon		9	16	■ ■
	HTP Addiction	STERLING ROPE		£4.00 $4.75 $1.45 €4.60	11mm 7/16"	97g 6.5lb	Polyester Polyester	ANSI NFPA	8	32 KM	■
	Work Pro	STERLING ROPE		£3.90 $4.60 $1.45 €4.50	11mm 7/16"	83.5g 5.6lb	Polyester Nylon	CE A ANSI NFPA	8	KM	-
	TriTech	STERLING ROPE		£11.00 $13.10 $4.00 €12.00	11mm 7/16"	96g* 6.5lb	Technora/ Spectra Nylon	CE A ANSI NFPA	-	KM	■
	Scion Arbor	STERLING ROPE		£3.60 $4.75 $1.45 €4.50	11.5mm 7/16"	91g 6.2lb	Polyester Nylon	CE A ANSI	10	24 DB	■ ■
	Work Pro	STERLING ROPE		£4.40 $5.40* $1.65* €5.10	12.5mm ½"	110g 7.4lb	Polyester Nylon	CE A ANSI NFPA	7	KM	-
	HTP	STERLING ROPE		£4.95 $6.10* $1.90* €5.75	12.5mm ½"	119g 8lb	Polyester Polyester	ANSI NFPA	-	32 KM	■
	Tech HTP 11	STERLING ROPE		£8.50 $10.00 $3.30 €9.85	11mm 7/16"	88g 5.9lb	Technora Nylon	CE A NFPA	-	32 KM	-
	Scion Arbor	STERLING ROPE		£4.20 $5.30 $1.60 €4.90	12.5mm ½"	107g 7.2lb	Polyester Nylon	CE A ANSI	10	24 DB	■ ■

ARBORIST CLIMBING ROPES

SUITABLE FOR			MINIMUM BREAKING LOAD/STRENGTH				ELONGATION %		OTHER COLOURS	NOTES	WWW.
EYE CAN THREAD THRU HARDWARE	HYBRID HARDWARE	SRT/SRS MRS/DdRT	MBL MINIMUM Break Load Spliced Sewn Knotted	ABL AVERAGE Break Load Spliced Sewn Knotted	SHRINKAGE %	SHEATH SLIPPAGE (MILKING) %	@10% MBS @50-150 kg @300LB/136K @540 lb/245kg	SHEATH %			
-	-	■■	29kN 6520lbf	-	-	-	1.3%	-			samsonrope.com sherrilltree.com
■	■	■■	30kN 6744lbf 18/15kN 4047/3372lbf	-	1%	0.5%	3%	-			singingrock.com
■	■	■	28kN 6300lbf	-	1.5%	0	<3.0%	-		See also ROPE EQPT BUYERS GUIDE for Response LSK ropes	southernropes.com
	■	■	39.1kN 8800lbf	-	-	-	1.6%	51%		Originally a '*Notch*' brand rope transitioned back to manufacturer *Sterling*	sterlingrope.com
■	-	■	37.1kN 8340lbf 28kN 6300lbf	-	-	-	2.1%	54%		Semi-reflective Gold fleck thread. Originally a '*Notch*' brand	sterlingrope.com
		■	29.8kN 6700lbf	-	-	-	1.6%	98%		*Not a conventional kernmantle but is unusual in being a 12-braid sheath over a parallel fibre core	sterlingrope.com
■		■■	35kN 7868lbf	-	-	-	3.4%	72%		Originally a '*Notch*' brand rope transitioned back to manufacturer *Sterling*	sterlingrope.com
-	■	■	30.5kN 6856b	-	-	-	3.4% 1.9%	-		Also available in White with black fleck. Addiction=special colour	sterlingrope.com
-	-	■■	36kN 8092lbf	-	-	0.9%	3.6%	-			sterlingrope.com
-	-	■	37kN 8140lbf 24.1kN 5418lb	-	-	0.9%	2.8% 1.9%	-		cut-resistant twin sheath- for lanyard climbing/ flip-lines rather than full length climbing rope. *approx	sterlingrope.com
■	■	■■	30kN 6744lbf 25.5kN 5732lbf	-	3.8%	0.3%	3.8% 1.5% 4%	-			sterlingrope.com
-	■	■■	45kN 10116lbf	-	-	-	2.2%	-		*white rope= less 8%	sterlingrope.com
-	-	■	40.4kN 9081lb	-	-	-	2.6% 1.1%	-		*white rope= less 8%	sterlingrope.com
-	■	●■	40.1kN 9014lbf	-	-	-	3.6%	-		Cut & heat resistant	sterlingrope.com
■	■	■■	32kN 7193lbf 27.2kN 5732lbf	-	-	0.5%	4.2% 1.7%	-		Element=DISCONTINUED	sterlingrope.com

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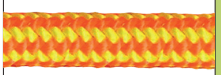
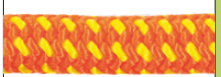
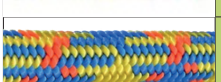
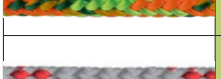
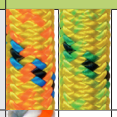
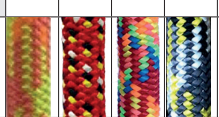
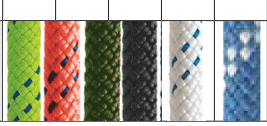
£$€=Currency Conversion
If not sold by m/ft, price is shortest length x10% & rounded up.

●=OK but not ideal
DB=Double Braid
KM=Kernmantle
Tying 10=hardest to tie

	MODEL VARIANT Product Code	COMPANY	ORIGIN	COST per Metre /3.28ft US$ per Foot	Ø mm Inches"	WEIGHT g/m lb/100'	MATERIALS SHEATH CORE	STANDARDS	NUMBER OF FALLS EASE of TYING Sherrill Rating	SHEATH OUTER STRANDS	SPLICEABLE PRE-SPLICED PRE-SEWN
	ACR-24 Acuda, Mantra, Outback	STEIN		£4.40 $5.50 $1.75 €5.10	11.7mm 29/64"	98g 6.6lb	Polyester Nylon	CE A	-	24 DB	■ ■
	ACR-16 Scorpius, Utility	STEIN		£5.45 $6.75 $2.05 €6.35	12.4mm ½"	98g* 6.6lb	Polyester Polyester	CE A	-	16 KM	■ ■
	Timber Evo	TENDON (LANEX)		£2.70 $3.60 $1.15 €3.20	11mm 7/16"	88g 5.91lb	Polyester Nylon	CE A	-	24 DB	■ ■
	Timber Evo	TENDON (LANEX)		£2.80 $3.55 $1.10 €3.25	11.5mm 7/16"	90g 6lb	Polyester Nylon	CE A	-	24 DB	■ ■
	Timber Evo	TENDON (LANEX)		£3.80 $4.85 $1.50 €4.40	12.5mm ½"	104g 7 lb	Polyester Nylon	CE A	-	24 DB	■
	Arbor Elite	TEUFELBERGER		£3.90 $5.00 $1.55 €4.55	12.7mm ½"	105.6g 7.1lb	Polyester Nylon	CE A	0.56	16	-
	Braided Safety Blue Ultra Vee, Hi Vee, T-Vee, White	TEUFELBERGER		£4.35 $5.80 $1.80 €5.30	12.7mm ½"	105.6g 7.1lb	Polyester Nylon	ANSI	0.56 10	16	■
	Chameleon	TEUFELBERGER		£2.40 $3.20 $1.00 €2.80	10.5mm 13/32"	72g 4.84lb	Nylon Nylon	CE A		32 KM	-
	Chameleon	TEUFELBERGER		£2.60 $3.40 $1.10 €3.10	11mm 7/16"	75g 5.04lb	Nylon Nylon	CE A		32 KM	-
	charityLINE	TEUFELBERGER		£3.50 $4.55 $1.40 €4.75	11.8mm 15/32"	96.5g 6.5lb	Polyester Nylon	CE A ANSI	0.8 7	32 KM	■
	drenaLINE*	TEUFELBERGER		£3.50 $4.55 $1.40 €4.75	11.8mm 15/32"	96.5g 6.5lb	Polyester Nylon	CE A ANSI	0.8 7	32 KM	■
	Fly Firefly, Dragonfly	TEUFELBERGER		£5.20 $5.30 $1.60 €6.00	11.1mm 7/16"	87g 5.9lb	Polyester Nylon	CE A ANSI	0.5 10	24 KM	■ ■■
	Gravity	TEUFELBERGER		£3.45 $4.65 €3.95	11.5mm 7/16"	95g 6.44lb	Polyester Nylon/Poly-ester	EN 1891 A ANSI Z133	-	24 DB	■ ■
	KM G	TEUFELBERGER		£3.90 $5.25 €4.50	11mm 7/16"	85.4g 5.74lb	Polyester Nylon	NFPA 2500	-	32 KM	■
	KM Pro	TEUFELBERGER		£1.05 $1.40 €1.20	11mm 7/16"	86g 5.78lb	Polyester Nylon	EN 1891A CI 1801	-	32 KM	
	KMIII KMII Max	TEUFELBERGER /MAXIM		£3.60 $4.40 $1.35* €4.15	10.5mm 13/32"	84g 5.65lb	Polyester Nylon	CE A NFPA	7	32 KM	

ARBORIST CLIMBING ROPES

SUITABLE FOR			MINIMUM BREAKING LOAD/STRENGTH		SHRINKAGE %	SHEATH SLIPPAGE (MILKING) %	ELONGATION %	SHEATH %	OTHER COLOURS	NOTES	WWW.
EYE CAN THREAD THRU HARDWARE	HYBRID HARDWARE	SRT/SRS MRS/DdRT	MBL MINIMUM Break Load Spliced Sewn Knotted	ABL AVERAGE Break Load Spliced Sewn Knotted			@10% MBS @50-150 kg @300LB/136K @540 lb/245kg				
■	■	■ ■	>22kN 4946lbf 15/15kN 3372/3372lbf	-	-	-	-	-		MBL Sewn= 15kN 3372lbf	steinworldwide.com
■	-	■	25kN 5620lbf 15/15kN 3372/3372lbf	-	-	-	-	-		* 12.4mm 16 braid =same wt as 11.7mm 24DB MBL Sewn= 15kN 3372lbf	steinworldwide.com
-	-	■ ■	30kN 6744lbf	18kN 4047lbf	0.7%	0	3.1%	57%		Embedded RFID chip	mytendon.com
-	■	■ ■	30kN 6744lbf	18kN 4047lbf	1%	-	3%	54%		Evo replaced the original 'Timber green' Embedded RFID chip	mytendon.com
-	-	■ ■	39kN 8598lbf	22kN 4946lbf	0.6%	0	3%	48%		Embedded RFID chip	mytendon.com
-	-	■	25.8kn 5800lbf 23.5/24kN 5290/5400lbf	-	-	-	3%	79%		DISCONTINUED	teufelberger.com
-	-	■	25.8kN 5800lb 23.5kN 5290lbf	-	<5%	-	3%	82%		Blue core shows through when sheath is abraded	teufelberger.com
-	-	■ ■	32kN 7190lbf 18/26kN 4047/5845lbf	-	4%	-	3%	46%		Same colours for both rope diameters. Ropes use recycled unused rope	teufelberger.com
-	-	■ ■	33kN 7415lbf 18/27kN 4047/6069lbf	-	4%	-	3%	35%		Same colours for both rope diameters. Ropes use recycled unused rope	teufelberger.com
■	■	■ ■	35kN 7868lbf 18/16.5kN 4047/3709lbf	-	<5%	-	2.3% 2.3%	58%		Profits go to European and US charities	
■	■	■ ■	35kN 7868lbf 18/16.5kN 4047/3709lbf	-	<5%	-	2.3% 2.3%	58%		*+Limited edition colours & some unique to stockists: 'Pink', 'Red', 'Jungle', 'HBROS' Punk & charityLINE	teufelberger.com
■	■	■ ■	26.8kn 6035lbf 15/15kN 3370/3372lbf	-	<5%	-	1.6% 3%	57%			teufelberger.com
		■ ■	33 kN / 7415 lbf 27 kN / 6065 lbf 19 kN / 4270 lbf		0.5	0.5	2%	53		Discontinued	teufelberger.com
		■	42.9kN 9644lbf								teufelberger.com
		■	35 kN / 7865 lbf 30 kN / 6740 lbf 18 kN / 4045 lbf		1.1	0.8	2%	47			teufelberger.com
-	-	■	32.1kN 7215lbf	-	<5%		1.6% 1.4%	48%		KMIII Max has tighter, low friction sheath for improved descent. *White=$1.25/ft	teufelberger.com

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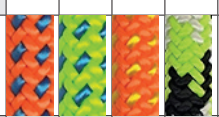
KM=Kernmantle
Tying 10=hardest to tie

	MODEL VARIANT Product Code	COMPANY	ORIGIN	COST per Metre /3.28ft US$ per Foot	Ø mm Inches"	WEIGHT g/m lb/100'	MATERIALS SHEATH CORE	STANDARDS	NUMBER OF FALLS EASE of TYING Sherrill Rating	SHEATH OUTER STRANDS	SPLICEABLE PRE-SPLICED PRE-SEWN
	KMIII KMII Max	TEUFELBERGER /MAXIM		£4.25 $4.90 $1.50* €4.75	11mm 7⁄16"	91g 6.12lb	Polyester Nylon	CE A NFPA		32 KM	
	KMIII KMII Max	TEUFELBERGER /MAXIM		£4.50 $5.55 $1.75* €5.10	12.7/13mm ½"	117.5g 7.9lb	Polyester Nylon	CE A NFPA	-	32 KM	-
	Patron	TEUFELBERGER		£0.90 $1.20 €1.00	9mm 23/64"	51g 3.43lb	Nylon Nylon	EN 1891 B	-	32 KM	■
	Patron	TEUFELBERGER		£0.90 $1.20 €1.00	10mm 3/8"	66g 4.44lb	Nylon Nylon	EN 1891 A	-	32 KM	■
	Patron	TEUFELBERGER		£1.00 $1.35 €1.15	10.5mm 13/32"	72g 4.84lb	Nylon Nylon	EN 1891 A	-	32 KM	■
	Patron	TEUFELBERGER		£1.15 $1.35 €1.00	11mm 7/16"	75g 5.04lb	Nylon Nylon	EN 1891 A	-	32 KM	■
	Patron	TEUFELBERGER		£1.05 $1.40 €1.20	12mm 1/2"	92,3g 6.19lb	Nylon Nylon	EN 1891 A	-	32 KM	■
	Patron Plus	TEUFELBERGER		£1.10 $1.50 €1.25	11mm 7/16"	75g 5.04lb	Nylon Nylon	EN 1891 A	-	32 KM	■
	Patron Tree Access	TEUFELBERGER		£2.65 $3.40 $1.10 €3.00	11mm 7⁄16"	75g 5.04lb	Nylon Nylon	CE A	0.51	32 KM	
	Platinum Arbor Access	TEUFELBERGER		£4.50 $7.00 $2.15 €5.75	10.5mm 13⁄32"	78g 5.2lb	Polyester Nylon	CE A	0.80	32 KM	■
	Tachyon Ash,Lava Surge,	TEUFELBERGER		£3.80 $4.90 $1.50 €4.50	11.5mm	94g 6.3lb	Polyester Nylon/ Polyester	CE A ANSI	0.64 10	24 DB	■ ■
	Xstatic	TEUFELBERGER		£3.80 $4.90 $1.50 €4.50	11.7mm 29⁄64"	105.6g 7.1lb	Polyester Nylon	CE A ANSI	6	32 KM	■
	Nebula/ Liana	TREEHOG BY ARBORTEC		£5.05 $6.40 $1.95 €5.90	11.8mm 15⁄32"	96.5g 6.5lb	Polyester Nylon	CE A	0.8 7	32 KM	■
	Climbing	TREERUNNER (GRUBE)		£4.25 $5.40 $1.70 €4.85	12mm ½"	117g 7.8lb	Polyester Nylon	CE A		24 DB	■
	Picus	TREERUNNER (GRUBE)		£3.60 $5.00 $1.55 €4.45	11.8mm 15⁄32"	96.5g 6.5lb	Polyester Nylon	CE A	0.8	32 KM	■
	Safe +	TREERUNNER (GRUBE)		£2.75 $3.50 $1.10 €3.15	11.5mm 7⁄16"	100g 6.7lb	Polyester Nylon	CE A	1.1	24 DB	-

ARBORIST CLIMBING ROPES

SUITABLE FOR			MINIMUM BREAKING LOAD/STRENGTH				ELONGATION %					
EYE CAN THREAD THRU HARDWARE	HYBRID HARDWARE	SRT/SRS MRS/DdRT	MBL MINIMUM Break Load Spliced Sewn Knotted	ABL AVERAGE Break Load Spliced Sewn Knotted	SHRINKAGE %	SHEATH SLIPPAGE (MILKING) %	@10% MBS @50-150 kg @300LB/136K @540 lb/245kg	SHEATH %	OTHER COLOURS	NOTES	WWW.
-	-	■	33.3kN 7485lbf 30.85kN 6935lbf	-	<5%	-	1.8% 2.2%	45%		KMIII Max has tighter, low friction sheath for improved descent. *White=$1.45/ft	teufelberger.com
-	-	■	43.4kN 9730lbf 36.8kN 8265lbf	-	<5%		1.8% 1.4%	47%		KMIII Max has tighter, low friction sheath for improved descent. *White=$1.50/ft	teufelberger.com
		■	20 kN / 4495 lbf 13 kN / 2920 lbf		3	0.7	3%	41			teufelberger.com
		■	29 kN / 6515 lbf 25 kN / 5620 lbf 16 kN / 3595 lbf		3	0.8	3%	38			teufelberger.com
		■	32 kN / 7190 lbf 26 kN / 5845 lbf 18 kN / 4045 lbf		4	0.8	3%	37			teufelberger.com
		■	33 kN / 7415 lbf 27 kN / 6070 lbf 18 kN / 4045 lbf		4	0.8	3%	36			teufelberger.com
		■	38 kN / 8540 lbf 34 kN / 7640 lbf 24 kN / 5395 lbf		4	0.8	3%	36			teufelberger.com
		■	33 kN / 7415 lbf 27 kN / 6065 lbf 19 kN / 4270 lbf		4.2	0.8	3%	36			teufelberger.com
-	-	■	32kN 7300lbf 18/27kN 4047/6069lbf	-	<5%	-	3%			Discontinued	teufelberger.com
-	■	■	28kN 6290lbf 23/15kN 5170/3372lbf	-	<5%	0	2%			Discontinued	teufelberger.com
-	■	■■	24.45kN 5497lbf 21.85/24kN 4912/5395lbf	-	0.3%	-	2.2%	58%		Double Braid rope. Soft handling.	teufelberger.com
■	■	■	32kN 7194lbf 17kN 3820lbf	-	<5%	-	1.4% 1.5%	54%			teufelberger.com
■	■	■■	35kN 7868lbf 18/16.5kN 4047/3709lbf	-	<5%		2.3% 2.3%	58%			treehog.com
■	■	■■	34.5kN 7755lbf				2%			Tornado discontinued	grube.de
■	■	■■	35kN 7868lbf 18/16.5kN 4047/3709lbf		<5%		2.3% 2.3%	58%			grube.de
-	■	■	22kN 4946lbf	46kN 10341lbf	1.7%		1.5%	46%			grube.de

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DB=Double Braid
KM=Kernmantle
Tying 10=hardest to tie

	MODEL VARIANT Product Code	COMPANY	ORIGIN	COST per Metre /3.28ft US$ per Foot	Ø mm Inches"	WEIGHT g/m lb/100'	MATERIALS SHEATH CORE	STANDARDS	NUMBER OF FALLS EASE of TYING Sherrill Rating	SHEATH OUTER STRANDS	SPLICEABLE PRE-SPLICED PRE-SEWN
	SafeVision	TREERUNNER (GRUBE)		£3.90 $4.45 $1.35 €4.15	11.8mm 15/32"	82g 5.5lb	Polyester Nylon	CE A	0.6	24 DB	■
	Static Climbing	TREERUNNER (GRUBE)		£3.00 $4.00 $1.25 €3.40	11mm 7/16"	80g 5.4lb	Polyester Nylon	CE A	-	32 KM	-
	Static Climbing	TREERUNNER (GRUBE)		£3.00 $3.75 $1.20 €3.40	12mm 1/2"	80g 5.4lb	Polyester Nylon	CE A		32 KM	-
	Tarzan	X-MONSTER		£0.00 $0.00 $0.00 €0.00	11.5mm 7/16"	92g 6.2lb	Polyester Nylon	CE A	19 0.6	24 DB	
	XTC-48 R.I.N.G.	YALE CORDAGE		£14.00 $16.00 $5.00 €15.00	10.5mm 13/32"	92.5g 6.2lb	Polyester/ Technora Nylon	ANSI		48 DB	■
	XTC-24-CE Blaze, Bandit	YALE CORDAGE		£4.50 $3.50 $1.10 €5.20	11mm 7/16"	89g 6lb	Polyester Nylon	CE B ANSI	10	24 DB	■ ■
	XTC-48 Kernmaster Phantom x2, Explore, Scandere x3, Kernmaster Code x2	YALE CORDAGE		£4.40 $4.20 $1.30 €5.10	11mm 7/16"	82/97g 5.5/6.5lb	Polyester Nylon	ANSI		48 KM	■ ■
	XTC-48 BiFrost	YALE CORDAGE		£3.10 $3.85 $1.20 €3.55	11mm 7/16"	90g 6.lb	Polyester Polyester	ANSI		48 KM	■
	XTC-48 R.I.N.G.	YALE CORDAGE		£15.00 $18.50 $6.00 €17.00	11.5mm 7/16"	92.5g 6.2lb	Polyester/ Technora Nylon	ANSI		48 DB	■
	XTC-24 Xylem, ArborMax Gator/Flame	YALE CORDAGE		£4.65 $4.10 $1.25 €4.60	11.7mm 29/64"	97g 6.5lb	Polyester Polyester	ANSI	10	24 DB	■ ■
	XTC-24 Blue Moon,Focus, Prism, Arrow Frog,	YALE CORDAGE		£4.65 $4.10 $1.25 €4.60	11.7mm 29/64"	97g 6.5lb	Polyester Polyester	ANSI	10	24 DB	■ ■
	XTC-24-CE Sunburst, , BlueTongue, Calamine, Energize	YALE CORDAGE		£4.65 $4.10 $1.25 €4.60	11.7mm 29/64"	97g 6.5lb	Polyester Nylon	CE A ANSI	10	24 DB	■ ■
	XTC-24-CE Imori	YALE CORDAGE		£3.10 $3.90 $1.20 €4.00	12mm 1/2"	105g 7lb	Polyester Nylon	CE A ANSI		24 DB	■ ■
	XTC-48 Kernmaster Phantom x2, Explore, Scandere x3, Kernmaster Code x2	YALE CORDAGE		£4.50 $4.50 $1.40 €5.20	13mm 1/2"	113g 7.6lb	Polyester Nylon	CE A ANSI		48 KM	■ ■
	XTC-16 Fire, Spearmint, Plus Poseidon, Salamander	YALE CORDAGE		£3.00 $3.75 $1.15 €4.05	13mm 1/2"	112g 7.5lb	Polyester Nylon	CE A ANSI	10	16	■ ■
	XTC-12 Buzzzline	YALE CORDAGE		£2.10 $2.60 $0.80 €2.40	13mm 1/2"	100g 6.7lb 123g 8lb	Polyester	CE B ANSI	8	12 HB	■

ARBORIST CLIMBING ROPES

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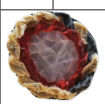
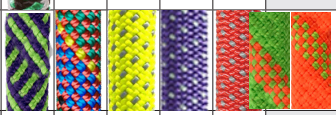
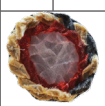
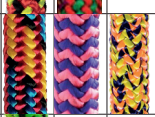
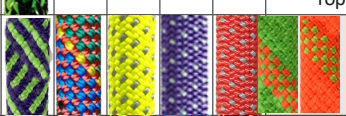
EYE CAN THREAD THRU HARDWARE	HYBRID HARDWARE	SRT/SRS MRS/DdRT	MBL MINIMUM Break Load Spliced Sewn Knotted	ABL AVERAGE Break Load Spliced Sewn Knotted			@10% MBS @50-150 kg @300LB/136K @540 lb/245kg				
-	■	■	37kN 8318lbf 22kN 4946lbf		2.5%		2.5%	54%			grube.de
-	■	■	39kN 8767lbf	-	-	-	2.8%	-			grube.de
-	■	■	39kN 8767lbf				2.8%				grube.de
	■	■	33kN 7500lbf 17/24kN 3800/5400lbf				3.2%				xmonstersafety.com
-	■	■	30kN 6730lbf				2.4%			Red inner braid highlights wear through the outer sheath	yalecordage.com
-	■	■		25kN 5600lbf			2.2%			CE = slightly more elongation than ANSI so better suited to MRS than SRS	yalecordage.com
-	■	■		31.6kN 7104lbf			3%			Scandere uses higher tenacity sheath	yalecordage.com
-	■	■		30kN 6760lbf			1.5%				yalecordage.com
-	■	■		30kN 6730lbf			2.4%			Red inner braid highlights wear through the outer sheath	yalecordage.com
-	■	■■		29.5kN 6600lbf	-	0	1.4%	-		ANSI versions of XTC. Xylem for Pacific NW region. Arbormax Gator/ Flame unique to Baileys.	yalecordage.com
-	■	■■		29.5kN 6600lbf	-	0	1.4%	-		ANSI versions of XTC. Arbormax Gator/Flame unique to Baileys.	yalecordage.com
-	■	■■		29.5kN 6600lbf	-		1.4%	-		CE version of XTC Hedera, Poison Ivy, Poison Hivy, , Neon Ivy discontinued	yalecordage.com
-	■	■		28kN 6200lbf			2%			CE =slightly more elongation than ANSI . Texturised surface makes rope feel larger	yalecordage.com
■	-	■	36kN 7920lbf	40kN 8800lbf			3%			Scandere uses higher tenacity sheath	yalecordage.com
-	-	■		28kN 6200lbf			1.4%			Fire, Posoidon & Salamander around 10% dearer eg.€4.40	yalecordage.com
-	-	■		26.7kN 6000lbf 33kN 7400lbf			1.5%			Single (hollow) braid with no core	yalecordage.com

UPDATED Jul '25

ARBORIST 12-18mm 1/2-3/4" Braided/MultiPlait RIGGING/ LOWERING ROPES

Also known as Bull ropes. We haven't included traditional 3-strand laid ropes - there are just too many and they do not have the same strength, handling and durability of a braided or even multiplait rope but they are a lot cheaper due to simpler construction and lack of colour options. We have a separate guide to high tenacity winch lines which are super-static, many of which can be used for general rigging. We have tried to include entire size ranges of the 'coloured' ropes where possible which might be 5 or even 6 sizes in some cases. Where the number of sizes offered is much larger, which is often the case with the simpler, cheaper white and solid colour multi-plaits, we have limited entries to a maximum of four mid- range ropes that are the 4 commonest sizes offered by European manufacturers:
12mm, 14mm 16mm and 18mm 1/2", 9/16" 5/8" and 3/4"
this gives a reasonable comparison across all brands but we have also included a column to indicate the number and range of other ropes in each series or family of ropes.

Lowering rope or Bull rope is often distinguished from rigging ropes in the USA but are interchangeable terms in other countries so we have differentiated between three distinct 'rigging' activities in the tables. General '**rigging**' and '**static lowering**' require pretty much the same characteristics - low stretch and robust sheath whereas '**impact lowering**' where the rope arrests a free-falling load, requires a greater degree of dynamic absorbency which can be achieved by the rope's own construction being more elastic or by judicious use of dynamic shock absorbency at the impact block and basal lowering devices - usually requiring a skilled ground crew:

• **CLIMBING** Some ropes can be used for both climbing and rigging and/or impact lowering **BUT only use for one or the other**, once a rope has been used for rigging and/or impact lowering it SHOULD NOT BE USED for CLIMBING. We have only listed climbing as a use if it is specifically listed as such by the manufacturer. Most rigging ropes are NOT PPE (for climbing).

• **STATIC RIGGING** 1) **ZIPLINES/Speedlines** very low stretch, where the branches and wood needs to be moved to a precise location away from the tree usually because of an obstruction or structure below or to make onward removal easier. ***Most winch lines in our separate guide suit static rigging tasks.***
2)**Restraint or directional CONTROL** lines where no impact force is applied and low stretch is again an advantage because you are trying to stop the tree falling in a certain direction.

• **LOWERING** lowering of a static load where no impact force has been applied and in technical rope terms a fall factor 0 has been applied eg. the rope is rigged ***and tensioned*** above the load so that it only has to contend with stretch caused by the load itself, not shock or impact force of an arrested falling load. Lowering can impart high frictional loading around branches if cambium/friction savers are not used.

All three of these activities often utilise technical hardware which the gnarlier ropes don't run so smoothly through hence a circle for 'OK but not ideal' in some 'Rigging' columns in the tables.

• **IMPACT LOWERING /NEGATIVE RIGGING** where larger diameter rope (usually >16mm 5/8" rope) is initially used as a fall arrest rope because the arrest point is below the cut rather than above it, typically when **sectioning down larger timber. The rope will be subjected to a shock load** as it arrests the weight of the falling timber. The amount of **shock imparted on the rope is determined by the length of rope available to arrest the falling section and the type of deviation hardware.** In climbing this is known as a fall factor and is given as a fraction of 0, or between 0 and 2 where Fall Factor 2 is the worst case scenario and the highest figure you can 'achieve'. FF0 is the usual situation in limb removal where the rope is anchored (or more usually deviated) above the limb and slack taken in so that when you cut the limb it doesn't actually 'fall' anywhere as much as 'stretch away' from the cut. It is always preferable to minimise the impact force, ie. make sure there is virtually no slack between the snatch block and the load but this is much more difficult when sectioning a trunk with no high directional anchor. Instead, the rope (if one is used at all) has to be anchored or deviated beneath the cut. In which case the section will fall a certain distance before being arrested and this will impart shock load. However, since most rigging has the section deviated through an impact or snatch block below the cut and controlled from ground level there is plenty of rope to help absorb the shock. The ground crew can also impart more absorbency by allowing a small amount of run (through gloved hands) before halting the fall of the load ie. dynamic braking.

Lowering ropes are often the poor relation to climbing ropes because they're generally less technical in construction and cheaper. But in fact many arb climbing ropes can be classed as 'utility' or multi-use and may be used as rigging OR climbing ropes, the *Beal Bonsai* and *All Gear's Forestry Pro* for instance. However, **the same rope should NEVER be used for both activities interchangeably**. Don't forget that virtually ALL static abseil ropes whether or not they are marketed to arborists will perform all rigging and static lowering jobs adequately but they will NOT take kindly to impact lowering where a degree of dynamic absorbency is preferable.

Many arborists will rightly treat their arb climbing rope like a fine piece of art taking ridiculous amounts of time to choose it, studying all the data and spec and other peoples reviews

RIGGING ROPES

until eventually buying some garishly coloured or conversely ultra camouflaged beauty that replaces your loved one on the comfy chair in front of the TV. But when it comes to rigging and lowering ropes it sometimes seems that any old rubbish will do, got an old climbing rope that you're not using anymore, excellent, I'll have that for lowering and rigging. But hold on there, if you're not happy that it's safe enough to climb on why would it be good enough for rigging? - the loads are much higher, the rope is working much harder and moving around and through tight jams a lot more and it gets thrown in the back of the truck with the wood chips and chainsaws while the pristine looking climbing rope sits up front and gets taken indoors to spend quality time with the family. It's not right is it.

Without wishing to bleat on too much, Dynamic or impact loading is the key thing to consider with rigging or lowering rope. Whenever you apply any load the rope will stretch to some degree and your rope remembers what you've done to it. Cast your mind back to when you first bought those chewing gum grey coloured underpants - they were firm and tight weren't they. Now after a year or seven of use they're so loose you need a belt to keep them up unless, like me you've expanded your stomach to accommodate the slackening of elastic. Your rope is broadly similar, its elasticity will reduce with age and over-use so that at some point you'll drop a section of timber on it and it will simply snap. Don't forget that ALL loading will stretch the rope fibres. If your rope is more static in construction (more parallel fibres) it will be even less receptive to shock loading and may fail earlier than the equivalent cabled (spiraled) construction.

Example 1 – We will use 5/8 diameter Yale Double Esterlon line rigged into a tree with a block in such a way that 25 ft. of line is required to arrest a 500 lb section of trunk falling 5 ft. From the Double Esterlon specification table and energy graph we will need its weight of 13.7 lbs/100 ft or .137 lbs/ft, its green working energy absorption maximum of 544 ft lb per lb of rope in use, and its maximum recommended working load of 3,400 lbs. First, we calculate the ft lbs of energy needed to arrest the 500 lb trunk section falling 5 ft. The simple equation of the weight multiplied by the fall will get the result within 1%, so.....

- 500 lb x 5 ft = 2500 ft lbs.

Next, we calculate the lines energy absorption capacity for a 25 foot length

- 25 ft x 544 ft/lb x .137 lb/ft = 1863 ft lbs.

From these two calculations we can see that in this scenario the maximum recommended energy absorption is exceeded by 637 ft lbs or 34% (2500 ft lbs / 1863 ft lbs). We can also estimate the load reached in the line multiplying the maximum recommended working load by 134% or

- 3400 x 1.34 = 4,556 lbs.

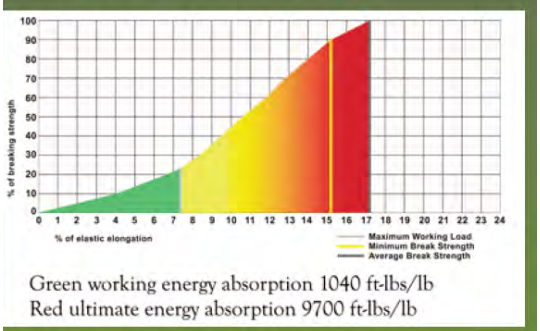
To illustrate the importance of energy capacity of ropes we will take a look at using a high energy absorption line.

Example 2 – We will substitute a 5/8 diameter Yale Polydyne. Same diameter, but very different energy capacity. Doing the same calculations with Polydyne's physicals we get the following:

- 500 lb x 5 ft. = 2,500 ft lbs. required
- 25 ft x 1040 ft/lb x .133 lb/ft = 3,458 ft lbs. capacity

In this case, we have reserve energy absorbing capacity of 958 ft lbs and the peak load in the line is estimated at:

- (2500/3458) x 3600 lbs = 2,602 lbs.



The more area in the stress strain graphs (green working and red ultimate) the higher the ropes ability to absorb dynamic loads.

ELONGATION. Is measured differently in Europe to North America but we have tried to be consistent with elongation at 10% of MBL where possible. Otherwise it is difficult to compare. If the rope is too elastic, your load would hit the ground before its fall is arrested. Not elastic enough and it may simply snap. This useful description (box above) from *Yale Cordage* should make your brain hurt but set you on the right track. For lowering and rigging tasks like ziplines, if you exclude the ultra low-stretch Dyneema etc. winch ropes (covered in a later guide) the toughest ropes are often the biggest ropes and by biggest we mean fat. But it's not quite as simple as choosing a rope thick enough to moor the *Titanic* just because it's going to last the longest. You've got to be able to afford to buy it, have a truck big enough to carry it and the manpower at the job site strong enough to move it to the tree. And then you've actually got to get it up the tree and weave it around all those fiddly crotches, pulleys and lowering devices. So maybe you're better off compromising some strength and girth for weight and flexibility. And if you're out of cash perhaps you will use that old climbing rope as a lowering rope after all but be really, really careful about how you use it and what size wood you load it with. Whatever else you skimp on, including the kid's education, don't skimp on that lowering rope. If it fails when you drop a big lump on it or are zip- lining a section over that conservatory you can kiss your insurance no-claims record and your reputation goodbye. And if you're really unlucky you may also need to deal with an injured colleague, customer, or worst still the customer's prize chihuahua. See, not worth skimping is it?

ROPE DIAMETER: Climbing ropes tend to be quite restrictive in range of diameters in order to facilitate easy handling and operation through dedicated pulleys and hardware. Around 11, 12 or 13mm (7/16"-½"). Rigging rope on the other hand can be anything from 5mm 3/16" to 64+mm 2½". Most arborists choose a general rigging rope of moderate diameter - 12, 13 or 14mm (½"-9/16") and a 'biggun' they bring out for heavy jobs of around 18/19mm to 25mm (3/4"-1") give or take a few mil or eighths. There is rigging and lowering hardware that is diameter- specific like snatch/Impact blocks/pulleys and Portawrap style lowering devices but they are far more forgiving of varying diameters than some of the technical climbing hardware. As for the true diameter of your rope, if there were some discrepancies between the manufacturers' description and what your ruler or calipers measures for climbing ropes, imagine what differences there will be in ropes ranging from 5mm to 64mm in diameter! Suffice to say that we can only quote the dimensions we're given but expect to find some half inch ropes (12.7mm) that are closer to 5/16" or even 5/8" (14 or 15mm) and expect this to enlarge over the age of the rope except for sections of rope that have been stretched to death. If your rope has sections that are thinner than when you bought it think about getting that moth-infested wallet out again.

MATERIALS for rigging ropes follow pretty much the same pattern as they do for climbing ropes with polyester as the dominant material. Polyester can withstand more abuse than nylon, resists acid better, has a slightly higher melting point (around 480° F or 249°C) and retains more strength when wet. Polyester dominates rigging ropes even though nylon has greater elasticity for the shock absorbency necessary for what we have called Impact lowering. **TREATED FIBRES** crops up with many of these ropes , normally as a surface

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coating that improves abrasion resistance (Marlow quote≤30% improvement) and water resistance. Most indicate that they will last the lifetime of your rope but don't hold your breath. Modern treatments are far superior to the coatings we had in the early days but anything that gets abraded for a living is going to wear off sooner or later.

HMPE (AKA UHMWPE & HPPE) crops up as a core material - it stands for High Modulus Polyethylene and is a super-strong, super static material (like Dyneema) that we see most in winch line. There are several other dual constructions generally with a polyester sheath and a nylon core to give an abrasion resistant outer and a more elastic core.

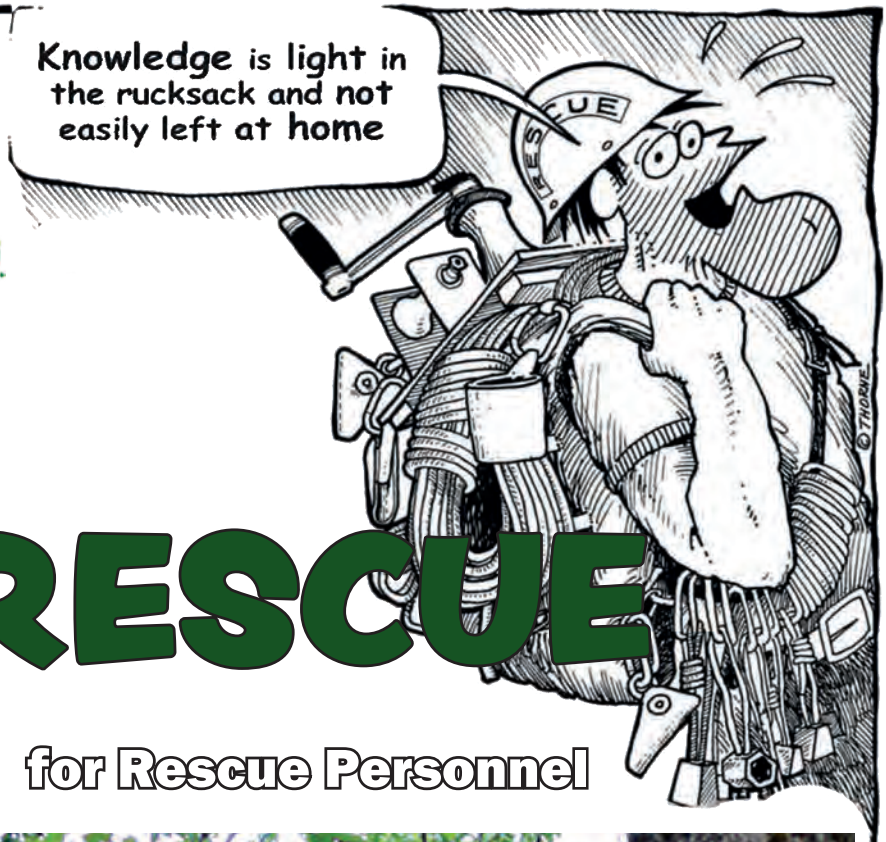
MBL is Minimum Breaking Load (or MBS -Minimum Breaking Strength). For lowering ropes that are going to be subjected to shock loading, the units of force KiloNewtons (roughly 1kN to 100kg and LB-Force (same as LBs) are more appropriate but for ease of calculations you can still simply think of them in terms of kg or lbs of mass. Working Load Limit (WLL) is a more appropriate figure for lowering ropes than it is for climbing rope which should only ever be carrying a single bodyweight and associated equipment. Rigging and lowering ropes in contrast may be carrying anything from a light branch to a half ton section of timber (or more!) and when you also factor in impact force there is good reason to have a figure for the maximum (static) weight that can be put on the rope. This figure will be a percentage of the Minimum Breaking Load and this varies with industry and manufacturer. It is usually a ratio between 5 and-12:1 for industrial applications or between 10:1 and 15:1 for life support applications. The tree industry seems to have settled on around 7:1 for non-life support activities. We have given the companies' quoted **WLL** if it's available or 7:1 if one is not quoted but if in doubt - simply apply your company's own required safety ratio to the MBL (not to the ABL or Average which is often an artificially higher figure) and remember that for dynamic or impact loads you will need to do some more complex calculations as we discussed earlier to determine whether your rope will actually be able to take the load your putting on it. Static load is radically different to the peak load caused when arresting a falling load.

COLOURS: rigging ropes tend to colour coordinate diameters to colours rather than having multiple colours under the same diameter as we see in climbing ropes. Very few offer colour options beyond a specific colour for a specific diameter plus maybe white/no colour.

We haven't given a **FLEXIBILITY** figure this time because the quality of handling is not as essential for rigging as it is for climbing when smaller diameter ropes have to interface with equally smaller proportioned hardware, prusiks and climbing systems. That's not to say that you want an iron re-bar of a rope for rigging and lowering but proportionally speaking the larger diameter ropes have more than enough working flex and tend not to stiffen like some climbing ropes.

The **STANDARDS** column could have been omitted from this set of tables since rigging and lowering doesn't come under personal protective standards but there is the European Machinery Directive EU 2006/42/EC which does cover some rigging ropes but this is largely applied to crane and hoist ropes. Those arb climbing ropes which are utilitarian enough to be included here with a marker in the 'Climbing' column will meet EN1891 for life support rope.

Ropes That RESCUE ®Ltd.



COMPREHENSIVE

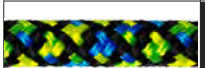
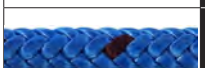
BOTTOM-UP TREE RESCUE workshops

for Rescue Personnel

This rescue class is for fire and emergency services, not for arborists although many firefighters are also arborists. We employ techniques, rope and equipment that would be found on a special operations rescue truck in addition to regular tree access techniques and equipment.

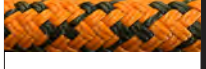
www.ropesthatrescue.com

Images NOT to Scale
~ = Approximate
£$€ = Currency Conversion
Cost exc eyes, inc VAT/Tax
DB=Double Braid,
KM=KernMantle/Single Braid
HB=Hollow Braid
DS=Double Strand
□=Option.
●=OK but not ideal

	MODEL & Ø VARIANT	COMPANY	ORIGIN	COST per Metre /3.28ft US$ per Foot Currency conversion only	Ø mm Inches"	Other Ø in series	WEIGHT g/m lb/100'	CONSTRUCTION MATERIALS: SHEATH CORE
	Husky .5	ALLGEAR		£3.10 $3.70 $1.15 €3.70	13mm ½"	-	127g 8.5lb	Polyester Nylon
	Husky I	ALLGEAR		£4.00 $4.60 $1.45 €4.70	14mm 9/16"	-	164g 11lb	Polyester Nylon
	Husky II	ALLGEAR		£5.00 $5.20 $1.65 €5.50	16mm ⅝"	-	209g 14lb	Polyester Nylon
	Husky III	ALLGEAR		£6.00 $6.55 $2.00 €7.00	19mm ¾"	-	246g 16.5lb	Polyester Nylon
	Husky IV	ALLGEAR		£8.50 $10.40 $3.20 €10.30	22mm ⅞"	-	395g 26.5lb	Polyester Nylon
	Husky V	ALLGEAR		£9.75 $11.60 $3.60 €12.00	25mm 1"	-	574g 38.5lb	Polyester Nylon
	Husky Multi-Pro Raging Blue	ALLGEAR		£3.60 $4.50 $1.40 €4.30	13mm ½"	-	127g 8.5lb	Polyester Nylon
	Husky Multi-Pro Raging Red	ALLGEAR		£5.40 $6.50 $2.05 €6.30	16mm ⅝"	-	188g 12.6lb	Polyester Nylon
	Husky Multi-Pro Raging Orange	ALLGEAR		£6.55 $8.50 $2.65 €7.90	19mm ¾"	-	209g 14lb	Polyester Nylon
	Forestry Pro	ALLGEAR		£2.90 $3.60 $1.10 €3.40	13mm ½"	-	87g 5.8lb	Polyester Polyester
	Forestry Pro	ALLGEAR		£3.15 $3.90 $1.20 €3.70	16mm ⅝"	-	177g 11.85lb	Polyester Polyester
	Forestry Pro	ALLGEAR		£4.70 $5.85 $1.80 €5.50	19mm ¾"	-	239g 16lb	Polyester Polyester
	Wonder Rope	ALLGEAR		£2.60 $3.25 $1.00 €3.00	12.7 ½"	-	91g 6.1lb	Polyester Polyester
	Wonder Rope	ALLGEAR		£3.90 $4.90 $1.50 €4.55	16mm ⅝"	-	177g 11.9lb	Polyester Polyester
	PRO FORCE	ALL GEAR		£6.05 $7.65 $2.35 €7.10	13mm ½"	-	112g 7.5lb	Polyester HMPE
	PRO FORCE	ALL GEAR		£7.10 $9.00 $2.75 €8.35	14mm 9/16"	-	157g 10.5lb	Polyester HMPE
	PRO FORCE	ALL GEAR		£12.00 $15.00 $4.60 €14.00	16mm ⅝"	-	194g 13lb	Polyester HMPE

ARBORIST RIGGING ROPES

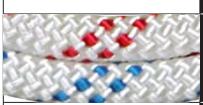
ON				SUITABLE FOR				MINIMUM/AVERAGE BREAKING LOAD/STRENGTH			ELONGATION					
TREATED FIBRES BONDED SHEATH	SHEATH BRAID /PLAIT	LIFE SUPPORT STAND-ARDS (only for multi-role ropes)	HAND SPLICEABLE PRE-SPLICED PRE-SEWN	CLIMBING	LOWERING	IMPACT LOWER	STATIC RIGGING	MBL Minimum Break Load Spliced Sewn	ABL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

Images NOT to Scale ~ = Approximate £$€ = Currency Conversion Cost exc eyes, inc VAT/Tax DB=Double Braid, KM=KernMantle/Single Braid HB=Hollow Braid DS=Double Strand ☐=Option. ●=OK but not ideal	MODEL & Ø VARIANT	COMPANY	ORIGIN	COST per Metre /3.28ft US$ per Foot Currency conversion only	Ø mm Inches"	Other Ø in series	WEIGHT g/m lb/100'	CONSTRUCTION MATERIALS: SHEATH CORE
	Husky-12 Multi Pro 9.5	ALL GEAR		£5.70 $7.20 $2.20 €6.65	9.5mm ⅜"	-	120g 8lb	Polyester -
	Husky-12 Multi Pro 13	ALL GEAR		£6.75 $8.50 $2.60 €7.80	13mm ½"	-	120g 8lb	Polyester -
	Husky-12 Multi Pro 16	ALL GEAR		£8.40 $10.60 $3.25 €9.75	16mm ⅝"	-	228g 15.3lb	Polyester -
	Husky-12 Multi Pro 19	ALL GEAR		£14.25 $18.00 $5.50 €17.00	19mm ¾"	-	249g 16.7lb	Polyester -
	Husky-12 Multi Pro 25	ALL GEAR		£29.00 $37.00 $11.40 €34.00	25mm 1"	-	358g 24lb	Polyester -
	Husky-12 9.5	ALL GEAR		£2.30 $2.95 $0.90 €2.70	9.5mm ⅜"	-	70g 4.7lb	Polyester -
	Husky-12 13	ALL GEAR		£3.00 $3.70 $1.15 €3.40	13mm ½"	-	120g 8lb	Polyester -
	Husky-12 16	ALL GEAR		£4.40 $5.50 $1.70 €5.05	16mm ⅝"	-	209g 14lb	Polyester -
	Husky-12 19	ALL GEAR		£5.75 $7.00 $2.15 €6.45	19mm ¾"	-	228g 15.3lb	Polyester -
	Husky-12 25	ALL GEAR		£7.10 $9.00 $2.75 €8.25	25mm 1"	-	408g 27.3lb	Polyester -
	AB-Double (Barb) 13	ATLANTIC BRAIDS		£2.85 $3.60 $1.10 €3.30	13mm ½"	-	115g 8lb	Polyester Polyester
	AB-Double (Barb) 14	ATLANTIC BRAIDS		£3.25 $4.10 $1.25 €3.75	14mm 9/16"	-	155g 11lb	Polyester Polyester
	AB-Double (Barb) 16	ATLANTIC BRAIDS		£3.50 $4.40 $1.35 €4.05	16mm ⅝"	-	200g 13.5lb	Polyester Polyester
	AB-Double (Barb) 19	ATLANTIC BRAIDS		£5.15 $6.50 $2.00 €6.00	19mm ¾"	-	260g 17.8lb	Polyester Polyester
	AB-Double (Barb) 22	ATLANTIC BRAIDS		£7.75 $9.80 $3.00 €9.00	22mm ⅞"	-	390g 26lb	Polyester Polyester
	AB-Double Nylon 13	ATLANTIC BRAIDS		N/A	13mm ½"	18 sizes 6.5-64mm ¼-2½"	97g 6.5lb	Nylon Nylon
	AB-Double Nylon 14	ATLANTIC BRAIDS		N/A	14mm 9/16"	18 sizes 6.5-64mm ¼-2½"	142g 9.5lb	Nylon Nylon
	AB-Double Nylon 16	ATLANTIC BRAIDS		N/A	16mm ⅝"	18 sizes 6.5-64mm ¼-2½"	180g 12lb	Nylon Nylon

ARBORIST RIGGING ROPES

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

Images NOT to Scale
~ = Approximate
£$€ = Currency Conversion
Cost exc eyes, inc VAT/Tax
DB=Double Braid,
KM=KernMantle/Single Braid
HB=Hollow Braid
DS=Double Strand
☐=Option.
●=OK but not ideal

	MODEL & Ø VARIANT	COMPANY	ORIGIN	COST per Metre /3.28ft US$ per Foot Currency conversion only	Ø mm Inches"	Other Ø in series	WEIGHT g/m lb/100'	CONSTRUCT MATERIALS: SHEATH CORE
	AB-Double Nylon 19	ATLANTIC BRAIDS		N/A	19mm ¾"	18 sizes 6.5-64mm ¼-2½"	202g 13.6lb	Nylon Nylon
	AB-Double Poly 13	ATLANTIC BRAIDS		N/A	13mm ½"	19 sizes 5-64mm ¼-2½"	128g 8.6lb	Polyester Polyester
	AB-Double Poly 14	ATLANTIC BRAIDS		N/A	14mm 9/16"	19 sizes 5-64mm ¼-2½"	155g 11lb	Polyester Polyester
	AB-Double Poly 16	ATLANTIC BRAIDS		N/A	16mm ⅝"	19 sizes 5-64mm ¼-2½"	207g 13.9lb	Polyester Polyester
	AB-Double Poly 19	ATLANTIC BRAIDS		N/A	19mm ¾"	19 sizes 5-64mm ¼-2½"	260g 17.8lb	Polyester Polyester
	Bonsai 13 BCSE13	BEAL		£3.95 $5.20 $1.60 €4.70	13mm ½"	-	98g 6.6lb	Nylon Nylon
	BWII+ 13	BLUEWATER ROPES		£3.95 $4.85 $1.50 €4.55	13mm ½"	5 sizes 8-13mm 5/16-½"	124g 9.1lb	Polyester Nylon
	Safeline 12.5	BLUEWATER ROPES		£4.45 $5.45 $1.70 €5.15	12.5mm ½"	4 sizes 9-15.5mm ⅜-⅝"	108g 8.2lb	Polyester Nylon
	Safeline 15.5	BLUEWATER ROPES		£6.25 $7.70 $2.45 €7.25	15.5mm ⅝"	4 sizes 9-15.5mm ⅜-⅝"	164g 12.02lb	Polyester Nylon
	Power Pull 12	BUCCANEER ROPE CO		n/a	12mm ½"	-	119g 8lb	Polyester Polyester
	Power Pull 14	BUCCANEER ROPE CO		£3.15 $4.00 $1.25 €3.65	14mm 9/16"	-	157g 10.5lb	Polyester Polyester
	Power Pull 16	BUCCANEER ROPE CO		£3.95 $5.00 $1.55 €4.50	16mm ⅝"	-	201g 13.5lb	Polyester Polyester
	Power Pull 18	BUCCANEER ROPE CO		n/a	18mm ¾"		276g 18.5lb	Polyester Polyester
	Tiger 12	BUCCANEER ROPE CO		n/a	12mm ½"	8 sizes 6-25mm ¼-1"	119g 8lb	Polyester Polyester
	Tiger 14	BUCCANEER ROPE CO		n/a	14mm 9/16"	8 sizes 6-25mm ¼-1"	151g 10.1lb	Polyester Polyester
	Tiger 16	BUCCANEER ROPE CO		n/a	16mm ⅝"	8 sizes 6-25mm ¼-1"	188g 12.6lb	Polyester Polyester
	Tiger 18	BUCCANEER ROPE CO		n/a	18mm ¾"	8 sizes 6-25mm ¼-1"	268g 18lb	Polyester Polyester

ARBORIST RIGGING ROPES

CONSTRUCTION				SUITABLE FOR				MINIMUM/AVERAGE BREAKING LOAD/STRENGTH			ELONGATION				
TREATED FIBRES BONDED SHEATH	SHEATH BRAID /PLAIT	LIFE SUPPORT STANDARDS (only for multi-role ropes)	HAND SPLICEABLE PRE-SPLICED PRE-SEWN	CLIMBING	LOWERING	IMPACT LOWER	STATIC RIGGING	MBL Minimum Break Load Spliced Sewn	ABL Average Break Load Spliced Sewn	WLL Spliced Sewn *Average	@10% MBS @30% MBS @50%MBS @300lbf/136kg @540 lbf/245kg	OTHER COLOURS		NOTES	WWW.
□	DB		■	-	■	■	-		101.8kN 22890lbf	-				Yellow fleck	atlanticbraids.com
□	DB		■	-	■	-	■	44kN 10000lbf	52kN 11750lbf	-				Green fleck	atlanticbraids.com
□	DB		■	-	■	-	■		59kN 13293lbf	-				Green fleck	atlanticbraids.com
□	DB		■	-	■	-	■	69kN 15725lbf	82kN 18500lbf					Green fleck	atlanticbraids.com
□	DB		■	-	■	-	■	76kN 17170lbf	89kN 20200lbf					Green fleck	atlanticbraids.com
	KM	CE-A	■	■	■	■	■	34kN 6743lbf		25kN 5620lbf	4.2%				beal-planet.com
	32 KM	CE A NFPA	■	●	■	-	■	44.4kN 9983lbf			3.9%				bluewaterropes.com
	16 KM	CE A NFPA ANSI UIAA	■	●	■	-	■	44.4kN 9983lbf			2.2%			White rope is slightly cheaper	bluewaterropes.com
	16 KM	NFPA	■	●	■	-	■	58.9kN 13237lbf			1.6%				bluewaterropes.com
■	DB		■	●	■	●	■	-	43.6kN 9800lbf						bucrope.com
■	DB		■	●	■	●	■	-	57.8kN 13000lbf						bucrope.com
■	DB		■	●	■	●	■	-	73.8kN 16600lbf						bucrope.com
■	DB			●	■	●	■	-	82.3kN 18500lbf						bucrope.com
			■■	-	■	■	■	-	44.5kN 10000lbf						bucrope.com
			■■	-	■	■	■	-	66.7kN 15000lbf					very difficult to find any Buccaneer ropes. stocked by very few arb stores	bucrope.com
			■■	-	■	■	■	-	80kN 18000lbf						bucrope.com
		CE	■■	-	■	■	■	-	106.7kN 24000lbf						bucrope.com

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Cost exc eyes, inc VAT/Tax
DB=Double Braid,
KM=KernMantle/Single Braid
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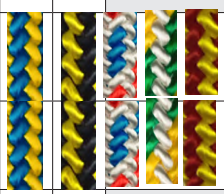
DS=Double Strand
☐=Option.
●=OK but not ideal

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

ARBORIST RIGGING ROPES

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

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PETZL TREE CARE SOLUTIONS

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

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

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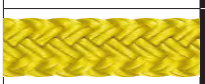
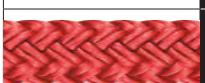
Access the inaccessible®

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

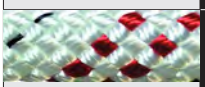
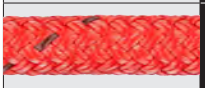
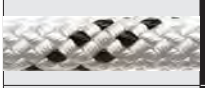
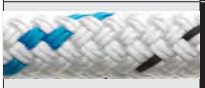
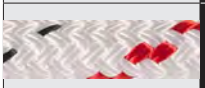
ARBORIST RIGGING ROPES

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

Images NOT to Scale ~ = Approximate £$€ = Currency Conversion Cost exc eyes, inc VAT/Tax DB=Double Braid, KM=KernMantle/Single Braid HB=Hollow Braid DS=Double Strand □=Option. ●=OK but not ideal	MODEL & Ø VARIANT	COMPANY	ORIGIN	COST per Metre /3.28ft US$ per Foot Currency conversion only	Ø mm Inches"	Other Ø in series	WEIGHT g/m lb/100'	CONSTRUCT MATERIALS: SHEATH CORE
	Anaconda 12	FTC TREE		£4.60 $5.35 $1.65 €4.85	12mm ½"	-	125g 8.4lb	Polyester Polyester
	Anaconda 14	FTC TREE		£5.25 $6.65 $2.10 €5.55	14mm 9/16"	-	175g 11.7lb	Polyester Polyester
	Anaconda 16	FTC TREE		£7.25 $8.80 $2.70 €7.30	16mm ⅝"	-	225g 15.1lb	Polyester Polyester
	Anaconda 18	FTC TREE		£8.15 $10.30 $3.15 €8.60	18mm ¾"	-	335g 22.4lb	Polyester Polyester
	Katuali 10	FTC TREE		£1.70 $2.20 $0.65 €1.80	10mm ⅜"	-	86g 5.7lb	Polyester Polyester
	Katuali 12	FTC TREE		£1.90 $2.35 $0.75 €2.00	12mm ½"	-	119g 8lb	Polyester Polyester
	Katuali 14	FTC TREE		£2.35 $3.10 $0.95 €2.50	14mm 9/16"	-	153g 10.2lb	Polyester Polyester
	Katuali 16	FTC TREE		£2.80 $3.55 $1.10 €2.95	16mm ⅝"	-	203g 13.6lb	Polyester Polyester
	Katuali 18	FTC TREE		£3.30 $4.00 $1.25 €3.45	18mm ¾"	-	256g 17.2lb	Polyester Polyester
	Light Red 16	GLEISTEIN		£2.95 $3.25 $1.00 €3.05	12mm ½"	-	83g 5.6lb	Polyester Polyester
	Heavy Green 16	GLEISTEIN		£4.95 $5.35 $1.65 €5.00	16mm ⅝"	-	170g 11.4lb	Polyester Polyester
	HeftyFlex 13 H2521	HARKIE		£3.55 $4.50 $1.40 €4.20	13mm ½"	-	n/a	?
	HeftyFlex 16	HARKIE		£4.26 $5.20 $1.60 €5.00	16mm ⅝"	-	n/a	?
	HeftyFlex 19	HARKIE		£6.10 $8.60 $2.65 €7.15	19mm ¾"	-	n/a	?
	Safe Arb 12	LIROS		£2.35 $3.00 $1.00 €2.70	12mm ½"	-	125g 8.4lb	Polyester Polyester
	**Safe Arb** 14	LIROS		£3.25 $4.05 $1.25 €3.80	14mm 9/16"	-	175g 11.7lb	Polyester Polyester
	**Safe Arb** 16	LIROS		£4.00 $5.00 $1.55 €5.30	16mm ⅝"	-	225g 15.1lb	Polyester Polyester
	Safe Arb 18	LIROS		£6.85 $8.50 $2.70 €8.10	18mm ¾"	-	335g 22.1lb	Polyester Polyester

ARBORIST RIGGING ROPES

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

Images NOT to Scale ~ = Approximate £$€ = Currency Conversion Cost exc eyes, inc VAT/Tax DB=Double Braid, KM=KernMantle/Single Braid HB=Hollow Braid DS=Double Strand □=Option. ●=OK but not ideal	MODEL & Ø VARIANT	COMPANY	ORIGIN	COST per Metre /3.28ft US$ per Foot Currency conversion only	Ø mm Inches"	Other Ø in series	WEIGHT g/m lb/100'	CONSTRUCTION MATERIALS: SHEATH CORE
	Draco 12	MARLOW		£2.20 $2.70 $2.70 €2.60	12mm ½"		100.6g 6.75lb	Polyester Polyester
	Draco 14	MARLOW		£2.45 $300 $3.00 €3.00	14mm 9/16"		130.4g 8.74lb	Polyester Polyester
	Draco 16	MARLOW		£3.10 $3.85 $3.85 €3.70	16mm ⅝"		197g 13.21lb	Polyester Polyester
	Raptor Rigging 12	MARLOW		£3.90 $4.85 $1.50 €4.60	12mm ½"		111g 7.44lb	Polyester Polyester
	Raptor Rigging 14	MARLOW		£4.20 $5.25 $1.65 €5.00	14mm 9/16"		156g 10.43lb	Polyester Polyester
	Raptor Rigging 16	MARLOW		£5.35 $6.65 $2.05 €6.30	16mm ⅝"		193g 12.94lb	Polyester Polyester
	Raptor Rigging 18	MARLOW		£6.55 $8.15 $2.50 €7.70	18mm ¾"		232g 15.54lb	Polyester Polyester
	Marlowbraid 12	MARLOW		£4.20 $5.25 $1.65 €5.00	12mm ½"	10 sizes 6-24mm ¼-15/16"	100g 6.71lb	Polyester Polyester
	Marlowbraid 14	MARLOW		£5.95 $7.40 $2.30 €7.00	14mm 9/16"	10 sizes 6-24mm ¼-15/16"	145g 9.72lb	Polyester Polyester
	Marlowbraid 16	MARLOW		£8.10 $10.10 $3.10 €9.50	16mm ⅝"	10 sizes 6-24mm ¼-15/16"	190g 12.74lb	Polyester Polyester
	Marlowbraid 18	MARLOW		£9.10 $11.35 $3.50 €10.65	18mm ¾"	10 sizes 6-24mm ¼-15/16"	235g 15.76lb	Polyester Polyester
	Doublebraid 12	MARLOW		£4.10 $5.40 $1.65 €4.90	12mm ½"	7 sizes 6-18mm ¼-¾"	111g 7.44lb	Polyester Polyester
	Doublebraid 14	MARLOW		£6.10 $8.00 $2.45 €7.30	14mm 9/16"	7 sizes 6-18mm ¼-¾"	156g 10.43lb	Polyester Polyester
	Doublebraid 16	MARLOW		£7.80 $10.20 $3.10 €9.30	16mm ⅝"	7 sizes 6-18mm ¼-¾"	193g 12.94lb	Polyester Polyester
	Doublebraid 18	MARLOW		£8.30 $11.00 $3.40 €9.90	18mm ¾"	7 sizes 6-18mm ¼-¾"	232g 15.54lb	Polyester Polyester
	The Ape 12	PELICAN ROPE		£2.25 $2.80 $0.85 €2.60	12mm ½"	-	137g 9.2lb	Polyester Polyester
	The Ape 14	PELICAN ROPE		£2.80 $3.50 $1.08 €3.25	14mm 9/16"	-	157g 10.5lb	Polyester Polyester
	The Ape 16	PELICAN ROPE		£3.10 $3.90 $1.20 €3.60	16mm ⅝"	-	204g 13.7lb	Polyester Polyester

ARBORIST RIGGING ROPES

ON			SUITABLE FOR				MINIMUM/AVERAGE BREAKING LOAD/STRENGTH			ELONGATION				
TREATED FIBRES BONDED SHEATH	SHEATH BRAID /PLAIT	LIFE SUPPORT STANDARDS (only for multi-role ropes)	HAND SPLICEABLE PRE-SPLICED PRE-SEWN	CLIMBING	LOWERING	IMPACT LOWER	STATIC RIGGING	MBL Minimum Break Load Spliced Sewn	ABL Average Break Load Spliced Sewn	WLL Spliced Sewn *Average	@10% MBS @30% MBS @50%MBS @300lbf/136kg @540 lbf/245kg	OTHER COLOURS		NOTES	WWW.
	16 DB		■	-	■	●	■	35.2kN 7914lbf	38.4kN 8619lbf						marlowropes.com
	16 DB		■	-	■	●	■	49.4kN 11102lbf	54.9kN 12337lbf						marlowropes.com
	16 DB		■	-	■	●	■	74.1kN 16645lbf	81.9kN 18408lbf						marlowropes.com
■	24 DB		■■	-	■	●	■	38.7 43kN 9650lbf	42 46.7kN 10500lbf	5.5kN* 1240lbf*	5% 1.7%				marlowropes.com
■	24 DB		■■	-	■	●	■	49.1 54.6kN 12300lbf	53.5 59.4kN 13300lbf	7kN* 1590lbf*	5% 1.7%				marlowropes.com
■	24 DB		■■	-	■	●	■	58.8 65.3kN 14700lbf	63.8 70.9kN 15900lbf	8.4kN* 1890lbf*	5% 1.7%				marlowropes.com
■	24 DB		■■	-	■	●	■	64.3 71.4kN 16000lbf	69.8 77.6kN 17400lbf	9.2kN* 2060lbf*	5% 1.7%				marlowropes.com
-	16		■	-	■	-	■	40.2kN 9007lbf	43.7kN 9790lbf						marlowropes.com
-	16		■	-	■	-	■	49.3kN 11051lbf	53.6kN 12012lbf						marlowropes.com
-	16		■	-	■	-	■	65.2kN 14630lbf	72.8kN 16324lbf						marlowropes.com
-	16		■	-	■	-	■	92kN 20625lbf	100kN 22419lbf						marlowropes.com
-	24 DB		■■	-	■	■	■	43kN 9650lbf	46.7kN 10500lbf						marlowropes.com
-	24 DB		■■	-	■	■	■	54.6kN 12300lbf	59.4kN 13300lbf						marlowropes.com
-	24 DB		■■	-	■	■	■	65.3kN 14700lbf	70.9kN 15900lbf						marlowropes.com
	24 DB		■■	-	■	■	■	71.4kN 16000lbf	77.6kN 17400lbf						marlowropes.com
■	DB		■■	-	■	●	■	48.9kN 11000lbf							pelicanrope.com
■	DB		■■	-	■	●	■	62.3kN 14000lbf							pelicanrope.com
■	DB		■■	-	■	●	■	75.6kN 17000lbf							pelicanrope.com

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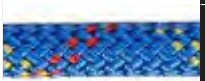
£$€ = Currency Conversion
Cost exc eyes, inc VAT/Tax
DB=Double Braid,
KM=KernMantle/Single Braid
HB=Hollow Braid
DS=Double Strand
☐=Option.
●=OK but not ideal

	MODEL & Ø VARIANT	COMPANY	ORIGIN	COST per Metre /3.28ft US$ per Foot Currency conversion only	Ø mm Inches"	Other Ø in series	WEIGHT g/m lb/100'	CONSTRUCTION MATERIALS: SHEATH CORE
	The Ape 18	PELICAN ROPE		£3.90 $4.90 $1.50 €4.55	18mm ¾"	-	271g 18.2lb	Polyester Polyester
	The Ape 25	PELICAN ROPE		£7.25 $9.15 $2.80 €8.45	25mm 1"	-	529g 35.5lb	Polyester Polyester
	Matador 12	PELICAN ROPE		£2.65 $3.40 $1.05 €3.15	12mm ½"		116g 7.8lb	Polyester Nylon
	Matador 14	PELICAN ROPE		£3.15 $3.95 $1.21 €3.65	14mm 9/16"		172g 11.55lb	Polyester Nylon
	Matador 16	PELICAN ROPE		£3.90 $4.90 $1.50 €4.55	16mm ⅝"		293g 19.65lb	Polyester Nylon
	Matador 18	PELICAN ROPE		£5.00 $6.35 $1.95 €5.90	18mm ¾"		385g 25.8lb	Polyester Nylon
	Access Pro 11	PMI		£2.20 $2.70 $0.85 €2.55	11mm 7/16"	-	84g 5.6lb	Polyester Nylon
	Hudson Cl Pro EZ Bend11	PMI		£3.70 $4.20 $1.30 €3.95	11mm 7/16"	5 sizes 9-16mm ⅜-⅝"	80g 5.4lb	Nylon Nylon
	Hudson Cl Pro EZ Bend 12.5	PMI		£4.30 $5.30 $1.65 €5.00	12.5mm ½"	5 sizes 9-16mm ⅜-⅝"	104g 7lb	Nylon Nylon
	Hudson Cl Pro EZ Bend Unicore 12.5	PMI		£4.30 $5.30 $1.65 €5.00	12.5mm ½"	2 sizes 11-12.5mm 7/16-½"	107g 7.2lb	Nylon Nylon
	Hudson Cl Pro EZ Bend 16	PMI		£5.30 $6.60 $2.00 €5.00	16mm ⅝"	5 sizes 9-16mm ⅜-⅝"	145g 10.3lb	Nylon Nylon
	Hudson Cl Pro Max Wear/Pit Rope	PMI		£2.90 $3.60 $1.15 €3.40	11mm 7/16"	4 sizes 9-12.5mm ⅜-½"	83.46g 5.6lb	Nylon Nylon
	Extreme Pro Unicore 11	PMI		£3.15 $3.90 $1.25 €3.65	11mm 7/16"	2 sizes 11-12.5mm 7/16-½"	100g 6.7lb	Polyester Nylon
	Extreme Plus Unicore 12.5	PMI		£3.50 $4.20 $1.30 €3.95	12.5mm ½"	2 sizes 11-12.5mm 7/16-½"	113g 7.6lb	Polyester Nylon
	Opus 11	PMI		£1.90 $2.35 $0.75 €2.20	11mm 7/16"	-	85g 5.7lb	Nylon Nylon
	Dura-Shield General Use 12.5	PMI		£10.50 $13.10 $4.00 €12.30	12.5mm ½"	3 sizes 8-12.5mm 7/16-½"	110.9g 7.43lb	Technora Nylon
	Isostatic 11.5	PMI		£4.85 $6.00 $1.80 €4.55	11.5mm 7/16"	-	96g 6.4lb	Polyester Polyester
	Isostatic 13	PMI		£4.85 $6.00 $1.80 €4.55	13mm ½"	-	125g 8.4lb	Polyester Polyester

ARBORIST RIGGING ROPES

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

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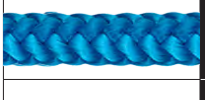
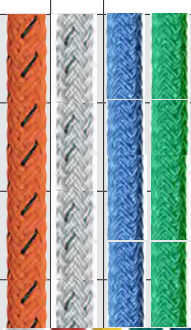
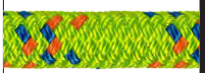
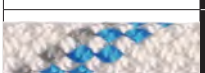
	Mountain Ape 12.7	ROCK'N ARBOR		£2.40 $2.95 $0.90 €0.00	12.7mm ½"	-	115g 8lb	Polyester Polyester
	Mountain Ape 14	ROCK'N ARBOR		£3.10 $3.80 $1.16 €0.00	14mm 9/16"	-	155g 11lb	Polyester Polyester
	Mountain Ape 16	ROCK'N ARBOR		£3.60 $4.45 $1.36 €4.20	16mm ⅝"	-	200g 13.5lb	Polyester Polyester
	Amethyst 12	ROCK'N ARBOR		£2.65 $3.25 $1.00 €3.10	12mm ½"	-	103g 6.9lb	Polyester Polyester
	Amethyst 16	ROCK'N ARBOR		£4.65 $5.70 $1.76 €5.35	16mm ⅝"	-	0g 0lb	Polyester Polyester
	Arbor Plex 12	SAMSON		£2.00 $2.45 $0.80 €2.30	12mm ½"	3 sizes 12.7-18mm ½-¾"	101g 6.8lb	Polyprop/ Polyester -
	Arbor Plex 16	SAMSON		£2.90 $3.60 $1.10 €2.75	16mm ⅝"	3 sizes 12.7-18mm ½-¾"	179g 12lb	Polyprop/ Polyester -
	Arbor Plex 18	SAMSON		£4.15 $5.15 $1.60 €4.85	18mm ¾"	3 sizes 12.7-18mm ½-¾"	241g 16.2lb	Polyprop/ Polyester -
	Nystron Coated 12	SAMSON		£3.00 $3.70 $1.15 €3.50	12mm ½"	13 sizes 9-48mm ⅜-2"	121g* 8lb	Polyester Nylon
	Nystron Coated 14	SAMSON		£3.70 $4.55 $1.40 €4.30	14mm 9/16"	13 sizes 9-48mm ⅜-2"	156g* 10.5lb	Polyester Nylon
	Nystron Coated 16	SAMSON		£4.30 $5.35 $1.65 €5.05	16mm ⅝"	13 sizes 9-48mm ⅜-2"	196g* 13.2lb	Polyester Nylon
	Nystron Coated 18	SAMSON		£5.50 $6.80 $2.10 €6.40	18mm ¾"	13 sizes 9-48mm ⅜-2"	270g* 18.1lb	Polyester Nylon
	StableBraid 12	SAMSON		£2.75 $3.40 $1.05 €3.20	12mm ½"	16 sizes 6-24mm ¼-1¾"	122g 8.2lb	Polyester Polyester
	StableBraid 14	SAMSON		£3.15 $3.90 $1.20 €3.70	14mm 9/16"	16 sizes 6-24mm ¼-1¾"	164g 11lb	Polyester Polyester
	StableBraid 16	SAMSON		£3.85 $4.75 $1.45 €4.45	16mm ⅝"	16 sizes 6-24mm ¼-1¾"	208g 14lb	Polyester Polyester
	StableBraid 18	SAMSON		£4.90 $6.05 $1.85 €5.70	18mm ¾"	16 sizes 6-24mm ¼-1¾"	268g 18lb	Polyester Polyester
	True Blue	SAMSON		£2.75 $3.40 $1.05 €3.20	12mm ½"		131g 8.8lb	Polyester -
	Tech HTP 11	STERLING		£8.90 $11.00 $3.40 €10.35	11mm 7/16"	-	95g 6.4lb	Technora Polyester

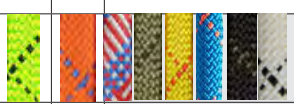
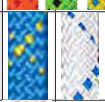
ARBORIST RIGGING ROPES

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

Images NOT to Scale
~ = Approximate
£$€ = Currency Conversion
Cost exc eyes, inc VAT/Tax
DB=Double Braid,
KM=KernMantle/Single Braid
HB=Hollow Braid
DS=Double Strand
☐=Option.
●=OK but not ideal

	MODEL & Ø VARIANT	COMPANY	ORIGIN	COST per Metre /3.28ft US$ per Foot Currency conversion only	Ø mm Inches"	Other Ø in series	WEIGHT g/m lb/100'	CONSTRUCTION MATERIALS: SHEATH CORE
	Tech 11	STERLING	🇺🇸	£8.50 $10.00 $3.30 €9.85	11mm 7/16"	-	88g 5.9lb	Technora Nylon
	Atlas 13	STERLING	🇺🇸	£3.90 $4.90 $1.50 €4.55	13mm ½"	-	118g 7.9lb	Polyester Nylon
	Atlas 14	STERLING	🇺🇸	£4.45 $5.60 $1.75 €5.20	14mm 9/16"	-	133g 8.9lb	Polyester Nylon
	Atlas 16	STERLING	🇺🇸	£5.30 $6.70 $2.05 €6.20	16mm ⅝"	-	202g 13.5lb	Polyester Nylon
	Atlas 18	STERLING	🇺🇸	£6.80 $8.40 $2.60 €7.90	18mm ¾"	-	258kN 17.3lb	Polyester Nylon
	Kraken 13	STERLING	🇺🇸	£2.70 $3.30 $1.10 €3.10	12mm ½"	5 sizes 13-22mm ⅜-⅞"	130g 8.7lb	Polyester Polyester
	Kraken 14	STERLING	🇺🇸	£3.20 $3.95 $1.25 €3.70	14.3mm 9/16"	5 sizes 13-22mm ⅜-⅞"	173g 11.6lb	Polyester Polyester
	Kraken 17	STERLING	🇺🇸	£3.90 $4.80 $1.50 €4.50	17mm ⅝"	5 sizes 13-22mm ⅜-⅞"	221g 14.8lb	Polyester Polyester
	Kraken 19	STERLING	🇺🇸	£4.75 $5.85 $1.80 €5.50	19.1mm ¾"	5 sizes 13-22mm ⅜-⅞"	275g 18.4lb	Polyester Polyester
	HTP (Rig) 11	STERLING	🇺🇸	£4.00 $4.75 $1.45 €4.60	11mm 7/16"	5 sizes 9-16mm ⅜-5/8"	97g 6.5lb	Polyester Polyester
	HTP (Rig) 12	STERLING	🇺🇸	£4.95 $6.10 $1.90 €5.75	12.5mm ½"	5 sizes 9-16mm ⅜-5/8"	119g 8lb	Polyester Polyester
	HTP (Rig) 16	STERLING	🇺🇸	£5.35 $6.50 $2.10 €6.20	16mm ⅝"	5 sizes 9-16mm ⅜-5/8"	186g 12.5lb	Polyester Polyester
	Omega 12	STEIN	🇬🇧	£3.05 $3.75 $1.20 €3.55	12mm ½"	-		Polyester Nylon
	Omega 14	STEIN	🇬🇧	£4.35 $5.40 $1.65 €5.05	14mm 9/16"	-		Polyester Nylon
	Omega 16	STEIN	🇬🇧	£4.90 $6.10 $1.90 €5.70	16mm ⅝"	-		Polyester Nylon
	Omega 20	STEIN	🇬🇧	£7.65 $9.85 $3.00 €9.25	20mm ¾"	-		Polyester Nylon
	Timber Evo 12.5	TENDON	🇨🇿	£3.60 $4.50 $1.45 €4.15	12.5mm ½"	3 sizes 11-12.5mm ¼-1¾"	104g 7lb	Polyester Nylon
	Timber 15	TENDON	🇨🇿	£4.50 $5.20 $1.60 €4.80	15mm ⅝"	-	174g 11.7lb	Polyester Nylon

ARBORIST RIGGING ROPES

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

Images NOT to Scale ~ = Approximate £$€ = Currency Conversion Cost exc eyes, inc VAT/Tax DB=Double Braid, KM=KernMantle/Single Braid HB=Hollow Braid DS=Double Strand ☐=Option. ●=OK but not ideal	MODEL & Ø VARIANT	COMPANY	ORIGIN	COST per Metre /3.28ft US$ per Foot Currency conversion only	Ø mm Inches"	Other Ø in series	WEIGHT g/m lb/100'	CONSTRUCTION MATERIALS: SHEATH CORE
	Sirius 12	TEUFELBERGER		£2.35 $3.50 $1.00 €3.10	12mm ½"		103g 6.92lb	Polyester Polyester
	Sirius 14	TEUFELBERGER		£2.85 $4.25 $1.25 €3.80	14mm 9/16"		151g 10.15lb	Polyester Polyester
	Sirius 16	TEUFELBERGER		£3.25 $5.10 $1.50 €4.20	16mm ⅝"		185g 12.43lb	Polyester Polyester
	Sirius 18	TEUFELBERGER		£6.45 $8.15 $1.80 €7.50	15.9mm ⅝"		227g 15.26lb	Polyester Polyester
	Sirius 20	TEUFELBERGER		£7.65 $9.65 $2.05 €8.90	19.1mm 13/16"		285g 19.16lb	Polyester Polyester
	tREX 11	TEUFELBERGER		£4.20 $5.00 $1.55 €4.80	11.1mm 7/16"	6 sizes 9.5-22mm ⅜-⅞"	98.2g 6.6lb	Polyester -
	tREX 13	TEUFELBERGER		£4.95 $5.90 $1.80 €5.55	12.7mm ½"	6 sizes 9.5-22mm ⅜-⅞"	129.4g 8.7lb	Polyester -
	tREX 16	TEUFELBERGER		£6.75 $7.50 $2.30 €7.15	15.9mm ⅝"	6 sizes 9.5-22mm ⅜-⅞"	203.8g 13.7lb	Polyester -
	tREX 19	TEUFELBERGER		£8.00 $9.50 $2.95 €8.35	19.1mm 13/16"	6 sizes 9.5-22mm ⅜-⅞"	267.8g 18lb	Polyester -
	Sta-Set	TEUFELBERGER		£4.95 $5.30 $1.65 €5.75	12.7mm ½"	6 sizes 12.7-25.4mm ½-1"	150g 10.1lb	Polyester Polyester
	Sta-Set	TEUFELBERGER		£5.50 $5.75 $1.75 €6.40	14.3mm 9/16"	6 sizes 12.7-25.4mm ½-1"	177g 11.9lb	Polyester Polyester
	Sta-Set	TEUFELBERGER		£5.00 $6.00 $1.85 €5.80	15.9mm ⅝"	6 sizes 12.7-25.4mm ½-1"	253g 17lb	Polyester Polyester
	Sta-Set	TEUFELBERGER		£5.95 $6.50 $2.00 €6.90	19.1mm 13/16"	6 sizes 12.7-25.4mm ½-1"	352.6g 23.7lb	Polyester Polyester
	Double Esterlon	YALE CORDAGE		£3.50 $3.20 $1.00 €4.10	13mm ½"	9 sizes 6-24mm ¼-15/16"	122g 7.8lbs	Polyester Polyester
	Double Esterlon	YALE CORDAGE		£4.00 $4.20 $1.30 €4.65	14mm 9/16"	9 sizes 6-24mm ¼-15/16"	164g 9.6lb	Polyester Polyester
	Double Esterlon	YALE CORDAGE		£5.40 $5.20 $1.60 €6.25	16mm ⅝"	9 sizes 6-24mm ¼-15/16"	208g 13.7lb	Polyester Polyester
	Double Esterlon	YALE CORDAGE		£5.80 $6.20 $1.90 €6.75	19mm ¾"	9 sizes 6-24mm ¼-15/16"	268g 16.7lb	Polyester Polyester

ARBORIST RIGGING ROPES

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

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	Optimus 10	YALE CORDAGE		£4.75 $6.00 $1.80 €5.55	10mm ⅜"	-	00g 4lb	Polyester -
	Optimus 13	YALE CORDAGE		£3.10 $3.90 $1.20 €3.60	13mm ½"	-	00g 9.2lb	Polyester -
	Optimus 16	YALE CORDAGE		£3.90 $4.90 $1.50 €4.55	16mm ⅝"	-	00g 11.7lb	Polyester -
	Optimus 19	YALE CORDAGE		£5.20 $6.55 $2.00 €6.05	19mm ¾"	-	00g 16lb	Polyester -
	Optimus 22	YALE CORDAGE		£4.75 $6.00 $1.80 €5.55	22mm ⅞"	-	00g 25lb	Polyester -
	Polydyne 12	YALE CORDAGE		£3.10 $3.90 $1.20 €3.60	12mm ½"	14 sizes 6-36mm ¼-1½"	113g 7.6lb	Polyester Nylon
	Polydyne 14	YALE CORDAGE		£4.15 $5.25 $1.60 €4.85	14mm ⅜"	14 sizes 6-36mm ¼-1½"	144g 9.7lb	Polyester Nylon
	Polydyne 16	YALE CORDAGE		£4.65 $5.90 $1.80 €5.45	16mm ⅝"	14 sizes 6-36mm ¼-1½"	198g 13.3lb	Polyester Nylon
	Polydyne 18	YALE CORDAGE		£5.95 $7.50 $2.30 €6.95	18mm ¾"	14 sizes 6-36mm ¼-1½"	250g 16.8lb	Polyester Nylon
	Portland Braid 13	YALE CORDAGE		£4.00 $4.90 $1.50 €4.60	13mm ½"	18 sizes 6-63mm ¼-2⅝"	118g 7.9lb	Polyester Polyester
	Portland Braid 14	YALE CORDAGE		£4.60 $5.65 $1.75 €5.30	14mm ⅜"	18 sizes 6-63mm ¼-2⅝"	149g 10lb	Polyester Polyester
	Portland Braid 16	YALE CORDAGE		£5.10 $6.45 $2.00 €5.95	16mm ⅝"	18 sizes 6-63mm ¼-2⅝"	194g 13lb	Polyester Polyester
	Portland Braid 18	YALE CORDAGE		£6.00 $7.60 $2.35 €7.00	19mm ¾"	18 sizes 6-63mm ¼-2⅝"	244g 16.4lb	Polyester Polyester
	Yalex 13	YALE CORDAGE		£2.60 $3.20 $1.00 €3.00	13mm ½"	17 sizes 6-50mm ¼-2"	125g 0lb	Polyester -
	Yalex 14	YALE CORDAGE		£2.95 $3.60 $1.10 €3.40	14mm ⅜"	17 sizes 6-50mm ¼-2"	153g 0lb	Polyester -
	Yalex 16	YALE CORDAGE		£3.40 $4.20 $1.30 €3.95	16mm ⅝"	17 sizes 6-50mm ¼-2"	173g 0lb	Polyester -
	Yalex 18	YALE CORDAGE		£4.75 $6.00 $1.80 €5.55	19mm ¾"	17 sizes 6-50mm ¼-2"	231g 0lb	Polyester -

ARBORIST RIGGING ROPES

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

UPDATED Jun '25

ARBORIST climbing

PRUSIK/HITCH CORD

NB: PRICES BEING UPDATED Q3 '25

Probably the most misspelled word in climbing history the prusik is a hitch used for ascending, arresting and positioning. For many, the term 'Prusik' is just generic and these are now often referred to as Hitch cords because the hitch actually being used could be any number of variants:

- Klemheist
- Schwabisch
- Valdotrain Tresse
- Blakes Hitch
- Distal Hitch
- Michoacan
- Machard Tresse
- Tautline Hitch
- Bachman

They are often referred to as a 'knot' but are a hitch because they only function properly when loaded. With no weight applied they can be easily slid up or down a rope with holding power determined by the number of 'wraps' as well as the strength and relative diameters of the cord and main rope. It's highly likely that some type of grabbing hitch has been in use for centuries but since there is no firm evidence, its modern introduction is credited to mountaineer Karl Prusik in 1931. Although it was introduced as an ascending knot on climbing rope it has been used in arborism (has that term taken off yet?) from the get-go. In rescue it is most often used as a fall arrest hitch and for progress capture in pulley systems so tends to require at least three wraps rather than the traditional two wraps. Arborists too seem to have settled on three wraps as the norm but personal preference and applied or potential loadings will have a bearing on how many wraps you decide to use along with some trial and error to ensure that it actually works for your particular application.

Your climbing hitch is now more likely to have a sewn or spliced eye at each end than be a traditional circular loop. When buying your own lengths you either splice your eyes/loop or join the ends with a double or triple fisherman's. A number of cords are ONLY available as manufactured lengths rather than off the roll. Pre-made lengths can be anywhere between 13cm/5" to well over a metre/3ft. The average for an eye to/& eye length is around 75cm/30". There isn't actually a specific standard for arborist prusik cord even though it is considered to be PPE and should be CE marked in Europe so the closest appropriate standards are either for accessory cord (EN564 which has to be less than 10mm or it's classed as a rope), slings (EN566) or maybe even EN354 which is fall arrest lanyards that don't incorporate an energy absorbing element so are more accurately restraint/work positioning which could describe hitch cord. If they meet any of these as a cord or sewn/spliced item they are marked with a CE in our tables. Some manufacturers including Liros and Donaghys would prefer you opt for sewn items that meet EN566 (slings). 'Prusik cord' may infer its use as an ascending hitch like the Bluewater Dynamic Prusik below, but, not only are there plenty of other friction hitches in common use, there are a host of other applications including pulley systems, control lines and rigging. The traditional prusik hitch is created by wrapping a loop of cord through itself after passing (or wrapping) it around a standing rope. It is made using cord or small diameter rope that has been formed into an endless loop/sling or an eye-to-eye or double-ended sling. Some, including Jeff Jepson, also refer to these as 'double eye split tails'. It is generally preferable for hitch cord to be smaller in diameter than the rope onto which it is operating. However, in the arborist world, double eye or eye-to-eye or eye & eye slings are often used on like-sized ropes. In the old days it used to be like-sized laid rope on laid rope instead of the present day kernmantle or braided ropes and some still swear by this. Most eyes have moved towards stitched/sewn as the strongest option buy they are much bulkier than a spliced eye.

When considering diameters remember that for climbing, arborists will only ever be using their personal hitch with a single bodyweight whereas in rigging, emergency use and rescue use the prusik may be loaded far beyond a single bodyweight. Consequently, optimum load-holding is essential and this usually requires more wraps and optimum combinations of cord to main rope in terms of diameter and materials. These factors will vary from rope to rope and even with rope colours as dyes and coatings affect the load-holding ability of different combinations. Test your own combination of rope type and diameters before using in anger.

MATERIALS & CORD PROPERTIES

The cord used to create a hitch has evolved over the years into a specialist item and it's no longer acceptable to grab any old scrap from your chainsaw's discarded pull-cord to create a hitch. Tales of mountaineers and escaping pilots improvising with their boot laces will spur you on to continue what you were about to try because your cord is loads thicker than a bootlace but take it from me, some bone-fide hitch cord with 'prusik/hitch cord' written on the label will be much, much safer and easier to use. And don't think that all climber's accessory cord will do. They are often indistinguishable from dedicated prusik cord but with regular nylon sheath and core their

capacity to withstand the heat build up and wear associated with protracted rope-on rope contact will quickly show in your rope and in your wallet. There is no question that the strongest hitch cord is that which contains the specialist fibres and their derivatives - Aramid/Kevlar/Technora, Spectra/Dyneema and Vectran etc. Not only do they improve wear and heat resistance they also withstand chemical and acid contamination far, far better than standard polyester and in particular, nylon. Heat resistance for Technora (800F) and Vectran (620F) is much greater than Nylon (420F) and Polyester (480F) but it is a lot more expensive. Some cords in this list are over **£12./$16** a metre while the cheapest (non-heat resistant) cord is around **99p/$1.50 /m**. Back when you only saw Kevlar on sailing yachts we were often warned to avoid them because they were weak when knotted ie.. their strength reduced considerably when bent around a tight radius.

Be wary of holding onto your prusik cord too long - it takes more abuse than any other part of your safety equipment and you may be lucky to still have even 50% of its original strength when you finally retire it!

Nothing new there - all rope is significantly weaker when wrapped around a tight radius and we have always known that the knot is a particular weak point.

But there was talk of the fibres not being very resilient when it came to a regular bending cycle. Quite surprising when you consider how much stronger these fibres are in tensile than a regular nylon and polyester. Nevertheless, testing 20 years ago indicated that strength reduction in a knot using Aramid, Spectra and Vectran fibres was indeed greater than in equivalent nylon and we were all a bit wary. Luckily, things have progressed significantly and with all manufacturers now using cunning mixes of specialist fibres and testing to ensure that they are fit for purpose we're all a lot happier and more trusting. In fact, the bigger problem might now be that the specialist fibre cords are actually tougher than your main rope and it is therefore your main rope rather than your prusik that is more likely to fail in the event of a high load 'dynamic event'.

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

BRAKING

We have differentiated use into CLIMBING, BRAKING and HEAT RESISTANCE. All of the cords listed can be used for climbing/ascending in the usual way and of course the myriad of nylon climber accessory cords not listed here may also work adequately. However, as already mentioned, protracted professional use demands a more hardwearing construction and this is particularly the case with braking operations. Traditional braking actions that may have fallen to prusiks are now invariably handled by specialist hardware like Porta Wraps or descenders so the kind of dynamic load arrest that still sees prusiks being used in Rescue for secondary belaying actions are not widely used by arborists. But they are used and nothing stresses your cords and ropes like trying to slow or stop a moving heavy weight by gripping a rope with another rope. There is significant heat build up whenever rope rubs across rope such as occurs in regular prusiking/ascending and this will ALWAYS cause melting and degradation of surface rope fibres to some degree. For rock climbers or mountaineers using prusiks relatively infrequently and/or over short distances this heat build up and wear is not too much of a concern but for arborists spending all day sliding a prusik hitch up and down a rope, wear can be significant. This is part of the reason that in the pre-technical ropes era most prusiks were composed of the same 12mm (1/2") 3-strand or multiplait as the main rope. In contrast, tougher, modern prusiks are ideally around 60% the diameter of the rope they are braking on eg. 6mm cord on 9-10mm rope, 7mm cord on 10-10.5mm rope, 8mm cord on 11mm rope and 9mm cord on12mm or 1/2" rope.

NB: the EN standard for accessory cord only records whole figures - some cord may be 0.5mm larger than stated.

Braking also refers to progress capture in pulley systems. However, the loading in a pulley system is significantly less than in prusiks used on a rope connected directly to a load or a falling load in the case of belaying. Depending on where the prusik is located in a pulley system, most of the load is taken in the first two or three lengths of rope between the pulleys so that by the time the prusik kicks in to hold the load (while you reset your pulley system for another tug), the load is three, four or five times less. So this element of 'Braking' rarely, if ever loads the prusik more than regular climbing activities.

IN THE FOLLOWING TABLES:

COST is given per metre or US$ per foot in brackets and for manufactured eye to eye lengths (or sling if eye to eye is not an option). **A length in green has a length-specific weight also indicated in green.** Costs are usually the full retail price so you can often expect to pay less. To tie your own prusik loop you'll need double the ultimate length plus about 60cm/2ft for knots.

OFF-REEL: available in long lengths off the reel
1xEYE: Has one sewn or spliced eye on one end only
2xEYES: or EYEtoEYE or SPLIT-TAIL had an eye at each end of a single length of rope/cord.
SLING: a spliced or more usually sewn joint in an endless loop of rope.
BOUND LOOP: An endless sling with a sewn joint but with a movable collar or plastic sleeve that can constrict the eye size at one end to help keep it tight on its connector.
•**DIAMETER**: rope diameter conversions from inches to millimetres are a minefield with every company quoting something different because they are generally rounding down or rounding up. There are of course, precise conversion figures for each size (mm x 0.03937 = inches) but some of them don't

really roll off the tongue as you can see from the table below so if you notice a difference in our tables it might be where the manufacturer has converted differently and since we don't know whether they are working from inches or millimetres it's best to quote what they quote even though it means we may have both 9 and 10mm for instance quoted as being 3/8"- so long as you know that it isn't our poor mathematics. In reality 3/8" is closest to 9.5mm so it could quite reasonably be used for both 9 and 10mm ropes. Where only metric OR imperial is quoted you can check our handy conversion table.

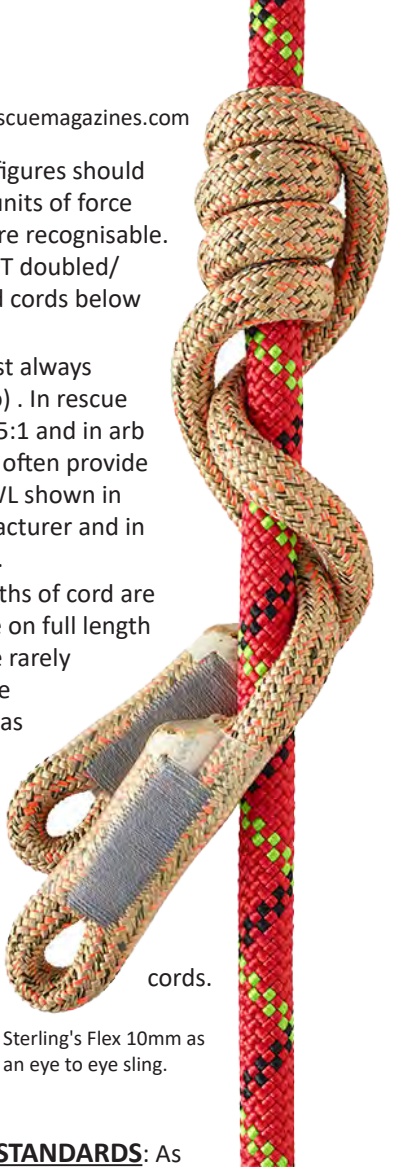
A solid circle ● in the '**SUITABLE FOR**' columns indicates that the cord is not totally suited to that role but it's OK. In the case of the HEAT-RESIST column you will only see the solid square for cord that is either predominantly sheathed in Technora or similar specialist fibre or there are such fibres mixed into not only the sheath but also the core. Any cord with a circle in this column will still be a very good bet for durability but those with a solid square will be the best in terms of heat-resistance. Don't forget though, this feature alone might not be your key requirement - you may be after a lighter more supple rope or simply less expensive as an initial outlay.

CONSTRUCTION: we show **KM** for Kernmantle, **DB** for Double Braid and **HB** for Hollow Braid or simply the thread count for some single braid cords. It used to be the case that Hollowbraid ropes were the weakest and least heat-resistant of cords but with the advent of Aramid/ Technora and Dyneema fibres there are now a number of hollowbraids that are as tough as wire rope! We have generally only shown cords that are actively marketed as arborist cord but there are a number of specialist cords used by firefighters and rescuers that cross the divide if you've got the spondooleys. You can already see from this list how many have incorporated fibres that were once the sole domain of fire-retardant ropes and these are not only heat-resistant they are extremely abrasion-resistant. However, they are virtually always a mixture of fibres because by themselves, some materials don't exhibit all of the necessary properties - for instance Kevlar has traditionally performed poorly in a knot and along with Dyneema couldn't be dyed so colours were introduced using an additional nylon or polyester thread. Where there are two fibres in the construction, The higher proportion fiber is listed first

MBL/ABL: As with all rope, some manufacturers only quote Average Breaking Load or ABL shown in burnt orange. We use the Minimum Breaking Load or MBL (or MBS where S =Strength) shown in black. These figures should more accurately be kN and lbf as units of force but the kg and lb equivalent is more recognisable. Figures are for tensile strength NOT doubled/ basket. NB: We have NOT included cords below 8kN/800kg/1800 lb in strength.

SWL or safe working load is almost always between4 & 15% (4:1 to 15:1 ratio) . In rescue it tends to be between 10:1 and 15:1 and in arb circles is often 7:1. Manufacturers often provide their own interpretation so the SWL shown in black is that quoted by the manufacturer and in burnt orange is the 7:1 equivalent.

ELONGATION for such short lengths of cord are not the consideration they may be on full length climbing and rigging ropes and are rarely quoted by manufacturers. We have therefore not included this unless as a special note such as Bluewater's dynamic rather than low-stretch cords.



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

TRUE DIAMETER CONVERSIONS

mm	Precise inches	Closest Specific Fraction	Generic Fraction
5	0.1969"	13/64	3/16
6	0.2362"	15/64"	just under 1/4"
6.5	0.25"	1/4"	1/4"
7	0.2756"	9/32"	just over 1/4"
7.5	0.2952"	19/64"	even more than 1/4"
8	0.315"	5/16"	5/16"
9	0.3543"	23/64"	just under 3/8"
9.5	0.375"	3/8"	3/8"
10	0.3937"	25/64"	just over 3/8"
11	0.4331"	7/16"	7/16"
12	0.4724"	15/32	just under 1/2"
12.7	0.4999"	1/2"	1/2"
13	0.5118"	33/64"	just over 1/2"

STANDARDS: As usual there are several at play with the more specific European **CE** standards - EN 354 as a lanyard **EN 566** as a climbing sling and **EN 795 Type B** as portable anchor 'device'. Not yet a specific standard as prusik cord!? We've just left it as CE certified in black. CI,BERRY,ANSI and NFPA are all US 'standards' or compliance. **BERRY** is related to sourcing of all materials in the manufacture of the product and is most often associated with military products. **CI** is Cordage Institute and is a 'prestige' mark. **NFPA** is for the Fire-Rescue industry but is useful to the work sector because it demands high load capabilities. Quite expensive to attain though so unless the arb company also caters to rescue it may not be worth the cost. **ANSI** is the US industrial standard and more broadly applied than CE but in our sector indicates suitability to arborist work. **UKCA** is a UK-only pseudo standard as a separation from European CE and **EAC** pertains to eastern Europe and Russia. UIAA is the original rope-equipment prestige mark and relates to mountaineering equipment .

We have not included the many rigging prusiks not certified for life-support/climbing activities.

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Minimum Breaking Strength:	8,992 lbf. (40.0 kN)
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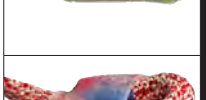
Images NOT to Scale COST: £$€ = Currency Conversion ONLY excludes eyes unless specified in NOTES. INC local taxes/VAT. Some not sold by m/ft, price shown is proportion of shortest length x10% and rounded up. SHEATH: DB=Double Braid, KM=KernMantle				COST	STATE	EYE to EYE COSTS	SIZE	WEIGHT	
	MODEL	COMPANY	ORIGIN	COST per Metre /3.28ft US$ per Foot	OFF-REEL 1x EYE 2xEYES SLING BOUND LOOP	COST MANUFACTURED LENGTHS £$€ = Currency Conversion ONLY Specific Item Weight	Ø mm	WEIGHT g/m lb/100' ITEM	
	Friction 8	ALLGEAR		£5.15 $6.55 $2.00 €5.95	■■	66cm/26" £22 $28 €25 71cm/28" £23 $29 €26 76cm/30" £24 $30 €27 81cm/32" £25 $31 €28	8mm 5/16"	120g 8lb	Poly
	Friction 10	ALLGEAR		£5.35 $6.80 $2.10 €6.15	■■	66cm/26" £24 $30 €27 71cm/28" £25 $31 €28 76cm/30" £26 $32 €29 81cm/32" £27 $35 €30	10mm 25/64"	149g 10lb	Poly
	TVP 8	ALLGEAR		£6.50 $8.20 $2.50 €7.50	■■	66cm/26" £30 $38 €35 71cm/28" £31 $39 €36 81cm/32" £33 $42 €38	8mm 5/16"	89g 6.1lb	Tech
	TVP 9.5	ALLGEAR		£7.50 $9.50 $3.00 €8.50	■■	66cm/26" £31 $39 €36 81cm/32" £36 $45 €41	9.5mm 3/8"	116g 7.8lb	Tech
	Prusik 8	ALLGEAR		£6.50 $8.10 $2.50 €7.40	■	-	8mm 5/16"	42g 2.8lb	Tw
	XS cord 9 XS9.1	ARBPRO		£4.30 $7.90 $2.40 €8.25	■■	50cm/20" £26 $32 €29 60cm/24" £27 $33 €30 70cm/28" £28 $34 €31 120cm/47" £31 $39 €35	9.1mm 3/8"	65g 4.4lb	Pol
	Volcano 8 BV08	BEAL		- - - -	■	70cm/28" £35 $40 €34 90cm/35" £36 $42 €35	8mm 5/16"	70g 2.5oz	Poly
	Volcano 10 BV10	BEAL		- - - -	■	70cm/28" £37 $44 €36 90cm/35" £38 $46 €37	10mm 25/64"	n/a	Poly
	Volcano 12 BV12	BEAL		- - - -	■	70cm/28" £40 $48 €39 90cm/35" £42 $50 €41	12mm 1/2"	n/a	Poly
	Hybrid 7.5	BLUEWATER		£1.00 $4.00 $1.25 €1.15	■	-	7.5mm 5/16"	40g 2.7lb	Tech
	VT 7	BLUEWATER		- - - -	■	84cm/33" £27 $30 €29	7mm 9/32"	98g 3.50z	
	VT 8	BLUEWATER		- - - -	■	84cm/33" £31 $30/34 €33	8mm 5/16"	n/a	
	Dynamic Prusik 6.5	BLUEWATER		£1.60 $2.00 $0.65 €1.80	■■	28cm/11" £11 $13 €12 51cm/20" £11 $14 €13 112cm/44" £13 $16 €15 173cm/68" £13 $17 €16	6.5mm 1/4"	26.3g 1oz	
	Dynamic Prusik 7	BLUEWATER		£1.80 $2.25 $0.70 €2.05	■■	46cm/18" £13 $16 €15 61cm/24" £13 $17 €16 173cm/68" £17 $21 €20	7mm 9/32"	35g 1.24oz	
	Dynamic Prusik 8	BLUEWATER		£1.95 $2.45 $0.75 €2.25	■■	46cm/18" £12 $15 €14 61cm/24" £15 $18 €17 76cm/30" £16 $20 €19	8mm 5/16"	39g 1.4oz	
	Prusik 6 293011/2	CMC		£2.05 $2.60 $0.80 €2.35	■	-	6mm 1/4"	27.9g 1.87lb	

ARBORIST HITCH CORD

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

Images NOT to Scale COST: £$€ = Currency Conversion ONLY excludes eyes unless specified in NOTES. INC local taxes/VAT. Some not sold by m/ft, price shown is proportion of shortest length x10% and rounded up. SHEATH: DB=Double Braid, KM=KernMantle	MODEL	COMPANY	ORIGIN	COST per Metre /3.28ft US$ per Foot	STATE OFF-REEL 1x EYE 2xEYES SLING BOUND LOOP	EYE to EYE COSTS MANUFACTURED LENGTHS £$€ = Currency Conversion ONLY Specific Item Weight	SIZE Ø mm	WEIGHT g/m lb/100' ITEM	
	Prusik 7 293017/37	CMC		£2.40 $2.95 $0.90 €2.70	■	-	7mm 9/32"	75g 5lb	N
	Prusik 8 293018/38	CMC		£3.30 $2.70 $1.00 €2.70	■	-	8mm 5/16"	74g 5lb	
	Prusik 9 293039	CMC		£2.95 $3.75 $1.15 €3.40	■	-	9mm 3/8"	89g 6.1lb	
	Aztek Prusik 6 295001/2/12	CMC		- - - -	■	22.8cm/9" £00 $16 €00 106.6cm/42" £00 $24 €00	6mm 1/4"	55.8g 0oz	
	Bound 383 386	CMC		- - - -	■■	46cm/18" £00 $21 €00 63.5cm/25" £00 $21 €00		48/62g 1.7/2.2oz	
	Phoenix 8	COURANT		£0 $4.85 $1.49 €0	■■	65cm/00" £00 $00 €00 70cm/00" £00 $00 €00 75cm/00" £00 $00 €00 80cm/00" £00 $00 €00 85cm/00" £00 $00 €00 90cm/00" £00 $00 €00	8mm 5/16"	0g 0lb	Poly
	Phoenix Elipse 8 1of2	COURANT		- - - -	■	40cm/00" £00 $00 €00 60cm/00" £00 $00 €00 80cm/00" £00 $00 €00	8mm 5/16"	0g 0lb	Poly
	Phoenix Elipse 8 2of2	COURANT		- - - -	■	120cm/00" £00 $00 €00 150cm/00" £00 $00 €00 200cm/00" £00 $00 €00	8mm 5/16"	0g 0lb	Poly
	Phoenix 10	COURANT		£0 $5.50 $1.70 €0	■■	65cm/00" £00 $00 €00 70cm/00" £00 $00 €00 75cm/00" £00 $00 €00 80cm/00" £00 $00 €00 85cm/00" £00 $00 €00 90cm/00" £00 $00 €00	10mm 25/64"	0g 0lb	Poly
	Armadillo 10 CT2277	COUSIN-TRESTEC		£6.15 $7.80 $2.45 €7.05	■■	70cm/28" £00 $00 €00 90cm/35" £00 $00 €00	10mm 5/16"	59g 3.9lb	Poly
	Armor-Prus Poly 8	DONAGHYS		£0 $11.40 $3.50 €0	■■	70cm/28" £00 $00 €39 90cm/35" £00 $00 €41	8mm 5/16"	69g 4.6lb	Poly
	Armor-Prus Poly 10	DONAGHYS		£0 $0 $0 €0	■■	00cm/00" £00 $00 €00 00cm/00" £00 $00 €00	10mm 25/64"	78g 5.25lb	Poly
	Armor-Prus Performance 8	DONAGHYS		£0 $13.00 $4.00 €0	■■	00cm/00" £00 $00 €00 00cm/00" £00 $00 €00	8mm 5/16"	69g 4.6lb	Poly UH
	Armor-Prus Performance 10	DONAGHYS		£0 $16.40 $5.00 €0	■■	00cm/00" £00 $00 €00 00cm/00" £00 $00 €00	10mm 25/64"	78g 5.25lb	Poly UH
	Tibor Loop 8 8820804/5/602000	EDELRID		£0 $9.65 $2.95 €0	■■	40cm/00" £00 $00 €00 50cm/00" £00 $00 €00 60cm/00" £00 $00 €00	8mm 5/16"	0g 0lb	Poly Poly

ARBORIST HITCH CORD

CONSTRUCTION			STANDARDS	SUITABLE FOR			MINIMUM BREAKING LOAD		SWL/WLL					
MATERIALS: SHEATH CORE	SHEATH BRAID/ PLAIT	HAND SPLICEABLE PRE-SPLICED PRE-SEWN	STANDARDS	CLIMBING	BRAKING	HEAT RESIST	MBL Minimum Break Load Spliced Sewn	ABL Average Break Load Spliced Sewn	WLL Spliced Sewn *Average	OTHER COLOURS			NOTES	WWW.
Nylon Nylon/Vectran	16 KM	■	-	■	■	■	8kN 1798lbf		0kg 0lb					cmcpro.com
Polyester Nylon	32 KM	■	-	■	■		14kN 3147lbf		0kg 0lb					cmcpro.com
Polyester Nylon	32 KM	■	ANSI	■	■		15kN 3372lbf		0kg 0lb					cmcpro.com
Nylon Nylon	24 KM	■	CE	■	■		13kN 2922lbf		0kg 0lb				42"=blue only	cmcpro.com
		■		■	■		20kN 4496lbf		0kg 0lb				18"=Red 25"=Green	cmcpro.com
yester/Aramid Nylon	24 DB	■	CE	■	■	●	24kN 5280lbf		0kg 0lb					vertical-living.mycourant.com
yester/Aramid Nylon	24 DB	■	CE	■	■	●	24kN 5280lbf		0kg 0lb				Colour coded lengths 40cm-Black 60cm-Orange 80cm- Blue	vertical-living.mycourant.com
yester/Aramid Nylon	24 DB	■	CE	■	■	●	24kN 5280lbf		0kg 0lb				Colour coded lengths 120cm-Green 150cm-Red 200cm- Black	vertical-living.mycourant.com
yester/Aramid Nylon	16 DB	■	CE	■	■	●	28kN 6160lbf		0kg 0lb					vertical-living.mycourant.com
ester/Technora Nylon	32 DB	■	CE	■	■	●	22kN 4945lbf		0kg 0lb				0.76 knotability	bealplanet.com
ester/Technora Polyester	DB	■ ■	ANSI	■	■	●	23kN 0lbf		0kg 0lb					bealplanet.com
ester/Technora Polyester	DB	■ ■	?	■	■	●	32kN 0lbf		0kg 0lb					bluewaterropes.com
ester/Technora MwPE/Kevlar	DB	■ ■	ANSI	■	■	■	28kN 6160lbf		0kg 0lb					bluewaterropes.com
ester/Technora MwPE/Kevlar	DB	■ ■	?	■	■	■	43kN 0lbf		0kg 0lb					bluewaterropes.com
yester/Aramid yester/Aramid	16 KM	■	CE ANSI	■	■	■	18kN 4840lbf		0kg 0lb					edelrid.com

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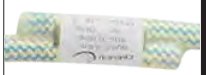
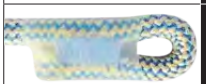
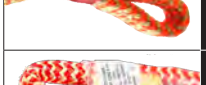
	MODEL	COMPANY	ORIGIN	COST per Metre /3.28ft US$ per Foot	OFF-REEL 1x EYE 2xEYES SLING BOUND LOOP	COST MANUFACTURED LENGTHS £$€ = Currency Conversion ONLY Specific Item Weight	Ø mm	WEIGHT g/m lb/100' ITEM	
	Tibor 8 Open 882070702000	EDELRID		£0 $9.65 $2.95 €0	■■	70cm/00" £00 $00 €00 75cm/00" £00 $00 €00 80cm/00" £00 $00 €00 85cm/00" £00 $00 €00 90cm/00" £00 $00 €00	8mm 5/16"	0g 0lb	Poly Poly
	**Tibor 10 Loop** 8820804/5/602000	EDELRID		- - - -	■	60cm/00" £00 $00 €00 70cm/00" £00 $00 €00	10mm 25/64"	0g 0lb	Poly Poly
	**Tibor 10 Open** 882070702000	EDELRID		- - - -	■	80cm/00" £00 $00 €00 90cm/00" £00 $00 €00	10mm 25/64"	0g 0lb	Poly Poly
	Silva Prusik 9	ENGLISH BRAIDS					9mm 3/8"	66.7g 0lb	
	Prusik Pro 8	ENGLISH BRAIDS					8mm 5/16"	44.8g 0lb	
	Argon 8	FTC TREE		£6.00 $8.00 $2.50 €6.85	■■	70cm/28" £26 $33 €29 90cm/35" £26 $33 €29	8mm 5/16"	47g 1.7oz	Tech
	Néon 10	FTC TREE		- - - -	■	70cm/28" £28 $36 €32 90cm/35" £28 $36 €32	10mm 25/64"	68g 2.4oz	Tech
	Inco 10	GLEISTEIN		- - - -	■	70cm/28" £00 $00 €00 80cm/31" £00 $00 €00 90cm/35" £00 $00 €00 100cm/39"£00 $00 €00	10mm 25/64"		Poly
	**Timber 8**	LANEX (TENDON)		£0 $3.90 $1.20 €0	■■	80cm/31" £00 $00 €00 100cm/39"£00 $00 €00 120cm/47"£00 $00 €00	8mm 5/16"	54.3g 3.65lb	Poly
	Timber 10	LANEX (TENDON)		£0 $5.00 $1.55 €0	■■		10mm 25/64"	73g	Poly
	Safe Prusik 8/ Runner 8	LIROS		£0 $0 $0 €0	■■	60cm/24" £16 $22 €20 75cm/30" £24 $32 €29 80cm/31" £00 $00 €00 90cm/35" £25 $33 €30 100cm/39"£00 $00 €00 110cm/43"£00 $00 €00 120cm/47"£00 $00 €00	8mm 5/16"		Pol
	Safe Prusik XTR 9 1of2	LIROS		£0 $0 $0 €0	■■	60cm/24" £16 $00 €00 70cm/28" £00 $00 €00 80cm/31" £00 $00 €00 90cm/35" £00 $00 €00 100cm/39"£00 $00 €00 110cm/43"£00 $00 €00 120cm/47"£00 $00 €00	9mm 3/8"	52g 3.5lb	Poly Dyn
	Safe Prusik 9.1	LIROS		£0 $0 $0 €0	■■	60cm/24" £00 $00 €00 75cm/30" £26 $34 €31 80cm/31" £00 $00 €00 90cm/35" £27 $36 €33 100cm/39"£00 $00 €00 110cm/43"£00 $00 €00 120cm/47"£00 $00 €00	9.1mm 3/8"		Pol
	Safe Prusik 10	LIROS		£0 $0 $0 €0	■■	60cm/24" £00 $00 €00 70cm/28" £00 $00 €00 80cm/31" £00 $00 €00 90cm/35" £00 $00 €00 100cm/39"£00 $00 €00 110cm/43"£00 $00 €00 120cm/47"£00 $00 €00	10mm 25/64"		Pol

ARBORIST HITCH CORD

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

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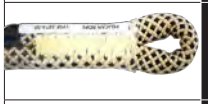
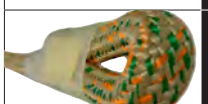
SHEATH: DB=Double Braid, KM=KernMantle

	MODEL	COMPANY	ORIGIN	COST per Metre /3.28ft US$ per Foot	STATE OFF-REEL 1x EYE 2xEYES SLING BOUND LOOP	EYE to EYE COSTS COST MANUFACTURED LENGTHS £$€ = Currency Conversion ONLY Specific Item Weight				SIZE Ø mm	WEIGHT WEIGHT g/m lb/100' ITEM	N
	Viper 8 KE1230/31 WKE010/1/2	MARLOW ROPE		- - -		50cm/20" 60cm/24" 70cm/28"	€00 €00 €00	€00 €00 €00	€00 €00 €00	8mm 5/16"	56.9g 3.80lb	Poly Po
	Viper II 8 KE1230/31 WKE250/1/2/3/4/5	MARLOW ROPE		- - -		50cm/20" 60cm/24" 70cm/28" 80cm/31" 90cm/35" 100cm/39"	£00 £00 £00 £00 £00 £00	$00 $00 $00 $00 $00 $00	€00 €00 €00 €00 €00 €00	8mm 5/16"	49.9g 3.3lb	Poly
	Boa 9 KE0352/4	MARLOW ROPE		£2.40 $3.20 $1.00 €2.90		50cm/20" 60cm/24" 70cm/28"	€00 €00 €00	€00 €00 €00	€00 €00 €00	9mm 3/8"	66g 4.4lb	
	Boa 9 Blue Ocean* KE0379/80	MARLOW ROPE		- - -		50cm/20" 60cm/24" 70cm/28"	€00 €00 €00	€00 €00 €00	€00 €00 €00	9mm 3/8"	65.5g 4.4lb	Poly Poly
	Wrap Star 8.1	NOTCH EQUIPMENT		£10.55 $13.10 $4.00 €12.35		70cm/28" 76cm/30" 81cm/32"	£22 £22 £22	$27 $27 $27	€26 €26 €26	9.1mm 3/8"	55.2g 3.7lb	Polye
	Wrap Star 10.1	NOTCH EQUIPMENT		£10.55 $13.10 $4.00 €12.35		70cm/28" 76cm/30" 81cm/32"	£22 £22 £22	$27 $27 $27	€26 €26 €26	10.1mm 25/64"	60g 4lb	Polye
	Bulldog 8	PELICAN ROPE		- - - -		71cm/28" 76cm/30" 81cm/32"	£20 £22 £32	$24 $27 $39	€23 €26 €37	8mm 5/16"		Polye
	**Bulldog 10**	PELICAN ROPE		- - - -		71cm/28" 76cm/30" 81cm/32" 86cm/34"	£25 £26 £28 £29	$30 $32 $34 $35	€29 €31 €32 €33	10mm 25/64"		Polye
	Technora Prusik 6	PELICAN ROPE		- - -		-	-	-	-	6mm 1/4"	33.7g 2.2lb	
	Technora Prusik 8.7	PELICAN ROPE		- - -		71cm/28" 76cm/30" 81cm/32"	£30 £33 £35	$37 $40 $43	€35 €38 €41	8.7mm 11/32"	56.5g 3.8lb	
	Segment 8	PETZL		- - -						8mm 5/16"	43g 2.8lb	
	Prusik 7 single or double stitch	PMI		£1.65 $2.00 $0.65 €1.90		48cm/19" 66cm/26" 86cm/34" 173cm/68"	£12-20 £14-20 £15-20 £20	$15-25 $17-25 $18-25 $24-25	€14-24 €13-24 €17-24 €23-24	7mm 9/32"	58g 3.9lb	
	Prusik 8 single or double stitch	PMI		£2.00 $2.45 $0.75 €2.35		40cm/16" 50cm/20" 56cm/22" 66cm/26"	£13-20 £13-20 £13-20 £13-20	$16-25 $16-25 $16-25 $16-25	€15-24 €15-24 €15-24 €15-24	8mm 5/16"	39g 5.1 lb 75g 2.48oz	
	Lumi-Line 7 CC070UG	PMI		£2.45 $3.00 $0.95 €2.85		640cm/25'	£14	$17	€16	7mm 9/32"	29g 3.9lb 189g 6.7oz	
	**Eye & Eye VT 8**	PMI		- - -		66cm/26" 71cm/28" 84cm/33"	£20 £20 £22	$24 $25 $27	€23 €24 €26	8mm 5/16"	?	Polye Poly
	Tuff Cord 7	PMI		£2.65 $3.30 $1.05 €3.15						7mm 9/32"	38g 10.86lb	

ARBORIST HITCH CORD

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

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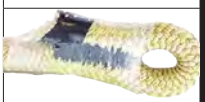
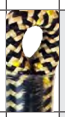
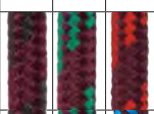
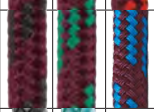
	ArmorPrus 8	ROPE LOGIC/ DONAGHYS		£10.20 $13.00 $4.00 €11.80	■■	60cm/24" £24 $30 €28 70cm/28" £24 $30 €28 76cm/30" £24 $30 €28 81cm/32" £24 $30 €28	8mm 5/16"	69g 4.6lb	Poly UH
	ArmorPrus 10	ROPE LOGIC/ DONAGHYS		£12.90 $16.40 $5.00 €14.85	■■	70cm/28" £26 $33 €30 76cm/30" £26 $33 €30 81cm/32" £26 $33 €30 90cm/35" £26 $33 €30	10mm 25/64"	78g 5.25lb	Poly UH
	EpiCORD 8	ROPE LOGIC/ TEUFELBERGER		-	■	60cm/24" £24 $31 €28 70cm/28" £25 $32 €29 76cm/30" £26 $33 €30 81cm/32" £27 $34 €31	9.3mm 3/8"	n/a	Poly Tech
	EpiCORD 10	ROPE LOGIC/ TEUFELBERGER		-	■	70cm/28" £27 $34 €31 76cm/30" £27 $34 €31 81cm/32" £27 $34 €31	10mm 25/64"	n/a	Poly Tech
	Ocean 8	ROPE LOGIC/ TEUFELBERGER		-	■	60cm/24" £23 $28 €26 70cm/28" £23 $28 €26 76cm/30" £23 $28 €26 81cm/32" £23 $28 €26	8mm 5/16"	n/a	Poly
	Ocean 10	ROPE LOGIC/ TEUFELBERGER		-	■■	60cm/24" £33 $42 €38 70cm/28" £33 $42 €38 76cm/30" £33 $42 €38 81cm/32" £33 $42 €38	10mm 25/64"	n/a	Poly
	Bee Line 8	ROPE LOGIC/ YALE		-	■	60cm/24" £19 $24 €22 66cm/26" £19 $24 €22 70cm/28" £19 $24 €22 76cm/30" £19 $24 €22 81cm/32" £19 $24 €22	8mm 5/16"	n/a	Tech
	Bee Line10	ROPE LOGIC/ YALE		-	■	76cm/30" £30 $38 €35	10mm 25/64"	n/a	Tech
	Veritas 8	ROPE LOGIC/ YALE		-	■	70cm/28" £22 $27 €25 76cm/30" £22 $27 €25 81cm/32" £22 $27 €25	8mm 5/16"	n/a	Tech
	Veritas 10	ROPE LOGIC/ YALE		-	■	70cm/28" £22 $27 €25 76cm/30" £22 $27 €25 81cm/32" £22 $27 €25	9mm 3/8"	n/a	Tech
	HRC 8	ROPE LOGIC/ TEUFELBERGER		-	■	60cm/24" £23 $28 €26 70cm/28" £23 $28 €26 76cm/30" £23 $28 €26 81cm/32" £23 $28 €26	8mm 5/16"	n/a	Tec
	Flex 8	ROPE LOGIC/ STERLING		-	■	70cm/28" £20 $25 €23 76cm/30" £20 $25 €23 81cm/32" £20 $25 €23	8mm 5/16"	n/a	Poly
	RIT 9	ROPE LOGIC/ STERLING		-	■	70cm/28" £20 $25 €23 76cm/30" £20 $25 €23 81cm/32" £20 $25 €23	9mm 3/8"	n/a	
	IceTail 8	ROPE LOGIC/ SAMSON		-	■	66cm/26" £19 $24 €22 70cm/28" £19 $24 €22 76cm/30" £19 $24 €22 86cm/34" £19 $24 €22	8mm 5/16"	n/a	Pol
	Wrap Star 9.1	ROPE LOGIC/ NOTCH		-	■	70cm/28" £23 $29 €27 76cm/30" £23 $29 €27 81cm/32" £23 $29 €27	9.1mm 3/8"	55.2g 3.7lb	Poly

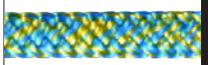
ARBORIST HITCH CORD

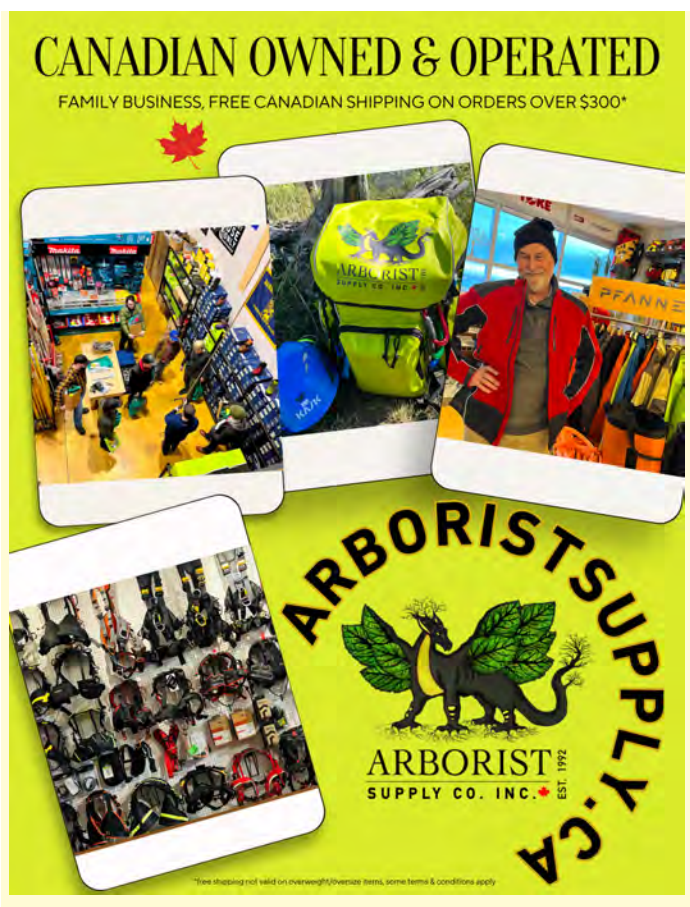
CONSTRUCTION			STANDARDS	SUITABLE FOR			MINIMUM BREAKING LOAD		SWL/WLL					
MATERIALS: SHEATH CORE	SHEATH BRAID/ PLAIT	HAND SPLICEABLE PRE-SPLICED PRE-SEWN	STANDARDS	CLIMBING	BRAKING	HEAT RESIST	MBL Minimum Break Load Spliced Sewn	ABL Average Break Load Spliced Sewn	WLL Spliced Sewn *Average	OTHER COLOURS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

Images NOT to Scale COST: £$€ = Currency Conversion ONLY excludes eyes unless specified in NOTES. INC local taxes/VAT. Some not sold by m/ft, price shown is proportion of shortest length x10% and rounded up. SHEATH: DB=Double Braid, KM=KernMantle				COST	STATE	EYE to EYE COSTS	SIZE	WEIGHT	
	MODEL	COMPANY	ORIGIN	COST per Metre /3.28ft US$ per Foot	OFF-REEL 1x EYE 2xEYES SLING BOUND LOOP	COST MANUFACTURED LENGTHS £$€ = Currency Conversion ONLY Specific Item Weight	Ø mm	WEIGHT g/m lb/100' ITEM	
	Prusik Cord 9	SAMSON		£2.35 $2.95 $0.90 €2.70	■	-	9mm 3/8"	61g 4.1lb	
	Bail Out 8	SAMSON		£10.75 $8.20 $2.50 €7.75	■■■		8mm 5/16"	0g 3lb	Ara Ara
	Bail Out XL 9	SAMSON		£8.50 $11.00 $3.50 €10.00	■		9mm 3/8"	0g 4.2lb	Ara Ara
	UltraTech 8	SAMSON		£0 $0 $0 €0	■■		8mm 5/16"	60g 4lb	Tech
	UltraTech 9	SAMSON		£5.40 $7.00 $2.20 €6.40	■■		9mm 3/8"	68g 4.6lb	Tech
	Ice Tail 8	SAMSON		£11.00 $13.25 $4.00 €12.00	■■	60cm/24" £24 $31 €29 70cm/28" £22 $28 €26 76cm/30" £22 $28 €26 81cm/32" £22 $28 €26	8mm 5/16"	46g 3.1lb	Pol
	Timber 8 W2608	SINGING ROCK		- - - -	■	75cm/30" £00 $00 €00 80cm/31" £00 $00 €00 85cm/33" £00 $00 €00 100cm/39" £00 $00 €00	8mm 5/16"	54.3g 3.65lb	Poly
	Prusik Sling 8 W2601R085	SINGING ROCK		- - - -	■	38cm/15" £11 $16 €13	8mm 5/16"	48g 1.7oz	Poly
	Timber 10 W2610	SINGING ROCK		- - - -	■	80cm/31" £00 $00 €00 85cm/33" £00 $00 €00 90cm/35" £00 $00 €00 100cm/39" £00 $00 €00	10mm 25/64"	73g	Poly
	Prusik Sling10 W2602Y085	SINGING ROCK		- - - -	■	38cm/15" £13 $19 €15	10mm 25/64"	70g 2.5oz	Poly
	Prusik Braid 6	SOUTHERN ROPES		£0 $0 $0 €0	■		6mm 1/4"		
	Prusik Braid 7	SOUTHERN ROPES		£0 $0 $0 €0	■		7mm 9/32"		
	Prusik Braid 8	SOUTHERN ROPES		£0 $0 $0 €0	■		8mm 5/16"		

ARBORIST HITCH CORD

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

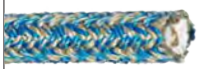
Images NOT to Scale COST: £$€ = Currency Conversion ONLY excludes eyes unless specified in NOTES. INC local taxes/VAT. Some not sold by m/ft, price shown is proportion of shortest length x10% and rounded up. SHEATH: DB=Double Braid, KM=KernMantle	MODEL	COMPANY	ORIGIN	COST COST per Metre /3.28ft US$ per Foot	STATE OFF-REEL 1x EYE 2xEYES SLING BOUND LOOP	EYE to EYE COSTS COST MANUFACTURED LENGTHS £$€ = Currency Conversion ONLY Specific Item Weight	SIZE Ø mm	WEIGHT WEIGHT g/m lb/100' ITEM	
	Copious Atol 9	STEIN		£2.77 $3.77 $1.15 €3.30	■ ■ ■	50cm/20" £18 $28 €22 65cm/26" £18 $28 €22 70cm/28" £22 $31 €27 75cm/30" £22 $31 €27	9mm 3/8"		
	Copious Bee Line 10	STEIN		- - - -	■	75cm/30" £30 $33 €36 85cm/33" £30 $33 €36	10mm 25/64"		
	Copious A-Tec 9	STEIN		- - - -	■	65cm/26" £24 $33 €29 70cm/28" £24 $33 €29 75cm/30" £24 $33 €29 85cm/33" £24 $33 €29	9mm 3/8"		
	Copious P-Tec 9	STEIN		- - - -	■	75cm/30" £24 $33 €21 85cm/33" £24 $33 €21	9mm 3/8"		Poly
	HollowBlock2 6.8 HOLB	STERLING		£5.00 $6.50 $2.00 €6.00	■ ■	34cm/13.5" £20 $25 €23 48cm/19" £21 $26 €24	6.8mm 9/32"	1.8lb	
	RIT 8	STERLING		- - - -	■	60cm/24" £24 $31 €29 70cm/28" £22 $28 €22 76cm/30" £22 $28 €22 81cm/32" £22 $28 €22	8mm 5/16"		
	RIT 9	STERLING		£5.80 $7.50 $2.60 €6.90	■	70cm/28" £26 $34 €31 76cm/30" £26 $34 €31 81cm/32" £26 $34 €31 91cm/36" £26 $34 €31	9mm 3/8"	4.2lb	



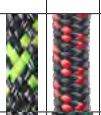
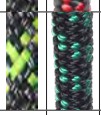
ARBORIST HITCH CORD

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

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

	MODEL	COMPANY	ORIGIN	COST per Metre /3.28ft US$ per Foot	STATE OFF-REEL 1x EYE 2xEYES SLING BOUND LOOP	EYE to EYE COSTS COST MANUFACTURED LENGTHS £$€ = Currency Conversion ONLY Specific Item Weight	SIZE Ø mm	WEIGHT g/m lb/100' ITEM	
	Flex 8	STERLING		£5.50 $7.00 $2.60 €6.50	■■	70cm/28" £25 $32 €29 76cm/30" £25 $32 €29 81cm/32" £25 $32 €29	8mm 5/16"		Poly
	Flex 10	STERLING		- - - -	■	70cm/28" £26 $33 €30 76cm/30" £26 $33 €30 81cm/32" £26 $33 €30	8mm 5/16"		Poly
	HRC 8	TEUFELBERGER		- - - -	■■	60cm/24" £23 $28 €26 70cm/28" £23 $28 €26 76cm/30" £23 $28 €26 81cm/32" £23 $28 €26	8mm 5/16"	49.1g 3.3lb	Tec
	EPI 8	TEUFELBERGER		£9.30 $11.80 $3.60 €11.10	■■■	70cm/28" £22 $27 €25 76cm/30" £22 $27 €25 81cm/32" £22 $27 €25	8mm 5/16"	52.1g 3.5lb	Poly Tech
	EPI 9.3	TEUFELBERGER		£11.00 $14.00 $4.25 €13.00	■■■	70cm/28" £22 $27 €25 76cm/30" £22 $27 €25 81cm/32" £22 $27 €25	9.3mm 11/32"	59.5g 4lb	Poly Tech
	EPI 10	TEUFELBERGER		£11.50 $15.00 $4.40 €14.00	■■	70cm/28" £20 $25 €23 76cm/30" £20 $25 €23 81cm/32" £20 $25 €23	10mm 25/64"	62.5g 4.2lb	Poly Tech
	Ocean 8	TEUFELBERGER		£7.75 $5.70 $1.75 €5.20	■■	60cm/24" £28 - - 66cm/26" £19 $24 €22 70cm/28" £20 $25 €23 76cm/30" £20 $25 €23 81cm/32" - $25 €23 90cm/35" £28 - -	8mm 5/16"	50.1g 3.37lb	Pol
	Ocean 10	TEUFELBERGER		£4.80 $6.30 $1.95 €5.75	■■	66cm/26" £19 $24 €22 70cm/28" £19 $24 €22 76cm/30" £19 $24 €22 81cm/32" £19 $24 €22	10mm 25/64"	72.1g 4.75lb	Pol
	Sirius 8	TEUFELBERGER		£1.20 $1.60 $0.55 €1.50	■	50cm/20" £18 $23 €21 60cm/24" £18 $23 €21 70cm/28" £18 $23 €21	8mm 5/16"	50g 3.36lb	
	Sirius 10	TEUFELBERGER		£0 $0 $0 €0	■		10mm 25/64"	71g 4.77lb	
	TH1154	TREEHOG		£2.25 $3.00 $0.95 €2.70	■■	50cm/20" £18 $23 €21 60cm/24" £18 $23 €21 70cm/28" £18 $23 €21	10mm 25/64"	72g 4.7lb	Pol
	Bee line 10 Poly	YALE		£6.00 $7.90 $2.40 €7.20	■■		10mm 25/64"	72g 4.8lb	Tech
	Bee Line 8 Vectran	YALE		£6.50 $7.45 $2.26 €6.80	■■		8mm 5/16"	55g 3.7lb	Tech
	Bee Line 10 Vectran	YALE		£6.90 $8.50 $2.60 €7.75	■■		10mm 25/64"	71g 4.8lb	Tech
	Veritas 8	YALE		£5.00 $6.50 $2.00 €6.00	■■		8mm 5/16"		Tech
	Veritas 10	YALE		-	■	70cm/28" £24 $30 €28 76cm/30" £24 $30 €28 81cm/32" £24 $30 €28	10mm 25/64"		Tech

ARBORIST HITCH CORD

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

UPDATED Jan '26

ARBORIST SIT HARNESSES

with Bridge and/or Sit Strap

2025/26: There have been some big price increases for US harnesses even where they are from a US company. Possibly a reflection of tariffs imposed by the US affecting material costs and increasing domestic pricing? Harnesses was the first GUIDE we had in ARBCLIMBER in issue 1, written in 2011, published in 2012 and in the intervening 14 years it is amazing just how many things *haven't* changed. There have been many new harnesses and updates of course and some have dropped off the production schedules altogether including the venereable *Whillans T* from the 70s. So we thought it would be useful to run our original text and insert update text (in this green colour) where necessary. We don't have room for both sets of images but again the majority that we used to illustrate the introduction in issue 1 are harnesses that are still familiar today - the *Teufelberger Tree Motion, Petzl Sequoia, Buckingham Ergo, CAMP Access* and the widely rebadged *Protekt TH* models. You may need to keep reminding yourself that the text in black is over a decade old. Where a term or date has been updated from the original we have shown the changed word(s) in green as well as all updated 2025/26 text.

***2011**: In the US, the type of harness we're looking at in this guide is still more commonly described as a 'saddle' with the term 'harness' often reserved for lightweight, full-body, fall-arrest harnesses. To avoid any misunderstandings we refer to all webbing, load-support harnesses, whether they be sit, full body or sit-strap harness as ....harnesses.*

Do you remember the original Whillans harness? If you do, you're probably from the UK and probably getting on a bit. Don Whillans, bless him, was a god in the mountaineering world and his Troll Whillans harness was, throughout the seventies and early eighties, the pinnacle of climbing harness design. As a mountaineer myself I felt that my trusty Whillans was just the thing for tree work since the Willans was already a renowned brand. Imagine my consternation on discovering that not only did I have the wrong Mr Whillans but that my version had a wicked, and I do mean wicked, central tie-in eye that came up between your legs [rather than having round leg-loops) and consequently had the very uncomfortable tendency to trap a testicle or two (if you were male) and didn't tie into the two attachment eyes emanating from the top of the waist belt. It was also not very forgiving if you were in an unusual position and in arbwork an 'unusual' position is the norm. So, far from the mountains where Don Whillans plied his trade another Willans, Major 'Dumbo' Willans without the 'h' developed, amongst many other things the Willans tree harness which had a sit (or butt) strap that coddled the buttocks like a leg loop never could, at least not in those days. The sit strap eyes then formed the central hardpoint and hey-presto your testicles could breathe again. Having glossed over my harness faux pas by insisting that I was trialling mountaineering gear for tree surgery I was mighty relieved when Troll produced their full body Manchester harness with sit strap which, though a messy pile of webbing, I actually could use for tree work without risking sterilisation. The venerable Willans is still made by the original Willans Harness Manufacturing company founded by 'Dumbo' in 1972 and now in its RW59 or T22 guise. But it now has lots of competition because by the mid nineties several climbing and industrial harness manufacturers had realised that they were missing a trick not catering for the tree industry and started producing arborist harnesses that combined the best features of the original Willans with the original Whillans. Well, OK maybe not the original Whillans but a modern mountaineering harness with all its gear attachments and padded, safely fitting leg-loops etc. Of course the Willans didn't have the field to itself because the standard for most arborists, especially in the US was (and still is) the part- leather 'saddle' as exemplified by the

New in 2026 - The *SEQUIOA*'s will see an upgrade to *SEQUIOA* and *SEQUIOA PLUS* with the *PLUS* being the new SRT/SRS model

New in 2025 - DMM's *Kinisi* now has 4 variants, the *Max, Pro, Air* and *Key,* which are the full-spec *Max* to the lightest and more basic *Air* and *Key*

ARBORIST SIT HARNESSES

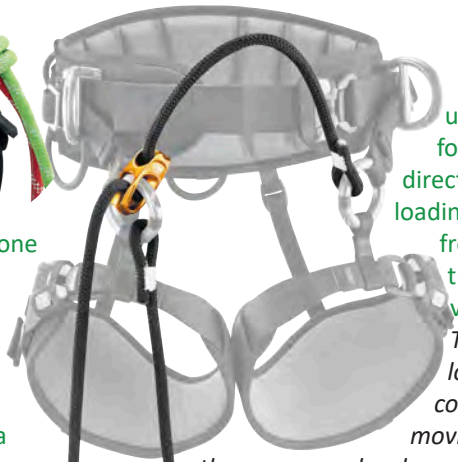
images NOT to scale

Buckingham, Weaver and *Bashlin Classic* saddles and still made by these same companies for their traditional clientele (*Weaver* pin & hole belts shown on the right) alongside their more modern designs but there's no doubt that both Weaver and Buckingham continue to design 'out of the box' to cater specifically for the US market but all are moving more towards Euro-style technical leg-loop harnesses. The *Weaver Denali* for instance has water buffalo leather and an unusual double waist belt arrangement utilising 4 roll bar buckles in addition to the central *AustriAlpin Cobra* buckle. On the right are three of *Weaver*'s current product range, the insets are traditional leather saddles with pin & hole belt and leg loops while the main image is their latest model, the *Stratus*. This is particularly interesting because it not only follows the trend in North America towards technical leg-loop harnesses, this particular model is clearly a much lighter and trimmed down harness with minimalist webbing at the front but huge padded areas on the back of the legs and waist belt where they are needed when load is applied. It uses simplified lightweight rings for the 'pole-strap D-rings' and a minimalist multi-ring (4-hole rigging plate) as the bridge union.

Back to some traditional designs sold in the US and the *Weaver* harness above integrates sit-strap D-rings into the leg loops while the version below has joined the two ends to create a single bridge and then slides the D-rings along its length. Contrast these with their latest designs the *Stratus* (top) and the *Denali*

THE FLOATING (SUSPENSION) BRIDGE

With any single-central hardpoint harness, as soon as you manoeuvre off the vertical you are fighting both the pendulum effect of the rope and the restriction of the harness giving a forced rather than balletic, transitional action. In the mid to late nineties a veritable revolution in arborist harnesses saw the introduction of the floating bridge also known back then *as a glide or butterfly strap which connects two widely spaced eyes or rings. A round ring or D-ring can slide the width of this bridge allowing a huge amount of lateral rotation of the hips in continued comfort. If you compare the* three *Weaver* harnesses on the right you will notice that there are three very different tie-in options. The top harness is *Weaver's Stratus* with the now common rope bridge, in this case



tied off with a double fisherman's knot. Most modern harnesses allow you to add a second bridge to give redundancy and/or quick access to a different length bridge. This is often tied into one end of the first bridge with a Fisherman's so that it looks like you have a quadruple Fisherman's on the same rope ends. (see inset pic above of *Edelrid's Tree Rex*). You can do the same on the other end or have the two ends separated so that you can more easily adjust the length on one or both. Some use a single rope length that is doubled using a girth hitch on one end and a Fisherman's on the other. *The two D-Rings on a length of unusually wide webbing is an early (and still popular) design for use with the Split Tail System but most harnesses now use a much narrower double layer of webbing or rope for the bridge. This is always connected to D-ring or shackle unions between both the leg loop risers and the waist belt and ensures that the meaty thighs as well as padded waist are each sharing some of the load some of the time.*

As you can probably guess, this design has very much taken a back-seat though there are still a number of US models and the venerable old UK *Willans* offering the D-rings on a sit-strap arrangement. Instead, virtually all modern harnesses have made the bridge union into an attachment eye for both the bridge or multiple bridges and additional SRT (SRS) , DRT (MRS) and lanyard attachments. The use of double lanyards in particular has become the norm since the first article making use of both side D's and bridge union eyes or D-rings as can be seen in the *Vega* harness above. The sit-strap style connection has been been sidelined because of its restrictive loading forcing the legs together instead of being able to stretch and reach as demanded by modern arb gymnastics but it's interesting to note that the prominent bridge union D-rings like *Petzl's SRT* version of the *Sequoia* enable the same use as that traditional sit-strap design.

A component we are seeing more and more is the openable ring which can be used as a sliding bridge ring but with increased cost over a standard ring is better used at the bridge union for multi-directional loading as distinct from the more traditional shackle. This is *Courant*'s version, *Odin.*

The bridge on all harnesses receives a lot of wear, much more than any other component since it has a continually moving connection and is a textile rather than hardware fixing. Some are user-replaceable as they are connected by shackles and some use a tied length of rope rather than webbing. This has the enormous advantage of being cheap and easy to replace and of being able to incorporate rigging plates, swivels or pulleys as a link between the bridge and your main line(s). Of course, these things will also work well enough on webbing which is often double thickness and around 20mm wide so hardware slides easily on it. Those using rope bridges offer you the option of simply replacing the bridge with your own and tying off with a fisherman's each end. Indeed since the first article it is common for the harness to come with a tied rope bridge or even two bridges offering different lengths for different systems and for double lanyard working. Many still offer a bespoke sewn end or special termination rope bridges like Petzl who also offer an optional adjsutable length bridge shown on the left. We have already mentioned the Edelrid ajustment option using a small aramid prusik.

Another interesting design is the Komet or Miller/Sperian Morpho. This harness (right) has placed the bridge shackles into a captive eye created by twisting the leg loop-to-waist belt riser into a kind of figure 8. This allows you to adjust the position of the bridge up towards the waist or down towards the legs. The Morpho is still available and this form of dual-usage bridge union has evolved to become the norm with more and more harnesses unifying the leg riser adjustment with a bridge length adjustment tied back to the waistbelt instead of the Morpho's ingenious but less adjustable twisted length of webbing. Its use of a shackle was also ahead of its time though present on the Polish Protekta models rebadged by a number of arb companies. This is still seen on some models and on others has evolved into 'multi-rings' which are large D-rings with a number of additional eyes for tying in your rope bridge(es). Still others are making more and more use of openable rings like Petzl , Edelrid and Courant and these can be bridge unions, bridge rings or even Side D's or side O's would be more accurate.

SIT-COMFORT

Whether you use a wide sit strap, (a bosun's chair/ batten seat) or you use individual leg loops in the climbing style is largely a matter of personal preference. Virtually all harnesses now offer both, but some leg loops are intended to be primarily loaded like the Ergovation and Tree MOTION harnesses and some are simply a safety back up like the Willans and the Petzl Swing variant of the Sequoia (Petzl now has just the two Sequoia models - regular and SRT versions but both can accommodate the rigid Petzl bosuns seat). The latter is an interesting design that doesn't appear to compromise the size/ width of the leg-loop webbing while integrating the sit strap. The original sit-strap-only harnesses did, and do, have the distinct disadvantage of squeezing your legs together and limiting your movement dexterity in the canopy, they also had an alarming safety drawback in that you could fall through it if the sit strap is not properly in place and you don't have a Bluto-style barrel chest. A more common problem was that of falling out of it if you inverted. Leg loops therefore became the norm to improve safety but many arborists still insisted on the extra perceived comfort of the sit strap because it spreads the load across a wider area and tends to support higher up the thighs or even up to the buttocks. A trend adopted by Harkie and Komet and shown on the Dragon is an enhanced support leg loop which extends like a fore-sail further up the thigh and acts as a kind of 'bucket' -seat this was exemplified by New Tribe with their ProGear2 harness and then all of their later harnesses like the Onyx which is still available while stocks last but New Tribe ceased trading from January 2023 after owner and rec-climbing pioneer Sophia Sparks decided to take a well-earned retirement. The Courant Koala has elasticated loops in its leg loops that allows very simple insertion of a wooden bosun's chair, which can be fixed using webbing with buckles.

BELT HARDWARE

A high proportion of aerial tree work requires you to lean into the harness while restrained by the rope or pole strap rather than supported in it vertically and this latter function is common to all arb harnesses. Pole strap D-rings are mounted on each side of the waist band and allow connection of a pole strap or cinching rope that goes around the trunk and clips into each ring. Climbers can either lean against the pole strap/flip line using spikes for purchase or stand on a branch or platform.

Edelrid's TREE REX

and the ***TREERAPTOR*** that came out in 2024, have a number of interesting features that serve to illustrate modern trends in arb harnesses and in some cases has yet to make it onto other designs. The first aid or trauma kit, which, like so many now is stowed around the back and could be tricky to access in a dire emergency so *Edelrid* have installed a quick-release on the front - that small yellow toggle above the bridge union. This pulls the first aid kit off it's mounts but remains attached via a length of thin webbing and a retaining eye for that toggle. You can easily access the contents but to detach the kit altogether you simply rotate the toggle and push it through the eye.
On the bridge there is a prusik cord length adjuster connected through 2 of the 6 eyes on their comprehensive bridge union plate. This is simply a shortener NOT a means to connect the bridge rope(s) which will ALWAYS be tie with a double Fishermen's on BOTH ends. If you were to use the prusik as as the attachment there is a chance your bridge ring could slide down to contact the prusik and not only allow your bridge to inadvertently increase in length but perhaps release altogether. *Edelrid* advise using the prusik adjuster on one bridge but have the ring around both rope bridges simultaneously to negate accidental release of the prusik. While we're on this prusik it has another fairly unique feature - it's a 6 mm Aramid so it's super-tough and can instead of a prusik be run as a backup bridge if you wanted to run with a single full size rope bridge. In the event you cut into your bridge this thin back-up offers you a good chance of survival but doesn't bulk up your front working area.
On the rear is a grey coloured, reinforced eye that is rated for fall-restraint NOT fall arrest - it's a means to limit your ability to fall over an edge if working at height although many are utilising that huge strength as their chainsaw attachment point! The *TREEREX* also has an embedded RFID chip, something that, as of 2023 was in around 10% of harnesses but will likely be in virtually all life-safety equipment by the end of 2024. The huge number of gear attachment points started by the *Teufelberger Tree Motion* range with its myriad of eyelets and carried on by the likes of *Husqvarna* has been modified on the *TREEREX* as small sewn web loops (eyes) capable of holding a small gear carabiner or to thread cord for a customized gear rack ala rock climbing harnesses of the 1980's. Finally the rope has a wear indicator thread in red to really show up when it's time to renew your bridge, however a white core to any coloured sheath would count as a wear indicator for rope bridges.

In fig 10 the use of a flip line enables this arborist to lean away from the cut while his mainline provides essential safety back up and further enhances his balance. Note that using an intermediate swivel allows plenty of rotation without applying torquing pressure which might destabilise your stance. Pole strap D-rings in themselves are not intended for full abseil/rappel loading but they do lend themselves to side-loaded work positioning despite manufacturers comments to the contrary. In rescue we have seen the advent of side-Ds that fold back flush to the waist-belt when not in use and in arb-work this is a particularly useful feature in avoiding snagging while climbing/descending or getting out of the way of a falling section. The most recent and prolific change to harness hardware is use of the Austrialpin style Cobra buckle - this is a push-clip design. It requires the top and bottom of the buckle to be depressed at the same time in order to release and is therefore a very safe design. Variations of this include Petzl's two stage release where a button is depressed for initial release then a hook arrangement has to be manually unhooked to fully separate. Since the first GUIDE, the Cobra style quick-release buckle has become the commonest means of securing the waist belt and leg loops. We have termed this design as Fast-Clip and they all require two buttons to be depressed to release. Many use the Cobra original (shown in our tables as AA Cobra) but there are now branded alternatives from the likes of ISC and Skylotec's Oktalock as well as many unbranded versions which we have termed 'Fast-Clip' .

CHEST HARNESSES

You may notice that none of the harnesses in the tables later in this article feature a chest harness or chest section. This transforms a sit harness into a full body harness capable of being used for SRT-style ascending with a Croll or frog-rig and as mentioned earlier, of meeting the EN361 safety standards because it makes the harness much safer in a vertical fall but importantly for arborists,not necessarily in a 'swinging' or pendulum fall. Nevertheless this perception of safety has caused full body harnesses to be mandatory in some organisations.

We have therefore included a row to show which models have some form of integration for a purpose-built chest harness or top section and this will, more often than not, correlate with EN361 even if the model hasn't gone through the test process necessary to obtain that standard. Two words of warning though, firstly some chest harnesses like the Courant and Petzl models shown here are dedicated to the fittings on their harness and not necessarily able to be used on other sit harnesses and secondly *'tool suspenders' are NOT necessarily load bearing though confusingly some are. They are* an American product *intended to support your sit harness if you have a narrow waist or to help transfer the equipment load from your harness to the shoulders. The fact that the vast majority of arborists insist on a sit-only harness is partly a question of taste and function since mobility is essential but full bodies can restrict movement and increase snag hazards. However, as with all roping activities at height there are times when a chest section can be a life-saver.... literally .... and it can certainly assist in difficult cuts or rigging locations that require prolonged inversion.*

MORE SIT COMFORT

Padding on the waist belt, sit strap and leg loops has become progressively more pronounced as our asses have evolved from leathery old saddle thumpers to soft, pudgy, lazy boy recliner occupants. but it's safe to say that the days of the unpadded leather belt have been waning for some considerable time and padding is like a Friday night beer, the more you have the more you want and you don't care how embarrassing it gets. To be fair, modern padding no longer entails stuffing your mum's pillow between you and the hard, rough belt or sit-strap. Now it is mostly all about thermo-moulding that puts the padding into neat little sections just where you want them without adding unduly to the bulk and weight and allowing the belt to bend without bunching up the padding. *That's not to say that you can't still find the odd sprung mattress sewn to the waist belt and that these aren't actually still more comfortable but it does now clearly differentiate a modern harness. Another feature that has increased in size, apart from some of your bellies, which is the lumbar section of the waist belt. This is the physical width of load bearing webbing, not necessarily padding. This gradual widening is not unique to the arb world, we first saw a radical change in the size of the back section of waist belts when CMC Rescue brought out their Instructor harnesses in the last century and many now emulate that. You only have to spend some quality time manoeuvring around a tree to realise that efficient padding and a wide support belt make life much more bearable on a protracted job. Teufelberger's TreeMOTION recognised this trend and is currently the widest lumbar section of all Arb Harnesses but you can be sure that others will follow.*

And indeed they did though many have stuck with strategic widening and padding rather than super-sizing the waist and leg loops. Singing Rock's Arbo Master in the ad opposite for instance has kept things simple but greatly widened the very rear of the waist and leg loops without carrying the width on all the way round. It became obvious very early on that when loaded the front parts of the waist and leg loops are pulled away from the body and don't need the same degree of comfort width or padding.

FEMALE HARNESSES

There are two harnesses in this guide that are specifically designed for women. What? the third decade of the 21st century and we're still only peripherally catering to 51% of the population? Is it pink? Nope, did you know that in Victorian times pink was for boys and blue was for girls? Apart from Bo Hammerstein, Female arborists don't need a variation based only on pink, they need better ergonomics. Recreational climbing and mountaineering have had 'female' designs since the 1980's but usually only in terms of sizing. Prolific harness designer Sophia Sparks of New Tribe, as a tree climber of many decades, also never saw the need for a gender--specific harness but this may well have been because loadings are primarily vertical. With a noticeable increase in female arborists in just the last 10 years the different needs of modern gymnastic arborsim has highlighted some ergonomic inefficiencies in the standard leg-loop designs. The *Simarghu Gemini* (pic above) incorporates an additional set of pelvic straps that cross to the inside of the usual leg risers to alter the way load is applied. In the vertical plane it's still the leg loop taking the load but when you move into more horizontal (pole-strap) and diagonal (limb-walking) modes as well as rotational leaning, the pelvic straps give much better support between the lower abdomen and groin. Now defunct UK manufacturer *ChampionGear* also used these additional pelvic straps in their female version. Neither harness is/was available in pink. However, we have seen no new developments since the *Simarghu Gemini* harness.

GEAR STORAGE

This is a very personal thing as it is in all harness oriented trades; you've got all those carabiners, pulleys, slings, tethers, flip-lines, ascenders, prusiks, first aid kit, pruning saw, chainsaw etc. to think about. Many harnesses come with a good array of gear loops and the ability to add more yourself as well as attachment points for tool clips like the Petzl CariTool (EVO version right) which spawned a host of similar resin and alloy, carabiner-syle hooks. These include *Courant, CT, Edelrid* and *Protekt* but also more complex metal alloy wizardry from *Rock Exotica* (*TransPorter* shown below) & *C.A.M.P. CMI* now produce the Shembiner which is a simple but extremely robust and easy to use chainsaw hook while *Buckingham* went down the even simpler route of a resin clothes-peg style clip. *DMM* have embraced the concept of organising gear more than most with three sizes of their *Vault* carabiner as well as fold-flat clips and their *Parking Lot* adapter plate for fixing all kinds of hardware in the orientation to suit you . *Some harnesses like the TreeMotion, Husqvarna and DMM Kinisi, give you an infinite range of connection and carrying options, as you might expect of just about the most arb-engineered harnesses on the market. Some like the Weaver Cougar, Edelrid TREEREX, DMM Kinisi, TreeMotion Pro & Essential (but NOT the original TreeMotion) have a rear belay loop in high vis red which is a fully load-bearing connection on which you could hang though it is more useful as a work restraint attachment but don't confuse a non-load bearing gear or suspender loop with this or there will be dire consequences and not for the first time.*

There are basically 5 types of gear attachment:

- *the rock climbing harness style gear loop which can take a whole line of carabiners, hardware and software. This might be rigid and stand proud for easier clipping (as indicated in our tables) or hang more conventionally flush with the harness.*
- *the metal ring or eyelet which, in a larger size, may be used for connecting your chainsaw, but we now see a number of smaller rings positioned around the waist and even on the leg-loops for attaching gear. None of these are live-load-bearing and are always in standard silver whereas life-support rings are often (though not always anodized to avoid confusion.*
- *the integrated metal clip or hook often with a sprung gate and with a larger load capacity to carry the weight of a chainsaw - this is usually situated around the very back of the harness.*
- *the webbing, leather or plastic 'slot' which will hold a carabiner or Caritool which in turn gives you more space into which gear can be clipped. Most harnesses now cater for such Carritool hooks and these have the gate clearance and load capacity to be used for a chainsaw so many in our tables do not show an entry in the dedicated Chainsaw Eye/Hook row since the Carritools enable you to position your chainsaw exactly where you want it.*
- *Smaller web eyelets on some harnesses which are just large enough for a small carabiner or a cord. The eyelets restrict movement of a gear carabiner and are ideal for attaching a snap gate carabiner into which you can quickly clip pretty much anything. If you use a bent gate rather than straight gate carabiner you can also take advantage of the original rock-climbing purpose which is rapid location and 'capture' of whatever you need to clip but conversely, beware of trailing your rope across the gate. Individual web eyes are also good for direct attachment of accessory bags like throwlines and first aid kits or for attaching cord and making more gear loops. The Edge harness from Sherrill Tree and the Edelrid Tree Magic (initially replaced by the Tree Core and now by the TREEREX) maximise use of wide gear loops making pretty much the entire width of the waist belt a clippable area so there should never be any excuse for fumbling. However, bear in mind that if you overload a gear loop with too many carabiners full of ascenders, descenders, pulleys flip-lines etc. it can become difficult to locate let alone unclip your required item - good management is key....now go and tidy your bedroom.*

Some folk prefer to climb 'clean' with little or no attachments other than an integral metal clip for the chainsaw while others are ready for an assault on the North face of the Eiger.

The TreeMotion sparked a move towards both customisable gear attachments and LOADS of gear attachments. In Teufelberger's case they were sensible enough to realise that having such a complex range of options needed improved

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organisation so they colour-coded their integral attachments points as GREEN for primary life-support (bridge, side-D's and Bridge Union Rings) and red for secondary life support or more accurately, restraint and chest harness attachment points. Nevertheless, many harnesses using black as their base material on the waist belt would benefit from better contrast colouring even allowing for the fact that you are meant to customise your own attachment points using the various holes and eyes BEFORE you start climbing. The ArbPro Tree Access3 above and its 'parent' the CAMP Tree Access Evo have used contrast colours on their gear loops and webbing eyes that greatly clarify where to clip - compare these to the Sherrill Tree Edge and the original version of the Notch Sentinel. Both are predominantly black with black fittings.

STANDARDS

*Leg loops are also the only way your harness will meet certain relevant safety standards like Europe's EN (European Norms) and the US's ANSI. In fact the numerically challenging **ANSI A10.14-1991** quoted here by some manufacturers was withdrawn a few years ago in favour of a 2004 version but that too is a far more generic standard relating to a number of components in addition to the harness. But I think you'll find **ANSI Z359.0** and it's numerous offspring are starting to cover things. **EN813** on the other hand is quite specific in its requirement for a sit harness to maintain a 100kg mass safely upright after a 2m free fall on a 1m lanyard and for its load-bearing components to withstand a 15kN pulling force for 3 minutes, fairly easy for many it has to be said. That's if a manufacturer is inclined enough towards the European market to go through the expensive procedures required to acquire EN certification. Virtually all of the models in this guide could meet both **EN358** and **EN813** even if they don't say so. 'Standards' is actually a whole 'nuther article but since we're on the subject you won't see **EN361** quoted in the following tables because that's a fall-arrest standard requiring the addition of a chest harness to pass the drop test. Many of these harnesses have the option of a chest harness which is vital for some SRT systems and would thus meet the requirements of EN361.*

***EN358** refers to the ability of the side D-rings to act in a work positioning role and to also not impart more than 15kN of force to your dainty waist after a 1m fall -always assuming that, even after all those doughnuts you still only weigh 100kg or 220lbs. **ASTM F887** is for personal climbing equipment and is a useful and detailed standard which includes a section specific to harnesses rather than being generic. **EAC** is for eastern Europe.*

CHINESE HARNESSES

We have not included any because we cannot yet verify the certification. They often mention CE certification but there's nothing to stop them saying this when it isn't true - it is up to the importer. So, none are included here despite the fact that one or two appear to have decent components and stitching. Expect to see properly certified, rebadged models soon.

ARBORIST SIT HARNESSES

IN THE FOLLOWING TABLES:
....we have shown most harnesses from the front and the back. Prices are for the specific version listed and normally shown in the currency of the country of origin. Some models, have so many variants that we would need an entire Market Guide just to list their range. Similarly, so many older designs are still popular that they remain in production but we have only shown key, generally padded, legloop harnesses.
Prices and weight etc, are for the base model with standard features NOT options. Any feature that is an option is shown as an outline squares
ORIGIN: The manufacturer's country but not always where it's made in which case, if we know, there is an inset flag.
COST: approximate, rounded up and inclusive of local taxes which are generally 20% in Europe. Costs are the Recommended Retail Price and can often be found for less at your stockist. **Prices in orange are a currency conversion only (as of Feb 2025) not necessarily the selling price because they do not include import costs and duty.**
CHEST HARNESS: None of these harnesses includes a chest harness. If the same company supplies a chest harness it will be shown as NB: suspenders NOT for life-support (shown as)but will stop you coming out when inverted . **ATTACH PTS(Points):** Not always necessary. Integrated attachment points for a chest harness- or suspenders, usually rings or sewn loops on the top edge which can also be used as gear attachment points .
BUCKLES: The specific type of buckle used for the waist and leg-loops. Many use the quick attach/release AustriAlpin Cobra as the gold standard but if they are a similar principle but unbranded we have called them 'Fast-Clip'. ISC has its own version and Petzl has a bespoke hook and push-fit combination buckle. Some US harnesses use a traditional pin & hole waist belt but these are not directly attached to .
BRIDGE TYPE: The number and type of bridge which will be rope or webbing or a double layer of webbing - some are stitched into place but most are **REPLACEABLE** referring to the ability to self-replace once worn.
BRIDGE LENGTHS If a bridge is tied rope it will be **ADJUSTABLE** but some that have a sewn termination like the Petzl or ArbPro model opposite, can also be self-replaced so there may still be a green square in the above row. Webbing is always sewn so not adjustable for length but may still be replaceable.
CONNECTION TO BRIDGE: The attachment method from your bridge to your climbing/descending system as supplied with the harness. May be an optional purchase from the same manufacturer (shown as an outline square) or you can simply attach direct with a carabiner, but most are a ring(s)
BRIDGE UNION: is the means by which the bridge is secured to the harness - this may be a rigging plate, shackle or ring offering additional bridge attachment points or it may be sewn in and fixed though that is unusual these days. LENGTH ADJ: refers to the ability to alter the distance between the bridge union and the sides of the harness, in essence , to tighten the bridge.
SRT D-RING EYE REAR BELAY: a centrally mounted D-ring or WEB EYE that is fully load-bearing and often used for SRT/SRS or as an ascender rig attachment point. Occasionally there may also be a load-bearing belay loop or sewn eye on the **REAR** but in arborist harnesses these are too easily confused chainsaw eyes that are not load bearing in terms of human weight..
POLE STRAP D's: large, load-bearing D-rings mounted on each side for attachment of pole-straps/flip-lines or lanyards. Many will **FOLD FLAT** to the waist to stop being snagged while working but this can also hinder clipping in.
GEAR LOOPS: are wide, integral attachment loops, often stiffened and together with **SEWN EYES** for attaching gear carabiners are generallly rated to around 5kg each -
CUSTOM GEAR CORD EYES: are usually smaller than the sewn eyes mentioned above but can be one and the same if sufficiently spaced. They may be sewn loops or punched eyes capable of around 1-5kg loading on each eye.
BASIC HOLES/EYES: smaller attachment points for small accessory carabiners, may simply be a hole or t-shape punched in the waist belt. **RINGS** may be metal or reinforced plastic(resin) usually rated from 1 to 10kg but those intended as chainsaw lanyard eyes may be stronger.
CARI-HOOK CARI-HOOK EYES: We've modified the Petzl trade name for a specialist tool carrying 'carabiner' (Cari-Tool) simply because its a good description and the only way we could get to fit! This could equally be called a Carry Hook or Tool Carabiner but it does refer specifically to the carabiner style hooks which can also be used for chainsaw attachment. **CARI-HOOK EYE** refers to slots or pouches in the webbing into which a Cari-Tool type hook can be slotted and are a strong option most often capable of taking a chainsaw.
CHAINSAW EYE/RING HOOK: A dedicated higher load capacity webbing eye or ring or a hook typically able to hold 15-30kg/33-66lb but the CariTool style hooks take the place of a dedicated chainsaw ring or hook on most modern designs and many standard rings or sewn eyes can also do the job as they're often used as a chainsaw lanyard attachment point but verify the load capacity first.
WAIST PADDING SWAMI: All of these harnesses are padded so they will all have a black square but then a description which is basically mesh lined, single sheet foam or thermo-form foam which looks segmented and ensures the harness padding doesn't bunch up and stays firm. SWAMI is a second inner belt sometimes elasticated, that holds your harness on while you adjust the main load bearing waist buckles.
ATTACH POUCH/FIRST AID: Adjustable strapping, eyes or elasticated cord, normally on the centre-top of the rear waist belt, to attach a first aid pouch (or anything other equipment you want to hand but a first aid kit is essential).
WAIST BELTPADDING HEIGHT: The width of the waist belt webbing - usually less than 2"/50mm. The max height of the padding is shown in orange and is not the same all the way round - most padding tapers from the back of the waist to quite low at the front.
WAIST ADJUST: The method of adjustment of the waist belt based on the position of the buckles. Some are centrally mounted, most are on one side and you pull the end of the webbing then stow the loose end, some have a buckle on each side and you pull both sides simultaneously (or alternately as you wiggle your hips).
LEGS LOOP HEIGHT PADDING: As above except on the leg loops
ELASTICATED REAR RISER: There is a if the straps connecting the back of the leg loops to the waist section are elasticated rather than normal webbing. Also refer to ....
LEG RISER ADJ REAR: The Rear leg loop straps on the back of the harness can be adjusted for length and may also be elasticated (see above). **FRONT** The Leg riser at the front connecting the leg loops to the bridge union or direct to the waist belt can be adjusted for length -many will have bridge adjustment which secondarily affects the leg loop position but not a separate leg loop adjustment.
RFID CHIP: The harness has an embedded chip which can be read by a reader to provide inspection or inventory details.
WEAR INDICATE: Primarily Pertaining to the bridge and indicates a warning colour showing through when the bridge becomes worn and needs replacement. In reality, most rope bridges have a white core and coloured sheath so will ALL have wear indication!
FIRST AID TRAUMAKIT: Indicates that this manufacturer supplies (or can supply as an option) a first aid kit and/or a trauma kit - a trauma kit includes a CAT (Combat Application Tourniquet) and Cellox or similar clot-forming dressing/sachet.
SIT STRAP BOSUNS CHAIR (Batten seat): A sit strap is a continuous fabric strip that replaces or augments the leg loops. It can be integral to leg loop or run around to the front of the harnesses and be connected into via rings/D-rings. a Bosun's Chair is similarly a support eat but is stiffened/reinforced or may simply be a covered plank of wood. These also connect to the load support elements at the front of the harness and may have their own additional accessory loops/hooks/pouches. None in this list are integral, any shown are options-only.
OTHER SRT MODELS: This company has non-bridge models that will be noted in this row in Q4 2025

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STANDARDS: EN358 = ■
EN813= ■ ANSI Z133= ■ AST-MF887= ■ CANADA= ■ AUS/NZ = ■ EAC = ■

	COMPANY	ARB PRO	BASHLIN	BASHLIN	BUCKINGHAM
	MODEL VARIANT	Tree Access 3.0	639 BBL 640 BBL	639 BBS 640 BBS	Agility 1480
	ORIGIN	■	■	■	■
	COST inc VAT/tax conv-only	£295 $356 €341	£335 $394 $440 €383	£335 $394 $440 €383	£685-760 $978-1078 €830-92
	WEIGHT	1.96-2.03kg/4.3-5.5lb	2.3-2.6kg/5.15-5.75lb	2.4-2.7kg/5.2-5.9lb	2.5kg/5.5lb
	MAX LOAD	140kg/310lb	159kg / 350lb	159kg / 350lb	159kg / 350lb
	WAIST SIZES	2 sizes 80-140cm/31.5-55"	5 sizes 71-112cm/28-44"	5 sizes 71-112cm/28-44"	5 sizes 61-112cm/24-44
	LEG SIZES	3 sizes 50-75cm/19.7-29.5"	5 sizes 40-101cm/16-40"	5 sizes 40-109cm/16-43"	n/a
	STANDARDS	■ ■	■	■	■ ■ ■
LIFE CRITICAL	CHEST HARNESS ATTACH PTS	☐ ■	- -	- -	☐ ■
LIFE CRITICAL	BUCKLES WAIST/LEGS	STS Fast-Clip	Pin&Hole/Fast-Clip	Pin&Hole/DblBack	ISC Fast-Clip
LIFE CRITICAL	BRIDGE TYPE REPLACEABLE	20mm Webbing ■	Fixed 44mm Webbing no	Integrated sit strap no	Sewn segmented Rope
LIFE CRITICAL	BRIDGE LENGTHS ADJUSTABLE	25/30cm no	30cm/12" no	51cm/20" no	30cm/12" ■
LIFE CRITICAL	CONNECTION to BRIDGE	Sliding Ring	2x Sliding AlloySteel D-Rings	2x Fixed AlloySteel D-Rings	Sliding Ring
LIFE CRITICAL	BRIDGE UNION LENGTH ADJ	Shackle ■	Sewn/Fixed no	Sewn/Fixed no	4-hole + D-ring plate ■
LIFE CRITICAL	SRT D-RING/EYE REAR BELAY	- ■ -	- - -	- - -	- - -
LIFE CRITICAL	POLE STRAP D's FOLD FLAT	■	■	■	■
GEAR ATTACH	GEAR LOOPS SEWN EYES	8 4+2*	- -	- -	3 4
GEAR ATTACH	CUSTOM GEAR CORD EYES	-	-	-	-
GEAR ATTACH	BASIC HOLES/EYES RINGS	- 2	- 2(sliding)	- 2(sliding)	- 4
GEAR ATTACH	CARI-HOOK CARI-HOOK EYES	- -	4* (sliding) -	4* (sliding) -	☐ 4
GEAR ATTACH	CHAINSAW EYE/RINGHOOK	■ -	- 2 (sliding)	- 2 (sliding)	- ☐
GEAR ATTACH	ATTACH POUCH/FIRST AID	■	-	-	☐
WAIST	WAIST PADDING SWAMI	Thermo-Form -	Mesh/Foam ■	Mesh/Foam ■	Mesh/Foam -
WAIST	WAIST BELT WEBBING PADDING	44mm/1.75" 19cm/7.5"	44mm/1.75" 20.3cm/8"	44mm/1.75" 20.3cm/8"	45mm/1.75" 25.4cm/10
WAIST	WAIST ADJUST	Double Sided	Central	Central	1x Front + 2x side
LEG	LEG LOOP HEIGHT PADDING	33mm/1.5" 14cm/5.5"	44mm/2" 10cm/4"	44mm/2"10cm/4"	25mm/1" 17.8cm/7"
LEG	ELASTICATED REAR LEG RISER	-	-	-	■
LEG	LEG RISER ADJ REAR FRONT	■ -	- -	- -	■ ■
EXTRAS	RFID CHIP WEAR INDICATE	- ■	- -	- -	- -
EXTRAS	FIRST AID TRAUMA KIT	- -	- -	- -	- ☐
EXTRAS	SIT STRAP BOSUNS CHAIR	- ☐	- -	■ -	- -
EXTRAS	OTHER SRT MODELS	-	-	-	-
	NOTES	*2 sewn load-bearing eyes on bridge union shackle	639 orange stitch=Alu *Not designated eyes but 4 to 8 Cari-Hooks can be installed on belt	640 white stitch=Steel *Not designated eyes but 4 to 8 Cari-Hooks can be installed on belt	Bridge can be clipped into or leng adjusted via separated sewn 'eye along its length. Hook&Loop on all web tails
	WEBSITE	arbpro.it	bashlin.com	bashlin.com	buckinghammfg.com

ARBORIST SIT HARNESSES

	BUCKINGHAM	BUCKINGHAM	BUCKINGHAM	BUCKINGHAM	BUCKINGHAM
	BuckTree Alto Verde	Buck Craft 17911	Ergovation SRT 16906/ 2/4	ErgoLite 17906 J17906	Ergo Pro 17905
20	£525-690 $830-1150 €634-832	£390 $600-700 €449	£802 $1100 $1210 €923	£754 $837-942 €869	£651 $923-1023 €750
	2.3kg/5lb	2.1kg/4.6lb	2.95kg/6.5lb 6.8lb	2.3kg/5.1lb	2.6kg/5.8lb
	159kg / 350lb	159kg / 350lb	140kg/310lb	159kg / 350lb	159kg / 350lb
"	4 sizes 71-112cm/28-44"	4 sizes 71-112cm/28-44"	4 sizes 71-112cm/28-44"	4 sizes 71-112cm/28-44"	4 sizes 71-112cm/28-44"
	n/a	n/a	n/a	n/a	n/a
	■	■	■ ■ ■	■ ■ ■	■
	- -	□ ■	□ ■	□ ■	□ ■
	Fast-Clip	AA Cobra Fast-Clip	Fast-Clip	Fast-Clip	Double D
■	Tied Rope ■	2x ⅜"Tied Ropes ■	7/16"Tied Rope (6 other options) ■	Jacketed Rope ■	11mm Tied Rope ■
	30cm/12" ■	102cm/40" ■	44cm/17.25" ■	30cm/12" no	n/a ■
	Sliding Ring	Sliding Ring	Sliding Ring (6 other options)	-	Sliding Ring
■	4-hole plate ■	3-hole+D-ring plate ■	3-hole plate ■	Shackle ■	4-hole plate ■
	- - -	- - -	- ■ -	- - -	- ■ ■
	■	■	■	■*	■
	8 1	3 -	6 3*	5 1	4 -
	-	-	-	-	-
	- 2	- 2 (+2 waist attach rings)	- -	- 2	- 2
	□ 4	□ 2	□ -	□ 4 +8 on seat	- 4
	- 2 x6.8kg/15lb	- 2 x6.8kg/15lb	- -	- -	- □
	■	■	■	■	■
	Thermo-Form ■	Thermo-Form -	Drilex foam ■	Drilex foam ■	Drilex foam ■
"	45mm/1.75"17.8cm/7"	45mm/1.75" 20.3cm/8"	45mm/1.75" 22.9cm/9"	45mm/1.75" 19cm/7.5"	45mm/1.75"17.5cm/7"
	Central	Central(ish)	Central +2 side	Central +2 side	2x side
	45mm/1.75"17.8cm/7"	45mm/1.75" 12cm/5"	45mm/1.75" 15cm/6"	45mm/1.75" 15cm/6"	45mm/1.75" 14cm/5.5"
	■	-	-	-	-
	- ■	■ -	■ -	■ -	■ ■
	- -	- -	- -	- -	- -
	- □	- □	- □	- □	- □
	- -	- -	- □	- ■	- -
	-	-	-	-	-
gth es'		Lightest Buckingham Arb Harness	Waist padding can be removed. SRT version uses a bridge conversion strap. *1 sewn eye (intended for the chest harness)+2 eyes on legs	*additional Smaller side-D on each side connects to the bridge union.	
	buckinghammfg.com	buckinghammfg.com	buckinghammfg.com	buckinghammfg.com	buckinghammfg.com

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	COMPANY	BUCKINGHAM	BUCKINGHAM	BUCKINGHAM	CAMP
	MODEL VARIANT	Master 5.0 1490 1490T	Navigator 1470	Stability 1371	Tree Access E 000
	ORIGIN	■	■	■	■
	COST inc VAT/tax conv-only	£460 $590 $771 €530	£539 $808-908 €621	£338-414 $443-543 €385-472	£315 $420 €38
	WEIGHT	2.3kg/5.05lb	2.8kg/6.15lb	1.96kg/4.3lb	1.96-2.03kg/4.3-5
	MAX LOAD	159kg / 350lb	159kg / 350lb	159kg / 350lb	140kg/310lb
	WAIST SIZES	4 sizes 71-112cm/28-44"	4 sizes 71-112cm/28-44"	4 sizes 71-112cm/28-44"	2 sizes 80-135cm/3
	LEG SIZES	n/a	n/a	n/a	2 sizes 50-75cm/20
	STANDARDS	■	■	■	■ ■ ■
LIFE CRITICAL	CHEST HARNESS ATTACH PTS	☐ ■	☐ ■	☐ ■	☐ ■
	BUCKLES WAIST/LEGS	Fast-Clip Pin&Hole	AA Cobra Fast-Clip	Alu QC Buckle	3-Bar/STS Fast-C
	BRIDGE TYPE REPLACEABLE	Sewn Dyneema Tape ■	2xTied Ropes ■	N/A	Sewn Jacketed Rop
	BRIDGE LENGTHS ADJUSTABLE	n/a no	102cm/40" ■	N/A	25/30* 32/37/42c
	CONNECTION to BRIDGE	Sliding Ring	Sliding Ring	N/A	Sliding Ring
	BRIDGE UNION LENGTH ADJ	Sewn eyes	3-hole plate	N/A	Shackles+ Rope ey
	SRT D-RING/EYE REAR BELAY	- 4*x ■ -	- 4x ■ -	- 4x ■ -	- ■ -
	POLE STRAP D's FOLD FLAT	■	■	■	■
GEAR ATTACH	GEAR LOOPS SEWN EYES	4 2 (on legs)	4 -	5 -	8* 4
	CUSTOM GEAR CORD EYES	-	-	-	-
	BASIC HOLES/EYES RINGS	- 7	- 6	-	- 2*
	CARI-HOOK CARI-HOOK EYES	- 4	- 4	- 2	☐ 6
	CHAINSAW EYE/RINGHOOK	2 x 2 x6.8kg/15lb	- 2 x6.8kg/15lb	-	- -
	ATTACH POUCH/FIRST AID	■	■	■	■
WAIST	WAIST PADDING SWAMI	Drilex foam -	Thermo-form -	Thermo-form -	Mesh/Foam -
	WAIST BELT WEBBING PADDING	25mm/1"17.5cm/7"	45mm/1.75" 20.3cm/8"	45mm/1.75"	44mm/1.75" 19cm/
	WAIST ADJUST	2x side	1x Side	1x Side	Double Sided
LEG	LEG LOOP HEIGHT PADDING	45mm/1.75" 10cm/4"	45mm/1.75" 15cm/6"	(Sit-Strap) 45mm/1.75"	33mm/1.5" 14cm/
	ELASTICATED REAR LEG RISER	■	■	■	-
	LEG RISER ADJ REAR FRONT	■ -	■ -	■ -	■ -
EXTRAS	RFID CHIP WEAR INDICATE	- -	- -	- -	■ -
	FIRST AID TRAUMA KIT	- ☐	- ☐	☐	☐ -
	SIT STRAP BOSUNS CHAIR	- -	- -	■/■	☐ ☐
	OTHER SRT MODELS	-	-	-	■
	NOTES	*DRT & SRT soft eyes for various work and positioning options	*DRT & SRT soft eyes for various work and positioning options	Sit-Strap/Bosun's chair harness. Economical update of 1371 saddle.	*inc 2 small loops *Metal rings are on leg web* or 10.5mm Rope
	WEBSITE	buckinghammfg.com	buckinghammfg.com	buckinghammfg.com	camp.it

	CAMP	**CLIMAX**
vo	**Tree Access ST** (was ANSI) 000	**Atlas Tree Basic** 000
30	£374 $450 €420	£140 $174 €169
5.5lb	2.23kg / 4.9lb	1.52kg/3.3lb
	140kg/310lb	140kg/310lb
1-53"	2 sizes 80-135cm/31-53"	1 size 80-127cm/31-50"
0-30"	2 sizes 50-75cm/20-30"	1 size 65-80cm/25-31"
Clip	3-Bar/STS Fast-Clip	Fast-Clips
pe	*2xSewn Jacketed Ropes	Jacketed webbing no
m no	25/30* 32/37/42cm no	n/a no
	Sliding Ring	Sliding Ring
ves	Shackles+ Rope eyes	Rings
	-	- +swivel -
	8* 1	3
	-	-
	- -	- -
	6	- -
	1 x15kg	- -
		-
-	Mesh/Foam -	Mesh/Foam -
/7.5"	44mm/1.75" 19cm/7.5"	45mm/1.75" 15cm/6"
	Double Sided	Double Sided
5.5"	44mm/1.75" 14cm/5.5"	45mm/1.75"10cm/4"
	-	
	-	-
	-	- -
	-	-
		-
s loops bridge	*bridge is 10.5mm rope &/or web* & can have 3-way swivel *2 gear loops are on leg loops	Comes with integral swivel on SRT eye
	camp.it	productosclimax.com

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	COMPANY	COURANT	DMM	DMM	DMM
	MODEL VARIANT	Koala 000	Kinisi Max 000	Kinisi Pro HC62x	Kinisi Air HC66x
	ORIGIN	■	■	■	■
	COST inc VAT/tax conv-only	£333 $543 €372	£650 $1024 €770	£580 $940 €690	£630 $810 €720
	WEIGHT	1.5-1.7kg/ 3.3-3.74lb	2.4-3kg/5.5-6.6lb	2.8-3kg/6.2-6.6lb	2.3kg/5lb
	MAX LOAD	150kg/330lb	150kg/330lb	150kg/330lb	150kg/330lb
	WAIST SIZES	3 sizes 60-120cm/23-47"	3 sizes 65-123cm/25-48"	3 sizes 65-123cm/25-48"	1 size 75-102cm/31-40"
	LEG SIZES	3 sizes 55-100cm/21-39"	3 sizes 44-73cm/17-29"	3 sizes 44-73cm/17-29"	13 size 45-73cm/18-25"
	STANDARDS	■ ■	■ ■ ■ ■ ■ ■	■ ■	■ ■ ■ ■ ■ ■
LIFE CRITICAL	CHEST HARNESS ATTACH PTS	☐ ■	☐ ■	☐ ■	☐ ■
LIFE CRITICAL	BUCKLES WAIST/LEGS	AA Cobra Fast Clips	AA Cobra Fast-Clip	AA Cobra Fast-Clip	AA Cobra Fast-Clip
LIFE CRITICAL	BRIDGE TYPE REPLACEABLE	Sewn Rope ■	1or2 Tied&Sewn Rope ■	1or2 Tied&Sewn Rope ■	1or2 Tied&Sewn Rope ■
LIFE CRITICAL	BRIDGE LENGTHS ADJUSTABLE	1 or 2x 25/30/35cm no	123/180cm Cam- ■	123/180cm Cam- ■	123/180cm Cam- ■
LIFE CRITICAL	CONNECTION to BRIDGE	Sliding Ring	Sliding Ring2	Sliding Ring2	Sliding Ring2
LIFE CRITICAL	BRIDGE UNION LENGTH ADJ	Openable Rings ■	2x Hole + D plates ■	2x Hole + D plates ■	2x Hole + D plates ■
LIFE CRITICAL	SRT D-RING/EYE REAR BELAY	- - -	- - ■	- - ■	- - ■
LIFE CRITICAL	POLE STRAP D's FOLD FLAT	■	■	■	■
GEAR ATTACH	GEAR LOOPS SEWN EYES	8 x10kg 4	- -	- -	- -
GEAR ATTACH	CUSTOM GEAR CORD EYES	-	■ many!	■ many!	■ many!
GEAR ATTACH	BASIC HOLES/EYES RINGS	- -	14 +2 on legs -	14 +2 on legs -	14 +2 on legs -
GEAR ATTACH	CARI-HOOK CARI-HOOK EYES	☐ 4 x15kg	- 11	- 11	- 11
GEAR ATTACH	CHAINSAW EYE/RINGHOOK	- -	1 x35kg	1 x35kg	1 x35kg
GEAR ATTACH	ATTACH POUCH/FIRST AID	■	■	■	■
WAIST	WAIST PADDING SWAMI	Thermo-form -	Thermo-form ■	Thermo-form ■	Thermo-form ■
WAIST	WAIST BELT WEBBING PADDING	45mm/1.75" 19cm/7.5"	25mm/1" 23cm/9"	25mm/1" 23cm/9"	25mm/1" 23cm/9"
WAIST	WAIST ADJUST	Central+both sides	1x Central	1x Central	1x Central
LEG	LEG LOOP HEIGHT PADDING	25mm/1"18cm/7.25"	25mm/1" 14.5cm/5.7"	25mm/1" 14.5cm/5.7"	25mm/1" 14.5cm/5.7"
LEG	ELASTICATED REAR LEG RISER	■	■	■	■
LEG	LEG RISER ADJ REAR FRONT	■ ■	■ ■	■ ■	■ ■
EXTRAS	RFID CHIP WEAR INDICATE	- ■ (bridge rope)	- -	- -	- -
EXTRAS	FIRST AID TRAUMA KIT	☐	- -	- -	- -
EXTRAS	SIT STRAP BOSUNS CHAIR	- ☐	- ☐	- ☐	- ☐
EXTRAS	OTHER SRT MODELS	■	-	-	-
	NOTES	2 of the gear loops are on the leg loops. Primary & secondary bridges (*Milo*) available	*Max* Bridge adjusts via twin-cams *PRO* bridge is knotted (and cheaper). Most components replaceable.	*Max* Bridge adjusts via twin-cams *PRO* bridge is knotted (and cheaper). Most components replaceable.	*Max* Bridge adjusts via twin-cams *PRO* bridge is knotted (and cheaper). Most components replaceable.
	WEBSITE	mycourant.com	dmmwales.com	dmmwales.com	dmmwales.com

ARBORIST SIT HARNESSES

	DMM	DRAGON ARB	DRAYER/HABERKORN	DRAYER/HABERKORN	EDELRID
	Kinisi Key 000	Dragon 2 TH030B	TREE AUSTRIA 3.2 10014100321	TREE AUSTRIA Pro 000	Tree Rex II 000
	£450 $700 €605	£215 $270 €260	£385 $420 €430	£430 $520-569 €490	£354 $580 €406
	1.55-2.3kg/00lb	2.6kg/5.7lb	1.9kg/4.2lb	1.75kg/3.9lb	1.4-1.6kg/3-3.5lb
	150kg/330lb	100kg/220lb	150kg/330lb	150kg/330lb	150kg/330lb
	3 sizes 65-123cm/25-48"	2 sizes 66-96cm 26-38"	3 sizes 77-135cm/30-53"	3 sizes 77-135cm/30-53"	2 sizes 68-121cm/26-47"
	3 sizes 44-73cm/17-29"	2 sizes 59-69cm 23-27"	n/a	n/a	2 sizes 50-72cm/20-29"
		- -			
	AA Cobra Fast-Clip	Fast-Clip	AA Cobra Fast-Clips	AA Cobra Fast-Clips	Edelrid Hook&Fast-Clips
	1or2 Tied&Sewn Rope	Sewn 20mmWebbing	Sewn 20mm Web	1or2 Sewn 20mm Web	2x Tied Ropes
	123/180cm Cam-	25/30/35cm no	23/25/30cm no	23/25/30cm no	145cm/57"
	Sliding Ring2	Sliding Ring	Sliding Ring	1or2 Sliding Ring(s)	Sliding Ring
	2x Hole + D plates	Shackles	Shackles+ web eyes	Openable rings+web eyes	6-hole+D-ring Plates
	- -	- - -	- - -	- - -	-
	- -	3 -	4 14	4 x5kg 14 x5kg	4x 25kg -
	many!	-		x 10kg	x 10kg
	14 +2 on legs -	- -	- 4	- 2 x5kg	14x 25kg
	- 11	2to4	- 4	- 4 x5kg	6*
	1 x35kg	-		- -	- -
		-			
	Thermo-form	Mesh/Foam	Mesh/ Foam -	Mesh/Foam -	Mesh/ Foam -
	25mm/1" 23cm/9"	44mm/1.75" 20cm/7.9"	45mm/1.75" 20cm/7.9"	45mm/1.75" 20cm/7.9"	28mm/1.1" 20cm/7.9"
	1x Central	1x Central	Central+both sides	Single Side	Both sides
	25mm/1" 14.5cm/5.7"	44mm/1.75" 15cm/6"	45mm/1.75" 24m/9.4"	45mm/1.75"12cm/5"	28mm/1.1"16cm/6.3"
			-	-	
	- -	- -	- -	- -	
	- -	-	- -	- -	
	-	-	-	-	- -
	-	-	-	-	
	Max Bridge adjusts via twin-cams *PRO* bridge is knotted (and cheaper). Most components replaceable.				*Can be purchased without SRT insert. Primary bridge adjusts via prusic (included). *2 on legs
	dmmwales.com	buxtons.net/dragon	drayer.de	drayer.de	edelrid.com

IMAGES NOT TO SCALE
FITTINGS and ACCESSORIES SHOWN MAY BE AN ADDITIONAL COST

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£$€=currency conversion only
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OPTION= ☐or ☐ or ☐
N/A: info Not Given
STANDARDS: EN358 = ■
EN813= ■ ANSI Z133= ■
ASTMF887= ■ CANADA= ■
AUS/NZ = ■ EAC = ■

	COMPANY	EDELRID	HARKIE	HONEYWELL/KOMET	HONEYWELL/KOMET
	MODEL VARIANT	TreeRaptor 000	Ascend A1 000	Butterfly II 000	DragonFly II 000
	ORIGIN	■	■	■	■
	COST inc VAT/tax conv-only	£330 $420 €350	£253 $315 €305	£275 $432 €347	£350 $436 €422
	WEIGHT	1.5kg/3.3lb	1.94kg/4.3lb	2.3kg/5lb	2.35kg/5lb
	MAX LOAD	150kg/330lb	100kg/220lb	140kg / 308lb	140kg / 308lb
	WAIST SIZES	2 sizes 68-121cm/26-47"	3 sizes 75-132cm/30-52"	3 sizes 76-138cm/28-54"	3 sizes 76-138cm/28-54"
	LEG SIZES	2 sizes 50-72cm/20-29"	3 sizes 40-100cm/16-39"	3 sizes 40-100cm/16-39"	3 sizes 40-100cm/16-39"
	STANDARDS	■ ■ ■ ■	■ ■	■ ■ ■	■ ■ ■
LIFE CRITICAL	CHEST HARNESS ATTACH PTS	☐ -	- -	☐ -	☐ -
LIFE CRITICAL	BUCKLES WAIST/LEGS	Edelrid Buckles	AA Cobra Fast Clip	Fast Clip	Fast Clip
LIFE CRITICAL	BRIDGE TYPE REPLACEABLE	2x Tied Ropes ■	Dbl Web ■	Webbing ■	Webbing ■
LIFE CRITICAL	BRIDGE LENGTHS ADJUSTABLE	110cm/44"no	25/30/35cm no	25/30/35cm/ no	25/30/35cm **no**
LIFE CRITICAL	CONNECTION to BRIDGE	Sliding Ring	2x Sliding Rings	Sliding Ring	-
LIFE CRITICAL	BRIDGE UNION LENGTH ADJ	3-hole+D-ring Plates ■	Shackle -	Shackle ■	Shackle ■
LIFE CRITICAL	SRT D-RING/EYE REAR BELAY	- - ■	- - -	- - -	- - -
LIFE CRITICAL	POLE STRAP D's FOLD FLAT	■	■	■	■
GEAR ATTACH	GEAR LOOPS SEWN EYES	4x 25kg -	3 -	4 -	4 -
GEAR ATTACH	CUSTOM GEAR CORD EYES	■ x 10kg	-	-	-
GEAR ATTACH	BASIC HOLES/EYES RINGS	3x 10kg	- -	- 2	- 2
GEAR ATTACH	CARI-HOOK CARI-HOOK EYES	☐ 2-4*	1x L Caritool 2	- 2	- 2
GEAR ATTACH	CHAINSAW EYE/RINGHOOK	- -	- -	- ☐	- ☐
GEAR ATTACH	ATTACH POUCH/FIRST AID	■	-	-	-
WAIST	WAIST PADDING SWAMI	Mesh/ Foam -	Mesh/Foam -	Thermo-form -	Thermo-form -
WAIST	WAIST BELT WEBBING PADDING	45mm/1.75" 20cm/7.9"	45mm/1.75" 20cm/7.9"	45mm/1.75" 17.5cm/7"	45mm/1.75" 17.5cm/7"
WAIST	WAIST ADJUST	Centre	Central	Single Side	Single Side
LEG	LEG LOOP HEIGHT PADDING	28mm/1.1"15cm/5.9"	45mm/1.75" 23.5cm/9.25"	45mm/1.75"15cm/6"	45mm/1.75"15cm/6"
LEG	ELASTICATED REAR LEG RISER	■	■	■	-
LEG	LEG RISER ADJ REAR FRONT	■ ■	■ ■	■ ■	■ -
EXTRAS	RFID CHIP WEAR INDICATE	■ ■	- -	- -	- -
EXTRAS	FIRST AID TRAUMA KIT	☐	☐ ☐	- -	- -
EXTRAS	SIT STRAP BOSUNS CHAIR	- -	- -	- -	■
EXTRAS	OTHER SRT MODELS	■	-	-	-
	NOTES	New in 2024 *2 on legs	DISCONTINUED. Hi-Viz panels on leg loops	Morpho models Discontinued	Integrated sit strap version of the Butterfly, interchangeable with the Butterfly's leg-loops
	WEBSITE	edelrid.com	harkieglobal.com	sps.honeywell.com	sps.honeywell.com

ARBORIST SIT HARNESSES

HUSQVARNA	**JMP INTER**	**JMP INTER**	**MONKEY BEAVER**	**NEOFEU**
Climbing Harness 000	**Treewor C U UC** 000	**Treeman SRT** 000	**Monkey Beaver 2.0** 000	**ARB'O** 000
£679 $650 €555	£280 $352 €337	£227 $283 €274	£495 $650 €565	£281 $350 €325
2.5kg / 5.5lb	1.4-1.6kg/3-3.5lb	1.43-1.64kg/3.2-3.6lb	1.4/3.1lb +/-	1.75kg/3.8lb
150kg / 330lb	150kg/330lbs	150kg/330lbs	150kg/330lbs	140kg/308lb
1 size	2 sizes 70-110cm/	2 sizes 70-110cm/27-43"	5 sizes 61-117cm/24-46"	4 sizes 65-135*cm/25-53"
1 size	2 sizes 45-70cm/	2 sizes 45-70cm/18-27"	?	4 sizes 45-90*cm/18-35"
■ ■ ■ ■ ■ ■	■ ■	■ ■	■ ■	■ ■
- -	□ ■	□ ■	□ ●	□ ■
AA Cobra Fast Clip	Fast Clip	Fast Clip	ISC Klick-Lock	Fast Clip
2x Tied Rope ■	Sewn webbing ■	Tied Rope ■	1 or 2 x Tied Ropes ■	2x Tied *Rope ■
123/180cm ■	25 30 35cm/ no	35/45cm ■	?/■ Cobra	35/45cm ■
Sliding Ring	Sliding Ring	Sliding Ring	Sliding Ring	2 x Sliding Rings
5-hole + D-ring Plate ■	Openable Ring ■	3-hole plate ■	3-hole plate ■	3 hole Rig-Plates
- - -	- - -	- ■ -	- - -	- - -
■	■	■	■	■
- 4	4	4 -	5-9*	2 1
■	-	-	-	-
-12	- 2	- 2	2xD, 4sml* + □	- 6 + 4 on legs* (x10kg)
- 12	- 2	- 4	as per Gear Loops/Sewn Eyes	- 6
1 -	- -	- -	- □	■ -
■	■	■	■	-
Mesh/Foam ■	Mesh/Foam -		Mesh/Foam Adj Lumbar	Mesh/Foam
25mm/1"24cm/9.5"	44mm/1.75" 17.5cm/7"	45mm/1.75" 24cm/9.5"	45mm/1.75" 75-203mm/3-8"	44mm/1.75" 24cm/9.5"
Central	Central	Single Side	Centre	1x Side
25mm/1" 17.5cm/7"	44mm/1.75"15cm/6"	45mm/1.75" 16cm/6.3"	00mm/0" Option	44mm/1.75" 11cm/4.3"
■	■	■		■
■ -	- ■	■ -	■ ■	■ ■
- -	- -	- -	- -	- -
- -	- -	- -	- -	- -
- -	- -	- -	- -	- □
-	-	-	-	-
All life-support attachment points are coloured blue. Waist buckle has dust cover.	UC (Comfort) has thicker padding		*No of slots/rings varies with harness size. 12 custom colour options (+$25) inc Pink, camo, neon ylw, red.olive	*reinforced Plastic rings 10kg *largest XXL size on request ***Aramid** & Nylon bridges included
husqvarna.com	jmpinter.com	jmpinter.com	monkeybeaver.com	neofeu.com

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	COMPANY	NOTCH	PETZL	PETZL	PROTEKT
	MODEL VARIANT	Catalyst 000	Seqouia C069AA0x	Seqouia SRT C069BA0x	Tree Up TH-O20
	ORIGIN				
	COST inc VAT/tax conv-only	£440 $506 €590	£396 $530 €386	£432 $570 €490	£140 $175 €
	WEIGHT	2.1kg/4.7lb	1.48-1.6kg/3.26-3.5lb	1.58-1.7kg/3.5-3.75lb	1.45kg/3.2l
	MAX LOAD	140kg/308lb	140kg/308lb	140kg/308lb	100kg/220l
	WAIST SIZES	2 sizes 80-132cm/31-52"	3 sizes 65-120cm/25-47"	3 sizes 65-120cm/25-47"	3 sizes 75-132cm/
	LEG SIZES	2 sizes 60-82cm/23-32"	3 sizes 44-65cm/17-26"	3 sizes 44-65cm/17-26"	3 sizes 40-90cm/
	STANDARDS	■ ■ ■ ■	■ ■ ■+UKCA	■ ■ ■+UKCA	■ ■
LIFE CRITICAL	CHEST HARNESS ATTACH PTS	☐ -	☐ -	☐ ■	☐ -
	BUCKLES WAIST/LEGS	Fast Clip	Petzl FAST & FAST LT+	Petzl DblBack & FAST LT+	AA Cobra Fast
	BRIDGE TYPE REPLACEABLE	1x Tied Rope ■	1 or 2 Sewn Rope ■	1 or 2 Sewn Rope ■	Double 20mmW
	BRIDGE LENGTHS ADJUSTABLE	24/27" ■	25/30/35cm no	25/30/35cm no	25/30/35cm
	CONNECTION to BRIDGE	Sliding Ring (wear indicator)	*	*	Sliding Rin
	BRIDGE UNION LENGTH ADJ	3 hole Rig-Plates	2 holes +D-ring Plates ■	2 holes +D-ring Plates ■	Shackles
	SRT D-RING/EYE REAR BELAY	- - -	- - -	- ■ -	- - -
	POLE STRAP D's FOLD FLAT	■	■	■	■
GEAR ATTACH	GEAR LOOPS SEWN EYES	4 2 (above each side-D)	9 2	9 2	- 3
	CUSTOM GEAR CORD EYES	--	-	-	-
	BASIC HOLES/EYES RINGS	- -	- -	- -	- -
	CARI-HOOK CARI-HOOK EYES	- 2	☐ 5	☐ 5	☐ 2to4
	CHAINSAW EYE/RINGHOOK	■ -	- -	- -	-
	ATTACH POUCH/FIRST AID	■	■	■	-
WAIST	WAIST PADDING SWAMI	Thermo-form -	Thermo-form -	Thermo-form -	Mesh/Foam
	WAIST BELT WEBBING PADDING	45mm/1.75" 18cm/7"	44mm/1.75" 19cm/7.5"	44mm/1.75" 19cm/7.5"	45mm/1.75" 20c
	WAIST ADJUST	1x Side	1x Side	double sided	Central
LEG	LEG LOOP HEIGHT PADDING	25mm/1"15cm/6"	25mm/1" 16cm/6.3"	25mm/1" 16cm/6.3"	45mm/1.75" 23.5c
	ELASTICATED REAR LEG RISER	■	■	■	■
	LEG RISER ADJ REAR FRONT	■ ■	■ -	■ -	■ ■
EXTRAS	RFID CHIP WEAR INDICATE	- ■ ■	- -	- -	- -
	FIRST AID TRAUMA KIT	- -	- -	- -	- -
	SIT STRAP BOSUNS CHAIR	- -	- ☐	- ☐	■ -
	OTHER SRT MODELS	--	■	■	■
	NOTES	Sentinel replacememnt from 2024. Bridge ring hs wear indicator	* Option Ring or Swivel 180cm Adjustable bridge option	* Option Ring or Swivel 180cm Adjustable bridge option	Bridge attachment webb adjusted via rear b
	WEBSITE	notchequipment.com	Petzl.com	Petzl.com	protekt.pl

ARBORIST SIT HARNESSES

	PROTEKT	**PROTEKT**
	Tree Up TH-030mX	**Tree Up** TH-050mX
170	£190 $240 €230	£190 $240 €230
b	1.94kg/4.3lb	2.6kg/5.7lb
b	140kg/308lb	140kg/308lb
/30-52"	4 sizes 75-150cm/ 30-59"	4 sizes 75-150cm/ 30-59"
16-35"	4 sizes 40-100cm/16-39"	4 sizes 40-100cm/16-39"
	☐ -	☐ -
Clip	AA Cobra Fast Clip	AA Cobra Fast Clip
Veb	20mm Webbing	20mm Webbing
no	25/30/35cm no	25/30/35cm no
g	Sliding Ring	Sliding Ring
	Shackles	Shackles
	- - -	- - -
	- 3	- 3
	-	-
	- -	- -
	☐ 2to4	☐ 2to4
	-	-
	-	-
n -	Mesh/Foam -	Mesh/Foam -
m/7.9"	45mm/1.75" 20cm/7.9"	44mm/1.75" 20cm/7.9"
	Central	Central
m/9.25"	44mm/1.75" 23.5cm/9.25"	44mm/1.75" 23.5cm/9.25"
	- -	- -
	- -	- -
	- -	-
ping length uckle	Bridge attachment webbing length adjusted via rear buckle. Replaced X & 030	Integrated sit-strap. Bridge attachment webbing length adjusted via rear buckle. Replaced X & 050
	protekt.pl	protekt.pl

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	COMPANY	**R-EASY CLIMBER**	**ROCK EMPIRE**	**ROCK EMPIRE**	**SHERRILL TREE**
	MODEL VARIANT	Fox Fox Leather 000	Sherman 000	Skill Tree 000	Edge II 000
	ORIGIN				
	COST inc VAT/tax conv-only	£309 $385 €354 €384	£380 $500 €430	£255 $334 €290	£427 $560 €487
	WEIGHT	1.6kg/3.5lb 1.7kg/3.7lb	1.88-1.95kg/4.1-4.3lb	1.79kg/3.94lb	1.9kg/4.2lb
	MAX LOAD	140kg/308lb	140kg/308lb	140kg/308lb	159kg/350lb
	WAIST SIZES	3 sizes 65-120cm/25-47"	2 sizes 71-120cm/28-47.2"	2 sizes 70-130cm/27-51"	4 sizes 71-112cm/28-44"
	LEG SIZES	3 sizes 44-65cm/17-26"	2 sizes 50-80cm/19.6-31.5"	2 sizes 54-80cm/21-31.5"	n/a
	STANDARDS	■ ■	■ ■	■ ■	■
LIFE CRITICAL	CHEST HARNESS ATTACH PTS	- -	- -	- -	- -
LIFE CRITICAL	BUCKLES WAIST/LEGS	Fast Clip	Fast-Clip	Fast-Clip	AA Cobra Fast Clip
LIFE CRITICAL	BRIDGE TYPE REPLACEABLE	1/2 Sewn Rope(s) ■	2x 11mmTied Rope ■	1x 11mmTied Rope ■	1x Tied Rope ■
LIFE CRITICAL	BRIDGE LENGTHS ADJUSTABLE	25/30/35cm no	130cm/51" ■	130cm/51" ■	102cm/40" ■
LIFE CRITICAL	CONNECTION to BRIDGE	Sliding Ring	Sliding Ring	Sliding Ring	Sliding Ring
LIFE CRITICAL	BRIDGE UNION LENGTH ADJ	Openable rings	3 hole Plates ■	2 hole Plates ■	3 holes +D-ring ■
LIFE CRITICAL	SRT D-RING/EYE REAR BELAY	- - -	- - -	- - -	- - -
LIFE CRITICAL	POLE STRAP D's FOLD FLAT	■	■	■	■
GEAR ATTACH	GEAR LOOPS SEWN EYES	11*	7 3	6 2	5 3
GEAR ATTACH	CUSTOM GEAR CORD EYES	-	5	-	-
GEAR ATTACH	BASIC HOLES/EYES RINGS	- -	- 4	- 2	- 2
GEAR ATTACH	CARI-HOOK CARI-HOOK EYES	- 6	☐ 2	☐ 11	- 4
GEAR ATTACH	CHAINSAW EYE/RINGHOOK	- -	- -	- -	- -
GEAR ATTACH	ATTACH POUCH/FIRST AID	■	-	-	■
WAIST	WAIST PADDING SWAMI	Thermo-form -	Mesh/Foam -	Mesh/Foam -	Mesh/Foam -
WAIST	WAIST BELT WEBBING PADDING	45mm/1.75"20cm/7.9"	4x30mm/4x1.25" 22cm/8.7"	44+30mm/1.25" 17.5cm/7"	45mm/1.75" 20cm/7.9"
WAIST	WAIST ADJUST	1x Side	1x Side	1x Side	1x Side
LEG	LEG LOOP HEIGHT PADDING	25-45mm/1-1.75"16cm/6.3"	2x20mm/2x0.8"15.5cm/6.1"	44mm/1.75" 12.5cm/55"	25mm/1"14.6cm/5.7"
LEG	ELASTICATED REAR LEG RISER	■	■	-	■
LEG	LEG RISER ADJ REAR FRONT	■ -	■ ■	■ ■	■ -
EXTRAS	RFID CHIP WEAR INDICATE	- -	- -	- -	- -
EXTRAS	FIRST AID TRAUMA KIT	- -	☐ -	- -	- -
EXTRAS	SIT STRAP BOSUNS CHAIR	- -	- -	- -	- -
EXTRAS	OTHER SRT MODELS	-	■	■	-
	NOTES	Leather version=belt and leg loop outers are LEATHER. *5 'loops' are separated sections of one cord. 2 on leg loops	Introduced in 2024		Also in Black/Blue
	WEBSITE	r-eshop.com	rockempire.com	rockempire.com	sherrilltree.com

SIMARGHU	**SIMARGHU**	**SINGING ROCK**	**SKYLOTEC**	**STEIN**
Fire - Male	**Gemini - Female**	**Arbo Master**	**Ignite Arb**	**Vega Plus VS2**
000	000	000	000	000
£380 $480 €460	£380 $480 €460	£270 $340 €310	£415 $520 €476	£431 $595 €520
2.5-2.6kg/5.5-5.7lb	2.3kg/5lb	1.7kg/3.7lb	2.47-3.48kg/5.4-7.7lb	1.9kg/4.2lb
140kg/308lb	140kg/308lb	120kg/264lb	150kg/330lb	150kg/330lb
2 sizes 69-107cm/27-42"	1 size 66-86cm/26-34"	2 sizes 65-130cm/25-51"	2 sizes 60-125cm/24-49"	3 sizes 76-98cm/
1 size 43-69cm/17-27"	1 size 43-69cm/17-27"	2 sizes 45-75cm/18-29"	2 sizes 60-85cm/24-33"	N/A
				+ UKCA
☐ -	☐ -	☐ -	☐ -	- -
Fast-Clip	Fast-Clip	Fast-Clip	Fast-Clip	AA Cobra Fast-Clip
1x Tied Rope	1x Tied Rope	2x Tied Ropes	Sewn Webbing	Sewn 20mm Webbing
130cm/51"	130cm/51"	130cm/51"	20/25/30cm no	25/30/35cm no
Sliding Ring	Sliding Ring	Sliding Ring	Sliding Ring	2x Sliding Rings
3 holes +D-ring	3 holes +D-ring	1 hole +D-ring Plate	Inverted D-Ring	Openable Ring -
- - -	- - -	- - -	- - -	- - -
2x pairs				
4 2	2 2	4 x5kg 2 x5kg	6 4	3 8 +2 on Leg Loops
-	-	x5kg	-	
- -	- -	- 2 x10kg	- -	- 2
- 2	- 4	☐ 6	☐ 6	- ?
		1 x35kg		
Thermo-form -	Thermo-form -	Mesh/Foam -	Thermo-form -	Mesh/Foam -
45mm/1.75" 20cm/7.9"	45mm/1.75" 20cm/7.9"	40mm/1.5" 20cm/8"	44mm/1.75" 22cm/8.7"	45mm/1.75" 20cm/8"
1x Central	1x Central	Single Side	Single Side	Double Central
25mm/1"14.6cm/5.7"	25mm/1"14.6cm/5.7"	40mm/1.5" 15cm/6"	44mm/1.75" 15.5cm/6.1"	45mm/1.75" 15cm/6"
-	-			
		-		-
-	-	- -	- -	-
☐ ☐	☐ ☐	☐ -	☐ -	-
- -	- -	- -	- ☐	- -
-	-			-
The smaller size has the same gear attach options as the Gemini. Bridge union adjust via buckle on waist-rear	Has two additional pelvis straps from waist to legs . Bridge union adjust via buckle on waist-rear	additional neoprene pouch on leg loops for small items	Replaced the celebrated Kolibri	
simarghu.com	simarghu.com	singingrock.com	Skylotec.com	steinworldwide.com

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expansion column

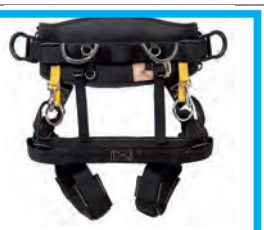
	COMPANY		TEUFELBERGER	TEUFELBERGER	TREE HOG
	MODEL VARIANT		TreeMOTION Essential X 000	TreeMOTION Pro X 000	Razorback TH5000
	ORIGIN		■	■	■ ■
	COST inc VAT/tax conv-only		£356 $500 €440	£472 $625 €582	£270 $340 €325
	WEIGHT		2kg/2.2lb	2.3kg/5lb	2.5kg/5.5lb
	MAX LOAD		150kg/330lb	150kg/330lb	100kg/220lb
	WAIST SIZES		3 sizes 69-129cm/27-50"	3 sizes 69-129cm/27-50"	3 sizes 76-140cm/26-52"
	LEG SIZES		3 sizes 38-87cm/15-34"	3 sizes 38-87cm/15-34"	3 sizes 50-90cm/20-35"
	STANDARDS		■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■	■ ■
LIFE CRITICAL	CHEST HARNESS ATTACH PTS		☐ ■	☐ ■	- -
LIFE CRITICAL	BUCKLES WAIST/LEGS		Cobra/Cobra (Fast-Clips)	Cobra/Cobra (Fast-Clips)	Fast-Clip
LIFE CRITICAL	BRIDGE TYPE REPLACEABLE		1or2 Tied or sewn Rope ■	1 or 2 Tied or sewn Rope ■	Sewn 20mmWebbing ■
LIFE CRITICAL	BRIDGE LENGTHS ADJUSTABLE		123/180cm 40/45/50cm ■	123/180cm 40/45/50cm ■	25/30/35cm no
LIFE CRITICAL	CONNECTION to BRIDGE		Sliding Ring	Sliding Ring	2x Sliding Rings
LIFE CRITICAL	BRIDGE UNION LENGTH ADJ		2x Hole + D plates ■	2x Hole + D plates ■	Shackles
LIFE CRITICAL	SRT D-RING/EYE REAR BELAY		- - -	- - -	- - -
LIFE CRITICAL	POLE STRAP D's FOLD FLAT		■	■	■
GEAR ATTACH	GEAR LOOPS SEWN EYES		- -	- -	3 -
GEAR ATTACH	CUSTOM GEAR CORD EYES		■	■	-
GEAR ATTACH	BASIC HOLES/EYES RINGS		numerous -	numerous -	- -
GEAR ATTACH	CARI-HOOK CARI-HOOK EYES		- 8	- 12	☐ 2to4
GEAR ATTACH	CHAINSAW EYE/RINGHOOK		■	■	-
GEAR ATTACH	ATTACH POUCH/FIRST AID		■	■	-
WAIST	WAIST PADDING SWAMI		Mesh/Foam -	Thermo-form ■	Mesh/Foam -
WAIST	WAIST BELT WEBBING PADDING		25mm/1" 23cm/9"	25mm/1" 23cm/9"	44mm/1.75" 20cm/7.9"
WAIST	WAIST ADJUST		1x Central (Cobra)	1x Central (Cobra)	1x Central
LEG	LEG LOOP HEIGHT PADDING		25mm/1" 14.5cm/5.7"	25mm/1" 14.5cm/5.7"	44mm/1.75" 23.5cm/9.25"
LEG	ELASTICATED REAR LEG RISER		■	■	■
LEG	LEG RISER ADJ REAR FRONT		■ ■	■ ■	■ ■
EXTRAS	RFID CHIP WEAR INDICATE		- -	- -	- -
EXTRAS	FIRST AID TRAUMA KIT		- -	- -	☐ -
EXTRAS	SIT STRAP BOSUNS CHAIR		- -	- -	- -
	OTHER SRT MODELS		replaces 4 previous treeMOTIONS	replaces 4 previous treeMOTIONS	-
	NOTES		X= 2025 version - more replaceable components, openable bridge-riser union, improved stitching etc. Green=load-bearing, Red=gear only	X= 2025 version as Essential + more gear attach options + enhanced padding. Green=load-bearing, Red=gear only	Bridge union length adjusted via rea buckle. Updating late 2023. Also with yellow trim
	WEBSITE		teufelberger.com	teufelberger.com	treehog.co.uk

ARBORIST SIT HARNESSES

TREE HOG	TREE RUNNER	WEAVER	WEAVER	WEAVER
TH7000	Tree Rider 000	Denali 000	Stratus 08100	COUGAR 000
£300 $380 €360	£270 $340 €320	£417 $550 €495	£413 $543 €472	£330 $435 €377
2.6kg/5.7lb	1.53kg / 3.4lb	2.95kg/6.5lbs	2kg /4.5lbs	3.63kg/8lbs
100kg/220lb	140kg/308lb	140kg/308lb	140kg/308lb	140kg/308lb
3 sizes 76-140cm/26-52"	3 sizes 65-115cm/26-45"	1 size 26-48"	3 sizes 28-46"	4 sizes 30-48"
3 sizes 50-90cm/20-35"	3 sizes 55-80cm/21.6-31.5"	61cm/ <24"	51-86cm/20-34"	61cm/ <24"
- -	☐	☐ -	☐	☐ -
Fast-Clip	AA Cobra Fast-Clip	AA Cobra Fast-Clip/Rollbar	ISC Fast-Clip	Pin&Hole/Fast-Clip
Sewn 20mmWebbing	50mm Webbing no	Double Rope	Tied Rope	Tied Doubled Rope
25/30/35cm no	Fixed 50mm Web no	35cm/14"	35cm/14"	35cm/14"
2x Sliding Rings	Sliding D-Ring	Sliding Ring	-	-
Shackles	sewn-fixed	4-hole Rig plates	4-hole Rig plates	4-hole Rig plates
- - -	-2x -	- - -	- - -	- - -
3 -	2 (Dyneema) -	- 6*	3 - *18 + 6 on legs	2 -
-	4		-	-
- -	- 6	- 2	- 4	- 6
☐ 2to4	- 2	- 4	- (use the 24 sewn eyes)	- 2
-	-	-	-	2 2
-	-			
Mesh/Foam -	Moulded Foam -	Moulded Air-Flex Foam -	Reinforced Mesh/Foam -	Memory Foam -
44mm/1.75" 20cm/7.9"	50mm/2" 20cm/7.9"	Dbl-50mm/2" 23cm/9"	25mm/1" 23cm/9"	50mm/2" 18cm/7"
1x Central	1x Side	1x Central + 4x side adj	1x Central	1x Side
44mm/1.75" 23.5cm/9.25"	50mm/2" 8.5cm/3.4"	50mm/2" 17.8cm/7"	25mm/1" 23cm/9"	50mm/2" 10cm/4"
	-			
- -	- -	-	- -	- -
☐ -	- -	☐ -	☐ -	☐ -
-	- -	- -	- -	-
-	-	-	-	-
Bridge union length adjusted via rear buckle. TH7000 has an integrated sit-strap. Updating late 2023		*arranged as a daisy chain	*arranged as daisy chains	Also in all-black
treehog.co.uk	grube.eu	weaverarborist.com	weaverarborist.com	weaverarborist.com

IMAGES NOT TO SCALE
FITTINGS and ACCESSORIES SHOWN MAY BE AN ADDITIONAL COST

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



	COMPANY	WEAVER	WEAVER	WEAVER	WEAVER
	MODEL VARIANT	WLC-790	WLC-760	WLC 730	WLC-530 560
	ORIGIN	■	■	■	■
	COST inc VAT/tax conv-only	£497 $653 €567	£426 $560 €486	£373 $480 €417	£274 $355 $365 €
	WEIGHT	3.63kg/8lbs	3.2kg/7lb	3.63kg/8lbs	2.72kg/6lbs
	MAX LOAD	140kg/308lb	140kg/308lb	140kg/310lb	140kg/310lb
	WAIST SIZES	4 sizes 30-48"	5 sizes 66-122cm/26-48"	5 sizes 66-122cm/26-48"	4 sizes 76-122cm/30
	LEG SIZES	61cm/ <24"	61cm/<24"	61cm/<24"	51-68cm/20-27
	STANDARDS	■ ■	■ ■	■ ■	■ ■
LIFE CRITICAL	CHEST HARNESS ATTACH PTS	☐ -	☐ ■	☐ -	☐ ■
LIFE CRITICAL	BUCKLES WAIST/LEGS	Pin&Hole/Fast-Clip	Pin&Hole/Fast-Clip	Pin&Hole/Fast-Clip	Pin&Hole
LIFE CRITICAL	BRIDGE TYPE REPLACEABLE	Tied Doubled Rope ■	Tied Doubled Rope ■	Web-covered rope ■	Fixed 50mm Webbin
LIFE CRITICAL	BRIDGE LENGTHS ADJUSTABLE	35cm/14" ■	35cm/14" ■	25cm/10" ■	12" no
LIFE CRITICAL	CONNECTION to BRIDGE	-	-	-	1 (2)x Sliding D-Ri
LIFE CRITICAL	BRIDGE UNION LENGTH ADJ	4-hole Rig plates ■	4-hole Rig plates ■	ISC Al ring ■	Sewn no
LIFE CRITICAL	SRT D-RING/EYE REAR BELAY	- - -	- - -	- - -	- - -
LIFE CRITICAL	POLE STRAP D's FOLD FLAT	■	■	■	■
GEAR ATTACH	GEAR LOOPS SEWN EYES	2 -	2 -	2 -	2 -
GEAR ATTACH	CUSTOM GEAR CORD EYES	-	-	-	-
GEAR ATTACH	BASIC HOLES/EYES RINGS	- 6	- 6	- 6	- 6
GEAR ATTACH	CARI-HOOK CARI-HOOK EYES	- 2	- 2	- 2	- 2
GEAR ATTACH	CHAINSAW EYE/RINGHOOK	2 2	2 2	2 2	2 2
GEAR ATTACH	ATTACH POUCH/FIRST AID	■	■	■	■*
WAIST	WAIST PADDING SWAMI	Memory Foam -	Memory Foam -	Memory Foam -	Leather/Memory Fo
WAIST	WAIST BELT WEBBING PADDING	50mm/2" 23cm/9"	50mm/2" 23cm/9"	50mm/2" 17.8cm/7"	50mm/2" 15.2cm/
WAIST	WAIST ADJUST	1x Side	1x Side	1x Side	1x Side
LEG	LEG LOOP HEIGHT PADDING	50mm/2" 10cm/4"	50mm/2" 10cm/4"	50mm/2" 10cm/4"	50mm/2" 7.6cm/3
LEG	ELASTICATED REAR LEG RISER	■	■	■	-
LEG	LEG RISER ADJ REAR FRONT	■ ■	■ ■	■ ■	■ -
EXTRAS	RFID CHIP WEAR INDICATE	- -	- -	- ■	- -
EXTRAS	FIRST AID TRAUMA KIT	☐ -	☐ -	☐ -	☐ -
EXTRAS	SIT STRAP BOSUNS CHAIR	- ■	- -	- ■	- -
EXTRAS	OTHER SRT MODELS	-	-	-	-
	NOTES	Also in all-black	Endura braid rope bridge. Also in all-black	the 730 has an integrated sit strap	WLC-560 has two sliding D WLC530 has one. £ cost increases with size of
	WEBSITE	weaverarborist.com	weaverarborist.com	weaverarborist.com	weaverarborist.co

	WEAVER	**WEAVER**
	WLC-500	**WLC-330**
290	£225 $295-350 €260	£256 $332 €268
	2.72kg/6lbs	2.72kg/6lbs
	140kg/310lb	140kg/310lb
0-48"	4 sizes 76-122cm/30-48"	5 sizes 66-122cm/26-48"
"	41-61cm/16-24"	n/a
	■ ■	■ ■
	□ ■	□ ■
	Pin&Hole	Pin&Hole
ng no	Integrated sit strap no	Fixed 50mm Webbing no
	- -	12" no
ngs	2x fixed D-Rings	Sliding D-Ring
	Sewn no	Sewn no
	- - -	- - -
	■	■
	2 -	2 -
	-	-
	- 6	- 5
	- 2	- 2
	2 2	2 2
	■*	■*
oam -	Leather/Memory Foam -	Leather/Foam -
/6"	50mm/2" 15.2cm/6"	50mm/2" 15.2cm/6"
	1x Side	1x Side
3"	50mm/2" 7.6cm/3"	50mm/2" None
	-	-
	■ -	■ -
	- -	- -
	□ -	□ -
	- -	- -
	-	-
-Rings harness	£ cost increases with size of harness. *2 of the rings are intended for pouch stowage.	£ cost increases with size of harness. *2 of the rings are intended for pouch stowage.
om	weaverarborist.com	weaverarborist.com

singing rock®

Tree care harness for professionals

ARBO MASTER

www.singingrock.com

UPDATED Jan '26

ARBORIST CLIMBING HELMETS

Fully or partly meeting EN12492 (mountaineering) and/or ANSI z89.1 type 2 or EN397 (industrial) & ANSI type 1 with additional side-impact & lateral deformation tests & accept Eye & Ear protection

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

This GUIDE does not cover general forestry/ground work helmets (generally ANSI type 1 and/or EN397) unless they also function as a climbing helmet (ANSI type2/EN12492) and in fact, as we'll see, this whole genre is tricky to reconcile even between European standards let alone between European and North American standards. For instance there are ANSI type 1 and EN397 helmets that have top-only impact tests but may also test for side impact and/or lateral deformation. All-around impact tests and/or lateral deformation are the minimum guarantee of protection we want to see for climbers as an addition to just top impact. EN397 and ANSI Type 1 by themselves are not enough to get in this GUIDE because working at height is NOT the same as Climbing, HOWEVER, there are two helmets in this GUIDE from Kong and CT that don't meet our criterion, at least not on paper, but others in their range do and they specifically state these models as being suitable for climbers/climbing arborists so we have highlighted these with a red 'no' in the EN12492/Lateral tests column. Depending on the type of worksite, OSHA defines working at height as 4, 6 or 8 feet off the ground - that could be a 4-rung stepladder!

The technical specifics of visors and ear defenders are not included here as they would each need their own GUIDE. We have a full GUIDE to Climbing and Multi-Role Helmets in the **PPE & CASEVAC** and **USAR/ EXTRICATION BUYERSGUIDES** for competition and recreational climbers and arb inspectors these would be useful GUIDES to check out. In this GUIDE for climbing arborists using chainsaws, handsaws and other power equipment however, we are specifically looking at helmets that meet climbing standards and can provide eye and hearing protection often sold under the banner of 'Combination' helmets. That means various types of visors to protect from wood chips and dust and protection of the ears from the potentially damaging sound of a petrol/gas chainsaw but these days is just as likely to incorporate a communications system. Pretty much all such work helmets can be used as stand-alone climbing helmets simply by removing the click-on ear defenders and visor mounts or the visor may stow within the helmet shell. Ear defenders can be swung back onto the helmet shell when not needed as the arborist in this image obviously feels is the case in using a battery powered saw, although, it has to be said, that even electric saws have a sustained level of noise all the while you're pressing the trigger. We'll get to the details of fixtures and fittings later, we first need to discuss the various structural and design differences between helmets. In tree work we can differentiate three work types:

1) **GROUND-CREW/CHIPPER** (ANSI type1/EN397)
2) **WORK At HEIGHT** eg. Cherry picker (ANSI type1/EN397)
3) **CLIMBING** (on-rope) (ANSI Type 1-2/EN12492)
   3a) Recreational Climbing/Competitions/Inspections
   3b) Climbing and use of a saw/chainsaw
   3c) Climbing & working around electricity (ANSI/EN397 + side-impact and/or Lateral Deformations tests)

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

Some helmets are specifically designed and marketed towards arborists while others are modified sport or industrial helmets that are coincidentally useful for arborists. Some elements of climbing-specific standards do not take into account the need for arborists to work around electricity, especially for post-storm work so there are many overtly industrial climbing helmets without vents here that meet dielectric standards but are not actively aimed at arborists - *CT's Aries* for example as compared to their *Aries Tree* and *X Arbor*. The key difference between a climbing and a ground-work helmet is that climbers need all around impact protection (rather than just on the top) and a stronger chin strap to ensure the helmet stays on your head. Competition climbers don't need the associated safety accessories although a headtorch and flip-up goggle visor can be useful. All three of these groups can use the non-accessorised climbing helmets in W**SAR** magazine #11's GUIDE.

US & EUROPEAN STANDARDS

Unfortunately, as with most products, there is no fully international safety standard. Europe and North America have competing and slightly different standards and requirements that requires most manufacturers to produce a different version for each regional market - ANSI in the US and EN in Europe and most Pacific countries. There is much greater emphasis in the US on working around electricity because of the way the utilities are structured and the sheer number of

damaging storms. ANSI z89.1 Type1&2 helmets have the higher strength chin strap and are class 1 for top-only impact or class 2 for all-around impact. ***This GUIDE only includes ANSI Class 1/EN397 helmets if they are also tested for lateral impact and/or deformation (LD).*** LD is an addition to EN397 that tests the resistance to 'squeezing' of the sides of the helmet but not as relevant as side, rear and front *impact* tests**.** ANSI also specifies electrical conductivity as Class C, G or E which we'll come to shortly.

ANSI does not delineate the chin strap strength for ground and climbing as the European standards do. Consequently North American arborists could choose either the mountaineering (EN12492) or industrial (EN397)-standard helmets because their shells are virtually identical. This is also true in Europe given that arborists may need an unvented EN397 helmet that doesn't conduct electricity and negates the vent aspect of EN12492. There are three key differences between EN397 and EN12492 helmets which are otherwise identical:EN397 requires less vent area, a chin strap that releases at a much lower load (15- 25daN) and clearance between the shell and the cradle that doesn't allow for any lining in direct contact with the shell. It uses a 5kg test load from 1metre above which must exert no more than 5kN of force to the head whereas climbing helmets use a 5kg mass falling 2metres but exerting no more than 10kN to the head and of course, they include impact loading to the side, front and rear of the shell. Vent size must be less than 4.5cm^2 of total shell area for EN397 whereas for climbing it needs to be well ventilated in excess of 4cm^2 of area. However, that does mean there is crossover if a shell has between 4 and 4.5cm^2 of vent area - that would meet both standards.

ELECTRICAL CONDUCTIVITY

ANSI specifies three electrical conductivity classes: Class G, (General) hard hats are rated for 2,200 volts. Class E (Electrical) hard hats are rated for 20,000 volts and Class C (Conductive) hard hats offer little or no electrical protection. Electricity protective helmets are NOT vented or are minimally vented and this directly contradicts the main climbing helmet standard in Europe EN12492 which requires a certain area of vents for airflow. ANSI class E precludes vents and G has smaller vents than for C-type helmets. Utility arborists and anyone tasked with a job near power cables will need a helmet that will NOT conduct electricity to your head. In practice this means no vents and more clearance between the shell and your head. Many climbers will think that ventilation is a must-have to keep the head cooler in hot weather and during heavy work and this is a requirement of the EN12492 climbing standard. But an electrical arc will kill you quicker so if storm and/or utility work is on your radar you may well need both options. For US ANSI standards this is covered by class G and E helmets where class E rated for 20,000 volts is for high tension pylon style cables (**E** & **HT** in our tables) and the General 2,200v rating will see you though all domestic-feed power lines. In Europe this is covered primarily by EN50365 but this is only for lower voltage systems up to 1000v Ac or 1500Vdc and can be as low as the 440vAC that we have listed as **LT** so is less stringent than ANSI class G. Many EN50365 helmets also comply with ANSI G so are actually higher rated than their EN50365 adherence implies. Some helmets like *CAMP*'s *Ares* and *Petzl*'s *Vertex* have closable vents and can meet EN50365 though some only meet this electrical-protection standard if used on the ground like *JSP*'s *Evo5*. The similarly equipped *Petzl Stratos* fails on non-conductivity

PETZL STRATO Vent Hi-Viz

STIHL Advance X

because there is not enough clearance between the head and the shell.

CHIN STRAPS

And then there's chin strap strength which in climbing helmets requires it to keep the helmet in place during a fall and when resisting an impact. Industrial helmets in Europe, which often include 'arborist' models, requires the chin strap to separate or break at less than 25daN because, oddly, it is felt that there is a greater risk of being strangled if the helmet gets hung up on an obstruction during work. You would think that those at the greatest risk of hang-up would be arborists and yet they are specifically mandated towards EN12492 helmets with high-strength chin straps and NOT EN397's breakaway straps. This is because the helmet needs to stay on AFTER an impact/fall because the climber may well still be exposed at height and can't afford to have the helmet detach completely. It would be interesting to know how often a fall that results in being hung up by the helmet strap such that you are strangled to death has occurred versus being hit on the head because your helmet has come off after an impact from the first piece of falling debris or branch? A number of manufacturers like *Petzl* and *Uvex* provide both types of chin strap which can be swapped in and out but this might still result in falling foul of local protocols if you had the wrong one on. While it's impossible to meet both standards at the same time, the helmet as a 'package' is able to meet both EN397 and EN12492 and these helmets are often called 'hybrids', not to be confused with 'hybrid' as a type of helmet construction. Many more helmets, especially outside of Europe, will meet the impact resistance (including sharp-object penetration) requirements of EN12492 but not necessarily the chin strap requirement. It's a strange dilemma since we're not at all convinced of the validity of a lower strength breakaway chin strap for climbers. *Heightec's Duon* and *JSP*'s *EVO* series have gone some way to solving this dilemma by using a chin-strap buckle that adjusts between weak and strong.

The enhanced EN14052 standard that requires better top, side and frontal impact tests for industrial helmets effectively mimics EN12492 impact testing but has the lower strength EN397 chinstrap so climbing helmets will rarely be fully EN14052 compliant and vice versa. This standard is far from widely adopted so only relatively few including *Kask*, and *Team Wendy* have it. Kask have now added a green buckle to more readily differentiate EN12492 compliance

UPDATED Jan '26

1

2

4

5

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

HELMET CONSTRUCTION

in the fourth quarter of the last century, sport climbers were progressing from very round, glass-fibre, water melon-style helmets with a foam lining and a chin strap to plastic ovals with a spider-web cradle and a chin strap. Meanwhile, arborists were just about progressing from a plastic building site helmet to a plastic building site helmet with a chin strap. Some of us wore certified climbing helmets with accessories but it wasn't until this century that arborists really began to see the need for a 'proper' climbing helmet that was firm and comfortable in all orientations that a climber might find him/herself in, able to withstand impacts from multiple directions (ANSI Class 2) not just from the top (as ANSI Class 1 requires) and also able to take all the safety trimmings necessary for chainsaw use. By 2010 virtually all climbing helmet manufacturers producing high quality mountaineering helmets were also producing a more 'industrial' version able to be fitted with visors and ear defenders for both the rope access and arborist markets. Europe mostly embraced the climbing helmet model with arborist helmets from the likes of *Petzl, Kask, Edelrid, Kong, CT* and *C.A.M.P.* while North America continued to develop the site-helmet theme incorporating a peak (primarily driven by the ANSI helmet standard requiring a peak) from companies like *Klein Tools*, *Americana*, *3M*, *PMI, Studson* and imports from *Pacific* and *JSP.* This has led to many Arb stockists in North America majoring on European models which, in turn, has caused some European manufacturers to ensure that their helmets either meet both ANSI and EN standards like *Petzl* or they have two versions, one meeting EN and one meeting ANSI standards, like *Kask*. Also this century we saw perhaps the biggest driver in arborist helmet evolution, the *Protos* Helmets by Austrian Forestry giant *Pfanner*. The *Protos* was the first to fully integrate eye and ear protection into the one shell but and is renown for its vast range of colours, designs and customizations. The version on the right for instance is a Ukraine Special edition with money from every sale donated by *Pfanner* and the stockist to Ukraine charities having to cope with devastation caused to civilians and civilian infrastructure by the 2022 invasion by Russia.

North America vs European

Only one of these three helmets is available to European climbers - spot the differences? These first two are the Spire without vents and the Elevation intended for North America-only. The bottom helmet is the Spire Vent for Europe.

The Spire Vent adheres to EN12492 while the Spire and Elevator adhere to ANSI z89.1 Type 1 Class C and E respectively but with extra Lateral Deformation tests for both. You'll find this same North American/European differentiation with many of the key brands Stihl, Petzl, Kask, MSA etc. and while some are fully compliant across both sets of standards most are only partially compliant. If you take electricity out of the equation the choice of European climbing helmets is huge in comparison to their US-counterparts and US stockists obviously agree since they all sell far more EN-compliant helmets to arborists than they do than ANSI.

Back to past history and after an initial flirtation with motorcycle helmets for climbing it became clear that helmet linings had to be improved. The answer initially was to keep the glass fibre shell and increase the clearance between the head and the shell. Building site helmets had something of an answer with their adjustable plastic head band and concentric plastic 'spokes' joined at the crown but more comfort was needed and this included improving ventilation or airflow to the head which was otherwise encased in a hot and sweaty goldfish bowl. Enter the age of substantial sized air vents and a webbing cradle initially riveted around the shell and with an inch or two of clearance between the top of your head and the inner shell. In the event of a lump of wood hitting the top, the shell can deform to absorb some impact before the shell reached your crown. This allowed superior materials to creep into helmet production - lighter, stronger and more resilient to wear than glass-fibre, mostly plastics, thermoplastics and polymer mixes. The next couple of decades saw various combinations of hard-shell plastics that deformed to absorb impact and cradles that tried their best to keep your crown clear of the shell. Some shells began to re-incorporate fibres into the plastics to improve durability, not quite back to the traditional glass-fibre days and certainly a feature of the more robust shells. Meanwhile, some cradles were replaced by a full 'cap' or dome of polystyrene instead of webbing straps to improve comfort, all the while making the helmet lower in profile than the original pimple-on-your-head like the *Joe Brown* and original *Edelrid Ultralight.* Carbon fibre came and went and still appears every now and then but perhaps the most obvious modern change has been more extensive use of EPS (Expanded Polystyrene) and latterly the slightly denser EPP (Expanded Polypropylene) leading to three new classes of helmet in addition to the existing hard-shells. Good luck differentiating some of the 'hybrids' from some of the 'in-Molds'. For arborists we only really have to worry about Hard-Shells and Hard Shell Hybrids. Again difficult to tell apart. They both have a full dome of material - mostly ABS and ABS/Polycarbonate (as dictated by EN397) but basic Hard Shell has a web cradle with internal clearance (often with a small insert of polystyrene in the crown while the hybrid has a much more expansive 'lining' of expanded foam/polystyrene. Hard shell is the traditional design with a web cradle and/or small EPS crown insert in a full ABS or polycarbonate shell. A few that are more suited to rescue but are sold by some

THE SERIES XPANDS.

ZENITH X2
FITS UP TO 63 CM

NEW
ZENITH X2 MAX
FITS UP TO 66 CM

ZENITH X2 MAX – THE FIRST OF ITS KIND

The first and only safety helmet for a wider range of head shapes. Designed with the same KASK protection and even more comfort. Made with a longer chinstrap and larger internal and external shells. Accommodating longer faces and worker head sizes up to 66 cm. The newest addition to the KASK ZENITH X Series - ZENITH X2 MAX.

Every KASK helmet is tested for Rotational Impact Performance.

KASK

Performance is a beautiful thing.

Ukraine-colours version of Protos

arb stockists like *Pacific* use a kevlar reinforced composite so are renown for being tough but are fairly heavy and not cheap. What looks like polystyrene is now carefully crafted as EPS and EPP and is used as a shell liner in addition to a mesh in place of the traditional web cradle. EPP and EPS are very light, they insulate and are soft allowing thicker cross-sections to absorb impact well. It can be shaped to fit pretty much anything you like allowing intricate designs to improve air flow, follow the shell contours, cut around ears and extend down at the nape all while allowing enough deformation/compression to absorb impact and protect your head. The initial problem with these materials is durability - as an outer shell it's a weak material when it comes to resisting having chunks knocked or scraped out of it, which is one reason you don't see many as arborist helmets.

MIPS & KOROYD

Of special mention in helmet construction is the MIPS enhanced head protection we see most often in ski-helmets that code-share as climbing helmets. ***MIPS*** stands for ***M***ulti-directional ***I***mpact ***P***rotection ***S***ystem and is basically a licensed element to helmet linings from the Swedish inventors that limits rotational impact because the special liner allows the head to rotate within the shell. Companies basically buy in the *MIPS* expertise in helmet safety and incorporate it into their helmet designs like the *Centurion Nexus MIPS* on the left (yellow section) . It's a bit like clothing manufacturers adding *GoreTex* as a key and prestigious feature. One of the newest helmets on the market is the US *Studson* helmet which purports to have merged the best of sport helmets with industrial to produce a sleek and well featured model. It uses a similar system to *MIPS* called *Brainshield* made by *Shield-X*. The *Studson* also uses another safety addition which is the *Koroyd* honeycomb liner most notably used by *Pfanner* in their *Protos* and by New Zealand's *Zero Height Safety* in their *Pinnacle* series. *Koroyd* crumples on impact to absorb far more energy than a solid liner or web cradle.

VISORS

It used to be that a helmet visor was a dark wire mesh that occluded vision by about 30% but didn't 'occlude' dust at all - just the larger particulates and chips most likely to damage your eyes. Back in the 80's when some colleagues were mocking my use of SRT systems for tree work I also got some stick for having a clear plastic visor instead of the standard mesh; this was probably acetate back then rather than the much harder-wearing polycarbonate visors we mostly see today. The advantages as I saw it were that the clear visor kept out water and dust and gave me much, much better visibility especially since mine didn't have a frame - it was a bit like the hospital covid masks. The downside was that it scratched easily and with no reinforcing frame you had to look after it a bit more and it fogged up in certain weather. This latter problem is why the modern goggle-style visor have found favour over full 'square' visors- you're not breathing your heated, foetid fumes on it all day long and even if you were, most have anti-fog and anti-scratch treatments

to prolong their usable life in the tree. Goggle-visors have therefore become the standard eyewear protection in most modern arborist helmets, practically to the exclusion of full face 'square' visors which are largely the domain of ground crew and those tending the chipper. Many of the goggles supplied directly by the helmet manufacturer have unique sizing and fittings for that helmet - *Climbing Technology* for instance has a different visor for their *X-Arbor* than to their *Aries Tree*. However, the vast majority of helmets in this GUIDE have the 30mm Uni or Euro slot that will take industry standard ear-defenders and visor mounts so you can supplement the goggles to some of these with an additional full/half size visor or mesh visor. Some of the images show the helmet with a visor that doesn't necessarily come from that helmet manufacturer and has to be purchased separately. Refer to the UNI-SLOT column to ensure that the helmet can be retro-fitted with various other general-market visors and ear defenders. High quality, anti-fog/anti-scratch goggle-visors can be as much as, if not more expensive than the helmet itself at between £/$20 and £/$100+. You can also get full visors with an integral curved chin or as a a quadrant-shaped attachment (for clear and mesh) to help stop debris blowing up under the visor. Those that stow inside the shell are obviously better protected but some like Petzl do also offer visor guards for externally stowed visors to protect from damage.

EAR DEFENDERS

Sometimes called ear-muffs, this is another area where the climbers helmet may vary from ground-crew/chipper team helmets because the chipper is a lot noisier than a tree-chainsaw and especially a battery saw. It's not quite as simple as using the greater noise insulation of a 31SNR ear defender over a climbing standard 26SNR (SNR=Single Number Rating and is equivalent to the percentage noise that is absorbed and therefore not making it through to your delicate ear holes) because a climber may need to have at least some background hearing to be aware of any hazard warnings. Although the same could be said for ground-crew since they're more likely to get a branch on the head. That's why an **alarm whistle** is a useful item to carry and only use in the event of a hazard to life because it will cut through any ear defender's noise baffle. The ear defender market is dominated by *MSA*, *Sordin*, *Sperian* and *3M Peltor* and these can have an independent head band so that you can use them under *any* helmet or, more usually they will be directly mounted to the helmet as a detachable element often in conjunction with the visor mount. Whether it's a visor or ear defenders, you need to ensure that it fits the helmet properly because so-called universal slots and fixings only need to be a half a millimetre out and there will be play in the mount. A uni-slot (in Europe a standard *Euro-slot* is 30mm wide) allows visor and ear defender mounts to simply push in and click into place. Some, like *Petzl* have their own system called *Easy-Clip* which means that *Petzl* accessories will only fit *Petzl* helmets although the helmets themselves will take other *Euro-slot* accessories and some like *Husqvarna* are even more confusing because they have accessories that will fit some in their helmet range but not others at least not without an adaptor but that pretty cheap at just a few quid/bucks. There are also helmet designs that don't suit certain accessories - peaks will block visors and side brims/flares similarly stop ear defenders from fitting to your ear properly. As with visors you'll pay for the better quality and hearing protection is also something worth preserving expect an average of £40/$55 rising to £/$100+ for high end models.

INTEGRAL HELMET FEATURES

VENTS This is one of the two key features that differentiates a climbing arborist's helmet from an industrial helmet or ground-worker's helmet. Aside from utility climbers working around electricity, climbers mostly want vents to help cool the head when working hard. But it would be nice to have the option so helmets like *Petzl's* Vent models, *CAMP*'s *Ares* and *Pfanner's Protos* have the useful provision of a sliding vent that can be closed. Others have separated vent covers that you can push into place to provide a closed shell. Industrial helmets tend not to be vented at all in order to adhere to additional electrical conductivity and molten metal ingress requirements. Vents may be comprised of a few large openings like *Petzl's Vertex.* or many smaller ones. Some have mesh covering the vents (shown as ● in our tables) so that air gets through but not much else because the disadvantage of larger openings is the possibility of twigs and stones getting in. In some models this risk is countered by offsetting the internal lining to partially occlude the opening. Helmets with only minimal vents are indicated by ♦ in the tables.

Some helmets have a small rubber D or ring on the chin strap which is for carrying your helmet on your harness or the outside of a pack. We always simply clipped around the chinstrap or yoke section but this method ensures you don't inadvertently stress and damage the buckle or any stitching.

SIZE ADJUSTMENT

There are three main options for adjusting the fit of a helmet: Headband, Chin Strap and what we'll call the Yoke Union. The first two are self-explanatory but the yoke union is where the chin strap meets the Y-shaped helmet attachments and there is often a plastic buckle here that can adjust the chin strap forward and backwards in relation to the shell. The headband is generally padded for comfort and sweat retention and often detachable and washable. It needs to fit snuggly around your head and, together with the chin-strap, ensures the helmet won't fall off or tip forwards/backwards when you look up or down. Originally, tightening was achieved with a simple belt-style pin and hole adjustment later modified to much safer and lower profile plastic lugs on one end of the headband pushing into a set of holes in the other end, what we have called Slide Adjust and indicated by a ■ in the tables. We did see *Velcro* for a time but that quickly evolved back to a more substantial lug and hole or zip-tie/cable-tie style ridges of plastic. This gave rise to the idea of using a knob, cog or dial to drive the two sections over each other and lock into place wherever you stopped the ratcheting. These ratchet adjusters were originally seen only on fire-rescue and industrial helmets and it was decades before they started to appear on climbing helmets. This may have been because they were perceived to be too heavy or because the knob was deemed a hindrance or even a hazard to the back of the head in the event of a fall. Either way, ratchet adjust cogs/wheels have now well and truly evolved into the design of virtually all climbing helmets in this GUIDE and shown in our tables as ■. If you work in cold climates you will need to ensure that the headband sizing and internal clearance is sufficient to allow wearing a balaclava or fleece head-covering and that this is close-fitting with no extraneous buttons and lumps that can affect impact forces. Unlike sport climbing helmets, 'female-specific' versions of arborist helmets are much rarer - this is usually perceived as being pink/magenta or having a cut-out for a pony-tail or having a smaller head-size though there are plenty of males to which all three of these options might apply. ArbClimber#22 showed our own local celebrity climber Jo Hedger wearing Husqvarna's helmet with enough size adjustment to be well-fitting and with a 'pony-tail' cut-out (pic above).

MULTI-ROLE HELMETS

Arborist climbing helmets pretty much ARE multi-role helmets as exemplified by the *Pfanner Protos.* Even this non-climbing, forestry helmet (right) from *Husqvarna* shows the way things will go with their very nifty rechargeable *HL1200* 1200Lumen light mounted on it. But in this case we mean ***certified for a range of other uses***. For those undertaking tree work as part of a wider remit that encompasses either rescue, forestry, ATV driving, firefighting or shooting people, there are multi-role helmets where one model fulfils a number of different activities. At present that means it's bigger, heavier and more expensive but that will change. Military style 'rails' allow attachment of cameras, night vision, laser-pointers as well as more regular headlamps using a slot-in adapter and we will see rails catch on more in civilian rope activities rather than just military or law enforcement but it's a rare beast at the moment.

CONCLUSIONS

Ultimately, ALL of the helmets in this GUIDE are suitable as an arborist climbing helmet but aside from weight, cost and comfort (which is subjective) the key decision is on standards and whether you need to work near electricity. Don't forget that **'Working At Height' is NOT the same as 'Climbing'**. Fitting plumbing or electrical cables on the upper floors of a high rise construction is working at height but is quite unlike hanging off a rope. For climbing, arborists should be choosing a helmet tested for impact and/or deformation to the top, sides and front/back of the shell and preferably with the higher strength chin strap >50daN, which will stay on in the event of a big fall or impact - this being more important and more likely than the industrial/ground-helmet 'concern' of being hung up such that you might be strangled. Some offer both options in the same helmet such as *Petzl* , *Heightec* & *JSP* and we will see more of this because, for electrical work, you need to juggle with EN397's conflicting chin-strap strength requirement and internal head clearance and lack of vent openings. **Climbers must take note of their helmet's specific standards because some look exactly like climbing helmets but only meet top-impact (ANSI class1/EN397) standards** like the Stihl's X-Ergo, *Klein Tools*, *Defender Safety*'s *H1CH* and the *Milwaukee's Bolt* which are therefore not included in this GUIDE. The *CAMP Ares Air Pro* and *Kong Spin* which might otherwise seem to be the perfect climber's helmets only meet EN397 but are specifically marketed as climbers helmets so we have included them with a red flag in the EN12492/Lateral column.

For pure climbing It is likely that we will see more military rail- style models creeping into arborism if only because some

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

arborists will think it looks cool. The lighter 'foam' hybrids and in-mold climbing helmets that you can find in **WILDERNESS SAR**#11's HELMET GUIDE only get one mention here (*Kong*'s *Leef*) because they are far less robust than the hard shell and hard shell hybrid helmets but they do still have a place for tree climbing, competitions and inspections as we saw on the cover of **ARBCLIMBER**#21 with the *Edelrid Salathe* which would otherwise not be considered a typical arborist helmet. *Kong*'s *Leef* however, takes ear defenders and visors and is easily the lightest in this GUIDE. There is again no overt Chinese representation here as they continue to be difficult to extract details from and to blatantly copy identifiable models but they can and do produce quality models including companies like *Portwest* so we will see more Chinese own-branding in future.

IN THE FOLLOWING TABLES:.....

The figures in this Guide are verified by the manufacturer but you often see different spec on some supplier websites and for rebadged models. No idea why!

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

COST: Recommended Retail Price. Often sold for less so a rough guide only - varies due to exchange rates, taxes etc. and we usually round the price up. In the UK, helmets have no VAT when purchased for personal use.**Prices in £$€ are currency conversion only** with no bulk shipping or import duty etc.

The price in black is for a bare helmet. The price in **green** is for a basic combo or kit as supplied by that specific manufacturer so it varies with visor and ear defender type

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

WEIGHT: for the bare helmet MINUS any accessories. As a rough guide, add 3/450g for ear defenders, 160-250g for a mesh visor, 250g+ for a full clear visor &100g+ for goggle visors.

STANDARDS: ■ =full compliance, ●● =partial compliance - (●● blue outline = a variant) the type of chin-strap and lateral deformation tests will generally be the cause of partial compliance - eg. the shell will be to EN397 to allow for electrical protection with additional lateral deformation tests and a chinstrap to EN12492.

EN50396 ELECTRICAL INSULATION (in addition to indications under ANSI - C,G & E) where EN50396 =<1000vAC , **LT** = Low Tension domestic/<440vAC and **HT**=High Tension/>1500vDC. A ■ indicates **LT** <440vAC as a max voltage but is also an addition to EN397 so may not have the ■ denoting EN50396

CSA / AUSNZ/ EAC: Specific Canadian, Australian/New Zealand And Russian/East European industrial standards but CSA mainly follows ANSI while AS/NZ mainly follows EN standards.

ANSIZ89.1: North American industrial standard - Type 2 has all around impact protection but many Type 1 have additional lateral impact and/or deformation testing to better suit climbers needs as indicated in the **EN12492/+Lateral column**. ANSI is defined by 3 classes of electrical conductivity **C**, **G** & **E**.

BS/EN14052: an enhancement of EN357 for impact tests with top, side, front and rear impact tests but seems to be largely ignored by most manufacturers.

(BS)**EN397** Industrial-oriented standard - shells may be the same general structure as an EN12492 shell but vents may be less or absent altogether and the chin strap must be able to detach/break at **15-25daN** (effectively <25kg of force) to avoid the risk of strangulation in a hang-up. Associated requirements for electrical resistance precludes the use of sizeable vents.

(BS)**EN12492/+Lateral:** Climbing Specific helmets with Lateral (side/front/rear) impact or deformation (LD) testing and vents greater than 4cm^2 of the shell area. Chin strap retention

CLIMBING HELMETS

should be **greater than 50 daN (50kg)** loading for 2minutes. **+LD** = additional Lateral Deformation (not impact) tests supplementing EN357 and ANSI type1 top impact tests indicated by an orange diamond ♦

MATERIALS: PP=Polypropylene (for the outer shell and some components). EPS=Expanded Polystyrene (especially for the shell liner. EPP=Expanded Polypropylene (especially for the crown insert). ABS= Acrylonitrile Butadiene Styrene (thermoplastic polymer) for the outer shell.

UNI-SLOTS/RAILS: Goggles/visors and ear protection are as supplied by the specific company - ANY helmet with a black square ■ in the UNI-SLOTS column can have visor/goggle/ear defenders fitted from *any* other manufacturer. 30mm slots in Europe ('Euro-Slots')& similar 1" in North America but double check for a firm fit. **RAILS** are military style (Picatinny) attachment points for lighting, cameras, night-vision etc.

EYE PRO[TECTION]: **INT**=Internal (Integrated) -the goggle-visor and/or 'square' visor stow INSIDE the shell not outside.

GOGGLE/VISOR: Simply indicates the colour of polycarbonate goggles and/or visors available from this manufacturer - Clear, Smoked/tinted or mirror.

VENTS CLOSE /MESH: Many of these helmets have obvious air holes (vents) in the shells shown as ■ but some have less than others, particularly the more industrial oriented helmets. Those with minimal vents are shown with ♦. CLOSABLE vents are shown as ■ and if these are separate push-in covers there will be an asterisk and a note to that affect. Those that are permanently open but have a MESH cover to restrict the ingress of twigs and debris are shown as ●.

ID/LOGO REFLECT: Customised decals are available from some manufacturers while other helmets may have a specific ID badge area which might simply be a clean, flat rectangular area or may be a plastic housing allowing an ID to be slid in. If it is a standard feature it will be shown as ■ if it is an option it will be an outline square ☐. Reflective decals are standard on some indicated by ■ but most provide them as an option shown as ☐.

NAPEGUARD UV: A shroud that comes down from the rear of the shell and down to your shoulders. This helps stop wood chippings, dust and water from going down your neck. Almost always an option rather than standard.

UV is a UV indicator on the helmet. Most helmets will be retired due to sheer abuse and unsightliness with no real regard for its performance capabilities years after its purchase,. One thing you can keep a eye on is UV exposure which is a silent helmet killer also largely ignored by most. We are now seeing red UV indicators embedded into the rear like this *Stihl Advance X-Climb* to tell you exactly when it's seen its fair share of damaging UV rays (it changes colour, in this case it bleaches white).

LAMP CLIPS BRKT where **BRKT** refers to ***an elastic retainer or a solid bracket*** at the front or rear of the helmet

COLOURS different colour options are shown as the main colour with trim or secondary colours shown in the box outline. One model, the Sovos S3200 (top) uses a clip on shell to alter the colour from the basic white.

Images NOT to scale
Visors etc. are example of what can be fitted not necessarily what is supplied
COST: Approx. **Inc** local tax/no VAT in UK £$€=Currency Conversion Only
STANDARDS: ●●●●= partial adherence
VENTS: ■=closable ●=mesh ◆=minimal **EAR:** ◆= Will fit most accessories but check
□□□ **= OPTION**
VARIANT= blue or □◇○ if it's

	MODEL Variant/ AKA	COMPANY	ORIGIN	COST BARE HELMET COMBO inc Tax £$€ currency conversion only	WEIGHT (BARE HELMET)	SIZES	CONSTRUCTION SHELL INNER STRAPS/HEADBAND
	Ares 0747 **Ares MIPS** 3258	C.A.M.P.		£70 $110 €76 N/A	475g 16.8oz 500g 17.6oz	54-62cm 21.3-24.4"	HARD SHELL ABS/Polycarbonate HD EPS Nylon
	Ares Air 0748 **Ares Air Plus** 2641	C.A.M.P.		£70 $110 €76	475g 16.8oz 480g 16.9oz	54-62cm 21.3-24.4"	HARD SHELL ABS/Polycarbonate HD EPS Nylon
	Ares Air Pro 2643	C.A.M.P.		£70 $110 €76	480g 16.9oz	54-62cm 21.3-24.4"	HARD SHELL ABS/Polycarbonate HD EPS Nylon
	Armour Pro 2644	C.A.M.P.		£50 $80 €58	360g 12.7oz	54-62cm 21.3-24.4"	HARD SHELL HYBRID ABS HD EPS Nylon
	Skylor Plus 0209	C.A.M.P.		£40 $60 €50	495g 17.5oz	55-62cm 21.7-24.4"	HARD SHELL ABS HD EPS Polyester
	Nexus Heightmaster Extreme MIPS	CENTURION		£54 $75 €75 £110	378-505g 553g	53-63cm 20.9-24.8"	HARD SHELL ABS EPS Terylene/LDPE
	Serius Height Work	EDELRID		£115 $100 €60	469g	54-64cm 21.3-25.2"	HARD SHELL ABS EPS Polyester
	Tectum	EDELRID		£80 $140 €83	TBA	54-64cm 21.3-25.2"	HARD SHELL ABS EPS Polyester
	Tectum Air	EDELRID		£72 $130 €85	TBA	54-64cm 21.3-25.2"	HARD SHELL ABS EPS Polyester
	Manta 4 MH4 Forestry **Tactical Extreme** MH4 Tactical	FUTURE SAFETY		£114 £143 £83 $220 €150	500g 17oz 670g 23.6oz	53-62cm 20.9-24.4" 63-65cm 24.8-25.6"	HARD SHELL HYBRID ABS EPP Polyester/Nylon

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STANDARDS							EYE PRO			GOGGLE		VISOR	EAR	FEATURES				CRADLE		CHIN		COLOURS	NOTES	WEBSITE
TEMP RANGE °C °F	EN50365 LT HT	ANSI Z89.1 CGE	CSA AUS/NZ EAC	EN14052 / UKCA	EN397 (industrial)	EN12492/+Lateral	GOGGLES INT	FULL VISOR INT	MESH VISOR INT	CLEAR	SMOKED	MIRROR	UNI SLOTS/RAILS	VENTSCLOSE/MESH	ID/LOGO REFLECT	NAPE GUARD UV	LAMP CLIPS BRKT	SLIDECOG ADJUST	REPLACE PADDING	<25daN Release	>50daN Release			
-20 -4 +50 122	■ ■ -	■ - -	- ■ ●	- - -	■	●	□ -	□ -	- -	□	□	-	■ -	no	- □	- -	4	■	■	■	-	■ ■ □ ■ ● ■	*+ Lateral deformation tests ●MIPS not yet EAC MIPS version has enhanced anti-rotational head cradle. ●only Red, White or Yellow Has NFC Track/ID tag	camp.it
-20 -4 +50 122	■ - -	■ - -	- - -	- - -	●	■	□ -	□ -	- -	□	□	-	■ -	■ ●	- □	- -	4	■	■	-	■	■ ■ ■ □ ■	PLUS was originally called Ares Air ANSI. Has NFC Track/ID tag	camp.it
-20 -4 +50 122	- - -	- - -	- ■	- -	■	no	□ -	□ -	- -	□	□	-	■ -	■ ●	- □	- -	4	■	■	■	-	■ ■ □ ■	Same construction as Ares and listed as suitable for rope climbing but only has EN397 certification/additional tests. Has NFC Track/ID tag.	camp.it
-20 -4 +50 122	- - -	- - -	- ■	- -	●	●	□ -	- -	- -	□	-	-	■ -	■ -	- □	- -	4	■	■	-	■	■ □ ■ ■ ■	Mesh visor is outsourced. Has NFC Track/ID tag	camp.it
-20 -4 +50 122	- ■ -	- - -	- ■	- -	■	●	- -	- -	□ -	-	-	-	■ -	no	- □	- -	4	■	■	■	-	□ ■ ■ ■ ■	Mesh visor is outsourced. Has NFC Track/ID tag	camp.it
-40	■ ■ -	■ - -	■ -	- ■	●	●	□ □ *	□ -	□ -	□	□	-	■ -	◆	□ □	□ * -	4	■	■	-	■	■ * □ ■ * ■ ■	*Internal goggle option (shown) needs to be pre-installed. *Also full cold-weather hood system & cooling pads. *Also Hi-Viz yellow and Hi-Viz Orange	centurionsafety.eu
-30 -22 +50 122	■ - -	- ■ -	■	- -	●	●	- -	- -	□ -	-	-	-	■ -	no	□ □	- -	4	■	■	■	-	■ ■ □ ■	Edelrid now supply visors & ear defenders but Serius takes all standard accessories. Includes a set of replacement padding	edelrid.com
-30 -22 +50 122	■ - -	- - ■	■	- -	●	●	□ -	□ -	□ -	□	□	-	■ -	no	□ ■	□ □	4	■	■	■	-	■ ■ □ ■	NEW in 2025 Accessories inc. front sun brim, full sun brim, visor protector.	edelrid.com
-30 -22 +50 122	■ - -	- - ■	- - -	- -	●	■	□ -	□ -	□ -	□	□	-	■ -	■ ■	□ ■	□ □	4	■	■	-	■	■ ■ □ ■	NEW in 2025 Accessories inc. front sun brim, full sun brim, visor protector.	edelrid.com
	- - -	- - -	- - -	■	-	■	□ □	□ -	□ -	□	-	-	■ □	■ ■	□ ■	- -	2 1	■	■	-	■	■ □ ■ ■ ■ ■	Standards for Forestry also include FS/ATV1 Quad/ATV for military include NFPA, Marine, firefighting, & Technical Rescue *COLOURS: Forestry also navy blue. Military=Black only	future-safety.com

Images NOT to scale
Visors etc. are example of what can be fitted not necessarily what is supplied
COST: Approx. **Inc** local tax/no VAT in UK £$€=Currency Conversion Only
STANDARDS: ●●●● = partial adherence
VENTS: ■=closable ●=mesh ◆=minimal **EAR:** ◆= Will fit most accessories but check
□□□ = **OPTION**
VARIANT= blue or □◇○ if it's a[illegible]tion

	MODEL Variant/ AKA	COMPANY	ORIGIN	COST BARE HELMET COMBO inc Tax £$€ currency conversion only	WEIGHT (BARE HELMET)	SIZES	CONSTRUCTION SHELL INNER STRAPS/HEADBAND
	Duon Air MH02 Duon (unvented) MH02	HEIGHTEC		£83 £80 $104 €96	350g 12.3oz 550g	52-66cm 20.7-26"	HARD SHELL ABS Polyester Web-only Polyester/Nylon
	Elevation	HUSQVARNA		£121 $170 €160	450g 15.9oz	51-62cm 20-24.4"	HARD SHELL HYBRID ABS EPS Nylon/Nylon
	Spire	HUSQVARNA		£121 $170 €160	470g 16.6oz	52-63cm 20.7-24.8"	HARD SHELL HYBRID Polypropylene EPS Nylon/Nylon
	Spire Vent Spire Vent X	HUSQVARNA		£135 £180 $170 €126	470g 16.6oz	52-63cm 20.7-24.8"	HARD SHELL HYBRID Polypropylene EPS Nylon/Nylon
	EVO 5	JSP		£79 $101 €95	480g 16.9oz	53-64cm 21-25"	HARD SHELL ABS EPP Polyester/HDPE
	EVO (ASCEND) Vista Shield Vista Lens	JSP		£110 $136 €130	415g 14.6oz	53-64cm 21-25"	HARD SHELL ABS EPP Polyester/HDPE
	EVO Lite Skyworker AJS260	JSP		£32 $41 €38	382g 13.5oz	53-64cm 21-25"	HARD SHELL ABS EPP Polyester/HDPE
	Superplasma PL WHE00108/109-201 Superplasma AQ WHE00104/105	KASK		£86 $130 €80	420g 14.8oz 390g 13.75oz	51-6263cm 20-24.424.8"	HARD SHELL HYBRID Polypropylene EPS Nylon/Nylon
	Superplasma HD WHE00036/37 Superplasma HP /HP Visor WHE00106/107	KASK		£105 $130 €120	450g 13.3oz	51-6263cm 20-24.424.8"	HARD SHELL HYBRID ABS EPS Polyester/Nylon
	Primero (EN) WHE00111/12 Primero Air (EN) WHE00113/24	KASK		£70 £86 $90 €80 €95	460g 13.3oz	52-63cm 20.7-24.8"	HARD SHELL HYBRID Polypropylene EPS Nylon/Nylon

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STANDARDS							EYE PRO			GOGGLE VISOR			EAR	FEATURES				CRADLE		CHIN		COLOURS	NOTES	WEBSITE
TEMP RANGE °C °F	EN50365 LT HT	ANSI Z89.1 CGE	CSA AUS/NZ EAC	EN14052 / UKCA	EN397 (industrial)	EN12492/+Lateral	GOGGLES INT	FULL VISOR INT	MESH VISOR INT	CLEAR	SMOKED	MIRROR	UNI SLOTS/RAILS	VENTSCLOSE/MESH	ID/LOGO REFLECT	NAPE GUARD UV	LAMP CLIPS BRKT	SLIDECOG ADJUST	REPLACE PADDING	<25daN Release	>50daN Release			
	- ■ -	- - -	- - -	-	■* ■*	■* ●*	□ -	□ -	- -	□	-	-	■ -	■ ■ no	□ □	- -	4 -	■	■	■*	■*		*the same chin strap buckle can be switched between hi & low strength to fully or partially meet both standards.	heightec.com
-30 -22 +50 122	- - -	■ - -	■ - -	- -	-	●	□ -	- -	- -	□	□	□	□ -	■ ●	- ■	- -	4 -	■	■	-	■		adaptor needed for Husqvarna ear defenders on Elevation.	husqvarna.com
-30 -22 +50 122	- - ■	- ■ -	■ - -	- -	-	●	□ -	- -	- -	□	□	□	□ -	-	- ■	- -	□ -	■	■	-	■		adaptor needed for Husqvarna ear defenders on Spire. Spire Vent=EN model in Grey Spire=unvented ANSI model in Orange	husqvarna.com
-30 -22 +50 122	- - -	- - -	- - -	- -	-	■	□ -	- -	□ -	□	□	□	□ -	◆	- ■	- -	4 -	■ ■	■	-	■		ear defender adaptor shown on Spire Vent is standard on Spire Vent X Spire VentX=EN model in Grey Spire=ANSI model in Orange	husqvarna.com
-40	■* - -	■ - -	- - -	- -	●*	■*	- □*	□ -	□ -	□	□	-	■ -	◆	□ □	□ -	□ □	■	■	■*	■*		*chin strap 'switches' from high to low strength to meet both standards.*Only meets 50365 when used on the ground. Optional Evospec goggles store internally but not the same as the Vista models.	jspsafety.com
-40	- - -	■ - -	- - -	- -	●*	■*	- □	- ■	□ -	■	■	-	■ -	◆	□ □	□ -	□ □	■	■	■*	■*		Branded as 'Ascend in USA. CR2 versions have hi-viz reflective as standard add $12. *chin strap has a 'switch' to change from hi to low strength to meet both standards.	jspsafety.com
-40	■ ■ -	■ - -	- - -	- -	●	■	- □*	- □*	□ -	-	-	-	■ -	■	□ □	□ -	□ □	■	■	-	■		*meets some EN397 impact requirements. NB: EvoLite Forestry is not a climbing helmet	jspsafety.com
-30 -22 +50 122	- - -	- - -	- - -	■ -	■	■ ●	□ -	□ -	□ -	□	□	□	□ -	■ ●	□ □	□ -	5 -	■	■	-	■		*Also in Hi-Viz + (Lime EU) with fluorescent shell, luminous clips,reflective decals -add10% to cost. AQ= EU-Only EN12492 version Aluminium mesh vent guards..	kask-safety.com
-30 -22 +50 122	- - -	■ - -	■ - -	■ -	●	■ ●	□ -	□ -	■ -	□	□	□	□ -	■ ●	□ □ ■	□ -	5 -	■	■	-	■		*Also in Hi-Viz + (Lime US) with fluorescent shell, luminous clips,reflective decals-add10% to cost .Upgraded in 2025 HP= EU-only, NOT ANSI. White, Yellow or Red HP VISOR has Hi-Viz decals & goggles.	kask-safety.com
-30 -22 +50 122	■ - -	- - -	- - ■	- ■	■	●	□ -	□ -	□ -	□	□	□	■ -	■ ●	■ □	□ -	4 2	■	■	-	■		*Also in Hi-Viz (+Air=fluro Yellow) with fluorescent shell, luminous clips,reflective decals -add10% to cost. AIR is vented version of Primero	kask-safety.com

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VARIANT= blue or □◇○ **if it's an option**

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

	STANDARDS							EYE PRO			GOGGLE VISOR			EAR	FEATURES				CRADLE		CHIN				
	TEMP RANGE °C °F	EN50365 LT HT	ANSI Z89.1 CGE	CSA AUS/NZ EAC	EN14052 / UKCA	EN397 (industrial)	EN12492/+Lateral	GOGGLES INT	FULL VISOR INT	MESH VISOR INT	CLEAR	SMOKED	MIRROR	UNI SLOTS/RAILS	VENTSCLOSE/MESH	ID/LOGO REFLECT	NAPE GUARD UV	LAMP CLIPS BRKT	SLIDECOG ADJUST	REPLACE PADDING	<25daN Release	>50daN Release	COLOURS	NOTES	WEBSITE
	-30 -22 +50 122	- - -	■ - -	- - -	- -	♦	■	□ -	□ -	■ -	□	□	□	□ -	■ ●	□ □ ■	□ -	5	■	■	■	-	■ * * ■ ■	Primero PL is Europe only. *Also in Hi-Viz (white shown in pic) + fluro Yellow EU -add10% to cost.	kask-safety.com
	-30 -22 +50 122	■ ■ ■	- ■ ■	■ ■ -	- -	-	♦	□ -	□ -	□ -	□	□	□	■ -	■ ●	■ □	□ □	4 2	■	■	-	■	■ □ ■ ■ ■ ■ ■	*Also in Hi-Viz + ■ (Lime US) with fluorescent shell, luminous clips,reflective decals -add10% to cost. AIR is vented version of Primero	kask-safety.com
	-30 -22 -20 -4 +50 122	■ ■ -	- - ■	■ ■ -	- -	■	♦	□ -	□ -	□ -	□	□	□	- -	no	■ □	□ □	4 2	■	■	■	-	* * * * * * *	*Zenith X unvented and technically an ANSI type 1 but meets EN12492. *Also in Hi-Viz versions (cost = 15-20% higher than shown) ❂3x Pre-fitted Combo colours. NB Std Zenith DISCONTINUED	kask-safety.com
	-30 -20 +50	■ ■ -	- - -	■ ■ -	- -	■	♦ ■	□ -	□ -	□ -	□	□	□	- -	■	■ □	□ □	4 2	■	■	■	-	* * * * * * *	*Also in Hi-Viz versions (cost = 15-20% higher than shown) ❂3x Pre-fitted Combo colours (pic shown)	kask-safety.com
	-20 -4 +50 122	- - -	- - ■*	- - -	- -	-	■	□ -	□ -	□ -	□	□	□	□ -	■ no	■ □	□ -	4 2	■	■	-	■	* * * * * * ■ ■ ■	*X2 = unvented and technically an ANSI type 1 but meets EN12492. *Also in Hi-Viz versions (cost = higher prices shown) ❂3x Pre-fitted Combo colours	kask-safety.com
	-30 -22 +50 122	- - -	- - -	- - -	- -	-	■	□ -	□ -	- -	□	□	-	- -	■	- -	- -	4	■	■	-	■	■ ■ ■ ■ ■ ■	Kong Accessory slot required for ear defenders and visors	kong.it
	-30 -22 +50 122	- ■ -	- - -	- - -	- -	□	■	□ -	□ -	□ -	□	□	-	■ -	■ ●	□ □	- -	2 1	■	■	□	■	* * ■ * ■	*Yellow is Hi-Viz version. ❂Gloss black or Tactical version=matt black. □Also available as WORK industrial version with EN397 chin strap	kong.it
	-30 -22 +50 122	- - -	■ - -	- - -	- -	■	no	□ -	- -	- -	□	□	-	■ -	♦	- -	- -	4	■	■	■	-	■ ■ ■ ■ ■	Listed as suitable for climbing arborists but only has EN397 certification/additional tests.	kong.it

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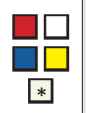
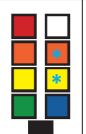
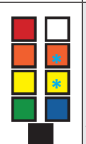
		MODEL Variant/ AKA	COMPANY	ORIGIN	COST BARE HELMET COMBO inc Tax £$€ currency conversion only	WEIGHT (BARE HELMET)	SIZES	CONSTRUCTION SHELL INNER STRAPS/HEADBAND
		F2-X-Trem	MSA-GALLET MSA-CAIRNS		£177 $175 €160	700-750g 24.7-26-5oz	52-65cm 20.5-25.6"	HARD SHELL FR Thermoplastic Polyester/Nylon/ Plastane Flame-retard mix
		F2XR	MSA-GALLET MSA-CAIRNS		£160 $235 €150	700-750g 24.7-26-5oz	52-65cm 20.5-25.6"	HARD SHELL FR Thermoplastic Polyester/Nylon/ Plastane Flame-retard mix
		V-Guard H1 TriVent Non-Vented	MSA		£96 $95 €85	515g 18.2oz	52-64cm 20.5-25.2"	HARD SHELL HD PolyEthylene EPS Polyester/Nylon
		MP2	PAB		£150 $170 €160	820g 29oz	52-64cm 20.5-25.2"	HARD SHELL FR Thermoplastic Heat Resist Foam Flame retardent
		R5SLV	PACIFIC HELMETS		£195 $230 €215	n/a	52-65cm 20.5-25.6"	HARD SHELL Kevlar composite None (Web Cradle) Polyester/Nylon
		R6V Dominator	PACIFIC HELMETS		£290 $350 €325	1003g 36.2oz	52-65cm 20.5-25.6"	HARD SHELL Kevlar composite None (Web Cradle) Polyester/Nylon
		Strato Hi Viz A020BA..	PETZL		£77 £87 $130 $140 €95 €107	415-425*g 14.6-15oz	53-63cm 20.9-24.8"	HARD SHELL HYBRID ABS EPP/EPS Polyester/Nylon
		Strato Vent Hi Viz A020BA..	PETZL		£77 £87 $130 $140 €95 €107	415-425*g 14.6-15oz	53-63cm 20.9-24.8"	HARD SHELL HYBRID ABS EPP/EPS Polyester/Nylon
		Vertex Hi Viz A010CA..	PETZL		£93 £100 $100 $110 €83 €102	490-495*g 17.3-17.5oz	53-63cm 20.9-24.8"	HARD SHELL ABS None (Web Cradle) Polyester/Nylon
		Vertex Vent Hi Viz A010CA..	PETZL		£93 £100 $100 $110 €83 €102	490-495*g 17.3-17.5oz	53-63cm 20.9-24.8"	HARD SHELL ABS None (Web Cradle) Polyester/Nylon

CLIMBING HELMETS

STANDARDS							EYE PRO			GOGGLE VISOR			EAR	FEATURES				CRADLE		CHIN				
TEMP RANGE °C °F	EN50365 LT HT	ANSI Z89.1 CGE	CSA AUS/NZ EAC	EN14052 / UKCA	EN397 (industrial)	EN12492/+Lateral	GOGGLES INT	FULL VISOR INT	MESH VISOR INT	CLEAR	SMOKED	MIRROR	UNI SLOTS/RAILS	VENTSCLOSE/MESH	ID/LOGO REFLECT	NAPE GUARD UV	LAMP CLIPS BRKT	SLIDECOG ADJUST	REPLACE PADDING	<25daN Release	>50daN Release	COLOURS	NOTES	WEBSITE
-30 -22 +60 122	- - -	*	*	- -	■	■ ● *	□ -	□ -	□ -	□	□	-	■ -	■	□ ■	□ -	2+ *	■	■	-	■		*Unvented version meets NFPA & EN Technical Rescue standards with offset impact testing *Also Hi-Viz Yellow, Orange and Photoluminescent. Actual Goggles not visor-goggles	msasafety.com
-30 -22 +60 122	- - -	*	*	- -	■	■ ● *	- □	□ -	□ -	□	□	-	■ -	■	□ ■	□ -	2+ *	■	■	-	■		*Unvented version meets NFPA & EN Technical Rescue standards with offset impact testing *Also Hi-Viz Yellow, Orange and Photoluminescent. *integrated rear & optional front lighting. Clip-in ear guards	msasafety.com
-30 -22 +50 122	- - ■	■ - ■	■ ■ ■	- -	■	■ ●	□ -	□ -	□ -	□	□	-	■ -	◆ ●	□ ■	□ ■	3	■	■	-	■		Unvented version meets electrical insulation requirements. *Also Hi-Viz Yellow. Rescue whistle integrated into chin-strap.	msasafety.com
-30 -22 +50 122	- ■ -	●	-	- -	●	■ ■	- □	- -	- -	□	-	-	■ -	◆	□ ■	□ -	1+ □ *	■	■	□	■		Technical Rescue Helmet NBL MP1 Pro does not have ear defender slots/mounts. *Luminous *Option Velcro light fixtures	pab.hr
-30 -22 +50 122	- - -	■ - -	■ ■ -	- -	■	■	- □	□ -	□ -	□	□	-	□	■ ■	□ □	□ -	3	■	■	□	■	20 inc	Simplest R5S version has a clean shell, no vents and no accessories. R5T version has integral lighting mount. Shell (only) will withstand >250°C /500°F	pacifichelmets.com
-30 -22 +50 122	- - -	■ - -	■ ■ -	- -	■	■	- □	□ -	□ -	□	□	-	□	■ ■	□ □	□ -	*	■	■	-	■	20 inc	Fully modular -specify fitting like Rails, lighting clips, colours,decals,water drainage/ air vents etc. *Custom options for 7 headlamp retainers/clips. Shell (only) will withstand >250°C /500°F	pacifichelmets.com
-30 -22 +50 122	■ ■ -	- - *	■ ■ -	- ■	■	■	□ -	□ -	□ -	□	□	-	■ -	-	□ □	□ -	4	■	■	■	■		*Hi-Viz Yellow & Orange with luminous clips. *Supplied with both EN397&12492 chinstraps. Meets EN12492 except vent requirements	petzl.com
-30 -22 +50 122	- ■ -	■ * - -	■ ■ ■	- ■	■	■	□ -	□ -	□ -	□	□	-	■ -	■	□ □	□ -	4	■	■	■	■		*Hi-Viz Yellow & Orange with luminous clips. *Supplied with both EN397&12492 chinstraps.	petzl.com
-30 -22 +50 122	- ■ -	■ * - -	■ ■ ■	- ■	■	■	□ -	□ -	□ -	□	□	-	■ -	-	□ □	□ -	4	■	■	■	■		*Hi-Viz Yellow & Orange with luminous clips. *Supplied with both EN397 &12492 chinstraps. Meets EN12492 except vent requirements	petzl.com
-30 -22 +50 122	- ■ * - -	■ * - -	■ ■ ■	- ■	■	■	□ -	□ -	□ -	□	□	-	■ -	■ ■	□ □	□ -	4	■	■	■	■		*Hi-Viz Yellow & Orange with luminous clips. *Supplied with both EN397 &12492 chinstraps. *Vents must be closed to meet ANSI C, then does not fully meet EN12492.	petzl.com

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		Protos Integral Arborist Integral Climber	PFANNER		£235 £144 $330 $215 €261-342 €170	629g 22.2oz	54-62cm 20.9-24.4" 56-64cm 22-25.2"	HARD SHELL HYBRID ABS EPS/Koroyd Polyester/Nylon
		Dynamo Hybrid RC05H.. Dynamo/Plus RC05/P..	ROCK HELMETS		£54 £85 $56 €55	460g 14.5oz 410-420g 14.5-14.8oz	54-62cm 21.3-24.4"	HARD SHELL HYBRID ABS EPS Polyester/Nylon
		Blast W9607	SINGING ROCK		£65 $101 €69	420g 14.8oz	53-61cm 20.9-24"	HARD SHELL HYBRID ABS/Polycarbonate EPS Polyester/Nylon
		Flash Aero W9602 Flash W9601	SINGING ROCK		£51 $60 €54	455g 16oz	53-63cm 20.9-24.8"	HARD SHELL HYBRID ABS/Polycarbonate web cradle Polyester/Nylon
		Inceptor GRX Mnt BE590.. GRX Mnt HighVoltage BE592..	SKYLOTEC		£110 $145 €111	470g 16.6oz	54-63cm 21.3-24.8"	HARD SHELL Polycarbonate/ABS EPS/web cradle Polyster/Nylon
		CT Aries Tree CT Aries	SKYLOTEC		£75 $90 €85	400g 14.1oz	53-63cm 20.9-24.8"	HARD SHELL ABS EPS Polyester/Nylon
		CT X-Arbor 6X946	SKYLOTEC		£60 £86 $65 €57	365g 12.9oz	50-61cm 19.7-22"	HARD SHELL HYBRID ABS EPS Polyester/PP
		S3200	SOVOS		£75 £167 $99 €89	422-492g* 12.9-17oz*	53-63cm 20.9-24.8"	HARD SHELL Polypropylene EPP Polyester
		Advance X-Climb	STIHL EUROPE		£145 $185 €179	495g 17.5oz	53-59cm 20.9-23.2" 58-63cm 22.8-24.8"	HARD SHELL ABS EPS/Koroyd Nylon
		Arborist	STIHL USA		n/a $130 $164 n/a	630g 22.2oz 720g 25.4oz	53-63cm 20.9-24.8"	HARD SHELL HYBRID Lexan Polycarbonate Copolymer EPS 5/8" Nylon

CLIMBING HELMETS

STANDARDS							EYE PRO			GOGGLE VISOR			EAR	FEATURES				CRADLE		CHIN		COLOURS	NOTES	WEBSITE
TEMP RANGE °C °F	EN50365 LT HT	ANSI Z89.1 CGE	CSA AUS/NZ EAC	EN14052 / UKCA	EN397 (industrial)	EN12492/+Lateral	GOGGLES INT	FULL VISOR INT	MESH VISOR INT	CLEAR	SMOKED	MIRROR	UNI SLOTS/RAILS	VENTS CLOSE/MESH	ID/LOGO REFLECT	NAPE GUARD UV	LAMP CLIPS BRKT	SLIDE COG ADJUST	REPLACE PADDING	<25daN Release	>50daN Release			
-30 -22 50 122	- ■ -	■ - -	- - -	- - -	●	■	- □	□ -	□ -	□	□	-	■ -	■ ■	□ □	□ -	□	■	■	□	■	28+ inc	Climber version is basic shell. Huge colour range inc solid and contrast & Hi-Viz. GoPro-style bracket available EN397 with optional chin strap	protos.at
-40 -40 50 122	■ ■ ■	■	- - -	- - -	●	■ ●	□ -	□ -	□ -	□	□	-	■ -	■ ●	□ □	- -	4	■	■	□	■		ALL components replaceable! + Florescent orange, green yellow, Hi-Viz Yellow, Luminous & matt black. Dynamo is vented. Plus has mesh-covered vents	rockhelmets.com
-10 -22 50 122	- - -	- - -	- - -	- - -	■	-	□ -	- -	□ -	□	-	-	■ -	■	- ■	- -	4	■	■	■	■		NEW in 2025 steel mesh vent covers. Cradle/chinstarp fold into shell for storage	singingrock.com
-10 -22 50 122	- ■ -	- - -	- - -	- - -	● ■	■ ●	□ -	□ -	□ -	□	-	-	■ -	■ no	- ■	- -	4	■	■	■	■		Flash Aero - Red or White only * High Vis Yellow as per Blast above	singingrock.com
-30 -22 50 122	■ ■ ■	- - -	- - -	■ -	● ■	■ ●	□ -	□ -	- -	□	□	-	■ -	■ ●	□ □	□ -	4	■	■	□	■*		Also other EN357 versions in additional colours red, blue, yellow and Hi-Viz *Buckle is a magnetic clip.	skylotec.com
-30 -22 50 122	■ - -	- - -	- - -	- - -	■	■	□ -	- -	- -	□	□	-	■ -	■ no	- □	- -	4	■	■	■	■		Aries=unvented dielectric version. Euro slot adapter supplied. Also Aries Air to EN397 but no dielectric standards	skylotec.com
-30 -22 50 122	- - -	- - -	- - -	- - -	-	■	□ -	- -	- -	□	□	-	■ -	■	- □	- -	4	■	■	-	■		TO BE DISCONTINUED Euro slot adapter supplied	climbingtechnology.com
-30 -22 50 122	- - -	- - -	- - -	- - -	■	■	□ -	□ -	□ -	□	□	-	■ -	■	□ □	- -	4	■	■	■	■	*	*NB: all shells are white but can have a slip=over cover in various colours	sovoshelmets.com
-30 -22 50 122	- - -	- - -	- - -	- - -	●	■	* -	* -	□ -	*	*	*	■ -	■ ●	- ■	□ ■	4	■	■	-	■	■	*NB additional accessories / visors from Stihl and 3M	stihl.com stihl.co.uk
-30 -22 50 122	- - -	■ - -	■ - -	- - -	-	●	* -	* -	□ -	*	*	*	□ -	■ ●	□ □	□ -	5	■	■	-	■	■	*NB additional accessories / visors from Kask. Not available in the UK/EU	stihl.com

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	Special Vent Plus	STIHL INTERNATIONAL		£56 £70 n/a €98 €150	450g 15.9oz 440g 15.5oz	54-62cm 21.3-24.4"	HARD SHELL HYBRID ABS EPS/Koroyd* Nylon
	SHK-1 Vented SHK-1 Unvented	STUDSON		£115 $140 €130	495g 17.5oz	53-59cm 20.9-23.2" 58-63cm 22.8-24.8"	HARD SHELL ABS EPS/Koroyd Nylon
	EXFIL SAR Back Country	TEAM WENDY		£245 $221* €250	630g* 22.2oz	53-63cm 20.9-24.8"	HARD SHELL HYBRID Lexan Polycarbonate Copolymer EPS 5/8" Nylon
	SecureFit x5000	3M		£90-115 £149 €140 $110-145 €106-135	400g 14.1oz	50-63cm 19.7-24.8"	HARD SHELL ABS EPS/web cradle Nylon/HDPE
	Pheos Alpine	UVEX		£75-85 $95-105 €84-96 €150	490g 17oz	52-62cm 20.5-24.4"	HARD SHELL ABS web cradle Nylon/PP
	Perfexxion	UVEX		£115 €145 €130	550-570g 19.4-20oz	52-58cm 20.5-22.8" 59-63cm 23.3-24.8"	HARD SHELL ABS EPS/mesh cradle Nylon/PP
	Pronamic Alpine MIPS	UVEX		£130 $165 €148	480g 16.9oz 490g 17.3oz	51-63cm 23.2-24.8cm	HARD SHELL ABS EPS / MIPS Nylon/PP
	Apex X2 ZAX201HV/202HV Apex Exo APX05	ZERO HEIGHT SAFETY		£65 $80 €62	425g 15oz 430g 15.2oz	54-62cm 21.3-24.4" 51-62cm 20-24.4"	HARD SHELL HYBRID ABS Polypropylene EPS Nylon
	Pinnacle Zertec ZPZK01/01M/02 Pinnacle Exo ZPE01/02/A02/HV	ZERO HEIGHT SAFETY		£118 £78 $140 $90 €132 €85	445-465g 15.7-16.4oz 410-440g 14.5-15.5oz	54-62cm 21.3-24.4"	HARD SHELL HYBRID ABS EPS/Koroyd* Nylon
	Zone/Zone MIPS Zone Electro	ZEKLER		£85 $105 €95	419g 14.8oz	53-63cm 20.9-24.8"	HARD SHELL HYBRID Polypropylene EPP/web cradle Nylon/HDPE

CLIMBING HELMETS

STANDARDS							EYE PRO			GOGGLE VISOR			EAR	FEATURES				CRADLE		CHIN		COLOURS	NOTES	WEBSITE
TEMP RANGE °C °F	EN50365 LT HT	ANSI Z89.1 CGE	CSA AUS/NZ EAC	EN14052 / UKCA	EN397 (industrial)	EN12492/+Lateral	GOGGLES INT	FULL VISOR INT	MESH VISOR INT	CLEAR	SMOKED	MIRROR	UNI SLOTS/RAILS	VENTSCLOSE/MESH	ID/LOGO REFLECT	NAPE GUARD UV	LAMP CLIPS BRKT	SLIDECOG ADJUST	REPLACE PADDING	<25daN Release	>50daN Release			
-30 -22 +50 122	- *- -	*- - -	- - -	- -	-	-	* -	* -	- -	*	*	*	-	- -	- -	- -	4	-	-	-	-	-	*NB additional accessories / visors from Petzl *Option for both EN397 &12492 chinstraps. *Vents must be closed to meet ANSI C, then does not fully meet EN12492. Not in UK/EU.	stihl.com
-30 -22 +50 122	- - - -	- - -	-	- -	-	-	- -	- -	- -	-	-	-	- no	-	- -	- -	4	-	-	-	-	-	Includes a MIPS style enhanced impact system called Brainshield. Non-vented version in white, grey ylw or orange. Embedded NFC chip with emergency information	studson.com
-20 -4 +54 130	- - - -	- - -	- - -	- -	-	-	- -	- -	- -	-	-	-	-*	- -	- -	- -	1*	-	-	-	-*	-	*Weight & cost is without rails. Add £$€40 and 90g for rails. *Buckle is a magnetic clip * requires $£€10 adapter. Peltor ear defender adaptor	teamwendy.com
-30 -22 +50 122	- - - -	- - -	- - -	- -	-	-	- -	- -	- -	-	-	-	- -	- -	- -	- -	4	-	-	-	-	-	Add approx 10% for reflective on standard helmet, Hi-Viz comes with reflective in price.	3m.com
-30 -22 +50 122	- - - -	- - -	- - -	- -	-	-	- -	- -	- -	-	-	-	- -	-	- -	- -	4	-	-	-	-	-	Version shown is the Forestry to illustrate visor and ear defenders but shows the basic Pheos not Pheos Alpine.	uvex-safety.com
-30 -22 +50 122	- - - -	- - -	- - -	- -	-	- -	- -	- -	- -	-	-	-	- -	-	- -	- -	1*	-	-	-	-	-*	*Rear clip recesses flush to the shell when not in use	uvex-safety.com
-30 -22 +50 122	- - - -	- - -	- - -	- -	-	- -	- -	- -	- -	-	-	-	♦	-	- -	- -	4	-	-	-	-	* * *	MIPS version =enhanced anti-rotational impact protection	uvex-safety.com
-40 -40 +50 122	- - - -	- - -	- - -	- -	-	- -	- -	- -	- -	-	-	-	- -	- -	- -	- -	4	-	-	-	-	* *	Apex Exo is EN12492 only *Fluoro Orange & Lime *Direct fit half face visors available EN166	zeroheightsafety.com
-40 -40 +50 122	- - - -	- - -	- - -	- -	-	- -	- -	- -	- -	-	-	-	- - *	-	- -	- -	4	-	-	-	-	-	Zertec 02 =unvented & ANSI E (20,000v) + EN50395 <1500vDC. Zertec has NFC chip with emergency contact details. *Exo does NOT use Koroyd and has mesh vents.*Fluoro Orange & Lime, luminous white	zeroheightsafety.com
-30 -22 +50 122	- - - -	- - -	- - -	- -	-	- -	- -	- -	- -	-	-	-	- -	- no	- -	- -	4 1	-	-	-	-	-	Also rebadged by CRESTO *Hi-Viz yellow. ELECTRO in Blue, White Yellow & Hi-Viz yellow	zekler.com

UPDATED Jun'25

CLIMBING SPIKES/ SPURS

The newest models on the market are Notch's Ergo Climber (left & main picture) and FTC TREE's Klik 'n Ka (right) with push button strap adjustment and an optional branch grip under the foot plate

Photo by Notch Equipment

The more environmentally-minded recoil at the sight of a set of tree-spikes (or 'climbers' as they're known in the US utilities industry), because it either means that another tree has bitten the dust and is being dismantled in its entirety or the wearer is not too concerned for the health and appearance of a tree in carrying out routine maintenance work. I had a friend in the business many moons ago who, brilliant though he was and indeed the best I've ever seen, used to wear spikes for virtually every job despite us all pointing out the woodpecker-attack appearance of the trees he left behind. That had changed by the 90's as the realisation of how many disease entry points were being created quite aside from the disfigurement which clients were presumably assured was perfectly normal! Of course, if you're working on timber that's being removed or the whole tree is being felled, it doesn't matter. Tree health and cosmetics aside, tree spikes/ climbers are essential to the safety of the climbers for many types of job, rope-safety will get you so far but not all the way, all the time.

Spikes are quite literally leg-irons with a sharp spur or gaff on the inside that digs into the wood (through the bark or just into bark if it's thick enough) as you either 'walk' up a tree or stabilize your stance in readiness for cutting. In the absence of suitable side branches to stand on or a suitable rope anchor above (because you're dismantling/sectioning the tree as you descend), they provide a stable grip and platform with your pole-strap providing some security and helping to pendulum your weight into the spur or gaff. The spur itself has become a replaceable component and more on this vital element shortly but just to say that most companies offer a short and long spur with some offering a medium or hybrid size. The short spur tended to be used more for pole-work but there are many species of tree with thin bark that warrant use of the short rather than medium or long spurs so you would do well to have size options available for varied domestic or parkland work.

The US has three of the world's oldest spike manufactuers in *Klein Tools*, *Bashlin* and *Buckingham Manufacturing*, all of whom were originally catering much more to pole climbing than to arborists and consequently still target at least 50% of their equipment ranges to utility pole climbers (telegraph and electric poles). *Buckingham Mfg* in Pennsylvania are without doubt the oldest climbing spike company in the

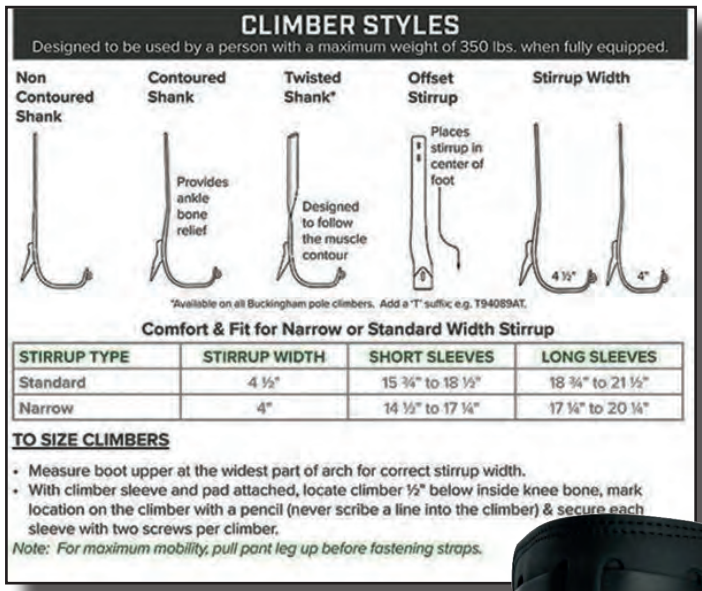
CLIMBING SPIKES/SPURS

world so it's not surprising that they have the largest range and like most companies has many variations on frame materials, shapes, widths, gaffs and bindings. They provide the useful chart on frame designs overleaf which obviously doesn't apply to all or indeed many manufacturers, some of which like *Panther, Distel* and *Edelrid* have simplified things entirely with just one or two frames but different gaff and binding options. The other huge player in this market is *Bashlin,* very much a utility lineman company that caters to arborists more as a sideline than their core business. They have stuck with the more traditional brown leather straps favoured by many a US arborists in particular and still offer all-in-one frames with non-replaceable spurs/gaffs (as do Buckingham). You will often see Weaver leather straps offered as an option because they are widely regarded as the premier leather-meisters but even they offer artificial 'leather' straps. However, even though well stitched leather is a thing of beauty and remains an extremely hardwearing and comfortable material especially when it is faced with softer calf-skin, there is no doubt that the most progressive models are thermo-foam padded with contoured reinforced/protective cuffs secured by Velcro or push-fit buckles.

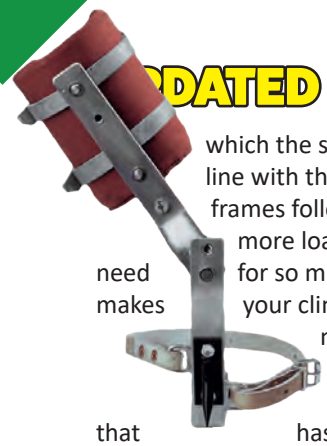
We have NOT included the '*Bistel*' Talons as they are a very poor quality imitation of the *Distel* and do not come even close to meeting the ASTM load test and we have also omitted T*omchy* and one from *Amazon* and *Walmart - Cohu* brand because it looks too poorly made to be a professional item using cable-ties to attach the bindings and padding! In the case of *Tomchy* they may be OK but we can't verify their specifications. All three appear to be Chinese made.

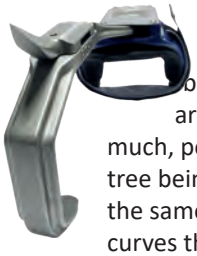
FRAME /SHAFT/SHANK DESIGN

Traditionally made from iron and brought up to date with carbon steel at the heavier but less expensive end rising in cost with one or two stainless steel models and reduction in weight with alumunium and carbon fibre models. Even lighter (though not by much), sturdy and more expensive, are a few titanium models. Regardless of material there may be two or three distinct components to a climbing spike frame and this does NOT include the actual pointy bit, the gaff or spur. The shaft or shank is the upright section attaching to the stirrup at the bottom and the shaft may be further sub-divided into a third component if it has length adjustment which most do. Some models may have an alloy stirrup and lower frame but a steel top adjustment to the frame. In the *Buckingham* Table above, the second frame (listed here as CONTOURED but in our tables as PROFILED) is the commonest construction for a modern climbing spike. The traditional straight shaft doesn't really follow the calf and ankles natural shape and is consequently less comfortable without padding at the top to bridge the calf's normal inward curve towards the knee but many offset the stirrup to compensate. You can see this padding in the *Harkie* model on the right where soft leather padding extends down the shank. Some designs follow the legs contours more closely with an indented shape at the bottom like this *Edelrid* model. Others, like the *Distel* flatten the cross-section of the shaft and then twisted it to face slightly forward and better fit the angle of the calf muscle and inhibit the shaft digging in. A further refinement not seen on many is to offset the stirrup a little bit forward of the shaft because your heel-rebate, into



ABOVE RIGHT: Representative of a number of modern developments in spikes is Protek's R100 with a preformed plastic shell covering thermo-formed foam padding with a breathable mesh on the inside. The straps on both the calf cuff and the foot are secured with Velcro or 'hook&loop' if the manufacturer isn't stumping up for the real thing. This model uses a small D-Ring on the foot strap instead of the more usual ring to provide three-way attachment to the foot straps. OPPOSITE: Main pic is Notch Equipment's Ergo Climber from 2024 INSET: Buckingham's homage to US line workers with their hydra-transfer Stars & Stripes livery on a model with high-end push-fit buckles on the foot straps. A number of the frames, pads and straps from Bashlin, Buckingham and Klein are interchangeable.





which the stirrup sits, isn't actually directly in line with the calf bone which is the line most frames follow. This design purports to direct more load to the gaff/spur without the need for so much driving force, in other words, it makes your climbing more efficient. If that is true, not many have adopted the offset stirrup - perhaps the increased production cost outweighs the benefits? Another design that hasn't caught on is *Antec*'s (now owned by *Honeywell*) articulated shaft model. This may be discontinued but is still being sold in France and has lateral articulation just above the achilles area. It effectively gives you an adjustable offset rather than the fixed angle of conventional offsets like this other *Antec* model providing better direction of force to the gaff but you had better make sure those bolts are tightened well.

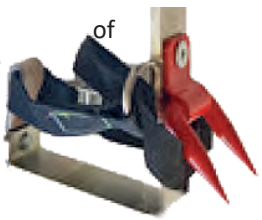
CUFF

This is the top attachment to the leg securing the shaft around the calf. It comprises of padding to the frame and then to the inside of the securing strap that goes around the calf. Traditionally the upper cuff has incorporated a regular leather strap with pin and hole adjusted just like a trouser belt and this is still the case with many models today except that many replace the more expensive leather with man-made fabrics less inclined to absorb unsavoury body fluids etc. The *Harkie* model on the left, which has now been discontinued pending an updated model, is a typical variation with leather 'T-shaped' padding beneath a leather or 'pleather' strap securing it around the calf, Some use Velcro straps like the *Edelrid Talon* on the previous page, which has the advantage that it is infinitely adjustable but the disadvantage that its hook and loop fastening can get 'gummed' up by sawdust and debris. The most recent trend is towards push-fit buckles for speed which can be further finitely adjusted by pulling the tail of the webbing-see the Buck model on the title page. Pin and hole straps on the other hand, have set adjustment and while both options keep things simple and light using spikes demands the straps be quite tight to stop movement of the top part of the frame, in effect, to stop it flapping against the calf during climbing if not properly secured. To counter this possibility *Bashlin* and *Buckingham* started putting curved metal plates in or around the top plate that would not only increase protection from the intrusive metal frame but also grasp the calf even if the straps weren't overtly tight. Some still use alloy cuffs but models like the ground-breaking *Distel* models from Germany started using a much longer, contoured plastic cuff curved around a foam or thermo-moulded EVA to provide protection and comfort. At the top end of their range the plastic is replaced by carbon-fibre - lighter and tougher but more expensive. Uli Distel wasn't the first to come up with this preformed cuff idea but he did perfect the design to make it the best compromise in terms of weight, comfort and cost. *Wolf Claws* never made it much past 2010 but they had a full-length nylon 'cuff', more like the best part of a boot, which incorporated the metal frame within the moulding. It was a bit like an Ice Hockey leg pad without the articulation but it obviously never caught on much, possibly because it weighs as much as the tree being climbed. *Distel* too had a prototype along the same lines (pic right) albeit with much smoother curves than the Wolf Claw.

STIRRUP

The boot support under the heel is important in working comfort. Most use a curved inside face that allows some leeway on the width of boot it will fit and some offer a narrow or wide-fit option. It's often difficult to know where they are measuring width from since the straight section across the bottom can be half the width of the curved section higher up so assume that the average width is around 100mm/4" with narrow options at around 75mm/3". Before we talk about the sharp bit, it's worth mentioning a couple of stirrup design additions that might seem like an obvious enhancement but will very much depend on your climbing style and type of job. Grip on the underside of the stirrup to make branch walking in between vertical spiking a safer and easier operation. Some have serrations or ribs forged or cast into the underside of the stirrup while others use a rubber grip, in the case of *Distel* this is the world-leading *Vibram* rubber used on mountaineering boot soles. This is taken further by *FTC TREE* with their *Sting&Stay* spike which has a full metal spike set mounted beneath the stirrup - akin to an instep crampon, indeed many European stockists anglicise the name of the range of products as 'crampons'. On the right you can see the detachable two-spiked plate with the spikes facing outward while the regular spur faces inwards.

SPIKES/GAFFS/SPURS



The first thing to note about the pointy-end of your climbing 'leg-iron' is that it's imperative to keep it sharp and properly profiled. It needs to penetrate the bark to find a solid purchase in wood though there are some trees that have bark so thick and tough that this is impractical. It's all about penetration which requires it to be sharp with a precise cross-section - usually triangular or square. The efficiency of the spike is further enhanced with a slick surface - a rusty spike is far harder to push in and pull out than a teflon-style coating like *Distel's* PTFE and anodizing in the case of many others. However, once the need to sharpen arises you obviously begin to lose this more efficient and protective coating. BUCKINGHAM have what they call GRIP technology on some models. This stands for Gaff Ridge Positioning and is purportedly specific engineering that improves the security of placement of the gaff, ie. it digs in better with less effort. This is something that a few others have strived to achieve to help decrease the fatigue of climbing in spikes.

ARBORIST'S ADVANTAGE

YOU ARE PACKING IN DECADES OF DEPENDABILITY

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

LEARN MORE ABOUT GRCS TREE MOUNT SYSTEM

Made In Wisconsin, USA

Dead lift rating of 3,000 lbs

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

HARKEN™

harken.com

Shorter spikes for utility poles (CCA poles in the US are particularly tough and some will mention CCA in the title of the product), medium or hybrid for trees with average density bark and long spikes for thick bark; trees like pines and sequoia. One oddity to mention is again the *Antec* (now *Honeywell/Miller*) which has a single or double gaff option, like a bull's horns. It's unclear what, if any advantage this offers since nobody else makes them? Regardless of whether you have one or two, being so sharp, you will want to cover your gaffs both as a safety precaution against impale and to preserve the keen point.

Many offer a simple leather or plastic cap but some offer something a little different - *Buckingham* have a visually bright, magnetic plastic gaff-cover on a retractable lanyard (pic left) so it stows out of the way when not in use but is immediately to hand when you want to cover them, unlike most loose gaff covers which will have been lost two minutes after you take them off. Perhaps the best protection, and a means to keep hold of those loose gaff covers is a protective bag like the *Protekt* and *Stein* models below which are supplied with your spikes.

SPIKING TECHNIQUES

Try not to snag your chainsaw trousers. *KleinTools* are one of the oldest manufacturers so we'll steal their sound advice on spur choice and use.....*When using pole climbers, remember that poles are not all alike. Different wood species, climate and pole age, as well as different preservative treatments (Creosote, Penta, CCA) affect climbability. Since these factors can result in significant differences in gaff penetration, visually check gaff penetration with your full weight on the climber before starting any climb. if penetration is shallow, use extreme caution, because the gaff could "cut-out", or the increased stress on the gaff tip could cause the tip to break. To allow for proper penetration, the minimum acceptable length for the underside of a pole climber gaff is 1-7/16" (37 mm). avoid gaff contact with metal objects when climbing (such as pole ID tags, nails, poster staples, metal pole hardware, or any other metal on the pole). When using tree climbers, remember that trees are not all alike. Different species and bark thickness affect climbability. Visually check gaff penetration in the same manner described*

for pole climbers before starting any climb. To allow for proper penetration: Use a tree-climber gaff with a minimum underside length of 2-1/4" (57 mm). When the bark thickness measures more than 2-1/2" (64 mm), make sure the gaff is long enough to properly penetrate the wood under the bark. Avoid gaff contact with metal objects when climbing (such as nails, poster staples, or any other metal on the tree).

NB: The *Wolf Claw* and *Harkie* have been discontinued although some *Harkie* spikes are still available from some stockists.
In our tables we have limited the entries to the generic head-of-family' so to speak, and in particular any that have a structural difference in the frame like a twist or offset or permanent rather than replaceable gaffs/spurs. Companies like *Buckingham*, *Bashlin* and *Protekt* have a vast number of models but they are a variation on those 'head-of-family' models so we have tried to picture different cuff options for different models. In reality the same cuff and strapping options are often available for ALL of the models listed.

IN THE FOLLOWING TABLES:

Prices and weight etc, are for a model with specific features as shown by solid black or orange squares. Options are shown as outline squares ☐ ☐ or in green with alternate variants shown in blue. We have generally shown the Velcro (or equivalent) closure for bindings as the basic design.

ORIGIN:
The manufacturer's country but not always where it's made in which case, if we know, there is an inset flag.

COST: approximate, rounded up and inclusive of local taxes which are generally 20% in Europe. **$** prices in orange are a currency conversion (as of May 2022) for reference not necessarily the actual selling price.

MATERIALS: for the main frame/shank and separately for the gaff/spur. ALU means Aluminium Alloy unless otherwise specified. STEEL means carbon steel and we assume this unless the manufacturer specifically states Alloy-Steel which includes elements like Molybdenum and Nickel to improve corrosion resistance and strength etc. Gaffs available in more than one material are listed as an option in the notes.

FRAME SHAPE: The shank or upright section of a frame can be straight, twisted, or profiled (contoured) to match the leg's shape more accurately. As the frame becomes the stirrup, this may be straight (in line) or offset shown in orange or blue for a different version in the same group of products.

HEIGHT ADJUST Increments: Adjustable height is shown as a ■ or an actual figure for the range of adjustment is shown with optional size ranges in green. Some provide the increments by which you can make adjustments.

STIRRUP FITS FOOT WIDTH.... A measurement across the width of the stirrup that your boot sits in. The width of the straight section on the bottom is less than a width measurement taken higher up on the curved section.

GAFFS/SPURS: The default spur size is shown in black with other length options shown in green. The vast majority are replaceable so the few that are not are indicated by an asterisk and a note. The lengths quoted are from the manufacturer and should indicate just the spike element of the gaff/spur but some may have included the complete length including the bolted section - this is usually obvious and we will have double checked but one or two may have crept through if they are a credible (but nevertheless incorrect) length.

CUFF SHELL & SHAPE: The material used in the 'protective shell' which may cover padding at the top/calf end of the frame with the binding often sitting over or through the shell/pad. Some have obvious plastic or glass-fibre shells but most are leather pads often with a softer facing leather on the inside. The shell/padding may be contoured to curve around the calf and extend further down to cover more of the metal or they may be a simpler square band like a giant bracelet . They might be a modified **L**-shape extending down the frame and around the 'bracelet'. Most offer a range of options for the cuff and bindings/straps with the simpler leather cuff often cheaper than the more complex shell-type cuffs. Our coding is shown below where C is the simplest and narrowest square/bracelet shape (this may have extra L-shape padding beneath and some, like *Bashlin* offer angled or straight 'legs' for shaft insertion) , L is an inverted L-shape where the top part wraps around to join the vertical section. T-shape has the cuff wrapping around from both side of the upright section. D-shape is a longer version of the C-cuff extending further down the shank. Q-shape is a variation of the D-shape with a more sculpted inner edge tapering towards the shank. Bear in mind that some T and L shapes can be broad enough to be almost indiscernible from the Q -shape. Sometimes the cuff and the padding are one and the same but our chart only relates the shape of cuff to the padding/protective element.

C= L= T= D= Q=

WEIGHT Pair: for a pair of spikes including the binding, padding and gaff as indicated by *not* being an option.

MBS / WLL/SWL: The MBS or Minimum Breaking Strength or Load will always be a much higher figure than the Working Load Limit or Safe Working Load which is usually calculated at around 10% of the MBS. As with all systems the load figure is limited by the weakest component because the spikes themselves may be rated several times higher than the quoted WLL. Note that any load figure means the TOTAL load applied during wear - if you're a 114kg/250lb climber, unless you're climbing naked, there is going to be significant additional weight to add with boots, harness, hardware, helmet etc. that will increase in weight in rain so you will get close to the 350lb SWL of a lot of these spikes exceed the limits on one or two. Remember, it's the TOTAL weight not just your body weight.

FASTENING

This refers to the upper (cuff) strap shown as a solid black square ■ and for the lower stirrup strap as an orange square ■. Options are shown as an outline square. ☐ ☐

VELCRO: Velcro or Hook&Loop fastening

CLICK BUCKLE: A push-fit buckle like the Austrialpin Cobra that speeds up donning and doffing.

THREAD BUCKLE: webbing is threaded through a ladder od D buckles

LEATHER/EYELETS: Some straps that look like leather are actually artificial like the Distal Weaver straps and therefore listed as 'plastic'

PLASTIC/EYELETS: not necessarily 'plastic' but a catch-all for nylons and man-made materials

CUFF CONSTRUCTION

LEATHER/FELT: Usually a softer calf leather and sometimes with a suede like inner face. **WOOL** or fleece was traditionally used for padding but not seen so much any more but retro is the new modern and wool is a timeless performer.

THERMO-FOAM/EVA: a foam lining that may be shaped with rounded edges in the case of thermo-foam. EVA is a type of foam, all are harder-wearing than simply a soft foam.

MESH LINER: a wicking mesh line on foam that moves sweat away from the skin

METAL INSERT: A thin band of alloy or steel that helps retain the shape and curve of the pad or increased support between the frame and the cuff

GAFF COVER: Protective cover for the sharp bit. We haven't included it but *Bashlin* also sell a protective heel cover to stop you spiking yourself.

STORAGE BAG: Some like *Protekt* and *Stein*, include a handy storage bag for a set of spikes in with the price quoted which will often be large enough to cram other stuff in. An outline square indicates that you can buy a 'spikes' bag separately from this manufacturer.

OTHER COLOURS: Colours available other than the ones shown - usually for the top cuff but some have frame-colour options. Note that many stockists sell colour and pad options that are no longer sold by the manufacturer eg. *Bashlin* now have 3 leather pad/cuff options but we often see variations in stockists that are not now sold.

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

MODEL	COMPANY	ORIGIN	COST inc Tax/VAT	MATERIAL Frame/Shaft Gaff/Spur	SHAPE Shaft/ Stirrup	HEIGHT ADJUST Option Increments
BD14B BD14BOD BD14BX	BASHLIN		£746-£792 $546-$826 €505-760	ALLOY Steel	Straight Offset	15-18" 18-21"
BD16B	BASHLIN		£285-445 $306-$560 €285-515	STEEL Steel	Profiled Offset	15-18" 18-21"
BD16BC	BASHLIN		£255-500 $325-$580 €310-540	STEEL Steel	Twisted Offset	15-18" 18-21"
Permanent-Gaff BD12	BASHLIN		£225-425 $280-$540 €260-500	STEEL Steel	Straight Offset	15-18" 18-21"
Permanent-Gaff BD12C	BASHLIN		£225-425 $285-$540 €260-500	STEEL Steel	Twisted Offset	15-18" 18-21"
Permanent-Gaff BD12L	BASHLIN		£205 $260 €240	STEEL Steel	Profiled Offset	15-18" 18-21"
BuckAlloy A94089AV +94....variants	BUCKINGHAM		£610-660 $775-$835 €715-770	ALLOY Steel	Straight Offset	16¼-18¾" 19¼-21¾"
BuckAlloy A94K2FG +94..variants	BUCKINGHAM		£755 $955 €880	ALLOY Steel	Straight Offset	16¼-18¾" 19¼-21¾"
BuckAlloy A95089 +95..variants	BUCKINGHAM		£575 $730 €675	ALLOY Steel	Straight Offset	16¼-18¾" 19¼-21¾"
BuckLite TBG94K2V-BL TB94K2V-BL	BUCKINGHAM		£584 $990 €915 $1121 $1048	TITANIUM Steel	Profiled Offset	16¼-18¾" 19¼-21¾"

CLIMBING SPIKES/SPURS

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

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FASTENING: Top Cuff=☐ Bottom/Foot Strap=■
OPTION= ☐or ☐

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

CLIMBING SPIKES/SPURS

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

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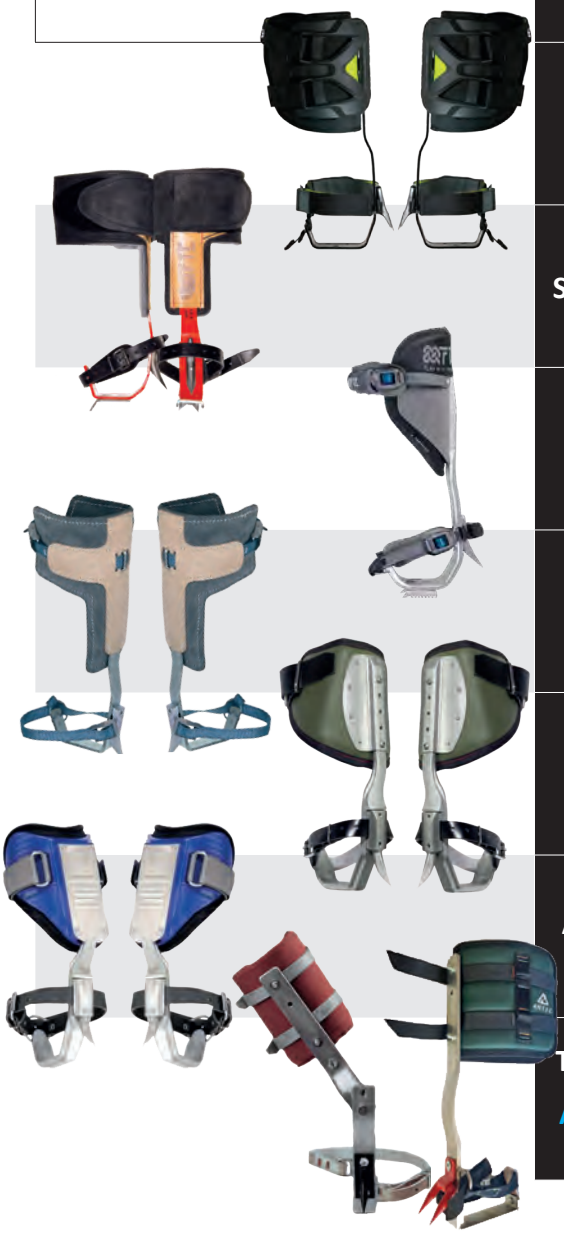

MODEL	COMPANY	ORIGIN	COST inc Tax/VAT	MATERIAL Frame/Shaft Gaff/Spur	SHAPE Shaft/ Stirrup	HEIGHT ADJUST Option Increments
Talon	EDELRID		£375 $625 €400	powder-coated STEEL Steel	Profiled Offset	35.5-45.7cm 14-18" 5mm /¼"
Sting & Stay	FTC TREE		£260 $315 €300	STAINLESS STEEL Stainless Steel	Profiled	S-15.5"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

CLIMBING SPIKES/SPURS

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

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

CLIMBING SPIKES/SPURS

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

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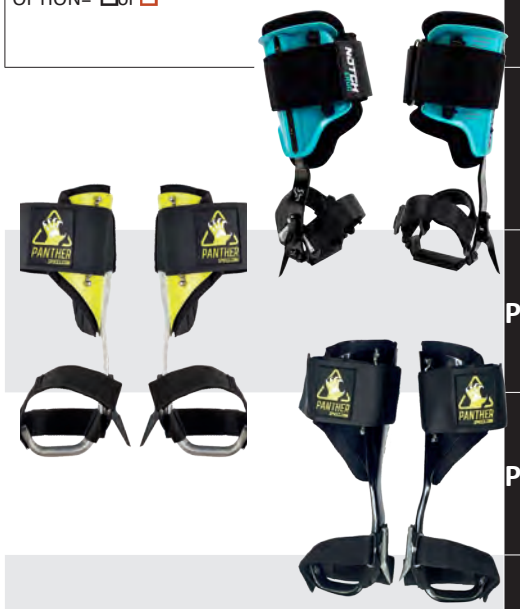

MODEL	COMPANY	ORIGIN	COST inc Tax/VAT	MATERIAL Frame/Shaft Gaff/Spur	SHAPE Shaft/ Stirrup	HEIGHT ADJUST Option Increments
Ergo Steel	NOTCH		£276 $360 €322	powder-coated STEEL Steel	Profiled Offset	4.5" 18 x 6mm/ ¼"
Panther Spikes	PANTHER		£288 $375* €305	ALU AlloySteel	Profiled	41-47cm 16-18½" 20mm/ ¾"
Panther Spikes	PANTHER		£420 $474 €451	CARBON FIBRE AlloySteel	Profiled	41-47cm 16-18.5" 20mm/ ¾"
TREEUP Iron Spikes DR100	PROTEKT		£160 $205 €185	powder-coated STEEL Steel	Profiled	33-48cm 13-19"
TREEUP DR1/DR4 SP501/SP504	PROTEKT		£205 $255 €235	powder-coated STEEL Steel	Profiled offset	45cm NO
TREEUP DR2/DR3 SP505/SP506	PROTEKT		£230 $290 €265	powder-coated STEEL Steel	Profiled	45cm ■7
TREEUP DR2A/DR3A SP502/SP503	PROTEKT		£265 $335 €305	ALU Steel	Slight Profile	45cm ■7
TREEUP DR3A SP503	PROTEKT		£265 $340 €310	ALU Steel	Slight Profile	■7
Climb Right Ultra-Lite 91225	SPYDER		£225-270 $286-340 €265-315 $417	ALU Steel	Straight offset	40-47.6cm 15.75- 18.75"

CLIMBING SPIKES/SPURS

GAFF/SPUR Option			CUFF SHAPE Option	WEIGHT PAIR	WLL/ SWL MBS	FASTENINGS ■=Cuff ■=Foot					CUFF PADDING				GAFF COVER	STORAGE BAG	OTHER COLOUR		NOTES	WWW.
SHORT	MED/ HYBRID	LONG				VELCRO	CLICK BUCKLE	THREAD BUCKLE	LEATHER/EYELETS	PLASTIC/ EYELETS	LEATHER/FELT/ WOOL	THERMO-FOAM/EVA	MESH LINER	METAL INSERT			CUFF	FRAME		
43mm 1.75"	-	63mm 2.5"	HDPE Q	2.9kg 6.4lb	159kg 350lb	■	-	2x ■	-	-	-	■	-	-	□	□			NEW for 2024 ASTM F887 Redesigned cuff and shaft for better alignment and comfort. Grip pad under stirrup. Dual foot strap	notchequipment.com
43mm 1.7"	53mm 2"	63mm 2.5"	Fiber-Glass Q	2.1kg 4.6 lb	150kg 330lb	■ ■	-	-	□	□	■	-	□	-	■	□	■ ■ ■ ■	■	*Sold as RC1 Climbers by Rock'nArb	pantherspikes.com
43mm 1.7"	53mm 2"	63mm 2.5"	Fiber-Glass Q	1.67kg 3.67 lb	150kg 330lb	■ ■	-	-	□	□	■	-	□	-	■	□	■ ■ ■ ■	■	35-48cm calf	pantherspikes.com
																				Expansion Row
40mm 1.6"	-	60mm 2.3"	Plastic D	3.16kg 7lb	-	■ ■	-	-	-	-	-	■	-	-	□	■	■	■ ■ ■		protekt.pl
40mm 1.6"	-	60mm 2.3"	Leather L C	3.88kg 8.5lb	-	-	-	-	-	■ ■	■	-	■	-	□	□			All frames , pads, straps and gaffs fit all models. Comes with Short & Long gaffs	protekt.pl
40mm 1.6"	-	60mm 2.3"	Leather L C	3.85kg 8.5lb	-	-	-	-	-	■ ■	■	-	■	-	□	□			All frames , pads, straps and gaffs fit all models. Comes with Short & Long gaffs	protekt.pl
40mm 1.6"	-	60mm 2.3"	Leather L	2.56kg 5.6lb	-	-	-	-	-	■ ■	■	-	■	-	□	□			All frames , pads, straps and gaffs fit all models. Comes with Short & Long gaffs	protekt.pl
40mm 1.6"	-	60mm 2.3"	Leather C	2.76kg 6lb	-	-	-	-	-	■ ■	■	-	■	-	□	□			All frames , pads, straps and gaffs fit all models. Comes with Short & Long gaffs	protekt.pl
40mm 1.6"	-	67mm 2.6"	Alu C L, D	2.2kg 4.9lb	<160kg <350lb	■	-	-	-	■	■	□	□	-	□	-			Textured base to stirrup	spyderman.com

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OPTION= ☐or ☐

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

CLIMBING SPIKES/SPURS

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

UPDATED Apr '25

ROPE/GEAR BAGS TRANSPORT & ORGANISERS PACKS

The first part of this guide covers packs and bags over 30 liters which are the more 'complex' transport or organiser packs followed by less complex but larger duffles. Both are **designed to house your entire day's climbing kit.** Organisers have easier access to the kit and with more pockets, Molle/attachment eyes, mesh and clear pouches etc. on the inside and outside while duffles mostly have some organisation on the outside and a cavernous but less well organised interior. Regular rope/tackle bags and buckets follow on with more simplified data but some, like the *Arbortec Cobra* bag far right are more of a really well-endowed rope bag than a true organiser so all of these bucket-style bags, even though quite complex are in the **ROPE/GEAR BAGS** section. For many more bags from access, rescue and climbing which can all cross over into arb, see the **ROPE EQPT BUYERSGUIDE**. There will also be separate guides for **THROWLINE BAGS/BOXES** in this **BUYERSGUIDE** but check out Palmu's squarerope bag which looks like a throwline cube but is a full strngth rope bag. **TRAUMA PACKS** are in the **MEDEVAC/PPE BUYERSGUIDE** and watertight **WATER RESCUE BAGS** ARE in the **WATERRESCUEBUYERSGUIDE**. This introduction and the KEY to the tables covers *all* organiser bags. A separate KEY to Duffles and basic rope/gear bags with fewer data rows is on pages 372 & 378. [Yellow highlights indicate 'being compiled' or subject to change]

Rope bags have been around as canvas 'buckets' and bags since humans first took to the sea but in the modern era we have cavers to thank for the original hard-wearing, water and mud resistant tackle bags. They were usually in bright yellow, blue or red PVC in Europe or blue and orange Cordura in North America, with a draw-cord closure and single 25mm/1" shoulder strap or two if you were posh and could afford a longer rope. This is pretty much the template for bags even now, some 50 or so years on. PVC and Cordura are still common fabrics, yellow is still a thing and a simple web shoulder strap or straps are also just as functional today as they always were. Cavers rarely looked at anything more sophisticated because it meant more to get wet and dirty, more to snag and too large for a tight squeeze. So it was climbers and rescuers who took bags to the next level.

Mountaineers were using rucksacks all along of course and these large, carry-all products naturally organised your kit pretty well with exterior pockets and interior compartments so the obvious thing for rope-heavy activities that weren't restricted by tiny cave entrances was to marry the rope/tackle bag with a rucksack and have a tackle bag with shoulder straps, hauling eyes and with an array of pockets, pouches and loops. This would allow you to organise all your carabiners/hardware and software around your well-stowed rope and harness. Even more sophisticated was the rescue industry's further development of these bags into larger (team) packs and allow them to open fully to be laid out on the ground so that you could see everything clearly and work quickly rather than arriving on scene and tipping out whole piles of kit to find the one item you needed.

We first moved up from simple tackle bags using *CMC*'s now dicontinued *Heavy Rescue Organiser* (pic above right). This is a kind of saddle bag that has a stiff top with a handle from which two sets of pockets hang down on each side and the whole assembly is strapped to a regular rope bag which provides the shoulder straps for back-carry. On arrival you simply disengage your rope bag with your organiser pockets sat next to it like

TRANSPORT PACKS

a collapsed calf. We're not sure of the exact evolution but we began seeing (and using) rock-climbing bags with a pull out ground tarpaulin as an ad-hoc organiser of sorts because it allowed us to tip out our kit more safely and cleanly and quickly organise the necessary equipment groups so that anyone could see what was what. Not long after that the true, afore-mentioned transport/organiser packs appeared that had all your kit already clipped into eyes and daisy chains - inside and outside - and arranged into pockets, see-through and semi-see-through mesh pockets and you simply arrived on scene, unzipped or unbuckled the entire bag and laid it in some kind of crucifix shape on the ground. And that's pretty much how things remained for the next twenty or thirty years. Loads of great bags but all a variation on the same themes. Lyon's pack on p368 is a 'roll' rather than bag intended for rescue, but trust me it's an excellent arb organiser as well. The *Lotus* opposite is *CMC*'s most recent incarnation of their excellent bags that have been market leaders since the seventies. Daisy chains and Molle style individual attachments adorn all organiser bags and *CAMP*'s *SpaceStation* (right) uses dozens of eyelets around the frame of the case. Above that is CMC-s RigTech interior with two rows of eyes along the base and velcro sealed pouches around the side walls. Sweden's *Palmu* has introduced this square rope bag with carry straps and 18 eyes on the outside.

some organising features like *Koompasia*'s helmet pouch-right but the most complex organisers, in a lay-flat or cabinet configuration are still produced by the old guard like *CMC* in the US, *Courant* in France and *CAMP* and *Kong* in Italy. As long established rope bag producers they now have virtually every climbing/arb producer in the world to compete with because bags are relatively easy to make and don't have quite the same safety and standards concerns as most other access-related equipment. Many of the established rope rescue and rope access manufacturers are now well known to arborists but one overt mountaineering/sport company, Mont-Bell from Switzerland also produce a very odd diversion from their regular market - the Logger frameright which is a tough aluminium frame housing an organiser bag at the bottom and either a large gear bag on top or a chainsaw storage system for a large ground saw, fuel, tools and subsistence supplies. This is obviously aimed more at forestry but there will be many an arborist who could make use of this kind of system. We see these a lot in **WILDERNESS SAR** magazine because they are the domain of wildland firefighting and we will begin to bring across some more of these to this guide because they may well be of interest to arborists who work more remotely.

See-through pockets in mesh or plastic are again a feature of most some back systems. like the L*otus*, are as good as any long-range expedition pack. Load bearing (hauling/carrying) handles/eyes are clearly marked in red on this one. Rope access became a much bigger market than rescue and so was able to drive production of a wider range of products than we might otherwise have had but it was the adoption of technical hardware and 'SRT' techniques in the arb industry that kick-started a whole new drive to produce rope/tackle bags, duffles and organisers for a burgeoning and willing market.

Some companies like *Silver Bull* have based their entire company on bag production and carved out a great niche in the arb industry as a name you can trust because that is literally all that they make. Their *Climber 'Day'* bag above highlights one of the unique features of arb bags compared to access and rescue bags - **saw pouches**. These are open-top outside pouches to house long-bladed pruning saws and in some cases like the *ArbPro Transporter,* a pouch and straps to secure your climbing spikes. Others have diversified more recently into bags from their main specialisations like *Teufelbereger* who have bags that are clearly related to their innovations with the *Tree Motion* harness like the bucket (pic right). This uses a base material that has hundreds of holes and shapes cut-out to accommodate carabiners, cord and loops meaning you have infinite attachment options. Despite their organisational capabilities these are mostly smaller volumes and listed in the Rope Bag s section.

Teufelberger's Mule packs (pic right-this one has the additional *Gear Mule* attached to the front) embraces gear organisation from a mostly external perspective with no less than 81 external attachment points and a virtually clear inside space - this one has a serious back-carrying system but also has a a wheeled version called the *Lazy Mule* and you presumably used the roll-top closure a s a kind of pull-handle though that would seem to be a little more cumbersome than the extendible handle you get on most wheeled luggage? This would otherwise be more like a duffle and duffles (or duffels) are the most common transport format, not least because a duffles and bags from just about any work or sport sector works in the same way and could be used by arborists. Most have

www.rescuemagazines.com

Many bags have a drain hole in the bottom to let out water that can accumulate on your rope after a day of working in the wet. We used to use these as a tie-off hole for our ropes with a double fisherman's tied as a barrel termination. Frowned upon now as not only blocking the drainage hole but also exposing the knot to loads of abuse - can't say we were ever affected by either concern, we were more worried about losing our bag and marking the end of the rope with that bag should an incident push the limits of our bagged rope lengths (ie. we're about to ab off of the end!) Unlike tree work, it's not always so easy to judge distances on a long-drop, in the dark and doing it in a rush and on the fly so to speak!. There have always been drawstring lidded bags that could deploy rope through their rectal-style opening but some models have a sealable hole in the lid to allow rope deployment but keep water out when not in use.

Something overlooked by most bags including the organisers in this guide, is the incorporation of a pocket with a range of pen-style pouches for chainsaw tools, screwdrivers, sharpeners etc. like these on the *West Coast Climbers Pro Gear Bag 70L*. This would work well as a lid-organiser easily accessible without having to open the whole pack. The cabinet-style approach is exemplified by *Silver Bull*'s *Mulituse* which can be suspended as if it were a cupboard (with inclined shelves to stop roll-out) and *Buckingham's BuckPack Pro* (right) which is a stand-up backpack with compartments that unzip to clearly show what's inside. This pack demonstrates quite a few nifty features that can be found spread around the other bags in our guides. Kevlar reinforcement of the bottom and side pouches allows climbing spikes to be safely stored and these clip to their own little hooks. The top compartment is for your helmet or your sandwiches or whatever else you want to get to quickly. The middle compartment can be configured as a dry-box to keep your warm clothing separated from a wet rope and this can accept an add-on '*Garage*' which is a detachable Molle board with pouches to better store and present your hardware. This adds around $65 to the base cost of $415 making this one of the more expensive on the market but also the most complex. On the right you can see how the rucksack straps can be stowed out of snags way and immediately behind this padded back panel is another slim pocket to house a laptop or similar, delicate electronics. The latest addition to this genre is Arbsession's GearTote+ which also has a couple of nifty features we don't yet see n others - the ouside has specialist storage for two throwline cubes because they're the first bit of kit you need. The top pouch acts as a standalone rope bag for 75' of r 1/2" rope or a pre-rig

system so you can grab that without taking the whole pack.

Finally, we should mention the **WHEELED PACKS**. We mentioned *Tuefelberger's Lazy Mule* earlier with low-profile, luggage-style wheels common to many mass-market bags. On the left, *Singing Rock's Movement* show's the familiar extendible handle on a duffle-style pack. Then there is the cart-style. This may have originated with freshwater anglers in Europe who have, for decades, moved their mountains of kit from car to lake as a stack of boxes/cases/bags on light alloy trolleys. Some like the afore mentioned *Mule* and the *Big Buckpack* add optional integral wheels to an existing design but others, like this *ArbPro Rolly* are used with an optional *Eckla*-style trolley if you intend to move it off the truck! It is a partitioned 'cabinet' with a large rope bag in the top shelf and smaller tackle bags in the bottom. in fact the shelf even comes out to provide a firm, clean work surface. Hardware is housed in a detachable case sat on the top. The large 'box' can accommodate much longer pole equipment like pole-saws and line-launchers nestled into pouches on the side and secured with straps. The majority of arborists are working within a few hundred yards of their vehicles so this cart approach is the definition of taking the weight off....

IN THE FOLLOWING TABLES.....

A large, modern transport pack is quite sophisticated with a whole load of different features that are not always apparent from simply looking at it.

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

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

STYLE/FUNCTION: The bags in this guide can be defined as one or two of the following

- ***BUCKET/ROPE BAG*** - an upright, top-feeder that holds its shape to allow rope to be fed in or out.
- **BACKPACK**: two shoulder straps and maybe a waist belt but either way- carried on the back giving both hands free to carry even more stuff. Often a combo with a rope bucket.
- **DUFFLE/DUFFEL**: a horizontally carried bag with handles on the top. May also has hidden rucksack straps in the base to convert to vertical orientation.
- **TRANSPORTER**: a multi-compartmented pack - usually a rucksack style - that will either present the equipment in a cabinet style or will open out entirely on the ground to show everything in pockets/pouches or attached.

VOLUME: in Litres/liters /US Gallons (20% less than UK Gallon)
Market Origin: Bags are either specifically designed for arborists (Pro Arb), or for the Rope Access and/ore rescue markets - both requiring tough equipment. Sport can be equally tough if its caving and canyoning but tends not to be used all day every day.

NOMINAL/INTENDED ROPE CAPACITY: As provided by the manufacturer but varies with the diameter. In organiser packs, rope storage may only be part of the overall volume whereas it may be all of the internal volume in a dedicated rope bag/ duffle.
46m/150ftx 12.7mm/½"=76m/250'x11mm7/16"= 91m/300'x9mm/⅜"

WEIGHT: empty with no optional extras included

MAX DIMENSIONS: Height and the width and maybe depth front-to-back. These figures are for the body of the bag and do not include extraneous handles or external pouches that are stuffed to bursting. Most bags will end up much wider!
2xBACK STRAPS=rucksack style carrying straps
1xSHOULDER=a single strap for slinging over your shoulder
WAIST BELT=rucksack style waist belt to keep the pack tight to your body when walking any distance
[PADDED]=in brackets[] indicates straps padded for comfort.

BACK/LUMBAR PADDING=padding on the pack itself rather than straps, again for improved comfort carrying a heavy load. Lumbar is lower back, behind the waist belt if there is one.

DETACH/STOW CARRY STRAPS: refers to rucksack style straps that can either be ditched entirely or can be stuffed into an integral pocket so that no straps are exposed to snagging.

REINFORCED SIDES (Free-standing)=the pack has stiffened panels or bars that keep the bag upright during rope feed.

CARRY HANDLES WLL ENDS SIDE dedicated carrying handles with ergonomic adjuncts to make carrying a heavy weight more comfortable. Mounted on the top or for duffle-style side-carry. Can also be used to clip on kit. WLL=the max weight you can carry via these handles or an additional haul eye.....

ADDITIONAL HAUL WLL SEWN EYES RINGS Top handles can be used for hauling but there is often a sewn loop between the top of shoulder straps or there may be metal eyes around the top.

BAG OPENS FLAT to DISPLAY KIT The whole bag unzips or unbuckles to expose the interior. Can also include organisers with detachable, opening display panels/boards.

HELMET [SAW] POCKET/POUCH CORD Designated for use with a helmet or saw but can obviously be used for anything that will fit. Climbers packs often use bungee cord on the outside front or top of the pack but some have a separated helmet pocket on the top as it should be the first thing you put on. **INTERNAL PARTITION** a means to divide internal space eg. for 2 ropes or to keep clothes dry-not just a pocket. Some packs come with their own **ROPE TOOL BAG** or are an option ☐.

GEAR (individual) EYES EXTERNAL INTERNAL These can be daisy chain eyes, Molle eyes or individual plastic eyelets but all are intended to clip one carabiner and/or clippable hardware

GEAR LOOPS [STRAPS] EXTERNAL INTERNAL harness-style larger semi-circles of cord or plastic that allow multiple items to be clipped into the same loop. All handles could be used as a gear loop! **[STRAPS]** [in brackets] is securing web with buckles

TOTAL POCKETS EXTERNAL INTERNAL The total number of closable pockets and open pouches outside and inside the bag. This does not include saw pockets/pouches listed separately.
of which.. MESH/CLEAR EXTERNAL INTERNAL of the total number of pockets those which are clear plastic or open mesh allowing free drainage but more importantly visibility of the contents. Mesh makes the bag lighter than a full, heavy duty enclosure.

CLOSURES Velcro POP Zipped Draw-Cord Buckle Referring ONLY to the outside pockets - a colour square indicates the type of closure and the number is the pockets that have that specific closure.

WATERPROOF VENT HOLES DRAIN HOLES All of these packs are water resistant to a degree unless they have mesh panels but some are more waterproof than others and particularly so if they have a roll-top closure. The most water resistant are marked with a blue square ■, less water resistant - usually because ther are a drawcord closure, is marked with a ● Being waterproof does not preclude having vent and drain holes as the term 'waterproof' refers to rain from the top not complete submersion. See our **WATER RESCUEBUYERS GUIDE** for completely waterproof bags.

LID POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP Referring ONLY to the top lid and compartment doors if it is an organiser type pack.

LOCKABLE:the main compartment(s) can be locked with a small padlock (not usually supplied). Usually needs a chunky YKK style zip large enough to clip in a padlock clasp but may be a tougher, bespoke element like the *FTC-Tree Koompassia*.
ID PANEL: a small-see-through rectangle for a luggage style label or large enough for an inventory or risk assessment sheet.
END/SIDE STRAPS:in addition to the carry straps these are adjustable webbing straps on the sides that can either act to compress the bag to a smaller size if it's not fully filled or you can secure items behind them. Side straps are often set above open pouches that can house a saw, pole or spikes or end straps can be used to secure a hank of rope or a tarpaulin etc.
REFLECTIVE TRIM: not seen as much on arb packs as they are on rescue packs- light reflective to provide high visibility.
TARPAULIN: a separate or integral ground sheet. ☐=if an option
RAINCOVER: a separate cap or complete cover. ☐=if an option

MATERIALS: just the main body panel materials
OTHER COLOURS: colours available *OTHER* than the colour shown in the product image at the top of the column.

Images NOT to Scale
£$€ any price in 'burnt-orange' is a **Currency conversion only**-exc shipping, duties,taxes etc.
ROPE CAPACITY = Not necessarily related to volume if only part of the bag is for rope.
ADDITIONAL HAUL = Dedicated sewn eye or ring that can carry the entire weight of the bag & contents for hauling.Top handle is often able to function as a haul eye.
HELMET/BOOT= pouch or compartment to fit a helmet, often on the outside, and/or boots (always on the inside. [SAW]=Dedicated pouch or scabbard for a hand saw
POP= Popper or press stud
BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle

	MANUFACTURER	ARBORTEC	ARBPRO	ARPRO	ARBSESSION
	MODELS litres/liters VARIANT	Python 50 AT104-50	Transporter 50 APTB50	Rolly Box 225 -	GearTote+ 72 -
	ORIGIN				
	COST (inc Tax/VAT) (currency conversion only)	£120 $146 €115	£125 $160 €137	£290 $469 €336	£188 $240 €222
	STYLE/FUNCTION	RUCKSACK	RUCKSACK	CABINET ORGANISER	TOP-LOAD CABINET
SPECIFICATIONS	VOLUME L/US Gallon intended market	50L/13.2gal Pro Arb	*50-60L/13.2-15.9gal Pro Arb	225+30L/59.4gal Pro Arb	72+15L/19-4gal Pro Arb
SPECIFICATIONS	NOMINAL/INTENDED ROPE CAPACITY	45m x 11mm 100' x ½"	45-55m x 11mm 100-135' x ½"	2x 80m+1x160m x 11mm 2x 160'+1x320' x ½"	2x 25m x 11mm 2x 75' x ½"
SPECIFICATIONS	WEIGHT empty	2.1kg 4.6lb	1.5kg 3.3lb	?	approx 2.2kg 5lb
SPECIFICATIONS	DIMENSIONS (unfilled)	70 x 37 x 20cm 27.6 x 14.6 x 7.9"	70 x 30 x 25cm 27.6 x 12 x 9.8"	75 x 60 x 50cm 29.5 x 23.6 x 19.6"	81.3 x 35.6 x 25.4cm 32 x 14 x 10"
TRANSPORT	2xBACK STRAPS 1xSHOULDER WAIST BELT [PADDED]	[■]-[■]	[■]--	---	[■]--
TRANSPORT	BACK/LUMBAR PADDING	■■	■■	--	■■
TRANSPORT	DETACH STOW CARRY STRAPS	--	--	--	■
TRANSPORT	REINFORCED SIDES (Free-standing)	-	■	■	■
TRANSPORT	CARRY HANDLES WLL ENDS SIDE	1 -	2 -	--	- 1
TRANSPORT	ADDITIONAL HAUL WLL SEWN EYES RINGS		1 -	--	1 -
STOW EQUIPMENT	BAG OPENS OUT to DISPLAY KIT	NO	NO	PARTIAL	PARTIAL
STOW EQUIPMENT	HELMET/BOOT [SAW] POCKET/POUCH CORD/WEB	■	■	■[■]	■[■]
STOW EQUIPMENT	INTERNAL PARTITION +ROPE TOOL BAG	---	---	■□□	■■-
STOW EQUIPMENT	GEAR (individual) EYES EXTERNAL INTERNAL	10 0	11	--	16 20+16 in lid
STOW EQUIPMENT	GEAR LOOPS [STRAPS] EXTERNAL INTERNAL	--	--	--	--
POCKETS	TOTAL POCKETS EXTERNAL INTERNAL	2 1	*3 3*	6 1 + 30L pouch	2 * 2 + 10L pouch
POCKETS	of which..MESH/CLEAR EXTERNAL INTERNAL	Solid 1	■1	- 1 *	--
POCKETS	CLOSURE VELCRO POP ZIPPED DRAW-CORD BUCKLE	■	--	■3	■1
FEATURES	WATERPROOF VENT HOLES DRAIN HOLES	■-■	■-■	■--	■--
FEATURES	LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP	■	■+■	■	■
FEATURES	LOCKABLE ID PANEL END/SIDE STRAPS	-■■-	■■-■	---■	----
FEATURES	REFLECTIVE TRIM TARPAULIN RAINCOVER	---	---	---	---
	OUTER MATERIALS	PES/PVC	PVC	680 g/m² PVC	900D PVC
	OTHER COLOURS	■	-	■■	
	NOTES		*inc slide-in 5L pouch on each side. *Side straps allow variable volume *Sml zipped security pocket	Wheeled trolley optional. 30L pouch has 2 dividers Clear sleeve in back of box.	Lid pouch detaches as rope bag for 75'x1/2" *2 exterior pockets intended for throwline cubes
	WEBSITE	arbortec.com	arbpro.it	arpro.it	arbsession.com

TRANSPORT ...NISER ...CKS

BEAL	BEAL	BUCKINGHAM	CAMP SAFETY	CAMP SAFETY	CMC RESCUE
Combi-Pro 40 BSAC	**Combi-Pro 80** BSAC	**Buckpack Pro 90** 4377 Garage 4378	**Hold 40** 2789	**Spacecraft 45** 2790	**H.R. Organiser 13** 77040.
£130 $155 €145	£145 $220 €173	£400 $529 €455	£75 $110 €67	£210 $286 €258	£140 $177 €163
ORGANISER	ORGANISER	CABINET ORGANISER	BACKPACK	ORGANISER	ORGANISER
40L/10gal Pro access	80L/21.1gal Pro Access	90L/23.8gal Pro Arb	40L/10gal Pro Access	45L/11.8gal Pro Access	13L/3.4gal Pro Rescue
40m x 10.5mm 80' x ½"	60m x 10.5mm 120' x ½"	300m x 11mm 600' x ½"	100m x 11mm 200' x ½"	150m x 11mm 300' x ½"	25m x 11mm 50' x ½"
1.96kg 4.3lb	2.5kg 5.5lb	3.36-4.5kg 7.4-10lb	650g 1.4lb	2.6kg 5.7lb	879g 1.9lb
60 x 21cm 24 x 8"	72 x 26cm 28 x 10"	81 x 41 x 26mm 32 x 16 x 10"	56 x 30 x 20cm 22 x 12 x 8"	62 x 32 x 23cm 24 x 13 x 9"	48 x 44 x 15cm 19 x 17 x 6"
[■]-[■]	[■]-[■]	[■]--	[■]--	[■]-■	- - -
■ ■	■ ■	■ ■	■ ■	■ ■	- -
- -	- -	-■	- -	- -	- -
■	■	■	-	■	■
1+1 1	1+1 1	*5 -	3 1	- 1	1 -
1 -	2 -	1 -	1x50kg -	1x50kg -	- -
YES	YES	PARTIAL	PARTIAL	YES	PARTIALLY
- -	- -	■ [■]	- -	- -	- -
■ -	■ ■	■-	- - -	- - -	- - -
-10+popper loops	-15+7	16 35	14 -	3 30	3 -
2* 7*	2* 7*	*5 -	- 2	- -	2 -
0 4	0 4	*7 4	3 -	3 *	4 -
■3*	■3*	- -	1 -	- -	1 -
- 3	- 3	■5 ■2	■2	■1	■3 ■1
●- -	●- -	●- -	■-■	■- -	●- -
■	■	■+■	■	■+■	
- ■ - -	- ■ - -	- ■ - -	- ■ ■-	- ■ ■ ■	■■- ■
■ - -	■■-	- - -	- - -	- - -	- - -
PVC 1100g/m²	PVC 1100g/m²	Vinyl,Cordura, Kevlar	500D PVC	500D PVC	1000D Cordura
■	■	-	-	-	■
80L=pull-out rope tarp. sturdy enough to be a light handle. *6-loops detachable clear pouch can be for water	80L=pull-out rope tarp. *sturdy enough to be a light handle. *6-loops detachable *1 clear pouch can be for water	*Inc padded laptop pocket *carry handles = gear loops. GearGarage is a detachable hardware board with numerous eyes & pouches.		Comes with 2.5L detachable gear bag-clips inside main bag.	DISCONTINUED Pockets:48x13x10cm/19x5x4" 30x13x10cm/12x5x4" 13x13x10cm/5x5x4" H.R.= Heavy Rescue
beal-planet.com	beal-planet.com	buckinghammfg.com	camp.it	camp.it	cmcpro.com

UPDATED Nov'25

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POP= Popper or press stud
BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle

	MANUFACTURER	**CMC RESCUE**	**CMC RESCUE**	**CMC RESCUE**	**COURANT**
	MODELS litres/liters VARIANT	**Personal GearBag** 33.5 44100.	**Lotus Tech Pack** 37 441120	**Rigtech Pack** 42 44110.	**Cross Pro** 54 PSCPBYA
	ORIGIN				
	COST (inc Tax/VAT) (currency conversion only)	£173 $227 €195	£162 $225 €176	£202 $273 €236	£164 $230 €188
	STYLE/FUNCTION	BAG/BACKPACK	ORGANISER	ORGANISER	ORGANISER
SPECIFICATIONS	**VOLUME** L/US Gallon intended market	37L/9.7gal Pro Rescue	37L/9.7gal Pro Rescue	42L0L/11gal Pro Rescue	54L/14.3gal (inc.17L rope bag) Pro Access
SPECIFICATIONS	**NOMINAL/INTENDED ROPE CAPACITY**	100m x 11mm 200' x ½"	122m x 11mm 400' x 7/16"	100m x 11mm 200' x ½"	75m x 11mm 150' x ½"
SPECIFICATIONS	**WEIGHT empty**	998g 2.25lb	2.37kg 5.2lb	2.8kg 6.2lb	2.7kg 6lb
SPECIFICATIONS	**DIMENSIONS** (unfilled)	53 x 33 x 20cm 21 x 13 x 8"	50 x 33 x 23cm 20 x 13 x 9"	56 x 46 x 21cm 22 x 18 x 8"	76 x 32 x 25cm 30 x 13 x 10"
TRANSPORT	2xBACK STRAPS 1xSHOULDER WAIST BELT [PADDED]	[■] - -	[■] - [■]	[■] - [■]	[■] - [□]
TRANSPORT	BACK/LUMBAR PADDING	- -	■ ■	■ ■	■ ■
TRANSPORT	DETACH STOW CARRY STRAPS	- ■	■ (waist belt) ■	- -	- -
TRANSPORT	REINFORCED SIDES (Free-standing)	-	-	-	■
TRANSPORT	CARRY HANDLES WLL ENDS SIDE	1 2	1 2	- 1	1 x200kg 4 x200kg
TRANSPORT	ADDITIONAL HAUL WLL SEWN EYES RINGS	- -	- -	- -	1 x300kg -
STOW EQUIPMENT	BAG OPENS OUT to DISPLAY KIT	PARTIALLY	YES	YES	■
STOW EQUIPMENT	HELMET/BOOT [SAW] POCKET/POUCH CORD/WEB	- -	- -	- -	- ■
STOW EQUIPMENT	INTERNAL PARTITION +ROPE TOOL BAG	- - -	- - -	- - -	YES + ■
STOW EQUIPMENT	GEAR (individual) EYES EXTERNAL INTERNAL	16 ?	12 +16 web eyes 20	6 24	6+4 20+19molle
STOW EQUIPMENT	GEAR LOOPS [STRAPS] EXTERNAL INTERNAL	- 2	- 1	1 2	- [2]
POCKETS	TOTAL POCKETS EXTERNAL INTERNAL	1 2	4 7	2 7	*1 11
POCKETS	of which..MESH/CLEAR EXTERNAL INTERNAL	- -	- 6	- -	- 8
POCKETS	CLOSURE VELCRO POP ZIPPED DRAW-CORD BUCKLE	■3	■10	■2 ■6	■11 ■1
FEATURES	WATERPROOF VENT HOLES DRAIN HOLES	■ - -	● - -	■ - ■	● - ?
FEATURES	LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP	■	■	■	■ ■
FEATURES	LOCKABLE ID PANEL END/SIDE STRAPS	- ■ - -	■ ■ - ■	- ■ ■ * -	- ■ - ■
FEATURES	REFLECTIVE TRIM TARPAULIN RAINCOVER	- - -	■ ■ -	■ ■ -	■ - -
	OUTER MATERIALS	1000D Cordura	PU-coated 840D Ripstop	1000D Cordura	1680D Ballistic nylon YKK zips
	OTHER COLOURS	■	-	■ ■	■ ■ ■
	NOTES	2x Internal zipped pockets - 1 for keys etc. one is fleec-lined for glasses/phone		*Lid buckles act as end-to-end compression straps. Padded side pockets. Whistle on sternal buckle. 3 lash panels. 2xToggled bungies on lid.	Zipped lids both ends. Internal pocket sizes can be adjusted with poppers. *Internal key pocket zipped from outside. Kit ID labels.
	WEBSITE	cmcpro.com	cmcpro.com	cmcpro.com	mycourant.com

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AP SYSTEM

Images NOT to Scale
£$€ any price in 'burnt-orange' is a **Currency conversion only**-exc shipping, duties,taxes etc.
ROPE CAPACITY = Not necessarily related to volume if only part of the bag is for rope.
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HELMET/BOOT= pouch or compartment to fit a helmet, often on the outside, and/or boots (always on the inside. [SAW]=Dedicated pouch or scabbard for a hand saw
POP= Popper or press stud
BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle

	MANUFACTURER	COURANT	COURANT	COURANT	FRANCITAL
	MODELS litres/liters VARIANT	Cross Pro XL 75 PSCPBYA	Cross Evo 45 PPLSSCC4	Dock 60 -	Hercule 60 AC034
	ORIGIN				
	COST (inc Tax/VAT) (currency conversion only)	£225* $300* €259*	£143 $170 €146	£92 $118 €102	£170 $224 €200
	STYLE/FUNCTION	ORGANISER	ORGANISER	BUCKET/BACKPACK	BACKPACK
SPECIFICATIONS	**VOLUME** L/US Gallon intended market	75L/20gal (inc 17L rope bag) Pro Rescue	45L/11.8gal (inc 17L rope bag) Pro Access	60L/15.8gal Pro Access	- Pro Arb
SPECIFICATIONS	**NOMINAL/INTENDED ROPE CAPACITY**	75m x 11mm 150' x ½"	75m x 11mm 150' x ½"	100m x 11mm 200' x ½"	30kg/66lb
SPECIFICATIONS	**WEIGHT empty**	3.4kg 7.5lb	3.25kg 7.15lb	1.6kg 3.5lb	1.75kg 3.85lb
SPECIFICATIONS	**DIMENSIONS** (unfilled)	88 x 36 x 27cm 35 x 15 x 11"	59 x 42cm 23.3 x 16.5"	82 x 32 x 25cm 33 x 13 x 10"	?
TRANSPORT	2xBACK STRAPS 1xSHOULDER WAIST BELT [PADDED]	[■]-[■]	[■]- -	[■]-[□]	[■]-[■]
TRANSPORT	BACK/LUMBAR PADDING	■■	■ -	■■	■ -
TRANSPORT	DETACH STOW CARRY STRAPS	- -	- -	■ -	- -
TRANSPORT	REINFORCED SIDES (Free-standing)	■	■	■	■
TRANSPORT	CARRY HANDLES WLL ENDS SIDE	2 x200kg 4 x200kg	1 2	1 -	- -
TRANSPORT	ADDITIONAL HAUL WLL SEWN EYES RINGS	1 x300kg -	- 1 x210kg	0 -	- -
STOW EQUIPMENT	BAG OPENS OUT to DISPLAY KIT	YES	■	NO	NO
STOW EQUIPMENT	HELMET/BOOT [SAW] POCKET/POUCH CORD/WEB	-■	-■	- -	■ -
STOW EQUIPMENT	INTERNAL PARTITION +ROPE TOOL BAG	YES +■	YES +■	- - -	YES - -
STOW EQUIPMENT	GEAR (individual) EYES EXTERNAL INTERNAL	5+4 29+19molle	- 13 (+4 poppered)	10 + 2 3	5 1
STOW EQUIPMENT	GEAR LOOPS [STRAPS] EXTERNAL INTERNAL	2 [2]	- 3	2 [*2] -	[4] -
POCKETS	TOTAL POCKETS EXTERNAL INTERNAL	*1+*2+*1 11	- 5	2 -	2 2
POCKETS	of which..MESH/CLEAR EXTERNAL INTERNAL	- 8	- 5 elasticated	2 -	- -
POCKETS	CLOSURE VELCRO POP ZIPPED DRAW-CORD BUCKLE	■11 ■2 ■2		■2	■1 ■1
FEATURES	WATERPROOF VENT HOLES DRAIN HOLES	●- -	■■-	■■■	
FEATURES	LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP	■■	■	■	■
FEATURES	LOCKABLE ID PANEL END/SIDE STRAPS	-■-■	- -■■	-■- -	- -■■
FEATURES	REFLECTIVE TRIM TARPAULIN RAINCOVER	■- -	■- -	■- -	- - -
	OUTER MATERIALS	1680D Ballistic nylon YKK zips	PVC	1680D Ballistic nylon YKK zips	Cordura/Alu frame
	OTHER COLOURS	■ *		■■	
	NOTES	*Blk10% less.Zipped lids both ends. Adj internal pocket sizes. *Key pocket zips from outside *Bottle Holders. *Padded for phone/glasses. Kit ID labels.	unzips at both ends. Includes the Cross Light rope bag.	Extra rpe/gear bags can be attached to all Cross & Dock bags. *draw-cord bungy for securing saw/bottle/cylinder in mesh pockets	Forestry pack intended to carry chainsaw, fuel, helmet subsistence etc.
	WEBSITE	mycourant.com	mycourant.com	mycourant.com	francital.com

imber.com

HUSQVARNA	KONG	KONG
Gear Pack 70 534 10 18-02	Convoy 45 982002N00KK	Convoy 60 982002N00KK
£185 $260 €250	£000 $000 €000	£240 $325 €286
BACKPACK	ORGANISER	ORGANISER
70L/18.4gal Pro Arb	56L+19L/14.7+5gal rope bag Pro Access	56L+19L/14.7+5gal rope bag Pro Access
75m x 11mm 150' x ½"	100m x10.5mm 150' x ½"	100m x10.5mm 150' x ½"
2kg 4.4lb	2.6kg 5.8lb	2.6kg 5.8lb
76 x 36cm 29.5 x 14.2"	00 x 35 x 26cm 00 x 13.8 x 10.2"	80 x 35 x 26cm 31.5 x 13.8 x 10.2"
[■]--	[■]--	[■]--
■■	■■	■■
■-	- ■	- ■
-	-	-
1 2	1 2	1 2
- -	1 -	1 -
PARTIAL	YES	YES
■ -	- □	- □
- □ -	- □ -	- □ -
2016	5 24	5 24
	- -	- -
5 1	6 6	6 6
- 1	2 6	2 6
■4 ■1	■5 ■4	■5 ■4
● - -	■-■	■-■
■+■	■+■ & ■+■top	■+■ & ■+■top
- - ■* -	■■ - -	■■ - -
■--	---	---
900D	?	?
dditional zipped side entry. Integral first aid pocket. id buckles act as end-to-end compression straps	Optional 19L rope bag and helmet securing straps	Optional 19L rope bag and helmet securing straps
husqvarna.com	Kong.it	Kong.it

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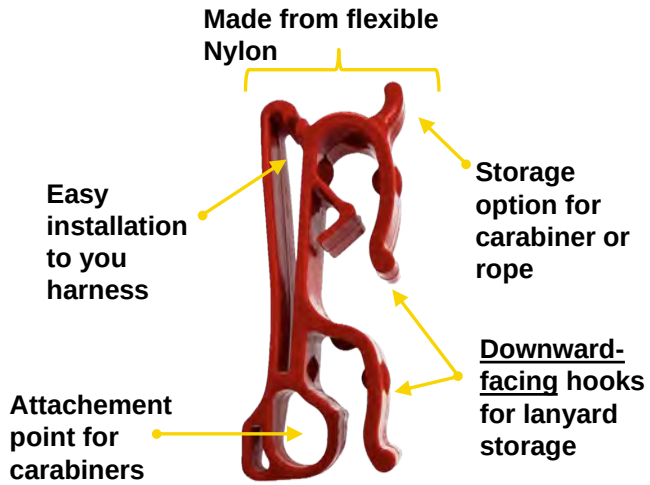
Arbpro Buddy - Lanyard manager



Not a PPE - Max 10 Kg | Patent pending

Ask your trusted dealer for more information

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www.arbpro.it

Images NOT to Scale
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POP= Popper or press stud
BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle

	MANUFACTURER	MONTBELL	NOTCH EQPT	NOTCH EQPT	NOTCH EQPT
	MODELS litres/liters VARIANT	Logger Gear 75 Chainsaw System	Pro Large 43 40082	Approach 50 99327	Pro Access 60 53444
	ORIGIN				
	COST (inc Tax/VAT) (currency conversion only)	£460480 $585 €535	£97 $120 €110	£156 $160 €146	£192 $250 €235
	STYLE/FUNCTION	FRAMED CARRIER	BACKPACK	BUCKET/BACKPACK	ORGANISER
SPECIFICATIONS	VOLUME L/US Gallon intended market	63+12.7L/16.6+3.3gal Pro Arb	43L/11.4gal Pro Arb	50L/13.2gal Pro Arb	60L/15.8gal Pro Arb
SPECIFICATIONS	NOMINAL/INTENDED ROPE CAPACITY	n/a	120m x 11mm 245' x ½"	120m x 11mm 245' x ½"	75m x 11mm 150' x ½"
SPECIFICATIONS	WEIGHT empty	2.47kg 5.5lb	1.2kg 2.7lb	2.3kg 5lb	2.63kg 5.8lb
SPECIFICATIONS	DIMENSIONS (unfilled)	73.5 x 39 x 28cm 28.9 x 15.3 x 11"	48 x 33cm 19 x 13"	57.1 x 35.5 x 35.5cm 22.5 x 14"	69 x 36cm 27 x 14"
TRANSPORT	2xBACK STRAPS 1xSHOULDER WAIST BELT [PADDED]	[■]-[■]	- - -	[■]--	[■]--
TRANSPORT	BACK/LUMBAR PADDING	■■	- -	■■	■■
TRANSPORT	DETACH STOW CARRY STRAPS	■-	- -	- -	■-
TRANSPORT	REINFORCED SIDES (Free-standing)	■	-	■	-
TRANSPORT	CARRY HANDLES WLL ENDS SIDE	1 44kg/88lb -	0 -	1 1	2 1
TRANSPORT	ADDITIONAL HAUL WLL SEWN EYES RINGS	- -	0 -	0 -	- -
STOW EQUIPMENT	BAG OPENS OUT to DISPLAY KIT	NO/YES	NO	NO	YES
STOW EQUIPMENT	HELMET/BOOT [SAW] POCKET/POUCH CORD/WEB	- [■]	- -	- -	■[■]
STOW EQUIPMENT	INTERNAL PARTITION +ROPE TOOL BAG	- - -	- - -	- - -	- - -
STOW EQUIPMENT	GEAR (individual) EYES EXTERNAL INTERNAL	??	13 -	- -	6+2* 21
STOW EQUIPMENT	GEAR LOOPS [STRAPS] EXTERNAL INTERNAL	??	- -	6 -	- -
POCKETS	TOTAL POCKETS EXTERNAL INTERNAL	2 - /2 3	6 -	6 -	2 6
POCKETS	of which..MESH/CLEAR EXTERNAL INTERNAL	- -	2 -	1 -	- 5
POCKETS	CLOSURE VELCRO POP ZIPPED DRAW-CORD BUCKLE	■2 /■3	■4	■1	■3 ■1 ■2
FEATURES	WATERPROOF VENT HOLES DRAIN HOLES	●--	■-?	■-?	■--
FEATURES	LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP	■ & ■ /■	■	■+■	■
FEATURES	LOCKABLE ID PANEL END/SIDE STRAPS	- - - - / - - - ■	■■- -	-■- -	■■- -
FEATURES	REFLECTIVE TRIM TARPAULIN RAINCOVER	---		- -	---
	OUTER MATERIALS	420D Ballistic Nylon Auminium Frame	900D Polyester	1680D Nylon	900D Polyester
	OTHER COLOURS				
	NOTES	Modular Carry System with two bags or organiser for chainsaw and fuel can. Also available as separate components.		De Luxe 60 discontinued but still available while stocks last	*a sewn eye on each back-strap. Pro Gear 70 discontinued but still available while stocks last
	WEBSITE		notchequipment.com	notchequipment.com	notchequipment.com

TRANSPORT/ORGANISER PACKS

PETZL	PETZL	PROTEKT	ROCK EMPIRE	SILVER BULL	
Expert 40 53444	Expert 55 53444	Trans Backpack 40 Ax075	Beetle Bag II 55 -	Multiuse 63 -	
TBA 2026	TBA 2026	£0 $0 €0	£141 $180 €164	£162 $203 €156	
ORGANISER	ORGANISER	ORGANISER	BACKPACK	CABINET ORGANISER	
0L/10gal Pro Access	55L/00gal Pro Access	40L/10gal Pro Access	52.5L/13.9gal Sport	63L/16.6gal Pro Arb	
00m x 00mm 000' x ½"	00m x 00mm 000' x ½"	100m x 11mm 200' x ½"	80-100m x 11mm 160-200' x ½'	100m x 11mm 200' x ½'	
000g 00lb	000g 00lb	1.88kg 4.2lb	920g 2lb	2.5kg 5.5lb	
00 x 00cm 00 x 00"	00 x 00cm 00 x 00"	60 x 38 x 19cm 23.6 x 15 x 7.5"	50 x 30 x 35cm 20 x 12 x 14"	63 x40 x 25cm 25 x 15.75 x 10"	
[■]-[■]	[■]-[■]	[■]--	[■]--	[■]--	
■■	■■	■■	■■	--	
- ■	- ■	■-	- ■	- ■	
■	■	-	-	-	
2 50kg 1	0 2	2 1	1 -	2 2	
--	--	--	--	- 1*	
PARTIALLY	YES	YES	YES	PARTIAL	
		■ [■]	- -	--	
---	---	---	---	■* --	
- 6	- 6	6+2* 21	- -	10 -	
- 11	- 11	--	1 2 [1]	8 -	
1 4	1 4	2 6	1 3	- 1	
- 4	- 4	- 5	- -	- 1	
■1 ■4	■1 ■4	■3 ■1 ■2	■4	■1	
■--	■--	■--	■--	■- -	
?	?	■	■	■+■	
- - - ■	- - - ■	■■ - -	- - - -	■■ - ■	
---	---	---	-■*-	---	
TPU + ?	TPU + ?	PNC	PES	PVC-coated canvas	
■	■			■	
NEW in 2026	NEW in 2026		*padded back removes to become ground pad. Internal pocket with keys hook	Orang-utan=Ltd edition. *1,2 or 3 partitioned 'shelves' *3xLarge eyelets allow bag to be hung as a 'cabinet'	
petzl.com	petzl.com	protekt.pl	rockempire	n/a	

Images NOT to Scale
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POP= Popper or press stud
BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle

	MANUFACTURER	**STERLING ROPE**	**STERLING ROPE**	**STERLING ROPE**	**TEUFELBERGER**	
	MODELS litres/liters VARIANT	**WonderWall 33 23** -	**Vertac 40** MDBAGVERTAC40BK	**Vertac 60** MDBAGVERTAC60BK	**Baby Mule 23** -	
	ORIGIN					
	COST (inc Tax/VAT) (currency conversion only)	£0 $0 €183100	£142 $180 €166	£158 $200 €185	£0 $0 €183	
	STYLE/FUNCTION	BACKPACK	BUCKET/BACKPACK	BUCKET/BACKPACK	ORGANISER	
SPECIFICATIONS	**VOLUME** L/US Gallon intended market	23L Sport/Pro Access	40L/10gal Pro Access	60L Pro Access	23L Pro Access	80
SPECIFICATIONS	**NOMINAL/INTENDED ROPE CAPACITY**		>75m x 11mm >150' x ½'	>100m x 11mm >200' x ½'		
SPECIFICATIONS	**WEIGHT empty**	1.85kg 0lb	1.35kg 3lb	1.55kg 3.41lb	1.85kg 4.1lb	
SPECIFICATIONS	**DIMENSIONS** (unfilled)	50 x 23 x 20cm 19.6 x 9 x 7.8"	56 x 34 x 22.5cm 22 x 13.3 x 9"	72.5 x 33.2 x 26.4cm 28.5 x 13 x 10.3"	50 x 20 x 23cm 19.6 x 7.8 x 9"	
TRANSPORT	2xBACK STRAPS 1xSHOULDER WAIST BELT [PADDED]	[■]-[■]	[■]-■	[■]-■	[■]--	
TRANSPORT	BACK/LUMBAR PADDING		■■	■■	■■	
TRANSPORT	DETACH STOW CARRY STRAPS	- ■	- ■	- ■	■-	
TRANSPORT	REINFORCED SIDES (Free-standing)	-	■	■	■	
TRANSPORT	CARRY HANDLES WLL ENDS SIDE	22.7kg/50lb 0 -	2* 50lb -	2* 60lb -	1 -	
TRANSPORT	ADDITIONAL HAUL WLL SEWN EYES RINGS		0 -	0 -	1 -	
STOW EQUIPMENT	BAG OPENS OUT to DISPLAY KIT		PARTIAL	PARTIAL	PARTIAL	
STOW EQUIPMENT	HELMET/BOOT [SAW] POCKET/POUCH CORD/WEB		- -	- -	■ ■	
STOW EQUIPMENT	INTERNAL PARTITION +ROPE TOOL BAG	- - -	- - -	- - -	- - -	
STOW EQUIPMENT	GEAR (individual) EYES EXTERNAL INTERNAL		- 6	- 6	22 -	
STOW EQUIPMENT	GEAR LOOPS [STRAPS] EXTERNAL INTERNAL	1 (top for rope) -	- -	- -	1 [2]	
POCKETS	TOTAL POCKETS EXTERNAL INTERNAL		1 4	1 4	3 3	
POCKETS	of which..MESH/CLEAR EXTERNAL INTERNAL		- 3	- 3	- -	
POCKETS	CLOSURE VELCRO POP ZIPPED DRAW-CORD BUCKLE	■2 + ■1	■4 ■1	■4 ■1	■4 ■1	
FEATURES	WATERPROOF VENT HOLES DRAIN HOLES		■-■	■-■	■--	
FEATURES	LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP		■	■	■	
FEATURES	LOCKABLE ID PANEL END/SIDE STRAPS		- ■ - -	- ■ - -		
FEATURES	REFLECTIVE TRIM TARPAULIN RAINCOVER				■-■	
	OUTER MATERIALS	recycled 600D Ripstop	recycled 600D Ripstop	recycled 600D Ripstop	600D PVC, 600D PU	
	OTHER COLOURS					
	NOTES	Hydration pouch NFC Chip	*+Rucksack straps can join to become duffle carry handles Integral NFC Chip. Keys clip in top pocket	*+Rucksack straps can join to become duffle carry handles Integral NFC Chip. Keys clip in top pocket	Includes rain cover	Ad 20 att
	WEBSITE	sterlingrope.com	sterlingrope.com	sterlingrope.com	teufelberger.com	

TRANSPORT/ORGANISER PACKS

TEUFELBERGER	TEUFELBERGER	TREERUNNER	WEAVER ARBORIST	WEAVER ARBORIST	WEST COAST CLIMBER
Mule 80	Lazy Mule 80	?	Chasm 40	Cavern 70	Pro Gear 70
-	-		08411-40-00	08410-00	-
£325 $275 €314	£338 $324 €326		£130 $148 €135	£135 $160 €146	£177 $220 €206
ORGANISER	WHEELED ORGANISER		BACKPACK	-	BUCKET/BACKPACK
0L/21.1gal Pro Access	80L/21.1gal Pro Access	Pro Access	40L/10gal Pro Arb	70L/18.5gal Pro Arb	70L/18.5galL Pro Arb
>2x 75m x 11mm >2x 150' x ½'	>2x 75m x 11mm >2x 150' x ½'		100m x 11mm 200' x ¾"	>100m x 11mm >200' x ½"	150m x 11mm 300' x ½"
3.5kg 7.7lb	3.74kg 8.23lb		1.68kg 3.7lb	2.1kg 4.6lb	3.4-4.5kg 7.4-10lb
65 x 45 x 38cm 18 x 15"	68 x 45 x 38cm 27 x 15"		51 x 308 x 25cm 20 x 12 x 10"	61 x 38 x 28cm 24 x 15 x 11"	56 x 30.5cm 22 x 12"
[□]-[□]	[□]-[□]		[■]--	[■]-■	[■]--
■■	■■		■-	■■	--
■-	■-		■ -	- -	- -
■	■		-	-	■
1 2	1 2		2 1	2 1	2 1
- -	- -		0 -	1 -	- -
NO	NO		NO	NO	NO
- [■]	- [■]		- -	[■] -	■ -
-□□	-□□		- - -	- - -	- - -
70+4 4	70+4 4		22 0	22 6	10+10* -
7 -	7 -		- -	- -	- -
2 -	2 -		3 -	4 1	4 -
- -	- -		- -	- -	- -
■1	■1		■4	■3* ■1	■4
●--	●--		■* ■■	■* ■■	●■■
■	■		■+■*	■+■*	■
- - ■-	- - ■-		- - ■-	- - ■-	- - - ■
-- -	-- -		■-■*	■-■*	
500D PVC, 600D PU	600D PVC, 600D PU		HD Nylon Tarp	HD Nylon Tarp	1680D Ballistic Nylon
					-
ditional zipped side entry. 0L Gear Mule pack can be ached. 30L Optional rope buckets fit tube profile	Additional zipped side entry. 20L Gear Mule pack can be attached. 30L Optional rope buckets fit tube profile		*Separate waterproof cap held on with buckles which double as *top compression straps	*inc 1x buckle securing strap for saw pocket *Separate waterproof cap held on with buckles [see Weaver Chasm]	*5 on each shoulder strap
teufelberger.com	teufelberger.com	grube.de	weaverarborist.com	weaverarborist.com	nugreenstore.com

DUFFLE / DUFFEL BAGS

Duffle bags are usually the largest clear, usable space of any of the bags and often in a form where the bag itself can be folded down to a much smaller size when not in use. like the Husqy above left. Duffles were traditionally a cylinder with a shoulder strap in vertical orientation - think military kit bag - which then morphed into a horizontally carried bag with two long carry handles - think sports bag. On many duffles the handles are long enough to double as back-straps but they may also have full size, detachable shoulder straps enabling longer distance vertical carry. Often the handles have integral compression at their ends to help compress the volume so there's no spare material flapping around. Because of their relatively large size most have 'lift & shift' handles on the ends - not for carrying but for pulling and/or lifting and to tip out the contents, in some cases, like the FTC duffles, the lid securing buckles/straps on the ends can act as drag handles. For rope-related activities many have adopted external and internal daisy chains for clipping on gear and a variety of pockets, mostly relatively low profile to preserve the large internal space. It is otherwise a fine line of distinction between a duffle and organisers like *Sliver Bull's Multi-Use*, *Singing Rock's Movement* and *Sterling's Vertac* except to say that you can tell a duffle just by looking at it - it's relatively basic in appearance; a big rectangle or a big barrel with shopping bag handles - a European carrier bag shopping bag not a US paper bag that you cradle in your arms! It's lighter and less complex than organiser and transport packs and It sits lengthways on the ground while you access the interior via a top, longitudinal lid or full length opening. Because these things are intended to carry literally everything from clothes to climbing gear, boots to a flask of soup, the rope capacity has been replaced by the sheer weight that it will carry.

WATERTIGHT or WATERPROOF?

We have only included bags aimed mostly at arb and rope access or rescue workers but there is a whole category of duffles that may be of interest to you and that is the ***watertight*** bags as distinct from these ***waterproof*** bags. You'll find them in the WATER RESCUE BUYERS GUIDE because they keep the contents entirely dry even in the event of complete inundation or immersion - if you can even get them to sink since they usually have a lot of air sealed inside. The definition of ***watertight*** in this case is that you could store water in them (on the ground-not carried) because they have welded or glued seams rather than sewn. Brands such as *Ortlieb* and *Sealine* but there are two bags here that almost fit that bill - the *FTC Tree Duffles* with roll-top closure but you'll notice that the straps are sewn on so....waterproof, not watertight.

IN THE FOLLOWING TABLES as per p356

COST: Approximate. Includes local taxes. We round up the cost to the nearest Pound£, US Dollar$ or Euro€ Simple currency conversions are shown in orange exc import duty, shipping etc.

Images NOT to Scale
£$€ any price in 'burnt-orange' is a **Currency conversion only**-exc shipping, duties,taxes etc.
BACK STRAPSHANDLES [in brackets]=padded
COMP STRAPS = Compression straps allow you to take in slack and reduce the volume
HAUL=has eye to take entire wt of bag & contents
EYES=Sewn eyes and/or rings
STORE SAW=Dedicated pouch or scabbard for a hand saw
POP= Popper or press stud
BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle

	MANUFACTURER
	MODEL litres/liters **VARIANT**
	ORIGIN
	COST (inc Tax/VAT) Currency conversion only
SPECIFICATIONS	**VOLUME** L/US Gallon intended market
SPECIFICATIONS	**LIFTED LOAD CAPACITY**
SPECIFICATIONS	**WEIGHT empty**
SPECIFICATIONS	**DIMENSIONS** ht x w x depth
FEATURES	**BACK STRAPS** HANDLES COMP-STRAPS
FEATURES	**POCKETS** Ext/Int EYES Ext/Int STORE SAW
FEATURES	WATERPROOF IDPANEL DRAIN/VENT HAUL
FEATURES	**LID** VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP
	OUTER MATERIALS REFLECTIVE TRIM
	OTHER COLOURS & NOTES
	WEBSITE

Images NOT to Scale
£$€ any price in 'burnt-orange' is a **Currency conversion only**-exc shipping, duties,taxes etc.
BACK STRAPSHANDLES [in brackets]=padded
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HAUL=has eye to take entire wt of bag & contents
EYES=Sewn eyes and/or rings
STORE SAW=Dedicated pouch or scabbard for a hand saw
POP= Popper or press stud
BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle

	MANUFACTURER
	MODEL litres/liters **VARIANT**
	ORIGIN
	COST (inc Tax/VAT) Currency conversion only
SPECIFICATIONS	**VOLUME** L/US Gallon intended market
SPECIFICATIONS	**LIFTED LOAD CAPACITY**
SPECIFICATIONS	**WEIGHT empty**
SPECIFICATIONS	**DIMENSIONS** ht x w x depth
FEATURES	**BACK STRAPS** HANDLES COMP-STRAPS
FEATURES	**POCKETS** Ext/Int EYES Ext/Int STORE SAW
FEATURES	WATERPROOF IDPANEL DRAIN/VENT HAUL
FEATURES	**LID** VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP
	OUTER MATERIALS REFLECTIVE TRIM
	OTHER COLOURS & NOTES
	WEBSITE

DUFFLE/DUFFEL BAGS

AAK SAFETY	**ARBORTEC**	**ARBORTEC**	**ARBORTEC**	**ARBORTEC**
Transport 80 29104	**Anaconda 90** -	**Mamba 40** -	**Mamba 70** AT101	**Mamba 90** AT101
n/a	£126 $140 €127	£87 $105 €96	£104 $125 €107	£117 $141 €120
80L/21.1gal Pro Rescue	90L/23.8gal Pro Arb	40L/10.6gal Pro Arb	70L/18.5gal Pro Arb	90L/23.8gal Pro Arb
- -	<350m x11mm 700'x½"*	13.6kg 30lb	<270m x11mm 540'x½"*	<350m x11mm 700'x½"*
1.4kg 3.1lb	2.1kg 4.6lb	2.3kg 5lb	2.6kg 5.7lb	2.88kg 6.3lb
62 x 32 x 32cm 24.4 x12.6 x 12.6"	75 x 40cm 29.5 x 15.7"	50 x 33 x 28cm 19.7 x 13 x 11"	60 x 35 x 30cm 24 x 14 x 12"	65 x 35 x 35cm 26 x 14 x 14"
2 4 -	- 2 4	2 4 2	2 * 4 2	2 * 4 2
1 * - - - -	3 - 10+4 - -	1 3 14 6 -	1 4 14 6 -	1 4 14 6 -
- -	- -	- -	- -	- -
	+ +			+ +
NYLON & PVC -	Welded PES/PVC	680 g/m² PVC	Polyester/PVC	Polyester/PVC
*Backstraps stow in an outside pocket	green version is £6 less but NOT reflective	inner key hook	*if handles used as backstraps. Reinforced base protects spikes *if whole bag used for rope. inner key hook	*if handles used as backstraps. Reinforced base protects spikes *if whole bag used for rope. inner key hook
aaksafety.no	arbortec.com	arbortec.com	arbortec.com	arbortec.com

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

Images NOT to Scale
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BACK STRAPSHANDLES [in brackets]=padded
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HAUL=has eye to take entire wt of bag & contents
EYES=Sewn eyes and/or rings
STORE SAW=Dedicated pouch or scabbard for a hand saw
POP= Popper or press stud
BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle

	MANUFACTURER	FTC TREE	FTC TREE	FTC TREE	HUSQVAR
	MODEL litres/liters VARIANT	Duffle 60 Duffle	Duffle 80 Duffle	Koompassia 60 80 KOP60 KOP80	Xplorer Duf -
	ORIGIN				
	COST (inc Tax/VAT) Currency conversion only	£64 $64 €56	£80 $85 €75	£000 $000 €127137	£100 $0 €
SPECIFICATIONS	**VOLUME** L/US Gallon intended market	60L/15.8gal Pro Arb	80L/21.1gal Pro Arb	6080L/15.823.8gal Pro Arb	55L/145gal Pr
SPECIFICATIONS	**LIFTED LOAD CAPACITY**	- -	- -	- -	0kg 0lb
SPECIFICATIONS	**WEIGHT empty**	1kg 2.2lb	1.2kg 2.6lb	2.152.3kg 4.75lb	0kg 0lb
SPECIFICATIONS	**DIMENSIONS** ht x w x depth	68 x 33 x 33cm 26.8 x 13 x 13"	73 x 36 x 36cm 28.7 x 14.2 x 14.2"	65-5070-55x35x2230cm 26-2028-22 x 14 x 912"	0 x 0 x 0c 0 x 0 x 0'
FEATURES	**BACK STRAPS** HANDLES COMP-STRAPS	-24	-24	32 2	-- -
FEATURES	**POCKETS** Ext/Int EYES Ext/Int STORE SAW	-- -- -	-- -- -	3*- -- -	-- -- -
FEATURES	**WATERPROOF** IDPANEL DRAIN/VENT HAUL	---	---	---	----
FEATURES	**LID** VELCROPOP ZIPPED DRAW-CORD BUCKLE ROLL-TOP	+-	+-	---	------
	OUTER MATERIALS REFLECTIVE TRIM	1680D PVC-coated polyester	1680D PVC-coated polyester	50% TPU - 50% PVC	Ripstop TP
	OTHER COLOURS & NOTES	-	-	*1 pocket=helmet/other stuff. Cobra metal buckles. Discontinued 90L BLUE stock still available.	-
	WEBSITE	ftc-tree.com	ftc-tree.com	ftc-tree.com	husqvarna.c

Images NOT to Scale
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BACK STRAPSHANDLES [in brackets[]=padded]
COMP STRAPS = Compression straps allow you to take in slack and reduce the volume
HAUL=has eye to take entire wt of bag & contents
EYES=Sewn eyes and/or rings
STORE SAW=Dedicated pouch or scabbard for a hand saw
POP= Popper or press stud
BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle

	MANUFACTURER	PROTEKT	RAB	RAB	RAB
	MODEL litres/liters VARIANT	AX301 50 -	Expedition II Kitbag 30 QAP56	Expedition II Kitbag 50 QAP57	Expedition II K QAP58
	ORIGIN				
	COST (inc Tax/VAT) Currency conversion only	£0 $0 €0	£100 $132 €116	£115 $152 €134	£125 $165 €
SPECIFICATIONS	**VOLUME** L/US Gallon intended market	50L/13.2gal Pro Access	30L/8gal Travel	50L/13.2gal Travel	80L/21.1gal T
SPECIFICATIONS	**LIFTED LOAD CAPACITY**	0m 0'	- -	- -	- -
SPECIFICATIONS	**WEIGHT empty**	1.08kg 2.38lb	0.71kg 1.6lb	0.9kg 2lb	1.08kg 2.
SPECIFICATIONS	**DIMENSIONS** ht x w x depth	0 x 0 x 0cm 0 x 0 x 0"	53 x 29 x 25cm 21 x 11.4 x 10"	55 x 32 x 27cm 21.7 x 12.6 x 10.6"	74 x 36 x 33 29 x 14.2 x
FEATURES	**BACK STRAPS** HANDLES COMP-STRAPS	[1] 2 -	[2] 4 4	[2] 4 4	[2] 4 4
FEATURES	**POCKETS** Ext/Int EYES Ext/Int STORE SAW	13 -- -	-2 12- -	-2 12- -	-2 12- -
FEATURES	**WATERPROOF** IDPANEL DRAIN/VENT HAUL	---	---	---	---
FEATURES	**LID** VELCROPOP ZIPPED DRAW-CORD BUCKLE ROLL-TOP				
	OUTER MATERIALS REFLECTIVE TRIM	Polyester	600D TPU/Polyester -	600D TPU/Polyester -	600D TPU/Poly
	OTHER COLOURS & NOTES		YKK#10 chunky main zip	YKK#10 chunky main zip	YKK#10 chunky m
	WEBSITE	protekt.pl	rab.equipment	rab.equipment	rab.equipme

DUFFLE/DUFFEL BAGS

NA
fel 55
91
o Arb
m "
U-
om

HUSQVARNA
Xplorer Trolley 90
-
£156 $0 €91
90L/23.8gal Pro Arb
0kg 0lb
0kg 0lb
0 x 0 x 0cm 0 x 0 x 0"
-- -
-- -- -

Ripstop TPU -
-
husqvarna.com

NATIVE ARB
Kit Bag 100
-
£82 $103 €96
100L/26.4gal Pro Arb
0kg 0lb
2.2kg 4.4lb
75 x 45 x 30cm 26 x 22"
-- -
-- -- -

1000D TPE Nylon
Internal zip pocket for keys/ phone etc.
nativearb.co.uk

PETZL
Duffel 65
-
£144 $140 €150
65L/17.2gal Pro Access
0kg 0lb
1.35kg 3lb
58.5 x 40 x 28.5cm 23 x 15.75 x 11.2"
2 4 4
1*2 8- -

TPU (PVC-free)
*inc 4 for backstraps (if used) *outside access to helmet/boot
petzl.com

PETZL
Duffel 85
S045AA02
£156 $160 €160
85L/22.5gal Pro Access
340m x11mm 680'x½"
1.55kg 3.4lb
70 x 40 x 32cm 27.6 x 15.75 x 12.6"
[2] 4 4
1*5 8- -
--
TPU (PVC-free)
*inc 4 for backstraps (if used) *outside access to helmet/boot
petzl.com

PROTEKT
AX028 50
-
£0 $0 €0
50L/13.2gal Pro Access
0m 0'
0kg 0lb
60 x 30 x 30cm 23 x 12 x 12"
-4 -
-- -- -
--
PVC -
protekt.pl

Kitbag 80
€145
ravel
4lb
3cm 12"
-
ester -
ain zip
ent

RAB
Expedition II Kitbag 120
QAP59
£135 $178 €157
120L/31.7gal Travel
- -
1.15kg 2.5lb
86 x 43 x 38cm 34 x 17 x 15"
[2] 4 4
-2 12- -
--
600D TPU/Polyester -
YKK#10 chunky main zip
rab.equipment

ROCKnARB
Tech Duffle 60
-
£0 $84 €0
60L/15.8gal Pro Arb
0kg 0lb
0kg 2.2lb
0 x 0 x 0cm 0 x 0 x 0"
-- -
-- -- -

1000D coated nylon-
rocknarbor.com

ROCKnRESCUE
Tech Duffle 60
-
£0 $109 €0
60L/15.8gal Pro Rescue
0kg 0lb
0kg 2.1lb
61 x 30 x 30cm 24 x 12 x 12"
-- -
-- -- -

1000D coated nylon-
rocknrescuecom

ROCKnRESCUE
Classic Duffle ?
-
£0 $50 €0
0L
0kg 0lb
0kg 0lb
68.6 x 29.2cm 27 x 11.5
-- -
-- -- -

1000D coated nylon-
rocknrescuecom

SAR PRODUCTS
Transport 35
B0018
£0 $0 €0
60L/15.8gal Pro Rescue
0kg 0lb
1kg 2.2lb
0 x 0cm 0 x 0
[2] 4 -
-- -- -
--
PVC -
Hi- viz ylw or orange on request
sar-products.com

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BACK STRAPSHANDLES [in brackets]=padded
COMP STRAPS = Compression straps allow you to take in slack and reduce the volume
HAUL=has eye to take entire wt of bag & contents
EYES=Sewn eyes and/or rings
STORE SAW=Dedicated pouch or scabbard for a hand saw
POP= Popper or press stud
BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle

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

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BACK STRAPSHANDLES [in brackets]=padded
COMP STRAPS = Compression straps allow you to take in slack and reduce the volume
HAUL=has eye to take entire wt of bag & contents
EYES=Sewn eyes and/or rings
STORE SAW=Dedicated pouch or scabbard for a hand saw
POP= Popper or press stud
BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle

	MANUFACTURER	STEIN	STEIN	STEIN	TREEHO
	MODEL litres/liters VARIANT	Metro 40 -	Metro 70 -	Metro 90 -	HiVis Kit Ba TH4002
	ORIGIN				
	COST (inc Tax/VAT) Currency conversion only	£60 $90 €71	£72 $100 €85	£84 $110 €100	£74 $97 €
SPECIFICATIONS	VOLUME L/US Gallon intended market	40L/10.6gal Pro Arb	70L/18.5gal Pro Arb	90L/23.8gal Pro Arb	70L/18.5gal Pr
SPECIFICATIONS	LIFTED LOAD CAPACITY	10kg 22lb	10kg 22lb	10kg 22lb	<270m x11mm 54
SPECIFICATIONS	WEIGHT empty	1.23kg 2.7lb	1.69kg 3.7lb	2kg 4.4lb	2.5kg 5.5l
SPECIFICATIONS	DIMENSIONS ht x w x depth	51 x 31cm 20 x 12.2"	60 x 39cm 23.6 x 15.3"	70 x 39cm 27.6 x 15.3"	60 x 35 x 30 24 x 14 x 1
FEATURES	BACK STRAPS HANDLES COMP-STRAPS	[2] 4 4	[2] 4 4	[2] 4 4	2 4 2
FEATURES	POCKETS Ext/Int EYES Ext/Int STORE SAW	1 - 16 - -	1 - 18 - -	1 - 20 - -	1 4 14 6
FEATURES	WATERPROOF IDPANEL DRAIN/VENT HAUL	- -	- -	- -	- - -
FEATURES	LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP				
	OUTER MATERIALS REFLECTIVE TRIM	PVC -	PVC -	PVC -	PVC
	NOTES				No-frills version of the Mamba. *if whole bag u
	WEBSITE	steinworldwide.com	steinworldwide.com	steinworldwide.com	treehog.co.

OCK	SINGING ROCK	SINGING ROCK	SIP PROTECTION	SKYLOTEC	SKYLOTEC
e 90	Tarp Duffle 120 C0046BB120	Movement 110 C0073BY00	Atlas 90 -	Duffle M ? ACS-0176	Duffle L ? ACS-0176
€0	£0 $0 €0	£159 $0 €0	£0 $0 €91	£0 $0 €102	£01 $0 €108
Access	120L/31.7gal Pro Access	110L/29gal Pro Access	90L/23.8galPro Arb	90L/23.8gal Pro Access	0L/0gal Pro Access
lb	23kg/50.6lb	0kg 0lb	0kg 0lb	0kg 0lb	0kg 0lb
b	2.65kg 5.8lb	4.6kg 10.1lb	0kg 0lb	0kg 0lb	1.4kg 0lb
3cm 13"	85 x 42 x 38cm 33 x 12.5 x 15"	77 x 39 x 38cm 30.3 x 15.4 x 15"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"
	[1]4 4	-- -	-- -	-- -	-- -
	42 12- -	-- -- -	-- -- -	-- -- -	-- -- -
	---	----	----	----	----
		------	------	------	------
	PVC -	PVC	--	--	--
	-	reinforced edges/corners	-	-	-
com	singingrock.com	singingrock.com	-	skylotec.com	skylotec.com

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

ROPE / GEAR BAGS

These are less complex **ROPE & GEAR BAGS** than the organisers but may still have attachment eyes/ daisy chains and one or two pockets. Indeed many of these, like the *Reecoil* bag on the right and *NLG* bags have far more 'organisation' than duffle bags in the previous section. They are virtually all top-loading cylinders in design and intended mostly for rope storage/transport rather than your entire day's climbing paraphernalia.

No Working Load Limits are given because these are mostly lower volume bags for rope but beware of overloading with too much hardware! Those with a drawstring top closure will often fold back over the lip of the bag to give unimpeded access to the interior like this *Petzl 45*.

IN THE FOLLOWING TABLES....as per p356 except..

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

STYLE/FUNCTION: The bags in this guide can be defined as one or both of the following

- ***(SIMPLE) ROPE BAG*** - an upright, flexible bag with few additional features but greater rope storage volume.
- ***BUCKET*** an upright, top-feeder that holds its shape to allow rope to be fed in or out. Usually shorter in stature than a simple cylinder bag and often has extra storage features like eyes and/or pockets but lower overall volume.
- **BACKPACK**: single or double shoulder straps making it more suitable for longer distance transport. Still a simple rope bag with few other features but can be carried on the back giving both hands free to carry even more stuff.

NOMINAL ROPE/LOAD CAPACITY: Rope access requires the load capacity of handles and attachments to be clearly labelled.

46m/150ftx 12.7mm/½"=76m/250'x11mm7/16"= 91m/300'x9mm/⅜" 100m/328' x11mm =60mx 11.7mm =

Virtually all 'buckets' have integral rigidity and will stand open.

POCKETS Ext/Int EYES Ext/Int STORE SAW The number of pockets on the outside and inside ***excluding*** ID/Document pouches and saw pouches listed separately. This number may include a small security or key pocket on the inside.

Comp strap=**Compression** Strap

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

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

ROPE/GEAR BAGS

ARS	ARS	ARBORTEC	ARBORTEC	ARBORTEC	ARBORTEC
Breakout -	Breakout -	oo AT105	Viper 60 AT102	Cobra 35 AT105	Cobra 55 AT106
£205 $0 €0	£220 $0 €0	£0 $0 €0	£74 $0 €0	£108 $142 €130	£184 $213 €209
0L Pro Rescue	0L Pro Rescue	0L Pro Arb	60L Pro Arb	35L Pro Arb	55L/14.5gal Pro Arb
200' x ½'	300' x ½'	0m 0'	0m 0'	45m x 11mm 100' x ½"	45m x 11mm 100' x ½"
0kg 0lb	0kg 0lb	0kg 0lb	0kg 0lb	1.5kg 3.3lb	2.4kg 5.3lb
0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	34 x 36cm 13.4 x 14.2"	48.5 x 37cm 19.1 x 14.6"
---	---	21-	21-	-4-	-7-
-- -- -	-- -- -	-- -- -	-- -- -	31 32- -	31 36- -
----	----	■---	■---	■-■-	■-■4
------	------	■+■	■+■	■+■	■+■
1000D Cordura	1000D Cordura	PES/PVC	PES/PVC	PES/PVC	PES/PVC
■ ■	■ ■		■ ■	■ ■ ■	■ ■ ■
ag opens out as a ground tarp for rope/gear	Bag opens out as a ground tarp for rope/gear			Rope feed hole in lid	Rope feed hole in lid
andersonrescue.com	andersonrescue.com	arbortec	arbortec	arbortec.com	arbortec.com

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

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HAUL EYES = can carry the entire weight of the bag & contents eg. for hauling or attaching to harness.May double as handles shown as 1/1
STORE SAW=**pouch or scabbard for hand saw**
POP= Popper or press stud
BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle
PES = Polyester
=Partial feature or OK but not ideal
= Option

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

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= Option

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

ROPE/GEAR BAGS

ARBSESSION
Rope Bbag M 28
£20 $25 €23
28L/7.4gal Pro Arb
m/200' x 12.7mm/½"
453g 1lb
40.6 x 30.5cm 16 x 12"
-2-
-- -- -

600D Polyester -
arbsession.com

ARBSESSION
Rope Bag L 32
£28 $35 €32
32L Pro Arb
76m/250' x 12.7mm/½"
544g 1.2lb
43 x 33 cm 17 x 13"
-2-
-- -- -

600D Polyester -
arbsession.com

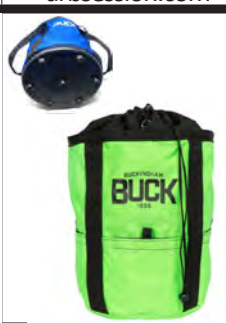
ARBSESSION
RopeTote 28
£45 $55 €52
28L/7.4gal Pro Arb
60m/200' x 12.7mm/½"
900g 2lb
40.6 x 30.5cm 16 x 12"
-2-
-- 8- -

900D Vinyl -
reinforced version.Apron folds down outside of bag
arbsession.com

BUCKINGHAM
Std Rope bag
£0 $0 €0
0L Pro Arb
68kg/150lb
0kg 1lb
0 x 0cm 15 x 12"

-- -- -

Canvas
-
buckinghammfg.com



BUCKINGHAM
Std Rope Bag
£0 $0 €0
0L Pro Arb
0m 0'
0kg 1.6lb
0 x 0cm 15 x 12"

-- -- -

Canvas
Hard Plastic base
buckinghammfg.com

BUCKINGHAM
0000
£0 $0 €0
0L Pro Arb
0m 0'
0kg 0lb
0 x 0cm 0 x 0"

-- -- -

Canvas
-
buckinghammfg.com

BUCKINGHAM
Buckpack Wheels
4470
£0 $365 506 €0
0L Pro Arb
0m 0'
0kg 0lb
0 x 0 x 0cm 0 x 0 x 0"

-- -- -

Canvas/Vinyl & Rubber
Black bag higher cost Vinyl. *Optional wheels/handle
buckinghammfg.com

BUCKINGHAM
Big Buckpack Wheels
4471
£0 $395 535 €0
0L Pro Arb
0m 0'
0kg 0lb
0 x 0 x 0cm 0 x 0 x 0"

-- -- -

Vinyl-coated Nylon
* Wheels=detachable option Solid handle with wheels.
buckinghammfg.com

BUCKINGHAM
Buck Haul Bag
4380
£0 $382* €0
0L Pro Arb
0m 0'
0kg 0lb
0 x 0 x 0cm 0 x 0 x 0"

-- -- -

44oz Vinyl
Hi-viz version is $401
buckinghammfg.com

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POP= Popper or press stud
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PES = Polyester
=Partial feature or OK but not ideal
= Option

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

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

ROPE/GEAR BAGS

CAMP SAFETY	CAMP SAFETY	CAMP SAFETY	CAMP SAFETY	CAMP SAFETY	CAMP SAFETY
Super Cargo 70	Transport 20	Transport 30	Trucker 30	Trucker 45	Trucker 60
2775.	00	00	00.	00.	00
£246 $450 €0	£0 $0 €0	£0 $0 €0	£105 $0 €124	£119 $0 €139	£129 $0 €162
0L/18.5gal Pro Access	20L/5.3gal Pro Access	30L/7.9gal Pro Access	30L/7.9gal Pro Access	45L/11.8gal Pro Access	60L/15.8gal Pro Access
80kg/176lb	0m 0'	0m 0'	0m x 0mm 0' x ½"	0m x 0mm 0' x ½"	0m x 0mm 0' x ½"
3.4g 7.5lb	0kg 0lb	0kg 0lb	00g 0lb	00g 0lb	00g 0lb
70 x 40 x 30cm 24.8 x 15.7 x 12"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"
224	22-	---	---	---	---
-- -- -	-- -- -	-- -- -	-- -- -	-- -- -	-- -- -
----	---	---	---	---	---
------	------	------	------	------	------
4500D TPU	--	--	-	-	-
Handles inc 4 haul/gear ps. *4 eyes for backstraps			-	-	-
camp.it	camp.it	camp.it	camp.it	camp.it	camp.it

COURANT	COURANT	CLIMBING TECHNOLOGY	CLIMBING TECHNOLOGY	CLIMBING TECHNOLOGY	CLIMBING TECHNOLOGY
Cargo 40	Cargo 50	Carrier 18	Carrier 22	Carrier 37	Carrier Bag 35
-	-	6X96018	6X96022	6X96037	7X971
£0 $0 €0	£0 $0 €0	£0 $0 €0	£0 $0 €0	£0 $0 €0	£0 $0 €110
0L/10.6gal Pro Access	0L Pro Access	18L/5gal Pro Access	22L/00gal Pro Access	37L/00gal Pro Access	35L/00gal Pro Access
0m x 0mm 0' x ½"	0m x 0mm 0' x ½"	0m 0'	0m 0'	0m 0'	0m x 0mm 0' x ½"
00g 0lb	00g 0lb	550g 0lb	645g 0lb	765g 0lb	650g 0lb
0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	48 x 21cm 0 x 0 x 0"	64 x 21cm 0 x 0 x 0"	64 x 31 x 20cm 0 x 0 x 0"	52 x 30cm 0 x 0"
---	---	2-1	2-1	2-1	[2]-1
-- -- -	-- -- -	-1 -- -	-1 -- -	-1 -- -	-1 72 1
----	----	●--	●--	●--	■---
------	------	■	■	■	■+Lid
		1000D PVC-coated PES	1000D PVC-coated PES	1000D PVC-coated PES	1000D PVC-coated PES
					Expandable from 25 to 25L
mycourant.com	mycourant.com	climbingtechnology.com	climbingtechnology.com	climbingtechnology.com	climbingtechnology.com

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PES = Polyester
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= Option

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

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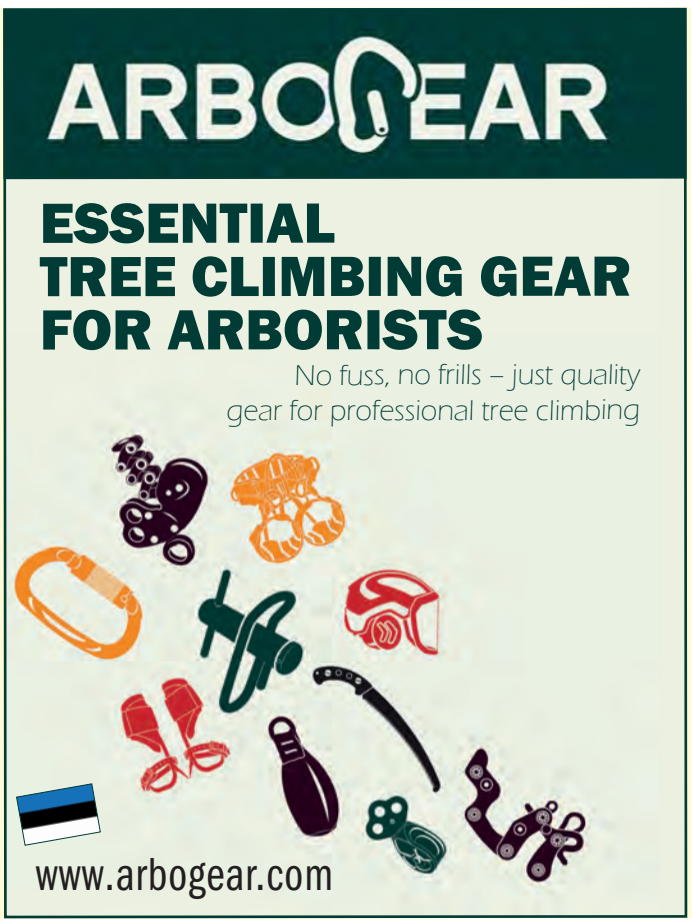
	MANUFACTURER	DMM	DMM	DMM	DMM
	MODEL litres/liters VARIANT	Transit 30	Transit 45	Porter 45	Porter 70
	ORIGIN				
	COST (inc Tax/VAT) Currency conversion only	£60 $75 €70	£70 $85 €80	£90 $0 €90	£100 $110 €100
SPECIFICATIONS	**VOLUME** L/US Gallon intended market	30L/7.9gal Pro Access	45L/11.8gal Pro Access	45L/11.8gal Pro Access	70L/18.5gal Pro Access
SPECIFICATIONS	**NOMINAL ROPE/LOAD CAPACITY**	0m 0'	0m 0'	0m 0'	0m 0'
SPECIFICATIONS	**WEIGHT** empty	0kg 0lb	0kg 0lb	1.25kg 0lb	1.42kg 0lb
SPECIFICATIONS	**DIMENSIONS**	0 x 0 x 0cm 0 x 0 x 0"	40 x 28cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	62 x 40 x 30cm 0 x 0 x 0"
FEATURES	**BACK STRAPS HANDLES HAUL EYE(S)**	---	---	---	---
FEATURES	**POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW**	-- -- -	-- -- -	-- -- -	-- -- -
FEATURES	**WATERPROOF ID-PANEL DRAIN/VENT**	----	----	----	----
FEATURES	**LID** VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP	------	------	------	------
	OUTER MATERIALS REFLECTIVE TRIM	600D PVC	600D PVC	600D PVC	600D PVC
	OTHER COLOURS				
	NOTES	-	-	-	-
	WEBSITE	dmmwales.com	dmmwales.com	dmmwales.com	dmmwales.com

CRESTO	**CRESTO**	**CRESTO**	**CRESTO**		
Rope Bag M ? 012260242	**Rope Bag L ?** 012260243	**Rope Bag XL ?** 012260244	**PACQ Backpack ?** 9450		
£00 $0 €0	£00 $0 €0	£00 $0 €0	£00 $0 €0		
0kg 0lb	0kg 0lb	0kg 0lb	0kg 0lb		
39 x 22 x 11cm 15.3 x 8.6 x 4.3"	39 x 22 x 11cm 15.3 x 8.6 x 4.3"	39 x 22 x 11cm 15.3 x 8.6 x 4.3"	39 x 22 x 11cm 15.3 x 8.6 x 4.3"		
2 1 1	2 1 1	2 1 1	2 2 -		
-- 3+1 ring- -	-- 5+1 ring- -	-- 6+1 ring- -	-- -- -		
---	---	---	---		
'Polymar'	'Polymar'	'Polymar'	Polyester-		
crestosafety.com	crestosafety.com	crestosafety.com	crestosafety.com		

DRAYER	**DRAYER**	**DRAYER**
Stable 22	**Stable 30**	**Stable 40**
£43 $55 €50	£63 $81 €73*	£65 $84 €76*
22L/5.9gal Pro Arb	30L/7.9gal Pro Arb	40L/10.4gal Pro Arb
0m 0'	0m 0'	0m 0'
0kg 0lb	0kg 0lb	0kg 0lb
0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"
-2 1	2 2 1	2 2 1
-- -- -	1- 10- -	1- 10- -
----	----	----
Coated polyester	Coated polyester	Coated polyester
Black=€3 less	Mesh side panel Black=€3 less	Mesh side panel Black=€3 less
drayer.de	drayer.de	drayer.de



Images NOT to Scale
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POP= Popper or press stud
BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle
PES = Polyester
=Partial feature or OK but not ideal
= Option

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

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

ROPE/GEAR BAGS

DMM	**DMM**	**DMM**	**DRAYER**	**DRAYER**	**DRAYER**
Transit 45	**Porter 45**	**Porter 70**	**Stable 22**	**Stable 30**	**Stable 40**
£70 $85 €80	£90 $0 €90	£100 $110 €100	£43 $55 €50	£63 $81 €73*	£65 $84 €76*
5L/11.8gal Pro Access	45L/11.8gal Pro Access	70L/18.5gal Pro Access	22L/5.9gal Pro Arb	30L/7.9gal Pro Arb	40L/10.4gal Pro Arb
0m 0'	0m 0'	0m 0'	0m 0'	0m 0'	0m 0'
0kg 0lb	1.25kg 0lb	1.42kg 0lb	0kg 0lb	0kg 0lb	0kg 0lb
40 x 28cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	62 x 40 x 30cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"
---	---	---	-21	221	221
-- -- -	-- -- -	-- -- -	-- -- -	1- 10- -	1- 10- -
----	----	----	----	----	----
------	------	------	■	■	■
600D PVC	600D PVC	600D PVC	Coated polyester	Coated polyester	Coated polyester
			■	■	■
-	-	-	Black=€3 less	Mesh side panel Black=€3 less	Mesh side panel Black=€3 less
dmmwales.com	dmmwales.com	dmmwales.com	drayer.de	drayer.de	drayer.de

EYOLF	**EYOLF**	**EYOLF**	**EYOLF**	**EYOLF**	**EYOLF**
Emmer 35 L36	**Emmer 45** L38	**Sml 10**	**Med 23** L61	**Lg 37** L62	**XL 64** L63
£46 $59 €54	£85 $110 €100	£35 $45 €41	£49 $63 €57	£63 $81 €74	£78 $100 €91
5L/9.2gal Pro Access	35L/9.2gal Pro Access	10L/2.6gal Pro Access	23L/0gal Pro Access	37L/0gal Pro Access	64L/16.9gal Pro Access
0m 0'	0m 0'	100m/660' 11mm 7/16"	50m/164' 11mm 7/16"	100m/330' 11mm 7/16"	200m/660' 11mm 7/16"
0g 0lb	0g 0lb	0g 0lb	345g 0.76lb	414g 0.9lb	538g 1.2lb
40 x 34cm 0 x 0 x 0"	50 x 34cm 0 x 0 x 0"	25 x 23cm 9.9 x 9"	55 x 23cm 0 x 0 x 0"	60 x 28cm 0 x 0 x 0"	85 x 34cm 0 x 0 x 0"
-2-	-2-	-1-	2--	2--	2--
-- -- -	--52--	-- -- -	-- -- -	-- 5- -	-- 5- -
----	-■--	----	----	----	----
■	■	■	■	■	■
1000D Cordura -	1000D Cordura ■	1000D Cordura -	1000D Cordura -	1000D Cordura -	1000D Cordura -
■■	■■	■■	■■	■■	■■
-	-	-	-	-	-
eyolf.ca	eyolf.ca	eyolf.ca	eyolf.ca	eyolf.ca	eyolf.ca

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

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

ROPE/GEAR BAGS

HARKIE	**HARKIE**	**HUSQVARNA**	**HUSQVARNA**	**KONG**	**KONG**
Sentry 47 H2260	**Sentry 60** H2265	**Rope Bag 28** 596 93 63-11	**Xplorer Backpack** 596 93 63-11	**RopeTube 17** 982525000KK	**Lirung 25** 982521000KK
£221 $292 €262	£246 $325 €291	£61 $82 €73		£0 $0 €0	£0 $0 €0
47L/12.4gal Pro Arb	60L/15.8gal Pro Arb	28L/7.4gal Pro Arb		17L/4.5gal Pro	25L/6.6gal Canyoning
70m x 12mm 0'	90m x 12mm 0'	250' x ½"	0m 0'	0m 0'	0m 0'
0kg 0lb	0kg 0lb	0kg 0lb	0kg 0lb	155g 0oz	750g 0lb
0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"
22	22	---	---	---	---
2- 6- -	2- 6- -	-- -- -	-- -- -	-- -- -	-- -- -
- -	- -	----	----	----	----
carabiner	carabiner	------	------	------	------
PVC	PVC	--	--	--	--
-	-	-	-	-	-
harkieglobal.com	harkieglobal.com	husqvarna.com	husqvarna.com	Kong.it	Kong.it

KONG	**KONG**	**LYON EQUIPMENT**	**LYON EQUIPMENT**	**LYON EQUIPMENT**	**LYON EQUIPMENT**
WorkBag 50 982528N00KK	**OmniBag 60** -	**Rope Bag 20** LSB 20..	**Rope Bag 30** LSB 30..	**Rope Bag Lid 40** LSB 40..	**Industrial Access 55** LSB 55.
£0 $0 €0	£0 $0 €0	£70 $0 €0	£78 $0 €0	£82127 $0 €0	£108 $0 €0
0L /13.2galPro Access	60L/15.8gal Pro Access	20L/5.3gal Pro Access	30L/7.9gal Pro Access	40L/10.6galPro Access	52.5L/13.9gal Pro Access
0m 0'	0m 0'	80m x 10.5mm 0'	120m x 10.5mm 0'	0m 0'	220m x 10.5mm 110'x½"
0kg 0lb	0kg 0lb	0kg 0lb	0kg 0lb	0kg 0lb	0kg 0lb
0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	51 x 0 x 0cm 20 x 0 x 0"	56 x 0 x 0cm 22 x 0 x 0"	51 x 22 x22cm 20 x 8.6 x 8.6"	59x 38 x 15cm 13.2 x 15 x 5.9"
---	---	---	21-	---	22-
-- -- -	-- -- -	-- -- -	-- -- -	-- -- -	-- -- -
----	----	----	----	--	---
------	------			+ Lid	------
PVC	--	--	--	--	--
Being phased out	-	* Hi-vis Orange. Cushioned base	* Hi-vis Orange& green. Cushioned base	* Hi-vis Orange& green. Cushioned base	-
Kong.it	Kong.it	lyonequipment.com	lyonequipment.com	lyonequipment.com	lyonequipment.com

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□□□□□ = Option

	MANUFACTURER	LYON EQUIPMENT	LYON EQUIPMENT	LYON EQUIPMENT	NATIVE ARB	
	MODEL litres/liters VARIANT	Essentials 30 LSB ES30..	Essentials 40 LSB ES40..	Essentials 60 LSB ES60..	Rig Bag 55 RB1	T
	ORIGIN					
	COST (inc Tax/VAT) Currency conversion only	£51 $67 €61	£56 $74 €66	£80 $105 €95	£102 $134 €121	
SPECIFICATIONS	VOLUME L/US Gallon intended market	30L/7.9gal Pro Access	40L/10.6gal Pro Access	60L/15.8gal Pro Access	55L/14.5gal Pro Arb	5
SPECIFICATIONS	NOMINAL ROPE/LOAD CAPACITY	25kg 100m x 11mm	25kg 150m x 11mm	25kg 200m x 11mm 100'x½"	0m 0'	
SPECIFICATIONS	WEIGHT empty	500g 1.1lb	620g 1.4lb	1.19kg 2.6lb	0kg 0lb	
SPECIFICATIONS	DIMENSIONS	50 x 28 x 23cm 20 x 11 x 9"	52 x 33 x 28cm 20.5 x 13 x 11"	60 x 35 x 30cm 24 x 14 x 12"	45 x 36cm 17.7 x 14.2"	
FEATURES	BACK STRAPS HANDLES HAUL EYE(S)	2 1 -	2 1 -	2 2 -	- 2 -	
FEATURES	POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW	-- -1 -	-- -1 -	-- -1 -	-- 282 -	
FEATURES	WATERPROOF ID-PANEL DRAIN/VENT	■■-	■■-	■■-	■--	
FEATURES	LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP	■+■ Lid	■+■ Lid	■+■ Lid	■ Cap	
	OUTER MATERIALS REFLECTIVE TRIM	620g PVC -	620g PVC -	620g PVC -	1000d PVC-free TPE Nylon	100
	OTHER COLOURS	■	■	■		
	NOTES	-	-	Also sold under the *G-Force* brand	Integral rope cleaner on this and the twin-rope bag	2 c on
	WEBSITE	lyonequipment.com	lyonequipment.com	lyonequipment.com	nativearb.co.uk	

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	MANUFACTURER	NOTCH	NOTCH	PALMU	PETZL	
	MODEL litres/liters VARIANT	Pro 250 28 00	Pro 450 35 99383	Rope Bag 32 00	Bucket 15 -	
	ORIGIN					
	COST (inc Tax/VAT) Currency conversion only	£50 $75 €72	£72 $95 €91	£66 $89 €78	£41 $50 €42	
SPECIFICATIONS	VOLUME L/US Gallon intended market	28L/7.4gal Pro Arb	35L/9.2gal Pro Arb	32L/8.2gal Pro Access	15L/4gal Pro Access	3
SPECIFICATIONS	NOMINAL ROPE/LOAD CAPACITY	20kg 76m/250' x½"	20kg 137m/450' x½"	50kg 80m x11.5mm	50kg 45m x11mm 88'x½"	50
SPECIFICATIONS	WEIGHT empty	815g 1.8lb	915g 2lb	1.2kg 2.64lb	465g 1lb	
SPECIFICATIONS	DIMENSIONS	40.5 x 30.5cm 16 x 12"	50 x 30cm 20 x 12"	32 x 32 x 32cm 12.6 x 12.6 x 12.6"	30 x 25cm 11.8 x 9.8"	
FEATURES	BACK STRAPS HANDLES HAUL EYE(S)	- 2 -	2 2 -	2 2 -	- 2 1	
FEATURES	POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW	-- -- -	-- 10- -	2 - 18- -	1 1 - 2 -	
FEATURES	WATERPROOF ID-PANEL DRAIN/VENT	●--	●■-	●-■	■■-	
FEATURES	LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP	■	■	■	■■	
	OUTER MATERIALS REFLECTIVE TRIM	600D Nylon	600D Nylon	PVC	TPU (PVC-free)	
	OTHER COLOURS				■■	
	NOTES			vent mesh in lid	*two loops intended for tieo=ing in the rope ends.	* ti
	WEBSITE	notchequipment.com	notchequipment.com	palmubags.com		

ROPE/GEAR BAGS

NATIVE ARB
win Rope Bag 55
TRB1
£102 $134 €121
55L/14.5gal Pro Arb
0m 0'
0kg 0lb
45 x 36cm 17.7 x 14.2"
-2-
2- 202 -
--
Cap
00d PVC-free TPE Nylon
ompartments with rope-feed eye each side. Integral rope cleaner
nativearb.co.uk

NEVER LET GO
Ascent Bucket 30
101360
£170 $219 €200
30L/7.9gal Pro Access
100kg 220lb
1.99kg 4.4lb
40 x 32cm 15.7 x 12.6"
-1+1*+1/1
--8 6/2 -
Megatex -
*1xBase & 1 tipping/drag handle. Comp strap
neverletgo.com

NEVER LET GO
Ascent Carry 50
101730
£230 $296 €270
50L/13.2gal Pro Access
100kg 220lb
2.6kg 5.7lb
57 x 32cm 22.5 x 12.6"
21*+2/2
-1 14 6/2 -
Megatex -
*1xBase handle. Back&waist straps detach. Comp strap
neverletgo.com

NEVER LET GO
Ascent Haul 70
101666
£270 $347 €317
70L/18.5gal Pro Access
100kg 220lb
3.05kg 6.7lb
71 x 36 x 35cm 28 x 14.2 x 13.8"
21*+4/4
-1 6/2 5/2 -
Megatex -
*1xBase handle. Back&waist straps detach. Comp strap
neverletgo.com

NEVER LET GO
RopePro Bucket 30
101680
£99 $128 €116
30L/7.9gal Pro Access
50kg 110lb
1.65kg 3.6lb
40 x 32cm 15.7 x 12.6"
-2/2
-- 10/1 6/4* -
Innervis -
*rope tie-off. Removable reinforcing.Compression strap
neverletgo.com

NEVER LET GO
RopePro 50
101679
£95 $123 €112
50L/13.2gal Pro Access
30kg 66lb
1.44kg 3.2lb
58 x 32 x 26cm 22.8 x 12.6 x 10.2"
22-
21 -9/4* -
Innervis -
*rope tie-off. Removable reinforcing.Compression strap
neverletgo.com

PETZL
Bucket 30
-
£58 $70 €60
0L/7.9gal Pro Access
kg 110m x11mm 225'x½"
735g 1.6lb
40 x 30cm 15.8 x 11.8"
221
11 - 6 -
-
TPU (PVC-free)
*two loops intended for eo=ing in the rope ends.
petzl.com

PETZL
Bucket 45
-
£76 $90 €78
45L/11.8gal Pro Access
50kg 180m x11mm 369'x½"
890g 2lb
45 x 35cm 17.7 x 13.8"
221
11 - 6 -
-
TPU (PVC-free)
*two loops intended for tieo=ing in the rope ends.
petzl.com

PETZL
Transport 30
-
£108 $0 €115
30L/7.9gal Pro Access
50kg
1.3kg 2.86lb
53 x 29 x 23cm 20.9 x 11.4 x 9"
[2]3+1inside-
1- 22 -
-
+Lid
TPU (PVC-free)
replaced the 'Portage' range. 50kg load limit
petzl.com

PETZL
Transport 45
-
£126 $0 €134
45L/11.8gal Pro Access
50kg
1.53kg 3.37lb
58 x 32.5 x 28cm 22.8 x 12.8 x 11"
[2]3+1inside-
1- 22 -
-
+Lid
TPU (PVC-free)
replaced the 'Portage' range. 50kg load limit
petzl.com

PETZL
Transport 60
-
£150 $0 €158
60L/15.8gal Pro Access
50kg
1.78kg 3.924lb
65 x 35 x 30cm 25.6 x 13.8 x 11.8"
[2]3+1inside-
1- 23 -
-
+Lid
TPU (PVC-free)
replaced the 'Portage' range. 50kg load limit
petzl.com

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	MANUFACTURER	PROTEKT	PROTEKT	PROTEKT	PROTEKT
	MODEL litres/liters VARIANT	Arborist Basket 15 AX701	Arborist Basket 30 AX701	AX011T/K 42 -	AX011N/D 42 -
	ORIGIN				
	COST (inc Tax/VAT) Currency conversion only	£0 $0 €0	£0 $0 €0	£0 $0 €0	£0 $0 €0
SPECIFICATIONS	VOLUME L/US Gallon intended market	15L/3.9gal Pro Access	30L/8gal Pro Access	42L/11gal Pro Access	42L/11gal Pro Access
SPECIFICATIONS	NOMINAL ROPE/LOAD CAPACITY	0m 0'	0m 0'	0m 0'	0m 0'
SPECIFICATIONS	WEIGHT empty	0kg 0lb	0kg 0lb	720 /650g 0lb	600/850g 0lb
SPECIFICATIONS	DIMENSIONS	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	60 x 30 x 30cm 23.6 x 12 x 12"	60 x 30 x 30cm 23.6 x 12 x 12"
FEATURES	BACK STRAPS HANDLES HAUL EYE(S)	1 2 1	1 2 1	2-1 / 2-2	2 1-
FEATURES	POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW	-- 6- -	-- 6- -	-- -- -	-- 3- -/-- -- -
FEATURES	WATERPROOF ID-PANEL DRAIN/VENT	--	--	--	--
FEATURES	LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP			/	
	OUTER MATERIALS REFLECTIVE TRIM	PVC & Mesh -	PVC & Mesh -	Reinforced PVC-	Reinforced PVC-
	OTHER COLOURS				
	NOTES	Solid Plastic base with air-vents	Solid Plastic base with air-vents	T- zip closure & D-ring K=Drawstring & 2 haul loops	AX011D = lid-flap +ID pocket Also AX011 plain bag
	WEBSITE	protekt.pl	protekt.pl	protekt.pl	protekt.pl

Images NOT to Scale
£$€ any price in 'burnt-orange' is a **Currency conversion only**-exc shipping, duties,taxes etc.
HAUL EYES = can carry the entire weight of the bag & contents eg. for hauling or attaching to harness.May double as handles shown as 1/1
STORE SAW=**pouch or scabbard for hand saw**
POP= Popper or press stud
BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle
PES = Polyester
=Partial feature or OK but not ideal
= Option

	MANUFACTURER	PROTEKT	PROTEKT	REECOIL	REECOIL
	MODEL litres/liters VARIANT	Arborist Backpack 80 Ax080	AX012 ARBO 100 -	Rope Bag 28 -	Rope Bag 45 -
	ORIGIN				
	COST (inc Tax/VAT) Currency conversion only	£0 $0 €0	£0 $0 €0	£94 $131 €0	£123 $167 €0
SPECIFICATIONS	VOLUME L/US Gallon intended market	80L/21.1gal Pro Arb	100L/26.4gal Pro Access	28L/7.4gal Pro Arb	45L/11.8gal Pro Arb
SPECIFICATIONS	NOMINAL ROPE/LOAD CAPACITY		0m 0'	100m 0' x 11mm0"	200m 0' x 11mm0"
SPECIFICATIONS	WEIGHT empty	2.6kg 5.7lb	1.48kg 0lb	1.7kg 0lb	0kg 0lb
SPECIFICATIONS	DIMENSIONS	80 x 35 x 35cm 31.5 x 13.8 x 13.8"	80 x 40 x 40cm 31.5 x 15.7 x 15.7"	50.5 x 35cm 19.9 x 13.8"	0 x 0 x 0cm 0 x 0 x 0"
FEATURES	BACK STRAPS HANDLES HAUL EYE(S)	---	2--	2 2	2 2
FEATURES	POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW	-- -- -	-1 6- -	-- 16/2	-- 16/2
FEATURES	WATERPROOF ID-PANEL DRAIN/VENT	---	----	--	--
FEATURES	LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP				
	OUTER MATERIALS REFLECTIVE TRIM	--	Reinforced PVC-	--	--
	OTHER COLOURS				
	NOTES	-	Also AX012 plain bag	-	-
	WEBSITE	protekt.pl	protekt.pl	rockempire.com	rockempire.com

PROTEKT	PROTEKT	PROTEKT	PROTEKT	PROTEKT	PROTEKT
AX011SP /S 45	AX040	AX070	AX070L	AX074	AX071
£0 $0 €0	£0 $0 €0	£0 $0 €0	£0 $0 €0	£0 $0 €0	£0 $0 €0
5L/11.8gal Pro Access	40L/10gal Pro Access	70L/18.5gal Pro Access	70L/18.5gal Pro Access	74L/19.5gal Pro Access	71L/18.7gal Pro Access
0m 0'	0m 0'	0m 0'	0m 0'	0m 0'	0m 0'
1.64/1.2kg 0lb	0kg 0lb	0kg 0lb	0kg 0lb	0kg 0lb	0kg 0lb
3 x 38/36 x 25/22cm 18 x 15/14.2 x 9.8/8.6"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"
[2]1-	---	---	---	---	---
2- -- -/-- -- -	-- -- -	-- -- -	-- -- -	-- -- -	-- -- -
-	-	---	---	---	---
+		carabiner		-----	
Reinforced PVC-	Reinforced PVC-	Reinforced PVC-	Reinforced PVC-	Reinforced PVC-	Reinforced PVC-
AX011S has no pockets	-	-	-	-	-
protekt.pl	protekt.pl	protekt.pl	protekt.pl	protekt.pl	protekt.pl

ROCK EMPIRE	ROCK EMPIRE	ROCK EMPIRE	ROCK EMPIRE	ROCKnARB	ROCKnARB
Cargo Reep 30	Cargo 35 CWV035	Cargo 55 CWV055	Cargo Roll 55 CVR055	Mnt Ape Bull 30 RMA001	Plain Jane II ? RPJ015
£0 $0 €0	£0 $0 €0	£0 $0 €0	£0 $0 €0	£0 $46 €0	£0 $30 €0
7L/6.8gal Pro Access	31.9L/8.4gal Pro Access	52.4L/13.8gal Pro Access	52.4L/13.8gal Pro Access	30L/7.9gal Pro Arb	0L/0gal Pro Arb
0m 0'	0m 0'	0m 0'	0m 0'	0m 200'x3/4"	0m 200' x 1/2"
390g 0lb	805g 0lb	805g 0lb	805g 0lb	0kg 0lb	0kg 0lb
50 x 25cm 0 x 0 x 0"	65 x 25cm 0 x 0 x 0"	75 x 30cm 0 x 0 x 0"	85 x 30cm 0 x 0 x 0"	43 x 33 x 33cm 17 x 13 x 13"	40-52 x 30 x 30cm 16-20.5 x 12 x 12"
-2-	11-	11-	32-	-21	-2-
-- 3- -	-- -- -	-- -- -	-- -- -	-- -- -	-- -- -
---	---	---	---	---	---
--	--	--	--	600D Polyester -	600D Polyester -
-	-	-	-	Dbl reinforced bottom	Dbl reinforced bottom
singingrock.com	singingrock.com	singingrock.com	singingrock.com	rocknarbor.com	rocknarbor.com

Images NOT to Scale
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STORE SAW=pouch or scabbard for hand saw
POP= Popper or press stud
BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle
PES = Polyester
=Partial feature or OK but not ideal
= Option

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

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POP= Popper or press stud
BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle
PES = Polyester
=Partial feature or OK but not ideal
= Option

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

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

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-
-

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

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-
-

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

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-
-

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

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-
-

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

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-
-

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

--
-
-

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

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-
-

SINGING ROCK
Carry Bag 28
£0 $0 €0
28+10L/7.4+2.6gal Pro Access
0m 0'
0kg 0lb
0 x 0 x 0cm 0 x 0 x 0"

--
-
singingrock.com

SINGING ROCK
Rescue Bag 30
£0 $0 €0
28+10L/7.4+2.6gal Pro Access
0m 0'
0kg 0lb
0 x 0 x 0cm 0 x 0 x 0"

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-
singingrock.com

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POP= Popper or press stud
BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle
PES = Polyester
●●●●●●=Partial feature or OK but not ideal
□□□□□= Option

	MANUFACTURER	SINGING ROCK	SINGING ROCK	SINGING ROCK	SINGING ROCK
	MODEL litres/liters VARIANT	Gear 35	Drybag 40	Gear 50	Drybag 40
	ORIGIN				
	COST (inc Tax/VAT) Currency conversion only	£0 $0 €0	£0 $0 €0	£0 $0 €0	£0 $0 €0
SPECIFICATIONS	VOLUME L/US Gallon intended market	35L/9.2gal Pro Access	40L/10gal Pro Access	50L/30.2gal Pro Access	40L/10gal Pro Access
SPECIFICATIONS	NOMINAL ROPE/LOAD CAPACITY	0m 0'	0m 0'	0m 0'	0m 0'
SPECIFICATIONS	WEIGHT empty	0kg 0lb	0kg 0lb	0kg 0lb	0kg 0lb
SPECIFICATIONS	DIMENSIONS	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"
FEATURES	BACK STRAPS HANDLES HAUL EYE(S)	- - -	- - -	- - -	- - -
FEATURES	POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW	- - - - - -	- - - - - -	- - - - - -	- - - - - -
FEATURES	WATERPROOF ID-PANEL DRAIN/VENT	- - -	- - -	- - -	- - -
FEATURES	LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP	- - - - - -	- - - - - -	- - - - - -	- - - - - -
	OUTER MATERIALS REFLECTIVE TRIM	- -	- -	- -	- -
	OTHER COLOURS	■ ■		■ ■	
	NOTES	-	-	-	-
	WEBSITE	singingrock.com	singingrock.com	singingrock.com	singingrock.com

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STORE SAW=**pouch or scabbard for hand saw**
POP= Popper or press stud
BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle
PES = Polyester
●●●●●●=Partial feature or OK but not ideal
□□□□□= Option

	MANUFACTURER	STEIN	STEIN	STEIN	STEIN
	MODEL litres/liters VARIANT	Utility 15	Utility 25	Vault 25	Vault 30
	ORIGIN				
	COST (inc Tax/VAT) Currency conversion only	£24 $0 €0	£48 $0 €0	£0 $0 €0	£60 $0 €0
SPECIFICATIONS	VOLUME L/US Gallon intended market	15L/3.9gal Pro Arb	25L/6.6gal Pro Arb	25L/6.6gal Pro Arb	30L/7.9gal Pro Arb
SPECIFICATIONS	NOMINAL ROPE/LOAD CAPACITY	0m 0'	0m 0'	0m 0'	0m 0'
SPECIFICATIONS	WEIGHT empty	0kg 0lb	0kg 0lb	0kg 0lb	0kg 0lb
SPECIFICATIONS	DIMENSIONS	0 x 0 x 0cm 0 x 0 x 0"	40 x 30 x 30cm 15.7 x 12 x 12"	50 x 30 x 30cm 19.7 x 12 x 12"	0 x 0 x 0cm 0 x 0 x 0"
FEATURES	BACK STRAPS HANDLES HAUL EYE(S)	- - -	- - -	- - -	- - -
FEATURES	POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW	- - - - - -	1 - 2 4 - -	- - - - - -	- - - - - -
FEATURES	WATERPROOF ID-PANEL DRAIN/VENT	- - -	●-■	●-■	●-■
FEATURES	LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP	- - - - - -	■	■	■
	OUTER MATERIALS REFLECTIVE TRIM	PVC-	PVC-	PVC-	PVC-
	OTHER COLOURS				
	NOTES	-	-	-	-
	WEBSITE	steinworldwide.com	steinworldwide.com	steinworldwide.com	steinworldwide.com

ROPE/GEAR BAGS

SKYLOTEC	**SKYLOTEC**	**SKYLOTEC**	**SKYLOTEC**	**SKYLOTEC**	**SKYLOTEC**
Classic 9 ACS-0009-1	**Classic 22** ACS-0009-2	**Classic 30** ACS-0009-3	**Classic 38** ACS-0009-4	**Tool Bag Pro Lift 25** ACS-0133-2	**Tool Bag Pro Lift 40** ACS-0133-4
£20 $0 €21	£24 $0 €27	£26 $0 €29	£29 $0 €31	£00 $00 €00	£00 $0 €00
9L/5.8gal Pro Access	22L/5.8gal Pro Access	30L/6.6gal Pro Access	38L/10galPro Access	25L/6.6galPro Access	40L/10galPro Access
15m/50' x 11mm	50m/164' x 11mm	90m/295' x 11mm	130m/426' x 11mm	130m/426' x 11mm	130m/426' x 11mm
140g 0lb	310g 0lb	390g 0lb	520g 0lb	600g 0lb	700g 0lb
26 x 21.5 x 16.5cm 10.2 x 8.5 x 6.5"	45 x 30 x 28cm 17.7 x 11.8 x 11"	45 x 40 x 28cm 17.7 x 0 x 11"	50 x 45 x 28cm 19.7 x 17.7 x 11"	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"
-2-	-2-	-2-	-2-	-2-	-2-
-- 2- -	-- 2- -	-- 2- -	-- 2- -	-- 2- -	-- 2- -
---	---	---	---	---	---
■	■	■	■	■	■
Ballistic Nylon	Ballistic Nylon	Ballistic Nylon	Ballistic Nylon	Nylon	Nylon
-	-	-	-	-	-
skylotec.com	skylotec.com	skylotec.com	skylotec.com	skylotec.com	skylotec.com

STEIN	**STEIN**	**STEIN**	**STERLING ROPES**	**STERLING ROPES**	**STERLING ROPES**
Utility 50	**Voyager 60**	**Utility 70**	**RopeBag S 17** MDBAGROPEBM17	**RopeBag M 31** MDBAGROPEBM31	**Rope Bag L 45** MDBAGROPEBL45
£60 $0 €0	£108 $140 €0	£90 $0 €0	£52 $60 €61	£63 $70 €74	£76 $80 €90
50L/13.2galPro Arb	60L/15.8gal Pro Arb	70L/18.5gal Pro Arb	17L/4.5gal Pro Access	31L/8.1gal Pro Access	45L/11.89gal Pro Access
0m 0'	0m 0'	0m 0'	41kg/90lb 46mx11mm	41kg/90lb 61mx11mm	41kg/90lb 92mx11mm
0kg 0lb	0kg 0lb	0kg 0lb	kg 0lb	0.81kg 0lb	0kg 0lb
48 x 38 x 38cm 18.9 x 15 x 15"	60 x 37 x 27cm 0 x 0 x 0"	60 x 40 x 27cm 23.6 x 15.7 x 10.6"	53 x 20.3cm 21 x 8"	53 x 28 cm 21 x 11"	69 x 28cm 27 x 11"
---	---	---	22-	22-	22-
1- -- -	1- -- ■	1- -- ■	-- 101 -	-- 101 -	-- 121 -
●-■	■-■	■-■	●■■	●■■	●■■
■	■+■	■+■	■	■	■
PVC-	Ballistic Nylon-	PVC-	1600D Polyester-	1600D Polyester-	1600D Polyester--
-	Will fit 3xVault 15L in a stack. 2L front pocket	Will fit 3xVault 15L+ bleed control in a stack.	-	-	-
steinworldwide.com	steinworldwide.com	steinworldwide.com	sterlingrope.com	sterlingrope.com	sterlingrope.com

Images NOT to Scale

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STORE SAW=pouch or scabbard for hand saw
POP= Popper or press stud
BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle
PES = Polyester
=Partial feature or OK but not ideal
= Option

	MANUFACTURER	TEUFELBERGER	TEUFELBERGER	TEUFELBERGER	TEUFELBERGER
	MODEL litres/liters VARIANT	Rope Bucket 25 -	Rope Bucket 30 -	Rope Bucket 50 -	Rope Bucket 80 -
	ORIGIN				
	COST (inc Tax/VAT) Currency conversion only	£0 $210 €170	£0 $225 €185	£0 $330 €0	£0 $370 €276
SPECIFICATIONS	VOLUME L/US Gallon intended market	25L/6.6gal Pro Access	50L/13.2gal Pro Access	50L/13.2gal Pro Access	80L/21.1gal Pro Access
SPECIFICATIONS	NOMINAL ROPE/LOAD CAPACITY	0m 0'	0m 0'	0m 0'	0m 0'
SPECIFICATIONS	WEIGHT empty	0kg 0lb	0kg 0lb	0kg 0lb	0kg 0lb
SPECIFICATIONS	DIMENSIONS	35 x 35 x 35cm 13.8 x 13.8 x 13.8"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"
FEATURES	BACK STRAPS HANDLES HAUL EYE(S)	-2-	-2-	22-	22-
FEATURES	POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW	-- MultipleMultiple -	-- MultipleMultiple -	-- MultipleMultiple -	-- MultipleMultiple -
FEATURES	WATERPROOF ID-PANEL DRAIN/VENT	--■	--■	--■	--■
FEATURES	LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP	■	■	■	■
	OUTER MATERIALS REFLECTIVE TRIM	44oz Vinyl	--	--	--
	OTHER COLOURS				
	NOTES	Can be customised for any ext/int gear carriage	Can be customised for any ext/int gear carriage	Can be customised for any ext/int gear carriage	Can be customised for any ext/int gear carriage
	WEBSITE	teufelberger.com	teufelberger.com	teufelberger.com	teufelberger.com

Images NOT to Scale

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POP= Popper or press stud
BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle
PES = Polyester
=Partial feature or OK but not ideal
= Option

	MANUFACTURER	TREERUNNER	TREERUNNER	WEAVER ARBORIST	WEAVER ARBORIST
	MODEL litres/liters VARIANT	Vented Rope Bag 31 -	Spring Bag 54 -	Basic 26 -	DeLuxe 22 08-07185
	ORIGIN				
	COST (inc Tax/VAT) Currency conversion only	£0 $0 €40	£0 $0 €44	£41 $0 €0	£73 $0 €0
SPECIFICATIONS	VOLUME L/US Gallon intended market	31L/8.1gal Pro Arb	54L/14.2gal Pro Arb	26L/6.8gal Pro Arb	22L/5.8gal- Pro Arb
SPECIFICATIONS	NOMINAL ROPE/LOAD CAPACITY	0m 0'	0m 0'	0m 0'	75m x 11mm >150' x ½"
SPECIFICATIONS	WEIGHT empty	600g 0lb	0kg 0lb	0kg 0lb	0kg 0lb
SPECIFICATIONS	DIMENSIONS	50 x 28 x 28cm 19.7 x 11 x 11"	42 x 39 x 39cm 16.5 x 15.4 x 15.4"	35.6 x 30cm 14 x 12"	73.7 x 38 cm 29 x 15"
FEATURES	BACK STRAPS HANDLES HAUL EYE(S)	22-	12-	---	- 2-
FEATURES	POCKETS Ext/Int EYES/LOOP Ext/Int STORE SAW	1- -1 -	1- -4 -	-- -- -	-- -- -
FEATURES	WATERPROOF ID-PANEL DRAIN/VENT	---■	--■	●-■	●-■
FEATURES	LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP	■	■	■	■
	OUTER MATERIALS REFLECTIVE TRIM	Ballistic Nyon -	Tarpaulin(PVC) -	--	1200D Polyester
	OTHER COLOURS			■	■
	NOTES	-	3 height adjustments straps. Mesh lid	-	* 1 eye= shoulder+storage strap secured by 2 small fastex buckles
	WEBSITE	grube.de	grube.de	-	weaverarborist.com

ROPE/GEAR BAGS

TEUFELBERGER	TREEHOG	TREERUNNER	TREERUNNER	TREERUNNER	TREERUNNER
Bucket Mule	Rope&Kit Bag 40 TH4000	Rope Bag 28	Rope Tarp Bag 24	Rope Tarp Bag 28	Rope Tarp Bag 32
£45 $0 €0	£50 $0 €0	£36 $0 €35	£38 $0 €42	£47 $0 €44	£51 $0 €48
0L Pro Access	40L/10gal Pro Arb	28L/7.4gal Pro Arb	24L/6.3gal Pro Arb	28L/7.4gal Pro Arb	32L/8.4gal Pro Arb
0m 0'	0m 0'	0m 0'	0m 0'	0m 0'	0m 0'
0kg 0lb	0kg 0lb	570g 1.25lb	908g 2lb	1.05kg 2.3lb	1.09kg 2.4lb
100 x 31 x 30cm 39.4 x 12 x 12"	0 x 0 x 0cm 0 x 0 x 0"	40 x 30cm 15.8x 12"	35 x 40 x 30cm 13.8 x 15.8 x 12"	40 x 40 x 30cm 15.8 x 15.8x 12"	45 x 40 x 30cm 17.7 x 15.8 x 12"
---	2-2	-21	-21	-21	-21
-- -- -	-- -- -	4- -- -	2- 6- -	2- 6- -	2- 6- -
---	●--	●-■	●-■	●-■	●-■
------	■	■	■	■	■
--		--	Tarpaulin(PVC) -	Tarpaulin(PVC) -	Tarpaulin(PVC) -
-		-	-	-	-
teufelberger.com	treehog.co.uk	grube.de	grube.de	grube.de	grube.de

WEAVER ARBORIST	WEAVER ARBORIST	WEST COAST CLIMBER	WEST COAST CLIMBER	WEST COAST CLIMBER	
ull Rope Deploy 52 08-07161.	All Purpose 84 08-07185	Rocket Mini 36	Classic 45	Rocket 55	
£71 $0 €0	£73 $90 €0	£101 $125 €117	£42 $52 €49	£117 $146 €137	
52L/13.7gal Pro Arb	84L/22.2gal Pro Arb	36L/9.5gal Pro Arb	45L/11.9gal Pro Arb	55L/14.5gal Pro Arb	
0m 200' x ⅝"		75m x 11mm >150' x ½"	150m x 11mm 300' x ½"	150m x 11mm >300' x ½"	
0kg 0lb	1.22kg 2.7lb	0kg 0lb	0kg 0lb	0kg 0lb	
45.7 x 38 cm 18 x 15"	73.7 x 38 cm 29 x 15"	35.6 x 30.4cm 14 x 12"	45.7 x 30.4cm 18 x 12"	69 x 38cm 27 x 15"	
[1] 2-		[2] 1-	- 2-	2 1-	
-- -- -	1- --■	-- -- -	-- 1- -	1- 1- -	
●-■	●-■	●-■	●-■	●-■	
■	■	■	■	■	
1200D Polyester	1200D Polyester	1680D Ballisic Nylon	1000D Cordura	1680D Ballisic Nylon	
			■■■		
eld closed by 2 small fastex buckles	Side zip allows access and visibily of main compartment gear	-	-	-	
weaverarborist.com	weaverarborist.com	nugreenstore.com	nugreenstore.com	nugreenstore.com	

Bungee CHAINSAW Lanyards/ Tethers

The chainsaw holding lanyard (or leash or tether) stands out as an essential accessory for professional arborists. This equipment allows secure and transport the chainsaw optimally when working at height.

The main reason to use a chainsaw holder is security. When a chainsaw is attached to a lanyard, the Risks of accidental falls are considerably reduced. This is particularly important when the pruner is working high up, where a chainsaw falling several meters can cause serious injury or significant property damage. By securing the chainsaw with a lanyard, you protect the tool against falls and shocks, but also the worker and its immediate environment in the event of loss of control.
There are more and more models of lanyards and each has advantages and disadvantages. all bungee lanyards have, by definition, a small degree of shock absorbency but some are equipped with a full-spec shock reduction system that absorbs impact force that would otherwise affect the harness and the user in the event of a fall.
Lengths, widths and attachment system vary from model to model to another, but one of the most important aspects to consider is the lengthening of the strap with stretch, which is closely related to its Maximum Utilization Capacity (CMU). Here are the main criteria to consider when making your selection:

LENGTH AND WIDTH OF THE LANYARD

The lanyard must provide adequate length to allow sufficient range of movement without risk of entanglement. A lanyard that is too short can restrict movement of the climber, while a lanyard that is too long can become cumbersome and increase the risk of accidents especially when closer to the ground or to a hazard like cables. The width of the lanyard can influence its ability to support more or less significant loads. A wider or thicker lanyard is generally capable of supporting higher loads, but the only data you can you can trust is the CMU (in France= Charge Minimale de Rupture) or MBS which is the Minimum Breaking (or Rupture) load.

MAXIMUM USE CAPACITY

The CMU or MBS is essential information and must absolutely support the weight of your chainsaw ***as well as the additional forces generated during movements***. However, some also have built-in 'weak' points that will allow the saw to break away under extreme loading such as could occur if the saw or lanyard snag on a large limb or section that then threatens to drag you with it! it's a fine line between safety of the user in this event and ensuring that the chainsaw remains secure during 'robust' work.

CONNECTION

The connection must be secure and easy to use.
THE carabiners and loops must be able to withstand the weight of the chainsaw without risk of breakage. Make sure that the locking mechanisms are reliable and easy to handle, even with protective gloves. Most chainsaw lanyards have the option of a girth-hitch connection to the handle or attachment ring using the end loop in the webbing which is often sewn inverted to make the girth hitch neater. However, for quicker change-arounds, some simply clip a carabiner from the metal ring a little further back. This metal ring is otherwise intended to be used as the short harness clip-point when climbing and manoeuvring rather than have the saw dangling a metre or so below you. Note that virtually any chainsaw lanyard can be used the opposite way around to the intended way shown in our tables.

ELONGATION

The elongation of a lanyard refers to the ability of the material to stretch under tension. This property can absorb shock and reduce the forces transmitted to the user in the event of a fall or sudden movement. A well-designed lanyard with an extension adequate acts as a shock absorber, protecting the both the pruner and the equipment.

STANDARDS

The US has ANSI/ISEA 121-2018 referring to drop-prevention but unusually the EU was a bit behind the game on this one.

Drayer's Tango Vario Plus allows each tool to have it's own loop and then connect to the lanyard as needed.

FOR TOOLS NOT PPE

The lanyards in this guide are not all from the arb industry but can all be used for chainsaws. There are many bungee-lanyards from construction and rope access intended for smaller power tools - perhaps still 5kg limit but that would stretch the limits (so to speak) of a rear-handled chainsaw. We have only included the more arb oriented models but have differentiated the lighter and heavier duty models because a top-handle chainsaw will generally be just under 5kg with the battery or a full tank of fuel while a larger, rear-handle chainsaw may go several kg beyond that. There are also a number of even lighter lanyard variants with bungee attachments for use with handsaws and light tools like this *Skylotec* Long Leash on the right - these are NOT for use with chainsaws but they will be included in the BUYERS GUIDE version of this article later this year. We have stuck with bungee or elasticated lanyards because why would you use anything else? We all used to use lengths of rope and slings but retracting the working length when you are not using the chainsaw and the extreme-load breakaway facility of some makes working much safer.

None of these lanyard are intended for personal safety in the sense of climbing PPE but there are lanyards that will do both jobs - the tactical lanyard from *Warrior (pic top right)* using Kong's Frog connector could easily do the job of a chainsaw lanyard BUT.....

1) Never mix rigging or tool connector use with climbing or personal protection.
2) Personal protection makes this more expensive at around £50 compared to a more usual £20-30
3) This is designed specifically to hold your weight no matter what - it will not break away if a trunk or limb tries to snatch your saw away with you attached to it but that is also the case with most chainsaw lanyards.

Images NOT to Scale

●● = OK but not ideal

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MBS in the case of these lanyards, usually refers to impact force and should therefore be in kiloNewtons kN or pounds force.
For reference 1kN=102kg of force or 225 pound-force

BRAND	BUCKINGHAM MFG	CAMP	CAMP	ED
MODEL VARIANT	Tear-Away Snap	Sawer	Sawer Pro	Dyno
PRODUCT CODE	25G12A 25G13A	2151	2300	
ORIGIN				
COST approx retail inc tax	£3234 $4143 €3841	£21 $35 €22	£29 $36 €32	£31
BREAKAWAY	■	■	■	
CHAINSAW/HEAVY TOOL	-	■	■	
LIGHT CHAINSAW	■	■	■	
RETRACTED LENGTH	65cm /25.6"	90cm /35.4"	75cm /29.5"	90c
EXTENDED LENGTH	120cm /48"	135cm /53"	125cm /49.2"	140
MATERIAL	Nylon	Nylon	Nylon	Polyest
WEBBING WIDTH / Ø	25mm / 1"	13-20mm / 0.5-0.8"	28mm / 1.1"	25
WEIGHT	146g / 5.1oz	95g / 3.4oz	130g / 4.6oz	90g
SWL MBS	7kg /15lb 90kg/200lb*	10kg /22lb 200kg	10kg /22lb 200kg	20kg /
CONNECTER/SHORTEN	Steel ring	Steel ring	Steel ring	Ste
HARNESS TERMINATION	Inverted loop	Snap alloy carabiner	Snap alloy carabiner	Inver
TOOL-END TERMINATION	Sml steel ring	Inverted loop	Inverted loop	Sev
STANDARDS	ANSI			
NOTES	* The tear-away element de-ploys at 90kg of force. Also available without terminal steel ring (as a sewn eye for your own carabiner/connector)	The Sawer lanyard features a metal ring, for quick and easy attachment to a tool-carabiner and a 13 or 28 mm elastic tubular strap. The tools are connected thanks to a lark's foot made with the strap. The connection to the harness safety is by aluminum alloy carabiner. "Sawer" is designed to break at around 200-250 kg, to help avoid risk of injury to the user in the event of a fall or being snagged by falling wood.	As per the Sawer with a more robust webbing but the same breakaway facility via the small integral carabiner.	Intergrated ruptures a (dropped op
WEBSITE	buckinghammfg.com	camp.it	camp.it	edel

ELRID	**HARKIE**	**HUSQVARNA**	**HUSQVARNA**	
saw ABS	**Chainsaw**	**Anti-Shock**	**Chainsaw Strop**	
H2345	H2345	534 10 08-01	577 43 80-01	
$40 €25	£19 $26 €23	£67 $90 €80	£36 $40 €35	
	no		no	
		-		
m /35.4"	90cm /35.4"	73cm /28.7"	50cm /19.7"	
cm/55.1"	130cm /51"	135cm /53"	125cm /49.2"	
ter & Nylon	Polyester	Polyester & Nylon	Nylon	
mm/1"	25mm/1"	25mm/1"	25mm / 1"	
g / 3.3oz	110g/3.9oz	140g/5oz	140g / 4.9oz	
44lb 240kg	30kg /66lb	20kg /44lb >200kg/440lb	10kg /22lb 200kg	
eel ring	Steel ring	Alloy ring	Alloy ring	
rted loop	Loop	Shock absorber	Shock absorber	
wn eye	Inverted loop	Inverted loop + Alloy ring	Inverted loop + Alloy ring	
d shock absorber at 2.4kN impact or trapped saw/ perator.)		integrated shock absorber. Ruptures at 2 kn	General purpose, relatively short lanyard	
lrid.com	harkie.co.uk	husqvarna.com	husqvarna.com	

Images NOT to Scale

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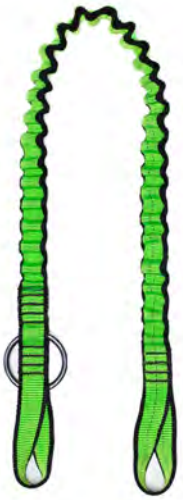

BRAND	MILLER	NEVER LET GO	NEVER LET GO
MODEL VARIANT	Longue PT	Chainsaw	HD FIRE RESIST
PRODUCT CODE	-	101609	101373 101716
ORIGIN			
COST approx retail inc tax	£28 $40 €35	£14 $20 €17	£4665 $6186 €5577
BREAKAWAY	no	no	no
CHAINSAW/HEAVY TOOL	■	■	■
LIGHT CHAINSAW	●	●	●
RETRACTED LENGTH	60cm /23.6"	85cm /33.5"	8090cm /31.535.4"
EXTENDED LENGTH	122cm /48"	130cm /51.2"	130140cm /51.255.1"
MATERIAL	Nylon	Nylon	Nylon/Dyneema/Aramid
WEBBING WIDTH / Ø	17mm / 0.7"	25mm / 1"	1925mm / 0.75 1"
WEIGHT	70g / 2.5oz	105g /3.7oz	175g/6.2oz
SWL MBS	9kg /20lb 90kg	10kg /22lb	20kg /44lb
CONNECTER/SHORTEN	Steel ring	Steel ring	-
HARNESS TERMINATION	Alloy snap carabiner	Inverted loop	Dyneema Loop
TOOL-END TERMINATION	Loop	Inverted loop	Alloy carabiner
STANDARDS		ANSI, CE, UKCA	ANSI, CE, UKCA
NOTES	The miller brand polyamide lanyard helps secure the chainsaw and to facilitate its connection to the harness. Its load capacity reaches just under 10kg and once stretched it can measure up to 122 cm.		Auto lock alloy carabiner
WEBSITE	honeywell.com	Neverletgo.Com	Neverletgo.com

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BRAND	NEVERLETGO	NEVERLETGO	NOTCH	NOT
MODEL VARIANT	Super Bungee Chainsaw	Super Bungee Tool	Quick Cinch Sml	Quick C
PRODUCT CODE	101610 101623	101419	NQCCL-17	NQC
ORIGIN				
COST approx retail inc tax	£4465 $6088 €5378	£77 $104 €93	£29 $33 €37	£32 $3
BREAKAWAY	no	no	no	n
CHAINSAW/HEAVY TOOL	■	■	●	■
LIGHT CHAINSAW	■	■	■	■
RETRACTED LENGTH	80cm/31.5"	160cm/63"	80cm/31.5"	80cm/
EXTENDED LENGTH	200cm/78"	340cm/133"	152cm/60"	152cm
MATERIAL	Nylon	Nylon	Nylon	Nyl
WEBBING WIDTH / Ø	25mm/1"	25mm/1"	17mm/0.8"	25mm
WEIGHT	110/3.9oz 210g/7.4oz	345g/12.2oz	230g / 8oz	270g /
SWL MBS	10kg / 22lbs	20kg / 44lbs	15kg / 33lbs	25kg /
CONNECTER/SHORTEN	Sewn eye Steel ring	-	Steel ring	Steel
HARNESS TERMINATION	Loop	NOT for HARNESS	Inverted loop	Inverte
TOOL-END TERMINATION	Inverted Loop	Inverted Loop	Sml steel ring + sewn	Sml steel r
STANDARDS	ANSI, CE, UKCA	ANSI, CE, UKCA		
NOTES		Very long. Intended for use in an elevated platform/ cherry picker NOT for connecting to your harness. Integral captive eye carabiner for cage connection	The quick cinch lanyard solves a common problem faced by climbers attempting to remove a chainsaw that has been choked to the small metal d-shaped fastening buckle. The quick cinch system allows simple attachment, without having to girth hitch your chainsaw to the small metal d-ring.	The quick cinch a common prob climbers attemp a chainsaw that choked to the s d-shaped faster The quick cinch simple attachm having to girth h chainsaw to the d-ring.
WEBSITE	Neverletgo.com	Neverletgo.com	notchequipment.com	notchequip

TCH	NOTCH	PETZL
Cinch Lg	Modular	TOOLEASH
CL-25	VSG99426	S049AA00
37 €39	£40 $40 €48	£25 $35 €25
o	■	no
■	■	-
■	■	■
/31.5"	99cm /39"	40cm/15.75"
n/60"	167.6cm/66"	105cm/41.3" *
lon	Nylon	Polyester
m/1"	15mm/0.6"	25mm/1"
/ 9.5oz	230g / 8oz	56g/2oz
/ 55lbs	30kg / 65lb	5kg/11lb
ring	Steel ring	crab (using optional
ed loop	Inverted loop	Inverted loop
ing + sewn	Clip-on inverted loop	Sewn eye + alu
		ANSI, CE, UKCA
lanyard solves blem faced by pting to remove has been mall metal ing buckle. system allows ent, without nitch your small metal	Clip-on tool lanyards allow for fast-switching between tools.	 * This extends to up to 120cm with the addition of one of three sizes of optional leash extensions to make switching between tools easier.
pment.com	notchequipment.com	petzl.com

Images NOT to Scale

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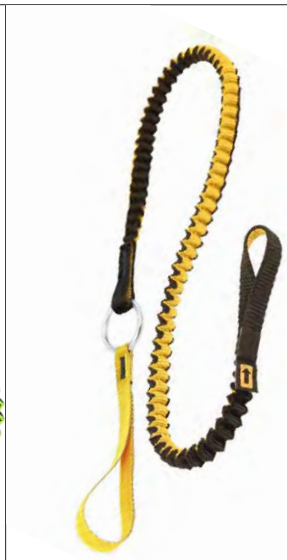
BRAND	REECOIL	REECOIL	REECOIL	ROC
MODEL VARIANT	Standard V2	Big Boss	Full Reach	R
PRODUCT CODE	-	-	-	
ORIGIN				
COST approx retail inc tax	£23 $30 €26	£62 $75 €66	£54 $57 €64	£28
BREAKAWAY	no	no	no	
CHAINSAW/HEAVY TOOL	●	■	-	
LIGHT CHAINSAW	■	■	■	
RETRACTED LENGTH	69cm/27"	35cm/13.8"	55cm/21.6"	91
EXTENDED LENGTH	140cm/55"	170cm/67"	150cm/59"	127
MATERIAL	Nylon	Nylon	Nylon	N
WEBBING WIDTH / Ø	20mm/0.8"	25mm/1"	25mm/1"	25
WEIGHT	100g/3.5oz	358g/12.6oz	200g/7oz	203
SWL MBS	5kg /11lb 210kg/462lb	12kg/26.4lb*	5.3kg /11.75lb	6.8
CONNECTER/SHORTEN	Steel ring	-	Sewn eye - optional	Ste
HARNESS TERMINATION	Inverted loop	Inverted loop	Inverted loop	Inver
TOOL-END TERMINATION	Sewn eye	Sewn eye	Sewn eye	Sewn
STANDARDS				
NOTES		* equates to 12kg dropped 1.5m to remain below the WLL of 107kg/235lb. Designed for heavier, rear-handled saws. Once girth-hitched to the handle there is a carabiner eye protruding for direct harness attachment	Carabiner not included Available in Pink ■ for Breast-Cancer Foundation	Carabi Also available
WEBSITE	reecoil.com	reecoil.com	reecoil.com	rockn

CHAINSAW LANYARDS



ck n ARB	SAFEWAZE	SINGING ROCK	SINGING ROCK	SKYLOTEC
aider	Med Heavy Duty Tether	Tool Holder	Tool Holder MAX	Stropp
-	SW431 SW433	W1028BY00	W1054BR00	ACS-0285
$33 €35	£30 $34 €37	£11 $15 €12	£13 $19 €15	£30 $41 €26
no	no	no	no	no
■	■	-	■	●
■	■	■	■	■
cm/36"	127cm /50" 66.6"	70cm /33.5"	85cm /33.5"	70cm/27.6"
7cm/50"	168cm /66" 80.5"	130cm /51"	150cm / 59"	120cm/47.2"
Nylon	Polyester	Nylon & Polyester	Nylon & Polyester	Polyester
5mm/1"	25mm/1"	10mm/0.4"	16mm/0.6"	25mm/1"
3g/7.2oz	200g /7.1oz	30g /1oz	95g / 3.4oz	120g/4.2oz
8kg/15lb	16kg/35lb	3kg/6.6lb 25kg/55lb	10kg/22lb 300kg/660lb	10kg/22lb
eel ring	-	Stainless steel ring	Stainless steel ring	Steel ring
rted loop	Inverted loop	Sewn eye	Sewn eye	Loop
eye + alu	Captive Swivel Carabiner	Inverted loop	Inverted loop	Sml steel ring
	ANSI-ISEA-121			
ner included e in Neon Green ■	Also available with two captive eye swivel carabiners		A heavier duty version of the toolholder which will not breakaway in the event of chainsaw/lanyard being snagged	The Stropp lanyard is a heavy-duty elastic strap which resists permanent twisting or stretching of the strap, even after prolonged use. The rings at the end of the stropp allow it to be easily attached to your harness with a carabiner. With a capacity load of up to 10 kg, it is designed for tools such as drills or chainsaws for example.
arbor.com	safewaze.com	singingrock.com	singingrock.com	skylotec.com

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BRAND	STEIN	TANGO	TANGO	TEUFE
MODEL VARIANT	Bungee Tool Lanyard	Slim	Vario Plus	Anti-Sho
PRODUCT CODE	5060483280110	15012340005	15012340010	
ORIGIN				
COST approx retail inc tax	£22 $30 €26	£20 $35 €21	£41 $54 €48	£5064 $
BREAKAWAY	no	■	■	
CHAINSAW/HEAVY TOOL	■	■	■	
LIGHT CHAINSAW	■	■	■	
RETRACTED LENGTH	95cm /37.4"	70cm /27.6"	75cm /29.5"	73c
EXTENDED LENGTH	140cm /55"	140cm /55"	140cm /55"	135c
MATERIAL	Treated Nylon	Polyester	Polyester	Polyest
WEBBING WIDTH / Ø	25mm/1"	15mm/0.6"	15mm/0.6"	25
WEIGHT	140g/5oz	72g/2.5oz	107g/3.8oz	14
SWL MBS	20kg /44lb	70-140*kg /154-308lb	70kg /154lb	20 >224
CONNECTER/SHORTEN	Steel ring	Steel ring	Steel ring	All
HARNESS TERMINATION	Inverted loop	Loop	Small loop + 2x sml rings	Shock abs
TOOL-END TERMINATION	Inverted loop	1 or 2 small rings	Detachable loop	Inverted l
STANDARDS				
NOTES	Nylon is treated to be water, oil and grease repellant	*Small ring designed to break at 70kg or 140kg if you connect to both rings at the same time.	The *Vario Plus* has detachable tool loops (1 supplied or the kit has 2 spare loops or purchase all components separately) so that chainsaws/tools can be swapped in seconds. The offset buckles ensure that it does not open unintentionally. The small lower loop rests on the chainsaw handle (this fits all chainsaws of all brands, even the largest) and can remain there for a long time. It is sized so that it does not touch the ground. Breakaway strength depends on one small ring or two.	The *Teufelberge* lanyard was the carrying lanyar shock absorber falls or gets stu (static) reaches absorber tears after 70 cm of the shock of up climber's harne *MBS from 224
WEBSITE	steininternational.com	drayer.de	drayer.de	teufelb

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

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BRAND	WEAVER ARBORIST	WORKGEAR UK	WORKGEAR UK
MODEL VARIANT	Bungee Chainsaw Clip	Arborist	Arborist HD
PRODUCT CODE	08-98228 08-98225	WG-TL04	WG-TL05
ORIGIN			
COST approx retail inc tax	£2030 $1926 €2436	£9 $15 €13	£15 $23 €22
BREAKAWAY	no	no	no
CHAINSAW/HEAVY TOOL	■	■	■
LIGHT CHAINSAW	■	■	■
RETRACTED LENGTH	76.2cm /3330"	90cm /35.4"	90cm /35.4"
EXTENDED LENGTH	116cm / 4845.5"	130cm / 51"	120cm / 47.2"
MATERIAL	Nylon	Nylon	Nylon
WEBBING WIDTH / Ø	25mm / 1"	25mm / 1"	25mm / 1"
WEIGHT	159g/5.6oz 250g/8.8oz	190g/6.7oz	221g/7.8oz
SWL MBS	6.8kg /15lb 8kN	30kg /66lb	30kg /66lb
CONNECTER/SHORTEN	Steel ring	Steel ring	Steel ring
HARNESS TERMINATION	Sewn Eye+Crab Clip	Sewn Eye	Sewn Eye+ CE Crab
TOOL-END TERMINATION	Inverted loop	Inverted loop	Inverted loop
STANDARDS			
NOTES	Also available with just one ring £14 or two rings £15. Optional tool extension loops to connect to bungee lanyard carabiner.	Available with carabiner for £3/$5/€4 more.	Available without carabiner for £3/$5/€4 less.
WEBSITE	weaverarborist.com	workgearuk.com	workgearuk.com

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WHERE TECHNICAL EXCELLENCE MEETS DAILY SAFETY

PMIROPE.COM

Advantage Helmet

**THINK SAFETY.
THINK ADVANTAGE**

Kevlar® head protection
Choice of different colors
ANSI Z89.1 TYPE 1, CLASS G (2200V)
TYPE 1 & 2, EN 397, NFPA 1951

Extreme Pro Rope

**TOP-TIER TERMINATION:
CRAFTED FOR THE PROS**

Unicore® technology
MBS: 42.9 kN (9644 lbf)
Core - 100% Nylon 6.6
Sheath - 100% Polyester

Eye and Eye Prusik

**BUILT FOR HIGH-LOAD
PRECISION AND EASE**

Eye MBS: 14.2 kN (3192 lbf)
Basket MBS: 27.6 kN (6204 lbf)
Technora/polyester sheath

Rope Tech Gloves

A PERFECT FIT FOR EVERY GRIP

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

CHAINSAW PROTECTIVE GLOVES

Ask most private arb contractors about chainsaw protective gloves and they'll be pretty dismissive especially if they're left-handed. Many value the safety offered by comfort and dexterity of a quality work glove more than the possibility that a chainsaw glove will actually make much difference. It is indeed hard to see how that thin barrier on the back of the left hand (in most instances) will cover all the possible scenarios involving your hand coming into contact with a moving chain. The only real scenario being covered by most gloves is a rotational kickback impact to the back of your left hand while it is grasping the top of the wrap-around handle.

You might be surprised to hear that specialist glove manufacturers making gloves for many different purposes deem chainsaw use as a minority concern and often simply rename a glove they already make with kevlar protection for some other industry like foundry workers or mining! Consequently there are many hundreds of gloves that COULD be used by chainsaw operators but we have included only those models actively marketed to arborists and meeting a chainsaw-relevant standard. We will, however, be augmenting this chainsaw-specific guide with CUT-RESISTANT models shortly. You need to be VERY careful that the glove you have picked up for work actually *is* chainsaw protective, outwardly there may be nothing to distinguish a chainsaw protective glove from a .....well...glove. Even recognition of a quality brand is no indication - take the gloves above from *Arbortec* - top right. The glove on the right is EN certified to withstand a chain speed of 16m/sec or 3150ft per minute. The equally slick looking gloves on the left are similar colours and even have the same pattern of palm reinforcement not to mention a dubious finger insult but they are NOT chainsaw protective except that they are leather and therefore have greater cut resistance than your skin. Shame because they otherwise looked like our kind of glove with excellent dexterity for as long as you keep your fingers. Our definition of a chainsaw protective glove is one that meets either EN381-7 with a specified chain speed that needs to be resisted or has active chainsaw protective materials in terms of kevlar or multi-fibres to clog the moving chain. The US ANSI/ISEA cut resistance standards using primarily ASTM test methods is better than it was with an extra four sub-classifications but this still only relates to downward pressure and side-to side movement of knives and hand saws not powered chainsaws - if a retailer tells you the glove they're selling you meets ANSI 4,5,6,7, 8 or 9, ask them if that actually means it will resist a moving chain?

Most chainsaw protective gloves only provide active protection on the Left glove and almost without exception, to the back of the hand rather than all around. So, not only are the cut-protection areas quite limited, even where they do exist, we're really only talking about the most glancing of glancing blows rather than falling onto a moving chain with your hands outstretched. This is effectively run-out protection-only rather than full speed protection. Cut *resistance* is a different matter, that does not refer to chainsaws at all and instead, as we've already mentioned with the ASTM standard, resists knife or hand saw blades. In Europe this may be categorised under EN 388 as the third of 4 numbers relating to abrasion, tear, cut and puncture resistance, these are numbered 0 to 4 and 0-to 5 in the case of cut resistance with 5 as the highest protection. There may also be letters A to F relating to an alternative cut test if the blade is too dull to cut and a P if there is Impact resistance. You may see these numbers and letters listed after EN388. Again, this standard does not relate to chainsaw use and it could be that, if you have an accident resulting in lost digits and you are found to be wearing gloves that meet EN388 but *NOT* EN 381-7 , the insurance company can say you weren't properly equipped and will not pay out. For those of you that resist wearing gloves because you say they are too bulky or you're primarily climbing, don't be lulled into thinking that the thinner, more dexterous 'cut-resistant' gloves under an EN388 or ANSI standard are going to give you protection against your chainsaw or insurance broker. However, cut-resistant gloves will help minimise the multitude of small cuts and impales that occur during a working day and you would think chain-mail would almost come under active chainsaw protection? Probably binds up and causes more of an amputation risk than sharp chain? Even so, aside from multi-layer protection like the *Cutters, Elvex* and *Endura* gloves (right) which bind up the chain, we have our doubts about the true validity of single sheets of material and chainsaw-resistance cut tests using test chainsaws that don't accurately reflect the size and power of what is actually being used. They do at least give an indication of something specific to chainsaws but chainsaw protection may not be as effective a barrier against a samurai blade or

CHAINSAW PROTECTIVE GLOVES

Fig 1 ANATOMY of a CHAINSAW-PROTECTIVE GLOVE

FINGER-TIP GRIP
tactile material to improve grip but on most gloves this may simply be reinforcement.

PREFORMED/SHAPED HAND for improved dexterity.
a shaped, close-fitting glive is vital in a climbing glove

VIBRATION-DAMPENING
foam or gel layer beneath reinforcement. If no dampening this may simply be part of palm reinforcement

PALM REINFORCEMENT
High-wear area of the hand has extra material and may incorporate vibration dampening.

FINGER REINFORCEMENT

KNUCKLE REINFORCEMENT

SWEAT or NOSE-WIPING MATERIAL!

HI-VISIBILITY COLOURS usually red, orange or lime. May also have reflective highlights on the fingers and/or back and/or cuff

STRETCH FABRIC

ACTIVE CHAINSAW PROTECTION
but may just be padding in other designs-very hard to tell if you don't know the glove.

VELCRO CLOSURE/TIGHTENING

NEOPRENE or ELASTICATED cuff -Often knitted.

rotary saw blade as the cut-resistant gloves we maligned earlier because it's designed to stop a moving chain not a rotating or swinging sharp edge. And what about electric chainsaws with higher torque - admittedly not originally a pro tool but this type of glove may not stop that at all. It's interesting to note that *Pfanner,* that make a lot of chainsaw clothing, don't produce a chainsaw-protective glove at all even though they do have a number of work gloves. Instead they just have chainsaw protective *sleeves* to protect the forearm and wrist. Maybe they see arms as more vulnerable or that gloves just aren't up to much while comfort and dexterity of a glove takes priority in reducing the risk of injury?

What we need is a lightweight glove that you hardly realise you have on but has active, effective chainsaw protection on the front and back of BOTH hands covering the entire surface from wrist to palm to finger tips, how hard can it be? The Holy Grail of gloves it would seem although the *Youngstown* model we've included has 360° kevlar lining (pic below) in quite complex but light designs so maybe it's not that far off. Two of these Youngstown gloves will NOT stop a chainsaw so their inclusion is a little misleading but they do offer some protection and more on the right hand and front of hand than most actual chainsaw gloves and the *Winter Plus* glove (right) offers all around Kevlar on both hands AND is entirely waterproof. Their latest model the *CR5 Hybrid* does have level 5 instead of level 4 protection which is as high as it gets in the US at the moment. As usual, we have more 'manufacturers' listed than there are actual 'manufacturers' so there are a number of like models under different names. Not surprising really that if you make chainsaws you would feel the need to provide an accompanying branded glove but they're generally not set up to produce textiles so they source it elsewhere and rebadge. Nothing wrong with that, no point in reinventing the wheel.

FEATURES (refer to fig 1 left)

FINGER-TIP GRIP:
Refers to specific rubberised or tactile enhancement to the finger-tips to improve grip particularly in the wet.

PREFORMED/SHAPED HAND:
The glove is designed as 3-dimensional hand-shape with curves rather than two flat hand-shapes (back and front) sewn together. Pre-shaped gives a much closer fit but costs more.

VIBRATION-DAMPENING:
Extra padding or gel pads which stop some of the saw's vibration reaching your hand and fingers.

PALM REINFORCEMENT:
This may include dampening mentioned above but without dampening is an extra layer of material to improve wear

FINGER REINFORCEMENT:
As above but it runs up the front/ and/or back of the fingers as an extra layer of protective material - this may include cut-protection but more often than not, not!

KNUCKLE REINFORCEMENT
Often coincides with the active cut protection but since this may only be on the left glove it is a narrow or wide strip of extra protective material, mostly leather.

NOSE-WIPING MATERIAL:
They may not admit it but that bit of Terry-cloth (nappy material) on the back of some of the thumbs is for forehead-sweat-removal or nose-wiping - bare this in mind when you borrow your mate's gloves. Listed as 'Sweat-Wipe' in the tables

HI-VISIBILITY COLOURS
Unless you're Edward Scissor-hands or working next to Edward Scissor-hands and there's a danger of speedily slashing around your own hand. this is more to do with overall visibility of the arborists and signalling ground crew than noticing where your own hand is..

VELCRO CLOSURE/TIGHTENING:
A velcro closure means that you can tighten the wrist - this not only makes for a firmer, more secure fit but it helps keeps out sawdust and debris. It also means that the glove is made easier to put on in the first place. This needs to be very firmly stitched because, for most arborists, it doubles as a pull-on tab.

CUFF:
If the cuff is elasticated, it might be Neoprene or knitted. We've differentiated between the two by having a solid black square for neoprene and an outline square for knitted. Knitted can be be good and bad - on cold dry days it's the warmest and most comfortable fit but many will retain water and sweat and any other body moisture or nasal effluent you inflict on it as well as dust and wood chips. For a firmer and more watertight fit Neoprene is used and may be married to a Velcro closure to provide a flexible, water-resistant cuff. Some gloves, particularly all-leather or leather and cotton, may have a simple, open 'skirt' which many find more comfortable. This is fine on shaped gloves like the Forester High Impact but be careful that the glove doesn't work loose on more generic designs with an open cuff like the Forester HD.

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

SIZING
This is a can of worms. In the US sizes are usually given as Small to XXL sometimes as a figure normally relevant to dress gloves with the measurement taken as the circumference around the palm. In the UK and parts of Europe sizes are from 6-12 where 9 is generally Med, L in the case of Francitel, 10 is Large and don't arm wrestle with a size 11 or12. However, we also see these measurements given by some as what must be a width across the palm rather than circumference which helps confuse things: 8cm = small, 9cm = medium, 10cm = large, 11cm = X large
The tables above are the US charts for Men and Women:

The moral of the story is - try them on if you're using a different glove to your last pair or make sure you can send them back if they don't fit.

STANDARDS
We've mentioned EN388 but for active chainsaw protection it's **EN381-7 1999** sub-divided into three cut-resistance classes and two designs adopted across the globe:
Class 0 = 16m/sec or 3150 feet/min
Class 1 = 20m/sec or 3937 feet/min
Class 2 = 24m/sec
Standard EN 381-7 design A for gloves describes a protection surface on the back of the hand. The protective surface must be min. 110mm wide and min.120mm high at the highest point (without the fingers).
Standard EN 381-7 design B for gloves describes a protection on the back of the hand and 4 fingers. The protective surface must be min. 110mm wide and min. 190mm high from the base to the highest point.
In simple terms the European standard EN381-7 is specific about providing some degree of protection against a moving chainsaw However it only requires the back of the left-hand glove to be chainsaw protective and this may include fingers but not the thumb. Not much you can do without that opposing thumb! We wonder why this standard applies to a PAIR of gloves when only the left is protective? It's strange that this standard hasn't been tightened up or further sub-categorised to indicate dual hand protection. And aren't left-handed people discriminated against in the arb world with all the right handed chainsaws and gloves? The biggest nonsense is that in the US you can virtually forget about ANSI/ASTM cut-resistance standards having much to do with protection from chainsaws - they're really only applicable to knives and hand saws. Until this very odd oversight is rectified, look for European chainsaw standards quoting 0 or 1 when choosing gloves. *Solidur* now has a '2' - the *Sequoia* protecting to 24m/s so expect to see more.
EN420 is a generic Safety Glove and quality assurance standard covering quality of components, manufacture, fit & longevity.

IN THE FOLLOWING TABLES.....
USES: All except two of the *Youngstown* models are certified as, or designed to be, chainsaw protective gloves.
CLIMBING: The manufacturer feels these are particularly appropriate for climbing but you may find a favourite glove for climbing not listed as such. It should be close fitting with an elasticated (wrist-hugging) cuff and tacticle grip.
COLD WEATHER: Some have active insulation against the cold but this will often be at the expense of dexterity.
UTILITY: most of these could be be listed under this heading which takes in chipping, rope-work and groundwork but it's a bit of a waste of the higher quality gloves so you will see shaped gloves in particular not listing 'UTILITY' as a use.
Our tables show '**WATERPROOF**' but chainsaw gloves have such a complex array of stitching and articulation points that none are truly waterproof - water-resistant is the best you'll get unless you wear a latex/nitrile glove as a liner and even then it will end up damp from sweat! The key value of a waterproof glove is that you're less likely to be working all day in a wet glove that retains moisture through the day from the first half hour's cutting. We haven't yet included *Vgo*, the *Raptor* and *Hand Protection International*. We would probably need an entire publication to capture them all!

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COST: approx, rounded up & inc local tax/vat
£$€= currency conversion only - no import duty, etc.
PROTECTION CUT= EN381-7 level = ANSI level
GENERAL= EN388 level = ANSI level
● Water Resistant ■ Water Proof
● OK but not Ideal
○ Good Cut-resistance but not full chainsaw protection

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

CHAINSAW PROTECTIVE GLOVES

	USES				PROTECTION									WRIST/CUFF			FEATURES												
ARDS	CHAINSAW	CLIMBING	COLD WEATHER	UTILITY	CUT EN / ANSI	PROTECT LEFT HAND	PROTECT RIGHT HAND	ABRASION EN / ANSI	BLADE CUT EN / ANSI	TEAR EN / ANSI	PUNCTURE EN / ANSI	ALT CUT IMPACT	VELCRO	ELASTICATED	PULL-ON/HANG TAB	WATERPROOF	ENHANCED GRIP in WET	ANTI-VIBRATION	SWEAT-WIPE	PRE SHAPED	REINFORCED PALM	REINFORCED KNUCKLES	REINFORCED FINGERS	WARRANTY (YEARS)	OTHER COLOURS	NOTES	WWW.
31-7 3222	■			■	1	■	-	3	3	4	2	- -		□		□		■	■		■	■	■	?	■ ■ ■	Replaced the 850 Rubber palm grip. Reflective knuckle band.Kevlar stitching	arbortec.com
31-7 3122	■				1	■	-	2	2	3	2	- -	■	■		■				■						AT500 Forester & AT950 Pro Climber have been discontinued.	arbortec.com
31-7 3122	■	●			0	■	-	3	1	2	2	- -			■		■			■	■	■				Hi-Viz, breathable 4-way stretch back. Non-restrictive cut-away cuff for comfort	arbortec.com
31-7 3122	■	■			1	■	■	3	1	2	2	- -	■	■	■		■	■	■	■	■		■		■	Hi-Viz, Kevlar stitching. while stocks last DISCONTINUED as are AT500 Forester & Treehog TH040	arbortec.com
-4142 20	■	●			0	?		4	1	4	2	- -	■	■	■		■			■	■	■					arbpro.it
31-7	■			■	0	■	-					- -		□		□				■	■		■			14-layers of cut-resistant fibres	cutterworkwear.com
31-7	■	●	■		0	■	-					- -		□		□	■			■	■					4-way stretch, 14-layers of cut-resistant fibres	cutterworkwear.com
31-7	■				0	■	-					- -	■	■			■			■			■			14-layers of cut-resistant fibres	cutterworkwear.com
31-7 3122	■	●			1	■	■	3	1	2	2	- -	■	■		□				■						Hi-Viz, Reflective piping, Multi-layers of Dyneema	ejendals.com
31-7 4244	■			■	1	■	-	4	2	4	4	- -	■			□			■		■		■			Prolar™ chainsaw padding	elvex.com
																											expansion row

IMAGES NOT TO SCALE
COST: approx, rounded up & inc local tax/vat
£$€= currency conversion only - no import duty, etc.
PROTECTION CUT= EN381-7 level = ANSI level
GENERAL= EN388 level = ANSI level
● Water Resistant ■ Water Proof
● OK but not good
○ Good [illegible]nce but not full chainsaw protection

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

Add Touchscreen compatible column

CHAINSAW PROTECTIVE GLOVES

	USES				PROTECTION								WRIST/CUFF				FEATURES											
ARDS	CHAINSAW	CLIMBING	COLD WEATHER	UTILITY	CUT EN / ANSI	PROTECT LEFT HAND	PROTECT RIGHT HAND	ABRASION EN / ANSI	BLADE CUT EN / ANSI	TEAR EN / ANSI	PUNCTURE EN / ANSI	ALT CUT IMPACT	VELCRO	ELASTICATED	PULL-ON TAB	WATERPROOF	ENHANCED GRIP in WET	ANTI-VIBRATION	SWEAT-WIPE	PRE SHAPED	REINFORCED PALM	REINFORCED KNUCKLES	REINFORCED FINGERS	WARRANTY (YEARS)	OTHER COLOURS	NOTES	WWW.
	○				NO	■	■	3	3	4	2	- -	■	■			■	■	■		■	■	■	1	■ ■	rebadged by ECHO USA in Orange. 2 layers of Kevlar	forestershop.com echo-usa.com
	○				NO			3	1	2	2	- -		■							■	■		1		Also available in WHITE/black with extended safety cuff with Velcro	forestershop.com
88	○	■			4	■	■					- -	■			□	■	■	■		■		■			Hi-Viz Carabiner eye	forestershop.com
88	○			■	4	■	■					- -				□				■						Hi-Viz	forestershop.com
2243	○			■	4	■	■					- -								■	■	■				Back-hand shield resists impact.	forestershop.com
1-7 88	■				1							- -		□								■					francital.com
1-7 4144	■	●			0			4	1	4	4	- -	■	■							■		■		■	Hi-Viz, 4-way stretch fabric on back	francital.com
1-7 88	■			■	0	■	-					- -		□	■	□					■						kramp.com
1-7 4142	■				0	■	-	4	1	4	2	- -		■			■			■			■			4-way stretch fabric on back. Rubber grip pads on palm	harkie.co.uk
1-7 88	■			■	0							- -		■		□				■						reflective logo	husqvarna.com
1-7 88	■	●		■	1							- -	■	■		□	■		■	■	■		■			Hi-Viz, Reflective piping.	husqvarna.com

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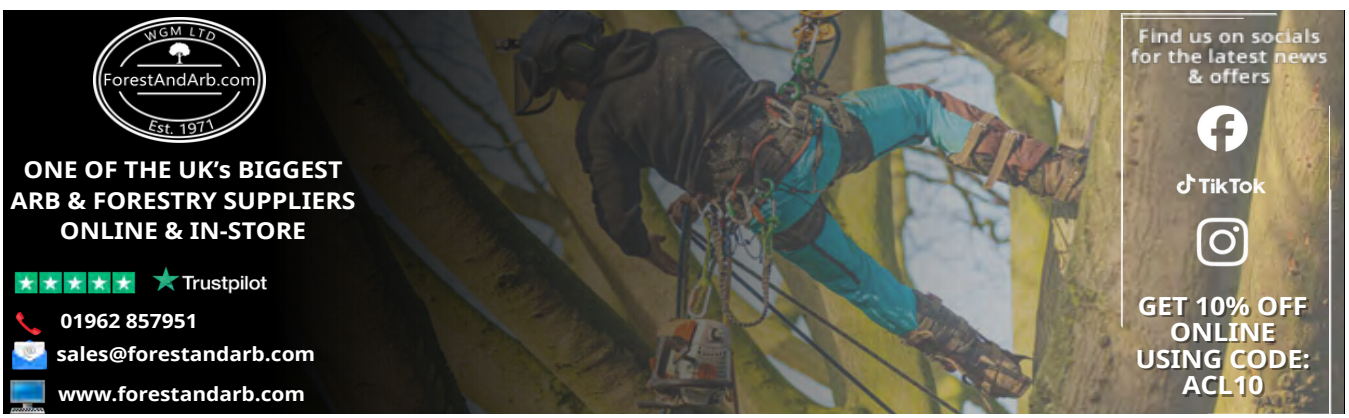
PROTECTION CUT= EN381-7 level = ANSI level
GENERAL= EN388 level = ANSI level
● Water Resistant ■ Water Proof
● OK but not Ideal
○ Good Cut-resistance but not full chainsaw protection

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

Add Touchscreen compatible column

CHAINSAW PROTECTIVE GLOVES

	USES				PROTECTION								WRIST/CUFF				FEATURES											
ARDS	CHAINSAW	CLIMBING	COLD WEATHER	UTILITY	CUT EN / ANSI	PROTECT LEFT HAND	PROTECT RIGHT HAND	ABRASION EN / ANSI	BLADE CUT EN / ANSI	TEAR EN / ANSI	PUNCTURE EN / ANSI	ALT CUT IMPACT	VELCRO	ELASTICATED	PULL-ON TAB	WATERPROOF	ENHANCED GRIP in WET	ANTI-VIBRATION	SWEAT-WIPE	PRE SHAPED	REINFORCED PALM	REINFORCED KNUCKLES	REINFORCED FINGERS	WARRANTY (YEARS)	OTHER COLOURS	NOTES	WWW.
L-7 A 88 20	■		■	■	0	■		2	1	2	2	- -	■								■	■	■			Touchscreen compatible	oregonproducts.com blount.com
L-7 A -3142	■	-	-	■	0	■	■*	3	1	4	2	- -	-	■	-	-	-	-	-	-	■	■	-	1	■	*10% cheaper with Left hand pro only	oregonproducts.com blount.com
L-7 A 88 20	■		■	■	0	■						- -	■								■	■	■				oregonproducts.com blount.com
L-7 A 88 20	■		■	■	0	■						- -	■								■	■	■				oregonproducts.com blount.com
31-7 88 20	■			■	0	■						- -		■												Also badged as 'Arborsafe'	portwest.com
31-7 88 20	■	-	-	■	0	■	■					- -	-	■	-	-	-	-	-	-	■	■	-	?		Lined	stihl.com stihl.co.uk
31-7 88 20	■	-	-	-	1	■	■					- -	■	■	-	□	-	-	-	■	■	■	-	?		Lined	stihl.com stihl.co.uk



IMAGES NOT TO SCALE
COST: approx, rounded up & inc local tax/vat
£$€= currency conversion only - no import duty, etc.
PROTECTION CUT= EN381-7 level = ANSI level
GENERAL= EN388 level = ANSI level
● Water Resistant ■ Water Proof
● OK but not Ideal
○ Good Cut-resistance but not full chainsaw protection

MODEL	COMPANY	ORIGIN	COST For 1x PAIR approx, rounded up inc. VAT/Tax	Update with Differentiated materials MATERIAL	SIZES	STAND
SS-15 010 25 0_	STEIN		£20 $00 €00	Leather, Rubber	8,9,10	EN381 EN3
2XD3/2	SIP PROTECTION		£24 $00 €29	60% polyamide 40% polyurethane Rubber PVC/PU	8,9,10, 11,12	EN381 EN388 EN4
2SA5	SIP PROTECTION		£38 $00 €36	cowhide leather, aramid yarn	8,9,10, 11,12	EN381 EN388 EN4
Infinity	SOLIDUR		£39 $00 €35			
Cidre	SOLIDUR		£00 $00 €20			
Magic	SOLIDUR		£00 $00 €30			
Sequoia	SOLIDUR		£00 $00 €38			
Endura	SUPERIOR GLOVE/ LUMBERWORKS		£00 $39 €00	Goatskin Leather, Nylon lycra, Kevlar	9,10,11 M, L,XL	
Titan XT Kevlar	YOUNGSTOWN		£00 $44 €00	Sythetic Leather, Kevlar, Elastic, Nylon	7-12 S-XXXL	ANSi/
WINTER + Kevlar	YOUNGSTOWN		£00 $50 €00	Sythetic Leather, Waterproof/ breathable membrane, Clarino Palm, Kevlar-Liner	7-12 S-XXXL	ANSI/
CR5 Hybrid Kevlar	YOUNGSTOWN		£00 $55 €00	Sythetic Leather, Kevlar, Elastic, Nylon	7-12 S-XXXL	ANSI/

Add Touchscreen compatible column

CHAINSAW PROTECTIVE GLOVES

	USES				PROTECTION								WRIST/CUFF				FEATURES											
ARDS	CHAINSAW	CLIMBING	COLD WEATHER	UTILITY	CUT EN / ANSI	PROTECT LEFT HAND	PROTECT RIGHT HAND	ABRASION EN / ANSI	BLADE CUT EN / ANSI	TEAR EN / ANSI	PUNCTURE EN / ANSI	ALT CUT IMPACT	VELCRO	ELASTICATED	PULL-ON TAB	WATERPROOF	ENHANCED GRIP in WET	ANTI-VIBRATION	SWEAT-WIPE	PRE SHAPED	REINFORCED PALM	REINFORCED KNUCKLES	REINFORCED FINGERS	WARRANTY (YEARS)	OTHER COLOURS	NOTES	WWW.
L-7 A 88	■	-	-	-	0	■	-					- -	■	-	-		■	-	■	■	■	■			☐	heavy duty threads	steinworldwide.com
L-7 A 3131 20	■	●	-	■	1	■	■	3	1	3	1	- -	■	■	■		■	-	-	■	■	■	■			Also 2XD2 with pro in left hand only costs €24	sip-protection.com
L-7 A 3132 20	■	-	-	-	1	■	■	3	1	3	2	- -	■	■	-	■	■	-	-	-	-	■				Also 2SA4 without rubber grip palm €36 & 2SB5 as gauntlet €42	sip-protection.com
	■	●			1	■	■	3	2	3	2	- -	■	■						■	■		■				solidur.fr solidur.co.uk
	■			■	1	■	-	3	2	4	3	- -		■							■	■					solidur.fr solidur.co.uk
	■	●			1	■	-	3	2	3	2	- -	■	■							■	■	■				solidur.fr solidur.co.uk
	■			■	2	■	-	3	2	4	4	- -		■							■	■					solidur.fr solidur.co.uk
	■	-	-	-	0*	■	-					- -	■	■	-	■	-	-	■	■	■	-	■			Hi-Viz, 8-layer Kevlar stops 3140ft/ min .*Equivalent to Class 0. Not for EU	superiorglove.com
ISEA	○	●	-	■	A5	■	■					- -	-	■	-		-	-	■	■	■	■	■			Hi-Viz, Reflective panels. Impact pads on back 360°Kevlar	ytgloves.com
ISEA	○	-	■	■	A4	■	■					- -	■	■	-	■	■	-	■	■	■	-	■			Water, wind & cutproof. 360°Kevlar Terry cloth outer thumb for brow/ nose-wiping!	ytgloves.com
ISEA	■	-	-	■	A5	■	■					- -	-	■	-		-	-	■	■	■	■	■			Hi-Viz, Reflective finger-tips. 360°Kevlar Terry cloth outer thumb for brow/ nose-wiping!	ytgloves.com

CHAINSAW PROTECTIVE TROUSERS

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

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

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

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

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

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

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

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

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

FEATURES:

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

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

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

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4 Way stretch fabric

Chainsaw protection Class 1 Type A

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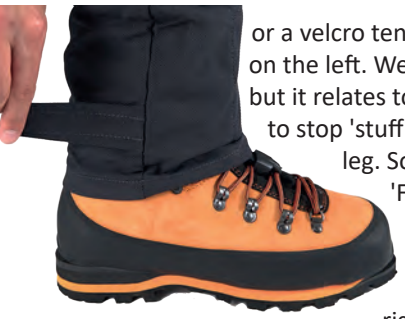

or a velcro tensioning strap as in the *Clogger* pic on the left. We have listed this as TICK prevention but it relates to any hem that closes on the boot to stop 'stuff' and critters getting up your inside leg. Some will mention in their 'FEATURES' notes in our tables that the hem has a vertical zip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

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

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

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

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

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

POCKETS

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

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

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

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

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

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

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

CHAINSAW & SAFETY STANDARDS

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

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

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

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

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

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

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

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

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

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

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

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

PERIPHERAL EUROPEAN STANDARDS

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

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

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

EN 13758-3 – UV Protective Clothing

EN ISO 20471-9 – High-Visibility Clothing

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

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

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

EN 343-3 – Waterproof Clothing

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

Water penetration resistance (Waterproofness) – Class 1 to 4

Water vapour resistance (Breathability) – Class 1 to 4

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

NORTH AMERICA VS. EUROPE

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

COMFORT AND BREATHABILITY:

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

ADDITIONAL FEATURES COMMON TO BOTH:

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

CHAINSAW TROUSERS

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

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

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

IN THE FOLLOWING TABLES.....

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

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

REFLECTIVE: Active reflective material -not just high viz colour

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

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

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

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

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

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

designed by **women** | tested by **women** | built to **perform**

BREATHEFLEXPRO Women's Fit

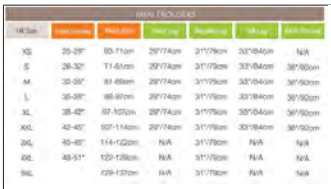
For years, women working in arboriculture had little choice but to wear ill-fitting chainsaw trousers built for men - gear that compromised both comfort and performance. Arbortec saw that this needed to change. So in 2018, we introduced the original Breatheflex Ladies Range: a groundbreaking step that finally brought women in arb and forestry kit designed specifically for them.

But we knew this was only the beginning.

Partnering with Forestry England - an organisation celebrated for its commitment to inclusivity and innovation - we set out to push women's protective workwear even further. With input from industry professionals around the world, seven development rounds, and 49 meticulously refined prototypes, the Women's Fit Breatheflex Pro chainsaw trousers came to life. The result isn't just functional; it's transformative - setting a new benchmark for women's chainsaw protection.

And the innovation didn't stop there. Following a full year of design refinement and real-world testing by professional female arborists across the UK, we're proud to introduce the **BreatheDry® Ladies Fit Full-Zip Waterproof Jacket.** More than simply reshaped, this jacket has been completely reimagined for the female form. Every panel, seam and zip has been thoughtfully repositioned to deliver a tailored, flexible and flattering fit built for demanding work in forestry and arboriculture.

By listening, learning and adapting, we've created gear that truly fits - because professional female arborists deserve equipment engineered for them.



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

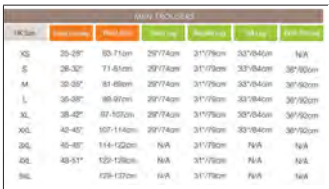
STANDARDS:
EN3815= Chainsaw Cut Pro
ENISO11393-2= Chainsaw safety
ASTM F1897 USA= Cut Pro+
ASTM Canada= Cut Pro+
AS/NZS 4453.3= Cut Pro+
KWF-Profi= Forestry safety
ANSI Z133= Gen Arboriculture
ENISO13688= Safety Clothing
EN 343-3 = Waterproofing
RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
ANSI107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

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

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

CHAINSAW TROUSERS

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



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EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

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

WATER REPELLENT:
CLIMBING: Flexible enough to allow dynamic climbing

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

CHAINSAW TROUSERS

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

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

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

WATER REPELLENT:
CLIMBING: Flexible enough to allow dynamic climbing

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

CHAINSAW TROUSERS

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

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Level C=front & back leg

WATER REPELLENT:
CLIMBING: Flexible enough to allow dynamic climbing

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

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MANUFACTURED
DENMARK

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STRONGER.
MORE CHIPS.

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Level C=front & back leg
WATER REPELLENT:
CLIMBING: Flexible enough to allow dynamic climbing

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

CHAINSAW TROUSERS

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

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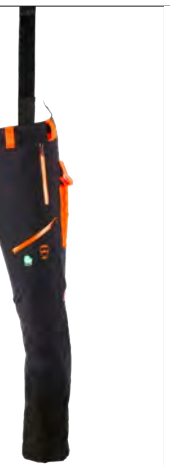
ASTM Canada= Cut Pro+
AS/NZS 4453.3= Cut Pro+
KWF-Profi= Forestry safety
ANSI Z133= Gen Arboriculture
ENISO13688= Safety Clothing
EN 343-3 = Waterproofing
RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

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

MANUFACTURER	ENGLEBERT STRAUSS	ENGLEBERT STRAUSS	ENGLEBERT STRAUSS	ENGLEBER
MODEL PROTECTION VARIANT	Denim Jeans 1A	Forestry KWF	Forestry Bib&Brace KWF	Visio
SERIES	O	O	O	O
PRODUCT CODE(S)	60205	60156	60177	60
ORIGIN				
COST inc VAT/tax conv-only	£174 $000 €000	£141 $000 €000	£152 $000 €000	£216 $0
WEIGHT per pair (m/lg R)	1.7kg/3.75lb	1.6kg/3.52lb	1.8kg/3.96lb	1.66kg
STANDARDS REPEL WATER				
WAIST & LEG SIZES FEMALE		30-48 S,R,L 4-26 S,R, L		
MATERIALS - OUTER LINER CUT PROTECTION		93% Polyester 7% Elastane 100% Polyester 100% Polyester	93% Polyester 7% Elastane 100% Polyester 100% Polyester	90% Polyester 88% Polyeste 100% P
POCKETS				
REFLECTIVE ZIP VENTS BOOT HOOK				
ATTACH BRACES ANTI-TICK CLIMBING		■		
FEATURES		Cam-Buckle belt 7 belt loops Zipped rear thighs High Waist Cordura Reinforced Knees, seat & ankles. Reflective highlights	Zipper 7 Zipped rear thighs. Reflective highlights	Button Waist
OTHER COLOURS			■	
NOTES		Gear loop designed for 'Scrench'	Gear loop designed for 'Scrench'	Gear loop desig
WEBSITE	engelbert-strauss.com	engelbert-strauss.com	engelbert-strauss.com	engelbert-s



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

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

WATER REPELLENT:
CLIMBING: Flexible enough to allow dynamic climbing

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

CHAINSAW TROUSERS

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

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EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

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

WATER REPELLENT:
CLIMBING: Flexible enough to allow dynamic climbing

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

CHAINSAW TROUSERS

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

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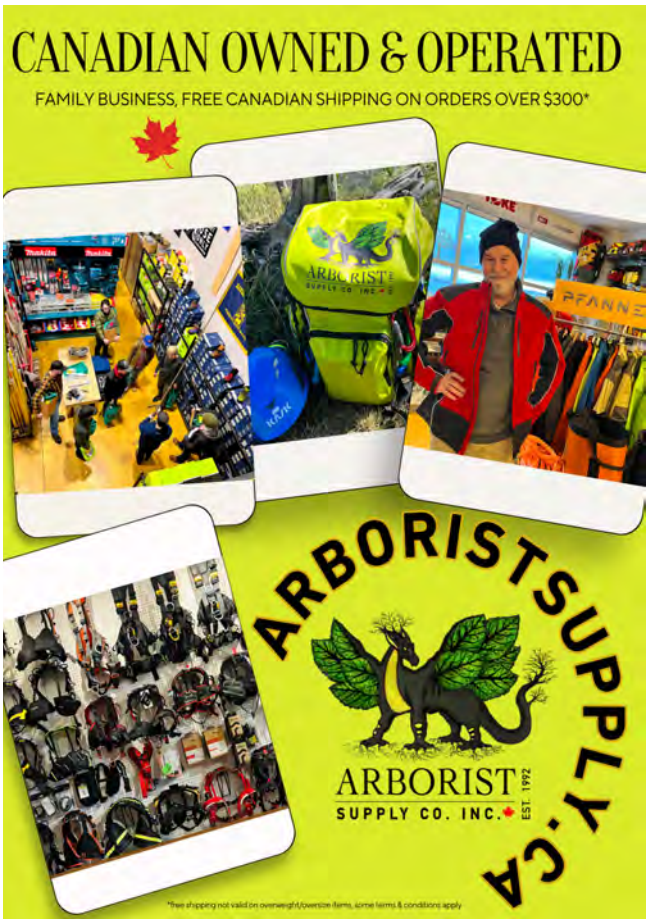
EN CUT PROTECTION:
Class 1: 20m/s
Class 2:
Class 3:
Level A=Front leg. **A+=** +Calf
Level C=front & back leg
WATER REPELLENT:
CLIMBING: Flexible enough to allow dynamic climbing

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

CHAINSAW TROUSERS

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



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WATER REPELLENT:
CLIMBING: Flexible enough to allow dynamic climbing

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

CHAINSAW TROUSERS

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

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CLIMBING: Flexible enough to allow dynamic climbing

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

CHAINSAW TROUSERS

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

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

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

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

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

WATER REPELLENT:
CLIMBING: Flexible enough to allow dynamic climbing

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

CHAINSAW TROUSERS

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

ProfiForest Size Chart

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

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£$€=currency conversion only
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AS/NZS 4453.3= Cut Pro+
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ANSI Z133= Gen Arboriculture
ENISO13688= Safety Clothing
EN 343-3 = Waterproofing
RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

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

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

CHAINSAW TROUSERS

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

ProfiForest Size Chart

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

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STANDARDS:
EN3815= Chainsaw Cut Pro
ENISO11393-2= Chainsaw safety
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ASTM Canada= Cut Pro+
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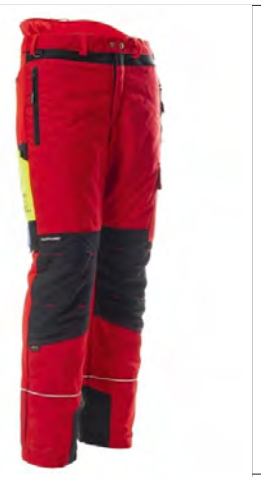
RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

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



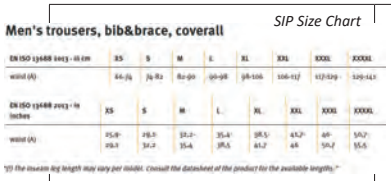
MANUFACTURER	PROFIFOREST	PROFIFOREST	PROFIFOREST	PROFIF
MODEL PROTECTION VARIANT	Innovation 1A	Kevlar 1A	Summer 1A	Visib
SERIES	-	-	-	
PRODUCT CODE(S)	11-021/20	11-021/20	17-019 / 10	11-02
ORIGIN				
COST inc VAT/tax conv-only	£000 $000 €276	£000 $000 €315	£000 $000 €268	£000 $0
WEIGHT per pair (m/lg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

CHAINSAW TROUSERS

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

SIP Size Chart

Men's trousers, bib&brace, coverall



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

STANDARDS:
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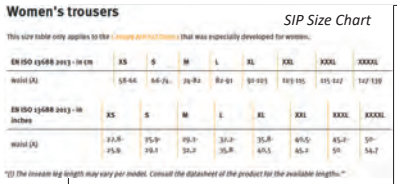
EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

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

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

CHAINSAW TROUSERS

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


Women's trousers

SIP Size Chart

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

STANDARDS:
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ASTM Canada= Cut Pro+
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EN 343-3 = Waterproofing
RIS-3279-TOM= Hi-Viz Rail
EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

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

WATER REPELLENT:
CLIMBING: Flexible enough to allow dynamic climbing

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

CHAINSAW TROUSERS

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

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

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

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

WATER REPELLENT:
CLIMBING: Flexible enough to allow dynamic climbing

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

SOLIDUR
1946

PERSONAL PROTECTIVE EQUIPMENT
for professionals working outdoors

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

SOFRESH

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

FRPA
EN 11393
Size: S to 4XL

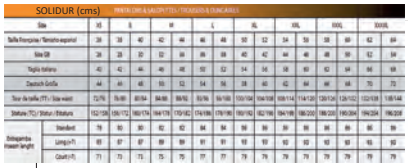
SHER
Size: XS to 2XL

SHERMAN

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

www.solidur.fr @solidur1946

Photo credit: © SOLIDUR - AdobeStock | # 344511538



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

WATER REPELLENT:
CLIMBING: Flexible enough to allow dynamic climbing

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

CHAINSAW TROUSERS

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

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EN ISO 20471= Visibility
ANSI107 & CSAZ96= Visibility

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

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

CHAINSAW TROUSERS

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

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

WATER REPELLENT:
CLIMBING: Flexible enough to allow dynamic climbing

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

CHAINSAW TROUSERS

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

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Level C=front & back leg

WATER REPELLENT:
CLIMBING: Flexible enough to allow dynamic climbing

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

CHAINSAW TROUSERS

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

Choosing the correct chainsaw trouser

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

Protection Levels & Certification

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

Design Options

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

Safety Meets Style

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

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

ARBORTEC
FORESTWEAR

Arbortec - innovative options for all applications

BREATHEFLEX

Design A Design C

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

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

BREATHEFLEXPRO

Design A Design C

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

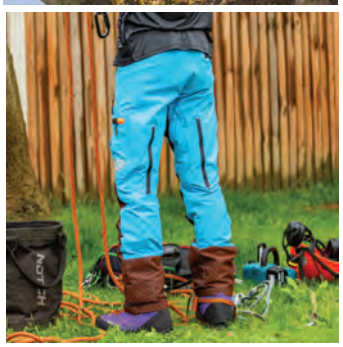
CLASS: 1, 2. (UL available please see website for colours)
DESIGN/TYPE: A, C
FIT: SLIM
FLEXIBILITY:
DURABILITY:
COLOURS: 14
RAIL APPROVED OPTION: YES
SIZES:* XS-3XL, Short, Regular, Tall, Extra Tall

PROFREESTYLE

Design A Design C

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

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



DEEPFOREST

Design A Design C

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

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

VentedUL

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

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

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

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

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

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

CHAINSAW LEGGINGS/CHAPS

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

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

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

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

WATER REPELLENT:
CLIMBING: Flexible enough to allow dynamic climbing

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

CHAINSAW LEGGINGS/CHAPS

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

NON-PROTECTIVE CLIMBING TROUSERS

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

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

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

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

WATER REPELLENT:
CLIMBING: Flexible enough to allow dynamic climbing

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

NON-PROTECTIVE CLIMBING TROUSERS

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

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

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

WATER REPELLENT:
CLIMBING: Flexible enough to allow dynamic climbing

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

NON-PROTECTIVE CLIMBING TROUSERS

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

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

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

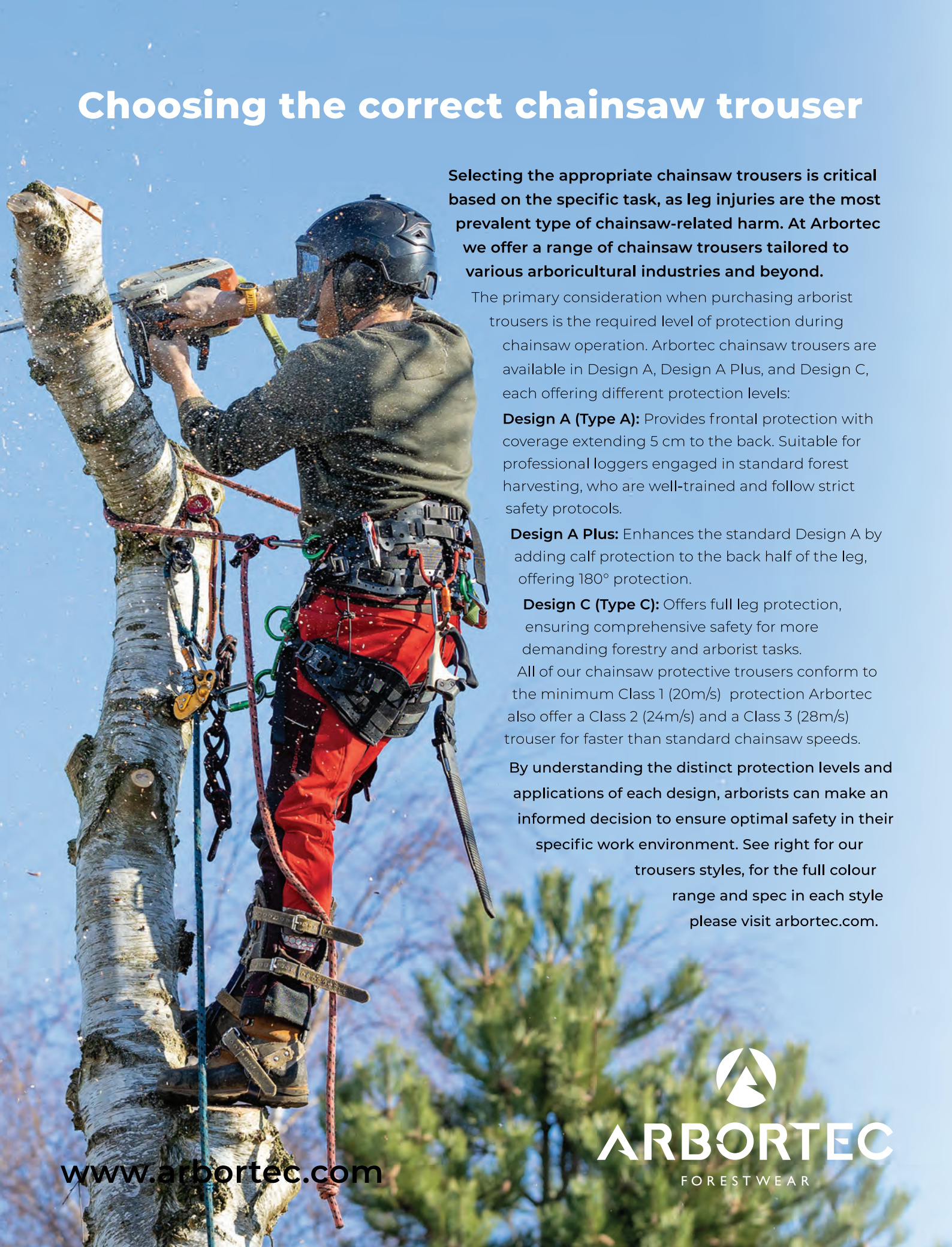
WATER REPELLENT:
CLIMBING: Flexible enough to allow dynamic climbing

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

NON-PROTECTIVE CLIMBING TROUSERS

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

Choosing the correct chainsaw trouser



Selecting the appropriate chainsaw trousers is critical based on the specific task, as leg injuries are the most prevalent type of chainsaw-related harm. At Arbortec we offer a range of chainsaw trousers tailored to various arboricultural industries and beyond.

The primary consideration when purchasing arborist trousers is the required level of protection during chainsaw operation. Arbortec chainsaw trousers are available in Design A, Design A Plus, and Design C, each offering different protection levels:

Design A (Type A): Provides frontal protection with coverage extending 5 cm to the back. Suitable for professional loggers engaged in standard forest harvesting, who are well-trained and follow strict safety protocols.

Design A Plus: Enhances the standard Design A by adding calf protection to the back half of the leg, offering 180° protection.

Design C (Type C): Offers full leg protection, ensuring comprehensive safety for more demanding forestry and arborist tasks.

All of our chainsaw protective trousers conform to the minimum Class 1 (20m/s) protection Arbortec also offer a Class 2 (24m/s) and a Class 3 (28m/s) trouser for faster than standard chainsaw speeds.

By understanding the distinct protection levels and applications of each design, arborists can make an informed decision to ensure optimal safety in their specific work environment. See right for our trousers styles, for the full colour range and spec in each style please visit arbortec.com.

ARBORTEC
FORESTWEAR

www.arbortec.com

Arbortec - innovative options for all applications

BREATHEFLEX

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

Design A Design C

CLASS: 1, 2, 3
DESIGN/TYPE: A, A+, C
FIT: STRAIGHT
FLEXIBILITY: ★★★
DURABILITY: ★★★★
COLOURS: 8
RAIL APPROVED OPTION: YES
SIZES:* XS-5XL. Short, Regular, Tall, Extra Tall

BREATHEFLEXPRO

The most popular trouser in the industry. Designed for professionals with a wealth of benefits & features

Design A Design C

CLASS: 1, 2
DESIGN/TYPE: A, C
FIT: SLIM
FLEXIBILITY: ★★★★
DURABILITY: ★★★★
COLOURS: 13
RAIL APPROVED OPTION: YES
SIZES:* XS-3XL, Short, Regular, Tall, Extra Tall

PROFREESTYLE

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

Design A Design C

CLASS: 1
DESIGN/TYPE: A, C
FIT: ATHLETIC
FLEXIBILITY: ★★★★★
DURABILITY: ★★★★
COLOURS: 4
RAIL APPROVED OPTION: NO
SIZES:* XS-3XL, Short, Regular, Tall

DEEPFOREST

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

Design A Design C

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

ARBORFLEX

'SKINS' can be worn alone or with a chainsaw protective 'Base'. This guide is based upon to our mid range with base layer .

Skins Waterproof Design A Design C

CLASS: 1
BASE LAYER DESIGN/TYPE: A, A+,C
FIT: STRAIGHT
FLEXIBILITY: ★★★★
DURABILITY:★★★★
COLOURS: 11, **TOTAL TROUSER OPTIONS:** 44
RAIL APPROVED OPTION: YES
SIZES:* XS-3XL, Short, Regular, Tall

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

Images NOT to scale

Pro/High Power BATTERIES

18 to 72 volt

Refer to this guide in conjunction with the Chainsaws and Blowers Guides that follow. We have limited these initially to a minimum of 18v because there are just too many 12v batteries to consider. So, while there are pro tools that run on 12v platforms (and indeed we still have hydraulic rescue tools running on the Makita 12v batteries) if there are no professional grade chainsaws using them we haven't included them. 12v are generally reserved for home/ smallholding use tools and Micro-saws but the RESCUE version of this guide in the USAR/EXTRICATION BUYERS GUIDE will have some 12v options because they are used in many drills and saws used in rescue.

Listed Voltages can be confusing because the US and Europeans list voltages differently (max vs nominal) so the same battery may show an AmpHour difference - we therefore list these with an 'or' as 3or4Ah for instance not to be confused with dual voltage batteries which can run two different sets of tools and are lasted with a forward slash/ eg. 4/5Ah. Further confusing things are companies like *DeWalt that* keep changing their ranges - currently you could buy 5 different series of *DeWalt* batteries but there should only be three and the Europeans merge two of those series into one! The Europeans also give a different product code which, unlike the US, does not always reflect the Ah rating for the battery. The US sensibly uses a code to reflect the voltage and then the Ah eg. DCB2015 is a 20volt 15Ah battery. We disappeared down a rabbit-hole with this one!

The arb industry now has several brands of batteries specifically for professional arborists/landscapers: *Husqvarna, Stihl, Echo, Ego* and *Greenworks* all drive their own products but *Husqvarna* and *Stihl* have started to branch out and be used by other brands of equipment - the *Skylotec* Powered Ascender uses *Husqvarna* and the *Edel* Powered Ascender uses the *Stihl* platform - we will see more of this. There are a plethora of broad-spectrum industrial brands that are also used in arb/forestry/landscaping, *Milwaukee, Makita* and *De Walt* principle among these. *Milwaukee* in particular are a key, widely available battery with the *M18* having been adopted by hardcore rescue hydraulic brand *Weber* and proving that 18v will drive the largest equipment.

BATTERY TECHNOLOGY

ALL of the saws in our guides use Lithium Ion (Li) and the effectiveness of the higher Amp-hour batteries might be lost on your chainsaw if its electronics aren't up to managing these higher Ah batteries. Where they can, such as the professional grade Stihl and Husqvarna saws, you're better off stumping up for their higher Ah options to give longer run times. Most chainsaws have brushless motors with 'smart' circuit boards – this means they regulate the load electronically, sensing when you're cutting a thick log as compared to pruning small branches and adjusting the power output accordingly. Having no brushes to wear out increases the lifespan of your saw and the smart element helps mitigate the tendency in underpowered saw/ battery combinations for the battery to overheat and cut out to protect itself leading to you needing to swap batteries while it cools down or wait. And waiting never seems to work that well because the battery is a dense mass that retains a lot of residual heat and so overheats quicker the second and subsequent times than it did the first time. Husqvarna's newest batteries have on-board cooling which will negate this and proving once ah=gain that the more you pay, the better your productivity! If your battery-saw combination is cutting out regularly you need to upgrade the battery if a higher Ah is available and compatible or accept that the saw is not up to the job you're asking of it. This will almost always only apply to the less professionally oriented models.

When we first wrote about batteries for chainsaws we said that you were best sticking with the higher voltage packages

of 28 to 36v but while that is still the case with *Husqvarna* and *Stihl* platforms the emergence of 18v as a battery for high-draw specialist equipment has backed up *Makita*'s original contention some 30 years ago that 18v would be the coverall voltage. *Milwaukee* have more or less sidelined their original 28v platform in favour of the *M18* which is now driving high power rescue hydraulics in life-saving circumstances that cannot afford to have them fail so they're certainly going to make the grade for chainsaws and industrial tools**.**

BACKPACKS

Backpacks are an incredibly useful option for extending work duration although *Stihl* recommend NOT using their *AR* system for climbing, just a hydraulic lift etc. They cost a lot of money but you can easily get a full days work out of one backpack and it can reduce your front-end weight. Your back is a much stronger part of the body than arms so is a worthwhile compromise in terms of having to work with your chainsaw on a lead. Since most of you work with a lanyard already what's a wire cord between friends. You do pay for that extended duration in money and with charging times that, in the case of the *Echo* are five and a half hours but I guess if you're charging overnight prior to a days work this should work out just fine. If a full backpack is beyond your budget but you like the idea of increased duration or reduced front-end weight there are back-pack-carriers that simply use the existing battery like *EGO* and some like *Redback* have a waist belt. This again requires an extraneous lead similar to the full backpack models and some may find this cumbersome but for ground work in particular it can be useful. If using a backpack for climbing be aware of the huge difference in your center of gravity and all the safety implications that this entails.

Mains CHARGERS can be standard or rapid and higher initial cost of a rapid charger can make the difference between waiting around for 20 minutes or an hour or two. We currently use Stihl, Echo, Milwaukee, Bosch, Makita and the now discontinud Oregon PowerNow batteries and all seven continue to provide exceptional service, even the EGO which we had not previously used and has a space-station-like charging dock. You can see that its 54v batteries are larger than the Stihl 36v. The charge status is shown as 4 LEDs which illuminate when you press the button. In the case of the EGO it's the round button on the top and the LEDs are around the circumference of the button. Unlike most images in this article, these chargers are in scale to each other.

If being incapacitated in the star position was uncomfortable and dangerous before, imagine that same posture with several extra kilos flexing your spine. We've not heard it mentioned but if using a backpack while climbing, it would be highly preferable when climbing to use a backpack in conjunction with a full body harness or chest section giving you the ability to tie in at the sternum during work and negate any chance of inversion.

CHARGERS

Images NOT to scale

A much overlooked but vitally important consideration. If you buy a kit it will invariably come with a standard single charger. In some cases they may provide a 'Rapid' charger which seems great until you realise that their base charger is a 'rapid'. For all other we would generally expect a standard charger and a rapid/quick charger and maybe a further enhancement as *Milwaukee* has with their '*Super*' charger in addition to 'Rapid' and 'Standard' chargers. The difference in speed of charging is very roughly, twice as fast for a 'Rapid' versus a 'Standard' but don't forget that charge times increase as the Ah of your battery increases - a 3Ah may take 30minutes while an equivalent 6Ah would be 70mins. If you need fast turn around a rapid charger is essential but some contest that fast charging lessens the life of your battery. Not sure that's true these days as much as it was back in the days of NiMH and lead acid!

The next consideration is the ability charge multiple batteries at the same time. Most manufactures have at least a twin battery option but some have considerably more either as a racked system secured to your vehicle as the 4-bay *Stihl* can do or as a more portable option like the 4-bay £$500 *Husqvarna* below or the 6-bay *Milwaukee*. These multi-chargers are also excellent protective storage measures for your precious batteries so are more of an investment than they might at first appear. The *Ego PGX* PowerBank bottom-left is an off-mains charger for true, in-the-field charging. ***Times quoted for some multi chargers may be for a single battery but more batteries increase those quoted charge times.***

IN THE FOLLOWING TABLES

We have included the all-important consideration (if cost is a consideration) of what other tool classes your battery will operate:

FITS TOOLS FOR.....

We have given a generic idea of what types of tools this particular battery will fit because cross-platform capability can be such a key consideration for smaller services/departments/agencies:

■= **Pro Chainsaw** □= **Home owner/Semi Pro Chainsaw**
■= **OPE** - DIY Chainsaws & Outdoor Power Equipment inc blowers, brushcutters and strimmers
■= **Trade Tools** - Can be any number of over 200 tools in the case of Milwaukee, DeWalt and Makita etc but it really refers to hand tools like hand drills, impact drill and hammer drills used in vehicle extrication and/or building collapse etc.
□=**Lighting** - A specifically useful item for your battery platform to power - may be anything from a hand torch to area lighting.
■=**Rescue Tools** - Hydraulics Cutters, spreaders, combi, rams and special tools like door breakers and re-bar cutters
■=**Disc Cutter** - either smaller disc cutters or larger circular saws for metal/concrete/masonry cutting
ⓘ=**Special Tools** - Other rescue-specific equipment detailed in the NOTES section

We've added an icon key to the additional features which indicate, from top to bottom:

LED charge indication: This may be visible continuously or you may need to press the button to see what power you have left.
On-board cooling - the battery itself has active cooling as distinct from the charger which is often fan-cooled.
Wifi or Bluetooth connectivity of the battery (not necessarily the tool) for service management & inventory
The **IP rating** indicating degree of water resistance 54/55/56 or waterproof 57/58
Operating temperature - battery performance is at optimum room temp - colder and hotter will affect performance and work duration.
WARRANTY for 'Domestic' products may be invalidated by professional use.

STIHL

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AP SYSTEM

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The new ADVANCE ProCOM headset and ear defenders on the X-CLIMB helmet allow you to communicate with workers on the ground seamlessly, with simple networking over vast distances for up to 16 people, plus much more.

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●=PARTIAL FEATURE
□□□= Option

	SERIES MODEL NB: 20v/60v in the US is 18v/54v in Europe	COMPANY	FITS TOOLS FOR:...	ORIGIN	COST inc tax / VAT	WEIGHT	BATTERY TYPE VOLTAGE	AMP HOURS Ah	ENERGY WorkHours Wh	LEN
	Max XR DCB203 DCB183-XJ	DEWALT	■■■	🇺🇸	£74 $100 €90	350g 14.6oz	Li ion 18/20v	2 Ah	36 Wh	17
	Max XR DCB230	DEWALT	■■■	🇺🇸	£0 $00 €00	520g 1.15lb	Li ion 20v	3 Ah	54 Wh	17
	Max XR DCB200	DEWALT	■■■■	🇺🇸	£0 $140 €00	1.27kg 2.8lb	Li ion 18/20v	3 Ah	00 Wh	25
	Max XR DCB240	DEWALT	■■■■	🇺🇸	£0 $130 €00	520g 1.15lb	Li ion 20v	4 Ah	00 Wh	17
	Max XR DCB204 DCB182	DEWALT	■■■■	🇺🇸	£80 $130 €00	630g 1.4lb	Li ion 18/20v	4 Ah	72 Wh	17
	Max XR DCB205 DCB184	DEWALT	■■■■	🇺🇸	£84 $150 €00	630g 1.4lb	Li ion 18/20v	5 Ah	90 Wh	17
	Max XR DCB206 DCB185	DEWALT	■■■■	🇺🇸	£0 $180 €00	680g 1.5lb	Li ion 18/20v	6 Ah	00 Wh	17
	Max XR DCB208 DCB1808	DEWALT	■■■■	🇺🇸	£00 $200 €00	1.02kg 2.25lb	Li ion 18/20v	8 Ah	160Wh	17
	Max XR DCB210 DCB1810	DEWALT	■■■■	🇺🇸	£186 $249 €223	1.11kg 2.45lb	Li ion 18/20v	10 Ah	00 Wh	17
	Max XR DCB2105 DCB184B-XJ	DEWALT	■■■■	🇺🇸	£0 $00 €00	620g 1.3lb	Li ion 18/20v	5 Ah	00 Wh	17
	Max XR DCB2108	DEWALT	■■■■	🇺🇸	£0 $220 €00	00g 00oz	Li ion 18/20v	8 Ah	00 Wh	17

NGTH	WIDTH	DEPTH	RECHARGE Min to Max Time Charger-dependant CHARGE CYCLES	MULTI CHARGERS	REPRESENTATIVE ENDURANCE	WARRANTY (Years)	LED CHARGE STATUS	IN-USE COOLING FAN	W/FI/BLUETOOTH	IP-RATING WATERPROOF	OP TEMP °C °F	NOTES	www.
77mm 7"	89mm 3.5"	45mm 1.8"	30-90-mins 1500	2 & 4-port Standard Rapid			■	-	-	-	-	NB: DEWALT are a confusing range having modified various batteries that are still under the same names. info is limited and often contradictory so will take longer to compile.	dewalt.com
78mm 7"	89mm 3.5"	45mm 1.8"	30-90-mins	2 & 4-port Standard Rapid			■	-	-	-	-		dewalt.com
54mm 10"	114mm 4.5"	75mm 3"	60-mins	2 & 4-port Standard Rapid			■	-	-	-	-		dewalt.com
78mm 7"	89mm 3.5"	45mm 1.8"	45-90mins	2 & 4-port Standard Rapid			■	-	-	-	-		dewalt.com
78mm 7"	89mm 3.5"	75mm 3"	60-185mins	2 & 4-port Standard Rapid			■	-	-	-	-		dewalt.com
78mm 7"	89mm 3.5"	75mm 3"	90mins	2 & 4-port Standard Rapid			■	-	-	-	-		dewalt.com
78mm 7"	89mm 3.5"	75mm 3"	90mins	2 & 4-port Standard Rapid			■	-	-	-	-		dewalt.com
78mm 7"	89mm 3.5"	75mm 3"	60mins	2 & 4-port Standard Rapid			■	-	-	-	-		dewalt.com
78mm 7"	89mm 3.5"	75mm 3"	60mins	2 & 4-port Standard Rapid			■	-	-	-	-		dewalt.com
78mm 7"	89mm 3.5"	75mm 3"		2 & 4-port Standard Rapid			■	-	BT	-	-	Also available as an oil-resistant version. Bluetooth is an option	dewalt.com
78mm 7"	89mm 3.5"	00mm 00"		2 & 4-port Standard Rapid			■	-	BT	-	-	Bluetooth is an option	dewalt.com

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	XR Powerstack DCBP034 DCBP034-XJ	DEWALT	■■■■	🇺🇸	£0 $00 €00	320g 11.3oz	Li ion 18/20v	1.7 Ah	27 Wh	18 7
	XR Powerstack DCBP518-XJ	DEWALT	■■■■	🇺🇸	£0 $00 €00	300g 12.8oz	Li ion 18/20v	5 Ah	00 Wh	18 7
expansion row										
	Max/XR FlexVolt DCB606 DCB546	DEWALT	■■■■■	🇺🇸	£141 $180 €00	1.05kg 2.3lb	Li ion 20-60v 18-54v	2/6 Ah	108 Wh	12 4
	Max/XR FlexVolt DCB609 DCB547	DEWALT	■■■■■	🇺🇸	£197 $300 €00	1.44kg 3.2lb	Li ion 20-60v 18-54v	3/9 Ah	162 Wh	13 5
	Max/XR FlexVolt DCB612 DCB548	DEWALT	■■■■■	🇺🇸	£281 $00 €00	1.46kg 3.2lb	Li ion 20-60v 18-54v	4/12 Ah	216 Wh	13 5
	Max/XR FlexVolt DCB615 DCB549	DEWALT	■■■■■	🇺🇸	£0 $420 €00	2.04kg 4.55lb	Li ion 20-60v 18-54v	5/15 Ah	00 Wh	19 7
	36v DCB361	DEWALT		🇺🇸	£0 $300 €00	1.44kg 38.4oz	Li ion 36v	2 Ah	00 Wh	0
	Max XR DCB404	DEWALT		🇺🇸	£0 $00 €00	1.6kg 3.53lb	Li ion 40v	4 Ah	00 Wh	18 7
	Max XR DCB406	DEWALT		🇺🇸	£0 $00 €00	1.96kg 4.32lb	Li ion 40v	6 Ah	300 Wh	18 7
	Max XR DCB407	DEWALT		🇺🇸	£80 $00 €00	2.1g 4.6lb	Li ion 40v	7.5 Ah	00 Wh	18 7

NGTH	WIDTH	DEPTH	RECHARGE Min to Max Time Charger-dependant CHARGE CYCLES	MULTI CHARGERS	REPRESENTATIVE ENDURANCE	WARRANTY (Years)	LED CHARGE STATUS	IN-USE COOLING FAN	WfFi/BLUETOOTH	IP-RATING WATERPROOF	OP TEMP °C °F	NOTES	www.
37mm 7.4"	34mm 1.3"	46mm 1.8"	60mins				■	-	-	-	-		dewalt.com
37mm 7.4"	150mm 5.9"	66mm 2.62"	75mins	multi voltage charger	70cuts 4x4 PT Spruce		■	-	-	-	-	Enhanced power to weight/Ah ratio +50%	dewalt.com
25mm 4.9"	85mm 3.3"	90mm 3.5"	40-90mins				-	-	-	-	-		dewalt.com
88mm .433	87mm 3.543"	97mm 3.813"	60-140mins				-	-	-	-	-		dewalt.com
88mm .433"	87mm 3.543"	97mm 3.813"	80-180mins				■	-	-	-	-		dewalt.com
92mm 563"	111mm 4.375"	97mm 3.813"	100-233mins				■	-	-	-	-		dewalt.com
0mm 00"	00mm 00"	00mm 00"	30mins				-	-	-	-	-	discontinued	dewalt.com
84mm .25"	137mm 5.375"	126mm 4.938"	90mins				■	-	-	-	-		dewalt.com
84mm .25"	137mm 5.375"	126mm 4.938"	130mins				■	-	-	-	-		dewalt.com
84mm .25"	137mm 5.375"	126mm 4.938"	60mins				-	-	-	-	-		dewalt.com

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	Garden+ LBP-36-80	ECHO	■ □	●	£145 $00 €00	0.7kg 1.54lb	Li ion 36/40v	2Ah	80 Wh	0 (
	Garden+ LBP-36-150	ECHO	■ □	●	£145 $00 €00	1kg 2.2lb	Li ion 36/40v	4Ah	150 Wh	0 (
	E-Force LBP-56V125 LBP-50-150	ECHO	■ ■	●	£190 $150 €210	1kg 2.25lb	Li ion 56/50.4v	2or2.5Ah	113/ 126 Wh	18 7
	E-ForceL- BP-56V250 LBP-50-250	ECHO	■ ■	●	£290 $250 €300	1.8kg 4lb	Li ion 56/50.4v	4.5or5Ah	252 Wh	18 7
	E-ForceL- BP-56V400A LBP-50-400	ECHO	■ ■	●	£299 $350 €356		Li ion 56/50.4v	8or9Ah	400 Wh	222 8
	ARC 56v BA1400T	EGO	■ ■	■	£120 $187 €0	1.3g 2.9lb	Li ion 56v	2.5Ah	140 Wh	19 7
	ARC 56v BA2242T	EGO	■ ■	■	£190 $330 €0	2.1kg 4.7lb	Li ion 56v	4Ah	224 Wh	19 7
	ARC 56v BA2800T	EGO	■ ■	■	£240 $330 €0	2.25g 5lb	Li ion 56v	5Ah	280 Wh	19 7
	ARC 56v BA3360T	EGO	■ ■	■	£0 $0 €0	2.8g 6.2lb	Li ion 56v	6Ah	336 Wh	19 7
	ARC 56v BA4200T	EGO	■ ■	■	£0 $0 €0	2.9kg 6.4lb	Li ion 56v	7.5Ah	420 Wh	19 7
	ARC 56v BA4480T	EGO	■ ■	■	£00 $00 €00	3kg 6.7lb	Li ion 56v	8Ah	448 Wh	19 7

NGTH	WIDTH	DEPTH	RECHARGE Min to Max Time Charger-dependant CHARGE CYCLES	MULTI CHARGERS	REPRESENTATIVE ENDURANCE	WARRANTY (Years)	LED CHARGE STATUS	IN-USE COOLING FAN	W/FI/BLUETOOTH	IP-RATING WATERPROOF	OP TEMP °C °F	NOTES	www.
0mm 00"	00mm 00"	00mm 00"	42mins	LC3604 Standard		2	■	-	-				echotools.com
0mm 00"	00mm 00"	00mm 00"	120mins	LC3604 Standard		2	■	-	-				echotools.com
34mm .24"	88mm 3.46"	66mm 2.6"	42-47mins	Dual-port. LCJU-560 Rapid LCJQ-560 Ultra-Rapid			■	-	-		0-45 32-113		echotools.com
34mm .24"	88mm 3.46"	100mm 3.96"	57-89mins	Dual-port. LCJU-560 Rapid LCJQ-560 Ultra-Rapid			■	-	-		0-45 32-113	NB: will not fit 2500T Top-handle CSaw	echotools.com
2.2mm .75"	88mm 3.46"	107mm 4.25"	60-225mins	Dual-port Rapid. Ultra-Rapid.			■	-	-		0-45 32-113	NB: will not fit 2500T Top-handle CSaw	echotools.com
95mm .67"	157mm 6.2"	109mm 4.3"	50mins 30mins	2,3 &6-port. Power Bank* Standard Rapid Turbo	130 cuts in 2x2" with 12" bar C'Saw	3	■	-	BT	X4		2Ah DISCONTINUED *An off grid, remote charging bank for 2 batteries at a time	egopowerplus.com
95mm .67"	157mm 6.2"	109mm 4.3"	80mins 30mins	2,3 &6-port. Power Bank* Standard Rapid Turbo	240 cuts in 2x2" with 12" bar C'Saw	3	■		BT	X4		*An off grid, remote charging bank for 2 batteries at a time	egopowerplus.com
95mm .67"	157mm 6.2"	109mm 4.3"	100mins 40mins	2,3 &6-port. Power Bank* Standard Rapid Turbo	300 cuts in 2x2" with 12" bar C'Saw	3	■		BT	X4		*An off grid, remote charging bank for 2 batteries at a time	egopowerplus.com
95mm .67"	157mm 6.2"	109mm 4.3"	120mins 35mins	2,3 &6-port. Power Bank* Standard Rapid Turbo	265 cuts in 4x4" with 12" bar CSX3000 C'Saw	3	■	-	BT	X4		*An off grid, remote charging bank for 2 batteries at a time	egopowerplus.com
95mm .67"	157mm 6.2"	109mm 4.3"	145mins 60mins	2,3 &6-port. Power Bank* Standard Rapid Turbo	450 cuts in 2x2" with 12" bar C'Saw	3	■		BT	X4		*An off grid, remote charging bank for 2 batteries at a time	egopowerplus.com
95mm .67"	157mm 6.2"	109mm 4.3"	160mins 50mins	2,3 &6-port. Power Bank* Standard Rapid Turbo	275 cuts in 4x4" with 20" bar CSX5000 C'Saw	3	■			X4		*An off grid, remote charging bank for 2 batteries at a time	egopowerplus.com

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

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

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	SERIES MODEL NB: 20v/60v in the US is 18v/54v in Europe	COMPANY	FITS TOOLS FOR:...	ORIGIN	COST inc tax / VAT	WEIGHT	BATTERY TYPE VOLTAGE	AMP HOURS Ah	ENERGY WorkHours Wh	LEN
	Commercial 82BD250	GREENWORKS	■ ■		£000 $100 €000		Li ion 82V	2.5Ah		0
	Commercial 82BD400	GREENWORKS	■ ■		£000 $200 €000		Li ion 82V	4Ah		0
	Commercial 82BD500	GREENWORKS	■ ■ ■ ■		£145 $250 €00	1.8kg 2.2lb	Li ion 82V	5Ah	656 Wh	0
	Commercial 82BD600	GREENWORKS	■ ■ ■ ■		£000 $300 €000		Li ion 82V	6Ah	432 Wh	0
	Power+ 82BD750800	GREENWORKS	■ ■ ■ ■		£145 $350 €00	1.8kg 2.2lb	Li ion 82V	7.5/8Ah	656 Wh	0
	Commercial 82BD1200	GREENWORKS	■ ■		£000 $1200 €000		Li ion 82V	12Ah	000Wh	0
	Optimus Core300 1811102	GREENWORKS	■ ■		£000 $000 €000	1.7kg 3.8lb	Li ion 82V	4Ah	295 Wh	0
	Optimus Core360 CORE360A1	GREENWORKS	■ ■		£000 $400 €000	2kg 4.4lb	Li ion 82V	5Ah	360 Wh	0
	Optimus Core400 1814502	GREENWORKS	■ ■		£000 $600 €000	2.2kg 4.8lb	Li ion 82V	5.5Ah	406 Wh	0
	Optimus Core530	GREENWORKS	■ ■		£000 $750 €000	2.7kg 5.9lb	Li ion 82V	7.2Ah	532 Wh	0
	Optimus Core720 CORE700A1	GREENWORKS	■ ■		£000 $900 €00	3.3kg 7.3lb	Li ion 82V	12Ah	701 Wh	0

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0mm 00"	00mm 00"	00mm 00"											greenworkstools.com greenworkstools.eu greenworkscommercial.com
0mm 00"	00mm 00"	00mm 00"											greenworkstools.com greenworkstools.eu greenworkscommercial.com
0mm 00"	00mm 00"	00mm 00"	60mins	Standard			■	-	■	X4			greenworkstools.com greenworkstools.eu greenworkscommercial.com
0mm 00"	00mm 00"	00mm 00"	90mins	Standard			■	-	■	X4			greenworkstools.com greenworkstools.eu greenworkscommercial.com
0mm 00"	00mm 00"	00mm 00"	60mins	Standard			■	-	■	X4			greenworkstools.com greenworkstools.eu greenworkscommercial.com
0mm 00"	00mm 00"	00mm 00"	90mins	Standard		-	■	-	■	X4			greenworkstools.com greenworkstools.eu greenworkscommercial.com
0mm 00"	00mm 00"	00mm 00"	25mins 72mins 44mins 15mins	Dual 6-Port Standard Fast			■	-	-	X4	-4 122		greenworkstools.com greenworkstools.eu greenworkscommercial.com
0mm 00"	00mm 00"	00mm 00"	40mins 73mins 55mins 00mins	Dual 6-Port Standard Fast		-	■	-	■	X4	-4 122	New in 2026	greenworkstools.com greenworkstools.eu greenworkscommercial.com
0mm 00"	00mm 00"	00mm 00"	19mins 55mins 33mins 19mins 2500	Dual 6-Port Standard Fast						X4	-4 122	Multi-battery charger times are for 1 battery, multiple batteries take longer.	greenworkstools.com greenworkstools.eu greenworkscommercial.com
0mm 00"	00mm 00"	00mm 00"	00mins 00mins 00mins 25mins 2500	Dual 6-Port Standard Fast		-	■	-	■	X4	-4 122	Multi-battery charger times are for 1 battery, multiple batteries take longer.	greenworkstools.com greenworkstools.eu greenworkscommercial.com
0mm 00"	00mm 00"	00mm 00"	40mins 110mins 75mins 20mins	Dual 6-Port Standard Fast		-	■	-	■	X4	-4 122	New in 2026	greenworkstools.com greenworkstools.eu greenworkscommercial.com

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	SERIES MODEL NB: 20v/60v in the US is 18v/54v in Europe	COMPANY	FITS TOOLS FOR:...	ORIGIN	COST inc tax / VAT	WEIGHT	BATTERY TYPE VOLTAGE	AMP HOURS Ah	ENERGY WorkHours Wh	LEN
	BSL1820M-18 377796 BSL1820 334420	HiKOKI (HITACHI)			£00 $00 €00	380g 0oz	Li ion 18v	2 Ah	36 Wh	11 4
	BSL1830M-18 000000	HiKOKI (HITACHI)			£00 $00 €00	380g 0oz	Li ion 18v	3 Ah	54 Wh	11 4
	BSL1840M-18 378679	HiKOKI (HITACHI)			£00 $00 €00	560g 0oz	Li ion 18v	4 Ah	90 Wh	11 4
	BSL1850M-18 378683 BSL1850C 376029	HiKOKI (HITACHI)			£00 $00 €00	550g 0oz	Li ion 18v	5 Ah	720 Wh	116 4
	BSL1860 338891	HiKOKI (HITACHI)			£00 $00 €00	650g 0oz	Li ion 18v	6 Ah	00 Wh	11 4
	MultiVolt BSL36A18 000000	HiKOKI (HITACHI)			£00 $00 €200	700g 0oz	Li ion 36/18v	2.5/5Ah	90 Wh	11 4
	MultiVolt BSL36B18 000000	HiKOKI (HITACHI)			£00 $00 €00	975g 0oz	Li ion 36/18v	4/8Ah	144 Wh	13 (
	MultiVolt T-Power BSL 000000	HiKOKI (HITACHI)			£00 $00 €00	0g 0oz	Li ion 36/18v	2.5 Ah	337 Wh	0 (
	MultiVolt T-Power BSL3640MVT 381990	HiKOKI (HITACHI)			£00 $00 €00	0g 0oz	Li ion 36/18v	4/8 Ah	00 Wh	0 (
	BSL 000000	HiKOKI (HITACHI)			£00 $00 €00	0g 0oz	Li ion 36v	2.6 Ah	00 Wh	0 (
	BSL 000000	HiKOKI (HITACHI)			£00 $00 €00	0g 0oz	Li ion 36v	6 Ah	00 Wh	0 (

NGTH	WIDTH	DEPTH	RECHARGE Min to Max Time Charger-dependant CHARGE CYCLES	MULTI CHARGERS	REPRESENTATIVE ENDURANCE	WARRANTY (Years)	LED CHARGE STATUS	IN-USE COOLING FAN	W/FI/BLUETOOTH	IP-RATING WATERPROOF	OP TEMP °C °F	NOTES	www.
16mm .57"	76mm 3"	49mm 00"					■	■				Also a 1.5Ah Basic version Variant basic version with no charge status	hikoki-powertools.com
16mm .57"	76mm 3"	00mm 00"					■						hikoki-powertools.com
16mm .57"	76mm 3"	00mm 00"					■						hikoki-powertools.com
97mm .57"	76mm 3"	71mm 00"					■					Variant basic version with no charge status	hikoki-powertools.com
16mm .57"	76mm 3"	69mm 00"					■						hikoki-powertools.com
16mm .57"	76mm 3"	69mm 00"	32mins	UC18YSL3			■				-10	MOVE to 'H'	hikoki-powertools.com
34mm 00"	83mm 00"	75mm 00"	52mins	UC18YSL3			■						hikoki-powertools.com
0mm 00"	00mm 00"	00mm 00"					■						hikoki-powertools.com
0mm 00"	00mm 00"	00mm 00"					■						hikoki-powertools.com
0mm 00"	00mm 00"	00mm 00"					■						hikoki-powertools.com
0mm 00"	00mm 00"	00mm 00"					■						hikoki-powertools.com

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	Aspire P4A 18-B45	HUSQVARNA	■■		£70 $105 €90	360g 12.7oz	Li ion 18v	2.5Ah	45 Wh	11 4
	Aspire P4A 18-B72	HUSQVARNA	■■		£95 $135 €115	660g 1.4lb	Li ion 18v	4Ah	72 Wh	116 4
	Aspire P4A 18-B108	HUSQVARNA	■■		£120 $165 €115	800g 1.76lb	Li ion 18v	6Ah	108 Wh	13 5
	100 40-B70	HUSQVARNA	■■■■		£100 $135 €115	800g 1.76lb	Li ion 36v	2Ah	75.6 Wh	13 5
	100 40-B140	HUSQVARNA	■■■■		£150 $205 €170	1.25k 2.7lb	Li ion 36v	4Ah	144 Wh	13 5
	BLi BLi100	HUSQVARNA	■■■■ ⓘ		£170 $230 €195	840g 1.85lb	Li ion 36v	2.6Ah	00 Wh	13 5
	BLi BLi200	HUSQVARNA	■■■■ ⓘ		£240 $325 €350	1.3kg 2.8lb	Li ion 36v	5.2Ah	180 Wh	13 5
	BLi BLi200X	HUSQVARNA	■■■■ ⓘ		£260 $350 €300	1.3kg 2.8lb	Li ion 36v	5.2Ah	180 Wh	13 5
	BLi BLi30	HUSQVARNA	■■■■ ⓘ		£280 $310 €320	1.9kg 4.2lb	Li ion 36v	7.5/7.7Ah	270 Wh	13 5
	BLi BLi300	HUSQVARNA	■■■■ ⓘ		£340 $460 €395	1.9kg 4.2lb	Li ion 36v	9/9.4Ah	324 Wh	15 5
	BLi BLi950X	HUSQVARNA	■■■■ ⓘ		£340 $460 €395	1.9kg 4.2lb	Li ion 36v	31.1Ah	324 Wh	15 5

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4mm 4.5"	81mm 3.1"	45mm 1.7"					-	-	-	-	-	Not technically a pro battery but will power a range of 18v trade tools -	husqvarna.com
6.5mm 4.5"	84mm 3.3"	64mm 2.5"					-	-	-	-	-		husqvarna.com
2mm 5.2"	117mm 4.6"	98mm 3.8"	>600				-	-	-	-	-		husqvarna.com
2mm 5.2"	117mm 4.6"	98mm 3.8"	>600	Rapid, QC250 Standard		-	■	-	-	-	-	ⓘ Powered ascender/ winch	husqvarna.com
2mm 5.2"	117mm 4.6"	98mm 3.8"	40/50mins 1hr10-2hr40 >600	Rapid, Standard	35-45mins	-	■	-	-	-	-	ⓘ Powered ascender/ winch	husqvarna.com
2mm 5.2"	115.6mm 4.5"	98mm 3.8"	50/60mins 1h5/4hr 1500	Rapid, QC250 Standard Vehicle 4-bank	1hr05	-	■	-	-	-	-	ⓘ Powered ascender/ winch	husqvarna.com
2mm 5.2"	115.6mm 4.5"	98mm 3.8"	50/60mins 1h5/4hr 1500	40-C80 Standard QC250 Quck Vehicle 4 & 8-bank	2hr10	-	■	-	-	-	-	ⓘ Powered ascender/ winch	husqvarna.com
2mm 5.2"	115.6mm 4.5"	98mm 3.8"	50/60mins 1h5/4hr 1500	Rapid, Standard Vehicle 4 & 8-bank		-	■	-	-	-	-	ⓘ Powered ascender/ winch	husqvarna.com
2mm 5.2"	155mm 6.1"	98mm 3.8"	>600	Rapid, Standard Vehicle 4 & 8-bank		-	■	-	-	-	-	ⓘ Powered ascender/ winch	husqvarna.com
55mm 5.2"	115.6mm 4.5"	98mm 3.8"	50/60mins 1h5/4hr 1500	Rapid, Standard Vehicle 4 & 8-bank	3hr55	-	■	-	-	-	-	ⓘ Powered ascender/ winch	husqvarna.com
55mm 5.2"	115.6mm 4.5"	98mm 3.8"		Rapid, Standard Vehicle 4 & 8-bank	3hr55	-	■	-	-	-	-	ⓘ Powered ascender/ winch	husqvarna.com

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	BLiX 40-B140X	HUSQVARNA	ⓘ		£210 $ €	800g 1.76lb	Li ion 36v	4 Ah	75.6 Wh	13 5
	BLiX 40-B220X	HUSQVARNA	ⓘ		£310 $ €	1.4kg 3lb	Li ion 36v	6 Ah	216 Wh	13 5
	BLiX 40-B330X	HUSQVARNA	ⓘ		£410 $560 €520	1.9kg 4.2lb	Li ion 36v	9 Ah	324 Wh	15 6
	BLiX 40-B540X	HUSQVARNA	ⓘ		£650 $000 €000	2.86kg 6.3lb	Li ion 36v	15 Ah	540 Wh	15 6
	Kross Pack KAB02	KRESS			£35 $00 €00	420g 0.9lb	Li ion 20v	2 Ah	36 Wh	00 0
	Kross Pack KAB04	KRESS			£50 $00 €00	660g 1.45lb	Li ion 20v	4 Ah	72 Wh	00 0
	Kross Pack KAB08	KRESS			£115 $00 €00	1kg 2.2lb	Li ion 20v	8 Ah	144 Wh	00 0
	Commercial Nano Cyber Pack KAC800	KRESS			£300 $00 €00	1.56kg 3.4lb	Li ion 60v	4 Ah	240 Wh	00 0
	Commercial 8min Cyber Pack KAC804	KRESS			£600 $00 €00	3kg 6.6lb	Li ion 60v	4 Ah	240 Wh	00 0
	Cyber System KAC810	KRESS			£1400 $00 €00	7.7kg 17lb	Li ion 60v	2.6 Ah	660Wh	00 0
	Cyber System KAC815	KRESS			£1500 $00 €00	8.1kg 18lb	Li-ion 60v	25 Ah	1500 Wh	00 0

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2mm .2"	117mm 4.6"	98mm 3.85"	>600	QC330-Standard 40-C750 Rapid X8-bank			■		✱	X4	-	On-board temp gauge. ⓘ Powered ascender/ winch	husqvarna.com
2mm .2"	117mm 4.6"	98mm 3.85"		8-bank			■		✱	X4	-	On-board temp gauge. ⓘ Powered ascender/ winch	husqvarna.com
5mm .1"	130.5mm 5.1"	93mm 3.6"		8-bank			■		✱	X4	-	On-board temp gauge. ⓘ Powered ascender/ winch	husqvarna.com
5mm .1"	130.5mm 5.1"	93mm 3.6"		8-bank			■	■	✱	X4	-	On-board temp gauge. ⓘ Powered ascender/ winch	husqvarna.com
0mm 00"	00mm 00"	00mm 00"	20-60	KAC04 2-bank KAC15 2-bank Rapid KAC02 Standard			■	■		-	-		kress.com
0mm 00"	00mm 00"	00mm 00"	30-120	2-bank 2-bank Rapid KAC02 Standard			■	■		-	-		kress.com
0mm 00"	00mm 00"	00mm 00"	32-?	2-bank 2-bank Rapid KAC02 Standard		-	■	■		-	-		kress.com
0mm 00"	00mm 00"	00mm 00"	8 - 1200	2-bank 4-Bank Standard 5kW Power Pack		5	■	■	✱	X5	5-40	Ultra-fast charging	kress.com
0mm 00"	00mm 00"	00mm 00"	8 -12 3000	2-bank 4-Bank Standard 5kW Power Pack		5	■	■	✱	X5	5-40	Ultra-fast charging	kress.com
0mm 00"	00mm 00"	00mm 00"	8 -25 3000	2-bank 4-Bank Standard 5kW Power Pack		8	■	■	✱	X5	5-40	Mowers only Ultra-fast charging	kress.com
0mm 00"	00mm 00"	00mm 00"	8 - 3000	2-bank 4-Bank Standard 5kW Power Pack		8	■	■	✱	X5	5-40	Mowers only Ultra-fast charging	kress.com

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	Max KA3000	KRESS			£120 $00 €00	1.55kg 3.4lb	Li ion 60v	2 Ah	108 Wh	00 0
	Max KA3002	KRESS			£200 $00 €00	2.75kg 6.05lb	Li ion 60v	4 Ah	240 Wh	00 0
	Max KA3018	KRESS			£370 $00 €00	0kg 0lb	Li ion 60v	8 Ah	144 Wh	00 0
	XGT BL4020	MAKITA		●	£75 $00 €00	690g 1.5lb	Li ion 40v	2 Ah	72 Wh	11 4
	XGT BL4025	MAKITA		●	£90 $00 €00	710g 1.5lb	Li ion 40v	2.5 Ah	90 Wh	11 4
	XGT BL4040F	MAKITA		●	£150 $00 €00	1kg 2.2lb	Li ion 40v	4 Ah	144 Wh	13 5.
	XGT BL4050F	MAKITA		●	£180 $00 €00	1.3kg 2.8lb	Li ion 40v	5 Ah	180 Wh	15
	XGT BL4080F	MAKITA		●	£265 $00 €00	1.9kg 4.2lb	Li ion 40v	8 Ah	288 Wh	15
	36Liion BL3622A	MAKITA		●	£00 $00 €00	1.33kg 2.9lb	Li ion 40v	2.2 Ah	80 Wh	16 6
	36Liion BL3626	MAKITA		●	£00 $00 €00	1.34kg 2.95lb	Li ion 40v	2.6 Ah	94 Wh	16 6
	36Liion BL6440	MAKITA		●	£00 $00 €00	2.2kg 4.4lb	Li-ion 64v	4 Ah	230.4 Wh	19 7

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0mm 00"	00mm 00"	00mm 00"	30mins 40mins 25mins	KA3706 2-bank KA3713 Standard KA3714 Rapid			■	■	-	-	-		kress.com
0mm 00"	00mm 00"	00mm 00"	30mins 80mins 50mins	KA3706 2-bank KA3713 Standard KA3714 Rapid			■	■	-	-	-		kress.com
0mm 00"	00mm 00"	00mm 00"	?mins	KA3706 2-bank KA3713 Standard KA3714 Rapid		-	■	■	-	-	-	Not available in UK/Aus Canada or USA.	kress.com
8mm .6"	77mm 3"	65mm 2.5"	22-30mins	2-bank Rapid Standard Back/Power Pack			■	■	● *	-	-	*Digital coms between battery and tool regarding staus and power draw etc.	makitatools.com
8mm .6"	77mm 3"	65mm 2.5"	28-38mins	2-bank Rapid Standard Back/Power Pack			■	■	● *	-	-	*Digital coms between battery and tool regarding staus and power draw etc.	makitatools.com
3mm 23"	82mm 3.22"	71mm 2,8"	45-67mins	2-bank Rapid Standard Back/Power Pack		-	■	■	● *	-	-	*Digital coms between battery and tool regarding staus and power draw etc.	makitatools.com
2mm 6"	79mm 3.1"	92mm 3.6"	50-85mins	2-bank Rapid Standard Back/Power Pack		-	■	■	● *	-	-	*Digital coms between battery and tool regarding staus and power draw etc.	makitatools.com
2mm 6"	85mm 3.3"	94mm 3.7"	76mins	2-bank Rapid Standard Back/Power Pack		-	■	■	● *	-	-	*Digital coms between battery and tool regarding staus and power draw etc.	makitatools.com
5mm .5"	102mm 4"	85mm 3.3"		2-bank Rapid Standard Back/Power Pack		-	■	-	-	-	-	DISCONTINUED	makitatools.com
2mm .3"	102mm 4"	85mm 3.3"		2-bank Rapid Standard Back/Power Pack		-	■	-	-	-	-	DISCONTINUED	makitatools.com
0mm .4"	90mm 3.5"	172mm 6.77"				-	■	-	-	-	-	Mower only	makitatools.com

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	LXT BL1820B	MAKITA		●	£00 $00 €00	380g 13oz	Li ion 18V	2 Ah	36 Wh	11 4
	LXT BL1830B	MAKITA		●	£00 $00 €00	640g 1.4lb	Li ion 18V	3 Ah	54 Wh	11 4
	LXT BL1840B	MAKITA		●	£00 $00 €00	640g 1.4lb	Li ion 18V	4 Ah	72 Wh	11 4
	LXT BL1850B	MAKITA		●	£00 $00 €00	640g 1.4oz	Li ion 18V	5 Ah	90 Wh	11 4
	LXT BL1860B	MAKITA		●	£00 $00 €00	660g 1.45lb	Li ion 18V	6 Ah	108 Wh	11 4
	M18 Red Lithium XC1.5	MILWAUKEE			£00 $00 €00	0g 0lb	Li ion 18V	1.5 Ah	00 Wh	00 0
	M18 Red Lithium XC2	MILWAUKEE			£53 $00 €136	0g 0lb	Li ion 18V	2 Ah	00 Wh	00 0
	M18 Red Lithium XC3/2.8	MILWAUKEE			£00 $00 €00	0g 0lb	Li ion 18V	2.8 Ah	00 Wh	00 0
	M18 Red Lithium XC4	MILWAUKEE			£78 $00 €00	0g 0lb	Li ion 18V	4 Ah	00 Wh	00 0
	M18 Red Lithium XC5	MILWAUKEE			£80 $160 €202	700g 1.5lb	Li ion 18V	5 Ah	00 Wh	80 3
	M18 Red Lithium XC6	MILWAUKEE			£00 $00 €00	1.03kg 2.27lb	Li ion 18V	6 Ah	00 Wh	00 0

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3mm .4"	75mm 3"	45mm 00"	22-45 mins	2-bank Rapid Standard Back/Power Pack			■	-	-	-	-		makitatools.com
3mm .4"	75mm 3"	62mm 2.4"	24-60 mins	2-bank Rapid Standard Back/Power Pack			■	-	-	-	-		makitatools.com
3mm .4"	75mm 3"	62mm 2.4"	36-90 mins	2-bank Rapid Standard Back/Power Pack			■	-	-	-	-		makitatools.com
3mm .4"	75mm 3"	62mm 2.4"	45-110 mins	2-bank Rapid Standard Back/Power Pack			■	-	-	-	-		makitatools.com
3mm .4"	75mm 3"	62mm 2.4"	55-130 mins	2-bank Rapid Standard Back/Power Pack			■	-	-	-	-		makitatools.com
0mm 0"	00mm 00"	00mm 00"	21 mins 21 mins 31 mins	2,3,4 & 6-bank Super Rapid Standard		-	■	-	-	-	-20		milwaukee.com
0mm 0"	00mm 00"	00mm 00"	27 mins 27 mins 42 mins	2,3,4 & 6-bank Super Rapid Standard		-	■	-	-	-	-20		milwaukee.com
0mm 0"	00mm 00"	00mm 00"	34 mins 34 mins 57 mins	2,3,4 & 6-bank Super Rapid Standard		-	■	-	-	-	-20		milwaukee.com
0mm 0"	00mm 00"	00mm 00"	48 mins 48 mins 76 mins	2,3,4 & 6-bank Super Rapid Standard		-	■	-	-	-	-20		milwaukee.com
0mm .1"	50mm 2"	80mm 3.1"	60 mins 60 mins 105 mins	2,3,4 & 6-bank Super Rapid Standard		-	■	-	-	-	-20		milwaukee.com
0mm 0"	00mm 00"	00mm 00"	70 mins 70 mins 125 mins	2,3,4 & 6-bank Super Rapid Standard		-	■	-	-	-	-20		milwaukee.com

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	MX Fuel RedLithium Forge XC8	MILWAUKEE	■■■■		£00 $00 €1154	4.4kg 9.8lb	Li ion 00v	8 Ah	00 Wh	27 1
	MX Fuel RedLithium Forge C12	MILWAUKEE	■■■■		£00 $00 €1546	0g 0oz	Li ion 00v	12 Ah	00 Wh	0 0
	M18 Red Lithium High Output CP3	MILWAUKEE	■■■		£130 $120 €166	0g 0oz	Li ion 18v	3 Ah	00 Wh	0 0
	M18 Red Lithium High Output XC5.5	MILWAUKEE	■■■■■		£197 $160 €237	1.21kg 0oz	Li ion 18v	5.5 Ah	00 Wh	0 0
	M18 Red Lithium High Output XC6	MILWAUKEE	■■■■■		£00 $00 €00	0g 0oz	Li ion 18v	6 Ah	00 Wh	0 0
	M18 Red Lithium High Output XC8	MILWAUKEE	■■■■■		£160 $200 €279	1.08kg 2.38lb	Li ion 18v	8 Ah	00 Wh	13 5
	M18 Red Lithium High Output HD12	MILWAUKEE	■■■■■		£240 $250 €361	1.54kg 3.4lb	Li ion 18v	12 Ah	00 Wh	15
	M18 Red Lithium Forge XC5	MILWAUKEE	■■■■■		£00 $00 €00	0g 0oz	Li ion 18v	5 Ah	00 Wh	0 0
	M18 Red Lithium Forge XC6	MILWAUKEE	■■■■■		£311 $00 €00	0g 0oz	Li ion 18v	6 Ah	00 Wh	0 0
	M18 Red Lithium Forge XC8	MILWAUKEE	■■■■■		£220 $200 €279	1.08kg 2.38lb	Li ion 18v	8 Ah	00 Wh	10 5
	M18 Red Lithium Forge HD12	MILWAUKEE	■■■■■		£270 $250 €361	1.54kg 3.4lb	Li ion 18v	12 Ah	00 Wh	14 5

NGTH	WIDTH	DEPTH	RECHARGE Min to Max Time Charger-dependant CHARGE CYCLES	MULTI CHARGERS	REPRESENTATIVE ENDURANCE	WARRANTY (Years)	LED CHARGE STATUS	IN-USE COOLING FAN	WiFi/BLUETOOTH	IP-RATING WATERPROOF	OP TEMP °C °F	NOTES	www.
74mm 0.8"	180mm 7.1"	96mm 3.8"	45mins	RedLi Super			■	■	■		-28		milwaukee.com
0mm 00"	00mm 00"	00mm 00"	45mins	RedLi Super			■	■	■		-28		milwaukee.com
0mm 00"	00mm 00"	00mm 00"	35 mins 35 mins 65 mins	2,3,4 & 6-bank Super Rapid Standard			■	-	-	-	-28		milwaukee.com
0mm 00"	00mm 00"	00mm 00"	35 mins 35 mins 65 mins	2,3,4 & 6-bank Super Rapid Standard			■	-	-	-	-28		milwaukee.com
0mm 00"	00mm 00"	00mm 00"	35 mins 65 mins 123 mins	2,3,4 & 6-bank Super Rapid Standard			■	-	-	-	-28		milwaukee.com
88mm .46"	84mm 3.33"	82mm 3.25"	45 mins 83 mins 153 mins	2,3,4 & 6-bank Super Rapid Standard		-	■	-	-	-	-28		milwaukee.com
52mm 6"	86mm 3.4"	99mm 3.9"	60 mins 130 mins 241 mins	2,3,4 & 6-bank Super Rapid Standard		-	■	-	-	-	-28		milwaukee.com
0mm 00"	00mm 00"	00mm 00"	0 mins	2,3,4 & 6-bank Super Rapid Standard		-	■	-	-	-	-28		milwaukee.com
0mm 00"	00mm 00"	00mm 00"	0 mins	2,3,4 & 6-bank Super Rapid Standard		-	■	-	-	-	-28		milwaukee.com
05mm 5.6"	95mm 3.4"	154mm 3.5"	45 mins 83 mins 162 mins	2,3,4 & 6-bank Super Rapid Standard		-	■	-	-	-	-28	oil resistant	milwaukee.com
47mm 5.8"	0mm 00"	104mm 4.1"	45 mins 130 mins 241 mins	2,3,4 & 6-bank Super Rapid Standard		-	■	-	-	-	-28	oil resistant	milwaukee.com

IMAGES NOT TO SCALE **COSTS** in £$€= **Currency conversion only**. Most costs=max MSRP - you will often find for a lot less. **OTHER TOOLS IN RANGE:** =Pro CSaw =Home CSaw =OPE =Trade-Tools =DiscCutter =Rescue Tools =Lighting ⓘ=Special Tools ●=PARTIAL FEATURE = Option	SERIES MODEL NB: 20v/60v in the US is 18v/54v in Europe	COMPANY	FITS TOOLS FOR:...	ORIGIN	COST inc tax / VAT	WEIGHT	BATTERY TYPE VOLTAGE	AMP HOURS Ah	ENERGY WorkHours Wh	LEN
	Power Now B42E/B426	OREGON			£120 $105 €130	1.24kg 2.74lb	Li ion 36/40v	2.6 Ah	94 Wh	17 6
	Power Now B600E/B742	OREGON			£330 $145 €180	1.24kg 2.74lb	Li ion 36/40v	4 Ah	144 Wh	17 6
	Power Now B650E/B662	OREGON			£350 $200 €256	2.84lb 1.29lb	Li ion 36/40v	6 Ah	216 Wh	17 6
	AK AK10	STIHL			£119 $110 €100	800g 1.76lb	Li ion 36v	2 Ah	72 Wh	0 (
	AK AK20	STIHL			£120 $150 €140	1.2g 2.64lb	Li ion 36v	4 Ah	144 Wh	0 (
	AK AK30 AK30S	STIHL			£140 $150180 €180	1.3kg 2.86lb	Li ion 36v	5 Ah	180 Wh	0 (
	AP (Pro) AP100	STIHL	ⓘ		£126 $150 €170	1.3kg 2.86lb	Li ion 36v	2.6Ah	94 Wh	16 6
	AP (Pro) AP200 200S	STIHL	ⓘ		£156200 $210270 €220260	1.3kg 2.86lb	Li ion 36v	4.8Ah 5.2Ah	187 Wh	16 6
	AP (Pro) AP300	STIHL	ⓘ		£288 $240 €310	1.8kg 4lb	Li ion 36v	3Ah	227 Wh	16 6
	AP (Pro) AP300S connect	STIHL	ⓘ		£288 $330 €410	1.8kg 4lb	Li ion 36v	7.6/7.8Ah	281 Wh	16 6
	AP (Pro) AP500S connect	STIHL	ⓘ		£385 $590 €500	2kg 4.4lb	Li ion 00v	8.8/9.4 Ah	337 Wh	16 6

NGTH	WIDTH	DEPTH	RECHARGE Min to Max Time Charger-dependant CHARGE CYCLES	MULTI CHARGERS	REPRESENTATIVE ENDURANCE	WARRANTY (Years)	LED CHARGE STATUS	IN-USE COOLING FAN	WiFi/BLUETOOTH	IP-RATING WATERPROOF	OP TEMP °C °F	NOTES	www.
70mm 6.6"	105mm 4.1"	50mm 1.9"	90 mins 50 mins ≥1000	C650 Standard C750 Rapid	≤250cuts @2-3"		■	-			-20 40 -4 104	Discontinued	oregon.com
70mm 6.6"	105mm 4.1"	50mm 1.9"	135 mins 70 mins ≥1000	C650 Standard C750 Rapid	≤400cuts @2-3"		■				-20 40 -4 104	Discontinued	oregon.com
70mm 6.6"	105mm 4.1"	50mm 1.9"	200 mins 1205 mins ≥1000	C650 Standard C750 Rapid	≤600cuts @2-3"		■				-20 40 -4 104	Discontinued	oregon.com
0mm 00"	00mm 00"	00mm 00"	95 mins 40 mins 40 mins 45 mins	AL101 Standard AL301 Rapid AL301 4-bank AL501 Fastest	18mins MSA 60 c-B CSaw		■	-	-	-	-	'Constant Power' = no power decline as battery runs down	stihl.com
0mm 00"	00mm 00"	00mm 00"	180 mins 50 mins 50 mins 35 mins	AL101 Standard AL301 Rapid AL301 4-bank AL501 Fastest	40mins MSA 60 c-B CSaw		■	-	-	-	-	'Constant Power' = no power decline as battery runs down	stihl.com
0mm 00"	00mm 00"	00mm 00"	205 mins 60 mins 60 mins 50 mins	AL101 Standard AL301 Rapid AL301 4-bank AL501 Fastestt	55mins MSA 60 c-B CSaw	-	■	-	-	-	-	'Constant Power' = no power decline as battery runs down	stihl.com
65mm 6.5"	115mm 4.5"	76mm 3"	-	AL101 Standard AL301 Rapid AL301 4-bank AL501 Fastest	-	-	■	-	-	X4	-	ⓘ Powered ascender/ winch Upraded from previous 2Ah model but being phased out?	stihl.com
65mm 6.5"	115mm 4.5"	76mm 3"	200 mins 50 mins 50 mins 45 mins	AL101 Standard AL301 Rapid AL301 4-bank AL501 Fastest	42mins 161T CSaw	-	■	-	■	X4	-	ⓘ Powered ascender/ winch 200S=Wifi-capable	stihl.com
65mm 6.5"	115mm 4.5"	76mm 3"	250 mins 65 mins 65 mins 35 mins	AL101 Standard AL301 Rapid AL301 4-bank AL501 Fastest	50mins 161T CSaw	-	■	-	-	X4	-	ⓘ Powered ascender/ winch.	stihl.com
65mm 6.5"	115mm 4.5"	76mm 3"	300 mins 70 mins 70 mins 45 mins 1200 over 5yrs	AL101 Standard AL301 Rapid AL301 4-bank AL501 Fastest	60mins 161T CSaw	-	■	-	□	X4	-	ⓘ Powered ascender/ winch 300S connect has Wifi-option	stihl.com
65mm 6.5"	115mm 4.5"	76mm 3"	355 mins 90 mins 90 mins 55 mins 2530 over 10yrs	AL101 Standard AL301 Rapid AL301 4-bank AL501 Fastest	74mins 161T CSaw	-	■	-	□	X4	-	500S connect has Wifi-option	stihl.com

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	E-Power100 E22	STIGA	■		£43 $00 €00	395g 0oz	Li ion 48v	2 Ah	36 Wh	13
	E-Power100 E24	STIGA	■		£65 $00 €00	649g 0oz	Li ion 48v	4 Ah	88.8 Wh	13
	E-Power500 E420	STIGA	■		£110 $00 €00	880g 0oz	Li ion 48v	2 Ah	88.8 Wh	13
	E-Power500 E440	STIGA	■		£142 $00 €00	1.36kg 0oz	Li ion 48v	4 Ah	177.6 Wh	13
	E-Power500 E450	STIGA	■		£190 $00 €00	1.44kg 0oz	Li ion 48v	5 Ah	222 Wh	13
	E-Power700 E475	STIGA	■		£260 $00 €00	2.12kg 0oz	Li ion 48v	5 Ah	000Wh	13
	E-Power700 E475	STIGA	■		£260 $00 €00	2.12kg 0oz	Li ion 48v	7.5 Ah	324 Wh	13
	Max Flex-Force L135	TORO			£135 $00 €00	0g 0oz	Li ion 54/60v	2.5 Ah	135 Wh	0
	Max Flex-Force L216	TORO			£205 $00 €00	0g 0oz	Li ion 54/60v	4 Ah	216 Wh	0
	Max Flex-Force L405	TORO			£325 $00 €00	0g 0oz	Li ion 54/60v	7.5 Ah	405 Wh	0

NGTH	WIDTH	DEPTH	RECHARGE Min to Max Time Charger-dependant CHARGE CYCLES	MULTI CHARGERS	REPRESENTATIVE ENDURANCE	WARRANTY (Years)	LED CHARGE STATUS	IN-USE COOLING FAN	WiFi/BLUETOOTH	IP-RATING WATERPROOF	OP TEMP °C °F	NOTES	www.
31mm 00"	90mm 00"	60mm 00"	70 mins			5	■						stiga.com
31mm 00"	90mm 00"	80mm 00"	140 mins			5	■						stiga.com
35mm 00"	75mm 00"	90mm 00"	48-220 mins			5	■						stiga.com
35mm 00"	75mm 00"	90mm 00"	96-220 mins			5	■						stiga.com
35mm 00"	75mm 00"	90mm 00"	135-220 mins			5	■						stiga.com
35mm 00"	75mm 00"	130mm 00"	330 mins			5	■					Primarily a lawnmower battery but fits the backpack system	stiga.com
35mm 00"	75mm 00"	130mm 00"	330 mins			5	■					Primarily a lawnmower battery but fits the backpack system	stiga.com
0mm 00"	00mm 00"	00mm 00"				-	■						OO.com
0mm 00"	00mm 00"	00mm 00"				-	■						OO.com
0mm 00"	00mm 00"	00mm 00"	60 mins			-	■						OO.com

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		HUSQVARNA								
	E-POWER **SBH900 AE**	**STIGA**			£241 $00 €00					
	AR **AR2000**	**STIHL**	ⓘ		£00 $00 €00	7.4kg 16.3lb	Li ion 36v	28.2 Ah	1015 Wh	0
	AR **AR3000**	**STIHL**	ⓘ		£00 $00 €00	9.5kg 20.9lb	Li ion 36v	42.2 Ah	1520 Wh	0

NGTH	WIDTH	DEPTH	RECHARGE Min to Max Time Charger-dependant CHARGE CYCLES	MULTI CHARGERS	REPRESENTATIVE ENDURANCE	WARRANTY (Years)	LED CHARGE STATUS	IN-USE COOLING FAN	WiFi/BLUETOOTH	IP-RATING WATERPROOF	OP TEMP °C °F	NOTES	www.
												connects to Stiga 500 or 700 series batteres	
0mm 00"	00mm 00"	00mm 00"	290 mins 290 mins 150 mins 1200	AL301 Rapid AL301 4-bank AL501 Fastest	175mins MSA200 C-B CSaw*	-	■			X4		*Stihl do not feel the backpack should be used while climbing so don't quote for the top-handle chainsaws	stihl.com
0mm 00"	00mm 00"	00mm 00"	430 mins 430 mins 220 mins 1500	AL301 Rapid AL301 4-bank AL501 Fastest	260mins MSA200 C-B CSaw*	-	■			X4		*Stihl do not feel the backpack should be used while climbing so don't quote for the top-handle chainsaws	stihl.com

UPDATED Nov '25

Top & Rear-Handle & 'Micro' BATTERY POWERED CHAINSAWS

Battery power is something we've championed since the 90's having used various tools for rescue but it took chainsaws a while longer to catch up, primarily through resistance from the professional market. Understandably, If you are one of the larger chainsaw manufacturers producing liquid-fuel engine chainsaws, having to add a completely alien technology to your range and be sure that it would work was a can worth kicking down the road for as long as possible. When they did enter the fray, the two main brands Husqvarna and Stihl used unique batteries designed specifically to work with their new ranges of tools and that initial investment in time and money has so far stood the test of time. In ARBCLIMBER magazine, our first guide was to top-handle saws in 2012 and the intro we wrote then makes for an interesting comparison with developments now in 2025. So, as with our Arborist Harnesses guide, we've replicated that original 2012 intro in green and updated it with 2025 observations in black **Also refer to the BATTERIES GUIDE that starts on page__** Something we didn't see back then was development of the micro, mini or nano-chainsaws. We had the true mini chainsaws from French company *Pelco* as tiny versions of a conventional chainsaw but the micro-saws are effectively a tradesman powerdrill handle and body with a miniature 15cm/ 6" bar and chain even smaller than pole-saws (which will have a separate Guide in early 2026). Unusually, we first saw micro or nano-chainsaws coming out of China for the domestic and tradesman market , it wasn't until a couple of years ago that the professional arb brands took notice and produced their own versions. Not yet a true climbers tool (hence no lanyard eye on the current models) but an excellent light pruning tool on the ground or a raised platform. **NB: We have not included 12v Tools in this guide**. In issue 3 (2012) we had a guide to top-handle chainsaw which included a few battery models. Then, in issue 6 (2013)we had a full article on the four major players at that time. Nowadays you can't get through the door of your local Home Depot without getting put upon by a battery chainsaw rep for all manner of brands you've never even heard of. But some you have. You've heard that some battery chainsaws are pretty good and you've noticed that Stihl and Husqvarna make a few models but you're wondering if you can save a few quid and go for that *Home-Depot* or *Lidl* own brand - who cares what it looks like as long as it works right? Well, the more wary amongst you will already have figured out that there's a huge difference in the capabilities of the various battery options and for some, in the usability of the actual chainsaw itself.

Before we start, a word about the concept because battery saws in the professional sector still haven't quite made it in the way everybody hoped. 10 years later they most certainly have made it, especially for top-handle tree saws. Only for the largest ground saws are petrol/gas saws still essential because of the grunt they provide but even that will inevitably change. So we can qualify the following original statement with just the 'largest saws'. They're still treated with ambivalence by many arborists who doubt their capabilities against a liquid-fuel chainsaw. And they would be right. As we said originally, these things are NOT designed to replace petrol/gas for professionals ..... not yet anyway. They are now! They are an addition to your kit if you can afford them because they offer improved versatility as a back up saw that can actually do the job if you have fuel problems or need quieter working so as not to disturb the neighbours for early morning starts or late finishes. And they can operate in restrictive spaces because there are no fumes. They now have bags of grunt and will ultimately catch up even more just as *Dyson* have now discontinued development on ALL corded dust-suckers in favour of battery-power. So don't think of these as competition because one

thing you don't hear mentioned very often are what happens if you drop one of these things onto a hard surface from several feet up or how they fare in extremely wet conditions. All those electronics are pretty well insulated but they're not quite military spec so submersion or a hard jolt could screw up your day and unlike your trusty old petrol/gas saw, there will be no breaking out the tool kit for running repairs unless you carry a soldering iron and have a degree from MIT. Think of them still as a very handy adjunct to your liquid fuel tools. While this paragraph is somewhat outdated, **there is still merit in maintaining your trusty liquid-fuel-powered chainsaws** even if you are switching your primary chainsaws to battery power, but not because battery tools are not up to the task. Petrol/gas tools have a degree of self-sufficiency that does not rely on your regional power utility to function properly. In a normal, well functioning, modern society, access to electricity should be a given making battery tools a no-brainer but weather extremes throughout the last 5 years in particular have shown that heat, cold, floods, storms, forest-fires can all result in regional power failures that would affect you ability to recharge battery tools. Other problems have reared their head - social disorder or military action can take out the power network and the latest , previously unforeseen problem has been cyber attacks and interference from hostile agencies or governments to disrupt power networks. You could insulate yourself from this by retaining some key petrol/gas chainsaws or you could invest in a petrol/gas generator to, ironically, continue charging battery tools. Arborists who are also survivalists/preppers will probably not be so bothered - they should have these eventualities covered!

The biggest contributor to the number of chainsaws now available isn't so much the batteries being improved, although they have. It's that so many manufacturers have spotted the need for batteries to work across a number of platforms since they're an expensive initial investment. So you'll find the same battery can power things like hedge trimmers, pole saws, blowers, brushcutters, strimmers, mowers and *Stihl* even have pro secateurs/pruner. So common a concept is this that with some lesser known brands with dubious design criterion you have to wonder if they've had the battery platform first and simply thought they needed to add a chainsaw to round things out. Consequently the working abilities of the saw may be rubbish even if the battery system is good. In some cases both the tool and the battery are rubbish. As we'll discuss later - stick with the brands you know well and those in our table rated as Pro and semi-pro depending on how much work you expect it to do. Be careful on multi-platform systems that the battery for use in the chainsaw is the same as that used in the other tools you may want to buy - frequently the chainsaw will only take one or two of the options offered with the larger capacity batteries reserved for mowers etc.

BATTERIES & AMPHOURS

Since our first articles, much higher AmpHour batteries are available - whereas 2 to 4aH were the typical top end in 2012, you're more likley to go for somewhere between 4 and 9aH in 2025. Top-handle saws didn't diverge and are using the same Ah batteries as their larger rear-handled brethren because they last longer and work harder. Although top-handle saws are mostly intended for arborists and therefore, by default, professionals, some models like the Bosch, Hitachi, Makita and Milwaukee saws have the trigger mounted on the top-handle but the side-mounted motor make these designs quite bulky for canopy work but they do all work for climbing use, and in oarticular, in hydraulic platforms/cherry-pickers.. For rear handled saws there are a number of 24v and even 18v options but virtually none of these will be any use to you as a professional other than as an emergency saw for light brashing, pruning or clearing. The pro models on the other hand will fell small to medium trees with relative ease though not yet with the reassuring power of your petrol/gas saws.High ampHour batteries and a whole raft of new saws since 2012 means this statement s no longer true, in fact a good many battery saws now operate to the same level of 'grunt' as their gas/petrol counterparts. . ALL of the saws in this list are Lithium Ion (Li) and the effectiveness of the higher Amp-hour batteries might be lost on your chainsaw if its electronics aren't up to managing these higher Ah batteries. Where they can, such as the professional grade Stihl and Husqvarna saws, you're better off stumping up for their higher Ah options. ~~Most~~ All chainsaws have now moved towards brushless motors with 'smart' circuit boards - this means they regulate the load electronically, sensing when you're cutting a thick log as compared to pruning small branches and adjusting the power output accordingly. Having no brushes to wear out increases the lifespan of your saw and the smart element helps mitigate the tendency in underpowered saw/battery combinations for the battery to overheat and cut out to protect itself leading to you needing to wait or swap batteries while it cools down. And waiting never seems to work that well because the battery is a dense mass that retains a lot of residual heat and so overheats quicker the second and subsequent times than it did the first time. If your battery-saw combination is cutting out regularly you need to upgrade the battery if a higher Ah is available and compatible or accept that the saw is not up to the job you're asking of it. This will almost always only apply to the less professionally oriented models.

While the three main orange brands continue to use their own bespoke battery systems, the plethora of multi-platform batteries from *Makita*, *DeWalt* and *Milwaukee* etc. used in so many tradesmen tools continue to be the catalyst for new chainsaw models but not always as saws that match the

quality of their battery! Whereas we were predicting the rise of 56/60v, 72/80v and even 120v systems many specialist tools in rescue have adopted the much lower 18v system, Milwaukee in particular which also powers its own top handle chainsaw. Testament to how good the batteries have become. Note that the US and Europe quote Voltage differently - one is 'nominal' and one is 'actual' which is why you will see battery systems in our tables listed with two voltages for the same battery. Also of note is that some 'off-the-shelf' batteries like the *DeWalt FlexVolt* are dual voltage able to power 18 & 36v or 20 & 40v. That means your power-hungry chainsaw and your electric screwdriver can run on the same batteries - quite a cost saving.

ON-BOARD BATTERY CONNECTION

There are Five distinct methods of battery housing or connection on the chainsaw:

1) Vertical enclosed pocket in which the battery is placed in from the top eg Stihl (above-right), Echo, DeWalt etc.

2) Horizontal enclosed pocket which is angled and the battery is pushed in letter-box style eg The now discontinued Oregon on the right, Redback and Lincoln. This is possibly the most protective of onboard battery housings.

3) External mount, either at the rear or on the bottom with no form of protective enclosure eg. the Hitachi (now Hikoki right) and Makita, Bosch and Ego models.

4) Side-mounted. Offering more protection than 3) are two types of sideways mount. In Husqvarna's case the tool housing completely surrounds the battery leaving a through and through slot into which the battery slides leaving both ends accessible and in at least one of the Makita models it is two recessed mounts, one on each side.

5) Hard-Wire Connection. The battery or batteries are not mounted on the tool at all. Instead they are housed in a backpack or on a waist-belt with a plug-in wire running to the chainsaw (or other tool)

When we first used the *Stihl* top-handle saw saw we were worried that the drop-in style might act as a handy receptacle for water and dust since the electrical contacts are at the bottom but it doesn't seem to have caused any issues. In the horizontal letterbox style, you can see that the contacts are raised up out of harms way. Either way, the full protection of either a pocket, pouch, tube or letterbox would seem to be a wise move and there's no doubt that unprotected batteries in this selection are in the minority. Such exposed positions open them up not only to impact damage and dust but also the possibility of disengaging. However, one thing they won't suffer from quite so much is overheating and this might be one reason for the open tube style of the Husqvarna which also has active cooling of its batteries. Whichever housing option it has, you'll want to minimise the risk of losing your battery if it's not properly engaged by giving it a quick test before it goes aloft.

Battery weights may be broadly similar but bulk certainly isn't. In the picture above showing relative sizes, the *Husqvarna* battery is quite a large cube, as are the larger AmpHour external mounts like the *Makita* although the smaller Ah and even some high Ah are much slimmer. The *Stihl* falls somewhere in between but you'll probably find that the overall surface area of each battery doesn't alter much.

In issue 6 we mentioned that both *Husqvarna* and *Stihl* were just introducing higher capacity 4Ah batteries. Well, look at them now, 4 and 6Ah are pretty much standard and *Husqvarna* sell a 9 and 15Ah which could almost power a formula 1 car. (In fact Formula E, electric grand prix style cars has gained a huge following since we joked about powering a Formula 1 [illegible] now have 7.5 and 8.8Ah but for all of these higher capacity batteries you certainly pay for them, *Husqvarna*'s 15Ah at £650 is just over twice the cost of their 6Ah battery. The *DeWalt* rear handle saws now often come with a 9Ah as standard purportedly able to make 70 cuts in 6" x 6" lumber.

CHARGERS

Not much to choose between them all but most have the option of a fast charger and standard charger for the same range of batteries is useful. The main brands now offer so much more - from a 12v in-vehicle charger and inverters for bulk charging on the truck to multi-chargers with 2, 4 or even 9 batteries at a time able to be stored and charged. See the Batteries Guide on p412. Stihl's 8.8Ah battery can take from 55 to 355 minutes to charge depending on which charger you buy.

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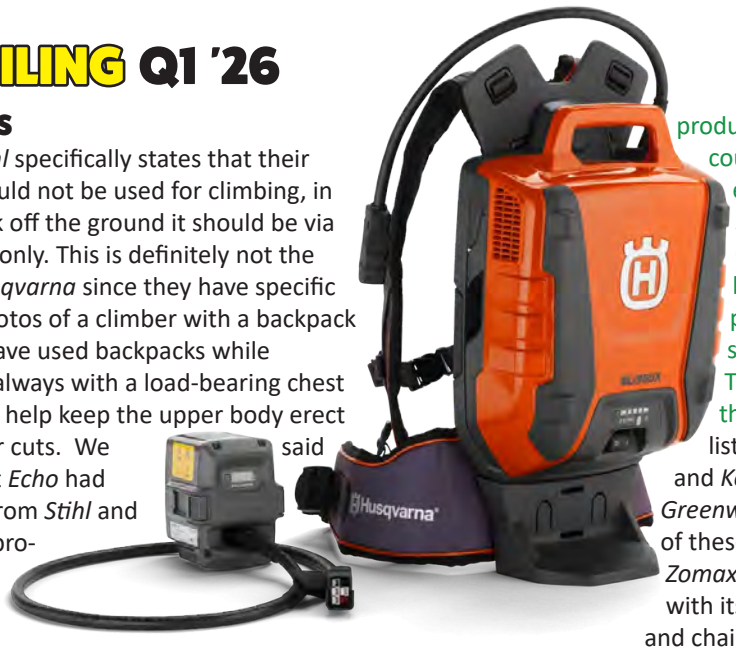
AP SYSTEM

BACK PACKS

Note that *Stihl* specifically states that their backpack should not be used for climbing, in terms of work off the ground it should be via cherry picker only. This is definitely not the case with *Husqvarna* since they have specific marketing photos of a climber with a backpack and we too have used backpacks while climbing but always with a load-bearing chest harness on to help keep the upper body erect during trickier cuts. We said originally that *Echo* had followed on from *Stihl* and *Husqvarna*'s pro-backpacks by bringing out a 16Ah backpack but in 2025 this is no longer available. .....this was deemed necessary because others including *Hitachi* and *Makita* have full backpacks. These incredibly useful options cost a lot of money but you can easily get a full days work out of one backpack and it can reduce your front-end weight. Your back is a much stronger part of the body than arms so is a worthwhile compromise in terms of having to work with your chainsaw on a lead. Since most of you work with a lanyard already what's a wire cord between friends. You do pay for that extended duration in money and with charging times that, in the case of *Stihl's* largest *AR3000* takes over 7 hours but I guess if you're charging overnight prior to a days work this should work out just fine. If a full backpack is beyond your budget but you like the idea of increased duration or reduced front-end weight there are backpack-and waist carriers from *EGO* for instance, that simply use the existing battery. The *Husqvarna* single battery on the right simply has a lead from the battery to the chainsaw and this has the advantage that you could shield the battery inside your clothing if working in extreme cold. These leads are extraneous , similar to the full backpack models and some may find this cumbersome but for ground work in particular it can be useful. If using a backpack for climbing be aware of the huge difference in your center of gravity and all the safety implications that this entails. If being incapacitated in the star position was uncomfortable and dangerous before, imagine that same posture with several extra Kilos flexing your spine. We've not heard it mentioned but it would be highly preferable when climbing to use a backpack in conjunction with a full body harness or chest section giving you the ability to tie in at the sternum during work and negate any chance of inversion.



PRO vs SEMI-PRO

In our tables we've captured the majority of battery powered chainsaws suitable for at least semi-professional or part-time use. There are some models that you should steer clear of as a professional arborist even if you're struggling for money because the term 'false economy' was never so apt as it is with battery products. But it's often not that easy to tell. We've said before that Chinese manufacturers can and do make products that are every bit as good as their western counterparts with Ego and Greenworks having extensive, well featured, well priced ranges, some even have the word 'Pro' on them! The Chinese and Taiwanese get a bad rap in the west because some companies purposely specify low price as the overriding factor and choose not to spend the money for a higher quality product. The Chinese will provide you with either end of the quality spectrum. Many of the saws in our list from names as recognisable as *Mountfield* and *Kobalt* are actually Chinese manufactured (by *Greenworks*) . Aside from *Ego* we can't vouch for some of these brands or rebrands but one new name to us is *Zomax* (below) another overt Chinese specialist brand with its own website producing saws with *Oregon* bars and chains. Top handle saws are usually synonymous with professional arborists but rear handle saws are used by everybody. Many garden/domestic ' models are good enough for farmers and homesteaders and for general light bursts of work every now and again these saws are perfectly serviceable but we would be careful of pushing them too hard and/or too long. Much better to go for saws that we show as Pro or semi-Pro.

The main brands used by arborists are excellent, dependable professional grade tools that cost twice as much as domestic models. Professional models are built for prolonged and sustained use in all-weathers with features that suit arborists either as climbers or on the ground. Semi-Pro indicates that a model is robust enough to be used for professional work but only for limited periods and for more limited applications. Domestic saws can cut logs, fell small trees, prune and brash but not daily and only for short periods at a time. Within the USE row there is a solid box to indicate suitability for tasks - ■ for Pro, ■ for Semi-Pro or ■ for Domestic. An outline box indicates that the chainsaw in question is OK at that level but not ideal, generally with limited usage time or endurance: □for Pro, □ for Semi-Pro or □ **for** Domestic. Some domestic models like the Bosch can step up to some brief spells of pro work and some Semi-pro models can easily step up to regular- but short-duration pro work. If you bought a saw labelled in our guide as 'Semi-Pro' for instance and only used it around the chipper for an hour or two once a week you may well get some good use out of it but don't push them too hard, and in some cases don't push them at all. The saws in this guide will all do a reasonable job to a degree and that degree is broadly commensurate with the price and reputation of the company so stick with the stuff you know but make no mistake, some of the new Chinese based super-companies are driving development even if they so far fall a bit short of the main pro companies.

OTHER FEATURES

AUTOMATIC OILING: This didn't really need mentioning first time around with top-handle saws because virtually all pro saws, top and rear handle have automatic oiling of the bar via the on-board oil tank but there are some semi-pro/domestic chainsaws where oil is still applied by pushing a button every now and then - we'll list it in the 'NOTES' where it crops up.

Husqvarna and *DeWalt* have a **power-saving** measure which will, in it's own way, ultimately prolong the life of your battery and saw - they turn off after a period of inactivity requiring you to press a restart button to continue. Simply taking your finger off the trigger during normal use is a bit like leaving your TV on standby - it doesn't look like anything is happening but there is still a power draw and in the case of *Husqvarna*'s top-handle saw it's a safety feature ensuring you don't accidentally trigger the saw during climbing. It's something you get used to but is annoying to some first-time users. **EXPAND ON THIS AND SMART/BLUETOOTH ETC**

*Oregon***'s self-sharpening** facility *PowerSharp* is an on-board sharpening stone which you can engage for a few seconds while running a dulled chain and it will magically sharpen. It's not a gimmick, it really works. Oregon only have the ground saw in their inventory but this might be just as useful on a climbing saw where you're less likely to feel inclined to stop for a quick hand-sharpen. But it's the ground timber and brashing that's most likely to dull your chain with stones, mud and embedded metalwork which is why we really like this concept for emergency services work. It does chew through the chains a lot quicker if you get lazy and use it all the time like we do instead of just when it's appropriately important. Unfortunately, the *PowerNow* battery tool series from Oregon is discontinued but the *Powersharp* concept may continue or be resurrected in some way by *Oregon* or somebody else.

Hitachi/Hikoki has an LED light that helps illuminate the oil tank to clearly show your levels but it also lights the area beneath the cutting bar - kinda like the LED on car keys showing you where the keyhole is. You probably think, what the hell? When would I need that? But you might in low light conditions, they've become the norm with rescue tools so we might see this more on certain chainsaws.

In the following tables the product codes often include different numbers corresponding to the length of bar which we have replaced with xx . Also some companies may include the bar in the weight instead of the more usual body-only. We have tried to weed these out but it's not always obvious especially with smaller bar sizes that don't weigh much.

ON BOARD SCRENCH refers to a combination screwdriver and bolt spanner housed on the saw itself in order to tension the chain and undo the sprocket cover bolt - obviously this is not required on tool-less sprocket cover /chain-tensioning models.

COMPILING Q1 '26

IMAGES NOT to SCALE
USE ● ● ● = OK with limitations
COST:approx inc VAT/local Tax.
£$€= Currency conversion only
COST KIT: Chainsaw + recommended battery Ah, bar & chain + basic charger.
~ = approximate
CHARGE STATUS=■=On Tool ■=on Battery
OPTION=□ □ □

COMPANY	BOSCH	COBRA	DEWALT
MODEL (UK US CODE if different) VARIANT	AKE 30 00000	CS3540VZ 00000	XR FlexVolt - DCM575 00000
ORIGIN			
VOLTAGE BATTERY SERIES	36v	40v	54v
TYPE/ TRIGGER EQUIVALENT POWER	TOP/REAR	REAR	REAR
USE: PRO/ SEMI-PRO/ DOMESTIC	● ■	● ■	■
COST: BODY/BAR or BODY ONLY COST: KIT inc charger & battery	£000 / $000 / €000 £000 / $000 /€000	£000 / $000 / €000 £000 / $000 /€000	£000 / $000 / €000 £000 / $000 /€000
COMPATIBLE BACKPACK BATTERY			
WEIGHT: BODY-ONLY	5.2kg/11.5lb	4.45kg / 9.8lb	4.4kg/9.7lb
WEIGHT: BATTERY	1.4kg / 3lb	1.3kg / 2.86lb	-1kg / 2.2lb
DIMENSIONS: (NO BAR) L x W x H	420 x 264 x 228mm 16.5 x 10.4 x 9"	419 x 235 x 279mm 16.5 x 9.25 x 11"	530 x 240 x 230mm 21 x9.5 x 9"
BATTERY Ah:DEFAULT, BACKPACK	1.3, 2.6, 4Ah	4Ah	4, 6, 9Ah
DURATION: mins. BACKPACK	-	50mins (no load)	-
CUTS per CHARGE: BACKPACK	100 (@4"/10cm)	-	70 (@6"/15cm)
CHARGE STATUS ON BATTERY ON TOOL	90mins	90mins	60-70mins
MULTI-PLATFORM BATTERY/inc POLESAW			
NO-LOAD CHAIN SPEED	8 mps / 26 fps	9 mps / 29.5 fps	15 mps / 49.2 fps
BAR OPTIONS (RECOMMENDED)	12" / 30cm	14" / 35cm	16"/40cm
CHAIN/BAR GAUGE			
CHAIN PITCH	8 mps / 26 fps	9 mps / 29.5 fps	15 mps / 49.2 fps
VIBRATION: FRONT/TOP, REAR m/sec²	2.5	2.3	3.5
SOUND PRESSURE: LpA/POWER LwA	74 /94	92/103	80.5/100.5
IP RATING BLUETOOTH/APP			
TOOLESS SPROCKET COVER NO-DROP NUT	■	■	■
TOOLESS CHAIN TENSION ON-BOARD SCRENCH	■	■	■
LANYARD EYE ON-BOARD DASH	NO	NO	NO
METAL SAW (BUCKING) SPIKES PLASTIC	■	■	□
OIL TANK, VISIBLE LEVEL ■ LED GAUGE	135ml / 4.5floz■	■	120ml / 4floz ■
TOOL WARRANTY (Battery separate)	2/3 years 1 year battery	2 years (Domestic)	1 year
NOTES		Samsung battery	Auto-Off after period of inactivity. Backwards compatible with earlier DeWalt models. 54v Batteries also compatible wih 18v tools/chargers
WEBSITE	bosch-do-it.de	cobragarden.co.uk	dewalt.com

BATTERY CHAINSAWS

	EGO (CHERVON)	EGO (CHERVON)	EGO (CHERVON)	EGO (CHERVON)
	CS140xE 00000	CS141xE 00000	CS161xE 00000	CS200xE 00000
	56v Power+	56v Power+	56v Power+	56v Power+
	REAR	REAR	REAR	REAR
	● ■	● ■	● ■	■ ■
	£000 / $000 / €000 £000 / $000 /€000	£000 / $000 / €000 £000 / $000 /€000	£260 / $000 / €000 £000 / $000 /€000	£000 / $000 / €000 £000 / $000 /€000
	00kg 00 lb	3.7kg/ 8.15lb	3.7kg/ 8.15lb	
	00kg 00lb	1.3-2.8kg / 2.8-6.2lb	1.3-2.8kg / 2.8-6.2lb	
	000 x 000 x 000mm 000 x 00 x 00"	419x241x248mm 16.5x9.5x9.75”	419x241x248mm 16.5x9.5x9.75”	
	2.5, 4, 21 Ah	2.5, 4, 5, 6, 7.5,10,12Ah	2.5, 4, 5, 6, 7.5,10,12Ah	
	-	-	-	
	00, 00 (2"/50cm)*	130, 220, 300, 350, 450,600,720	130, 220, 300, 350, 450,600,720	
	■			
	■			
	00mps / 00 fps	12 mps*/ 40 fps	12 mps*/ 40 fps	
	00" / 00cm	14"/35cm, 16"/40cm	16"/40cm	
		12 mps*/ 40 fps	12 mps*/ 40 fps	
	00	5.4 / 4.1*	5.4 / 4.1*	
	00/00	86 /100*	86 /100*	
	NO			
	■	■	■	
	■	■	■	
	■	NO	NO	
	NO	NO	NO	
	150ml / 5floz ■	150ml / 5floz ■	150ml / 5floz ■	
	1 Year Pro	1 Year Pro	1 Year Pro	
	*16" bar version = Chain Speed 13.5mps *SOUND = 86/99 VIBRATION = 3/3.2 Backpack is a converter for any EGO battery, best use is with 7.5Ah battery	*16" bar version = Chain Speed 13.5mps *SOUND = 86/99 VIBRATION = 3/3.2 Backpack is a converter for any EGO battery, best use is with 7.5Ah battery	*16" bar version = Chain Speed 13.5mps *SOUND = 86/99 VIBRATION = 3/3.2 Backpack is a converter for any EGO battery, best use is with 7.5Ah battery	
	egopowerplus.com	egopowerplus.com	egopowerplus.com	egopowerplus.com

IMAGES NOT to SCALE
USE ● ● ● = OK with limitations
COST:approx inc VAT/local Tax.
£$€= Currency conversion only
COST KIT: Chainsaw + recommended battery Ah, bar & chain + basic charge
~ = approximate
CHARGE STATUS=■=On Tool ■=on Battery
OPTION=□ □ □

COMPANY	EGO (CHERVON)	EGO (CHERVON)	EGO (CHERVON)
MODEL (UK US CODE if different) VARIANT	CS1200E 00000	CS180xE 00000	CS200xE 00000
ORIGIN			
VOLTAGE BATTERY SERIES	56v Professional	56v Professional	56v Professional
TYPE/ TRIGGER EQUIVALENT POWER	TOP	TOP	TOP
USE: PRO/ SEMI-PRO/ DOMESTIC	■	■	■
COST: BODY/BAR or BODY ONLY COST: KIT inc charger & battery	£260 / $000 / €000 £000 / $000 /€000	£000 / $000 / €000 £000 / $000 /€000	£000 / $000 / €000 £000 / $000 /€000
COMPATIBLE BACKPACK BATTERY			
WEIGHT: BODY-ONLY			
WEIGHT: BATTERY			
DIMENSIONS: (NO BAR) L x W x H			
BATTERY Ah:DEFAULT, BACKPACK			
DURATION: mins. BACKPACK			
CUTS per CHARGE: BACKPACK			
CHARGE STATUS ON BATTERY ON TOOL			
MULTI-PLATFORM BATTERY/inc POLESAW			
NO-LOAD CHAIN SPEED	20 mps / fps	20 mps / fps	25 mps / fps
BAR OPTIONS (RECOMMENDED)	30cm/12"	45cm/18"	50cm/20"
CHAIN/BAR GAUGE	1.1mm/0.043"		
CHAIN PITCH	8.25mm/0.325"		
VIBRATION: FRONT/TOP, REAR m/sec²			
SOUND PRESSURE: LpA/POWER LwA			
IP RATING BLUETOOTH/APP			
TOOLESS SPROCKET COVER NO-DROP NUT			
TOOLESS CHAIN TENSION ON-BOARD SCRENCH			
LANYARD EYE ON-BOARD DASH			
METAL SAW (BUCKING) SPIKES PLASTIC			
OIL TANK, VISIBLE LEVEL ■ LED GAUGE			
TOOL WARRANTY (Battery separate)			
NOTES			
WEBSITE			

	EGO (CHERVON)	EGO (CHERVON)	ECHO	ECHO
	CSX3000	CSX5000	X DCS-2500	X DCS-2500T
	00000	00000	00000	00000
	56v PRO-X	56v PRO-X	50.4v E-Force/Echo 56v	50.4v E-Force/Echo 56v
	TOP	REAR	REAR	TOP
	£000 / $000 / €000 £000 / $000 /€000	£520 / $000 / €000 £000 / $000 /€000	£429 / $000 / €000 £000 / $000 /€000	£399 / $560 / €000 £000 / $000 /€000
			(not UK/EU or USA)	(not UK/EU or USA)
			2kg 4.4lb	1.7kg 3.74lb
			1.2-1.8kg 2.6-4lb	1.2-1.8kg 2.6-4lb
			459x219x262mm 18.5x10.3x10.3"	000 x 000 x 000mm 00 x 00 x 00"
		2.5, 4, 5, 6, 7.5,10,12Ah	2.3/2.5, 4.5/5 16Ah	2.3/2.5, 4.5/5 16Ah
		-	32mins	<30mins
		130, 220, 300, 350, 450,600,720	-	60 (@4x4")
		30 mps / fps	19.1 mps / fps	?
	20cm/8" 25cm/10" 30cm/12"	50cm/20"	20cm/8" 25cm/10" 30cm/12"	20cm/8" 25cm/10" 30cm/12"
		1.27mm/0.050"	1.1mm/0.043" 1.27mm/0.050"	1.1mm/0.043" 1.27mm/0.050"
		8.25mm/0.325"	8.25mm/0.325" 6mm/0.25"	8.25mm/0.325" 6mm/0.25"
			2.6-3.8 / 2.1-2.2	3.3 / 4.3
			72.4/92.4	88.6/98.2
		X4	??	??
			NO	NO
			NO	NO
			NO	NO
		250ml / 00floz	120ml / 4floz	120ml / 4floz
			5yr Domestic, 2 Yr Pro	5yr Domestic, 2 Yr Pro
				TC version includes a carving bar
			echotools.com	echotools.com

IMAGES NOT to SCALE
USE ● ● ● = OK with limitations
COST:approx inc VAT/local Tax.
£$€= Currency conversion only
COST KIT: Chainsaw + recommended battery Ah, bar & chain + basic charger.
~ = approximate
CHARGE STATUS=■=On Tool ■=on Battery
OPTION=□ □ □

COMPANY	ECHO	ECHO	ECHO
MODEL (UK US CODE if different) VARIANT	X DCS-3500T 00000	DCS-1600 00000	X DCS-3500 00000
ORIGIN	●	●	●
VOLTAGE BATTERY SERIES	50.4v E-Force/Echo 56v	50.4v E-Force/Echo 56v	50.4v E-Force/Echo 56v
TYPE/ TRIGGER EQUIVALENT POWER	TOP	REAR	REAR
USE: PRO/ SEMI-PRO/ DOMESTIC	■	● ■	■ ■
COST: BODY/BAR or BODY ONLY COST: KIT inc charger & battery	£499 / $000 / €000 £000 / $000 /€000	N/A /$000 /€000 N/A/ $000 /€600	£480 /$000 /€000 £000 / $000 / €000
COMPATIBLE BACKPACK BATTERY	■ (not UK/EU or USA)	■ (not UK/EU or USA)	■ (not UK/EU or USA)
WEIGHT: BODY-ONLY	2.2kg 4.85lb	3.1kg 6.8lb	2.8kg 6.2lb
WEIGHT: BATTERY	1.2-1.8kg 2.6-4lb	1.2-1.8kg 2.6-4lb	1.2-1.8kg 2.6-4lb
DIMENSIONS: (NO BAR) L x W x H	000 x 000 x 000mm 00 x 00 x 00"	459x219x262mm 18.5x10.3x10.3"	000 x 000 x 000mm 00 x 00 x 00"
BATTERY Ah:DEFAULT, BACKPACK	2.3/2.5, 4.5/5 16Ah	2.3, 4.5 16Ah	2.3/2.5, 4.5/5 16Ah
DURATION: mins. BACKPACK	21 or 50mins	32mins	32-49mins
CUTS per CHARGE: BACKPACK	70 (@6"/15cm)	-	-
CHARGE STATUS ON BATTERY ON TOOL	■	■	■
MULTI-PLATFORM BATTERY/inc POLESAW	■ ■	■ ■	■ ■
NO-LOAD CHAIN SPEED	≤21 mps / fps	19.1 mps / fps	19.1 mps / fps
BAR OPTIONS (RECOMMENDED)	40cm/16"	35cm/14"	35cm/14"
CHAIN/BAR GAUGE	1.1mm/0.043"	1.1mm/0.043"	1.1mm/0.043"
CHAIN PITCH	8.25mm/0.325"	8.25mm/0.325"	8.25mm/0.325"
VIBRATION: FRONT/TOP, REAR m/sec²	3.5	3.6 / 3.9	2.2-3.03 / 2.45-2.83
SOUND PRESSURE: LpA/POWER LwA	80.5/100.5	91.4/101	98.6/106.6
IP RATING BLUETOOTH/APP	??	??	??
TOOLESS SPROCKET COVER NO-DROP NUT	NO ■	NO ■	NO ■
TOOLESS CHAIN TENSION ON-BOARD SCRENCH	NO	NO	NO
LANYARD EYE ON-BOARD DASH	NO	NO	NO
METAL SAW (BUCKING) SPIKES PLASTIC	□ ■	■	■
OIL TANK, VISIBLE LEVEL ■ LED GAUGE	270ml / 00floz ■	380ml / 12.85floz ■	370ml / 12.5floz ■
TOOL WARRANTY (Battery separate)	5yr Domestic, 2 Yr Pro	5yr Domestic, 2 Yr Pro	5yr Domestic, 2 Yr Pro
NOTES		DISCONTINUED	
WEBSITE	echotools.com	echotools.com	echotools.com

BATTERY CHAINSAWS

	ECHO DCS-5000 00000	ECHO DHS-3006 00000	ECHO DCS-310 00000	
	50.4v E-Force/Echo 56v	50.4v E-Force/Echo 56v	36/40v Garden+	
	REAR 126KW	MICRO 0.56KW	REAR	
	N/A /$250 /€000 N/A / $350 / €000	£159 / $000 / €000 £000 / $000 /€000	£189 / $000 / €000 £000 / $000 /€000	
	(not UK/EU or USA)	-	-	
	4.6kg 10.1lb	1.1kg 2.4lb	2.9kg 6.4lb	
	1.2-1.8kg 2.6-4lb	0.7-1kg 1.5-2.2lb	0.7-1kg 1.5-2.2lb	
	000 x 000 x 000mm 00 x 00 x 00"	000 x 000 x 000mm 00 x 00 x 00"	000 x 000 x 000mm 00 x 00 x 00"	
	2.5, 5 16Ah	2.3/2.5, 4.5/5	2, 4 Ah	
	32-49mins	41mins	41mins	
	200			
	19.1 mps / fps	7.8mps	?	
	45cm/18"	15cm/6"	30cm/12"	
	1.27mm/0.050"	1.1mm/0.043"	1.1mm/0.043"	
	8.25mm/ ⅜"	8.25mm/0.325"	3/8"	
	2.2-3.03 / 2.45-2.83	2.5 / 2.7	2.5 / 2.7	
	98.6/106.6	85/95.4	85/95.4	
	??	??	??	
	NO	NO	NO	
	NO	NO	NO	
	NO	NO	NO	
	370ml / 12.5floz	50ml /1.75floz	200ml / 6.75floz	
	5yr Domestic, 2 Yr Pro	3yr Domestic	3yr Domestic	
	echotools.com	echotools.com	echotools.com	

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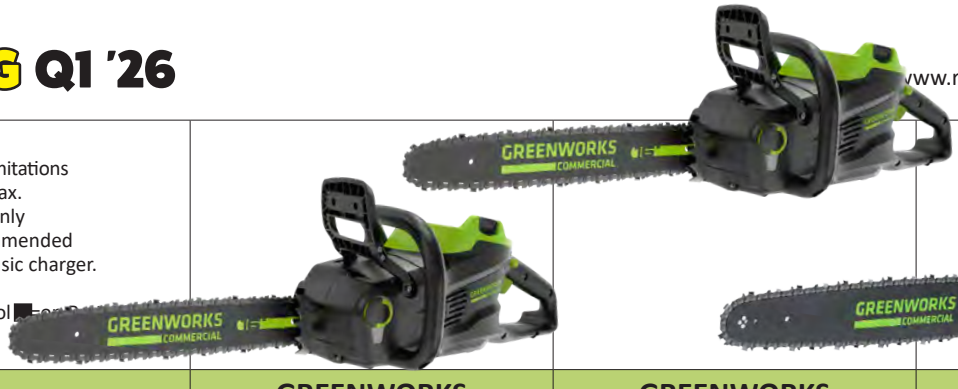
COST:approx inc VAT/local Tax.
£$€= Currency conversion only
COST KIT: Chainsaw + recommended battery Ah, bar & chain + basic charger.
~ = approximate
CHARGE STATUS=■=On Tool ■=
OPTION=□ □ □



COMPANY	GREENWORKS	GREENWORKS	GREENWORKS
MODEL (UK US CODE if different) VARIANT	82CS24 00000	82CS27/ GD60CS40 00000	82CS34 00000
ORIGIN			
VOLTAGE BATTERY SERIES	80/82v Commercial	80/82v Commercial	80/82v Commercial
TYPE/ TRIGGER EQUIVALENT POWER	REAR 2.4kW	REAR 2.7kW	REAR 3.4kW 65cc/4.56hp
USE: PRO/ SEMI-PRO/ DOMESTIC	■ ■	■ ■	■ ■
COST: BODY/BAR or BODY ONLY COST: KIT inc charger & battery	£000 / $300 / €000 £000 / $384 /€000	£000 / $000 / €000 £000 / $000 /€000	£000 / $550 / €000 £000 / $500 /€000
COMPATIBLE BACKPACK BATTERY	-	-	
WEIGHT: BODY-ONLY	3.75kg 8.25lb	4.77kg 10.5lb	5.77kg 12.7lb
WEIGHT: BATTERY	1.7-2.16kg 3.74-4.76lb	1.7-2.16kg 3.74-4.76lb	1.7-2.16kg 3.74-4.76lb
DIMENSIONS: (NO BAR) L x W x H	300mm/11.8"	?	366 x 245 x 192mm 21.25 x 000 x 15.1"
BATTERY Ah:DEFAULT, BACKPACK	2.5, 4, 5, 8 12 Ah	2.5, 4, 5, 8, 12 Ah	2.5, 4, 5, 8, 12 Ah
DURATION: mins. BACKPACK	30-60mins	60mins	25mins
CUTS per CHARGE: BACKPACK	225	<90	205
CHARGE STATUS ON BATTERY ON TOOL	■	■	■
MULTI-PLATFORM BATTERY/inc POLESAW	■* ■*	■ ■	■ ■
NO-LOAD CHAIN SPEED	30mps / 82 fps	30mps / 82 fps	30mps / 82 fps
BAR OPTIONS (RECOMMENDED)	16"/40cm	18" / 45cm	20" / 50cm
CHAIN/BAR GAUGE	.050"	.050"	.050"
CHAIN PITCH	8.25mm/0.325"	⅜"	⅜"
VIBRATION: FRONT/TOP, REAR m/sec²	5	<2.5	2.5
SOUND PRESSURE: LpA/POWER LwA	97.1	87	87
IP RATING BLUETOOTH/APP	X4	?	?
TOOLESS SPROCKET COVER NO-DROP NUT	NO	NO	NO
TOOLESS CHAIN TENSION ON-BOARD SCRENCH	NO	■	NO
LANYARD EYE ON-BOARD DASH	■	NO	NO
METAL SAW (BUCKING) SPIKES PLASTIC	■	■	■
OIL TANK, VISIBLE LEVEL ■ LED GAUGE	250ml / 00 floz ■	180ml / 6floz ■	200ml / 6.75floz ■
TOOL WARRANTY (Battery separate)	2 years	2 years	2 years
NOTES	*There is a 40v GMAX range with 2 chainsaws but neither has a mechanical chain break	* kit with 2x2Ah batteries	single battery waist/shoulder strap h ness also available €180
WEBSITE	greenworkscommercial.com	greenworkscommercial.com	greenworkscommercial.com

B... CHAINSAWS

	GREENWORKS	GREENWORKS	GREENWORKS	GREENWORKS
	82CS43 00000	OPTIMUS HOG OCS500 00000	OPTIMUS HOG OCS600 00000	OPTIMUS HOG OCS800 00000
	80/82v Commercial	80/82v Core	80/82v Core	80/82v Core
	REAR 4.3kW	REAR 3kW 50cc	REAR 3.6kW 60cc	REAR 5kW 80cc/6.7HP
	■ ■	■	■	■
	TBA TBA	£000 / $000 / €000 £000 / $1200 /€000	£000 / $000 / €000 £000 / $1350 /€000	£000 / $000 / €000 £000 / $1700 /€000
	TBA	00kg 00lb	00kg 00lb	00kg 11.8lb
	1.7-2.16kg 3.74-4.76lb	00-00kg 3.74-4.76lb	00-00kg 3.74-4.76lb	00-00kg 3.74-4.76lb
	366 x 245 x 192mm 14.4 x 9.65 x 7.56"	366 x 245 x 192mm 14.4 x 9.65 x 7.56"	366 x 245 x 192mm 14.4 x 9.65 x 7.56"	366 x 245 x 192mm 14.4 x 9.65 x 7.56"
	2.5, 4, 5, 8, 12 Ah	2.5, 4, 5, 8, 12 Ah	2.5, 4, 5, 8, 12 Ah	2.5, 4, 5, 8, 12 Ah
	25mins	25mins	25mins	25mins
	15+	15+	15+	15+
	■	■	■	■
	■ ■	■ ■	■ ■	■ ■
	30mps / 82 fps	00mps / 85 fps	00mps / 98 fps	00mps / 92 fps
	24" / 61cm	16"/40cm 18"/45cm 20"/50cm	16"/40cm 18"/45cm 20"/50cm	20"/50cm 24"/61cm 28"/71cm
	.050"	.050"	.050"	.050"
	⅜"	8.25mm/0.325"	⅜"	⅜"
	00	00	00	1.9
	82	00	00	93
	?	X5	X5	X5
	■	■	■	■
	■	■	■	■
	NO	NO ■	NO ■	NO ■
	■	■	■	■
	120ml / 000floz ■	250ml / 000floz ■ ■	320ml / 000floz ■ ■	380ml / 000floz ■ ■
	2 years	2 years	2 years	2 years
har-	NEW in 2026	NEW in 2026 Moulded-in felling sights		
m	greenworkstools.eu	greenworkstools.eu	greenworkstools.eu	greenworkstools.eu

IMAGES NOT to SCALE USE ● ● ● = OK with limitations COST:approx inc VAT/local Tax. £$€= Currency conversion only COST KIT: Chainsaw + recommended battery Ah, bar & chain + basic charger. ~ = approximate CHARGE STATUS=■=On Tool ■=on Battery OPTION=□ □ □		
COMPANY	GREENWORKS	
MODEL (UK US CODE if different) VARIANT	G24MCS10K2 00000	
ORIGIN		
VOLTAGE BATTERY SERIES	80v	
TYPE/ TRIGGER EQUIVALENT POWER	MICRO	
USE: PRO/ SEMI-PRO/ DOMESTIC	● ■	
COST: BODY/BAR or BODY ONLY COST: KIT inc charger & battery	£130 / $000 / €000 £000 / $000 /€000	
COMPATIBLE BACKPACK BATTERY		
WEIGHT: BODY-ONLY	1.25kg 000lb	
WEIGHT: BATTERY	1.7kg 3.8lb	
DIMENSIONS: (NO BAR) L x W x H	366 x 245 x 192mm 14.4 x 9.65 x 7.56"	
BATTERY Ah:DEFAULT, BACKPACK	2, 4, 12 Ah	
DURATION: mins. BACKPACK	25mins	
CUTS per CHARGE: BACKPACK	15+	
CHARGE STATUS ON BATTERY ON TOOL	■	
MULTI-PLATFORM BATTERY/inc POLESAW	■ ■	
NO-LOAD CHAIN SPEED	11mps / 36 fps	
BAR OPTIONS (RECOMMENDED)	18" / 45cm	
CHAIN/BAR GAUGE		
CHAIN PITCH		
VIBRATION: FRONT/TOP, REAR m/sec²	2.5	
SOUND PRESSURE: LpA/POWER LwA	87	
IP RATING BLUETOOTH/APP	?	
TOOLESS SPROCKET COVER NO-DROP NUT	NO	
TOOLESS CHAIN TENSION ON-BOARD SCRENCH	NO	
LANYARD EYE ON-BOARD DASH	NO	
METAL SAW (BUCKING) SPIKES PLASTIC	■	
OIL TANK, VISIBLE LEVEL ■ LED GAUGE	200ml / 6.75floz ■	
TOOL WARRANTY (Battery separate)	2-4 year Tool, 2 year battery	
NOTES	single battery waist/shoulder strap harness also available €180	
WEBSITE	greenworkstools.eu	

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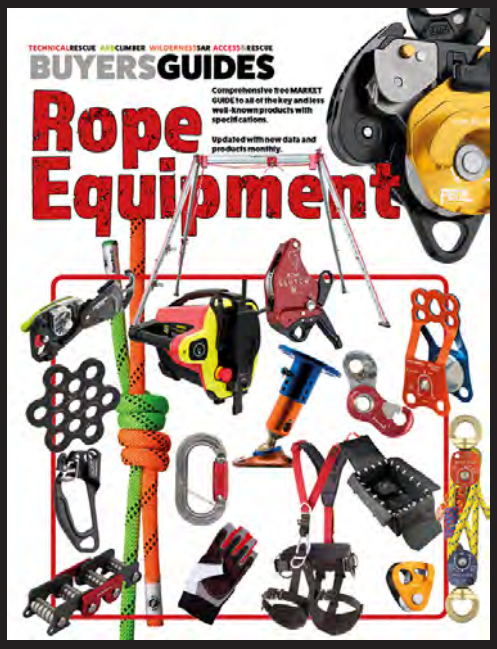

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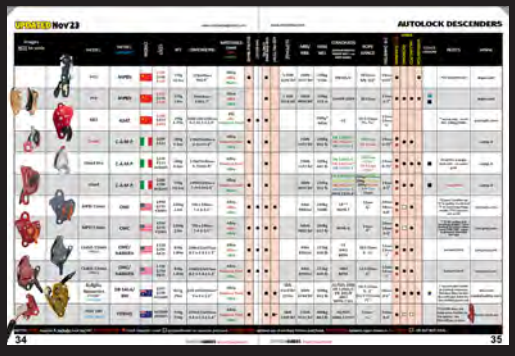

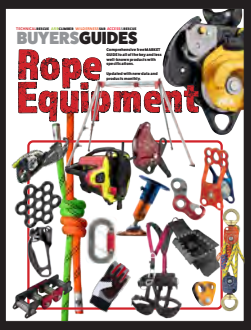

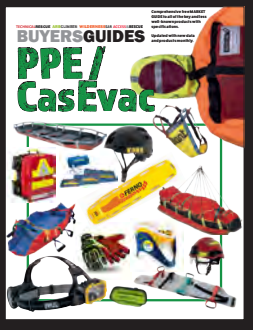

IMAGES NOT to SCALE
USE ● ● ● = OK with limitations
COST:approx inc VAT/local Tax.
£$€= Currency conversion only
COST KIT: Chainsaw + recommended battery Ah, bar & chain + basic charger.
~ = approximate
CHARGE STATUS=■=On Tool ■=on Batter
OPTION=□ □ □

COMPANY	GREENWORKS	GREENWORKS	HIKOKI (HITACHI)
MODEL (UK US CODE if different) VARIANT	OPTIMUS OTS350xx 00000	48THxx 2013702	CS36xxDB 00000
ORIGIN			●
VOLTAGE BATTERY SERIES	48v Core	48v	36v
TYPE/ TRIGGER EQUIVALENT POWER	TOP 4.3kW	TOP 2kW 31cc/1.9HP	REAR
USE: PRO/ SEMI-PRO/ DOMESTIC	■	● ■	● ■
COST: BODY/BAR or BODY ONLY COST: KIT inc charger & battery	£130 / $000 / €000 £000 / $1030 /€000	£000 / $000 / €000 £000 / $540 /€000	£330 / $000 / €360 £000 / $000 /€640
COMPATIBLE BACKPACK BATTERY			
WEIGHT: BODY-ONLY	2.6kg 00lb	4.9kg 10.8lb	3.5kg 00 lb
WEIGHT: BATTERY	1.7kg 3.8lb	1.7kg 3.8lb	1kg 00lb
DIMENSIONS: (NO BAR) L x W x H	366 x 245 x 192mm 14.4 x 9.65 x 7.56"	366 x 245 x 192mm 14.4 x 9.65 x 7.56"	400 x 200 x 245mm 000 x 00 x 00"
BATTERY Ah:DEFAULT, BACKPACK	2.5, 4, 5, 8, 12 Ah	2, 4, 12 Ah	2.5, 4, 21 Ah
DURATION: mins. BACKPACK	25mins	25mins	-
CUTS per CHARGE: BACKPACK	15+	110	00, 00 (2"/50cm)*
CHARGE STATUS ON BATTERY ON TOOL	■	■	■
MULTI-PLATFORM BATTERY/inc POLESAW	■ ■	■ ■	■
NO-LOAD CHAIN SPEED	00mps / 82 fps	00mps / 66 fps	19mps / 00 fps
BAR OPTIONS (RECOMMENDED)	10"/25cm 12"/30cm 14"/35cm 16"/40cm	12"/30cm	12" / 30cm
CHAIN/BAR GAUGE			
CHAIN PITCH			
VIBRATION: FRONT/TOP, REAR m/sec²	00	4.3	00
SOUND PRESSURE: LpA/POWER LwA	00	84	110/00
IP RATING BLUETOOTH/APP	?	?	NO
TOOLESS SPROCKET COVER NO-DROP NUT	■	NO	■
TOOLESS CHAIN TENSION ON-BOARD SCRENCH	■	NO	■
LANYARD EYE ON-BOARD DASH	NO	NO	■
METAL SAW (BUCKING) SPIKES PLASTIC	■	■	■
OIL TANK, VISIBLE LEVEL ■ LED GAUGE	200ml / 6.75floz ■	120ml / 00floz ■	80ml / 2.7floz ■
TOOL WARRANTY (Battery separate)	3 year Tool, 2 year battery	2-4 year Tool, 2 year battery	3 year limited
NOTES	single battery waist/shoulder strap harness also available €180	single battery waist/shoulder strap harness also available €180	LED light illuminates oil tank and cut area beneath chain. cut-tests on Cedar. New FlexVolt 18-36v system due 20
WEBSITE	greenworkstools.eu	greenworkstools.eu	hitachi-koki.com

	HIKOKI (HITACHI)	HIKOKI (HITACHI)	HIKOKI (HITACHI)	HUSQVARNA
	CS18xxDC 00000	CS36xxDA 00000	CS18xxDD 00000	ASPIRE P5-P4A 970 62 13-xx
	●	●	●	
	18v	36v	18v	18v Aspire*
	TOP	TOP	MICRO	MICRO
	● ■	● ■	● ■	● ■
	£000 / $000 / €000 £000 / $000 /€000	£000 / $000 / €000 £000 / $000 /€000	£000 / $000 / €000 £000 / $000 /€000	£120 $000 €00 £170 $00 €00
	00kg 00 lb	3.6kg 7.9 lb	00kg 00 lb	1.3kg 2.9lb
	00kg 00lb	0.8- 1.34kg lb	00kg 00lb	0.36-0.66kg 0.8-1.5lb
	000 x 000 x 000mm 000 x 00 x 00"	318 x 256 x 214mm 12.5 x 10 x 8.4"	000 x 000 x 000mm 000 x 00 x 00"	
	2.5, 4, 21 Ah	2.5, 4, 21 Ah	2.5, 4, 21 Ah	2.5, 4 Ah
	-	-	-	
	00, 00 (2"/50cm)*	190, 1400 (@2"/50cm)*	00, 00 (2"/50cm)*	
	■	■	■	■
	■	■	■	
	00mps / 00 fps	8.3mps / 27 fps	00mps / 00 fps	5mps / 00fps
	00" / 00cm	12" / 30cm	00" / 00cm	5" / 13cm
		9.5mm ⅜"		6mm/0.25"
	00	4.7	00	0.8
	00/00	87/100	00/00	75/91
	NO	NO	NO	?
	■	■	■	■ -
	■	■	■	■
	■	■	■	NO
	■	■	■	NO
	80ml / 2.7floz ■	80ml / 2.7floz ■	80ml / 2.7floz ■	?
	3 year limited	3 year limited	3 year limited	
ting 018	LED light illuminates oil tank and cutting area beneath chain. cut-tests on Cedar. New FlexVolt 18-36v system due 2018	LED light illuminates oil tank and cutting area beneath chain. cut-tests on Cedar. New FlexVolt 18-36v system due 2018	LED light illuminates oil tank and cutting area beneath chain. cut-tests on Cedar. New FlexVolt 18-36v system due 2018	*Aspire=Power-for-All-Alliance battery inc Bosch, Gardena & Flymo
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£$€= Currency conversion only
COST KIT: Chainsaw + recommended battery Ah, bar & chain + basic charger
~ = approximate
CHARGE STATUS=■=On Tool ■=on Battery
OPTION=□ □ □

COMPANY	HUSQVARNA	HUSQVARNA	HUSQVARNA
MODEL (UK US CODE if different) VARIANT	ASPIRE C15X-P4A 970 72 05-xx	120i 967 0982-xx	225i 970 54 75-xx
ORIGIN			
VOLTAGE BATTERY SERIES	18v Aspire*	36v BLi	36/40v BLi X
TYPE/ TRIGGER EQUIVALENT POWER	REAR 0.43kW	REAR 1.07kW	REAR 0.8kW
USE: PRO/ SEMI-PRO/ DOMESTIC	■	● ■	■
COST: BODY/BAR or BODY ONLY COST: KIT inc charger & battery	£120 $000 €240 £170 $00 €330	£170 $260 €215 £355 $320 €355	£240 $280 €250 £369 $380 €400
COMPATIBLE BACKPACK BATTERY		■	■
WEIGHT: BODY-ONLY	2.2kg 2.9lb	2.95kg 6.5lb	3.1kg 6.8lb
WEIGHT: BATTERY	0.36-0.66kg 0.8-1.5lb	1.22kg 2.7lb	1.22kg 2.7lb
DIMENSIONS: (NO BAR) L x W x H		500 x 235 x 240mm 19.7 x 9.25 x9.5"	430 x 255 x 230mm 00 x 00 x 00"
BATTERY Ah:DEFAULT, BACKPACK	2.5, 4 Ah	4, 15.6 Ah	4, 15.6 Ah
DURATION: mins. BACKPACK		35-45mins 3hrs	35-45mins 3hrs
CUTS per CHARGE: BACKPACK		-	-
CHARGE STATUS ON BATTERY ON TOOL	■ ■	■	■
MULTI-PLATFORM BATTERY/inc POLESAW		■ ■	■ ■
NO-LOAD CHAIN SPEED	5mps / 00fps	11.5mps / 38 fps	11.8mps / 39fps
BAR OPTIONS (RECOMMENDED)	10"/25cm 12" / 30cm	12"/30cm	12"/30cm, 14"/35cm
CHAIN/BAR GAUGE		.043"	.043"
CHAIN PITCH	6mm/0.25"	⅜"	⅜"
VIBRATION: FRONT/TOP, REAR m/sec²	4.4 / 3.5	3.4 / 3.8	3.9 / 3.9
SOUND PRESSURE: LpA/POWER LwA	89 /103	88 /101	89 / 100
IP RATING BLUETOOTH/APP	?	X4	X4
TOOLESS SPROCKET COVER NO-DROP NUT	■ -	??	NO ?
TOOLESS CHAIN TENSION ON-BOARD SCRENCH	■	NO	NO
LANYARD EYE ON-BOARD DASH	NO	NO	NO
METAL SAW (BUCKING) SPIKES PLASTIC	■	■	■
OIL TANK, VISIBLE LEVEL ■ LED GAUGE	■	200ml / 6.75floz ■	200ml / 6.75floz ■ ■
TOOL WARRANTY (Battery separate)		2 year	2 year
NOTES	180s auto shutdown *Aspire=Power-for-All-Alliance battery inc Bosch, Gardena & Flymo	*~ worktime for pruning, halve this time for logging.	Auto-Off after period of inactivity. *~ worktime for logging/ pruning respectively. Heated Handl
WEBSITE	husqvarna.com	husqvarna.com	husqvarna.com

	HUSQVARNA	HUSQVARNA	HUSQVARNA	HUSQVARNA
	240i 9706011-xx 97054 75-xx	**350i** 970 60 12-xx	**435i** 9707182-xx 9707180-xx	**535i XP** 970 71 65-xx
	36/40v BLi X	36/40v BLi X	36/40v BLi X	36/40v BLi X
	REAR 1.4kW	REAR	REAR 1.8kW	REAR 1.45kW
	■	● ■	● ■	● ■
	£330 - €350 £579 - €650	- $330 - - $480 -	£390 $450 €450 £00 $600 €00	£000 $490 €551 £00 $00 €00
	■	■	■	■
	3.5kg 7.7lb	3.5kg 7.7lb	2.7-2.8kg 5.95-6.2lb	2.6kg 5.7lb
	1.22kg 2.7lb		0.84-1.9kg 1.85-4.2lb	0.84-1.9kg 1.85-4.2lb
	430 x 255 x 230mm 00 x 00 x 00"		430 x 255 x 230mm 00 x 00 x 00"	430 x 255 x 230mm 00 x 00 x 00"
	4, 15.6 Ah		2.6, 5.2, 9.4, 14.4,26.1,31.1Ah	2.6, 5.2, 9.4, 14.4,26.1,31.1Ah
	35-45mins 3hrs		30-60mins*	30-60mins*
	-		-	-
	■		■	■
	■ ■		■ ■	■ ■
	11.8mps / 39fps		21mps / 68fps	20mps / 66fps
	12"/30cm, 16"/40cm	18"/46cm	14"/35cm 16"/40cm	14"/35cm 16"/40cm
	.043"	.050"	.043"	.043"
	⅜"	3/8"	8.25mm/0.325"	8.25mm/0.325" ⅜"
	2.6 / 3.7		3.5 / 2.7	2.5 / 2.8
	91 / 102	91/102	90 / 103	97 / 108
	X4		X4	X4
	NO ?		NO ■	NO ■
	NO	NO	NO	NO
	NO		NO	NO
	■		NO	NO
	200ml / 6.75floz ■ ■		120ml / 4 floz ■ ■	120ml / 4 floz ■ ■
	2 year	2 year	2 year	2 year
	Auto-Off after period of inactivity. *~ worktime for logging/ pruning respectively. Heated Handle		Auto-Off after period of inactivity. *~ worktime for logging/ pruning respectively. Not Canada/USA	Auto-Off after period of inactivity. *~ worktime for logging/ pruning respectively. Not Canada/USA
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£$€= Currency conversion only
COST KIT: Chainsaw + recommended battery Ah, bar & chain + basic charger.
~ = approximate
CHARGE STATUS=■=On Tool ■=on Battery
OPTION=□ □ □

COMPANY	HUSQVARNA	HUSQVARNA	HUSQVARNA
MODEL (UK US CODE if different) VARIANT	536 Li XP 00000	540i XP G 970 74 60-15	542i XP G 970 74 60-15
ORIGIN			
VOLTAGE BATTERY SERIES	36/40v BLi X	36/40v BLi X	36/40v BLi X
TYPE/ TRIGGER EQUIVALENT POWER	REAR	REAR 1.8kW	REAR 1.8kW
USE: PRO/ SEMI-PRO/ DOMESTIC	■	■	■
COST: BODY/BAR or BODY ONLY COST: KIT inc charger & battery	£350 $400 €415 £00 £630 €00	£739 $620 €844 £00 $980 €00	£779 $710 €858 £00 $1070 €00
COMPATIBLE BACKPACK BATTERY	■	■	■
WEIGHT: BODY-ONLY	2.4kg 5.3lb	2.9kg 6.4lb	3.1kg 6.82lb
WEIGHT: BATTERY	0.84-1.9kg 1.85-4.2lb	0.84-1.9kg 1.85-4.2lb	0.84-1.9kg 1.85-4.2lb
DIMENSIONS: (NO BAR) L x W x H	430 x 255 x 230mm 00 x 00 x 00"	00 x 00 x 00mm 00 x 00 x 00"	00 x 00 x 00mm 00 x 00 x 00"
BATTERY Ah:DEFAULT, BACKPACK	2.6, 5.2, 9.4, 14.4,26.1,31.1Ah	2.6, 5.2, 9.4, 14.4,26.1,31.1Ah	2.6, 5.2, 9.4, 14.4,26.1,31.1A
DURATION: mins. BACKPACK	40, 1hr15 & ~2hr15* <7.5hr	40, 1hr15 & ~2hr15* <7.5hr	40, 1hr15 & ~2hr15* <7.5hr
CUTS per CHARGE: BACKPACK	-	-	-
CHARGE STATUS ON BATTERY ON TOOL	■	■ ■	■ ■
MULTI-PLATFORM BATTERY/inc POLESAW	■ ■	■ ■	■ ■
NO-LOAD CHAIN SPEED	20mps / 66fps	24mps / 79fps	24mps / 79fps
BAR OPTIONS (RECOMMENDED)	10"/25cm, 12"/30cm, 14"/35cm	12"/30cm 14"/35cm 16"/40cm	12"/30cm 14"/35cm 16"/40c
CHAIN/BAR GAUGE	1.1mm / 0.043"	1.1mm / 0.043"	1.1mm / 0.043"
CHAIN PITCH	8.25mm/0.325"	8.25mm/0.325" ⅜"	8.25mm/0.325" ⅜"
VIBRATION: FRONT/TOP, REAR m/sec²	2.5 / 2.8	3.6 / 3.7	4.3 / 4.8
SOUND PRESSURE: LpA/POWER LwA	93 / 106	95 / 106	91 / 104
IP RATING BLUETOOTH/APP	X?	X4 ■	X4 ■
TOOLESS SPROCKET COVER NO-DROP NUT	NO	NO	NO
TOOLESS CHAIN TENSION ON-BOARD SCRENCH	NO	NO	NO
LANYARD EYE ON-BOARD DASH	NO	NO	■
METAL SAW (BUCKING) SPIKES PLASTIC	■	■	■
OIL TANK, VISIBLE LEVEL ■ LED GAUGE	200ml / 6.75floz ■	200ml / 6.75floz ■ ■	200ml / 6.75floz ■ ■
TOOL WARRANTY (Battery separate)	2 year	2 year	2 year
NOTES	Auto-Off after period of inactivity. *~ worktime for logging/ pruning respectively. Lower-torque version of 536 Li XP not in UK	Auto-Off after period of inactivity. *~ worktime for logging/ pruning respectively. G=Heated Handle +£20	Auto-Off after period of inactivity. Centrifugal Clutch G=Heated Handle +£40/€15
WEBSITE	husqvarna.com	husqvarna.com	husqvarna.com

	HUSQVARNA	HUSQVARNA	HUSQVARNA	HUSQVARNA
	550i XP G 970 74 60-15	**T535i XP** 9707174-xx9707164-xx 9678939-xx	**T540i XP G** 9705723-xx 9706468-xx	**T542i XP G** 970 64 68-xx
	36/40v BLi X	36/40v BLi X	36/40v BLi X	36/40v BLi X
	REAR	**TOP** 1.45kW	**TOP** 1.8kW	**TOP** 1.8kW
	■	■	■	■
	£839 $830 €00 £00 $1280 €00	£500 $490 €563 £00 $00 €00	£729 $620 €800 £00 $1030 €00	£770 $700 €858 £00 $1200 €00
	■	■	■	■
	4kg 8.8lb	2.4kg 5.3lb	2.5kg 5.51lb	2.9kg 6.4lb
	0.84-1.9kg 1.85-4.2lb	0.84-1.9kg1.85-4.2lb	0.84-1.9kg 1.85-4.2lb	0.84-1.9kg 1.85-4.2lb
	00 x 00 x 00mm 00 x 00 x 00"	00 x 00 x 00mm 00 x 00 x 00"	00 x 00 x 00mm 00 x 00 x 00"	00 x 00 x 00mm 00 x 00 x 00"
Ah	2.6, 5.2, 9.4, 14.4,26.1,31.1Ah	2.6, 5.2, 9.4, 14.4,26.1,31.1Ah	2.6, 5.2, 9.4, 14.4,26.1,31.1Ah	2.6, 5.2, 9.4, 14.4,26.1,31.1Ah
	40, 1hr15 & -2hr15* <7.5hr	30-60mins*	40, 1hr15 & -2hr15* <7.5hr	40, 1hr15 & -2hr15* <7.5hr
	-	-	-	-
	■ ■	■ ■	■ ■	■ ■
	■ ■	■ ■	■ ■	■ ■
	24mps / 79fps	20mps / 66fps	24mps / 79fps	24mps / 79fps
m	20"/50cm	10"/25cm, 12"/30cm, 14"/35cm	12"/30cm 14"/35cm 16"/40cm	12"/30cm 14"/35cm 16"/40cm
	1.1mm / 0.043"	1.1mm / 0.043"	1.1mm / 0.043"	1.1mm / 0.043"
	8.25mm/0.325"	8.25mm/0.325" ⅜"	8.25mm/0.325"	8.25mm/0.325"
	2.6 / 3.6	2 / 2.4	2.1 / 3.4	4.7 / 4.1
	94 / 107	99 / 109	92 / 103	91 / 104
	X?	X4	X4 ■	X4 ■
	NO	NO ■	NO ■	NO
	NO	■	NO	NO
	■	■ -	■ ■	■ ■
	■	■	■	■
	200ml / 6.75floz ■	200ml / 6.75floz ■ ■	200ml / 6.75floz ■ ■	200ml / 6.75floz ■ ■
	2 year	2 year	2 year	2 year
	Auto-Off after period of inactivity. . Centrifugal Clutch G=Heated Handle +£30	Auto-Off after period of inactivity. *~ worktime for logging/ pruning respectively.	Auto-Off after period of inactivity. *~ worktime for logging/ pruning respectively. G=Heated Handle +£40	Auto-Off after period of inactivity. Centrifugal Clutch G=Heated Handle +£40
	husqvarna.com	husqvarna.com	husqvarna.com	husqvarna.com

IMAGES NOT to SCALE
USE ● ● ● = OK with limitations
COST:approx inc VAT/local Tax.
£$€= Currency conversion only
COST KIT: Chainsaw + recommended battery Ah, bar & chain + basic charger.
~ = approximate
CHARGE STATUS=■=On Tool ■=on Battery
OPTION=□ □ □

COMPANY	KEEPER (GRUPO SANZ)	KAMIKAZE (GRUPO SANZ)	KAMIKAZE (GRUPO SAN
MODEL (UK US CODE if different) VARIANT	KP5 00000	KVS5100 00000	KVS5500 00000
ORIGIN			
VOLTAGE BATTERY SERIES	18v	14.4v	14.48v
TYPE/ TRIGGER EQUIVALENT POWER	MICRO	MICRO	MICRO
USE: PRO/ SEMI-PRO/ DOMESTIC	□ ■	● ■	● ■
COST: BODY/BAR or BODY ONLY COST: KIT inc charger & battery	£000/ / $000 /€000 £107 /$000 /€000	£000/ / $000 /€000 £000 /$000 /€000	£000/ / $000 /€000 £000 /$000 /€000
COMPATIBLE BACKPACK BATTERY			
WEIGHT: BODY-ONLY			
WEIGHT: BATTERY	0.32kg	0.32kg	0.32kg
DIMENSIONS: (NO BAR) L x W x H			
BATTERY Ah:DEFAULT, BACKPACK	1.5Ah	2, 4Ah	2, 4Ah
DURATION: mins. BACKPACK	30min	30min	30min
CUTS per CHARGE: BACKPACK			
CHARGE STATUS ON BATTERY ON TOOL			
MULTI-PLATFORM BATTERY/inc POLESAW			
NO-LOAD CHAIN SPEED	12mps / 00 fps	12mps / 00 fps	12mps / 00 fps
BAR OPTIONS (RECOMMENDED)	6"/15cm	6"/15cm	6"/15cm
CHAIN/BAR GAUGE			
CHAIN PITCH			
VIBRATION: FRONT/TOP, REAR m/sec²			
SOUND PRESSURE: LpA/POWER LwA			
IP RATING BLUETOOTH/APP			
TOOLESS SPROCKET COVER NO-DROP NUT			
TOOLESS CHAIN TENSION ON-BOARD SCRENCH			
LANYARD EYE ON-BOARD DASH			
METAL SAW (BUCKING) SPIKES PLASTIC			
OIL TANK, VISIBLE LEVEL ■ LED GAUGE	000ml / 000floz ■	000ml / 000floz ■	000ml / 000floz ■
TOOL WARRANTY (Battery separate)			
NOTES	6-8cm max cut diameter	6-8cm max cut diameter	6-8cm max cut diameter
WEBSITE	gruposanz.es	gruposanz.es	gruposanz.es

BATTERY CHAINSAWS

	KAMIKAZE (GRUPO SANZ)	KAMIKAZE (GRUPO SANZ)	KRESS	KRESS
	KVS5700	KVS8000	KS343E.9	KS367E.9
	00000	00000	00000	00000
	21.6v	21.6v	20v Kross Pack	40v (2x20v) Kross Pack
	MICRO 800W	MICRO 950W	MICRO 2.5KW/44cc	REAR 2.5KW/44cc
	● ■	● ■	■	■
	£000/ / $000 /€000 £000 /$000 /€000	£000/ / $000 /€000 £000 /$000 /€000	£100/ / $000 /€000 £000 /$000 /€000	£170/ / $000 /€000 £000 /$000 /€000
			NO	NO
			1.1kg 2.42lb	00kg 00lb
	0.32kg	0.32kg	0.42-1kg 0.9-2.2lb	0.42-1kg 0.9-2.2lb
	2, 4Ah	4Ah	2, 4, 8Ah	2, 4, 8Ah
	30min	30min		
			■	■
	12mps / 00 fps	12mps / 00 fps	10mps / 00 fps	18mps / 00 fps
	6"/15cm	8"/20.3cm	12"/30cm	14"/35cm 16"/40cm
			1.1mm / 0.043"	1.1mm / 0.043"
			8.25mm/0.325"	8.25mm/0.325"
			■	
			■	■
	000ml / 000floz ■	000ml / 000floz ■ ■	000ml / 000floz ■	000ml / 000floz ■
	8cm max cut diameter	16cm max cut diameter	. Uses twin 20v batteries add £20 for 16" bar	. Uses twin 20v batteries add £20 for 16" bar
	gruposanz.es	gruposanz.es	kress.com	kress.com

IMAGES NOT to SCALE
USE ● ● ● = OK with limitations
COST:approx inc VAT/local Tax.
£$€= Currency conversion only
COST KIT: Chainsaw + recommended battery Ah, bar & chain + basic charge
~ = approximate
CHARGE STATUS=■=On Tool ■=on Battery
OPTION=□ □ □

COMPANY	KRESS	KRESS	KRESS
MODEL (UK US CODE if different) VARIANT	KS367E.9 00000	KS300 00000	KC340.9 00000
ORIGIN			
VOLTAGE BATTERY SERIES	60v Max	60v Commercial Cyber	60v Commercial Cyber
TYPE/ TRIGGER EQUIVALENT POWER	REAR 2.5KW/44cc	REAR 2.8KW/55cc	REAR 3.8KW/70cc
USE: PRO/ SEMI-PRO/ DOMESTIC	■	■	■
COST: BODY/BAR or BODY ONLY COST: KIT inc charger & battery	£240/ / $000 /€000 £000 /$000 /€000	£350/ / $000 /€000 £000 /$000 /€000	TBA
COMPATIBLE BACKPACK BATTERY	NO	NO	NO
WEIGHT: BODY-ONLY	4.8kg 10.6lb	4.2kg 9.24lb	4.8kg 10.6lb
WEIGHT: BATTERY	0.42-1kg 0.9-2.2lb		0.42-1kg 0.9-2.2lb
DIMENSIONS: (NO BAR) L x W x H			
BATTERY Ah:DEFAULT, BACKPACK	2, 4, 8Ah	4, 4(8min charge)Ah	4(8min charge)Ah
DURATION: mins. BACKPACK			
CUTS per CHARGE: BACKPACK			
CHARGE STATUS ON BATTERY ON TOOL	■	■	■
MULTI-PLATFORM BATTERY/inc POLESAW			
NO-LOAD CHAIN SPEED	22mps / 00 fps	24mps / 00 fps	30mps / 00 fps
BAR OPTIONS (RECOMMENDED)	14"/35cm	16"/40cm	20"/50cm
CHAIN/BAR GAUGE	1.1mm / 0.043"	1.1mm / 0.043"	1.3mm / 0.05"
CHAIN PITCH	8.25mm/0.325"	8.25mm/0.325"	8.25mm/0.325"
VIBRATION: FRONT/TOP, REAR m/sec²			
SOUND PRESSURE: LpA/POWER LwA		88dB	
IP RATING BLUETOOTH/APP	X5 ■	X5 ■	X5 ■
TOOLESS SPROCKET COVER NO-DROP NUT			
TOOLESS CHAIN TENSION ON-BOARD SCRENCH			
LANYARD EYE ON-BOARD DASH			
METAL SAW (BUCKING) SPIKES PLASTIC	■		■
OIL TANK, VISIBLE LEVEL ■ LED GAUGE	190ml / 000floz ■	190ml / 000floz ■	300ml / 000floz ■
TOOL WARRANTY (Battery separate)			
NOTES			NEW in 2026
WEBSITE	kress.com	kress.com	kress.com

KRESS
KS320.9 00000
60v Commercial Cyber
TOP 2.4KW/44cc
£560/ / $000 /€000 £000 /$000 /€000
NO
3kg 6.6lb
4 Ah
24mps / 00 fps
14"/35cm
1.1mm / 0.043"
8.25mm/0.325"
X5
180ml / 000floz
kress.com

OREGON®

SpeedCut™ System

The **NEW** generation narrow-kerf cutting system

Faster Cutting

Reduced Weight

compared with standard cutting systems

OregonProducts.co.uk

IMAGES NOT to SCALE
USE ● ● ● = OK with limitations
COST:approx inc VAT/local Tax.
£$€= Currency conversion only
COST KIT: Chainsaw + recommended battery Ah, bar & chain + basic charger.
~ = approximate
CHARGE STATUS=■=On Tool ■=on Battery
OPTION=☐ ☐ ☐

COMPANY	MAKITA	MAKITA	MAKITA
MODEL (UK US CODE if different) VARIANT	DUC254 00000	DUC256 00000	UC006G..2G..3G 00000
ORIGIN	●	●	●
VOLTAGE BATTERY SERIES	18v LXT	Twin 18v LXT	40v MAX XGT
TYPE/ TRIGGER EQUIVALENT POWER	TOP	TOP 33cc	TOP
USE: PRO/ SEMI-PRO/ DOMESTIC	☐	■ ■	■ ■
COST: BODY/BAR or BODY ONLY COST: KIT inc charger & battery	£190 / $265 / €220* £270 / $375 / €320*	£200/ / $200 /£274 £360 /$350 /€420	£200/ / $200 /£274 £360 /$350 /€420
COMPATIBLE BACKPACK BATTERY	?	?	?
WEIGHT: BODY-ONLY	2.8kg 6.7lb	3.1kg 7lb	2.6kg 5.7lb
WEIGHT: BATTERY	0.65-1.75kg 1.4-3.8lb	0.65-1.75kg 1.4-3.8lb	0.8-1.9kg 1.8-4.2lb
DIMENSIONS: (NO BAR) L x W x H	256 x 185 x 190mm 10.15 x 7.5 x 7.25"	270 x 205 x 232mm 00 x 00 x 00"	266 x 194 x 227mm 00 x 00 x 00"
BATTERY Ah:DEFAULT, BACKPACK	2, 3, 4, 5,6 Ah	2, 3, 4, 5, 6, 12? Ah	2.5, 4, 5, 8 Ah
DURATION: mins. BACKPACK	-	-	-
CUTS per CHARGE: BACKPACK	190 (2"/5cm)	400 (2"/5cm)	
CHARGE STATUS ON BATTERY ON TOOL	■	■	■ ■
MULTI-PLATFORM BATTERY/inc POLESAW	10"/25cm	■	■
NO-LOAD CHAIN SPEED		20mps / 81.3fps	24.8mps / 00fps
BAR OPTIONS (RECOMMENDED)		10"/25cm, Carving, 12"/30cm	10"/25cm, Carving, 12"/30cm
CHAIN/BAR GAUGE	n/a	1.1mm / 0.043" 1.3mm/0.050"	1.3mm/0.050"
CHAIN PITCH		8.25mm/0.325" 6mm/0.25"	6mm/0.25"
VIBRATION: FRONT/TOP, REAR m/sec²		2.8-3.6	2.8
SOUND PRESSURE: LpA/POWER LwA	n/a	95 /103	91 /99
IP RATING BLUETOOTH/APP			X4
TOOLESS SPROCKET COVER NO-DROP NUT	NO ■	NO ■	NO ■
TOOLESS CHAIN TENSION ON-BOARD SCRENCH	NO	NO	NO
LANYARD EYE ON-BOARD DASH	■	■	■
METAL SAW (BUCKING) SPIKES PLASTIC	■	☐(option)	?
OIL TANK, VISIBLE LEVEL ■ LED GAUGE	140ml / 4.7 floz ■	200ml / 6.75floz ■	200ml / 6.75floz ■
TOOL WARRANTY (Battery separate)	3 year	3 Year	3 Year
NOTES	Boost torque button	Incremental 'soft' start.	2G and 3G versions have 14 & 16" ba respectively
WEBSITE	makita.biz	makita.biz	makita.biz

BATTERY CHAINSAWS

	MAKITA	MAKITA	MAKITA	MAKITA
	DUC353..305..355..405 00000	UC016G..11G 14G 15G 22G 24G 25G 26G 00000	UC029G GCU07 00000	DUC150x 00000
	●	●	●	●
	Twin 18v LXT	40v MAX XGT	40v MAX XGT	18v LXT
	REAR	REAR	MICRO	MICRO
	■ ■	■ ■	■ ■	■ ■
	£225/ $300 /€309 £000 / $480/ €602*	£212 / $180/ €250 £460 / $425*/ €530	£212 / $180/ €250 £460 / $425*/ €530	£165/$000/ €000 £285/$000/ €000
	?	?		
	3.3kg 7.3lb	2.5kg 5.5lb	1.3kg 2.9lb	
	0.65-1.75kg 1.4-3.8lb	0.8-1.9kg 1.8-4.2lb	0.8-1.9kg 1.8-4.2lb	0.65-1.75kg 1.4-3.8lb
	443 x 215 x 235mm 17.4 x 8.5 x 9.25"	445 x 234 x 275mm 00 x 00 x 00"	485 x 95 x257mm 18.6 x 3.75 x 10"	412x229x223mm 16x9x8.8"
	2.5, 4, 5, 8 Ah	2.5, 4, 5, 8Ah	2.5, 4 Ah	2, 3, 4, 5, 6 Ah
	-	-	-	15mins
			<400@2" cedar cuts	-
	■	■	■	■
	■	■	■	■ ■
	20mps / 81.3fps	25.5mps / 00fps	8mps / 60fps	8mps / 60fps
m	12" /30cm,14"/35cm,16"/40cm	4.5" 11.5cm	6" 15cm	6" 15cm
	1.1mm / 0.043"	1.1mm / 0.043"	1.1mm / 0.043"	1.1mm / 0.043"
	8.25mm/0.325"	8.25mm/0.325"	8.25mm/0.325"	8.25mm/0.325"
	5.9	4.3	4.6	5.3
	87-89 / 98-100	93-94 / 101-102	81 / 89	106
	X4	X4	X4	
	NO -	NO -	■ -	■ -
			■	■
	NO	NO	NO	NO
	?	?	?	NO
	200ml / 6.75floz	260ml / 000floz	55ml / 000floz	55ml / 00flozn
	3 year	3 year	3 year	3 year
ars	305, 355 & 405 versions have different bar and chain options	11G, 14G, 15G, 22G,24G,25G and 26G versions have different bar and chain options	14G and 15G versions have different bar and chain options	There is also a 12v model the UC100D
	makita.biz	makita.biz	makita.biz	makita.biz

IMAGES NOT to SCALE
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£$€= Currency conversion only
COST KIT: Chainsaw + recommended battery Ah, bar & chain + basic charger.
~ = approximate
CHARGE STATUS=■=On Tool ■=on Battery
OPTION=☐ ☐ ☐

COMPANY	MAKITA	MAKITA	MAKITA
MODEL (UK US CODE if different) VARIANT	DUC254 00000	DUC256 00000	UC006G..2G..3G 00000
ORIGIN	●	●	●
VOLTAGE BATTERY SERIES	18v LXT	Twin 18v LXT	40v MAX XGT
TYPE/ TRIGGER EQUIVALENT POWER	TOP	TOP 33cc	TOP
USE: PRO/ SEMI-PRO/ DOMESTIC	☐	■ ■	■ ■
COST: BODY/BAR or BODY ONLY COST: KIT inc charger & battery	£190 / $265 / €220* £270 / $375 / €320*	£200/ / $200 /£274 £360 /$350 /€420	£200/ / $200 /£274 £360 /$350 /€420
COMPATIBLE BACKPACK BATTERY	?	?	?
WEIGHT: BODY-ONLY	2.8kg 6.7lb	3.1kg 7lb	2.6kg 5.7lb
WEIGHT: BATTERY	0.65-1.75kg 1.4-3.8lb	0.65-1.75kg 1.4-3.8lb	0.8-1.9kg 1.8-4.2lb
DIMENSIONS: (NO BAR) L x W x H	256 x 185 x 190mm 10.15 x 7.5 x 7.25"	270 x 205 x 232mm 00 x 00 x 00"	266 x 194 x 227mm 00 x 00 x 00"
BATTERY Ah:DEFAULT, BACKPACK	2, 3, 4, 5,6 Ah	2, 3, 4, 5, 6, 12? Ah	2.5, 4, 5, 8 Ah
DURATION: mins. BACKPACK	-	-	-
CUTS per CHARGE: BACKPACK	190 (2"/5cm)	400 (2"/5cm)	
CHARGE STATUS ON BATTERY ON TOOL	■	■	■ ■
MULTI-PLATFORM BATTERY/inc POLESAW	10"/25cm	■	■
NO-LOAD CHAIN SPEED		20mps / 81.3fps	24.8mps / 00fps
BAR OPTIONS (RECOMMENDED)		10"/25cm, Carving, 12"/30cm	10"/25cm, Carving, 12"/30cm
CHAIN/BAR GAUGE	n/a	1.1mm / 0.043" 1.3mm/0.050"	1.3mm/0.050"
CHAIN PITCH		8.25mm/0.325" 6mm/0.25"	6mm/0.25"
VIBRATION: FRONT/TOP, REAR m/sec²		2.8-3.6	2.8
SOUND PRESSURE: LpA/POWER LwA	n/a	95 /103	91 /99
IP RATING BLUETOOTH/APP			X4
TOOLESS SPROCKET COVER NO-DROP NUT	NO ■	NO ■	NO ■
TOOLESS CHAIN TENSION ON-BOARD SCRENCH	NO	NO	NO
LANYARD EYE ON-BOARD DASH	■	■	■
METAL SAW (BUCKING) SPIKES PLASTIC	■	☐(option)	?
OIL TANK, VISIBLE LEVEL ■ LED GAUGE	140ml / 4.7 floz ■	200ml / 6.75floz ■	200ml / 6.75floz ■
TOOL WARRANTY (Battery separate)	3 year	3 Year	3 Year
NOTES	Boost torque button	Incremental 'soft' start.	2G and 3G versions have 14 & 16" ba respectively
WEBSITE	makita.biz	makita.biz	makita.biz

...TTE... CHAINSAWS

	MAKITA	MAKITA	MAKITA	MAKITA
	DUC353..305..355..405 00000	UC016G..11G 14G 15G 22G 24G 25G 26G 00000	UC029G GCU07 00000	DUC150x 00000
	●	●	●	●
	Twin 18v LXT	40v MAX XGT	40v MAX XGT	18v LXT
	REAR	REAR	MICRO	MICRO
	■ ■	■ ■	■ ■	■ ■
	£225/ $300 /€309 £000 / $480/ €602*	£212 / $180/ €250 £460 / $425*/ €530	£212 / $180/ €250 £460 / $425*/ €530	£165/$000/ €000 £285/$000/ €000
	?	?		
	3.3kg 7.3lb	2.5kg 5.5lb	1.3kg 2.9lb	
	0.65-1.75kg 1.4-3.8lb	0.8-1.9kg 1.8-4.2lb	0.8-1.9kg 1.8-4.2lb	0.65-1.75kg 1.4-3.8lb
	443 x 215 x 235mm 17.4 x 8.5 x 9.25"	445 x 234 x 275mm 00 x 00 x 00"	485 x 95 x257mm 18.6 x 3.75 x 10"	412x229x223mm 16x9x8.8"
	2.5, 4, 5, 8 Ah	2.5, 4, 5, 8Ah	2.5, 4 Ah	2, 3, 4, 5, 6 Ah
	-	-	-	15mins
			<400@2" cedar cuts	-
	■	■	■	■
	■	■	■	■ ■
	20mps / 81.3fps	25.5mps / 00fps	8mps / 60fps	8mps / 60fps
m	12" /30cm,14"/35cm,16"/40cm	4.5" 11.5cm	6" 15cm	6" 15cm
	1.1mm / 0.043"	1.1mm / 0.043"	1.1mm / 0.043"	1.1mm / 0.043"
	8.25mm/0.325"	8.25mm/0.325"	8.25mm/0.325"	8.25mm/0.325"
	5.9	4.3	4.6	5.3
	87-89 / 98-100	93-94 / 101-102	81 / 89	106
	X4	X4	X4	
	NO -	NO -	■ -	■ -
			■	■
	NO	NO	NO	NO
	?	?	?	NO
	200ml / 6.75floz	260ml / 000floz	55ml / 000floz	55ml / 00flozn
	3 year	3 year	3 year	3 year
ars	305, 355 & 405 versions have different bar and chain options	11G, 14G, 15G, 22G,24G,25G and 26G versions have different bar and chain options	14G and 15G versions have different bar and chain options	There is also a 12v model the UC100D
	makita.biz	makita.biz	makita.biz	makita.biz

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£$€= Currency conversion only
COST KIT: Chainsaw + recommended battery Ah, bar & chain + basic charger.
~ = approximate
CHARGE STATUS=■=On Tool■=on Battery
OPTION=□ □ □

COMPANY	MILWAUKEE	MILWAUKEE	MILWAUKEE
MODEL (UK US CODE if different) VARIANT	M18 Fuel 00000	OOO 00000	OOO 00000
ORIGIN			
VOLTAGE BATTERY SERIES	18v		
TYPE/ TRIGGER EQUIVALENT POWER	TOP		
USE: PRO/ SEMI-PRO/ DOMESTIC	■		
COST: BODY/BAR or BODY ONLY COST: KIT inc charger & battery			
COMPATIBLE BACKPACK BATTERY			
WEIGHT: BODY-ONLY			
WEIGHT: BATTERY			
DIMENSIONS: (NO BAR) L x W x H			
BATTERY Ah:DEFAULT, BACKPACK			
DURATION: mins. BACKPACK			
CUTS per CHARGE: BACKPACK			
CHARGE STATUS ON BATTERY ON TOOL			
MULTI-PLATFORM BATTERY/inc POLESAW			
NO-LOAD CHAIN SPEED			
BAR OPTIONS (RECOMMENDED)			
CHAIN/BAR GAUGE			
CHAIN PITCH			
VIBRATION: FRONT/TOP, REAR m/sec²			
SOUND PRESSURE: LpA/POWER LwA			
IP RATING BLUETOOTH/APP			
TOOLESS SPROCKET COVER NO-DROP NUT			
TOOLESS CHAIN TENSION ON-BOARD SCRENCH	■		
LANYARD EYE ON-BOARD DASH			
METAL SAW (BUCKING) SPIKES PLASTIC			
OIL TANK, VISIBLE LEVEL ■ LED GAUGE			
TOOL WARRANTY (Battery separate)			
NOTES	SAFETY NOTICE (Chain Brake) OCT 2025		
WEBSITE	milwaukee.com		

BATTERY CHAINSAWS

	STANLEY Fat Max SFMCPS415D1	STANLEY OOO 00000	STIGA CS100e 00000	STIGA CS300e 00000
	18/20v		48v 7-series	48v 7-series
			REAR 0.7kW	
	● ■		● ■	● ■
	£000 / $000 / €000 £300 / $000 /€000		€150 £259 /€548	£000 / $000 / €000 £000 / $000 /€000
			■	
			2.96kg 6.5kg	
	57 x 31cm		66 x 23 x 22cm	
			2.5, 4Ah	
			20mins	
			80 (@10cm)	
			■	
			■	
			14.5mps / 00 fps	
	12"/30cm 6"/15cm		10"/25cm	
			1.1mm / 0.043"	
			8.25mm/0.325"	
			4.18 / 3.37	
			86.5/101	
			■	
	■		■	
			NO	
			■	
			150ml / 00floz ■	
			2 year	
			Stiga also has 48v Domestic model. Backpack is a converter for any Stiga 80v battery, best use is with 4 or 5Ah battery	
			stiga.com	stiga.com

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£$€= Currency conversion only
COST KIT: Chainsaw + recommended battery Ah, bar & chain + basic charger.
~ = approximate
CHARGE STATUS=■=On Tool ■=on Battery
OPTION=□ □ □

COMPANY	STIGA		STIHL
MODEL (UK US CODE if different) VARIANT	CS700e 00000	CS300e 00000	MSA60 C-B 00000
ORIGIN			
VOLTAGE BATTERY SERIES	48v 7-series	48v 7-series	36v AK
TYPE/ TRIGGER EQUIVALENT POWER			REAR
USE: PRO/ SEMI-PRO/ DOMESTIC	● ■	■	■ ■
COST: BODY/BAR or BODY ONLY COST: KIT inc charger & battery	£280 / $000 / €000 £510 / $000 /€000	£000 / $000 / €000 £000 / $000 /€000	£174 / $000 / €000 £294 / $000 /€000
COMPATIBLE BACKPACK BATTERY			-
WEIGHT: BODY-ONLY			2.7kg 5.9lb
WEIGHT: BATTERY			1.2,1.3kg 2.6, 2.8 lb
DIMENSIONS: (NO BAR) L x W x H			414x181x231mm/16.3x7.1x9
BATTERY Ah:DEFAULT, BACKPACK	4, 5Ah		2.8, 4.8Ah
DURATION: mins. BACKPACK			35,55mins
CUTS per CHARGE: BACKPACK			150 (4"/10cm)
CHARGE STATUS ON BATTERY ON TOOL			■
MULTI-PLATFORM BATTERY/inc POLESAW			■
NO-LOAD CHAIN SPEED			13.3mps / 44 fps
BAR OPTIONS (RECOMMENDED)			10"/25cm, 12" /30cm
CHAIN/BAR GAUGE			
CHAIN PITCH			
VIBRATION: FRONT/TOP, REAR m/sec²			3.4 / 4.2
SOUND PRESSURE: LpA/POWER LwA			83/94
IP RATING BLUETOOTH/APP			
TOOLESS SPROCKET COVER NO-DROP NUT			■
TOOLESS CHAIN TENSION ON-BOARD SCRENCH			■
LANYARD EYE ON-BOARD DASH			NO
METAL SAW (BUCKING) SPIKES PLASTIC			■
OIL TANK, VISIBLE LEVEL ■ LED GAUGE			110ml / 3.7floz
TOOL WARRANTY (Battery separate)			2 year Domestic
NOTES			
WEBSITE	stiga.com		stihl.com

	STIHL MSA70 C-B 00000	STIHL MSA80 C-B 00000	STIHL MSA160 C-B 00000	STIHL MSA200 C-B 00000
	36v AK	36v AK	36v AP	36v AP
	REAR	TOP	REAR	REAR
	■ ■	■ ■	■	■
	£214 / $000 / €000 £364 / $000 /€000	£339 / $000 / €000 £489 / $000 /€000	£319 / $000 / €000 £000 / $000 /€000	£364 / $000 / €000 £000 / $000 /€000
	■	■	■	
	3.3kg 7.3 lb	2.3kg 5 lb	3.3kg 7.3 lb	3.1kg 6.8 lb
	1.3, 1.7kg 2.8, 3.7 lb	1.3, 1.7kg 2.8, 3.7 lb	1.3, 1.7kg/ 2.8, 3.7 lb	1.3, 1.7kg/ 2.8, 3.7 lb
"	424x212x256mm/16.7x8.4x10"	306x195x185mm/12x7.7x7.3"	424x212x256mm/16.7x8.4x10"	mm/"
	4, 6, 16.6, 21.8, 29.3 Ah	2, 4, 6, 16.6,21.8,29.3 Ah	4, 6, 16.6, 21.8, 29.3 Ah	2, 4, 6, 16.6,21.8,29.3 Ah
	35,45, 110, 150,200mins	17,35,50, 125,180, 230mins	35,45, 110, 150,200mins	17,35,50, 125,180, 230mins
	180 (4"/10cm)	-	180 (4"/10cm)	-
	■	■	■	■
	■	■	■	■
	18.8mps / 62 fps	11.5mps / 38 fps	18.8mps / 62 fps	mps / fps
	10"/25cm,12" /30cm, 14"/35cm	10"/25cm, Carving, 12"/30cm	10"/25cm,12" /30cm, 14"/35cm	14"/35cm, Carving, 12"/30cm
				1/4
	4.6 / 3.9	2.5 / 2.5	4.6 / 3.9	4.6 / 3.9
	84 / 95	81/93	84 / 95	85/93
	■	NO	■	NO
	■	NO	■	NO
	NO	■	NO	■
	■	NO	■	NO
	210ml / 7.1loz	105ml /5floz	210ml / 7.1loz	ml /floz
	2 year Domestic, 1year Pro	1 year pro	2 year Domestic, 1year Pro	1 year pro
	stihl.com	stihl.com	stihl.com	stihl.com

IMAGES NOT to SCALE
USE ● ● ● = OK with limitatio
COST:approx inc VAT/local Tax.
£$€= Currency conversion only
COST KIT: Chainsaw + recommended battery Ah, bar & chain + basic charger.
~ = approximate
CHARGE STATUS=■=On Tool ■=on Battery
OPTION=□ □ □

COMPANY	STIHL	STIHL	STIHL
MODEL (UK US CODE if different) VARIANT	MSA220 C-B 00000	MSA300 C R Rescue 00000 00000	MSA161T 00000
ORIGIN	■	■	■
VOLTAGE BATTERY SERIES	36v AP	36v AP	36v AP
TYPE/ TRIGGER EQUIVALENT POWER	REAR	REAR 3kW	TOP
USE: PRO/ SEMI-PRO/ DOMESTIC	■	■	■
COST: BODY/BAR or BODY ONLY COST: KIT inc charger & battery	£444 / $000 / €000 £000 / $000 /€000	£7591119 / $000 / €000 £000 / $000 /€000	£404 / $000 / €000 £000 / $000 /€000
COMPATIBLE BACKPACK BATTERY		■	■
WEIGHT: BODY-ONLY	3.1kg 6.8 lb	4.5kg 9.9 lb	2.1kg/4.6 lb
WEIGHT: BATTERY	1.3, 1.7kg/ 2.8, 3.7 lb	1.3, 1.7kg/ 2.8, 3.7 lb	1.3, 1.7kg/ 2.8, 3.7 lb
DIMENSIONS: (NO BAR) L x W x H	mm/"	mm/"	mm/"
BATTERY Ah:DEFAULT, BACKPACK	2, 4, 6, 16.6,21.8,29.3 Ah	2, 4, 6, 16.6,21.8,29.3 Ah	2, 4, 6, 16.6,21.8,29.3 Ah
DURATION: mins. BACKPACK	17,35,50, 125,180, 230mins	17,35,50, 125,180, 230mins	17,35,50, 125,180, 230mins
CUTS per CHARGE: BACKPACK	-	-	-
CHARGE STATUS ON BATTERY ON TOOL	■	■	■
MULTI-PLATFORM BATTERY/inc POLESAW	■	■	■
NO-LOAD CHAIN SPEED	mps / fps	mps / fps	mps / fps
BAR OPTIONS (RECOMMENDED)	14"/35cm	14"/35cm 16"/40cm 18"/45cm 20"/50cm	10"/25cm, 12"/30cm
CHAIN/BAR GAUGE			
CHAIN PITCH	3/8	.325	1/4
VIBRATION: FRONT/TOP, REAR m/sec²	4.8 / 3.6	2.6 / 2.8	2.1 / 2.2
SOUND PRESSURE: LpA/POWER LwA	91/99	93 96/104	83/94
IP RATING BLUETOOTH/APP			
TOOLESS SPROCKET COVER NO-DROP NUT	NO	NO/ ■?	■
TOOLESS CHAIN TENSION ON-BOARD SCRENCH	NO	NO	■
LANYARD EYE ON-BOARD DASH	■	■/ ■?	■
METAL SAW (BUCKING) SPIKES PLASTIC	■	■	NO
OIL TANK, VISIBLE LEVEL ■ LED GAUGE	ml /floz	ml /floz ■	ml /floz
TOOL WARRANTY (Battery separate)	1 year pro	1 year pro	1 year pro
NOTES		Rescue saw has full-bar depth-gauge and enhanced air filtration and on board dash for oil and battery info	
WEBSITE	stihl.com	stihl.com	stihl.com

BATTERY CHAINSAWS

	STIHL MSA190T 00000	STIHL MSA220T/TC-O 00000	STIHL GTA26 00000	STIHL GTA40 00000
	36v AP	36v AP	10.8/11v AS	21.6v AS
	TOP	TOP	MICRO	MICRO
	■	■	● ■	■
	£379 / $000 / €000 £000 / $000 /€000	£684/749 / $000 / €000 £000 / $000 /€000	£114 /€000 £154 /€000	£249 /€000 £389 /€000
	■	■	-	-
	2.6kg/5.7 lb	2.7kg/5.9 lb	1.1kg 2.42lb	1.4kg 3.1lb
	1.3, 1.7kg/ 2.8, 3.7 lb	1.3, 1.7kg/ 2.8, 3.7 lb	0.2kg/0.4lb	0.2kg/ 0.4lb x 2
	mm/"	mm/"	mm/"	mm/"
	2, 4, 6, 16.6,21.8,29.3 Ah	2, 4, 6, 16.6,21.8,29.3 Ah	2.1 to 2.6 Ah	2.1 to 2.6 Ah
s	17,35,50, 125,180, 230mins	17,35,50, 125,180, 230mins	25 mins	50 mins (2 batteries)
	-	-	70-4cm	240 -4cm
	■	■	■	■
	■	■	■	■
	mps / fps	mps / fps	11.5mps / 38 fps	mps / fps
	12"/30cm, 14"/35cm	12"/30cm, 14"/35cm	4/10cm	6"/15cm
	3/8	3/8	1/4	1/4
	3.8 / 3.9	3 / 3.4	2.9 / 2.8	4.5 / 4.2
	91/99	94/104	78/86	82/90
	■	NO	NO	NO
	■	NO	NO	NO
	■	■	NO	NO
	NO	NO	NO	NO
	/floz	ml /floz ■	ml /floz	ml /floz
	1 year pro	1 year pro	1 year pro	1 year pro
		TC-O has oil sensor and LED display.		Pack includes 2 batteries
	stihl.com	stihl.com	stihl.com	stihl.com

Take a step up into the canopy!

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We designed

Limbwalker™

first sole engineered
for arborist boots

Arbpro®

www.arbpro.it

Climbing zone with integrated lugs

Round shaped and engraved lugs providing maximum grip in all directions even on slippery surfaces. Grip at 360°

Straight lugs to provide stability

Lateral flaps with tapered lugs

Reinforced heel

High grip rubber compound

ARBORIST (<3tonne, >70mm/3"*) WOOD CHIPPERS

I remember when having a wood chipper was a sign of a very successful business or a rich relative because they were a German import from *Jensen* the original inventor (Peter Jensen in 1884 pic right). These days *Jensen* are still the company with the longest pedigree but they are far from unopposed. Back then us poor people usually contributed to global warming by burning the foliage on site or taking it away to a friendly farmer's field. Chippers are now much more of a necessity than a luxury since disposal of brush and cord wood would otherwise be a major headache for most companies. Now, everything gets chipped down to a useful mulch or top dressing and those with yards can store mountains of the stuff to sell off at leisure as either wood chips, mulch/dressing or compost. Those without yards just need to do a good job persuading the client how useful the wood chips are. Brush or wood chippers are, like blowers, a range of machinery not directly related to climbing, which is our usual niche, but they both represent equipment that virtually every arb business has to have. Chippers are still a major investment for any arb company, often more expensive than the truck that's towing or transporting your chipper hence leasing or finance are a common option, typically a new, small pro model might cost over £120/€150/$175 a week.

This Guide includes only models less than 3 metric tonnes and with a ≥3"/75mm chipping capacity, that are marketed towards arborists and tree workers - there are many, many more small and domestically oriented products, including some by pro brands *Hansa*, *Husqvarna* and *Stihl* and much larger, more 'industrial' machines from *Pezzolato*, *Vermeer*, *Bandit* and *Hazohack* etc. that we will include in the larger BUYERS GUIDE version. Remember that the *MATERIAL CAPACITY relates to the overall width of mixed material that can be chipped - it is not necessarily the diameter of solid wood that can be chipped - your machines control systems will regulate the power to suit the resistance of material being chipped.

Most medium and large chippers are towable while tracked and some PTO are not. Smaller, pedestrian models are mostly wheelbarrow-style like the smallest *Timberwolf* model (left) and can be easily manoeuvred by hand. All three of these latter models can be trailered or transported on a pick-up. The method of transport - whether it be towable, trailered or palletised (PTO) tends to coincide with the size of model and functional class which we can divide into two cutting mechanisms and three size classes:

DISC or DRUM interfaces which provide the platform for the (usually) removable cutting blades/knives/teeth, and.....

1) SMALL -'Pedestrian' machines are the smallest. They have wheels and a gravity/manual feed hopper where you push the material vertically into the rotating cutting disc/drum. We have only included professional models-there are many other domestic and semi-pro models.

2) SMALL-MEDIUM -Horizontal feed which may be manual or powered/hydraulic feed dealing with brush and wood up to around 10". This represents the vast majority of arborist-oriented chippers but at the smaller end are 'compact' models like the Japanese *Ohashi* which is tracked. Most other tracked machines are medium ranging into the next category, large.

3) LARGE - and so-called 'whole-tree' chippers dealing with wood (not just brush) diameters from 10 to >20" with powered intake some with conveyors and even cranes. At first sight some large machines can look similar to the 'jobbing' arborist machines but this Vermeer BC2100XL for instance (with ejection chute down) weighs over 7 tonnes.

BRUSH/WOOD CHIPPERS

Power Take-Off or PTO is effectively a transport option because many do not have wheels/tracks at all and are instead carried as an add-on to ta tractor. PTO is a distinct power option. We have not included PTO machines in this **ARBCLIMBER** version of the GUIDE because they are used more by farmers and estate management teams than regular arborists but our **BUYERS GUIDE** version does include PTO and you can even check out models by companies like *TP Chipper, Jensen* and the Finnish company *Junkkari* (pic right) that includes a crane for loading the hopper!

The power options remain relatively traditional across the model sizes with very few being battery powered:

1) petrol/gas,
2) Diesel
3) Power Take-Off (PTO)
4) Hybrid
5) Electric/Battery

'CLEANER' ENGINES

We are only recently beginning to see more battery and hybrid chipper models because battery technology can now provide the grunt needed to drive an absolute beast of a drive mechanism that has to crunch through the solid wood of branches up to about 8" in diameter which is a small tree rather than a branch. These forces are why diesel, with it's higher torque has remained the dominant engine type over petrol/gas and electric for the larger machines. Electric/battery will undoubtedly end up being the norm but currently, the vast majority are liquid fuel and within that distinction, petrol for smaller models and diesel for the rest. Unlike chainsaw engines these much larger diesel engines (over 24-26Hp) are subject to emissions regulations which are usually driven by Europe with greater environmental considerations but is also (currently) present in the US as 'Tier 4 Final' engines. In certain states these will be mandated rather than 'advisory'. Such engines are larger and more expensive than regular diesel because they use additives and control systems to limit the black stuff and unseen polluting emissions. Europe has moved forward with what would effectively be a 'Tier 5' requirement known as 'tier V' but this is very unlikely to see any traction in the US under the current government (as at 2025) with pollution control unusually, going backwards. Meanwhile, the rest of the world will continue to mandate mitigation of pollutions and CO2 emissions and this will ultimately lead to battery unless cold fusion or some, as yet, unforeseen alien technology crops up. But there is a case for a combination which might suit US arborists. As with cars, the term 'Hybrid' can be differentiated as a PHEV-style hybrid which allows the use of liquid fuel or battery consecutively rather than concurrently. By that we mean that with a PHEV hybrid, you have the option of using either battery or fuel at any given time - if the fuel runs out you use battery and vice versa rather than the concurrent hybrid system where the battery element supports the fuel element and only operates for as long as you have liquid fuel, it is not an either/or thing. Not yet a thing but you never know.

Turntable models enable the entire engine, chute and spout to be rotated on the sub-frame so that you can orientate the feed entry and discharge to the most convenient position without having to hand-manoeuvre the entire trailer. The picture above shows *Forst*'s variable angle tracked model, the *XR8D* and the diagram from *Jensen* shows the variable angle and variable width. These enhanced versions of regular tracked models allow the chipper to be used on slopes and uneven ground as well as muddy and low traction surfaces which is where all tracked vehicles come into their own when compared with wheeled models. However, there is no doubt that for most operators working in urban environments, a small to medium wheeled model is the most likely purchase option in terms of initial cost, ease of transport and number of jobs for which it will be most suitable. Those operating in cold and wet climates and in more rural settings would argue that tracks give them a narrower width and all year round operating options including mud, ice and snow and that pulling a trailer with the chipper on board like the *Greenmech Quadtrack* left, is not much more hassle than towing an integrated chipper/trailer. The variable track angle

This tracked Ohashi model is one of several only available in Japan (but we have included 4 other international models) and uses handlebars with brakes to manoeuvre including through narrow gates. Note the stop button is mounted above the hopper with the emergency stop-bar (red) below the hopper. These small-footprint machines are unusual in having a basal chip discharge but also have a chute so you can choose either.

option is a whole 'nuther commercial decision because of initial costs but often warranted by a single large hillside contract!

The largest companies in the arb sector are usually thought to be *Stihl* and *Husqvarna* but some of these chipper companies are massive entities, producing chippers as just one of a range of large and heavy machinery items often aimed more at production (forestry) than arboriculture. Consequently some machines featured here from *Vermeer, Bandit* and *Schliesing* for instance would be far larger than any regular arb company would use (or could afford!). *Vermeer's* previously mentioned *BC2100XL* weighs a whopping 7 metric tonnes has a 40" diameter hopper and can take up to 24cm/9.5" wood. The more industrial-oriented companies not only have this kind of whole-tree machine they even have 'grinders' that look like they belong in an open-cast coal mine and can grind up 40"+ diameter wood or materials like rubber and plastics. Needless to say, we haven't included any of these huge machines in our Guides. Nevertheless, it's always nice to see what's out there at the top end of your size range in case that really huge contract ever comes in. The smallest professional machines are around the weight of your heaviest ground crew colleague and will cut 2 or 3" (50-75mm) wood. A typical mid-size arborist model is around ¾ to 1½ tons/tonnes able to tackle wood from 5 to 8" (12-20cm)while the usual top-end for arb would be 2½ tons/3tonnes and mulching 8 to 12" (20-30cm) wood. Production and municipal applications will use the largest machines capable of whole tree disposal in excess of 20" (50cm) in diameter. Things that will add to these weights are rotating turntables mentioned earlier adding up to ¼ tonne and tracks instead of wheels which can further increase weight by a similar amount rising to ½ ton/tonne extra for rubber tracks and double that for steel tracks on the largest models. There are also many accessories most notably a winch to help drag material to the chipper or conveyor attachments to facilitate easier loading at the correct angle into the chute.

In terms of the size and type of machine best suited to arborists, it is not just the initial cost and the running costs that need to be considered. There is future adherence to emissions controls; the width in terms of getting closer access to your work site and the sheer weight which can affect getting over bridges and culverts and the class of license required to tow it.

BLADES/KNIVES, FEEDING & CHIP SIZE

The cutting of wood involves a set of blades/knives attached to a rotating disc or drum cutting through or shaving (with great force) strips of wood as the gripping rollers gain a purchase on whatever is offered up and drag it into the path of the blades. These are usually, but not always, replaceable and reversible and they take a lot of punishment so easy access to them is essential in minimising downtime.. Smaller, pedestrian machines may have non replaceable blades requiring the entire disc to be renewed but all mid to large machines will have easy field removal/replacement blades/knives and procedures. Some machines allow you to alter the size of chip being produced by altering the spacing between the blade/knife and the disc or drum on which it is mounted.

Some companies quote a linear feed rate in minutes indicating the number of lengths of material you can shove through but most quote a maximum feed - chip production rate in cubic metres/feet per hour which is the size f the chip pie you can expect every hour if you fed the machine consistently and evenly. This is not a 'target' figure, it's a maximum output and in most cases you will vary this with the type of material being shredded/chipped. Leafy material will go through much faster than larger wood and some like *Forst and Ohashi*, have a variable input dial/switch that allows you to adjust the input speed to suit the material - this can save considerably on power consumption if you are dealing with smaller material.

SAFETY & TECHNIQUE

The general public are well aware that chippers are used by serial killer to dispose of bodies but to ensure that a similar fate doesn't await your ground crew, the in-feed hopper has a prominent bar all around the entry, usually red or yellow, that will initiate an immediate stop should any part be pressed inwards/down. Much to the chagrin of serial killers trying to load a heavy, floppy body, this mechanism stops workers from falling in or being dragged forward. There are other safety options - a big, fat red STOP button near the chute in-feed for instance. Remote controls are available for many machines offering a safer stand-off work position and some companies have a 'Stress-Reduction' system that enables the in-feed roller(s) and or cutting blades (known in North America and elsewhere as knives) to sense any degree of overloading or overzealous pushing in of oversize wood and either pause the in-feed or reverse the roller action briefly before resuming. The skill in feeding chippers properly is to not force your brush into the rollers especially if it is larger wood diameters as these can kick back out. Let the rollers drag in at their own speed or you'll end up taking more time to extract blockages than the rushing to feed it saves. Luckily many modern machines have 'smart' in-feeds that sense you ramming too much in and will automatically reverse the feed before a jam occurs.

Noise levels are typically pretty high for chippers so *ear defenders are definitely called for.* Anything over 80dB for 8 hours is harmful to your hearing. As always, the figures give the overall acoustic output LwA)Power) first and may show a second, lower figure, LpA (Pressure) which is the actual noise at the level of operator's ears. Some have mitigating measures; *Schliesing* has insulated discharge chutes and a blade configuration which they consider feeds more smoothly to result in a 30% noise reduction although they don't give any actual noise/sound levels.

FÖRST™
LITTLE CHIPPER. BIG JOB
FÖRST
XR8D
TRAXION
HIGH PERFORMANCE, AGGRESSIVE, COMPACT BRUSH CHIPPERS
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SMARTSCREENS & BLUETOOTH

For those not averse to technology, waterproof smart screens providing data on engine performance, in-feed status, fuel levels and consumption etc. can be built into the machine (so watch where you're swing those branch ends) and can also be via *Bluetooth* to your phone like *Vermeer*'s *One system* which is perhaps the more versatile option as it means you can monitor what your newbie is up to even when you're away from the machine. It also means that if you get a problem, you can liaise with your dealer in real time with them able to see your maintenance/operating data and maybe offer remote solutions to save downtime. As mentioned earlier, The location and overall size/visibility of control button has improved hugely over the years from inch-wide camouflaged black buttons located under on the front of the hopper in the worst cases to these days being very large, very visible, often with protective shrouds and located at a safe height on the side of the hopper just behind the floating safety bars and in some cases, on top of the hopper so that anyone unfortunate enough to get snagged and begin being dragged in can flail around the hopper and stop the mechanism. These buttons are becoming more 'electronic' in nature without the connecting cables- so-called 'fly by wire' which is an odd term for something that doesn't have a wire! Some tracked machines have a remote control used primarily to manoeuvre in uneven and congested environment because you do not want to be anywhere near a chipper that topples over. We once attended an incident where a micro-tracked auger being used on a slope had fallen over (downslope) onto the operator, despite having a trauma doc on our Unit, he didn't survive. Remote operation like the *TP Chipper* model above, is a great safety asset. See page 53 for our man Adam Jones' advice on choosing a chipper.

£$€ - PRICE BANDS

0-3000	♦
4-9,000	♦♦
10-15,000	♦♦♦
16-25,000	♦
26-35,000	♦♦
36-55,000	♦♦♦
56-70,000	♦♦♦♦
70-90,000	♦♦♦♦♦

IN THE FOLLOWING TABLES:.....

ORIGIN:Not necessarily the country of manufacture - if we know there is a smaller inset flag to indicate where it is made.**NB: These machines are often country/region-specific - some models are not available in all countries particularly where European CE requirements are concerned.**

COST: Almost a state secret for many companies so we have had to resort to guideline bands. We try to give the RRP/ SRP for a one-off purchase **including tax** @20% in Europe and State tax @10% in the US - these rates will vary and dealers often have their own pricing/ deals so prices are a rough guide only. £$€ ♦♦ coloured prices in are a currency conversion only and DO NOT include shipping, duty etc. and shipping on such large,

heavy items will be considerable!

VARIANTS: Images will be the lower if there are two in the same column. Specifications will be the same apart from any details given in blue. £$€000= currency conversion only

MAIN FEATURES:

DIESEL ■ **PETROL** ■ **BATTERY** ■ **TPO** ■ (BUYERS GUIDE only)

■ = **Trailed/Towed** via-hitch for road-towing by vehicle

■ = **Tracked** vehicles that are self propelled by remote or may be driven via a rear platform as per the *Forst* model on p33.

■ = **Push - Pedestrian** models that are moved by hand and need to be transported to via trailer or pick up.

■ = **No-Road.** These models need to be transported by road-trailer or pick up for all but the very shortest distances.

■ = **Turntable**. the entire top assembly (engine, chipping module and chutes) can be rotated while the wheels remain fixed.

■ = **Remote control** for movement of tracked vehicles

■ = **Remote control** for In-feed so that workers are clear of danger when the brush/wood is dragged into the chipper.

● ● = OK but not ideal

TANK CAPACITY: Gal=US Gallons

CONSUMPTION: At maximum rpm so will be less if managed.

MIN/MAX HEIGHT/LENGTH: The ejection/discharge chute and hopper/chute can often be folded or removed to give a lower transport length/height but in some cases the transport dimensions might be the higher figure due to folding of a component - eg. *Ohashi 401* (Japan-only model) the chute folds in and increases the transport height.

WIDTH tracked vehicles often narrower, some able to adjust.

ENGINE: Often more than one choice of engines which might affect weights and costs shown.

HOPPER/INFEED TRAY SIZE: The infeed hopper and tray captures the brush as you lay it in and feed it through. The hopper concentrates it into the smaller roller aperture.

ROLLER APERTURE: The letterbox end of the infeed hopper that meets the infeed rollers and on to the cutting blades. Most are horizontal (some vertical) and may be larger than the stated material capacity.

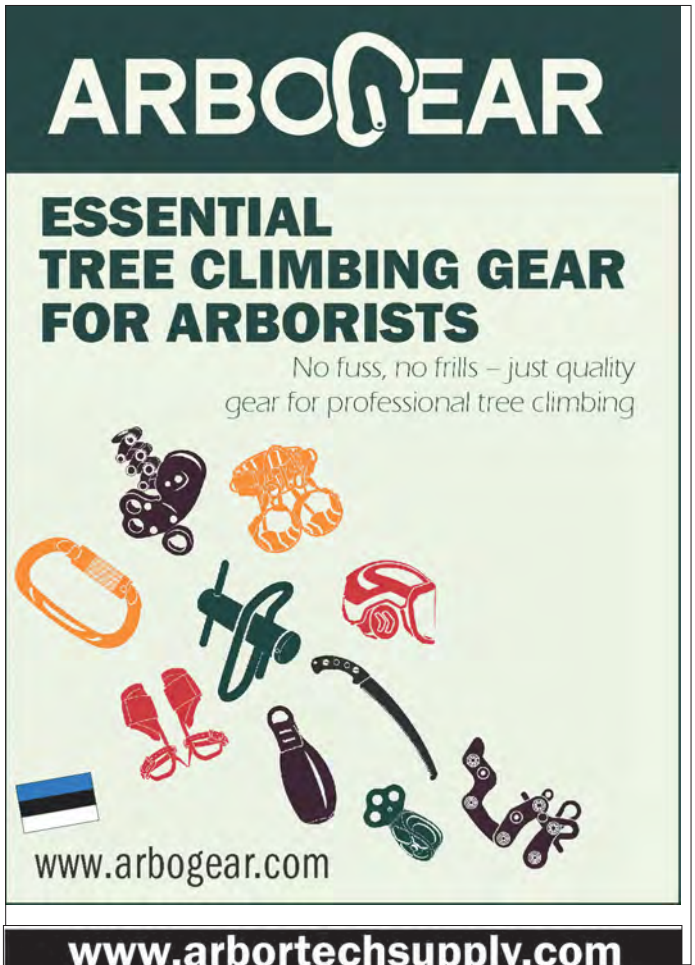
INFEED MECHANISM: The number of and orientation of rollers with gripping surface that initially grasp the brush/wood and pull it in towards the cutting surfaces. Most are hydraulic.

CUTTING BLADES The number of blades/knives on a rotating disc or drum. Most list the primary cutting blades, *Ohashi* have listed all of theirs. The largest machines tend to have drums, the majority of arborist machines have discs.

MATERIAL CAPACITY: The maximum width of material that can be chipped in any single pass- NOT necessarily the same as the diameter of wood that can be chipped which may, in some models only be a ¼ of the quoted max capacity depending on density of wood grain.

FEED/PRODUCTION RATE Refers to the cubic area of chips/mulch produced per hour and this will vary with the type of material (hard or softwood, wet or dry) so is a rough guide.

EJECT/DISCHARGE CHUTE May be detachable and almost always rotates and deflects a certain amount to direct chips.



£$€ - PRICE BANDS

0-3000 ♦
4-9,000 ♦♦
10-15,000 ♦♦♦
16-25,000 ♦
26-35,000 ♦♦
36-55,000 ♦♦♦
56-70,000 ♦♦♦♦
70-90,000 ♦♦♦♦♦

Images NOT to Scale
~ = Approximate
COSTS♦♦: Approx RRP/SRP & inc local tax/VAT £$€ ♦♦in burnt orange are currency conversions only & do not inc shipping, import duty or tax
N/A = info Not Available/not given.
= Trailed/Towed behind truck
= Self-Propelled/Tracked
= Push - manually pushed/pulled
= No-road.Trailer/pick-up required
= Turntable, Engine/Chute rotates
= Remote Control Track/Drive
= App/Bluetooth monitoring
= OK but not ideal
= Option
VARIANT=lower image if visually different & differing specification and price banding (♦♦)in blue

COMPANY	ARBMAX	BANDIT	BANDIT	BANDIT
MODEL VARIANT	F30 -	65XP -	75XP -	90XP -
ORIGIN				
~COST inc 20% VAT/10%Local Tax £$€= Currency conversion only	£ ♦♦♦-♦♦♦♦ $0000 €0000	£ ♦♦ $ ♦♦ € ♦♦	£ ♦♦ $ ♦♦ € ♦♦	£ ♦♦♦ $ ♦♦♦ € ♦♦♦
DIESEL PETROL BATTERY	■	■	■	■ [■]
TOW TRACKS PUSH NO-ROAD	■	■	■	■
TURNTABLE REMOTE APP	- □ -	- - -	- - -	- - -
NOISE LwA/ LpA	119/-- dB(A)	N/A	N/A	N/A
FUEL CAPACITY Litres/US Gal DURATION @ max load	100L / 26.4Gal N/A	26L / 7Gal 3.8Lhr / 1Gal/Hr	26L / 7Gal 3.8Lhr / 1Gal/Hr	93L / 24.5Gal N/A
WEIGHT inc battery(ies)	3000kg* 6600lb	907kg 2000lb	952kg 2100lb	20871814 kg 46004000 lb
MAX HEIGHT with chute	378cm / 148.8"	229cm / 90"	229cm / 90"	244cm / 96"
MAX LENGTH	535cm / 210.6"	341cm / 134"	396cm / 156"	498cm / 196"
MIN LENGTH	478cm / 188.1"	305cm / 120"	396cm / 156"*	430cm / 169.3"
WIDTH	199cm / 78.34"	152cm / 60"	170cm / 67"	183cm / 72"
ENGINE / MOTOR	75HP/55kWDeutz or 134HP/100kWCAT C3.5*	25HP/18.6kWKohler EFI or 35HP/00kWB&S Vanguard	25HP/18.6kW Kohler EFI or 35HP/00kWB&S Vanguard	44HP CAT or Kohler 84HPCAT or CumminsV 49HP Kohler EFI
HOPPER/INFEED TRAY SIZE ROLLER APERTURE INFEED MECHANISM	1320 x 800mm / 52 x 31.5" 330 x 310mm / 13 x 12.2" 1x sprung Hydraulic Horizontal Roller	1070 x 740mm / 42 x 29" 152 x 305mm / 6 x 12" 1x sprung Hydraulic Horizontal Roller	1070 x 740mm / 42 x 29" 178 x 305mm / 7 x 12" 1x spring-Feed Horizontal Rollers	890 x 740mm / 35 x 29" 242 x 432mm / 9.5 x 17" 2x Auto-Feed Hydraulic Horizontal Rollers
DISC / DRUM CUTTING BLADES/KNIVES	DISC 2x blades	DISC	DISC	770mm 30" DISC 4x Reversible blades
MATERIAL CAPACITY	300mm / 12"	152mm / 6"	178mm / 7"	230mm /9"
FEED RATE (t=metric tonne) CHIP VOLUME	50³m/hr 1766³ft/hr	24-27m³/hr 80-90ft³/hr	24.4m³/hr 80ft³/hr	27m³/hr 90ft³/hr
DISCHARGE CHUTE Rotation	360°	360°	360°	360°
WARRANTY	1yr/2000hr std -5 yr Limited	1yr/2000hr std -5 yr Limited	1yr/2000hr std -5 yr Limited	1yr/2000hr std -5 yr Limite
NOTES	*may be over 3t depending on spec. also tracked versions >3t - see BUYERS GUIDE version Hydraulic oil tank 80L	27L 7Gal Hydraulic oil capacity. Yellow or green	27L 7Gal Hydraulic oil capacity. * infeed tray does not fold. yellow or green	27L 7Gal Hydraulic oil capacity Optional hydraulic winch. yellow or green
WEBSITE	arbmax.uk	banditchippers.com	banditchippers.com	banditchippers.com

BRUSH/WOOD CHIPPERS

NB Tracked versions of Bandit chippers weigh over 3tonnes and are listed in the BUYERS GUIDE version of this article

	BANDIT	BANDIT	BANDIT	BANDIT	ELIET
	Intimidator 12XC Gas	Intimidator 12XPC Gas	Intimidator 12XP Gas	200UC Gas	Vector 4S PRO Vector S STD
	-	-	-	-	-
	£ ♦♦♦ $ ♦♦♦ € ♦♦♦	£ ♦♦♦ $ ♦♦♦ € ♦♦♦	£ ♦♦♦♦ $ ♦♦♦♦ € ♦♦♦♦	£ ♦♦♦ $ ♦♦♦ € ♦♦♦	£ ♦♦ $ ♦♦ € ♦♦
	■ [■]	■ [■]	■ [■]	■ [■]	■
	■	■	■	■	■ ■
	- - -	- - -	- - -	- - -	- - -
	N/A	125/-- dB(A)	125/-- dB(A)	--/108 dB(A)	113/99 dB(A)
	68.1L / 18Gal N/A	94.6L / 25Gal N/A	93L / 0Gal N/A	92.7L / 24.5Gal N/A	6.1L / 1.6Gal 3.5Lhr / 0.9Gal/Hr
	21771996kg 4800 4400 lb	24952313kg 55005100lb	2948 2495 kg 60005500lb	23602177 kg 52004800 lb	210185kg 1653584lb
	243.8cm / 96"	249cm / 98"	00cm / 00"	244cm / 94"	225cm / 88.6"
	485.1cm / 191"	492.8cm / 194"	530cm / 209"	503cm / 198"	350cm / 138"
	409cm / 161"	416cm / 164"	455cm / 179"	427cm / 168"	350cm / 138"
	200.7cm / 79"	203.2cm / 80"	200.7cm / 79"	183cm / 68.5"	170cm / 67"
	49HP or 74HP Kohler 49HP or 74HP Mitsubishi	49HP CAT or Kohler 74HPCAT or CumminsV 49HP Kohler EFI or CAT or 74HPFord or PSI	49HP CAT or Kohler 74HPCAT or CumminsV 49HP Kohler EFI or CAT or 74HPFord or PSI	49HP CAT or Kubota 49HP Kohler EFI	12HP/9kW Honda GX390
	1370 x 760mm / 54 x 30" 305 x 432mm /12 x 17" 2x Auto-Feed Hydraulic Horizontal Rollers	1370 x 760mm / 54 x 30" 305 x 432mm /12 x 17" 2x Auto-Feed Hydraulic Horizontal Rollers	1370 x 760mm / 54 x 30" 330 x 432mm / 13 x 17" 2x Auto-Feed Hydraulic Horizontal Rollers	1070 x 860mm / 42 x 34" 305 x 48.3mm / 12 x 19" 2x Auto-Feed Hydraulic Horizontal Rollers	520 x 540mm/20.4 x 21.25" 80mm / 3" 1x GravityAuto-Feed Hydraulic Horizontal Roller
	DRUM 2 Blades	DRUM 2 Blades	DRUM 4x Reversible blades	DISC	DISC 3 Blades
	305mm / 12"	305mm / 12"	305mm / 12"	305mm / 12"	80mm / 3"
	37m³/hr 120ft³/hr	37m³/hr 120ft³/hr	37m³/hr 120ft³/hr	27m³/hr 90ft³/hr	0.35t / 0.38ton/ hr 3m³/hr 106ft³/hr
	360°	360°	360°	360°	280°
ed	1yr/2000hr std -5 yr Limited	1yr/2000hr std -5 yr Limited	1yr/2000hr std -5 yr Limited	1yr/2000hr std -5 yr Limited	Pro= 1 year / 100 hrs
.	30.2L 8Gal Hydraulic oil capacity. Least complex version of the 12 series. Yellow or green.	Compact version of 12XP. yellow or green	45L Hydraulic oil capacity. Inc hydraulic winch. See BUYERS GUIDE for 12XPTracked,15XP&19XP	200XP= Heavier duty model with larger, fixed hopper & more robust sub-frame	Std/basic version has no auto-feed roller
	banditchippers.com	banditchippers.com	banditchippers.com	banditchippers.com	eliet.eu elietusa.com

Images NOT to Scale
~ = Approximate
COSTS♦♦: Approx RRP/SRP & inc local tax/VAT £$€ ♦♦in burnt orange are currency conversions only & do not inc shipping, import duty or tax
N/A = info Not Available/not given.
= Trailed/Towed behind truck
= Self-Propelled/Tracked
= Push - manually pushed/pulled
= No-road.Trailer/pick-up required
= Turntable, Engine/Chute rotates
= Remote Control Track/Drive
= App/Bluetooth monitoring
● ● = OK but not ideal
□□□ = Option
VARIANT=lower image if visually different & differing specification and price banding (♦♦)in blue

COMPANY	ELIET	ELIET	ELIET	ELIET
MODEL VARIANT	Vector 4S on Wheels Cross Country	Prof 6 E-power E-CrossCountry	Prof 6 On-Road CrossCountry	SuperProf On-Road CrossCountry
ORIGIN				
~COST inc 20% VAT/10%Local Tax £$€= Currency conversion only	£♦♦ ♦♦♦ $♦♦♦ ♦♦♦ €♦♦ ♦♦♦	£♦ ♦ $♦$♦♦ €♦♦	£♦♦♦ ♦ $♦ $♦ €♦♦	£♦ ♦ $♦♦$♦♦ €♦♦
DIESEL PETROL BATTERY				
TOW TRACKS PUSH NO-ROAD	[ ]	[ ]	[ ]	[ ]
TURNTABLE REMOTE APP	- - -	- - -	- - -	- - -
NOISE LwA/ LpA	113/99 dB(A)	100/90 dB(A)	113/99 dB(A)	116/99 dB(A)
FUEL CAPACITY Litres/US Gal DURATION @ max load	6.1L / 1.6Gal 3.5Lhr / 0.9Gal/Hr	2 Hours 4 hr Recharge	11L / 3Gal 2.9Lhr / 0.8Gal/Hr	18L / 4.8Gal N/A
WEIGHT inc battery(ies)	240265-270kg 528583-594lb	419426kg 923939lb	419426kg 923939lb	495506kg 10911113lb
MAX HEIGHT with chute	225cm / 88.6"	152cm / 60"	167cm / 66"	145cm / 58"
MAX LENGTH	350cm / 138"	178cm / 70"	190cm / 75"	300200cm / 11880"
MIN LENGTH	350cm / 138"	178cm / 70"	190cm / 75"	300200cm / 11880"
WIDTH	170cm / 67"	83cm / 33"	147.5cm / 59"	15083.5cm / 5932.8"
ENGINE / MOTOR	12HP/9kW Honda GX390	15kW Motor 48v, 7 kW B&S Vanguard Li-Ion battery	14HP/10.40kW B&S Vanguard 400 ES	18or23HP/13.4 or17.2kW Briggs & Stratton Vanguard EFI Twin
HOPPER/INFEED TRAY SIZE ROLLER APERTURE INFEED MECHANISM	520 x 540mm/20.4 x 21.25" 80 mm / 3" 1x Auto-Feed Hydraulic Roller	600 x 580mm / 23.6 x 22.8" 100 x 150mm / 4 x 6" 1x Auto-Feed Hydraulic Horizontal Roller	600 x 580mm / 23.6 x 22.8" 100 x 150mm / 4 x 6" 0x Auto-Feed Hydraulic Rollers	500 x 700mm / 20 x 28" 130 x 150mm / 5 x 6" 0x Auto-Feed Hydraulic Rollers
DISC / DRUM CUTTING BLADES/KNIVES	DISC 3 Blades	DISC 8 Blades	DISC 8 Blades	6x DISCs 24 Blades
MATERIAL CAPACITY	80mm / 3"	100mm / 4"	100mm / 4"	130mm / 5"
FEED RATE (t=metric tonne) CHIP VOLUME	0.35t / 0.38ton/ hr 3m³/hr 106ft³/hr	4m³/hr 141ft³/hr	4m³/hr 141ft³/hr	6m³/hr 212ft³/hr
DISCHARGE CHUTE Rotation	280°	280°	280°	300°
WARRANTY	Pro= 1 year / 100 hrs	Pro= 1 year / 100 hrs	Pro= 1 year / 100 hrs	Pro= 1 year / 100 hrs
NOTES	self-propelled wheels/tracks	Self-propelled.. Also without self-propelled wheels wt=361kg/ £12500. Inactivity - power-sleep mode	Also self-propelled 'On-Wheels' version wt=361kg/ £12500 or the wheeled 'Monster' with 18HP Vanguard engine. 11L Oil tank	Easy access to dic/blades. Also self-propelled 'On-Wheels' version wt=441kg/ £18900
WEBSITE	eliet.eu elietusa.com	eliet.eu elietusa.com	eliet.eu elietusa.com	eliet.eu elietusa.com

BRUSH/WOOD CHIPPERS

£$€ - PRICE BANDS

0-3000	♦
4-9,000	♦♦
10-15,000	♦♦♦
16-25,000	♦
26-35,000	♦♦
36-55,000	♦♦♦
56-70,000	♦♦♦♦
70-90,000	♦♦♦♦♦

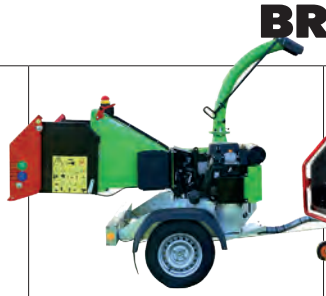
ELIET	FÖRST	FÖRST	FÖRST	FÖRST
Mega Prof D P/gas	Cadet6	ST6P/gas TR6P/gas	ST6P/gas HD	TT6
£♦♦ $♦♦ €♦♦	£♦ $♦♦ €♦	£♦♦ $♦♦ $♦♦ €♦ €♦♦	£♦ $♦♦ €♦♦	£♦♦ $♦♦ €♦♦
■ [■]	■	■	■	■
■	■	■ [■■]	■	■
- - -	- - -	- - -	- - -	■ - -
115/90 dB(A)	118/107 dB(A)	122/106 dB(A)	122/106 dB(A)	122/106 dB(A)
40L / 10.6Gal N/A	30L / 7.9Gal N/A	30L / 7.9Gal N/A	30L / 7.9Gal N/A	30L / 7.9Gal N/A
<750kg <1653lb	745kg 1640lb	7451200kg 16402640lb	885kg 1947lb	745kg 1640lb
225cm / 88.6"	240cm / 94"	220240cm / 8794"	230cm / 90.5"	220cm / 87"
350cm / 138"	310cm / 126"	409340cm / 161134"	409cm / 161"	371cm / 146"
350cm / 138"	310cm / 126"	335263cm / 130103.5"	335cm / 130"	282cm / 111"
170cm / 67"	140cm / 55"	13080-110cm / 5131-43"	130cm / 51"	140cm / 55"
33HP/24.6kW Kubota Diesel 37HP B&S Vanguard	23HP/17.2kW B&S Vanguard V Twin	40hp V Twin	40hp V Twin	37HP/26.7kW V Twin EFI
1000 x 650mm / 00 x 00" 160 x 150mm / 6.3 x 6" 0x Auto-Feed Hydraulic Rollers	595mm / 23.5" 150 x 20mm / 6 x 8" 2x Auto-Feed Hydraulic Horizontal Rollers	N/A 150 x 20mm / 6 x 8" 2x Auto-Feed Hydraulic Horizontal Rollers	N/A 150 x 20mm / 6 x 8" 2x Auto-Feed Hydraulic Horizontal Rollers	N/A 150 x 20mm / 6 x 8" 2x Auto-Feed Hydraulic Horizontal Rollers
DISC 10 blades	DRUM twin revsible blades	DRUM twin revsible blades	DRUM twin revsible blades	DRUM twin revsible blades
160mm / 6.3"	150mm / 6"	150mm / 6"	150mm / 6"	150mm / 6"
10m³/hr 353ft³/hr	N/A	N/A	N/A	N/A
280°	280°	280°	280°	360°
Pro= 1 year / 100 hrs	3yr. 5yr option	3yr. 5yr option	3yr. 5yr option	3yr. 5yr option
		Variable input speed control.	Toughened, steel version of ST6P. Variable input speed control.	Variable input speed control.
eliet.eu elietusa.com	forstglobal.com forstusa.com	forstglobal.com forstusa.com	forstglobal.com forstusa.com	forstglobal.com forstusa.com

Images NOT to Scale
~ = Approximate
COSTS♦♦: Approx RRP/SRP & inc local tax/VAT £$€ ♦♦in burnt orange are currency conversions only & do not inc shipping, import duty or
N/A = info Not Available/not given.
= Trailed/Towed behind truck
= Self-Propelled/Tracked
= Push - manually pushed/pulled
= No-road.Trailer/pick-up required
= Turntable, Engine/Chute rotates
= Remote Control Track/Drive
= App/Bluetooth monitoring
● ● = OK but not ideal
□□□= Option
VARIANT=lower image if visually different & differing specification and price banding (♦♦)in blue

COMPANY	FÖRST	FÖRST	FÖRST	FÖRST
MODEL VARIANT	ST6D 24 TR6D 24 -	ST6D 42 TR6D 42 -	XR8D -	ST8D TR8D -
ORIGIN				
~COST inc 20% VAT/10%Local Tax £$€= Currency conversion only	£♦ ♦♦ $♦♦ $♦♦♦ €♦♦ €♦♦♦	£♦♦ ♦♦♦ $♦♦♦ $♦♦♦ €♦♦♦ €♦♦♦	£♦♦ $♦♦ €♦♦	£♦♦ ♦♦♦ $♦♦♦ $♦♦♦ €♦♦♦ €♦♦♦
DIESEL PETROL BATTERY	■	■	■	■
TOW TRACKS PUSH NO-ROAD	■ [■■]	■ [■■]	■■	■ [■■]
TURNTABLE REMOTE APP	- - -	- - -	-□-	-□-
NOISE LwA/ LpA	128/107 dB(A)	128/107 dB(A)	128/107 dB(A)	128/107 dB(A)
FUEL CAPACITY Litres/US Gal DURATION @ max load	3035L/ 7.99.2Gal N/A	3035L/ 7.99.2Gal N/A	35L / 9.2Gal N/A	35L / 9.2Gal N/A
WEIGHT inc battery(ies)	10051300kg 22112860lb	11051430kg 24313146lb	2135kg 4697lb	13751625kg 30253575lb
MAX HEIGHT with chute	220230cm / 8790.5"	230cm / 90.5"	250cm / 98"	240cm / 00"
MAX LENGTH	409340cm / 161134"	409340cm / 161134"	342cm / 134.6"	463340cm / 182133.8"
MIN LENGTH	335263cm / 130103.5"	335263cm / 130103.5"	260cm / 102"	397270cm / 156106.3"
WIDTH	130120cm / 5147"	140120cm / 00"	150cm / 59"	150130cm / 5951"
ENGINE / MOTOR	42HP/31.3kW Doosan 24HP/17.9kW Kubota	42HP/31.3kW Doosan	55HP/41kW Doosan	55HP/41kW Doosan
HOPPER/INFEED TRAY SIZE ROLLER APERTURE INFEED MECHANISM	N/A 150 x 20mm / 6 x 8" 2x Auto-Feed Hydraulic Horizontal Rollers	N/A 150 x 20mm / 6 x 8" 2x Auto-Feed Hydraulic Horizontal Rollers	N/A 200 x 255mm / 8 x 10" 2x Auto-Feed Hydraulic Horizontal Rollers	N/A 200 x 255mm / 8 x 10" 2x Auto-Feed Hydraulic Horizontal Rollers
DISC / DRUM CUTTING BLADES/KNIVES	DRUM twin revsible blades	DRUM twin revsible blades	(enlarged)DRUM twin revsible blades	(enlarged)DRUM twin revsible blades
MATERIAL CAPACITY	150mm / 6"	150mm / 6"	200mm / 8"	200mm / 8"
FEED RATE (t=metric tonne) CHIP VOLUME	N/A	N/A	N/A	N/A
DISCHARGE CHUTE Rotation	280°	280°	280°	280°
WARRANTY	3yr. 5yr option	3yr. 5yr option	3yr. 5yr option	3yr. 5yr option
NOTES	Variable input speed control.	Variable input speed control.	Variable input speed control.	Variable input speed control.
WEBSITE	forstglobal.com forstusa.com	forstglobal.com forstusa.com	forstglobal.com forstusa.com	forstglobal.com forstusa.co

BRUSH/WOOD CHIPPERS

£$€ - PRICE BANDS
0-3000 ♦
4-9,000 ♦♦
10-15,000 ♦♦♦
16-25,000 ♦
26-35,000 ♦♦
36-55,000 ♦♦♦
56-70,000 ♦♦♦♦
70-90,000 ♦♦♦♦♦



GREENMECH	GREENMECH	GREENMECH	GREENMECH	GREENMECH
CS100 -	Arborist 130 -	ECO 135 135TT -	Arborist 150P/gas 150 DMax -	Quadchip 160D P/gas -
£♦♦ $♦♦♦ €♦♦	£♦ $♦♦ €♦	£♦♦♦ ♦♦♦ $♦ $♦ €♦ €♦	£♦♦ $♦♦ $♦♦ €♦♦ €♦♦	£♦♦ $♦♦ $♦♦ €♦♦ €♦♦
■	■	■	■ [■]	■ [■]
■	■	■	■	■
- - -	- - -	[■] - -		■ - -
120/92 dB(A)	116/92 dB(A)	115/91 dB(A)	115/92 dB(A)	116117/9293 dB(A)
7.5L / 2Gal N/A	27L / 7.1Gal N/A	33L /8.7Gal N/A	2727L / 7.17.1Gal 6.53.9Lhr / 1.71.03Gal/Hr	2532L / 6.68.4Gal 3.96.5Lhr / 1.031.7Gal/Hr
195kg 429lb	670kg 1474lb	640720kg 14081584lb	7107480kg 15621650lb	749kg 1648lb
147cm / 57.8"	233.5cm / 91.7"	230234cm / 90.592"	233.5cm / 92"	254.5cm / 100"
220cm / 86.6"	382.5cm / 150.5"	350360cm / 137.7141.7"	382.5382.5cm / 150.5150.5"	420420cm / 165.3 165.3"
172cm / 67.7"	355.6cm / 140"	300283cm / 118111"	355.6cm / 140"	321.1cm / 126"
76cm / 30"	129cm / 50.7"	160cm / 62.9"	129cm / 50.7"	150.2cm / 59"
18HP/13.4kW electric start	23HP/17.2kW Honda GX630	24HP/18kW Loncin	40HP/28kW B& S Vanguard EFI 26HP Kubota D1105	34HP/25.4kW Kubota D1105T 40HP/28kW B&S Vanguard EFI
600mm x 450mm/23.6 x 17.7" Gravity Fed	970 x 790mm / 38 x 31" 150 x 230mm / 6 x 9" 2x Auto-Feed Hydraulic Vertical Rollers	850 x 680mm / 33.5 x 26.8" 150 x 135mm / 6 x 5.3" 2x Auto-Feed Hydraulic Vertical Rollers	970 x 790mm / 38 x 31" 150 x 230mm / 6 x 9" 2x Auto-Feed Hydraulic Vertical Rollers	1100 x 800mm / 43.3 x 31.4" 160 x 230mm / 6 x9" 2x Auto-Feed Hydraulic Vertical Rollers
DISC Twin Blades	DISC 4 blades	DISC 2 blades	DISC 4 blades	DISC 4 blades
100mm / 4"	150mm / 6"	135mm / 5.3"	150mm / 6"	160mm / 6.3"
2t / 2.2ton/ hr 5.6³m/hr 200³ft/hr	3t / 3.3ton/ hr 9.5³m/min 335³ft/hr	4t / 4.4ton/ hr 11.3³m/hr 400³ft/hr	3.75t / 4.1ton/ hr 10.611.6³m/hr 375410³ft/hr	3.73.5t / 43.8ton/ hr 10.49.9³m/hr 400380³ft/hr
-	280°	280°	280°	280°
unlimited 3 Year	unlimited 3 Year	unlimited 3 Year	unlimited 3 Year	unlimited 3 Year
	'No-stress' in-feed system. 30L Hydraulic oil tank	'No-stress' in-feed system. Noise dampened version available.	'No-stress' in-feed system 30L Hydraulic Oil tank	'No-stress' in-feed system 2332L Hydraulic oil tank
greenmech.co.uk	greenmech.co.uk	greenmech.co.uk	greenmech.co.uk	greenmech.co.uk

£$€ - PRICE BANDS
£3000 ♦
4-9,000 ♦♦
10-15,000 ♦♦♦
16-25,000 ♦
26-35,000 ♦♦
36-55,000 ♦♦♦
56-70,000 ♦♦♦♦
70-90,000 ♦♦♦♦♦

Images NOT to Scale
~ = Approximate
COSTS♦♦: Approx RRP/SRP & inc local tax/VAT £$€ ♦♦in burnt orange are currency conversions only & do not inc shipping, import duty or tax
N/A = info Not Available/not given.
= Trailed/Towed behind truck
= Self-Propelled/Tracked
= Push - manually pushed/pulled
= No-road.Trailer/pick-up required
= Turntable, Engine/Chute rotates
= Remote Control Track/Drive
= App/Bluetooth monitoring
● ● = OK but not ideal
□□□ = Option
VARIANT=lower image if visually different & differing specification and price banding (♦♦)in blue

COMPANY	GREENMECH	GREENMECH	GREENMECH	GREENMECH
MODEL VARIANT	Quadtrack 160D -	EVO 165 P/gas Sub 750 -	EVO 165D 165DT -	205D SafeSureTrack -
ORIGIN				
~COST inc 20% VAT/10%Local Tax £$€= Currency conversion only	£♦♦♦ $♦♦♦ €♦♦♦	£♦ $♦♦ €♦♦	£♦ ♦♦♦ $♦♦ $♦♦♦ €♦♦ €♦♦♦	£♦♦♦ ♦♦♦♦ $♦♦♦♦ ♦♦♦♦♦ €♦♦♦♦ ♦♦♦♦♦
DIESEL PETROL BATTERY	■	■	■	■
TOW TRACKS PUSH NO-ROAD	■■	■	■ [■■]	■■
TURNTABLE REMOTE APP	■ - - ■	- - -	- - -	- ■ -
NOISE LwA/ LpA	116/93 dB(A)	115/92 dB(A)	114/92 dB(A)	118/91 dB(A)
FUEL CAPACITY Litres/US Gal DURATION @ max load	25L / 6.6Gal 3.9Lhr / 1.03Gal/Hr	33L / 8.7Gal 6.5Lhr / 1.7Gal/Hr	33L / 8.7Gal 3.8Lhr / 1Gal/Hr	50L / 13.2Gal 6.5Lhr / 1.7Gal/Hr
WEIGHT inc battery(ies)	1100kg 2420lb	750kg 1650lb	1010**1410**kg 2222**3102**lb	2150kg 4730lb
MAX HEIGHT with chute	248.7cm / 97.9"	245cm / 96"	260**258**cm / 102**101.5**"	289**276**cm / 113**108.6**"
MAX LENGTH	236.8cm / 93.2"	365cm / 143.7"	400**330**cm / 157.4**129.9**"	386cm / 151"
MIN LENGTH	236.8cm / 93.2"	315cm / 124"	350**254**cm / 137.8**100**"	302cm / 118.8"
WIDTH	136.6cm / 59"	145cm / 57"	151.5**137**cm / 59.6**53.9**"	149-235.6cm / 58-92.7"
ENGINE / MOTOR	34HP/25.4kW Kubota D1105T	40HP/28kW Briggs&Stratton Vanguard	25HP/18.5kW Kubota V1505	50HP/37kW Kubota D 1803-CR-TE4B (V)
HOPPER/INFEED TRAY SIZE ROLLER APERTURE INFEED MECHANISM	1100 x 800mm / 43.3 x 31.4" 160 x 230mm / 6 x9" 2x Auto-Feed Hydraulic Vertical Rollers	980 x 670mm/38.5x 26.3" 165 x 220mm / 6.5 x 8.7" 2x Auto-Feed Hydraulic Vertical Rollers	1110 x 700mm/43.7x 27.5" 165 x 220mm / 6.5 x 8.7" 2x Auto-Feed Hydraulic Vertical Rollers	1250 x 700mm/49.2 x 27.5 205 x 270mm / 8 x 10.6" 2x Auto-Feed Hydraulic Vertical Rollers
DISC / DRUM CUTTING BLADES/KNIVES	DISC 4 blades	DISC 4 blades	DISC 4 blades	DISC 6 blades
MATERIAL CAPACITY	160mm / 6.3"	165mm / 6.5"	165mm / 6.5"	205mm / 8"
FEED RATE (t=metric tonne) CHIP VOLUME	3.7**3.5**t / 4**3.8**ton/ hr 10.4³m/hr 400³ft/hr	4.25t / 4.7ton/ hr 15³m/hr 529³ft/hr	4.25t / 4.7ton/ hr 15³m/hr 529³ft/hr	7t / 7.7ton/ hr 22³m/hr 777³ft/hr
DISCHARGE CHUTE Rotation	280°	280°	280°	280°
WARRANTY	unlimited 3 Year	unlimited 3 Year	unlimited 3 Year	unlimited 3 Year
NOTES	Speed 3kph 240mm Ground clearance 'No-Stress' In feed system Petrol version DISCONTINUED	'No-stress' in-feed system	'No-stress' in-feed system	40**53**cm/16**21**" Ground clearanc Includes area lighting.'No-stres in-feed. 34kph.30**35**° slope ang Suretrack=Independent pivot trac
WEBSITE	greenmech.co.uk	greenmech.co.uk	greenmech.co.uk	greenmech.co.uk

	GREENMECH	GREENMECH	HANSA	HANSA	HANSA
	EVO 205D 205DT -	EVO 205TT -	C7 -	C13RT C13 -	C16c -
	£◆◆◆ ◆◆◆ $◆◆◆◆ $◆◆◆◆ €◆◆◆ €◆◆◆◆	£◆◆◆ $◆◆◆◆ $◆◆◆	£◆ - €◆◆	£◆◆ ◆◆ - €◆◆ €◆◆	£◆◆ - €◆◆
	■	■	■	■	■
	■ [■■]	■	■■	■ [■■]	■■
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	118/91 dB(A)	120/91 dB(A)	108/92 dB(A)	109/92 dB(A)	109/92 dB(A)
	3350L / 8.713.2Gal 6.5Lhr / 1.7Gal/Hr	50L / 13.2Gal 6.5Lhr / 1.7Gal/Hr	3.1L / 0.82Gal 1.7Lhr / 0.45Galhr	6L / 1.6Gal 3.5Lhr / 0.93Gal/Hr	8L / 2.1Gal 4.9Lhr / 1.29Gal/Hr
	14501700kg 31903740lb	1760kg 3872lb	95kg 209lb	265202kg 583445lb	237kg 521.4lb
	276273cm / 108.6107"	271.5cm / 106.8"	125.5cm / 49"	163.5149cm / 6459"	163.5cm / 64"
	445377cm / 175148.4"	354.5cm / 136"	118cm / 46"	134.5145cm / 6057"	134.5cm / 60"
	400300cm / 157118"	354.5cm / 136"	118cm / 46"	134.5145cm / 6057"	134.5cm / 60"
	160145cm / 62.957"	196cm / 77"	82cm / 32"	65cm / 25.5"	65cm / 25.5"
	50HP/37kW Kubota D 1803-CR-TE4B	50HP/37kW Kubota D 1803-CR-TE4B	6.5HP/4.8kW Honda GX200	13HP/9.5kW Honda GX390	16HP/11.8kW Briggs & Stratton Vanguard
5"	1250 x 700mm/49.2 x 27.5" 205 x 270mm / 8 x 10.6" 2x Auto-Feed Hydraulic Vertical Rollers	1250 x 700mm/49.2 x 27.5" 205 x 270mm / 8 x 10.6" 2x Auto-Feed Hydraulic Horizontal Rollers	513 x 250mm / 20.2 x 9.8" 130 x 150mm / 5 x 6" Self-feed - Gravity	564 x 378mm / 22.2 x 14.9" 170 x 220mm / 6.7 x 8.7" Self-feed - Gravity	553 x 405mm / 21.8 x 16" 170 x 220mm / 6.7 x 8.7" Self-feed - Gravity
	DISC 6 blades	DISC 6 blades	DISC 2x 10mm blades/knives	DISC 2x 10mm blades/knives	DISC 2x 10mm blades/knives
	205mm / 8"	205mm / 8"	70mm / 3"	90mm / 3.5"	110mm / 4.3"
	7t / 7.7ton/ hr 22³m/hr 777³ft/hr	7t / 7.7ton/ hr 22³m/hr 777³ft/hr	1.5³m/hr 53³ft/hr	~2.5m³/hr 88ft³/hr	>3.5m³/hr 124ft³/hr
	280°	280°	825mm Deflector	15151400mm/6055" 270°	1485mm/60" 270°
	unlimited 3 Year	unlimited 3 Year	3 Year	3 Year	3 Year
e. s' le ks	'No-stress' in-feed system	'No-stress' in-feed system		C13 version has non-road legal tow hitch (use with garden tractor etc.)	C16c has barrow wheels and rear casters
	greenmech.co.uk	greenmech.co.uk	hansaproducts.com	hansaproducts.com	hansaproducts.com

ARBORTEC
FORESTWEAR

The World's Leading Chainsaw Apparel Manufacturer.

Arbortec Forestwear delivers uncompromising protection and unmatched performance. **Handcrafted in our Portuguese factory** with the highest-quality materials and precision craftsmanship, every pair of trousers is built to perform.

Our **women's fit** pants are the result of over two years of development—designed by women, tested by 39 professional climbers in partnership with Forestry England, and created to move with you. They bring safety, breathability, and style together without compromise.

Our pants are trusted by arborists worldwide, engineered for strength, comfort, and maximum protection. The **Vented Pants** are purpose-built for warm-climate climbing, delivering lightweight breathability and certified chainsaw protection—giving every climber the freedom to focus on the canopy, not their kit.

Images NOT to Scale
~ = Approximate
COSTS♦♦: Approx RRP/SRP & inc local tax/VAT £$€ ♦♦in burnt orange are currency conversions only & do not inc shipping, import duty or tax
N/A = info Not Available/not given.
= Trailed/Towed behind truck
= Self-Propelled/Tracked
= Push - manually pushed/pulled
= No-road.Trailer/pick-up required
= Turntable, Engine/Chute rotates
= Remote Control Track/Drive
= App/Bluetooth monitoring
● ● = OK but not ideal
□□□= Option
VARIANT=lower image if visually different & differing specification and price banding (♦♦)in blue

COMPANY	HANSA	JENSEN	JENSEN	JENSEN
MODEL VARIANT	C21 -	A530 530Light -	A530 P/gas Turntable -	A530XL XLTRACKS/ SPIDER -
ORIGIN				
~COST inc 20% VAT/10%Local Tax £$€= Currency conversion only	£♦♦♦ - €♦♦♦	£♦ $♦♦ €♦	£♦-♦♦ £♦♦ $♦♦ $♦♦ €♦-♦♦ ♦♦	£♦♦ £♦♦♦ $♦♦♦ $♦♦♦♦ €♦♦ ♦♦♦
DIESEL PETROL BATTERY	■	■	■	■
TOW TRACKS PUSH NO-ROAD	■	■	■	■ [■■]
TURNTABLE REMOTE APP	- - -	- - -	[■] - -	- - -
NOISE LwA/ LpA	109/92 dB(A)	114/-- dB(A)	114/-- dB(A)	114/-- dB(A)
FUEL CAPACITY Litres/US Gal DURATION @ max load	11L / 2.9Gal 6Lhr / 1.59Gal/Hr	30L / 7.9Gal N/A	30L / 7.9Gal N/A	30L / 7.9Gal N/A
WEIGHT inc battery(ies)	407kg 896lb	800750kg 17601650lb	700750kg 15401650lb	8001200kg 17602706lb
MAX HEIGHT with chute	188.5cm / 74"	220cm / 86.6"	220230cm /86.689"	260270cm / 102106"
MAX LENGTH	244cm / 96"	390cm / 153.4"	390425cm / 153.4167"	300290cm / 118114"
MIN LENGTH	244cm / 96"	340320cm / 134126"	320345cm / 126135.8"	249278cm / 98110"
WIDTH	136cm / 53.5"	135cm / 53.15"	135138cm / 53.1554"	131-182cm / 51.5-71.7"
ENGINE / MOTOR	21HP/15.5kW Honda GX630	24HP/16.8kW Kubota 35HP/26KW Kubota	35HP/26KW B&S Vanguard or 40HP/27KW Vanguard	37HP/27KW Kubota or 25HP/18.5kW Kubota Dies
HOPPER/INFEED TRAY SIZE ROLLER APERTURE INFEED MECHANISM	597 x 401mm / 23.5 x 15.8" 200 x 285mm / 7.9 x 11.2" Self-feed - Gravity	850 x 830mm*/ 33.5 x 32.7" 210x130150mm/8.3x5.25.9" 2x Auto-Feed Hydraulic Horizontal Rollers	850 x 830mm / 33.5 x 32.7" 210 x 150mm / 8.3 x 5.9" 2x Auto-Feed Hydraulic Horizontal Rollers	1000x830mm*/39.4x32.7 210 x 150mm / 8.3 x 5.9" 2x Auto-Feed Hydraulic Horizontal Rollers
DISC / DRUM CUTTING BLADES/KNIVES	DISC 2x 12mm blades/knives	DISC 2 blades	DISC 2 blades	DISC 2 blades
MATERIAL CAPACITY	130mm / 5.1"	130150mm / 65.2"	150mm / 6"	150mm / 6"
FEED RATE (t=metric tonne) CHIP VOLUME	~6.5m³/hr 229ft³/hr	1215m³/hr 424529ft³/hr	15m³/hr 529ft³/hr	15m³/hr 529ft³/hr
DISCHARGE CHUTE Rotation	1885mm/00" 270°	270°	270°	270°
WARRANTY	3 Year	3 year	3 year	3 year
NOTES	Electric start	20L Hydraulic oil tank. No Stress infeed *A530 hopper = 860x740mm	No Stress infeed	Spider= variable gradient track Speed 3kmh. Adj track width option. No Stress infeed *A530XL hopper=860x740m
WEBSITE	hansaproducts.com	jensen-gmbh.de	jensen-gmbh.de	jensen-gmbh.de

BRUSH/WOOD CHIPPERS

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26-35,000 ♦♦
36-55,000 ♦♦♦
56-70,000 ♦♦♦♦
70-90,000 ♦♦♦♦♦

JENSEN	JENSEN	JENSEN	JENSEN	JENSEN
A540 P/gas P D & TT	A540XL TRACKS SPIDER	A550	A550XL TRACKS SPIDER	A450 TT TRACKS
-	-	-	-	-
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[■] - -	- [■*]	- - -	- ■*	■ - -
114/-- dB(A)	114/-- dB(A)	114/-- dB(A)	114/-- dB(A)	114/-- dB(A)
3045L / 7.9/11.9Gal N/A	30L / 7.9Gal N/A	30L / 7.9Gal N/A	30L / 7.9Gal N/A	47L / 12.4Gal N/A
12001450kg 26403190lb	14002000kg 30804400lb	1300kg 2860lb	1630-17802250kg 3586-39164950lb	16001800kg 35203960lb
240255cm / 91101"	250280cm / 110"	232cm / 91"	270cm / 106.3"	270 255cm / 106 100"
395405cm / 155.5160"	295cm /116"	455cm / 179"	295cm / 116.1"	362 225cm / 142.5 88.5"
340353cm / 134138.9"	234.5278cm / 92"	375cm / 147.6"	240cm / 94.4"	312 225cm / 123 88.5"
150180cm / 5971"	137cm / 54"	143cm / 56"	137cm / 53.9"	195cm / 76.7"
40HP/27kW Vanguard EFI 25HP/18.5kW Kubota Diesel	25HP/18.5kW Kubota (various engine ~36kW options)	37HP/27.2kW Yanmar Diesel	37HP 27.2kW Yanmar Diesel or 55HP Doosan 55HP Develon Diesel	50HP/38kW Hatz Diesel or 38HP/28kW Kubota Diesel
1000 x 800mm/39.4 x 31.5" 210 x 190mm / 8.3 x 7.5" 2x Auto-Feed Hydraulic Horizontal Rollers	1000 x 800mm/39.4 x 31.5" 240 x 200mm / 9.5 x 7.90" 2x Auto-Feed Hydraulic Horizontal Rollers	1000 x 800mm/39.4 x 31.5" 240 x 200mm / 9.5 x 7.90" 2x Auto-Feed Hydraulic Horizontal Rollers	1000 x 800mm/39.4 x 31.5" 240 x 200mm / 9.5 x 7.90" 2x Auto-Feed Hydraulic Horizontal Rollers	1050 x 880mm/41.3 x 34.6" 245 x 200mm / 9.65 x 7.9" 2x Auto-Feed Hydraulic Horizontal Rollers
DISC 2 blades	DISC 2 blades	DISC 2 blades	DISC 2 blades	DISC 2 blades
190mm / 7.5"	200mm / 8"	200mm / 8"	200mm / 8"	200mm / 8"
18m³/hr 635ft³/hr	18m³/hr 635ft³/hr	18m³/hr 635ft³/hr	18m³/hr 635ft³/hr	20m³/hr 706ft³/hr
270°	270°	270°	270°	360°
3 year	3 year	3 year	3 year	3 year
28L Hydraulic oil tank. TT=Turntable. No Stress infeed	Option adj width tracks. Spider has variable gradient tracks.50-70cm ground clearance. *Option-only	Enhanced versin of A540 28L Hydraulic oil tank. No Stress infeed. Twin axle option	Available with adjustable width tracks. Spider has variable gradient tracks. 28L Hydr oil. *Option-only	28L Hydraulic oil tank No Stress infeed. May be a petrol version?
jensen-gmbh.de	jensen-gmbh.de	jensen-gmbh.de	jensen-gmbh.de	jensen-gmbh.de

Images NOT to Scale
~ = Approximate
COSTS: Approx RRP/SRP & inc local tax/VAT £$€ in burnt orange are currency conversions only & do not inc shipping, import duty or tax
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= Trailed/Towed behind truck
= Self-Propelled/Tracked
= Push - manually pushed/pulled
= No-road.Trailer/pick-up required
= Turntable, Engine/Chute rotates
= Remote Control Track/Drive
= App/Bluetooth monitoring
= OK but not ideal
= Option
VARIANT=lower image if visually different & differing specification and price banding ( )in blue

COMPANY	JENSEN	JENSEN	JENSEN	JENSEN
MODEL VARIANT	A425 TT TRACKS -	A328 TT TRACKS -	A350TT -	A231 TT TRACKS -
ORIGIN				
~COST inc 20% VAT/10%Local Tax £$€= Currency conversion only	£◆◆◆ £◆◆◆ £◆◆◆◆ $◆◆◆ $◆◆◆◆ $◆◆◆◆◆ €◆◆◆ ◆◆◆ ◆◆◆◆	£◆◆◆◆ £◆◆◆◆ >£◆◆◆◆◆ $◆◆◆◆◆ $◆◆◆◆ >$◆◆◆◆◆ €◆◆◆◆◆ ◆◆◆◆◆ >◆◆◆◆◆	£◆◆◆◆◆ >$◆◆◆◆◆ ≥€◆◆◆◆◆	£◆◆◆-◆◆◆◆ ≥£◆◆◆◆ £◆ $◆◆◆◆ $◆◆◆◆ >$◆◆◆ €◆◆◆◆ ◆◆◆◆◆ >◆◆◆
DIESEL PETROL BATTERY	■	■	■	■
TOW TRACKS PUSH NO-ROAD	■	■ [■■]	■	■ [■■]
TURNTABLE REMOTE APP	[■]*- -	[■]*- -	■- -	[■]*- -
NOISE LwA/ LpA	114/-- dB(A)	114/107 dB(A)	114/-- dB(A)	114/107 dB(A)
FUEL CAPACITY Litres/US Gal DURATION @ max load	27-30L / 7.1-Gal N/A	70L / 16.5Gal N/A	70L / 18.5Gal N/A	70L / 16.5Gal N/A
WEIGHT inc battery(ies)	1500 1800 2200kg 3300 3960 4400lb	1800 2100 2300kg 3960 4620 5060lb	2200kg 4840lb	2500 2650 2700kg 5500 5830 5940lb
MAX HEIGHT with chute	260 280 280cm/102.4 110"	280 308 270cm/110 121 106"	300cm / 118"	310 270cm/122 106"
MAX LENGTH	460 330cm / 165.3 130"	440 410cm / 173 161"	410cm / 161"	480 340cm / 189 134"
MIN LENGTH	420 370 235cm/165 146 92.5"	340 235cm / 161 92.5"	410cm / 161"	430 295cm / 169 116"
WIDTH	180 200 140cm / 71 79 55"	214 140cm / 83 55"	214cm / 84"	230cm / 90.5"
ENGINE / MOTOR	50HP Kubota or 38HP Kubota 50HP/43kW Hatz or Kubota	57HP/43.7kW Hatz 50HP Kubota 50 or 68HP Kubota 57HP Hatz or 67HP Kubota	73HP/55.4kW Hatz Diesel	36 to 65HP Hatz or 50HP Kubota 50HP Kubota
HOPPER/INFEED TRAY SIZE ROLLER APERTURE INFEED MECHANISM	1050 x 880mm/41.3 x 34.6" 245 x 200mm / 9.65 x 7.9" 2x Auto-Feed Hydraulic Horizontal Rollers	1150 x 800mm/45.2 x 31.4" 280 x 220mm / 11 x 8.6" 2x Auto-Feed Hydraulic Horizontal Rollers	1300 x 850mm / 51 x 33.5" 300 x 240mm / 11.8 x 9.5" 2x Auto-Feed Hydraulic Horizontal Rollers	1160 x 800mm/46 x 31 310 x 240mm / 12.2 x 9 2x Auto-Feed Hydrau Horizontal Rollers
DISC / DRUM CUTTING BLADES/KNIVES	DISC 2 blades	DISC 2 blades	DISC 2 blades	DISC 2 blades
MATERIAL CAPACITY	200mm / 8"	220mm / 8.5"	240mm / 9.5"	240mm / 9.5"
FEED RATE (t=metric tonne) CHIP VOLUME	20m³/hr 706ft³/hr	25m³/hr 882ft³/hr	25-30m³/hr 882-1060ft³/hr	30m³/hr 1060ft³/hr
DISCHARGE CHUTE Rotation	360°	270°	270°	270°
WARRANTY	3 year	3 year	3 year	3 year
NOTES	Option twin wheel chassis. No Stress infeed. *Tracked = NO turntable & 3kph speed	*Tracked = NO turntable & 3kph speed 23L/6gal hydraulic oil tank	30L/8gal hydraulic oil tank. Available without turntable.	*Tracked has Turntable opt 23L/6gal hydraulic oil tan Single or twin wheel cha *pic=XLtrack version >3.5to
WEBSITE	jensen-gmbh.de	jensen-gmbh.de	jensen-gmbh.de	jensen-gmbh.de

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56-70,000 ♦♦♦♦
70-90,000 ♦♦♦♦♦

NB: Ohashi range is being modified and these 4 European models do not reflect the models shown on Ohashi's website but these four have been verified as ongoing for sale outside Japan by Ohashi.

		OHASHI	OHASHI	OHASHI	OHASHI
*		ES73G -	ES101GH -	ES131GH -	ES151GH -
		●	●	●	●
♦♦♦ ♦♦ ♦♦		£♦♦ $♦♦♦ €♦♦♦	£♦♦♦ $♦♦♦ €♦♦♦	£♦♦♦ $♦ €♦	£♦♦ $♦♦ €♦♦
		■	■	■	■
		■■	■■	■■	■■
		- - -	- - -	- - -	- - -
		111/-- dB(A)	111/-- dB(A)	111/-- dB(A)	116/-- dB(A)
		3.1L / 0.8Gal 2.2Lhr / 0.5Gal/Hr	5.3L / 1.4Gal 2.4Lhr / 0.64Gal/Hr	6.1L / 1.6Gal 2.5Lhr / 0.66Gal/Hr	15L / 4Gal 6.5Lhr / 1.7Gal/Hr
		200kg 440lb	390kg 858lb	390kg 858lb	490kg 1078lb
"		137cm / 54"	154cm / 61"	150cm / 59"	156cm / 61.4"
4"		169cm / 66.5"	212cm / 83.5"	218cm / 85.8"	242cm / 95.3"
5"		128cm / 50.3"	162cm / 63.71"	165cm / 65"	165cm / 65"
		66cm / 25.9"	73cm / 28.7"	73cm / 28.7"	73cm / 28.7"
		6.5HP Honda GX200	9HP/6.3kW Honda GX270	13HP/9.7kW Honda GX390	23HP/16.9kW B&S Vanguard V Twin
.4" 9.5" lic		700 x 400mm/27.5 x 15.75" 180 x 90mm / 7 x 3.5" 1x Auto-Feed Hydraulic Horizontal Roller	700 x 400mm/27.5 x 15.75" 200 x 123mm / 7.8 x 4.8" 1x Auto-Feed Hydraulic Horizontal Roller	700 x 400mm/27.5 x 15.75" 200 x 131mm / 8 x 5.1" 1x Auto-Feed Hydraulic Horizontal Roller	700 x 400mm/27.5 x 15.75" 205 x 150mm / 8.1 x 6" 1x Auto-Feed Hydraulic Horizontal Roller
		DRUM 2x chipper, 1x counter, 8x shredder blades	DRUM 2x chipper, 1x counter, 8x shredder blades	DRUM 2x chipper, 1x counter, 8x shredder blades	DRUM 2x chipper, 1x counter, 8x shredder blades
		70mm / 3"	110mm / 4"	130mm / 5"	150mm / 6"
		1.5m³/hr 53ft³/hr	2m³/hr 70ft³/hr	2.8m³/hr 99ft³/hr	4.5-5.2m³/hr 159-184ft³/hr
		Basal discharge -45°	270°/Basal discharge -45°	270°/Basal discharge -45°	270°/Basal discharge -45°
		2 year	2 year	2 year	2 year
ion k ssis nnes		'No-stress' in-feed. Basal ejection. GS75 replaces GS72 & GS73	'No-stress' variable in-feed. Ejection chute redirects to basal ejection. 2.7km/h speed GS102 replaces GS100 & GS101	'NO-stress' variable in-feed. Ejection chute can be redirected to basal ejection. GS133 replaces GS130, 131 & 132	'No-stress' variable in-feed. Ejection chute redirects to basal ejection. 2.5km/h speedES152 replaces ES150
		ohashi-inc.com ohashi.co.uk	ohashi-inc.com ohashi.co.uk	ohashi-inc.com ohashi.co.uk	ohashi-inc.com ohashi.co.uk

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56-70,000 ♦♦♦♦♦♦♦
70-90,000 ♦♦♦♦♦♦♦♦

Images NOT to Scale
~ = Approximate
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= Push - manually pushed/pulled
= No-road.Trailer/pick-up required
= Turntable, Engine/Chute rotates
= Remote Control Track/Drive
= App/Bluetooth monitoring
● ● = OK but not ideal
□□□ = Option
VARIANT=lower image if visually different & differing specification and price banding (♦♦)in blue

COMPANY	SCHLIESING	SCHLIESING	SCHLIESING	SCHLIESING
MODEL VARIANT	175MX-D MX-P/gas -	235EX-D -	235MX-D -	235MXRS Crawle MXRH-D Crawle -
ORIGIN				
~COST inc 20% VAT/10%Local Tax £$€= Currency conversion only	£♦♦ $♦♦♦ €♦♦	£♦♦♦ $♦♦♦♦♦ €♦♦♦♦	£♦♦♦ $♦♦♦♦♦ €♦♦♦♦	£♦♦♦♦ $♦♦♦♦♦ €♦♦♦♦♦
DIESEL PETROL BATTERY	■ [■]	■	■	■
TOW TRACKS PUSH NO-ROAD	■	■	■	■■
TURNTABLE REMOTE APP	- - -	■ - -	- - -	- - -
NOISE LwA/ LpA	N/A	N/A	N/A	N/A
FUEL CAPACITY Litres/US Gal DURATION @ max load	17L / 4.5Gal N/A	34L / 9Gal N/A	55L / 14.5Gal N/A	45L / 11.8Gal N/A
WEIGHT inc battery(ies)	825750kg 18151650lb	1400kg 3080lb	1600kg 3520lb	2100kg 4620lb
MAX HEIGHT with chute	237cm / 93.3"	252cm / 99.2"	265cm / 104.3"	265cm / 104.3"
MAX LENGTH	375cm / 147.6"	338cm / 133"	419cm / 165"	295cm / 116.1"
MIN LENGTH	325cm / 128"	332cm / 130.7"	366cm / 144"	250cm / 98.4"
WIDTH	155cm / 61"	177cm / 69.6"	245cm / 96.4"	150cm / 59"
ENGINE / MOTOR	21.9HP/16.1kW Kubota 25.3HP/18.6kW Honda	25.2HP/18.5kW Kubota	25.2HP/18.5kW Kubota	25.2HP/18.5kW Kubot
HOPPER/INFEED TRAY SIZE ROLLER APERTURE INFEED MECHANISM	900 x 720mm / 35.4 x 28.3" 150 x 240mm / 6 x 9.4" 2x Auto-Feed Hydraulic Horizontal Rollers	1040 x 950mm/40.9 x 37.4" 200 x 240mm / 7.9 x 9,4" 2x Auto-Feed Hydraulic Horizontal Rollers	1040 x 960mm/40.9 x 37.4" 200 x 240mm / 7.9 x 9,4" 2x Auto-Feed Hydraulic Horizontal Rollers	1040 x 960mm/40.9 x 3 200 x 240mm / 7.9 x 9 2x Auto-Feed Hydrau Horizontal Rollers
DISC / DRUM CUTTING BLADES/KNIVES	DISC 2 blades	DISC 2 blades	DISC 2 blades	DISC 2 blades
MATERIAL CAPACITY	160mm / 6.3"	180mm / 7"	180mm / 7"	190mm / 7.5"
FEED RATE (t=metric tonne) CHIP VOLUME	N/A	N/A	N/A	N/A
DISCHARGE CHUTE Rotation	270°	270°	270°	270°
WARRANTY	2 year	2 year	2 year	2 year
NOTES	MX= standard spec models, EX are enhanced	Turntable model. MX= standard spec models, EX are enhanced	MX= standard spec models, EX are enhanced	H version is the same but foldable roll bar
WEBSITE	schliesing.com	schliesing.com	schliesing.com	schliesing.com

Choosing and using a chipper for general arb work - by Adam Jones

Buying a wood chipper isn't about going for the biggest machine you can find; it's about choosing something that actually suits the work you take on every day. For most operators working in the private, domestic, or light commercial sector, the real value is often found at the smaller end of the market, where ease of transport, manoeuvrability, and sensible running costs count for more than raw infeed capacity.

At the smallest scale are the 3 to 4" gravity feed, vertical hopper machines and the larger wheeled 4–5 inch machines. These come into their own on tight-access jobs where a full-size tow-behind just won't fit. You can wheel them through gates, down garden paths, and place them right next to the pile, which saves a lot of dragging. Most are petrol-powered and light enough to handle easily. They're perfect for domestic work involving brash and light branches. They won't touch heavy timber, but in the right setting, they're often quicker and less hassle than walking every armful out to a larger chipper parked in the road. The *Eliet* range includes self-propelled 4-trolley-wheel & tracked models with engines or this full battery model which we've not used but seems like a great option for domestic jobs. Similarly the Japanese *Ohashi* has handlebar style control of even medium sized machines.

Step up a notch and you get to the small trailed chippers, some now fitted with compact tracks. These are a good compromise between portability and performance. They'll go across lawns, handle a bit of rough ground, and still process a steady day's worth of domestic material, as long as your tow vehicle is up to it. In the 4–6 inch range, they're straightforward to tow, light enough for most vehicles, and relatively frugal with fuel.
For small commercial teams, or anyone working a mix of domestic and light clearance jobs, the 6–8 inch machines start to make more sense. They'll take awkward, forked branches and modest-sized timber without endless pre-cutting, yet they're still manageable to tow and store. Tracked versions shine on slopes or awkward ground where a wheeled unit would struggle. The trade-off is that you might need a suitable trailer and to keep an eye on your combined towing weight, though for most small-scale setups this is still manageable.
At the top of the tree are the 8–12 inch tracked drum chippers built for heavy commercial work.

They're impressive, but for the majority of smaller operators they're more than is needed. The extra running costs, storage space, and transport requirements can easily outweigh the gains unless you're working on large-scale clearance jobs day in, day out.

Transport is always worth thinking about. The compact machines are rarely an issue, but as you go up in size the limits of your tow vehicle, your licence entitlements, and the plated trailer weights come into play. In the UK, most pickups and 3.5-tonne vans can tow up to 3,500kg, but that figure covers both the chipper and whatever else you've got on board. It's rarely a problem with smaller units, but it's still worth knowing your numbers before setting off.

When I'm choosing a chipper for small-scale or light commercial work, I look for something I can move easily, get running quickly, and keep going all day without burning through too much fuel. It needs to be reliable to feed, simple to clear if it blocks, and easy to maintain. On the right jobs, I've seen a small hand-portable or compact tracked chipper like the *Eliet* above, clear more material, and in less time than a big machine parked halfway down the road. It's about matching the machine to the site, the crew, and the work itself.

The most productive crews I've worked with aren't the ones with the biggest kit, they're the ones with the right kit. Find a chipper that works with your jobs and your way of working, and it'll earn its keep every single time you fire it up.

	SCHLIESING
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	- - -
	N/A
	9kWh 6-8hr
	1550kg 3410lb
	245cm / 96.4"
	417cm / 164.1"
	366cm / 144"
	167cm / 65.7"
ta	28.5HP/21kW -96v LiFePO4 180aH batteries 9hr recharge
7.4" ,4" lic	1040 x 960mm/40.9 x 37.4" 200 x 240mm / 7.9 x 9,4" 2x Auto-Feed Hydraulic Horizontal Rollers
	DISC 2 blades
	190mm / 7.5"
	N/A
	270°
	2 year Battery-3yrs
with	Intelligent control with screen MX= standard spec models, EX are enhanced
	schliesing.com

£$€ - PRICE BANDS
0-3000 ♦
4-9,000 ♦♦
10-15,000 ♦♦♦
16-25,000 ♦
26-35,000 ♦♦
36-55,000 ♦♦♦
56-70,000 ♦♦♦♦
70-90,000 ♦♦♦♦♦

Images NOT to Scale
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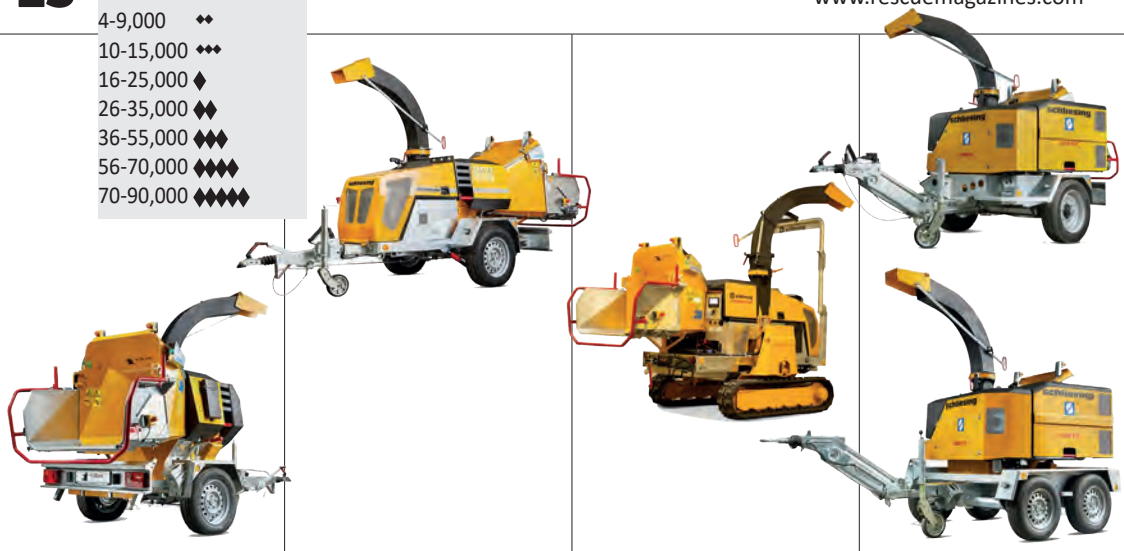
= Push - manually pushed/pulled
= No-road.Trailer/pick-up required
= Turntable, Engine/Chute rotates
= Remote Control Track/Drive
= App/Bluetooth monitoring
● ● = OK but not ideal
□□□ = Option
VARIANT=lower image if visually different & differing specification and price banding (♦♦)in blue



COMPANY	SCHLIESING	SCHLIESING	SCHLIESING	SCHLIESING
MODEL VARIANT	325EX-D MX- D -	325MX-E -	325 MXRS MXRH Crawler -	495EX-D TX -
ORIGIN				
~COST inc 20% VAT/10%Local Tax £$€= Currency conversion only	£♦♦♦♦ $♦♦♦♦♦ €♦♦♦♦♦	£♦♦♦♦♦ >$♦♦♦♦♦ >€♦♦♦♦♦	£♦♦♦♦♦ >$♦♦♦♦♦ >€♦♦♦♦♦	£♦♦♦♦♦ >£♦♦♦♦♦ >$♦♦♦♦♦ >$♦♦♦♦♦+ >€♦♦♦♦♦ ♦♦♦♦♦+
DIESEL PETROL BATTERY	■	■	■	■
TOW TRACKS PUSH NO-ROAD	■	■	■■	■
TURNTABLE REMOTE APP	- - -	- - -	- - -	■- -
NOISE LwA/ LpA	N/A	N/A	N/A	N/A
FUEL CAPACITY Litres/US Gal DURATION @ max load	3555L / 9.214.5Gal N/A	9kWh 6-8hr	3555L / 9.214.5Gal N/A	6069L / 15.818.2Gal N/A
WEIGHT inc battery(ies)	15701480kg 34543256lb	1595kg 3509lb	1950kg 4290lb	20002050kg 44004510lb
MAX HEIGHT with chute	255245cm / 10096.4"	240cm / 95"	260cm / 102.3"	265cm / 104.3"
MAX LENGTH	396419cm / 156165"	417cm / 164"	309cm / 121.6"	452478cm / 178188"
MIN LENGTH	345366cm / 136144"	366cm / 144"	258cm / 101.6"	405428cm / 159168.5"
WIDTH	200167cm / 78.765.7"	167cm / 65.7"	147cm / 57.9"	203.5cm / 80"
ENGINE / MOTOR	44.9HP/33kW Kubota Stage V	35HP/25kW -96v $LiFePO_4$ 360aH Batteries 9hr recharge	44.9HP/33kW Kubota Stage V	75.3HP/55.4kW Hatz Stage V
HOPPER/INFEED TRAY SIZE ROLLER APERTURE INFEED MECHANISM	1046 x 960mm/41.1 x 37.4" 200 x 240mm / 7.9 x 9.4" 2x Auto-Feed Hydraulic Horizontal Rollers	1046 x 960mm/41.1 x 37.4" 200 x 240mm / 7.9 x 9.4" 2x Auto-Feed Hydraulic Horizontal Rollers	1046 x 960mm/41.1 x 37.4" 200 x 240mm / 7.9 x 9.4" 2x Auto-Feed Hydraulic Horizontal Rollers	1160 x 1040mm/44.7 x 41" 200 x 300mm / 7.9 x 12" 2x Auto-Feed Hydraulic Horizontal Rollers
DISC / DRUM CUTTING BLADES/KNIVES	DISC 2 blades	DISC 2 blades	DISC 2 blades	DISC 2 blades
MATERIAL CAPACITY	200mm / 7.9"	200mm / 7.9"	200mm / 7.9"	240mm / 9.5"
FEED RATE (t=metric tonne) CHIP VOLUME	N/A	N/A	N/A	N/A
DISCHARGE CHUTE Rotation	270°	270°	270°	270°
WARRANTY	2 year	2 year Battery-3yrs	2 year	2 year
NOTES	MX-D version is a smaller, lighter, more frugal version	intelligent control with screen	MXRH is a folding rollcage version of the MXRS	TX=Turntable. MX= standard spec models, EX are enhanced
WEBSITE	schliesing.com	schliesing.com	schliesing.com	schliesing.com

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= No-road.Trailer/pick-up required
= Turntable, Engine/Chute rotates
= Remote Control Track/Drive
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= OK but not ideal
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56-70,000 ♦♦♦♦
70-90,000 ♦♦♦♦♦

COMPANY	TIMBERWOLF	TIMBERWOLF	TIMBERWOLF	TIMBERWOLF
MODEL VARIANT	TW13/75G -	TW160PH 11039802	TW230HBD HBP/gas -	TW230VTR D -
ORIGIN				
~COST inc 20% VAT/10%Local Tax £$€= Currency conversion only	£♦♦ $♦♦ €♦♦	£♦ $♦♦ €♦	£♦♦ ♦♦ $♦♦♦ $♦♦♦ €♦♦♦ €♦♦	£♦♦♦ $♦♦♦ $♦♦♦
DIESEL PETROL BATTERY	■	■	■ [■]	■ [■]
TOW TRACKS PUSH NO-ROAD	■ ■	■	■	■ ■
TURNTABLE REMOTE APP	- - -	- - -	- - -	- - -
NOISE LwA/ LpA	120/96 dB(A)	117/-- dB(A)	118/-- dB(A)	118/-- dB(A)
FUEL CAPACITY Litres/US Gal DURATION @ max load	6.5L / 0.26Gal 3Lhr / 0.8Gal/Hr	18L /4.7Gal 4Lhr / 1Galhr	18L / 4.7Gal N/A	36L / 9.5Gal N/A
WEIGHT inc battery(ies)	188kg 414lb	632kg 1390lb	745710kg 16391485lb	1282kg 2820lb
MAX HEIGHT with chute	160cm / 62.9"	210.7cm / 82.95"	219.8214.1cm /86.584.3 "	222.5cm / 87.5"
MAX LENGTH	156.5cm / 61.6"	320cm / 126"	376.6356cm / 148.2140"	355cm / 139.7"
MIN LENGTH	81.5cm / 32.09"	290.3cm / 114"	352.5302.2cm / 138.78118.9"	263.5cm / 103.5"
WIDTH	80cm / 31.5"	127cm / 50"	152cm / 59.7"	81.2-130.2cm / 32-51.25"
ENGINE / MOTOR	13hp Honda 4-stroke	22hp Honda	24.8hp Kubota V1505 40hp B&S Vanguard	24.8hp Kubota V1505
HOPPER/INFEED TRAY SIZE ROLLER APERTURE INFEED MECHANISM	N/A 75mm / 3" 1x Gravity feed roller	N/A 160 x 152mm / 6.25 x 6" 2x Auto-Feed Hydraulic Horizontal Rollers	N/A 230 x 160mm / 9 x 6.3" 2x Auto-Feed Hydraulic Horizontal Rollers	N/A 230 x 160mm / 9 x 6.3" 2x Auto-Feed Hydraulic Horizontal Rollers
DISC / DRUM CUTTING BLADES/KNIVES	DISC 1x 177mm blade	DISC 2x 109mm reversible blades	DISC 2x 135mm reversible blades	DISC 2x 135mm reversible blades
MATERIAL CAPACITY	75mm / 3"	152cm / 6"	160mm / 6¼"	160mm / 6¼"
FEED RATE (t=metric tonne) CHIP VOLUME	0.75t / 0.83ton/ hr 1.2-2.5m³/hr 44-88ft³/hr	3.5t / 3.86ton/ hr 6-12m³/hr 206-412ft³/hr	4-5t / 4.4-5.5ton/ hr 7-17m³/hr 236-589ft³/hr	4-5t / 4.4-5.5ton/ hr 7-17m³/hr 236-589ft³/hr
DISCHARGE CHUTE Rotation	280°	280°	280°	280°
WARRANTY	3yr. 5yr option	3y. 5y option	3yr. 5 yr option	3yr. 5 yr option
NOTES				VTR= Variable width Tracks to f gate entrance Speed= 2.5-5kph Petrol/gas version discontinued
WEBSITE	timberwolf.co.uk	timberwolf.co.uk	timberwolf.co.uk	timberwolf.co.uk

TIMBERWOLF	**TIMBERWOLF**	**TIMBERWOLF**	**TIMBERWOLF**	**TPCHIPPERS**	
TW280HBD PHB P/gas	**TW280HB Hybrid**	**TW280FTR Hybrid P/gas**	**TW280VGTR P/gas**	**TP100 Mobile**	
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■	■	■■	■■	■■	
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119/98 dB(A)	119/98 dB(A)	118/95 dB(A)	118/95 dB(A)	128/120 dB(A)	
36L /9.5Gal N/A	36L / 9.5Gal N/A	36L / 9.5Gal N/A	36L / 9.5Gal N/A	*208.5L / 5.32.25Gal 4Lhr / 0.9Galhr	
13171193kg 28972624lb	1270kg 2794lb	17351592kg 38173502lb	2118kg 4660lb	314kg 691lb	
237cm / 93"	237cm / 93"	232cm / 91"	245-285cm / 96.4-112"	180cm / 70.8"	
383386cm / 150152"	386cm / 151.9"	366cm / 144"	366cm / 144"	241.5cm / 95"	
327333cm / 129131"	333cm / 131"	288cm / 113"	288cm / 113"	234.5cm / 92"	
168164cm / 6664.5"	164cm / 64.5"	141cm / 55.5"	148-201cm / 58-79"	74cm / 29"	
55HP Hyundai Turbo Diesel 57HP Kubota WG1605 Petrol	24.8HP(18.5kW) Kubota D902-TE4, , turbo + 37.3HP GM Generator	24.8HP (18.5kW) Kubota D902-TE4, , turbo + 37.3HP GM Generator* 57HP Kubota WG1605	57HP Kubota WG1605	20HP/14kw HONDA, 18HP/13kw B&S Vanguard	
N/A 280 x 210mm / 11 x 8" 4x Auto-Feed Hydraulic Horizontal Rollers	N/A 280 x 210mm / 11 x 8" 4x Auto-Feed Hydraulic Horizontal Rollers	N/A 280 x 210mm / 11 x 8" 4x Auto-Feed Hydraulic Horizontal Rollers	N/A 280 x 210mm / 11 x 8" 4x Auto-Feed Hydraulic Horizontal Rollers	690mm / 27" 150 x 275mm/ 6 x 10.8" 1x Gravity-feed Roller	
DISC 2x 158mm reversible blades	DISC 2x 158mm reversible blades	DISC 2x 158mm reversible blades	DISC 2x 158mm reversible blades	DRUM 2x reversible blades	
210mm / 8"	210mm / 8"	210mm / 8"	210mm / 8"	100mm / 4"	
76.5t / 0.00ton/ hr 11-24m³/hr 382-824ft³/hr	6.5t / 7.2ton/ hr 11-22m³/hr 382-766ft³/hr	7>7t / 7.7>7.7ton/ hr 12-24m³/hr 412-825ft³/hr	7>7t / 7.7>7.7ton/ hr 12-24m³/hr 412-825ft³/hr	3m³/hr 106ft³/hr	
280°	280°	280°	280°	10cm / 4" 000°	
3 yr. 5 yr option	3 yr. 5 yr option	3y. 5y option	3y. 5y option	3 years	
HMI Display control screen	HMI Display control screen	Speed= 2.5-5kph 245mm ground clearance	VGTR= Variable Grade Tracks up to 30° Speed= 2.5-5kph 245mm ground clearance	*large capacity fuel tank on the Honda engine	
timberwolf.co.uk	timberwolf.co.uk	timberwolf.co.uk	timberwolf.co.uk	tpchipper.com	

£$€ - PRICE BANDS

0-3000 ♦
4-9,000 ♦♦
10-15,000 ♦♦♦
16-25,000 ♦
26-35,000 ♦♦
36-55,000 ♦♦♦
56-70,000 ♦♦♦♦
70-90,000 ♦♦♦♦♦

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= Self-Propelled/Tracked
= Push - manually pushed/pulled
= No-road.Trailer/pick-up required
= Turntable, Engine/Chute rotates
= Remote Control Track/Drive
= App/Bluetooth monitoring
= OK but not ideal
= Option
VARIANT=lower image if visually different & differing specification and price banding (♦♦)in blue

COMPANY	TPCHIPPERS	TPCHIPPERS	TPCHIPPERS	TPCHIPPERS
MODEL VARIANT	TP166 Mobile P/gas -	TP 176 Mobile P/gas -	TP 176 Mobile T -	TP176 Mobile ZE ZE TRACK -
ORIGIN				
~COST inc 20% VAT/10%Local Tax £$€= Currency conversion only	£♦ $♦♦ €♦	£♦♦ £♦♦ $♦♦♦ $♦♦ €♦♦ ♦♦	£♦♦ $♦♦♦ €♦♦♦	£♦♦♦ £♦♦♦♦ $♦♦♦♦ ->$♦♦♦♦♦ €♦♦♦♦ ♦♦♦♦♦
DIESEL PETROL BATTERY	■	■ [■]	■	■
TOW TRACKS PUSH NO-ROAD	■	■	■	■
TURNTABLE REMOTE APP	- - -	- - -	■ - -	- - - [- ■ -]
NOISE LwA/ LpA	123/108 dB(A)	123/108 dB(A)	123/108 dB(A)	123/108 dB(A)
FUEL CAPACITY Litres/US Gal DURATION @ max load	20L / 5.3Gal * 5Lhr / 1.3Galhr	20L / 5.3Gal * 36Lhr / 0.81.6Galhr	20L /5.3Gal 3Lhr / 0.8Galhr	n/a
WEIGHT inc battery(ies)	680kg 1500lb	749721kg 16481587lb	828kg 1822lb	7411150-1200kg 16302530-2640lb
MAX HEIGHT with chute	196-244cm / 77-96"*	220244cm / 86.696"	273.6cm /107.7"	244205-259cm/9680.7-102
MAX LENGTH	401.3cm / 157.9"	401.3cm / 157.9"	406.9cm / 160.2"	401.3347.5cm/157.9136.8
MIN LENGTH	351.5cm / 138"	351.5cm / 138"	365.6cm / 143.9"	351.5261cm / 138102.7"
WIDTH	141.6cm / 55.7"	141.6cm / 55.7"	141.7cm / 55.7"	141.7cm / 55.7"
ENGINE / MOTOR	22HP/16.5kW Honda GX690	25HP Kubota 38HP Kubota	25HP/18.5kW Kubota 1305 or1505	ME 1507 PMAC 65v DC NMC
HOPPER/INFEED TRAY SIZE ROLLER APERTURE INFEED MECHANISM	920 x 620mm/36.2 x 24.4" 176 x 191mm / 6.9 x 7.5" 2x Auto-Feed Hydraulic Horizontal Rollers	920 x 620mm/36.2 x 24.4" 176 x 191mm / 6.9 x 7.5" 2x Auto-Feed Hydraulic Horizontal Rollers	920 x 620mm/36.2 x 24.4" 176 x 191mm / 6.9 x 7.5" 2x Auto-Feed Hydraulic Horizontal Rollers	920 x 620mm/36.2 x 24.4 176 x 191mm / 6.9 x 7.5" 2x Auto-Feed Hydraulic Horizontal Rollers
DISC / DRUM CUTTING BLADES/KNIVES	DISC 2x blades/knives	DISC 2x blades/knives	DISC 2x blades/knives	DISC 2x blades/knives
MATERIAL CAPACITY	176mm / 7"	176mm / 7"	176mm / 7"	176mm / 7"
FEED RATE (t=metric tonne) CHIP VOLUME	12m³/hr 424ft³/hr	15m³/hr 530ft³/hr	15m³/hr 530ft³/hr	15m³/hr 530ft³/hr
DISCHARGE CHUTE Rotation	270°	270°	270°	270°
WARRANTY	3 year	3 year	3 year	3 year
NOTES	Stress control system, TP PILOT+, *Depends on fixed or vario spout. TP160 & 165 Discontinued *optional 35L fuel capacity	Stress control system, TP PILOT+, TP175 Discontinued *optional 35L fuel capacity	Stress control system, TP PILOT+, T = Turntable *Fixed spout =std, Ht adj Vario = Option	stress control system, TP PILOT- inc hour counter & start and stop of the feed rollers . Remot control option for track version
WEBSITE	tpchipper.com	tpchipper.com	tpchipper.com	tpchipper.com

BRUSH/WOOD CHIPPERS

TP CHIPPERS	TP CHIPPERS	TP CHIPPERS	TP CHIPPER	TP CHIPPERS
TP 176 TRACK -	**TP 215 Mobile T** -	**TP 215 TRACK Remote** -	**TP215 Mobile ZE ZE.T** -	**TP280 Mobile T** -
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■■	■	■■	■	■
-[■]-	[■]- -	-[■]-	- - - [■■-]	[■]- -
125/107 dB(A)	125/107 dB(A)	125/107 dB(A)	125/107 dB(A)	130/-- dB(A)
20L /5.3Gal 3Lhr / 0.8Galhr	52L / 13.7Gal 4Lhr / 1Galhr	52L /13.7Gal 4Lhr / 1Galhr	5hr	75L / 19.8Gal 6Lhr / 0Galhr
1200kg 2640lb	13501900kg 29704180lb	16001500kg 35203300lb	14761960kg 32474312lb	21002300kg 46205060lb
259cm / 102"	271.6293cm / 97.5115"	216.2-262.5cm/85.1-103.3"	271.6cm*/ 106.9"	335.8cm / 132.2"
406.9cm / 160.2"	490cm / 188.9"	378.4336.5cm/148.9132.4"	448.5cm / 176.5"	496.6cm / 195.5"
365.6cm / 143.9"	460cm / 181"	272.5262.5cm/107.3103.3"	388.7cm / 153"	436.9cm / 172"
115-130cm / 45.3-51.2"	196cm / 77"	140.6-149.5cm/55.3-58.8"	170.5cm / 67"	177.5117.5cm / 69.946"
25HP/18.5kW Kubota 1305 or1505	59HP/44kW Hatz 3H50TICD/DPF	59HP/44kW Hatz 3H50TICD/DPF	29kW Permanent Magnet Motor	74HP/55kW Hatz 4H50TICD
920 x 690mm/36.2 x 27.2" 176 x 191mm / 6.9 x 7.5" 2x Auto-Feed Hydraulic Horizontal Rollers	1100 x 750mm/43.3 x 29.5" 216 x 265mm / 00 x 00" 2x Auto-Feed Hydr. Horiz Rollers	1100 x 750mm/43.3 x 29.5" 216 x 265mm / 00 x 00" 2x Auto-Feed Hydraulic Horizontal Rollers	1100 x 750mm/43.3 x 29.5" 216 x265mm / 00 x 00" 2x Auto-Feed Hydraulic Horizontal Rollers	1100 x 800mm/43.3 x 31.5" 280 x 280mm / 11 x 11" 2x Auto-Feed Hydraulic Vertical Rollers
DISC 2x blades/knives	DISC 4x blades/knives	DISC 4x blades/knives	DISC 4x blades/knives	DISC 4x blades/knives
176mm / 7"	215mm / 8.5"	215mm / 8.5"	215mm / 8.5"	280mm / 11"
15m³/hr 530ft³/hr	20m³/hr 706ft³/hr	20m³/hr 706ft³/hr	20m³/hr 706ft³/hr	25m³/hr 882ft³/hr
270°	270°	270°	270°	270°
3 year	3 year	3 year	3 year	3 year
20cm Ground Clearance. Remote control option-weighs 50kg less	stress control system, TP PILOT+, includes hour counter& control of start and stop of the feed rollers. Tt is a turntable version	stress control system, TP PILOT+. Non-remote has rear platform. *Fixed spout =std, Ht adj Vario = Option	stress control system, TP PILOT+, includes hour counter and control of start and stop of the feed rollers. *Vario-spout Option	stress control system, TP PILOT+, includes hour counter & control of start and stop of the feed rollers. Tt is a turntable version
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£$€ - PRICE BANDS
0-3000 ♦
4-9,000 ♦♦
10-15,000 ♦♦♦
16-25,000 ♦♦
26-35,000 ♦♦♦
36-55,000 ♦♦♦♦
56-70,000 ♦♦♦♦♦
70-90,000 ♦♦♦♦♦♦

Images NOT to Scale
~ = Approximate
COSTS♦♦: Approx RRP/SRP & inc local tax/VAT £$€ ♦♦in burnt orange are currency conversions only & do not inc shipping, import duty or tax
N/A = info Not Available/not given.
= Trailed/Towed behind truck
= Self-Propelled/Tracked
= Push - manually pushed/pulled
= No-road.Trailer/pick-up required
= Turntable, Engine/Chute rotates
= Remote Control Track/Drive
= App/Bluetooth monitoring
● ● = OK but not ideal
□□□ = Option
VARIANT=lower image if visually different & differing specification and price banding (♦♦)in blue

COMPANY	TPCHIPPERS	VERMEER	VERMEER	VERMEER
MODEL VARIANT	TP280 TRACK -	BC200D P/gas -	BC200D P/gas Turntable -	BC230XL Turntable -
ORIGIN				
~COST inc 20% VAT/10%Local Tax £$€= Currency conversion only	><£♦♦♦♦♦ ><$♦♦♦♦♦ ><€♦♦♦♦♦	£♦♦-♦♦♦ $♦♦♦-♦♦♦♦ €♦♦♦	£♦♦♦ $♦♦♦-♦♦♦♦ €♦♦♦-♦♦♦♦	£♦♦♦ - €♦♦♦-♦♦♦♦
DIESEL PETROL BATTERY	■	■ [■]	■ [■]	■
TOW TRACKS PUSH NO-ROAD	■■	■	■	■
TURNTABLE REMOTE APP	- ■ -	- - ■ *	■ - ■ *	■ - ■ *
NOISE LwA/ LpA	130/- dB(A)	126117/- dB(A)	126117/- dB(A)	126/-- dB(A)
FUEL CAPACITY Litres/US Gal DURATION @ max load	75L / 0Gal 6Lhr / 1.6Gal/Hr	39.5L / 10.5Gal 7.6Lhr / 2Gal/Hr	39.5L / 10.5Gal 7Lhr / 1.8Gal/Hr	49.2L / 13Gal 9Lhr / 2.4Gal/Hr
WEIGHT inc battery(ies)	2750kg 6050lb	1498kg 3296lb	1840kg 4048lb	2150kg 4740lb
MAX HEIGHT with chute	290-360cm / 114-141.7"	251cm / 99"	265cm / 104"	262cm / 103"
MAX LENGTH	360cm / 141.7"	435cm / 171.3"	455cm / 179"	419cm / 165"
MIN LENGTH	290cm / 114"	377cm / 148"	414cm / 163"	383cm / 151"
WIDTH	105-140cm / 41-55"	157cm / 61.8"	167cm / 65.7"	188cm / 74"
ENGINE / MOTOR	74HP/55kW Hatz 4H50TICD	44HP/33kW Kubota V1505-V 57HP/42.5kW Kubota WG1605	44HP/33kW Kubota V1505-V 57HP/42.5kW Kubota WG1605	74HP/55kW CAT2.2 TD -V
HOPPER/INFEED TRAY SIZE ROLLER APERTURE INFEED MECHANISM	1000 x 80mm / 39 x 31" 280 x 280mm / 110 x 10" 2x Auto-Feed Hydraulic Vertical Rollers	1140 x 787mm / 45 x 31" 203 x 305mm / 8 x 12" 2x Auto-feed Hydraulic Horizontal Rollers	1140 x 787mm / 45 x 31" 203 x 305mm / 8 x 12" 2x Auto-Feed Hydraulic Horizontal Rollers	1250 x 813mm / 49 x 32" 230 x 355mm / 9 x 14" 2x Auto-Feed Hydraulic Horizontal Rollers
DISC / DRUM CUTTING BLADES/KNIVES	DISC 4x blades/knives	DISC 2x Reversible blades	DISC 2x Reversible blades	DISC 2x Reversible blades
MATERIAL CAPACITY	280mm / 11"	203mm / 8"	203mm / 8"	230mm / 9"
FEED RATE (t=metric tonne) CHIP VOLUME	25m³/hr 82ft³/hr	37.8m³/hr 124ft³/hr	37.8m³/hr 124ft³/hr	33.5m³/hr 110ft³/hr
DISCHARGE CHUTE Rotation	270°	251.5cm / 99" 270°	251.5cm / 99" 270°	270°
WARRANTY	3 year			
NOTES	stress control system, TP PILOT+, Hydraulic adj track width.	Eco-idle engine. 22.7L/6Gal Hydraulic Oil * Vermeer One app update Nov'25	Can have fixed or height adjustable drawbar 22.7L/6Gal Hydraulic Oil * Vermeer One app update Nov'25	Can have fixed or height adjustable drawbar. Eco-idle engine. * Vermeer One app update Nov'25
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N/A = info Not Av
= Trailed/Towed
= Self-Propelled
= Push - manua
= No-road.Traile
= Turntable, Eng
= Remote Contr
= App/Bluetoot
= OK bu
= Optio
VARIANT=lower i
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VERMEER	VERMEER	COMPANY
BC700XL	BC900XL	MODEL VAR
-	-	
		ORIGIN
- $◆◆-◆◆◆ -	- $◆◆◆-◆◆◆◆ -	~COST inc 20% £$€= Currenc
		DIESEL PETROL
		TOW TRACKS PU
- - *	- - *	TURNTABLE RE
127/116 dB(A)	n/a	NOISE LwA/ Lp
22.7 L / 6Gal 9.1Lhr / 2.4Gal/Hr	60.6L / 16Gal 12.1Lhr / 3.2Gal/Hr	FUEL CAPACITY DURATION
816.5kg 1800lb	1387.9kg 3060lb	WEIGHT inc
259.1cm / 102"	246.3cm / 97"	MAX HEIGHT
345.4cm /136"	356.6cm / 140.4"	MAX LENGTH
292.1cm /115"	393.2cm / 154.8"	MIN LENGTH
180.3cm / 71"	201.9cm / 79.5"	WIDTH
25HP/18.6kW Kohler ECH740	35HP/ 26kW Briggs&Stratton Vanguard	ENGINE / MOT
1046 x 561mm /41.2 x 22.1" 152 x203mm / 6 x 8" 1x Manual/Sprung Horizontal Roller	1220 x 740mm / 48 x 29" 229 x 356mm / 9 x 14" 1x Manual/Sprung Horizontal Roller	HOPPER/INFE ROLLER APERT INFEED MECHA
DISC 2x Reversible blades	DISC 2x Reversible blades	DISC / DRUM CUTTING BLAD
152mm / 6"	229mm / 9"	MATERIAL CAP
15m³/hr 49.4ft³/hr	42.7m³/hr 140ft³/hr	FEED RATE (t=r CHIP VOLUME
246.8cm / 97.2" 240°	245.6cm / 96.7" 270°	DISCHARGE CH
		WARRANTY
25.7L/6.8gal Hydraulic Oil. Smart in-feed control * Vermeer One app update Nov'25	25.7L/6.8gal Hydraulic Oil. Smart in-feed control * Vermeer One app update Nov'25	NOTES
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d behind truck
/Tracked
lly pushed/pulled
er/pick-up required
gine/Chute rotates
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£$€ - PRICE BANDS
0-3000 ♦
4-9,000 ♦♦
10-15,000 ♦♦♦
16-25,000 ♦
26-35,000 ♦♦
36-55,000 ♦♦♦
56-70,000 ♦♦♦♦
70-90,000 ♦♦♦♦♦

	VERMEER	VERMEER
RIANT	BC1000XL Gas Teir4 D	BC1200XL
% VAT/10%Local Tax cy conversion only	£♦♦♦♦ $♦♦♦♦♦ €♦♦♦♦-♦♦♦♦♦	- $♦♦♦♦-♦♦♦♦♦ -
BATTERY	■ [■]	■
USH NO-ROAD	■	■
MOTE APP	- - ■ *	- - ■ *
A	119/95 dB(A)	124/-- dB(A)
Y Litres/US Gal @ max load	75.794.6L / 2025Gal 15.3Lhr / 4Gal/Hr	94.6L / 25Gal 31.4Lhr / 8.3Gal/Hr
battery(ies)	21232266kg 46804995lb	2576kg 5680lb
with chute	256.5cm /101"	264.2cm / 104"
	406cm / 160"	523cm / 206"
	528cm / 208"	427cm / 168"
	169cm / 66.5"	201cm / 79"
TOR	72.4HP/54kW Deutz 74HP/55kW CAT C2.2 Tier 4	115HP/85.8kW Origin 4.3
ED TRAY SIZE TURE ANISM	1320 x 813mm / 52 x 32" 305 x 432mm / 12 x 17.5" 2x Auto-Feed Hydraulic Horizontal Rollers	1320 x 813mm / 52 x 32" 337 x 432mm / 13.3 x 17" 2x Auto-feed Hydraulic Horizontal Rollers
DES/KNIVES	DISC 2x Reversible blades	DISC 2x Reversible blades
PACITY	305mm / 12"	338mm / 13.3"
metric tonne)	3641m³/hr 118105ft³/hr	33.5m³/hr 110ft³/hr
HUTE Rotation	256.5cm / 101" 270°	270°
	1yr (3yr-drum)	
	SEPARATE EUROPEAN & US CONFIGURATIONS 26.5L/7gal Hydraulic Oil. Smart in-feed control	12gal Hydraulic Oil, Optional winch * Vermeer One app update Nov'25
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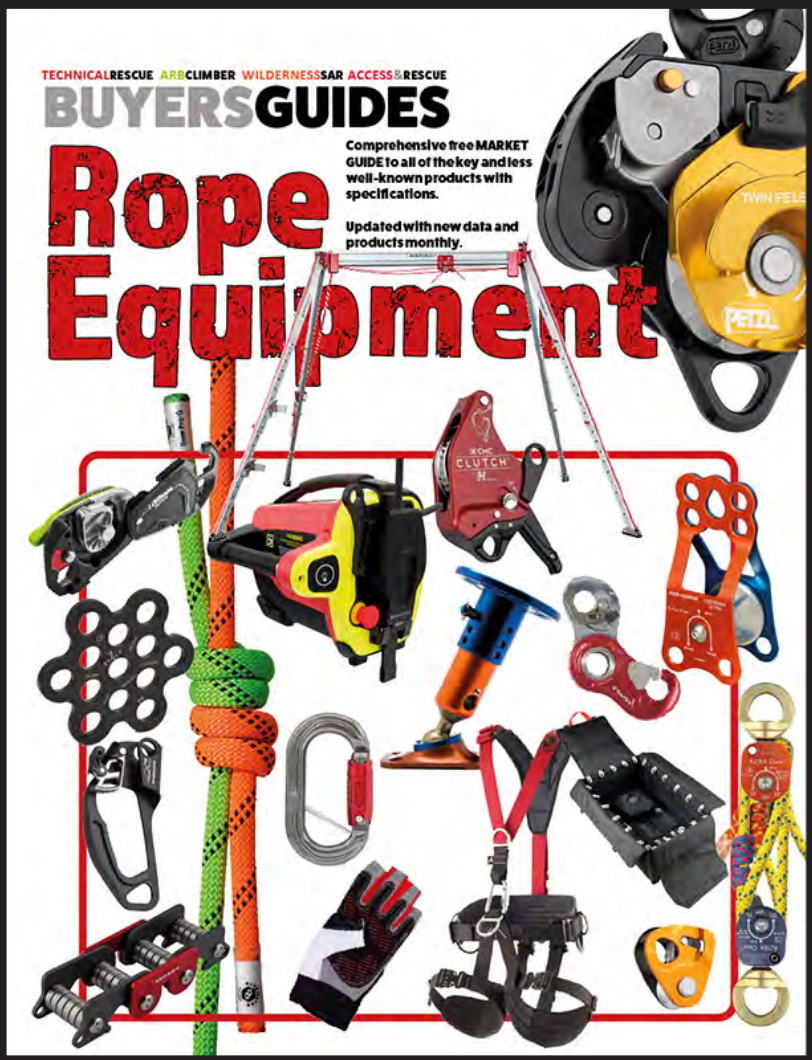

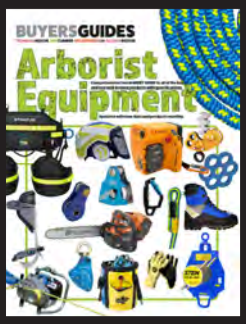

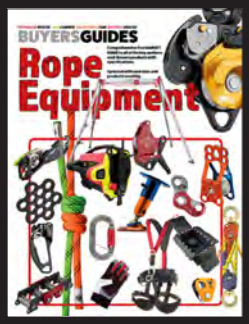

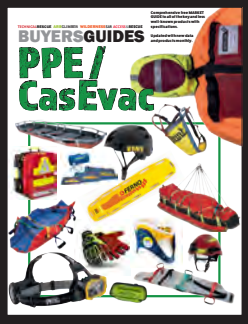

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