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USAR/ Extrication

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BUYERSGUIDES

USAR/Extrication Equipment

OTHER EQUIPMENT FOR USAR/Extrication.....

Pulleys, Large Haul systems and lifting frames are in **Rope Equipment**
Helmets, headtorches, med-packs, spine-care & stretchers are in **PPE & CasEvac**
Underwater Search Cameras & Water rescue PPE are in **Water Rescue Equipment**
Chainsaws and chainsaw PPE are in **Arborist Equipment**

CONTENTS

GREY=COMING Q4 2024

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.

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).
admin@rescuemagazines.com.

RTC Rescue (Extrication) Manuals

We all have our department's own policies and procedures when it comes to working on roadways and undertaking casualty centred rescues at Road Traffic Collisions – RTC's (Motor Vehicles Collisions -MVC's), but where do we go to to get much needed supplemental information?

Your authors cut their teeth on Len Watson's seminal 'RTA Persons Trapped', way back in 1990. This beat Kidd and Czajkowski's 'VEHICLE EXTRICATION A Training Manual' to the punch by six months and together they were the first of the fifteen – soon to be sixteen – manuals that are now available on the subject of rescue at RTC/ MVA's. Not only do I have all of these titles, I've also co-written two manuals, the first of which was never published having been pipped to the post by the Lukas manual. But, excellent as this manual is, the fact that we then felt that ours would only reinvent the wheel highlighted an obvious omission in virtually all the manuals and something that we as instructors had been majoring on for some time. So before we detail what's available in the way of manuals, lets first consider what's in a name.

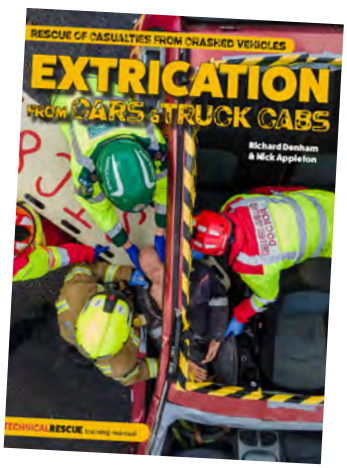
Of the fifteen manuals currently available, nine of these have the word 'extrication' in their titles and yet ironically if you look at their full titles and related contents, you'll see that at no point are any vehicles extricated or rescued. Unfortunately, but specifically to the point, neither are any casualties/patients. In the case of rescue at RTC's, extrication is freeing someone - a casualty (patient) - from the constraint of a crashed vehicle. This is important because people buying these books not unreasonably expect that they 'do what it says on the tin' – that there is an element of actual casualty extrication in these books, egress solutions for differing entrapments – just as these books all demonstrate to a greater or lesser extent differing space creation options for various situations. And although there are often excellent sections on casualty care, there are no detailed and illustrated casualty extrications from vehicles. In principle, its perhaps a bit like finding a book called 'Brick Laying'', then opening the book up and discovering that there's excellent in-depth coverage of all the major elements of building construction. Except for how to Lay Bricks.
So, in a shameless plug for the authors' own forthcoming book, it should be noted that this one deals exclusively with the extrication of casualties – there are twenty separate casualty circumstances catered for - and a truly multi-agency approach is detailed for achieving these.
But more of this later…

Of the manuals that are currently available, perhaps the first tranche – published between 1990 and 2004 – are showing their age. They contain a lot of dated information, have no colour diagrams or photos and can be very heavy with dense text, the latter not being something that aids comprehension, especially for uber-practical rescuers.

However it is still worth tracking down copies of these – even as 'previously-loved' purchases – for the still relevant and very valuable tips and alternative perspectives that can be gleaned from their pages.

The next selection comprises the four books published between 2005 and 2012. These do feature colour photos and diagrams and also benefit from a less 'wordy' approach and also start to make use of text boxes, etc. to break up the flow of words and make the concepts being explained more easily understood. Also more contemporary than their predecessors, these are again worthy of your attention and for the same reasons.

Oxford English Dictionary Definition: - *Extrication (noun) : Free (someone or something) from a constraint or difficulty*



Finally there is the period from 2014 to the present day, perhaps initially most easily recognisable by one of their focuses being on electric (and other fuel) vehicles. These books also move on a step further in terms of their graphic presentations of concepts and techniques and are much easier to read and digest as exemplified by Holmatro's handy little A5 manual- a true pocket guide.

These later manuals also contain the author's personal favourites, and our criteria for giving five stars to an RTC Rescue Manual :

- Is it easy to read and understand?
- Is it based on contemporary information?
- Does it have a good practical section on all aspects of safety ?
- Does the book contain contemporary information ?
- Does it have a comprehensive space creation section ?
- Does it have an RTC related Casualty Care element, especially with regard to multi-agency integration ?

In direct relation to these points, we gave three 5 star ratings :

EXTRICATION MANUALS

Overall we preferred the international approach of Ian Dunbar's comprehensive 'VEHICLE EXTRICATION : The Next Generation'.

The ongoing and well worked theme throughout was integrating both the fire and medical services in training and pre-planning for rescue at RTC's and this really is the future.

But in an acknowledgement of the fact that of all fifteen currently available manuals, they originate in either the UK (6, some arguably shared with the Netherlands) or the USA (9) we suggest that a UK and European audience would be well served by the orientation of the second Ian Dunbar book,' VEHICLE EXTRICATION TECHNIQUES' and that in the USA and Canada, that the 'PRINCIPLES OF VEHICLE EXTRICATION' is very well suited to that environment.

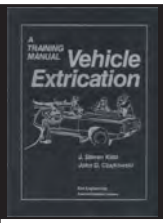
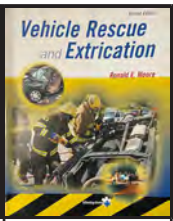
However, note that all of the books listed here are - in their own context - excellent manuals dealing with safety, procedures, vehicle anatomy, casualty care, in some cases differing vehicle fuels and especially the vital art of space creation, and should be assessed and selected by you on their own merits. They are invaluable texts in terms of what they do and do well.

And incidentally, those who will look at our guide will likely notice that we only gave our book four stars, our reasoning being that this buyers guide relates to manuals dealing with the full scope of casualty rescue from RTC's and ours focuses only – although admittedly in some depth – on casualty extrication. It will be however the only one of its kind, founded on evidence based medical research and decades of practical experience, so ultimately you can decide what rating it warrants.

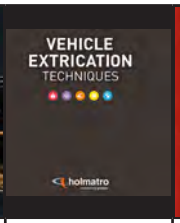
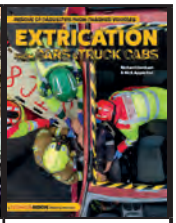
In conclusion RTC's are an ever evolving and demanding challenge and rescuers like you are the perfect proof of that, in as much as you are reading this magazine and specifically this article to better equip yourselves for those challenges.

You will also realise that continuous personal development isn't something that is done just as a hoop-jumping exercise at work, but that it has a very real value for you, your knowledge and skills acquisition and maintenance and the people that you serve. And incidentally, no one wants to screw-up at a rescue… So pick one of these books, buy a copy and read it in small chunks and with a pencil in your hand to make notes in the margin. The result WILL improve the outcome for casualties that have yet to be……altogether now...

In the following tables a black outlined white square indicates that the subject is covered but not in any great depth.
TBD= To be Determined
5 star recommendations are shown in gold

IMAGES not to SCALE								
TITLE	RTA PERSONS TRAPPED	VEHICLE EXTRICATION A Training Manual/Study Guide	ADVANCED VEHICLE ENTRAPMENT RESCUE	VEHICLE RESCUE	VEHICLE RESCUE & EXTRICATION	VEHICLE EXTRICATION	HOLMATRO's VEHICLE EXTRICATION TECHNIQUES	
COST	£21	n/a	n/a	£31	n/a	$83	Free	
EDITORIAL FOCUS	Casualty centred space creation	Casualty centred space creation	Casualty centred space creation	US procedural & access techniques	Accessing vehicle entrapments	US procedural & access techniques	Space creation	
VEHICLE CONSTRUCTION	■	■	■	□	■	■	■	
TRUCKS/HGVs/ELECTRIC	□	-	■	-	■	□	■■	
TOOLS & PPE	□	■	■	□	■	□	■	
STABILISATION	■	□	■	■	■	■	□	
GLASS MANAGEMENT	■	□	■	■	■	■	□	
SPACE CREATION	■	■	■	■	■	■	■	
CASUALTY CARE	□	■	■	■	□	□	-	
CASUALTY EXTRICATION	-	-	-	□	-	-	-	
AUTHOR(s)	Len Watson	Kidd & Czajkowski	Len Watson	Harvey Grant James Gargan	Ronald E Moore	Brian G Anderson	Brendan Morris	
PUBLISHER	Greenwave	Fire Engineering /Penwell	Holmatro	Brady/ Prentice Hall	Mosby Jems	Fire Engineering /Penwell	Holmatro	
ISBN	0-95168600-3	9780878149155	0951686011	9780835983747	0-323-01833-5	1-59370-021-0	2-910725-34-0	
PUBLISHED	1990	1991	1994	1997	2003	2004	2005	
FIRST PUBLISHED	1990	1991	1994	1996	1991	2004	2005	
SOFT/HARD BACK	■	■	■	■	■	■	■	
B&W / COLOUR	■	■	■	■■	■	■	■■	
PHOTOS/DIAGRAMS	■	■■	■	■	■	■	■■	
FORMAT & PAGES	EUA4 374	USA4 253	USA4 255	USA4 352	USA4 414	USA4 573	A5 98	
KEY CHAPTERS	•Space Creation •Training •Immediate Care and Medical •Appreciation (broad perspec-tives, some dated)	•Vehicle structure •Hand tools •Patient considerations & Packaging • Training	• Scene & vehicle stabilization •Space Creation, various postures •Casualty release theory	•Eqpt & Training •Managing the incident scene •Hazards •Gaining access •Disentangling •Patient packaging	•New Technology •Electric/Hybrids •Rescue Life-Cycle /Golden hour •Vehicle, Rescuer & Scene Safety •Incident Command •Casuaty Care •Tools & Eqpt •Rescue Evolutions •Glossary	•Tools & Rigs •Stabilization •Door/Side/Roof & Interior procedures •Entrapment beneath/between •Empalement •Trucks/Trailers •Buses •Sport vehicles	•Vehicle Design inc. Hybrids •Equipment •Scene Safety & crew organization •Techniques •Heavy Vehicles	
BREADTH of COVERAGE	■■	■■■■	■■■	■■■	■■■■	■■■	■■■	
IMAGE QUALITY/CLARITY	■	■■	■■■	■	■■	■■	■■■■	
QUALITY of TEXT	■■■	■■■	■■	■■	■■■	■■■	■■■■	
QUALTY of PAPER STOCK	■■	■■■	■■■	■■	■■■	■■■	■■■	
VALUE for MONEY	■	■■	■■	■	■■	■■	■■■■■	
COMMENT	The original car rescue manual led the way	Comprehensive but very dated	'Updated' and condensed version of RTA Persons Trapped	Detailed but very text heavy few photos and no diagrams	Detailed but dated in parts. Too much text, few photos and no diagrams	Also detailed but dated in parts. Too much text, few photos and no diagrams	Essentially a Holmatro catalogue but with excellent space creation sequences	
OVERALL MARK out of 5	■■	■	■■	■	■■	■■	■■■	

EXTRICATION MANUALS

								
FIRE SERVICE MANUALvol2 Incidents nvolving rescue rom rd vehicles	VEHICLE RESCUE 1-2-3	HOLMATRO's VEHICLE EXTRICATION TECHNIQUES	PRINCIPLES OF VEHICLE EXTRICATION 4th ED	VEHICLE RESCUE & EXTRICATION 2nd ED	ROAD TRAFFIC COLLISIONS a Complete Guide	VEHICLE EXTRICATION the Next Generation	BUMPER TO BUMPER EXTRICATION	EXTRICATION Rescue of Casualties from Crashed Vehicles
£28	$35	$20/€15	$75	$130	£28	€35	$35	TBA
UK procedural	Car safety & space creation	Accessing vehicle entrapments with holmatro kit	All aspects of entrapment rescue	All aspects of entrapment rescue	Mostly procedural	All aspects of entrapment rescue	Pre-rescue new vehicle technology	Casualty handling/ Casualty extrication
■	□	■	■	■	■	■	■	-
-	□	■■	■■	■■	■■	■■	■	■
■	□	■	■	■	■	■	-	-
■	■	■	■	■	■	■	-	-
■	■	■	■	■	■	■	-	-
■	■	■	■	■	■	■	-	-
■	□	□	□	■	■	■	-	■
-	-	□	□	□	-	-	-	■
IM Fire Service Inspectorate	Ronald E Moore	Ian Dunbar	Peters & Smith	David Sweet	Andrew Holden	Ian Dunbar	Michael Smith	R Denham, N Appleton
HMSO	University of Extrication	Holmatro	Ifsta/Fire Protection Publications	IAFC/NFPA Jones&Bartlett	Self-Published	Lukas Rescue	Boron Extrication Training	Technical Rescue Ltd
780113413058	9780983845003	9789081279604	9780879395971	9781284042177	-	9783000653063	9798830659352	TBA
2007	2011	2014	2017	2018	2019	2021	2022	2024
2007	2011	2014	'98,'00,'10	2012*	2019	2021	2022	2024
■	■	■	■	■	■	■	■	■
■■	■■	■■	■■	■■	■■	■■	■■	■■
■■	■	■■	■■	■■	■■	■■	■■	■■
EUA4 204	USA4 230	Custom 256	USA4 522	USA4 442	EUA4 205	EUA4 293	USA4 94	UKA4 220+
Vehicle Design Dealing with ncidents Safety and Operational rocedures Medical care	•Space Creation •Hybrid vehicles •Internal space creation •Underride extrication	•Safety •Vehicle Technology •Tools&Eqpt •Team Approach •At the scene	•Passenger vehicles •Commercial Vehicles •Heavy vehicles •Special circumstances	•Incident command •Kinetics/ construction •Electric/Hybrids • SRS/Airbags •Tools/Eqpt •Site Ops/Stabiliza-tion •Casualty handling •Trucks/Tractors •Alt Techniques •Wrapping up	•Vehicles in water •The collision •Traffic management •Debriefing	•Extrication planning •Medical considerations •Technical processes and evolutions	•Accident statistics •Vehicle structure •Electric •Glass •Airbags •Restraints Battery	•Multi-agency approach •Self & assisted extrication •20 detailed car & cab extrication sequences •Air ambulance & Trauma Care approved
■■■	■■■■	■■■	■■■■■	■■■■■	■■■■	■■■■■	■■■■	■■■
■■■■	■■■■	■■■■	■■■■■	■■■■■	■■■■	■■■■■	■■■■	■■■■■
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■■■	■■■	■■■	■■■■	■■■	■■■	■■■■■	■■■	TBD
■■■	■■■■	■■■■■	■■■■	■■■■	■■■	■■■■■	■■■■	TBD
Free download. Uses Holmatros's space creation information and diagrams	Techniques, six photos per page, good sequence detail	Comprehensive selection of sequential space creation evolutions.	Comprehensive MVA information resource, primarily for North America	*Originally just *'Vehicle Extrication'*. Very comprehensive 2021 update is E-book only	Shows space creation sequences as a numbered sequence on a vehicle frame	Comprehensive hardback, especially good on integrating Fire and Medical rescue services	Full background to vehicle technology	The first and only manual to concentrate wholly on the casualty's needs & removal
■■■	■■■■	■■■■	■■■■■	■■■■■	■■■■	■■■■■	■■■■	■■■■

Pro/High Power BATTERIES

18 to 72 volt

Battery power is the new steam locomotive from James Watt's Rocket era - been around for a while but still changing the world as it evolves. We have limited this guide initially to a minimum of 18v because there are just too many 12v batteries to consider. So, while there are pro tools that run on 12v platforms (indeed we have hydraulic rescue tools running on the Makita 12v batteries) if there are no Hydraulic rescue tools or disc cutters using them we haven't included them and at the moment 18v is the minimum for pro tools while 12v are generally reserved for home/ smallholding use.

DeWalt are a confusing brand because the US and Europeans use two different voltages and DeWalt keep changing their ranges - currently you could buy 5 different series of DeWalt batteries but there should only be three and the Europeans merge two of those series into one! The Europeans also give a different product code which, unlike the US, does not always reflect the Ah rating for the battery. The US sensibly uses a code to reflect the voltage and then the AH eg. DCB2015 is a 20volt 15Ah battery. We disappeared down a rabbit-hole with this one! There are four leading bespoke brands for batteries in our sectors: Holmatro, Lukas, Husqvarna and Stihl. These will 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 used the Stihl platform - we will see more of this. Two of the three key rescue hydraulics brands *Holmatro* and *Lukas* continue to service just their own products and in the case of the genius horseshoe-shaped *Holmatro* battery that's probably due to being limited to those hydraulic tools with a regulation barrel around which it can fit. The *Lukas* batteries could perhaps more easily be applied to new equipment but we may well see both of these companies adopt one of the off-the-shelf batteries for their ancillary products. *Weber* as the other major player in rescue hydraulics has already taken the leap and uses *Milwaukee M18* batteries which are a lot cheaper and a lot easier to get hold of.

BATTERY TECHNOLOGY

The game-changer in battery tools was the improvement in off-the-shelf Lithium ion batteries engineered for trade tools like saws and drills. *Ogura* were the first to cotton onto this over 30 years ago uti... we now see many too... particularly *Milwaukee*, because... readily available and service ma... cutting/spreading rescue gear - impact drivers. *Holmatro* initiall... the *DeWalt* 24v platform but so... requirements of rescue gear in t... and withstanding water and dust ingress would benefit from a bespoke battery. Their unique, semi-circular wrap-around battery is engineered to streamline the tool as it sits around the barrel, and operate to the specific requirements of the motor. Along with *IDEX* (*Lukas*, *Hurst* and *Vetter*), *Holmatro* continued to work on their own batteries not only to streamline the tool profiles and enhance waterproofing but also because the batteries are high cost consumables that make the tools more profitable. The blue battery on the right is a salt-water resistant version of the two that *Lukas Hydraulik* have on their latest fully submersible tools and are the next stage on from the more ergonomic looking but slightly older white battery beneath.

Holmatro, Lukas and *Libervit* tools are not only waterproof, they can operate entirely underwater and even swap out batteries underwater on *Holmatro* and *Lukas/Hurst* tools. There are also clip-on waterproof

BATTERIES

covers for some trade batteries like *Makita* and *Milwaukee* and *Weber Hydraulik* uses such a system on their Smart range to make them waterproof (see images below) but this is an adjunct, albeit a less expensive option, rather than integral waterproofing. Incidentally, before we get onto backpacks, Weber also has a hydraulic power unit for conventional hose-tools (right) which uses batteries instead of liquid fuel.

BACKPACKS

A brand that often goes under the radar outside of its native France is *Libervit* with a waterproof backpack housing one (or two) 48v batteries giving 45 (90) minutes of use. *Libervit* may even have been the first underwater battery powered rescue tool, they were certainly the first that we saw. The backpack concept pioneered by *Powerhawk* and continued by *Libervit* is now in evidence in many battery tools requiring prolonged runtimes when a battery change is awkward - *ResQtec, Husqvarna, Makita, Hitatchi* (now *Hikoki)*, *Stihl* and many more. Expect to see more being offered in rescue systems. Backpacks are a means to provide much improved duration and taking the weight off the tool in-hand and this is something we've been fans of since the start. *Powerhawk* first used this concept in the 90's though it was more out of necessity at that time because it used a 12v car battery, in fact any old car battery including the ones at the scene of an accident via long 'jump' leads so you would never be short of power supply options. This is still the case with the *Legacy P16* but their later models can also use this smaller bespoke battery. *Resqtec* and *Libervit* are so far the only two in our sector to go with a hardened backpack but *Makita* (above) also has them for rescue tools using that platform. In fact they

have two different types which highlight the way things might go - the integrated enlarged battery cell in a backpack as with the green *ResQtec* below and a multi-battery carrier in this case using batteries in series. *Libervit* tools were the first to really tackle underwater use but are NOT included here because they are not direct-attach batteries; they have a hydraulic/electric backpack which is a principle that ALL regular hydraulic tools could use and indeed many do. *Weber* for instance has the previously mentioned hydraulic backpack powered by M18 batteries (yellow pic below) but **all of the primarily hydraulic tools, even where powered by battery backpacks, are larger and heavier than their direct-connect battery counterparts**. *Libervit's B.A.S.* backpack battery (right) seems to have replaced their original hardened backpack and is now housed in a cordura pack. As a lead-connected backpack the BAS is fairly typical size-wise- perhaps wider than most because of the hydraulic pump element at 280x230x390 mm /11x9x15.5". They also have a large battery/hydraulic package for use underwater - their *M38* but it weighs 22kg/45lb.

CHARGERS

A much overlooked but vitally important consideration. If you buy a kit it will invariably come with a standard 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 or as a more portable option like this Milwaukee 6-bay charger.

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:

■= **OPE** - Outdoor Power Equipment - for rescuers the key consideration here are chainsaws and blowers

■= **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 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 left to right:
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.

milwaukeetool.com

IMAGES NOT TO SCALE
COSTS in £$€= Currency conversion only. Most costs=max MSRP - you will often find for a lot less.
OTHER TOOLS IN RANGE:
■=CSaw ■=Trade-Tools ■=DiscCutter
■=OPE ■=Rescue Tools ■=Lighting
ⓘ=Special Tools
●=PARTIAL FEATURE
□□□= Option

	SERIES MODEL NB: 20v/60v in the US is 18v/54v in Europe	COMPANY	FITS TOOLS FOR:...	ORIGIN	COST inc tax / VAT	WEIGHT	BATTERY TYPE VOLTAGE	AmpHours Ah	Energy/ Work-Hours Wh	LEN
	20vMax / XR DCB203 DCB182	DEWALT	■■■	🇺🇸	£35 $00 €00	350g 0oz	Li ion 18/20v	2 Ah	00 Wh	11
	20vMax DCB230	DEWALT	■■■	🇺🇸	£0 $00 €00	00g 1.15lb	Li ion 20v	3 Ah	00 Wh	17
	20vMax DCB200	DEWALT	■■■■	🇺🇸	£0 $00 €00	1.27kg 2.8lb	Li ion 18/20v	3 Ah	00 Wh	0
	20vMax DCB240	DEWALT	■■■■	🇺🇸	£0 $00 €00	00g 1.15lb	Li ion 20v	4 Ah	00 Wh	17
	20vMax DCB204 DCB184	DEWALT	■■■■	🇺🇸	£80 $00 €00	00g 00oz	Li ion 18/20v	4 Ah	00 Wh	17
	20vMax DCB205 DCB185	DEWALT	■■■■	🇺🇸	£0 $00 €00	630g 1.4lb	Li ion 18/20v	5 Ah	00 Wh	17
	20vMax DCB206 DCB186	DEWALT	■■■■	🇺🇸	£0 $00 €00	00g 2.25lb	Li ion 18/20v	6 Ah	00 Wh	17
	20vMax DCB210 DCB1810	DEWALT	■■■■	🇺🇸	£0 $00 €00	00g 0oz	Li ion 18/20v	10 Ah	00 Wh	17
	XR DCB2105 DCB184B-XJ	DEWALT	■■■■	🇺🇸	£0 $00 €00	00g 00oz	Li ion 18/20v	5 Ah	00 Wh	17
	XR DCB2108	DEWALT	■■■■	🇺🇸	£0 $00 €00	00g 00oz	Li ion 18/20v	8 Ah	00 Wh	17

NGTH	WIDTH	DEPTH	RECHARGE Min to Max Time Charger-dependant / No of CHARGE CYCLES	MULTI CHARGERS	REPRESENTATIVE ENDURANCE	WARRANTY (Years)	LED CHARGE STATUS	IN-USE COOLING FAN	WiFi/BLUETOOTH	IPRATING (WATERPROOF)	OP TEMPERATURE °C°F	NOTES	WWW.
10mm 00"	00mm 00"	45mm 1.8"	1500	2 & 4-bank Standard Rapid			■	-	-	-	-		dewalt.com
78mm 7"	89mm 3.5"	45mm 1.8"	90mins				■	-	-	-	-		dewalt.com
0mm 10"	00mm 4.5"	00mm 0.75"	90mins				■	-	-	-	-		dewalt.com
78mm 7"	89mm 3.5"	45mm 1.8"	90mins				■	-	-	-	-		dewalt.com
78mm 7"	89mm 3.5"	00mm 00"	90mins				■	-	-	-	-		dewalt.com
78mm 7"	89mm 3.5"	00mm 3"	90mins				■	-	-	-	-		dewalt.com
78mm 7"	89mm 3.5"	00mm 3"	90mins				■	-	-	-	-		dewalt.com
78mm 7"	89mm 3.5"	00mm 00"					■	-	-	-	-		dewalt.com
78mm 7"	89mm 3.5"	00mm 00"					■	-	-	-	-	Also available as an oil-resistant version	dewalt.com
78mm 7"	89mm 3.5"	00mm 00"					■	-	-	-	-		dewalt.com
													expansion row

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	XR Powerstack DCBP034 DCBP034-XJ	DEWALT			£0 $00 €00	320g 00oz	Li ion 18/20v	1.7 Ah	00 Wh	6 (
	XR Powerstack DCBP518-XJ	DEWALT			£0 $00 €00	300g 12.8oz	Li ion 18/20v	5 Ah	00 Wh	0 7
	Max/XR FlexVolt DCB606 DCB546	DEWALT			£0 $180 €00	1.05kg 00oz	Li ion 20-60v 18-54v	2/6 Ah	00 Wh	0 (
	Max/XR FlexVolt DCB609 DCB547	DEWALT			£180 $300 €00	1.44kg 00oz	Li ion 20-60v 18-54v	3/9 Ah	00 Wh	13 5.
	Max/XR FlexVolt DCB612 DCB548	DEWALT			£0 $00 €00	1.46kg 0lb	Li ion 20-60v 18-54v	4/12 Ah	00 Wh	13 5.
	Max/XR FlexVolt DCB615 DCB549	DEWALT			£0 $00 €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 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
	E force 107.289.3	GENESIS				1.45g 3.2lb	Li ion 28v	5 Ah	145 Wh	13 5

NGTH	WIDTH	DEPTH	RECHARGE Min to Max Time Charger-dependant / No of CHARGE CYCLES	MULTI CHARGERS	REPRESENTATIVE ENDURANCE	WARRANTY (Years)	LED CHARGE STATUS	IN-USE COOLING FAN	WiFi/BLUETOOTH	IPRATING (WATERPROOF)	OP TEMPERATURE °C°F	NOTES	WWW.
2mm 00"	34mm 00"	46mm 00"	60mins				■	-	-	-	-		dewalt.com
0mm 7.4"	00mm 5.9"	00mm 2.62"	75mins	multi voltage charger	70cuts 4x4 PT Spruce		■	-	-	-	-	Enhanced power to weight/Ah ratio +50%	dewalt.com
0mm 00"	85mm 00"	90mm 00"	40-90mins				-	-	-	-	-		dewalt.com
8mm .433	87mm 3.543"	97mm 3.813"	60-140mins				-	-	-	-	-		dewalt.com
8mm 433"	87mm 3.543"	97mm 3.813"	80-180mins				■	-	-	-	-		dewalt.com
2mm 563"	111mm 4.375"	97mm 3.813"	100-233mins				■	-	-	-	-		dewalt.com
0mm 00"	00mm 00"	00mm 00"	30mins				-	-	-	-	-	discontinued	dewalt.com
4mm .25"	137mm 5.375"	126mm 4.938"	90mins				■	-	-	-	-		dewalt.com
4mm .25"	137mm 5.375"	126mm 4.938"	130mins				■	-	-	-	-		dewalt.com
4mm .25"	137mm 5.375"	126mm 4.938"	60mins				-	-	-	-	-		dewalt.com
5mm 5.3"	81mm 3.2"	84mm 3.3"	90mins	Standard								Milwaukee M28 replacement (in case of discontinuation by Milwaukee) for Genesis E-Force tools	genesisrescue.com

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	Nuron B22-55	HILTI			£130+ $00 €00	550g 00oz	Li ion 22v	2.6 Ah	54 Wh	13
	Nuron B22-85	HILTI			£155+ $00 €00	760g 0oz	Li ion 18/20v	4 Ah	85 Wh	13
	Nuron B22-110	HILTI			£252- $00 €00	910g 00oz	Li ion 22v	5 Ah	110 Wh	13
	Nuron B22-170	HILTI			£295+ $00 €00	1.31kg 00oz	Li ion 22v	8 Ah	170.6 Wh	15
	Nuron B22-255	HILTI			£361+ $00 €00	1.46kg 0lb	Li ion 22v	12 Ah	255 Wh	15
	Max/XR FlexVolt DCB615 DCB549	HILTI			£0 $00 €00	2.04kg 4.55lb	Li ion 20-60v 18-54v	5/15 Ah	00 Wh	19 7.
	36v DCB361	HILTI			£0 $300 €00	1.44kg 38.4oz	Li ion 36v	2 Ah	00 Wh	0
	Max DCB404	HILTI			£0 $00 €00	1.6kg 3.53lb	Li ion 40v	4 Ah	00 Wh	18 7
	Max XR DCB406	HILTI			£0 $00 €00	1.96kg 4.32lb	Li ion 40v	6 Ah	300 Wh	18 7
	Max XR DCB407	HILTI			£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 / No of CHARGE CYCLES	MULTI CHARGERS	REPRESENTATIVE ENDURANCE	WARRANTY (Years)	LED CHARGE STATUS	IN-USE COOLING FAN	WiFi/BLUETOOTH	IPRATING (WATERPROOF)	OP TEMPERATURE °C°F	NOTES	WWW.
33mm 00"	82mm 00"	48mm 00"	0mins	Standard Fast Ultimate			■	-	-	-	-17 +60		hilti.com
33mm 00"	82mm 00"	53mm 2.62"	0mins	Standard Fast Ultimate			■	-	-	-	-17 +60		hilti.com
33mm 00"	82mm 00"	67mm 00"	0mins	Standard Fast Ultimate			■	-	-	-	-17 +60		hilti.com
57mm 00"	87mm 00"	76mm 00"	0mins	Standard Fast Ultimate			■	-	-	-	-17 +60		hilti.com
57mm 00"	87mm 00"	99mm 00"	0mins	Standard Fast Ultimate			■	-	-	-	-17 +60		hilti.com
92mm 563"	111mm 4.375"	97mm 3.813"	100-233mins				■	-	-	-	-		hilti.com
0mm 00"	00mm 00"	00mm 00"	30mins				-	-	-	-	-	discontinued	hilti.com
84mm .25"	137mm 5.375"	126mm 4.938"	90mins				■	-	-	-	-		hilti.com
84mm .25"	137mm 5.375"	126mm 4.938"	130mins				■	-	-	-	-		hilti.com
84mm .25"	137mm 5.375"	126mm 4.938"	60mins				-	-	-	-	-		hilti.com

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

	SERIES MODEL	COMPANY	FITS TOOLS FOR:...	ORIGIN	COST inc tax / VAT	WEIGHT	BATTERY TYPE VOLTAGE	AmpHours Ah	Energy/ Work-Hours Wh	LEN
	Greenline EVO3 BPA286	HOLMATRO	ⓘ		£00 $00 €00	1kg 2.2lb	Li ion 28v	6 Ah*	151 Wh	14
	Pentheon PBPA288	HOLMATRO	■ ⓘ		£00 $00 €00	1.6kg 3.5lb	Li ion 28v	8 Ah	202 Wh	18
	100 40-B70	HUSQVARNA	■ ■ ■		£100 $ €	800g 0oz	Li ion 36v	2 Ah	75.6 Wh	13
	100 40-B140	HUSQVARNA	■ ■ ■		£150 $ €	1.25kg 0oz	Li ion 36v	2 Ah	144 Wh	13
	BLi BLi30	HUSQVARNA	■ ■ ■ ⓘ		£280 $ €	1.9kg 0oz	Li ion 36v	7.7 Ah	75.6 Wh	13
	BLi BLi200	HUSQVARNA	■ ■ ■ ⓘ		£240 $00 €00	1.31kg 0oz	Li ion 36v	5.2 Ah	180 Wh	13
	BLi BLi200X	HUSQVARNA	■ ■ ■ ⓘ		£260 $00 €00	1.3kg 0oz	Li ion 36v	5.2 Ah	180 Wh	13
	BLi BLi300	HUSQVARNA	■ ■ ■ ⓘ		£00 $00 €00	1.9kg 0oz	Li ion 36v	9 Ah	324 Wh	15
	BLiX 40-B140X	HUSQVARNA	■ ■ ■ ⓘ		£210 $ €	800g 0oz	Li ion 36v	4 Ah	75.6 Wh	13
	BLiX 40-B220X	HUSQVARNA	■ ■ ■ ⓘ		£310 $ €	1437g 0oz	Li ion 36v	6 Ah	216 Wh	13
	BLiX 40-B330X	HUSQVARNA	■ ■ ■ ⓘ		£420 $ €	1929g 0oz	Li ion 36v	9 Ah	324 Wh	15

NGTH	WIDTH	DEPTH	RECHARGE TIME Min to Max / No of CHARGE CYCLES	MULTI-BAY CHARGERS	REPRESENTATIVE ENDURANCE		LED CHARGE STATUS	IN-USE COOLING FAN	W/FI/BLUETOOTH	IPRATING (WATERPROOF)	OPERATING TEMP °C°F	NOTES	WWW.
43mm 5.6"	111mm 4.4"	62mm 2.4"	90mins 500	Std EU Std USA Vehicle								* replaced 5Ah version ⓘ Powers door ram	holmatro.com
88mm 7.4"	107mm 4.2"	110mm 4.3"	69mins 500	2 & 4-bank On-Tool charging for 3 tools + Standard 3.3Ah			■		-	67	-	ⓘ Also powers the OMNILOCK shoring struts. Saltwater Submersible On tool charging	holmatro.com
32mm 0"	117mm 0"	98mm 0"	>600				■						husqvarna.com
32mm 0"	117mm 0"	98mm 0"	>600				■						husqvarna.com
32mm 0"	155mm 0"	98mm 0"	>600				■					ⓘ Powered ascender/winch	husqvarna.com
32mm 00"	115.6mm 00"	98mm 00"	1500				■					ⓘ Powered ascender/winch	husqvarna.com
32mm 00"	115.6mm 00"	98mm 00"	1500				■					ⓘ Powered ascender/winch	husqvarna.com
55mm 00"	115.6mm 00"	98mm 00"					■					ⓘ Powered ascender/winch	husqvarna.com
32mm 0"	117mm 0"	98mm 0"	>600				■		✱	X4		On-board Temperature gauge. ⓘ Powered ascender/winch	husqvarna.com
32mm 0"	117mm 0"	98mm 0"					■		✱	X4		On-board Temperature gauge. ⓘ Powered ascender/winch	husqvarna.com
55mm 00"	132mm 00"	93mm 00"					■		✱	X4		On-board Temperature gauge. ⓘ Powered ascender/winch	husqvarna.com

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	EXL/X2 E2	IDEX (HURST)			£00 $728 €00	500g 0oz	Li ion 25.2v	5Ah	126 Wh
	EXL/X2	IDEX (HURST)			£00 $728 €00	1.3kg 2.9lb	Li ion 25.2v	4Ah	98 Wh
	E3/EWXT 00	IDEX			£65 $00 €00	1.2kg 0oz	Li ion 25.2v	5 Ah	126 Wh
	E3/EWXT 00	IDEX			£90 $820 €00	1.6kg 0oz	Li ion 25.2v	9 Ah	226.8 Wh
	E3/EWXT 00	IDEX			£00 $900 €00	1.6kg 0oz	Li ion 25.2v	9 Ah	226.8 Wh
	E3/EWXT 00	IDEX			£00 $900 €00	1.6kg 0oz	Li ion 25.2v	9 Ah	226.8 Wh
	XGT BL4020	MAKITA			£75 $00 €00	690g 0oz	Li ion 40v	2 Ah	72 Wh
	XGT BL4025	MAKITA			£90 $00 €00	710g 0oz	Li ion 40v	2.5 Ah	90 Wh
	XGT BL4040F	MAKITA			£150 $00 €00	1kg 2.2lb	Li ion 40v	4 Ah	144 Wh
	XGT BL4050F	MAKITA			£180 $00 €00	1.3kg 0oz	Li ion 40v	5 Ah	180 Wh
	XGT BL4080F	MAKITA			£265 $00 €00	1.9kg 0oz	Li ion 40v	8 Ah	288 Wh

LENGTH	WIDTH	DEPTH	RECHARGE TIME Min to Max No of CHARGE CYCLES	MULTI-BAY CHARGERS	REPRESENTATIVE ENDURANCE	LED CHARGE STATUS	IN-USE COOLING FAN	WffFi/BLUETOOTH	IPRATING (WATERPROOF)	OPERATING TEMP °C°F	NOTES	WWW.
152mm 00"	86mm 00"	78mm 00"	150mins 500	Standard 3Ah 4-bank 3Ah 110v Adapter 12v vehicle					54	-20 +55		lukas.com jawsoflife.com
152mm 00"	86mm 00"	78mm 00"		Standard					54	-20 +55	Fits Lukas/Hurst StrongArm tools only. Discharge LEDs as per SCBA grn, Grn, Ylw, Red	lukas.com jawsoflife.com
176mm 00"	97mm 00"	70mm 00"	90mins 500	Standard 4Ah 4-bank 3Ah 110v Adapter 12v vehicle		■			68	-20 +55	Fresh water Submersible Change batteries underwater. Battery has on-board LED for night-changes	lukas.com jawsoflife.com
176mm 00"	97mm 00"	89mm 00"		Standard 3Ah 4-bank 3Ah 110v Adapter 12v vehicle	60mins in 3m of water	■			68	-20 +55	Fresh water Submersible Change batteries underwater. Battery has on-board LED for night-changes	lukas.com jawsoflife.com
176mm 00"	97mm 00"	89mm 00"		Standard 3Ah 4-bank 3Ah 110v Adapter 12v vehicle	60mins in 3m of water	■			68	-20 +55	Salt water Submersible Change batteries underwater. Battery has on-board LED for night-changes	lukas.com jawsoflife.com
176mm 00"	97mm 00"	89mm 00"		Standard 3Ah 4-bank 3Ah 110v Adapter 12v vehicle	60mins in 3m of water	■			68	-20 +55	Salt water Submersible Change batteries underwater. Battery has on-board LED for night-changes	lukas.com jawsoflife.com
118mm 00"	77mm 00"	65mm 00"	22-30mins	2-bank Rapid Standard Back/Power Pack		■	■	● *	-	-	*Digital coms between battery and tool regarding staus and power draw etc.	makitatools.com
118mm 00"	77mm 00"	65mm 00"	28-38mins	2-bank Rapid Standard Back/Power Pack		■	■	● *	-	-	*Digital coms between battery and tool regarding staus and power draw etc.	makitatools.com
133mm 00"	82mm 00"	71mm 00"	45-67mins	2-bank Rapid Standard Back/Power Pack		■	■	● *	-	-	*Digital coms between battery and tool regarding staus and power draw etc.	makitatools.com
152mm 00"	79mm 00"	92mm 00"	50-85mins	2-bank Rapid Standard Back/Power Pack		■	■	● *	-	-	*Digital coms between battery and tool regarding staus and power draw etc.	makitatools.com
152mm 00"	85mm 00"	94mm 00"	76mins	2-bank Rapid Standard Back/Power Pack		■	■	● *	-	-	*Digital coms between battery and tool regarding staus and power draw etc.	makitatools.com

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	36Liion BL3622A	MAKITA			£00 $00 €00	1.33kg 0oz	Li ion 40v	2.2 Ah	80 Wh	16
	36Liion BL3626	MAKITA			£00 $00 €00	1.34kg 0oz	Li ion 40v	2.6 Ah	94 Wh	16
	LXT BL1820B	MAKITA			£00 $00 €00	380g 0oz	Li ion 18v	2 Ah	36 Wh	11
	LXT BL1830B	MAKITA			£00 $00 €00	640g 0oz	Li ion 18v	3 Ah	54 Wh	11
	LXT BL1840B	MAKITA			£00 $00 €00	640g 0oz	Li ion 18v	4 Ah	72 Wh	11
	LXT BL1850B	MAKITA			£00 $00 €00	640g 0oz	Li ion 18v	5 Ah	90 Wh	11
	LXT BL1860B	MAKITA			£00 $00 €00	660g 0oz	Li ion 18v	6 Ah	108 Wh	11
	MX Fuel RedLithium XC3	MILWAUKEE			£00 $00 €00	0g 9.8lb	Li ion 00v	3 Ah	00 Wh	0 1
	MX Fuel RedLithium XC6	MILWAUKEE			£00 $00 €00	0g 0oz	Li ion 00v	6 Ah	00 Wh	0
	MX Fuel RedLithium Forge XC8	MILWAUKEE			£00 $00 €1154	0g 9.8lb	Li ion 00v	8 Ah	00 Wh	0 1
	MX Fuel RedLithium Forge XC12	MILWAUKEE			£00 $00 €1546	0g 0oz	Li ion 00v	12 Ah	00 Wh	0

NGTH	WIDTH	DEPTH	RECHARGE Min to Max Time Charger-dependant / No of CHARGE CYCLES	MULTI CHARGERS	REPRESENTATIVE ENDURANCE	WARRANTY (Years)	LED CHARGE STATUS	IN-USE COOLING FAN	WFi/BLUETOOTH	IPRATING (WAITERPROOF)	OP TEMPERATURE °C°F	NOTES	WWW.
65mm 00"	102mm 00"	85mm 00"		2-bank Rapid Standard Back/Power Pack			■	-	-	-	-	DISCONTINUED	makitatools.com
62mm 00"	102mm 00"	85mm 00"		2-bank Rapid Standard Back/Power Pack			■	-	-	-	-	DISCONTINUED	makitatools.com
13mm 00"	75mm 00"	45mm 00"	22-45 mins	2-bank Rapid Standard Back/Power Pack			■	-	-	-	-		makitatools.com
13mm 00"	75mm 00"	62mm 00"	24-60 mins	2-bank Rapid Standard Back/Power Pack			■	-	-	-	-		makitatools.com
13mm 00"	75mm 00"	62mm 00"	36-90 mins	2-bank Rapid Standard Back/Power Pack			■	-	-	-	-		makitatools.com
13mm 00"	75mm 00"	62mm 00"	45-110 mins	2-bank Rapid Standard Back/Power Pack			■	-	-	-	-		makitatools.com
13mm 00"	75mm 00"	62mm 00"	55-130 mins	2-bank Rapid Standard Back/Power Pack			■	-	-	-	-		makitatools.com
0mm 0.8"	00mm 7.1"	00mm 3.8"	00mins	RedLi Super			■	■	■		-28		milwaukee.com
0mm 00"	00mm 00"	00mm 00"	45mins	RedLi Super			■	■	■				milwaukee.com
0mm 0.8"	00mm 7.1"	00mm 3.8"	45mins	RedLi Super			■	■	■				milwaukee.com
0mm 00"	00mm 00"	00mm 00"	45mins	RedLi Super			■	■	■				milwaukee.com

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	M18 Red Lithium Forge XC5	MILWAUKEE			£00 $00 €00	0g 0oz	Li ion 18v	5 Ah	00 Wh	0
	M18 Red Lithium Forge XC6	MILWAUKEE			£311 $00 €00	0g 0oz	Li ion 18v	6 Ah	00 Wh	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
	M18 Red Lithium High Output CP3	MILWAUKEE			£00 $120 €166	0g 0oz	Li ion 18v	3 Ah	00 Wh	0
	M18 Red Lithium XC5.5	MILWAUKEE			£00 $160 €237	1.21kg 0oz	Li ion 18v	5.5 Ah	00 Wh	0
	M18 Red Lithium High Output XC6	MILWAUKEE			£00 $00 €00	1kg 2.2lb	Li ion 18v	6 Ah	00 Wh	0
	M18 Red Lithium High Output XC8	MILWAUKEE			£160 $200 €279	1.08kg 2.38lb	Li ion 18v	8 Ah	00 Wh	0 5
	M18 Red Lithium High Output HD12	MILWAUKEE			£240 $250 €361	1.54kg 3.4lb	Li ion 18v	12 Ah	00 Wh	15 5
	M18 Red Lithium XC1.5	MILWAUKEE			£00 $00 €00	0g 0oz	Li ion 18v	1.5 Ah	00 Wh	0
	M18 Red Lithium XC2	MILWAUKEE			£00 $00 €136	0g 0oz	Li ion 18v	2 Ah	00 Wh	0

NGTH	WIDTH	DEPTH	RECHARGE Min to Max Time Charger-dependant No of CHARGE CYCLES	MULTI CHARGERS	REPRESENTATIVE ENDURANCE	WARRANTY (Years)	LED CHARGE STATUS	IN-USE COOLING FAN	WFi/BLUETOOTH	IPRATING (WAITERPROOF)	OP TEMPERATURE °C°F	NOTES	WWW.
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
95mm 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
0mm 00"	00mm 00"	00mm 00"	35 mins 35 mins 65 mins	2,3,4 & 6-bank Super Rapid Standard			■						milwaukee.com
0mm 00"	00mm 00"	00mm 00"	65 mins 65 mins 115 mins	2,3,4 & 6-bank Super Rapid Standard			■						milwaukee.com
0mm 00"	00mm 00"	00mm 00"	35 mins 65 mins 123 mins	2,3,4 & 6-bank Super Rapid Standard			■						milwaukee.com
0mm .46"	00mm 3.33"	00mm 3.25"	45 mins 83 mins 153 mins	2,3,4 & 6-bank Super Rapid Standard			■						milwaukee.com
52mm .99"	86mm 3.4"	99mm 3.9"	60 mins 130 mins 241 mins	2,3,4 & 6-bank Super Rapid Standard			■						milwaukee.com
0mm 00"	00mm 00"	00mm 00"	21 mins 21 mins 31 mins	2,3,4 & 6-bank Super Rapid Standard			■						milwaukee.com
0mm 00"	00mm 00"	00mm 00"	27 mins 27 mins 42 mins	2,3,4 & 6-bank Super Rapid Standard			■						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: =CSaw =Trade-Tools =DiscCutter =OPE =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	AmpHours Ah	Energy/ Work-Hours Wh	LEN
	M18 Red Lithium XC3/2.8	MILWAUKEE			£00 $00 €00	0g 0oz	Li ion 18v	2.8 Ah	00 Wh	0
	M18 Red Lithium XC4	MILWAUKEE			£00 $120 €160	0g 0oz	Li ion 18v	4 Ah	00 Wh	0
	M18 Red Lithium XC5	MILWAUKEE			£00 $160 €190	0g 0oz	Li ion 18v	5 Ah	00 Wh	0
	M18 Red Lithium XC6	MILWAUKEE			£00 $00 €00	0g 0oz	Li ion 18v	6 Ah	00 Wh	0
	M28 Red Lithium BX3 BX	MILWAUKEE			£00 $0 €231	1.1kg 2.25lb	Li ion 28v	3 Ah	00 Wh	0
	M28 Red Lithium BX5 B5	MILWAUKEE			£00 $00 €285	1.1kg 2.25lb	Li ion 28v	5 Ah	00 Wh	0
	AP (Pro) AP 100	STIHL	ⓘ		£126 $00 €00	1.3kg 0oz	Li ion 36v	2Ah	94 Wh	0
	AP (Pro) AP 200	STIHL	ⓘ		£156 $00 €00	1.3kg 0oz	Li ion 36v	2Ah	187 Wh	0
	AP (Pro) AP 300	STIHL	ⓘ		£288 $00 €00	1.8kg 0oz	Li ion 36v	3Ah	227 Wh	0
	AP (Pro) AP 300 S	STIHL	ⓘ		£288 $00 €00	1.8kg 0oz	Li ion 36v	3Ah	281 Wh	0
	AP (Pro) AP 500 S	STIHL	ⓘ		£385 $00 €00	0g 0oz	Li ion 00v	5 Ah	337 Wh	0

NGTH	WIDTH	DEPTH	RECHARGE Min to Max Time Charger-dependant No of CHARGE CYCLES	MULTI CHARGERS	REPRESENTATIVE ENDURANCE	WARRANTY (Years)	LED CHARGE STATUS	IN-USE COOLING FAN	WFi/BLUETOOTH	IPRATING (WAITERPROOF)	OP TEMPERATURE °C°F	NOTES	WWW.
0mm 00"	00mm 00"	00mm 00"	34 mins 34 mins 57 mins	2,3,4 & 6-bank Super Rapid Standard			■						milwaukee.com
0mm 00"	00mm 00"	00mm 00"	48 mins 48 mins 76 mins	2,3,4 & 6-bank Super Rapid Standard			■						milwaukee.com
0mm 00"	00mm 00"	00mm 00"	60 mins 60 mins 105 mins	2,3,4 & 6-bank Super Rapid Standard			■						milwaukee.com
0mm 00"	00mm 00"	00mm 00"	70 mins 70 mins 125 mins	2,3,4 & 6-bank Super Rapid Standard			■						milwaukee.com
0mm 00"	00mm 00"	00mm 00"	60 mins	Rapid			■						milwaukee.com
0mm 00"	00mm 00"	00mm 00"	90 mins	Rapid			■						milwaukee.com
0mm 00"	00mm 00"	00mm 00"					■					ⓘ Powered ascender/winch	stihl.com
0mm 00"	00mm 00"	00mm 00"					■					ⓘ Powered ascender/winch	stihl.com
0mm 00"	00mm 00"	00mm 00"					■					ⓘ Powered ascender/winch	stihl.com
0mm 00"	00mm 00"	00mm 00"					■					ⓘ Powered ascender/winch	stihl.com
0mm 00"	00mm 00"	00mm 00"					■						stihl.com

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Part 2 Cutters
Part 3 Spreaders
Part 4 Rams
Part 5 Special Tools

'hydraulic' BATTERY-POWERED RESCUE TOOLS

We continue to use the generic term 'hydraulic' for these types of vehicle extrication tools because the vast majority use electricity to power a hydraulic pump but some do not. However, since that direct electric drive function hasn't really caught on beyond the *P-16/P4* models we're safe to continue using the term.

This GUIDE to Battery Rescue Tools has five sections:

1. **COMBI-TOOLS**
2. **DEDICATED CUTTERS**
3. **DEDICATED SPREADERS**
4. **RAMS**
5. **SPECIAL TOOLS**

Holmatro Battery

We will discuss some of the history on the next pages, for now, we can accept that battery power has come of age and been accepted by most to be the way of the present and future as we see hose-fed hydraulics but more specifically, liquid-fuel generators, take a back seat for a while. Initially, battery power was met with the same scepticism given to our ambulance service colleagues in the UK's Lake District who experimented in 2023 with a jet pack for rapid response - that's jet-packs as in flying humans and it really works but I bet it doesn't take 20 years for this to become the norm. With battery technology having only now reached the stage that quite small units can offer significant amp-hours/watt-hours, most designs use an on-board detachable battery. Something we haven't seen quite so much is integrated on-board rechargeable because it's quicker in the field to simply swap out batteries mid-job and carry on (though some, like *Holmatro*, offer on-tool charging while the tool is not being used). Some also offer backpack batteries which takes weight off the tool-in-hand and is usually a higher capacity than smaller on-board batteries. We've seen chainsaws and other such cutting equipment go further down this high-capacity backpack road to provide increased duration when you're in a tricky environment (like up a tree or part way down a cliff) so it certainly has merit for rescue. Only the original stalwart *Powerhawk* with it's 12v, *Libervit* with its hard and soft-pack options housing a 48v battery system and *ResQtec* with their similarly designed hardpack have made the leap and in the case of the latter, did so in addition to a handy on-board battery option.

The trade tools that dominate the battery market also pioneered other features of use in rescue tools, not least LED lighting of the immediate work area. Screwdrivers and drills had been doing it for a while so it was an obvious next step when *Holmatro* introduced it first into their hose-fed hydraulic range and now have six sets of LEDs in their forward handle. The *Genesis/Weber* model below shows four sets of LEDs at the front of the rear handle while others like *ResQtec* and *Lukas* entry tools, opted to follow the firearms market and place a rail-style detachable LED on the rear handle.

SIZE MATTERS

Perhaps the most surprising thing about battery tool development is that our original concerns about the *Beaver* and *Gorilla* tools being too long to be easily manoeuvred within the confines of a crashed vehicle obviously weren't shared by the manufacturers (although dedicated peddle cutters later addressed at least part of this problem). The ability to swivel the head or the handle gives at least some options in manoeuvrability but on the whole, tools have got larger and bulkier rather than smaller. This is partly because that's what is required to produce a tool powerful enough to compete

IMAGES NOT TO SCALE

with hose-fed hydraulics and partly because the handle and the battery have simply got to go somewhere. *Holmatro* have addressed this by slim-lining their entire tool and producing a bespoke curved battery to match that slim profile though it too remains quite a long tool while the *TNT-Rescue* model increased duration (and bulk) by having batteries mounted on both side of the motor housing. That's quite a wide profile at the back end. We thought the *P16/P4* or the *Ogura* style hand-drill models might have caught on more but clearly the performance requirements have taken the standard battery tools down the more conventional size route although Malkita's powerful backpack battery could address endurance issues?

POWERHAWK, JUNKERS & OGURA LED THE WAY IN THE 90s

In the days before on-board batteries were powerful enough to do the job, two companies pioneered battery rescue tools: - *Curtiss-Wright* in the US, better known for making flight control systems for fighter jets and Junkers in Germany, also better known for their aircraft. *Curtiss-Wright* introduced the *Powerhawk P-16* and *Junkers* introduced the *Beaver* cutter and the *Gorilla* spreader. They both used power leads from the tool to a battery - *Powerhawk* with it's quite bulky umbilical to a heavy 12v car battery in a back pack (or indeed, any car battery that's in the vicinity) and *Junkers* with a much smaller motorcycle battery to its *Beaver* and *Gorilla* dedicated cutter and spreader. *Junkers* used electricity to drive a hydraulic action so is perhaps more indicative of what was to come while the *Powerhawk* used what was effectively an aileron from an F16 fighter to provide an all-electric drive with no hydraulics. This was and still is, a short stocky tool with a unique replaceable jaws system so we had a parrot beak cutter, a spreader and a combi blade that could be switched in and within seconds, maybe a minute if the locking pins were stiff. It also came with a ram that had part of the cylinder exposed so that you could put spreaders under the lifting core and 'drive' it up as if it were a hydraulic ram with a locking collar to capture the progress. The *P-16* is still sold under the *Power Hawk Technologies, Inc.* name (now owned by *Snap-on, Inc.*), and have since introduced the *P-16X* - which still uses the same F16 fighter jet, replaceable jaw technology but has an on-board battery as well as the option of connecting to outside 12V DC vehicle batteries. *Power Hawk* previously collaborated with Dutch company *ResQtec* (who used to be *Zumro* under the brilliant helm of the original hydraulic tools innovator Axel Maarschalk) to produce the *P4*, with *Power Hawk's* actuator technology and *ResQtec*'s on-board battery (or optional backpack). *ResQtec* also introduced the equally non-hydraulic but more conventional looking *EDD-FX* series (middle-right) which is the same electric-only, rather than hydraulic pump, concept but a little slicker. We used both the *P16* and *Junkers* kit operationally for many years at a time when their competition was the hose-fed hydraulic systems from generators creating a lot of noise, tool-travel restriction and fumes. Battery tools were largely dismissed as 'toys' despite their obvious advantages and capabilities so hose-fed tools were unopposed in the market for far longer than we expected. Some would argue (rightly) that if they want to maintain the 'grunt' of a hose fed tool they can simply switch to a battery generator and this is a fair compromise but hoses and sheer size of tool can still be a problem. Enter another battery tool we started using in '97 which really 'miniaturised' rescue tools - the excellent *Ogura* system from Japan (pic top left) . *Ogura* were the first to use readily available 'trade' batteries; in this case a 12v *Makita* hand-drill powering a hydraulic pump to feed a miniature 4 tonne cutter, spreader or re-bar cutter via a short hydraulic hose. Only this morning, I used a long retired set from 25 years ago to lift a quarter tonne slab. It is little changed today except using 18v *Makita* batteries and with heads directly attaching to the drill/pump. Their *HR*S still has the option of an extension hose which is very useful in getting the smallest spaces. The longevity of the *Ogura* and *Powerhawk* are testament to just how good these first battery tools were. *Junkers* suffered from being too long for easy manoeuvring inside vehicles and confined spaces because it had a fixed head and handle while the *P-16* could rotate it's head to get into tight spaces and this is something taken on board by the latest battery tools where either the handle or the head or both can rotate for easier access. Nevertheless, most tools retained the longer body of the *Junkers* which evolved into the *Lukas* (or *Weber*?) range of tools. Because *Junkers, Ogura* and *Powerhawk* were seen as quirks of the industry rather than a portent of things to come, it wasn't until the turn of the century when *Holmatro* introduced their short-bodied, doodle-bug style model (pic left) powered by a readily available *DeWalt* 24v battery that we really began to see some progress in the rescue industry as the ability to use a common power source caught on. Even then it has taken another 20 years for fire departments to truly be considering them as 'instead of' conventional tools rather than 'in addition to'.

UPDATED Sept '24

SMART/APP CONNECTIVITY

It is already the case with battery tools that you get far more visual indicators of performance and function change than the old days - this may just be the battery charge status with green or red LEDs, usually on the battery but can extend to a dashboard style array of indicators like the WiFi enabled *Lukas/Hurst E3* panel on the right and *Weber*'s above that, to help you better control your cut/spread/pull placement and remaining work time. Pretty soon you'll be confronted with a fighter pilot-style array of lights and pictograms. This one includes a water icon to show that you've actually got a saltwater-proof battery attached and a temperature gauge. On from this, *Lukas* and *Hurst* and latterly *Weber* and *Genesis* have adopted a mobile or app-driven feature that allows their tools to be individually monitored for status, performance and inventory. This won't be everyone's cup of tea, particularly on the front line where any technological advance is greeted with scepticism but from a maintenance and management point of view and hopefully continuity of charging and readiness to perform, these will be a real bonus. On the downside, if you've seen the *Terminator* films you'll know that this is how the machines ultimately take over the world so make sure your online security systems are up to date and able to resist hacking. Talking of battery management, remember that modern Lithium ion batteries DO NOT have an infinite life, they will all provide somewhere between 100 discharges/recharges to over 500 and perhaps much more for the highest quality but whatever it is, there is limit and if you fail to manage the storage and charging of batteries they will decline in performance sooner rather than later. . It is worth seeking maintenance and likely discharge and cycling information when choosing a tool range and if there is a management tool available, invest in that too.

CROSSOVER FROM THE ARB INDUSTRY

We've already mentioned the Makita multi-battery series pack and their 40v pack servicing two external batteries is shown on the title page but two specialist companies known to rescuers are *Husqvarna* and *Stihl* which many rescue agencies use for reciprocating and quick-cut/circular saws as well as chainsaws. They not only have their own bespoke battery systems they also have excellent backpacks.

Some of these battery platforms are crossing over into other relevant rescue products - *Husqvarna* for instance can now be used in *Skylotec/Actsafe*'s powered ascenders so watch this space in terms of crossover into 'hydraulic' rescue tools.

The downside of all of these bespoke systems is the increased cost and availability compared to off-the-shelf batteries but there is no doubting their high quality and fitness for specific purposes. The rescue sector can be rightly proud to have led the way in underwater battery tools. We will see more long-duration back-pack options in the coming years and there will be a time when submersible, direct-connect batteries will be the norm.

COMMON TO ALL COMBIS, CUTTERS, SPREADERS, RAMS & SPECIALS

The tool length, width or height and weight are all WORKING spec so they **include the battery**. Many companies quote figures without the battery so at first glance seem lighter but when added, it has a significant affect on both the physical size and weight of a tool when in use. As with all cutting and spreading tools, the largest or highest figures are not necessarily the best for the job. Cutting and spreading strengths vary radically from the tips to nearer the fulcrum or union. The cutting codes for CE and NFPA certification given below are by far the BEST way to gauge the true abilities of a tool.

All force figures are given in KiloNewtons and US (short)tons

Any use, feature, accessory or component that is inherent in the tool is shown as a solid coloured square ■■■■
If it's an option it is shown as an outline square □□□□
A circle ● in the 'USE' columns indicates that this feature is only partially present and/or is OK for that purpose but not ideal.

A model variant is shown in cyan and any features or specifications that differ from the standard are also in cyan.

TOOLS-IN-RANGE: refers to the other types of tool available jn this specific series of tools using this specific battery type.
■= Combi ■= Cutter ■= Spreader ■= Ram ■= Special Tools

ORIGIN: The company's home country, not necessarily the country of manufacture which is indicated by an inset flag or two equally sized flags if the tool is made in both countries as is the case with *Holmatro's Pentheon.*

COST: As usual, this is clearly an official secret within the industry. This is because the cost of one tool is vastly different to the cost of multiples that they sell to entire fire services. But this is the same situation for virtually every piece of equipment we ever have in **TECHNICALRESCUE** where we always quote the single item cost on the understanding that any bulk purchase will of course be a lower figure. So, only TNT in the US have the confidence to quote a price and those will give you a very rough idea of where battery powered rescue tools sit in the price hierarchy.....not cheap! And the batteries are an expensive consumable as well - eg. a *Milwaukee M18* 5Ah battery can cost you £/$/€200-300 though individuals could purchase through Amazon etc. and save a packet! The prices that are shown are a rough guide only & include local taxes/VAT. They vary with exchange rates, extra taxes etc. We usually round up to the nearest Pound£/US Dollar$/Euro€. Cost is for basic model with included accessories indicated by a solid square in the appropriate column (optional extras being an outline square). In the case of *TNT* the cost includes two batteries and a charger but tools are normally costed without batteries and chargers.

WEIGHT IN HAND: Refers to the operational weight that the rescuer experiences in using the tool so it includes any on-board batteries but not necessarily any extras like clip-on lighting or different tips.

WEIGHT of BATTERY: is for the default battery supplied or preferred by the manufacturer. Those that use 'off-the-shelf' brands like *Milwaukee* and *DeWalt* may well be able to use either higher Ah models for greater capacity/duration or lower Ah for decreased cost and perhaps weight but less duration.

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'hydraulic' BATTERY COMBI-TOOLS

BATTERY DURATION & RECHARGE TIME: Work-time or duration is much trickier as it depends on the resistance of the material being cut/spread/squeezed, the temperature, the age of the battery and even how meticulously you follow the recharge guidelines. Consequently some won't quote a figure at all and others are generous to say the least - consider most to be the absolute maximum with minimal workload. Tools last much longer carrying out hundreds of short duration cuts like the Genesis figure of <45mins compared to a few really long and hard cuts like *Homatro*'s minimum 11minute figure in like-for-like cutting/spreading their battery will match the highest time given by others cutting smaller and lighter materials. Recharge time can be more specific though it varies wildly between basic and high speed chargers. The time shown is for the charger supplied or preferred by the manufacturer.

DIMENSIONS: The Length of tool ready to work x by the width which is usually dictated by the union of the head but sometimes by the handle x the height which is the height off the ground if you lay the tool down and is usually dictated by either the handle or the battery if it is top-mounted.

IN-WATER-CAPABLE= ■ The tool/battery can be used underwater - it is not just water resistant to heavy rain. **TOOL/BATTERY IP**. Ingress protection for dust (first number) & water (second number) - IP54 resists water splashes, IP57 & 67 withstand inundation to 1metre, IP58&68 deeper than 1metre. Trade batteries like Milwaukee are not waterproof and tend not to quote an IP number because they are dependant on the tool to create an effective seal. Specialist batteries like Holmatro and Lukas are watertight (IP68) but you can safely assume that regular trade batteries are no more than IP54 so they are splashproof but certainly not submersible.

WiFi DIAGNOSTICS: ■ The tool and/or battery are linked to a mobile device to manage functions, servicing and inventory or ■=can be hardwired to a laptop etc. for diagnostic analysis

COMBINATION CUTTING & SPREADING What sets a combi tool apart from dedicated cutters and spreaders? A combi is a combination cutter and spreader on the same set of blades - almost always this is a straight cutting blade with serrated edges operating in a scissor action with flattened ends that perform the spreading or squeezing function. Some major on the spreading with cutting as a secondary function - you'll know from the blade design. Some will have the means to add specialist or larger tips to the end via push-pins. Most dedicated cutters have a parrot-beak design that grasps the material being cut whereas straight blades like combis can squeeze harder materials along the blade before they're severed causing you to re-site for a second bite. There is no question that a combi-tool rarely, if ever, performs either cutting or spreading as well as the best dedicated tools but for that entire first ⅔ 's of performance bandwidth, combi-tools can hold their own and are most often the tool of choice simply because you only need the one. They fit easily into the smallest of response vehicles or even response jet-packs..... you'll see.

BLADE DESIGNS

Combi tool blades are almost all straight blade, scissor action cutters with a spreader tip at the end of each blade. But not all. A few variances are the entry tools like the blue *Lukas/Hurst* tool on the right which we'll come to later and the *Scorpe* tool below it in green/black which has a US-style curved cutting blade (parrot-beak) as does the Dutch *ResQtec G4*, These have two quite small spreader tips set towards the back edge of the blade. It has to be that far back to allow the parrot beak to close fully due to the curve. This parrot beak is generally preferred in the specialist cutter blades because it grabs and holds difficult to cut, harder bar material rather than spit it out as straight blades can. Straight blades overcome this to some extent by having a serrated or scalloped blade rather than perfectly straight shear blades and this helps to grip hard bar materials. We don't see quite so much of the pivot-point notch design that we see in handheld pliers and multitools where the strongest part of the jaw, deep into the mouth of the tool, has a notch for cutting harder wires.

BATTERY RESCUE TOOLS

Some appear to have an obvious rebate or curve near the blade union but some are more indicative of the blade's design requirement to rotate around a wide hub than a hard-bar cutting notch. Nevertheless, as with all blades, the highest strength is closest to this union with strengths for cutting and spreading dropping off significantly as you get towards the tips. You would therefore always try to cut hard materials within the first quarter of the blades length. Some tools have the spreader tips as a 'bolt-on' or detachable feature which gives the cutting blade better access to make a deeper cut like the *Amkus 716* on the opposite and some are additional spreading length to an integral spreader tip like the *Holmatro Pentheon* above. Virtually all of the regular straight blade combi tools have attachment holes for pulling chains or stabilising plates. Again, combi tools tend not to have the strength or the pull-distance of the much larger dedicated spreaders but the whole point of a combination tool is to give you a bit of both capabilities and while it is often the spreading that lags a little behind dedicated tool capabilities it is the cutting blades that tend to be taxed more by modern car capabilities. Spreading and pulling requirements have remained reasonably constant while cutting requirements continue to increase with harder and harder materials and construction. The various indents and cut-aways that you see with some blades is simply a means to concentrate strength in certain areas of the blades and reduce weight in others. Those like the *Weber/Genesis* blades that have complete cut-away shapes are lighter and, possibly as a coincidence, can give you a slightly improved view of the area beneath the section of bar or material you are cutting/spreading.

ENTRY TOOLS

Many brands have an entry tool intended for law enforcement and military applications but are just as applicable to a medical team trying to get to an incapacitated casualty in their home. The tips are designed to be door-busters where one half of the blades stays anchored to a surface/wall while the upturned blade edge tries to get into the best gap it can fit and force the door away from its lock(s) or in some cases the hinges which can be significantly weaker (held just by screws) than a lock designed specifically to resist being forced. Regular spreaders are too large but some combi-tools can be used if they can take specialist tips like the *Lukas 358* Combi-tool above which otherwise have tips that won't easily fit a door gap. Regular spreaders tend to push the door against its hinge/lock rather than forcing the door outwards away from the jam. Entry tools are not intended for vehicle extrication but with a cutting surface as well as modified spreading they can achieve far more than a hand tool or no tool at all. We have a separate Guide for Special Tools.

IN THE FOLLOWING TABLES.....

REFER TO COMMON DATA ON PAGE14/15 PLUS THIS UNIQUE COMBI-TOOLS KEY TO THE TABLES.....

(T) CUT/SPREAD/PULL/SQUEEZE FORCE: Is a range or the maximum force possible with the (T) standing for theoretical as all of these figures are to some extent unless verified by a CE and/or NFPA cut and spread test figure. Pull force is only possible if the tips can accept a chain or adapter tip. Combi-tools that are primarily cutters may not be designed to squeeze.

DISTANCE: Some give a range from minimum to maximum spread distance but don't forget that max distance provides only minimum force.

REMOVABLE TIPS: Increase the distance or the grip type

ROTATE HEAD/HANDLE: Can improve access if the tool has a large handle or bulky head and/or battery or simply too long.

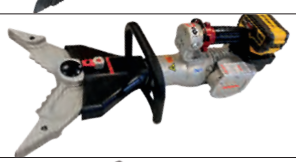
LED LIGHTS: Integral lighting from the handle or housing to illuminate the area being cut/spread.

WiFi/Bluetooth-CAPABLE: The tool and/or battery are linked to a mobile device via Wifi &/or Bluetooth to manage functions, servicing and inventory. This category is listed twice.

IN-WATER-CAPABLE= The tool/battery can be used underwater

TOOL/BATTERY IP. Ingress protection for water & dust where IP54 resists water splashes and IP67 withstands inundation

IMAGES NOT TO SCALE
OTHER TOOLS IN RANGE:
■= Cutter ■= Spreader ■=Ram
■= Special Tools
●= PARTIAL FEATURE
□□□= Option
N/A = info Not Available/not given
Str-Curve=Straight section ahead of curve

	MODEL SERIES (WiFi/ Bluetooth) VOLTAGE	COMPANY	TOOLS IN RANGE	ORIGIN	COST inc tax / VAT	**WEIGHT** IN HAND inc BATTERY(IES)	**WEIGHT** DEFAULT BATTERY	BATTERY Ah OPTIONS	BATTERY DURATION RECHARGE TIME
	**ION ict614** 54/60V	**AMKUS**	■■■■		N/A	22.3kg 49lb	1.2kg 2.6 lb	DeWalt FlexVolt 6Ah 9,12Ah	10-30mins 60mins
	**ION ict516 Compact** 54/60V	**AMKUS**	■■■■		N/A	23kg 50.6 lb	1.2kg 2.6 lb	DeWalt FlexVolt 6Ah 9,12Ah	10-30mins 60mins
	**ION ict716** 54/60V	**AMKUS**	■■■■		N/A	26.3kg 58lb	1.2kg 2.6 lb	DeWalt FlexVolt 6Ah 9,12Ah	10-30mins 60mins
	**MDC300 T30 BO** 54/60V	**EDILGRAPPA**			N/A	15.7kg 34.5lb	1.4kg 3lb	DeWalt FlexVolt 9Ah	10-30mins 60mins
	**MDC390N-E** 54/60V	**EDILGRAPPA**	■■■■		N/A	23.6kg 52lb	1.4kg 3lb	DeWalt FlexVolt 9Ah	10-30mins 60mins
	**MDC300 T30** 18/20V	**EDILGRAPPA**			N/A	13.1kg 28.8lb	0.6kg 1.3lb	DeWalt FlexVolt 5Ah	12-20mins 30-75mins
	**11C RIT3 E-Force** 28V	**GENESIS RESCUE**			N/A	14.9kg 32.8"	1.4/ 1kg 3.2/ 2.3lb	Genesis/ Milwaukee 5Ah*	<45min 90mins
	**11C SL3 E-Force** 28V	**GENESIS RESCUE**			N/A	13.6kg 30 lb	1.4/ 1kg 3.2/ 2.3lb	Genesis/ Milwaukee 5Ah*	<45min 90mins
	**14C SL3 E-Force** 28V	**GENESIS RESCUE**	■■■■		N/A	18.8kg 41.4lb	1.4/ 1kg 3.2/ 2.3lb	Genesis/ Milwaukee 5Ah*	<45min 90mins
	**15C SL3 E-Force** 28V	**GENESIS RESCUE**			N/A	20kg 44.1lb	1.4/ 1kg 3.2/ 2.3lb	Genesis/ Milwaukee 5Ah*	<45min 90mins
	**17C SL3 E-Force** 28V	**GENESIS RESCUE**			N/A	21kg 46.3lb	1.4/ 1kg 3.2/ 2.3lb	Genesis/ Milwaukee 5Ah*	<45min 90mins

BATTERY COMBI-TOOLS

LENGTH w/TIPS	WIDTH	HT/ DEPTH	CUT CLASSES EN CLASSIFICATION EN CUT CAPACITY NFPA CLASS	CUT (T) FORCE OPENING ROUND BAR	SPREAD (T) FORCE DISTANCE	PULL (T) FORCE DISTANCE (T)SQUEEZE FORCE	REMOVABLE TIPS	ROTATE HEAD/HANDLE	LED LIGHTS	WiFi/ CAPABLE	IN-WATER-CAPABLE TOOL/BATTERY IP	NOTES	WWW.
889mm 35"	235mm 9.25"	305mm 12"	- - - A6, B8, C6, D8, E7	- 185mm 7.3" 25.4mm 1"	<35.7kN <4t 353mm 13.9"	- - -	■	■	■	-	- -	Replaces ict516	amkus.com
861mm 33.9"	241mm 9.5"	241mm 9.5"	- - - A6, B7, C6, D7, E7	- 185mm 7.3" -	29-39.7kN 3.3-4.5t 394mm 15.5"	- - -	-	■	■	-	- -	DISCONTINUED replaced by ict614	amkus.com
885mm 34.8" 917mm 36.1"	221mm 8.7"	295mm 11.6"	- - UL-Certified A7/B8/C7/D9/E8/F5	- 351mm 13.8" -	29-36.7kN 3.3-4.1t 396mm 15.6"	218kN 24.5t	■	■	■	-	- -- -	Weight inc tips= 27.9kg 61.4lb	amkus.com
731mm 28.8"	245mm 9.7"	236mm 9.3"	- BK46/302-F-13 - -	375kN 42.2t - -	45-134kN 5-13.7t 302mm 11.9"	45kN 5t 64kN 7.2t	-	■	■	-	- -		edilgrappa.com
861mm 33.9"	274mm 10.8"	241mm 9.5"	- BK30/390-H-22 A6/B7/C6/D7/E7	- 185mm 7.3" -	29-39.7kN 3.3-4.5t 394mm 15.5"	- - -	-	-	■	-	- -		edilgrappa.com
748mm 29.5"	245mm 9.7"	339mm 13.3"	- BK46/302-F-13 - -	375kN 42.2t -	46-134kN 4.7-13.7t 302mm 11.9"	45kN 4.6t 64kN 6.5t	-	■	■	-	- -		edilgrappa.com
824mm 32.4"	192mm 7.6"	241mm 9.5"	- - - A6 B7 C6 D7 E7	285mm 11.2" 28mm 1.1"	26-30kN 2.9-3.4t 215mm 8.5"	36-41kN 4-4.6t 276mm 10.9"	■	■		-	- 54	*15Ah powerpack also avaialble. Optional USAR carry-Backpack	genesisrescue.com
811mm 31.9"	192mm 7.6"	241mm 9.5"	- - - A7 B7 C6 D7 E7	221mm 8.7" 28mm 1.1"	24-32kN 2.7-3.6t 270mm 7.6"	34-45kN 3.8-4.6t 352mm 13.9"	-	■		-	- 54	*15Ah powerpack also avaialble	genesisrescue.com
927mm 36.5"	236mm 9.3"	241mm 9.5"	- - - A7 B8 C6 D8 E8 F5	285mm 11.2" 32mm 1.25"	28-40kN 3.1-4.5t 360mm 14.2"	39-56kN 4.4-6.3t 380mm 15"	-	■	4	-	- 54	*15Ah powerpack also avaialble	genesisrescue.com
933mm 36.7"	236mm 9.3"	241mm 9.5"	- - - A7 B8 C6 D8 E8 F5	295mm 11.5" 32mm 1.25"	28-39kN 3.1-4.4t 370mm 14.6"	39-54kN 4.4-6t 360mm 14.2"	■	■	4	-	- 54	*15Ah powerpack also avaialble	genesisrescue.com
969mm 38.1"	236mm 9.3"	241mm 9.5"	- - - A7 B9 C7 D9 E9 F6	342mm 13.5" 32mm 1.25"	29-40kN 3.3-4.5t 405mm 15.9"	36-57kN 4-6.4t 406mm 16"	■	■	4	-	- 54	*15Ah powerpack also avaialble	genesisrescue.com

IMAGES NOT TO SCALE
OTHER TOOLS IN RANGE:
■= Cutter ■= Spreader ■=Ram
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●= PARTIAL FEATURE
□□□= Option
N/A = info Not Available/not given
Str-Curve=Straight section ahead of curve

	MODEL SERIES (WiFi/Bluetooth) VOLTAGE	COMPANY	TOOLS IN RANGE	ORIGIN	COST inc tax / VAT exc battery	**WEIGHT** IN HAND inc BATTERY(IES)	**WEIGHT** DEFAULT BATTERY	BATTERY Ah OPTIONS	BATTERY DURATION RECHARGE TIME
	PENTHEON PCT60 28V	HOLMATRO			N/A	23.4kg 51.6"	1.5kg 3.3lb	Holmatro PBPA287 8Ah	>11mins 60mins
	PENTHEON PCT5 28V	HOLMATRO	■ ■ ■		N/A	20.3kg 44.8lb	1.5kg 3.3lb	Holmatro PBPA287 8Ah	>11mins 60mins
	PENTHEON PCT14 28V	HOLMATRO			N/A	14.2kg 31.3lb	1.5kg 3.3lb	Holmatro PBPA287 8Ah	>11mins 60mins
	PENTHEON-PCT11 28V	HOLMATRO			N/A	13.8kg 30.4lb	1.5kg 3.3lb	Holmatro PBPA287 8Ah	>11mins 60mins
	SC758 E2 25.2V	HURST JAWS of LIFE			N/A	25.5kg 56.1lb	0.9kg 2lb	Lukas 5Ah	<30mins 75mins
	SC358 E2 25.2V	HURST JAWS of LIFE	■ ■ ■		N/A	19.7kg 43.3lb	0.9kg 2lb	Lukas 5Ah	<30mins 75mins
	SC258 E2 25.2V	HURST JAWS of LIFE			$12,415	15.8kg 34.7lb	0.9kg 2lb	Lukas 5Ah	<30mins 75mins
	SC758 E3connect 25.2V	HURST JAWS of LIFE			$13,290	26kg 57.2lb	1.6kg 3.5lb	Lukas 9 5Ah	<60mins
	SC358 E3connect 25.2V	HURST JAWS of LIFE	■ ■ ■		N/A	20kg 44lb	1.6kg 3.5lb	Lukas 9 5Ah	<60mins
	SC258 E3connect 25.2V	HURST JAWS of LIFE			N/A	16kg 35.2lb	1.6kg 3.5lb	Lukas 9 5Ah	<60mins
	SC758 EWXT 25.2V	HURST JAWS of LIFE	■ ■ ■		N/A	26kg 57.3lb	1.6kg 3.5lb	Lukas 9 5Ah	<60mins

BATTERY COMBI-TOOLS

LENGTH w/TIPS	WIDTH	HT/ DEPTH	**CUT** CLASSES EN CLASSIFICATION EN CUT CAPACITY NFPA CLASS	**CUT** (T) FORCE OPENING ROUND BAR	**SPREAD** (T) FORCE DISTANCE	**PULL** (T) FORCE DISTANCE (T)**SQUEEZE** FORCE	REMOVABLE TIPS	ROTATE HEAD/HANDLE	LED LIGHTS	WiFi / CAPABLE	IN-WATER-CAPABLE TOOL/BATTERY IP	NOTES	WWW.
1011mm 39.8"	270mm 10.6"	275mm 10.7"	- CK45/468-J-23.4 1J 2J 3K 4K 5K A8 B9 C8 D9 E9 F4	370kN 41.6t 394mm 15.5" 40mm 1.6"	44.6-1860kN 5-209t 468mm 18.4"	105kN 11.8t 87.9kN 7.2t	■	■	6		■ 57 57		holmatro.com
898mm 35.4"	268mm 10.6"	273mm 10.7"	- CK43/380J-20.3 1J 2J 3K 4K 5K A7 B8 C8 D8 E8 F3	370kN 41.6t 320mm 12.6" 36mm 1.4"	43-1860kN 4.8-209t 380mm 15"	104kN 11.7t 87kN 9.8t	■	-	6		■ 57 57		holmatro.com
731mm 28.8"	270mm 10.6"	275mm 10.8"	- BK33/362-E-14.2 1E 2E 3E 4E 5E A5 B5 C5 D6 E4 F3	268kN 277mm 10.9" 24mm 0.9"	33-1350kN 3.7-151.7t 362mm 14.3"	- 34kN 3.8t	-	-	6		■ 57 57		holmatro.com
677mm 26.7"	270mm 10.6"	275mm 10.8"	- BK48/281-E-13.8 1E 2E 3E 4E 5E A5 B5 C5 D6 E4 F3	268kN 196mm 7.7" 24mm 0.9"	48-1350kN 5.4-151.7t 281mm 11.1"	- 44kN 4.9t	-	-	6		■ 57 57		holmatro.com
1065mm 41.9"	275mm 10.8"	284mm 11.2"	- - - A8 B9 C9 D9 E9 F5	885kN 99.5t 408mm 16.1" 40mm 1.57"	43-1500kN 4.8-168.6t 475mm 18.7"	<94kN <10.6t 340mm 13.4"	■	-	-	-	- 54		jawsoflife.com
956mm 37.7"	237mm 9.3"	278mm 10.9"	- - - A7 B8 C7 D8 E7 F4	492kN 55.3t 309mm 12.2" 35mm 1.4"	38-1500kN 4.3-168.6t 368mm 14.5"	<61kN <6.9t 382mm 15"	■	-	-	-	- 54		jawsoflife.com
874mm 34.4"	215mm 8.5"	281mm 11.1"	- - - A6 B6 C6 D7 E7	280kN 31.5t 233mm 9.2" 26mm 1"	32-700kN 3.6-78.7t 321mm 12.6"	<34kN <3.8t 330mm 13.4"	-	-	-	-	- 54		jawsoflife.com
980mm 38.6"	266mm 10.5"	253mm 10"	- - - A8 B9 C9 D9 E9 F5	885kN 99.5t 400mm 15.7" 40mm 1.57""	43-1500kN 4.8-168.6t 475mm 18.7"	<94kN <10.6t 340mm 13.4"	■	-	2	Wi Fi	□ ? 58	Can use EWXT IP68 battery	jawsoflife.com
876mm 34.5"	235mm 9.25"	253mm 10"	- - - A7 B8 C7 D8 E7 F4	492kN 55.3t 309mm 12.2" 35mm 1.4"	38-1500kN 4.3-168.6t 368mm 14.5"	<61kN <6.9t 382mm 15"	■	-	2	Wi Fi	□ ? 58	Can use EWXT IP68 battery	jawsoflife.com
792mm 31.2"	210mm 8.3"	253mm 10"	- - - A6 B6 C6 D7 E7	280kN 31.5t 233mm 9.2" 26mm 1"	24-700kN 2.7-78.7t 321mm 12.6"	<34kN <3.8t 330mm 13.4"	-	-	2	Wi Fi	□ ? 58	Can use EWXT IP68 battery	jawsoflife.com
980mm 38.6"	266mm 10.5"	253mm 10"	- - - A8 B9 C9 D9 E9 F5	280kN 31.5t 233mm 9.2" 40mm 1.57"	38-700kN 4.3-78.7t 475mm 18.7"	<94kN <10.6t 340mm 13.4"	■	-	2	-	■ 68 58	Removable Tips	jawsoflife.com

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OTHER TOOLS IN RANGE:
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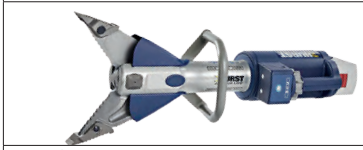
Str-Curve=Straight section ahead of curve

	MODEL SERIES (WiFi/) VOLTAGE	COMPANY	TOOLS IN RANGE	ORIGIN	COST inc tax / VAT	**WEIGHT** IN HAND inc BATTERY(IES)	**WEIGHT** DEFAULT BATTERY	BATTERY Ah OPTIONS	BATTERY DURATION RECHARGE TIME	L
	**SC358 EWXT** 25.2V	**HURST JAWS of LIFE**	■ ■ ■		**N/A**	**20kg 44lb**	**1.6kg 3.5lb**	**Lukas 9 5Ah**	**<60mins**	
	**SC258 EWXT** 25.2V	**HURST JAWS of LIFE**			**N/A**	**16kg 35.2lb**	**1.6kg 3.5lb**	**Lukas 9 5Ah**	**<60mins**	
	**E100 StrongArm** 25.2V	**HURST JAWS of LIFE**	-		**N/A**	**11-11.7kg 24.25-25.8lb**	**1.2kg 2.7lb**	**Lukas 273100610 4Ah**		
	**LE100 StrongArm** 25.2V	**HURST JAWS of LIFE**			**N/A**	**11-11.7kg 24.25-25.8lb**	**1.2kg 2.7lb**	**Lukas 273100610 4Ah**		

BATTERY COMBI-TOOLS

LENGTH w/TIPS	WIDTH	HT/ DEPTH	**CUT** CLASSES EN CLASSIFICATION EN CUT CAPACITY NFPA CLASS	**CUT** (T) FORCE OPENING ROUND BAR	**SPREAD** (T) FORCE DISTANCE	**PULL** (T) FORCE DISTANCE (T)**SQUEEZE** FORCE	REMOVABLE TIPS	ROTATE HEAD/HANDLE	LED LIGHTS	WiFi / CAPABLE	IN-WATER-CAPABLE TOOL/BATTERY IP	NOTES	WWW.
876mm 34.5"	235mm 9.25"	253mm 10"	- - - A7 B8 C7 D8 E7 F4	280kN 31.5t 309mm 12.2" 35mm 1.4"	33-700kN 3.7-78.7t 368mm 14.5"	<61kN <6.9t 382mm 15"	■	-	2	-	■ 68 58	Removable Tips	jawsoflife.com
792mm 31.2"	210mm 8.3"	253mm 10"	- - - A6 B6 C6 D7 E7	280kN 31.5t 233mm 9.2" 26mm 1"	24-700kN 2.7-78.7t 321mm 12.6"	<34kN <3.8t 330mm 13.4"	-	-	2	-	■ 68 58		jawsoflife.com
775-796mm 30.5-31.3"	195mm 7.7"	210mm 8.3"	- - - A5 B3 C5 D6 E6	155kN 17.4t 207mm 8.1" 22.2mm 0.9"	28-700kN 3.2-78.7t 184-215mm 7.2-8.5"	- - -	■	-	-	-	54 54	Fire Rescue version with push-button release combi and door opening tips	jawsoflife.com
775-796mm 30.5-31.3"	195mm 7.7"	210mm 8.3"	- - - A5 B3 C5 D6 E6	155kN 17.4t 207mm 8.1" 22.2mm 0.9"	28-700kN 3.2-78.7t 184-215mm 7.2-8.5"	- - -	■	-	-	-	54 54	Military version with push-button release combi and door opening tips Picatinny rail	jawsoflife.com

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	MODEL SERIES (WiFi/Bluetooth) VOLTAGE	COMPANY	TOOLS IN RANGE	ORIGIN	COST inc tax / VAT	**WEIGHT** IN HAND inc BATTERY(IES)	**WEIGHT** DEFAULT BATTERY	BATTERY Ah OPTIONS	BATTERY DURATION RECHARGE TIME
	**SC758 E2** 25.2V	**LUKAS**	■ ■ ■		N/A	25.5kg 56.1lb	0.9kg 2lb	Lukas 5Ah	<30mins 75mins
	**SC358 E2** 25.2V	**LUKAS**			N/A	19.7kg 43.3lb	0.9kg 2lb	Lukas 5Ah	<30mins 75mins
	**SC258 E2** 25.2V	**LUKAS**			N/A	15.8kg 34.7lb	0.9kg 2lb	Lukas 5Ah	<30mins 75mins
	**SC758 E3connect** 25.2V	**LUKAS**			N/A	25.6kg 56.3lb	1.6kg 3.5lb	Lukas 9 5Ah	<60mins
	**SC358 E3connect** 25.2V	**LUKAS**	■ ■ ■		N/A	20kg 44lb	1.6kg 3.5lb	Lukas 9 5Ah	<60mins
	**SC258 E3connect** 25.2V	**LUKAS**			N/A	16kg 35.2lb	1.6kg 3.5lb	Lukas 9 5Ah	<60mins
	**SC758 eWCT** 25.2V	**LUKAS**			N/A	26kg 57.3lb	1.6kg 3.5lb	Lukas 9 5Ah	<60mins
	**SC358 eWCT** 25.2V	**LUKAS**	■ ■ ■		N/A	20kg 44lb	1.6kg 3.5lb	Lukas 9 5Ah	<60mins
	**SC258 eWCT** 25.2V	**LUKAS**			N/A	16kg 35.2lb	1.6kg 3.5lb	Lukas 9 5Ah	<60mins
	**E100 StrongArm** 25.2V	**LUKAS**	-		N/A	11.1-11.8kg	1.3kg 2.9lb	Lukas 273100610 4Ah	?
	**LE100 StrongArm** 25.2V	**LUKAS**			N/A	11.1-11.8kg	1.3kg 2.9lb	Lukas 273100610 4Ah	?

BATTERY COMBI-TOOLS

LENGTH w/TIPS	WIDTH	HT/ DEPTH	**CUT** CLASSES EN CLASSIFICATION EN CUT CAPACITY NFPA CLASS	**CUT** (T) FORCE OPENING ROUND BAR	**SPREAD** (T) FORCE DISTANCE	**PULL** (T) FORCE DISTANCE (T)**SQUEEZE** FORCE	REMOVABLE TIPS	ROTATE HEAD/HANDLE	LED LIGHTS	WiFi / CAPABLE	IN-WATER-CAPABLE TOOL/BATTERY IP	NOTES	WWW.
1065mm 41.9"	275mm 10.8"	284mm 11.2"	J CK 43/475-J-25,5 1J-2K-3K-4K-5K A8 B9 C9 D9 E9	885kN 99.5t 408mm 16.1" 40mm 1.57"	43-1500kN 4.8-168.6t 475mm 18.7"	<94kN <10.6t 340mm 13.4"	■	-	-	-	- 54		lukas.com
956mm 37.7"	237mm 9.3"	278mm 10.9"	I CK 38/368-I-19,7 1I-2J-3I-4J-5J A7 B8 C7 D8 E7	492kN 309mm 12.2" 35mm 1.4"	38-1500kN 4.3-168.6t 368mm 14.5"	<61kN <6.9t 382mm 15"	■	-	-	-	- 54		lukas.com
874mm 34.4"	215mm 8.5"	281mm 11.1"	F BK 32/320-F-15.8 1G-2F-3F-4F-5G A6 B6 C6 D7 E7	280kN 31.5t 233mm 9.2" 26mm 1"	32-700kN 3.6-78.7t 321mm 12.6"	<34kN <3.8t 330mm 13.4"	-	-	-	-	- 54		lukas.com
987mm 38.8"	266mm 10.5"	253mm 10"	J - 1J-2K-3K-4K-5K A8 B9 C9 D9 E9 F5	885kN 99.5t 408mm 16.1" 40mm 1.57"	43-1500kN 4.8-168.6t 475mm 18.7"	<94kN <10.6t 340mm 13.4"	■	-	2	Wi Fi	□ 68 58	Tips options set to include Door Opening tips	lukas.com
876mm 34.5"	235mm 9.25"	253mm 10"	I - 1I-2J-3I-4J-5J A7 B8 C7 D8 E7 F4	492kN 309mm 12.2" 35mm 1.4"	38-1500kN 4.3-168.6t 368mm 14.5"	<61kN <6.9t 382mm 15"	■	-	2	Wi Fi	□ 68 58	Tips options set to include Door Opening tips	lukas.com
792mm 31.2"	210mm 8.3"	253mm 10"	F - 1G-2F-3F-4F-5G A6 B6 C6 D7 E7 F4	280kN 31.5t 233mm 9.2" 26mm 1"	32-700kN 3.6-78.7t 321mm 12.6"	<34kN <3.8t 330mm 13.4"	-	-	2	Wi Fi	□ 68 58		lukas.com
987mm 38.8"	266mm 10.5"	253mm 10"	J - 1J-2K-3K-4K-5K A8 B9 C9 D9 E9 F5	885kN 31.5t 400mm 15.7" 26mm 1"	43-1500kN 4.8-168.6t 475mm 18.7"	<94kN <10.6t 340mm 13.4"	■	-	2	-	■ 68 68		lukas.com
876mm 34.5"	235mm 9.25"	253mm 10"	I CK 38/368-I-19,6 1I-2J-3I-4J-5J A7 B8 C7 D8 E7 F4	492kN 309mm 12.2" 35mm 1.4"	38-1500kN 4.3-168.6t 368mm 14.5"	<61kN <6.9t 382mm 15"	■	-	2	-	■ 68 68	Tips options set to include Door Opening tips	lukas.com
792mm 31.2"	210mm 8.27"	253mm 10"	F BK 32/320-F-15.6 1G-2F-3F-4F-5G A6 B6 C6 D7 E7	280kN 31.5t 233mm 9.2" 26mm 1"	32-700kN 3.6-78.7t 321mm 12.6"	<34kN <3.8t 330mm 13.4"	-	-	2	-	■ 68 68	Tips options set to include Door Opening tips	lukas.com
775-796mm 30.5-31.3"	195mm 7.7"	210mm 8.3"	- - - A5 B3 C5 D6 E6	155kN 17.4t 207mm 8.1" 22.2mm 0.9"	28-700kN 3.2-78.7t 184-215mm 7.2-8.5"	- - -	■	-	-	-	54 54	Fire Rescue version with combi and door opening tips	lukas.com
775-796mm 30.5-31.3"	195mm 7.7"	210mm 8.3"	- - - A5 B3 C5 D6 E6	155kN 17.4t 207mm 8.1" 22.2mm 0.9"	28-700kN 3.2-78.7t 184-215mm 7.2-8.5"	- - -	■	-	-	-	54 54	Military/Law Enforcement version in black	lukas.com

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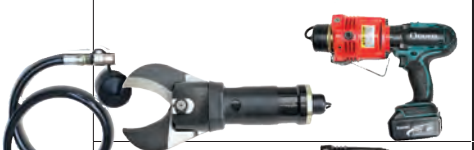
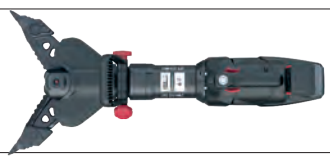
Str-Curve=Straight section ahead of curve

	MODEL SERIES (WiFi/) VOLTAGE	COMPANY	TOOLS IN RANGE	ORIGIN	COST inc tax / VAT	WEIGHT IN HAND inc BATTERY(IES)	WEIGHT DEFAULT BATTERY	BATTERY Ah OPTIONS	BATTERY DURATION RECHARGE TIME
	BC-300BL 18V	OGURA		●	N/A	14.5kg 32lb	1/ 1.36kg 2,2/ 3lb	Makita 5/6Ah*	<12mins 55-120mins
	BC-300X 18V	OGURA	■ ■ ■ ■	●	N/A	14kg 30.9lb	1/ 1.36kg 2,2/ 3lb	Makita 5/6Ah*	<12mins 55-120mins
	RP-V250 18v	OGURA		●	N/A	14kg 30.9 lb	1/ 1.36kg 2,2/ 3lb	Makita 5/6Ah*	<12mins 55-120mins
	HRS931/ HRS-932 Shear Head 18v	OGURA	■ ■ ■ ■	●	N/A	3.9kg 8.6lb +6.2kg +13.7lb	1/ 1.36kg 2,2/ 3lb	Makita 5/6Ah*	<12mins 55-120mins
	HRS941/ HRS-934 Spreader 18v	OGURA		●	N/A	4.2kg 9.3lb 5.4kg 11.9lb	1/ 1.36kg 2,2/ 3lb	Makita 5/6Ah*	<12mins 55-120mins
	P16 Legacy PowerBlade 12v 16v LiGHT	POWERHAWK TECHNOLOGIES	■ ■ ■ ■		N/A	*21.4kg 47lb	*4.5kg 9.9lb 15.9kg *35lb	Powerhawk 12.4Ah LiGHT 33Ah 12v	<120mins <15hr
	P-16X PowerBlade 12v	POWERHAWK TECHNOLOGIES	■ ■ ■ ■		N/A	21.6kg 47.5lb	1.36kg 3lb	Powerhawk 7.5Ah or any 12v source	<120mins
	Frontliner P4FX EDD 43.2V	POWERHAWK TECHNOLOGIES /RESQTEC	■ ■ ■		N/A	21.8kg 48lb	1kg 2.2lb	Resqtec 2.6Ah	<45mins 90mins
	FX4-FJ EDD 43.2V	RESQTEC	■ ■ ■		N/A	17.1kg 37.6lb	1kg 2.2lb	Resqtec 2.6Ah	<45mins 90mins
	FX6-DJ EDD 43.2V	RESQTEC			N/A	21.3kg 46.8lb	1kg 2.2lb	Resqtec 2.6Ah	<45mins 90mins
	G4-WX Frontliner EDD 43.2V	RESQTEC	■ ■ ■		N/A	17.1kg 37.6lb	1kg 2.2lb	Resqtec 2.6Ah	<45mins 90mins

BATTERY COMBI-TOOLS

LENGTH w/TIPS	WIDTH	HT/ DEPTH	**CUT** CLASSES EN CLASSIFICATION EN CUT CAPACITY NFPA CLASS	**CUT** (T) FORCE OPENING ROUND BAR	**SPREAD** (T) FORCE DISTANCE	**PULL** (T) FORCE DISTANCE (T)**SQUEEZE** FORCE	REMOVABLE TIPS	ROTATE HEAD/HANDLE	LED LIGHTS	WiFi/ CAPABLE	IN-WATER-CAPABLE TOOL/BATTERY IP	NOTES	WWW.
703mm 27.7"	154mm 6.1"	288mm 11.3"	- - - -	36-549kN 4-61.7t 197mm 7.76" 25mm 1"	145-392kN 16.3-44t 300mm 11.8"	- - 74.5kN	-	■	■	-	- -	*EU uses 5Ah, US tends to use 6Ah	ogurarescuetools.com
754mm 29.7"	154mm 6"	293mm 11.5"	- - - -	145-392.3kN 16.3-44t 197mm 7.76"	36-567kN 4-63.7t 300mm 11.8"	- - 74.5kN	-	■	■	-	- -		ogurarescuetools.com
558mm 22"	250mm 9.8"	180mm 7.1"	- - - -	600kN 67.4t 197mm 7.76	32-699kN 3.6-78.7t 250mm 9.8"	- - 119.6kN	-	■	■	-	- -		ogurarescuetools.com
303mm 11.9" +382mm +15"	111mm 4.4" 186mm 7.3"	272mm 10.7" 104mm 4.1"	- - - -	98kN 11t 100mm 3.9"	- -	- - -	-	■	-	-	- -	Heads swap out in seconds. Cutter, Spreader etc. attach via short hose or direct to the powerhead. 941 for US market. All heads interchangeable between power units	ogurarescuetools.com
328mm 12.9" +352mm +13.9"	111mm 4.4" 121mm 4.8"	273mm 10.7" 78mm 3.1"	- - - -	- -	39.3kN 4.4t 158mm 6.2"	- - -	-	■	-	-	- -		ogurarescuetools.com
659mm 27"	254mm 10"	279mm 11"	- - - A3 B6 C3 D5 E6	93.4-200kN 10.5t 254mm 10"	44.5-80.1kN 5-9t 254mm 10"	- - -	■	■	-	-	- -	interchangeable Cutter,spreader and combi heads. *Weight-in-Hand does NOT include Battery pack.* Both P16&P16X can use a regular 12v car battery. *Wt = battery+controller	powerhawk.com
659mm 27"	254mm 10"	279mm 11"	- - - PENDING	93.4-200kN 10.5t 254mm 10"	44.5-80.1kN 5-9t 254mm 10"	- - -	■	■	-	-	- -		powerhawk.com
765mm 30.1"	271mm 10.7""	274mm 10.8"	F - 1H 2F 3F 4H 5H A6 B6 C5 D6 E6	321kN 36t 236mm 9.3"	43.7-107kN 4.9-12t 319mm 12.6"	- 96mm 3.8" -	■	■	□	-	- -	interchangeable Cutter,spreader and combi heads*10Ah powerpack also available	powerhawk.com rescue.resqtec.com
856mm 33.7"	236mm 9.3"	228mm 9"	H CK36.3-350H-17.0 1H 2H 3H 4J 5I A6 B7 C6 D7 E6	<720kN <80.9t 283mm 11.1"	29-286kN 3.3-32.1t 350mm 13.8"	52.9-62.9kN 6--7.1t 271mm 10.7" 38.5-43.3kN 4.3-4.9t	■	■	□	-	- -	*10Ah powerpack also available	rescue.resqtec.com
950mm 37.4"	268mm 10.5""	235mm 9.25"	J CK44.8-432J-21.4 1J 2J 3J 4K 5K A7 B8 C7 D9 E7	1200kN 135t 358mm 14.1"	44.8-1570kN 5-176.5t 432mm 17"	66.5-80.1kN 7.5-9t 327mm 12.9" 51.5-60.3kN 5.8-6.8t	-	-	□	-	- -	*10Ah powerpack also available	rescue.resqtec.com
827mm 32.6"	236mm 9.3"	228mm 9"	F BK33.8-369F-17 1H 2F 3G 4F 5G A6 B6 C6 D7 E6	<554kN <62.3t 156mm 6.1"	33.8-485kN 3.8-54.5t 369mm 14.5"	- - 36.8-42.3kN 4.2-4.7t t	■	■	□	-	- -	*10Ah powerpack also available	rescue.resqtec.com

IMAGES NOT TO SCALE
OTHER TOOLS IN RANGE:
■= Cutter ■= Spreader ■=Ram
■= Special Tools
●= PARTIAL FEATURE
□□□= Option
N/A = info Not Available/not given
Str-Curve=Straight section ahead of curve

	MODEL SERIES (WiFi/Bluetooth) VOLTAGE	COMPANY	TOOLS IN RANGE	ORIGIN	COST inc tax / VAT	**WEIGHT** IN HAND inc BATTERY(IES)	**WEIGHT** DEFAULT BATTERY	BATTERY Ah OPTIONS	BATTERY DURATION RECHARGE TIME
	**Combi MK** 28v	**SCORPE**	■ ■ ■		N/A	19.3kg 42.2lb	1kg 2.2lb	Milwaukee 5Ah	<45mins 90mins
	**Combi SK** 28v	**SCORPE**			N/A	15.1kg 33.2lb	1kg 2.2lb	Milwaukee 5Ah	<45mins 90mins
	**EBFCC-28 Storm Surge** 18V	**TNT RESCUE**	■ ■ ■		$12000	25.1kg 55lb	1.1kg 2.4lb	8/9Ah MilwaukeeM18 DeWalt FlexVolt or Makita 18v	87mins
	**SPS270 mk2 E-Force3/ Smart** 18/28V	**WEBER RESCUE**			N/A	13.6kg 30 lb	1kg 2.2lb	Milwaukee 5Ah M28M18	<45mins 90mins
	**SPS360 mk2 E-Force3/ Smart** 18/28V	**WEBER RESCUE**			N/A	18.1kg 39.8lb	1kg 2.2lb	Milwaukee 5Ah M28M18	<45mins 90mins
	**SPS370 mk2 E-Force3/ Smart** 18/28V	**WEBER RESCUE**	■ ■ ■		N/A	19.2kg 42.2lb	1kg 2.2lb	Milwaukee 5Ah M28M18	<45mins 90mins
	**SPS400 mk2 E-Force3/ Smart** 18/28V	**WEBER RESCUE**	■ ■ ■		N/A	21kg 46.3lb	1kg 2.2lb	Milwaukee 5Ah M28M18	<45mins 90mins
	**SPS480 mk2 E-Force3/ Smart** 18/28V	**WEBER RESCUE**			N/A	24.7kg 54.5lb	1kg 2.2lb	Milwaukee 5Ah M28M18	<45mins 90mins
	**Rit Tool E-Force3/ Smart** 18/28V	**WEBER RESCUE**			N/A	13.3kg 29.3lb	1kg 2.2lb	Milwaukee 5Ah M28M18	<45mins 90mins

BATTERY COMBI-TOOLS

LENGTH w/TIPS	WIDTH	HT/ DEPTH	**CUT** CLASSES EN CLASSIFICATION EN CUT CAPACITY NFPA CLASS	**CUT** (T) FORCE OPENING ROUND BAR	**SPREAD** (T) FORCE DISTANCE	**PULL** (T) FORCE DISTANCE (T)**SQUEEZE** FORCE	REMOVABLE TIPS	ROTATE HEAD/HANDLE	LED LIGHTS	WiFi / BT CAPABLE	IN-WATER-CAPABLE TOOL/BATTERY IP	NOTES	WWW.
974mm 38.3"	222mm 8.7"	248mm 9.8"	- CK37/360 H 19.3 - -	491kN 55.2t - 30mm 1.2"	45-783kN 5-88t 360mm 14.2"	- 60kN 6.7t -	☐	■	4	-	- -		scorpe.net
858mm 33.8"	195mm 7.7""	248mm 9.8"	- BK30/265 E 15.1 - -	324kN 36.4t 120mm 4.7" 25mm 1"	35-691kN 3.9-77.7t 270mm 10.6"	- - -	-		4	-	- -		scorpe.net
920mm 36.2"	267mm 10.5"	298mm 11.7"	- - - A8 B9 C8 D8 E9 F4	694kN 78t 343mm 13.5" 38mm 1.5"	106-1272kN 11.9-143t 422.7mm 16.6"	- - -	■	-	2	-	- 54	Option of 3 battery ranges. TNT prices include 2 batteries & Dual Rapid charger. ESLCC twin battery DISCONTINUED	tntrescue.com
811mm 31.9"	236mm 9.3"	241mm 9.5"	- BK31/270G-13.6 1H-2G-3G-4H-5G A6 B7 C6 D7 E7 F3	- 221mm 8.7" 28mm 1.1"	31-591kN 3.5-66.4t 270mm 10.6"	<36kN 4t 395mm <52kN	-	■	4	Wi Fi	- 68		weber.com
927mm 36.5"	236mm 9.3"	241mm 9.5"	- CK36/360I-18.1 1I-2K-3J-4K-5J A7 B8 C7 D9 E8 F5	- 285mm 11.2" 32mm 1.25"	36-783kN 4-88t 360mm 14.1"	<53kN 6t 440mm <70kN	-	■	4	Wi Fi	- 68	All E-Force tools can covert to hose	weber.com
933mm 36.7"	236mm 9.3"	241mm 9.5"	- CK35/370H-19.2 1I-2J-3H-4J-5I A7 B8 C7 D8 E8 F5	- 295mm 11.6" 32mm 1.25"	35-783kN 3.9-88t 370mm 14.6"	<57kN 6.4t 405mm <72kN	■	■	4	Wi Fi	- 68		weber.com
969mm 38.1"	236mm 9.3"	241mm 9.5"	- CK35/405I-21.0 1I-2K-3J-4K-5J A7 B9 C7 D9 E9 F6	- 343mm 13.5" 32mm 1.25"	35-1071kN 3.9-120.4t 405mm 15.9"	<58kN 6.5t 450mm	■	■	4	Wi Fi	- 68		weber.com
1062mm 41.8"	263mm 10.4"	241mm 9.5"	- CK45/480K-24.7 1K-2K-3K-4K-5K A8-B9-C9-D9-E9-F7	- 402mm 15.8" 32mm 1.25"	45-1600kN 5-180t 480mm 18.9"	<78kN 8.76t 525mm 107kN	■	■	4	Wi Fi	- 68		weber.com
773mm 30.4"	192mm 7.6"	241mm 9.5"	- AC140H-13,3 1H-2H-3H-4H-5H A6 B7 C6 D7 E7 F3	324kN 36.4t 241mm 9.5" 28mm 1.1"	30-1305kN 3.4-146.7t 380mm 15"	35-47kN 3.9-5.3t	■	■	4	Wi Fi	- 68		weber.com
													expansion row
													expansion row

'hydraulic' BATTERY DEDICATED CUTTERS

Our title picture shows a great demonstration of how versatile some battery tools have become, in this case the *Holmatro Pentheon* series with full underwater cutting capability. It's not quite so good as a water safety promotion with a fine example of what NOT to wear when working in or near water, a non-buoyant firefighting tunic that probably weighs a ton and a half when wet. Even waist-deep water is a hazard if this firefighter suffers a medical event or is incapacitated in some way. For the purposes of this article we're going to pretend that this tunic is one of a new generation with integrated self-inflating life jacket that only inflates upon full immersion not when doused by a fire hose.

Do not try this with most battery tools!

Dedicated cutters are perhaps the core tool of any rescue range - there tend to be more of them and it seems that more time and effort is spent on their design and performance than the others. The previous section was on combination tools and those are all cutters as well as spreaders so you should also refer to that selection of battery tools in considering what you need of your cutter and whether the versatility of the combi-tool is more advantageous than the generally greater cutting performance of a dedicated tool. If you include the previous 50 combi-tools in your shopping list of potential cutting tools you have over 120 models to choose from. These are all direct-connect battery systems. Although we have mentioned *Libervit*'s batteries and underwater prowess, their tools have not been included because they are regular hose-fed hydraulics that operate from a battery driven pump. Bear in mind that most hose-fed hydraulic tools can be run from hoses to a battery-powered hydraulic pump but that's a whole different GUIDE!

As with all 5 parts of this Guide, refer to the introduction on pages 10 to 14 for generic information on the battery systems. Some data/features headers differ between each type of tool.

BLADE DESIGN

A fully curved parrot beak blade is now a rare beast indeed but there was a time when it was the only game in town for cutter blades. Now, they may look like a full curve but they all have a straight section like the *Edilgrappa* model below. This parrot beak was generally preferred in the specialist cutter blades because it grabs and holds difficult to cut, harder bar material rather than spit it out as a scissor-straight blade might. However, straight blades quickly edged into the market alongside parrot-beak blades partly because combi-tools mostly need to be straight blades to accommodate spreading tips and partly because a serrated or scalloped blade was introduced to help grip hard bar materials rather than perfectly straight shearing blades. We don't see quite so much of the pivot-point notch design that we see in handheld pliers and multitools where the strongest part of the jaw, deep into the mouth of the tool, has a notch for cutting harder wires but they are an obvious presence on TNT's models which we have listed as a straight blade. Some appear to have an obvious rebate or curve near the blade union but this can be more indicative of the blade's design requirement to rotate around a wide hub than a hard-bar cutting notch. Nevertheless, as with all blades, the highest strength is closest to this union with strengths for

LUKAS

DISCOVER THE NEXT 23 CONNECT DIMENSION

cutting dropping off significantly as you get towards the tips. You would therefore always try to cut hard materials within the first quarter of the blades length. Again, don't forget that many combi tools have detachable spreader tips and can therefore be used as dedicated cutters so it is worth reviewing those models to determine if your operational needs can be met by a combi-tool. But we mentioned last time that modern car materials are taxing cutters more than spreaders and this will be a prime reason for choosing a dedicated cutter over a combi- the sheer grunt to be able to cut the toughest of materials.

Unlike combi tools with spread extensions, cutting blades tend to be a solid forged lump of hardened steel so, though smaller in size than a spreader, they're not necessarily lighter. *Weber/ Genesis* blades are unusual in having cut-away holes in their cast blades which does make them lighter and may, as we surmised last time, improve visibility of the materials around the cut.

Holmatro were the first to evolve the curve blade, first by extending the curve rather than being semi-circular and then by mimicking a spanner head and extending the front part of the curve into a straight, shearing section - this enables 'pre-cutting' of the section, especially sheet metal to ease the resistance once the material is pulled further into the high strength curve section. We now see blades that look more like a straight front section feeding into a straight rear section rather than curved. The angled junction of the two straighter blade sections still acts to capture the material being cut and force it deeper into the stronger section of blade. Because the difference between a straight-curve blade and a straight blade with less curve is mostly quite subtle we've described all such two-shaped blades as ***Str-Curve*** in our tables and these are now the norm across most product ranges. The traditional full curve parrot beak is still evident in 'legacy' models and in some smaller hand-drill style cutters but very much a minority design and most of those listed in our table as 'Curve' like the *TNT Rescue* models, are actually a much elongated curve rather than semi-circle. *Weber* have introduced blade 'inserts' with their '*Plus*' range allowing you to swap out the most abused sections of blade - this may provide significant savings and is something we will likley see more of. *Holmatro* further describe their own jaw design as 'inclined' because most of their tools have cutting jaws that are angled downwards by 30 degree. This is a useful feature even though it has yet to adopted by others, because it allows the tool to rotate further without 'trapping' the operator and gives increased access options where the body of the tool might otherwise inhibit placement of the cutting head. Which brings us to.....

ROTATE HEAD and/or HANDLE

This incline in the *Holmatro* tool is their permanently configured answer to improved access while their handle wraps around entirely allowing 360° use. Some have fixed handles that don't go all the way round but give about 270° of access like the *Power Hawk* above right which does have a 360° rear handle but the front handle uses two handle bars to add versatility rather than a full 360° wrap. Others have addressed access problems by allowing the handle to be rotated so that it doesn't get in the way of a specific cut as with *Scorpe, Weber* and *Amkus* models or by having the jaws rotate as with the *Power H awk P16X* and *Resqtec PW4*. Another original proponent of the rotating head is the *Ogura* tool with its electric drill power-unit. The original variant, the *HRS* had a hose (now direct connection to the powerhead) that allows 360° rotation of the head but the later *RP* models (pic above) are fixed to the power unit and have a rotating front handle.

LED lighting

LED LIGHTS

Even though all helmets can have a headlamp attached and many have a light as an integral feature, they are often situation so that cutting in restricted spaces puts the cutting area into shade rather than illuminating it. The first to introduce LEDs into their rescue tools was *Holmatro*, with most manufacturers now following suit. Some, like the *Amkus* on the left have embedded LEDs into the handle while others like the *Weber* are embedded in the rear housing. If your tool doesn't have on board lighting you could simply retrofit a small LED torch/ flashlight to the handle or barrel with a strap or zip-tie.

SIZE MATTERS

We mentioned in part one that contrary to our expectations and preferences when battery tools first arrived that the length and bulk would be reduced, they weren't. One or two models that started down the 'stubby' versus 'long' route like the *Power Hawk* and subsequent P4 *Resqtec* continued to evolve that line of tools to provide a modern option and the hand-drill design has continued as a separate branch but for the most part, all of the conventional cutting, spreading and combi-tools went on to be a very

BATTERY CUTTERS

IMAGES NOT TO SCALE

similar size and look as the hose-fed versions except with a battery stuck on somewhere. *Holmatro*'s new mini-cutter which has a similar cutting head to most peddle cutters shows how a battery can create a very useful self-contained tool that can go anywhere although peddle cutters have long been run from short extensions without any problems because they were only ever operating in the footwell. This new model can be used in any area of a vehicle or for building entry or railing cutting etc. It's a high-cutting power option that can virtually be carried in a vehicle glove-box.....if you had a really, really big glove-box.

NOISE

Something we didn't elaborate on in part 1 was the noise generated by battery tools. We said and often say, that there is very little noise associated with battery tools as compared to a petrol engine or, in the case of hydraulics, a petrol/gas generator. When a battery tool is NOT being used there is virtually no noise, no background tick-over or the continuous quite loud noise of a fuel-driven generator, even the so called whisper-pumps. But when the tool is operating there is a noise, often a high-pitch whirr that increases with workload. As an example, *Libervit*'s large backpack battery with hydraulic pump generates 48 dB, the *Lukas/Hurst 799* = 69 to 74 Decibells and Holmatro's *MiniCutter* =74. Those aren't bad - compared to a 32cc chainsaw at around 80 to 103dB and of course, the petrol chainsaw continues to generate a relatively high noise even on tick-over.

WiFi & BLUETOOTH DIAGNOSTICS

Most modern tool batteries already show charge status - usually with a line of green LEDs but many do much more. Some like *Holmatro* have a hard-wired diagnostics capability where the tool is linked to a laptop to assess work hours, maintenance and performance as well as Bluetooth. This can be done in the field but is generally a post-incident task undertaken back on-station. Others use a mobile app on WiFi or Bluetooth to connect remotely to a 'Smart' phone, device or wrist-monitor. *Weber*'s range of *E-Force* models has a *Smart-Force* variant which uses app-management. *Lukas/Hurst E-Connect* variants have mobile connectivity that allows their tools to be monitored for status, performance and inventory but they have also taken things a step further with an integrated dashboard on the handle to give real time information and *Libervit* have a wrist-mounted screen for tool monitoring.

LEFT: The Weber Smart-Force range uses a battery cover on the rear to keep its Milwaukee 18v battery waterproof

IN THE FOLLOWING TABLES.....

REFER TO COMMON DATA ON PAGE14/15 PLUS THIS UNIQUE CUTTERS KEY....

CUT FORCE: Is the maximum *theoretical* force possible but not quoted by all because the EN and/or NFPA classifications cover this more accurately. Indeed, one or two manufacturers flat-out refuse to quote it because they feel it is a misleading figure. Our figures are in kN (KiloNewtons) and US (Short) Ton. There are 1.10 US short tons to a a UK ton and to the metric ton (or tonne).

CUT OPENING: The maximum distance the cutter blades will open but don't forget that this does not equate to the material that can be cut as the max opening provides the least power. Check out the round bar cutting figure for more accurate interpretation of cutting prowess.

ROUND BAR: According to NFPA (and/or EN cut classifications) (see table on page 33) this is the max size of round bar that can be cut as a prescribed material with a specified Rockwell Hardness so that all tests are comparable.

ROTATE HEAD/HANDLE: Either the blade or the handle can rotate for better access to the cut or the handle will extend around the tool by 180, 270 or 360° to allow it to be used in any position.

UPDATED Sept '24

The Lukas & Hurst E3, E3-Connect, Lukas EWXT and Holmatro Pentheon series of tools are all fully sealed against water immersion with batteries that can & E3 Connect can even use a salt water battery that can be swapped under fresh and salt water. On the illuminated 'dashboard' present on E3 and E3 con indicates when the saltwater battery is on board. Note the EWXT model shown in the main picture does not have the full 'dashboard' of the E3/E3 Connec cover on their 18v Milwaukee battery and top-right is their on-board dash. Libervit have used battery tools in sea water for years and even have full WiFi mounted monitor with 30m range, but their tools require a remote battery/hydraulic pump backpack attached via lead rather than a battery attached di

IMAGES NOT TO SCALE
OTHER TOOLS IN RANGE:
■= Combi ■= Spreader ■=Ram
■= Special Tools
●= PARTIAL FEATURE
□□□= Option
N/A = info Not Available/not given
Str-Curve=Straight section ahead of curve

	MODEL SERIES (WiFi) VOLTAGE	COMPANY	TOOLS IN RANGE	ORIGIN	COST inc tax / VAT	**WEIGHT** IN HAND inc BATTERY(IES)	**WEIGHT** DEFAULT BATTERY	BATTERY Ah OPTIONS	BATTERY DURATION RECHARGE TIME
	**ION ic650 Mid-Size Compact** 54/60V	**AMKUS**			N/A	23.7kg 52.3lb	1.2kg 2.6 lb	DeWalt FlexVolt 6Ah 9, 12Ah	10-15mins 60mins
	**ION ic700 Short Blade** 54/60V	**AMKUS**			N/A	25.6kg 56.6lb	1.2kg 2.6 lb	DeWalt FlexVolt 6Ah 9, 12Ah	10-15mins 60mins
	**ION ic750 Large Blade** 54/60V	**AMKUS**			N/A	26kg 57.3 lb	1.2kg 2.6 lb	DeWalt FlexVolt 6Ah 9, 12Ah	10-15mins 60mins
	**F180-2P BO** 54/60V	**EDILGRAPPA**			N/A	22.5kg 10.2lb	1.4kg 3lb	DeWalt FlexVolt 9Ah	10-25mins 60mins
	**F150N-E** 54/60V	**EDILGRAPPA**			N/A	22.3kg 10.1lb	1.4kg 3lb	DeWalt FlexVolt 9Ah	10-25mins 60mins
	**F130-N-T30** 18/20V	**EDILGRAPPA**			N/A	13.1kg 28.8lb	0.6kg 1.3lb	DeWalt FlexVolt 5Ah	10-15mins 60mins

NFPA Cutting Codes	A	B	C		D	E
MATERIAL CATEGORY	ROUND BAR	FLAT BAR	ROUND PIPE		SQUARE TUBE	ANGLE IRON
MATERIAL	A-36 Hot-rolled	A-36	Schedule 40 A-53 Grade B		A-500 Grade B	A-36
	Diameter	Thickness x Width	Nominal Size	OD x Wall Thickness	Dimension x Wall Thickness	Square Dimension x Thickness
PERFORMANCE LEVEL	(in.)	(in. x in.)	(in.)	(in. x in.)	(in. x in.)	(in. x in.)
1	3/8	1/4 x 1/2	3/8	0.68 x 0.09	1/2 x 0.06	1/2 x 1/8
2	1/2	1/4 x 1	3/4	1.05 x 0.11	1 3/4 x 0.06	1 x 1/8
3	5/8	1/4 x 2	1	1.32 x 0.13	1 x 0.08	1 1/4 x 3/16
4	3/4	1/4 x 3	1 1/4	1.66 x 0.14	1 1/4 x 0.12	1 1/2 x 3/16
5	7/8	1/4 x 4	1 1/2	1.90 x 0.15	1 1/2 x 0.12	1 1/2 x 1/4
6	1	3/8 x 3	2	2.38 x 0.15	1 3/4 x 0.12	1 3/4 x 1/4
7	1 1/4	3/8 x 4	2 1/2	2.88 x 0.20	2 x 0.15	1 1/2 x 3/8
8	1 1/2	3/8 x 5	3	3.50 x 0.22	2 1/2 x 0.19	2 x 3/8
9	1 3/4	3/8 x 6	3 1/2	4.00 x 0.23	3 x 0.19	2 1/2 x 3/8

n be changed under water. The Lukas/Hurst E3 nnect models (pics above) a wavy sea symbol ct. Weber's Smart range uses a waterproof management including this handy Wrist- rectly to the tool.

STORED **DIMENSIONS** LENGTH	WIDTH inc battery	DEPTH	**CUT** CLASSES EN CLASSIFICATION EN CUT CAPACITY NFPA CLASS	THEORETICAL **CUT FORCE** t= US short ton	**CUT OPENING ROUND BAR**	**WORKING (HYDRAULIC) PRESSURE**	BLADE TYPE	ROTATE HEAD/HANDLE	LED LIGHTS	WiFi/ CAPABLE	IN-WATER-CAPABLE TOOL/BATTERY IP	NOTES	WWW.
863mm 34"	221mm 8.7"	241mm 9.5"	- - - A6 B8 C6 D8 E7	0kN 0t	147.3mm 5.8" 25mm* 1"	700 Bar 10.2K psi	Str-Curve	- 360°	■	-	- n/a	*as per NFPA A6	amkus.com
829mm 32.7"	221mm 8.7"	294mm 11.6"	- - A7 B8 C7 D9 E8 F4	0kN 0t	147mm 5.8" 31.75mm* 1.25"	700 Bar 10.2K psi	Str-Curve	- 360°	■	-	- -- n/a	*as per NFPA A7	amkus.com
856mm 33.7"	221mm 8.7"	294mm 11.6"	- - - A8 B9 C7 D9 E9 F4	0kN 0t	178mm 7" 38.1mm* 1.5"	700 Bar 10.2K psi	Straight	- 360°	■	-	- n/a	*as per NFPA A8	amkus.com
832mm 32.75"	262mm 10.3"	300mm 11.8"	J BC180-J-22.5 - -	871kN 98t	185mm 7.3" 24mm 0.95"	700 Bar 10.2K psi	Str-Curve	- 360°	■		- n/a		edilgrappa.com
777mm 30.6"	274mm 10.8"	244mm 9.6"	H BC150-H-20 A6 B5 C6 D7 E7	394kN 44.3t	147mm 5.8" 30mm 1.2"	700 Bar 10.2K psi	Str-Curve	- 270°	■	-	- n/a		edilgrappa.com
679mm 33.9"	245mm 10.8"	388mm 15.3"	F AC130-F-13 -	330kN 37.1t	130mm 5.1" 24mm 0.95"	550 Bar 8K psi	Curve	- 180°	■	-	- n/a		edilgrappa.com

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□□□= Option
N/A = info Not Available/not given
Str-Curve=Straight section ahead of curve

	MODEL SERIES (WiFi) VOLTAGE	COMPANY	TOOLS IN RANGE	ORIGIN	COST inc tax / VAT	**WEIGHT** IN HAND inc BATTERY(IES)	**WEIGHT** DEFAULT BATTERY	BATTERY Ah OPTIONS	BATTERY DURATION RECHARGE TIME
	**TP10** 18/20V	**EDILGRAPPA**	■ ■		N/A	8.5kg 18.7lb	0.6kg 1.3lb	DeWalt FlexVolt 5Ah	10-15mins 60mins
	**E-Force** 28V	**GENESIS RESCUE**			N/A	26.3kg 58lb	1.4kg 3.2lb 1kg 2.3lb	Genesis/ Milwaukee 5Ah*	<45min 90mins
	**C195 SL3-NXTGEN E-Force** 28V	**GENESIS RESCUE**	■ ■ ■ ■		N/A	20.6kg 45.4lb	1.4kg 3.2lb 1kg 2.3lb	Genesis/ Milwaukee 5Ah*	<45min 90mins
	**236 SL3 NXTGEN E-Force** 28V	**GENESIS RESCUE**			N/A	23.5kg 51.8lb	1.4kg 3.2lb 1kg 2.3lb	Genesis/ Milwaukee 5Ah*	<45min 90mins
	**Mass Transit Cutter** 109.104.0 **E-Force** 28V	**GENESIS RESCUE**			N/A	23.4kg 51.5lb	1.4kg 3.2lb 1kg 2.3lb	Genesis/ Milwaukee 5Ah*	<45min 90mins
	**PENTHEON PCU60** 28V	**HOLMATRO**			N/A	25kg 55.1lb	1.5kg 3.3lb	Holmatro PBPA287 8Ah	>11mins 60mins
	**PENTHEON PCU50** 28V	**HOLMATRO**	■ ■ ■		N/A	21.5kg 47.4lb	1.5kg 3.3lb	Holmatro PBPA287 8Ah	>11mins 60mins
	**PENTHEON PCU40** 28V	**HOLMATRO**			N/A	19kg 41.9lb	1.5kg 3.3lb	Holmatro PBPA287 8Ah	>11mins 60mins
	**PENTHEON** 28V	**HOLMATRO**			N/A	15.3kg 33.7lb	1.5kg 3.3lb	Holmatro PBPA287 8Ah	>11mins 60mins
	**MIni-Cutter** 18V	**HOLMATRO**	-		N/A*	4.9kg 10.8lb	0.4kg 0.9lb	Holmatro CAS 2Ah	<70 cuts 30mins
	**S 799 E2** 25.2V	**HURST (IDEX**	■ ■ ■		$13,900	26.2kg	1kg 2.1lb	Hurst 5Ah	30-60mins 90mins

STORED DIMENSIONS LENGTH	WIDTH inc battery	DEPTH	CUT CLASSES EN CLASSIFICATION EN CUT CAPACITY NFPA CLASS	THEORETICAL CUT FORCE t= US short ton	CUT OPENING ROUND BAR	WORKING (HYDRAULIC) PRESSURE	BLADE TYPE	ROTATE HEAD/HANDLE	LED LIGHTS	WiFi / CAPABLE	IN-WATER-CAPABLE TOOL/BATTERY IP	NOTES	WWW.
1034mm 40.7"	264mm 10.4"	143mm 5.6"	- - - -	233kN 26.2t	52mm 2" n/a	550 Bar 8K psi	Straight	360° -	■	-	- n/a		edilgrappa.com
1029mm 40.5"	298mm 11.7"	241mm 9.5"	- - - A9 B9 C9 D9 E9	0kN 0t	260mm 10.2" 45mm 1.75"	700 Bar 10.2K psi	Str-Curve	- 360°	-	-	- 54	*15Ah powerpack also available	genesisrescue.com
898mm 35.4"	236mm 9.3"	241mm 9.5"	- - - A8 B9 C7 D9 E9 F4	0kN 0t	185mm 7.3" 38mm 1.5"	700 Bar 10.2K psi	Str-Curve	- 360°	4	-	- 54	*15Ah powerpack also available	genesisrescue.com
994mm 39.1"	260mm 10.2"	241mm 9.5"	- - - A7 B8 C6 D8 E8 F5	0kN 0t	210mm 8.3" 32mm 1.25"	700 Bar 10.2K psi	Str-Curve	- 360°	4	-	- 54	*15Ah powerpack also available	genesisrescue.com
743mm 29.3"	205mm 8"	241mm 9.5"	- - - A4 B3 C5 D6 E6	0kN 0t	120mm 7.3" 19mm 0.75"	700 Bar 10.2K psi	Straight	- 360°	4	-	- 54	*15Ah powerpack also available	genesisrescue.com
969mm 38.1"	236mm 9.3"	241mm 9.5"	K CC205-K-25 1K 2K 3K 4K 5K A9 B9 C9 D9 E9 F4	1765kN 198.4t	205mm 8.1" 47mm 1.9"	720 Bar 10.4K psi	Str-Curve	- 360°	6	ᛒ	■ 57 57	Inclined blade angle. Stepless speed increase	holmatro.com
892mm 35.1"	270mm 10.6"	274mm 10.8"	K BC165-K-21.5 1K 2K 3K 4K 5K A8 B8 C7 D9 E9 F4	1389kN 156.2t	182mm 7.2" 41mm 1.6"	720 Bar 10.4K psi	Str-Curve	- 360°	6	ᛒ	■ 57 57	Inclined blade angle. Stepless speed increase	holmatro.com
832mm 32.8"	270mm 10.6"	300mm 11.7"	I BC165-I-19 1I 2I 3I 4J 5J A7 B7 C6 D7 E8 F3	764kN 85.9t	170mm 6.7" 36mm 1.4"	720 Bar 10.4K psi	Str-Curve	- 360°	6	ᛒ	■ 57 57	Inclined blade angle. Step less speed increase	holmatro.com
811mm 31.9"	270mm 10.6"	288mm 10.8"	G BC150-F-15.3 1H 2G 3G 4F 5G A5 B5 C5 D6 E4 F3	0kN 0t	170mm 6.7" 36mm 1.4"	720 Bar 10.4K psi	Str-Curve	- 360°	6	ᛒ	■ 57 57	Inclined blade angle. Step less speed increase	holmatro.com
554mm 21.8"	154mm 6.1"	92mm 3.6"	B AC59-B-4.9 1D 2D 3C A4 B3 C2 D4 E4	220kN 24.7t	59mm 2.3" 22mm 0.9"	720 Bar 10.4K psi	Straight	- 360°	1	-	20 54	Inclined blade angle. *Battery included	holmatro.com
1025mm 40.4"	281mm 11.1"	269mm 10.6"	K CC 200 K-26,2 1K-2K-3K-4K-5K A9 B9 C9 D9 E9 F5	1310kN 147.25t	204mm 8" 45mm 1.8"	700 Bar 10.1K psi	Str-Curve	- 360°	2	-	- 54		jawsoflife.com

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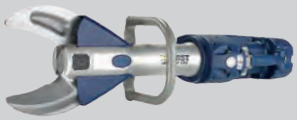
Str-Curve=Straight section ahead of curve

	MODEL SERIES (WiF) VOLTAGE	COMPANY	TOOLS IN RANGE	ORIGIN	COST inc tax / VAT	WEIGHT IN HAND inc BATTERY(IES)	WEIGHT DEFAULT BATTERY	BATTERY Ah OPTIONS	BATTERY DURATION RECHARGE TIME
	S 788 E2 25.2V	HURST (IDEX	■ ■ ■		$10,265	23.6kg 57.6lb	1kg 2.1lb	Hurst 5Ah	30-60mins 90mins
	S 377 E2 25.2V	HURST (IDEX			N/A	20.3kg 44.7lb	1kg 2.1lb	Hurst 5Ah	30-60mins 90mins
	S 799 E3connect 25.2V	HURST (IDEX			N/A	26.5kg 58.3lb	1.6kg 3.5lb	Hurst 9Ah 5Ah	<60mins 150-100mins
	S 789 E3connect 25.2V	HURST (IDEX	■ ■ ■		N/A	24kg 52.8lb	1.6kg 3.5lb	Hurst 9Ah 5Ah	<60mins 150-100mins
	S 378 E3connect 25.2V	HURST (IDEX			$11,240	20kg	1.6kg 3.5lb	Hurst 9Ah 5Ah	<60mins 150-100mins
	S 799-Beast E2 25.2V	LUKAS (IDEX)			N/A	26.5kg	1.2kg 2.7lb	Lukas 9Ah 5Ah	30-60mins 75-150mins
	S 788 E2 25.2V	LUKAS (IDEX)			N/A	23.8kg	1.6kg 3.5lb	Lukas 9Ah 5Ah	30-60mins 75-150mins
	S 377 E2 25.2V	LUKAS (IDEX)	■ ■ ■		N/A	20.5kg	1.2kg 2.7lb	Lukas 9Ah 5Ah	30-60mins 75-150mins
	S 312 E2 25.2V	LUKAS (IDEX)			N/A	20kg	1.2kg 2.7lb	Lukas 9Ah 5Ah	30-60mins 75-150mins
	S 799 E3/EWXT/ E3connect 25.2V	LUKAS (IDEX)			N/A	26.5kg lb	1.6kg 3.5lb	Lukas 9Ah 5Ah	<60mins 150-100mins
	S 789 E3/EWXT/ E3connect 25.2V	LUKAS (IDEX)	■ ■ ■		N/A	24kg	1.6kg 3.5lb	Lukas 9Ah 5Ah	<60mins 150-100mins

BATTERY CUTTERS

STORED DIMENSIONS LENGTH	WIDTH inc battery	DEPTH	CUT CLASSES EN CLASSIFICATION EN CUT CAPACITY NFPA CLASS	THEORETICAL CUT FORCE t= US short ton	CUT OPENING ROUND BAR	WORKING (HYDRAULIC) PRESSURE	BLADE TYPE	ROTATE HEAD/HANDLE	LED LIGHTS	WiFi / CAPABLE	IN-WATER-CAPABLE TOOL/BATTERY IP	NOTES	WWW.
1000mm 39.4"	266mm 10.5"	281mm 11.1"	K - 1K-2K-3K-4K-5K A8 B9 C8 D9 E9 F4	1100kN 123.6t	200mm 7.8" 42mm 1.6"	700 Bar 10.1K psi	Curve	- 360°	2	-	- 54		jawsoflife.com
934mm 36.8"	237mm 9.3"	281mm 11.1"	I - 1I-2J-3I-4J-5J A7 B8 C7 D7 E8	650kN 73t	206mm 8.1" 33mm 1.3"	700 Bar 10.1K psi	Curve	- 360°	2	-	- 54		jawsoflife.com
963mm 37.9"	265mm 10.4"	253mm 10"	K - 1K-2K-3K-4K-5K A9 B9 C9 D9 E9 F5	1310kN 147.25t	204mm 8" 45mm 1.8"	700 Bar 10.1K psi	Str-Curve	- 360°	2	Wi Fi	■ 68 58	Hurst E3 range is waterproof &Can use EWXT IP68 battery. 5Ah battery reduces length by 20mm	jawsoflife.com
939mm 37"	266mm 10.5"	253mm 10"	K - 1K-2K-3K-4K-5K A8 B9 C8 D9 E9 F5	1100kN 123.6t	205mm 8" 42mm 1.6"	700 Bar 10.1K psi	Str-Curve	- 360°	2	Wi Fi	■ 68 58	Hurst E3 range is waterproof &Can use EWXT IP68 battery. 5Ah battery reduces length by 20mm	jawsoflife.com
880mm 34.6"	235mm 9.25"	253mm 10"	I - 1I-2J-3K-4J-5J A7 B8 C7 D8 E8 F4	760kN 85.4t	202mm 7.9" 33mm 1.3"	700 Bar 10.1K psi	Curve	- 360°	2	Wi Fi	■ 68 58	Hurst E3 range is waterproof &Can use EWXT IP68 battery. 5Ah battery reduces length by 20mm	jawsoflife.com
1025mm 40.4"	281mm 11.1"	269mm 10.6"	K CC 200 K-26,2 1K-2K-3K-4K-5K A9 B9 C9 D9 E9 F5	1376kN 155.7t	204mm 8" 45mm 1.8"	700 Bar 10.1K psi	Str-Curve	- 360°	2	-	- 54		lukas.com
1000mm 39.4"	266mm 10.5"	281mm 10.1"	K - 1K-2K-3K-4K-5K A8 B9 C8 D9 E9 F4	1100kN 123.6t	200mm 7.7" 42mm 1.6"	700 Bar 10.1K psi	Curve	- 360°	2	-	- 54		lukas.com
934mm 36.8"	237mm 9.3"	281mm 10.1"	I - 1I-2J-3I-4J-5J A7 B8 C7 D7 E8	650kN 73t	206mm 8.1" 33mm 1.3"	700 Bar 10.1K psi	Curve	- 360°	2	-	- 54		lukas.com
917mm 36.1"	237mm 9.3"	281mm 11.1"	I BC 160 I - 19,3 1I-2J-3I-4J-5J A7 B8 C7 D7 E7	680kN 76.4t	160mm 6.3" 35mm 1.4"	700 Bar 10.1K psi	Curve	- 360°	2	-	- 54		lukas.com
963mm 37.4"	265mm 10.4"	253mm 10"	K - 1K-2K-3K-4K-5K A9 B9 C9 D9 E9 F5	1376kN 155.7t	204mm 8" 45mm 1.7"	700 Bar 10.1K psi	Curve	- 360°	2	Wi Fi	■ 68 58	All Can use EWXT IP68 battery which is standard on the EWXT range, EWXT does not have on board dashboard	lukas.com
939mm 37"	266mm 10.5"	253mm 10"	K - 1K-2K-3K-4K-5K A8 B9 C8 D9 E9 F5	1100kN 123.6t	205mm 8.1" 42mm 1.6"	700 Bar 10.1K psi	Str-Curve	- 360°	2	Wi Fi	■ 68 58	All Can use EWXT IP68 battery which is standard on the EWXT range, EWXT does not have on board dashboard	lukas.com

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	MODEL SERIES (WiFi/Bluetooth) VOLTAGE	COMPANY	TOOLS IN RANGE	ORIGIN	COST inc tax / VAT	**WEIGHT** IN HAND inc BATTERY(IES)	**WEIGHT** DEFAULT BATTERY	BATTERY Ah OPTIONS	BATTERY DURATION RECHARGE TIME
	**S 378 E3/EWXT/ E3connect** 25.2V	**LUKAS (IDEX)**	■■■		N/A	20kg	1.6kg 3.5lb	Lukas 9Ah 5Ah	<60mins 150-100mins
	**S 788 EWXT** 25.2V	**LUKAS (IDEX)**			N/A	23.8kg	1.6kg 3.5lb	Lukas 9Ah 5Ah	<60mins 150-100mins
	**S 312 EWXT** 25.2V	**LUKAS (IDEX)**			N/A	19.7kg	1.6kg 3.5lb	Lukas 9Ah 5Ah	<60mins 150-100mins
	**RP-C160** 18v	**OGURA**	■■■		N/A	14.7kg 32.4 lb	1/ 1.36kg 2.2-3lb	Makita 5/6Ah*	<12mins 55-120mins
	**HRS931/ HRS-932 Shear Head** 18v	**OGURA**	■■■		N/A	3.9kg 8.6lb +6.2kg +13.7lb	1/ 1.36kg 2.2-3lb	Makita 5/6Ah*	<12mins 55-120mins
	**HRS941/ HRS-932S 'Stubby' Shear Head** 18v	**OGURA**	■■■		N/A	4.2kg 9.3lb +5.7kg +12.5lb	1/ 1.36kg 2.2-3lb	Makita 5/6Ah*	<12mins 55-120mins
	**P16 Legacy** 12v 16v LiGHT	**POWERHAWK TECHNOLOGIES**	■■■		N/A	*21.4kg 47lb	*4.5kg 9.9lb 15.9kg *35lb	Powerhawk 12.4Ah LiGHT 33Ah 12v	? <120mins <15hr
	**P-16X PowerBlade** 1602L 7.5/12v	**POWERHAWK TECHNOLOGIES**			N/A	22.1kg 48.7lb	1.36kg 3lb	Powerhawk 7.5Ah or any 12v source	? <120mins
	**P-16X Shredder Blade** C1604 7.5/12v	**POWERHAWK TECHNOLOGIES**	■■■		N/A	21.1kg 46.5lb	1.36kg 3lb	Powerhawk 7.5Ah or any 12v source	? <120mins
	**P-16X Curved Blade** C-1601 7.5/12v	**POWERHAWK TECHNOLOGIES**			N/A	21.6kg 47.5lb	1.36kg 3lb	Powerhawk 7.5Ah or any 12v source	? <120mins
	**P-16X Hatchet Blade** C1603 7.5/12v	**POWERHAWK TECHNOLOGIES**			N/A	20.5kg 45lb	1.36kg 3lb	Powerhawk 7.5Ah or any 12v source	? <120mins

STORED DIMENSIONS LENGTH	WIDTH inc battery	DEPTH	CUT CLASSES EN CLASSIFICATION EN CUT CAPACITY NFPA CLASS	THEORETICAL CUT FORCE t= US short ton	CUT OPENING ROUND BAR	WORKING (HYDRAULIC) PRESSURE	BLADE TYPE	ROTATE HEAD/HANDLE	LED LIGHTS	WiFi / CAPABLE	IN-WATER-CAPABLE TOOL/BATTERY IP	NOTES	WWW.
880mm 34.6"	235mm 9.25"	266mm 10.5"	I - 1I-2J-3K-4J-5J A7 B8 C7 D8 E8 F4	760kN 85.4t	202mm 8" 33mm 1.3"	700 Bar 10.1K psi	Str-Curve	- 360°	2	Wi Fi	■ 68 58	All Can use EWXT IP68 battery but it's standard on the EWXT cutters	lukas.com
937mm 36.9"	266mm 10.5"	253mm 10"	K - 1K-2K-3K-4K-5K A8 B9 C8 D9 E9 F5	1100kN 123.6t	200mm 7.9" 42mm 1.6"	700 Bar 10.1K psi	Str-Curve	- 360°	2	-	■ 68 58	enhanced upgrade of the E2 series	lukas.com
858mm 33.8"	235mm 9.25"	253mm 10"	I BC 160 I - 19,3 1I-2J-3I-4J-5J -	680kN 76.4t	160mm 6.3" 35mm 1.4"	700 Bar 10.1K psi	Curve	- 360°	2	-	■ 68 58	enhanced upgrade of the E2 series	lukas.com
591mm 23.3"	256mm 10.1"	182mm 7.2"	- - - 1I 2D 3F 4F 5G	738kN 83t	160mm 6.3" 32mm 1.26"	N/A	Str-Curve	360°360°	■	-	- -	*EU uses 5Ah, US tends to use 6Ah	oguraresuetools.com
303mm 11.9" +382mm +15"	111mm 4.4" 186mm 7.3"	272mm 10.7" 104mm 4.1"	- - - -	98kN 11t	100mm 3.9" 32mm 1.26"	N/A	Curve	360° -	-	-	- -	Heads swap out in seconds. Cutter, Spreader etc. attach via short hose or direct to the powerhead. 941 for US market. All heads interchangeable between power units	oguraresuetools.com
328mm 12.9" +328mm +12.9"	111mm 4.4" 130mm 5.1"	273mm 10.7" 104mm 4.1"	- - - -	78.4kN 8.8t	26mm 1" 32mm 1.26"	N/A	Curve	360° 270°	-	-	- -		oguraresuetools.com
659mm 27"	254mm 10"	279mm 11"	- - - A3 B6 C3 D5 E6	93.4 to 200kN 10.5-22.5t	250mm 10" 25mm 1"	No Hydraulics	Straight	70° 270°	-	-	- -	Original version. Only in support of existing purchases. Accepts all blades as per P-16X below *Wt = battery+ controller	powerhawk.com
659mm 27"	254mm 10"	279mm 11"	- - - PENDING	93.4 to 200kN 10.5-22.5t	250mm 10" 25mm 1"	No Hydraulics	Straight	70° 270°	-	-	- -	interchangeable Cutter,spreader and combi heads. *Both P16&P16X can use a regular 12v car battery or any 12v power source with relevant adapter.	powerhawk.com
635mm 25"	254mm 10"	279mm 11"	- - - PENDING	>311TkN 35t	108mm 4.25" PENDING	No Hydraulics	Straight	70° 270°	-	-	- -		powerhawk.com
610mm 24"	254mm 10"	279mm 11"	- - - PENDING	133.4TkN 15t	125mm 5" PENDING	No Hydraulics	Straight	70° 270°	-	-	- -		powerhawk.com
559mm 22"	254mm 10"	279mm 11"	- - - PENDING	200.2kN 22.5t	76mm 3" PENDING	No Hydraulics	Straight	70° 270°	-	-	- -		powerhawk.com

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Str-Curve=Straight section ahead of curve

	MODEL SERIES (WiF) VOLTAGE	COMPANY	TOOLS IN RANGE	ORIGIN	COST inc tax / VAT	WEIGHT IN HAND inc BATTERY(IES)	WEIGHT DEFAULT BATTERY	BATTERY Ah OPTIONS	BATTERY DURATION RECHARGE TIME
	P-4W EDD 43.2V	RESQTEC			N/A	20.6kg 45.3lb	1kg 2.2lb	Resqtec 2.6Ah	<45mins 60mins
	G4W EDD 43.2V	RESQTEC	■ ■ ■		N/A	15.9kg 6lb	1kg 2.2lb	Resqtec 2.6Ah	<45mins 60mins*
	G6C EDD 43.2V	RESQTEC			N/A	20.3kg 44.8lb	1kg 2.2lb	Resqtec 2.6Ah	<45mins 60mins*
	G6W EDD 43.2V	RESQTEC			N/A	20kg 44lb	1kg 2.2lb	Resqtec 2.6Ah	<45mins 60mins*
	Cutter SC 28v	SCORPE			N/A	18.9kg 41.6lb	1kg 2.2lb	Milwaukee 5Ah M28	<45mins 90mins
	Cutter MC 28v	SCORPE	■ ■ ■		N/A	21.6kg 47.5lb	1kg 2.2lb	Milwaukee 5Ah M28	<45mins 90mins
	ESLC-29 Storm Surge 18V/20v	TNT RESCUE			N/A	24.4kg 53.75lb 24.76kg 54.6lb	1.1kg 2.4lb 0.6kg 1.3lb	Milwaukee 8/9Ah M18 DeWalt 9Ah FlexVolt20	87mins 10-15mins 60mins
	EBFC-320 Storm Surge 18V/20v	TNT RESCUE	■ ■ ■		N/A	28.8kg 63.6lb 29kg 63.9lb	1.1kg 2.4lb 0.6kg 1.3lb	Milwaukee 8/9Ah M18 DeWalt 9Ah FlexVolt20	87mins 10-15mins 60mins
	ESLC-24D Storm2 28v	TNT RESCUE			N/A	21.5kg 47.5lb	2x 1kg 2.2lb	Milwaukee 2x 5Ah M28	<90mins 60mins
	ESLC-27D Storm2 28v	TNT RESCUE			N/A	22.5kg 49.7lb	2x 1kg 2.2lb	Milwaukee 2x 5Ah M28	<90mins 60mins
	ESLC-29D Storm2 28v	TNT RESCUE	■ ■ ■		N/A	24.4kg 53.8lb	2x 1kg 2.2lb	Milwaukee 2x 5Ah M28	<90mins 60mins
	EBFC-320D Storm2 28v	TNT RESCUE			N/A	28.6kg 63.1lb	2x 1kg 2.2lb	Milwaukee 2x 5Ah M28	<90mins 60mins

BATTERY CUTTERS

STORED DIMENSIONS LENGTH	WIDTH inc battery	DEPTH	CUT CLASSES EN CLASSIFICATION EN CUT CAPACITY NFPA CLASS	THEORETICAL CUT FORCE t= US short ton	CUT OPENING ROUND BAR	WORKING (HYDRAULIC) PRESSURE	BLADE TYPE	ROTATE HEAD/HANDLE	LED LIGHTS	WiFi / BT CAPABLE	IN-WATER-CAPABLE TOOL/BATTERY IP	NOTES	WWW.
705mm 27.75"	271mm 10.7""	274mm 10.8"	E BC153E-20.6 1G 2E 3F 4F 5H A6 B5 C5 D6 E6	506kN 56.9t	153mm 6" 26mm 1"	No Hydraulics	Straight	61° -	☐	-	- 54	3x interchangeable heads/blades. Rear handle option. *Also 28Ah power-pack. Jaw recess (reach)= 118mm	rescue.resqtec.com
767mm 30.2"	236mm 9.3"	228mm 9"	F BC156F-15.9 1H 2F 3G 4F 5G A6 B6 C6 D7 E6	554kN 62.3t	156mm 6.1" 30mm 1.2"	N/A	Curve	- 360°	☐	-	- 54	*Also 28Ah powerpack. Jaw recess (reach) = 128mm. *Charger has been enhanced from pt1	rescue.resqtec.com
868mm 34.2"	251mm 9.9"	235mm 9.25"	H CC200H-20.3 1I 2J 3H 4H 5J A6 B7 C6 D7 E7	1102kN 124t	203mm 8" 34mm 1.3"	N/A	Curve	- 360°	☐	-	- 54	*Also 28Ah powerpack. Jaw recess (Reach) =150mm. *Charger has been enhanced from pt1	rescue.resqtec.com
854mm 33.6"	268mm 10.5"	235mm 9.25"	H BC185H-19.9 1I 2J 3H 4J 5J A6 B7 C6 D7 E9	1052kN 118t	185mm 7.3" 34mm 1.3"	N/A	Curve	- 360°	☐	-	- 54	*Also 10Ah powerpack. Jaw recess (Reach) = 150mm *Charger has been enhanced from pt1	rescue.resqtec.com
925mm 36.4"	222mm 8.7"	248mm 9.8"	G BC/160-G-18.9 - -	493kN 55.4t	160mm 6.3" 32mm 1.26"	700 Bar 10.2K psi	Curve	- 360°	4	-	- 54		scorpe.net
944mm 37.2"	232mm 9.1""	248mm 9.8"	I BC-185-I-21.6 - -	781kN 87.8t	180mm 7.1" 35mm 1.4"	700bar 10.2K psi	Curve	- 360°	4	-	- 54		scorpe.net
838mm 33"	267mm 10.5"	297mm 11.7"	- - - A8 B9 C9 D9 E9 F5	1256.4kN 141.2t	178mm 7" 38mm 1.5"	722 Bar 10.5K psi	Curve	- -	4	-	- 54	TNT prices include 2 batteries and Dual Rapid charger. Cut Reach 129mm/ 5"	tntrescue.com
909.7mm 35.8"	267mm 10.5"	300mm 11.8"	- - - A9 B9 C9 D9 E9 F6	1424kN 160t	257mm 10.12" 45mm 1.75"	722 Bar 10.5K psi	Curve	- -	4	-	- 54	TNT prices include 2 batteries and Dual Rapid charger. 5.5" cut reach	tntrescue.com
798mm 31.4"	267mm 10.5"	241mm 9.5"	- - - A6 B5 C7 D7 E6	528.4kN 59.4t	127mm 5" 0mm 0"	722 Bar 10.5K psi	Curve	-	2	-	- 54	ALL Spec is for 2 batteries but Can operate on one. Cut Reach 82.4mm/ 3.24"	tntrescue.com
815mm 32.1"	267mm 10.5"	241mm 9.5"	- - - A6 B7 C7 D7 E7	528.4kN 59.4t	193mm 7.6" 0mm 0"	722 Bar 10.5K psi	Curve	-	2	-	- 54	ALL Spec is for 2 batteries but Can operate on one. Cut Reach 100.6mm/ 3.96"	tntrescue.com
826mm 32.5"	267mm 10.5"	241mm 9.5"	- - - A8 B9 C9 D9 E9 F4	1256.4kN 141.2t	177.8mm 8" 38mm 1.5"	722 Bar 10.5K psi	Curve	-	2	-	- 54	ALL Spec is for 2 batteries but Can operate on one. Cut Reach 129mm/ 5"	tntrescue.com
879mm 34.6"	273mm* 10.75"	178mm 7"	- - - A9 B9 C9 D9 E9 F6	1424kN 160t	228.6mm 8.6" 45mm 1.75"	722 Bar 10.5K psi	Curve	-	2	-	- 54	ALL Spec is for 2 batteries but Can operate on one. Cut Reach 140.4mm/ 5.53"	tntrescue.com

IMAGES NOT TO SCALE
OTHER TOOLS IN RANGE:
■= Combi ■= Spreader ■=Ram
■= Special Tools
●= PARTIAL FEATURE
□□□= Option
N/A = info Not Available/not given
Str-Curve=Straight section ahead of curve

	MODEL SERIES (WiFi) VOLTAGE	COMPANY	TOOLS IN RANGE	ORIGIN	COST inc tax / VAT	**WEIGHT** IN HAND inc BATTERY(IES)	**WEIGHT** DEFAULT BATTERY	BATTERY Ah OPTIONS	BATTERY DURATION RECHARGE TIME
	**RSC 170 E-Force3** 1102148 28V	WEBER RESCUE			N/A	18.1kg 39.8lb	1kg 2.2lb	Milwaukee 5Ah M28	<45-80mins 60mins
	**RSC170+ E-Force3** 1102149 28V	WEBER RESCUE			N/A	19.2kg 42.2lb	1kg 2.2lb	Milwaukee 5Ah M28	<45-80min 60mins
	**RSC 190 E-Force3** 1102150/ 28V	WEBER RESCUE	■ ■ ■ ■		N/A	20.6kg 45.3lb	1kg 2.2lb	Milwaukee 5Ah M28	<45-80mins 60mins
	**RSC 190+ E-Force3** 1102150 28V	WEBER RESCUE			N/A	21kg 46.2lb	1kg 2.2lb	Milwaukee 5Ah M28	<45-80min 60mins
	**RSC200 E-Force3** 1102152 28V	WEBER RESCUE			N/A	24.8kg 54.6lb	1kg 2.2lb	Milwaukee 5Ah M28	<45-80mins 60mins
	**RSC F7 E-Force3** 1102153 28V	WEBER RESCUE			N/A	26.9kg 59.1lb	1kg 2.2lb	Milwaukee 5Ah M28	<45-80min 60mins
	**RSC 170 Smart-Force** 1101547 28V	WEBER RESCUE			N/A	19.1kg 42lb	1.1kg 2.33lb	Milwaukee 8Ah/12Ah M18	60/90mins 45-83mins
	**RSC170+ Smart-Force** 1101548 28V	WEBER RESCUE			N/A	20.1kg 44.2lb	1.1kg 2.33lb	Milwaukee 8Ah/12Ah M18	60/90mins 45-83mins
	**RSC 190 Smart-Force** 1101549 28V	WEBER RESCUE	■ ■ ■ ■		N/A	21.7kg 47.7lb	1.1kg 2.33lb	Milwaukee 8Ah/12Ah M18	60/90mins 45-83mins
	**RSC 190+ Smart-Force** 1101550 28V	WEBER RESCUE			N/A	22.8kg 50.1lb	1.1kg 2.33lb	Milwaukee 8Ah/12Ah M18	60/90mins 45-83mins
	**RSC200 Smart-Force** 1101551 28V	WEBER RESCUE			N/A	25.7kg 56.5lb	1.1kg 2.33lb	Milwaukee 8Ah/12Ah M18	60/90mins 45-83mins
	**RSC F7 Smart-Force** 1101553 28V	WEBER RESCUE			N/A	27.7kg 60.9lb	1.1kg 2.33lb	Milwaukee 8Ah/12Ah M18	60/90mins 45-83mins

BATTERY CUTTERS

STORED DIMENSIONS LENGTH	WIDTH inc battery	DEPTH	CUT CLASSES EN CLASSIFICATION EN CUT CAPACITY NFPA CLASS	THEORETICAL CUT FORCE t= US short ton	CUT OPENING ROUND BAR	WORKING (HYDRAULIC) PRESSURE	BLADE TYPE	ROTATE HEAD/HANDLE	LED LIGHTS	WiFi / CAPABLE	IN-WATER-CAPABLE TOOL/BATTERY IP	NOTES	WWW.
889mm 35"	236mm 9.3"	241mm 9.5"	I BC166I-18.1 1J 2K 3I 4J 5J A7 B8 C6 D8 E9 F4	N/A	175mm 6.9" 32mm 1.25"	700 Bar 10.2K psi	Str-Curve	- 360°	4	-	- 54	All E-Force tools can convert to hose	weber.com
889mm 35"	236mm 9.3"	241mm 9.5"	I BC166I-19,2 1J 2K 3I 4J 5J A7 B8 C6 D8 E9 F4	N/A	175mm 6.9" 32mm 1.25"	700 Bar 10.2K psi	Str-Curve	- 360°	4	-	- 54	All E-Force tools can convert to hose. Plus version has enhanced blade inserts	weber.com
920mm 00"	236mm 9.3"	241mm 9.5"	K BC187K-20,6 1K 2K 3K 4K 5K A8 B9 C7 D9 E9 F4	N/A	185mm 7.3" 38.1mm* 1.5"	700 Bar 10.2K psi	Str-Curve	- 360°	4	-	- 54	All E-Force tools can convert to hose	weber.com
969mm 36.2"	236mm 9.3"	241mm 9.5"	K BC187K-20,6 1K 2K 3K 4K 5K A8 B9 C7 D9 E9 F4	N/A	187mm 7.4" 38.1mm* 1.5"	700 Bar 10.2K psi	Str-Curve	- 360°	4	-	- 54	All E-Force tools can convert to hose. Plus version has enhanced blade inserts	weber.com
987mm 38.9"	300mm 11.8"	241mm 9.5"	K CC201K-24.8 1K 2K 3K 4K 5K A9 B9 C9 D9 E9 F5	N/A	200mm 7.8" 45mm 1.75"	700 Bar 10.2K psi	Str-Curve	- 360°	4	-	- 54	All E-Force tools can covert to hose	weber.com
1049mm 41.3"	295mm 11.6"	241mm 9.5"	K CC268K-26.9 1K 2K 3K 4K 5K A9 B9 C9 D9 E9 F7	N/A	300mm 11.8" 45mm 1.75"	700 Bar 10.2K psi	Str-Curve	- 360°	4	-	- 54	All E-Force tools can convert to hose	weber.com
889mm 35"	236mm 9.3"	228mm 9"	I BC166I-18.1 1J 2K 3I 4J 5J A7 B8 C6 D8 E9 F4	N/A	175mm 6.9" 32mm 1.25"	700 Bar 10.2K psi	Str-Curve	- 360°	4	Wi Fi	■ 68 68	All E-Force tools can convert to hose	weber.com
889mm 35"	236mm 9.3"	228mm 9"	I BC166I-19,2 1J 2K 3I 4J 5J A7 B8 C6 D8 E9 F4	N/A	175mm 6.9" 32mm 1.25"	700 Bar 10.2K psi	Str-Curve	- 360°	4	Wi Fi	■ 68 68	All E-Force tools can convert to hose. Plus version has enhanced blade inserts	weber.com
936mm 36.8"	236mm 9.3"	228mm 9"	K BC187K-21,7 1K 2K 3K 4K 5K A8 B9 C7 D9 E9 F4	N/A	185mm 7.3" 38.1mm* 1.5"	700 Bar 10.2K psi	Str-Curve	- 360°	4	Wi Fi	■ 68 68	All E-Force tools can convert to hose	weber.com
936mm 36.8"	236mm 9.3"	228mm 9"	K BC187K-22.8 1K 2K 3K 4K 5K A8 B9 C7 D9 E9 F4	N/A	187mm 7.4" 38.1mm* 1.5"	700 Bar 10.2K psi	Str-Curve	- 360°	4	Wi Fi	■ 68 68	All E-Force tools can convert to hose, Plus version has enhanced blade inserts	weber.com
1003mm 39.5"	297mm 11.7"	228mm 9"	K CC201K-25.7 1K 2K 3K 4K 5K A9 B9 C9 D9 E9 F5 F3	N/A	200mm 7.8" 45mm 1.75"	700 Bar 10.2K psi	Str-Curve	- 360°	4	Wi Fi	■ 68 68	All E-Force tools can convert to hose	weber.com
1064mm 41.9"	297mm 11.7"	241mm 9.5"	K CC268K-27.7 1K 2K 3K 4K 5K A9 B9 C9 D9 E9 F7	N/A	300mm 11.8" 45mm 1.75"	700 Bar 10.2K psi	Str-Curve	- 360°	4	Wi Fi	■ 68 68	All E-Force tools can convert to hose	weber.com

'hydraulic' BATTERY DEDICATED SPREADERS

Weber Smart Force series can operate in and under water with the addition of a bespoke IP68 battery cover.

These next two intro paragraphs are mostly straight out of the previous section on cutters with the word 'spreader' instead of 'cutter'.

It is again the case that combination tools are all spreaders as well as cutters so you should also refer to that selection of battery tools in considering what you need of your spreader and whether the versatility of the combi-tool is more advantageous than the always greater spreading performance of a dedicated tool. If you include the 50 combi-tools in your shopping list of potential spreading tools you have around 98 models to choose from. These are all direct-connect battery systems. Although we have previously mentioned *Libervit*'s batteries and underwater prowess, their tools have not been included because they are regular hose-fed hydraulics that operate from a battery driven pump and there are a number of others similar systems. Bear in mind that most hose-fed hydraulic tools can be run from hoses to a battery-powered hydraulic pump but that's a whole different GUIDE!

'JAW' DESIGN

Hurst coined the term 'Jaws-of-Life' with their original extrication tools and made it into a generic term for all such tools in the US and Canada but most electro-hydraulic rescue tools are manufactured in Europe where the term 'Jaws-of-Life' is not used. Nevertheless, 'Jaws' is as appropriate a name as any to describe the gaping chasm created by an open set of spreaders. Some of the larger models in this Guide are almost a metre/3+feet wide at full width but the trade-off is that this will be the weakest point at which you could load a spreader either pulling or spreading apart. As with cutters, the strongest a spreader ever gets is with a lift or pull-point closer to the fulcrum or jaws-union pivot pin.

In terms of pulling this is rarely possible as most have a dedicated pin hole for attaching pulling chains up near the tip as can be seen in the *Lukas* model on the right but some, like the Weber model above, have additional holes that can be press-ganged into use for pulling at the stronger mid-points. However, you will need to check the individual tool's capability because such holes are often a weight-saving cut-out rather than an element designed for loading.

The holes engineered into most spreader jaws may be a weight saving measure but are usually for attachment of pulling chains but where the tips are detachable like the *Holmatro Pentheon* opposite and the *Amkus* below, the pin-attachment point for the tips may also be the chain-set attachment point and this would be preferable because A) the hole is usually a larger (stronger) bore than higher up because it has more material to work with like the *Amkus* left and B) more often than not, it is lower down the jaw and therefore provides greater pulling force.

Whether the tips are detachable or fixed they will first and foremost be adorned with a gripping surface on the inside and the outside so that the jaws can get a solid purchase on the material being spread or squeezed/crushed. There was a time when the only game in town was simple ridges like a set of pliers but this has evolved into more complex forward and rear-

One of the three market leaders to fully embrace underwater and smart/ diagnostics capabilities is *Holmatro*'s *Pentheon* series

Lukas E3 & *E3* Connect tools can operate in and under water even in salt water with their special saltwater battery.

facing ridges and 'dog-tooth' grips like the *Holmatro* tip top-right. In engineering terms, having removable tips can create a weak point compared to a single-piece construction but removable tips enable you to replace damaged components and to use either an alternate design or future enhanced designs. Most of the tips in this GUIDE are regular spreading/ squeezing tips, albeit in a range of different grip configurations but there are door-opening tips angled to force the available gap.

ROTATE HEAD and/or HANDLE

There are broadly two types of forward positioning handles on these tools - Fixed or rotating. Fixed handles may provide a full 360° wrap like the *Holmatro* and *Lukas* models or it may give about 270° of access (top and sides) like the *TNT Surge2 model* opposite. Rotating handles like *Weber*'s decrease the bulk of the tool with a much smaller handle profile but the price you pay is that this needs to be unlocked in order to reposition and use the tool in a different orientation. As it happens, the vast majority of most spreading actions take place within the top and side orientation (270°). In our tables, we have not differentiated between fixed and rotating handles, only that they allow either 360 or 270° positioning - you only have to look at most images to figure out it is a fixed frame

LED LIGHTS, WiFi & DIAGNOSTICS - SEE PAGE 34

SIZE STILL MATTERS

Unlike dedicated cutters, combi-tools and to some extent rams, spreaders cannot physically get much smaller, at least not in the head/jaws unless they invent some form of telescopic jaw. If you want to spread the maximum distance you will need the longest jaws. Consequently, the largest tools are around a metre/3.28ft long and set to stay that way for a while yet.

NOISE

Covered in the previous parts of this series but worth reiterating that electric tools are silent when not in use so there is no tick-over noise as you get with a petrol engine tool or a generator driven, hose-fed hydraulic system. But there is still noise when the tool is doing its work and this can vary from a hum to a high pitched whirr that gets louder as the tool works harder. So they are not 'silent' but certainly far less noise pollution than a traditional petrol engine/gennie based system.

IMAGES NOT TO SCALE

IN THE FOLLOWING TABLES..... REFER TO COMMON DATA ON PAGE14/15 PLUS THIS UNIQUE SPREADERS KEY....

MAX SPREAD FORCE: Is the maximum *theoretical* force possible but only near the fulcrum not the tops at the opposite end. The closer the tips you start the spread/lift the lower the available force. This is not quoted by all because the EN and/or NFPA classifications cover this more accurately. Indeed, one or two manufacturers like Weber-Rescue flat-out refuse to quote it because they feel it is a misleading figure which is a fair point. Some of the max figures quoted may therefore be the same as the upper range limit but ***in theory only*** they could lift/spread a much higher amount. Our figures are in kN (KiloNewtons) and **US (Short) Tons**. There are 1.10 US short tons to a UK/metric ton (or more accurately tonne).

MAX PULL FORCE & DISTANCE: Holes near the ends of the jaws can have a chain fitted - one to an anchor and one to the item to be pulled. As the jaws are closed a pull force is exerted and the object can be moved. This used to be common with a dash-roll or displacement but not so much these days. Due to leverage forces, the longer the jaw the lower the pull force.

SPREAD DISTANCE: The maximum distance the jaws will open but don't forget that the closest to the tips provides the least power.

ROTATE HEAD/HANDLE: Either the Jaws or the handle can rotate for better access to the cut or the handle will extend around the tool by 180, 270 or 360° to allow it to be used in any position.

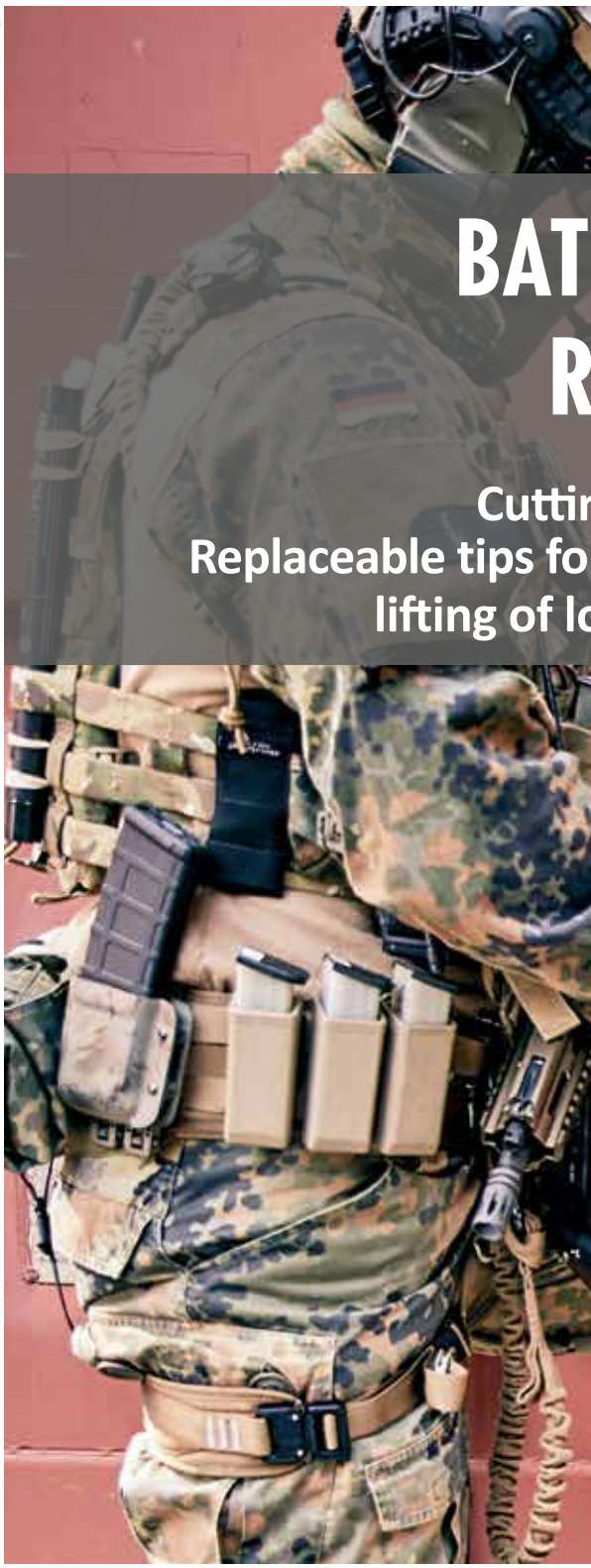
Below: The Weber Smart-Force range uses a battery cover on the rear to keep its Milwaukee 18v battery waterproof

LED LIGHTS: Integral lighting from the handle or housing to illuminate the area being cut/spread.

WiFi/Bluetooth-CAPABLE: The tool and/or battery are linked to a mobile device via Wifi &/or Bluetooth to manage functions, servicing and inventory. This category is listed twice.

IN-WATER-CAPABLE: The tool/battery can be used underwater

TOOL/BATTERY IP. Ingress protection for dust (first number) & water (second number) - IP54 resists water splashes, IP57 & 67 withstand inundation to 1metre, IP58&68 deeper than 1metre. Trade batteries like *Milwaukee* are **not** waterproof and tend not to quote an IP number because they are dependant on the tool to create an effective seal. Specialist batteries like *Holmatro* and *Lukas* are watertight (IP68) but you can safely assume that regular trade batteries are no more than IP54 so they are splashproof but certainly not submersible.



CHINESE & RUSSIAN TOOLS: As at 2023/24 Russia has become a North Korea style pariah state so we don't have to consider Russian tools yet even if they were good enough. China, however, continues to vex. They produce quality products for big name companies around the world but there are two problems. The first is their propensity for copyright infringement via blatant copying of design and imagery, as an example, we have included *Aolai Rescue* because their battery tools are their own badged products but they have *Paratech* looking struts that even have dark green and yellow livery. If they could only shy away from this continual plagiarism of well known products and concentrate on their own considerable design skills the world would be a fairer and happier place!

IMAGES NOT TO SCALE
OTHER TOOLS IN RANGE:
■= Combi ■= Cutter ■=Ram
■= Special Tools
●= PARTIAL FEATURE
□□□= Option
N/A = info Not Available/not given
Str-Curve=Straight section ahead of curve

	COMPANY	AMKUS	AMKUS	AOLAI RESCUE	AOLAI RESCUE	EDILGRAPPA
	MODEL	ION iS320	ION iS290	ESP-650	GYKZD-46~97/740	DE625N
	SERIES WIFI/BT CAPABLE	Compact	-	GYKZD-A	-	-
	VOLTAGE	54/60v	54/60v	28v	28v	54/60v
	TOOLS IN RANGE	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■	■ ■ ■	■ ■ ■ ■
	ORIGIN	USA	USA	China	China	Italy
	COST inc tax / VAT	N/A	N/A	$4500 per 2 tools FOB	N/A	N/A
	WEIGHT IN HAND inc BATTERY(IES) & TIPS	25.8kg 56.9lb	22.5kg 49.6lb	24.5kg 54lb	26kg 57.2lb	22.7kg 50lb
BATTERY	WEIGHT DEFAULT BATTERY	1.2kg 2.6 lb	1.2kg 2.6 lb	0.9kg 2 lb	0.9kg 2 lb	1.2kg 2.6 lb
BATTERY	BATTERY Ah OPTIONS	DeWalt FlexVolt 6Ah 9, 12Ah	DeWalt FlexVolt 6Ah 9, 12Ah	5Ah	5Ah	DeWalt FlexVolt 9Ah
BATTERY	BATTERY DURATION RECHARGE TIME	10-15mins 60mins	10-15mins 60mins	45-60mins 90mins	45-60mins 90mins	10-25mins 85mins
DIMENSIONS	LENGTH	968mm 38.1"	889mm 35"	905mm 35.6"	1194mm 47"	787mm 30.9"
DIMENSIONS	WIDTH	282mm 11.1"	246mm 9.7"	350mm 13.77"	320mm 12.6"	282mm 11.1"
DIMENSIONS	DEPTH	294mm 11.6"	287mm 11.3"	279mm 10.9"	265mm 10.4"	244mm 9.6"
	EN ■ CLASSIFICATION	-	-	■	■	■ AS45/625-19
SPREAD	EN SPREAD FORCE RANGE t=US Ton	-	-	47-124kN 5.7-13.9 USt	52-562kN 5.8-63 USt	<131kN 14.7 USt
SPREAD	NFPA□ FORCE RANGE t=US Ton (at/near tips)	46.9-67.2kN ■ 5.3-7.5 USt	27.5-43.7kN ■ 3-4.6 USt	-	-	32.9-60.6kN ■ 3.6-6.8 USt
SPREAD	MAX SPREAD FORCE (Theoretical) t=US ton	175.7kN 19.7 USt	43.7kN 4.4 USt	-	-	174kN 19.5 USt
SPREAD	SPREAD DISTANCE	810mm 31.9"*	940mm 37"*	650mm 25.6"	820mm 32.2"	625mm 24.6"
PULL	PULL FORCE RANGE/MAX (THEORETICAL MAX) t=US ton	33.7-51.1kN 3.8-5.7 USt	17.9-28.9kN 2-3.2 USt	(68)kN (7.6) USt	(73)kN (8.2) USt	(≤46)kN (≤5.2) USt
PULL	MAX PULL DISTANCE	approx 675mm 26.5"	approx785mm 31"	520mm 20.5"	716mm 28"	482.5mm 19"
	MAX SQUEEZE FORCE t=US ton	N/A	N/A	69kN 7.7 USt	140kN 15.8 USt	69kN 7.7 USt
	WORKING PRESSURE (HYDRAULIC)	700 Bar 10.2K psi	700 Bar 10.2K psi	720 Bar 10.4K psi	720 Bar 10.4K psi	700 Bar 10.2K psi
FEATURES	WiFi/Bluetooth capable	--	--	--	--	--
FEATURES	REMOVABLE DOOR OPENING TIPS	■	-	-	-	-
FEATURES	ROTATE HEAD/HANDLE	- 360°	- 360°	- -	- -	- 270°
FEATURES	LED LIGHTS	-	-	2	2	-
FEATURES	IN-WATER USE BATTERY/TOOL IP	54 54	54 54	54 54	54 54	54 54
	NOTES	*39.1" with ERT Extended Reach Tips	*37" with ERT Extended Reach Tips. Replaced is281	Cutting tips option and pulling chains	Cutting tips option and pulling chains	
	WEBSITE	amkus.com	amkus.com	aolairescue.com	aolairescue.com	edilgrappa.com

BATTERY SPREADERS

					
GENESIS RESCUE	**GENESIS RESCUE**	**GENESIS RESCUE**	**GENESIS RESCUE**	**GENESIS RESCUE**	**GENESIS RESCUE**
S44 SL3	**S49 SL3**	**S54 SL3**	**S44 SLi**	**S49 SLi**	**S54 SLi**
E-Force	E-Force	E-Force	E-Force	E-Force	E-Force
28v	28v	28v	18v	18v	18v
■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
N/A	N/A	N/A	N/A	N/A	N/A
17.3kg 38lb	20.7kg 45.5lb	20.9kg 45.5lb	18.2kg 40lb	21.6kg 47.5lb	21.8kg 48lb
1.4kg/1kg 3.2lb/2.3lb	1.4kg/1kg 3.2lb/2.3lb	1.4kg/1kg 3.2lb/2.3lb	1.1kg 2.33lb	1.1kg 2.33lb	1.1kg 2.33lb
Genesis/ Milwaukee 5Ah*	Genesis/ Milwaukee 5Ah*	Genesis/ Milwaukee 5Ah*	Milwaukee M18 8Ah/12Ah	Milwaukee M18 8Ah/12Ah	Milwaukee M18 8Ah/12Ah
<45mins 90mins	<45mins 90mins	<45mins 90mins	60/90mins 45-83mins	60/90mins 45-83mins	60/90mins 45-83mins
877mm 34.5"	982mm 38.7"	1015mm 40"	893mm 35.2"	999mm 39.30"	1032mm 40.6"
239mm 9.4"	282mm 11.1"	282mm 11.1"	239mm 9.4"	282mm 11.1"	282mm 11.1"
241mm 9.5"	241mm 9.5"	241mm 9.5"	228mm 9.5"	228mm 9.5"	228mm 9.5"
-	-	-	■ AS44/610-18.2	■ AS55/735-20.7	■ BS50/805-21.8
-	-	-	44-857kN 5-96.3 USt	50-501kN 5.6-56.3 USt	50-501kN 5.6-56.3 USt
■ 41-52kN 4.6-5.8 USt	■ 51-76kN 5.7-8.5 USt	■ 46-68kN 5.2-7.6 USt	-	-	-
-	-	-	-	-	-
610mm 24"	735mm 28.9"	805mm 31.7"	610mm 24"	735mm 28.9"	805mm 31.7"
21-42kN 2.36-4.7 USt	30-54kN 3.4-6 USt	26-52kN 2.9-5.8 USt	68kN 7.6 USt	70kN 7.9 USt	67kN 7.5 USt
388mm 15.3"	558mm 22"	618mm 24.3"	465mm 18.3"	620mm 24.4"	680mm 26.80"
149kN 16.9 USt	144kN 16.2 USt	144kN 16.2 USt	149kN 16.9 USt	144kN 16.2 USt	144kN 16.2 USt
700 Bar 10.2K psi	700 Bar 10.2K psi	700 Bar 10.2K psi	700 Bar 10.2K psi	700 Bar 10.2K psi	700 Bar 10.2K psi
- -	- -	- -	WiFi	WiFi	WiFi
■	■	■	■	■ ■	■ ■
- 360°	- 360°	- 360°	- 360°	- 360°	- 360°
4	4	4	4	4	4
54 54	54 54	54 54	■ 54/68* 68	■ 54/68* 68	■ 54/68* 68
*15Ah powerpack also available	*15Ah powerpack also available	*15Ah powerpack also available	All E-Force tools can convert to hose. * IP68 with waterproof cover	All E-Force tools can convert to hose. *IP68 with waterproof cover	All E-Force tools can convert to hose. * IP68 with waterproof cover
genesisrescue.com	genesisrescue.com	genesisrescue.com	genesisrescue.com	genesisrescue.com	genesisrescue.com

BATTERY
DIMENSIONS
SPREAD
PULL
FEATURES

IMAGES NOT TO SCALE
OTHER TOOLS IN RANGE:
■= Combi ■= Cutter ■=Ram
■= Special Tools
●= PARTIAL FEATURE
□□□= Option
N/A = info Not Available/not given
Str-Curve=Straight section ahead of curve





	COMPANY	HOLMATRO	HOLMATRO	HOLMATRO	HOLMATRO	HURST (IDEX)
	MODEL	PSP60	PSP50	PSP40	PSP40CL	SP 333
	SERIES WIFI/BT CAPABLE	PENTHEON	PENTHEON	PENTHEON	PENTHEON	E2
	VOLTAGE	28v	28v	28v	28v	25.2v
	TOOLS IN RANGE	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■
	ORIGIN					
	COST inc tax / VAT exc Battery	N/A	N/A	N/A	N/A	N/A
	WEIGHT IN HAND inc BATTERY(IES) & TIPS	25kg 55.1lb	21kg 46.3lb	19.4kg 42.8lb	15.2kg 33.5lb	17.3kg 38.1lb
BATTERY	WEIGHT DEFAULT BATTERY	1.5kg 3.3lb	1.5kg 3.3lb	1.5kg 3.3lb	1.5kg 3.3lb	1kg 2.1lb
BATTERY	BATTERY Ah OPTIONS	Holmatro PBPA287 7Ah	Holmatro PBPA287 7Ah	Holmatro PBPA287 7Ah	Holmatro PBPA287 7Ah	Hurst 5Ah
BATTERY	BATTERY DURATION RECHARGE TIME	>11mins 60mins	>11mins 60mins	>11mins 60mins	>11mins 60mins	30-60mins 90mins
DIMENSIONS	LENGTH	1052mm 41.4"	964mm 38"	956mm 37.6"	811mm 31.9"	905mm 35.6"
DIMENSIONS	WIDTH	319mm 12.6"	272mm 10.7"	270mm 10.6"	270mm 10.6"	256mm 10.1"
DIMENSIONS	DEPTH	274mm 10.8"	272mm 10.7"	276mm 10.9"	276mm 10.9"	253mm 9.96"
	EN ■ CLASSIFICATION	■ BS62/820-25	■ AS54/725-21	■ AS43/725-19.4	-	-
SPREAD	EN SPREAD FORCE RANGE t=US Ton	62-522kN 6.9-58.6 USt	54-366kN 6.06-41.1 USt	43-280kN 4.8-31.5 USt	43-131kN 4.83-14.7 USt	-
SPREAD	NFPA□ FORCE RANGE t=US Ton (at/near tips)	60-112kN ■ 6.7-12.6 USt	50-93kN ■ 5.6-10.5 USt	39.1-69.2kN ■ 4.4-7.8 USt	39-53kN ■ 4.4-6 USt	39-63kN ■ 4.4-7.1 US
SPREAD	MAX SPREAD FORCE (Theoretical) t=US ton	875kN 98 USt	875kN 98.3 USt	875kN 98.4 USt	875kN 98.32 USt	836kN 94 USt
SPREAD	SPREAD DISTANCE	820mm 32.3"	725mm 28.5"	725mm 28.5"	510mm 20.1"	600mm 23.6"
PULL	PULL FORCE RANGE/MAX (THEORETICAL MAX) t=US ton	79kN 8.8 USt	67kN 7.53 USt	51.7kN 5.8 USt	48kN 5.4 USt	23-43 (56) kN 2.6-4.8 (6.3) US
PULL	MAX PULL DISTANCE	700mm 27.6"	610mm 24"	613mm 24.1"	393mm 15.5"	440mm 17.3"
	MAX SQUEEZE FORCE t=US ton	127kN 14.2 USt	135kN 15.17 USt	59kN 6.6 USt	47kN 5.28 USt	144kN 16.2 USt
	WORKING PRESSURE (HYDRAULIC)	720 Bar 10.4K psi	720 Bar 10.4K psi	720 Bar 10.4K psi	720 Bar 10.4K psi	700 Bar 10.1K psi
FEATURES	WiFi/Bluetooth capable	BT	BT	BT	BT	- -/ WiFi
FEATURES	REMOVABLE DOOR OPENING TIPS	■	■	■	■	■
FEATURES	ROTATE HEAD/HANDLE	- 360°	- 360°	- 360°	- 360°	- 360°
FEATURES	LED LIGHTS	6	6	6	6	2
FEATURES	IN-WATER USE BATTERY/TOOL IP	■ 67 57	■ 67 57	■ 67 57	■ 67 57	54 54
	NOTES	Extreme grip spreader tips. On-tool charging. Stepless speed maximisation	Extreme grip spreader tips. On-tool charging. Stepless speed maximisation	Extreme grip spreader tips. On-tool charging. Stepless speed maximisation	Extreme grip spreader tips. On-tool charging. Stepless speed maximisation	
	WEBSITE	holmatro.com	holmatro.com	holmatro.com	holmatro.com	jawsoflife.com

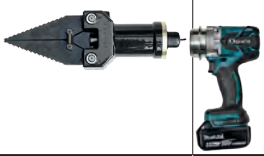
							
	HURST (IDEX)	HURST (IDEX)	HURST (IDEX)	HURST (IDEX)	HURST (IDEX)	HURST (IDEX)	
	SP 555	SP 777	SP 333	SP 555	SP 777	M40 -Mammoth	
	E2	E2	E3/E3connect	E3/E3connect	E3/E3connect	E3/E3connect	
	25.2v	25.2v	25.2v	25.2v	25.2v	25.2v	
	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	
	$12,110.	N/A	N/A	N/A	N/A	N/A	
	20kg 44.1lb	23.6kg 52lb	17.1kg 37.7lb	19.9kg 43.9lb	23.4kg 51.6lb	24.9kg 54.9lb	
	1kg 2.1lb	1kg 2.1lb	1.4kg/1kg 3.2lb/2.3lb	1.4kg/1kg 3.2lb/2.3lb	1.6kg 3.5lb	1.6kg 3.5lb	
	Hurst 5Ah	Hurst 5Ah	Lukas 9Ah 5Ah	Lukas 9Ah 5Ah	Lukas 9Ah 5Ah	Lukas 9Ah 5Ah	BATTERY
	30-60mins 90mins	30-60mins 90mins	<60mins 150-100mins	<60mins 150-100mins	<60mins 150-100mins	<60mins 150-100mins	
	1002mm 39.4"	1080mm 42.5"	823mm 32.4"	923mm 36.3"	997mm 39.3"	1106mm 43.6"	DIMENSIONS
	265mm 10.4"	309mm 12.2"	256mm 10.1"	265mm 10.4"	309mm 12.2"	309mm 12.1"	
	280mm 11"	285mm 11.2"	253mm 9.96"	253mm 9.96"	253mm 9.96"	253mm 9.96"	
	-	-	-	-	-	-	
	-	-	-	-	-	-	
	49-72kN ■ 5.5-8 USt	59-85kN ■ 6.6-9.6 USt	39-63kN ■ 4.4-7.1 USt	49-72kN ■ 5.5-8 USt	59-85kN ■ 6.6-9.6 USt	45-72kN ■ 5-8.1 USt	SPREAD
	658kN 74 USt	600kN 67.4 USt	836kN 94 USt	658kN 74 USt	600kN 67.4 USt	500kN 56.2 USt	
	730mm 28.7"	813mm 32"	600mm 23.6"	730mm 28.7"	813mm 32"	1018mm 40.1"	
	28-46 (58) kN 3.2-5.2 (6.5) USt	30-49 (60) kN 3.4-5.5 (6.7) USt	23-43 (56) kN 2.6-4.8 (6.3) USt	28-46 (58) kN 3.2-5.2 (6.5) USt	30-49 (60) kN 3.4-5.5 (6.7) USt	23-42 (50) kN 2.6-4.7 (5.6) USt	PULL
	569mm 22.4"	655mm 25.8"	440mm 17.3"	569mm 22.4"	655mm 25.8"	approx 848mm 33"	
	115kN 12.9 USt	122kN 13.7 USt	144kN 16.2 USt	115kN 12.9 USt	122kN 13.7 USt	N/A	
	700 Bar 10.1K psi	700 Bar 10.1K psi	700 Bar 10.1K psi	700 Bar 10.1K psi	700 Bar 10.1K psi	700 Bar 10.1K psi	
	--	--	--/ WiFi	--/ WiFi	--/ WiFi	--/ WiFi	
	■	■	■	■	-	-	FEATURES
	- 360°	- 360°	- 360°	- 360°	- 270°	- 360°	
	2	2	4	4	■	■	
	54 54	54 54	■ 68 58	■ 68 58	■ 68 58	■ 68 58	
			Hurst E3 range is waterproof & can use EWXT IP68 battery. 5Ah battery reduces length by 20mm. 'Hero' graphics option	Hurst E3 range is waterproof & can use EWXT IP68 battery. 5Ah battery reduces length by 20mm. 'Hero' graphics option	Hurst E3 range is waterproof & can use EWXT IP68 battery. 5Ah battery reduces length by 20mm. 'Hero' graphics option	Hurst E3 range is waterproof & can use EWXT IP68 battery. 5Ah battery reduces length by 20mm. 'Hero' graphics option	
	jawsoflife.com	jawsoflife.com	jawsoflife.com	jawsoflife.com	jawsoflife.com	jawsoflife.com	

IMAGES NOT TO SCALE
OTHER TOOLS IN RANGE:
■= Combi ■= Cutter ■=Ram
■= Special Tools
●= PARTIAL FEATURE
□□□= Option
N/A = info Not Available/not given
Str-Curve=Straight section ahead of curve





	COMPANY	LUKAS (IDEX)	LUKAS (IDEX)	LUKAS (IDEX)	LUKAS (IDEX)	LUKAS (IDEX)
	MODEL	SP 333	SP 555	SP 777	SP 333	SP 555
	SERIES WIFI/BT CAPABLE	E2	E2	E2	E3/EWXT/E3connect	E3/EWXT/E3conn
	VOLTAGE	25.2v	25.2v	25.2v	25.2v	25.2v
	TOOLS IN RANGE	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■
	ORIGIN					
	COST inc tax / VAT	N/A	N/A	N/A	N/A	N/A
	WEIGHT IN HAND inc BATTERY(IES) & TIPS	17.3kg 38.1lb	20kg 44.1lb	23.6kg 52lb	17.1kg 37.7lb	15.2kg 33.5lb
BATTERY	WEIGHT DEFAULT BATTERY	1.2kg 2.7lb	1.2kg 2.7lb	1.2kg 2.7lb	1.4kg/1kg 3.2lb/2.3lb	1.6kg 3.5lb
BATTERY	BATTERY Ah OPTIONS	Lukas 9Ah 5Ah	Lukas 9Ah 5Ah	Lukas 9Ah 5Ah	Lukas 9Ah 5Ah	Lukas 9Ah 5Ah
BATTERY	BATTERY DURATION RECHARGE TIME	30-60mins 75-150mins	30-60mins 75-150mins	30-60mins 75-150mins	<60mins 150-100mins	<60mins 150-100mins
DIMENSIONS	LENGTH	905mm 35.6"	1002mm 39.4"	1080mm 42.5"	823mm 32.4"	1002mm 39.4"
DIMENSIONS	WIDTH	256mm 10.1"	265mm 10.4"	309mm 12.2"	256mm 10.1"	265mm 10.4"
DIMENSIONS	DEPTH	253mm 9.96"	280mm 11"	285mm 11.2"	253mm 9.96"	253mm 9.96"
	EN ■ CLASSIFICATION	■ AS 42/600-18.3	■ AS 52/730-20.9	■ BS 63/813-24.5	■ AS 42/600-18.3	■ AC 52/730-21
SPREAD	EN SPREAD FORCE RANGE t=US Ton	42-836kN 4.7-94 USt	52-658kN 5.8-74 USt	63-600kN 7.1-67.4 USt	42-836kN 4.7-94 USt	52-658kN 5.8-74 USt
SPREAD	NFPA□ FORCE RANGE t=US Ton (at/near tips)	-	-	-	-	-
SPREAD	MAX SPREAD FORCE (Theoretical) t=US ton	836kN 94 USt	658kN 74 USt	600kN 67.4 USt	836kN 94 USt	658kN 74 USt
SPREAD	SPREAD DISTANCE	600mm 23.6"	730mm 28.7"	813mm 32"	600mm 23.6"	730mm 28.7"
PULL	PULL FORCE RANGE/MAX (THEORETICAL MAX) t=US ton	23-43 (56) kN 0 (0) USt	28-46 (58) kN 3.2-5.2 (6.5) USt	30-49 (60) kN 3.4-5.5 (6.7) USt	23-43 (56) kN 2.6-4.8 (6.3) USt	28-46 (58) kN 3.2-5.2 (6.5) US
PULL	MAX PULL DISTANCE	440mm 17.3"	569mm 22.4"	655mm 25.8"	440mm 17.3"	569mm 22.4"
	MAX SQUEEZE FORCE t=US ton	144kN 5.7 USt	115kN 12.9 USt	122kN 13.7 USt	144kN 16.2 USt	115kN 12.9 USt
	WORKING PRESSURE (HYDRAULIC)	700 Bar 10.1K psi	700 Bar 10.1K psi	700 Bar 10.1K psi	700 Bar 10.1K psi	700 Bar 10.1K psi
FEATURES	WiFi/Bluetooth capable	WiFi	WiFi		-/WiFi	-/WiFi
FEATURES	REMOVABLE DOOR OPENING TIPS	■	■	■	■	■
FEATURES	ROTATE HEAD/HANDLE	- 360°	- 360°	- 360°	- 360°	- 360°
FEATURES	LED LIGHTS	6	6	4	2	6
FEATURES	IN-WATER USE BATTERY/TOOL IP	■ 68 58	■ 68 58	54 54	54 54	■ 57 57
	NOTES				All Can use EWXT IP68 battery which is standard on the EWXT range, EWXT does not have on board dashboard	All Can use EWXT IP68 ba which is standard on the range, EWXT does not ha board dashboard
	WEBSITE	lukas.com	lukas.com	lukas.com	lukas.com	lukas.com

						
	LUKAS (IDEX)	OGURA	OGURA	OGURA	POWERHAWK TECH-NOLOGIES	POWERHAWK TECH-NOLOGIES
	SP 777	RPS-505	HRS941/HRS-934	HRS931/HRS-934	P16 / S-1601	P-16X /S-1601X
ect	E3/EWXT/E3connect	RP	HRSpreaderHead	HR SpreaderHead	Legacy	X
	25.2v	18v	18v	18v	12v or 16v LiGHT	7.5/12v
	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
	■	●	●	●	■	■
	N/A	N/A	N/A	N/A	N/A	N/A
	23.4kg 51.5lb	14.2kg 31.3lb	4.2kg +5.4kg 9.3lb +11.9lb	3.9kg +5.4kg 8.6lb+11.9lb	22.3kg 49.3lb	19.5kg 43lb
	1.6kg 3.5lb	1-1.36kg 2.2-3lb	1-1.36kg 2.2-3lb	1-1.36kg 2.2-3lb	*4.5kg / 9.9lb 15.9kg / *35lb	1..36kg 3lb
	Lukas 9Ah 5Ah	Makita 5-6Ah*	Makita 5-6Ah*	Makita 5-6Ah*	Powerhawk 12.4Ah LiGHT 33Ah 12v	Powerhawk 7.5Ah or any 12v source
	<60mins 150-100mins	<12mins 55-120mins	<12mins 55-120mins	<12mins 55-120mins	>30 mins <120mins/<15hr	>30mins <120mins
	997mm 39.3"	600mm 23.6"	328mm +352mm 12.9"+13.9"	303mm+352mm 11.9"+13.9"	635mm 25"	635mm 25"
	309mm 12.2"	206mm 8.1"	111mm +121mm 4.4"+4.8"	111mm +121mm 4.4"+4.8"	254mm 10"	254mm 10"
	253mm 9.96"	101mm 7.1"	272mm+78mm 10.7"+3.1"	272mm+78mm 10.7"+3.1"	305mm 12"	279mm 11"
1.1	■ AS43/725-19.4	-	-	-	-	-
	63-600kN 7.1-67.4 USt	-	<39.3kN 4.4 USt	<39.3kN 4.4 USt	-	-
	-	-	-	-	35.6-48.9kN ■ 4-5.4 USt	31.6-52.5kN ■ 3.5-5.9 USt
	600kN 67.4 USt	745kN 83 USt	39.3kN 4.4 USt	39.3kN 4.4 USt	201.2kN 22.6 USt	711.7kN 80 USt
	813mm 32"	505mm 19.9"	158mm 6.2"	158mm 6.2"	356mm 14"	406.4mm 16"
St	30-49 (60) kN 3.4-5.5 (6.7) USt	N/A	-	-	N/A	N/A
	655mm 25.8"	N/A	-	-	approx 270mm 11"	approx 312mm 12.5"
	122kN 13.7 USt	692.5kN 77.8 USt	69kN 7.7 USt	69kN 7.7 USt	N/A	N/A
	700 Bar 10.1K psi	N/A	N/A	N/A	N/A	N/A
	-/ WiFi	- -	- -	- -	- -	- -
	■	■	-	-	■	■
	- 360°	360° 360°	360° 270°	360° -	70° 270°	70° 270°
	6	-	-	-	-	-
	■ 68 58	54 54	54 54	54 54	54 54	54 54
ttery EWXT ve on	All Can use EWXT IP68 battery which is standard on the EWXT range, EWXT does not have on board dashboard	*EU uses 5Ah, US tends to use 6Ah	Heads swap out in seconds. Cutter, Spreader etc. attach via short hose or direct to the powerhead. 941 = US market. All heads interchangeable between power units		*Legacy* only in support of existing purchases. Accepts all P-16X blades & can be retrofitted to become P-16X*Wt=battery+controller	interchangeable Cutter,spreader &combi heads. Both P16&P16X can use a 12v car battery or any 12v power source
	lukas.com	ogurarescuetools.com	ogurarescuetools.com	ogurarescuetools.com	powerhawk.com	powerhawk.com

BATTERY DIMENSIONS SPREAD PULL FEATURES

IMAGES NOT TO SCALE
OTHER TOOLS IN RANGE:
■= Combi ■= Cutter ■=Ram
■= Special Tools
●= PARTIAL FEATURE
□□□= Option
N/A = info Not Available/not given
Str-Curve=Straight section ahead of curve





	COMPANY	RESQTEC	RESQTEC	SCORPE	TNT RESCUE	TNT RESCUE
	MODEL	P-4X	X2	Spreader MS	ES100-32	ES100-28
	SERIES WIFI/BT CAPABLE	EDD	EDD	GreenSpirit II	Storm Surge	Storm Surge
	VOLTAGE	43.2v	43.2v	18v/28v	18v/20v	18v/20v
	TOOLS IN RANGE	■ ■ ■ ■	■ ■ ■	■ ■ ■	■ ■ ■	■ ■ ■
	ORIGIN					
	COST inc tax / VAT	N/A	N/A	N/A	N/A	N/A
	WEIGHT IN HAND inc BATTERY(IES) & TIPS	20kg 44lb	20.5kg 45.2lb	18.1kg 39.8lb	23.9-23.5kg 51.8-52.6lb	23.31-22.9kg 51.4-50.55lb
BATTERY	WEIGHT DEFAULT BATTERY	1kg 2.2lb	1kg 2.2lb	1kg 2.2lb	1.1kg /2.4lb 0.6kg / 1.3lb	1.1kg /2.4lb 0.6kg / 1.3lb
BATTERY	BATTERY Ah OPTIONS	Resqtec 2.6Ah	Resqtec 2.6Ah	Milwaukee 8Ah M18 5Ah M28	Milwaukee M18 8/9Ah. Makita6Ah DeWalt FlexVolt20 9Ah	Milwaukee M18 8/9Ah. Makita 6Ah DeWalt FlexVolt20 9Ah
BATTERY	BATTERY DURATION RECHARGE TIME	<45mins 60mins	<45mins 60mins	60/80mins 45-90mins	10-15mins 87 / 60mins	10-15mins 87 / 60mins
DIMENSIONS	LENGTH	711mm 28"	823mm 32.4"	912mm 36"	944.2mm 37.2"	884mm 34.8"
DIMENSIONS	WIDTH	271mm 10.7"	273mm 10.7"	250mm 9.8"	283mm 11.15	283mm 11.15
DIMENSIONS	DEPTH	274mm 10.8"	235mm 9.25"	222mm 8.7"	345.4mm 13.6"	345.4mm 13.6"
	EN ■ CLASSIFICATION	-	■ AS38.4/607-20.5	■ AS44/610-18.1	-	-
SPREAD	EN SPREAD FORCE RANGE t=US Ton	-	38.4-83.2kN 4.3-9.3 USt	44-857kN 5-96.3 USt	-	-
SPREAD	NFPA□ FORCE RANGE t=US Ton (at/near tips)	32.8-51kN ■ 3.7-5.7 USt	34.7-76.7kN ■ 3.9-8.6 USt	-	225-895kN ■ 25.3-100.56 USt	249-1014kN ■27.98-113.93USt
SPREAD	MAX SPREAD FORCE (Theoretical) t=US ton	374kN 42 USt	342kN 38.4 USt	171kN 19.2 USt	895kN 100.56 USt	1014kN 113.93 USt
SPREAD	SPREAD DISTANCE	401mm 15.8"	607mm 23.9"	610mm 24"	700.1mm 31.5"	698.5mm 27.5"
PULL	PULL FORCE RANGE/MAX (THEORETICAL MAX) t=US ton	-	27.4-59.6kN 3.1-6.7 USt	68kN 7.6 USt	41.54kN 4.67 USt	49.7kN 5.58 USt
PULL	MAX PULL DISTANCE	-	426mm 16.8"	465mm 18.3""	565.2mm 22.25"	463.5mm 18.25"
	MAX SQUEEZE FORCE t=US ton	36.3-57.7kN 4-6.48 USt	66.3-120.9kN 7.4-13.4 USt	149kN 16.9 USt	N/A	N/A
	WORKING PRESSURE (HYDRAULIC)	700 Bar 10.2K psi	720 Bar 10.4K psi	700 Bar 10.2K psi	722 Bar 10.5K psi	722 Bar 10.5K psi
FEATURES	WiFi/Bluetooth capable	--	--/ WiFi	--	--	--
FEATURES	REMOVABLE DOOR OPENING TIPS	■	■	-	■	■
FEATURES	ROTATE HEAD/HANDLE	61° 270°	- 360°	- 110°	- -	- -
FEATURES	LED LIGHTS	□	6	4	4	4
FEATURES	IN-WATER USE BATTERY/TOOL IP	54 54	■ 57 57	■ 54/68* 68	54 54	54 54
	NOTES	3x interchangeable heads/ blades. Rear handle option. *Also 28Ah powerpack. Jaw recess (reach)= 118mm	Cutting tips option. Auto high-temp shut-off. Step less speed increase	Converter available for M28 & other batteries. * IP68 with M18 & waterproof cover (not shown)	TNT prices include 2 batteries and Dual Rapid charger. Storm2 series DISCONTINUED Mains adapter=option.	TNT prices include 2 batteries and Dual Rapid charger. Storm2 series DISCONTINUED Mains adapter=option
	WEBSITE	rescue.resqtec.com	rescue.resqtec.com	scorpe.net	tntrescue.com	tntrescue.com

BATTERY SPREADERS

						
TNT RESCUE	WEBER RESCUE	WEBER RESCUE	WEBER RESCUE	WEBER RESCUE	WEBER RESCUE	WEBER RESCUE
ES100-24	SP 44 AS 1093703	SP 54 AS 1091736	SP 50 BS 1091735	SP 44 1101468	SP 54 AS 1101469	SP 50 BS 1101548
Storm Surge	E-Force3	E-Force3	E-Force3	Smart Force	Smart Force	Smart Force
18v/20v	28v	28v	28v	18v	18v	18v
■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
N/A	N/A	N/A	N/A	N/A	N/A	N/A
22.31-22.7kg 49.2-50lb	17.3kg 38lb	20.7kg 45.5lb	20.9kg 46lb	18.2kg 40lb	21.6kg 47.5lb	21.8kg 48lb
1.1kg /2.4lb 0.6kg / 1.3lb	1kg 2.2lb	1kg 2.2lb	1kg 2.2lb	1.1kg 2.33lb	1.1kg 2.33lb	1.1kg 2.33lb
lilwaukee M18 Ah. Makita 6Ah Walt FlexVolt20 9Ah	Milwaukee M28 5Ah	Milwaukee M28 5Ah	Milwaukee M28 5Ah	Milwaukee M18 8Ah/12Ah	Milwaukee M18 8Ah/12Ah	Milwaukee M18 8Ah/12Ah
10-15mins 87 / 60mins	<45-80mins 60mins	<45-80mins 60mins	<45-80mins 60mins	60/90mins 45-83mins	60/90mins 45-83mins	60/90mins 45-83mins
823.77mm 32.43"	877mm 34.5"	982mm 38.7"	1015mm 40"	893mm 35.2"	999mm 39.30"	1032mm 40.6"
283mm 11.15"	239mm 9.4"	282mm 11.1"	282mm 11.1"	239mm 9.4"	282mm 11.1"	282mm 11.1"
344.9mm 13.58"	241mm 9.5"	241mm 9.5"	241mm 9.5"	228mm 9.5"	228mm 9.5"	228mm 9.5"
-	■ AS44/610-17.3	■ AS55/735-20.7	■ BS50/805-20.9	■ AS44/610-18.2	■ AS55/735-20.7	■ BS50/805-21.8
-	44-857kN 5-96.3 USt	55-501kN 6.2-56.3 USt	50-501kN 5.6-56.3 USt	44-857kN 5-96.3 USt	50-501kN 5.6-56.3 USt	50-501kN 5.6-56.3 USt
286-1078kN ■ 32-121 USt	-	-	-	-	-	-
-	-	-	-	-	-	-
596.9mm 23.5"	610mm 24"	735mm 28.9"	805mm 31.7"	610mm 24"	735mm 28.9"	805mm 31.7"
63.9kN 7.2 USt	68kN 7.6 USt	70kN 7.9 USt	67kN 7.5 USt	68kN 7.6 USt	70kN 7.9 USt	67kN 7.5 USt
463.5mm 18.2"	465mm 18.3"	620mm 24.4"	680mm 26.8"	465mm 18.3"	620mm 24.4"	680mm 26.80"
N/A	149kN 16.9 USt	144kN 16.2 USt	144kN 16.2 USt	149kN 16.9 USt	144kN 16.2 USt	144kN 16.2 USt
722 Bar 10.5K psi	700 Bar 10.2K psi	700 Bar 10.2K psi	700 Bar 10.2K psi	700 Bar 10.2K psi	700 Bar 10.2K psi	700 Bar 10.2K psi
- -	- -	- -	- -	WiFi	WiFi	WiFi
■	■ ■	■ ■	■ ■	■	■ ■	■ ■
- -	- 360°	- 360°	- 360°	- 360°	- 360°	- 360°
4	4	4	4	4	4	4
54 54	54 54	54 54	54 54	■ 54/68* 68	■ 54/68* 68	■ 54/68* 68
TNT prices include 2 teries and Dual Rapid harger. Storm2 series DISCONTINUED Mains adapter.option	All E-Force tools can convert to hose	All E-Force tools can convert to hose	All E-Force tools can convert to hose	All E-Force tools can convert to hose. * IP68 with waterproof cover	All E-Force tools can convert to hose. *IP68 with waterproof cover	All E-Force tools can convert to hose. * IP68 with waterproof cover
ntrescue.com	weber.com	weber.com	weber.com	weber.com	weber.com	weber.com

BATTERY DIMENSIONS SPREAD PULL FEATURES

'hydraulic' BATTERY RAMS

The image above is not an environment you would normally think of for a hydraulic ram but I can think of many an incident in the dim and distant past where such a tool would have been a literal life saver. We had manually operated hydraulics of course and these are indeed a fantastically reliable option even now but these dedicated battery tools are infinitely faster and with far greater reach or more accurately for rams, stroke which is the distance that you can physically move your target. The specifics of battery tools together with their advantages and disadvantages are covered in the previous three parts to this series so before we look at some ram-specific features, our co-extrication editor Nick Appleton gives some useful training and operational usage pointers for battery rams , some of which is just as relevant to any ram no matter the power source.

Top Tips from TR Extrication Co-Editor Nick Appleton:

Training with rams should be carried out on previously prepared vehicles that have been deformed to simulate various accident damage scenarios e.g. roof pushed down, B pillars pushed inwards etc. Rescuers will only understand the importance of moving the metal all the way back or past the position that the metal was originally formed if the vehicle has been deformed in this way. They will realise that only partially ramming the structure will cause it to spring back once the rams are retracted.

- *Adding and extending a second ram with a longer extension piece placed adjacent to the first ram once the first ram is fully extended can help prevent the structure springing back to its original shape*
- *When extending the ram both ends of the ram should be continuously monitored to ensure that neither slips out of position*
- *Rescuers need to be 100% sure of the direction of travel before operating the ram as the consequences of housing the ram instead of extending it could bring the structure back onto the casualty*
- *A ram will always go towards the direction of the weaker end of the structure it's in contact with and so assess the push point and ensure it is stronger than the structure to be moved.*
- *If adding an extension piece to the ram then this end must always be positioned against the push point*
- *If the structure is in contact with the entrapped casualty then always move the structure away first with the ram before cutting it. Cutting the structure first can cause further structural movement towards the casualty [ED: and alter the way it reacts to being pushed including the possibility of a cut-end 'springing' off the end of the ram. When the structure is intact there are fewer jagged, loose ends to be concerned about].*
- *Casualty entrapment should be freed first before further space creation techniques are considered due to the requirement to have a viable emergency release plan in place should the casualties condition suddenly deteriorate*
- *When extricating from Electric Vehicles rescuers must ensure they do not ram from or into any high voltage battery components or any high voltage areas – refer to the Emergency Response Guide for the vehicle*
- *When carrying out a dash roll manoeuvre cut the dash tie down from centre console if more space is required to carry out the extrication*
- *Ensure the structure has been peeled and revealed so that the ram does not inadvertently push through any hidden hazards*

Advantages of battery operated rams:

- *No set up time so immediately deployable*
- *Quicker to get to work*
- *Quieter when operating*
- *No hoses so no trip hazard*
- *Less stowage space required on fire appliance*
- *No emissions or fumes so can be used in confined and enclosed spaces*

Disadvantages of battery operated rams:

- *Dependent on good battery management*
- *Heavier because have own internal pump, oil reservoir and power source*
- *Bulky to get into restricted spaces*
- *Some cannot be used submerged under water – though they can all be used in wet weather .*

RAM DESIGN

A simple ram consists of a tube being hydraulically (or in some shoring cases, pneumatically), pushed out of a bombproof tubular casing that can take high internal pressure. With

traditional hose-fed rams, those tubes constitute a relatively small footprint with just the length of tube to contend with but battery power usually involves having the battery and motor on-board and this increases bulk considerably. Unlike cutters and spreaders where the battery doesn't add a huge amount to the bulk of the tool, rams do and therefore require more thought before purchasing. This is mitigated in most models by being able to rotate the motor assembly into free space or by having the ram tubes mounted at 90 degrees to the motor housing. So you'll still use them especially if you have other battery tools in the same series; not only for continuity of batteries but also because of the self-contained nature that we've discussed throughout this series of guides and Nick again mentions in the intro - minimal noise and no liquid fuel and exhaust fumes to contend with. In our tables we have two unpowered, stand-alone rams that don't quite fit the 'self-contained, battery-powered tool' description unless you introduce a spreader. We have included the *Powerhawk X* (& *P/X16*) compatible rams simply because they were the first to come up with an ingeniously simple alternative - a ram housing with a cutaway section that allows you to insert any spreader head that fits and do the pushing of tubes that way as a proxy power source. These things are not only a lot cheaper than a self-contained battery ram, you can set and leave them in situ. in complex extrication or USAR situations instead of tying up multiple battery units. The image on the left shows the legacy P16 that we used for many years and in fact the ram, although, long retired, is still going strong after more than 20 years.

SIZE MAY NOT MATTER

Rams are infinitely more extendible than their cutter and spreader counterparts. Not all manufacturers bother of course because 1) a 2-stage telescoping ram offers a wide size range albeit that the strength at longer lengths is very much reduced and 2) there are useful regular lengths for rams that cover most eventualities. But some can take screw-on or clip-on extensions that might be over a metre long when the ram itself is only pushing 4 or 5 inches! *Resqtec's V4* has an adapter that enables it use extensions plus all 5 shoring struts as extensions! It's often about the bridging distance between the sill or support point and the target to be moved than it is the distance it needs to be moved. Two of the original *Ogura* tools continue to provide perhaps the most accessible rams because their power source is a diminutive *Makita* drill connected by a short hose so you can get that into smaller spaces than virtually any other ram in our selection. That's snot bad after over 30 years of development - you might have thought that by 2024 we would be taking a matchbox off the truck and deploying some microscopic nano-bots to do the heavy lifting.

(LACK OF) NOISE: Covered in the previous parts of this series and already reiterated in Nick's introduction - electric tools are silent when not in use so there is no tick-over noise as you get with a petrol engine tool or a generator driven, hose-fed hydraulic system. But there is still noise when the tool is doing its work and this can vary from a hum to a high pitched whirr that gets louder as the tool works harder. So they are not 'silent' but certainly far less noise pollution than a traditional petrol engine/generator-based system.

LED LIGHTS: Not so obvious as the cutters and spreaders but most of the battery rams have on- board LEDs for illuminating your immediate tool placement area. These are extremely useful because area lighting and even head and angled lighting can illuminate everything BUT the work area as a congested jumble of vehicle or building parts casts a dark shadow where you least want it. Having an LED that shines down the line of the tool negates this problem.

WiFi & BLUETOOTH DIAGNOSTICS & BATTERY MANAGEMENT

Holmatro, Lukas/Hurst and *Weber/Genesis* have continued with on-board control panels discussed in the other tool guides but we haven't mentioned much about the importance of battery management. So important, we've listed it twice in our tables! For tools that use off-the shelf batteries from the likes of *Milwaukee, Makita* and *DeWalt* this is not so important but the more expensive bespoke systems from *Holmatro* and *Lukas* need to be looked after. Luckily their own charging and storage systems together with WiFi and/or Bluetooth diagnostics allows much easier and efficient management - *Holmatro*'s on-vehicle multi-charger for instance will charge 6 to 18 batteries separately from a single power source or while on the tool and will prioritise on-tool charging over 'loose' batteries. That and the watertight batteries is why you pay the big bucks for the bespoke systems. Incidentally, *Lukas* and *Hurst E3* and Wifi capable *E3-Connect* series are the same tool aside from the extra cost of the Wifi version but the *Lukas* range was ratified with removal of the R421 E2, R520 E3/E3C and R522 E3/E3C models in mid 2024.

CHINESE & RUSSIAN TOOLS

As at 2024 Russia has become a North Korea style pariah state so we still don't have to consider Russian tools even if they were good enough to include. China, however,

continues to produce quality products for big name companies around the world but there are two problems associated with including their products in our GUIDES. The first is their propensity for copyright infringement via blatant copying of design and imagery, as an example, we have included *Aolai Rescue* because their battery tools are their own badged products and they are the only one to quote a price but they have other rescue products that may be very good but are clearly copied from market leading models, their *Paratech* looking struts even have dark green and yellow livery while their *Arachnipod* looking Tripod/gantry frame has the same red and silver livery. If they could only shy away from this continual plagiarism of well known products and concentrate on their own considerable design skills the world would be a fairer and happier place!

IN THE FOLLOWING TABLES.....

The tool length, width or height and weight are all WORKING spec so they **include the battery**. Many companies quote figures without the battery so at first glance seem lighter but when added has a significant affect on both the physical size and weight of a tool when in use. As with all cutting and spreading tools, the largest or highest figures are not necessarily the best for the job. Stroke power is highest at the shortest extension. **All force figures are given in KiloNewtons and US (short)tons**

Any use, feature, accessory or component that is inherent in the tool is shown as a solid coloured square ■■■■
If it's an option it is shown as an outline square □□□□
A circle ● in the 'USE' columns indicates that this feature is only partially present and/or is OK for that purpose but not ideal.
A model variant is shown in cyan blue and any features or specifications that differ from the standard are also in cyan or will have a cyan outline to a black or orange square ■■.
WiFi/Bluetooth-CAPABLE: The tool and/or battery are linked to a mobile device via Wifi &/or Bluetooth to manage functions, servicing and inventory. This category is listed twice.
TOOLS-IN-RANGE: refers to the other types of tool available jn this specific series of tools using this specific battery type.
■= Cutter ■= Spreader ■= Combi ■= Special Tools
ORIGIN: The company's home country, not necessarily the country of manufacture which is indicated by an inset flag or two equally sized flags if the tool is made in both countries.

COST: This is clearly an official secret within the industry. This is because the cost of one tool is huge and vastly different to the cost of multiples that they sell to entire fire services. But this is the same situation for virtually every piece of equipment we ever have in **TECHNICALRESCUE** where we always quote the single item cost on the understanding that any bulk purchase will of course be a lower figure. Chinese Manufacturer *Aolai* have been confident enough to quote a range of $3500 to $4700 exc shipping and import duty to give some idea of the minimum you are likely to pay for a battery ram. The batteries are an expensive consumable as well - eg. a *Milwaukee* M18 8Ah battery costs £/$/€150-200 though individuals could purchase through *Amazon* etc. and save a packet!
WEIGHT IN HAND: Refers to the operational weight that the rescuer experiences in using the tool so it includes any on-board batteries but not backpack batteries and not necessarily any extras like clip-on lighting or different heads/feet.

WEIGHT of BATTERY: is for the default battery supplied or preferred by the manufacturer. Those that use 'off-the-shelf' brands like *Milwaukee* and *DeWalt* may well be able to use either higher Ah models for greater capacity/duration or lower Ah for decreased cost and perhaps weight but less duration.
BATTERY DURATION & RECHARGE TIME: Work-time or duration is much trickier as it depends on the resistance of the material being pushed/supported, the temperature, the age of the battery and even how meticulously you follow the recharge guidelines. Consequently some won't quote a figure at all and others are generous to say the least - consider most to be the absolute maximum with minimal workload. Tools last much longer carrying out hundreds of short duration cuts like the Genesis figure of <45mins compared to a *Homatro*'s minimum 11minute figure in like-for-like ramming their battery will match the highest time given by others.
Recharge time can be more specific though it varies wildly between basic and high speed chargers. The time shown is for the charger supplied or preferred by the manufacturer and may give a time-range if referring to different types of charger.
DIMENSIONS: The Length by width by depth/height of tool ready to store on the truck and/or ready to work. Rams are stored with the cylinders retracted so they are the least bulky of the 'hydraulic ' rescue tools. Height is the 'thickness' of the tool off the ground if you lay the tool down and is usually dictated by either the handle or the battery if it is top-mounted.
PUSH FORCE: Is the maximum *theoretical* force that can be exerted and, like spreaders and cutters, is highest closest to the power unit. The strongest rams are the shortest, single-stage rams. Telescoping gives you much needed reach but the second stage is very much weaker than the first stage and this is extremely important to remember - you may have easily pushed your target material with the first stage but beware that you don't overwhelm it's capabilities when you extend into the second, telescoping stage. **It is also vital that you push in direct line with the power unit - if your target load starts to stray off-centre as it moves you could damage the ram's extending cylinders.** Our figures are in kN (KiloNewtons) and **US (Short) Tons**. There are 1.10 US short tons to a UK/metric ton (or more accurately tonne).
STROKE RANGE: If the ram has a telescoping section there will be two figures - the first, higher figure is for the first stage and the second, lower figure is for the telescoped section. If the ram is single-stage only this figure will be the same as the total stroke distance. Some rams can also pull using chains etc. in the same way as a spreader but this is not the norm and is written in the NOTES.
TOTAL STROKE DISTANCE: The maximum distance the target load can be pushed including any telescoping sections.
ROTATE HEAD/HANDLE: The handle can rotate around the cylinder for better access to in-line ramming of the target but most rams are relatively compact anyway.
LED LIGHTS ■: Integral lighting from the handle or housing to illuminate the area being cut/spread.
IN-WATER-CAPABLE: The tool/battery can be used underwater
TOOL/BATTERY IP. Ingress protection for dust (first number) & water (second number) - IP54 resists water splashes, IP57 & 67 withstand inundation to 1metre, IP58&68 deeper than 1metre. Trade batteries like *Milwaukee* are **not** waterproof without a bespoke cover and tend not to quote an IP number because they are dependant on the tool to create an effective seal. Specialist batteries like *Holmatro* and *Lukas* are watertight (IP68) but regular trade batteries are no more than IP54 so they are splashproof but not submersible without a bespoke cover.

LUKAS CROSSRAM

**Long, Longer,
CR 522 CROSSRAM!**

Our new telescopic cylinder CR 522 e³ / CONNECT CROSSRAM offers a wide range of applications due to its immense reach.

Cross ramming to work inside a vehicle, creating a rescue opening in a truck cab or tearing away the vehicle pillars can be carried out with ease thanks to the large stroke and exceptional power of the CR 522 CROSSRAM.

The LX Extension Set from LUKAS can provide an additional 27cm and thus can reach a total extended length of 180cm.

LUKAS.COM

A Trusted **IDEX** Fire & Safety Brand | LUKAS

Images not exactly to Scale but comparative within their own series of tools.

OTHER TOOLS IN RANGE:
■= Combi ■= Spreader
■=Cutter ■= Special Tools
●= PARTIAL FEATURE
□□□= Option
N/A = info Not Available/ not given

	COMPANY	**AMKUS**	**AMKUS**	**AOLAI RESCUE**	**AOLAI RESCUE**	**EDILGRAPPA**
	MODEL	**ION ITR230**	**ION ITR500**	**GYCDD-A**	**GYDD-171-388/576C**	**MT730N-E**
	SERIES WiFi/Bluetooth-capable	-	Compact	-	-	-
	VOLTAGE	54/60v	54/60v	28v	28v	54/60v
	TOOLS IN RANGE	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■	■ ■ ■	■ ■ ■ ■
	ORIGIN	🇮🇹	🇺🇸	🇨🇳	🇨🇳	🇮🇹
	COST inc tax / VAT	N/A	N/A	$3500-4500*	$3750--4700*	N/A
	RAM TYPE	2-Stage Telescoping	2-Stage Telescoping	1-Stage	2-Stage Telescoping	2-Stage Telescopi
	WEIGHT IN HAND inc BATTERY exc EXTENSION	17.9kg 39.4lb	15.8kg 56.9lb	19.8kg 43.6lb	20.4kg 45lb	17.9kg 39.4lb
BATTERY	**WEIGHT** - DEFAULT BATTERY	1.2kg / 2.6 lb	1.2kg / 2.6 lb	0.9kg /2 lb	0.9kg /2 lb	1.2kg / 2.6 lb
BATTERY	BATTERY Ah OPTIONS	DeWalt FlexVolt 9Ah	DeWalt FlexVolt 6Ah 9, 12Ah	5Ah	5Ah	DeWalt FlexVolt 9Ah
BATTERY	BATTERY DURATION RECHARGE TIME	10-25mins 85mins	10-15mins 60mins	45-60mins 90mins	45-60mins 90mins	10-25mins 85mins
DIMENSIONS	LENGTH retracted/extended*	290mm/ 11.4" 574mm/22.6"	558mm/ 21.9" 1283mm/50.5"	560mm/ 22.3" 930mm/0"	565mm/ 22.2" 1355mm/53.3"	290mm/ 11.4" 574mm/22.6"
DIMENSIONS	HEIGHT/WIDTH	452mm / 17.8"	N/A	300mm / 11.8"	400mm / 15.8"	452mm / 17.8"
DIMENSIONS	DEPTH (max diam)	185mm / 7.3"	N/A	175mm / 6.9"	120mm / 4.7"	185mm / 7.3"
DIMENSIONS	EXTENSION(S) & OPTIONS	254mm/10" 457mm/18" 680mm/27" -	NO -	NO - -	NO --	254mm/10" 457mm/18" 680mm/27" -
NORM	EN ■ NFPA □	■ ■	■	■*	■* ■	■ ■
NORM	**EN CLASSIFICATION**	TR215/160-76.4/124-16.7	-	-	-	TR215/160-76.4/124-1
STROKE	**PUSH FORCE(S** for telescoping) t=US Ton	215-76.4kN 24.2-8.6 USt	206-96kN 23.2-10.8 USt	120kN 13.5 USt	145.7-75.5kN 16.4-8.5 USt	215-76.4kN 24.2-8.6 USt
STROKE	**STROKE RANGE**	160/124mm 6.3/4.9"	381/346mm 15/13.5"	370mm 14.6"	415/380mm 16.3/15"	160/124mm 6.3/4.9"
STROKE	**TOTAL STROKE DISTANCE**	284mm 11.2"	727mm 25.5"	370mm 14.6"	975mm 38.4"	284mm 11.2"
	WORKING PRESSURE (HYDRAULIC)	700 Bar 10.2K psi	700 Bar 10.2K psi	720 Bar 10.4K psi	720 Bar 10.4K psi	700 Bar 10.2K psi
	WiFi/Bluetooth capable	- -	- -	- -	- -	- -
	SPEED CONTROL ON-BOARD LED	Rotating Star Grip -	Rotating Star Grip -	Rotating Star Grip □	Rotating Star Grip □	Rotating Star Gri
	IN-WATER USE BATTERY/TOOL IP	54 54	54 54	54 54	54 54	54 54
	NOTES	-	Motor & valve assembly can rotate out of the way. Also some ION iTR230 still available - same spec as Edilgrappa MT730N-E	*CE is listed but you will need to verify this refers to the correct standard. *FOB China	*CE & NFPA is listed but you will need to verify this refers to the correct standard. *FOB China	-
	WEBSITE	amkus.com	amkus.com	aolairescue.com	aolairescue.com	edilgrappa.com






	GENESIS RESCUE	GENESIS RESCUE	GENESIS RESCUE	GENESIS RESCUE	GENESIS RESCUE	GENESIS RESCUE	
	21-36	21-36	31" Push-Pull	41" Push-Pull	22-54	22-54	
	E-Force SL3	E-Force SLi	E-Force SL3	E-Force SL3	E-Force SL3	E-Force SLi	
	28v	18v	28v	28v	28v	18v	
	N/A	N/A	N/A	N/A	N/A	N/A	
ng	1-Stage	1-Stage	1-Stage	1-Stage	2-Stage Telescoping	2-Stage Telescoping	
	17.3kg 38.1lb	18.4kg 40.6lb	18.2kg 40.1lb	21.6kg 47.6lb	20.1kg 44.3lb	21.6kg 47.6lb	
	1.4kg/1kg 3.2lb/2.3lb	1.1/1.7kg 2.33/3.74lb	1.4kg/1kg 3.2lb/2.3lb	1.4kg/1kg 3.2lb/2.3lb	1.4kg/1kg 3.2lb/2.3lb	1.1/1.7kg 2.33/3.74lb	BATTERY
	Genesis/ Milwaukee 5Ah*	Milwaukee M18 8Ah/12Ah*	Genesis/ Milwaukee 5Ah*	Genesis/ Milwaukee 5Ah*	Genesis/ Milwaukee 5Ah*	Milwaukee M18 8Ah/12Ah*	
	<45mins 90mins	60/90mins 45-83mins	<45mins 90mins	<45mins 90mins	<45mins 90mins	60/90mins 45-83mins	
	540mm /21.3" 908mm /35.7"	540mm /21.3" 908mm /35.7"	553mm /21.8" 840mm /33.1"	653mm /25.7" 1061mm /41.8"	587mm /23.1" 1387mm /53"	587mm /23.1" 1387mm /54.6"	DIMENSIONS
	340mm / 13.4"	340mm / 13.4"	347mm / 13.7"	347mm / 13.7"	365mm / 14.4"	365mm / 14.4"	
	134mm/ 5.3"	134mm/ 5.3"	142mm / 5.6"	142mm / 5.6"	134mm /5.3"	134mm / 5.3"	
	76mm/3" 127mm/5" 254mm/10" Angled V-head Pull shackles, pins & adapters	50mm/2" 150mm/6" 270mm/10.6"	76mm/3" 127mm/5" 254mm/10" Angled V-head Pull shackles, pins & adapters	76mm/3" 127mm/5" 254mm/10" Angled V-head Pull shackles, pins & adapters	NO	NO	
	■	■	■	■	■	■	NORM
6.7	-	-	-	-	-	-	
	111kN 12.5 USt	111kN 12.5 USt	142 (47*) kN 16 (1.8*) USt	142 (47*) kN 16 (1.8*) USt	138(47kN*) 15.5 (1.8*) USt	108/62kN 12.1/7 USt	
	368mm 14.5"	368mm 14.5"	287mm 11.3"	408mm 16.1"	428/372mm 16.8- 14.7"	428/372mm 16.8- 14.7"	
	368mm 14.5"	368mm 14.5"	287mm 11.3"	408mm 16.1"	800mm 31.5"	800mm 31.5"	
	700 Bar 10.1K psi	550 Bar 7.9K psi	700 Bar 10.1K psi	700 Bar 10.1K psi	700 Bar 10.1K psi	550 Bar 7.9K psi	
	- -	WiFi	- -	- -	- -	WiFi	
p -	Rocker switch ■	Rocker switch ■	Rocker switch ■	Rocker switch ■	Rocker switch ■	Rocker switch ■	
	54 54	■ 68* 58	54 54	54 54	54 54	■ 68* 58	
	All E-Force tools can convert to hose. Length remaining markers on ram tube.	All E-Force tools can convert to hose. Length remaining markers on ram tube. *IP68 only with battery cover. IP54 splash cover for 12Ah	All E-Force tools can convert to hose. *=PULL-FORCE	All E-Force tools can convert to hose. *=PULL-FORCE	All E-Force tools can convert to hose. Length remaining markers on ram tube.	All E-Force tools can convert to hose. Length remaining markers on ram tube. *IP68 only with battery cover. IP54 splash cover for 12Ah	
h	genesisrescue.com	genesisrescue.com	genesisrescue.com	genesisrescue.com	genesisrescue.com	genesisrescue.com	

Images not exactly to Scale but comparative within their own series of tools.

OTHER TOOLS IN RANGE:
■= Combi ■= Spreader
■=Cutter ■= Special Tools
●= PARTIAL FEATURE
□□□= Option
N/A = info Not Available/ not given

	COMPANY	GENESIS RESCUE	GENESIS RESCUE	HOLMATRO	HOLMATRO	HOLMATRO
	MODEL	28-59	28-59	PRA40	PTR40	PRA50
	SERIES WiFi/Bluetooth-capable	E-Force SL3	E-Force SLi	PENTHEON	PENTHEON	PENTHEON
	VOLTAGE	28v	28v	28v	28v	28v
	TOOLS IN RANGE	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
	ORIGIN					
	COST inc tax / VAT	N/A	N/A	N/A	N/A	N/A
	RAM TYPE	2-Stage Telescoping	2-Stage Telescoping	1-Stage	2- Stage Telescoping	1-Stage
	WEIGHT IN HAND inc BATTERY exc EXTENSION	21.7kg 47.8lb	22.7kg 50lb	14.1kg 31.1lb	15.5kg 34.2lb	18.2kg 40.1lb
BATTERY	**WEIGHT** - DEFAULT BATTERY	1.4kg/1kg 3.2lb/2.3lb	1.1/1.7kg 2.33/3.74lb	1.5kg / 3.3lb	1.5kg / 3.3lb	1.5kg / 3.3lb
BATTERY	BATTERY Ah OPTIONS	Genesis/ Milwaukee 5Ah*	Milwaukee M18 8Ah/12Ah*	Holmatro PBPA287 8Ah	Holmatro PBPA287 8Ah	Holmatro PBPA287 8Ah
BATTERY	BATTERY DURATION RECHARGE TIME	<45mins 90mins	60/90mins 45-83mins	30-90mins* 60mins	30-90mins* 60mins	30-90mins* 60mins
DIMENSIONS	LENGTH retracted/extended*	700mm /27.6" 1500mm /59"	700mm /27.6" 1500mm /59"	385mm / 15.2" 600mm/23.6"	385mm/ 15.2" 792mm/31.2"	578mm/ 22.8" 985mm/38.8"
DIMENSIONS	HEIGHT/WIDTH	365mm / 14.4"	365mm / 14.4"	443mm / 17.4"	443mm / 17.4"	443mm / 17.4"
DIMENSIONS	DEPTH (max diam)	134mm / 5.3"	134mm / 5.3"	256mm / 10.1"	256mm / 10.1"	256mm / 10.1"
DIMENSIONS	EXTENSION(S) & OPTIONS	NO	NO	220mm/8.7" (3.3kg/ 7.3lb) 440mm/17.3" (4.6kg/10.1lb)	220mm/8.7" (3.3kg/ 7.3lb) 440mm/17.3" (4.6kg/10.1lb)	220mm/8.7" (3.3kg/ 7.3lb) 440mm/17.3" (4.6kg/10.1lb)
NORM	EN ■ NFPA □	■	■	■ ■	■ ■	■ ■
NORM	**EN CLASSIFICATION**	-	-	R136/215-14.1	TR136/215-65/192-15.5	R136/407-18.2
STROKE	**PUSH FORCE(S** for telescoping) t=US Ton	108/62kN 0UST	108/62kN 0UST	136kN 15.3 UST	65-136kN 7.3-15.3 UST	136kN 15.3 UST
STROKE	**STROKE RANGE**	428/372mm 16.8- 14.7"	428/372mm 16.8- 14.7"	-	215/192mm 8.5/7.6"	-
STROKE	**TOTAL STROKE DISTANCE**	800mm 31.5"	800mm 31.5"	215mm 8.5"	407mm 16"	407mm 16"
	WORKING PRESSURE (HYDRAULIC)	700 Bar 10.1K psi	700 Bar 10.1K psi	540 Bar 7.8K psi	540 Bar 7.8K psi	540 Bar 7.8K psi
	WiFi/Bluetooth capable	--	WiFi	✓	✓	✓
	SPEED CONTROL ON-BOARD LED	Rocker switch □	Rocker switch □	2speed throttle □	2speed throttle □	2speed throttle □
	IN-WATER USE BATTERY/TOOL IP	54 54	■ 68* 58	■ 67 57	■ 67 57	■ 67 57
	NOTES	All E-Force tools can convert to hose. Length remaining markers on ram tube.	All E-Force tools can convert to hose. Length remaining markers on ram tube. *IP68 only with battery cover. IP54 splash cover for 12Ah	Push-button ram ext. do not need original ram head to be removed.On-tool charging. tepless speed maximisation. *11mins at constant max force.	Push-button ram ext. do not need original ram head to be removed.On-tool charging. tepless speed maximisation. *11mins at constant max force.	Push-button ram ext. do need original ram head t removed.On-tool chargi tepless speed maximisat *11mins at constant m force.
	WEBSITE	genesisrescue.com	genesisrescue.com	holmatro.com	holmatro.com	holmatro.com

BATTERY RAMS





	HOLMATRO PTR50	HOLMATRO PTR51	HURST (IDEX) R320	HURST (IDEX) R521	HURST (IDEX) CR 522
	PENTHEON	PENTHEON	E3/E3connect	E3/E3connect	E3/ E3connect
	28v	28v	25.2v	25.2v	25.2v
	N/A	N/A	N/A	N/A	N/A
	2-Stage Telescoping	2-Stage Telescoping	2-Stage Telescoping	2-Stage Telescoping	2-Stage Telescoping
	20.5kg 45.2lb	21.4kg 47.2lb	13.7kg 30.2lb	19.4kg 42.8lb	21.6kg 47.6lb
	1.5kg / 3.3lb	1.5kg / 3.3lb	1.6 1.2kg /3.5 2.7lb	1.6 1.2kg /3.5 2.7lb	1.6 1.2kg /3.5 2.7lb
	Holmatro PBPA287 8Ah	Holmatro PBPA287 8Ah	Lukas 9Ah 9AhSaltWater, 5Ah	Lukas 9Ah 9AhSaltWater, 5Ah	Lukas 9Ah 9AhSaltWater, 5Ah
	30-90mins* 60mins	30-90mins* 60mins	30-60mins 75-150mins	30-60mins 75-150mins	30-60mins 75-150mins
	578mm/ 22.8" 1365mm/53.7"	713mm/ 28.1" 1500mm/59.1"	340mm /13.4" 640mm /25.2"	579mm /22.8" 1359mm /53.5"	657mm /25.9" 1533mm /60.3"
	443mm / 17.4"	443mm / 17.4"	326mm / 12.8"	327mm / 12.9"	327mm / 12.9"
	256mm / 10.1"	256mm / 10.1"	200mm / 7.9"	140mm / 5.5"	140mm / 5.5"
	220mm/8.7" (3.3kg/ 7.3lb) 440mm/17.3" (4.6kg/10.1lb)	NO	50mm/2" 150mm/6" 270mm/10.6"	NO	50mm/2" 150mm/6" 270mm/10.6"
	TR-136/405-65/382-20.5	TR136/405-65/382-21.4	-	-	-
	65-136kN 7.3-15.3 USt	65-136kN 7.3-15.3 USt	60-127kN 6.74-14.27 USt	60-127kN 6.74-14.27 USt	60-127kN 6.74-14.27 USt
	405/382mm 15.9/15"	405/382mm 15.9/15"	164/136mm 6.5-5.4"	403/377mm 15.9-14.8"	451/425mm 17.75-16.7"
	787mm 31"	787mm 31"	300mm 11.8"	780mm 30.7"	876mm 34.5"
	540 Bar 7.8K psi	540 Bar 7.8K psi	500 Bar 7.2K psi	500 Bar 7.2K psi	500 Bar 7.2K psi
			--/ WiFi	--/ WiFi	--/ WiFi
	2speed throttle	2speed throttle	Rotating Star Grip	Rotating Star Grip	Rotating Star Grip
	67 57	67 57	68 58	68 58	68 58
	Push-button ram ext. do not need original ram head to be removed.On-tool charging. tepless speed maximisation. *11mins at constant max force.	Push-button ram ext. do not need original ram head to be removed.On-tool charging. tepless speed maximisation. *11mins at constant max force.	Can operate for 60min under water inc salt water with Saltwater battery. E3 Connect has WiFi connectivity. Side-mounted battery R421 E2 discontinued	Can operate for 60min under water inc salt water with Saltwater battery. E3 Connect has WiFi connectivity for tool management and remote status etc.	Can operate for 60min under water inc salt water with Saltwater battery. R421 E2 discontinued
	holmatro.com	holmatro.com	jawsoflife.com	jawsoflife.com	jawsoflife.com

Images not exactly to Scale but comparative within their own series of tools.

OTHER TOOLS IN RANGE:
■= Combi ■= Spreader
■=Cutter ■= Special Tools
●= PARTIAL FEATURE
□□□= Option
N/A = info Not Available/ not given

	COMPANY	LUKAS (IDEX)	LUKAS (IDEX)	LUKAS (IDEX)	OGURA	OGURA
	MODEL	R320	R521	CR 522 CrossRam	RPR-370	HRS941
	SERIES WiFi/Bluetooth-capable	E3/ E3connect	E3connect	E3/ E3connect	RP	HR938 Ram
	VOLTAGE	25.2v	25.2v	25.2v	18v	18v
	TOOLS IN RANGE	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
	ORIGIN				●	●
	COST inc tax / VAT	N/A	N/A	N/A	N/A	N/A
	RAM TYPE	2-Stage Telescoping	2-Stage Telescoping	2-Stage Telescoping	1-Stage	1-Stage
	WEIGHT IN HAND inc BATTERY exc EXTENSION	13.7kg 30.2lb	19.4kg 42.8lb	21.6kg 47.6lb	14.1kg 31.1lb	4.2kg +3.1kg 9.3lb +6.8lb
BATTERY	WEIGHT - DEFAULT BATTERY	1.6 1.2kg /3.5 2.7lb	1.6 1.2kg /3.5 2.7lb	1.6 1.2kg /3.5 2.7lb	1-1.36kg 2.2-3lb	1-1.36kg 2.2-3lb
BATTERY	BATTERY Ah OPTIONS	Lukas 9Ah 9AhSaltWater, 5Ah	Lukas 9Ah 9AhSaltWater, 5Ah	Lukas 9Ah 9AhSaltWater, 5Ah	Makita 5-6Ah*	Makita 5-6Ah*
BATTERY	BATTERY DURATION RECHARGE TIME	30-60mins 75-150mins	30-60mins 75-150mins	30-60mins 75-150mins	<12mins 55-120mins	<12mins 55-120mins
DIMENSIONS	LENGTH retracted/extended*	340mm /13.4" 640mm /25.2"	579mm /22.8" 1359mm /53.5"	657mm /25.9" 1533mm /60.3"	529mm /16" 899mm /27"	*219mm /8.6" 319mm /12.6"
DIMENSIONS	HEIGHT/WIDTH	326mm / 12.8"	327mm / 12.9"	327mm / 12.9"	290mm / 11.4"	*290mm / 11.4
DIMENSIONS	DEPTH (max diam)	200mm / 7.9"	140mm / 5.5"	140mm / 5.5"	179mm / 7"	*179mm / 7"
DIMENSIONS	EXTENSION(S) & OPTIONS	50mm/2" 150mm/6" 270mm/10.6" -	NO	50mm/2" 150mm/6" 270mm/10.6" -	200mm/7.9" 450mm/17.7" Flat surface and claw heads	*
NORM	EN ■ NFPA□	■ ■	■ ■	■ ■	-	-
NORM	EN CLASSIFICATION	-	-	-	-	-
STROKE	PUSH FORCE(S for telescoping) t=US Ton	127/60kN 14.27/ 6.74 USt	127/60kN 14.27/ 6.74 USt	127/60kN 14.27/ 6.74 USt	66.6kN 0 USt	36.6kN 4.1 USt
STROKE	STROKE RANGE	164/136mm 6.5-5.4"	403/377mm 15.9-14.8"	451/425mm 17.75-16.7"	370mm 14.6"	100mm 4"
STROKE	TOTAL STROKE DISTANCE	300mm 11.8"	780mm 30.7"	876mm 34.5"	370mm 14.6"	100mm 4"
	WORKING PRESSURE (HYDRAULIC)	500 Bar 7.2K psi	500 Bar 7.2K psi	500 Bar 7.2K psi	N/A	N/A
	WiFi/Bluetooth capable	--/ WiFi	WiFi	--/ WiFi	--	--
	SPEED CONTROL ON-BOARD LED	Rotating Star Grip □	Rotating Star Grip □	Rotating Star Grip □	Trigger	Trigger
	IN-WATER USE BATTERY/TOOL IP	■ 68 58	■ 68 58	■ 68 58	54 54	54 54
	NOTES	Can operate for 60min under water inc salt water with Saltwater battery. E3 Connect has WiFi connectivity. Side-mounted battery	Can operate for 60min under water inc salt water with Saltwater battery. E3 Connect has WiFi connectivity for tool management and remote status etc.	Can operate for 60min under water inc salt water with Saltwater battery. E3 Connect has WiFi connectivity for tool management and remote status etc.	Head can be switched between cutter, combi, spreader ram etc.*EU uses 5Ah, US tends to use 6Ah	*Ram dims only *HRS941 Head can switched between cu combi, spreader ram
	WEBSITE	lukas.com	lukas.com	lukas.com	ogurarescuetools.com	ogurarescuetools.c

BATTERY RAMS





	OGURA	POWERHAWK TECHNOLOGIES	POWERHAWK TECHNOLOGIES	RESQTEC	SCORPE	SCORPE	
	HRS931	P25 (S-1601X)	P40 (S-1601X)	V4 V4x	Ram SR	Ram TR	
	HR938 Ram	X	X	EDD	GreenSpirit II	GreenSpirit II	
	18v	12v or 16v LiGHT	7.5/12v	43.2v	28v	18v/28v	
	N/A	N/A	N/A	N/A	N/A	N/A	
	1-Stage	1-Stage+ hand-wind top section	1-Stage+ hand-wind top section	1-Stage	1-Stage	2-Stage Telescoping	
	3.9kg +3.1kg 8.6lb+6.8lb	27kg 0lb	36kg 0lb	16.4kg 36.1lb	17.9kg	21.1kg 46.5lb	
	1-1.36kg 2.2-3lb	1..36kg 3lb	1..36kg 3lb	1kg 2.2lb	1/1.1kg 2.2/2.33lb	1.1/1kg 2.33/2.2lb	
	Makita 5-6Ah*	Powerhawk 7.5Ah or any 12v source	Powerhawk 7.5Ah or any 12v source	*Resqtec 2.6Ah	Milwaukee 5Ah M28 8Ah M18	Milwaukee 8Ah M18 5Ah M28	BATTERY
	<12mins 55-120mins	>30 mins <120mins/<15hr	>30 mins <120mins/<15hr	<45mins 60mins	60/80mins 45-90mins	60/80mins 45-90mins	
	303mm /16" 899mm /27"	0mm /16" 0mm /27"	0mm /23" 0mm /41"	636mm /25" 936mm /37"	540mm /21.3" 908mm /35.7"	587mm /23.1" 1387mm /53"	DIMENSIONS
	290mm / 11.4"	178mm / 7"	327mm / 12.9"	355mm / 14"	291mm / 11.5"	365mm / 14.4"	
	179mm / 7"	100mm / 4"	100mm / 4"	133mm/ 5.2"	167mm/ 6.6"	167mm/ 6.6"	
	*	610mm/24" 1220mm/48" Coupling Swivel bases	610mm/24" 1220mm/48" Coupling Swivel bases	Multi-Adapter for.... 716mm / 28.2" 586mm / 23" 241.6mm / 9.5" 151.6mm / 6" 99.6mm / 4" Swivel & Power Plates	250mm/10" 350mm/14" 450mm/18" 100 &180mm Heads Sill Support	250mm/10" 350mm/14" 450mm/18" 100 &180mm Heads Sill Support	
	-	■	■	■ ■	■	■	NORM
	-	-	-	-	R111/368-17.9	TR108/428-62/372-21.1	
	36.6kN 4.1 USt	31.6-52.5kN 3.5-5.9 USt	31.6-52.5kN 3.5-5.9 USt	89 /58.8kN 10 /6.6 USt	111kN 12.47 USt	108/62kN* 12.1/7 USt	
	100mm 4"	127/152*mm 5/6"	305/152*mm 12/6"	300mm 11.8"	368mm 14.5"	428/372mm 16.8- 14.7"	
	100mm 4"	127mm (+152mm manual) 5"(+6"manual)	305mm(+152mm manual) 12" (+6"manual)	300mm 11.8"	368mm 14.5"	800mm 31.5"	
	N/A	N/A mechanical	N/A mechanical	N/A mechanical	700 Bar 10.2K psi	550 Bar 7.9K psi	
	--	--	--	--	--	--	
	Trigger	Rotating Star Grip	Rotating Star Grip	□	Rocker switch □	Rocker switch □	
	54 54	54 54	54 54	54 54	54/68 54	■ 54/68* 68	
be tter, etc.	*Ram dims only *HRS941 Head can be switched between cutter, combi, spreader ram etc	RAMs can be joined with bespoke coupler and can be used with any spreader that fits 2.25"/58mm but is designed for the P16/P16X with spreader or combi heads. *Manually screwed telescoping top section adds 6"/152mm. Rams have locking nuts to follow the lift and hold without power unit. Both P16 (Legacy) &P16X can use a 12v car battery or any 12v power source		*10Ah powerpack also available. Ram compatible with all *Resqtec* shoring struts if using the Multi-Adapter.	Converter available for M28 & other batteries. * IP68 with M18 & waterproof cover (not shown)	*&36.9kN/4.1USt Pull force. Converter available for M28 & other batteries. * IP68 with M18 & waterproof cover (shown)	
om	ogurarescuetools.com	powerhawk.com	powerhawk.com	resqtec.com	scorpe.net	scorpe.net	

Images not exactly to Scale but comparative within their own series of tools.

OTHER TOOLS IN RANGE:
■= Combi ■= Spreader
■=Cutter ■= Special Tools
●= PARTIAL FEATURE
□□□= Option
N/A = info Not Available/ not given

	COMPANY	**TNT RESCUE**	**TNT RESCUE**	**WEBER RESCUE**	**WEBER RESCUE**	**WEBER RESCUE**
	MODEL	**ER40**	**ELS40**	**RZ1-910 -**	**RZ1-910 -**	**RZT2-1170 -**
	SERIES WiFi/Bluetooth-capable	Storm Surge	Storm Surge	E-Force3	Smart-Force	E-Force3
	VOLTAGE	18v/20v	18v/20v	28v	18v	28v
	TOOLS IN RANGE	■ ■ ■	■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
	ORIGIN	USA	USA	DE AT	DE AT	DE AT
	COST inc tax / VAT	N/A	N/A	N/A	N/A	N/A
	RAM TYPE	1-Stage	2-Stage Telescoping	1-Stage	1-Stage	2-Stage Telescoping
	WEIGHT IN HAND inc BATTERY exc EXTENSION	19.77kg 43.6lb	18.64kg 41.1lb	17.3kg 38.1lb	18.4kg 40.6lb	20.9kg 46lb
BATTERY	**WEIGHT** - DEFAULT BATTERY	1.1kg /2.4lb 1.2[1.36]kg /2.6[3]lb	1.1kg /2.4lb 1.2[1.36]kg /2.6[3]lb	1.4kg/1kg 3.2lb/2.3lb	1.1/1.7kg 2.33/3.74lb	1.4kg/1kg 3.2lb/2.3lb
BATTERY	BATTERY Ah OPTIONS	Milwaukee M18 8/9Ah./[Makita6Ah] DeWalt FlexV20 9Ah	Milwaukee M18 8/9Ah./[Makita6Ah] DeWalt FlexV20 9Ah	Weber/ Milwaukee 5Ah*	Milwaukee M18 8Ah/12Ah*	Weber/ Milwaukee 5Ah*
BATTERY	BATTERY DURATION RECHARGE TIME	10-15mins 87 / 60mins	10-15mins 87 / 60mins	<45mins 90mins	60/90mins 45-83mins	<45mins 90mins
DIMENSIONS	LENGTH retracted/extended*	647.7mm /25.5" 1041.4mm /41"	546.1mm /21.5" 1073.15mm /42.25"	540mm /21.3" 908mm /35.7"	540mm /21.3" 908mm /35.7"	543mm /21.4" 1170mm /44.3"
DIMENSIONS	HEIGHT/WIDTH	273mm / 10.75"	273mm / 10.75"	340mm / 13.4"	340mm / 13.4"	351mm / 13.8"
DIMENSIONS	DEPTH (max diam)	205.7mm/ 8.1"	205.7mm/ 8.1"	134mm/ 5.3"	134mm/ 5.3"	134mm / 5.3"
DIMENSIONS	EXTENSION(S) & OPTIONS	150mm/6" 300mm/12" 450mm/18"	150mm/6" 300mm/12" 450mm/18"	175mm/7" 250mm/9.8" 320mm/12.6"	175mm/7" 250mm/9.8" 320mm/12.6"	NO
NORM	EN ■ NFPA □	■	■	■ ■	■ ■	■
NORM	**EN CLASSIFICATION**	-	-	R111/368-17.3	R111/368-18.4	TR189/360-99/27020,9
STROKE	**PUSH FORCE(S** for telescoping) t=US Ton	164.6kN 18.5 USt	169.3/58.2kN 19/6.5 USt	111kN 12.47 USt	111kN 12.47 USt	189-99kN 21.2/11.1 USt
STROKE	**STROKE RANGE**	368mm 14.5"	329/221mm 12.95/8.7"	368mm 14.5"	368mm 14.5"	360/270mm 13.2-10.6"
STROKE	**TOTAL STROKE DISTANCE**	368mm 14.5"	527mm 20.75"	368mm 14.5"	368mm 14.5"	630mm 24.8"
	WORKING PRESSURE (HYDRAULIC)	722 Bar 10.5K psi	722 Bar 10.5K psi	700 Bar 10.1K psi	550 Bar 7.9K psi	700 Bar 10.1K psi
	WiFi/Bluetooth capable					
	SPEED CONTROL ON-BOARD LED	Rotating Star Grip □	Rotating Star Grip □	Rocker switch □	Rocker switch □	Rocker switch □
	IN-WATER USE BATTERY/TOOL IP	54 54	54 54	54 54	■ 68* 58	54 54
	NOTES	- TNT prices include 2 batteries and Dual Rapid charger. Storm2 series DISCONTINUED Mains adapter=option.	TNT prices include 2 batteries and Dual Rapid charger. Storm2 series DISCONTINUED Mains adapter=option.	All E-Force tools can convert to hose. Length remaining markers on ram tube.	All E-Force tools can convert to hose. Length remaining markers on ram tube. *IP68 only with battery cover. IP54 splash cover for 12Ah	All E-Force tools can convert to hose. Length remaining markers on ram tube.
	WEBSITE	tntrescue.com	tntrescue.com	weber.com	weber.com	weber.com

PUSH IT TO THE LIMIT.

THE NEXT-GEN PENTHEON RAM. MILES AHEAD.

PENTHEON

For decades, first responders and patients alike have been able to count on us for life. To keep this promise we ceaselessly push the boundaries of technology and innovation. For the latest iteration of the Pentheon Rams, our engineers worked tirelessly to build tools that are miles ahead in terms of performance, usability, connectivity and serviceability. Ensuring that the path to a patient's safety is equally fast as it is controlled.
Discover the next-gen Pentheon Rams.

FIND OUT MORE ON HOLMATRO.COM/PENTHEON

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mastering **power**

'pneumatic' HIGH-PRESSURE AIRBAGS

High pressure lifting bags, or more accurately, cushions, have changed little since their introduction in the 70s save for the incorporation of more technical and robust fibres like the Kevlar derivatives. Otherwise you are looking at a robust and thickly walled rubber square or circle that is inflated using a compressed air cylinder. Placed beneath a vehicle or under a concrete plinth it has enough power to lift between 2 and >135metric tonnes (150 US tons). But don't be fooled by the simplicity of a high pressure bag because placing and using them requires a wise hand. Like hydraulic tools they apply the least load at their greatest size and in the case of a bag, the point-load area diminishes as it inflates. What starts out as a broadly supported load across perhaps two thirds of the bag's width when it is less than half inflated can become only a few inches across at maximum inflation - this can lead to dangerously high loads on the target load, dangerously high loads on a small area of the bag and possibly dangerously unstable such that the load could shift or it could simply 'squeeze' the bags at an angle and eject them with great force - all three of these scenarios are why you should ALWAYS FOLLOW YOUR LIFT with cribbing/ stabilisation of some form to capture the progress made should something go wrong. In the image above you can see another key consideration - that of synchronised lifting - you can have separate hoses running through a common cylinder(s) and valve and then to a multiple controller handled by one operator or separate hoses, valves and controls for each.

It is vital to work within the stated capacities of the bags because unlike a hydraulic tool that will simply stop working adequately when overloaded an air bag doesn't have any form of pressure release that doesn't involve possible serious injury to those around it. If in any doubt, use this imperial conversion formula to calculate the approximate lift capacity of any given bag, then err on the side of caution!:

L" x W" x operating pressure (psi) = lift capacity in lbs
eg. 26"x 26" = 676
676 x 116 (psi) = 78416'bs/39.2t(US)/35.5tonne

Your main consideration in using an airbag is that the maximum lift capacity quoted in literature is only when the bag is at its lowest lift height (when the maximum surface area of bag is in contact with the load). As the bag is inflated it forms the familiar dome shape (providing the weight being lifted doesn't exceed the specifications of the bag) and as less bag is in contact, less weight can be lifted. In fact at the highest point of the highest capacity bag listed here (the rather non-standard NT8) the amount that can be lifted is only about 6 tonnes compared to the 132 tonnes it can lift at only 70mm/3 inches inflation height.

Most bags have a kevlar mesh or older style steel mesh interlace in their construction which resists intrusion of the load to some extent - the so-called 'sling-effect'. Use of an intermediate protective metal plate is debatable as the rounded bag can easily destabilize and jettison a 'slippery' metal plate. The very first bag to overcome this was the Zumro (now Resqtec) NT bags with an integrated metal plate enabling inter-connection of bags and in some cases a single air feed to all 2, 3 or 4 bags in the stack though greater control and safety would be with separate hose attachments to each. The metal connecting plate also affords much greater protection and a guaranteed flat top and bottom surface offering good protection against a sharp surface. This concept is now used by other manufacturers like the Vetter bags on the left where you can see that were they not strongly connected by a screw-on metal plate between each bag this 3-stack configuration would struggle to remain in place. In our tables we have listed such connecting bags as **CONNECT** but most simpler bags will **STACK** at least two up and hold well on the substantial

HIGH PRESSURE AIRBAGS

grip patterns that are moulded into their upper and lower surfaces but only at the lower inflation pressures with plenty of surface area in contact with each other - inflate two much and the grip area minmises and it is like trying to balance two basketball on top of each other and then an elephant on top of that! Many lift distances are under-estimated the lifts seem to end up involving a point load rather than broad surface lift. This is because the target load may have some flex and most small to mid-size bags only lift a few inches. If the lift distances are great you may want to consider either a low pressure air bag or a hard metal jack or shore. These latter won't deflect or 'bounce', they provide some degree of auto-cribbing and negate the need to stack bags. Stacking is best avoided altogether. If you must stack to achieve your lift objective always place the largest bag on the base and do not use more than 2 bags except under exceptional circumstances that probably won't be covered by the bag manufacturer's warranty. Obvious exceptions to this advice are the hard-connect bags which are designed to be used two, three or even four bags high. Some bagshave a surface pattern that not only provides increased traction but actively interlocks with a stacked bag making them more stable in a stack lift. Most bags have a pronounced dimpled surface or cross-hatch to increase purchase on the load and this will also provide some degree of interlock.

Use cribbing or a load-bearing platform beneath Pneumatic airbags to perform lifts at height and be sure to follow up your lifts with cribbing or support struts in case of bag failure or to allow removal and relocation.

Whether you bags have a square edge profile which some argue pushes dirt and debris away or a round edge which pushes into spaces easier, you will need at least half an inch/2.5cm or more clearance in which to insert the bag so consider initial use of a wedge or spreaders to gain the necessary initial insertion height. This is such a key requirement of any lifting operation that we have highlighted the minimum insertion height for each bag at the end of the DIMENSIONS figures in pink.

Finally, don't forget that lifting is only one of an airbag's capabilities it is equally, if not more, adept at sealing and stabilising by pushing against a restraint - in the case of the leaky tanker above, the bag pushes a seal-pad against the hole and against two ratchet straps. In trench rescue they can often be used to provide support for emergency trench boards pushing against the back wall rather than having to backfill or place short shores because they are much easier to place remotely without exposing rescuers to the dangers of further collapse.

IN THE FOLLOWING TABLES.....

The tool length, width or height and weight are all WORKING spec so they **include the battery**. Many companies quote figures without the battery so at first glance seem lighter but when added has a significant affect on both the physical size and weight of a tool when in use. As with all cutting and spreading tools, the largest or highest figures are not necessarily the best for the job. Stroke power is highest at the shortest extension. **All force figures are given in KiloNewtons and US (short)tons**

Any use, feature, accessory or component that is inherent in the tool is shown as a solid coloured square ■■■■■

If it's an option it is shown as an outline square □□□□

A circle ● in the 'USE' columns indicates that this feature is only partially present and/or is OK for that purpose but not ideal.

A model variant is shown in cyan blue and any features or specifications that differ from the standard are also in cyan or will have a cyan outline to a black or coloured square ■■.

ORIGIN: The company's home country, not necessarily the country of manufacture which is indicated by an inset flag or two equally sized flags if the tool is made in both countries.

COST: This is clearly an official secret within the industry. This is because the cost of one tool is huge and vastly different to the cost of multiples that they sell to entire fire services. But this is the same situation for virtually every piece of equipment we ever have in **TECHNICALRESCUE** where we always quote the single item cost on the understanding that any bulk purchase will of course be a lower figure.

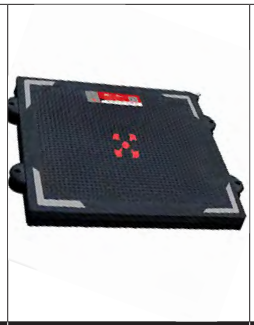
WEIGHT: Refers to the operational weight that the rescuer experiences in handling the bag and does not include inflation equipment.

DIMENSIONS: The Length by width by **depth/height** of the bag ready to store on the truck and/or ready to work. The height figure is highlighted in pink because it is key to being able to insert the bag into any given space prior to initiating the lift.

LIFT CAPACITY: Our figures are in kN (KiloNewtons) and **US (Short) Tons**. There are 1.10 US short tons to a UK/metric ton (or more accurately tonne).

As with rams it is vital to centralise the lift on the centre of the bag - if your target load starts to stray off-centre as it moves the bag could be squeezed out with some force and the load will collapse back down if you have not followed the lift with cribbing..

Images not to Scale FEATURES: ●= PARTIAL FEATURE ■■■= Option N/A = info Not Available/ not given					
COMPANY	**AOLAI RESCUE**	**AOLAI RESCUE**	**AOLAI RESCUE**	**AOLAI RESCUE**	**AOLAI RESCU**
MODEL	**5T**	**10T**	**15T**	**20T**	**30T**
CODE NUMBER	ALQD-5	ALQD-10	ALQD-15	ALQD-20	ALQD-30
ORIGIN					
COST inc tax / VAT	N/A	N/A	N/A	N/A	N/A
WEIGHT exc inflation eqpt	2.4kg / 00lb	4.2kg / 00lb	6kg / 00lb	8.5kg / 00lb	11.5kg / 00lb
DEFLATED DIMENSIONS Length x Width x Height/depth	30 x 30 x 2.5cm 00 x 00 x 00"	38 x 38 x 2.5cm 00 x 00 x 00"	45 x 45 x 2.5cm 00 x 00 x 00"	55 x 55 x 2.5cm 00 x 00 x 00"	61 x 61 x 2.5cm 00 x 00 x 00"
INFLATED HEIGHT	16cm / 00"	21cm / 00"	25cm / 00"	30cm / 00"	34cm / 00"
TIME to MAX INFLATION	00kN /6.1USton	98.75kN /11.1USton	132kN /14.9UStons	215kN /24.2UStons	264kN /29.7USto
LIFT CAPACITY	<00mins	<00mins	<00mins	<00mins	<00mins
MAX WORKBURSTPRESSURE	8BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi
AIR VOLUME	42L / 00cuft	86L / 00cuft	152L / 00cuft	296L / 00cuft	416L / 00cuft
STACK/CONNECT HI-VIZ	■■	■■	■■	■■	■■
MATERIAL REINFORCEMENT	Oo Oo	Oo Oo	Oo Oo	Oo Oo	Oo Oo
NOTES	EN13731	EN13731	EN13731	EN13731	EN13731
WEBSITE	aolairescue.com	aolairescue.com	aolairescue.com	aolairescue.com	aolairescue.com
Images not to Scale FEATURES: ●= PARTIAL FEATURE ■■■= Option N/A = info Not Available/ not given					
COMPANY	**HOLMATRO**	**HOLMATRO**	**HOLMATRO**	**HOLMATRO**	**HOLMATRO**
MODEL	**HLB2**	**HLB6**	**HLB8**	**HLB11**	**HLB16**
CODE NUMBER	350.321.021	350.321.021	350.321.021	350.321.021	350.321.021
ORIGIN					
COST inc tax / VAT	N/A	N/A	N/A	N/A	N/A
WEIGHT exc inflation eqpt	0.7kg / 1.5lb	0.7kg / 1.5lb	0.7kg / 1.5lb	0.7kg / 1.5lb	0.7kg / 1.5lb
DEFLATED DIMENSIONS Length x Width x Height/depth	20 x 16 x 2.2cm 7.9 x 6.3 x 0.9"	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"
INFLATED HEIGHT	9.4cm / 3.7"	9.4cm / 3.7"	9.4cm / 3.7"	9.4cm / 3.7"	9.4cm / 3.7"
TIME to MAX INFLATION	21kN /00UStons	00kN /00UStons	00kN /00UStons	00kN /00UStons	00kN /00UStons
LIFT CAPACITY	<5secs	<5secs	<5secs	<0.2mins	<0.2mins
MAX WORKBURSTPRESSURE	8-12BAR / 116-174psi	8-12BAR / 116-174psi	8-12BAR / 116-174psi	8-12BAR / 116-174psi	8-12BAR / 116-174
AIR VOLUME	00L / 0.2cuft	00L / 0.2cuft	00L / 0.2cuft	00L / 0.2cuft	00L / 0.2cuft
STACK/CONNECT HI-VIZ	■■	■■	■■	■■	■■
MATERIAL REINFORCEMENT	Nitrile Rubber 3 layer Aramid	Nitrile Rubber 3 layer Aramid	Nitrile Rubber 3 layer Aramid	Nitrile Rubber 3 layer Aramid	Nitrile Rubber 3 layer Aramid
NOTES	EN13731	EN13731	EN13731	EN13731	EN13731
WEBSITE	holmatro.com	holmatro.com	holmatro.com	holmatro.com	holmatro.com

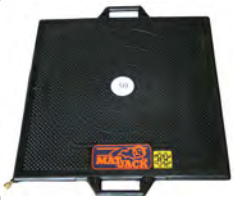


E	AOLAI RESCUE	AOLAI RESCUE	AOLAI RESCUE	AOLAI RESCUE	AOLAI RESCUE	AOLAI RESCUE
	40T	50T	70T	OO	OO	OO
	ALQD-40	ALQD-50	ALQD-70	00	00	00
	N/A	N/A	N/A	N/A	N/A	N/A
	19.1kg / 00lb	23.9kg / 00lb	26.3kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb
	78 x 78 x 2.7cm 00 x 00 x 00"	87 x 87 x 2.7cm 00 x 00 x 00"	100 x 98 x 2.8cm 00 x 00 x 00"	00 x 00 x 2.5cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"
	42cm / 00"	47cm / 00"	49cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"
on	436kN /49.1USton	539kN /60.6USton	637kN /71.6USton	00kN /00USton	00kN /00USton	00kN /00USton
	<00mins	<00mins	<00mins	<00mins	<00mins	<00mins
	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	8-12BAR / 00psi	00BAR / 00psi	00BAR / 00psi
	921L / 00cuft	1305L / 00cuft	1505L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft
	Oo Oo	Oo Oo	Oo Oo	Oo Oo	Oo Oo	Oo Oo
	EN13731	EN13731	EN13731	EN13731	EN13731	EN13731
m	aolairescue.com	aolairescue.com	aolairescue.com	aolairescue.com	aolairescue.com	aolairescue.com

	HOLMATRO	HOLMATRO	HOLMATRO	HOLMATRO	HOLMATRO	HOLMATRO
	HLB21	HL31	Stack Bag HSB27	Stack Bag HSB40	Stack Bag HSB74	Stack Bag HSB92
	350.321.021	350.321.021	350.321.021	350.321.021	350.321.021	350.321.021
	N/A	N/A	N/A	N/A	N/A	N/A
	0.7kg / 1.5lb	0.7kg / 1.5lb	0.7kg / 1.5lb	0.7kg / 1.5lb	0.7kg / 1.5lb	0.7kg / 1.5lb
	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"
	9.4cm / 3.7"	9.4cm / 3.7"	9.4cm / 3.7"	9.4cm / 3.7"	9.4cm / 3.7"	9.4cm / 3.7"
	00kN /00USton	00kN /00USton	00kN /00USton	00kN /00USton	00kN /00USton	00kN /00USton
	<0.2mins	<0.2mins	<0.2mins	<0.2mins	<0.2mins	<0.2mins
psi	8-12BAR / 116-174psi	8-12BAR / 116-174psi	8-12BAR / 116-174psi	8-12BAR / 116-174psi	8-12BAR / 116-174psi	8-12BAR / 116-174psi
	00L / 0.2cuft	00L / 0.2cuft	00L / 0.2cuft	00L / 0.2cuft	00L / 0.2cuft	00L / 0.2cuft
	Nitrile Rubber 3 layer Aramid	Nitrile Rubber 3 layer Aramid	Nitrile Rubber 3 layer Aramid	Nitrile Rubber 3 layer Aramid	Nitrile Rubber 3 layer Aramid	Nitrile Rubber 3 layer Aramid
	EN13731	EN13731	EN13731	EN13731	EN13731	EN13731
	holmatro.com	holmatro.com	holmatro.com	holmatro.com	holmatro.com	holmatro.com

Images not to Scale FEATURES: ●= PARTIAL FEATURE ■■■= Option N/A = info Not Available/ not given					
COMPANY	MATJACK	MATJACK	MATJACK	MATJACK	MATJACK
MODEL	Air lifting Bag	Air lifting Bag	Air lifting Bag	Air lifting Bag	Air lifting Bag
CODE NUMBER	101K	103K	106K	113K	122K
ORIGIN					
COST inc tax / VAT	£0 $0 €0	£0 $0 €0	£0 $0 €0	£0 $0 €0	£0 $0 €0
WEIGHT exc inflation eqpt	0.9kg / 2lb	0kg / 0lb	2.7kg / 6lb	6.8kg / 15lb	12.7kg / 28lb
DEFLATED DIMENSIONS Length x Width x Height/depth	15.24 x 15.24 x 1.8cm 6 x 6 x 0.75"	30.5 x 15.24 x 1.8cm 12 x 6 x 0.75"	25 x 25 x 3.175cm 10 x 10 x 1.25"	37.5 x 37.5 x 3.17cm 15 x 15 x 1.25"	50 x 50 x 3.17cm 20 x 20 x 1.25"
INFLATED HEIGHT	6cm / 2.5"	6cm / 2.5"	11.25cm / 4.5"	6cm / 2.5"	25.4cm / 10"
TIME to MAX INFLATION	00secs	00secs	00secs	00secs	00secs
LIFT CAPACITY	13.3kN /1.5USton	29kN /3.3USton	53.5kN /6USton	115kN /13USton	196kN /22UStor
MAX WORKBURSTPRESSURE	8BAR / 120psi	12BAR / 120psi	12BAR / 120psi	12BAR / 120psi	12BAR / 120psi
AIR VOLUME	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft
STACK/CONNECT HI-VIZ	■■-	■■-	■■-	■■-	■■-
MATERIAL REINFORCEMENT	Nitrile Rubber Aramid	Nitrile Rubber Aramid	Nitrile Rubber Aramid	Nitrile Rubber Aramid	Nitrile Rubber Steel
NOTES					
WEBSITE	matjack.com	matjack.com	matjack.com	matjack.com	matjack.com

Images not to Scale FEATURES: ●= PARTIAL FEATURE ■■■= Option N/A = info Not Available/ not given					
COMPANY	MFC INTERNATIONAL	MFC INTERNATIONAL	MFC INTERNATIONAL	MFC INTERNATIONAL	PARATECH
MODEL	AK	BK	CK	DK	OO
CODE NUMBER	00	00	00	00	00
ORIGIN					
COST inc tax / VAT	N/A	N/A	N/A	N/A	N/A
WEIGHT exc inflation eqpt	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb
DEFLATED DIMENSIONS Length x Width x Height/depth	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"
INFLATED HEIGHT	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"
TIME to MAX INFLATION	00secs	00secs	00secs	00secs	<00mins
LIFT CAPACITY	00kN /00USton	00kN /00USton	00kN /00USton	00kN /00USton	00kN /00UStor
MAX WORKBURSTPRESSURE	12BAR / 174psi	12BAR / 174psi	12BAR / 174psi	12BAR / 174psi	00BAR / 00psi
AIR VOLUME	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft
STACK/CONNECT HI-VIZ	■■				■■
MATERIAL REINFORCEMENT	Oo Oo	Oo Oo	Oo Oo	Oo Oo	Oo Oo
NOTES	EN13731	EN13731	EN13731	EN13731	EN13731
WEBSITE	mfc-international.com	mfc-international.com	mfc-international.com	mfc-international.com	ooo.com

						
	MATJACK	MATJACK	MATJACK	MATJACK	MATJACK	MATJACK
	Air lifting Bag	Air lifting Bag	Air lifting Bag	Air lifting Bag	Air lifting Bag	Air lifting Bag
	132K	137K	150K	101K	101K	101K
	£0 $0 €0	£0 $0 €0	£0 $0 €0	£0 $0 €0	£0 $0 €0	£0 $0 €0
	15.88kg / 35lb	0kg / 0lb	0kg / 0lb	0kg / 0lb	0kg / 0lb	0.9kg / 2lb
	00 x 00 x 0cm 0 x 0 x 0"	00 x 00 x 0cm 0 x 0 x 0"	00 x 00 x 0cm 0 x 0 x 0"	00 x 00 x 0cm 0 x 0 x 0"	00 x 00 x 0cm 0 x 0 x 0"	15.24 x 15.24 x 1.8cm 6 x 6 x 0.75"
	0cm / 0"	0cm / 0"	0cm / 0"	0cm / 0"	0cm / 0"	6cm / 2.5"
	00secs	00secs	00secs	00secs	00secs	00secs
	0kN /0USton	0kN /0USton	0kN /0USton	0kN /0USton	0kN /0USton	13.3kN /1.5USton
	12BAR / 120psi	12BAR / 120psi	12BAR / 120psi	12BAR / 120psi	12BAR / 120psi	12BAR / 120psi
	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft
	-	-	-	-	-	-
	Nitrile Rubber Steel	Nitrile Rubber Steel	Nitrile Rubber Steel	Nitrile Rubber Steel	Nitrile Rubber Steel	Nitrile Rubber Steel
	matjack.com	matjack.com	matjack.com	matjack.com	matjack.com	matjack.com
	RESQTEC	SAVA	SCORPE	TNT RESCUE	TRELLEBORG	WEBER RESCUE
	OO	OO	OO	OO	TLB1/3/5/10/20/32/40/67	OO
	00	00	00	00	761.10.01	00
	N/A	N/A	N/A	N/A	N/A	N/A
	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb
	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"	15 x 15 x 2.2cm 6 x 6 x 0.87"	00 x 00 x 00cm 00 x 00 x 00"
	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"
	<00mins	<00mins	<00mins	<00mins	<00mins	<00mins
	00kN /00USton	00kN /00USton	00kN /00USton	00kN /00USton	00kN /00USton	00kN /00USton
	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi
	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft
	Oo Oo	Oo Oo	Oo Oo	Oo Oo	Oo Oo	Oo Oo
	EN13731	EN13731	EN13731	EN13731	EN13731	EN13731
	resqtec.com	resqtec.com	scorpe.net	ooo.com	ooo.com	weber.com

Images not to Scale FEATURES: ●= PARTIAL FEATURE ■■■= Option N/A = info Not Available/ not given					
COMPANY	TRELLEBORG	TRELLEBORG	TRELLEBORG	TRELLEBORG	TRELLEBORG
MODEL	TLB1	TLB3	TLB5	TLB10	TLB20
CODE NUMBER	761.10.01	761.10.01	761.10.01	761.10.01	761.10.01
ORIGIN					
COST inc tax / VAT	N/A	N/A	N/A	N/A	N/A
WEIGHT exc inflation eqpt	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb
DEFLATED DIMENSIONS Length x Width x Height/depth	15 x 15 x 2.2cm 6 x 6 x 0.87"	15 x 15 x 2.2cm 6 x 6 x 0.87"	15 x 15 x 2.2cm 6 x 6 x 0.87"	15 x 15 x 2.2cm 6 x 6 x 0.87"	15 x 15 x 2.2cm 6 x 6 x 0.87"
INFLATED HEIGHT	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"
TIME to MAX INFLATION	<00mins	<00mins	<00mins	<00mins	<00mins
LIFT CAPACITY	00kN /00USton	00kN /00USton	00kN /00USton	00kN /00USton	00kN /00USton
MAX WORKBURSTPRESSURE	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi
AIR VOLUME	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft
STACK/CONNECT HI-VIZ	●■	●■	●■	●■	●■
MATERIAL REINFORCEMENT	Oo Oo	Oo Oo	Oo Oo	Oo Oo	Oo Oo
NOTES	EN13731	EN13731	EN13731	EN13731	EN13731
WEBSITE	trelleborg.com	trelleborg.com	trelleborg.com	trelleborg.com	trelleborg.com

Images not to Scale FEATURES: ●= PARTIAL FEATURE ■■■= Option N/A = info Not Available/ not given					
COMPANY	VETTER	VETTER	VETTER	VETTER	VETTER
MODEL	STEC12 V10	STEC12 V12	STEC12 V20	STEC12 V26	STEC12 V33L
CODE NUMBER	1316000500	1316000600	1316000700	1316000800	1316000200
ORIGIN	■	■	■	■	■
COST inc tax / VAT	N/A	N/A	N/A	N/A	N/A
WEIGHT exc inflation eqpt	00kg / 5.8lb	00kg / 6.7lb	00kg / 10.6lb	00kg / 13.7lb	00kg / 17.6lb
DEFLATED DIMENSIONS Length x Width x Height/depth	00 x 00 x 2.5cm 12.6 x 12.6 x 0.98"	00 x 00 x 2.5cm 13.8 x 13.8 x 0.98"	00 x 00 x 2.5cm 17.3 x 17.3 x 0.98"	00 x 00 x 2.5cm 18.5 x 20.5 x 0.98"	00 x 00 x 2.5cm 12.2 x 40.2 x 0.9
INFLATED HEIGHT	00cm / 7"	00cm / 7.7"	00cm / 9.6"	00cm / 10.6"	00cm / 7.6"
TIME to MAX INFLATION	<00mins	<00mins	<00mins	<00mins	<00mins
LIFT CAPACITY	00kN /11.1UStON	00kN /13.5UStON	00kN /22.2UStON	00kN /28.5UStON	00kN /36.7UStor
MAX WORKBURSTPRESSURE	12 48BAR/174 696psi	12 48BAR/174 696psi	12 48BAR/174 696psi	12 48BAR/174 696psi	12 48BAR/174 696
AIR VOLUME	00L / 4.3cuft	00L / 6.8cuft	00L / 10.5cuft	00L / 9.9cuft	00L / 11.4cuft
STACK/CONNECT HI-VIZ	■■	■■	■■	■■	■■
MATERIAL REINFORCEMENT	Oo Oo	Oo Oo	Oo Oo	Oo Oo	Oo Oo
NOTES	EN13731	EN13731	EN13731	EN13731	EN13731
WEBSITE	vetter-rescue.com	vetter-rescue.com	vetter-rescue.com	vetter-rescue.com	vetter-rescue.cor

	TRELLEBORG	TRELLEBORG	TRELLEBORG	VETTER	VETTER	VETTER
	TLB32	TLB40	TLB67	STEC12 V1	STEC12 V5	STEC12 V7
	761.10.01	761.10.01	761.10.01	1316000200	1316000300	1316000400
	N/A	N/A	N/A	N/A	N/A	N/A
	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 1.1lb	00kg / 2.9lb	00kg / 4.4lb
	15 x 15 x 2.2cm 6 x 6 x 0.87"	15 x 15 x 2.2cm 6 x 6 x 0.87"	15 x 15 x 2.2cm 6 x 6 x 0.87"	00 x 00 x 2.5cm 5.5 x 5.1 x 0.98"	00 x 00 x 2.5cm 10 x 7.9 x 0.98"	00 x 00 x 2.5cm 11 x 11 x 0.98"
	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 2.9"	00cm / 4.8"	00cm / 6.2"
	<00mins	<00mins	<00mins	<00mins	<00mins	<00mins
	00kN /00USton	00kN /00USton	00kN /00USton	00kN /1.5USton	00kN /5.1USton	00kN /8.3USton
	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	12 48BAR/174 696psi	12 48BAR/174 696psi	12 48BAR/174 696psi
	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 0.2cuft	00L / 0.8cuft	00L / 1.9cuft
	Oo Oo	Oo Oo	Oo Oo	Oo Oo	Oo Oo	Oo Oo
	EN13731	EN13731	EN13731	EN13731	EN13731	EN13731
	trelleborg.com	trelleborg.com	trelleborg.com	vetter-rescue.com	vetter-rescue.com	vetter-rescue.com

	VETTER	VETTER	VETTER	VETTER	VETTER	VETTER
	STEC12 V35	STEC12 V40	STEC12 V50	STEC12 V59	STEC12 V83	STEC12 V102
	1316000900	1316003500	1316001000	1316001100	1316001200	1316001300
	N/A	N/A	N/A	N/A	N/A	N/A
	00kg / 18.2lb	00kg / 20.5lb	00kg / 26.2lb	00kg / 30.6lb	00kg / 42.1lb	00kg / 50.9lb
	00 x 00 x 2.5cm 20.5 x 24.4 x 0.98"	00 x 00 x 2.5cm 24 x 24 x 0.98"	00 x 00 x 2.5cm 26.6 x 26.6 x 0.98"	00 x 00 x 2.5cm 30.7 x 27.2 x 0.98"	00 x 00 x 2.5cm 33.9 x 33.9 x 0.98"	00 x 00 x 2.5cm 37.4 x 37.4 x 0.98"
	00cm / 11.8"	00cm / 13.2"	00cm / 14.8"	00cm / 15.5"	00cm / 18.3"	00cm / 20.3"
	<00mins	<00mins	<00mins	<00mins	<00mins	<00mins
	00kN /38.2USton	00kN /44.5USton	00kN /55.2USton	00kN /65.5USton	00kN /91.1USton	00kN /112USton
	12 48BAR/174 696psi	12 48BAR/174 696psi	12 48BAR/174 696psi	12 48BAR/174 696psi	12 48BAR/174 696psi	12 48BAR/174 696psi
	00L / 16.9cuft	00L / 21.3cuft	00L / 28.2cuft	00L / 39cuft	00L / 58.1cuft	00L / 81.3cuft
	Oo Oo	Oo Oo	Oo Oo	Oo Oo	Oo Oo	Oo Oo
	EN13731	EN13731	EN13731	EN13731	EN13731	EN13731
	vetter-rescue.com	vetter-rescue.com	vetter-rescue.com	vetter-rescue.com	vetter-rescue.com	vetter-rescue.com

Images not to Scale FEATURES: ●= PARTIAL FEATURE ■■■= Option N/A = info Not Available/ not given					
COMPANY	VETTER	VETTER	VETTER	OO	OO
MODEL	CTEC12 VCB30	CTEC12 VCB75	CTEC12 VCB172	OO	OO
CODE NUMBER	106R162	106R163	106R164	00	00
ORIGIN					
COST inc tax / VAT	N/A	N/A	N/A	N/A	N/A
WEIGHT exc inflation eqpt	00kg / 1.1lb	00kg / 2.9lb	00kg / 4.4lb	00kg / 00lb	00kg / 00lb
DEFLATED DIMENSIONS Length x Width x Height/depth	00 x 00 x 2.5cm 5.5 x 5.1 x 0.98"	00 x 00 x 2.5cm 10 x 7.9 x 0.98"	00 x 00 x 2.5cm 11 x 11 x 0.98"	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"
INFLATED HEIGHT	00cm / 2.9"	00cm / 4.8"	00cm / 6.2"	00cm / 00"	00cm / 00"
TIME to MAX INFLATION	<00mins	<00mins	<00mins	<00mins	<00mins
LIFT CAPACITY	00kN /1.5USton	00kN /5.1USton	00kN /8.3USton	00kN /00USton	00kN /00USton
MAX WORKBURSTPRESSURE	12 48BAR/174 696psi	12 48BAR/174 696psi	12 48BAR/174 696psi	00BAR / 00psi	00BAR / 00psi
AIR VOLUME	00L / 0.2cuft	00L / 0.8cuft	00L / 1.9cuft	00L / 00cuft	00L / 00cuft
STACK/CONNECT HI-VIZ	■■■	■■■	■■■	■■■	■■■
MATERIAL REINFORCEMENT	Oo Oo	Oo Oo	Oo Oo	Oo Oo	Oo Oo
NOTES	EN13731	EN13731	EN13731	EN13731	EN13731
WEBSITE	vetter-rescue.com	vetter-rescue.com	vetter-rescue.com	OO.com	OO.com

Images not to Scale FEATURES: ●= PARTIAL FEATURE ■■■= Option N/A = info Not Available/ not given					
COMPANY	OO	OO	OO	OO	OO
MODEL	OO	OO	OO	OO	OO
CODE NUMBER	00	00	00	00	00
ORIGIN					
COST inc tax / VAT	N/A	N/A	N/A	N/A	N/A
WEIGHT exc inflation eqpt	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb
DEFLATED DIMENSIONS Length x Width x Height/depth	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"
INFLATED HEIGHT	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"
TIME to MAX INFLATION	<00mins	<00mins	<00mins	<00mins	<00mins
LIFT CAPACITY	00kN /00USton	00kN /00USton	00kN /00USton	00kN /00USton	00kN /00USton
MAX WORKBURSTPRESSURE	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi
AIR VOLUME	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft
STACK/CONNECT HI-VIZ	■■■	■■■	■■■	■■■	■■■
MATERIAL REINFORCEMENT	Oo Oo	Oo Oo	Oo Oo	Oo Oo	Oo Oo
NOTES	EN13731	EN13731	EN13731	EN13731	EN13731
WEBSITE	OO.com	OO.com	OO.com	OO.com	OO.com

	OO	OO	OO
	OO	OO	OO
	00	00	00
	N/A	N/A	N/A
	00kg / 00lb	00kg / 00lb	00kg / 00lb
	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"
	00cm / 00"	00cm / 00"	00cm / 00"
	<00mins	<00mins	<00mins
	00kN /00USton	00kN /00USton	00kN /00USton
	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi
	00L / 00cuft	00L / 00cuft	00L / 00cuft
	Oo Oo	Oo Oo	Oo Oo
	EN13731	EN13731	EN13731
	OO.com	OO.com	OO.com

	OO	OO	OO
	OO	OO	OO
	00	00	00
	N/A	N/A	N/A
	00kg / 00lb	00kg / 00lb	00kg / 00lb
	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"
	00cm / 00"	00cm / 00"	00cm / 00"
	<00mins	<00mins	<00mins
	00kN /00USton	00kN /00USton	00kN /00USton
	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi
	00L / 00cuft	00L / 00cuft	00L / 00cuft
	Oo Oo	Oo Oo	Oo Oo
	EN13731	EN13731	EN13731
	OO.com	OO.com	OO.com

'All-in-One' EXTRICATION/ STABILISATION STRUTS

Fire and rescue services currently use a variety of labour intensive and sometimes less than optimal methods to deal with stabilising vehicles where there is a high centre of gravity combined with a small footprint on the ground. So it's probably useful to look at the specifics of all in one struts and the different versions available. However, this GUIDE is *not* intended to be an instructional article on how to stabilise with struts as that is a complex subject with a lot of variables.

Originally car stabilisation was a haphazard affair, if indeed it was undertaken at all. Then came wooden blocks of various sizes and types and often painted, the ex-serviceman's 'whitewashing' mentality ensuring the shiny gloss painted blocks had little traction and so provided minimal stability when these were used under vehicle sills. They were subsequently replaced by plastic blocks with interlocking nodes and ridges but the principle was the same – to fill in the space between the vehicle and the ground and neutralise the suspension, so that the vehicle became the rescue scene equivalent of a stable operating theatre bed.

This worked fine on upright saloon cars – they already had a low centre of gravity and a wide footprint on the ground. However, block towers were not effective on the higher sills of sports utility vehicles (hence the evolution of sliding stair blocks) or LGV's/Big Rigs and certainly not with cars on their side.

So in these latter cases there was either no effective stabilisation or ladders and rope were pressed into service for cars on their side as were USAR shores, which, with their massive load support capacity could easily be utilised on LGV/truck cabs and chassis. In the pic ture at right (middle), Philadelphia FD have used the equipment they had available to improvise a stabilisation. In this case a Paratech shore with a 'come-along' winch to provide tension. However, the problem with these improvised systems and especially the ladder set-up for a car on its side, is that they are slow to put in place and quite labour intensive, especially for the minimal crew available on the first attendance and early on at an incident. Also note that USAR shores would likely not be available on the first attendance and be delayed until the later arrival of a rescue unit. So a solution was required … … which was one that was easily and rapidly placed by one rescuer, took little space in the already congested locker storage of the first attendance and which didn't have a prohibitive price tag. Enter the all-in one strut….. Weber's *StabFast (left & right)* was one of the first to integrate strut and straps comprising an extendible strut held in place by a single reel mounted ratchet strap, which can either fix to the vehicle directly from the strut base or by a sliding hook where the strap feeds out from the base and is also locked in, at or near the head, creating a highly effective tensioned buttress against the vehicle it is stabilising. Both roving deployments can be employed on cars and on LGV/big Fire and rescue services currently use a variety of labour intensive and sometimes less than optimal methods to deal with stabilising vehicles where there is a high centre of gravity combined with a small footprint on the ground. So it's probably useful to look at the specifics of all in one struts and the different versions available. However, this GUIDE is *not* intended to be an instructional article on how to stabilise with struts as that is a complex subject with a lot of variables.

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ALL-in-ONE STABILISATION STRUTS

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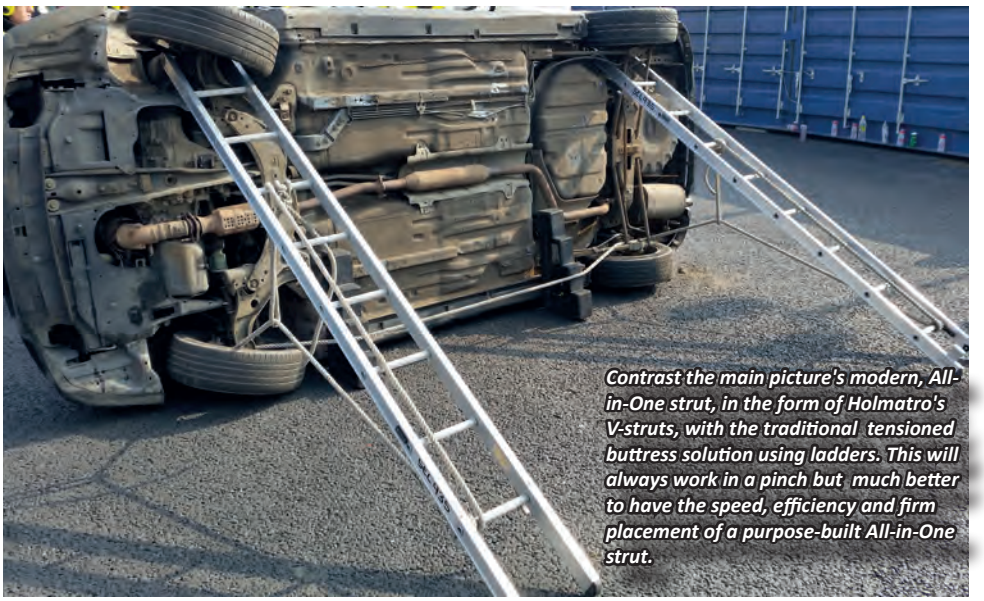
So in these latter cases there was either no effective stabilisation or ladders and rope were pressed into service for cars on their side as were USAR shores, which, with their massive load support capacity could easily be utilised on LGV/ truck cabs and chassis. In the pic ture at right (middle), Philadelphia FD have used the equipment they had available to improvise a stabilisation. In this case a *Paratech* shore with a 'come-along' winch to provide tension. However, the problem with these improvised systems and especially the ladder set-up for a car on its side, is that they are slow to put in place and quite labour intensive, especially for the minimal crew available on the first attendance and early on at an incident. Also note that USAR shores would likely not be available on the first attendance and be delayed until the later arrival of a rescue unit. So a solution was required ...



Contrast the main picture's modern, All-in-One strut, in the form of Holmatro's V-struts, with the traditional tensioned buttress solution using ladders. This will always work in a pinch but much better to have the speed, efficiency and firm placement of a purpose-built All-in-One strut.

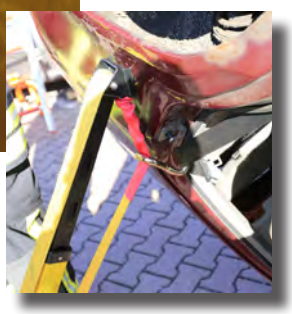
RIGHT: The next step from ad-hoc stabilisation with ladders or wood was to borrow USAR struts (see guide on p148) and create a tensioned buttress with ratchet straps or, as in this case from an incident in Philadelphia, a come-along pulley. However, while you can only work with what you're presented with, be very wary of tensioning outside of the line of the strut. Struts like this Paratech work well enough but they may not be on first attending vehicles so availability and sheer bulk may be against them. Companies like Airshore quickly came up with mini strut sets aimed specifically at vehicle rescue and these too were a step up unless the vehicle was very large and heavy. Something else was needed and Weber in Germany felt they had the answer ....

... which was one that was easily and rapidly placed by one rescuer, took little space in the already congested locker storage of the first attendance and which didn't have a prohibitive price tag. Enter the all-in one strut..... *Weber's StabFast (below-right)* was one of the first to integrate strut and straps comprising an extendible strut held in place by a single reel mounted ratchet strap, which can either fix to the vehicle directly from the strut base or by a sliding hook where the strap feeds out from the base and is also locked in, at or near the head, creating a highly effective tensioned buttress against the vehicle it is stabilising. Both roving deployments can be employed on cars and on LGV/big rig cabs and chassis.

Note that all of these struts both increase the footprint of any vehicle on the ground and at the same time have a high insertion point with which to counteract a high centre of gravity. Weber were the first to push this concept with the *StabFast* (pictured overleaf in a tricky tunnel incident in Germany) and seemed to have the market to themselves for a few years before a number of specialist US strut manufacturers like *Junkyard Dog*, *Rescue 42* and *Res-Q-Jack* introduced their own models followed by *Holmatro* with their *V-Strut*. *Paratech* didn't rest on their laurels either coming up with an all-in-one variant of their screw-adjust shores to produce one of the stronger models on the market (pic left). While the ratchet strap is intended to provide the necessary mechanical advantage to securely tension the strut, they all have their own methods for extending the strut - the Paratech, JD Z-Strut and RSQ X models use a screw thread to provide finite adjustment

this is connected to any structural point low down on the vehicle, often this is one of the many holes and shapes on an alloy or regular 'spoked' wheel but can also be a part of the sill or an opening or bracket on the undercarriage/chassis or, as in the Weber example above, attached to the seat belt webbing. The heads may be a simple V or channel or may be a custom-designed multi-head with two or three grip options on the one head. This can be something of a compromise over a selection of specialist heads but it does speed things up and there's never a chance you'll misplace one of the heads.

IN THE FOLLOWING TABLES..... we've included struts from Junkyard Dog, Genesis and Res-Q-Jack that technically aren't 'All-in-One' because the ratchet strap is not a complete and fixed element and others, like Amkus and Hurst could argue that they too could simply add a ratchet strap to their stand-alone struts. But these are sold as specific vehicle stabilisation struts or are part of a range that does include 'All-in-One' struts so they're close enough. Remember also that the range of adjustment for some, means that one strut will cover what might be two struts in another brand's range. The ***Minimum*** or retracted **LENGTH** in our tables is *not* the same as the stored length which might be lower once you take off a head and/ or foot plate.



while most of the rest use incremental placement using familiar holes and pins like the Rescue 42 model (right) and simply change the angle slightly to get a firm placement. In all cases there are security measures to ensure you can't lose the pins or the 'pin' may actually be more of a sprung, shaped button as with the Holmatro V-Strut.

By far the largest range in this Guide is from Res-Q-Jack who have taken a leaf out of Paratech's book with a screw adjustment on their X struts plus incorporation of a removable jack onto most of their struts that allows actual lifting of the load. Obviously this is a cardinal sin in delicate stabilisation processes but there are many incidents when the ability to lift using an integrated strut already in play is very useful. In the picture below, Res-Q-Jack struts are performing a coordinated stabilisation AND lift, a job normally requiring struts and lifting bags.

Anchoring the corner of force triangulation is a sturdy, free-running hook on the webbing running from foot to head and

Any use, feature, accessory or component that is inherent in the tool is shown as a solid coloured square ■■■■
If it's an option it is shown as an outline square □□□□
A circle ● in the 'USE' columns indicates that this feature is only partially present and/or is OK for that purpose but not ideal.
A model variant is shown in cyan blue and any features or specifications that differ from the standard are also in cyan or will have a cyan outline to a black or orange square ■■.
ORIGIN: The company's home country, not necessarily the country of manufacture which is indicated by an inset flag or two equally sized flags if the tool is made in both countries. **ADJ RANGE** is the extension a plain strut can achieve.
MAX WORK-LOAD @2:1 is effectively the WLL Working load limit with a 2:1 safety factor at **FULL* & MINIMUM EXTENSION (*NOT including extension tubes and in tensile or columnar loading).** Minimum Breaking Load would be double this figure.
HD. STD.LD refers to the type of vehicle load the strut can handle: **Heavy Duty** for all types of vehicles inc. trucks/trains/trams. **STandarD** for all cars and most Large Goods Vehicles/trucks and **LightDuty** for cars, vans and light trucks.
STAKE HOLES is a hole, eye or a shackle etc. that allows an anchor stake to be driven in on certain types of ground or more precarious positioning but in an ideal world a correctly positioned strut and straps will vector forces so as not to allow the strut to slip.

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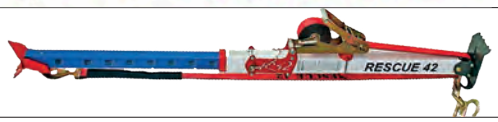
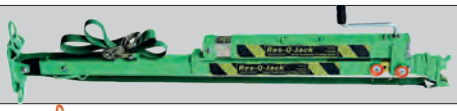
mastering **power**

IMAGES NOT TO SCALE	COMPANY	MODEL	ORIGIN	COST each	WEIGHT	MIN LENGTH	MAX LENGTH
	AOLAI						
	COVEX	Stabilisation		€2000	8.9kg 19.6 lb	1150mm 45.27"	1950mm 76.77"
	COVEX	Basic		€1200	10.6kg 23.3 lb	1100mm 43"	1950mm 76.77"
	GENESIS	Kodiak		$1000	4.8kg 10.5 lb	686mm 27"	1067mm 42"
	HOLMATRO	V-Strut		$1050 €705	7.9kg 17.4 lb	1080mm 42.5"	1800mm 70.9"
	JUNKYARD DOG INDUSTRIES	X-Tend Small		$1350	8.6kg 19 lb	686mm 27"	1067mm 42"
	JUNKYARD DOG INDUSTRIES	X-Tend Medium		$1470	11.3kg 25 lb	990mm 39"	1625mm 64"
	JUNKYARD DOG INDUSTRIES	X-Tend Large		$1510	11.3kg 25 lb	1295mm 51"	2057mm 81"
	JUNKYARD DOG INDUSTRIES	Z-Strut Small		$2460	10.9kg 24 lb	686mm 27"	1067mm 42"
	JUNKYARD DOG INDUSTRIES	Z-Strut Medium		$2670	13.15kg 29 lb	990mm 39"	1625mm 64"
	JUNKYARD DOG INDUSTRIES	Z-Strut Large		$2880	14.5kg 32 lb	1295mm 51"	2057mm 81"
	LEADER GROUP/PA-RATECH	LVS10			8.8kg 19.4 lb	980mm 38.6"	1700mm 67"
	LUKAS / HURST	LQS/ QuickStrut		$1000	16kg 35 lb	1340mm 52.75"	2000mm 78.7"
	PARATECH	Supporter X2		$1300	15.9kg 35 lb	1016mm 40"	1661mm 65.4"
	RESCUE 42	TeleCrib Jr		$1542	13.6kg 30 lb	1041mm 41"	1753mm 69"

ALL-in-ONE STABILISATION STRUTS

ADJ RANGE	MAX WORK LOAD @min2:1 extended	MAX WORK LOAD @min2:1 retracted	STRUT MATERIAL	STAND-ARDS	HD, STD, LD	USAR Capable	STAKE HOLES	ADJUSTMENT	HEAD OPTIONS & NOTES	WWW.
									WARNING - DIRECT, ILLEGAL COPY of HOLMATRO V-STRUT,	aolairescue.com
800mm 31.5"	1500kg 3307 lb	1500kg 3307 lb	Alloy	CE	■	■	■	■		hobrand-algebra.nl
850mm 33.77"	1500kg 3307 lb	1500kg 3307 lb	Steel	CE	■			□		hobrand-algebra.nl
381mm 15"	4082kg 9000 lb	9072kg 20000 lb	Alloy		■	■	■	□	Pointed, V & Chain heads + Extensions tubes. Also by Geneisis, Grizzly strut minus integrated webbing/ ratchet	genesisrescue.com
720mm 28.4"	1632kg 3597 lb	1632kg 3597 lb	Alloy	CE	■		■	□	Locking holes at very small intervals. Squeeze and push mechanism for quick release after use. Serrated head for grip. Exhaust protection sleeve on webbing.	holmatro.com
381mm 15"	2269kg 5000 lb	2269kg 5000 lb	Steel		■		■	□	Std, 90°, Pointed Heads. Comes with picket anchor and accessories bag. Adjusts in 6" increments. HD (no straps) also in range	jydind.com
635mm 25"	2269kg 5000 lb	2269kg 5000 lb	Steel		■		■	□	Std, 90°, Pointed Heads. Comes with picket anchor and accessories bag. Adjusts in 6" increments. HD (no straps) also in range	jydind.com
762mm 30"	2269kg 5000 lb	2269kg 5000 lb	Steel		■		■	□	Std, 90°, Pointed Heads. Adjusts in 6" increments. ALSO X-Tend HD minus integrated webbing/ratchet rated at 10,000lbWLL, weighs 37lb	jydind.com
381mm 15"	2269kg 5000 lb	2269kg 5000 lb	Steel		■		■	■	Std, 90°, Pointed Heads. Comes with picket anchor and accessories bag.	jydind.com
635mm 25"	2269kg 5000 lb	2269kg 5000 lb	Steel		■		■	■	Std, 90°, Pointed Heads. Comes with picket anchor and accessories bag.	jydind.com
762mm 30"	2269kg 5000 lb	2269kg 5000 lb	Steel		■		■	■	Std, 90°, Pointed Heads. Comes with picket anchor and accessories bag.	jydind.com
720mm 28.4"	4500kg 9921 lb	4500kg 9921 lb	Alloy		■	■	■	■	Chain wedge, pike, convex surface grip with belt hook location all in one	leadernorthameri-ca.com
660mm 25.95"	1000kg 2204.6 lb	1000kg 2204.6 lb	Alloy	CE	■			□	Discontinued in USA	lukashydraulik.de
330mm 13"	4536 kg 10000 lb	4536 kg 10000 lb	Alloy		■	■	■	■	Lifting extensions inc HydroFusion and driver attachments converting screw-thread strut to lifting. V, Cone & Chain Wedge heads.	paratech.com
712mm 28"	2269kg 5000lb	2269kg 5000lb	Kevlar Compos-ite		■		■	□	Combi-Head	rescue42.com

IMAGES NOT TO SCALE	COMPANY	MODEL	ORIGIN	COST each	WEIGHT	MIN LENGTH	MAX LENGTH
	RES-Q-JACK	GreenLite Short		$745	14kg* 31lb*	1067mm 42"	1625.6mm 64"
	RES-Q-JACK	GreenLite Long		$745*	15.4kg* 34 lb*	1372mm 54"	2222.5mm 87.5"
	RES-Q-JACK	Aluminum X Short		$2005*	18kg* 40 lb*	1016mm 40"	1689mm 66.5"
	RES-Q-JACK	Aluminum X Long		$2005	20.1kg* 46 lb*	1384 mm 54.5"	2216 mm 87.25"
	RES-Q-JACK	APEX Short		$2200*	15.4kg* 34 lb*	1146mm 45.1"	1587mm 62.5"
	RES-Q-JACK	APEX Long		$2200	20kg* 44 lb*	1492mm 58.75"	2324mm 91.5"
	RES-Q-JACK	Auto X Short		n/a	15.8kg* 35 lb*	1118mm 44"	1695mm 66.75"
	RES-Q-JACK	Auto X Long		n/a	17.8kg 38 lb*	1384mm 54.5"	2216mm 87.25"

ALL-in-ONE STABILISATION STRUTS

ADJ RANGE	MAX WORK LOAD @min2:1 extended	MAX WORK LOAD @min2:1 retracted	STRUT MATERIAL	STAND-ARDS	HD, STD, LD	USAR Capa-ble	STAKE HOLES	ADJUST-MENT	OTHER COL-OURS	HEAD OPTIONS & NOTES	WWW.
558mm 22"	1133kg 2500lb	1133kg 2500lb	Steel		■	·	■	□		* Add 22lb for jack attachment. 1134kg/2500lb lift capacity. Ratchet strap not a fixed element. Swivel multi-head.	res-q-jack.com
850mm 33.5"	1133kg 2500lb	1133kg 2500lb	Steel		■	·	■	□		* Add $456/ 22lb for jack attachment shown in pics. 1134kg/2500lb lift capacity. Swivel multi-head.	res-q-jack.com
673mm 26.5"	4399 kg 9700 lb	4399 kg 9700 lb	Alloy		■	□	■	□		* Add $828/ 30lb for jack attach-ment. 2722kg/6000lb lift capacity. Swivel multi-head.	res-q-jack.com
832mm 32.75"	4399 kg 9700 lb	4399 kg 9700 lb	Alloy		■	□	■	□		* Add 30lb for jack attachment. 2722kg/6000lb lift capacity. Variant sold as 'Phoenix' Strut. Swivel multi-head.	res-q-jack.com
441mm 17.4"	3129kg 5669 lb	6900kg 12500 lb	Alloy		■	·	■	■		* Add $975/27lb for jack attach-ment. 2722kg/6000lb lift capacity Can add tubes to extend up to 74.5" Swivel multi-head.	res-q-jack.com
832mm 32.75"	3129kg 5669 lb	6900kg 12500 lb	Alloy		■	·	■	■		* Add 27lb for jack attachment shown in pic. 2722kg/6000lb lift capacity. Can add tubes to extend up to 103.5". Swivel multi-head.	res-q-jack.com
577mm 22.75"	1474kg 3250 lb	1474kg 3250 lb	Alloy		■	·	■	■		* Add 22lb for jack attachment. 1134kg/2500lb lift capacity. Swivel multi-head.	res-q-jack.com
832mm 32.75"	1474kg 3250 lb	1474kg 3250 lb	Alloy		■	·	■	■		* Add 22lb for jack attachment. 1134kg/2500lb lift capacity. Swivel multi-head.	res-q-jack.com

'pneumatic' LOW PRESSURE AIRBAGS

The previous Guide covered high pressure airbags which provide tremendous lift strength but a downside of operating at pressures of 8 to 12 BAR is that the risk of a burst over such a small area is significant and potentially hazardous to the rescuer Another downside is that this small area of lift will deform and buckle the relatively soft skin of large surface area vehicles like articulated lorries, tankers, train carriages, train engines and aircraft. Low pressure bags spread their lift over a much larger surface area. We have NOT including the dedicated aircraft lift bags manufactured by companies like Vetter (including a system specifically for the Airbus 380) and Eurocraft because they are virtually never used by fire and rescue agencies in dealing with road accidents. If only money was no object....!

You will notice that the largest single, double and triple chamber bags discussed here will also cope with smaller aircraft but are not precise enough or powerful enough to deal with standard long-haul aircraft. Very few companies provided 'Time to inflate' data so as a rough guide the Vetter 1/6 (610mm / 24") bag takes 20 seconds to inflate at 1 bar and the much bigger 1/23 (1200mm / 47") bag takes about three and a half minutes.

Some companies differentiate between Low Pressure and Medium pressure as 0.5 Bar/ 7-9 psi and 1 bar / 14-15 psi. Our main title to this guide makes no such distinction but you can obviously sort out the differences from the 'Working Pressure' row. There is some cross over in size between the smallest low-pressure bags and the largest high pressure bags but primarily we are dealing with bags with a large surface area (or footprint). This ensures that the lift pressure is distributed across a much larger area and indeed most tasks will require a multiple set of airbags in a coordinated lift. Some of the maximum lift capacity figures are ONLY quoted with a pair of bags and will therefore pose some inequalities in the data. Some bags like the MFC BR and HL1, Eurocraft Jumbo and Sc Inflatables Catchbag are manufactured in a wedge shape to provide the maximum purchase on both the ground and a sloping vehicle side. In the case of the Catchbag this has been specifically designed to be inserted as a 'wedge' on a raised vehicle which is then deflated to bring the vehicle upright in a controlled manner. Some bags are large cylinders and these tend to be the most resilient but least conforming. The largest bags are giant cubes which inflate virtually to a sphere when not restricted by the lift object. Lampe and Vetter provide low pressure bags that are exactly the same shape as the standard square high pressure mat. Paratech market a specific 'Trench Bag' for use in a trench collapse rescue and this is an excellent application for any of the equal-sided bags in this article where the low pressure 'squashy' bag can safely fill the void between shoring boards and trench wall.

There seems to have been a move away from low pressure bags in some services in recent times in favour of point loaded 'hard' shoring, for example certain Paratech models and the hydraulic Holmatro Powershore which provides both the lift and the followup shoring in the one strut. There is, however, something very reassuring about the way leviathon-sized air bags cope with really large loads because there is much less danger of a point-load failure and with the angled bags in particular, virtually no danger of slippage. Remember that low pressure airbags are used in multiples (or pairs at the very least) and fed by hoses running from a multiple so that they provide their own redundancy for a neighboring bag but larger stabilisation struts can be used to good effect as follow-up shoring on specific structural hard-points on the vehicle/coach.

LOW PRESSURE AIRBAGS

IN THE FOLLOWING TABLES.....

The tool length, width or height and weight are all WORKING spec so they **include the battery**. Many companies quote figures without the battery so at first glance seem lighter but when added has a significant affect on both the physical size and weight of a tool when in use. As with all cutting and spreading tools, the largest or highest figures are not necessarily the best for the job. Stroke power is highest at the shortest extension. **All force figures are given in KiloNewtons and US (short)tons**

Any use, feature, accessory or component that is inherent in the tool is shown as a solid coloured square ■■■■
If it's an option it is shown as an outline square □□□□
A circle ● in the 'USE' columns indicates that this feature is only partially present and/or is OK for that purpose but not ideal.
A model variant is shown in cyan blue and any features or specifications that differ from the standard are also in cyan or will have a cyan outline to a black or orange square ■■.
WiFi/ -CAPABLE: The tool and/or battery are linked to a mobile device via Wifi &/or Bluetooth to manage functions, servicing and inventory.
TOOLS-IN-RANGE: refers to the other types of tool available jn this specific series of tools using this specific battery type.
■= Cutter ■= Spreader ■= Combi ■= Special Tools
ORIGIN: The company's home country, not necessarily the country of manufacture which is indicated by an inset flag or two equally sized flags if the tool is made in both countries.

COST: This is clearly an official secret within the industry. This is because the cost of one tool is huge and vastly different to the cost of multiples that they sell to entire fire services. But this is the same situation for virtually every piece of equipment we ever have in **TECHNICALRESCUE** where we always quote the single item cost on the understanding that any bulk purchase will of course be a lower figure. Chinese Manufacturer *Aolai* have been confident enough to quote a range of $3500 to $4700 exc shipping and import duty to give some idea of the minimum you are likely to pay for a battery ram. The batteries are an expensive consumable as well - eg. a *Milwaukee* M18 8Ah battery costs £/$/€150-200 though individuals could purchase through *Amazon* etc. and save a packet!
WEIGHT IN HAND: Refers to the operational weight that the rescuer experiences in using the tool so it includes any on-board batteries but not backpack batteries and not necessarily any extras like clip-on lighting or different heads/feet.

WEIGHT of BATTERY: is for the default battery supplied or preferred by the manufacturer. Those that use 'off-the-shelf' brands like *Milwaukee* and *DeWalt* may well be able to use either higher Ah models for greater capacity/duration or lower Ah for decreased cost and perhaps weight but less duration.
BATTERY DURATION & RECHARGE TIME: Work-time or duration is much trickier as it depends on the resistance of the material being pushed/supported, the temperature, the age of the battery and even how meticulously you follow the recharge guidelines. Consequently some won't quote a figure at all and others are generous to say the least - consider most to be the absolute maximum with minimal workload. Tools last much longer carrying out hundreds of short duration cuts like the Genesis figure of <45mins compared to a *Homatro*'s minimum 11minute figure in like-for-like ramming their battery will match the highest time given by others.
Recharge time can be more specific though it varies wildly between basic and high speed chargers. The time shown is for the charger supplied or preferred by the manufacturer and may give a time-range if referring to different types of charger.
DIMENSIONS: The Length by width by depth/height of tool ready to store on the truck and/or ready to work. Rams are stored with the cylinders retracted so they are the least bulky of the 'hydraulic ' rescue tools. Height is the 'thickness' of the tool off the ground if you lay the tool down and is usually dictated by either the handle or the battery if it is top-mounted.
PUSH FORCE: Is the maximum *theoretical* force that can be exerted and, like spreaders and cutters, is highest closest to the power unit. The strongest rams are the shortest, single-stage rams. Telescoping gives you much needed reach but the second stage is very much weaker than the first stage and this is extremely important to remember - you may have easily pushed your target material with the first stage but beware that you don't overwhelm it's capabilities when you extend into the second, telescoping stage. **It is also vital that you push in direct line with the power unit - if your target load starts to stray off-centre as it moves you could damage the ram's extending cylinders.** Our figures are in kN (KiloNewtons) and **US (Short) Tons**. There are 1.10 US short tons to a UK/metric ton (or more accurately tonne).
STROKE RANGE: If the ram has a telescoping section there will be two figures - the first, higher figure is for the first stage and the second, lower figure is for the telescoped section. If the ram is single-stage only this figure will be the same as the total stroke distance. Some rams can also pull using chains etc. in the same way as a spreader but this is not the norm and is written in the NOTES.
TOTAL STROKE DISTANCE: The maximum distance the target load can be pushed including any telescoping sections.
ROTATE HEAD/HANDLE: The handle can rotate around the cylinder for better access to in-line ramming of the target but most rams are relatively compact anyway.
LED LIGHTS ■: Integral lighting from the handle or housing to illuminate the area being cut/spread.
IN-WATER-CAPABLE: The tool/battery can be used underwater
TOOL/BATTERY IP. Ingress protection for dust (first number) & water (second number) - IP54 resists water splashes, IP57 & 67 withstand inundation to 1metre, IP58&68 deeper than 1metre. Trade batteries like *Milwaukee* are **not** waterproof without a bespoke cover and tend not to quote an IP number because they are dependant on the tool to create an effective seal. Specialist batteries like *Holmatro* and *Lukas* are watertight (IP68) but regular trade batteries are no more than IP54 so they are splashproof but not submersible without a bespoke cover.

Images not to Scale FEATURES: ●= PARTIAL FEATURE ■■■= Option N/A = info Not Available/ not given					
COMPANY	OO	OO	MFC INTERNATIONAL	MFC INTERNATIONAL	MFC INTERNATIO
MODEL	OO	OO	AK	BK	CK
CODE NUMBER	-	-	1 BAR Bags	1 BAR Bags	1 BAR Bags
ORIGIN					
COST inc tax / VAT	N/A	N/A	N/A	N/A	N/A
WEIGHT exc inflation eqpt	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb
DEFLATED DIMENSIONS Length x Width x Height/depth	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"
INFLATED HEIGHT	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"
TIME to MAX INFLATION	00mins	00mins	00mins	00mins	00mins
LIFT CAPACITY	00kg /00ib	00kg /00ib	00kg /00ib	00kg /00ib	00kg /00ib
MAX PRESSURE	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi
AIR VOLUME	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft
STACK/CONNECT REFLECT	■■■	■■■	■■■	■■■	■■■
MATERIALS					
NOTES					
WEBSITE	ooo.com	ooo.com	mfc-international.com	mfc-international.com	mfc-international.c

Images not to Scale FEATURES: ●= PARTIAL FEATURE ■■■= Option N/A = info Not Available/ not given					
COMPANY	OO	OO	OO	OO	OO
MODEL	OO	OO	OO	OO	OO
CODE NUMBER	-	-	-	-	-
ORIGIN					
COST inc tax / VAT	N/A	N/A	N/A	N/A	N/A
WEIGHT exc inflation eqpt	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb
DEFLATED DIMENSIONS Length x Width x Height/depth	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"
INFLATED HEIGHT	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"
TIME to MAX INFLATION	00mins	00mins	00mins	00mins	00mins
LIFT CAPACITY	00kg /00ib	00kg /00ib	00kg /00ib	00kg /00ib	00kg /00ib
MAX PRESSURE	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi
AIR VOLUME	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft
STACK/CONNECT REFLECT	■■■	■■■	■■■	■■■	■■■
MATERIALS					
NOTES					
WEBSITE	ooo.com	ooo.com	ooo.com	ooo.com	ooo.com

						
NAL	MFC INTERNATIONAL	OO	OO	OO	OO	OO
	DK	OO	OO	OO	OO	OO
	1 BAR Bags	-	-	-	-	-
	N/A	N/A	N/A	N/A	N/A	N/A
	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb
	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"
	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"
	00mins	00mins	00mins	00mins	00mins	00mins
	00kg /00ib	00kg /00ib	00kg /00ib	00kg /00ib	00kg /00ib	00kg /00ib
	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi
	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft
com	mfc-international.com	ooo.com	ooo.com	ooo.com	ooo.com	ooo.com
						
	OO	OO	VETTER	VETTER	VETTER	VETTER
	OO	OO	1/6	1/9	1/13	1/23
	-	-	-	-	-	-
	N/A	N/A	N/A	N/A	N/A	N/A
	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb
	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"
	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"
	00mins	00mins	00mins	00mins	00mins	00mins
	00kg /00ib	00kg /00ib	00kg /00ib	00kg /00ib	00kg /00ib	00kg /00ib
	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi
	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft
	ooo.com	ooo.com	vetter-rescue.com	vetter-rescue.com	vetter-rescue.com	vetter-rescue.com

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MODEL	OO	OO	AK	BK	CK
CODE NUMBER	-	-	1 BAR Bags	1 BAR Bags	1 BAR Bags
ORIGIN					
COST inc tax / VAT	N/A	N/A	N/A	N/A	N/A
WEIGHT exc inflation eqpt	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb
DEFLATED DIMENSIONS Length x Width x Height/depth	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"
INFLATED HEIGHT	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"
TIME to MAX INFLATION	00mins	00mins	00mins	00mins	00mins
LIFT CAPACITY	00kg /00ib	00kg /00ib	00kg /00ib	00kg /00ib	00kg /00ib
MAX PRESSURE	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi
AIR VOLUME	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft
STACK/CONNECT REFLECT	■■■	■■■	■■■	■■■	■■■
MATERIALS					
NOTES					
WEBSITE	ooo.com	ooo.com	mfc-international.com	mfc-international.com	mfc-international.c

Images not to Scale FEATURES: ●= PARTIAL FEATURE ■■■= Option N/A = info Not Available/ not given					
COMPANY	OO	OO	OO	OO	OO
MODEL	OO	OO	OO	OO	OO
CODE NUMBER	-	-	-	-	-
ORIGIN					
COST inc tax / VAT	N/A	N/A	N/A	N/A	N/A
WEIGHT exc inflation eqpt	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb
DEFLATED DIMENSIONS Length x Width x Height/depth	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"
INFLATED HEIGHT	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"
TIME to MAX INFLATION	00mins	00mins	00mins	00mins	00mins
LIFT CAPACITY	00kg /00ib	00kg /00ib	00kg /00ib	00kg /00ib	00kg /00ib
MAX PRESSURE	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi
AIR VOLUME	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft
STACK/CONNECT REFLECT	■■■	■■■	■■■	■■■	■■■
MATERIALS					
NOTES					
WEBSITE	ooo.com	ooo.com	ooo.com	ooo.com	ooo.com

						
NAL	MFC INTERNATIONAL	OO	OO	OO	OO	OO
	DK	OO	OO	OO	OO	OO
	1 BAR Bags	-	-	-	-	-
	N/A	N/A	N/A	N/A	N/A	N/A
	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb
	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"
	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"
	00mins	00mins	00mins	00mins	00mins	00mins
	00kg /00ib	00kg /00ib	00kg /00ib	00kg /00ib	00kg /00ib	00kg /00ib
	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi
	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft
com	mfc-international.com	ooo.com	ooo.com	ooo.com	ooo.com	ooo.com
						
	OO	OO	VETTER	VETTER	VETTER	VETTER
	OO	OO	1/6	1/9	1/13	1/23
	-	-	-	-	-	-
	N/A	N/A	N/A	N/A	N/A	N/A
	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb
	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"	00 x 00 x00cm 0 x 0 x 00"
	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"	00cm / 00"
	00mins	00mins	00mins	00mins	00mins	00mins
	00kg /00ib	00kg /00ib	00kg /00ib	00kg /00ib	00kg /00ib	00kg /00ib
	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi	00BAR / 00psi
	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft	00L / 00cuft
	ooo.com	ooo.com	vetter-rescue.com	vetter-rescue.com	vetter-rescue.com	vetter-rescue.com

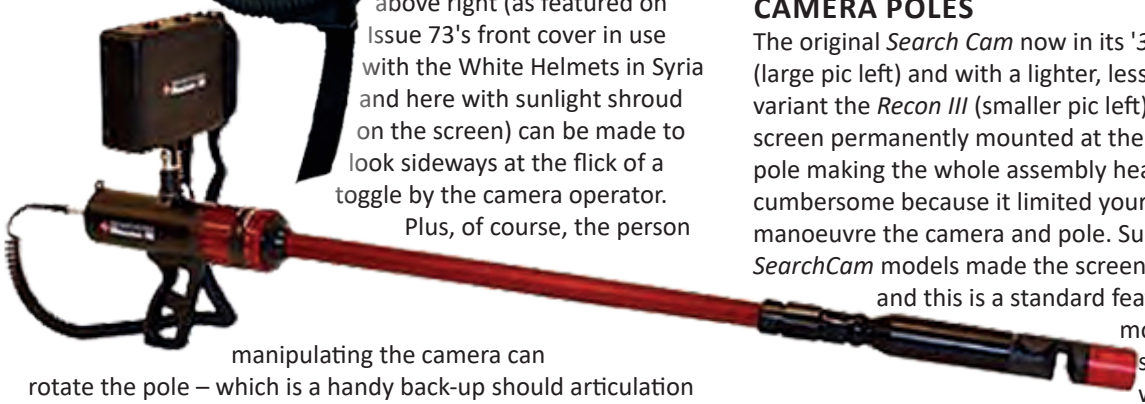
Title Pic: Leader Group's Leader Cam and opposite, in use with the White Helmets in remote probe mode with the operator's screen shrouded for better visibility

Handheld SEARCH CAMERAS

Aside from the use of drones as a vehicle on which to mount search cameras, there hasn't been much to get excited about in void-searching camera development in recent years. That's testament to how good and robust the existing technology is I suppose with one or two of the top models virtually unchanged since the last century. Applications for pole-mounted search cameras began evolving about 20 years ago so that vehicle extrications in particular together with water searches saw more regular use of cameras previously marketed only for victim location in building collapse rescue. 'Pole-mounted' evolved into 'cable-lowered' and even helmet or ROV mounted. The biggest change within the market in recent years has been the purchasing of many of the main players in each sector by just three entities; *Scorpe, Savox* and *Leader Group* or *Groupe Leader* depending on which country you're in. The latter two companies dominate our sector as one-stop shops for disaster response equipment with *Delsar, Search Cam* and *Con-Space* on one side and *LeaderScan*, *LeaderCam* and *LeaderSound* (breath analysis) on the other – all are industry icons, as valuable today as they were in the 1990s. Another legendary name from that period that seemed to disappear for a while outside of France is the *Vibrascope* and associated *Vibraphone*. This company was bought by *Scorpe* and added structural movement monitors to their existing range of hydraulic tools and lifting bags so they truly are a one-stop-shop.

The problem with many sectors of rescue is that the market is so specialised and financially small, that development stagnates once something is found to work well. Look at *Conspace Communications*' hard-wired system. That has hardly changed in over 30 year and is still the leading, if not sole, main contender for prospective purchasers of intrinsically safe, duplex comms. The same goes for *Search Cam* (both brands now being under the *Savox* umbrella). There will be changes of course; optics, acoustics and electronics are all superior now even if the outward appearance is the same. There was a period in the early 2000's when much smaller systems like *Red Box* began to appear aimed more specifically at vehicle extrication and even underwater search at a more affordable price. Disaster response, however, continued to specify the larger, more complex and proven robust systems so *SearchCam* has remained at the forefront and is now sold as the *3000* together with its smaller brother the *Recon III*. The visually similar *Pro-Eye* from *Yone Corp* in Japan expanded on the underwater capability with a system that has sonar as well as a camera while *Groupe Leader* augmented their *LeaderSearch* acoustic system with *Leader Cam*, a system more in tune with the proliferation of separated camera and TV systems. One notable model that piqued a lot of interest when launched a several years ago and the impetus for us compiling this guide is the *FirstLook360* which we have mentioned a few times in our magazine and in our Emag *Access&Rescue*. This has taken many of the best features of current market leaders and incorporated some neat additions to set it apart. Not least is its ability to wirelessly transmit high resolution images to smartphones and tablets, doesn't everything these days? Apparently not and ironically, it's Andy Ibbetson, the son of the founder of *Con-Space Communications* Terry, that has co-developed this new camera, presumably drawing on his and Terry's decades of experience in the confined space rescue sector. I say 'ironically' because, unlike the *Con-Space Comms* system, which is firmly rooted in 'old' reliable technology, *FirstLook360* embraces every element of smart technology which is why it remains worlds apart from most of the others. And the same reason that *Con-Space Comms* has stood the test of time could conceivably be why the *FL360* uses direct, one-one wireless connectivity rather than relying on satellite or mobile network-

dependant connectivity. Electronic, fly-by-wire and direct transmission is far superior most of the time but when mobile WiFi and Satellite comms fail so does your camera. Close-system connectivity using a wireless signal bypasses this particular failure mode but, as with all digital transmission, can presumably be hacked or jammed in some way if anyone was desperate enough. So, just in case, systems like *FL360* can be hardwired as well. You sometimes can have it all ways and it has to be said that catastrophic failures predicted by the doom-merchants for fly-by-wire and satellite dependent systems when they first appeared have proven largely baseless and indeed have probably been far less that the 'mechanical' or analogue systems they replaced. One thing the *FL360* doesn't do which most of the others list as a key feature is have a mechanically articulating camera head. The *LeaderCam* top-left and above right (as featured on Issue 73's front cover in use with the White Helmets in Syria and here with sunlight shroud on the screen) can be made to look sideways at the flick of a toggle by the camera operator. Plus, of course, the person manipulating the camera can rotate the pole – which is a handy back-up should articulation jam. *Agility Corp*, the new kids on the block, thought, what's the point of all that sophisticated camera head articulation and associated telemetry? If we stitch together the image from two wide-angle, side facing cameras to give a full 360 degree view it wouldn't need to move to look sideways. In the picture on the right you can see one half of the protruding 'bubble' lens at the top next to square LED lights (there's also a battery level and pairing indicator just below the 'F' of the product name.) It's like having 20x20 peripheral vision with no time-lag that you would otherwise get while articulating the camera head. Can't argue with that and so the 360 bit of the name was born. With no reliance on head manipulation there's less to go wrong. The camera head, remember, takes pretty much all of the abuse, and although they're built to be rugged with substantial protective shrouds around the hinge-points they're still vulnerable to damage and jamming when unceremoniously shoved through a small opening in dusty, dirty, sharp-edged, re-bar filled concrete.



CAMERA POLES

The original *Search Cam* now in its '*3000*' version (large pic left) and with a lighter, less costly variant the *Recon III* (smaller pic left) had the TV screen permanently mounted at the end of the pole making the whole assembly heavier and cumbersome because it limited your ability to manoeuvre the camera and pole. Subsequent *SearchCam* models made the screen detachable and this is a standard feature of most modern camera systems which either have the screen hardwired like *Leader-Cam* or wireless like *FL360* but either way this enables much easier forward-operating of the camera by a separate person. This is not always the case, in the picture below, the operator is manoeuvring the *Tactical Electronics Core* pole while viewing a detached screen fastened to his arm – there are definitely times when it's easiest to view something by twiddling the pole yourself, and some, even the aforementioned *FL360* have the option to be mounted to the pole for single operator use. One model has

been specifically downsized to be used by one operator – the *Yone Nano* system (right) has a teeny 7mm head on an otherwise standard looking search camera system with a toggle directed camera, on-handle screen and it runs on double AA batteries, truly light and portable. *Savox* had something similar with their diminutive '*Mongoose*' but that seems to have now disappeared.

Most companies in this sector are first and foremost search camera specialists using or designing the pole or delivery system for that camera. One company however, is a pole specialist that has had a camera designed to utilise their poles. *Reach and Rescue* in he UK have an enormous telescopic pole that can reach up to 55ft/17m indeed, they have a pole adapted specifically to fit the *FL360* in addition to its standard pole offerings. This is currently the longest pole in the search camera sector and while it would be outstanding in large void searches, it might have limited applications in regular building collapse where the spectre of 'making progress through he rubble' rears its head.

Physically getting a rigid pole into a space to search can be problematic so camera heads have become compact so that a single manageable bore hole can be drilled in slabs or through brickwork to allow initial entry of the camera and pole.
A much easier device to get into limited spaces is the endoscope-type camera also called a borescope or fiberscope, that has mostly migrated across to rescue from 'inspection' in other sectors. These use a flexible tube from the screen or relay to the camera. The tube can be 'bent' into shape to ease entry into spaces and such cameras have proven particularly useful in vehicle crashes where the rescuers are able to identify specific foot and limb entrapment points before they commence metal relocation. I remember attending an incident many years ago where the first arriving crew commenced a dash-roll only to find that an extraneous bolt on the old van's steering servo had penetrated the casualty's knee which was now being pulled off along with the steering wheel and dash! Had they existed at the time, a quick look with a flexible camera system would have identified this and enabled an alternative course of action. Since they have evolved from endoscope systems some of these systems can still marry back to an endoscope system ie. have a regular or magnifying eye piece connected to the end of the tube instead of, or as well, as a screen to aid clearer imaging of what the camera is looking at. The downside to these semi-flexible tube systems like SnakeCam (right) and Unifire's (above) is that they are not usually capable of having the camera detached and used separate from the pole/tube and screen. The *Core* system (below) aimed more at tactical users but equally applicable to rescue, offers a number of camera options including this borescope/endoscope-style camera which uses an eyepiece and monitor option with wireless transmission.

Yone Corporation's Pro Eye

REMOTE OPERATION

The ''remote probe' idea, where the camera head is detached and lowered into a void was really pioneered by Con Space with their audio-only attachment to the hard-wired *Con-Space Communications* system so its no surprise that Con-Space's second cousin once removed, the *FL360* also has this option with a metal eye that can be screwed in to the camera head as the most robust of lowering attachments. *Leadercam* has a variant, the *RD90* which attaches to a 90m cable and, unlike their standard camera head listed in the following table, is waterproof to the full 90m of the cable.

Many of the cameras have a two-way mic so that the operator can listen for, or communicate directly with the victim with the added huge advantage of full visual acuity of the victim and surroundings thanks to either on-board lighting or an infra-red camera (an option for some) or both. *FL360*'s 'probe' head pictured on the previous page deserves special mention because it is so efficient as a probe with all-around vision and lighting and because it has, along with the T*actical Electronics Core* systems, the ability to transmit wirelessly to any android mobile device, be it tablet or smart-phone they have, you guessed it, an app

SEARCH CAMERAS

for that. Both systems are app-driven allowing for updates and ad-ons. You would think that in this day and age of remote operated everything and drones in particular, that wireless would be standard in rescue but as we mentioned before, this is too specialist an area to attract much funding for development so most of the old stalwarts are updated as best they can be and continue to be sold. There is not necessarily anything wrong with that, look how many wood-burning *Aga* or Range cookers are increasingly sold today in preference to modern alternatives and yet your average Victorian cook would be entirely familiar with it. It's solid and reliable even in the midst of Armageddon, much like some of these cameras! One area that can drive development is the military and one of the few ruggedised, wireless camera systems in this list is from Tactical Electronics with one of the most comprehensive range of camera head options in this list. The *Core* (pic above) also has an encrypted signal partially negating our hacking concern mentioned earlier.

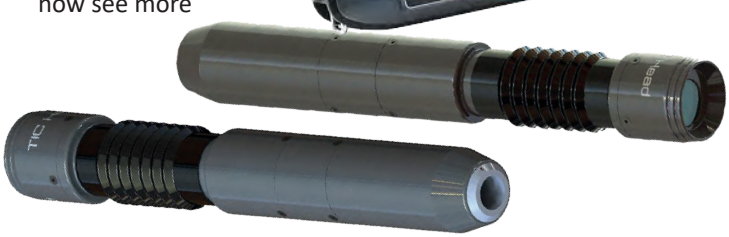
CAMERAS, SCREENS & ELECTRONICS

Quality of electronics and optical components are obviously key to the best systems. You want to be able to see what the camera sees and hear with as much clarity as possible. Headphones, as shown by the Leader Cam in our title picture, accentuate and concentrate the mind to listen for relevant sounds cutting out extraneous noise that might otherwise inhibit your ability to hear the faint signs of life coming from an external screen speaker. At least three systems here, the *Savox, Leader Group* and *Scorpe* systems allow integration of other assets such as acoustic monitoring, structural movement, breath analysis and even radar in the case of *LeaderScan*. The optics themselves don't necessarily make things easier when you're exploring a monotone dusty void where even exposed skin looks like concrete dust. It can even be the case that enhanced resolution just confuses things as it shows up every grain of dust. This is where infra-red and thermal imaging stand out as invaluable tools but we have yet to see a system with multiple camera systems on one head and the ability to switch seamlessly between them. Thermal imaging can offer the best option for live-person recovery as shown by the *Core system* screen (pic above) and *Leader Group* has a thermal imaging camera option for its system which replaces the existing standard camera head when you need it. The TI camera head (pics right) simply replaces the standard camera above it by screwing onto, and plugging back into, the pole of the *LeaderCam*. Thermal imaging effectiveness becomes marginal for hypothermic or near-death

victims with little surface temperature to detect or paradoxically in very hot environments where masonry retains and emits heat long after the collapse and can mask the bodies diminishing thermal signature. Modern cameras are pretty much all daylight colour with LED illumination with some switching to infrared in low light which can accentuate and contrast skin tones more easily. Unless everything is covered in dust or is the same colour in which case camera orientation can be a real problem.

Without wishing to sound like a rep for the *FirstLook360*, its modernity means it has a useful handle on 'spatial orientation' in environments that are otherwise incredibly difficult to reconcile with what you think you should be seeing. This is to be expected for the newest camera on the market and similarly it has a higher resolution screen than most because it's the newest and is using easily upgradeable technology. Touchscreen overlays on the tablet(s) it's transmitting to, show the camera's real-time orientation – effectively an artificial horizon and depth perception indication because, don't forget, it has that 360 degree view – like two bubble observation ports stitched together back-to-back or the product images you see online where you can navigate all around them, back, front, top, bottom. It's not 3D but it is virtual 3D. This system and the *Tactical Core* models allow video snapshots to be taken of the entire void which is relayed back to larger screens (which might be on the other side of the world!) and enable support personnel to examine for clues in greater detail and report back to the frontline operators if they spot anything worth checking out. With some, like the *FL360*, images are GPS tagged so the operator knows exactly where to go even if frontline rescuers have long since moved on to another search area.

As mentioned earlier, screens have mostly become a detached component, no longer firmly fastened to the telescopic pole but handheld and most often used by a second rescuer while the first manoeuvres the camera. We will now see more



systems with wifi compatibility and using apps so that regular tablets and smart phones can be used instead of a dedicated screen. The *FL360* for instance uses a *Samsung S2* tablet, albeit the top-end *LTE* version costing $850 but you can get lesser *S2* models for about $300 and the incredibly versatile *Tactical Electronics Core* systems use virtually anything including radio networks so you can see how replacement and augmentation will become cheaper and easier in the future. However, there is something to be said for the simplicity of a screen with a handful of colour-coded buttons with icons as exemplified by the Search Cam screen above. When rain and dust are hindering the use of touch-screens, more conventional button screens will keep working.

Cold, deep open water on the other hand will generally benefit from a cable-lowered camera worked in a pre-determined search pattern via boat. Remember that many camera systems offer cable lengths that are far in excess of the camera's depth-rating. This is not an oversight, this is because your camera may be operating LATERALLY from the screen rather than straight down – you may for instance be using a crew on the bank/shore rather than in a boat so that the camera head may be hundreds of feet away and only a few feet deep rather than being hundreds of feet deep. Or you may be search well or liquid storage tank with a large void before reaching the water. This all sounds obvious but you may want to mark your cables with a maximum depth indication for those occasions when you ARE sending the camera straight down into water.

UNDERWATER USE

A number of the cameras in this list will operate underwater or at least under the surface of the water, in other words you can break the plane of the surface to get a much clearer view underwater without going too deep – similar to a periscope of a glass bottom boat. Some however, are designed to be used underwater and have attributes that lend themselves to dive team searches or perhaps in place of a dive team search. The *Reach&Rescue Underwater*, *Yone ProEye 751 SNR* with Sonar and the *JW Fishers* models are clearly designed with an aquatic environment in mind but don't forget some of the regular models like the *LeaderCam* in it's *RD90* variant, the *Red Box Snake eye* and even the venerable *SearchCam 3000* which have camera heads that will all go beyond 20m/60 feet in depth. It's true that these will mostly be involved in body or evidence searches rather than rescue but as has been proven time and time again with cold-water drowning victims, they're not dead until they're warm and dead.

Another option is a rescue swimmer using a handheld camera like the JW *Fishers CHV-2* or *CM-1* with pistol grip (option). This is effectively a hard-wired dive camera capable of working the deepest of all the models in our guide. Nevertheless, it is prospectively still immensely useful even if used at the surface as a sub-water periscope or slightly deeper by a duck-diving rescuer without full scuba because surface monitoring of the screen by attentive observers may spot something the swimmer doesn't. In the case of the *MC-2 Mini Camera* this can be mounted on a pole or even on a helmet (pics left) but is otherwise a fully functioning dive camera which have no lens or camera movement other than being pointed in a particular direction by the rescuer.

Finally mention should be made of *Yone's Pro Eye* variant with sonar (pic right) This adds a whole new tool to your array because it is a colour camera on a cable which extends out from a sonar sensor sitting just below the water surface. Once a target is identified the camera can be lowered to visualise the sonar's detection. You don't have to use sonar since the camera can still operate as a stand-alone device but there is a gunwale clamp on the camera mount and two different screens in the system case – one for sonar and one for simultaneously colour imaging. The *Yone* cameras are also oddly unique in using propriety power tool 12v batteries that are easily obtainable from DIY stores, which is useful.

Assets like underwater cameras can be the difference between being just-in-time or having not-much-hope-in-the first-place. It could be argued that any team or agency with available cameras AND with bodies of water on their response patch should leave the cameras packaged to be able to search underwater straight from the box since a change to structural collapse mode (if a change is even required) will never be as time sensitive as a drowning victim. It may be that the regular set up using a telescopic pole is your best approach to shallow water searches, particularly for victims that have fallen through ice where a pole can search an area in a radius of several metres from the entry hole or flow-predicted search hole.

Make Searching Open Waters Safer & Easier with JW Fishers Underwater Equipment

Hand Held Underwater Metal Detectors

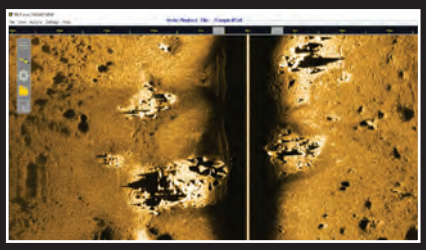
Pulse 8X

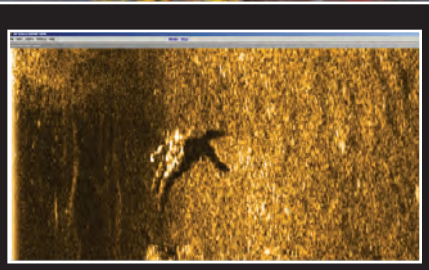
- Detects ALL metals on land & underwater
- Audio and Visual output
- Commercial construction
- Ideal for evidence recovery
- Rated #1 by US Homeland Security

SAR-1

- "Snareless" design with VIBRATING handle
- Bright red LED display
- Specialized for low visibility environments
- 200' depth rating

Side Scan Sonar





* Simulated Drowning Victim

600kHz - CW

- Simple to operate
- Up to 225' (75m) range on each side
- Displays images on laptop or tablet
- Commercial construction
- Works in all waters, regardless of clarity
- In use by public safety dive teams

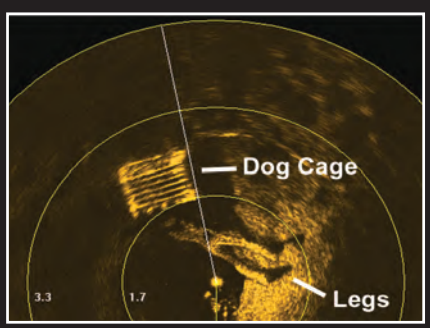
450kHz / 900 kHz - CHIRP

- Fully digital
- Up to 495' (150m) range on each side
- Breaks down for easy transport (case included)
- Commercial construction
- Low cost and easy operation
- Complete turnkey system

Remote Operated Vehicle with Sector Scanning Sonar

SeaLion-3

- 7 vectored, thruster system
- Front and rear 1080p HD cameras
- Two monitors for viewing and control
- Picture in picture (PIP) functionality
- Easily transportable
- Commercial construction
- 1,000' depth capability



SCAN-650

- Target sizing capability
- 360° sweep pattern
- High resolution imagery
- User friendly software
- Commercial construction
- ROV, pole or tripod mountable
- Starting at $6,995

JW FISHERS

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jwfishers.com


Red Box Snake Eye

UPDATING Q3 '24


Agility Corp First Look 360


Reach&Rescue


Leader Group LeaderCam


Scorpe Vibrascope


Savox SearchCam Recon III

IN THE FOLLOWING TABLES.....

We have included ONLY cameras that are actively marketed to and for rescuers even though there are a number of inspection cameras from other industries that might be viable. The majority of these are pole cameras which helps to narrow the field but there are a couple of flexible wire cameras because they are specifically sold to rescuers.

Options are shown as an outline box.... ☐ ☐ ☐

COST: Very approximate. Some manufacturers are oddly reticent to provide a price. We get this in all of our guides and particularly for high cost item which always makes us suspicious that there is differential pricing going on or they feel that a higher cost comparison counts against them.

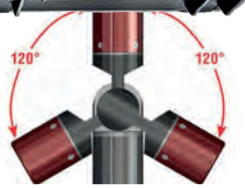
WEIGHT: There are 2 weights given, the first is the complete system including a case if that is how the system is sold. This is an important figure because it affects the overall shipping limits when moving equipment into a disaster zone. The second figure (in burnt orange) is the weight of the camera unit plus pole as it feels to the person holding and/or controlling it. For some cameras this may include the display screen because it is permanently attached. If not, the display screen is given as a separate weight in green in the SCREEN column.

MIN to MAX Length : the length of pole from shortest extension to longest. A single figure is the MAX extension. Many have extension or longer pole options and some, like the *Reach&Rescue* and *JWFishers* don't fit the pole in the case so you would need to factor in that extra weight to the system total.

SUPPLIED CABLE: refers to a camera extension cable to enable the camera to be clipped on and lowered or used remote from the operator. Most kits are supplied with a minimum length so you will again need to factor in the weight of longer lengths if purchased extra to the kit (in terms of air transport for overseas deployments). Cable lengths are shown in burnt orange and in brackets for optional lengths.

SCREEN RESOLUTION, SIZE, WEIGHT: We often see a screen resolution AND a camera resolution but if one is substantially lower than the other you will presumably not be seeing the image to best advantage. Screen or Monitor resolution is usually in Pixels and is shown in burnt orange. Size and weight


Tactical Electronics Core



of the screen as distinct from the whole kit is important where the screen is fully detached and may be handheld or worn on the sleeve. For some it remains 'embedded' in the carry case (eg. the P*roEye Sonar, Reach & Rescue* and *JW Fishers* models) which is sat on the ground or a stand so weight isn't such an issue.

CAMERA Resolution for the camera may be given in a number of scales including TVL, lux (for the light source operating limit rather than resolution) and Pixels.

ADJ RANGE (in black) refers to the articulation angle of the camera head. Some can be controlled by the operator to rotate through as much as 240 degrees (*Recon III* above right). The *FL360* on the other hand, doesn't articulate at all but has taken the more obvious option of a camera head that already sees a 360 degree view of the space. *Reach&Rescue*'s camera head is a flexible but stiff articulation that is adjusted manually but normally views in the direction of the pole.

Field of View: is what the camera actually sees or rather the view you see from peripheries to straight in front. In the case of the *FL360* you see the entire 360 degree view but for most the view is dependant on how wide-angle the lens is. Endoscope style cameras tend to be quite narrow while larger lenses on *SearchCam* and *ProEye* give up to 260 degrees of view. Wide angle can sometimes lead to distortion at the peripheries.

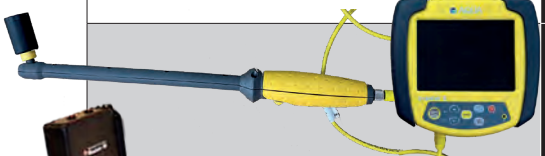
IN-USE COLUMNS

CAMERA DETACH: refers to the ability to remove the camera from its pole or mount and attach it to a cable for lowering.
COLOUR / B&W CAMERA: refers to the output to your screen being in full colour which may convert to Infra-Red in low light, or Black and White which is the minority of cameras in our Guide here even the *Mini JWFishers* has a colour option.
THERMAL / IR CAMERA: refers to thermal imaging and/or Infra Red (IR) in black. Options are shown in an outline box ☐.
IP RATING: is an internationally recognised ingress protection figure for water, dust and gas – none of which is necessarily the same, ie. just because a product is waterproof doesn't mean it's intrinsically safe. The first figure is solids (dust) where 6 is the highest/best. The second figure is for liquids where 8 is the highest/best meaning waterproof beyond 1m and 7 is


ProEye 751 SNR

JW Fishers VRM 2 Monitor

waterproof up to 1m below water. IP68 is therefore the best.
CAMERA IMMERSION: is further qualification of the IP Rating to show the actual depth capability of the camera – remember NOT to use cable longer than your camera's depth rating if lowering straight down into water.
DATA STORAGE: may be to a hard drive (in black) generally the case with laptops and tablets, SD card in burnt orange for transfer to other devices for manipulation or USB in green which is again normally only with a laptop option as with *JW Fishers*.
IMAGE/VIDEO CAPTURE: refers to either still images or video in burnt orange.
GPS/GPSIMAGE TRACK: this may be on-board GPS to indicate the location of the camera and operator (black square) or it might be an image tracking GPS (in burnt orange) which shows where any given image is taken so that search teams can return to the spot.
HD CARRY CASE: The HD in burnt orange refers to a heavy duty, waterproof, shockproof case like the *Peli, Explorer, Storm, Hardigge, IMPH* or *Otter.* The cases pictured here are all toughened, waterproof cases. A case listed as a black square will be a more standard hard carrying case, not necessarily waterproof or shock proof but well up to transporting the camera system. An outline square indicates a soft pack option – maybe a back pack or a fabric carry bag.

IMAGES NOT TO SCALE	MODEL	COMPANY	ORIGIN	COST Basic System excluding accessories	WEIGHT PACKAGE TOTAL IN HAND	LENGTH MIN to MAX SUPPLIED CABLE	SCREEN RESOLUTION SIZE WEIGHT	CA Dia
	First Look 360	AGILITY TECHNOLOGIES		N/A	15.5kg/34.2lb 1.4kg/3lb	3m 118"	2048x1536 246mm /9.7" 0.39kg/0.9lb	49 1
	Leader-Cam	LEADER GROUP		N/A	14kg/31lb 2.78kg/6lb	2.4 - 3.4m* 7.8 - 11' (1x25m or 2x90m cable options)	800 x 480 178mm / 7" 1.38kg /3 lb	4 1
	DV2	JW FISHERS		$3295 +$3195*	27kg/59lb 6.8kg/15lb	No Pole 50m / 150ft (300m/1000ft option)	* 264mm/10.4" 10.9kg/24 lb*	12
	DHC-2	JW FISHERS		$3795 + $3195*	23kg/51lb 3.2kg/7lbs*	No Pole 50m / 150ft (300m/1000ft option)	800 x 600 * 264mm/10.4" 10.9kg/24 lb*	11
	MC-2 Mini Camera	JW FISHERS		$2095 + $3195*	15.4kg / 34 lb 0.45kg / 1 lb*	Pole adapter=$225 50m / 150ft (300m/1000ft option)	800 x 600 * 264mm/10.4" 10.9kg/24 lb*	6 2
	Underwater Camera System	REACH& RESCUE		£2014	10.2kg /22.5 lb exc pole	*5m 16.4ft 20 m / 65ft (30 & 40m options)	800 x 480 178mm / 7"	2
	SnakeCam (RBW Kit)	RED BOX AVIATION		£4500	1.4kg / 3 lb	0.45m 1.5' 9.25m* (500m option)	640 x 480* 127mm / 5"	3
	SearchCam Recon III	SAVOX		$7615		1.09-1.43m 43-56.5"	18.2kg	4 1
	SearchCam 3000	SAVOX		$15000		1.04 -2.34m 41-92"	146mm / 5.75" 811 x 507	4 1
	Vibrascope BVA6	SCORPE		€12000	13.2kg 29 lb	0.5 - 2m 5m (100m option)	178mm / 7"	3
	DS100	SECA		£1890	7kg 15.4 lb 3.5kg 7.7 lb	1.2 - 4m 4 -	640x480 127mm / 5" 3.5kg	6 2

ORIGIN = Company origin, not necessarily the country of manufacture COST: INCLUDES local taxes/VAT . DUTY: HD Heavy Duty, S

AMERA ameter	CAMERA RESOLUTION ADJ RANGE FIELD OF VIEW	LIGHTS	BATTERY DURATION RECHARGE	OPERATING TEMP	TWO-WAY MIC	CAMERA DETACH	COLOUR/B&W CAMERA	THERMAL / IR CAMERA	IP RATING	CAMERA IMMERSION	DATA STORE SD USB	WIRELESS STREAMING	IMAGE VIDEOCAPTURE	MAINS/12v CHARGER	GPS/GPS IMAGE TRACK	HeavyDutyCARRY CASE	NOTES	WWW.
0.5mm 1.95"	1920 x 960 - 360°	6 x wide-angle LED	Li-Ion* 3-5 hrs 1.5 hrs	-10 to 60C 14 to140F	■	■	■	□#	68	3m 10ft	■	■	■ ■	■ ■	■	■	*WIll also operate using 4x CR123A cells # IR version/option in 2019	agilitycorp.com
7mm 1.85"	700 x 480 0-170° 260°	8 x LED	NiMH or 10x AA 2.3 hrs 3.3 hrs	-10 to 60C 14 to 140F	■	■	■	■ □	54	2m# 6.5ft	■		■ ■	■	□	■	* figures for Std kit. Option fpr Poles up to 5.66m/18.6' Batteries compatible with Leader Scan, Hasty & Search #RD90 version waterproof to 90m. now with GPS	leader-group.eu
27mm 5"	0.8 lux /480L NO 170°	2 x 1500 lumen LED	Marine, AC-mains or 12v DC	-25 to 60C -14 to 140F	□	■	■ □		-	150m# 500ft	■ ■ □	NO	■	■ ■		□	*For VRM-2 screen module. Camera can be linked to any suitable laptop/display. #300m/1000' housing available. *exc cable, add 9kg/20lb /150ft Wt includes integral case	jwfishers.com
14mm 4.5"	0.8 lux /480L NO 170°	2 x 1500 lumen LED	Marine, AC-mains or 12v DC	-25 to 60C -14 to 140F	□	■	■ □		-	150m 500ft	■ ■ □	NO	■	■ ■		□	*For VRM-2 screen module. Camera can be linked to any suitable laptop/display. #300m/1000' housing available. *exc cable, add 9kg/20lb /150ft *Wt includes integral case	jwfishers.com
0mm .375"	NO 50°	Halogen or 12 x LED option	Marine, AC-mains or 12v DC	-25 to 60C -14 to 140F	□	■	■ □		-	150m 500ft	■ ■ □	NO	■	■ ■		□	*For VRM-2 screen module & exc lights.Camera can be linked to any suitable laptop/display. Camera is B&W as standard but colour and EuroPAL options. *exc cable, add 4kg/9lb /150ft	jwfishers.com
3mm 0.9"	480 TVL 360° (manual) 120°	12 x LED	Li Ion 6-8 hrs 8 hrs	-10C to 50C 14 to 122 F		■	■		68	30m 100ft	■		■ ■	■ ■		■	*Poles an be 5m, 9m 13m or 17m/55ft long. Pole can be simultaeously fitted with rescue aids and body recovery hook (shown).	reachandrescue.com
0mm 1.2"	512 x 492 90° 46°	4 x LED 1 XeNon	6v NiMH 35mins x 2 (6hr option)	0 to 50C -32 to 122F		■		□	68	30m 100ft	■* ■*	NO	■*	■		■ ■	*Basic kit uses a lower res screen with no audio-visual record capability. * Up to 500m cable available + 1.2-7.8m Pole option	redboxaviation.com
7mm 1.85"	0-240°	16 x LED	Li Ion 2 hrs	-10 to 60C 14 to 140F		■			68		■					■		savox.com
7mm 1.85"	0-240°	16 x LED	Li Ion 2 hrs	-10 to 60C 14 to 140F		■	■		54	23m	■		■			■		savox.com
9mm	0.5 lux 0-360°	6 x LED	12v NiMH 4.5 Ah 4-5 hrs 4 hrs	-20 to 50C -4 to 122F	■	■	□ ■	□	66	60m				■ ■		■	Data for waterproof camera, more basic camera available.	scorpe.eu
5mm 2.56"	420 TVL 0-110° 90°	36 x LEDs	11.1v Li 7hrs 4.5 hrs	-10 to 55C 14 to 131F	■	■	■	■	67		■	□	■	■ ■		□	DM version has wireless AND wired camera	dartsystems.co.uk

STD Standard Duty, LD Light Duty. ADJUSTMENT: Black box= Standard feature. White (black or orange outline) Box □=Option

IMAGES NOT TO SCALE	MODEL	COMPANY	ORIGIN	COST Basic System excluding accessories	WEIGHT PACKAGE TOTAL IN HAND	LENGTH MIN to MAX SUPPLIED CABLE	SCREEN RESOLUTION SIZE WEIGHT	CA Dia
	CORE POLE CAMERA	TACTICAL ELECTRONICS		$8623	1.56kg 3.4lb	0.6-3.2m 4-10ft (5.3m/17ft option)	1280x720 127mm / 5" 0.4kg / 0.85 lb	4 1
	WSC4926	UNIFIRE		$600	0.67kg 1.5lb	0.9m* 3ft	712 x 486 60mm / 2.36" 5oz	4 1
	Pro Eye 751 SNR	YONE CORPORA-TION		N/A	19kg 42lb 8.5kg 18.7lb	2.4m 7.8ft 10m* 33ft	795x595 142mm / 5.6"	3
	ProEye 951 S-IR	YONE CORPORATION		N/A	19kg 42lb	(20m65ft op-tion)	177mm / 7"	3 1
	ProEye 991 NH Nno-Cam	YONE CORPORATION		N/A	15kg/33lb 3.3kg/7.3lb			6. 0

AMERA ameter	CAMERA RESOLUTION ADJ RANGE FIELD OF VIEW	LIGHTS	BATTERY DURATION RECHARGE	OPERATING TEMP	TWO-WAY MIC	CAMERA DETACH	COLOUR/B&W CAMERA	THERMAL / IR CAMERA	IP RATING	CAMERA IMMERSION	DATA STORE SD USB	WIRELESS STREAMING	IMAGE VIDEO CAPTURE	mains/12v CHARGER	GPS/GPS IMAGE TRACK	HeavyDuty CARRY CASE	NOTES	WWW.
2mm 1.65"	1280x720 0-360° (manual) 70°	4 x LED	3xCR123 2.5hrs	-20 to 50C -4 to 122F	■		■ ■	■ ■	-	NO	■	■	■ ■		■	■	Hardwire option. 4 different camera head options -Fixed, Flexible, Flat/Under door and small-bore endoscope as well as a K9 camera.	tacticalelectronics.com
1mm 1.61"	320 x 240 0-360° (manual) 45°	4 x LED	4 x AA 2hrs	-10 to 50C 14 to 122F									■			■	*Cable available in 3ft lengths up to 12ft	unifireusa.com
6mm 1.4"	811 x 507** 0-180° 231°	12 x LED	12v NiMH (Li-Ion option) 3-6hrs 5 hrs					■	67	50m	□		■	■ ■	■	■	DSX version without sonar. SNR=SONAR & Colour visual cameras 3, 5 & 6m pole options. **PAL version = 795 x 595 *4,20,30 & 50m cable options	yone-co.co.jp
2mm 1.25"	350TVL 0-180° 231°	12 x LED	12v NiMH 3hrs 3hrs		■	■	■	■ ■	67	50m	□*				■	■	Standard version with colour camera. Second camera interchangeable with IR/TiC *OPTION with 8gb or 4gb SD	yone-co.co.jp
.9mm 0.27"		4 x LED 8 Auxilliary	AA						67		■							yone-co.co.jp

HEAVY DUTY, USAR-CAPABLE LIFTING FRAMES

Our **ROPE EQUIPMENT BUYERSGUIDE** contains a full list of Tripods/Quadpod and other AHDs (Artificial High Directionals)but we have modified that list for USAR to only those with a lift capacity over a quarter of a ton (600lbs/270kg). This is because in rope rescue all of these tripods and frames are lifting or lowering live-loads, whether that be a rescuer, a victim or a rescuer *and* victom in a stretcher. Here we are concerned more with the ability to use a device to lift and shift collapse materials - concrete, metal, wooden beams etc. Airbags and hydraulics can of course be used to lift or spread very heavy objects but only a heavy duty AHD enables you to lift and shift to one side if only by a foot or two or to lift over large distances with a suitably strong pulley system or winch (see separate Guide on page 290) . This is much easier with the gantry style frames but any tripod configuration will allow some lateral movement if you have guyed the top sufficient to counter any load moving outside of the prescribed footprint. If you were careful enough with your load monitoring you could use any tripod/AHD so our quarter ton cut-off will be deemed to be too arbitrary by some but we have to draw the line somewhere in determining what constitutes 'Heavy Duty'. The *Skedco* model for instance could feel aggrieved that their tripod is just a strong as some we have included, they just choose to list a more conservative max load figure. Consult the **ROPE EQUIPMENT** guide for a full list and for a more detailed background to AHDs.

There are 7 distinct types of stand-alone AHDs:
1) **MONOPOD** - single leg with anchor points on the head for back-stays as well as a main attachment for the lowering system. *TerrAdaptor* version shown left.
2) **BIPOD/A-FRAME** - two legs which can luff out beyond an edge if properly guyed.
3) Traditional **TRIPOD** with a fixed head and attached legs
4) Traditional **QUADPOD** with a fixed head and attached legs
5) **BEAM** where a gantry is created between two sets of legs to span much wider gaps or trenches.
6) **MULTIPOD** which is a modular system of detachable legs, head(s) and components capable of creating a tripod, and bipod and often a monopod depending on head-anchor configurations.
7) **TETRAPOD/TETRAHEDRAL FRAME**; which used to be just the Australian Larkin Frame but there is now some competition. This is effectively a pyramidal shape (or two pyramids joined) with a rigid frame connecting the three feet together and tipped over so that it pivots on the edge created between two legs - simple genius. This is a true luffing frame in that the load-head can be safely moved in-board of the edge for safe rigging by pulling down on the rear 'tail' of the frame. When ready that same tail is then lifted (under strict control) so that the head and load are luffed out beyond the edge so that all ropes clear the edge and edge negotiation is safe and simple.

HEAVY-DUTY SHORING STRUT SYSTEMS

We could also have a 7th class for modular crossovers from USAR, but while these are radically different, the end product is still one of the previous 6 classes, just a lot, lot, lot stronger! These are structural shoring struts that can be combined with specialist heads and feet to create a gin-pole, bipod or tripod. The AHD guide in our **USAR/EXTRICATION BUYERS GUIDE** gives greater detail on their uses outside of rope rescue. *Airshore* pioneered the tripod adjunct and in fact the largest tripod we ever had was an enormous and very unwieldy beast made of *Airshore*'s two or three largest struts plus their largest extensions connecting to a solid machined head (and machined plates for feet) that were strong enough to support collapsed structures. These were in fact, seen inside the Pentagon as columns supporting the ceilings following the 9.11 attacks. These also made great large animal rescue tripods able to support weights far in excess of regular tripods so we used it for cows and horses and In the image below from 2013, Cornwall Fire&Rescue service in the UK were still using the *Airshore* tripod to good effect. *Paratech* then took up the challenge with their version and latterly we have had

HEAVY DUTY LIFTING FRAMES

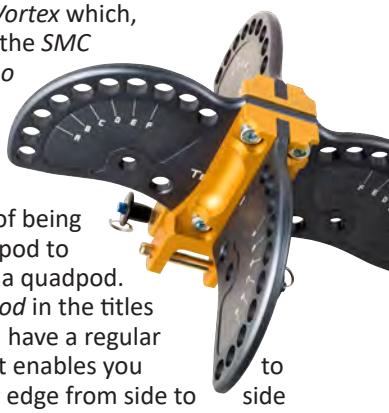
offering perhaps the slickest with their from *Holmatro* *OmniShore* system (pic opp) . Unlike regular rope access and rescue tripods the modular shoring systems have two unique tricks up their sleeve 1) they are often pneumatic, hydraulic and electric extension as well as the more usual manual so they can actually be manipulated under load or at least under tension - you can adjust the length of one or more legs over short distances - we thought it worth a mention as we once found it very useful in freeing a piece of jammed hardware that was operating way outside of normal margins.

2) Load cell monitors are available (Holmatro has a bespoke system and *Paratech* uses the '*Guardian Angel*' system -pic above right) that can tell you exactly what loads are being applied. These kinds of tripod systems really are the shire-horses of the industry enabling you to attempt tasks that would otherwise be impossible or risky at best. They are of course, not light. The machined head alone on our old *Airshore* weighed as much as an entire mountain rescue tripod. Even today, slick though these things are, you can tell that they are geared more towards an Urban Search & Rescue environment than they are a remote gorge. Top-right is *Holmatro*'s sophisticated 8.7kg tripod head with an integral, rotating rigging plate for the main load lines, an integral pulley sheave and no less than 8 stainless steel shackles for tensioning, restraint or guy lines. Notice that two of the strut attachments are mounted bilaterally while the third is extended and rotates freely to be connected in a 'lazy-leg' configuration if required. More on this shortly. In monopod or gin pole configuration

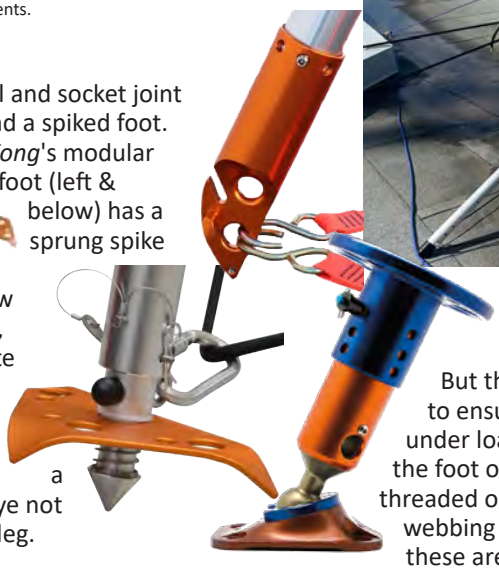
you can really see the difference in bulk - above is Holmatro's 3.2kg/7.1lb monopod head while Harken/SMC's rather more mountain orientated *Space Station* right it is around half the weight at 1.8kg/4lb and the *Arizona Vortex* head below-left is almost half the weight again at 1kg/2.2lb.

LIGHT ALLOY MODULAR SYSTEMS

The *Arizona Vortex* which, together with the *SMC* *TerrAdaptor, Ferno* *Arachnipod* and perhaps the new *Eyolf Pythagorus* are the most adaptable of modular systems capable of being transformed from a mono-pod to an A-frame to a tripod and a quadpod. In the case of the *Arachnipod* in the titles opposite, the quadpod can have a regular head or a beam gantry that enables you to span the width of a hole or edge from side to side up to 4m. These are the much lighter, more manoeuvrable and transportable versions of the modular shoring strut systems. The legs, heads, feet and accessories are all detachable and interchangeable. Kong for instance has a footplate with anchor points that is anchored by your vehicle (wheel). Above-right is Harken's *SMC* tripod/Quadpod head and below is the complete *Arizona Vortex* system in 4 to 6 bags. This makes transport in wilderness areas a lot easier as the weight and bulk is spread across six team members safe in the knowledge that when they arrive at the incident, their AHD will cover every eventuality. The two black bags offer two types of foot - a flat plate that can rotate 360 degrees with a



Modular systems often come as complete kits. In fact, the Arizona Vortex above is normally only offered as the one kit to which you then add extra and different components.



ball and socket joint and a spiked foot. *Kong*'s modular foot (left & below) has a sprung spike below a broad, spiked plate with further ground spike holes. It also has a load bearing eye not present on the basic leg.

to stop the legs spreading beyond a set limit - *ISC*'s tripod for instance, so these can dispense with leg restraints which some see as a trip hazard. But the norm remains a foot restraint strap/rope/chain to ensure the legs can't spreading and the AHD collapsing under load. Most have eyes or larger attachment rings on the foot or at the base of the legs - these can have a rope threaded or simply clip in a carabiner and adjust the rope, webbing or chain to allow the required spread. Note that these are not always load bearing beyond leg restraining but some are also fully load bearing deviations for your operational rope systems.

FIXED HEAD TRIPODS

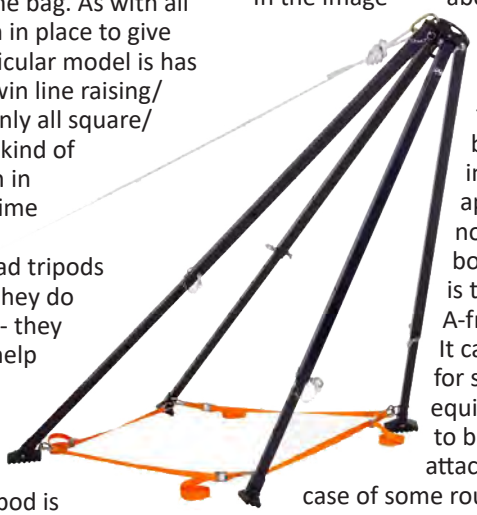
Abovet is *Kong's Cevedale Rescue 2Winch* version which is a fixed head tripod where the legs and head are semi-permanently connected and you simply fold everything inwards for storage and transportation in one bag. As with all lightweight AHDs the legs telescope and pin in place to give shorter or greater working height. This particular model is has two integrally mounted hand winches for twin line raising/lowering. The majority of tripods and certainly all square/rectangular section AHDs, will accept some kind of mount for a winch and this is most common in industrial 'con-space' tripods. There was a time when virtually all tripods used for industrial access and rescue were one-piece, fixed head tripods and these are still the cheapest option but they do have quite specific and limited applications - they are great for over-hole entries but can still help with edge negotiations for vertical rescues providing they are back-stayed correctly because **any pull outside of the triangular or rectangular footprint will result in the frame collapsing.** Assuming that the tripod is anchored in some way, this should only result in those over the edge experiencing an alarming drop of several feet rather than having a few hundred pounds of metal hurtling towards them. This can be mitigated by running the belay directly over the edge (via soft edge protection) rather than having the main rope and the belay running through the head of the AHD. This 'grounded belay' option is not often used by experienced teams using more sophisticated AHD's that can be properly configured and stayed for the edge negotiation situation because the whole point of the AHD may be to stop rope running on unstable ground and knocking down debris.

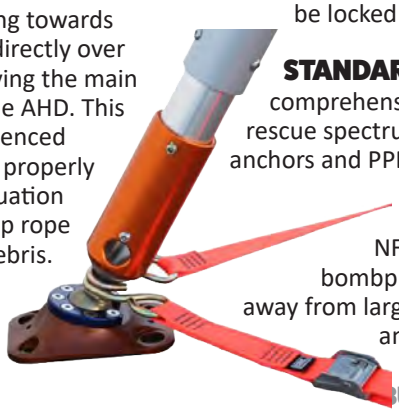
FOOT RESTRAINTS

A number of AHDs have locking pins on the head

LAZY-LEG

In the image above of *Eyolf's Pythagorus* system you can see that the two forward legs are hard up against the edge, in this case at around 90 degrees to the vertical rather than angled forward like the *SAR Products Quadpod* below. The single leg at the rear is a lazy-leg in that it takes very little of the load that is applied to the A-frame legs, in fact virtually none until or unless the load moves in-board of the edge. Instead, its function here is to offer stability and security to the two A-frame legs to restrict rearward movement. It can also be used to increase the footprint for spanning larger holes or gaps than an equilateral tripod/quadpod might offer and to bridge uneven height. Most lazy leg head attachments allow greater rotation and in the case of some round-tube models, can be adjusted through the head and locked to alter the length. All legs on the AZV and TerrAdaptor can extend through and beyond the head to be locked into place with pins.





STANDARDS: As usual, European CE are the most comprehensive and applicable across the work and rescue spectrum but there are several that apply from anchors and PPE fall restraint to Machinary Directive but EN795-B for mobile anchor devices is probably best. For rescue applications NFPA is always a good indication of a bombproof product but we are seeing a move away from large & heavy in rescue driven by the tactical and wilderness markets so NFPA may end up

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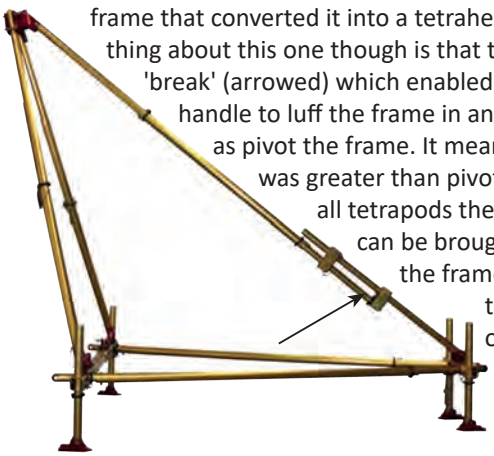
TETRAHEDRAL FRAMES (TETRAPODS)

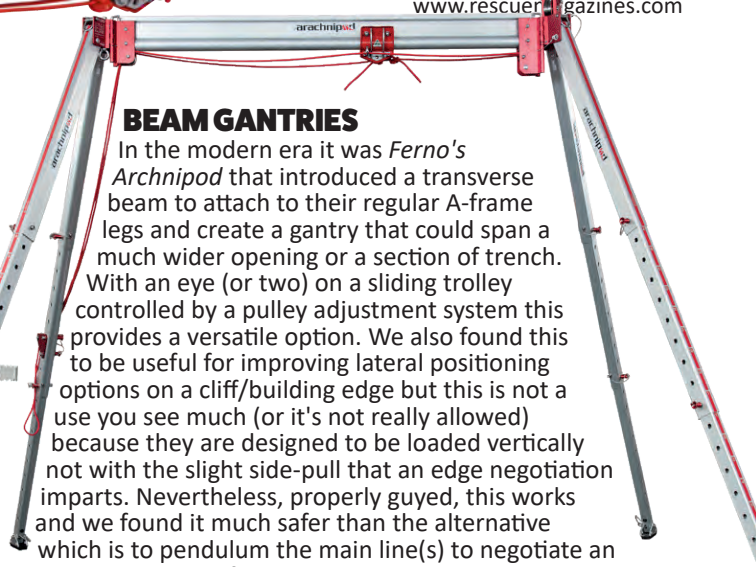
We're calling this a TETRAPOD. The iconic *Larkin Frame* from Australia (distributed outside Oz by *Lyon Equipment* in the UK) is an offset pyramid which you tip over in order to clear an edge or it can sit upright in a standard tripod configuration except with solid leg restraints instead of the usual webbing or rope! The *Larkin* is a simple, fixed structure but is nonetheless very versatile. In this image you can see

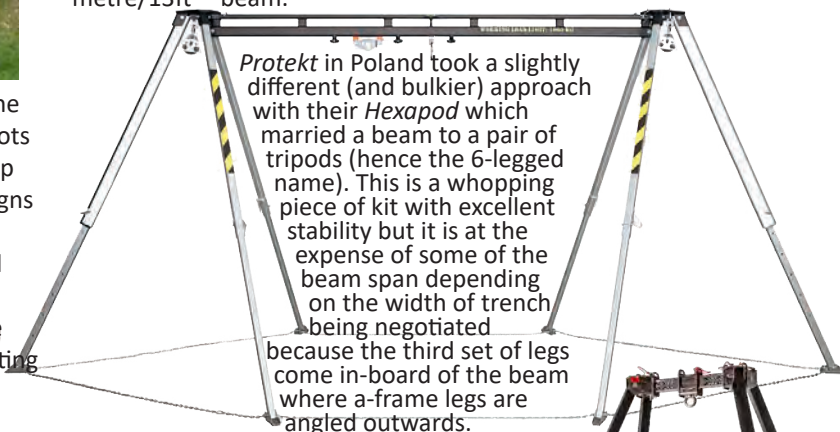
how guying and manoeuvring the 'tail' of the frame allows the head to clear an edge by quite a large margin. The frame pivots on two feet and there are pulleys on fixed eyes at the two top corners of the frame. We only know of two competitive designs to this, one is another of our old favourites - the *SRTe OzPod* which was taken over by *DB Sala's Rollgliss* and then *3M* and then disappeared along with all *SRTe* gear. The *Ozpod* was a modular system comprising a tripod (or A-Frame) and a base frame that converted it into a tetrahedral frame. The interesting thing about this one though is that the frame had a hinged 'break' (arrowed) which enabled you to pull back on a handle to luff the frame in and out under load as well as pivot the frame. It meant that edge clearance was greater than pivoting the frame alone. Like all tetrapods the rescuer and casualty can be brought inboard within (or on) the frame rather than close to the edge. The tripod part of this Ozpod still seems to be produced by or on behalf of *Skedco* in the US. A more recent version, though by no means new, is *Kong's Grizzly*. This differs in having no rigid section between the two feet - what would be one of the edges of the pyramid. Like the *OzPod*, this is modular in that the legs or poles can be used to create a bespoke monopod (inset pic) and bipod. The components shackle together with the shackle then creating load bearing eyes at each corner. Multipods and tetrapods can take longer to set up than more basic tri/quadpods, we required a single rescue technician to set up the *Ozpod* as shown above within 5 minutes, no mean feat. In contrast a much simpler tri/quadpod will go up in a couple of minutes and a modular and tetrapod in 3-5minutes. None of these times include attaching stays/rigging.



BEAM GANTRIES

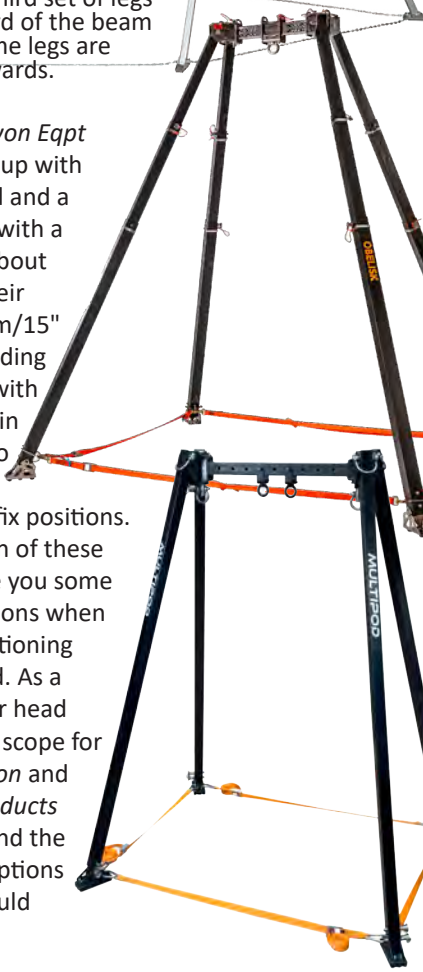
In the modern era it was *Ferno's Archnipod* that introduced a transverse beam to attach to their regular A-frame legs and create a gantry that could span a much wider opening or a section of trench. With an eye (or two) on a sliding trolley controlled by a pulley adjustment system this provides a versatile option. We also found this to be useful for improving lateral positioning options on a cliff/building edge but this is not a use you see much (or it's not really allowed) because they are designed to be loaded vertically not with the slight side-pull that an edge negotiation imparts. Nevertheless, properly guyed, this works and we found it much safer than the alternative which is to pendulum the main line(s) to negotiate an obstacle. In the case of the *Arachnipod* you can have a 2, 3 or 4 metre/13ft beam.

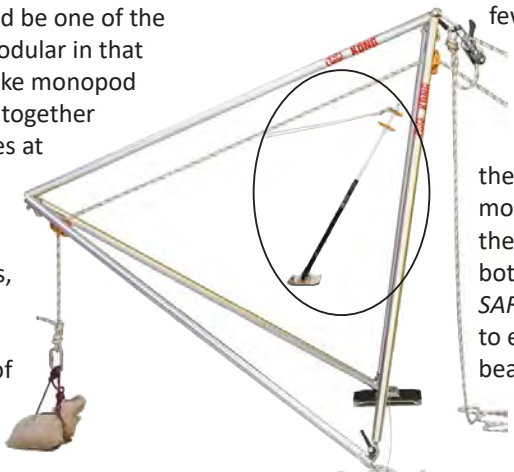




Protekt in Poland took a slightly different (and bulkier) approach with their *Hexapod* which married a beam to a pair of tripods (hence the 6-legged name). This is a whopping piece of kit with excellent stability but it is at the expense of some of the beam span depending on the width of trench being negotiated because the third set of legs come in-board of the beam where a-frame legs are angled outwards.

Then there's the *Obelisk* from *Lyon Eqpt* in the UK (pic right). They came up with a true cross between a quadpod and a manageable sized beam gantry with a very slick trolley system that's about as bombproof as they come. Their stainless steel beam is only 40cm/15" wide but can take one or two sliding eyes that then fix into position with plunge-pins. *SAR Products*, also in the UK have a *Multipod* that also has moveable eyes albeit with fewer fix positions. Both of these give you some options when positioning the load. As a modular head there is scope for both *Lyon* and *SAR Products* to expand the beam options should





demand require it. The *SAR Products* head is not as slick as *Lyon*'s but it does offer a tripod option as well as a quadpod.

VARIOUS OTHER FEATURES

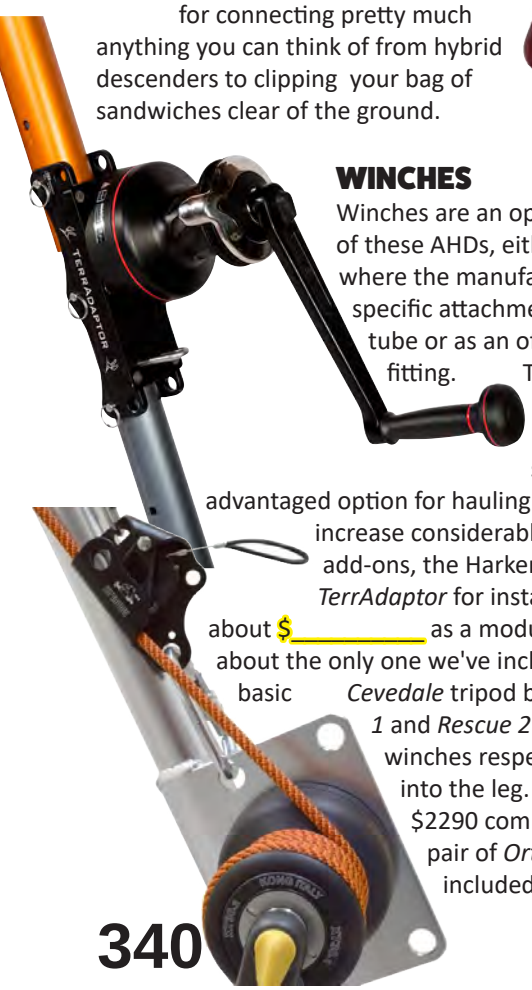
There are often a number of variants of similar tripods and it is sometimes difficult to decide what constitutes a distinct model and what is too small a variation to warrant a separate entry, especially where industrial access is concerned. The rescue models tend to be more distinct as complete kits. *Mittelmann* for instance have 4 models but the *Mid* is simply a half height version of the *Uni* and the *Octopus* has fixed suction cup feet instead of either the regular round or swivelling feet. We've included the *Uni* with the *Mid* as a variant and the *Mini* with the *Octopus* as a variant. *Protekt* too have many variations on their models which you will need to explore yourself but we have included no less than 6 key models (and excluded their small wheeled model altogether!). The *Arachnipod* is a very complex system with numerous kit options for the tripod, quadpod and beam systems that we could not hope to list separately in this guide - there are 8 variations on the one tripod - so our prices give the most basic rescue model to the most complex but even that can be augmented with more optional extras. Above is the previously discussed *Obelisk* head made of stainless steel and this one small detail could make a lot of difference to your purchase if you operate in a marine/ sea cliff environment where regular steel and aluminium alloys will degrade unless kept scrupulously clean and dry.

Very few models provide numbering on their adjustment holes and yet we have always contested that this is an incredibly useful (and simple) feature to ensure correct assembly when you're in a rush, in the dark in poor weather conditions. Of course industry drives much of the AHD development and they don't care so much - it's an extra cost they don't need. *Lyon's Obelisk* for instance is available with number for an additional charge. The *Arachnipod* remains the finest proponent of clear markings with numbers and letters on the top and bottom sections to really ensure there are no mix ups. Their standard feet above show just how clear their marking is, at least while the tripod is new. It's worth maintaining these markings with your own resin paint or marker. These feet also exhibit five features already covered -

1) a swivelling foot that is 2) detachable so that you swap in larger or more specialist feet. 3) A tactile/grippy base for smooth, hard surfaces. 4) A hole for driving in a ground stake and 5) a pointed or spiky end that can dig into softer ground.

Talking of feet, two or three models have suction cup feet intended to used for tank and silo entry but only where you have a relatively clean, non-rusty surface. On site industrial rescue teams may opt for these as their dedicated feet but broad-spectrum teams would be better suited to a modular foot. Nevertheless, in the right situations these suction cup feet are excellent providing the best traction you will get on a a shiny surface. They are basically glass cups using a vacuum lever to suck the cup onto the surface. The *Mittelmann's Octopus* above also has scaffolding style tubes around the frame which we suppose you could jerry-rig to any round-tube frame but these are bespoke sizing and powder-coating. They provide securing for leg restraint (above the metal surface of the tank), extra handholds for entry/egress extra and can also assist in wedging the frame against other surfaces/ walls adjacent the entry point. Mittelmann also sell some 'right angles' that secure on the inside of tripod legs (with the base of the angle flush to the ground) to give hole-entrants something to hold onto as they go in or exit.

Protekt and *Ferno* have steps attached to the leg to aid in rigging or tending the head once erected and similarly *Ferno* also offer a universal hardware attachment plate for connecting pretty much anything you can think of from hybrid descenders to clipping your bag of sandwiches clear of the ground.



WINCHES

Winches are an option on virtually all of these AHDs, either as a bespoke item where the manufacturer can supply a specific attachment to fit the type of tube or as an off-the shelf universal fitting. This can then have a hand winch attached to a leg to provide a smoother, mechanically advantaged option for hauling and lowering. Costs increase considerably for any of these add-ons, the Harken hand winch on this *TerrAdaptor* for instance will set you back about $_____ as a modular option. *Kong* are about the only one we've included as a variant to the basic *Cevedale* tripod because their *Rescue 1* and *Rescue 2* models have 1 and 2 winches respectively integrated into the leg. The basic tripod is $2290 compared to $9000 when a pair of *Ortles* Hand winches are included.

IN THE FOLLOWING TABLES:.....

ORIGIN: Is the parent company - an inset flat may indicate the manufacturer's country if different but we don't always know.

COST: Is for the most basic tripod configuration (not a monopod/bipod option). Some also have a price listed for a variant or the most expensive version or, in the case of Aracnipod TEMS, the best selling (3m) of their 3 most expensive versions**.** Prices are **a**pproximate, include VAT@20% &/or US State Sales Tax. We generally round up the cost. **£$€ in orange is a currency conversion only.**

MATERIALS- HEAD LEGS: The head is the section that ties the legs together and provides the main attachment points. The true Tetrahedral frames typically don't have a 'head' instead just having load bearing eyes in the corners. Legs are all aluminium alloy but some of the 'alu' heads are cast rather than machined.

TUBE PROFILE TELE-SECTIONS: The cross section of material which will be either round tube, square or rectangular and the number of telescoping sections in each leg, usually 2 but some are 3 or even 1 which will not reduce further for transport.

MARKED INCREMENTS: The total number of length adjustments available on any given leg. Usually this will be some kind of independent pin that needs to be secured to the frame to prevent loss but some (like the heavy duty shoring struts) have an integrated sprung plunger or similar locking mechanism built into the leg. MARKED= ■=the holes are numbered/ lettered-much better for coordinating construction.

LAZY-LEG WINCH ADAPTER: Whether the system includes a Lazy-Leg (usually longer) and/or an adapter to the head that accepts a Lazy-Leg because it needs to be able to rotate up and down to a shallower angle than the side legs. WINCH ADAPTER allows a winch to be connected to a leg.

WEIGHT: for the basic tripod/quadpod unless sold as a complete kit. Excludes additional accessories: leg restraints and pulleys etc, unless integrated into the structure of the tripod.

PACK(S) DIMENSIONS: The number of carry bags/packs required to transport the AHD and the dimensions of the largest pack. □= bespoke bag(s) is an option not included in kit price.

MIN / MAX WORKING HEIGHT: The working height is the maximum clearance that you can expect beneath the main load connection point IT IS NOT the overall height of the AHD though there will no doubt be some in here that have supplied that info instead! The Minimum heigh is achieved by compressing the leg to it's minimum setting but will always be dictated by the length of the longest leg section.

MAX FOOTPRINT: The largest circular hole that the **tripod** or **quadpod** can span and remain functional. This can simply refer to the standard to which it adheres - NFPA= 70"/178cm & CE 78"/203cm - a lazy leg can increase the span width much more.

TYPE of DEVICE:

- ■ **MONOPOD:** Single leg with load bearing head
- ■ **BI-POD** Two-legged A-frame with load bearing head
- ■ **TRIPOD:** Three legged frame with load bearing head
- ■ **QUADPOD:** Four legged frame with load bearing head
- ■ **BEAM:** Load-bearing gantry between two sets of legs.
- ■ **TETRAPOD Single or Double Tetrahedral frame**
- ■ **INDEPENDANT STRUTS: Each leg=load-bearing/shoring strut**

MAXIMUM DEVICE LOAD: As with the footprint, this figure can simply be the minimum required to meet a standard like 600lb in the US - they frequently hold much greater loads or quote a higher load for non-human weight. This max weight should be applied to the frame **only via the main load attachment point(s).** This is akin to the Working Load Limit (NOT to the MBL/MBS) and will increase as heigh of AHD is decreased. NOT

HEAVY DUTY LIFTING FRAMES

the max load that can be applied to the lateral (guy) eyes.
TYPE OF HEAD MONO BIPOD: Whether the head is readily detachable or fixed/bolted or is a beam. BEAM or gantry is an alternative form of head. It is a beam that spans between two pairs of legs and enables a wider work width and/or the main hard point to be moved. They allow a moving but lockable 'trolley' to be used as the load's attachment point. **MONOPOD** or GIN head mounts to a single pole. Many in this list are already capable of operating as a **BIPOD** head.
CONNECTION: is the type of load-bearing main attachment points at the head - for most this is a swivelling ring bolt to help negate unnecessary torque loads on your carabiner/ connector but some have a fixed ring bolt, a shackle or in the case of the AZV a machined eye. The other commonest option is a drilled eye in a plate or multiple eyes in a rigging plate. The *TerrAdaptor* and *AZV,* have machined eye s with pins for connecting any type of hardware, usually a pulley or a lowering device(see ad-right).
INTEGRATED PULLEYS: pulley sheaves built into the structure of the AHD. Can also act as the main connection point carrying the load bearing rope(s) back to a separate anchor.
LATERAL/REAR (GUY) EYES: On or near the head. Some are fully load bearing but their orientation or position restricts use to anchor/stay attachment to keep the AHD stable and resist the direction of load. If none are shown, use main eye(s).
FOOT HINGES BALL-JOINT DETACHES: The foot can swivel upwards for storage or to change from flat to spike etc. like this *Obelisk* foot. BALL JOINT enables 360° rotation and lateral movement of the leg. DETACHES means it can be easily removed for change of foot type and/or storage

ANCHOR EYES SPIKE GRIP: holes that allow spikes or ground stakes to be driven through. SPIKE:the foot is, or incorporates, a spike to dig into ground for a solid purchase (like this *Obelisk*).
GRIP for hard surfaces: May be a tactile/grippy surface like rubber or studs (like this *Obelisk*) or plastic/metal ribbing for purchase on hard surfaces. At least one model has suction cups
SIDE RESTRAINT ANCHOR EYES: These are eyes or eye bolts to, or through which you connect the leg restraints. ANCHOR = rated for load-bearing deviation pulleys or hardware
LEG RESTRAINTS LEGS LOCK: Rope, webbing or chains used to stop legs from spreading. ■=Legs are/can be locked in place.
VERTICAL EDGE: Can operate at, up to or slightly over a cliff or building edge. Properly guyed quadpods offer more stable option than a tripod unless it has a lazy leg.
LUFFING: The frame head can be manoeuvred over and beyond the edge (not just by guying)
HOLE/CON-SPACE:Can be positioned over a hole/well/entry for confined space entry/ vertical entry/rescue.
CONFINE: NOT to be CONFUSED with HOLE/CON-SPACE above where the entry is *into* a confined space but the AHD could be the size of a double decker bus! Here we mean that the device can be taken into, and operated within, a confined space - usually only devices with legs that can retract to allow a frame of less than 4ft in height.
SHORING: Tripods etc. constructed from fully-load bearing shoring struts that could, individually, hold up a house.
STANDARDS: EN365=PPE against falls from height
EN1495=Mast climbing platforms
PD CEN/TS 16415= Personal Fall protection for max 2 persons.
EN795= PPE Anchor devices B= mobile, relates to all AHDs
EN1808 =Suspended access equipment

NOTES: Images NOT to Scale
Accessories shown may be an optional extra.
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■ TETRAPOD
■ INDEPENDANT STRUTS

USES: ●●●●= OK BUT NOT IDEAL
□□□□ =Available as an Option

	MANUFACTURER	EYOLF	FERNO	FERNO
	MODEL VARIANT	Pythagoras -	Arachnipod Std Advantage APOD-STD APOD-ADV	Arachnipod TEMS 2m 3/4m APOD-TEMS APOD-TEMS3/APOD-TEMS4
	ORIGIN			
	COST Base model inc Tax/VAT Variant or Top model	£2350 $2990 €2750 £2800 $3570 €3290	£3290 $3600 €3830 £3350 $3700 €3900	£10055 $12800 €11705* £11000 $13800 €12600
STRUCTURE	TYPE of DEVICE	■ ■ ■ ■	■ ■ ■	■ ■ ■ ■ ■
STRUCTURE	MATERIALS HEAD LEGS	Alu Alu	Alu Alu	Alu Alu
STRUCTURE	TUBE PROFILE TELE-SECTIONS	Round 2	Rectangular 3	Rectangular 3
STRUCTURE	MARKED INCREMENTS	■ 10x 11cm/4.3"	■ 20x 10cm/4"	■ 20x 10cm/4"
STRUCTURE	LAZY LEG WINCH ADAPTER	■ -	■ □	■ □
SPECIFICATIONS	WEIGHT (BASIC TRIPOD)	22.2kg 49lb	27 26kg 70 72.2lb	>32kg >70lb
SPECIFICATIONS	PACK(S) DIMENSIONS	□ 1 122 x 15 x 15cm 48 x 5.9 x 5.9"	■ 1 210cm 82.7"	■ 3 210-400cm 82.7- x 157.5"
SPECIFICATIONS	MIN WORKING HEIGHT	110cm / 3ft 7"	170cm / 5ft 5"	170cm / 5ft 5"
SPECIFICATIONS	MAX WORKING HEIGHT	190cm / 6ft 3"	267cm / 8ft 9"	269cm / 8ft 10"
SPECIFICATIONS	MAX FOOTPRINT	220-330cm / 7ft 3"-10ft 10"	250cm / 8ft 3"	253-534*cm/ 11-17ft-5"
HEAD	MAXIMUM DEVICE LOAD	272kg 600lb	220-400kg 484-880lb	175-400kg 385-880lb
HEAD	TYPE OF HEAD MONO BIPOD	Detachable □■ + bolted	Detachable □ ■	2x Detachable □ ■ + Beam*
HEAD	MAIN LOAD EYES	12 Rig Plate Eyes	2 Ring Bolts	4 Ring Bolts + Sliding/locking Eye
HEAD	INTEGRATED PULLEY(S)	option - 4 pinned sngl or dble sheaves	1 (Dbl sheave- 1 wire, 1 rope)	2 (each=Dbl sheave- 1 wire, 1 rope)
HEAD	LATERAL (GUY) EYES	18 (on head)	3 (on top of each leg)	3 or 4 (top of each leg)
HEAD	LEG STEP LEG EYE	- □	□ □	□ □
FEET	HINGED BALL-JOINT DETACH	■ - ■	■ - ■	■ - ■
FEET	ANCHOR HOLES SPIKE GRIP	■ ■ -	■ ■ ■	■ ■ ■
FEET	SIDE RESTRAINT ANCHOR EYES	- -	■ -	■ -
FEET	LEG RESTRAINTS LEGS LOCK	Webbing with cams	Rope	Rope
USES	VERTICAL EDGE LUFFING	■ ●	■ ●	■ ●
USES	HOLE CONFINE SHORING	■ ■	■ ■	■ ■
	STANDARDS	CE pending	EN795B, CEN/TS 16415/B	EN795B, CEN/TS 16415/A
	NOTES	Pulley sheaves can be pinned into the head on both sides. A tripod version can have a cheaper bolted head with single eye	Tripod can UPGRADE TO TEMS. Alpha-numeric increment labels. Option-Foot steps & anchor points for legs.	**2,3 or 4m Bridge options create the wider footprint. Option-Foot steps & anchor points for legs.
	WEBSITE	eyolf.ca	ferno.com.au	ferno.com.au

Obelisk

for Technical Rescue teams

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

LYON®
WORK & RESCUE

Lyon Equipment Limited Tel: **+44 (0) 15396 24040** Email: **info@lyon.co.uk** Web: **www.lyon.co.uk**

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□□□□ =Available as an Option

		HEIGHTEC	HOLMATRO	IRUDEK
	MANUFACTURER	HEIGHTEC	HOLMATRO	IRUDEK
	MODEL VARIANT	Quadpod ATR4	Omnishore 1x M10 1xP60 2xP60	Trip4 10020960000.8
	ORIGIN			
	COST Base model inc Tax/VAT Variant or Top model	£1666 $2115 €1950 - - -	n/a	£860 $1085 €1003 - - -
STRUCTURE	TYPE of DEVICE	■	■ ■ ■ ■	■
STRUCTURE	MATERIALS HEAD LEGS	Steel Alu	Alu Alu	Cast Alu Alu
STRUCTURE	TUBE PROFILE TELE-SECTIONS	Rectangular 2	Round 2*	Square 2
STRUCTURE	MARKED INCREMENTS	■ 8x 10cm/4"	- *finite over 2.4m	- 8/9 x 12/10cm/5/4"
STRUCTURE	LAZY LEG WINCH ADAPTER	- -	■ -	-□/■
SPECIFICATIONS	WEIGHT (BASIC TRIPOD)	26kg 58lb	36.3-79.5 133.5 kg 80-175lb 293lb 11oz	12.1 23.6kg 26.6 52lb
SPECIFICATIONS	PACK(S) DIMENSIONS	□ 1 175 x 70cm 69 x 27.6"	□ 1-3	■ 1
SPECIFICATIONS	MIN WORKING HEIGHT	160cm / 5ft 3"	*38-164-326cm / 1- 5-10ft 3-4-8"	115 222cm / 3 7ft 9 3"
SPECIFICATIONS	MAX WORKING HEIGHT	231cm / 7ft 6"	*56-267-523cm / 1-8-17ft 10-9-2"	215 314cm / 7 10ft 0 3"
SPECIFICATIONS	MAX FOOTPRINT	206cm / 6ft 9"	530cm / 17ft 0" (@60°)	150 245cm / 4 8ft 11 0"
HEAD	MAXIMUM DEVICE LOAD	300kg 660lb	2400kg 5291lb	200/500kg 440lb
HEAD	TYPE OF HEAD MONO BIPOD	Fixed - -	Detachable ■ ■	Fixed - -
HEAD	MAIN LOAD EYES	2 Ring Bolts + 2 Plate Eyes	7 Rig Plate Eyes	2 Ring Bolts
HEAD	INTEGRATED PULLEY(S)	-	1	1 2
HEAD	LATERAL (GUY) EYES	4 (on tripod head)	8 (on tripod head)	0
HEAD	LEG STEP LEG EYE	- -	- -	- -
FEET	HINGED BALL-JOINT DETACH	■ - -	■ ■ ■	■ - -
FEET	ANCHOR HOLES SPIKE GRIP	- ■ ■	■ - ■	■ - ■
FEET	SIDE RESTRAINT ANCHOR EYES	■ ■	■ ■	■ -
FEET	LEG RESTRAINTS LEGS LOCK	■	Webbing with Ratchets	Webbing ■
USES	VERTICAL EDGE LUFFING	■ -	■ ●	● -
USES	HOLE CONFINE SHORING	■ ●	■ ■ ■	■ ● -
	STANDARDS	EN795B, CEN/TS 16415/A	Machinery Directive	EN795B ATEX II 2G Ex h II c T6
	NOTES		* theoretical min height with smallest adj strut M10- *Max height using 2xP60 struts (1sstrut shown) *Thread enables finite adjustment.	Trip4 has two winch mounts on legs may also be intermediate sizes ***Trip 2 & 3***
	WEBSITE	heightec.com	holmatro.com	irudek.com

HEAVY DUTY LIFTING FRAMES

ISC WALES	JSP	KONG	KONG
Std Tripod TP143B	**Confined Space Rescue Tripod** FAR1003	**Grizzly** 817.400	**Cevedale Rescue1 Rescue2** 842020000KK 842010000KK 842000000KK
£1050 $1345 €1260 - - -	£990 $1400 €1300 - - -	£2700 $2550 €2350 £2715 $3470 €3190	£1730 $2290 €1710 £8670 $9000 €7160
Cast Alu Alu	Cast Alu Alu	- Alu	- Alu
Rectangular 2	Rectangular 2	Round 1	Round 2
- 8x 10cm/4"	- 2x 50cm/20"	Not applicable	- 3 6
- -	- ☐	- -	- ☐ ■
22kg 49lb 0oz	13kg 28lb 10oz	15-22kg 33-48lb	14 20-25kg 30 44-55lb 13oz
☐ 1 190cm 75"	☐ 1	■ 1 200 x 30 x 15cm 79 x 11.8 x 6"	■ 1 130 x 45 x 30cm 51.2 x 17.7 x 11.8"
190cm / 6ft 3"	115cm / 3ft 9"	150cm / 4ft 11"	160165cm / 5ft 3 5"
225cm / 7ft 5"	215cm / 7ft 0"	160cm / 5ft 3"	254cm / 8ft 3"
180cm / 5ft 10"	150cm / 4ft 11"	190cm / 6ft 2"	180cm / 0ft 0"
360kg 771lb	500kg 1100lb	300kg 660lb	1223kg 2697lb
Fixed - -	Fixed - -	None - Tube unions - ■	Fixed - -
2 Ring Bolts	2 Ring Bolts	2 Shackles (in separate 'corners')	3 Ring Bolts
2	1	0 (2 detachable supplied)	0 (2 detachable supplied)
0	0	1	3 (on tripod head)
- -	- -	- -	- -
■ - -	■ - -	■ - ■	☐ - ☐
■ - ■	- - -	■ ■ ■	☐ - ☐
- ☐	■ -	■ -	■ ☐
■	Webbing with cams	Wire cable	Wire cable or Rope
● -	● -	■ ■	● -
■ ● -	■ - -	■ - -	■ ● -
EN795B, NFPA	EN795B,	EN 795/B EN 1496/B CEN/TS 16415/A	EN 795/B EN 1496/B CEN/TS 16415/A
			*Rescue versions Include 1 and/or 2 integrated rope winches. Kong also has a stand-alone monopods - *STELVIO and 4D.*
iscwales.com	jspsafety.com	kong.it	kong.it

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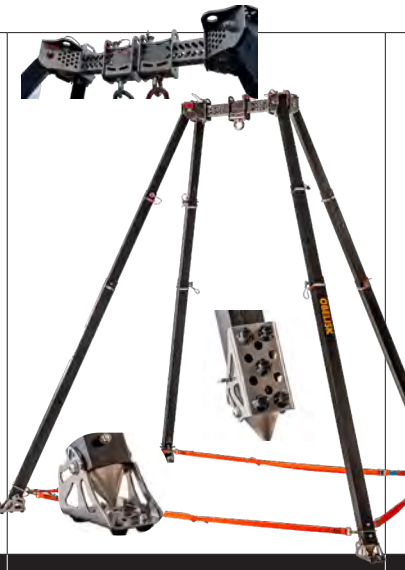

		KRATOS	KRATOS	LYON
	MANUFACTURER			
	MODEL VARIANT	Tripod FA6000100 FA6000200	Quadpod FA6010400	Obelisk LPP0003
	ORIGIN	■ ■	■ ■	■
	COST Base model inc Tax/VAT Variant or Top model	£550 $750 €650 £650 $900 €750	£900 $1065 €985 - - -	£2544 $3240 €3000 - - -
STRUCTURE	TYPE of DEVICE	■ ■	■ ■	■ ■
STRUCTURE	MATERIALS HEAD LEGS	Alu Alu	Alu Alu	Stainless Steel Alu
STRUCTURE	TUBE PROFILE TELE-SECTIONS	Square 2	Square 2	Square 3
STRUCTURE	MARKED INCREMENTS	- 6	- 6	□ 23x 7.5cm/3"
SPECIFICATIONS	LAZY LEG WINCH ADAPTER	- □	- □	- -
SPECIFICATIONS	WEIGHT (BASIC TRIPOD)	14.3 22.35kg 31lb 8oz	15.6kg 34lb 6oz	22kg 48lb 6oz
SPECIFICATIONS	PACK(S) DIMENSIONS	■	■	□ 1@ 100 x 25cm 39.4 x 9.8" or □2
SPECIFICATIONS	MIN WORKING HEIGHT	115 190cm / 3 6ft 9 2"	121cm / 4ft	100cm / 3ft 3"
SPECIFICATIONS	MAX WORKING HEIGHT	215 290cm / 7 10ft	320cm / 10ft 6"	220cm / 8ft 8"
SPECIFICATIONS	MAX FOOTPRINT	162 205cm / 5 6ft 3 8"	175cm / 5ft 9"	230cm / 7ft 6"
HEAD	MAXIMUM DEVICE LOAD	500kg 1100lb	500kg 1100lb	272kg 600lb
HEAD	TYPE OF HEAD MONO BIPOD	Fixed - -	Fixed - -	Detachable Beam - -
HEAD	MAIN LOAD EYES	2 Ring Bolts	1 Ring Bolt	1 or option 2 Moveable Ring Bolts
HEAD	INTEGRATED PULLEY(S)	2	2	0
HEAD	LATERAL/REAR (GUY) EYES	6 or 8 (2 on each mid-leg & head)	6 or 8 (2 on each mid-leg & head)	10* (on tripod head)
HEAD	LEG STEP LEG EYE	□ ■	□ ■	- -
FEET	HINGED BALL-JOINT DETACH	■ - -	■ - -	■ - ■
FEET	ANCHOR HOLES SPIKE GRIP	- - ■	- - ■	■ - ■
FEET	SIDE RESTRAINT ANCHOR EYES	■ -	■ -	■ -
FEET	LEG RESTRAINTS LEGS LOCK	Webbing	Webbing	Webbing with cams -
USES	VERTICAL EDGE LUFFING	■ -	■ -	■ -
USES	HOLE CONFINE SHORING	■ ● -	■ ● -	■ ■ -
	STANDARDS	EN795:2012 B, ATEX 2014/34/UE, Machinery Directive, EN 1808	EN795:2012 B, ATEX 2014/34/UE, Machinery Directive, EN 1808	EN795:2012, CEN/TS 16415:2013
	NOTES			Sliding eye(s) can be set anywhere along a 40cm/16" beam. *10 is really 6 because 2 eyes on the ends are divided into four by the beam
	WEBSITE	kratossafety.com	kratossafety.com	lyonequipment.com

HEAVY DUTY LIFTING FRAMES

LYON	LYON/SPELEAN	PARATECH	PROTEKT
Tribus LPP0041	Larkin Frame -		TM15 TM15-G AT017 AT017G
£1550 $1970 €1850 - - -	£5820 $7300 €6790 - - -	*head-kit:£3400 $4300 €4100 *1x 55"strut £1334 $1700 €1600	n/a £645 $820 €754
■	■ ■	■ ■ ■ ■	■
Stainless Steel Alu	Cast Alu Alu	Cast Alu Alu	Alu Alu
Square 3	Round 1	Round 1,2 or 3	Round 2
□ 23x 7.5cm/3"	Not applicable	-	- 6x
- -	- -	□ -	- □
14kg 30lb 13oz	40kg 88lb 3oz	28.6* + 5.8-16.2kg (for 19-55"strut) 63* + 12.7-35.7lb (for 19-55"strut)	28.7kg 63lb
□ 1 100 x 25cm 39.4 x 9.8"	■ 1 202 x 24 x 30cm 80 x 9.5 x 11.8"	■ 1-3	□ 1 226 x 33 x 29cm 89 x 13x 11.4"
100cm / 3ft 3"	120cm /4ft	*94cm / 3ft 1"	197cm / 6ft 5"
220cm / 8ft 8"	250cm / 8ft 2"	330cm / 11ft	313cm / 10ft 3"
200cm / 6ft 7"	120cm /4ft	2.7m / 9ft	174cm / 50ft 8"
272kg 600lb	400kg 880lb	2358.7kg 5200lb	1000kg 2200lb
Fixed - -	Detachable - ■	Detachable ■ -	Fixed - -
1 Ring Bolt	2 Machined Eyes	1 Ring Bolt	3
0	0	0	3
6 (on tripod head)	0	3	3*
- -	- -	- -	□ □
■ - ■	■ - ■	- ■ ■	■ - -
■ - ■	■ ■ ●	■ - ■	- ■ ■
■ -	■ ■	■ ■	■ -
Webbing with cams -	■	Chain -	Chain -
● -	■ ■	■ *	● -
■ ■ -	■ ■*-	■ ■ ■	■ - -
EN795B, CEN/TS 16415/A	EN795B, CEN/TS 16415/A		EN795B, CEN/TS 16415/A
	Can be used as full or half sized. *because it can be used as a half sized frame	*minimum practical height but could use a 6" strut and be a foot high! *Not designed to be used off-centre. *Kit contains head, 3xbases,chain & case	Comes with detachable footholds on legs. G=most basic version, no anodizing or foot-step plates etc.
lyonequipment.com	lyonequipment.com	paratech.com	protekt.pl

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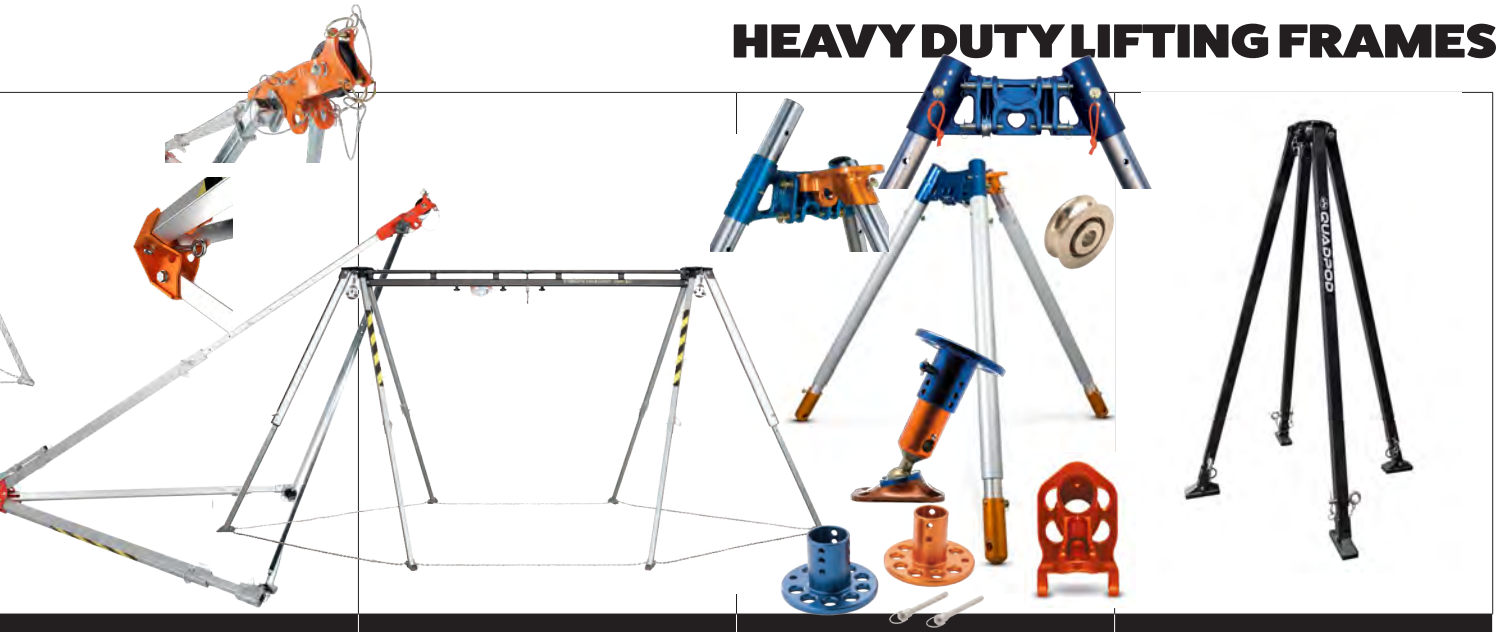
	MANUFACTURER	PROTEKT	PROTEKT	PROTEKT
	MODEL VARIANT	TM15 Mini AT017 MINI	TM16 Compact TM16000	TM9-N TM9-N
	ORIGIN	■	■	■
	COST Base model inc Tax/VAT Variant or Top model	£700 $865 €792 - - -	£1545 $1960 €1805 - - -	£455 $575 €528 - - -
STRUCTURE	TYPE of DEVICE	■	■	■
STRUCTURE	MATERIALS HEAD LEGS	Alu Alu	Alu Alu	Steel Alu
STRUCTURE	TUBE PROFILE TELE-SECTIONS	Round 3	Round 2	Rectangular 2
STRUCTURE	MARKED INCREMENTS	- 10x	- 10x & 14x	- 5x
SPECIFICATIONS	LAZY LEG WINCH ADAPTER	- □	■ □	- □
SPECIFICATIONS	WEIGHT (BASIC TRIPOD)	19kg 41lb 13oz	16.5kg 36.4lb	15.45kg 52.3lb
SPECIFICATIONS	PACK(S) DIMENSIONS	□ 1 133 x 33 x 29cm 52.4 x 13 x 11.4"	□ 1 117 x 33 x 29cm	□ 1 176 x 26 x 23cm
SPECIFICATIONS	MIN WORKING HEIGHT	111cm / 0ft 0"	106cm / 0ft 0"	180cm / 5ft 10"
SPECIFICATIONS	MAX WORKING HEIGHT	227cm / 0ft 0"	166cm / 0ft 0"	209cm / 6ft 10"
SPECIFICATIONS	MAX FOOTPRINT	109cm / 0ft 0""	284cm / 0ft 0"	149cm / 4ft 10"
HEAD	MAXIMUM DEVICE LOAD	1000kg 2200lb	500kg 1100lb	500kg 1100lb
HEAD	TYPE OF HEAD MONO BIPOD	Fixed - -	Fixed - -	Fixed - -
HEAD	MAIN LOAD EYES	3 Plate Eyes	3 Plate Eyes	3 Plate Eyes
HEAD	INTEGRATED PULLEY(S)	3	3	3
HEAD	LATERAL (GUY) EYES	3*	3*	3*
HEAD	LEG STEP LEG EYE	□ □	□ □	- -
FEET	HINGED BALL-JOINT DETACH	■ - -	■ - ■	■ - -
FEET	ANCHOR HOLES SPIKE GRIP	- ■ ■	- - ■(suction cups)	■ - ■
FEET	SIDE RESTRAINT ANCHOR EYES	■	■	■
FEET	LEG RESTRAINTS LEGS LOCK	- ■	Chain -	Chain -
USES	VERTICAL EDGE LUFFING	● -	■ -	● -
USES	HOLE CONFINE SHORING	■ ■ -	■ ■ -	■ - -
	STANDARDS	EN795B, CEN/TS 16415/A	EN795B, CEN/TS 16415/B	CEN/TS 16415/B
	NOTES	*+3 Pulley Roller Guides that can also function as stay eyes.	Intended for tank work/rescue - suction cup feet can be replaced with conventional foot	
	WEBSITE	protekt.pl	protekt.pl	protekt.pl

HEAVY DUTY LIFTING FRAMES



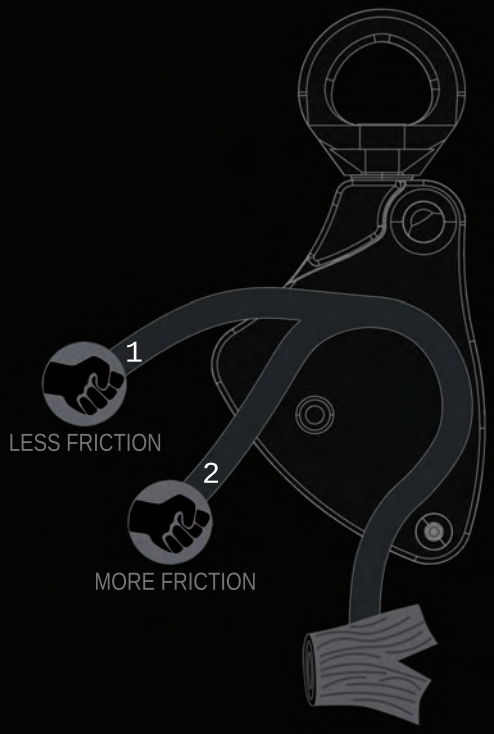
PROTEKT	PROTEKT	ROCK EXOTICA	SAR PRODUCTS
TM14ZSE TM14/TM7 AT016	**TM12- Hexapod** TM12	**Arizona Vortex** -	**Quadpod** QU001
£675/385 $860/490 €790/450 £1310 $1665 €1530	£820 $1040 €955 - - -	£6300 $5279 €7558 - - -*	£1730 $2165 €2023 - - -
■ ■	■ ■	■ ■ ■ ■	■
Steel Alu	Steel heads/Alu beam Alu	Alu Alu	Stainless Steel Alu
Rectangular 2	Rectangular 2	Round 2	Square 2
- 7x	- 5x	- 6x 14cm/5.5"	- 10x 10cm/4"
- □	- □	■ -	- □
65kg 143lb	86kg 190lb	33kg 72lb	13.2kg 29lb
□ 1 228 x 32 x 30cm	□ 3 251-280 x 36 x 31cm	□ 4-6	□ 1
179cm / 5ft 11"	139cm / 0ft 0"	270cm / 9ft	150cm /5ft
289cm / 9ft 5"	221cm / 0ft 0"	370cm / 12ft	200cm / 6ft 7"
271cm / 8ft 10"	223 x 983cm / 0ft 0"	1.4-2.25m / 4ft 7"- 7ft 5"	125cm / 4ft 1"
500kg 1100lb	1000kg 2200lb	272kg 600lb	300kg 660lb
Detachable - ■	2xFixed + Beam - -	Detachable □ ■	Fixed - -
2 Plate Eyes	2 Ring Bolts + 1 Moveable Eye	1 machined eye + 3 hardware pins	1 Ring Bolt
1	0	Option for 4 pinned sheaves	0
Vehicle anchor Plate	3*	6 (+optional lash-points)	-
- -	- -	- □	- -
■ - -	■ - -	■ - ■	■ - -
■ - -	■ - ■	■ ■ ■	■ -
-	■	■ ■	■ ■
- ■	Chain -	Webbing& Rope -	Webbing with cam -
■ ■	● -	■ ●	■ -
■ - -	■ - -	■ ■*	■ ■
EN795B&E, CEN/TS 16415/B&E, EN 1496B	CEN/TS 16415/B	NFPA, EN795B, CEN/TS 16415/B	EN795B, CEN/TS 16415/B
ZSE is a modification of basic TM14 tripod. TM7 is the same but cannot be ZSE configured	Central beam=2.8m wide	*All components can be purchased separately inc. AZORP rig-head shown (blue) -not in kit. *slight increase in some later models	
protekt.pl	protekt.pl	rockexotica.com cmcpro.com	sar-products.com

	Images NOT to Scale Accessories shown may be an optional extra			
	MANUFACTURER	SAR PRODUCTS	SKYLOTEC	SMC
	MODEL VARIANT	Multipod QU005	Jackpod Tri I II JP-011-1 JP-011-2	TerrAdaptor -
	ORIGIN			
	COST Base model inc Tax/VAT Variant or Top model	n/a* - - -	£2003 $2545 €2336 £4525 $5745 €5274	*£5800 $5350 €6800 £7560 $6920 €8740
STRUCTURE	TYPE of DEVICE	■ ■ ■	■	■ ■ ■ ■ ■
STRUCTURE	MATERIALS HEAD LEGS	Stainless Steel Alu	Alu Alu	Alu Alu
STRUCTURE	TUBE PROFILE TELE-SECTIONS	Square 2	Rectangular 3	Round 3
STRUCTURE	MARKED INCREMENTS	- 10x 10cm/4"	- 4	■ 9x 12.7cm/5"
SPECIFICATIONS	LAZY LEG WINCH ADAPTER	- □	- □	■ □
SPECIFICATIONS	WEIGHT (BASIC TRIPOD)	17.5kg 38lb 8oz	16.6623.77kg 36.652.3lb	23.8-38kg 52.3-83lb 4oz
SPECIFICATIONS	PACK(S) DIMENSIONS	■ 1 120 x 17cm 47 x 7" or □ 2 bags	■ 1 00x00x00cm	□ 3 132 x 26 x 9cm 52 x 10 x 3.5"
SPECIFICATIONS	MIN WORKING HEIGHT	150cm /5ft	120cm / 4ft	122cm / 4ft
SPECIFICATIONS	MAX WORKING HEIGHT	200cm / 6ft 7"	310cm / 10ft 2"	396cm / 13ft
SPECIFICATIONS	MAX FOOTPRINT	125 x 175cm / 4ft-5ft 9"	0m / 0ft 0"	*178cm / 6ft 6"
HEAD	MAXIMUM DEVICE LOAD	300kg 660lb		272kg 600lb
HEAD	TYPE OF HEAD MONO BIPOD	Removable Beam - -	Fixed - -	Detachable □ ■
HEAD	MAIN LOAD EYES	2 Shackles + 2 moveable Ring Bolts	1 Plate Eye	3 Rig Plate Eyes + 2 Hardware Pins
HEAD	INTEGRATED PULLEY(S)	0	1 3	Option for 2 pinned sheaves
HEAD	LATERAL (GUY) EYES	4	3	16 (inc 2x lash rings)
HEAD	LEG STEP LEG EYE	- -	- -	- □
FEET	HINGED BALL-JOINT DETACH	■ - -	■ - -	■ - ■
FEET	ANCHOR HOLES SPIKE GRIP	■ -	■ -	■ ■ ■
FEET	SIDE RESTRAINT ANCHOR EYES	■ ■	■ -	■ ■
FEET	LEG RESTRAINTS LEGS LOCK	Webbing with cam -	Chain -	Webbing& Rope -
USES	VERTICAL EDGE LUFFING	■ -	● -	■ ●
USES	HOLE CONFINE SHORING	■ ■	■ ●	■ ●*
	STANDARDS	EN795B, CEN/TS 16415/B	EN795B, CEN/TS 16415/B	NFPA, EN795B, CEN/TS 16415/B
	NOTES	55cm beam * but check out the fixed head Quadprod price as a guide.		Now in Black. Extra height = optional extensions. *All components can be purchased separately. *4-8' Beam =max load of 3500-8500lbf depending on length and whether 1 or double tube.
	WEBSITE	sar-products.com	skylotec.com	smcgear.com

rock exotica

Cut it & Run it

The **DownRigger** is an aerial friction device used for lowering limbs quickly and efficiently. With its light weight and compact size, it can be connected and operated overhead, or at the base of the rigging system. Features two rope paths to adjust friction.



EQUIPMENT FOR THE WORKING PROFESSIONAL
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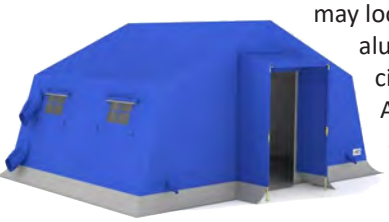
DESIGNED & MANUFACTURED

DownRigger

EMERGENCY RESCUE SHELTERS

We use the term 'Rescue' in the title to indicate RAPID DELPOYMENT and differentiate these emergency shelters from those designed for refugee or disaster-victim temporary housing. Of course, ALL of these shelters could do that job and many do, but generally speaking, shelters intended for use by rescuers are erected within minutes and have different requirements and construction standards (and fitments) than mid-to long term occupancy shelters. Primary amongst them is the need to be able to transport easily and erect within minutes. There are many mid to long term shelters that may look identical but have substantial aluminium or steel frames like this civil protection model from *Lanco.*



Aluminium frame tents however, are a plausible option and we may well add them in at a later date. If you look at ROFI's inflatable versus alu-frame model the 606, there is only 43kg difference for a 6m half dome shelter. Time to deploy though is vastly different- even the largest inflatables go up in minutes while a frame tent can take hours. We have NOT included Manually erected metal frame shelters or decontamination/ shower shelters though some of those we have included can be adapted for such use.

There are three distinct constructions for rescuers' shelters:
1) **HIGH PRESSURE - PNEUMATIC/PUMP- INFLATE & FORGET**
2) **LOW PRESSURE - POWERED -CONTINUAL/REGULAR INFLATION**
3) **MANUAL - POP-UP FRAME**- a rigid frame that concertina's up and locks into position - think garden gazebo or covered market stall.

a fourth category that we have not included in this guide but may be added later is
4) **MANUAL** - SOLID FRAME - Aluminium or steel poles instead of an inflatable frame. Longer time to erect and heavy/ bulky but no other equipment needed to maintain them.

All four types have been in regular use for the past 40 or 50 years so they don't need much introduction but there are some subtle improvements to the more recent models that weren't present on the models we were using in the last century.

Speed of erection and ease of transport are key to shelters used by day-to-day emergency services requiring something small enough to fit on a fire or rescue truck and used for a few hours as distinct from disaster response which has a much more coordinated heavy-lift of equipment into areas where they may stay erected for many days or weeks. Putting aside the vast number of civilian or household pop-up shelters with their concertina metal frames, by far the largest category in the emergency sector are the high-pressure one-time inflatable frame shelters. These can use compressed air cylinders for rally rapid inflation and once up may only need periodic topping up to allow for temperature differentials.

The second category we have listed, the low-pressure continual inflation models suffer from having to have a powered fan running continuously - so logisitics, noise and bulk to contend with - but maintain their form (while the fans are running or with regular top-ups) and can sustain multiple punctures and still function. Pressure relief valves allow for accidental over-inflation on high-pressure models rather than rupturing the seams and for high temperature expansion but this expelled air then needs to be replaced as the temperature goes back down.

Materials

All professional shelters are waterproof when new. This can obviously change as the material gets worn - often as a result of wind continually rubbing the shell against a a metal frame which is not an issue for fully inflatable shelters. These can all be patched but inflatables will require a more substantial glue or weld. Fire resistance. There may also be external factors like fire /volcano ash or building debris actively damaging the shell which is not an issue for mountain or flood rescue but is for disaster response and fire-rescue. **DISCUSS FURTHER**

Floor area is obviously larger on the outside than it is on the inside for the pneumatic and inflating models. We have listed mostly the outside area because it is the area of land that you need to have available for the shelter but some, like the Vetter MT-series are quoting the usable or internal area. For internal space all others you should allow for a 20-40cm/8-16" reduction in length and width for pneumatic (inflate & forget) models and 50 to 100cm/20-40" for the largest fan-inflating models. For the pop-up shelters there is little to no difference in the internal versus external floor area. A key decision is whether to have a fixed 9attached) floor or a detachable or add-on floor. The former provide better weather-proofing, hygiene and speed of erection while an open base allows the shelter to be lifted and placed over an obstacle or an incident

like a vehicle.

with slack material remembering that ALL inflatable shelters will vary in rigidity depending on temperature fluctuations. 'Inflate and forget' shelters may need regular topping up assuming that they have pressure relief valves to exhaust heated air as it expands.

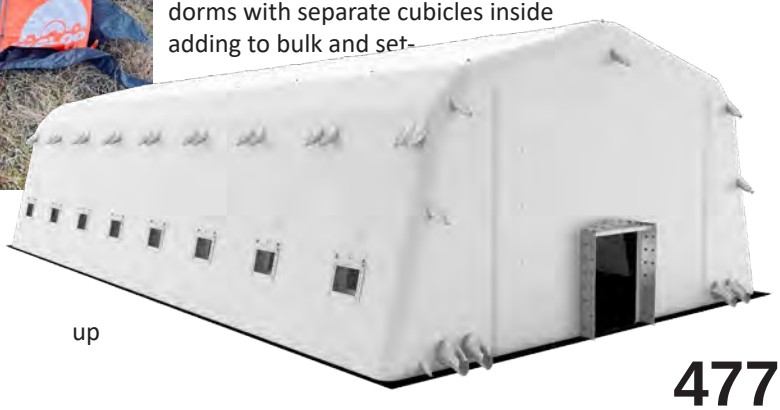
resistance & Staking is a very important consideration for temporary structures like this with big 'sail' areas that can be badly affected by gusts - and the sheer weight of the shelter is not necessarily foolproof - witness the number of very large inflatable bouncy castles that have literally taken off with people in/on them. The key companies in this sector go to great lengths to ensure their shelters can withstand at least 20-40mph - there's no accounting for the kinds of extremes we see these days. In the image above, MFC use a giant fan to test side and front-on exposure and one company, *Nixus* in Slovakia - uses a small jet aircraft to test some of theirs - that may just be one or two as a one-off test rather than their standard test method but a useful indicator nonetheless. All shelters offer ground stake anchor points either as an engineered hardpoint - generally welded - at the base like the IC Brindle title picture opposite with elasticated cord then attached or as material flaps with eyelets through which you drive a ground stake. The picture opposite also shows the most effective anchor option, a **ballast skirt** around the base. This is a tube or flap of material attached to the upper construction of the shelter either all the away around or as separate flaps as shown opposite. These can be sealed tubes that you can fill with water and/or flat and weighted with sand bags, water containers or best of all, a vehicle as long as it's not going to be driven off every 5 minutes.

Higher up around the eaves will be eyes for corded stays which are hugely important in maintaining the internal cube area during high winds. If you only staked at the ground the chances are the top half would deflect in high winds and create a rhomboid that would severely impact your inside working space. Of course, much of what you do inside can assist with stability in wind whether it be storage cases or beds pushed up against the inner wall.

Angled walls that are tight as a drum when erected like this Lanco modular shelter (three separate sections) offer a better defence against wind than an upright, square wall

Water resistance shouldn't be an issue for any of these shelters expect over time as materials wear or tears appear. The ticker, coated materials are the most resilient but also the heaviest and bulkiest so it is a decision based on the operational parameters - lighter, less resilient materials for the most temporary and remote of work locations.. The much bigger issue is to ensure that there is no pooling on the roof due to slack materials- this can be catastrophic. A decent angle and firm guys will help ensure good flow off the roof but if you get some deflation in the cooler night and the shallowest of curves appears in the roof this can be enough to pool an ever increasing expanse of water with very significant weight increases as rain continues.

Small or Large?: The smallest emergency shelters are really pop-up tents that can be the size of a person's body (bivvi) as well as the larger versions shown at the top that are equally at home as a family picnic shelter, but in inflatable terms the *Rigloo* is currently the smallest and shown left as a weather-protective casualty handling station in a mountain environment. Small shelters like this *Rescuer* and an even smaller 1.2m x 1.8m *Refuge* version can be inflated by hand/foot pump - almost prohibitively time-consuming for the larger, standard sized shelters which really do need either a compressed air cylinder for the most rapid of inflation or an electric fan/pump. At the largest end of 'emergency' shelters is this modular *Lanco* giant which comes in 3 sections allowing you to use just the front and rear joined or insert mid sections. While we haven't included the full size field hospitals that can take days to erect we have included some like this that are huge but can easily be ready to use within an hour using an experienced crew. Many of these can be modified to create treatment centres or search-team dorms with separate cubicles inside adding to bulk and set-up



time but considerably improving casualty and/or team comfort. The *MFC* model below has 3 such cubicles running down one wall with a wide access and/or storage area on the opposite wall. Just because they are large, does not mean they are entirely unwieldy, many have carry handles around the base so that even the largest *Nixus* model above can be lifted and carried by personnel to locate/relocate as required. This model has an integral floor but models without a floor can easily be lifted over obstructions or over vehicles and work areas that

may not instantly come to mind as a good idea - for instance a trench rescue which can take many hours and might end in failure if undertaken during heavy rain could be entirely covered but these larger shelters.

Joining & Hubs

Although we haven't included the very largest, framed shelters there are a good many of these fast-erecting shelters that can be con-joined to create enormous corridors

of tents. The majority offer the means to connect one model to another via their doorways so end-to-end connection is common. In some cases the manufacturer offers a central hub where a shelter or line of shelters can be connected like spokes to a central chamber like this 4-opening model from Ego which we think is now discontinued and the *Lanco* model below left.

Exo-frames:

From a strength and resistance to wind standpoint, there are a handful of inflatables that go up in minutes that can then be reinforced with an alloy (or even steel if you can cope with the weight) external frame as distinct from nay that can use one or two strengthening poles for the apex and eaves. A full exo-frame is bulky and heavy but if your work environment is going to be a constant wind challenge this could be the way to go.

LANCO is widely recognized for its industry-leading production of fully integrated deployable solutions, including soft walled shelters, generators, heaters, air filtration devices and flexible tanks, currently used by defense agencies worldwide, as well as civilian governments, international organizations / agencies, and commercial customers

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IN THE FOLLOWING TABLES.....

Any use, feature, accessory or component that is inherent in the tool is shown as a solid coloured square ■■■■■■

Optional features or accessories are shown as an outline square □□□□□□

A circle ●○ in the 'USE' columns indicates that this feature isonly partially present and/or is OK for that purpose but not ideal.

A model VARIANT is shown in cyan blue. Any features or specifications that differ from the standard are also in cyan or have a cyan outline to a black or coloured square ■■■■■■

ORIGIN: The company's home country, not necessarily the country of manufacture which is indicated by an inset flag or two equally sized flags if the tool is made in both countries.

COST: approximate because it's subject to a lot of interchangeable elements like materials, windows, ports etc but most manufacturers give a generic price per size - you just need to ensure that the price takes into account all the features you need. Includes local taxes/VAT. Prices in burnt orange £$€, are, as always, **currency conversions only** and do not include shipping, duty etc.

CONSTRUCTION: Colour coded to three types

- PNEUMATIC/PUMP- INFLATE & FORGET
- POWERED FAN -CONTINUAL INFLATION
- MANUAL - POP-UP FRAME

TIME toERECT: Depending on the type of inflatable shelter the fastest time will be with a compressed air cylinder which is usualy twice as fast as an electric fan/inflater.

WEIGHT: Shelter-Only: does not include inflation/erection tools, stakes, additional groundsheets etc.and definitely NOT capital items like fans, pumps, air cylinders and generators. Add 5 to 20kg for the transport weight with the included bits and pieces like stakes, guy and carry bag.

MATERIALS: If two fabrics are given the first will be the roof and is generally lighter than the wall-material.

- FLAME-RETARDANT
- WATERPROOF

AIR VOLUME: For inflate & Forget shelters this can be vital information to ensure you have sufficient cylinder to do the job but largely irrelevant for fan-inflation other than indicating the sheer size of shelter and therefore the time it takes to erect.

LENGTH, WIDTH, HEIGHT: DEPLOYED / PACKED The dimensions in metres/feet for the shelter when erected - HEIGHT: unless two figures are given, this will be the maximum which is to the outside apex **so the top of side-walls inside will generally be at least half a full metre metre lower for an average 4 x 3 inflate&forget shelter**. You may also need to allow a further reduction in height for the inflated beams which are 25-35cm in diameter.

PACKED means rolled and stowed ready for transport excluding any fans, cylinders power-source, lighting etc.

AREA: DETACHABLE FIXED FLOOR in Square Metres/feet and most refer to the entire footprint rather than just the internal space. **Internal areas are given in *italics*** and if there are two figures, the smaller area is internal. To convert external floor area to internal floor space in inflatable models you will need to assume around 50cm reduction in width to allow for beams, and up to 1m for continual-inflation models. These figures in green (or as an option □) indicate whether the floor is detachable so that the shelter can be lifted over and onto

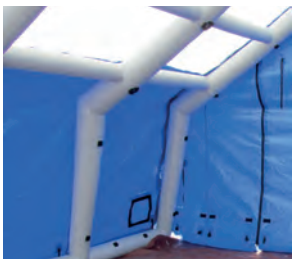
a site/vehicle/ incident.

DOORS FULL-SPAN: entrances may be a doorway with a roll-up closure or it may be a full-span opening with a roll-up or removable panel across the full width of the shelter. In some cases the full-span panel may also have a doorway in it shown as **1+** ■. These entrances are closed/ opened/secured by one or two of three options: **Zip Velcro Tie**: The 'door' can be sealed via zip or velcro/hook&loop or both and/or can be tied open

WINDOWS: Clear Mesh Opens

CONNECTABLE Stakes Guys Skirt: Whether the shelter can be connected to another door opening via zip/velcro and/or/tie. **Stakes** or pegs supplied as ground anchors. **Guys** or cords for staying the top of the shelter in high winds. '**Skirt**' refers to **Vehicle or ballast pads** which are wide flaps around the base that can be ballasted or your vehicle(s) can park on them to ensure the shelter withstands high winds.

PORTS: Some or all of the total number of ports may be differentiated into: Vent - For air entry often with a mosquito mesh Power - smaller port that can close over a narrow cable or umbilical Water: unusual, but some make have standard direct fitting for hose pipe particularly in mdical tents.
HVAC: Much larger ports to allow fans to push air into the shelter - either ambiant or heated or cooled.
Openings, often sealable, that allow utilities, comms, air and externally generated heat/cold to enter the shelter. The total number of ports or inlets is in black. Some ports are specific to a use - for instance a water inlet may involve a hose or water pipe coupling and power tends to be quite small and lower down for sockets and around the eaves for lighting.
The largest HVAC port could be used for any pipes or cabling you want to enter the shelter but is large to allow externally powered air, either as circulating ambient air, heated of cooled. Air vents are different as they are 'passive' and tend to be a meshed opening above the doors and not suitable as an inlet port which are otherwise set low to the ground and often adjacent the corners.



ROOF TRANSLUSCENT OPAQUE: Some shelters have a clear or white roof which lets plenty of light in like this Canadian Tulmar model. Others are opaque and may require more internal lighting but most offer the option of transluscent/clear or opaque.

BRANDING HEATER LIGHTING PUMP: Almost always an option rather than part of the price though some will provide a hand pump as standard and this is a last resort, slow erection method but it is at least , infallible.

OTHER COLOURS: Colours available in addition to the one shown.

RESCUER

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PRE-HOSPITAL EMS

Fast Pack Sack

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Place Over Patient
P.O.P
Technology

FAST DEPLOYING EMERGENCY SHELTER

1. CARRY
2. INFLATE
3. OPERATE

Removable floor
Place shelter *over* casualty. 3 points of access. Multi use floor.

Lone Responder deployable
Carry, inflate, operate and repack.

Structured for hands free operation
Strong and durable. Fits a stretcher. Reusable.

Protect from exposure
Privacy & dignity. Ripstop shell waterproof 8000mm HH. Operating range from -50°C to +60°C and SPF 30. Mosquito nets. Air flow controls.

Operational in ~ 1 minute
With time of the essence, medics need to quickly control the environment.

CARRY SIZE

H 60cm | 23.6"
W 30cm | 11.81"
D 20cm | 7.87"

CARRY WEIGHT

Shelter & Fast Pack Sack
7kg | 15.5lbs
Backpack & Pump
3.2kg | 7.05 lbs

OPERATING ROOM

H 1.2m | 3.93ft
W 1.6m | 5.24ft
D 2.6m | 8.53ft

DESIGNED TO TREAT

- Reusable
- Inflates in < 1 minute
- Exposure Protection
- Removable Floor

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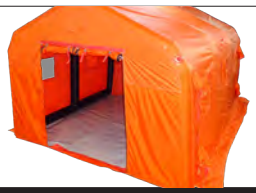
IMAGES NOT TO SCALE
Construction
PNEUMATIC/PUMP- INFLATE & FORGET
POWERED FAN -CONTINUAL INFLATION
MANUAL - POP-UP FRAME
☐☐☐☐ =Option
AREA in *ITALICS* = internal floor space




COMPANY	AIRQUEE	AIRGQUEE	AIRQUEE	AI
MODEL VARIANT	Rapid Deployment	Emergency Response	Airtight Frame 1	Airti
PRODUCT CODE	AQ6268SP1	AQ5911	AQ5109	
ORIGIN				
CONSTRUCTION TIME-to-ERECT	00mins	00mins	00mins	
COST inc tax / VAT	£3714 $00 €00	£4794 $00 €00	£3290 $00 €00	£35
WEIGHT - Shelter-Only	70kg / 00lb	140kg / 00lb	122kg / 00lb	15
MATERIALS - ROOF/ WALLS FLOOR FIRE-RESISTANT WATERPROOF	?/? ?	?/? ?	?/? ?	
AIR VOLUME	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00
LENGTH DEPLOYED / PACKED	5 0.9 m /16.4 00'	6 00m /19.7 00'	5.4 1.1 m /17.7 00'	5.4 1.1
WIDTH DEPLOYED / PACKED	3.6 0.6m /11.8 00'	5.05 00m /16.6 00'	4.75 0.9 m /15.4 00'	5.6 0.
HEIGHT DEPLOYED / PACKED	2.6 0.6m /8.5 00'	3.3 00m /10.8 00'	2.95 0.9 m /9.7 00'	2.85 0
AREA: -DETACHABLEFIXED FLOOR	00sqm / 00sqft	00sqm / 00sqft	00sqm / 00sqft	00s
DOORS FULL-SPAN Zip Velcro Tie	0	1	0	0
WINDOWS Clear Mesh Opens	0	0	0	0
CONNECTABLE Stakes Guys Skirt				
PORTS Vent Power Water HVAC	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0
TRANSLUSCENT OPAQUE ROOF PRV				
BRANDING HEATER LIGHTING PUMP				
OTHER COLOURS				
NOTES	240/110v powered blower required Inc Repair kit, delivery hose,pegs/ cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes hose,peg
WEBSITE	airquee.com	airquee.com	airquee.com	air

IMAGES NOT TO SCALE
Construction
PNEUMATIC/PUMP- INFLATE & FORGET
POWERED FAN -CONTINUAL INFLATION
MANUAL - POP-UP FRAME
☐☐☐☐ =Option
AREA in *ITALICS* = internal floor space



COMPANY	AIRSHELTA	AIRSHELTA	AIRSHELTA	AI
MODEL VARIANT	Link Hub	Aireshelta 3.6	Aireshelta 6	Pac
PRODUCT CODE	00	00	00	
ORIGIN				
CONSTRUCTION TIME-to-ERECT	<4mins	<2mins	<2mins	
COST inc tax / VAT	£00 $00 €00	£00 $00 €00	£00 $00 €00	£0
WEIGHT - Shelter-Only	00kg / 00lb	30kg / 66lb	00kg / 90lb	3
MATERIALS - ROOF/ WALLS FLOOR FIRE-RESISTANT WATERPROOF	PU-coated nylon neoprene tubes	PU-coated nylon ?	PU-coated nylon ?	PU-c neop
AIR VOLUME	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00
LENGTH DEPLOYED / PACKED	6.4 00m / 21 00'	3.2 0.8m / 10.5 2.6'	00 00m / 00 00'	3.2 0.5
WIDTH DEPLOYED / PACKED	6.4 00m / 21 00'	3.6 0.8m / 11.8 2.6'	6.7 00m / 22 00'	3.2 0.5
HEIGHT DEPLOYED / PACKED	3.33 00m / 11 00'	2.63 0.8m / 8.6 2.6'	3.35 00m / 11 00'	2.6 0
AREA: -DETACHABLEFIXED FLOOR	00sqm / 00sqft	00sqm / 00sqft	00sqm / 00sqft	10.2
DOORS FULL-SPAN Zip Velcro Tie	4x 3.6m	0	0	1+
WINDOWS Clear Mesh Opens	3 - -	0	0	1-4
CONNECT Stakes Guys Skirt				
PORTS Vent Power Water HVAC	0 0- 0 0- 0	0 0- 0 0- 0	0 0- 0 0- 0	0
TRANSLUSCENT OPAQUE ROOF PRV		-		
BRANDING HEATER LIGHTING PUMP				
OTHER COLOURS				
NOTES	Links to Airepod and Carpod	240/110v blower required Inc Repair kit, delivery hose,pegs/ cord and Valise.	240/110v blower required Inc Repair kit, delivery hose,pegs/ cord and Valise.	240/110v Inc Repair kit, Option- v
WEBSITE	aireshelta.com	aireshelta.com airesheltana.com	aireshelta.com airesheltana.com	aireshelta.co

				
RGQUEE	AIRGQUEE	AIRGQUEE	AIRGQUEE	AIRGQUEE
ght Frame 2	Airtight Frame 3	Airtight Frame 4	INFLATABLE SHELTER	INFLATABLE SHELTER
AQ7364	AQ5109	AQ6780	AQ2229	AQ2621
00mins	00mins	00mins	00mins	00mins
518 $00 €00	£5318 $00 €00	£11337 $00 €00	£3234 $00 €00	£4194 $00 €00
5kg / 00lb	190kg / 00lb	419kg / 00lb	251kg / 00lb	360kg / 00lb
?/?	?/?	?/?	?/?	?/?
L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt
. m /00 00'1.1	8 1.8 m /26.2 00'	10.07 1.6 m /35.1 00'	9 1m /29.5 00'	9.95 1.4m /32.6 00'
9 m /18.4 00'	5.6 0.9 m /18.4 00'	6.45 1.3 m /21.2 00'	6.5 1.2m /21.3 00'	8 1.2m /26.2 00'
.9 m /9.4 00'	2.9 0.9 m /9.5 00'	4.45 1.3m /14.6 00'	3.3 1m /10.8 00'	4.3 1.2m /14.1 00'
qm / 00sqft	00sqm / 00sqft	00sqm / 00sqft	00sqm / 00sqft	00sqm / 00sqft
	0	0	0	0
	0	0	0	0
0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
Repair kit, delivery s/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.
quee.com	airquee.com	airquee.com	airquee.com	airquee.com
				
RSHELTA	AIRSHELTA	AIRSHELTA	AIRSHELTA	AIRSHELTA
ddock Pod	Airepod	Carpod	Carpod Lg	Cubicle Shelter
00	00	00	00	00
<2mins	2mins	2-3mins	4-5mins	<5mins
0 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00
2kg / 82lb	37kg / 110lb	45kg / 99lb	50kg / 110lb	52kg / 200lb
oated nylon prene tubes	PU-coated nylon neoprene tubes	PU-coated nylon neoprene tubes	PU-coated nylon neoprene tubes	PU-coated nylon neoprene tubes
L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt
5m / 10.5 1.8'	5 0.6m / 16.4 2'	5 0.6m / 16.4 2'	5 0.7m / 16.4 00'	6.5 0.9m / 00 00'
5m / 10.5 1.8'	3.2 0.55m / 10.5 1.8'	4 0.6m / 13.1 2'	5 0.65m / 16.4 2.1'	4.5 0.7m / 00 00'
.5m / 8.5 1.6'	2.6 0.5m / 8.5 1.6'	2.6 0.5m / 8.5 1.6'	2.6 0.5m / 8.5 1.6'	2.8 0.5m / 00 00'
2sqm / 00sqft	16sqm / 00sqft	22sqm / 00sqft	25sqm / 00sqft	29sqm / 00sqft
	1+	1+	1+	1+
- -	1-6 - -	1-6 - -	1-6 - -	1-6 - -
0- 0 0- 0	0 0- 0 0- 0	0 0- 0 0- 0	0 0- 0 0- 0	0 0- 0 0- 0
v blower required ,pegs/cord and Valise. water-fillable skirt	240/110v blower required Inc Repair kit, ,pegs/cord and Valise. Option- water-fillable skirt	240/110v blower required Inc Repair kit, ,pegs/cord and Valise. Option- water-fillable skirt	240/110v blower required Inc Repair kit, ,pegs/cord and Valise. Option- water-fillable skirt	240/110v blower required. Inc Repair kit, pegs/cord/Valise. 3x cubicles. Option- water-fillable skirt
m airesheltana.com	aireshelta.com airesheltana.com	aireshelta.com airesheltana.com	aireshelta.com airesheltana.com	aireshelta.com airesheltana.com

IMAGES NOT TO SCALE
Construction
PNEUMATIC/PUMP- INFLATE & FORGET
POWERED FAN -CONTINUAL INFLATION
MANUAL - POP-UP FRAME
☐☐☐☐ =Option



COMPANY	EGO	EGO	EGO
MODEL VARIANT	EU30-T	EU45-T	EU60-T
PRODUCT CODE	-	-	-
ORIGIN			
CONSTRUCTION TIME-to-ERECT	3mins	4mins	6mins
COST inc tax / VAT	£00 $00 €00	£00 $00 €00	£00 $00 €00
WEIGHT - Shelter-Only	160kg /352lb	200kg / 327lb	260kg / 572lb
MATERIALS FIRE-RESISTANT WATERPROOF	PVC-coated 650g/m ?	PVC-coated 650g/m ?	PVC-coated 650g/m ?
AIR VOLUME	n/a	n/a	n/a
LENGTH DEPLOYED / PACKED	5.6 00m / 18.4 00'	8.25 00m / 27.2 00'	10.9 00m / 35.8 00'
WIDTH DEPLOYED / PACKED	6 00m / 19.7 00'	6 00m / 19.7 00'	6 00m / 19.7 00'
HEIGHT DEPLOYED / PACKED	3.1 00m / 10.1 00'	3.1 00m / 10.1 00'	3.1 00m / 10.1 00'
AREA: -DETACHABLEFIXED FLOOR	30sqm / 645.8sqft ☐	45sqm / 495sqft ☐	60sqm / 645.8sqft ☐
ENTRANCES Zip Velcro Tie	2	4	2-4
WINDOWS Clear Mesh Opens	0-2	0-4	2-4
CONNECTABLE Stakes Guys Skirt	- - -	- - -	- - -
PORTS Vent Power Water Heater	2 2 0 0 2	4 2 0 0 2	4 0 0 0 4
TRANSLUSCENT OPAQUE ROOF PRV			
BRANDING HEATER LIGHTING PUMP	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐
OTHER COLOURS			
NOTES	Includes Repair kit, hammer, pegs/ cord and Valise. NB: ES, EZ & EL ranges discontinued.	Includes Repair kit, hammer, pegs/ cord and Valise.	Includes Repair kit, hammer, pegs/ cord and Valise.
WEBSITE	ego-rescue.com	ego-rescue.com	ego-rescue.com

IMAGES NOT TO SCALE
Construction
PNEUMATIC/PUMP- INFLATE & FORGET
POWERED FAN -CONTINUAL INFLATION
MANUAL - POP-UP FRAME
☐☐☐☐ =Option



COMPANY	IC BRINDLE	IC BRINDLE	IC BRINDLE
MODEL VARIANT	ICB33	ICB34	ICB44
PRODUCT CODE	00	00	00
ORIGIN			
CONSTRUCTION TIME-to-ERECT	00mins	00mins	00mins
COST inc tax / VAT	£1200 $00 €00	£00 $00 €00	£00 $00 €00
WEIGHT - Shelter-Only	60kg / 00lb	64kg / 00lb	94kg / 00lb
MATERIALS FIRE-RESISTANT WATERPROOF	550D PU-coated poly. 630g PVC coated Polyester	550D PU-coated poly. 630g PVC coated Polyester	550D PU-coated poly. 630g PVC coated Polyester
AIR VOLUME	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt
LENGTH DEPLOYED / PACKED	3 00m / 9.85 00'	3 00m / 9.85 00'	4 00m / 13.1 00'
WIDTH DEPLOYED / PACKED	3 00m / 9.85 00'	4 00m / 13.1 00'	4 00m / 13.1 00'
HEIGHT DEPLOYED / PACKED	2.6 00m / 8.5 00'	2.6 00m / 8.5 00'	2.7 00m / 8.9 00'
AREA: -DETACHABLEFIXED FLOOR	7.5-9sqm / 80-97sqft	10.5-12sqm / 113-129sqft	14-16sqm / 150-172sqft
ENTRANCES Zip Velcro Tie	1	1	2
WINDOWS Clear Mesh Opens	2 -	2 -	2 -
CONNECT Stakes Guys Skirt			
PORTS Vent Power Water Heater	4 2 0 0 2	4 2 0 0 2	4 2 0 0 2
TRANSLUSCENT OPAQUE ROOF PRV			
BRANDING HEATER LIGHTING	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐
OTHER COLOURS			
NOTES	4x Lift & Shift handles. Inc. Repair kit, pegs/cord and Valise.	4x Lift & Shift handles. Inc. Repair kit, pegs/cord and Valise.	4x Lift & Shift handles. Inc. Repair kit, pegs/cord and Valise.
WEBSITE	icbrindle.com	icbrindle.com	icbrindle.com

TULMAR

PERFECT FOR MOBILE COMMAND SHELTER

Setup is quick and easy. The shelter inflates in less than five minutes.

PRODUCT INFO & SPECS

Tulmar's inflatable shelter system was developed to meet the requirements of emergency responders who required rapidly deployable shelters. The modular design allows canopies, end walls and floors to be easily detached for repair or replacement. Interconnect panels are available to join multiple shelters for custom configurations. Can be erected in less than five minutes—simply unpack from valise and inflate.

Shelter Footprint	Interior Square Footage	Packed Dimensions	Weight
3.7 M X 4.6 M	17 sq M	61 cm X 61 cm X 135 cm	102 kg
12 FT X 15 FT	180 sq FT	24 in X 24 in X 52 in	225 lbs
4.5 M X 6.1 M	27.5 sq M	71 cm X 71 cm X 152 cm	168 kg
15 FT X 20 FT	300 sq FT	28 in X 28 in X 60 in	370 lbs

Material is rated to operate from -30C - 60C to -22F -140F

The exposed parts of the Tulmar shelter are constructed with anti-fungus, anti-mildew, antibacterial and antimicrobial treatments.
The interior structure is made with anti-mildew and anti-fungal material.
This preserves the integrity of the shelter.

IMAGES NOT TO SCALE
Construction
PNEUMATIC/PUMP- INFLATE & FORGET
POWERED FAN -CONTINUAL INFLATION
MANUAL - POP-UP FRAME
☐☐☐☐ =Option
AREA in *ITALICS* = internal floor space




COMPANY	IC BRINDLE	IC BRINDLE	IC BRINDLE	IC
MODEL VARIANT	ICB45	ICB56	ICB58	
PRODUCT CODE	00	00	00	
ORIGIN				
CONSTRUCTION TIME-to-ERECT	00mins	00mins	00mins	
COST inc tax / VAT	£00 $00 €00	£00 $00 €00	£00 $00 €00	£0
WEIGHT - Shelter-Only	97kg / 00lb	100kg / 00lb	120kg / 00lb	13
MATERIALS - ROOF/ WALLS FLOOR FIRE-RESISTANT WATERPROOF	550D PU-coated poly. 630g PVC coated Polyester	550D PU-coated poly. 630g PVC coated Polyester	550D PU-coated poly. 630g PVC coated Polyester	550D P 630g PVC
AIR VOLUME	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00
LENGTH DEPLOYED / PACKED	4 00m / 13.1 00'	5 00m / 16.4 00'	5 00m / 16.4 00'	6 00
WIDTH DEPLOYED / PACKED	5 00m / 16.4 00'	6 00m / 19.7 00'	8 00m / 26.25 00'	8 00
HEIGHT DEPLOYED / PACKED	2.7 00m / 8.9 00'	2.8 00m / 9.2 00'	3 00m / 9.85 00'	3 00
AREA: -DETACHABLEFIXED FLOOR	17.8-20sqm / 191-215sqft	27-30sqm / 290-323sqft	36.7-40sqm / 395-430sqft	44-48sq
DOORS FULL-SPAN Zip Velcro Tie	2	2	2	2
WINDOWS Clear Mesh Opens	2-6 -	2-8 -	2-9 -	0
CONNECTABLE Stakes Guys Skirt				
PORTS Vent Power Water HVAC	4 2 0 0 2	4 2 0 0 2	4 2 0 0 2	4 2
TRANSLUSCENT OPAQUE ROOF PRV				
BRANDING HEATER LIGHTING PUMP				
OTHER COLOURS				
NOTES	4x Lift & Shift handles. Inc. Repair kit, pegs/cord and Valise.	14x Lift & Shift handles. Inc. Repair kit, pegs/cord and Valise.	14x Lift & Shift handles. Inc. Repair kit, pegs/cord and Valise.	14x Lift Inc. Repair kit
WEBSITE	icbrindle.com	icbrindle.com	icbrindle.com	icb

IMAGES NOT TO SCALE
Construction
PNEUMATIC/PUMP- INFLATE & FORGET
POWERED FAN -CONTINUAL INFLATION
MANUAL - POP-UP FRAME
☐☐☐☐ =Option
AREA in *ITALICS* = internal floor space




COMPANY	LANCO	LANCO	LANCO	
MODEL VARIANT	Inflatable Rescue Tent	Inflatable Rescue Tent	Inflatable Rescue Tent	Inflatab
PRODUCT CODE	ARZ30	ARZ40	ARZ50	
ORIGIN				
CONSTRUCTION TIME-to-ERECT	1.5-3mins	2-4mins	2-4mins	
COST inc tax / VAT	£00 $00 €00	£00 $00 €00	£00 $00 €00	£0
WEIGHT - Shelter-Only	103kg / 227lb	124kg / 273lb	142kg / 313lb	173
MATERIALS - ROOF/ WALLS FLOOR FIRE-RESISTANT WATERPROOF	240 & 530g/m² PVC-coated Polyester	240 & 530g/m² PVC-coated Polyester	240 & 530g/m² PVC-coated Polyester	240 & 530 P
AIR VOLUME	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00
LENGTH DEPLOYED / PACKED	5.72 1.13m / 18.8 3.7'	7.5 1.2m / 24.6 4'	9.38 1.63m / 30.8 5.3'	11.21 1.
WIDTH DEPLOYED / PACKED	5.5 0.75m / 18 2.5'	5.5 0.9m / 18 3'	5.5 0.45m / 18 1.5'	5.5 0.
HEIGHT DEPLOYED / PACKED	2-2.95 0.65m / 6.5-9.7 2.1'	2-2.95 0.6m / 6.5-9.7 2'	2-2.95 0.45m / 6.5-9.7 1.5'	2-2.95 0.4
AREA: -DETACHABLEFIXED FLOOR	31sqm / 0sqft	41sqm / 0sqft	51sqm / 0sqft	61
DOORS FULL-SPAN Zip Velcro Tie	1 -	1-2 -	1-2 -	1-2
WINDOWS Clear Mesh Opens	0 to 6 -	0 to 8 -	0 to 10 -	0 to 1
CONNECT Stakes Guys Skirt	-	-	-	
PORTS Vent Power Water HVAC	4 2 0 0 2	4 2 0 0 2	0 0 0 0 0	0 0
TRANSLUSCENT OPAQUE ROOF PRV				
BRANDING HEATER LIGHTING PUMP	- - -	- - -	- - -	
OTHER COLOURS				
NOTES	Inc Repair kit, delivery hose,pegs/ cord and Valise. Option for 550g/m² tent skin. Lift & shift handles.	Inc Repair kit, delivery hose,pegs/ cord and Valise. Option for 550g/m² tent skin. Lift & shift handles.	Inc Repair kit, delivery hose,pegs/ cord and Valise. Option for 550g/m² tent skin. Lift & shift handles.	Inc Repair kit cord and Valis tent skin.
WEBSITE	lanco.eu lanco-usa.com	lanco.eu lanco-usa.com	lanco.eu lanco-usa.com	lanco.eu

BRINDLE	LANCO	LANCO	LANCO	LANCO
ICB68	Inflatable Rescue Tent	Inflatable Rescue Tent	Inflatable Rescue Tent	Inflatable Rescue Tent
00	ARZ5	ARZ10	ARZ20	ARZ204
00mins	00mins	00mins	1.5-3mins	1.5-3mins
00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00
35kg / 00lb	32kg / 70.5lb	52kg / 115lb	80kg / 176lb	82kg / 181lb
U-coated poly. coated Polyester	240 & 530g/m² PVC-coated Polyester	240 & 530g/m² PVC-coated Polyester	240 & 530g/m² PVC-coated Polyester	240 & 530g/m² PVC-coated Polyester
L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt
m / 19.7 00'	1.7 0.9m / 5.6 3'	3.2 1m / 10.5 3.28'	4 1.2m / 13.1 4'	3.8 1.2m / 12.5 4'
n / 26.25 00'	3.2 0.6m / 10.5 2'	3.4 0.7m / 11.1 2.3'	5 0.85m / 16.4 2.8'	5.5 0.87m / 18 2.85'
m / 9.85 00'	2.3-2.76 0.46m / 6.5-9 1.5'	2.3-2.76 0.46m / 6.5-9 1.5'	2-2.7 0.55m / 6.5-8.9 1.8'	2-2.95 0.45m / 6.5-9.7 1.5'
m / 473-516sqft	5sqm / 0sqft	10sqm / 0sqft	20sqm / 0sqft	21sqm / 0sqft
	1x	1x	1	1
-	0 or 2 -	0 to 2 -	0 to 4 -	0 to 4 -
	-	-	-	-
0 0 2	4 2 0 0 2	4 2 0 0 2	4 2 0 0 2	4 2 0 0 2
	---	---	---	---
	-			
& Shift handles. , pegs/cord and Valise.	Inc Repair kit, delivery hose,and Valise. Option for 550g/m² tent skin. Lift & shift handles.	Inc Repair kit, delivery hose,and Valise. Option for 550g/m² tent skin. Lift & shift handles.	Inc Repair kit, delivery hose,pegs/ cord and Valise. Option for 550g/m² tent skin. Lift & shift handles.	Inc Repair kit, delivery hose,pegs/ cord and Valise. Option for 550g/m² tent skin. Lift & shift handles.
rindle.com	lanco.eu lanco-usa.com	lanco.eu lanco-usa.com	lanco.eu lanco-usa.com	lanco.eu lanco-usa.com

LANCO
le Rescue Tent
ARZ60
2-4mins
00 $00 €00
kg / 381.4lb
g/m² PVC-coated Polyester
L / 00CuFt
63m / 36.8 5.3'
75m / 18 2.5'
45m / 6.5-9.7 1.5'
sqm / 0sqft
0 -
-
0 0 0
---
t, delivery hose,pegs/ se. Option for 550g/m² Lift & shift handles.
lanco-usa.com

IMAGES NOT TO SCALE
Construction
PNEUMATIC/PUMP- INFLATE & FORGET
POWERED FAN -CONTINUAL INFLATION
MANUAL - POP-UP FRAME
☐☐☐☐ =Option
AREA in *ITALICS* = internal floor space




COMPANY	LANCO	LANCO	LANCO	
MODEL VARIANT	Self Erecting Tent	Self Erecting Tent	Self Erecting Tent	Self E
PRODUCT CODE	AZF29	AZF42	AZF56	
ORIGIN				
CONSTRUCTION TIME-to-ERECT	00mins	00mins	00mins	
COST inc tax / VAT	£00 $00 €00	£00 $00 €00	£00 $00 €00	£0
WEIGHT - Shelter-Only	126kg / 278lb	180kg / 397lb	234kg / 516lb	16
MATERIALS - ROOF/ WALLS FLOOR FIRE-RESISTANT WATERPROOF	750g/m²PVC-coated Polyester. Additional Internal alu frame	750g/m²PVC-coated Polyester. Additional Internal alu frame	750g/m²PVC-coated Polyester. Additional Internal alu frame	750g/m²PVC Additional
AIR VOLUME	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00
LENGTH DEPLOYED / PACKED	5.15 2.1m / 17 7'	7.55 2m / 24.8 6.6'	9.95 00m / 33 00'	5.15
WIDTH DEPLOYED / PACKED	5.6 0.45m / 18.7 1.5'	5.6 0.6m / 18.4 2'	5.6 0.6m / 18.4 2'	6.3 0
HEIGHT DEPLOYED / PACKED	2.2-2.8 0.45m / 7.2-9.2 1.5'	2.2-2.8 0.45m / 7.2-9.2 1.5'	2.2-2.8 0.45m / 7.2-9.2 1.5'	2.4-3.15 0
AREA: -DETACHABLEFIXED FLOOR	29sqm / 312sqft	42sqm / 452sqft	56sqm / 602sqft	33sq
DOORS FULL-SPAN Zip Velcro Tie	2 -	2 -	2 -	2
WINDOWS Clear Mesh Opens	0-4 -	0-6 -	0-8 -	0-4
CONNECTABLE Stakes Guys Skirt	-	-	-	
PORTS Vent Power Water HVAC	12 0 2 0 8	12 0 2 0 8	12 0 2 0 8	12 0
TRANSLUSCENT OPAQUE ROOF PRV	☐	☐	☐	
BRANDING HEATER LIGHTING PUMP	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐
OTHER COLOURS				
NOTES	Includes Repair kit, delivery hose,pegs/cord and Valise. Elasticated ground stake eyes	Includes Repair kit, delivery hose,pegs/cord and Valise. Elasticated ground stake eyes	Includes Repair kit, delivery hose,pegs/cord and Valise. Elasticated ground stake eyes	Includes hose,peg Elasticated
WEBSITE	lanco.eu lanco-usa.com	lanco.eu lanco-usa.com	lanco.eu lanco-usa.com	lanco.eu

IMAGES NOT TO SCALE
Construction
PNEUMATIC/PUMP- INFLATE & FORGET
POWERED FAN -CONTINUAL INFLATION
MANUAL - POP-UP FRAME
☐☐☐☐ =Option
AREA in *ITALICS* = internal floor space




COMPANY	LANCO	LANCO	LANCO	
MODEL VARIANT	Link Hub	Modular Inflatable Tent	modular Inflatable Tent	Inflatable
PRODUCT CODE	AZF6-CT33	AZM8-4	AZM11-6	
ORIGIN				
CONSTRUCTION TIME-to-ERECT	00mins	00mins	00mins	
COST inc tax / VAT	£00 $00 €00	£00 $00 €00	£00 $00 €00	£0
WEIGHT - Shelter-Only	223kg / 492lb	566kg / 1248lb	765kg / 1687lb	0
MATERIALS - ROOF/ WALLS FLOOR FIRE-RESISTANT WATERPROOF	750g/m²PVC-coated Polyester. Additional Internal alu frame	700g/m²PVC-coated Polyester. Additional Internal alu frame	700g/m²PVC-coated Polyester. Additional Internal alu frame	750g/m²PVC Extern
AIR VOLUME	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00
LENGTH DEPLOYED / PACKED	6 00m / 19.7 00'	7.7-12.5 00m / 25-41 00'	16.8-22.2 00m / 55-73 00'	4.83
WIDTH DEPLOYED / PACKED	6 00m / 19.7 00'	8.3 00m / 27.2 00'	11.2 00m / 36.7 00'	5.95 0
HEIGHT DEPLOYED / PACKED	2.15-3.4 00m / 7-11.200'	3.16-4.15 00m / 10.4-13.6 00'	4.35-6 00m / 14.3-20 00'	2.2-2.8 0.4
AREA: -DETACHABLEFIXED FLOOR	33sqm / 355sqft	103.75sqm / 1117sqft	248.6sqm / 2676sqft	30sq
DOORS FULL-SPAN Zip Velcro Tie	2 -	2-3	2	1-2
WINDOWS Clear Mesh Opens	0-8 -	4-5 -	16 -	0-4
CONNECT Stakes Guys Skirt	-	-	-	
PORTS Vent Power Water HVAC	12 0 2 0 8	30 8 4 0 8	0 0 0 0 0	12 0
TRANSLUSCENT OPAQUE ROOF PRV	☐	☐	☐	
BRANDING HEATER LIGHTING PUMP	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐
OTHER COLOURS				
NOTES	Hub for AZF-series. Includes Repair kit, delivery hose,pegs/cord and Valise.Elasticated ground stake eyes	3 separately erected modules zipped together in 4.8m lengths. min=two end sections minus middle	3 separately erected modules zipped together in 5.4m lengths. min=two end sections minus middle	Includes hose,pegs/ fram
WEBSITE	lanco.eu lanco-usa.com	lanco.eu lanco-usa.com	lanco.eu lanco-usa.com	lanco.eu

LANCO	LANCO	LANCO
Erecting Tent	Self Erecting Tent	Self Erecting Tent
AZF6-33	AZF6-48	AZF6-63
00mins	00mins	00mins
00 $00 €00	£00 $00 €00	£00 $00 €00
0kg / 353lb	229kg / 505lb	00kg / 00lb
C-coated Polyester. Internal alu frame	750g/m²PVC-coated Polyester. Additional Internal alu frame	750g/m²PVC-coated Polyester. Additional Internal alu frame
L / 00CuFt	00L / 00CuFt	00L / 00CuFt
00m / 17 00'	7.55 00m / 00 00'	9.95 00m / 33 00'
0m / 20.7 00'	6.3 00m / 20.7 00'	6.3 00m / 20.7 00'
0m / 7.9-10.3 00'	2.4-3.15 00m / 7.9-10.3 00'	2.4-3.15 00m / 7.9-10.3 00'
qm / 355sqft	48sqm / 516sqft	63sqm / 678sqft
-	2 -	2 -
-	0-6 -	0-8 -
-	-	-
2 0 8	12 0 2 0 8	12 0 2 0 8
Repair kit, delivery s/cord and Valise. l ground stake eyes	Includes Repair kit, delivery hose,pegs/cord and Valise. Elasticated ground stake eyes	Includes Repair kit, delivery hose,pegs/cord and Valise. Elasticated ground stake eyes
lanco-usa.com	lanco.eu lanco-usa.com	lanco.eu lanco-usa.com

LANCO	LANCO	LANCO
e Tent Ext Frame	Inflatable Tent Ext Frame	Inflatable Tent Ext Frame
INX29	INX42	INX56
00mins	00mins	00mins
00 $00 €00	£00 $00 €00	£00 $00 €00
0kg / 00lb	00kg / 00lb	00kg / 00lb
C-coated Polyester. nal alu frame	750g/m²PVC-coated Polyester. External alu frame	750g/m²PVC-coated Polyester. External alu frame
L / 00CuFt	00L / 00CuFt	00L / 00CuFt
00m / 16 00'	7.23 00m / 00 00'	9.63 00m / 00 00'
0m / 19.5 00'	5.95 00m / 19.5 00'	5.95 00m / 19.5 00'
45m / 7.2-9.2 1.5'	2.2-2.8 0.45m / 7.2-9.2 1.5'	2.2-2.8 0.45m / 7.2-9.2 1.5'
qm / 323sqft	45sqm / 484sqft	59sqm / 635sqft
-	1-2 -	1-2 -
-	0-6 -	0-8 -
-	-	-
2 0 8	12 0 2 0 8	12 0 2 0 8
Repair kit, delivery /cord and Valise. Ext e=3.05m high	Includes Repair kit, delivery hose,pegs/cord and Valise. Ext frame=3.05m high	Includes Repair kit, delivery hose,pegs/cord and Valise. Ext frame=3.05m high
lanco-usa.com	lanco.eu lanco-usa.com	lanco.eu lanco-usa.com

IMAGES NOT TO SCALE
Construction
PNEUMATIC/PUMP- INFLATE & FORGET
POWERED FAN -CONTINUAL INFLATION
MANUAL - POP-UP FRAME
☐☐☐☐ =Option
AREA in *ITALICS* = internal floor space




COMPANY	LANCO/ROFI	LANCO/ROFI	LANCO/ROFI	LAN
MODEL VARIANT	ROFI Rapid	ROFI Rapid	ROFI Rapid	RO
PRODUCT CODE	504	506	508	
ORIGIN				
CONSTRUCTION TIME-to-ERECT	00mins	00mins	00mins	
COST inc tax / VAT	£00 $00 €00	£00 $00 €00	£00 $00 €00	£0
WEIGHT - Shelter-Only	158kg / 00lb	00kg / 00lb	00kg / 00lb	26
MATERIALS - ROOF/ WALLS FLOOR FIRE-RESISTANT WATERPROOF	?/? ?	?/? ?	?/? ?	
AIR VOLUME	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00
LENGTH DEPLOYED / PACKED	5 1.6m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	6 1.
WIDTH DEPLOYED / PACKED	4 0.8m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	6 1
HEIGHT DEPLOYED / PACKED	2.7 0.95m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	3 1.
AREA: -DETACHABLEFIXED FLOOR	20sqm / 0sqft	00sqm / 0sqft	00sqm / 0sqft	36
DOORS FULL-SPAN Zip Velcro Tie	0-4	0-6	0-8	0
WINDOWS Clear Mesh Opens	4 -	0	0-8	0-6
CONNECTABLE Stakes Guys Skirt				
PORTS Vent Power Water HVAC	2 0 0 0 2	0 0 0 0 0	0 0 0 0 0	2 0
TRANSLUSCENT OPAQUE ROOF PRV	-	☐	☐	☐
BRANDING HEATER LIGHTING PUMP	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐
OTHER COLOURS	☐		☐	
NOTES	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes hose,peg Lift &
WEBSITE	lanco.eu lanco-usa.com	lanco.eu lanco-usa.com	lanco.eu lanco-usa.com	lanco.eu

IMAGES NOT TO SCALE
Construction
PNEUMATIC/PUMP- INFLATE & FORGET
POWERED FAN -CONTINUAL INFLATION
MANUAL - POP-UP FRAME
☐☐☐☐ =Option
AREA in *ITALICS* = internal floor space



COMPANY	MFC INTERNATIONAL	MFC INTERNATIONAL	MFC INTERNATIONAL
MODEL VARIANT	INFLATABLE SHELTER 16	Inflatable Shelter 20	Inflatable Shelter 25
PRODUCT CODE	SHW/16/001	SHW/20/001	SHW/25/001
ORIGIN			
CONSTRUCTION TIME-to-ERECT	00mins	00mins	00mins
COST inc tax / VAT	£00 $00 €00	£00 $00 €00	£00 $00 €00
WEIGHT - Shelter-Only	58kg / 00lb	68kg / 00lb	78kg / 00lb
MATERIALS - ROOF/ WALLS FLOOR FIRE-RESISTANT WATERPROOF	210D HT Nylon. Welded/Taped PU	210D HT Nylon. Welded/Taped PU	210D HT Nylon. Welded/Taped PU
AIR VOLUME	2600L / 00CuFt	2900L / 00CuFt	3050L / 00CuFt
LENGTH DEPLOYED / PACKED	4 1.3m / 00 00'	5 1.3m / 00 00'	5 1.2m / 00 00'
WIDTH DEPLOYED / PACKED	4 6.6m / 00 00'	4 6.6m / 00 00'	5 6.6m / 00 00'
HEIGHT DEPLOYED / PACKED	3.53 0.5m / 00 00'	3.53 0.5m / 00 00'	2.9 0.41m / 00 00'
AREA: -DETACHABLEFIXED FLOOR	14.12sqm / 0sqft	17.65sqm / 0sqft	22.65sqm / 0sqft
DOORS FULL-SPAN Zip Velcro Tie	2x 1.2m	2x 1.2m	2x 1.2m
WINDOWS Clear Mesh Opens	0	2	2
CONNECT Stakes Guys Skirt			
PORTS Vent Power Water HVAC	3 0 2 0 1	3 0 2 0 1	3 0 2 0 1
TRANSLUSCENT OPAQUE ROOF PRV	☐		
BRANDING HEATER LIGHTING PUMP	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐
OTHER COLOURS	[FR=]	FR=]	[FR=]
NOTES	Includes Repair kit, delivery hose,pegs/cord and Valise. optional ballast bags,	Includes Repair kit, delivery hose,pegs/cord and Valise. optional ballast bags,	Includes Repair kit, delivery hose,pegs/cord and Valise. optional ballast bags,
WEBSITE	mfc-international.com	mfc-international.com	mfc-international.com

				
NCO/ROFI	LANCO/ROFI	LANCO/ROFI	MFC INTERNATIONAL	MFC INTERNATIONAL
DFI Rapid	ROFI Rapid	ROFI Rapid	INFLATABLE SHELTER 9	INFLATABLE SHELTER 12
606	608	610	SHW/09/001	SHW/12/001
00mins	00mins	00mins	00mins	00mins
00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00
00kg / 00lb	00kg / 00lb	00kg / 00lb	36kg / 00lb	46kg / 00lb
?/?	?/?	?/?	210D HT Nylon. Welded/Taped PU	210D HT Nylon. Welded/Taped PU
L / 00CuFt	00L / 00CuFt	00L / 00CuFt	1300L / 00CuFt	1850L / 00CuFt
5m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	3 1.2m / 00 00'	4 1.2m / 00 00'
m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	3 6.6m / 00 00'	3 6.6m / 00 00'
1m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	2.63 0.41m / 00 00'	2.63 0.41m / 00 00'
sqm / 0sqft	00sqm / 0sqft	00sqm / 0sqft	7.9sqm / 0sqft	10.6sqm / 0sqft
	0	0	1x 1.2m	1x 1.2m
	0-8	0-10	0	0
0 0 2	2 0 0 0 2	2 0 0 0 2	3 0 2 0 1	3 0 2 0 1
			[FR=]	FR=]
Repair kit, delivery s/cord and Valise. shift handles.	Includes Repair kit, delivery hose,pegs/cord and Valise. Lift & shift handles.	Includes Repair kit, delivery hose,pegs/cord and Valise. Lift & shift handles.	Includes Repair kit, delivery hose,pegs/cord and Valise. optional ballast bags,	Includes Repair kit, delivery hose,pegs/cord and Valise. optional ballast bags,
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PNEUMATIC/PUMP- INFLATE & FORGET
POWERED FAN -CONTINUAL INFLATION
MANUAL - POP-UP FRAME
☐☐☐☐ =Option
AREA in *ITALICS* = internal floor space

COMPANY	MFC INTERNATIONAL	MFC INTERNATIONAL	MFC INTERNATIONAL	
MODEL VARIANT	Inflatable Shelter 30	Inflatable Shelter 36	Inflatable Shelter 51	
PRODUCT CODE	SHW/30/001	SHW/36/001	SHW/51/001	NX
ORIGIN				
CONSTRUCTION TIME-to-ERECT	00mins	00mins	00mins	
COST inc tax / VAT	£00 $00 €00	£00 $00 €00	£00 $00 €00	£0
WEIGHT - Shelter-Only	88kg / 00lb	105kg / 00lb	125kg / 00lb	0
MATERIALS - ROOF/ WALLS FLOOR FIRE-RESISTANT WATERPROOF	210D HT Nylon. Welded/Taped PU	210D HT Nylon. Welded/Taped PU	210D HT Nylon. Welded/Taped PU	
AIR VOLUME	3700L / 00CuFt	5900L / 00CuFt	8100L / 00CuFt	00
LENGTH DEPLOYED / PACKED	6 1.2m / 19.7 3.9'	6 1.3m / 19.7 00'	8.5 1.2m / 27.9 3.9'	4 00
WIDTH DEPLOYED / PACKED	5 0.66m / 16.4 2.2'	5 0.66m / 16.4 2.2'	5 0.66m / 16.4 2.2'	4 00
HEIGHT DEPLOYED / PACKED	2.9 0.41m / 9.5 1.3'	3.1 0.5m / 10.1 1.6'	3.1 0.5m / 10.1 1.6'	00 0
AREA: -DETACHABLE FIXED FLOOR	27.2sqm / 0sqft	32.04sqm / 0sqft	45.39sqm / 0sqft	00
DOORS FULL-SPAN Zip Velcro Tie	2x 1.2m	2x 1.2m	2x 1.2m	2x
WINDOWS Clear Mesh Opens	4	4	4	0
CONNECTABLE Stakes Guys Skirt				
PORTS Vent Power Water HVAC	3 0 2 0 1	3 0 2 0 1	3 0 2 0 1	0 0
TRANSLUSCENT OPAQUE ROOF PRV				
BRANDING HEATER LIGHTING PUMP				
OTHER COLOURS	FR=]	[FR=]	FR=]	
NOTES	Includes Repair kit, delivery hose,pegs/cord and Valise. optional ballast bags,	Includes Repair kit, delivery hose,pegs/cord and Valise. optional ballast bags,	Includes Repair kit, delivery hose,pegs/cord and Valise. optional ballast bags,	Includes F hose,peg
WEBSITE	mfc-international.com	mfc-international.com	mfc-international.com	nixus2

IMAGES NOT TO SCALE
Construction
PNEUMATIC/PUMP- INFLATE & FORGET
POWERED FAN -CONTINUAL INFLATION
MANUAL - POP-UP FRAME
☐☐☐☐ =Option
AREA in *ITALICS* = internal floor space

COMPANY	NIXUS	NIXUS	NIXUS	
MODEL VARIANT	Quick	Quick	Quick	
PRODUCT CODE	NX-QM4040	NX-QM4060	NX-QM4080	NX
ORIGIN				
CONSTRUCTION TIME-to-ERECT	00mins	00mins	00mins	
COST inc tax / VAT	£00 $00 €00	£00 $00 €00	£00 $00 €00	£0
WEIGHT - Shelter-Only	00kg / 00lb	00kg / 00lb	00kg / 00lb	0
MATERIALS - ROOF/ WALLS FLOOR FIRE-RESISTANT WATERPROOF	?/?	?/?	?/?	
AIR VOLUME	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00
LENGTH DEPLOYED / PACKED	4 00m / 13.1 00'	4 00m / 13.1 00'	4 00m / 13.1 00'	5.6 0
WIDTH DEPLOYED / PACKED	4 00m / 13.1 00'	6 00m / 19.7 00'	8 00m / 00 00'	4 00
HEIGHT DEPLOYED / PACKED	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 0
AREA: -DETACHABLE FIXED FLOOR	00sqm / 0sqft	00sqm / 0sqft	00sqm / 0sqft	00
DOORS FULL-SPAN Zip Velcro Tie	0	0	0	0
WINDOWS Clear Mesh Opens	0	0	0	0
CONNECT Stakes Guys Skirt				
PORTS Vent Power Water HVAC	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0
TRANSLUSCENT OPAQUE ROOF PRV				
BRANDING HEATER LIGHTING PUMP				
OTHER COLOURS				
NOTES	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes F hose,peg
WEBSITE	nixus2protect.com	nixus2protect.com	nixus2protect.com	nixus2

NIXUS	NIXUS	NIXUS	NIXUS	NIXUS
Lite	Lite	Quick	Quick	Quick
-LITE-40-40	NX-LITE-50-50	NX-QM3030	NX-QM3045	NX-QM3060
00mins	00mins	00mins	00mins	00mins
0 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00
0kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb
?/?	?/?	?/?	?/?	?/?
L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt
m / 13.1 00'	5 00m / 16.4 00'	3 00m / 9.8 00'	3 00m / 9.8 00'	3 00m / 9.8 00'
m / 13.1 00'	5 00m / 16.4 00'	3 00m / 9.8 00'	4.5 00m / 00 00'	6 00m / 19.7 00'
0m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'
qm / 00sqft	00sqm / 00sqft	00sqm / 00sqft	00sqm / 0sqft	00sqm / 0sqft
	0	0	0	0
	0	0	0	0
0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
Repair kit, delivery s/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.
2protect.com	nixus2protect.com	nixus2protect.com	nixus2protect.com	nixus2protect.com

NIXUS	NIXUS	NIXUS	NIXUS	NIXUS
PGK	PGK	PGK	PGK	PGK
-PGK-56-40	NX-PGK-56-63	NX-PGK-56-76	NX-PGK-56-100	NX-PGK-60-40
00mins	00mins	00mins	00mins	00mins
0 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00
0kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb
?/?	Polyester500D PU-Coated or1000D PVC-coated	?/?	?/?	?/?
L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt
0m / 18.4 00'	5.6 00m / 18.4 00'	5.6 00m / 18.4 00'	5.6 00m / 18.4 00'	6 00m / 19.7 00'
m / 13.1 00'	6.3 00m / 00 00'	7.6 00m / 00 00'	10 00m / 32.8 00'	4 00m / 13.1 00'
0m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'
sqm / 0sqft	00sqm / 0sqft	00sqm / 0sqft	00sqm / 0sqft	00sqm / 0sqft
	0	0	1+	0
	0	0	0	0
0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
Repair kit, delivery s/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.
2protect.com	nixus2protect.com	nixus2protect.com	nixus2protect.com	nixus2protect.com

IMAGES NOT TO SCALE Construction PNEUMATIC/PUMP- INFLATE & FORGET POWERED FAN -CONTINUAL INFLATION MANUAL - POP-UP FRAME ☐☐☐☐ =Option AREA in *ITALICS* = internal floor space				
COMPANY	NIXUS	NIXUS	NIXUS	
MODEL VARIANT	PGK	PGK	PGK	
PRODUCT CODE	NX-PGK-60-63	NX-PGK-60-76	NX-PGK-60-100	NX
ORIGIN				
CONSTRUCTION TIME-to-ERECT	00mins	00mins	00mins	
COST inc tax / VAT	£00 $00 €00	£00 $00 €00	£00 $00 €00	£0
WEIGHT - Shelter-Only	00kg / 00lb	00kg / 00lb	00kg / 00lb	0
MATERIALS - ROOF/ WALLS FLOOR FIRE-RESISTANT WATERPROOF	?/? ?	?/? ?	?/? ?	
AIR VOLUME	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00
LENGTH DEPLOYED / PACKED	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 0
WIDTH DEPLOYED / PACKED	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 0
HEIGHT DEPLOYED / PACKED	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 0
AREA: -DETACHABLEFIXED FLOOR	00sqm / 0sqft	00sqm / 0sqft	00sqm / 0sqft	00
DOORS FULL-SPAN Zip Velcro Tie	0	0	0	0
WINDOWS Clear Mesh Opens	0	0	0	0
CONNECTABLE Stakes Guys Skirt				
PORTS Vent Power Water HVAC	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0
TRANSLUSCENT OPAQUE ROOF PRV				
BRANDING HEATER LIGHTING PUMP	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐
OTHER COLOURS				
NOTES	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes hose,peg
WEBSITE	nixus2protect.com	nixus2protect.com	nixus2protect.com	nixus2

IMAGES NOT TO SCALE Construction PNEUMATIC/PUMP- INFLATE & FORGET POWERED FAN -CONTINUAL INFLATION MANUAL - POP-UP FRAME ☐☐☐☐ =Option AREA in *ITALICS* = internal floor space				
COMPANY	NIXUS	NIXUS	NIXUS	
MODEL VARIANT	Pro	Pro	Pro	
PRODUCT CODE	NX-PRO-35-24	NX-PRO-35-24	NX-PRO-35-24	NX
ORIGIN				
CONSTRUCTION TIME-to-ERECT	00mins	00mins	00mins	
COST inc tax / VAT	£00 $00 €00	£00 $00 €00	£00 $00 €00	£0
WEIGHT - Shelter-Only	00kg / 00lb	00kg / 00lb	00kg / 00lb	0
MATERIALS - ROOF/ WALLS FLOOR FIRE-RESISTANT WATERPROOF	?/? ?	?/? ?	?/? ?	
AIR VOLUME	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00
LENGTH DEPLOYED / PACKED	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 0
WIDTH DEPLOYED / PACKED	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 0
HEIGHT DEPLOYED / PACKED	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 0
AREA: -DETACHABLEFIXED FLOOR	00sqm / 0sqft	00sqm / 0sqft	00sqm / 0sqft	00
DOORS FULL-SPAN Zip Velcro Tie	0	0	0	0
WINDOWS Clear Mesh Opens	0	0	0	0
CONNECT Stakes Guys Skirt				
PORTS Vent Power Water HVAC	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0
TRANSLUSCENT OPAQUE ROOF PRV				
BRANDING HEATER LIGHTING PUMP	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐
OTHER COLOURS				
NOTES	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes hose,peg
WEBSITE	nixus2protect.com	nixus2protect.com	nixus2protect.com	nixus2

NIXUS	NIXUS	NIXUS	NIXUS	NIXUS
Pro	Pro	Pro	Pro	Pro
-PRO-35-24	NX-PRO-35-24	NX-PRO-35-24	NX-PRO-35-24	NX-PRO-35-24
00mins	00mins	00mins	00mins	00mins
00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00
0kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb
?/?	?/?	?/?	?/?	?/?
L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt
0m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'
0m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'
0m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'
sqm / 0sqft	00sqm / 0sqft	00sqm / 0sqft	00sqm / 0sqft	00sqm / 0sqft
	0	0	0	0
	0	0	0	0
0 0 0	0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0
Repair kit, delivery s/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.
2protect.com	nixus2protect.com	nixus2protect.com		

NIXUS	NIXUS	NIXUS	NIXUS	NIXUS
Pro	Pro	Pro	Pro	Pro
-PRO-35-24	NX-PRO-35-24	NX-PRO-35-24	NX-PRO-35-24	NX-PRO-35-24
00mins	00mins	00mins	00mins	00mins
00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00
0kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb
?/?	?/?	?/?	?/?	?/?
L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt
0m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'
0m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'
0m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'
sqm / 0sqft	00sqm / 0sqft	00sqm / 0sqft	00sqm / 0sqft	00sqm / 0sqft
	0	0	0	0
	0	0	0	0
0 0 0	0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0
Repair kit, delivery s/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.
2protect.com	nixus2protect.com	nixus2protect.com	nixus2protect.com	nixus2protect.com

IMAGES NOT TO SCALE
Construction
PNEUMATIC/PUMP- INFLATE & FORGET
POWERED FAN -CONTINUAL INFLATION
MANUAL - POP-UP FRAME
☐☐☐☐ =Option
AREA in *ITALICS* = internal floor space

COMPANY	NIXUS	NIXUS	NIXUS	
MODEL VARIANT	ERA/L	ERA/L	ERA/L	
PRODUCT CODE	NX-ERA-35-24	NX-ERA-40-43	NX-ERA-40-64	NX
ORIGIN				
CONSTRUCTION TIME-to-ERECT	00mins	00mins	00mins	
COST inc tax / VAT	£00 $00 €00	£00 $00 €00	£00 $00 €00	£0
WEIGHT - Shelter-Only	00kg / 00lb	00kg / 00lb	00kg / 00lb	0
MATERIALS - ROOF/ WALLS FLOOR FIRE-RESISTANT WATERPROOF	PVC-coated 650 450or250 480 gm² Polyester	PVC-coated 650 450or250 480 gm² Polyester	PVC-coated 650 450or250 480 gm² Polyester	PVC-coat 480 g
AIR VOLUME	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00
LENGTH DEPLOYED / PACKED	2.4 00m / 11.6 00'	4.3 00m / 00 00'	6.4 00m / 00 00'	4 0
WIDTH DEPLOYED / PACKED	3.5 00m / 11.6 00'	4 00m / 00 00'	4 00m / 00 00'	5 0
HEIGHT DEPLOYED / PACKED	2.5 00m / 00 00'	2.7 00m / 00 00'	2.9 00m / 00 00'	2.9
AREA: -DETACHABLEFIXED FLOOR	00sqm / 0sqft	00sqm / 0sqft	00sqm / 0sqft	00
DOORS FULL-SPAN Zip Velcro Tie	0	0	0	0
WINDOWS Clear Mesh Opens	0	0	0	0
CONNECTABLE Stakes Guys Skirt				
PORTS Vent Power Water HVAC	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0
TRANSLUSCENT OPAQUE ROOF PRV				
BRANDING HEATER LIGHTING PUMP	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐
OTHER COLOURS				
NOTES	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes hose,peg
WEBSITE	nixus2protect.com	nixus2protect.com	nixus2protect.com	nixus2

IMAGES NOT TO SCALE
Construction
PNEUMATIC/PUMP- INFLATE & FORGET
POWERED FAN -CONTINUAL INFLATION
MANUAL - POP-UP FRAME
☐☐☐☐ =Option
AREA in *ITALICS* = internal floor space

COMPANY	NIXUS	NIXUS	NIXUS	
MODEL VARIANT	ERA/L	ERA/L	ERA/L	
PRODUCT CODE	NX-ERA-55-50-RB	NX-ERA-55-60	NX-ERA-55-75-RB	NX
ORIGIN				
CONSTRUCTION TIME-to-ERECT	00mins	00mins	00mins	
COST inc tax / VAT	£00 $00 €00	£00 $00 €00	£00 $00 €00	£0
WEIGHT - Shelter-Only	00kg / 00lb	00kg / 00lb	00kg / 00lb	0
MATERIALS - ROOF/ WALLS FLOOR FIRE-RESISTANT WATERPROOF	PVC-coated 650 450or250 480 gm² Polyester	PVC-coated 650 450or250 480 gm² Polyester	PVC-coated 650 450or250 480 gm² Polyester	
AIR VOLUME	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00
LENGTH DEPLOYED / PACKED	5 00m / 00 00'	6 00m / 00 00'	7.5 00m / 00 00'	80 0
WIDTH DEPLOYED / PACKED	5.5 00m / 00 00'	5.5 00m / 00 00'	5.5 00m / 00 00'	5.5
HEIGHT DEPLOYED / PACKED	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 0
AREA: -DETACHABLEFIXED FLOOR	3.1sqm / 0sqft	3.1sqm / 00sqft	3.1sqm / 00sqft	3.3
DOORS FULL-SPAN Zip Velcro Tie	0	0	0	0
WINDOWS Clear Mesh Opens	0	0	0	0
CONNECT Stakes Guys Skirt				
PORTS Vent Power Water HVAC	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0
TRANSLUSCENT OPAQUE ROOF PRV				
BRANDING HEATER LIGHTING PUMP	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐
OTHER COLOURS				
NOTES	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes hose,peg
WEBSITE	nixus2protect.com	nixus2protect.com	nixus2protect.com	nixus2

NIXUS	NIXUS	NIXUS	NIXUS	NIXUS
ERA/L	ERA/L	ERA/L	ERA/L	ERA/L
-ERA-50-40	NX-ERA-50-50	NX-ERA-50-60-RB	NX-ERA-50-75-RB	NX-ERA-55-40
00mins	00mins	00mins	00mins	00mins
00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00
0kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb
ed 650 450or250 m² Polyester	PVC-coated 650 450or250 480 gm² Polyester	PVC-coated 650 450or250 480 gm² Polyester	PVC-coated 650 450or250 480 gm² Polyester	PVC-coated 650 450or250 480 gm² Polyester
L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt
0m / 00 00'	5 00m / 00 00'	6 00m / 00 00'	7.5 00m / 00 00'	4 00m / 00 00'
0m / 00 00'	5 00m / 00 00'	5 00m / 00 00'	5 00m / 00 00'	5.5 00m / 00 00'
00m / 00 00'	2.9 00m / 00 00'	2.9 00m / 00 00'	3.1 00m / 00 00'	3.1 00m / 00 00'
sqm / 0sqft	00sqm / 0sqft	00sqm / 0sqft	00sqm / 0sqft	00sqm / 0sqft
	0	0	0	0
	0	0	0	0
0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
Repair kit, delivery s/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.
2protect.com	nixus2protect.com	nixus2protect.com	nixus2protect.com	nixus2protect.com

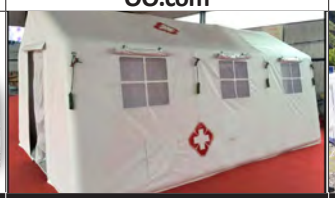
NIXUS	NIXUS	NIXUS	NIXUS	NIXUS
ERA/L	ERA/L	ERA/L	ERA/L	ERA/L
-ERA-55-80	NX-ERA-60-40	NX-ERA-60-50-RB	NX-ERA-60-60	NX-ERA-60-75-RB
00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00
0kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb
??	??	??	??	??
L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt
0m / 00 00'	4 00m / 00 00'	5 00m / 00 00'	6 00m / 00 00'	7.5 00m / 00 00'
00m / 00 00'	6 00m / 00 00'	6 00m / 00 00'	6 00m / 00 00'	6 00m / 00 00'
0m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'
sqm / 00sqft	3.3sqm / 00sqft	3.3sqm / 00sqft	3.3sqm / 00sqft	3.3sqm / 00sqft
	0	0	0	0
0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
Repair kit, delivery s/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.
2protect.com	nixus2protect.com	nixus2protect.com	nixus2protect.com	nixus2protect.com

IMAGES NOT TO SCALE Construction PNEUMATIC/PUMP- INFLATE & FORGET POWERED FAN -CONTINUAL INFLATION MANUAL - POP-UP FRAME ☐☐☐☐ =Option AREA in *ITALICS* = internal floor space				
COMPANY	NIXUS	NIXUS	OO	
MODEL VARIANT	ERA/L	ERA/L	OO	
PRODUCT CODE	NX-ERA-60-80	NX-ERA-60-100 -RB	00	
ORIGIN				
CONSTRUCTION TIME-to-ERECT	00mins	00mins	00mins	
COST inc tax / VAT	£00 $00 €00	£00 $00 €00	£00 $00 €00	
WEIGHT - Shelter-Only	00kg / 00lb	00kg / 00lb	00kg / 00lb	
MATERIALS - ROOF/ WALLS FLOOR FIRE-RESISTANT WATERPROOF	PVC-coated 650 450or250 480 gm² Polyester	PVC-coated 650 450or250 480 gm² Polyester	?/? ?	
AIR VOLUME	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	
LENGTH DEPLOYED / PACKED	8 00m / 00 00'	10 00m / 00 00'	00 00m / 00 00'	
WIDTH DEPLOYED / PACKED	6 00m / 00 00'	6 00m / 00 00'	00 00m / 00 00'	
HEIGHT DEPLOYED / PACKED	3.4 00m / 00 00'	3.4 00m / 00 00'	00 00m / 00 00'	
AREA: -DETACHABLEFIXED FLOOR	00sqm / 00sqft	00sqm / 00sqft	8sqm / 0sqft	
DOORS FULL-SPAN Zip Velcro Tie	0	0	0	
WINDOWS Clear Mesh Opens	0	0	0	
CONNECTABLE Stakes Guys Skirt				
PORTS Vent Power Water HVAC	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
TRANSLUSCENT OPAQUE ROOF PRV				
BRANDING HEATER LIGHTING PUMP				
OTHER COLOURS				
NOTES	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	
WEBSITE	nixus2protect.com	nixus2protect.com	OO.com	

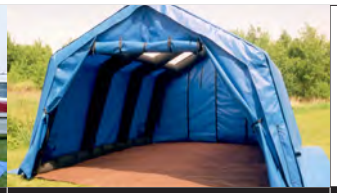
IMAGES NOT TO SCALE Construction PNEUMATIC/PUMP- INFLATE & FORGET POWERED FAN -CONTINUAL INFLATION MANUAL - POP-UP FRAME ☐☐☐☐ =Option AREA in *ITALICS* = internal floor space				
COMPANY	RIGLOO	RIGLOO	RIGLOO	SHELTER
MODEL VARIANT	Rescuer	Defender	Refuge	Tri
PRODUCT CODE	00	00	00	
ORIGIN				
CONSTRUCTION TIME-to-ERECT	1-6mins	1-6mins	<1-5mins	
COST inc tax / VAT	£00 $00 €00	£00 $00 €00	£00 $00 €00	
WEIGHT - Shelter-Only	7kg / 00lb	7kg / 00lb	4kg / 00lb	
MATERIALS - ROOF/ WALLS FLOOR FIRE-RESISTANT WATERPROOF	Polyester &Nylon Ripstop® 68D 210T - 8000mm	Polyester &Nylon Ripstop® 68D 210T - 8000mm	Polyester & Nylon 80g 210T ? - 8000mm	
AIR VOLUME	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	
LENGTH DEPLOYED / PACKED	2.6 0.6m / 00 00'	2.6 0.6m / 00 00'	1.8 0.4m / 00 00'	
WIDTH DEPLOYED / PACKED	1.6 0.3m / 00 00'	1.6 0.3m / 00 00'	1.2 0.3m / 00 00'	
HEIGHT DEPLOYED / PACKED	1.2 0.2m / 00 00'	1.2 0.2m / 00 00'	1.2 0.2m / 00 00'	
AREA: -DETACHABLEFIXED FLOOR	4sqm / 00sqft	4sqm / 00sqft	2sqm / 00sqft	
DOORS FULL-SPAN Zip Velcro Tie	1	1	2	
WINDOWS Clear Mesh Opens	6 * -	6 * -	6 - -	
CONNECT Stakes Guys Skirt	-	-	-	
PORTS Vent Power Water HVAC	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
TRANSLUSCENT OPAQUE ROOF PRV	-	-	-	
BRANDING HEATER LIGHTING PUMP	- -	- -	- -	
OTHER COLOURS				
NOTES	Inc Repair kit, ,pegs/cord stirrup-pump, rucksack. Diagrams on skirt. *Mesh door (not window)	Inc Repair kit, ,pegs/cord stirrup-pump, rucksack. Diagrams on skirt. *Mesh door (not window)	Includes Repair kit, ,pegs/cord stirrup-pump, Glo-Sticks & rucksack.	
WEBSITE	rigloo-rs.com	rigloo-rs.com	rigloo-rs.com	



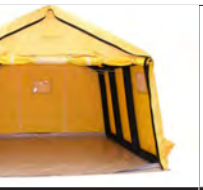

OO	PRO-SAFE	PRO-SAFE	PRO-SAFE	PRO-SAFE
OO	Shelter	Shelter	Shelter	Shelter
00	NH402	NH355	NH336	00
00mins	00mins	00mins	00mins	00mins
00 $00 €00	£00 $4659 €00	£00 $7522 €00	£00 $18015 €00	£00 $00 €00
00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb
?/?	?/?	?/?	?/?	?/?
00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt
00m / 00 00'	00 00m / 12 00'	00 00m / 16 00'	00 00m / 22 00'	00 00m / 42 00'
00m / 00 00'	00 00m / 7 00'	00 00m / 13 00'	00 00m / 22 00'	00 00m / 22 00'
00m / 00 00'	00 00m / 8 00'	00 00m / 8.5 00'	00 00m / 10 00'	00 00m / 10 00'
00sqm / 0sqft	00sqm / 00sqft	00sqm / 00sqft	00sqm / 00sqft	00sqm / 00sqft
	0	0	0	0
	0	0	0	0
0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
Repair kit, delivery s/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	240/110v powered blower or air cylinder required. Inc Repair kit, delivery hose,pegs/cord and Valise.	240/110v powered blower or air cylinder required. Inc Repair kit, delivery hose,pegs/cord and Valise.	240/110v powered blower or air cylinder required. Inc Repair kit, delivery hose,pegs/cord and Valise.
OO.com	OO.com	OO.com	OO.com	OO.com


R STRUCTURES	SHELTER STRUCTURES	SHELTER STRUCTURES	SHELTER STRUCTURES	OO
age Tent 8	Triage Tent 16	FR30	FR45	OO
00	00	00	00	00
00mins	00mins	<10mins	00mins	00mins
00 $00 €00	£00 $00 €00	£00 $6000 €00	£00 $00 €00	£00 $00 €00
00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb	00kg / 00lb
?/?	?/?	850g/25oz dbl-coated	?/?	?/?
00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt	00L / 00CuFt
00m / 00 00'	00 00m / 00 00'	6 00m / 20 00'	00 00m / 00 00'	00 00m / 00 00'
00m / 00 00'	00 00m / 00 00'	5 00m / 16 00'	00 00m / 00 00'	00 00m / 00 00'
00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'	00 00m / 00 00'
0sqm / 0sqft	16sqm / 0sqft	30sqm / 320sqft	45sqm / 0sqft	8sqm / 0sqft
	0	1	0	0
	4	4-6	6	0
0 0 0 0	0 0 0 0 0	11 0 9 0 2	0 0 0 0 0	0 0 0 0 0
Repair kit, delivery s/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.
cturesamerica.com	shelterstructuresamerica.com	shelterstructuresamerica.com	shelterstructuresamerica.com	

IMAGES NOT TO SCALE Construction PNEUMATIC/PUMP- INFLATE & FORGET POWERED FAN -CONTINUAL INFLATION MANUAL - POP-UP FRAME ☐☐☐☐ =Option AREA in *ITALICS* = internal floor space				
COMPANY	TULMAR SAFETY SYSTEMS	TULMAR SAFETY SYSTEMS	VETTER	
MODEL VARIANT	Tulmar Shelter 1	Tulmar Shelter 2	Universal Tent PZ12	Univer
PRODUCT CODE	9508	9509	1520009402	15
ORIGIN				
CONSTRUCTION TIME-to-ERECT	<5mins	<5mins	<1min	
COST inc tax / VAT	£00 $13852 €00	£00 $16490 €00	£00 $00 €00	£0
WEIGHT - Shelter-Only	102kg / 225lb	168kg / 370lb	55kg / 121lb	65
MATERIALS - ROOF/ WALLS FLOOR FIRE-RESISTANT WATERPROOF	Coated PVC - -	Coated PVC - -	?/? ? ?	
AIR VOLUME	2500L / 88CuFt	3200L / 113CuFt	1632L / 57.6CuFt	2025
LENGTH DEPLOYED / PACKED	3.7 1.35m / 12 2'	6.1 1.52m / 20 5'	3.7 1.1m / 11.8 0.43'	4.9 1.
WIDTH DEPLOYED / PACKED	4.6 0.61m / 15 2'	4.6 0.71m / 15 2.'	3.36 085m / 12.4 0.33'	3.86 0.
HEIGHT DEPLOYED / PACKED	00 0.61m / 8.1 00'	00 0.71m / 9.7 0.71'	2.58 0.4m / 8.3 0.16'	2.48 0
AREA: -DETACHABLEFIXED FLOOR	*17sqm / 180sqft* ☐	*27.5sqm / 300sqft* ☐	12sqm / 00sqft	18s
DOORS FULL-SPAN Zip Velcro Tie	2 +	2+	1+	1+
WINDOWS Clear Mesh Opens	0 ☐ ☐ ☐	0	2	4
CONNECTABLE Stakes Guys Skirt	*	*		
PORTS Vent Power Water HVAC	3 0 1 1 1	3 0 1 1 1	0 0 0 0 0	0 0
TRANSLUSCENT OPAQUE ROOF PRV				
BRANDING HEATER LIGHTING PUMP	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐
OTHER COLOURS				
NOTES	Inc Repair kit, delivery hose,and Valise. Removable side walls . *Skirt = water ballast tubes	Inc Repair kit, delivery hose,and Valise. Removable side walls . *Skirt = water ballast tubes	Includes Repair kit, delivery hose,pegs/cord and Valise. Optional long ballast bags.	Includes F hose,pegs/cor long
WEBSITE	tulmar.com	tulmar.com	vetter.de	v

IMAGES NOT TO SCALE Construction PNEUMATIC/PUMP- INFLATE & FORGET POWERED FAN -CONTINUAL INFLATION MANUAL - POP-UP FRAME ☐☐☐☐ =Option AREA in *ITALICS* = internal floor space				
COMPANY	VETTER	VETTER	VETTER	
MODEL VARIANT	Medical Tent MT20	Medical Tent MT30	Medical Tent MT40	Medic
PRODUCT CODE	1523034700	1523034800	1523034800	15
ORIGIN				
CONSTRUCTION TIME-to-ERECT	≥2min	≥3min	≥4mins	
COST inc tax / VAT	£00 $00 €00	£00 $00 €00	£00 $00 €00	£0
WEIGHT - Shelter-Only	74.5kg / 00lb	107.5kg / 00lb	156.5kg / 00lb	20
MATERIALS - ROOF/ WALLS FLOOR FIRE-RESISTANT WATERPROOF	?/? ? ?	?/? ? ?	?/? ? ?	
AIR VOLUME	3052L / 00CuFt	4566L / 00CuFt	5851L / 00CuFt	811
LENGTH DEPLOYED / PACKED	3.7 1.1m / 00 00'	5.5 1.1m / 00 00'	7.3 1.1m / 00 00'	11 43
WIDTH DEPLOYED / PACKED	5.88 0.85m / 00 00'	5.88 0.85m / 00 00'	5.88 0.85m / 00 00'	5.88 3
HEIGHT DEPLOYED / PACKED	3.3 0.6m / 00 00'	3.3 0.6m / 00 00'	3.3 0.85m / 00 00'	3.3 39
AREA: -DETACHABLEFIXED FLOOR	20sqm / 0sqft	30sqm / 00sqft	40sqm / 0sqft	60
DOORS FULL-SPAN Zip Velcro Tie	2+	2+	2+	2+
WINDOWS Clear Mesh Opens	4 -	4 -	6 -	6
CONNECT Stakes Guys Skirt	-	-	-	
PORTS Vent Power Water HVAC	4 0 0 0 0	4 0 0 0 0	4 0 0 0 0	4 0
TRANSLUSCENT OPAQUE ROOF PRV				
BRANDING HEATER LIGHTING PUMP	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐
OTHER COLOURS				
NOTES	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.	Includes F hose,peg
WEBSITE	vetter.de	vetter.de	vetter.de	v



VETTER	VETTER	VETTER	VETTER	VETTER
rsal Tent PZ17	Universal Tent PZ20	Universal Tent PZ25	Universal Tent PZ30	Universal Tent PZ40
520009402	1520004701	1520008901	1520009402	1520010602
<1min	1min	2mins	<3mins	<3mins
00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00
5kg / 143lb	75kg / 165lb	85kg / 187lb	104kg / 229lb	117kg / 258lb
?/?	?/?	?/?	?/?	?/?
5L / 71.5CuFt	2332L / 82.3CuFt	00L / 90.7CuFt	00L / 101.2CuFt	00L / 143.3CuFt
1m / 16 0.45'	5 1.1m / 16 0.45'	5 00m / 16 0.45'	6 1.1m / 19.2 0.46'	8 1.1m / 25.6 0.46'
85m / 13 0.33'	4.36 0.85m / 14 0.33'	5.36 00m / 17.2 0.33'	5.5 0.85m / 17.6 0.33'	5.5 0.85m / 17.6 033'
0.6m / 8 0.24'	2.48 0.6m / 7.9 0.24'	2.58 00m / 8.3 0.24'	3.1 0.6m / 9.9 0.24'	3.1 0.85m / 9.9 0.33'
sqm / 00sqft	20sqm / 00sqft	25sqm / 00sqft	30sqm / 0sqft	40sqm / 0sqft
	1+	1+	1+	1+
	4	4	6	6
0	0	0	0	0
Repair kit, delivery rd and Valise. Optional ballast bags.	Includes Repair kit, delivery hose,pegs/cord and Valise. Optional long ballast bags.	Includes Repair kit, delivery hose,pegs/cord and Valise. Optional long ballast bags.	Includes Repair kit, delivery hose,pegs/cord and Valise. Optional long ballast bags.	Includes Repair kit, delivery hose,pegs/cord and Valise. Optional long ballast bags.
etter.de	vetter.de	vetter.de	vetter.de	vetter.de

VETTER	VETTER
al Tent MT60	Medical Tent MT45
523034800	1523034800
≥6mins	≥5mins
00 $00 €00	£00 $00 €00
5kg / 00lb	00kg / 00lb
?/?	?/?
3L / 00CuFt	00L / 00CuFt
1m / 00 00'	00 00m / 00 00'
7.4m / 00 00'	00 00m / 00 00'
9.4m / 00 00'	00 00m / 00 00'
sqm / 0sqft	00sqm / 0sqft
	2+
-	0
-	
0	0
Repair kit, delivery s/cord and Valise.	Includes Repair kit, delivery hose,pegs/cord and Valise.
etter.de	vetter.de

Do you ever get used to the urgency? To get to the site. To get to the injured. To get them stable and up an out NOW. Getting the compact grunt you need, to right where you need it, is why we build the Harken Lokhead winch. With two speeds of 14:1 and 40:1 mechanical advantage, and appropriate for 10mm-12.7mm rope, you won't find a more powerful, safer-to-use tool. One turn of the handle and it's clear. This is a revolution in portable mechanical advantage for rescue.

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LOKHEAD WINCH KITS

Fire Winch Kit: NFPA-Certified

Standard Kit : CE-Certified

Tellumount weighs just 3.2KGs

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