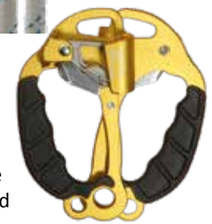
HANDLED ASCENDERS

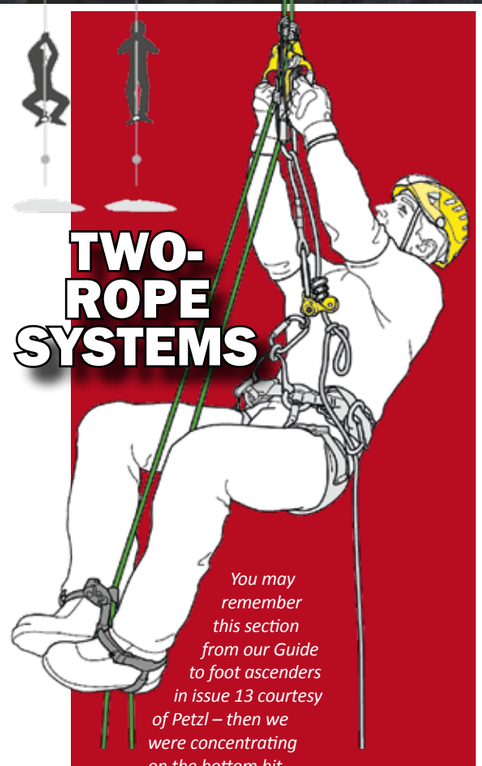
Main Image: CAMP TurboHand Pro with additional guide/eye reinforcement at the bottom and rope deviation roller at the top.
Inset Right: The original Swiss Jumar but this very model is still on the Australian 3M/DBI Sala website rebadged as a Rollgliss 'rope-gripping handle'!
Opposite Page: Top – The spacious CMI Expedition Twin. Below that is the modern version of a Jumar (doubled in this case) by Swiss Rescue but may already be discontinued.

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 above). 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 Swiss-Rescue continued to produce a newer version of the Jumar and fountain-of-all- knowledge Doc Storrick has a double rope version but I'm not sure if this is a home-made conversion since it uses a single bolt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 below right) 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 if 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.



TWO-ROPE SYSTEMS

You may remember this section from our Guide to foot ascenders in issue 13 courtesy of Petzl – then we were concentrating on the bottom bit, this time we're concentrating on the top bit..... With the modern emphasis on safety using double ropes, this system 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.

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. [NB: there is an increasing trend towards backing up ascenders by pushing a prusik ahead of the cam]. There should also be a web or rope link between the footloop ascender and the harness as a backup safety in the event of failure or slippage on the harness ascender. In contrast, true Jumaring as used by mountaineers was seen by many to be an etrier (tape ladder) attached to each ascender – it might look cumbersome but it gives a great range of options.

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

OTHER HANDLED ASCENDER FEATURES

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

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

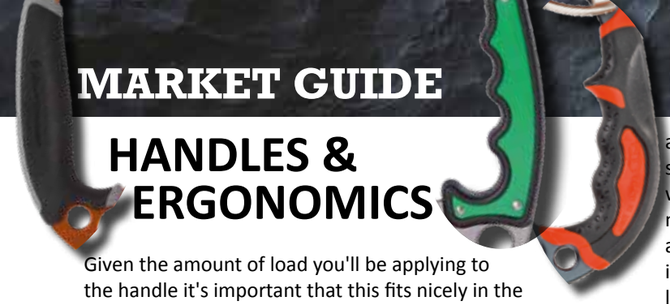
The CMI Twin (pic right) has a pip-pin keeping the cam from opening until you depress the end of the pin and remove it while the Kong Trender (pic below-right) has a carbine hook attached to a short wire to similarly stop the cam disengaging. On both these models, the pin/carbine hook are in addition 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 SALA/Rollglis) had and still has, 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

China is a perennial 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. 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. Even harder to track down are most Russian companies which often develop their own incredibly unique and interesting products but unfortunately also copy some European products far too closely.

HANDLES & ERGONOMICS



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

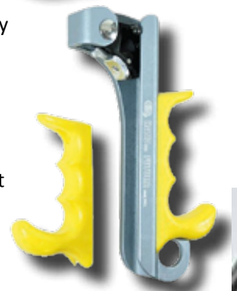
Other quirkiness in handles comes from Beal/Edelweiss's HandsUp/A16 (left) which carries on where Kong's now discontinued ProCave (right) started with a 'shelf' to allow your second hand to be used on the same ascender hence there is no left hand version.

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

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 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 specially 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.

www.kong.it

HIGH QUALITY SAFETY EQUIPMENT

KONG /ITALY

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Futura Body

Futura Foot

Futura Miniblock

available in North America by

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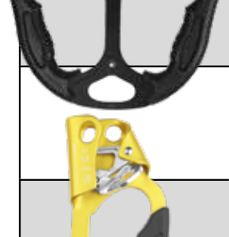
images NOT to scale	MODEL	COMPANY	ORIGIN	COST	WEIGHT	DIMENSIONS Width x Height x Depth		MATERIALS SHELL CAM GRIP	CAM	STANDARDS	ROPE DIAM RANGE	WLL/ MBS	CAM -PARK	ANTI CAM-INVERT	TWIN ROPES ONLY	DOUBLE ROPE	COLOURS RIGHT LEFT	NOTES	WWW.
	Explorer	3M/ DBI SALA/ ROLLGLIS		£95 $113 A$189	386g 13.6oz	212x88x30mm 8.3x3.5x1.2"		Extruded Stainless Steel Plastic		CE NFPA AS/NZ	10.5-13mm ⅜ -½"	800kg* 1764 lbf	■	■			BLUE, GOLD GOLD, BLUE	NB :There was also a 16mm model in Red. Previously SRTe.and may be discontinued. *800kg is to cam-failure	3m.com.au
	Move Up 111/112	ALPIDEX		€30	240g 8.5oz	205x103x27mm 8x4.2x1.1"		Stamped Steel Plastic/Rubber		CE	8-13mm 5/16 -½"	120kg 265 lbf	■	■			BLUE ORANGE		alpidex.com
	A11/A10 (A14)	ANPEN		£62 $69 €56	136g (210g) 4.8oz (7.4oz)	205x93mm 8x3.7"		Stamped Steel Plastic/Rubber		CE	8-13mm 5/16 -½"	5kN 1124 lbf	■	■			BLUE, BLACK ORANGE, BLACK	A14 = More substantial handle and plastic covered cam release	en.anpen.net
	A10 AB	ANPEN		£107 $130 €120	540g 19.4oz	205x155mm 8x6.1"		Stamped Steel Plastic		CE	8-13mm 5/16 -½"	5kN 1124 lbf	■	■		■	BLUE/ ORANGE		en.anpen.net
	Hands Up	BEAL		£48 $70 €46	265g 9.3oz	235x110x35mm 9.25x4.3x1.4"		Stamped Steel Rubber		CE	8-13mm 5/16 -½"	100kg 220 lb	■	■			GOLD	single ascender only, not a pair. Comfort grip on cam enclosure when gripped with second hand	pro.beal-planet.com
	Index	BLACK DIAMOND		£69 $85 €65	200g 7oz	188x90x28mm 7.4x3.5x1.1"		Stamped Steel Plastic/Rubber	n/a	CE	8-13mm 5/16 -½"	n/a	■				GREY GOLD		blackdiamondequipment.com
	Turbohand	CAMP		£52 $90 €77	185g 6.5oz	185x95x22mm 7.3x3.7x0.9"		Stamped HardenedSteel Rubber		CE EAC	8-13mm 5/16 -½"	120kg 265 lb	■	n			RED, BLACK GREY, BLACK		camp.it
	Turbohand-Pro	CAMP		£68 $100 €70	198g 7oz	185x95x22mm 7.3x3.7x0.9"		Stamped HardenedSteel Rubber		CE EAC	8-13mm 5/16 -½"	120kg 265 lb	■	n			RED, BLACK GREY, BLACK		camp.it
	QuickArbor H	CLIMBING TECHNOLOGY		£125 $185 €165	500g 17.6oz	200x220mm 7.9x8.7"		Stamped Steel Plastic/Rubber		CE	10-13mm ⅜ -½"	140kg 308 lb	■	■	■	■	ORANGE ORANGE	Cam cover protects from debris ingress. No depth given as the two ascenders are handled	climbingtechnology.com
	Quick'Up+	CLIMBING TECHNOLOGY		£55 $72 €57	155g 5.5oz	190x90x33mm 7.5x3.5x1.3"		Stamped Steel Plastic/Rubber		CE	8-13mm 5/16 -½"	140kg 308 lb	■	■			ORANGE GREY		climbingtechnology.com
	QuickRoll	CLIMBING TECHNOLOGY		£101 $112 €106	255g 9oz	190x95x35mm 7.5x3.7x1.4"		Stamped Steel Plastic/Rubber		CE	8-13mm 5/16 -½"	140kg 308 lb	■	■		■	ORANGE GREY		climbingtechnology.com
	Expedition	CMI		$111 €99	273g 10oz	208x106x35mm 8.2x4.2x1.4"		Stamped HardenedSteel Plastic		NFPA*	9-16mm ⅜-⅝"	17.8kN 4000 lbf	■	■			BLACK BLACK	Hard-coated cam with lifetime warranty, *Also an NFPA version available +$10	cmigearusa.com

NOTES COST: Approx & inc local tax/VAT except*which is exc import duty and shipping WLL: Working Load Limit generally around 10% of the MBS or Minimum Breaking Strength N/A: info Not Available/not given COLOURS: =Body colour.

www.rescuemagazines.com

images NOT to scale	MODEL	COMPANY	ORIGIN	COST	WEIGHT	DIMENSIONS Width x Height x Depth		MATERIALS SHELL / CAM / GRIP	CAM	STANDARDS	ROPE DIAM RANGE	WLL/ MBS	CAM -PARK	ANTI CAM-INVERT	TWIN ROPES ONLY	DOUBLE ROPE	COLOURS RIGHT / LEFT	NOTES	WWW.
 	Expedition Double	CMI		$142	369g 13oz	208x178x35mm 8x7x1.4"		Stamped HardenedSteel Plastic		-	9-16mm ⅜-⅝"	15.1kN 3400 lbf	■	■			BLACK	Hard-coated cam with lifetime warranty	cmigearusa.com
	Expedition Twin	CMI		$220	432g 15oz	208x106x51mm 8.2x4.2x2"		Stamped HardenedSteel Plastic		-	9-16mm ⅜-⅝"	14.7kN 3300 lbf	■	■		■	BLACK	Hard-coated cam with lifetime warranty	cmigearusa.com
 	Ultrascender	CMI		$115	270g 9.5oz	188x76x29mm 7.4x3x1.12"		Extruded HardenedSteel Rubber		NFPA*	9-16mm ⅜-⅝"	20.4 kN 4600 lbf	■				RED or BLACK RED or BLACK	Hard-coated cam with lifetime warranty *NFPA version +$10	cmigearusa.com
	Mini Ultrascender	CMI		$79	170g 6oz	127x76x29mm 5x3x1.12"		Extruded HardenedSteel None		NFPA*	9-16mm ⅜-⅝"	20.4 kN 4600 lbf	■				RED or BLACK RED or BLACK	Hard-coated cam with lifetime warranty *NFPA version +$10	cmigearusa.com
	Elevator	EDELRID		£54 $85 €65	215g 7.6oz	190x89x29mm 7.5x3.5x1.3"		Stamped Steel Rubber		CE UIAA	8-13mm 5/16 -½"	140kg 308 lb	■	■			GREY GREEN		edelrid.de
 	AS16	EDELWEISS		$60 €48	240g 8.5oz	235x110x35mm 9.25x4.3x1.4"		Stamped HardenedSteel Plastic		CE	8-13mm 5/16 -½"	100kg 220 lb	■	■			BLACK	single ascender only, not a pair.	edelweiss-ropes.com
	Capitan/ (Capitan Industry)	FIXE		£32 €42	242g 8.5oz	200x90x35mm 7.9x3.5x1.4"		Stamped Steel Rubber		CE UIAA	8-12mm 5/16 -½"	20kN 2039 lbf	■	(■)			BLACK RED (SILVER GREY)	As far as we can tell, the *Industry* has a slightly different cam and cam safety - less aggressive teeth perhaps?	fixeclimbing.com
 	Beklim Double	FUSION		n/a	390g 13.7oz	195x165x25mm 7.7x6.5x1"		Stamped Steel Plastic		CE	8-13mm 5/16 -½"	100kg 220 lb	■	■	■	■	BLACK	May be discontinued by Fusion but still available via NH Industries Taiwan.	fusionclimb.com
	Beklim (Voltron)	FUSION		$65	175g 6.2oz	195x92x25mm 7.6x3.6x1"		Stamped Steel Plastic		CE	8-13mm 5/16 -½"	100kg 220 lb	■	■			BLACK, CARBON FIBER BLACK, C- FIBER	NB: carbon Fibre pattern not actually made of carbon-fibre.	fusionclimb.com
	A1	GRIVEL		£47 €49	247g 8.7oz	203x98x35mm 8x3.9x1.4"		Stamped		CE UIAA	8.3-13mm 5/16 -½"	20kN 2039 lbf	■				GOLD BLACK		grivel.com
	A&D	GRIVEL		£59 $80 €54	261g 9.2oz	203x98x35mm 8x3.9x1.4"		Stamped		CE UIAA	8.3-13mm 5/16 -½"		■				GOLD BLACK	Ropes from 7.3-13mm for descent	grivel.com
	Pulsar	HEIGHTEC		£51 $84	240g 8.5oz	195x100x25mm 7.7x3.9x1"		Stamped HardenedSteel Nylon		CE	8-13mm 5/16 -½"	125kg 275 lb	■	■			GREEN BLACK		heightec.com

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 	Single	HONEYWELL MILLER/KOMET		£99	225g 7.9oz	193x90x25mm 7.6x3.5x1"		Stamped HardenedSteel Plastic		CE NFPA	8-13mm 5/16 -½"	100kg 220 lb 5kN 1124 lbf	■	■			RED BLUE		honeywellsafety.com
 	Double	HONEYWELL MILLER/KOMET		n/a	550g 19.4oz	220x180x50mm 8.7x7x2"		Stamped HardenedSteel Plastic		CE UIAA	11-13mm 7/16 -½"	100kg 220 lb	■	■		■	RED/BLUE		honeywellsafety.com
	RP220	ISC		£51 $110	130g 4.6oz	218x82x32mm 8.6x3.2x1.3"		Extruded HardenedSteel Plastic		CE	9-13mm ⅜ -½"	140kg 308 lb 2.5kN 562 lbf	■		■		GREY/ green GREY/red		iscwales.com
 	RP221 Ultrasafe	ISC		£65 $120 €95	183g 6.5oz	218x82x32mm 8.6x3.2x1.3"		Extruded HardenedSteel Plastic		CE	9-13mm ⅜ -½"	140kg 308 lb 2.5kN 562 lbf	■	■	■		GREY/ green GREY/red	Ultrasafe version has cam arc restiction/Anti-cam-invert pin	iscwales.com
	Futura Hand/ Futura Hand Tactical	KONG		£70 $90 €75	125g 4.4oz	140x88x24mm 5.5x3.5x1"		Extruded HardenedSteel Rubber		CE	8-13mm 5/16 -½"	n/a	■	■			BLACK or BLACK/ylw BLACK or GREY/ylw	two different sized grips available	kong.it
	Lift/ Lift Tactical	KONG		£48 $70 €50	225g 7.9oz	193x90x25mm 7.6x3.5x1"		Stamped HardenedSteel Plastic		CE NFPA	8-13mm 5/16 -½"	100kg 220 lb 5kN 1124 lbf	■	■	■		CYAN,RED, BLK,GOLD GREY,BLK, BLUE	Multiple colour options	kong.it
	Trender	KONG		£157 $215 €145	550g 19.4oz	220x180x50mm 8.7x7x2"		Stamped HardenedSteel Plastic		CE UIAA	11-13mm 7/16 -½"	100kg 220 lb	■	■	■	■	BLACK/ GOLD	debris ingress protection plate	kong.it
	FA 70 003 00 FA 70 002 00	KRATOS SAFETY		€40	220g 7.8oz	206x95.5x35mm 8.1x3.8x1.4"		Stamped Steel Plastic		CE	10-12mm ⅜-½"	20kN 2039 lbf	■				GREEN BLACK	002=Black 003 = Green	kratossafety.com
	G-2	KROK		$96* €78*	560g 19.75oz	228x195mm 9x7.7"		Stamped Steel Plastic		-	8-12mm 5/16 -½"	4kN 899lbf 15kN 1686 lbf	■	■	■	■	BLUE/ BLACK	Steel version available 640g, 20kN	krok.biz
	Zhumar	KROK		$40* €32*	240g 8.5oz	190x94x28mm 7.5x3.7x1.1"		Stamped Steel Plastic		-	8-12mm 5/16 -½"	4kN 899lbf 15kN 1686 lbf	■	■			BLUE BLACK	also available without Safety catch. Powder coated. Steel frame version +40g	krok.biz
	Friendship-2	KROK		$56* €46*	380g 13.4oz	190x150x36mm 7.5x5.9x1.4"		Stamped Steel Plastic		-	8-12mm 5/16 -½"	4kN 899lbf 15kN 1686 lbf	■	■		■	BLUE	also available without Safety catch. Powder coated steel frame -540g, 20kN.	krok.biz
	Ascentree	PETZL		£132 $220 €175	330g 11.6oz	190x175x51mm 7.5x6.9x2"		Stamped Stainless Steel Plastic/Rubber		CE*	8-13mm 5/16 -½"	140kg 308 lb	■	■	■	■	GOLD	Not EN567	petzl.com

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	Ascension	PETZL		£45 $90 €56	165g 5.8oz	190x90x26mm 7.5x3.5x1		Stamped Stainless Steel Plastic/Rubber		CE EAC NFPA	8-13mm 5/16 -½"	140kg 308 lb	■				BLACK/ylw YELLOW/blk BLACK	All -black version is £57	petzl.com
	Proverti CD211/2	PROTEKT		€36	280g 9.9oz	207x100x28mm 8.1x3.9x1.1"		Extruded Steel Plastic		CE UIAA	9-13mm 3/8-½"	n/a	■				SILVER RED	Older right hand were blue. Proverti is a wholly owned subsidiary of Protekt	protekt.pl
	Ultralight CD211/22	PROTEKT		€38	205g 7.2oz	190x93x24mm 7.5x3.7x1"		Stamped Steel Plastic		CE	8-13mm 5/16 -½"	100kg 220 lb	■	■			SILVER ORANGE		protekt.pl
	RE Ascender	ROCK EMPIRE		€54	220g 7.8oz	203x98x35mm 8x3.9x1.4"		Stamped Steel Plastic		CE	8-12mm 5/16 -½"	4kN 899lbf	■	■			LT GREY LT BLUE		rockempire.cz
	Lift	SINGING ROCK		£59 $65 €54	190g 6.7oz	192x90x34mm 7.6x3.5x1.3"		Stamped Stainless Steel Plastic		CE	8-13mm 5/16 -½"	120kg 265 lb 12kN 2698 lbf	■				BLACK BLACK		singingrock.com
	Lift Fix	SKYLOTEC (ANTHRON)		£62 $70 €67	216g 7.6oz	203x91x34mm 8x3.6x1.3"		Stamped Steel Rubber 'cork' compound		CE NFPA	9-13mm 3/8-½"	4kN 899lbf 18kN 4047 lbf	■	■			GREY ORANGE	Skylotec Germany owns Anthron Slovenia	skylotec.com anthron.si
	RB17	SOB		$34*	210g 2.4oz	200x90x26mm 7.9x3.5x1"		Stamped Steel Plastic		CE	8-13mm 5/16 -½"	100kg 220 lb	■	■			GOLD BLACK	optimum rope=10-13mm [*arborists reported cam-rope interface problems with the SOB foot ascender - beware!*]	chinasob.com
	Clean Cam	SAR PRODUCTS		£60 ($70)	216g 7.6oz	189x90x32mm 7.5x3.5x1.3"		Stamped Stainless Steel Soft Nylon		CE UIAA	8-13mm 5/16 -½"	140kg 308 lb	■	■			BLACK or ORANGE BLACK	(Also rebadged in the USA by CYPHER)	sar-products.com
	Jumar	SWISS RESCUE/ PEWATEC		n/a	250g 8.8oz	183x85x28mm 7.3x3.3x1.1"		Extruded Steel Plastic		CE*	9-13mm 3/8-½"	n/a	■		■	■	GOLD GOLD	DISCONTINUED?	swiss-rescue.de
	Passport	TRANGO		$60	210g 7.4oz	194x86x27mm 7.6x3.3x1"		Stamped Steel Plastic	n/a	CE	8-13mm 5/16 -½"	4kN 899lbf	■	■			BLUE GREY		trango.com
	71-257/8	TREERUNNER		€35	200g 7oz	190x90x25mm 7.5x3.7x1"		Stamped Steel Plastic		CE	8-13mm 5/16 -½"	100kg 220 lb	■	■			RED GREY		grube.de
	H-SS02	XINDA (BINGFENG OUTDOOR)		$65	210g 7.4oz	190x90x25mm 7.5x3.7x1"		Stamped StainlessSteel Rubber		CE UIAA	8-12mm 5/16 -½"	150kg 3 lb	■				RED,GREY, BLACK, ORANGE, RED,BLUE, BLACK		xindaoutdoor.com

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