TECHNICALRESCUE ARBCLIMBER WILDERNESSSAR ACCESS&RESCUE

BUYERSGUIDES

Water Rescue

Comprehensive free MARKET GUIDE to all of the key and less well-known products with specifications.

Updated with new data and products monthly.

DRAFT COMPILING NOW

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

Hand Held Underwater Metal Detectors

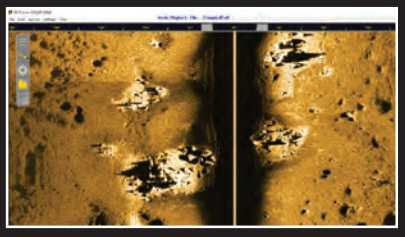
Pulse 8X

- 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

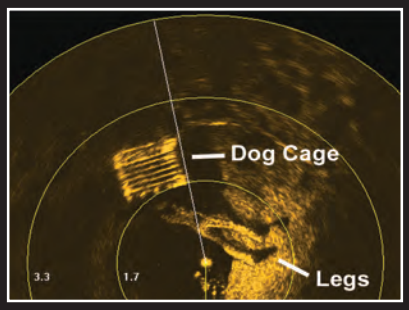
450kHz / 900 kHz - CHIRP

- 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

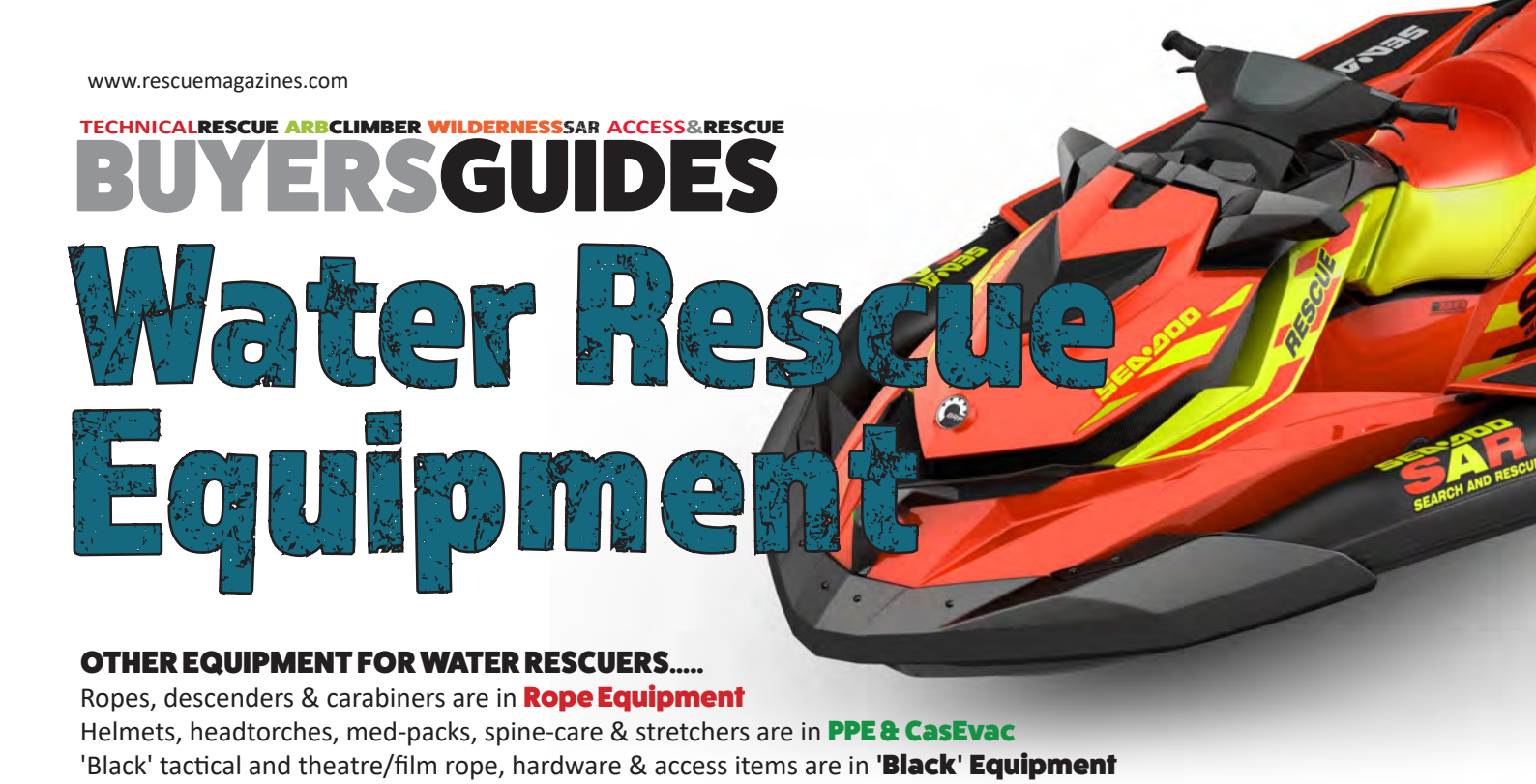
JW FISHERS

PHONE: (508) 822-7330
info@jwfishers.com
jwfishers.com

TECHNICALRESCUE ARBCLIMBER WILDERNESSSAR ACCESS&RESCUE

BUYERSGUIDES

Water Rescue Equipment



OTHER EQUIPMENT FOR WATER RESCUERS.....

Ropes, descenders & carabiners are in **Rope Equipment**
Helmets, headtorches, med-packs, spine-care & stretchers are in **PPE & CasEvac**
'Black' tactical and theatre/film rope, hardware & access items are in **'Black' Equipment**
Larger cases, area lighting, tripods & high directional are in **USAR/Extrication**

CONTENTS

in grey= coming in 2026

Click on guide/page number below to go straight to that page

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.

WATER RESCUE pt2

In Q4 2025 we will add the following product groups to this BUYERSGUIDE:

Hovercraft
Air Boats
RWCs (JetBikes)
Inflatable Rescue Boats

TECHNICALRESCUE ARBCLIMBER WILDERNESSSAR ACCESS&RESCUE

Check out our other BUYERSGUIDES

KEY TO TABLES:

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

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

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

●● a solid circle indicates that the usage or feature indicated is OK but not ideal. It may be a usage that is not intended but it can function in that role like a descender being used as an ascender

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

£$€ Prices shown in burnt orange are currency conversions only. They do not reflect the additional import costs like shipping, import duty and local taxes so are a very rough guide only

Page corners are colour coded to common groups of equipment eg. Watercraft are in blue, rope is in lime green. Rope related equipment is in red. tools, knives and hand-tools are in orange Technology/drones/UAVs is in berry and safety/PPE is in green.

RESCUER PFDs

PERSONAL FLOTATION DEVICES

INTRODUCTION

Personal Floatation differs from a 'Life-Jacket' in that it uses foam to provide permanent floatation rather than a water or person-activated inflatable vest. A PFD is much bulkier to wear and therefore tends to be worn by rescuers with a much higher likelihood of entering the water whereas a lifejacket is a precaution should the wearer enter water unexpectedly. All PFDs offer the added advantage during cold or rough weather of being an insulating layer though conversely, not so good when it's hot! There are also some hybrids which provide a less bulky degree of floatation which is subsequently enhanced on entry to the water by an inflatable chamber or two but hybrids tend not to be active rescuer PFDs once the chambers are inflated - once this occurs the PFDs are effectively passive flotation aimed at keeping the wearer afloat and would not be inflated during an active swimming rescue.

Of the permanent floatation models there are broadly four designs of PFD worn by rescuers -

1) ■ the **Kayak style** like the *SRE/ NDiver Evo* left which tends to be shorter in the body, cut-away at the shoulders and often donned over-the-head. Usually for use in a kayak but may also be for smaller watercraft like inflatable rafts that will be paddles/rowed where the open shoulders allows good freedom of arm movement for paddling

2) ■ the first of four full torso jackets, is for **rescue boat /ship crew** or Coastguard/military on board larger ships/cutters. Such crew are 'facilitators ' of rescue rather than active, in-water rescuers. This will be very plain and simply fitted out like the well-known US Coastguard Vests from *Mustang Survival* right.

3) ■ Used by ground/ **shore-based rescuers** in support of water rescue ops - for searching and setting up rescue systems for instance but, like the Boat Crew vests, not intended to be used in-water. Simpler than a Water Rescuer vest but has attachments points for radios, throw-bags, whistles etc. like this Force6 Ground Ops vest

4) ■ The commonest **Water rescuer** PFD used by **swiftwater/ flood rescuers** working along the shores, in 'wet' water craft or during water entry. is a full torso vest often quite heavily adorned with pockets, pouches, accessory eyes, lanyards and closures like the *Force 6* models or the *Palm 800* right.

Both 2) & 3) - full-cut versions may have leg straps to ensure the vest stays down on water-entry rather than trying to float off over the wearer's head if it is worn too loosely. Which brings us to ....

5) ■ **Rescue Swimmer/AST** vests exemplified by US Coastguard AST's or Aviation Survival Technicians (which used to be known as Parajumpers) needing to swim in strong currents and/or rough seas and therefore needing a full range of motion without the drag of too many extraneous pockets and fitments. A more slimline cut worn very tight to the body like the *Force 6 Ops vest* in the title picture or *Mustang's MRV170* right. These still have provision for the attachment of kit and accessories (and helo winch attachment in the case of the *Force 6*) but is otherwise less inhibited for active swimming.

FOAM RESCUE PFDs

BUOYANCY

Ranges from 50 to 275Newtons for the most basic to the largest inflatable but in rescue is generally around 100N and sometimes quoted with the water displacement equivalent which we've listed as CAPACITY and given as a weight. 100N for instance is equivalent to around 10kgs of water displacement because, remember, a body is relatively buoyant by itself so throwing a 90kg.200lb person into water is not the same as throwing in a 90kg lump of metal! As a guide though, a 70N PFD would support up to 100kg/220lb person. Much larger/heavier rescuers might need to consider this but again, body mass does not necessarily equate to flotation - muscle for instance is denser and heavier than fat so a rotund individual weighting 200lb will probably float more readily than a slim person with strong muscle definition. It is therefore more about the physical size that the PFD will comfortably fit around.

FEATURES

Most of our images show the de-cluttered PFD with no kit attached but once fully loaded these can look completely different. It's best to strike a balance between having as few extraneous snag hazards as possible but enough kit to do the job you need or get you out of trouble. Each manufacturer has their own idea of what type of and number of storage and attachment points there should be. Often, the non-standard features will be a result of a field incident or a customer's experience. Swifwater legend Jim Lavalley at Force 6 is perhaps the best known proponent still standing in the rescue industry so anything they come up with is always worth a look. Above is the *Force6 R3* vest with side-mounted tandem throw bag attachments while his Tec3 vest has them mounted across the lumbar area. Jim's vest here shows two chem lightsticks, personal and unit/team ID, radio and the all-important extrication leash for victim-rescue (not to be confused with a cowstail on regular switwater PFDs used for self-tethering rather than victim recovery).

KEY to TABLES

USES:
- Kayak/watercraft
- Boat/Ship Crew
- Shore-based Rescuer
- Swiftwater Rescuer
- Rescue swimmer/AST

CAPACITY BUOYANCY: A person in water is roughly neutrally buoyant unless carrying additional weight or particularly heavy clothing. The buoyancy is the amount of extra, upward 'thrust' provided b the floatation device hence 7.3kg or 16lb of buoyancy is equivalent to 70newtons which will easily support a lightly clothed 100kg/220lb person.

WEIGHT: Dry weight of the PFD.

COST: basic model. As always, expect lower cost for multiple purchases or reduced specifications. Prices INCLUDE VAT or local taxes. £$€ in Orange are a CURRENCY CONVERSION ONLY and do not include import tax, shipping etc.

ORIGIN: Not necessarily where the PFD is made. It refers to the company's country of origin and even this may be misleading if the company is a subsidiary. For instance *Mustang Survival* would normally be listed as *Canadian* but is now owned by US group, *Safariland*.

SIZING:

MATERIALS:

FRONT FASTENING
LEGLOOPS
QUICK RELEASE
INTEGRAL POCKETS
OPTIONAL POCKETS

ATTACHMENT EYES
WHISTLE
MOLLE
KNIFE POUCH
LIGHTING POUCH
STANDARDS

SIZES
MATERIALS
FASTEN
ADJUST (exc QR belt)
LEGLOOPS/CROTCH STRAP
QUICK RELEASE BELT/RING
INTEGRAL POCKETS
ADD POCKETS OPTIONS
LASH PADS / MOLLE
ATTACHMENT EYES/RINGS
WHISTLE GRAB HANDLE
COWSTAIL / STOW POUCH
KNIFE RADIO POUCH
CHEMLIGHT STROBE POUCH
REFLECTIVE: **REFLECTIVE/SOLAS**: As with drysuits, this is counter to the interests of tactical operators but reflective tape is a feature of most rescue PFDs, usually on the shoulders
ID FLAP/POUCH

STANDARDS/APPROVALS
IMPORTANT: Make sure you select the correct PFD Certification (UL if you live in the US, ULC if you live in Canada). A ULC life vest is not certified for use in the US. A UL life vest is not certified for use in Canada.

OTHER COLOURS: As always in our Guides, a secondary or trim colour will be indicated by a black or coloured border to the square. We have shown some PFDs with the front in one colour and the rear in another colour option but to save confusion as to whether this is one PFD with a different coloured back and front (highly unlikley) we have mentioned the number of colours in the notes.
:

1/2" BW-HR3
Strong & durable hybird
Polyester/Polypropylene design
5,000 lbf. @ 89 g/m

9.5mm NFPA Sure-Grip
Braided HMPE fiber core with
an innovative tactile sheath
4,923 lbf. @ 40 g/m

BLUEWATER
ROPES

209 Lovvorn Rd. Carrollton, GA 30117
T: 770.834.7515 E: info@bluewaterropes.com
www.bluewaterropes.com

IMAGES NOT to SCALE
COST: £$€= Currency conversion only, no duty, shipping etc.

USES:
- Kayak/watercraft
- Boat/Ship Crew
- Shore-based Rescuer
- Water Rescuer
- Rescue swimmer/AST

MANUFACTURER	ASTRAL	AQUATEK	BALTIC	CREWSAVER/SURVITE
MODEL VARIANT	Greenjacket Rescue	00	00	Swift Water Rescue SWR
PRODUCT CODE	000	000	000	8673
ORIGIN				
USES				
CAPACITY BUOYANCY	00kg/00lb 7.3g/16lb/ 50N	7.3g/16lb/ 50N	7.3g/16lb/ 50N	00kg/00lb 80N
COST	£00 $365 €00	£00 $00 €00	£00 $00 €00	£250 $00 €00
WEIGHT	1.31kg /2.9lb	OOkg /OOlb	OOkg /OOlb	OOkg /OOlb
SIZES	S/M, L/XL, XXL	S/M, L/XL, XXL	Universal	Universal
MATERIALS				
FASTEN ADJUST (exc QR belt) LEGLOOPS/CROTCH STRAP QUICK RELEASE BELT/RING	- (over-head)	OO	OO	OO
INTEGRAL POCKETS ADD POCKETS OPTIONS LASH PADS / MOLLE ATTACHMENT EYES/RINGS	- - - - -	- - - - -	- - - - -	4 - 2 - 4
WHISTLE GRAB HANDLE				
COWSTAIL / STOW POUCH				
KNIFE RADIO POUCH				
CHEMLIGHT STROBE POUCH				
REFLECTIVE ID FLAP/POUCH				
STANDARDS/APPROVALS	USCG Type V	OO	OO	ISO
OTHER COLOURS				
NOTES	OO	OO	OO	Side flaps for impact protectio which can also be folded to st build up of heat
WEBSITE	OO.com	OO.com	OO.com	survitecgroup.com

FOAM RESCUE PFDs








C	FORCE6	FORCE6	FORCE6	FORCE6	FORCE6
	Marine Fire	Ground Support	Rescuer	R3	RescueTec
	000	000	000	P302	000
	7kg/15.5lb/50N	7kg/15.5lb/50N	kg/lb 00N	11.8kg/26lb 00N	kg/lb 00N
	£83 $00 €00	£83 $00 €00	£00 $289 €00	£285 $00 €00	£232 $00 €00
	OOkg /OOlb	OOkg /OOlb	1.2kg /2.10lb	OOkg /OOlb	2.7kg /6lb
	Universal	Universal	S/M, L/XL, XXL	M, L/XL	S/M, L/XL, XXL
	400D Nylon	400D Nylon		420D Nylon	420D Nylon
	Front Zip/Buckle	Front Zip	Front Zip/Buckle	Front Zip/Buckle	OO
	-	-	-	4	-
	-	-	-	Yes	-
	- -	-	-	-	- -
	-	-	-	2	-
	OO	USCG Tyve III	ULC	ULC	USCG Type V
n op	OO	OO	DISCONTINUED Replaced by RescueOps		DISCONTINUED Replaced by Tec2
	force6.com	force6.com	force6.com	force6.com	force6.com

IMAGES NOT to SCALE
COST: £$€= Currency conversion only, no duty, shipping etc.

USES:
- Kayak/watercraft
- Boat/Ship Crew
- Shore-based Rescuer
- Water Rescuer
- Rescue swimmer/AST






MANUFACTURER	FORCE6	FORCE6	FORCE6	FORCE 6
MODEL VARIANT	Tec 2	Rescue Ops	HARS 2	Triton
PRODUCT CODE	000	000	000	000
ORIGIN				
USES				
CAPACITY BUOYANCY	11.8kg/26lb 00N	11.8kg/26lb 00N	9kg/20lb 90N	9kg/20lb 90
COST	£306 $00 €00	£231 $00 €00	£1385 $00 €00	£382 $00 €00
WEIGHT	OOkg /OOlb	OOkg /3.5lb	OOkg /00lb	OOkg /00l
SIZES	S/M, L/XL	Universal	Universal	Universal
MATERIALS	420D Nylon	500D Cordura	1050D Nylon	1050D Nyl
FASTEN ADJUST (exc QR belt) LEGLOOPS/CROTCH STRAP QUICK RELEASE BELT/RING	Front Zip/Buckle	Front Zip/Buckle	Side Buckle	Front Zip
INTEGRAL POCKETS ADD POCKETS OPTIONS LASH PADS / MOLLE ATTACHMENT EYES/RINGS	2 Yes - 1	2 Yes - 1	- Yes - 2	- Yes - 2
WHISTLE GRAB HANDLE				
COWSTAIL / STOW POUCH				
KNIFE RADIO POUCH				
CHEMLIGHT STROBE POUCH				
REFLECTIVE ID FLAP/POUCH				
STANDARDS/APPROVALS	USCG Type V	USCG Type V		
OTHER COLOURS				
NOTES	OO	OO	OO	Fits LSC Tri-Star and Tri
WEBSITE	force6.com	force6.com	force6.com	force6.com

FOAM RESCUE PFDs

	HIKO	HIKO
	Guardian 3D	Safety Pro
	12002	11400
ON	00kg/00lb 65-90N	00kg/00lb 80-100N
	£232 $00 €00	£215 $00 €00
b	OOkg /OOlb	OOkg /OOlb
	S/M, L/XL, XXL	S/M, L/XL, XXL
on		
	Side Buckle	Front Buckle
	- - -	2 Yes 2
	ISO	ISO
ton Harness	OO	OO
n	hikosport.com	hikosport.com

IMAGES NOT to SCALE
COST: £$€= Currency conversion only, no duty, shipping etc.

USES:
- Kayak/watercraft
- Boat/Ship Crew
- Shore-based Rescuer
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- Rescue swimmer/AST








MANUFACTURER	HIKO	HIKO	HIKO	HIKO
MODEL VARIANT	Safety Rent	X-Treme Pro	X-Treme Raft	X-Treme Rent Harness
	10801	10700	10500	10911
ORIGIN				
USES				
CAPACITY BUOYANCY	0kg/00lb 80/100N	00kg/00lb 80/100N	0kg/00lb 80/100N	9kg/20lb 35/90N
COST	£126 $00 €00	£231 $00 €00	£99 $00 €00	£125 $00 €00
WEIGHT	OOkg /OOlb	OOkg /0lb	OOkg /00lb	OOkg /00lb
SIZES	S/M, L/XL, 2XL	S/M, L/XL, 2XL	XS,S/M, L/XL, 2XL	XS/S/M, L/XL, XXL
MATERIALS	Nylon	500D Cordura	Nylon	Nylon
FASTEN ADJUST (exc QR belt) LEGLOOPS/CROTCH STRAP QUICK RELEASE BELT/RING	Front Buckle	Front Zip/Buckle	Side Buckle	Front Buckle
INTEGRAL POCKETS ADD POCKETS OPTIONS LASH PADS / MOLLE ATTACHMENT EYES/RINGS	0 No - - 0	4 Yes - 2	0 Yes - 2	0 - - - 1
WHISTLE GRAB HANDLE				
COWSTAIL / STOW POUCH				
KNIFE RADIO POUCH				
CHEMLIGHT STROBE POUCH				
REFLECTIVE ID FLAP/POUCH				
STANDARDS/APPROVALS	ISO	ISO	ISO	ISO
OTHER COLOURS				
NOTES	OO	OO	OO	
WEBSITE	hikosport.com	hikosport.com	hikosport.com	hikosport.com





	HIKO	HIKO	IONIC	IONIC	
s	X-Treme Rent	Cinch Harness	Rescue Pro	Rescue Pro	
	10900	11911	MRV150 02	MRV150 02	
	00kg/00lb 35-90N	00kg/00lb 55-70N	00kg/00lb 90-160N	00kg/00lb 90-160N	
	£118 $00 €00	£155 $00 €00	£00 $00 €00	£00 $00 €00	
	OOkg /OOlb	OOkg /OOlb	OOkg /OOlb	OOkg /OOlb	
	XS/S/M, L/XL, XXL	S/M, L/XL, XXL	S/M, L/XL, XXL/3XX-L/4/5XXL	S/M, L/XL, XXL/3XX-L/4/5XXL	
	Front Buckle	Front Zip/Buckle	OO	OO	
	0 - - - 3	4 Yes - 2	- - - - -	- - - - -	
	-				
	-				
	-				
	ISO	ISO	OO	OO	
	OO	OO	OO	OO	
	hikosport.com	hikosport.com	OO.com	OO.com	

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USES:
- Kayak/watercraft
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- Rescue swimmer/AST

MANUFACTURER	KENT SAFETY	KENT SAFETY	KENT SAFETY	KENT SAFETY
MODEL VARIANT	Universal	Mesh Classic	Elite Dual Sized	Mesh DeLuxe
PRODUCT CODE	000	000	000	000
ORIGIN				
USES				
CAPACITY BUOYANCY	00kg/00lb 15.5lb/70N	00kg/00lb 70N	00kg/00lb 70N	00kg/00lb 70N
COST	£00 $45 €00	£00 $70 €00	£00 $75 €00	£00 $90 €00
WEIGHT	000kg /00lb	000kg /00lb	000kg /00lb	000kg /00lb
SIZES	S/M, L/XL, XXL	S/M, L/XL, XXL, 3XL	S/M, L/XL, 2XL/4XL, 4XL/7XL	S/M, L/XL, XXL
MATERIALS	Nylon	Nylon	Nylon	Nylon
FASTEN ADJUST (exc QR belt) LEGLOOPS/CROTCH STRAP QUICK RELEASE BELT/RING	Front Buckle	Front Zip	Front Zip ■ ■	Front Zip/Buckle
INTEGRAL POCKETS ADD POCKETS OPTIONS LASH PADS / MOLLE ATTACHMENT EYES/RINGS	- - - - -	1 Yes - - -	4 - - - 2	2 - - - 1
WHISTLE GRAB HANDLE	- -	- -	- -	■ -
COWSTAIL / STOW POUCH	- -	- -	- -	- -
KNIFE RADIO POUCH	- -	- ■	■ ■	- -
CHEMLIGHT STROBE POUCH	-	-	■	-
REFLECTIVE ID FLAP/POUCH	■ -	■ -	■ ■	- -
STANDARDS/APPROVALS	USCG	USCG	OO	OO
OTHER COLOURS				
NOTES	OO	OO	OO	OO
WEBSITE	kentsafetyproducts.com	kentsafetyproducts.com	kentsafetyproducts.com	kentsafetyproducts.com

FOAM RESCUE PFDs

	KENT SAFETY	KENT SAFETY	KENT SAFETY	KENT SAFETY	KENT SAFETY
	Hi-Vis Mesh Deluxe	Law Enforcement	First Responder	Mesh SAR	SAR
	000	000	000	000	000
	00kg/00lb 0N/15.5lb	00kg/00lb 70N	00kg/00lb 70N	00kg/00lb 70N	00kg/00lb 70N
	£00 $160 €00	£00 $90 €00	£00 $90 €00	£00 $110 €00	£00 $120 €00
	000kg /00lb	000kg /00lb	000kg /00lb	000kg /00lb	000kg /00lb
	M, L, XL, XXL,XXXL,XXXXL	S/M, L/XL, XXL	S/M, L/XL, XXL	S/M, L/XL, XXL, 3XL	S/M, L/XL, XXL, 3XL
	Nylon	Nylon	Nylon	Nylon	Nylon
	Front Zip/Buckle	Top Zip/Buckle	Front Zip	Front Zip/Buckle	Front Zip/Buckle
	-	2	0	2	4
	-	Yes	-	-	-
	- -	-	-	- -	- -
	-	1	1	2	2
	-	-	- -	-	-
		- -	- -	-	-
		- -	- -	- -	
		-	-	-	
	ANSI cl2, USCG CANCG	OO	OO	OO	OO
	OO	OO	OO	OO	OO
	kentsafetyproducts.com	kentsafetyproducts.com	kentsafetyproducts.com	kentsafetyproducts.com	kentsafetyproducts.com

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USES:
- Kayak/watercraft
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- Water Rescuer
- Rescue swimmer/AST

MANUFACTURER	KENT SAFETY	KENT SAFETY	KOKATAT	KOKATAT
MODEL VARIANT	Hi-Vis Air Span	Swiftwater Rescue	Guide Rescue	Hustler Rescue
PRODUCT CODE	-	#151300-410-XXX-17	-	-
ORIGIN				
USES				
CAPACITY BUOYANCY	00kg/00lb 70N	00kg/00lb 00N 22lb	00kg/00lb 70 - 90N	7.3kg/16lb 71N
COST	£00 $90 €00	£00 $290 €00	£00 $289 €00	£00 $300€00
WEIGHT	000kg /00lb	000kg /00lb	1.2kg /2.10lb	1.2kg /2.10lb
SIZES	S/M, L/XL, XXL	universal	S/M, L/XL, XXL	XS/S, M/L, XL/XXL
MATERIALS	Nylon	500D Cordura 400D Nylon		500D Cordura
FASTEN ADJUST (exc QR belt) LEGLOOPS/CROTCH STRAP QUICK RELEASE BELT/RING	Front Zip Shoulder, Hip - 	Front (offset) Zip Shoulder, Hip, 3xWaist 	Front Zip Shoulder, Hip, 2xWaist - 	-(over-head) Shoulder, Hip, 2xWaist -
INTEGRAL POCKETS ADD POCKETS OPTIONS LASH PADS / MOLLE ATTACHMENT EYES/RINGS	2 - - -	1 lg front zippered - 2 - 4	1 front zip, 1 front fast-clip - 1 - 1	1lg front zippered - 1 - 1
WHISTLE GRAB HANDLE	- -	-	- -	- -
COWSTAIL / STOW POUCH	- -	- -		
KNIFE RADIO POUCH	- -			-
CHEMLIGHT STROBE POUCH	-			- -
REFLECTIVE ID FLAP/POUCH	SOLAS	SOLAS		- -
STANDARDS/APPROVALS	OO	OO	OO	USCG TypeV (not Canada)
OTHER COLOURS				
NOTES	OO	OO	3 colourway options	OO
WEBSITE	kentsafetyproducts.com	kentsafetyproducts.com	kokatat.com	kokatat.com

KASK QUANTUM SERIES

PRESENTING THE UPDATED KASK QUANTUM SERIES

The KASK Series made to engage the extreme elements, with fire-resistant and fire-retardant materials. Made EN 1385 compliant with Quantum Protection Panels*.
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IMAGES NOT to SCALE
COST: £$€= Currency conversion only, no duty, shipping etc.

USES:
- Kayak/watercraft
- Boat/Ship Crew
- Shore-based Rescuer
- Water Rescuer
- Rescue swimmer/AST

MANUFACTURER	MUSTANG SURVIVAL	MUSTANG SURVIVAL	MUSTANG SURVIVAL	MUSTANG SURVIVAL
MODEL VARIANT	Classic Industrial	Hi-Viz Industrial Mesh Vest	4-Pocket Flotation Vest USCG/Aux	USN Mk1 Flight Deck
PRODUCT CODE	MRV150 02	MV1254 T3	MV3128..T2...22	MD3040
ORIGIN				
USES				
CAPACITY BUOYANCY	00kg/00lb 70N	00kg/00lb 70N	00kg/00lb 70N	00kg/00lb 98N
COST	£00 $92 €00	£00 $110 €00	£00 $101 €00	£250 $478 €00
WEIGHT	0.59kg /1.3lb	0.64kg /1.4lb	0.59kg /1.4lb	1.8kg /4lb
SIZES	S/M, L/XL, XXL	S/M, L/XL, XXL	S/M, L/XL, XXL	S/M, L/XL, XXL
MATERIALS				
FASTEN ADJUST (exc QR belt) LEGLOOPS/CROTCH STRAP QUICK RELEASE BELT/RING	OO 	OO 	OO 	OO
INTEGRAL POCKETS ADD POCKETS OPTIONS LASH PADS / MOLLE ATTACHMENT EYES/RINGS	- - - - -	- - - - -	- - - -	- - - - -
WHISTLE GRAB HANDLE	- -	- -	- -	- -
COWSTAIL / STOW POUCH	- -	- -	- -	- -
KNIFE RADIO POUCH	- -	- -	- -	- -
CHEMLIGHT STROBE POUCH	-	-	-	-
REFLECTIVE ID FLAP/POUCH	- -	- -	- -	- -
STANDARDS/APPROVALS	OO	OO	OO	OO
OTHER COLOURS				
NOTES	OO	OO	OO	Designed for Aircraft Carrier de crew allows full range of arm motion.
WEBSITE	pro.mustangsurvival.com	pro.mustangsurvival.com	pro.mustangsurvival.com	pro.mustangsurvival.com

FOAM RESCUE PFDs







	MUSTANG SURVIVAL	MUSTANG SURVIVAL	MUSTANG SURVIVAL	MUSTANG SURVIVAL	MUSTANG SURVIVAL
	Industrial Mesh Vest USCG/Aux	Ops Support Water Rescue Vest	SAR Vest	Universal	Rescue Swimmer Vest
	MV1254.. T1...22...34	MRV050WR	MV5606	MRV150 02	MRV170
	🇺🇸	🇺🇸	🇺🇸	🇺🇸	🇺🇸
	🟧	🟧🟪	🟧🟪	🟧🟪🟥	🟥🟨
	00kg/00lb 70N	00kg/00lb 70N	00kg/00lb 70N	00kg/00lb 111N/ 25lb	00kg/00lb 00N
	£00 $110 €00	£00 $160 €00	£00 $195 €00	£00 $294 €00	£00 $00 €00
	0.64kg /1.4lb	OOkg /OOlb	OOkg /OOlb	OOkg /OOlb	OOkg /OOlb
	S/M, L/XL, XXL	S/M, L/XL, XXL	S/M, L/XL, XXL	S/M, L/XL, XXL 30-58" chest	S/M, L/XL, XXL
				500D Cordura	
	OO 🟩 🟫	OO 🟩 🟫	OO 🟩 🟫	OO 🟩 🟫	OO 🟩 🟫
	- - - - -	- - - - -	- - - - -	- - - 🟫 -	- - - 🟧 -
	- -	- -	- -	- 🟨	- -
	- -	- -	- -	- -	- -
	- -	- -	- -	⬛🟨	- -
	-	-	-	⬛	-
	- -	- -	- -	⬛ -	- -
	OO	OO	OO	NFPA, USCG V/III	OO
	⬛	⬛	⬛		⬛
	OO	OO	OO	OO	OO
	pro.mustangsurvival.com	pro.mustangsurvival.com	pro.mustangsurvival.com	pro.mustangsurvival.com	pro.mustangsurvival.com

IMAGES NOT to SCALE
COST: £$€= Currency conversion only, no duty, shipping etc.

USES:
- Kayak/watercraft
- Boat/Ship Crew
- Shore-based Rescuer
- Water Rescuer
- Rescue swimmer/AST

MANUFACTURER	NORTHWATER	NRS RESCUE	NRS Rescue	NRS RESCUE
MODEL VARIANT	OOO	Astral Greenjacket	Astral Indus	Big Water Guide
PRODUCT CODE				
ORIGIN				
USES				
CAPACITY BUOYANCY	00kg/00lb 00N	00kg/00lb 73N/16.5lb	00kg/00lb N/22.3lb	00kg/00lb 95N/22.9lb
COST	£00 $00 €00	£00 $365 €00	£00 $375 €00	£00 $170 €00
WEIGHT	00kg /00lb	00kg /2.9lb	00kg /3.1lb	00kg /00lb
SIZES	S/M, L/XL, XXL	S/M, L/XL, XXL	S/M, L/XL, XXL	XS/M, L/XLX
MATERIALS	420D Nylon	500D Cordura	500D Cordura	400D Nylon
FASTEN ADJUST (exc QR belt) LEGLOOPS/CROTCH STRAP QUICK RELEASE BELT/RING	OO 	Side Buckles N/A 	Side Buckles N/A 	Front Zip N/A
INTEGRAL POCKETS ADD POCKETS OPTIONS LASH PADS / MOLLE ATTACHMENT EYES/RINGS	- - - - -	3 - - - 1	3 - - - 1	2 - 1
WHISTLE GRAB HANDLE				
COWSTAIL / STOW POUCH				
KNIFE RADIO POUCH				
CHEMLIGHT STROBE POUCH				
REFLECTIVE ID FLAP/POUCH				
STANDARDS/APPROVALS	OO	USCG Type V	USCG Type V	USCG Type III
OTHER COLOURS				
NOTES	OO	Only available USA/Canada		
WEBSITE	en.drysuit.cn	nrs.com/rescue		nrs.com/rescue

FOAM RESCUE PFDs








NRS RESCUE	NRS RESCUE	NRS RESCUE	NRS RESCUE
Ninja Pro	Rapid Responder	Rapid Rescuer	Vector
00kg/00lb 70N/75N	00kg/00lb 95N/22.9lb	00kg/00lb 95N	00kg/00lb 00N
£00 $250 €00	£00 $280 €00	£00 $320 €00	£00 $300 €00
00kg /00lb	00kg /3.5lb	00kg /3.3lb	00kg /00lb
S/M, L/XL, XXL	Universal	Universal	S/M, L/XL, XXL
420D Nylon	400D Ripstop Nylon	400D Ripstop Nylon	420D Nylon
Side Buckles N/A	Front Zip	Front Zip	Side Buckles N/A
2 - - 1	- - 1	2 - - 1	3 - - 1
USCG Type V	USCG Type V	USCG Type V	USCG Type V
Upgraded ersion of Ninja ($160)	OO	OO	OO
nrs.com/rescue	nrs.com/rescue	nrs.com/rescue	nrs.com/rescue

IMAGES NOT to SCALE
COST: £$€= Currency conversion only, no duty, shipping etc.

USES:
- Kayak/watercraft
- Boat/Ship Crew
- Shore-based Rescuer
- Water Rescuer
- Rescue swimmer/AST







MANUFACTURER	PALM EQUIPMENT	PALM EQUIPMENT	PALM EQUIPMENT	PALM EQUIPMENT
MODEL VARIANT	Universal	Rescue 800	Rescue 850	Rescue Extrem
PRODUCT CODE		11621	10392	
ORIGIN				
USES				
CAPACITY BUOYANCY	00kg/00lb 100N	40-110kg/88-242lb 00N	40-110kg/88-242lb 00N	30-110kg/66-242lb 60-75l
COST	£235 $00 €00	£225 $00 €00	£235 $00 €00	£255 $00 €00
WEIGHT	OOkg /OOlb	1.75kg /OOlb	OOkg /OOlb	OOkg /OOlb
SIZES	XXS,S/M, L/XL, XXL, 3XL/4XL	S/M, L/XL, XXL	S/M, L/XL, XXL	XXS,S/M, L/XL, XXL, 3XL/4XL
MATERIALS	500D Cordura	500D Cordura	500D Cordura	500D Cordura
FASTEN ADJUST (exc QR belt) LEGLOOPS/CROTCH STRAP QUICK RELEASE BELT/RING	Front Buckle	Side Buckles	Side Buckles	Front Buckles
INTEGRAL POCKETS ADD POCKETS OPTIONS LASH PADS / MOLLE ATTACHMENT EYES/RINGS	2 - 1	2 - - 1	3 - - - 1	2 - - - 1
WHISTLE GRAB HANDLE				
COWSTAIL / STOW POUCH				
KNIFE RADIO POUCH				
CHEMLIGHT STROBE POUCH				
REFLECTIVE ID FLAP/POUCH				
STANDARDS/APPROVALS	ISO	ISO	ISO	ISO
OTHER COLOURS				
NOTES	OO	Possibly discontinued	Possibly discontinued	OO
WEBSITE	palm.equipment	palm.equipment	palm.equipment	palm.equipment

FOAM RESCUE PFDs

	PALM EQUIPMENT	POSSESS SEA IND CO	POSSESS SEA IND CO	POSSESS SEA IND CO	POSSESS SEA IND CO
	Rescue Hybrid	Rescue PFD 1	Rescue PFD 2	Rescue PFD 3	Rescue PFD 4
	12644				
N	40-110kg/88-242lb 70-90N	150N / 34lb	150N / 34lb	10kg/22lb **100N**	10kg/22lb **100N**
	£250 $00 €00	£00 $00 €00	£00 $00 €00	**£00** **$00** **€00**	**£00** **$00** **€00**
	1.95kg /OOlb	OOkg /OOlb	OOkg /OOlb	OOkg /OOlb	OOkg /OOlb
	S/M, L/XL, XXL	S/M, L/XL, XXL	S/M, L/XL, XXL	**S/M, L/XL, XXL**	**S/M, L/XL, XXL**
	500D Cordura	INVISTA 500D Cordura	1680D Nylon	**INVISTA 500D Cordura**	**420D Nylon**
	Front Buckles	OO	OO	OO	OO
	2 - 1	- - - -	- - - - -	- - - - -	- - - - -
	ISO	OO	OO	OO	OO
	OO	OO	OO		
	palm.equipment	en.drysuit.cn	en.drysuit.cn	en.drysuit.cn	en.drysuit.cn

IMAGES NOT to SCALE
COST: £$€= Currency conversion only, no duty, shipping etc.

USES:
- Kayak/watercraft
- Boat/Ship Crew
- Shore-based Rescuer
- Water Rescuer
- Rescue swimmer/AST






MANUFACTURER	SECUMAR	SRE (NDIVER)	SRE (NDIVER)	SRE (NDIVER)
MODEL VARIANT	Swift Pro	Rescue 900	EVO X Rescue	Arctic Survivor Evo Pro
PRODUCT CODE				
ORIGIN				
USES				
CAPACITY BUOYANCY	kg/00lb 50N	76/115kg/00lb 70/85N	76/115kg/00lb 70/85N	76kg/115lb 100/120N
COST	£202 $00 €00	£60 $00 €00	£134 $00 €00	£138 $00 €00
WEIGHT	00kg /00lb	00kg /00lb	00kg /00lb	00kg /00lb
SIZES	S/M, L/XL, XXL	S/M, L/XL, XXL	S/M, L/XL, XXL	M/L/XL
MATERIALS	Cordura	Cordura	400D Ripstop Nylon	400D Ripstop Nylon
FASTEN ADJUST (exc QR belt) LEGLOOPS/CROTCH STRAP QUICK RELEASE BELT/RING	Front Buckle	Front Buckle	Front Buckle/Velcro	Front Buckle
INTEGRAL POCKETS ADD POCKETS OPTIONS LASH PADS / MOLLE ATTACHMENT EYES/RINGS	2 - - - 1	2 - - 1	3 - - 2	2 - - 1
WHISTLE GRAB HANDLE				
COWSTAIL / STOW POUCH				
KNIFE RADIO POUCH				
CHEMLIGHT STROBE POUCH				
REFLECTIVE ID FLAP/POUCH				
STANDARDS/APPROVALS	OO	EN ISO	EN ISO	EN ISO
OTHER COLOURS				
NOTES		OO	OO	OO
WEBSITE	palm.equipment	ndiver-rescue.com	ndiver-rescue.com	ndiver-rescue.com

FOAM RESCUE PFDs





	SRE (NDIVER)	STEARNS	STOHLQUIST	WRSi	YAK
	5 Arctic Survivor Evo Pro 6	Universal	Descent	Rescue Wrap	
			11621	W12REW	
	76/115kg/00lb 100/120N	00kg/00lb 00N	00kg/00lb 00N	55-115kg/00lb 90/110N	00kg/34lb **150N**
	£162 $00 €00	**£235** **$00** **€00**	**£00** **$325** **€00**	£214 $00 €00	£00 $00 €00
	00kg /00lb	00kg /00lb	00kg /00lb	00kg /00lb	00kg /00lb
	M/L/XL	**S/M, L/XL, XXL**	**S/M, L/XL, XXL**	**S/M, L/XL, XXL**	**S/M, L/XL, XXL**
	300D Ripstop Nylon			500D Nylon	
	Front Buckle/Velcro	OO	OO	Side -QuickClip Buckles	OO
	4 - - 4	- - - - -	- - - - -	4 - - - 1	- - - - -
	EN ISO	OO	OO	ISO	OO
	OO	STEARNS is MUSTANG but one or two products may still be brand-ed as Stearns		In conjunction with Peak UK	DISCONTINUED?
	ndiver-rescue.com	stearnsflotation.com	stohlquist.com	.com	.com

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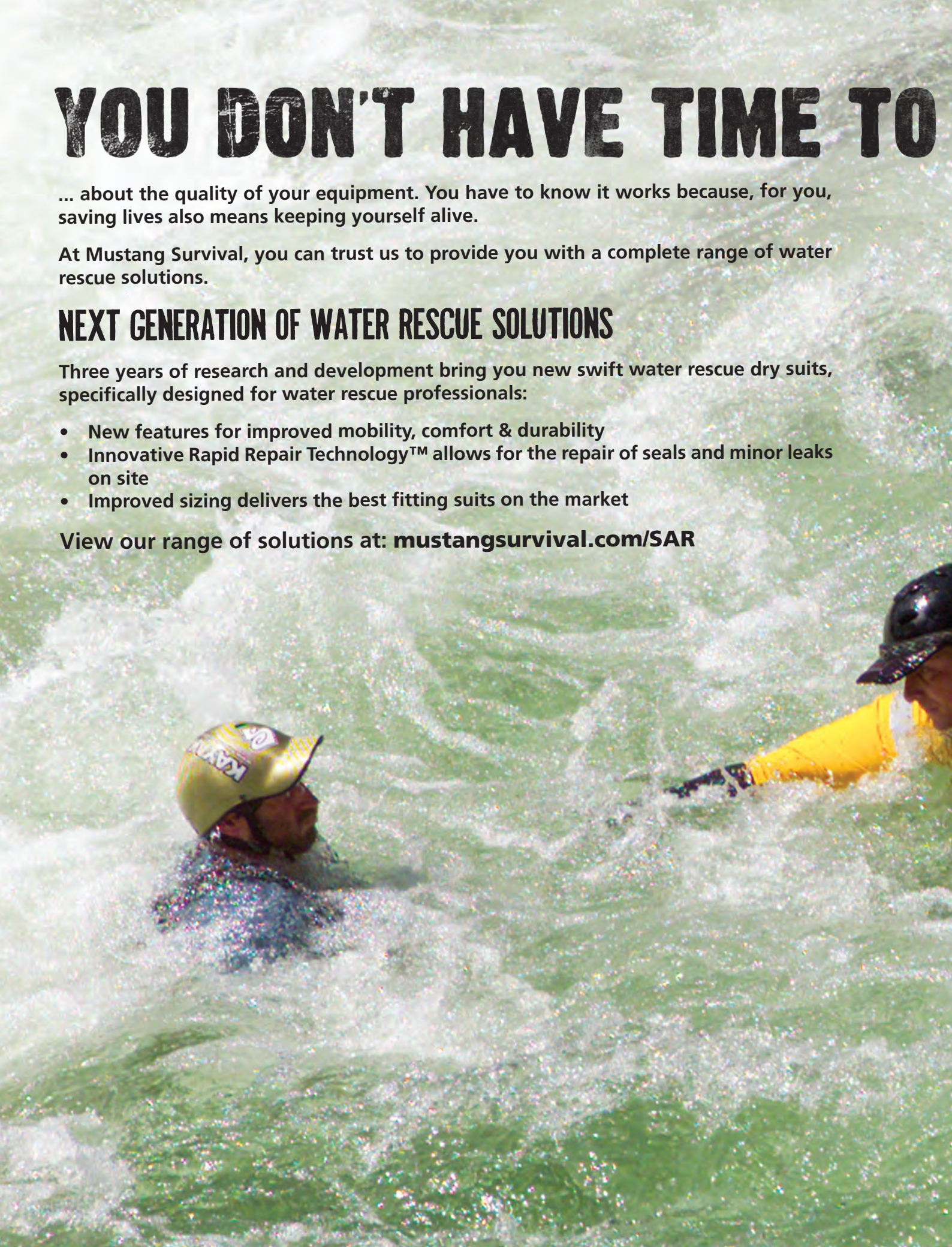

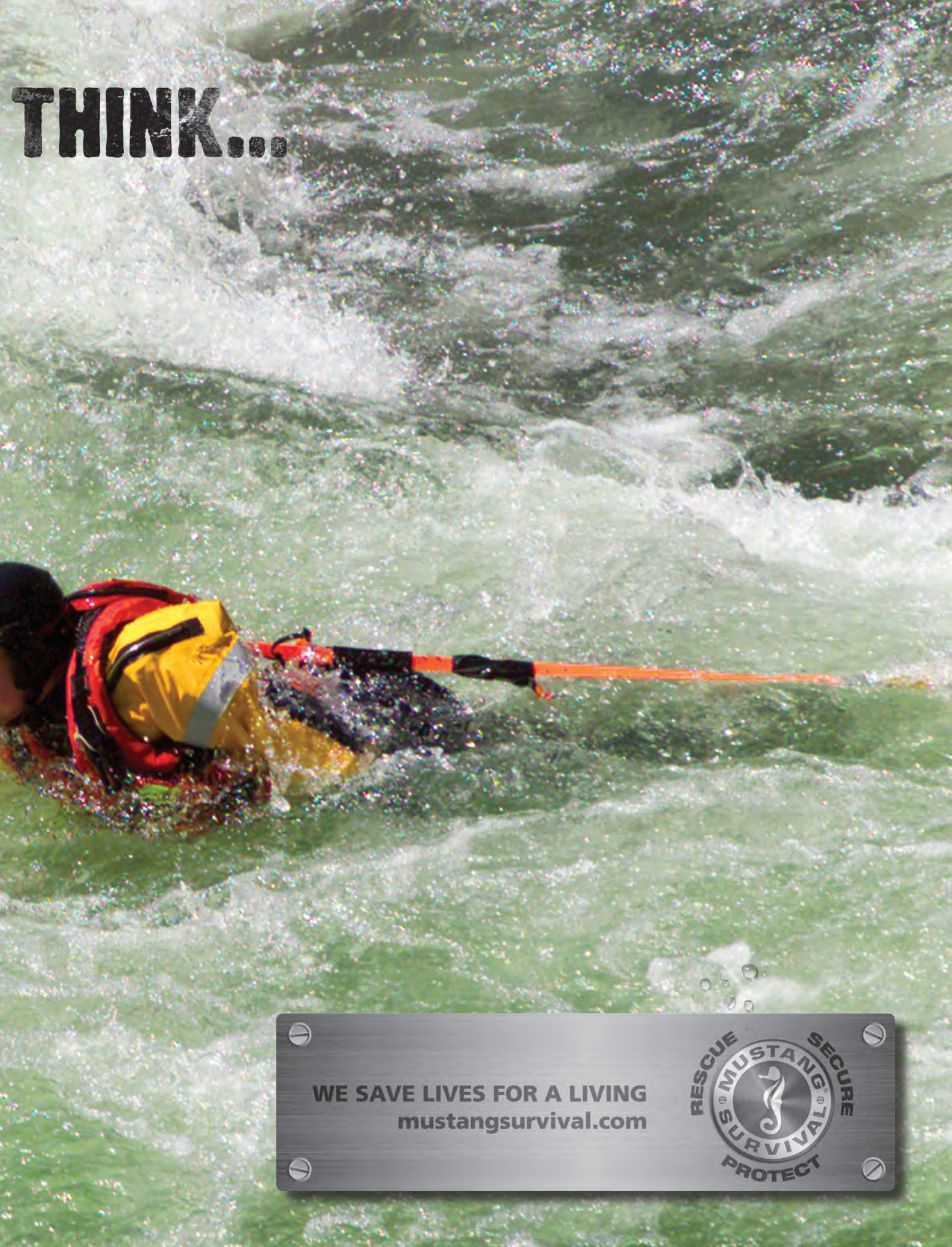
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Water Rescue & Water Safety

RESCUE DOG PFD

Above: Alp Design's Delphinus harness and in action on an Italian Swim-Rescue Newfoundland. top : Alp Design's Turtle Middle: Julius K9's 3in1

Unlike our previous Guide to Rope Rescue/Access Dog Harnesses the majority of companies making Dog PFDs are not from the rescue sector. Some are specialist marine-safety companies like ***Baltic*** and ***Crewsaver*** and some are specialist dog-harness companies like ***Ray Allen Mfg***, ***Julian K9, Non-Stop*** and ***Ruffwear***. The exception to this is Italian Caving and rescue specialist ***ALP Design***, now part of ***Kong*** (the climbing company not the dog-ball manufacturer although they too have a basic pet dog flotation harness that we haven't included). Their two models are both specialist swim-vests with lift capability. Aside from 4 models suitable for swim-rescue, the rest are Pet Flotation Devices, an acronym we've made up and not to be confused with human Personal Flotation Devices. These are technically NOT life jackets which have an inflatable element to orientate the wearer head-up if unconscious. PFDs are for rescue dogs unexpectedly working around water and also for in-water swim-training like the Norwegian Non-Stop harness pictured on the right. Buoyancy doubles as thermal protection for ground work in colder climates but is otherwise a cumbersome prospect for a non-water dog. Perhaps the most versatile is ***Ray Allen's Modular LLC*** which is a webbing and mesh 'shell' into which you can mount or swap a flotation jacket, cooling pads and stab/bullet protection and/or kevlar belly shield against sharp terrain. The ***Julius K9 3in1*** is also a versatile option because it allows float pads to be inserted into or removed from a neoprene jacket. The newest addition to this genre is the *UnderDog* (below) which comes from a source you might have thought already had such products - ***MUSTANG SURVIVAL***. This is one of the best names in professional water safety and having used their gear professionally for decades we we have a high degree of confidence in their products.

RESCUE DOG PFDs

NRS CFD harness

Julius K9's 3in1

Most rescue dogs would wear a life jacket in exactly the same circumstances as their handler - as a precaution against falling into water - perhaps when searching around water or over water in a boat in the case of cadaver dogs but there are some dedicated water rescue dogs whose job it is to enter the water, swim to a struggling human and provide a tow back to safety or perhaps assist a human rescuer. These would use dedicated float harnesses with the ***ALP Design*** models the only options to have strategically located side handles for a victim or rescuer to hold onto. All other floatation vests in this GUIDE are intended solely for the safety of the dog should it fall into water. Unlike a smaller rescue dog with a 'personal' floatation harness, direct contact or tow-rescue dogs like the Newfoundland in the title picture are large, powerful dogs that can resist being 'swamped' by a panicking in-water casualty. In the title picture a tow strap is attached to the top eye which a struggling swimmer can grab to deploy and then be assisted back to shore or the boat. In-water rescue dogs require a degree of self reliance on the part of the casualty to perform a 'rescue'. Think of them more as an in-water version of a sight-assistance dog.

It is a little surprising that only the ***ALP Design's 278/Turtle*** and the ***Ray Allan Modular LLC*** have rear leg straps or the option to add them because they provide much greater security in terms of harness retention. As with the hoist-capable harnesses discussed in the previous issue, there can be a danger that the dog can pull backwards out of all other harnesses in this GUIDE perhaps when scared, exhausted and someone is trying to pull them to safety or when connected to a tether and unwilling to be pulled wherever you intend them to go. Admittedly, this may be a peripheral concern and some like the ***Julius K9*** and ***NRS*** models would argue that their body wrap design with additional tensioning should negate this but it really depends on whether the dog has been secured into the harness because it is *definitely* entering the water or *just in case* it might fall into water. In the case of the latter the harness may be fitted less firmly to allow for comfort and fur/undercoat that is much bulkier when dry than it is when wet. Once the dog has entered the water the fur inevitably reduces in volume and the harness may be looser than the optimum fit. The ***Delphinus*** harness has two quick securing Velcro straps (with reflective strips) that mean the dog is at least partially secure within seconds even if the two buckle straps fail to be secured before the dog is swamped. These also mean the harness can be more quickly tightened should winching or lifting be required though it is the buckled straps that provide the true lift/hoist capability.

Much simpler in design , and representative of many of the harnesses in this GUIDE is the ***NRS CFD*** Harness. Effectively a one piece harness that can be slipped over the dog's head and secured around the chest/neck and under the belly which needs plenty of padding because a wet dog sees a huge increase in weight which the padding and lift handle needs to be able to cope with. The eye on the top is for a tether NOT for lifting. Remember that such harnesses also function well in providing thermal insulation on dry land in colder months. Even though companies like ***NRS***, C***rewsaver*** and ***Baltic*** are professional water-safety companies, theirs and some of the brands not associated with military or law enforcement are intended more for pet animals than they are for professional rescue dogs although ***Baltic'***s most extensive range of dog PFDs includes one listed as suitable for rescue - the ***Special***. Nevertheless, the principle for providing buoyancy and therefore safety for the dog when in water remains the same and quality of production with these and the specialist dog companies ***Julius K9*** and ***Ruffwear*** provide peace of mind for the handler. There are a considerable number of 'dog lifejackets' available online through Amazon and Ali Baba etc. and some of these may well be OK but, as with all equipment used in the professional rescue sector, if you are not familiar with the manufacturer and unsure of its track record, don't risk it. Expect to pay hundreds for the professional brands while renown pet brands may cost upwards £$€40. Anything less than this and you will need to check stitching, design and components to satisfy yourself that it will perform its task of keeping your dog safe - it's fair to say that it is rarely worth basing a safety equipment purchase on the lowest price.

Sewn attachments for D-Ring, web eye and handles are very prone to degradation due to water and UV and in particular salt water. They need to be well cleaned after each use and you need to specifically inspect the stitching and integrity of the webbing itself - sometimes this may not be easy if other fabric components are covering it, which, of course, can also be a good thing if it's providing some protection to the stitching. Look for strong bar tacking which are three or four relatively thick parallel lines of stitching or a robust box stitch which is a square with an X stitched to each corner. Salt water corrosion will also be an issue to look out for with metal components, again, ensure that the harness is washed down with fresh water and properly dried after each use. Store in a well ventilated area to avoid mould.

IN THE FOLLOWING TABLES.....

A circle ●● in the 'USE' columns indicates that the feature is OK for that purpose but not ideal.

COST: a rough guide only - includes local taxes. Varies with exchange rates, extra taxes etc. We usually round up to the nearest Pound£/US Dollar$/Euro€. Larger sizes often cost more. £$€ in orange is a currency conversion figure NOT an accurate import price with taxes etc which is shown in black.

SIZES: Given as generic sizing **S**, **M** **L** etc. which varies wildly between models. Colour-coded to the weight/girth to read more easily but some are universally adjustable. We have tried to include the weight of dog to give an accurate idea for the flotation required but many only provide measurements.

USES: All of these harnesses can be used to provide a degree of floatation in water but one or two may only provide this as a consequence of using foam padding for comfort or thermal protection in which case they will have a diamond in the **BUOYANCY** column.

SWIM-RESCUE refers to the ability of the harness to assist not only the dog in staying afloat but also in assisting either a rescuer or a casualty while in the water. Usually this will be via extra handles on the body of the harness for a person to grab onto and is only present in the two ALP Design models.

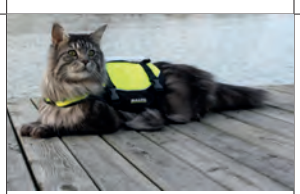
SUSPENSION means the harness is capable of being hoisted or lowered vertically. This is usually via a bridle to spread the dog's weight evenly front-to back for hoisting into a helicopter, on or off a ship or up/down a cliff or wall. A single robust top eye does NOT constitute hoist-capable even if it will easily take the dog's weight because it is not even close to being safe - the dog may slip out and/or suffer compression of the thorax or neck.

In our previous GUIDE **GROUND** referred to long-duration search, patrol and/or tracking and manoeuvring over boulders etc. requiring freedom of movement and no heavy panels that might rub against legs. In this GUIDE it refers only to the ability to add a lead or tether and use the harness on dry land for a period of time. The ALP Design specialist water rescue harnesses for instance, is shown with a diamond rather than full square because they can have a lead attached but the dog would not be comfortable for long distances on land.

MATERIALS: The main fabric of the body panel containing the foam is shown in **black**. Webbing type is shown in **green** and the hard fittings (buckles & D rings) are shown in **burnt orange**.

WEIGHT/GIRTH of DOG: is the weight of dog that is intended to use the harness. Body mass is a more accurate indication for floatation requirements but girth measurement provides more accurate fitting. **BUOYANCY** provided by the harness is only given by a few manufacturers. It is NOT the same as the weight of dog it will support - a 27kg dog would only need 3 or 4kg of buoyancy to support its weight

Images NOT to scale
N/A = Not Available/not given **COST:** Approx & inc local tax/VAT
£$€ in orange =currency conversion
USES: ○●=OK BUT NOT IDEAL
USES/FEATURES: □□= Option

		MODEL	COMPANY	ORIGIN	COST inc tax/ VAT	USE SUSPENSION	USE GROUND	SWIM RESCUE	MATERIALS: 'JACKET' WEBBING INTEGRAL 'HARDWARE'
		**TURTLE** 278	**ALP DESIGN**		£190 $265 €220	■	■	■ ■	Cordura Polyester 7x double-D buckles 1x D-ring
		**Delphinus**	**ALP DESIGN**		£220 $300 €250	■	■	■ ■	Cordura 2x Velcro straps Polyester 7x double-D buckles 1xRing +4xSml Rings
		**Maja (Cat Harness)**	**BALTIC**		£28 $38 €34	-	■	■	Cellu cushion float Polyester 3x plastic fast clips 1 metal D ring
		**Mascot**	**BALTIC**		£25-33 $32-43 €29-39	-		■	Cellu cushion float Polyester 3x plastic fast clips 1x metal D-ring

because the water is supporting much of the load. There is a huge difference between the quality of components in a pet-shop dog harness and a professional dog's lift harness. Unusually for us, this GUIDE contains non-rescue professional designs that are mostly NOT intended for hoisting so the Minimum Breaking Strength/Load - MBS (in burnt orange) is only provided by one or two. We list the precise weights and sizes in metric with the imperial figures rounded up or down because it's a less precise measurement anyway! We dispensed with the **COMFORT / PADDING** column used in the previous GUIDE to *Hoist-Capable Harnesses* because ALL of these are padded to some degree.
INTEGRAL/ADD-ON FLOTATION most of these harnesses have integrated flotation indicated by a black square but some can have extra flotation pads added to a neoprene jacket like the JuliusK9 3in1 or to a webbing frame like the Ray Allen Modular LLC. This allows quite a bit of flexibility and is indicated by an orange square ■. Those with minimal buoyancy are indicated by a black circle● meaning OK but not ideal

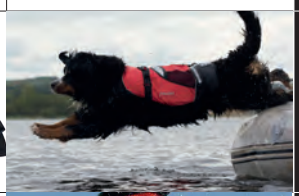
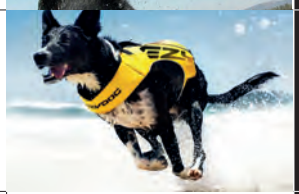
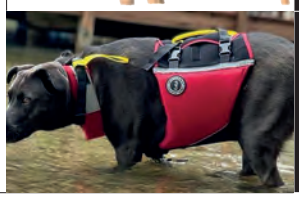
SECURE: The straps and attachment points which secure the dog in the PFD and you to the dog!
GIRTH/BELLY: a strap that can be adjusted for length on the underside of the dog. The **girth** strap is behind the front legs and the **belly** strap is further back towards the rear legs. For most of these float harnesses the buckles are plastic push-fit (Fastex,Nexus or DuraFlex) but some like the NRS use a plastic ladderlock where you simply pull the web tail to tighten and some, like ALP DESIGN ave alloy double D buckles because they are designed for hoisting as well as swimming.
LENGTH: refers to adjustment for length from front to back and is usually a buckle on the top at the shoulders or on the back near the back legs. Only one or two of these harnesses have that capability.
NECK: indicates that the front or breast strap that encircles the neck can be adjusted for size.
We have omitted the Front eye/Handle column that we had in the last GUIDE to Dog Harnesses because none of these PFDs has that feature but it is an option on the K9 Storm harness.
TOP EYE. TOP HANDLE: Mostly a metal ring or D-ring but can be a reinforced sewn eye. Sewn eyes are indicated by an asterisk and details in the NOTES column. In professional models the top eye(s) may constitute part of a lift/hoist capability indicated in the **SUSPENSION** column. Otherwise assume that all of these are simply lead/tether eyes. The handle, will always be capable of lifting the full weight of the dog but this is simply for assisting out of the water or over an obstacle NOT for hoisting off the ground.

ACCESSORIES:

POUCH. VELCRO. LIGHT ATTACH: A pouch or pocket which can be for accesories like lift straps or dog supplies or the harness itself when not in use. **VELCRO** refers to strips of loop velcro onto which you can add badges, reflection, panniers etc. a key feature of 'tactical' harnesses. **LIGHT ATTACH** refers to elastic or Velcro-secured straps intended to hold a chemical light stick,strobe or torch/flashlight.
HI-VIZ REFLECTIVE MOLLE: **HI-VIZ** is a High visibility colour option like yellow or red. REFLECTIVE refers to smaller panels or badges or piping rather than the entire jacket. Often an optional badge and easily applied to harnesses with Velcro. **MOLLE** or PALS is military-style attachment webbing.
Any item that is an option is shown as an outline square □□□
COLOUR: Primary colour of Jacket or panel or webbing if it's a web-only harness. Secondary or web colours are shown in the square's outline frame.

SIZE	WEIGHT of PFD	WEIGHT of DOG	GIRTH of DOG (&/or LENGTH of VEST)	SECURE: GIRTH / BELLY	SECURE: NECK / LENGTH	SECURE: TOP/SIDE EYE(S) HANDLE(S)	POUCH VELCRO-ATTACH LIGHT	HI-VIZ MOLLE REFLECTIVE	COLOURS	WEBSITE	WWW.
S/M L	1.2kg/2.6lb 1.5kg/3.3lb	25-40kg/55-88lb 45-65kg/18-143lb	55cm/22" 65cm/25.6"	■ ■	■ ■	1 4*	■	■ ■	■	Full flotation swim harness. *2 handles on flanks	alpdesign.it
S M L	800g/2lb 1kg/2.2lb 1.3kg/2.9lb	20-25kg/44-55lb 25-40kg/55-88lb >40kg/>88lb	- -	■ ■	- ■	1 6*	■ ■	■ ■	■ ■	Full flotation swim harness with zipped pouch. *2 handles on flanks. 2x rings on each side are options.	alpdesign.it
S M L	178g/6oz 200g/7oz 220g/8oz	0-3kg/0-6.6lb 3-7kg/6.6-15.4lb 7-10kg/15.4-22lb	- -	■ ■	- ■	1 1		■ ■	■	Specifically designed for cats but could suit small dogs or animals?	Baltic.se
XS S M L XL XXL	170g/6oz 208g/7.3oz 248g/8.7oz 412g/14.5oz 470g/16.7oz 530g/19oz	0-3kg/0-6.6lb 3-8kg/6.6-17.6lb 8-15kg/17.6-33lb 15-40kg/33-88lb >40kg/>88lb	- -	■ ■	- ■	1 1	- -	■ ■	■■ ■■		Baltic.se

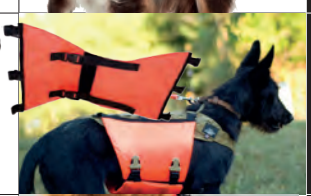
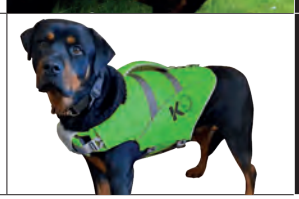
Images NOT to scale
N/A = Not Available/not given **COST:** Approx & inc local tax/VAT
£$€ in orange =currency conversion
USES: ○●=OK BUT NOT IDEAL
USES/FEATURES: □□= Option

		MODEL	COMPANY	ORIGIN	COST inc tax/ VAT	USES SUSPENSION	USES GROUND	USES SWIM RESCUE	MATERIALS: 'JACKET' WEBBING INTEGRAL 'HARDWARE'
		Pluto	BALTIC		£20-28 $24-38 €24-34	-		■	Cellu cushion float Polyester 3x plastic fast clips
		Special	BALTIC		£65 $105 €96	-		●	Cellu cushion float Polyester 3x plastic fast clips 2x metal D-rings 2x plastic D-rings
		Zorro	BALTIC		£39 $47 €43	-	-	■	Cellu cushion float Polyester Top Zipper 1 ladderlock buckle 1 plastic D-ring
		Petfloat	CREWSAVER		£58 $76 €68	-	■	■	3x plastic fast clips 1x plastic D-ring
		Dog Flotation Device & Micro DFD	EZYDOG		£37-73 $49-96 (£29) ($38)	-	■	■	Polyester/Neoprene Nylon 3x plastic fast clips 1x St. steel D-ring 1x nylon D-ring
		X2 Boost	EZYDOG		£49-73 $65-96 €57-85	-	■	■	1680D Nylon/ Neoprene Nylon 3x plastic fast clips 1x alloy D-ring
		Multifunctional/ IDC 3in1 Dog Vest	JULIUS-K9		£82-120 $120-164 €110-150	●	■	■	Neoprene Nylon 2x plastic fast clips 3x metal D-rings
		SAR Std/ Aerial Insertion Std	K9 STORM		£2179* $2699* €2520*	■	■	■	Ballistic Nylon & Kevlar Mil-Spec Nylon 3x alloy fast clips 2x plastic fast clips
		Underdog	MUSTANG SURVIVAL		£56 $70 €65		●	■	Cordura & Mesh covered foam Nylon 3x plastic fast clips

RESCUE DOG PFDs

SIZE	WEIGHT of PFD	WEIGHT of DOG	GIRTH of DOG (&/or LENGTH of VEST)	SECURE: GIRTH BELLY	SECURE: NECK LENGTH	SECURE: TOP/SIDE EYE(S) HANDLE(S)	POUCH/VELCRO ATTACH LIGHT	HI-VIZ MOLLE REFLECTIVE	COLOURS	NOTES	WEBSITE
XS S M L XL XXL	133g/4.7oz 133g/4.7oz 175g/6oz 308g/11oz 347g/12oz 407g/14oz	0-3kg/0-6.6lb 3-8kg/6.6-17.6lb 8-15kg/17.6-33lb 15-40kg/33-88lb >40kg/>88lb	- -	■ ■	■ -	1 1		■	■■ ■		Baltic.se
S M L XL XXL	292g/10.3oz 434g/15.3oz 730g/25.7oz 800g/28.2oz 858g/30.2oz	0-8kg/0-17.6lb 8-15kg/17.6-33lb 15-40kg/33-88lb >40kg/>88lb >40+kg/>88+lb	- -	■ ■	■ -	2 1	■	■ ■	■	2 side-mounted d-rings can take side handholds	Baltic.se
XS S M L	133g/4.7oz 133g/4.7oz 133g/4.7oz 133g/4.7oz	2-5kg/4.4-11lb 5-10kg/11-22lb 10-25kg/22-55lb >25kg/>55lb	- -	■	- -	0 1		■ ■	■ ■	Zips along the top. Weights of harness provided by Baltic must mean that increased air volume alone is the difference in the size of dog supported.	Baltic.se
XS S M L XL	300g/10.6oz 375g/13.2oz 450g/15.6oz 525g/18.5oz 600g/21.1oz	-	24-30cm/9-12" 28-35cm/12-14" 35-45cm/14-18" 45-55cm/18-22" 55-65cm/22-26"	■ ■	■ -	1 1	■	■ ■	■ ■		crewsaver.com
XS) XS S M L XL	(214g/7.5oz) 317g/11.2oz 389g/13.7oz 508g/18oz 593g/21oz 670g/23.6oz	(<7kg/<15.4lb) 7-11kg/15-24lb 9-20kg/20-44lb 18-27kg/40-60lb 27-41kg/60-90lb >41kg/>90lb	(25-34 30-50cm/10-13 12-20") 25-33 48-81cm/10-13 19-32" 33-41 53-89cm/13-16 21-35" 38-50 64-99cm/15-20 25-39" 43-61 69-112cm/17-24 27-44" 51-66 76-122cm/20-26 30-48"	■ ■	■ -	1 1	■	■ ■	■ ■	Micro DFD is a variant for small dogs/animals	ezydog.co.uk
XS S M L XL	300g/10.6oz 350g/12.3oz 400g/14.1oz 450g/15.9oz 500g/17.6oz	7-11kg/15-24lb 9-20kg/20-44lb 18-27kg/40-60lb 27-41kg/60-90lb >41kg/>90lb	30-45 45-55cm/12-18 18-22" 35-50 56-65cm/14-20 22-26" 40-55 66-75cm/16-22 26-29" 45-60 76-85cm/18-24 30-33" 50-65 86-105cm/20-26 35-41"	■ ■	■ -	2* 1	■ ■	■ ■	■■ ■■	* one is a sewn web eye	ezydog.co.uk
S M L XL	g lb	15-25kg/33-55lb 24-40kg/53-88lb 40-60kg/88-132lb	40 44-64cm/16 17-25" 46 55-72cm/18 22-28" 51 65-82cm/20 26-32" 57 75-92cm/22 29-36"	■	■ -	2 1	■	■*	■ ■	Flotation panels can be removed *reflective seams	julius-k9.com
Custom*	average 907g/2lb	Custom*	Custom*	■	■ -	1 3	■	■ ■	■■ ■■ ■■ *	3 versions , Aerial Insertion, SWAT & SAR. All have #2 ballistic protection & buoyancy. *Customised for dog's wt, size & breed. *+3xMulti-Camo colours	k9storm.com
XS S M L XL	-	0.9-5.4kg/2-12lb 5.4-11kg/12-24lb 11-27kg/24-60lb 27-41kg/60-90lb 41-54kg/90-120lb	31-46cm/12-18" 46-61cm/18-24" 61-76cm/24-30" 69-91cm/27-36" 84-112cm/33-44"	■ ■	■ ■	1 1	■ ■*	■ ■	■ ■	*Light attach by virtue of the buckle adjustment web-ends velcro down	mustangsurvival.com

Images NOT to scale
N/A = Not Available/not given **COST:** Approx & inc local tax/VAT
£$€ in orange =currency conversion
USES: ○●=OK BUT NOT IDEAL
USES/FEATURES: □□= Option

		MODEL	COMPANY	ORIGIN	COST inc tax/ VAT	USES SUSPENSION	USES GROUND	SWIM RESCUE	MATERIALS: 'JACKET' WEBBING INTEGRAL 'HARDWARE'
		Safe Life Jacket 2.0	NON-STOP DOGWEAR		£87-100 $98-118 €88-107	●	■	■ ●	PU-coated 210D Polyester Oxford/ 8mm TPE C/S1800 padding, Nylon 2x plastic fast clips* 3x metal D-rings
		Protector	NON-STOP DOGWEAR		£109-125 $120-140 €110-135	●	■	■ ●	PU-coated 210D Polyester Oxford/ HexiVent mesh,8mm TPE C/S1800 padding, Nylon 2x plastic fast clips* 2x Lateral web loops
		CFD Dog Life jacket	NRS		£49 $60 €56	-	■	■	420D Rip-Stop Nylon Nylon 2x plastic fast clips 1x plastic ladderlock 1x metal D-ring
		Modular LLC with Flotation	RAY ALLEN MANUFACTURING		£176* $210 €96	-	■	■ ●	Ballistic Nylon Nylon 2 GT Cobra buckles, 1 Roll Bar buckle, 2x Fastex, 6x G-Hooks, 1x metal D-ring
		Dog Buoyancy Aid	RED		£65-90 $85-120 €76-105	-	●	■	Cordura 3x plastic fast clips 1x metal D-ring
		Pet Buoyancy Aid	RIBER		£23 $30 €26	-	■	■	3x plastic fast clips 1x Ladderlock buckle 2x metal D-rings
		FloatCoat	RUFFWEAR		£95 $80 €82	-	●	■	1000D Cordura PE 'Nylike' 4x 3-bar buckles 1x double-D buckle 4x length adjusters
		Auxilium	SPÜR HUNDE SCHULE		£51-61 $64-77 €58-70	-	■	■	300D Cordura Nylon 3x plastic fast clips 1 metal D-ring
		K9 AquaFloat	WEST COAST HYDRA-THERAPY		£60-70 $79-92 €70-81	-	●	■	3x plastic fast clips 3x Length Adjusters

RESCUE DOG PFDs

SIZE	WEIGHT of PFD	WEIGHT of DOG	GIRTH of DOG (&/or LENGTH of VEST)	SECURE: GIRTH BELLY	SECURE: NECK LENGTH	SECURE: TOP/SIDE EYE(S) HANDLE(S)	POUCH VELCRO ATTACH LIGHT	HI-VIZ MOLLE REFLECTIVE	COLOURS	NOTES	WEBSITE
XS S M L XL XXL	169g/6oz 192g/6.8oz 312g/11oz 473g/17oz 619g/22oz 688g/24oz	1.5-7kg/3.3-15.4lb 2.5-10kg/5.5-22lb 5-20kg/11-44.1lb 10-30kg/22-66lb 15-40kg/33-88.2lb 20-50kg/44-110lb	20cm/8" 25cm/10" 30cm/12" 36cm/14" 42cm/17" 51cm/20"	■ ■	■ -	1 2 1	■	■ ■	■	2 side-mounted d-rings can take side handholds * Duraflex	nonstopdogwear.com
XS S M L XL XXL	169g/6oz 192g/6.8oz 312g/11oz 473g/17oz 619g/22oz 688g/24oz	1.5-7kg/3.3-15.4lb 2.5-10kg/5.5-22lb 5-20kg/11-44.1lb 10-30kg/22-66lb 15-40kg/33-88.2lb 20-50kg/44-110lb	20cm/8" 25cm/10" 30cm/12" 36cm/14" 42cm/17" 51cm/20"	■ ■	■ -	1 2 1	■	■ ■	■	2 side-mounted d-rings can take side handholds * Duraflex	nonstopdogwear.com
XS S M L XL	181g/6.4oz 233g/8.2oz 320g/11.3oz 374g/13.2oz 428g/15.1oz	<5kg/<12lb 6-11kg/13-24lb 11-27kg/25-59lb 27-36kg/60-79lb >36kg/>80lb	35-53cm/14-21" 51-66cm/20-26" 64-79cm/25-31" 76-91cm/30-36" 89-104cm/35-41"	■ ■	■ -	1 1	-	■ ■	■ ■	Bouyancy= 1.2kg/2.7lb 1.5kg/3.4 lb 2.2kg/4.9lb 2.9kg/6.4lb 3.6kg/7.9lb	nrs.com
Uni	408g/0.9lb +flotation panels	all	68-80cm/26-31.5" + extension strap for larger dogs	■ ■	■ ■	2 1	■ ■	■ ■	■ ■ + ■	Flotation panels can be removed *price for modular harness + add-on 100N flotation	rayallen.com
XS S M L XL	-	-	33-48cm/13-19" 46-64cm/18-25" 61-81cm/24-32" 76-94cm/30-37" 89-114cm/35-45	■ ■	■ -	1 4*		■ ■	■ ■ ■	2 dorsal + 1 running each side from shoulder to chest (black strap that leads to fast clip buckle)	red-equipment.co.uk
M L	-	-	33-55cm/13-22" 40-70cm/21-27" 46-76cm/18-30"	■ ■	■ ■	2 1	■	■ ■	■		riberproducts.com
XXS XS S M L XL	.2kg/0.4lb .25kg/0.55lb .34kg/0.75lb .43kg/0.95lb .5kg/1.1lb .6kg/1.35lb	-	33-43cm/13-17" 43-56cm/17-22" 56-69cm/22-27" 69-81cm/27-32" 81-91cm/32-36" 91-107cm/36-42"	■ ■	■ -	2* 1	■	■ ■	■ ■	*1 eye is a webbing eye	ruffwear.com
M L XL	0.4kg/0.88lb	-	40-60cm/21-24" 60-80cm/24-32" 80-100cm/32-39" 100-140cm/39-55"	■	■ -	1 2		■	■	100N of buoyancy	spuerhundeschule.de
XS S M L XL XXL XXL	3.9kg/8.7lb	-	51-61cm/20-24" 54-63cm/21-25" 57-67cm/22-26" 65-80cm/26-31" 73-93cm/29-37" 87-104cm/34-41" 87-107cm/34-42"		■ -	3* 1			■ ■	*all are webbing eyes	westcoasthydrotherapy.co.uk

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SURFACE DRYUITS

INTRODUCTION

This Guide is focused on rescue drysuits that are suitable for use out of and in-water but distinct from purely dive suits which will be a separate Guide. There are some dive suits included here that are used for surface rescue and there are some dedicated ice rescue suits that would be too bulky and hot for general surface rescue work so they have separate category rows in our tables. It's quite difficult to get consensus on the true history of drysuit development because there was much experimentation in the 30's and 40's and hard to know when a suit truly kept the body dry. Everyone over the age of 30 will be familair with the term 'frogman' which was combat diving largely developed by a specialist Italian Navy team and subsequently taken up with gusto by British Commandos during WWII. Their 'Top-Secret' suits were primarily membrane rubber as distinct from thicker neoprene so in this respect they were certainly on their way to being drysuits. Sometime during the 40s and 50s suits evolved to provide a dry body and the ability to use thermal layering - so-called baggy suits rather than skin-tight wet suits. In the absence of the NASA invented dryzips original drysuits were rubber and had to be stretched over the head (in the case of an early *Pirelli* model) via an enlarged opening which was subsequently made watertight with a hood drape or a metal ring for a hood or the suit was accessed via an 'umbilical' tube that was then rolled up to create a watertight seal (in the case of a British *Seibe Gorman* model). Companies like *Viking* in Norway who were working on drysuits at the request of the Norwegian Navy and *Poseidon* in Sweden were producing viable drysuits in the 50's but it wasn't until the space race caused the development of an airtight zip for space suits that divers' drysuits truly evolved into the versatile, multi-agency tool that it is today. Some of the companies involved haven't changed much in the past few decades except that they now have several dozen competitors. This is mostly due to sports demands but there are also a lot of commercial dive suits and military models available. **We have only included companies actively producing RESCUE-oriented models**. So we haven't included otherwise worthwhile models from folk like *Gul*, *Holis*, *Kokotat*, *O'Three*, *Stohlquist*, *Seatec* in Australia or the aptly named '*Waterproof*' in Sweden. Even the companies we have included may have many more models that are worth a look. Often these only differ from a 'rescue' model by dint of high vis colours and some reflective tape but for the purposes of this GUIDE they will have been shown to be fit for the purpose of rescue.

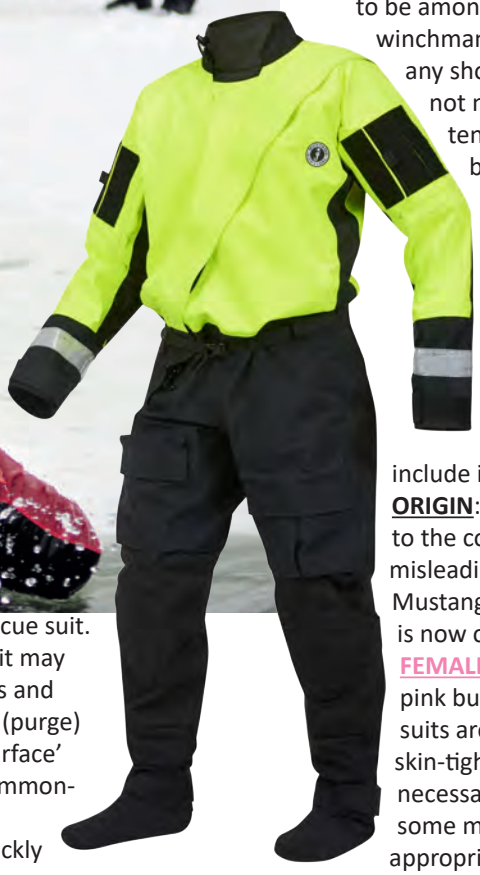
Of those not in our Guide, *Bell Avon* still exist as part of *Zodiac* inflatable boats, *Solent* still make wetsuits and associated products and *Nokia* presumably branched out big time into more lucrative areas.

Wearing a DUI USCG drysuit a rescue swimmer deploys from a MH-65C Dolphin rescue helicopter U.S. Coast Guard photo by Petty Officer 2nd Class Levi Read

Main Image: U.S. Coast Guard Ice Rescue training photo by Petty Officer 2nd Class Lauren Jorgensen
Inset Left: MFC-International Drysuit.
Inset right: Mustang Survival's Sentinel D624

You can see from early development that there was a time when drysuits were just for divers or at least for underwater use. Water rescue, as the traditional domain of beach lifeguards, helicopter PJs or rescue boat boat crews, meant wet suits. They're called 'wet' because the user relies on a layer of water warmed from being sandwiched between spongy neoprene and the skin, to maintain a functioning body temperature. The suit prevents heat being stripped from naked skin by cold water or cold air but also relies on a degree of self-heating through activity to work efficiently. Once the user becomes inactive or the water becomes more frigid this principle doesn't work so well and this is where drysuits capable of being used over thermal layers excel in rescue work.

In the past few decades drysuits have become more like the ultimate in waterproof overalls than a dive suit and in fact many aren't now even suitable or capable of being used under water or even for swimming and are simply a means of protecting the rescuer against the elements while on or near water and for simple wading in floods . They should keep you mostly dry should you fall in and then egress immediately but are not intended for in-water use. NB: Our row in the USES section of the tables headed **IMMERSION** indicates that the suit will keep you dry if you fall in or are completing an in-water task- ***it does NOT mean immersion in the sense of long term in-water survival***. Equally a full dive suit is not generally the



best thing to wear as a surface rescue suit. Aside from being more expensive it may be too restrictive with tighter seals and features like inflation and exhaust (purge) valves that just get in the way. 'Surface' suits are now a specialised and common-place item in their own right.
Rescuers are able to don them quickly at a water rescue incident and are provided with a good degree of thermal protection as well as counter-contamination. At their most bulky are the dedicated ice rescue suits like the Stearns DriFlex, Imperial IR1500 and Mustang Ice Commander with insulating neoprene and integral hoods and gloves. But many other suits are substantial enough to be used for ice rescue providing they have enough room for insulating layers. At the other end of the spectrum, some drysuits are relatively thin waterproof nylon for short term use only, some are even disposable - small and light enough to be stored in a response bag or in the vehicle. An interesting long-duration variation on lightweight is the Survitec/Multifabs 601 a long duration drysuit light enough and comfortable enough to be worn all day beneath regular rescue clothing which opens up a number of possibilities for use of specialist rescue clothing and equipment when exposed to the risk of cold-water immersion.

For swiftwater and flood rescuers something more substantial is called for because fast moving water requires more efficient seals and drysuits should have clean lines so that there is less possibility of snagging. heir water resistance capabilities and strength of outer fabric are often much higher than for a surface or disposable suit. Cordura or heavy gauge nylon are now as common as more traditional Butyl, rubber and neoprene though they are most often used as part of a layered fabric - Bi or Tri-Laminates. The other specialised drysuit that requires exemplary in-water performance is the pararescue or rescue swimmer suit. Used primarily by helicopter crews it may or may not have fire-retardant qualities but it is going to be amongst the best drysuits available because the PJ or winchman role can be unforgiving and would soon highlight any shortcomings in drysuit performance. Boat suits are not necessarily designed for regular in-water use but tend to have a tougher outer fabric like Cordura simply because it is regularly knocking against hard and rough surfaces; they're more of a working suit.

KEY to TABLES

COST
basic model. As always, expect lower cost for multiple purchases or reduced specifications. Prices INCLUDE VAT or local taxes. £$€ in Orange are a CURRENCY CONVERSION ONLY and do not include import tax, shipping etc.

ORIGIN: Not necessarily where the suit is made. It refers to the company's country of origin and even this may be misleading if the company is a subsidiary. For instance Mustang Survival would normally be listed as Canadian but is now owned by US group, Safariland.

FEMALE VERSION: With apologies for the stereotypical pink but it stands out well in the tables! All membrane suits are going to be far more forgiving of shape than a skin-tight neoprene suit so female sized versions aren't necessarily vital for all facets of rescue work. Nevertheless, some manufacturers do offer an off-the-peg female fit with appropriate relief zip (if fitted) while the rest should at least be looking at an option for the 51% of the population that need a properly fitting suit as well! .

MATERIALS: Traditionally drysuits have fallen into two types of construction, **MEMBRANE** which is baggy and **NEOPRENE** which is a tighter fit. Most rescue suits are 'membrane suits' and utilise a wide range of materials. Simple nylon or Cordura which can be lightweight, inexpensive and used in temporary use or 'disposable' suits. Or it can be thicker and tougher and a more durable option. EIther way it is non-breathable.
In combination with other materials or multiple layers, nylon becomes a far more durable suit though still not breathable which is the domain of GoreTex or similar specialist materials. Breathable suits are particularly suited to surface or out-of-water use when overheating could be an issue. Some that are quoted as breathable may only be breathable on the top section. The vast majority of drysuits in this list are Bi or Tri-Laminate where two or three materials are sandwiched together. Often this will be Nylon, Butyl or to a lesser extent neoprene and a more complex material like Goretex with a comfortable liner or facing material which aids in wicking moisture away from the body. Goretex may also be used in

conjunction with Nomex for fire retardency in drysuits used in aviation. High tenacity Nylon and Cordura tend to offer the best protection from wear while Butyl, Neoprene and similar rubber compounds offer good insulation as well as a better degree of wear resistance than *GoreTex* and breathable materials alone. More complex suits, usually intended for diving, may incorporate a special inner suit to provide better fit, comfort and warmth than the outer alone. This is donned as a single, integrated drysuit for example Whites Fusion as distinct from the more usual separate drysuit and undersuit. This article is large enough as it is so we haven't been able to go into too much detail on the individual materials but it's worth you doing some extra research in this regard once you've narrowed down your selection.

REINFORCED AREAS: As distinct from 'Padded Areas' this refers to the addition of extra layers or a more robust material in areas of high wear. Mostly this is in the contact areas of the knees, elbows and seat (buttocks) but may also be on the shoulders and around the waist where the rescuer's suit is in contact with load-bearing harness straps and scuba, SCBA or CABA tanks.

PADDED AREAS: Usually applies to the knees where thickened 'comfort' padding is used in addition to reinforcement to alleviate wear and abrasion. Padded areas provide comfort on hard, sharp and angular surfaces as well as resistance to penetration. They will often have drainage built in so that the suit doesn't retain excess water on land or when hoisted out of water. Some provide external pads that can be inserted into knee and/or elbow auto-draining pouches.

ENTRY: Once waterproof zips were invented, dive suits followed the space suit initiative with a horizontal zip across the shoulders. This kept a vital component away from any frontal assault but it wasn't long before those less concerned with underwater zip integrity looked at easier and quicker ways to don a drysuit. A front zip was found to be easiest with most being diagonal but there are also shoulder to shoulder (yoke) and 'J' configurations as well as a full spiral such as on the Multifabs 106.

SIZE ADJUST: Usually just a fabric extension of the outer material at the wrist, ankle and/or neck and often intended to be seal protection but with velcro they enable you to tighten the material. This lessens your profile and makes the seals more efficient while allowing you to slacken off for comfort when out of water. Necks and ankles may also be adjusted by zip or elasticated cord and toggles.

SEALS: what used to be rubber is now more often than not latex but can also be silicone which tends to be more expensive or it may be neoprene which many find more comfortable. Either way, with tight rubber-like seals at the neck, wrist and ankle water is prevented from entering the suit. In many cases there will be an integral hood protecting the head and sealing on the face. There will also be either waterproof seals at the ankle or integral socks, booties or boots. Booties shown as ■/■ in our tables, are usually a cross between a flexible sock and the sole of a boot. Socks or an ankle seal enables the wearer to use any suitable boot they wish. Swiftwater rescuers in particular like to have a more tactile boot to provide better traction and mobility on rocks and as can be seen from our title shot, studded boots are much better on ice than standard sole boots. Where integrated boots are offered they tend to be tough and steel toe capped and/or rubber wellingtons particularly for boat suits. Drysuits with dive capability and especially in contaminated water may have fixed rings at the wrist to enable connection of gloves to keep the hands dry.

At the neck things have changed in recent years with an adjustable neck seal option providing very improved levels of comfort for the surface rescuer and rescue swimmers. The great Jim Segerstrom used a Mustang suit with this feature for swiftwater rescue and swore by it. I too have this excellent drysuit but keep miscalculating how tight to draw in the neck to withstand immersion. If your face is not red, it isn't tight enough!

POCKETS Most suits can have pockets custom-fitted but standard fittings vary. Generally speaking swiftwater oriented suits will not have pockets as standard because they may be a snag hazard. In aviation suits there may be low profile pockets on the top of the thighs and for more general purpose rescue and USAR there may be bellows style cargo pockets. Some have shoulder pockets with pen holders and some have D-rings or even lanyards which enable you to secure items on a length of cord or elastic so that they can be used but safely retained. Lash Tabs also known as Matrix Base Plates offer a means of attaching pockets or accessories using webbing.

REFLECTIVE: Counter to the interests of tactical operators but reflective tape is a feature of most rescue drysuits, usually on the wrists and/or arms but may also be in the form of piping which is less obvious until a light is shone near it

BRACES/SUSPENDERS: Are mounted internally and help to improve fit so that the legs don't sag in relation to the torso -especially useful for shorter individuals wearing a standard fit suit. Also used to keep up the legs when the top part of the suit is unhinged when on a break (away from the water).

ADJUSTABLE WAIST: to lessen that Pooh Bear look and give a firmer fit around the waist. Negated to some extent by those wearing a PFD. Some suits have a telescoping torso which allows good height adjustment.

RELIEF ZIP: If you are used to a wet suit don't forget that you've switched to a drysuit or there could be some unsavoury sealed in liquids and odours. A relief zip is a great feature if you're likely to be in a suit for long periods without the option to disrobe for a latrine break. Our table indicates the male option but some offer a zipped drop-down seat option for females. Dive oriented companies also offer a urine valve .

PURGEINFLATEVALVE: A necessity for dive suits along with an inflation port so the presence of a valve usually discerns dive from the surface suits BUT air purge is a great feature on any drysuit even if you don't dive because it allows rapid release of pent up air without having to perform the neck-pull-squat while inflate allows a big increase in buoyancy.

COLOURS: We've listed combination colours with a forward slash/. Similar proportion colours begin with a capital letter and minority colours with a lower case letter. Most, though not all, suits have some element of black and this is often from the waist down while the top half is in a higher visibility colour like red, yellow or orange. Obviously, most tactical-oriented suits stick to all black or dark blue and lack reflective tape which is counter-productive when trying to avoid snipers or sentries!

Images NOT to Scale
COST: Approx, INC local tax/VAT. £$€=currency conversion only
USES/ FEATURES:
●= partial feature&/or OK but not ideal
□□□= Option
N/A = Info Not Available
VALVES PRV=Pressure Relief Valve







MANUFACTURER	AQUATEK	AQUATEK	AQUATEK	COLLINS NET	COLLINS NET	COLLINS NET	COLLINS N
MODEL VARIANT	X480R -	X350R -	S200R -	First Responder -	Rescue -	Technical Rescue -	Patrol -
ORIGIN	UK	UK	UK	UK	UK	UK	UK
COST	£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00
USES SURFACE							
IMMERSION	■	NO	■	■	NO	■	■
SWIFTWATER							
FLOOD	■						
CONTAMINANTS							
DIVE							
BOAT CREW							
AVIATION							
ICE/EXTREME COLD							
TACTICAL							
SIZES to fit HEIGHT							
CHEST							
MATERIALS TOP /BREATHABLE	00	00	00	00	00	00	00
LEGS/ BREATHABLE	00	00	00	00	00	00	00
REINFORCEMENT	00	00	00	00	00	00	00
AREAS	00	00	00	00	00	00	00
SEALS NECK/WRIST	00			00			
SOCKS BOOTS SEALS	■			■ □			
FEMALE FIT OPTION				■			
FEATURES ZIP ENTRY							
INTEGRAL SIZE ADJ							
POCKETS							
REFLECTIVE SOLAS							
INTERNAL BRACES							
ELASTICADJUSTWAIST							
RELIEF ZIP FEMALE							
PURGEINFLATEVALVE	- -	- -	- -	- -	- -	- -	- -
STORAGE BAG							
OTHER COLOURS			■ ■ ■	■ ■ ■ ■ ■			
NOTES							
WEBSITE www. .com	aquatekdrysuits.co.uk	aquatekdrysuits.co.uk	aquatekdrysuits.co.uk	collinsnet.co.uk	collinsnet.co.uk	collinsnet.co.uk	collinsnet.co

NET	CREWSAVER (SURVITEC)	DUI	DUI	DUI	FIRST WATCH	HAMMOND DRYSUITS	HAMMOND DRYSUITS	HAMMOND DRYSUITS
								
	Atacama Pro -	-- -	-- -	-- -	Ice Rescue RS10021005-HV-U	-- -	-- -	-- SR4B
	£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $780 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00
	■							
	■			■				
	●							
	■							
	■							
	-							
	■							
	-							
	-				■			
	-							
	S,M,L,XL,XXL 168-198cm 5'6"-6'6" 86-122cm 34-48cm				5'-6'4" 4'6"-5'8"			
	TriLaminate ■ Cordura PU Knees/Seat	00 00 00 00	00 00 00 00	00 00 00 00	00 00 00 Knee/Elbow	00 00 00 00	00 00 00 00	00 00 00 00
	Neoprene □ ■							
	Front Diag				Front Vertical			
	Wrists							
	1 leg				2x Ice Awl			
	■							
	■				■			
	■							
	- -							
	- -				- -	- -	- -	- -
	■				■			
			□ ■ ■ ■ □	■				
	Integral wellingtons have steel toe and mid-shank							
o.uk	crewsaver	dui-online	dui-online	dui-online	firstwatchgear	hammond-drysuits.co.uk	hammond-drysuits.co.uk	hammond-drysuits.co.uk

Images NOT to Scale
COST: Approx, INC local tax/VAT. £$€=currency conversion only
USES/ FEATURES:
●= partial feature&/or OK but not ideal
□□□= Option
N/A = Info Not Available
VALVES PRV=Pressure Relief Valve







MANUFACTURER	HANSEN PROTECTION	HANSEN PROTECTION	HANSEN PROTECTION	HANSEN PROTECTION	HANSEN PROTECTION	HIKO	ICE RESC SYSTEM
MODEL VARIANT	SeaRescue Tactical	SeaRescue II	SeaRescue III	SeaSwim MSAD III	SeaRescue Neoprene	Rescue-	Hybrid -
ORIGIN							
COST						£00 $00 €911	£00 $890 €00
USES SURFACE				■			■
USES IMMERSION				■	■	■	●
USES SWIFTWATER							-
USES FLOOD							■
USES CONTAMINANTS							■
USES DIVE				●			-
USES BOAT CREW							■
USES AVIATION							-
USES ICE/EXTREME COLD					■		■
USES TACTICAL							-
SIZES to fit HEIGHT CHEST					XS,S,M,L,XL,XXL		S,M-L,XL
MATERIALS TOP /BREATHABLE	00	00	00	00	5mm Neoprene	00	200D Nylo
MATERIALS LEGS/ BREATHABLE	00	00	00	00	5mm Neoprene	00	Cordura
MATERIALS REINFORCEMENT	00	00	00	00	PU	00	1000D Nyl
MATERIALS AREAS	00	00	00	Seat (option)	Knees	00	Thigh/Seat/
MATERIALS SEALS NECK/WRIST SOCKS BOOTS SEALS				/	Neoprene ■/■		Neoprene/L ■
MATERIALS FEMALE FIT OPTION							-
FEATURES ZIP ENTRY	Front Diagonal	Front Diagonal	Front Diagonal	Front Diagonal	Front Diagonal	Front Diagonal	Front Diago
FEATURES INTEGRAL SIZE ADJ							-
FEATURES POCKETS					Chest,pen,radio		Ice Awl
FEATURES REFLECTIVE SOLAS					■		■
FEATURES INTERNAL BRACES							■
FEATURES ELASTICADJUSTWAIST							-
FEATURES RELIEF ZIP FEMALE							- -
PURGEINFLATEVALVE	- -		- -	- -	■	- -	- -
STORAGE BAG							-
OTHER COLOURS							■ ■ ■
NOTES	Survitech Company	Survitech Company		Adjustable Neck	Detachable hood & gloves		Sizes termed U sal Large and C size. Also Cust WT: 16lb
WEBSITE www. .com	hansenprotection.no	hansenprotection.no	hansenprotection.no	hansenprotection.no	hansenprotection.no		icerescuesyst






	IMPERIAL	MFC INTERNATIONAL	MUSTANG SURVIVAL	MUSTANG SURVIVAL	MUSTANG SURVIVAL	MUSTANG SURVIVAL	MUSTANG SURVIVAL
	Ice Rescuer IR1500	-- -	Ice Commander IC9001	Sentinel MSD576	Sentinel MSD624	Sentinel Rescue Swimmer MSD660	Sentinel Light Boat Crew MSD636
	£00 $1300 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00
	■	■					
	■	■	■				
	●	●					
	■	■					
	■	■					
	-	-					
	■	■					
	-	-					
	-	-	■				
	-	-					
	S,M,L,XL,XXL 168-198cm 5'6"-6'6" 86-122cm 34-48cm	S,M,L,XL,XXL 168-198cm 5'6"-6'6" 86-122cm 34-48cm					
n ■	TriLaminate ■	TriLaminate ■	00	00	00	00	00
	Cordura	Cordura	00	00	00	00	00
lon	PU	PU	00	00	00	00	00
Wrist	Knees/Seat	Knees/Seat	00	00	00	00	00
Latex	Neoprene □ ■	Neoprene □ ■					
onal	Front Diagonal	Front Diagonal					
	Wrists	Wrists					
	1 leg	1 leg					
	■Wrists	■Wrists					
	■	■					
	■	■					
	- -	- -					
	- -	- -	- -	- -	- -	- -	- -
	■	■					
■					■■■■□		
niver- Over- com.	Survitech Company	Integral wellingtons have steel toe and mid-shank				Available as Aviation or Naval versions	MSD637=Rear Drop Relief Panel
tems		mfc-international	pro.mustangsurvival	pro.mustangsurvival	pro.mustangsurvival	pro.mustangsurvival	pro.mustangsurvival

Images NOT to Scale
COST: Approx, INC local tax/VAT. £$€=currency conversion only
USES/ FEATURES:
●= partial feature&/or OK but not ideal
☐☐☐= Option
N/A = Info Not Available
VALVES PRV=Pressure Relief Valve







MANUFACTURER	MUSTANG SURVIVAL	MUSTANG SURVIVAL	MUSTANG SURVIVAL	NDIVER RESCUE	NDIVER RESCUE	NDIVER RESCUE	NDIVER RESCU
MODEL VARIANT	Sentinel TacOps MSD674	Sentinel Light SpecOps MSD676	Sentinel Aviation MSD697	Responder MOD2	Storm Force	Arctic Survivor	FEM
ORIGIN							
COST	£00 $00 €00	£00 $00 €00	£00 $00 €00	£360 $00 €00	£725 $00 €00	£675 $00 €00	£Custom $00 €00
USES SURFACE							
IMMERSION	■			■			
SWIFTWATER							
FLOOD							
CONTAMINANTS							
DIVE							
BOAT CREW							
AVIATION							
ICE/EXTREME COLD							
TACTICAL							
SIZES to fit HEIGHT CHEST							
MATERIALS TOP /BREATHABLE	00	00	00	00	00	00	00
LEGS/ BREATHABLE	00	00	00	00	00	00	00
REINFORCEMENT	00	00	00	00	00	00	00
AREAS	00	00	00	00	00	00	00
SEALS NECK/WRIST							
SOCKS BOOTS SEALS							
FEMALE FIT OPTION							
FEATURES ZIP ENTRY							
INTEGRAL SIZE ADJ							
POCKETS							
REFLECTIVE SOLAS							
INTERNAL BRACES							
ELASTICADJUSTWAIST							
RELIEF ZIP FEMALE							
PURGEINFLATEVALVE	- -	- -	- -	- -	- -	- -	- -
STORAGE BAG							
OTHER COLOURS	■			■			
NOTES							
WEBSITE www. .com	pro.mustangsurvival	pro.mustangsurvival	pro.mustangsurvival	ndiver-rescue	ndiver-rescue	ndiver-rescue	ndiver-resc

								
	NDIVER RESCUE Voyager	NDIVER RESCUE Boating Ops MSD676	NDIVER RESCUE Thor 1000 FE MSD676	NDIVER RESCUE Thor 1600 MSD676	NRS RESCUE ExtremeSARGTX	NRS RESCUE Extreme Rescue	NRS RESCUE Ascent SARGTX	
	UK	UK	UK	UK	US	US	US	
	£680 $00 €00	£965 $00 €00	£1260 980 $00 €00	£2000 $00 €00	£00 $995/1395 €00	£00 $950 €00	£00 $895/1295 €00	
					■			
						■		
	00 00 00 00				TriLaminate GTX TriLaminate GTX Knees, Elbows Ankles, Seat	00 00 00 00	00 00 00 00	
					Neoprene/Latex ■			
					Front Diag			
					■			
					1			
					■			
					■			
				- -	- -	■ ■	- -	- -
					■		■	
	ndiver-rescue	ndiver-rescue	ndiver-rescue	ndiver-rescue	nrs	nrs	nrs	

Images NOT to Scale

COST: Approx, INC local tax/VAT. £$€=currency conversion only

USES/ FEATURES:

●= partial feature&/or OK but not ideal

☐☐☐= Option

N/A = Info Not Available

VALVES PRV=Pressure Relief Valve







MANUFACTURER	OS SYSTEMS	OS SYSTEMS	OS SYSTEMS	OS SYSTEMS	OS SYSTEMS	POSSESS SEA IND CO	POSSESS S IND CO
MODEL VARIANT	DSRTFE -	SPLB SROB -	SPLLB SRBEC -	SPLB SRO -	SPLB SREC -	Rescue 082101	Rescue 082102
ORIGIN							
COST	£650 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00		
USES SURFACE							
IMMERSION	■			■			
SWIFTWATER							
FLOOD							
CONTAMINANTS							
DIVE							
BOAT CREW							
AVIATION							
ICE/EXTREME COLD							
TACTICAL							
SIZES to fit HEIGHT CHEST							
MATERIALS TOP /BREATHABLE	00	00	00	00	00		
LEGS/ BREATHABLE	00	00	00	00	00		
REINFORCEMENT	00	00	00	00	00		
AREAS	00	00	00	00	00		
SEALS NECK/WRIST							
SOCKS BOOTS SEALS							
FEMALE FIT OPTION							
FEATURES ZIP ENTRY							
INTEGRAL SIZE ADJ							
POCKETS							
REFLECTIVE SOLAS							
INTERNAL BRACES							
ELASTICADJUSTWAIST							
RELIEF ZIP FEMALE							
PURGEINFLATEVALVE			- -	- -	- -		
STORAGE BAG							
OTHER COLOURS	■			■			
NOTES							
WEBSITE www. .com	ossystems.com	ossystems.com	ossystems.com	ossystems.com	ossystems.com	en.drysuit.cn	en.drysuit.




SEA	POSSESS SEA IND CO	RUBBERMAN	SANTI ONDUTY	SANTI ONDUTY	SEASKIN	STEARNS	SURVITEC	SURVITEC
e	Rescue 082103	SRT RESCUE 3 -	Rescue 201 -	Rescue 219 -				
		£650 $00 €00			£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00
								■
		00 00 00 00			00 00 00 Knees			00 00 00 00
		- -			- -	- -	- -	- -
cn	en.drysuit.cn							

Images NOT to Scale
COST: Approx, INC local tax/VAT. £$€=currency conversion only
USES/ FEATURES:
●= partial feature&/or OK but not ideal
□□□= Option
N/A = Info Not Available
VALVES PRV=Pressure Relief Valve







MANUFACTURER	TYPHOON	TYPHOON	TYPHOON	TYPHOON	TYPHOON	TYPHOON	TYPHOO
MODEL VARIANT							
ORIGIN							
COST	£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00	£00 $00 €00
USES							
SURFACE							
IMMERSION							
SWIFTWATER							
FLOOD							
CONTAMINANTS							
DIVE							
BOAT CREW							
AVIATION							
ICE/EXTREME COLD							
TACTICAL							
SIZES							
to fit HEIGHT							
CHEST							
MATERIALS							
TOP /BREATHABLE	00	00	00	00	00	00	00
LEGS/ BREATHABLE	00	00	00	00	00	00	00
REINFORCEMENT	00	00	00	00	00	00	00
AREAS	00	00	00	00	00	00	00
SEALS NECK/WRIST							
SOCKS BOOTS SEALS							
FEMALE FIT OPTION							
FEATURES							
ZIP ENTRY							
INTEGRAL SIZE ADJ							
POCKETS							
REFLECTIVE SOLAS							
INTERNAL BRACES							
ELASTICADJUSTWAIST							
RELIEF ZIP FEMALE							
PURGEINFLATEVALVE	- -	- -	- -	- -	- -	- -	- -
STORAGE BAG							
OTHER COLOURS	■	■	■	■	■	■	■
NOTES							
WEBSITE www. .com	typhoon-int.co.uk	typhoon-int.co.uk	typhoon-int.co.uk	typhoon-int.co.uk	typhoon-int.co.uk	typhoon-int.co.uk	typhoon-int.c



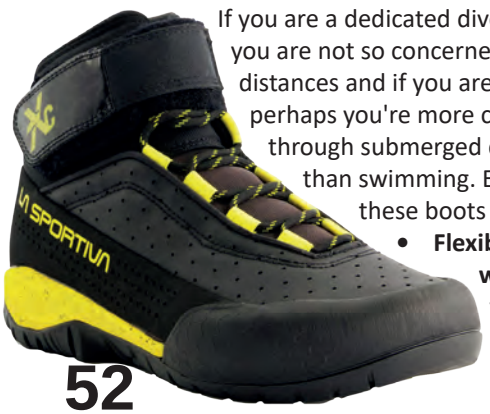


ON	TYPHOON	TYPHOON	WRSi Leven Agressor MDS2		YAK Horizon MDS2			
	£00 $00 €00	£00 $00 €00	£825 $00 €00		£00 $00 €00			
			■		■			
			■		■			
			■		■			
			■		■			
			M,M+,L,L+,XL, XL+,XXL		M,M+,L,L+,XL, XL+,XXL			
	00 00 00 00	00 00 00 00	NylonTriLaminate ■ NylonTriLaminate ■ Knees		NylonTriLaminate ■ NylonTriLaminate ■ Knees			
			Latex ■		Latex ■			
			Front YKK		Front YKK			
			2		2			
			■		■			
			■		■			
			■		■			
	- -	- -	- -		- -			
	■	■						
o.uk	typhoon-int.co.uk	typhoon-int.co.uk	wrsinternational.com					

IMAGES NOT TO SCALE

WATER RESCUE BOOTS

Water rescue boots are great for canyon and cave rescue but are a dilemma for multi-role agencies because the tasks they are expected to perform can be contradictory - lightweight, heavy duty, robust tread able to provide grip on slippery, wet surfaces- thin-and flexible enough for swimming fins, quick draining but don't let in too much sand/mud/grit, swim in them, walk on rocks, don't damage the inflatable rescue craft but be able to hike in to the incident scene, possibly from a very long distance. *Palm Equipment*'s useful diagram on the right shows the general construction where the insole is always removable and usually cushioned and the midsole is the protective layer above the outsole which is the sole and any connected rand which we have listed as 'sole' and 'reinforcement' in our tables.



If you are a dedicated dive team or boat crew you are not so concerned about walking long distances and if you are a flood response team perhaps you're more concerned about walking through submerged debris and broken glass than swimming. Either way, we can divide these boots into four distinct types:

- **Flexible, enhanced rock/ wet boots** which are a variation on dive 'rock' boots and watersport booties. **We have included some with the more robust soles** eg. *TDS & DUI* but *Apeks, Mares etc.*are in the updated version of this article in the **Water Rescue BUYERS GUIDE** which includes more dive and rock boots.
- **Military or mountain style high-leg service, walking or climbing boots** which are stripped down from the usual full leather and stiffened insoles to become quick draining, ankle hugging and often quick-donning. One or two of the specialist water boots like *WRS* and *Bestard* are high leg but are closer in design to the next category than the military style boots...
- Modified approach boots - usually low cut boots or shoes with good soles for walking longer distances but without the usual *Goretex* or similar membrane designed to keep water out and let your foot breathe - instead, as with the high leg boots, they are the opposite of waterproof and have drain holes and fast draining materials and mesh that shed water once you're out of water. These tend not to be quick donning as they they lack zip=entry and are usually worn for the duration rather than be a shoe/boot you change into. Water sport companies like *Palm* and *Northern Diver* have such boots primarily aimed at boarders, rafters but entirely capable as general water rescue boots and there are many watersport and yachting boots from the likes of *Gul* but they are not included here. Canyoning with its mix of in water, hiking and climbing has been fertile ground for water rescue boot development because it is a

WATER RESCUE BOOTS

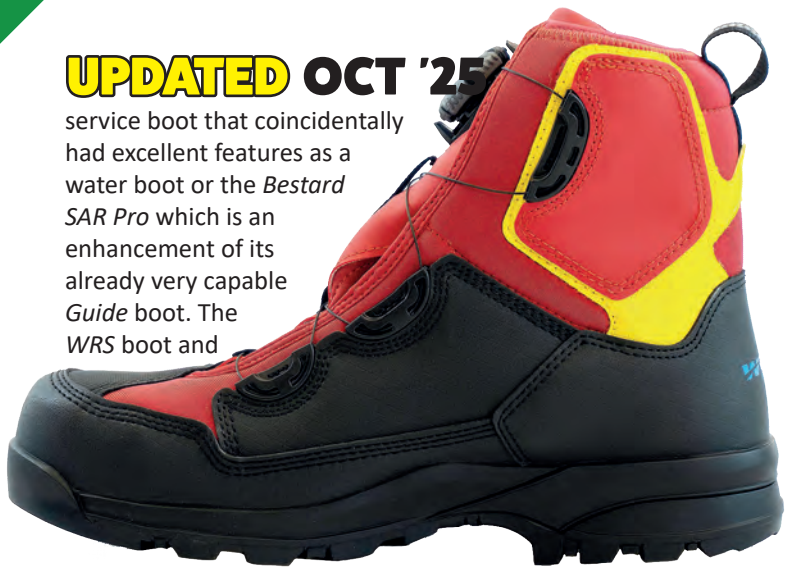
mass-market driver to what would otherwise be a very small commercial market, that's why climbing legends *La Sportiva* have perhaps the coolest boot design with their *TX Canyon* (left) and *NorthernDiver* have their *Freestyle* renamed from *Canyon v2*. Further testament to this larger market driver is *Adidas* as worn by rescuers in our title picture opposite, which is a very unusual brand for us to see in professional emergency service footwear though sport canyoneers and cavers will be familiar. Aside from their robust build (unusually non-draining), there is one very good reason why you might consider this boot above all other brands and that is the sizing. The majority of boots go up to UK14/US15/EU48 some to EU50 but *Adidas* goes up to a whopping size UK18/US19/EU54⅔.
I can tell you from personal experience that your chances of finding any size over EU**48** on the shelf are minuscule but there is at least a chance you might get a size **49** or **50** and you know you can order a pair without incurring a custom-built charge.

- In its own category is the '*Mudder*' which is more of an adjunct to your water rescue boot than a boot by itself but it can be used (as we can attest) in conjunction with your regular service boot to enable you to perform the small miracle of walking on mud rather than knee deep in it. Mud is a regular occurrence at a water rescue incident whether it be tidal, river bank or imported by flood water and the only difference then between a water rescue boot and a high-leg firefighting boot or even a pair of wellies is the speed with which they will drain and clean off once you're out of the mud. Surface mud is the great leveller; no boot or shoe will do anything more than sink into mud without assistance from a load-spreader, in this case Mudders, but the swim style booties are unquestionably better for mixed mud and water environments as they are lighter within the *Mudder,* keep out fine particles and those tiny scratchy snails and quick to rinse off - something like the *NRS ATB Wetshoe* or the *OTB Abyss* (above) . The *Mudder* shown below was first produced in the US by *AMAK* in the **50**s for hunters and bait diggers but *Lyon Eqpt* in the UK quickly saw their rescue applications and their usage increased in rescue but still not what they deserve.

Specially designed water rescue boots that we have mostly included here, are designed from the ground up to be a water rescue boot. The *WRS, Ionic* and *Freestyle* as distinct from the *Haix Eagle* for instance that is more of an athletic

UPDATED OCT '25

service boot that coincidentally had excellent features as a water boot or the *Bestard SAR Pro* which is an enhancement of its already very capable *Guide* boot. The *WRS* boot and



Italian *Cosmos Water Pro* probably exemplifies best the design thought process when starting from scratch - they picked a sole that was coarse enough to give protection from ingress of broken glass and sharp stones/rock etc. and good grip on wet rock or a boat hull but made it more flexible than a stiffened midsole safety or mountain boot. It retained a protective toe cap in case of rock movement or entrapment under water and added protective reinforcement to the toe, the heel and the lower mid area in between like a shaped rand. They made the upper out of thermally cushioning neoprene with a gaiter-style cuff at the top that inhibits ingress of debris, grit and those pesky snails. Instead of laces the *WRS* adopted the modern *BOA* concept of fast-ratcheting lace/cord tightening while the Cosmos has a full length frontal zip which, together with a very wide opening tongue and flexible neoprene cuff make these a fast entry donning/doffing boots. The insoles were quick to remove to allow for the different foot sizes whether wearing hiking socks or a drysuit's wet-sock. Finally, since these are for rescuers they are high vis colours, more visible underwater when looking to place your feet carefully as well as being a visible addition to the rest of your high visibility rescue ensemble. In this aspect the WRS just about trumps all others!

IN THE FOLLOWING TABLES.....

Guide to Water Rescue Boots in the **WATER RESCUE BUYERSGUIDE** for regular updates to this article.
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' row 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 ■■.

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USES: refers to the range of activities that the boot can be used for. Hardcore water rescue boots like the *WRS* and *Freestyle* are so specifically designed towards water rescue that they are of less use in activities like hiking in or working on a rubble pile. Conversely, those that are more utilitarian are probably not quite as proficient for pure water rescue but for cross-discipline teams - good enough!
■=**Dive** - for use with drysuits and fins underwater - fast draining
■=**In/Around Water /Boat**- for use walking through or swimming in water and on the bank or in a watercraft- eg. boat crew, swiftwater & canyoning, Fast draining.
■=**On Land** - walking or hiking longer distances
■=**USAR** - more rugged boots with safety toe and capable of withstanding work in and around concrete and building debris such as urban flooding or tsunamis.
■=**Tactical** - suitable for military use - able to walk longer distances and will be low viz/black.
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: *Prices in burnt orange colour* ***£$€ are a currency conversion only*** *and may not include bulk shipping, import duty and taxes etc.* Prices are a guide only & include local taxes/VAT. They vary with exchange rates, extra taxes etc. Usually rounded up to the nearest Pound£/US Dollar$/Euro€. Cost is usually for a basic model.
WEIGHT: Is for ONE BOOT size EU 43/44 UK 9/10 USA10/11 this is therefore only a rough guide as te smallest size would be considerably lighter than the largest size.
SOLE: ALL WATER RESCUE BOOTS HAVE ANTI-SLIP SOLES (**SRC**) so we have not included that as a feature - it's a given!
SOLE MATERIAL: Usually a nitrile rubber but there are some variations on this, a better indication can be the.....
STYLE/BRAND: because there is no doubt that certain designs within well known brands like Vibram and Skywalk can be relied upon. They are not necessarily better than some of the in-house mouldings but until you have bought and used those own-brands you don't have much of an idea whereas the known brands will already be used on other boots that will have chosen that sole for a reason.
ANTI- OIL CHEMICAL STATIC: The sole will not decompose in

WATER RESCUE BOOTS

the prescence of hydrocarbons (oil/ petrol) or chemicals and/or will not generate static electricity

ANKLE INGRESS SEAL: The Collar is the top of the boot and neoprene collars provide reasonable protection against ingress but a cuff is a closer fitting option and usually an addition to the boots collar.

PADDED ANKLE COLLAR: this refers to genuine auxillary padding such that the collar is noticeably 'puffy' not simpler a fatter section of neoprene or leather!

SHOCK ABSORBING: indicates an active shock absorbing element built into the sole of the boot (not simply the insole as this can be supplemented with off-the-shelf options).This can be a sorbothane or EVA insert, sometimes air bubbles.

METAL ■/ COMPOSITE■ TOE: a protective toe cap that withstands impact to some degree - 200joules for alloy or 100joules for composite (see standards). Most also have a rubber or reinforced cover to a protective cap and some with no certified protection simply have extra rubber.

PULL ON TAB/ LOOP: A leather flap or a sewn-in loop to assist in pulling the boot on.

HI-VIS REFLECTIVE: Boots designed for rescue will have sections of trim that are highly coloured for visibility by others and for the wearer to spot foot placement in murky water. Some will have reflective panels for visibility to other searchers at night or in low light.

ENHANCED DRAINAGE: All of these boots will drain to some extent as the materials are porous not waterproof but most have additional holes, mesh or material placement that accelerates draining of water so that each foot lift does not weigh many times more than it has to. Neoprene or similar foot hugging materials 'booty' do this by restricting the available space for the water to collect. However, it is worth remembering that draining water is akin to draining body (foot) heat so not necessarily what you want in all conditions.

LACING/FASTENING/ZIP: Lacing systems are conventional or speed lacing where you pull on just the ends to tighten the entire stack rather than having to do each row individually. Straps are virtually all Velcro/hook&loop but some are buckles. As always, Velcro with a capital 'V' is the proper brand. Non-branded hook & loop has a lower case 'v'. Becoming more common is the BOA system where thin 'laces' or cord runs into a ratchet hub that tightens the cord when rotated.

Zips are shown as a pink square ■ With boots that are designed to be submerged there is no need for a zip to the watertight but the better zips have large teeth that are not so prone to jamming up or 'de-railing' and should be backed by a neoprene or similar material strip that resists the ingress of sand/grit/mud.

STANDARDS / PROTECTION: The European norm most applied to water rescue footwear is **EN ISO 20345:2011** which is for safety footwear and nothing directly to do with being a water rescue boot.

SB: This would have a protective toe cap that withstands a 200joule impact or for a lesser figure of 110 joules/Newtons the label is **SBP S1 S2 & S3** are anti-static where the number is irrelevant for water rescue boots as it is the degree of water resistance/repllency! **SRC** indicates slip-resistance on a ceramic and steel surface with soap and glycerol.

IMAGES NOT TO SCALE

OTHER TOOLS IN RANGE:
- = DIVE
- = IN/AROUND WATER/BOAT
- = LAND/WALKING-APPROACH
- = TACTICAL
- = USAR

= OK but not ideal

= Option

N/A = info Not Available/not given

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Sizing =





	MODEL	Terrex Hydro Lace	Rassler 2.0	Hyak
	COMPANY	ADIDAS 2.0	ASTRAL	ASTRAL
	USES			
	ORIGIN			
	COST inc tax / VAT	£130 $169 €124	£150 $150 €140	£150 $150 €140
	WEIGHT - 1 boot med-size	680g / 1.5lb	273g / 9.6oz	275g / 9.6oz
MATERIALS	UPPER	HD Nylon laminate	Canvas	Canvas/1060D Cordura
MATERIALS	UPPER REINFORCEMENTS	Heel, Toe, Lower-mid, Ankle	Heel, Toe	Heel, Toe, Lower-mid
MATERIALS	MEMBRANE/LINING	Neoprene	3D Airmesh	3mm quilted spacer-mesh
MATERIALS	MIDSOLE/RESIST PENETRATION	-	flat-no arch EVA -	flat-no arch EVA -
	INSOLE REMOVABLE	AdiPrene Eva foam	7mm EVA	7mm EVA
SOLE	SOLE			
SOLE	SOLE MATERIAL	no-mark Rubber	No Mark G-Rubber	No Mark G-Rubber
SOLE	STYLE/BRAND	'Stealth' Marathon	Astral GraniteGrip*	Astral Flexgrip
SOLE	ANTI- OIL CHEMICAL STATIC	-	-	-
COMFORT	SIZES UK US EU	4-18 5-19 36-54⅔	4-13 5-14* 36-49¾	4-13 5-14* 36-49¾
COMFORT	ANKLE INGRESS SEAL	Neoprene cuff	-	-
COMFORT	PADDED ANKLE COLLAR	■	■	■
COMFORT	SHOCK ABSORBING	■	●	●
	METAL / COMPOSITE TOE	Toe cap only	-	-
FEATURES	PULL ON TAB/ LOOP	■	■	■
FEATURES	HI-VIS REFLECTIVE	■ ■	-	-
FEATURES	ENHANCED DRAINAGE	No	4 holes, mesh tongue/gusset	mesh tongue/gusset
FEATURES	LACING/FASTENING ZIP	Speed Lace + velcro strap	Laces	Laces + Velcro strap
	STANDARDS/PROTECTION	-	-	-
	OTHER COLOURS	■	■ ■	■
	NOTES	New version 2025 Orange colour shown.	* Womans' sizes from W6 to W15. Men's=wider toe box *Granite-Grip = less flex more wear-resistance	* Womans' sizes from W6 to W15 Protective cover for laces. *Flex-Grip = more flex/grip less wear-resistance
	WEBSITE	adidas-group.com	astraldesigns.com	astraldesigns.com

WATER RESCUE BOOTS

	Rescue 01	Aqua Pro	Wildwater Pro	Canyon Guide SAR (Pro)
				
				
	BAIZHOU/POSSESS SEA*	**BESTARD**	**BESTARD**	**BESTARD**
	■ ■ ■ ■	■ ■	■ ■	■ ■
	£204 $00 €230	£167 $217 €212	£167 $217 €209	£191 $248 €228
	770g / 1.7lb	440g / 15.5lb	535g / 1.17lb	600g / 1.3lb
	Synthetic leather	H20 Microtech / Cordura	H20 Microtech / Cordura	H20 Microtech / Cordura
	Toe, Heel	Rubber toe, TPU Heel	Rubber toe, TPU Heel	TPU heel, toe, lower mid
	4.5mm CR Neoprene	Hydro-mesh	Hydro-mesh	Hydro-mesh
	Kevlar ■	Thermoplastic -	Thermoplastic -	Thermoplastic/Ceramic ■
	■	EVA/Cambrelle ■	EVA/Cambrelle ■	EVA/Cambrelle ■
				
	RUBBER	no-mark RUBBER + EVA	no-mark RUBBER + EVA	no-mark RUBBER + EVA
	In-House	Vibram Best IdroGrip	Vibram Best IdroGrip	Vibram Best IdroGrip
		-	-	-
	*3-12 4-13 37-46	4-13 5-14 37-49¾*	3.5-14 4.5-15 36-48	3.5-14 4.5-15 36-48
	Neoprene cuff	-	-	drawcord gaiter
	-	■	■	■
	-	■	■	■
	Rubber	-	-	Liquid Thermo Plastic
	■		■	■
	■ or ■	■ ■	■ ■	■ ■
	2x Mesh panels	4 holes + mesh	4 holes + mesh	4 holes + mesh
	BOA	Laces & stow pouch	Locking Laces & stow pouch	Locking Laces & stow pouch
	-	-	-	-
	■	-	-	■*
	*Possess Sea Ind.Co & Jiangsu-Baizhou co-produce this, Baizhou version has a metal grip cleat in the sole. Fin retaining heel.	*Including half sizes. Latin last (narrow fit). Stainless Steel eyes. Bulk order Customisation	*Including half sizes. Wide last/fit. Stainless steel eyes. Bulk order Customisation	Extra wide last. Stainless steel lace eyes. *Black-Canyon Guide (not SAR) *Including half sizes
	jsbaizhoucn.com en.drysuit.cn	bestard.com	bestard.com	bestard.com

IMAGES NOT TO SCALE

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- = IN/AROUND WATER
- = LAND/WALKING-APPROACH
- = TACTICAL
- = USAR

= OK but not ideal

= Option

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COST: Including VAT/Local Tax
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	MODEL	Rockboot	Black Eagle Athletic 2.0 T Zip	Pro 3/4 Water
	COMPANY	DUI	HAIX	JOLLY SCARPE/COSMAS
	USES	■ ■ ●	■ ■ ■	● ■ ■
	ORIGIN	🇺🇸 🇨🇳	🇩🇪	🇮🇹
	COST inc tax / VAT	£152 $140 €145	£160 $210 €190	£105 $136 €125
	WEIGHT - 1 boot med-size	600g / 1.3lb	615g / 1.35lb	710g / 1.56lb
MATERIALS	UPPER	HD Nylon laminate	Micro-fibre/textile	Cordura, Neoprene
MATERIALS	UPPER REINFORCEMENTS	Toe, heel	Heel, Toe, Ankle	Heel, Toe, Lower-mid
MATERIALS	MEMBRANE/LINING	1.5mm Hyper-Compressed Neoprene	Mesh	Lycra/Neoprene
MATERIALS	MIDSOLE/RESIST PENETRATION	Flat, minimal arch ■	Texon Polymer ■	Cushioned PU ■
	INSOLE REMOVABLE	EVA/Cambrelle ■	■	■
SOLE	SOLE			
SOLE	SOLE MATERIAL	RUBBER + EVA	non marking RUBBER	NITRILE RUBBER
SOLE	STYLE/BRAND	in-house	Haix	In-House
SOLE	ANTI- OIL CHEMICAL STATIC	-	■	■ ■
COMFORT	SIZES UK US EU	3-14 4-15 36-48	3-15 m/w 4-16 m/w* 36-49m/w	5-14 6-15 40-47
COMFORT	ANKLE INGRESS SEAL	-	-	Neoprene Cuff
COMFORT	PADDED ANKLE COLLAR	■	■	■
COMFORT	SHOCK ABSORBING	■	■	■ EVA heel
	METAL / COMPOSITE TOE	Rubber	■	■
FEATURES	PULL ON TAB/ LOOP	■*	■ ■	-
FEATURES	HI-VIS REFLECTIVE	-	-	■
FEATURES	ENHANCED DRAINAGE	4 holes in Rand	mesh upper	Perforated lower-mid
FEATURES	LACING/FASTENING ZIP	Laces & stow pouch	Laces + ■	Speed laces, hook/elastic loop ■
	STANDARDS/PROTECTION	-	EN ISO 20347	EN ISO 20347 O1 P HI CI HRO FO AN SRC
	OTHER COLOURS	-	■	-
	NOTES	*Velcro loop designed to stow lace-ends. Wear with wet sock	*Medium or Wide fit. Not to be confused with the GTX version with no zip-not for water rescue!	Laces & padded ankle inside outer gaiter. Inc extra pr of laces. 21cm high inc sole
	WEBSITE	divedui.com	haix.com Haixusa.com	jollyscarpe.com

	TX Canyon	Mudders
	LA SPORTIVA	MUDDER BOOT CO
	■ ●	■ ■* MUD
	£180 $234 €144	£236 $158 €250
	470g / 1lb	1.1kg / 2.4lb
	Ariaprene TPU/foam laminate	Vulcanised rubber
	Heel	-
		-
	EVA -	- ■
	■	-
	RUBBER + EVA	VULCANISED RUBBER
	Vibram IdroGrip	In-House
		■
	6-12 7-13 39-46	One Size Fits All
	'Spyral' Neoprene Cuff	-
	-	-
	■	-
	Rubber	-
	■	-
	■	-
	2 holes + upper perforation	fully drains on incline
	Speed Lace + velcro Strap	2x buckled Straps
	-	-
	-	-
		Fits any boot and *allows progress on mud as the top flares like a webbed foot to provide large surface area
	lasportiva.com	mudderboots.com

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	MODEL	Freestyle/Canyon v2	Prosafe v2	Rock-Swim
	COMPANY	NORTHERN DIVER	NORTHERN DIVER	NORTHERN DIVER
	USES	■ ■ ●	■ ■ ●	■ ■ ■ ■
	ORIGIN	UK	UK CN	UK
	COST inc tax / VAT	£94 $122 €114	£101 $132 €122	£68 $89 €82
	WEIGHT - 1 boot med-size	740kg / 1.6lb	730kg / 1.6lb	650kg / 1.4lb
MATERIALS	UPPER	Micro-Fibre	Micro-Fibre/Cordura	Synthetic Leather & Nylon
MATERIALS	UPPER REINFORCEMENTS	Heel, Toe, Lower-mid	Heel	Heel, Toe
MATERIALS	MEMBRANE/LINING	Mesh	Mesh	Neoprene & mesh
MATERIALS	MIDSOLE/RESIST PENETRATION	Composite	Composite	Flexi -
	INSOLE REMOVABLE	Neoprene ■	PU foam ■	- Neoprene
SOLE	SOLE			
SOLE	SOLE MATERIAL	RUBBER + EVA	RUBBER + EVA	RUBBER
SOLE	STYLE/BRAND	In-House	In-House	In-House
SOLE	ANTI- OIL CHEMICAL STATIC	■	■ ■	■ ■
COMFORT	SIZES UK US EU	3-14 4-15 36-48	3-14 4-15 36-48	6-12 7-13 39-46
COMFORT	ANKLE INGRESS SEAL	-	-	Gusseted neoprene gaiter
COMFORT	PADDED ANKLE COLLAR	■	■	-
COMFORT	SHOCK ABSORBING	■ EVA heel	■ EVA heel	■ EVA heel
	METAL / COMPOSITE TOE	■	■	-
FEATURES	PULL ON TAB/ LOOP	■	■	■
FEATURES	HI-VIS REFLECTIVE	■	■	-
FEATURES	ENHANCED DRAINAGE	2 holes with mesh backing	4 holes with mesh backing	2 lg holes with mesh backing
FEATURES	LACING/FASTENING ZIP	2x velcro Straps + ■	BOA	Laces + velcro strap
	STANDARDS/PROTECTION	EN ISO 20345 SB S1 S2 S3 SRC	EN ISO 20345 SBP S1 S2 S3 SRC	-
	OTHER COLOURS	-	-	-
	NOTES			
	WEBSITE	ndiver-rescue.com	ndiver-rescue.com	ndiver-rescue.com

WATER RESCUE BOOTS

	Rock-Swim Safety	Storm	Workboot Wetshoe	ATB Wetshoe
				
	NORTHERN DIVER	**NRS**	**NRS**	**NRS**
	■ ■ ■ ■ ■	■ ■ ■	■ ■ ● ■	■ ■ ● ■
	£76 $98 €92	£150 $150 €165	£85 $95 €79	£70 $75 €70
	800kg / 1.76lb	680g / 1.5lb	500g / 1.1lb	500g / 1.1lb
	Synthetic Leather & Nylon	Polyuretane/Synth rubber	5mm Neoprene.Synth Leather	Micro-Fibre/Cordura
	Heel, Toe, Lower-mid	Heel, Toe, Lower-mid upper ankle	Heel, Toe, Lower-mid	Heel
	Neoprene & mesh	Polyester mesh	Micro-fibre/Mesh	Mesh
	Composite ■	EVA	Polymer ■	Composite -
	- Neoprene	Perforated 5mm ■	- 7mm Neoprene	- PU foam
				
	RUBBER	non-mark RUBBER	RUBBER EVA	RUBBER EVA
	In-House	'Hypergrip'	In-House	In-House
	■ ■	-	■	■ ■
	6-13 7-14 39-47	4-14 5.5-15 38.5-48.5	3-14 4-15 36-48	3-14 4-15 36-48
	Gusseted neoprene gaiter	-	-	-
	-	■	■	■
	■ EVA heel	■ EVA heel	■ EVA heel	■ EVA heel
	- ■	Rubber -	-	-
	■	■	■	■
	-	-	-	-
	2 lg holes with mesh backing	Mesh uppers	2 holes with mesh backing	4 holes with mesh backing
	3x velcro Straps + ■	Laces + ■	Laces, velcro Strap + ■	velcro Strap + ■
	EN ISO 20345	-	-	-
	-	-	-	-
		Swim fin 'lip' on the heel. Zip=YKK Aquaguard	Swim fin 'lip' on the heel. Zip=YKK Aquaguard	Swim fin 'lip' on the heel. Zip=YKK Aquaguard
	ndiver-rescue.com	nrs.com/rescue	nrs.com/rescue	nrs.com/rescue

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	MODEL	Abyss	Gradient 3.0	Ionic Rocka
	COMPANY	OTB	PALM EQUIPMENT	SAFEQUIP
	USES	■ ■ ● ■	■ ●	■ ■
	ORIGIN	US	UK	UK
	COST inc tax / VAT	£154 $200 €186	£150 $195 €181	£107 $190 €175
	WEIGHT - 1 boot size 43/44 9/10	630g / 1.4lb	413g / 14.6oz	1kg / 2.2lb
MATERIALS	UPPER	Ballistic nylon,Thermo-polyurethane	3mm CR limestone neoprene/mesh	Synthetic Leather/Nylon
MATERIALS	UPPER REINFORCEMENTS	Heel, Toe	Heel, Toe, Lower-mid	Heel, Toe
MATERIALS	MEMBRANE/LINING	Ballistic nylon mesh	Mesh	Mesh
MATERIALS	MIDSOLE/RESIST PENETRATION	- -	Cushioned - EVA -	Kevlar ■
	INSOLE REMOVABLE	'SEAL' Composite ■	cushioned ■	■
SOLE	SOLE			
SOLE	SOLE MATERIAL	RUBBER	HYDRO GRIP RUBBER	RUBBER Compound
SOLE	STYLE/BRAND	Tactical Sole Tech	Vibram IdroGrip	Vibram
SOLE	ANTI- OIL CHEMICAL STATIC	■ ■	■	■
COMFORT	SIZES UK US EU	4-13 5-14 36-46	5-14 6-15 40-47	3-13 4-14 36-48
COMFORT	ANKLE INGRESS SEAL	Neoprene Cuff	Neoprene Cuff	Neoprene Collar
COMFORT	PADDED ANKLE COLLAR	-	-	-
COMFORT	SHOCK ABSORBING	■	■ EVA heel	■
	METAL / COMPOSITE TOE	-	■	PU
FEATURES	PULL ON TAB/ LOOP	■	■	■
FEATURES	HI-VIS REFLECTIVE	-	□	■
FEATURES	ENHANCED DRAINAGE	2 lg mesh holes + perf Sole	-	Mesh upper & 6 panels
FEATURES	LACING/FASTENING ZIP	Laces + closed neoprene cuff	Lace	BOA
	STANDARDS/PROTECTION	EN ISO 20345	-	EN ISO 20345:2011
	OTHER COLOURS	-	■	-
	NOTES		 Lace storage pouch in tongue. Inc extra pr of laces.	 Alternate Vibram sole
	WEBSITE	OTBboots.com	palm.equipment	ionicrescue.com

WATER RESCUE BOOTS








	Omaha Xtrem 2.1	Strong	Aquasafe	Water Rescue Boot
	TDS Technical Dive System	TDS Technical Dive System	VOLKL	WRS/ROCKFALL
	£74 $94 €89	£57 $75 €64	£142 $184 €170	£170 $265 €205
	n/a	n/a	550g / 1.2lb	750g / 1.6lb
	Synthetic/Nylon mesh	6.5mm neoprene	1.8-2mm PU/Leather/Cordura	Synth Leather/Neoprene
	Heel, Toe	Heel, Toe	Heel, Toe	Heel, Toe, Lower-mid, Ankle
	Mesh	-	Textile mesh	-
	-	-	Kevlar-composite	Kevlar-composite
				EVA
				
	Perforated PU	Perforated PU	Injected RUBBER/PU	NITRILE RUBBER
	In-house	In-house	non-mark	Rockfall
	-	-		
	6-13 7-14 39-47*	3-14 4-15 36-48	4-15 5-16 38-50	3-15 4-16 36-50
	Neoprene Collar	Neoprene Collar	-	Neoprene Cuff
	-	-		-
	Rubber	Rubber	200j	
		-		
	-	-		
	Reinforced Mesh upper	-	-	4+ Mesh Gusset in Tongue
	toggled Lace + velcro strap	velcro flap +	Strap with cam-lock buckle	BOA
	-	-	EN ISO 20345:2007 S1P SRC	EN ISO 20345 S1P SRC
	-	-	-	-
	* sizing in two-size increments eg. 40/41, 46/47 etc. Fin restraint 'lip'	Heavier duty version of 6mm Strong	Quick release buckles.	
	tdsdive.com	tdsdive.com	voelkl-professional.com	wrsinternational.com

YOU DON'T HAVE TIME TO

... about the quality of your equipment. You have to know it works because, for you, saving lives also means keeping yourself alive.

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- **Improved sizing delivers the best fitting suits on the market**

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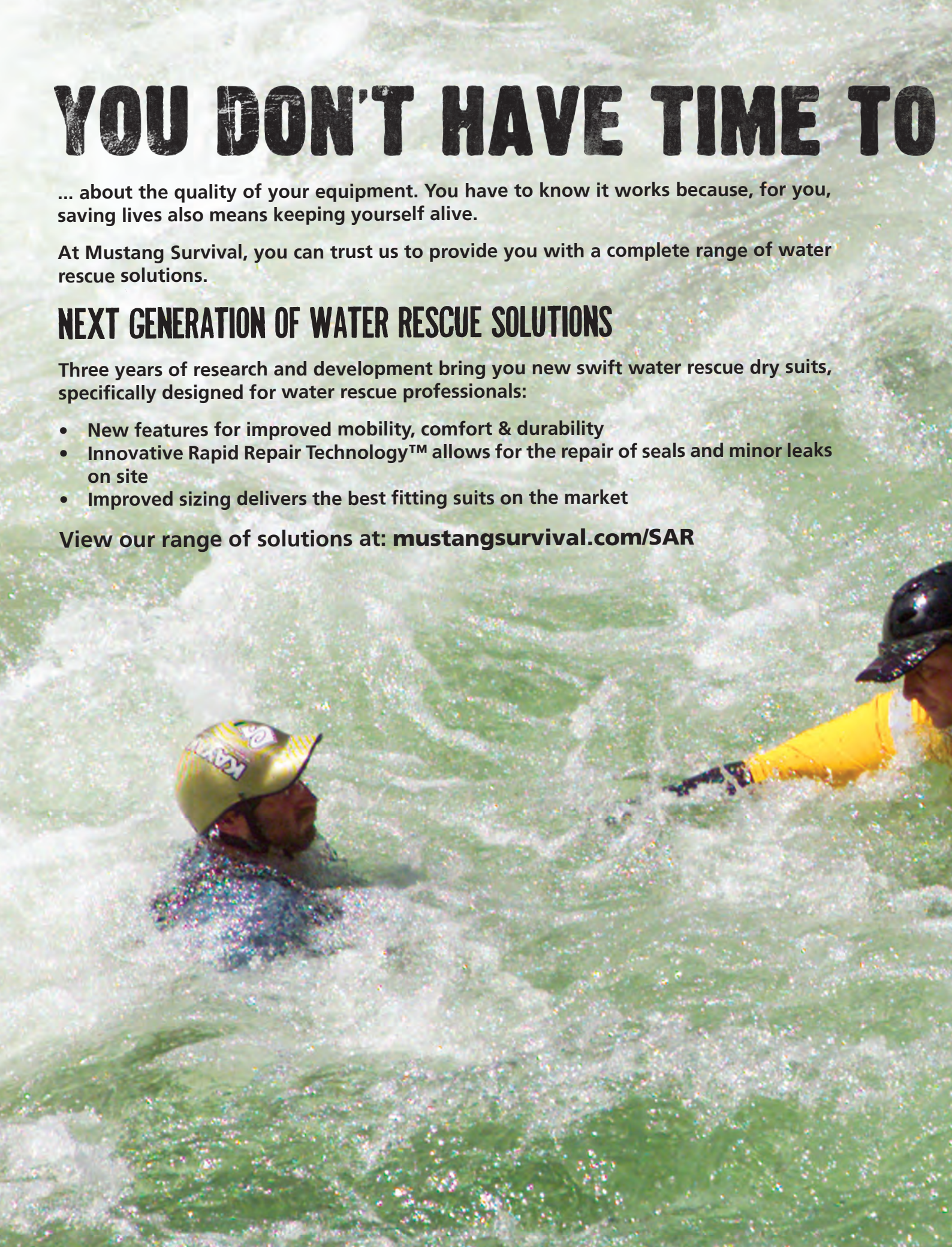

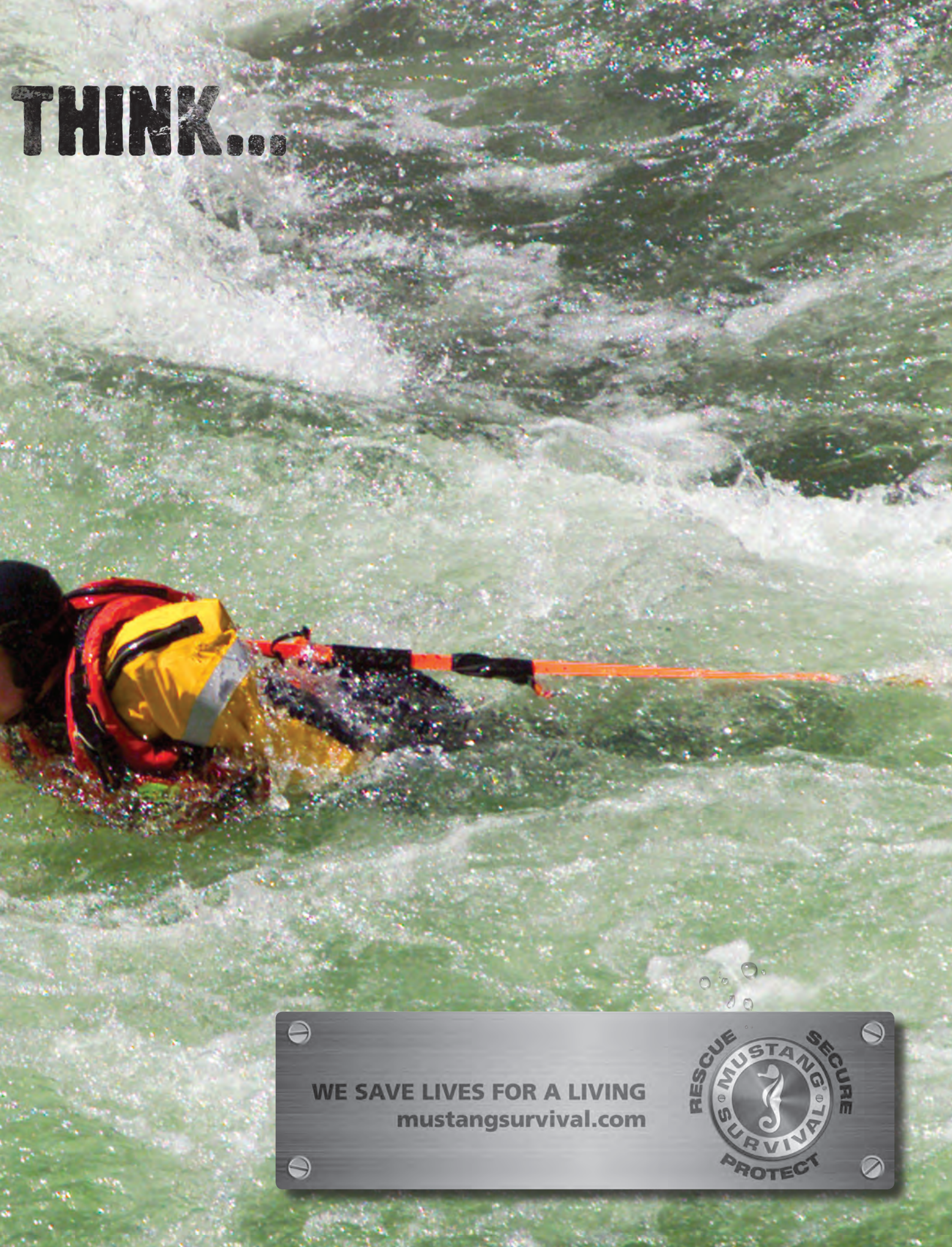
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RESCUE
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PROTECT
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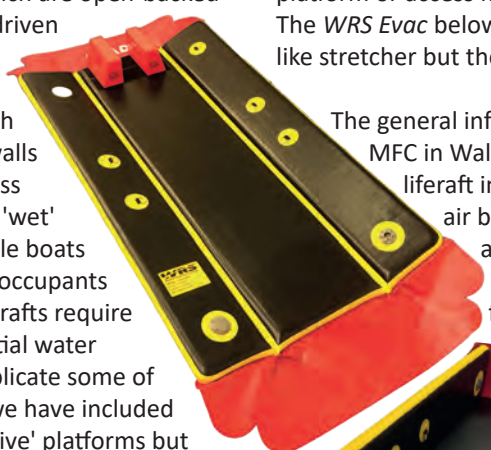
images not to scale

INFLATABLE PONTOONS & PATHS

This GUIDE to inflatable platforms could be divided into what we will call 'passive' and 'dynamic' products. The next guide is 'dynamic' inflatables which are open-backed sleds designed to be powered or paddle driven through water or they can be pushed, towed or 'punted' over ice/mud/sand in order to reach a person in difficulties. Such craft have an inflatable gunwale or side-walls and an open back that allows easier ingress into or egress out of the water. These are 'wet' craft and not to be confused with inflatable boats and rafts which are designed to keep the occupants dry-ish. Inflatable sleds and open backed-rafts require the occupants to be fully kitted for potential water entry. Sleds and even tow-boards can duplicate some of the work of the paths in this GUIDE and we have included some flat sleds that function well as 'passive' platforms but they are primarily intended for rescue in moving water, be it a broad flood or complex swiftwater.

This GUIDE concerns passive platforms which are mobile and can be pushed, pulled or leapfrogged into position on water, ice, mud or sand in order to access and extract a person or animal in difficulties. Other than one or two that have a raised 'lip' these platforms are flat mats which can be walkways across water and unstable surfaces and/or work platforms from which to perform the rescue. Some of these models are not the same flat surface on the bottom s they are on the top - some have a catamaran style base. We haven't included inflatable stretchers unless they are flat top and can be used as an impromptu work platform or access method over water and unstable surfaces. The *WRS Evac* below is an interesting oddity because it's a box-like stretcher but the sides fold down to create a flat platform.



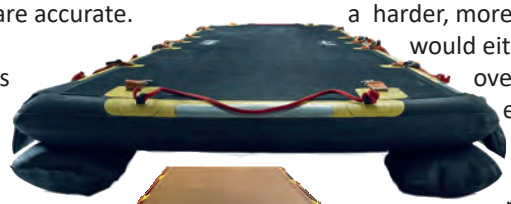
The general inflatable design we see now, originated with MFC in Wales who started in rescue with lifejackets and liferaft in 1959 and went on to invent the pneumatic air bag in 1971. The technology for both airbags and inflatable platforms is quite similar so the 'Rescue Path' was born in the 80's. This featured a very tough rubber and neoprene (later Hyperlon) outer fabric, reinforced internally with a fabric mesh and held flat, rather than ballooning into a ball, by judicious use of retaining string or cords connecting the top to the bottom -similar to mattress springs, this construction they called 'drop-stitch'. The result is a very tough, virtually puncture-proof (but we'll call it puncture-

resistant) mat a few inches thick that can be transported in a back-pack-sized package and inflated in minutes on-scene using compressed air or in dozens of minutes using a hand or foot pump. Having the option of both is most useful to ensure that you are not wholly reliant on a properly charged compressed air cylinder that hasn't been quietly leaking air all the way to the incident.

One amazing feature of this class of rescue products is that manufacturing hasn't strayed much outside of the UK with only one made in North America. *MFC* are still the granddaddy of inflatables though they have some younger competitors to contend with these days so the UK still produces most models of inflatable platforms - from the original *MFC* to *WRS* (*Water Rescue Systems*) and *SIT Ltd* (*Specialist Inflatable Technology*) and latterly *Northern Diver* as well as the other Brit, *Checkmate Flexible Engineering* (making the *IC.Brindle models) WRS* have actually now relocated to Belgium as *WRS International.* We then saw *Savatech* in Slovakia (although they are now hard to find and may have been discontinued under *Trelleborg*) and *VETTER* in Germany expanding into inflatable paths because they, like *MFC,* were already producing pneumatic air bags. In fact *VETTER* took things a step further and are the only commercial rescue producer of high-fall air bags - giant inflatables that can save a person falling from height. Another company in Slovakia that we weren't familiar with is *Nexis* which has a single 5.1m/11' path in a fetching white with red trim and is almost certainly rebadged from a *Duletai* product.

We saw a lot of Chinese inflatable platforms while researching this GUIDE but only *Duletai* with their *Durainflate* series seemed to be aimed at the professional market and indeed imported into Europe and the US by a number of reputable companies. We always hesitate to include Chinese products in our GUIDES, not because they are poor products - we always say that the Chinese can produce to whatever quality they are asked including the very best, but because so many products are counterfeit copies. We can't say that of *Duletai* because their range is unlike the others. They have incorporated a double air chamber where a smaller safety chamber of 30-50% of total air capacity is surrounded and protected by the main

chamber. Should the main chamber develop a serious leak you still have a useful degree of floatation. We can't say for sure that this makes them fit for purpose having not used them but the design, materials and spec look promising, they even quote a DIN-compliant figure for tenacity and cohesion strength of the fabric and laminate bonding of the top surface and the sidewall of, respectively: 2600x5000 (+/-150) Newtons per 5cm, 150x150 (+/-10) Newtons per 5cm & 3000x3000 (+/-200) Newtons per 5cm, 100x100 (+/-10) Newtons per 5cm. We haven't seen these kinds of figures quoted by others so *Duletai* are obviously keen to be transparent assuming the figures are accurate.



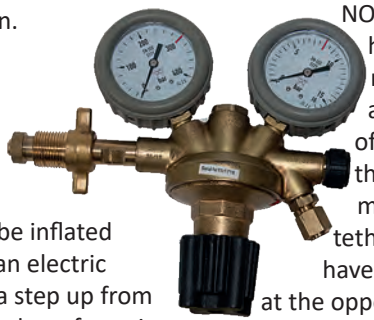
It's interesting to note that some designs have tried to address one problem that can occur with a broad, flat surface in contact with wet mud and sand - suction. It can be difficult to lift and move these mats so a number of designs have a catamaran-style base mentioned earlier and shown in this *Checkmate* model that lifts the mat clear of the surface to negate that suction. Being much higher they also afford a little more protection in water but of course that height can make loading on board the platform more difficult than mats that are only a few inches high. *WRS* took a different approach and have incorporated a forced curve to their mats (shown here in the original colourway) such that it lays flat when there is weight on it but is curved to sit only on its longer outer edges when empty- genius!

HYPALON VS PVC *Hypalon* is a *DuPont* tradename though, like *Hoover*, it seems to have become a more generic term for the tougher, more UV , abrasion and chemical-resistant material of the two. Consequently, it's heavier, more expensive and with less colour options. *Hypalon* is also more resilient in extreme cold and heat but as a rough guide both materials can operate in temperatures from around -25 to +60°C (-13 to 140°F) but should be stored in cool dark places around 15 degrees give or take 10 degrees either way and obviously never in direct sunlight or adjacent any solvents or chemicals. These things are basically modified lifting air-bags with a drop-stitch construction where a thread, cord or fabric ties the upper and lower surfaces together to stop then path becoming a balloon.

FEATURES of INFLATABLE PATHS

INFLATION & VALVES

All of these rescue-oriented models are inflated by BA style compressed air cylinders which suits fire services nicely. Most can also be inflated by high capacity hand or foot pumps or even an electric inflation pump - preferably something that is a step up from those cigarette lighter lilo inflators or you'll be there for quite some time. Compressed Air (CABA) inflation is the preferred option for speed because it inflates in seconds to a few minutes rather than several minutes. Most companies can provide the most compatible pressure reducer and hoses for your services air cylinders. Over-pressure is not an issue since they all have a safety valve that will purge air (SAFETY PRV). Pressures need to be high to provide the rigid surface capable of taking around 100kg/220lb per square metre of path. In some cases there is a separate 'dump' or purge valves for rapid deflation often doubling as the safety valve. A speedy deflation can also be achieved by using a suction pump on the inflation point. Once inflated, these things are rock-hard and tough as old boots but they don't have a limitless capacity for being squashed - under high load they will deflect and maybe crease in water but on a harder, more resistant surface like mud or sand they would either rupture or, in most cases the safety or over-pressure valve would save the day and expel air rather than rupture a seam. Typical load capacities are around 100kg per square metre give or take several kg so with most paths being about a metre wide you can gauge their capacity by the length - a 3m path will take 3 or 4 people or one horse, a 10 metre might take a dozen people or a small herd of sheep but good luck keeping any live and frisky animal on-board. For animal rescue, platforms can be useful for physically hauling and sliding an animal out of mud or water but they tend to be used more for the human rescuers to carry out a rescue around a trapped animal (or human) - frequently in mud, sometimes sand where the platform either allows easy access and deployment of air lances to free a mud-entrapment or can be used as a base for a lifting tripod being careful NOT to exceed the per square metre or foot load rating.



'LOAD-BEARING' EYES

Virtually all designs have towing or connection eyes, either as metal rings or webbing eyes on the ends or close to the ends on the top. These can be used to connect paths together and create much larger working areas or to tow the paths into position/ back from a rescue; the UK Coastguard Mud Rescue Teams have provision for a powered winch to drag their rescue sled back to dry land after a rescue but this principle can extend to paths that have strong enough towing eyes. Such attachment points can also be used as tether points for holding position in flowing water but NONE are intended as vertical lift eyes for hoisting with weight on the platform. Only the inflatable stretchers are properly equipped for hoisting as noted in the NOTES section of one or two in this list. Some models have different sizes of D-rings and while there are no figures given it is likely that the smaller D-Rings are intended to have less load applied - these are often around the circumference or side walls with the perimeter cord running through so load is shared more equally between them that the larger towing/ tethering eyes. One or two, like the *Checkmate* models have connection hooks on one end and connecting eyes at the opposite end.

HANDLES

There are carry handles on most models, these are intended for transport and positioning NOT for lifting stretcher style though that is possible with one or two of the paths with a

INFLATABLE PONTOONS & PATHS

high 'freeboard', the *SIT* models for example are nearly double the height of the *Vetter* paths. Some handles are bespoke, ergonomic grips while others may simply be the perimeter cord with a smaller gap between anchor points.

PERIMETER CORD

There is cord or webbing running around the top surface or all the way around the sides of most paths. This tends to be on the rectangular models which are long and thin rather than the smaller square models. Cord is fastened to the top surface or the sidewalls of the path at intervals and can be used to aid positioning of the path, for in-water casualties that won't fit on top to hold onto or to fasten equipment or throwbags etc. anywhere along the path's length and ensure you don't lose anything during the rescue mêlée. On longer models this can add a kilo to the weight as it tends to be 7 to 10 mm in diameter for easier grasping.

MFC's Animal Rescue Path seems to be the original Rescue Path that we used to deploy for just about everything from mud and ice to quicksand and even trench rescue but is now re-purposed as an animal rescue platform. It's still a great and probably more cost-effective, general option for mud/ice/sand rescue but with less frills and a slicker surface. In the image below, the sheer scale of effort required to rescue a cow from mud can be seen, plus the necessity for a slick surface in sliding the cow out. Here it's all hands to the pump in Hampshire, UK as the Animal Rescue Team , Water Rescue Team, local fire crew, farmer and vet all get involved. The slick surface, as distinct from the now more common tactile surface, enables rescuers to drag the animal out and is made easier in dry weather with liberal application of a bucket of water.

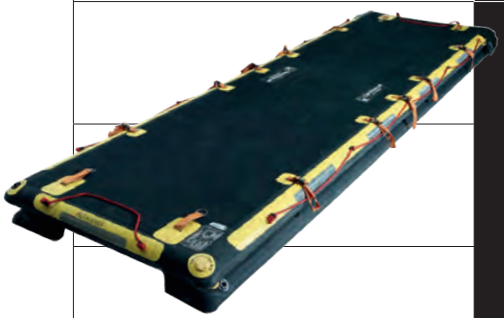
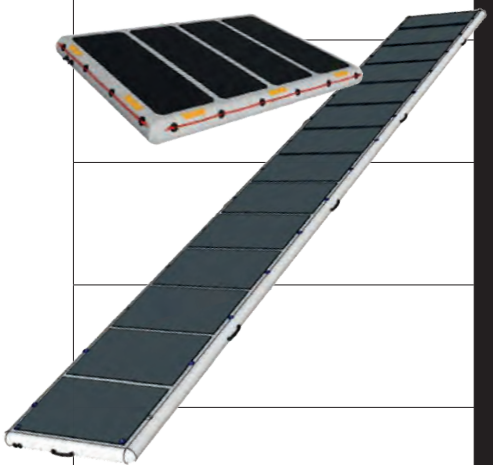
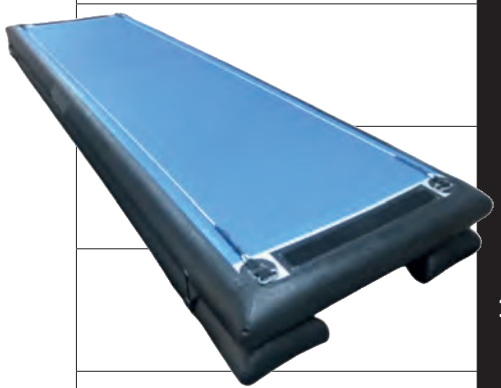
NON-SLIP TOP SURFACE

A slick rubber surface might be good for sliding animals on but it is something of a liability for anyone stood on it or trying to walk across it so most have some form of extra grip - this can be a textured or dimpled surface across its entirety like EVA foam or it may be a series of ribs. Most use a tactile surface like this *NDiver* model (right) which is noticeably matt and grippy in appearance but some have a surface that is not immediately distinct from a non-textured surface yet still flat and grippy. There are times when a tactile surface is more of hindrance than a help - trying to slide a trapped animal onto the platform for instance and when it comes to cleaning/decontamination but on the whole - greater traction is more useful to rescuers.

IN THE FOLLOWING TABLES.....

Any use, feature, accessory or component that is inherent in the product 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.
ORIGIN: The 'manufacturer's country, not necessarily the country of manufacture indicated by an inset flag.
COST: a rough guide only - **includes** local taxes/VAT. Varies with exchange rates, extra taxes etc. Like our other GUIDE in this issue, hardly anyone is prepared to give a price, WRS, Northern Diver and IC Brindle have no problem passing on prices so you can get a rough idea from these of the cost of similar sized paths from other manufacturers. We usually round up to the nearest Pound£/US Dollar$/Euro€. We have started to quote a US$figure in orange which is simply a currency conversion to give an idea of price, it is not the selling price in the US which may have import duties etc to add.
TOTAL LOAD CAPACITY or kg/sqm: Most companies will quote a maximum figure which is much lower than its true capabilities - the Animal path in the picture below-left is quoted as having a max total load of 200kg but that cow looks a little heavier than that! If in doubt, work on 100kg per square metre or 67.2 pounds per square foot.
DIMENSIONS: Length by width by depth/height from ground. The stored dimensions may be the bag rather than the rolled or folded platform but close enough.
AIR CAPACITY: The volume of air needed to fill the path to working pressure. This doesn't necessarily correlate to the dimensions (which are external measurements) and vary with different thicknesses of material, resistance, internal components etc.
MAX WORKING PRESSURE: the pressure at which the path is pumped up and workable, exceeding of which will purge via the safety valve.
INFLATION TIME: Mostly via compressed air which is two or three times quicker than an electric pump which , in turn may be twice as fast as hand or foot inflation. All of these times are approximate and depend on the temperature and how well the path has been unpacked/unrolled. One or two of the figures given here seem mightily optimistic.
TOW/CONNECT EYES: metal D-rings and/or web straps and sometime hooks. This can be tricky because some components can easily do the job of both but generally speaking the connecting eyes can be weaker than towing eyes but neither is designed to hold a loaded path in suspension.
SAFETY/DUMP VALVE: The safety valve or purge valve allows excess air to vent as a result of over-inflation or an excessive compressive load. Dump valve refers to the ability to empty air quickly or even to actively suck air out with a pump.
COLOUR: Primary colour of shell/frame with an outline secondary colour to indicate trim colour.

images NOT to Scale
□□□= Option
●= Partial Feature &/or OK but not ideal
COST: Approx, INC local tax/VAT
£ US$ € = currency conversions only
INFLATION: Hand Pump/ Electric Pump
Compressed Air
VALVES PRV=Pressure Relief Valve

	MODEL	COMPANY	ORIGIN	COST inc tax / VAT	WEIGHT	LOAD CAPACITY &/or Kg/Sq M lb/Sq Ft	DIMENSIONS L x Wx H/D PACKED convert cm to m " to '
	2m Rescue Walkway	CHECKMATE FLEXIBLE ENGINEERING		N/A	24kg 52.8lb	200kg 440lb >100kg >67.2lb	2 x 1.4 x 0.25m 78.7 x 55 x 10" 1.7 x 0.5 x 0.3m 67 x 19.7 x 13.7"
	5m Rescue Walkway	CHECKMATE FLEXIBLE ENGINEERING		N/A	36kg 61.6lb	500kg 1100lb >100kg >67.2lb	5 x 1.4 x 0.25m 197 x 55 x 10" 1.7 x 0.5 x 0.35m 67 x 19.7 x 13.7"
	10m Rescue Walkway	CHECKMATE FLEXIBLE ENGINEERING		N/A	46kg 101.2lb	1000kg 2200lb >100kg >67.2lb	10 x 1.4 x 0.25m 254 x 55 x 10" 1.7 x 0.5 x 0.4m 67 x 19.7 x 15.7"
	2m Rescue Walkway 520017	DULETAI		N/A	14kg 30.8lb	800kg 1760lb	2 x 1.37 x 0.2m 78.7 x 53.9 x 8" 0.82 x 0.35 x 0.45m 32.2 x 13.7 x 17.7"
	5m Rescue Walkway 520018	DULETAI		N/A	27kg 59.4lb	800kg 1760lb	5 x1.37x 0.2m 197 x 53.9 x 8" 1.15 x 0.35 x 0.45m <45.2 x 13.8 x 17.7"
	10m Rescue Walkway 520019	DULETAI		N/A	55kg 121lb	1300kg 2860lb	10 x 1.37 x 0.2m 254 x 53.9 x 8" 115 x 35 x 45m 45.2 x 13.8 x 17.7"
	15m Rescue Walkway 520020	DULETAI		N/A	90kg 198lb	3000kg 6600lb	15 x 1.37 x 0.2m 590 x 53.9 x 8" 1.8 x1 x 0.85m 70.8 x 40 x 33.4"
	2m Fast Path	IC BRINDLE		£1620 $1688	23kg 50.6lb	250kg 550lb	2 x1.3 x 0.3m 78.7 x 51 x 12" 1.7 x 0.5 x 0.3m 67 x 19.7 x 13.7"
	5m Fast Path	IC BRINDLE		£2736 $3358	35kg 77lb	625kg 1375lb	5 x 1.3 x 0.3m 197 x 51 x 12" 1.7 x 0.5 x 0.35m 67 x 19.7 x 13.7"
	10m Fast Path	IC BRINDLE		£4776 $5865	45kg 99lb	1250kg 2750lb	1000x130x30m 393 x 51 x 12" 170 x 50 x 40m 67 x 19.7 x 15.7"
	2m Airtrack Rescue Path WR0011 WRW0011/01	MFC INTERNATIONAL		$2600	12kg 26.4lb	200kg 440lb	200x137x25m 00 x 00 x 00" 82x48x24m 00 x 00 x 00"
	3m Airtrack Rescue Path WR0012 WRW0012/01	MFC INTERNATIONAL		N/A	17kg 37.4lb	300kg 660lb	300x137x25m 87x48x28m
	4m Airtrack Rescue Path WR0013 WRW0013/01	MFC INTERNATIONAL		N/A	22kg 48.4lb	400kg 880lb	400x137x25m 87x48x32m

INFLATABLE PONTOONS & PATHS

AIR CAPACITY	MAX PRESSURE	INFLATION OPTIONS & TIMES HAND ELECTRIC HP/CABA	MATERIALS:	TOP SURFACE GRIP	INFLATION CHAMBERS	REGULATOR / HOSE	SAFETY PRV/ DUMP VALVE	MANUAL/POWER PUMP	HANDLES / GRAB CORD	TOW / CONNECT EYES	REPAIR KIT / POCKETS	CARRY BAG/VALISE	REFLECTIVE	COLOUR OPTIONS	NOTES	WWW.
*840 L 29.7cuft	0.55 BAR 8 PSI		Neoprene coated nylon	■	3	□ □	■ ■	□ □	■ 10	10 4	- □	■	■	■	* approximate figures	checkmateflex.com
*1700 L 60cuft	0.55 BAR 8 PSI		Neoprene coated nylon	■	3	□ □	■ ■	□ □	■ 10	10 4	- □	■	■	■	* approximate figures	checkmateflex.com
*3500 L 123.6cuft	0.55 BAR 8 PSI		Neoprene coated nylon	■	3	□ □	■ ■	□ □	■ 10	10 4	- □	■	■	■	* approximate figures	checkmateflex.com
800 L 28.25cuft	0.5 BAR 7.25 psi	40 sec	PVC coated Polyester. EVA foam upper	■	2	- -	- ■	□ ■	■ 0	20 0	□ ■	■	■	□ □		durainflate.com
1600 L 56.5cuft	0.5 BAR 7.25 psi	1min	PVC coated Polyester. EVA foam upper	■	2	- -	- ■	□ ■	■ 0	20 0	□ ■	■	■	□ □		durainflate.com
3200 L 113cuft	0.5 BAR 7.25 psi	4mins	PVC coated Polyester. EVA foam upper	■	2	- -	- ■	□ ■	■ 6	24 0	□ ■	■	■	□ □		durainflate.com
5570 L 196.7cuft	0.5 BAR 7.25 psi	6mins	PVC coated Polyester. EVA foam upper	■	2	- -	- ■	□ ■	■ 10	30 0	□ ■	■	■	□ □		durainflate.com
*840 L 29.7cuft	0.55 BAR 8 PSI		PVC	■	3	□ □	■ ■	■ □	■ 0		□ ■	□	□	■	* approximate figures	icbrindle.com
*1700 L 60cuft	0.55 BAR 8 PSI		PVC	■	3	□ □	■ ■	■ □	■ 0		□ ■	□	□	■	* approximate figures	icbrindle.com
*3500 L 123.6cuft	0.55 BAR 8 PSI		PVC	■	3	□ □	■ ■	■ □	■ 0		□ ■	□	□	■	* approximate figures	icbrindle.com
640 L 22.6cuft	0.7 BAR 10 Psi	1min	Hypalon Neoprene/TPU	■	3	■ □	- ■	□ □	■ 0	8 4	2 ■	■	■	■	comes with throwline with rubber quoit	mfc-international.com
960 L 33.9 L	0.7 BAR 10 Psi		Hypalon Neoprene/TPU	■	3	■ □	- ■	□ □	■ 0	8 4	2 ■	■	■	■	comes with throwline with rubber quoit	mfc-international.com
1280 L 45.2cuft	0.7 BAR 10 Psi	3mins	Hypalon Neoprene/TPU	■	3	■ □	- ■	□ □	■ 0	8 4	2 ■	■	■	■	comes with throwline with rubber quoit	mfc-international.com

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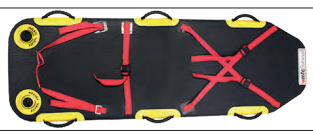
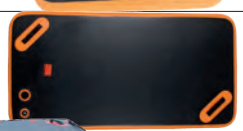
●= Partial Feature &/or OK but not ideal
COST: Approx, INC local tax/VAT
£ US$ € = currency conversions only
INFLATION: Hand Pump/ Electric Pump
Compressed Air
VALVES PRV=Pressure Relief Valve

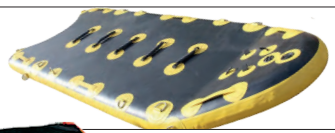
	MODEL	COMPANY	ORIGIN	COST inc tax / VAT	WEIGHT	LOAD CAPACITY &/or Kg/Sq M lb/Sq Ft	DIMENSIONS L x Wx H/D PACKED convert cm to m " to '
	**5m Airtrack-Rescue Path** WR0014 WRW0014/01	**MFC INTERNATIONAL**		£000 $4900 €000	28kg 61.6lb	500kg 1100lb	5 x 1.37 x 0.25m 197 x 54 x 9.8" 0.87 x 0.48 x 0.35m 34.2 x 19 x 13.8"
	10m Airtrack Rescue Path WR0015 WRW0015/01	**MFC INTERNATIONAL**		N/A	55kg 121lb	1000kg 2200lb	10 x 1.37 x 0.25m 394 x 54 x 9.8" 0.89 x 0.73 x 0.5m 35 x 28.7 x 19.7"
	15m Airtrack Rescue Path WR0016 WRW0016/01	**MFC INTERNATIONAL**		N/A	00kg 00lb	2000kg 4400 lb	15 x 1.37 x 0.25m 590 x 54 x 9.8" 0.91 x 0.73 x 0.5m 36 x 28.7 x 19.7"
	**5m Animal Rescue Path** WR0195 WRW0195	**MFC INTERNATIONAL**		N/A	15.5kg 34.1lb	600kg 1320 lb 200kg	5 x 1.34 x 0.67m 197 x 53 x 2.6" 0.66 x 0.34 x 0.25m 26 x 13.4 x 9.8"
	10m Animal Rescue Path WR0197 WRW0197	**MFC INTERNATIONAL**		N/A	40kg 88 lb	1200kg 2640 lb	10 x1.34 x 0.67m 39.4 x 5.3 x 2.6" 0.7 x 0.45 x 0.3m 27.6 x 17.7 x 12"
	**Inflatable Stretcher** WR0196 WRW0196	**MFC INTERNATIONAL**		N/A	7kg 15.4lb 6kg 13.2lb	150kg 330 lb	2.04 x 0.66 x 0.67m 80.3 x 26 x 2.6" 0.35 x 0.35 x 0.18m 13.8 x 13.8 x 7"
	**RPH Lifeline**	**NIXUS**		N/A	28.5kg 62.7lb	800kg 1760lb	5.1 x 1.37 x 0.16m 200 x 54 x 6.3" <1.15 x 0.35 x 0.45m <45.2 x 13.8 x 17.7"
	**1m Air Track**	**NORTHERN DIVER**		£177 $218 €000	5kg 11lb	60kg 132lb	1 x 1 x 0.8m 39 x 39 x 3.15" 1.10 x 0.35 x 0.1m 43.3 x 35 x 4"
	**2m Air Track**	**NORTHERN DIVER**		£369 $453 €000	10.5kg 23.1lb	120kg 264lb	2 x 1 x 0.8m 39 x 3.15" 110 x 35 x 15m 43.3 x 13.8 x 6"
	**5m Air Track**	**NORTHERN DIVER**		£1310 $1608 €0000	35.5kg 78.1lb	420kg 924lb	5 x 1 x 0.8m 19.7 x 39 x 3.15" 1.4 x 0.35 x 0.3m 55 x 13.8 x 12"
	8m Air Track	**NORTHERN DIVER**		£1662 $2041 €0000	46kg 101.2lb	672kg 1478lb	8 x1 x 0.8m 315 x 39 x 3.15" 1.4 x 0.35 x 0.35m 55 x 13.8 x 13.8"
	**10m Air Track**	**NORTHERN DIVER**		£1916 $2352 €0000	41kg 90.2lb	840kg 1848lb	10 x 1 x 0.8m 394 x 39 x 3.15" 1.4 x 0.35 x 0.38m 55 x 13.8 x 13.8"
	2m Walkway	**NORTHERN DIVER**		£956 $1174 €0000	300kg 660lb	250kg 550lb	2 x1.2 x 0.3m 79 x 47.2 x 12" <1.4 x 0.5 x 0.35m <55 x 19.7 x 13.8"

INFLATABLE PONTOONS & PATHS

AIR CAPACITY	MAX PRESSURE	INFLATION OPTIONS & TIMES HAND ELECTRIC HP/CABA	MATERIALS:	TOP SURFACE GRIP	INFLATION CHAMBERS	REGULATOR / HOSE	SAFETY PRV/ DUMP VALVE	MANUAL/POWER PUMP	HANDLES / GRAB CORD	TOW / CONNECT EYES	REPAIR KIT / POCKETS	CARRY BAG/VALISE	REFLECTIVE	COLOUR OPTIONS	NOTES	WWW.
1600 L 56.5cuft	0.7 BAR 10 Psi	3-4mins	Hypalon Neoprene/TPU	■	3	■ □	■ ■	□ □	■ 0	8 4	2 ■	■	■	■	comes with throwline with rubber quoit	mfc-international.com
3200 L 113cuft	0.7 BAR 10 Psi	6-7mins	Hypalon Neoprene/TPU	■	3	■ □	■ ■	□ □	■ 0	12 4	2 ■	■	■	■	comes with throwline with rubber quoit	mfc-international.com
4800 L 169cuft	0.7 BAR 10 Psi	8-10mins	Hypalon Neoprene/TPU	■	3	■ □	■ ■	□ □	■ 0	16 4	2 ■	■	■	■	comes with throwline with rubber quoit	mfc-international.com
455 L 16cuft	0.2 BAR 3 Psi	30sec	Hypalon Neoprene/TPU	NO	1	■ □	■ ■	□ □	■ 6	0 0	- ■	■	NO	■ ■	Hypalon version in Yellow/ Black, TPU version in Orange/black	mfc-international.com
910 L 32.1cuft	0.2 BAR 3 Psi	2mins	Hypalon Neoprene/TPU	NO	1	■ □	■ ■	□ □	■ 6	0 0	- ■	■	NO	■ ■	Hypalon version in Yellow/ Black, TPU version in Orange/black	mfc-international.com
100 L 3.5cuft	0.2 BAR 3 Psi	30secs	Hypalon Neoprene/TPU	NO	1	■ □	■ ■	□ □	NO 6	0 0	- ■	■	NO	■		mfc-international.com
1600 L 56.5cuft	0.5 BAR 7.25 psi	2mins	PVC coated Polyester. EVA foam upper	■	2	- -	- ■	□ ■	■ 0	20 0	□ ■	■	■ ■	□		nixus2protect.com
80 L 2.8cuft	0.7 BAR 10 Psi	23secs	DWF/PVC	■	1	□ □	- ■	□ ■	□ 2	□ □	- ■	■	■ □	■ ■	*Inflation time calculated at 50 pump strokes per minute	ndiver-rescue.com
160 L 5.6cuft 54secs	0.7 BAR 10 Psi		DWF/PVC	■	1	□ □	- ■	□ ■	□ 2	□ □	- ■	■	■ □	■ ■	*Inflation time calculated at 50 pump strokes per minute	ndiver-rescue.com
560 L 19.8cuft 3.1mins	0.7 BAR 10 Psi		DWF/PVC	■	1	□ □	- ■	□ ■	■ 4	4 □ □	- ■	■	■ □	■ ■	*Inflation time calculated at 50 pump strokes per minute	ndiver-rescue.com
896 L 31.6cuft 5mins	0.7 BAR 10 Psi		DWF/PVC	■	1	□ □	- ■	□ ■	■ 4	4 □ □	- ■	■	■ □	■ ■	*Inflation time calculated at 50 pump strokes per minute	ndiver-rescue.com
1120 L 39.6cuft 6.2mins	0.7 BAR 10 Psi		DWF/PVC	■	1	□ □	- ■	□ ■	■ 4	4 □ □	- ■	■	■ □	■ ■	*Inflation time calculated at 50 pump strokes per minute	ndiver-rescue.com
360 L 12.7cuft 2mins*	0.7 BAR 10 Psi		DWF/PVC	■	3	□ □	- ■	□ ■	■ 4	4 12	- ■	■	■ □	■	*Inflation time calculated at 50 pump strokes per minute	ndiver-rescue.com

30+

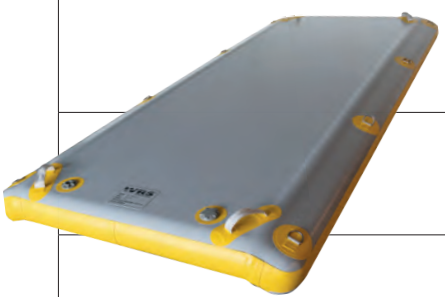
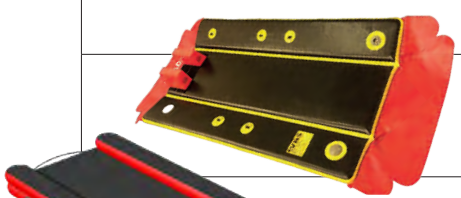
images NOT to Scale
☐☐☐= Option
●= Partial Feature &/or OK but not ideal
COST: Approx, INC local tax/VAT
£ US$ € = currency conversions only
INFLATION: Hand Pump/ Electric Pump
Compressed Air
VALVES PRV=Pressure Relief Valve

	MODEL	COMPANY	ORIGIN	COST inc tax / VAT	WEIGHT	LOAD CAPACITY &/or Kg/Sq M lb/Sq Ft	DIMENSIONS L x Wx H/D PACKED convert cm to m " to '
	**3m Walkway**	**NORTHERN DIVER**		£1318 $1618 €0000	35kg 77lb	450kg 990lb	3 x 1.2 x 0.3m 118 x 47.2 x 12" <1.4 x 0.5 x 0.35m <55 x 19.7 x 13.8"
	5m Walkway	**NORTHERN DIVER**		£2084 $2559 €0000	42kg 92.4lb	750kg 1650lb	500 x 120 x 30cm 197 x 47.2 x 12" 140 x 50 x 35cm <55 x 19.7 x 13.8"
	10m Walkway	**NORTHERN DIVER**		£3873 $4755 €0000	85kg 187lb	1500kg 3300lb	1000 x120 x30cm 394 x 47.2 x 12" 140 x 60 x 40cm
	**RR2**	**NORTHERN DIVER**		£970 $1191 €0000	23.7kg 52.1lb	300kg 660lb	300 x 100 x 15cm 118 x 39 x 4" 0 x 0 x 0cm
	**5m Rescue Walkway** ATP5	**SAVATECH (TRELLEBORG)**		N/A	34kg 74.8lb	1000kg 2200lb 200kg 440lb	500 x 165 x x15cm 197 x 65 x 6" n/a
	10m Rescue Walkway ATP10	**SAVATECH (TRELLEBORG)**		N/A	66kg 145.2lb	2000kg 2205lb 200kg 440lb	1000 x 165 x 15cm 394 x 65 x 6" n/a
	15m Rescue Walkway ATP15	**SAVATECH (TRELLEBORG)**		N/A	100kg 220lb	3000kg 4409lb 200kg 440lb	1500 x 165 x 15cm 590 x 65 x 6" n/a
	**ResQ Path 3000** SIT38050	**SIT Ltd**		N/A	15kg 33lb	350kg 770lb	300 x 145 x 15cm 118 x 57 x 4" 70 x 40 x 40cm 27.5 x 15.7 x 15.7"
	ResQ Path 5000 SIT38050	**SIT Ltd**		£0000 $6397 €6074	25kg 55lb	650kg 1430lb	500 x 145 x 15cm 197 x 57 x 4" 70 x 44 x 40cm 27.5 x 17.3 x 15.7"
	ResQ Path 10000 SIT38050	**SIT Ltd**		£0000 $8718 €8278	45kg 99lb	1200kg 2640lb	1000 x 145 x 15cm 394 x 57 x 4" 70 x 70 x 70cm 27.5 x 27.5 x 27.5"
	**LifeRamp 10'** 6601-10	**TULMAR SAFETY**		£00 $6075 €00	12.7kg 28lb	499kg 1100lb 145kg 30 lb	1.2 x 3.1 x 0.2m 3.8 x 10 x 0.7' 1.2 x 0.46 x 0.3m 4 x 1.5 x 1'
	LifeRamp 15' 6601-15	**TULMAR SAFETY**		£00 $6945 €00	19.1kg 42lb	762kg 1679lb 145kg 30 lb	1.2 x 4.5 x 0.2m 3.8 x 15 x 0.7' 1.2 x 0.46 x 0.3m 4 x 1.5 x 1'
	LifeRamp 30' 6601-30	**TULMAR SAFETY**		£00 $9220 €00	35.4kg 78lb	1543kg 3400lb 145kg 30 lb	1.2 x 9 x 0.2m 3.8 x 30 x 0.7' 1.2 x 0.61 x 0.46m 4 x 2 x 1.5'

INFLATABLE PONTOONS & PATHS

AIR CAPACITY	MAX PRESSURE	INFLATION OPTIONS & TIMES HAND ELECTRIC HP/CABA	MATERIALS:	TOP SURFACE GRIP	INFLATION CHAMBERS	REGULATOR / HOSE	SAFETY PRV/ DUMP VALVE	MANUAL/POWER PUMP	HANDLES / GRAB CORD	TOW / CONNECT EYES	REPAIR KIT / POCKETS	CARRY BAG/VALISE	REFLECTIVE	COLOUR OPTIONS	NOTES	WWW.
540 L 19cuft 3mins*	0.7 BAR 10 Psi	■ ■ ■	DWF/PVC	■	3	□ □	- ■	□ ■	■ 4	4 12	- ■	■	□	■	*Inflation time calculated at 50 pump strokes per minute	ndiver-rescue.com
900 L 31.8cuft 5mins*	0.7 BAR 10 Psi	■ ■ ■	DWF/PVC	■	3	□ □	- ■	□ ■	■ 4	4 12	- ■	■	□	■	*Inflation time calculated at 50 pump strokes per minute	ndiver-rescue.com
1800 L 63.6cuft 10mins*	0.7 BAR 10 Psi	■ ■ ■	DWF/PVC	■	3	□ □	- ■	□ ■	■ 4	4 12	- ■	■	□	■	*Inflation time calculated at 50 pump strokes per minute	ndiver-rescue.com
310 L 11cuft <1min	0.7 BAR 10 Psi	■ ■ ■	DWF/PVC	■	1	□ □	- ■	□ ■	■ 11	5 14	- ■	■	□	■	Primarily a sled so comes with twin-blade paddle	ndiver-rescue.com
1860 L 66cuft 1min	0.5 BAR 7.25 psi	■ ■ ■	Hypalon	■	1	□ □	■ ■	□ □	■ *	14 0	- □	■	■	□	May be discontinued *Perimeter cord provides the carrying handles	trelleborgslovenija.com
3720 L 131cuft 1.4min	0.5 BAR 7.25 psi	■ ■ ■	Hypalon	■	1	□ □	■ ■	□ □	■ *	24 0	- □	■	■	□	May be discontinued *Perimeter cord provides the carrying handles	trelleborgslovenija.com
5570 L 197cuft 10+min	0.5 BAR 7.25 psi	■ ■ ■	Hypalon	■	1	□ □	■ ■	□ □	■ *	34 0	- □	■	■	□	May be discontinued *Perimeter cord provides the carrying handles	trelleborgslovenija.com
650 L 23cuft 1min	0.5 BAR 7.25 psi	■ ■ ■	Hypalon	■	1	□ □	■ ■	□ □	■ 4*	4* 4*	■	□	□	■ ■	Updated range will not now include the original 2m version. *All fitments subject to change due to series redesign/update	sitltd.co.uk
1080 L 38.1cuft 2mins	0.5 BAR 7.25 psi	■ ■ ■	Hypalon	■	1	□ □	■ ■	□ □	■ 6*	4* 4*	■	□	□	■ ■	*All fitments subject to change due to series redesign/update Also branded as SAFEQUIP	sitltd.co.uk
2160 L 76.3cuft 4mins	0.5 BAR 7.25 psi	■ ■ ■	Hypalon	■	1	□ □	■ ■	□ □	■ 10*	4* 4*	■	□	□	■ ■	*All fitments subject to change due to series redesign/update Also branded as SAFEQUIP	sitltd.co.uk
<1min	0.2 BAR 3 psi	■ ■ ■	Neoprene/ PVC	NO	2	■ □	- ■	□ -	■ -	2 0	■ ■	■	NO			tulmar.com
<1min	0.2 BAR 3 psi	■ ■ ■	Neoprene/PVC	NO	2	■ □	- ■	□ -	■ -	2 0	■ ■	■	NO			tulmar.com
<1min	0.2 BAR 3 psi	■ ■ ■	Neoprene/PVC	NO	2	■ □	- ■	□ -	■ -	2 0	■ ■	■	NO			tulmar.com

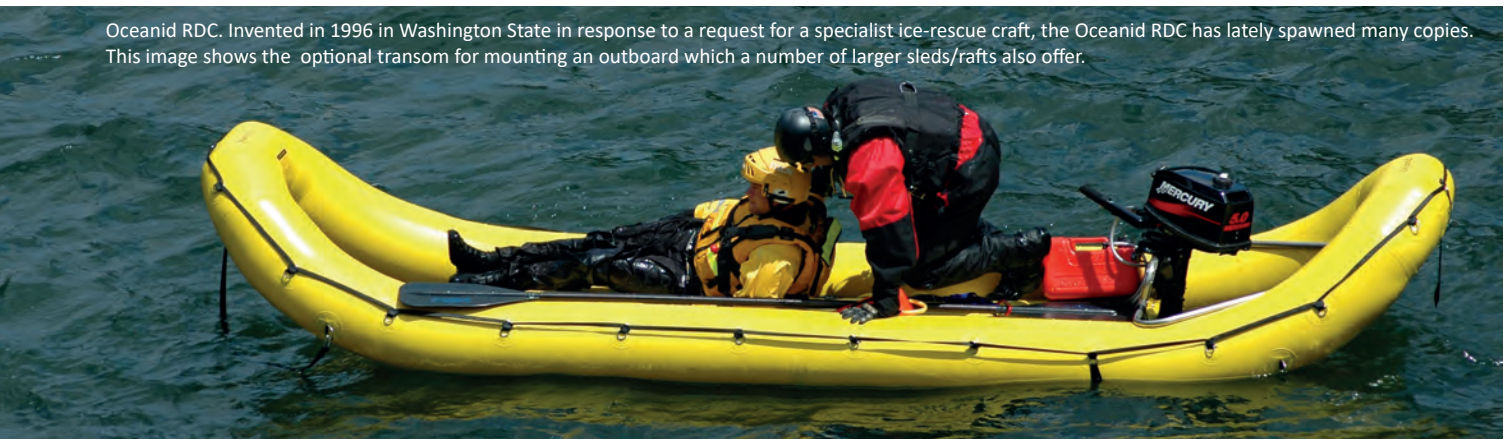
images NOT to Scale
□□□= Option
●= Partial Feature &/or OK but not ideal
COST: Approx, INC local tax/VAT
£ US$ € = currency conversions only
INFLATION: Hand Pump/ Electric Pump
Compressed Air
VALVES PRV=Pressure Relief Valve

	MODEL	COMPANY	ORIGIN	COST inc tax / VAT	WEIGHT	LOAD CAPACITY &/or Kg/Sq M lb/Sq Ft	DIMENSIONS L x Wx H/D PACKED convert cm to m " to '
	**LifeRamp 50'** 6601-50	**TULMAR SAFETY**		£00 $13430 €00	40.9kg 90lb	2586kg 5700lb 145kg 30 lb	1.2 x 15.5 x 0.2m 3.8 x 50 x 0.7' 1.2 x 0.91 x 0.76m 4 x 3 x 2.5'
	LifeRamp 80' 6601-80	**TULMAR SAFETY**		£00 $19680 €00	86.2kg 190lb	4151kg 9150lb 145kg 30 lb	1.2 x 24.8 x 0.2m 3.8 x 80 x 0.7' 1.2 x 1.1 x 1.1m 4 x 3.5 x 3.5'
	**6m Walkway** 1530008502	**VETTER**		N/A	25kg 77.2lb	800kg 1760 lb 95kg 2255 lb	6 x 1.4 x 0.1m 236 x 55 x 4" 1.65 x 0.35 x 0.25m 65 x 14 x 10"
	10m Walkway 1530008602	**VETTER**		N/A	57.5kg 126.8lb	1330kg 2926 lb 95kg 2255 lb	10 x 1.4 x 0.1m 394 x 55 x4" 1.65 x 0.45 x 0.3m 65 x 14 x 10"
	15m Walkway 1530008702	**VETTER**		N/A	81.5kg 179.7lb	1995kg 4390 lb 95kg 2255 lb	1500 x 140 x 10m 590 x 55 x 4" 1.65 x 0.6 x 0.45m 65 x 14 x 10"
	**2m Rescue Pathway**	**WRS INTERNATIONAL**		£00 $2667 €2667	7.4kg 16.3lb	220kg 484lb	2. x 1 x 0.15m 79 x 39 x 6"
	3m Rescue Pathway	**WRS INTERNATIONAL**		£00 $3046 €2682	13.3kg 29.3lb	390kg 858lb	3 x 1.4 x 0.15m 118 x 55 x 6"
	5m Rescue Pathway	**WRS INTERNATIONAL**		£00 $3696 €3253	23kg 50.6lb	650kg 1430lb	5 x 1.4 x 0.15m 197 x 55 x 6"
	**Evac Sled**	**WRS INTERNATIONAL**		£00 $2073 €2682	8.5kg 18.7lb	160kg 352lb	3 x 1.4 x 0.15m 118 x 55 x 6"
	10m Walkway 1530008602	**ZODIAC MILPRO**		N/A	57.5kg 126.8lb	1330kg 2926 lb 95kg 2255 lb	10 x 1.4 x 0.1m 394 x 55 x4" 1.65 x 0.45 x 0.3m 65 x 14 x 10"
	**10m Walkway** 1530008602	**ZODIAC MILPRO**		N/A	57.5kg 126.8lb	1330kg 2926 lb 95kg 2255 lb	10 x 1.4 x 0.1m 394 x 55 x4" 1.65 x 0.45 x 0.3m 65 x 14 x 10"

INFLATABLE PONTOONS & PATHS

AIR CAPACITY	MAX PRESSURE	INFLATION OPTIONS & TIMES HAND ELECTRIC HP/CABA	MATERIALS:	TOP SURFACE GRIP	INFLATION CHAMBERS	REGULATOR / HOSE	SAFETY PRV/ DUMP VALVE	MANUAL/POWER PUMP	HANDLES / GRAB CORD	TOW / CONNECT EYES	REPAIR KIT / POCKETS	CARRY BAG/VALISE	REFLECTIVE	COLOUR OPTIONS	NOTES	WWW.
	0.2 BAR 3 psi	■ ■ <1min	Neoprene/PVC	NO	2	■ □	- ■	□ -	■ -	2 0	■ ■	■	NO			tulmar.com
	0.2 BAR 3 psi	■ ■ 2-3mins	Neoprene/PVC	NO	2	■ □	- ■	□ -	■ -	2 0	■ ■	■	NO			tulmar.com
1321 L 47cuft	0.5 BAR 7.25 psi	■ 2.9mins	PVC	■*	1	□ □	■ ■	- ■	■ 6	4 4	- -	■	■	■	* Grip provides by strips at intervals along the top	vetter.de
2196 L 78cuft	0.5 BAR 7.25 psi	■ 4.9mins	PVC	■*	1	□ □	■ ■	- ■	■ 8	4 4	- -	■	■	■	* Grip provides by strips at intervals along the top	vetter.de
3360 L 119cuft 7.4mins	0.5 BAR 7.25 psi	■ ■	PVC	■*	1	□ □	■ ■	- ■	■ 10	4 4	- -	■	■	■	* Grip provides by strips at intervals along the top	vetter.de
450 L 15.9cuft <1min	0.7 BAR 10 Psi	■ ■	PVC	NO	1	□ □	- ■	- ■	NO □	□ □	- ■	■	□	■		wrsinternational.com
650 L 23cuft 1-2mins	0.7 BAR 10 Psi	■ ■	TPU	NO	1	□ □	- ■	- ■	■ 4	8 -	- ■	■	□	■		wrsinternational.com
1000 L 32.5cuft >2mins	0.7 BAR 10 Psi	■ ■	TPU	NO	1	□ □	- ■	- ■	■ 4	12 -	- ■	■	□	■		wrsinternational.com
350 L 12.4cuft 1min	0.7 BAR 10 Psi	■ ■	TPU	NO	1	□ □	- ■	- ■	NO 6	- -	- ■	■	□	■	Folds flat to create a platform for easy loading	wrsinternational.com
2196 L 78cuft 4.9mins	0.5 BAR 7.25 psi	■ ■	PVC	■*	1	□ □	■ ■	- ■	■ 8	4 4	- -	■	■	■	* Grip provides by strips at intervals along the top	zodiacmilpro.com
2196 L 78cuft 4.9mins	0.5 BAR 7.25 psi	■ ■	PVC	■*	1	□ □	■ ■	- ■	■ 8	4 4	- -	■	■	■	* Grip provides by strips at intervals along the top	zodiacmilpro.com

INFLATABLE OPEN-ENDED SLEDS & WATERCRAFT



Oceanid RDC. Invented in 1996 in Washington State in response to a request for a specialist ice-rescue craft, the Oceanid RDC has lately spawned many copies. This image shows the optional transom for mounting an outboard which a number of larger sleds/rafts also offer.

MFC Rescue Sled RS3

This GUIDE covers the more 'dynamic' rescue sleds, and open-transom rafts. Some of these are described as 'sleds' some as 'rafts' but in all cases they will have an open ended stern or water-entry opening in the case of the *Oceanid RDC* style rafts. These can be powered though that generally requires some modification like the *RDC* above since the stern is open on all the models in this GUIDE. More often they are paddled as with the MFC Sled on the left or pushed/towed/'punted' over water, ice, mud or sand in order to reach a person in difficulties. Such craft have inflatable sponsons or side-walls and an open back that allows easier ingress into or egress out of the water. These are 'wet' craft and not to be confused with inflatable boats or rafts which are designed to keep the occupants dry-ish. Inflatable sleds and open backed-rafts require the occupants to be fully kitted for potential water entry. Materials were discussed in part 1 and these sleds/rafts are the same materials and construction - incredibly robust welded PVC/TPU or glued Hypalon, often as a Double Wall Fabric (DWF) and drop stitched on the most robust part of these craft, the floor/hull. Given the abuse these things get from ice, gravel, flooded wire fences and brick walls etc. some have extra reinforcing strip along the underside of sponsons like the NRS craft. Failing that, all craft come with a repair kit. As with most things in life, you get what you pay for, so consider the materials, construction warranty and pedigree of the manufacturer and craft before committing to a purchase.

The point of the open stern of these sleds is to enable easy loading of a rescuer and/or a casualty and human kick-power if necessary so there is some duplication of the work of the paths we featured in the last GUIDE especially in the larger sizes which are more appropriate for flood evacuation than they are swiftwater. However, unlike flat platforms, sleds have a degree of occupant protection from their sponsons and are designed to be used in fast moving flood water, broad slow-moving flood water and /or complex swiftwater and most can negotiate quite narrow channels. This style of craft may sit between the passive platforms and inflatable boats but it actually evolved last and as a consequence of adding a protective sponson like a RIB collar to an inflatable base and in most cases, raising the bow profile slightly. In its simplest form, you can see that this CheckRaft has a 3-sided sponson ratcheted to the deck of the same platform we listed in last issue's GUIDE. Indeed a market leader that rarely gets a mention outside of the manufacturers boardrooms is Henshaw Inflatables, which is yet another UK pioneer that, since the 70's had been making rib collars/sponsons rather than entire boats. Henshaw either supply their collars or assist in conjoining the two products but you won't see an entire Henshaw boat or craft. They are however, now part of the Wing Group, Bill Wing's inflatable raft company and they certainly DO make water craft.

images in this article not to scale

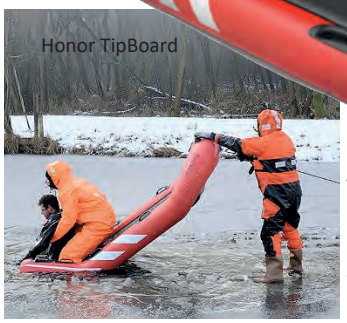
ABOVE: The IRB-style WRS Mega Sled

The two original and distinctly different boat designs in this Guide evolved on opposite sides of the Atlantic - *MFC* in Wales evolved their open-stern Sleds from their inflatable paths while Kris Walker at *Oceanid* in Washington State modified the classic whitewater raft to create the narrow, double-ended *RDC* much lauded by our old mate, the late, great, co-founder of Rescue3 and water rescue oracle Jim Segerstrom. Having been unopposed in the market for at least 15 of its 25 year history, the *RDC* is now copied by most of the major players in inflatables - high praise indeed although Chinese company Yushan Yijia using the trade name *EJIA* have some nerve in not only copying and calling their own model an RDC they even use *Oceanid*'s traditional sunburst advert template and other manufacturer's photos implying it's their product! We haven't included EJIA craft but their range is represented by some companies here and as always, Chinese, Taiwanese and Vietnamese manufacture can be as good as any, they just need to cut out the blatant copying. RDC-Style craft are on p48/49.

The red WRS model above demonstrates the most obvious hybrid between a platform and an inflatable rescue boat with sponsons/gunwales that are much larger than the *MFC sled*s and with a bow tapered like a boat - contrast this with *CheckRaft*'s and Sit Ltd's ResQRaft's rather less hydrodynamic square 'bow' and you can tell which craft is designed for faster flowing water and which are flat-water evacuation craft. Because the sponsons are quite sizeable on all these craft the inner working space is severely restricted in comparison to the uncluttered surface of a platform so the 51"/120cm width of a 2Tinga RIT for instance equates to only 20"/51cm of working deck width. The narrower beam sleds like the pioneering *MFC Rescue Sled* and the *WRS X-Sled* opposite not only work well in fast moving rivers they are excellent in flooded urban streets and alleyways.

The last style of craft to note is the *Tip-Board* (overleaf) which we have included in the *RDC*-style craft table because it can be tipped to approach the casualty as all *RDC*-style craft can and especially for ice rescue. The *TipBoard* could be said to be a true water 'sled' because it has hybridised a flat platform with an IRB sponsons which are sharply angled at the stern to create what, on snow, would be sled/akja push handles or, if driving a

dog sled team, handles with which to hang on for dear life. During the rescue of an incapacitated or severely weakened in-water victim, the stern can be tipped backward over the head and shoulders to facilitate easier loading while the rescuer has handy foot recesses from which to perform the lift. As the casualty comes out of the water the rescuer can simply 'fall' back into the craft with the levelling of the craft acting like a lever to assist with the lift or in this case, on ice or mud, a colleague can assist by levering down the bow to help pull the casualty inboard. We see a lot of these rescue design concepts by technical students in particular but they don't often seem to reach it to market so it's good to that Dutch safety company *Honor* have taken this on. Of course in this case, the casualty extraction process is very similar to the Oceanid *RDC* albeit that the bow is not often fully tipped during loading. Most sled loading is like a seal or penguin getting onto an ice flow only without their degree of momentum. The casualty can assist by swim-kicking at the same time as the rescue hauls them on-board as can be seen in the *2Tinga* pic right.


Honor TipBoard


NRS
ASR 155

The shallow rake we see on sleds helps deal with waves but the higher rake we see on craft like the *RDC*, the *ASR155* on the left and the *Tip-Board* above can also allow the craft to negotiate fast flowing water without having tons of water washing over the bow but that's obviously not the case with the open bow beneath the raked bow of the *RDC* designed to allow water through and rescuers to position over an in-water casualty or to slip more easily into the water direct from the floor of craft. The rake also allows the craft to be pushed up against obstacles and in the image below the face of a low-head dam/weir can be searched for an entrapment and the open bow decreases the pressure trying to force the craft away as it instead washes over the craft's floor. High-rake craft will also 'bend' a little at the change of angle to provide an extra few inches of proximity to the target and in the absence of a hole with which to funnel an in-water casualty, the raked solid bow is less inclined to smash an in-water casualty in the head as the two approach each other, possibly closing at speed in a high flow.


NRS ASR 155

VALVES

All of these craft inflate through a valve which may only allow air flow inwards (inlet check valve) so you don't lose air pressure should the valve cap not be in place or the pump/cylinder hose come off during inflation. We have differentiated four types in our tables: Safety or Pressure Relief Valves, 1-Way, 2-Way and Dump valves but for this GUIDE they are mostly 2-Way and PR Valves. Safety or ***Pressure Relief Valves*** like the Leafield A6 refers to its ability to purge air should you OVER-inflate (*Northern Diver* 2-Way and PR Valves shown in the image above). This can be the case particularly with compressed air cylinders so the safety valve will allow air to force its way out of the valve rather than bursting the seams of the craft. A ***2-way*** valve allows inflation and deflation - as in the valve on the left in the image above. Some, like the Leafield A/B/C7 and Halkey-Roberts valve, have a cap and then an interior sleeve that you rotate a quarter or half turn to alternate between inflate and deflate while others have a second screw-off collar beneath a non-return inflation section. When unscrewed, this allows air to exit freely. Deflation needs to be fast so that the craft can be rolled and stowed or moved ASAP ready for the next task so these 2-way valves are doubling as Dump or rapid air expulsion valves which tend not to be present on most sleds, boats and rafts. True dump valves, in the diving sense, can of course a be a push button affair but this is obviously not the case for inflatable craft where they are regular screw-top release if they are present at all. Bear in mind that most craft have more than one chamber so deflation can be a more time consuming process than inflation. Craft like the *Polar75, 2Tinga* and *Wing Ice Skiff* have one-way baffles between chambers that means a single inflation point inflates all chambers. Many craft have both sets of

INFLATABLE OPEN-ENDED SLEDS/WATERCRAFT

valves sometimes next to each as with the *TiPBoard* and *WRS* and sometimes separate as with the *MFC Sleds* and *2Tinga* Craft where the inflate-deflate valves are located on the ends of each sponson and on the floor. Most valves are designed to use manual pumps and BA cylinders, but some, and especially the dump valves are large enough to use a powered blower or even a vacuum cleaner in reverse. Professional battery blowers are an excellent idea because they have numerous other uses including cleaning/drying the craft. They are also unlikely to inflate beyond the pressure limit of the seams because they will struggle to push against over-pressure resistance. Basic dump valves can use used for large-bore pipe/hose inflation but air will escape while you try to screw the cap back on. *2Tinga*'s accessory pack shown above, includes a repair kit but also a pressure valve so that you can check the air pressure of your craft exactly and a very useful trigger-gun adapter for a BA line, This goes over the inflation valve and provides very precise start-stop during inflation rather than the more imprecise screwing/unscrewing of a cylinder valve.

LOAD CAPACITIES

Typical load capacities are the same as flat platforms at around 100kg/220lb per square metre on water (more on ice/mud) so for craft about a metre wide you can again gauge their capacity by the length - a 3m sled will take approximately 3 or 4 people. Bear in mind that some have a deeper floor; 6" drop thread instead of 4" and this provides greater capacity per floor area.

'LOAD-BEARING' EYES

Virtually all designs have connection rings that vary in size and strength of attachment depending on their purpose. One or two, like the *TipBoard*, have high strength LIFTING eyes (shown in green in our tables) that enable the entire sled with casualty to be lifted vertically. In some cases handles rather than rings can serve the same purposes. Most craft have medium-size/strength eyes that can be used for towing or positioning of the craft (shown as an orange number) and most have ancillary eyes that are intended for smaller loads such as connecting two craft or attaching equipment. The tow-strength eyes can also be used as tether points for holding position in flowing water.

GRAB / LIFT HANDLES

There are lift or carry handles on mostof these models (shown in orange in our tables), these are intended for transport and positioning while the craft is empty rather than for lifting stretcher style though that is possible with one or two of these sleds like the *Oceanid RDC* and we have indicated this in the NOTES. Unlike the RDC-style rafts, most of the sleds have bespoke handles as distinct from perimeter cord doubling as a handle. Some handles are flat tape, some have solid tubes of ergonomic rubber-like material. Inboard handles (shown in black in our tables) on the floor are to assist in getting on board or for human outboard propulsion as with the *MFC Sled* on the title page.

FLIP TAB/GRAB CORD

Rather than a solid handle some sleds and most RDC-Style rafts have a cord, rope or webbing that runs around the sponson or, in the case of *SIT*'s *ResQRaft*, down the length of the floor. Cord or webbing is fastened at intervals to provide a something to grab or attach equipment to during the rescue mêlée. On longer models this can add a kg or more to the weight as it tends to be 7 to 10 mm in diameter for better grip and is heavier when wet.

A **Flip Tab** is a section of webbing or a handle on the underside of the craft to enable it to be more easily righted should it capsize. This tends to be on the broader craft where the sponsons would be out of reach of rescuers in the water but this slimmer RR4 Sled by Northern Diver also has one.

We removed the 'Tactile surface' column that we had for inflatable platforms, not because the sled versions don't have tactile surfaces but because we wanted to expand upon the valves for this GUIDE and sleds tend not to be walked on in the same way as a platform although rescuers still may need to stand up to pull a casualty on-board. Sleds tend to be paddled Canadian-style, knelt down. The tactile surface of most flat platforms provides grip when standing up and to lessen the chance of people and things sliding off the top. Sleds are more of a mixture because, while standing and pulling requires better traction it tends to be by wedging your feet against the sponson than by traction so some have slick surfaces to make it easier to slide a casualty onto the craft.

It is important to reference the key on the next page in order to fully understand the categories and symbols used in the following tables.

The WRS X-Sled (right) was the first to introduce a 'stacked' bow where the rake of the sponsons sit above the solid floor providing enhanced protection from water over the bow while increasing protection of the hull in this vulnerable area. WRS are among two or three to have increased deck height from 4 to 6" but they also managed to decrease weight over similar models by 'fusing' rather than glueing the layers.

KEY to *ALL* INFLATABLE CRAFT TABLES.....

Any use, feature, accessory or component that is **inherent** in the product 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.

ORIGIN: The 'manufacturer's country, not necessarily the country of manufacture, If we know it's made in a different country there will be a smaller inset flag eg. these three for Vietnam, South Africa and Taiwan 
COST: a rough guide only - **includes** local taxes/VAT. Varies with exchange rates, extra taxes etc. Unlike our other GUIDE in this issue, most companies here have given a rough price but in the current economic climate (2022) with so many factors affecting product costs, these prices may be subject to quite radical changes. We usually round up to the nearest Pound£/US Dollar$/Euro€. We have started to quote a US$figure in orange which is simply a currency conversion to give an idea of price, it is not the selling price in the US which may have import duties etc. to add.
LOAD CAPACITY: Often quoted as a person load where 4 persons is roughly 750lb but a quite imprecise way to describe load. Most companies will quote a maximum figure which is much lower than its true capabilities especially if used on mud or ice. If you work on 100kg per square metre or 67.2 pounds per square foot you won't tax any of these models. [*Note that some don't give a load capacity or indeed air capacity or inflation time citing differences in user expertise, pumps etc. Since even a vague figure would be a useful guide to readers we have included some approximate Volume figures for comparative purposes in italics*].
DIMENSIONS: Length by external width by depth/height from ground. This does not include the kick of an angled bow or stern. Height is often the width of sponson tube as many floors are suspended rather than having the tube sat on top. **Internal/Usable Width** is the floor width available to use. The **PACKED** dimensions may be size of the bag rather than the rolled or folded sled but it's close enough.
AIR CAPACITY: The volume of air needed to fill the path to working pressure. This doesn't necessarily correlate to the dimensions (which are external measurements) and vary with different thicknesses of material, resistance, internal components and in particular, temperature. *Figures in italics are our own approximation and could be out by a few hundred Liters.*
MAX WORKING PRESSURE: the pressure at which the path is pumped up and workable, exceeding of which will purge via the safety valve or burst the seams! The base tends to be a higher pressure (avge 5-10psi) compared to the tubes at 2-4psi.
INFLATION TIME: The quickest time is via compressed air and where chambers are linked so can inflate from one valve. CA is 2-3 times quicker than electric pump which may be twice as fast as hand/foot inflation. All times are approximate and depend on the temp and how well the path has been packed/unrolled. Times in *italics* are our own estimate based on volume
MATERIALS: Mostly trade names which are variants of treated polyester, PVC and/or Polyurethane in a range of construction layering. Imperial figures showing oz is per square foot eg. 44 and 66oz materials.

CA INFLATION CHAMBERS: Whether the craft can be inflated using Compressed Air cylinder and the total number of separate inflation chambers including the floor. If the floor is NOT inflatable this will be indicated in the NOTES
THWARTS or BOLSTERS are tubular seats, supports or partitions separately inflated and not included in the number of chambers figure above. Note that thwarts can increase the outside width of a raft by a few inches as it pushes out from the inside.
GRAB/LIFT HANDLES: LIFT Handles shown in Orange are on the sponsons and for lifting/shifting as well as holding onto. GRAB Handles are in-board and are to self-assisted boarding or for in-water swim propulsion.
FLIP TAB/HANDLE **GRAB CORD**/WEB FLIP tab or cord to help with righting a capsized craft. GRAB CORD is perimeter webbing or more commonly cord or lengths of cord for holding on to or attaching equipment and may be pre-installed or self-tied.
HD-TOW/LT DUTY EYES: metal D-rings and/or web straps and sometime hooks. LT DUTY eyes are D-Rings we described in previous GUIDES as 'Link; eyes which are used to clip in gear, connect rafts together or for threading grab lines etc. but some are easily strong enough for control lines and maybe towing but generally the LIGHT (LT) DUTY or connecting eyes are weaker than TOWing eyes. HEAVY DUTY-TOW eyes can be used for towing, positioning in high-flows and lifting the ***EMPTY*** craft if positioned appropriately. For any live-load lifting, these are best used with a sling passing through the side-mounted rings and beneath the hull of the raft but this would be a rare event because of the risk of buckling if not sufficiently supported along the hull/floor. Double check the manufacturer's definition of 'lift' when referring to rings and handles; most actually mean lifting an EMPTY craft into water, for instance off a dock, before starting the rescue.
PRESSURE RELIEF VALVE: (PRV) This safety, pressure relief or auto-purge valve allows excess air to vent as a result of over-inflation or an excessive compressive load. You may have initially inflated the craft to its limit and then have a temperature or load increase that could rupture the seams if air could not escape
1-WAY CHECK /2-WAY: A one way inlet valve that doesn't allow air to escape. A 2-way valve is a joint inflation-deflation valve like the Leafield C7 and D7 valves. Usually requiring a twist or unscrewing of a top section to switch between inflation and deflation. A 'wrench' is often required (and supplied) in preference to being able to open by hand.

ACC = ACCESSORIES

CARRY BAG: All of these come with a carry or storage bag but one or two like the WRS can have an enhanced 'pro' bag.
PADDLES - self explanatory!
WARRANTY: Not really an accessory! Shown as manufacturer's warranty but fabric warranty may be separate and approx 5yrs. Shown in YEARS and usually subject to conditions. Some raft suppliers have shorter warranty for commercial users as distinct from recreational users. This is aimed at commercial rafting using rafts day in day out and shouldn't really apply to rescue - worth asking for a retail warranty.
SELF BAILING: any water that enters the raft will drain away through holes or gaps in the floor or between the floor and the tubes/sponsons.

VIZ =VISUAL ATTRIBUTES

CUSTOM: Customised Team/Service/Dept decals or printing
REFLECTIVE: As standard ■, or as an option □
OTHER COLOURS: Primary colour of shell/frame with an

Images NOT to Scale
☐☐☐= Option
●= PARTIAL FEATURE and/or OK BUT NOT IDEAL
COST: Approx, INC local tax/VAT
N/A = info Not Available/not given
INFLATION TIME: Hand Pump/ Compressed Air
VALVES PRV=Pressure Relief Valve

	MODEL Product Code	COMPANY	ORIGIN	COST inc tax / VAT	WEIGHT	LOAD CAPACITY Kg/Sq Metre lb/Sq Foot	DIMENSIONS L x W x H EXTERNAL INTERNAL/USABLE WIDTH	PACKED SIZE
	**RIT Craft**	**2-TINGA**		$3600	27.3kg 60lb	682kg 1500lb	3.7 x 1.2 x 0.48m 144 x 48 x 19" 0.51m 20"	46 x 36 x 56 18 x 14 x 2
	**Craft-Boat Conversion**	**CHECKMATE FLEXIBLE ENGINEERING**		N/A	28kg 61.6lb	500kg 1100lb >100kg >67.2lb	5 x 1.4 x 0.25m 197 x 55 x 10" 1.06m 55"	90 x 42/50 35cm 35.4 x 19.7 13.7"
	**Rescue Sled RS3** WRW0001/01	**MFC INTERNATIONAL**		>£1350 >£999 >$1755 >$1300	15/17kg 33/ 37.4lb	240kg 528lb	2.16 x 1.17 x 0.4m 101 x 46 x 16" 0.7m 28"	88 x 35 x 30 36 x 14 x 1
	**Rescue Sled RS5** WRW0002/01	**MFC INTERNATIONAL**		>£1699 >£1100 >$2210 >$1430	17.5/ 19.5kg 38.6/ 43lb	400kg 882lb	3.31 x 1.17 x 0.4m 130 x 46 x 16" 0.7m 28"	88 x 48 x 32 35 x 14 x 1
	**Rescue Sled RS6** WRW0169/01	**MFC INTERNATIONAL**		>£1900 >£1300 >$2470 >$1690	18.5/ 20.5kg 38.6/ 45.1lb	480kg 1056lb	3.97 x 1.17 x 0.4m 156 x 46 x 16" 0.7m 28"	88 x 48 x 35 35 x 14 x 1
	**Rescue Sled RS10** WRW0003/01	**MFC INTERNATIONAL**		>£3800 >$2500 >$5000 >$3250	31/ 35kg 38.6/ 68.2lb	800kg 1764lb	4 x 1.9 x 0.56m 158 x 47/75 x 22" 1.2m 47"	88 x 55 x 35 35 x 22 x 1
	**Rescue Sled RS15** WRW0005/01	**MFC INTERNATIONAL**		>£4200 >£2900 >$5500 >$3780	45/ 50kg 99/ 110lb	1200kg 2646lb	5 x 2.31 x 0.77m 197 x 63/91 x 30" 1.6m 63"	88 x 70 x 52 35 x 28 x 2
	**RR3**	**NORTHERN DIVER**		£1069 £1489 €1691	22kg 48.4lb	650kg 1430lb	3 x 1.16 x 0.3m 118 x28/46 x 12" 0.7m 28"	90 x 40 x 30 35.4 x 15.8 x
	**RR4**	**NORTHERN DIVER**		£1096 £1765 €1885	31kg 68.2lb	750kg 1650lb	3.6 x 1.16 x 3.8m 142 x 46 x 15" 0.7m 28"	95 x 50 x 50 37.4 x 19.7 19.7"
	**RR Max Raft**	**NORTHERN DIVER**		£1836 €2326	37kg 81.4lb	1000kg 2200lb	3 x 2 x 0.38m 118 x 51/79 x 15" 1.3m 51"	130 x 60 x 4 51 x23.6 x 1

INFLATABLE OPEN-ENDED SLEDS/WATERCRAFT

	AIR CAPACITY INFLATION TIME	MAX WORKING PRESSURE	MATERIALS: TUBES/SPONSONS FLOOR/DECK	INFLATION: CA INFLATION CHAMBERS	INFLATION: REGULATOR / HOSE	INFLATION: MANUAL/POWERPUMP	LOADING: GRAB/LIFT HANDLES	LOADING: FLIP TAB / GRAB CORD	LOADING: TOW/HD-LIFT/LINK EYES	VALVES: SAFETY PRV / DUMP	VALVES: 1-WAY / 2-WAY	EXTRAS: CARRY BAG/ PADDLES	EXTRAS: REPAIR KIT/ WARRANTY	VIZ: REFLECTIVE/ CUSTOM	VIZ: COLOUR OPTIONS	NOTES	WWW.
6cm 2"	1132 L 40cuft 1-3mins	0.2 BAR 3 PSI	PVC. drop-stitch deck	3 ■	■ ■	- ■	8 0	■ -	2 4 3	-	■ -	■ ■	10 ■	□ -	-	Note 2Tinga have a flat platform called a RIT-Sled but is not a 'sled' as defined in this article	2tinga.ca
0 x 7 x	1700 L 60cuft 3-4mins	0.55 BAR 8 PSI	Neoprene coated nylon. drop-thread deck	3 ■	□ □	□ □	0 0	- -	6 - 4	- ■	■ -	□ ■	N/A ■	□ ■	-	* 6 of these eyes are for joining to another raft or platform NOT towing	checkmateflex.com
0cm 2"	530 L 18.7cuft 2-3mins	0.2 & 0.4 BAR 3.25 & 6 PSI	Hypalon TPU drop-thread deck	2 ■	■ □	□ □	5 6	■ -	8 - 4	- ■	■ -	2 ■	2 ■	□ ■	■	comes with throwline with rubber quoit. Leafield Valves. Optional rear bolster and storage pockets	mfc-international.com
2cm 2"	670 L 23.7cuft 3mins	0.2 & 0.4 BAR 3.25 & 6 PSI	Hypalon TPU drop-thread deck	2 ■	■ □	□ □	5 6	■ ■	8 - 4	- ■	■ -	2 ■	2 ■	□ ■	■	comes with throwline with rubber quoit. Leafield Valves. Optional rear bolster and storage pockets	mfc-international.com
5cm 4"	710 L 25cuft 3mins	0.2 & 0.4 BAR 3.25 & 6 PSI	Hypalon TPU drop-thread deck	2 ■	■ □	□ □	5 6	■ ■	8 - 4	- ■	■ -	2 ■	2 ■	□ ■	■	comes with throwline with rubber quoit. Leafield Valves. Optional rear bolster and storage pockets	mfc-international.com
5cm 4"	2000 L 70.6cuft 3mins	0.2 & 0.4 BAR 3.25 & 6 PSI	Hypalon TPU drop-thread deck	5 ■	■ □	□ □	5 12	■ ■	8 - 4	- ■	■ -	2 ■	2 ■	□ ■	■	comes with throwline with rubber quoit. Leafield Valves. Optional rear bolster and storage pockets	mfc-international.com
2cm 1"	3800 L 134.2cuft 3mins	0.2 & 0.4 BAR 3.25 & 6 Psi	Hypalon TPU drop-thread deck	5 ■	■ □	□ □	5 16	■ ■	8 - 4	- ■	■ -	2 ■	2 ■	□ ■	■	comes with throwline with rubber quoit. Leafield Valves. Optional rear bolster and storage pockets	mfc-international.com
0cm 12"	approx 630 L 22.2cuft 1 - 3mins*	0.35 & 0.7 BAR 5 &10 PSI	1.2mm PVC or Orca Hypalon drop-stitch deck	3 ■	□ □	□ ■	4 6	- ■	4 - 7	- ■	■ -	■ ■	2 ■	□ □	■ ■ ■ ■	*Power pump to Hand Inflation time calculated at 50 pump strokes per minute	ndiver-rescue.com
0cm 7 x	approx 800 L 28.3cuft 1- 3-4mins*	0.35 & 0.7 BAR 5 & 10 PSI	1.2mm PVC or Orca Hypalon drop-stitch deck	3 ■	□ □	□ ■	4 9	- -	4 - 15	- ■	■ -	■ ■	2 ■	□ □	■ ■ ■ ■	* Power pump to Hand Inflation time calculated at 50 pump strokes per minute	ndiver-rescue.com
0cm 5.8"	1550 L 54.7cuft 1.5-5min	0.35 & 0.7 BAR 5 & 10 PSI	1.2mm PVC drop-thread deck	4 ■	□ □	□ ■	5 4	■ ■	13 - ?	- ■	■ -	■ ■	1 ■	□ □	■ ■ ■ ■	*Power pump to Hand Inflation time calculated at 50 pump strokes per minute	ndiver-rescue.com

Images NOT to Scale
□□□= Option
●= PARTIAL FEATURE and/or OK BUT NOT IDEAL
COST: Approx, INC local tax/VAT
N/A = info Not Available/not given
INFLATION TIME: Hand Pump/ Compressed Air
VALVES PRV=Pressure Relief Valve

	MODEL Product Code	COMPANY	ORIGIN	COST inc tax / VAT	WEIGHT	LOAD CAPACITY Kg/Sq Metre lb/Sq Foot	DIMENSIONS L x W x H EXTERNAL INTERNAL/USABLE WIDTH	PACKED SIZE
	X-Sled 115	NRS		$2495	30.5kg 67lb	480kg 1056lb	3.66 x 1.22 x 0.36m 144 x 48 x 14" 0.71m 28"	85 x 35 x 30 33.5 x 13.8 x
	Ionic Extreme Sled	SAFEQUIP		£1700 $2380 €2040	23.8kg 52.4lb	650kg 1430lb	3 x 1.2 x 0.35m 118 x 47 x 14" 0.7m 27.6"	90 x 30 x 30 35.4 x 12 x 1
	Ionic Titan Sled SAF38070	SAFEQUIP		£2160 $3025 €2590	25kg 55lb	500kg 1100lb	370*x 1.2 x 0.35m 146 x 47 x 14" 0.7m 27.6"	95 x 30 x 30 37.4 x 12 x 1
	Ionic Xcel X-Raft	SAFEQUIP		£3600 $5040 €4320	42kg 92.4lb	1000kg 2200lb	3.2 x 2.2 x 0.38m 126 x 87 x 15" 1.44m 57"	100 x 70 x4 39 x 27.6 x
	ResQSLED 3 ResQSLED5 ResQSLED10	SIT Ltd		N/A	23.8kg 52.4lb	650kg 1430lb	3. x 1.2 x 0.35m 118 x 47 x 14" 0.7m 27.6"	90 x 30 x 30 35.4 x 12 x 1
	ResQRAFT10 ResQRAFT15	SIT Ltd		N/A	42kg 92.4lb	1000kg 2200lb	3.2 x 2.2 x 0.38m 126 x 87 x 15" 1.2m 47"	90 x 30 x 30 35.4 x 12 x 1
	Mega Sled	WRS INTERNATIONAL		£ $2667 €2667	7.4kg 16.3lb	220kg 484lb	2 x 1 x 0.35cm 79 x 39 x 14" 00m 00"	120 x 60 x 3 47 x 23.6 x 1
	X Sled	WRS INTERNATIONAL		£2147 $2300 €2553	20kg 44lb	350-580kg 770-1276lb	3.55 x 1.2 x 0.24m 118 x 55 x 6" 00m 00"	100 x 50 x 4 39.4 x 19.7 15.75"

INFLATABLE OPEN-ENDED SLEDS/WATERCRAFT

				INFLATION			LOADING			VALVES		EXTRAS		VIZ			
	AIR CAPACITY INFLATION TIME	MAX WORKING PRESSURE	MATERIALS: TUBES/SPONSONS FLOOR/DECK	CA INFLATION CHAMBERS	REGULATOR / HOSE	MANUAL/POWERPUMP	GRAB/LIFT HANDLES	FLIP TAB / GRAB CORD	TOW/HD-LIFT/LINK EYES	SAFETY PRV / DUMP	1-WAY / 2-WAY	CARRY BAG/ PADDLES	REPAIR KIT/ WARRANTY	REFLECTIVE/ CUSTOM	COLOUR OPTIONS	NOTES	WWW.
0cm x12"	710 L 25 cuft <2mins	0.3 & 0.7 BAR 4 & 10 Psi	PVC drop-stitch deck	3 ■	☐ ☐	☐ ■	- 16	- -	- - 5	- ■	■ -	■ ■	3 ■	☐ ■	-	Design being changed. Armoured underside to sponsons. Leafield valves. * Height does not include 20" rise of the angled bow	nrs.com
0cm 12"	860 L 30.4cuft <1min	0.2 & 0.4BAR 3 & 6 psi	'Orca' Hypalon 6" drop-thread deck	3 ■	☐ ☐	☐ ☐	7 4	■	4 - 5	- ■	■ -	■ ■	5 ■	☐ ■	■ ■ ■	Leafield valves. Height does not include angled bow	safequip.co.uk
0cm 12"	920 L 34.5cuft <2mins	0.2 & 0.4BAR 3 & 6 psi	'Orca' Hypalon 6" drop-thread deck	3 ■	☐ ☐	☐ ☐	10 4	■	4 - 5	- ■	■ -	■ ■	5 ■	☐ ■	■ ■ ■	* length inc 45cm/18" deck extension. Leafield valves. Height does not include angled bow	safequip.co.uk
5cm 18"	1550 L 54.7cuft <2mins	0.2 & 0.4BAR 3 & 6 psi	'Orca' Hypalon 6" drop-thread deck	5 ■	☐ ☐	☐ ☐	8 2	■ ■	2 - 8*	- ■	■ -	■ ■	5 ■	☐ ■	■ ■ ■	Leafield valves. 6" Deck. * D-Ring under deck can provide flip tab	safequip.co.uk
0cm 12"	860 L 30.4cuft <1min	0.2 & 0.4BAR 3 & 6 psi	'Orca' Hypalon Neoprene-coated 6" drop-thread deck	3 ■	☐ ☐	☐ ☐	7 4	■	4 - 5	- ■	■ -	■ ■	2 ■	☐ ■	■ ■ ■	Leafield valves	sitltd.co.uk
0cm 12"	1550 L 54.7cuft >2mins	0.2 & 0.4BAR 3 & 6 psi	'Orca' Hypalon 6" drop-thread deck	5 ■	☐ ☐	☐ ☐	8 2	■ ■	2 - 8*	- ■	■ -	■ ■	2 ■	☐ ■	■ ■ ■	Leafield valves. * D-Ring under deck can provide flip tab. Inboard stowage loops	sitltd.co.uk
5cm 14"	450 L 15.9cuft <1min	0.3 & 0.6BAR 3.6 & 9 psi	PVC. 6" drop-stitch deck	3 ■	☐ ☐	- ■	2 2	■ ■	11 - 9	- ■	■ -	☐ ■	? ■	☐ ☐	-	Leafield valves. Flap at stern can be lifted to form a 'transom' style water barrier. 8x Velcro loop stow points	wrsinternational.com
0cm x	700 L 24.7cuft >2mins	0.25 & 0.6BAR 3.6 & 9 psi	PVC. 6" drop-stitch deck	3 ■	☐ ☐	- ■	- 15	0 ■	- - 5	- ■	■ -	☐ ■	? ■	☐ ■	-	* Height does not include 54cm/21"" rise of the angled bow. Leafield valves. EVA floor friction pads	wrsinternational.com

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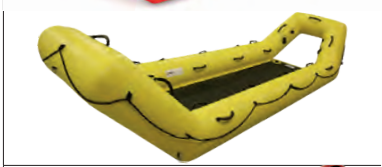
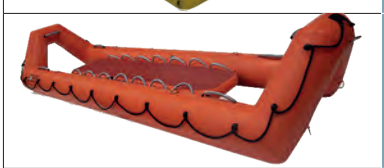
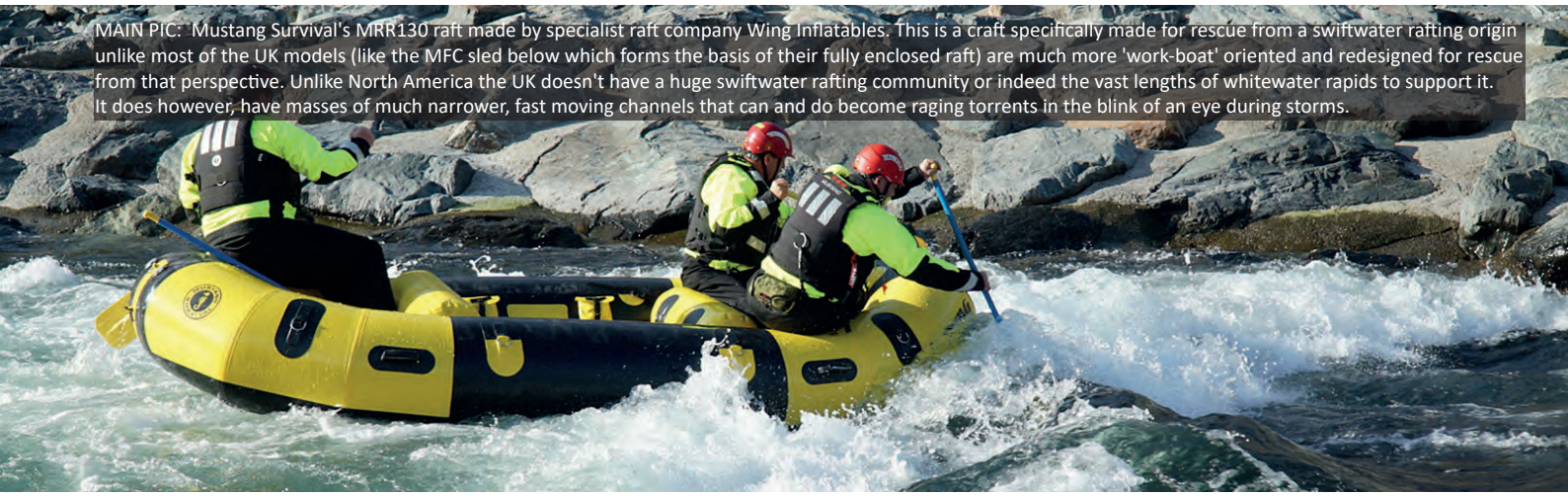
☐☐☐= Option
●= PARTIAL FEATURE and/or OK BUT NOT IDEAL
COST: Approx, INC local tax/VAT
N/A = info Not Available/not given
INFLATION TIME: Hand Pump/ Compressed Air
VALVES PRV=Pressure Relief Valve

	MODEL Product Code	COMPANY	ORIGIN	COST inc tax / VAT	WEIGHT	LOAD CAPACITY Kg/Sq Metre lb/Sq Foot	DIMENSIONS L x W x H EXTERNAL INTERNAL/USABLE WIDTH	PACKED SIZE
	**Rescue Tip Board**	**HONOR-SAFETY**		N/A	22kg 48.4lb	500kg 1100lb	2.7 x 1.3 x 0.7m 106 x 57 x 15.7" 0.55m 20"	90 x 50 x 40 35.4 x 19.7 x 1
	**Lifeboat**	**LANCO**		?	25kg 55lb	900kg 1980lb	4.67 x 1.12 x 00m 00 x 00 x 00" 00m 00"	70 x 70 x 40 28 x 28 x 15
	**RSW Rescue Sled** WR0244	**MFC INTERNATION-AL**		£2500 $3250	31.5kg 69.3lb	850kg 1870lb	5 x 1.2 x 0.45m 197 x 47 x 17.7" 0.75m 30"	80 x 40 x 35 31.5 x 15.7 x
	**Polar 75**	**NAUTIC&ART (CHARGEK inc)**		$7800	32kg 70.4lb	1045kg 2299lb	4.4 x 1.3 x 0.36m 173 x 51 x 14" 0.58m 23"	152 x 152 152cm 60 x 60 x 6
	**RR5**	**NORTHERN DIVER**		£1621 $3000	42kg 92.6lb	850kg 1873lb	4.7 x 1.4 x 0.35m 105 x 55 x 13.8" 0.7m 28"	110 x 60 x 4 43x24x15.
	**ASR 155**	**NRS**		$2995	39.5kg 87lb	850kg 1873lb	4 x 1.25 x 0.3m 185 x 49 x 12*" 0.64m 25"	122 x 78 x 3 48 x31x 1
	**RDC** Rapid Deployment Craft	**OCEANID**		$4900	22.7kg 50lb	>909kg >2000lb	4.68 x 1.22 x 0.3m 184 x 48 x 12" 0.56m 22"	91.2 x 61 x 3 36 x 24 x 1
	**Ionic Explorer Sled**	**SAFEQUIP**		£2250 $3150 €2700	22kg 48.4lb	>500kg >1100lb	4.6 x 1.42 x 0.3cm 181 x 56 x 12" 0.82m 32"	80x40x25 31.5x16x1
	**ResQsled Endurance** SIT38042	**SIT Ltd**		N/A	20kg 44lb	>500kg >1100lb	4.6 x 1.42 x 0.3cm 181 x 56 x 12" 0.82m 32"	80x40x25 31.5x16x1
	**SKF-ICE**	**WING INFLATABLES**		$10000	27.3kg 60lb	909kg 2000lb	4.72 x 1.22 x 0.3cm 186 x 48 x 12*" 0.61m 24"	81 x 38 x 4 32x15x16

INFLATABLE OPEN-ENDED RDC-STYLE RAFTS

	AIR CAPACITY INFLATION TIME	MAX WORKING PRESSURE	MATERIALS: TUBES/SPONSONS FLOOR/DECK	INFLATION: CA INFLATION CHAMBERS	INFLATION: REGULATOR / HOSE	INFLATION: MANUAL/POWERPUMP	LOADING: GRAB/LIFT HANDLES	LOADING: FLIP TAB / GRAB CORD	LOADING: TOW/HD-LIFT/LINK EYES	VALVES: SAFETY PRV / DUMP	VALVES: 1-WAY / 2-WAY	EXTRAS: CARRY BAG/ PADDLES	EXTRAS: REPAIR KIT/ WARRANTY	VIZ: REFLECTIVE/ CUSTOM	VIZ: COLOUR OPTIONS	NOTES	WWW.
0cm 15.7"	570 L 20cuft 15-30sec	N/A	N/A drop-stitch deck	? ■	□ □	■ □	11 0	■ -	4 - 1	- ■		- ■	? ■	□ ■	-	Can be purchased with an electric SeaBob hand-held waterjet * with BA cylinder	honor-safety.com
0cm .7"	?	?	PVC-coated polyester	3 ■	□ □	□ □	40 0*	■ ?	21 - 4	?	?	□ ■	? ■	■ ?	-	*20 external grab hanfdles (via rope) can be used as lift ponts	lanco.eu
5cm 14"	2000 L 70.6cuft 3mins	0.2 & 0.4 BAR 3.25 & 6 Psi	Hypalon TPU drop-thread deck	3 ■	■ □	□ □	10 8	■ ?	8 - 4	- ■	■ -	2 ■	2 ■	□ □	■	comes with throwline with rubber quoit. Leafield Valves	mfc-international.com
x 0"	1100 L 40cuft 20sec*	0.24 & 0.8BAR 3.5 & 12 Psi	40oz Hypalon. drop-thread deck	3 ■	■ □	□ □	6 14	■	- 4 6	-	■ -	■ ■	5 ■	□ □	-	opening=81x46cm *SIngle inflation point. Height does not include 73° rake	nacorp.ca
0cm 7"	1000 L 35cuft 1- 3-4mins*	0.35 & 0.7 BAR 5 & 10 Psi	DWF/PVC drop-stitch deck	3 ■	□ □	□ ■	6 12	■ ■	- - 6	- ■	■ -	■ ■	1 ■	□ □	-*	*Power pump to Hand Inflation time calculated at 50 pump strokes per minute. *Custom colours	ndiver-rescue.com
3cm 3"	960 L 34cuft 1-2mins	0.3 & 0.7 BAR 4 & 10 Psi	PVC drop-stitch deck	5 ■	□ □	□ ■	■ 32	■ -	16 4 6	- ■	■ -	■ ■	3 ■	□ ■	-	* Height does not include 24" rise of the angled bow and stern. Armoured underside to sponsons. Can be hoisted under load. Leafield valves	nrs.com
0cm 2"	1133 L 40cuft <1min	0.2 BAR 3 Psi	35 oz. PU/PVC coated Polyester (Dacron). Drop-thread deck	3 ■	■ □	□ ■	0* 18	■ -	26 4 -	- ■	■ -	■ ■	12 ■	□ ■	-	Halkey Roberts & Incept PR Valves. Can be suspended/hoisted while loaded. *Perimeter cord 'handles' load= >2500lb/1136kg access hole = 22x40"	oceanid.com
cm 0"	860 L 30cuft >1min	0.2 & 0.6BAR 3 & 9 psi	'Orca' Hypalon 6" drop-thread deck	3 ■	□ □	□ □	12 8	■ ■	14 - 4	- ■	■ -	■ ■	2 ■	□ ■	■ ■ ■	Leafield valves	safequip.co.uk
cm 0"	860 L 30cuft >1min	0.2 & 0.6BAR 3 & 9 psi	'Orca' Hypalon. 6" drop-thread deck	3 ■	□ □	□ □	12 8	■ ■	14 - 4	- ■	■ -	■ ■	2 ■	□ ■	■ ■ ■	Leafield valves	sitltd.co.uk
1cm 5"	950 L 33.5cuft >1min	0.3 BAR 4.5 psi	33oz polyester scrim Polyurethane. drop-thread deck	5 ■	□ ■	□ ■	0 2*	■ -	- - 22	- ■	■ ■	□ ■	5 ■	□ ■	-	Price includes Motor transom. *rise of bow/stern =30". Chambers linked to Inflate as 1 *Grab cord rigged to act as lift and shift handles. Custom colours	inflatablesolutions.com

Inflatable NON-POWERED RAFTS



MAIN PIC: Mustang Survival's MRR130 raft made by specialist raft company Wing Inflatables. This is a craft specifically made for rescue from a swiftwater rafting origin unlike most of the UK models (like the MFC sled below which forms the basis of their fully enclosed raft) are much more 'work-boat' oriented and redesigned for rescue from that perspective. Unlike North America the UK doesn't have a huge swiftwater rafting community or indeed the vast lengths of whitewater rapids to support it. It does however, have masses of much narrower, fast moving channels that can and do become raging torrents in the blink of an eye during storms.

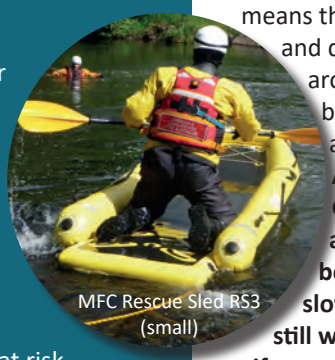
After covering the open-backed/stern sleds and rafts in TECHNICAL RESCUE#82 we've switched to WSAR for this one because non-powered rafts evolved with wilderness teams working true swiftwater on their patch. 'Evolved' is not the correct word because the craft in use are very close to the recreational models aside from reinforcements and extra handles and rings and it's more accurate to say that the open-ended sleds (as exemplified by the *MFC* model in the picture on the right) and *Oceanid*-style rafts (as shown in the ad far right) evolved out of these 'puffier' swiftwater-style rafts. While the majority of rescue agencies have moved towards the sled and *Oceanid* styles, there is still a big place for conventional rafts in a rescue inventory either because there are swiftwater risks in or near your response area of because they are used for casualty rescue and evacuation in the event of flooding. This is because rafts, with larger sponsons completely surrounding the deck, provide better protection for the raft occupants. We have only listed models that are marketed to or used by rescue agencies and that do not have an inherent ability to mount an outboard because those will be included in our GUIDE to Powered IRBs.

However, those GUIDES will not include rafts and catarafts that can be *retrofitted* with a frame capable of mounting an engine - there would be just too many to mention. Back to the sponsons on swiftwater rafts and while they provide greater protection than open ended craft, they won't necessarily keep everyone bone-dry because many, especially if they have an I-beam rather than drop-thread or drop-stitch floor, are self baling which means that water can enter and drain through gaps around the union between the floor and the sponsons. **Any craft in this GUIDE not shown as self-bailing are better suited to slow moving flood or still water rather than swift or rough water.** Indeed, *Safequip* in the UK actually call theirs an 'urban' evacuation raft indicating its true design purpose and while 'urban' is perhaps too limiting for some of the non-self-bailing models, particularly from UK companies, they are certainly designed for a different role to the North American models that can be dealing with epic whitewater conditions as well as general flooding.

One of the differences between true swiftwater and broader

RAFT VS SMALL OPEN-STERN SLED/RAFT

- Both Self bail,
- Raft has more stability so better for bigger water,
- Raft with larger tubes is more forgiving so less training to keep upright.
- Raft has larger carrying capacity,
- Sled is lighter to carry in,
- Sled easier to self rescue after capsize,
- Sled easier to load victim from water into boat,
- Sled can be paddled solo so less rescuers at risk.



MFC Rescue Sled RS3 (small)

RAFT VS LARGER OPEN-STERN RAFT

- Raft heavier than equivalent open-stern version,
- Rafts offer more rear protection from falling out so more suitable for bigger or higher risk water where you don't want people falling out at all!
- Both offer good stability (raft would be slightly more stable due to added weight, but marginal)
- Open-Stern better for wading wide spread floods and getting on & off the boat
- Raft are generally self-bailing so contaminated water will enter the raft through the floor. (This is a Flood Rescue Consideration)
- Open Stern Raft offers easier water victim access
- Open-Stern easier to climb into after capsize.

Images in this article not to scale

remit rescue is that hardcore whitewater rafts tend to have the softer and deeper I-beam inflatable floor but rescue tends more towards a drop-thread floor because it is generally tougher, thinner and more stable to work on bearing in mind that such craft tend to be used more in flood than whitewater.

These rafts are the same materials and construction as the platforms and sleds covered in TECHNICAL RESCUE GUIDES to INFLATABLE CRAFT ie. - incredibly robust welded PVC/TPU or *Hypalon*, often as a Double Wall Fabric (DWF) and drop stitched on the most robust part of these craft, the floor/hull. Welded is more resilient than glued seams and all inflatables have pressure differentials due to heat increases that can test the seams if over-inflated and overloaded. Some, like *WRS* and *Rocky Mountain Rafts* offer drop-stitch or I-beam floors. Given the abuse these things get from ice, gravel, flooded wire fences and brick walls etc. some have extra reinforcing strips along the underside of sponsons like the *NRS* craft. Failing that, most craft come with a repair kit. As with most things in life, you get what you pay for, so consider the materials, construction warranty and pedigree of the manufacturer and craft before committing to a purchase.

The *Mustang/Wing MRR130* model above demonstrates the most obvious difference between a conventional 'whitewater' style raft and the open-ended sleds/rafts covered in TR82 like the yellow *MFC* sled- the sponsons extend all the way around the craft and because they are quite large the inner working space is more restricted in comparison to the uncluttered surface of a platform or narrow-sponson sled. It's clear that the specialist rescue rafts like the South African *ARK* range that have been developed from whitewater rafts rather than actually being a whitewater raft with extras, are much narrower. Most of the sleds designed to be used in fast moving water (as well as flooded urban streets and alleyways) were also narrow beamed and it seems that this profile suits many rescue agencies since the *ARK* range for instance has been designed in conjunction with the Queensland Fire Service in Australia.

The shallow rake we see on sleds helps deal with waves but the higher rake we see on fully enclosed -size rafts like the *NRS* raft below, allows the craft to negotiate fast flowing water without having tons of water washing over the bow. The rake also allows the craft to be pushed up against obstacles such as mid-stream boulders and low-head dam/weir faces which can be more easily search or a stranded taken on board because high-rake craft 'bend' a little at the change of angle to provide an extra few inches of proximity to the target. In the absence of an opening in the bow (as per the *Oceanid*-style craft) with which to funnel an in-water casualty, the raked, solid bow is less inclined to smash an in-water casualty in the head as the two approach each other, possibly closing at speed in a

Hull of an NRS Raft

A CHECKLIST to BUYING AN APPROPRIATE RAFT

by **Mike Croslin**

In discussing boat handling in the rescue environment, the rescuer must first examine the types of boats to be utilized in river rescues and should closely examine the maneuvers those boats can perform in contrast to the total number of river rescue methods for which all river rescue boats are capable of.

Consider all of the pointers below in order to arrive at the most economically feasible and the most efficient type of rescue craft for your specific locality, type and number of incidents and ability to attain and maintain training for your craft in your conditions. It has been observed that manufacturers across the world have, in the
past, marketed various kinds of craft as the "ultimate ** answer for river rescue. River teams and individuals should be cautious when considering such claims and perhaps consult other teams that may have similar conditions in their response area.

Generally there are 3 boats teams may have in their cache:

- River Rescue Boats, inflatable.
- IRB style with transom motorized
- Cataraft IRB with transom. Motorized

Motor-capable IRBs are the workhorse of flood and disaster response, flood evacuations, wide flooding areas with no road access, can ascend against the current to approach from downstream, bridge abutments, rocks, trees, can function in waves, strong currents and obstacles with expert training. Can be Zodiak/Avon style or catarafts. Full spectrum, rigid-hull rescue boats are too heavy to surf in choppy, stout currents and have limited capability in class3 and above or inside tree lines at flood stage. Crews must train for motor failure and must carry paddles to R2. Registered swiftwater teams generally have one or two IRBs or motorized catarafts/oar combos in cache in the USA and operators require extensive training annually to stay competent and build experience. Such craft are not useful in remote canyons or rocky, shallow rivers and have significant risk of engine failure, or swamping in big volume or steep gradient rivers. Excellent for wide, flood plain deployment and up to class 3. Again, a great flood evacuation workhorse.

Non-motorized, human powered inflatables

1 . The self-bailing "basket" boats. A new variation on the commercial recreational market that have lashed in inflatable floors allowing immediate draining of water and enhanced performance downriver in up to class 5. Medium weight, 100-150lbs or more. Tube size varies depending upon CFS navigating, a Grand Canyon NPS boat will have larger tubes than a Yosemite cataraft based on size of waves, hydraulics etc. A USFS river patrol ranger would on the Tuolumne would run a SOTAR downriver or a Wing as a choice based on support for operations and loads carrying duty, but they are not the best in rescue mode that may require surfing under technical rope control,

2. Framed cataraft oar powered or a frameless cataraft R2 paddle. If you choose to train and expand boat operators skillsets beyond your local watersheds in the standard R2 paddle format, the frameless catarafts that have immediate rapid floor flush meet the essential high performance criteria in terms of weight, portability, speed, side stability, to both perform as a rescue boat with R2 as a chase boat, or pickoff boat launched with experienced R2 paddlers that are capable of broaching, crossing powerful stout channels to pull victims into a soft protected compartment and exit downriver safely. Some teams use framed catarafts of various sizes, if they have the talent base to row. Many do and this is important on many technical rivers and they make excellent platforms, but they have frames and large oars, which prevent dynamic pickoffs safely and can be traumatic if flipped onto inexperienced passengers or victims…only an issue if experience is lacking.. So for lightness and speed of deployment and downriver chase boat and pickoff capability and manueverability, the frameless catarafts are superior for rescue crews training in paddle power only…which is faster performance in these excellent manuevering and forgiving boats.

Because most teams lack the training to safely use a motorized or non-motorized inflatable at the scene of a significant flood or swiftwater event with rescuers on board it is essential that rope based control systems be learned and practiced with the best performing inflatable under shore control with ropes. If its an evac off a car roof in a flooded creek with slight gradient, and the channel has trees and wood galore within range of a short unexpected swim, this is a major event, for even the most experienced operators. These technical rope based systems we use are capable of placing a boat precisely where it is needed safely, with or without rescuers on board, and if you choose to use rescuers, whomever goes is a function of experience and strong swimmer status, not paper/scissors/rock. The rescuer on the boat is in charge of the controllers. He can feel the boat, and guide it better, and I hope at this point we can collectively agree that if he was trained well he or she would choose the lightest, most stable, self bailing platform to control from shore AND to navigate to safety should it be necessary. By my logic and experience this is the most important purchase decision a top tier team will make. It HAS to be the lightest but toughest, boat that is best across all formats of control and is fast under R-2 paddle for chase function safety as well, and in boat pickoff, broaching, grabbing victims into a central closed, self bailing compartment with instant drainage mesh, or lashed inflatable flooring..These criteria will insure best protection for rescuers and if delivering an empty evacuation boat in high risk flows, the best chance of bringing those trapped to safety. My best advice is to use a high performing design that is light, frameless and selfbailing with a reputation for running class 4-5, then add handles and attachments to carry or hold onto into the interior, including foot braces. Make team members study

R2 paddle techniques and practice regularly even if its just in a swimming pool,this alone is the minimal standard for R2 rescuers being sent, they must be drown-proofed and capable of navigating the boat to safety on their own. If a boat can be placed precisely and victims are capable of putting on a PFD, and exiting onto a stable platform, they should be allowed to do so, especially if competent control of the boat in an emergency exit is in question.

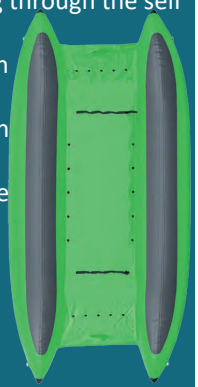
COMPARISONS AND CONTRASTS

Once the river rescue team has discovered all of the various types of boats capable of performing river rescues, they then have to make some comparisons between the ability of these boats to perform in their local environment. The river rescue team first has to analyze and determine which kind of boat will be suitable for their particular situation. They must ask themselves the following questions:

1. Are you working in a flat river or waves, currents and rapids?
2. Is your river averaging fairly deep water or shallow areas?
3. Is you river wide or narrow?
4. What is the immediate access to the river.
5. Are there numerous boat launches or are you going to be forced to put their boat into the water through brush, walls, fences and other obstacles?
6. Are there a number of in-water hazards such as strainers, low head dams/weirs, class 3 or above rapids in your response area?
7. What is the ease or difficulty of operation of the type of rescue craft that you are choosing and how well can you train and maintain training of personnel?
8. What is the potential for flipping, broaching, or otherwise turning the boat over within the rescue environment?
9. What types of rescues are usually undertaken on your stretch of river?
10. Will the boat be used for other purposes besides rescue, aka dive platform, body recoveries?
11. Will the boat be suitable for deployment to other areas?
12. What is the available budget?
13. Which of the following rescue maneuvers will the boat be capable of:

- Pick up rescuers in current
- Pick up victims entrapped on top of rocks, houses, vehicles, caught in class 3 flood-stage water or higher
- Effectively maneuver downstream to broach onto an object in order to pick up victims
- Light enough to suspended on a rope rescue system in the middle of the river
- Move upstream through class 3 water or better
- Make effective crossing in current
- Carry several victims, extremely stable

Mitch Sasser says...
A recent successful rescue from a mid-stream vehicle using a non-powered raft by the Santa Barbara Fire Dept wth inflatable raft highlighted the need to ensure your craft is properly inflated, in the rush to deploy to a casualty in difficulties it is all too easy to cut corners leaving you open to swamping and buckling if the casualty numbers or conditions change during the rescue.
Self Bailers are the design to go with BUT....for whitewater and fast flowing/rough water , the self bailing should be via holes all they way around the floor. Some designs only have drain holes punched through the floor material along both sides with the floor being glued to the outer tubes in these designs. I prefer a floor that is laced in and provides drainage 360 degrees around the boat. Without this you risk sudden weight change when taking on water flushing through the self bailing system and without drainage in the bow and/or stern the water accumulation can cause overloading, snapping control lines or ripping lines out of rescuers grip. Having drain holes around the entire raft also helps in self rescue if a flip occurs. Naturally, the larger the tube diameter the more difficult it is to climb on top and right the raft again.



Those who have experience with flips and recovery will note the hand hold and grab options that a laced-in floor provides even at the bow and stern for the rescuer to quickly get up on top of the upside down boat. Some teams may be using pre-rigged flip lines to avoid having to climb up on top of the craft for correcting it. In summary, if the floor and tubes/sponsons are properly inflated with weight properly distributed and with full circumference self bailers, the boats will plane better. My choice in fast-moving water is a cataraft first option, then raft as a second option.

high flow. Also notice that the larger-diameter tubes/sponsons on the whitewater-style rafts mean that the deck may be suspended clear of the water as it is in most catarafts which improves speed and manoeuvrability.

VALVES

All of these craft inflate through a valve which may only allow air flow inwards (inlet check valve) so you don't lose air pressure should the valve cap not be in place or the pump/cylinder hose come off during inflation. We have differentiated three types in our tables: Safety or Pressure Relief Valves, 1-Way, 2-Way and Dump valves but for this GUIDE they are mostly 2-Way and Pressure relief valves. ***Pressure Relief Valves*** refers to its ability to purge air should you OVER-inflate. This can be the case particularly with compressed air cylinders so the safety valve will allow air to force its way out of the valve rather than bursting the seams of the craft. A ***2-way*** valve allows inflation and deflation. Some, like the *Leafield* A/B/C and now D7 (pic below) and *Halkey-Roberts* valve, have a cap and then an interior sleeve that you rotate a quarter or half

turn to alternate between inflate and deflate while others have a second screw-off collar beneath a non-return inflation section. When unscrewed, this allows air to exit freely. Deflation needs to be fast so that the craft can be rolled and stowed or moved ASAP ready for the next task so these 2-way valves are doubling as Dump or rapid air expulsion valves which tend not to be present on most sleds, boats and rafts. True dump valves, in the diving sense, can of course a be a push button affair but this is obviously not the case for inflatable craft where they are regular screw-top release if they are present at all. Bear in mind that most craft have more than one chamber so deflation can be a more time consuming process than inflation. Some raft have one-way baffles between chambers that means a single inflation point inflates all chambers which is much faster to inflate and deflate than inflating/deflating chambers one after the other - this is more the case with specialist rescue craft than it is with purist swiftwater rafts. Many craft have both sets of valves sometimes next to each other as with the *WRS* and sometimes separated as with *MFC* and *ARK* Craft where the inflate-deflate valves are located on the ends of each sponson and on the floor. Most valves are designed to use manual pumps and BA cylinders, but some are large enough to use a powered blower or even a vacuum cleaner in reverse. Professional battery blowers are an excellent idea because they have numerous other uses including cleaning/drying the craft. They are also unlikely to inflate beyond the pressure limit of the seams because they will struggle to push against over-pressure resistance. Basic dump valves can use large-bore pipe/hose inflation but air will escape while you try to screw the cap back on.

THWARTS/BOLSTERS/SEATS

The narrower raft can be paddled Canadian-style, knelt down but conventional, wider models are paddled from each side, usually while sitting on one of the soft, inflatable thwarts or bolsters that act as seats as well as increasing buoyancy. In some models, these are detachable and can be used as makeshift in-water buoyancy aids in the event of a person-overboard situation. The 'fatter' tubes on rafts enable paddlers/rescuers to wedge feet into the deck-union to gain purchase and help in maintaining balance and integrity within the raft.

At least one craft, the Wing Inflatable at the top of this page has augmented the inflatable floor chamber with an additional 'flat' chamber for kneeling, this not only reinforces the deck it enhances comfort when paddling for long periods. Two of the craft in this GUIDE, the *ARK Croc-Rescue* (above) and the German *RTB1* have flat seating. The *Ark* has a vinyl strip which can also act as a forward restraint when leant against during kneeled paddling while the *RTB1* has wooden seats indicating tasking aimed at flood evacuation in slow-moving water rather than swiftwater or waves.

FOOT CUPS

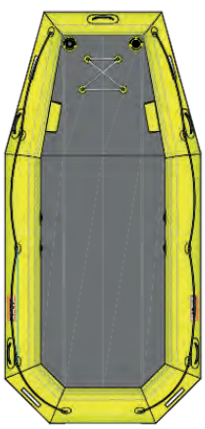
A useful feature of some whitewater rafts that crosses over well into rescue rafts is the incorporation of low profile foot restrain cups attached to the deck. These are a flap of material that will sit flat when not in use or with a person/kit sat on them. In some cases these might double as paddle stowage but the more overt models like the *NRS* above are large enough to insert a good

portion of booted foot and help keep you in the boat in rough water as as well as providing purchase from which to gain more paddling power going forwards and more reach when leaning back to help steering in strong current. Some thwarts also allow feet to be wedged beneath for extra purchase in rough water/waves.

NON-STANDARD DESIGNS

Another design much favoured in the North America is the cataraft, a twin sponson hull, invariably 'pointed' at the ends and joined by a two or three transverse sponsons that, in a standard raft would be separately inflated thwarts or bolsters. Our own swiftwater rescue co-editor Mitch Sasser swears by them because of their manoevrability, speed and stability but they offer far less floor space so clearly not so much use in flood evacuations and very much a tool for the specialists. Nevertheless, in the right hands these are a potent swiftwater rescue craft. There aren't as many in this GUIDE as you might expect because many are equipped with a rigid transom to take a motor and will therefore be in the separate Powered Craft GUIDES. *Rapid Approach Rescue*'s cataraft (above) can also be retrofitted for a motor with an aluminium frame costing around $275 and is one of only two in this particular GUIDE but there are a number of comparable craft that would suit rescue agencies that are not currently used or marketed as such. This *RAR* model incorporates a reinforced ramp on one end to ease hauling casualties on board - in this case up to 4 plus two rescuers.

MFC's RS8ER (right) is typical of some rescue-specific models that have been born out of rescue and not rafting. Theirs is basically the same as their sled (and platform) but with sponsons all around that are narrower than their swiftwater counterparts. They are not self-bailing and are intended for evacuation and searching on relatively flat water and slower moving flood water. Such craft are perfectly capable in faster moving water but without self bailing water coming in adds to the weight and discomfort so is best avoided. You can also see two inside pouches for throw cord or strobe etc and a tied-down panel to safely stow equipment or extra PPE. Some raft have internal paddle stowage points.



Finally a word about the *Mustang MRR130* model in the title picture which has been custom built by Wing Inflatables so you know it will be good. It's a dedicated rescue craft with enhanced features like ultra high visibility and more D-rings than you could possibly find uses for but it's one of only a handful that offers this range of rescue specificity in a true raft design.

IMPORTANT: REFER to KEY to TABLES on page 64

Images NOT to Scale
□□□= Option
●= PARTIAL FEATURE and/or OK BUT NOT IDEAL
COST: Approx, INC local tax/VAT
N/A = info Not Available/not given
INFLATION TIME: Hand Pump/ Compressed Air
VALVES PRV=Pressure Relief Valve

	MODEL	COMPANY	ORIGIN	approx COST inc tax / VAT	WEIGHT	LOAD CAPACITY Kg/sq Metre lb/Sq Foot	DIMENSIONS L x W x H EXTERNAL INTERNAL/USABLE WIDTH	PACKED SIZE
	**Croc Rescue** CRR 375	**ARK**		£592 $706 €662	23kg 50.6lb	170kg 375lb	3.75 x 1.05 x 0.36m 12.3 x 3.4 x 1.16' 0.33m 13"	75 x 50 x 5 30 x 20 x 2
	**Ark Angel** ARR 420	**ARK**		£1424 $1697 €1593	28kg 110lb	350kg 750lb	4.2 x 1.18 x 0.37m 13.75 x 3.9 x 1.2' 0.44m 17"	95 x 50 x 5 37.4 x 20 x
	**Nile** KN365	**ARK**		£1797 $2142 €2010	35kg 68.2lb	425kg 937lb	3.65x 1.75 x 0.52m 11.9 x 5.75 x 1.7' 0.71m 28"	98 x 56 x 5 38.6 x 22 x
	**Res-Q-Raft 400**	**CPI Rescue Products**		N/A	50kg 44lb	950kg 2090lb	3.02 x 2.31 x 0.56m 9.9 x 7.6 x 1.8' 1.2m 478"	N/A
	**Personal Paddle Boat**	**DEMAREE (D.I.B.)**		?	28kg 60lb	272kg 600lb	3.48 x 1.52 x 0.48m 11.4 x 5 x 1.6' 1.2m 478"	?
	**Rapid Response Boat**	**DEMAREE (D.I.B.)**		?	40.9kg 90lb	454kg** 1000lb	3.7 x 1.8 x 0.6m 12 x 6 x 2' 1.2m 478"	71 x 45.7 35 28 x 18 x
	**430RR Rescue Raft**	**INMAR**		£3000 $3500* €3200	72.7kg 160lb	1023kg 2250lb	4.27x 1.98 x 0.51m 168 x 78 x 20" 1.47m 58"	140 x 84 x 6 55 x 33 x 2
	**Fat Boy**	**JPW inc**		£4100 $4444 €4300	32.7kg 72lb	400kg 882lb	3.05 x 1.65 x 0.50m 120x 65x 19.5" 0.66m 26"	100 x 86 x 6 40 x 34 x 2
	**Rescue Raft RS8ER** WR0212	**MFC INTERNATIONAL**		N/A	26kg 57.2lb	820kg 1804lb	3.5 x 1.9 x 0.56*m 137 x 75 x 22" 1.34m 52.7"	88 x 50 x 3 35 x 19.7 x
	**Rescue Raft RS10ER** WR0214	**MFC INTERNATIONAL**		N/A	35kg 77lb	950kg 2090lb	4 x 2.3 x 0.56*m 158 x 91 x 22" 1.9m 75"	88 x 55 x 3 35 x 22 x

INFLATABLE NON-POWERED RAFTS

	approx. AIR CAPACITY INFLATION TIME (Hand) (Powered or CA)	MAX WORKING PRESSURE FLOOR/DECK	MATERIALS: TUBES/SPONSONS FLOOR/DECK		INFLATE		LOADING			VALVES		ACC		VIZ		NOTES	WWW.
				SELF-BAILING	CHAMBERS /THWARTS	MANUAL/POWERPUMP	GRAB/LIFT HANDLES	FLIP TAB / GRAB CORD	HD-TOW/ LT DUTY EYES	PRESSURE RELIEF VALVE	1-WAY / 2-WAY VALVE	CARRY BAG/ PADDLES	REPAIR KIT/ WARRANTY	REFLECTIVE/ CUSTOM	OTHER COLOURS		
0cm 20"	600 L 21.2cuft 8-12mins	0.24-0.28BAR 3.5-4.5 Psi * BAR * Psi	1055g PVC closed-cell foam floor	■ *	* 2	□ □	2 6	■ -	6 4	-	■ -	□ ■	3 ■	□ □	■	*No bolsters, seating is a PVC strip. *Floor is solid foam (not inflatable). *Via bailing sock which can be closed.	arkinflatables.com
0cm 20"	1200 L 42.4cuft 12-15mins	0.24-0.28BAR 3.5-4.5 Psi 0.55 BAR 8 Psi	1450g PVC 8cm/3" drop-thread deck	■	2 4	□ □	12 8	■ -	8 15	-	■ -	□ ■	3 ■	□ □	■	60cm bow & stern kick. Additional rear PVC band seat.	arkinflatables.com
0cm 20"	1648 L 58.2cuft 12-15mins	0.24-0.28BAR 3.5-4.5 Psi 0.17 BAR 2.5 Psi	1450g PVC I-beam deck	■	2 5	□ □	8 0	■ -	10 10	-	■ -	□ ■	3 ■	□ □	■	70cm bow & stern kick	arkinflatables.com
	1900 L 67 cuft 4-10mins	N/A	32oz PVC 40oz Evaloy-drop-thread deck	■	0 ?	□ ■	0 10	■ -	14 6	■	■ -	■ ■	1 □	□ □		This raft being updated or discontinued. Removable inflatable floor	cpiwaterresqproducts.com
	1300 L 46 cuft <2->10mins	?	30oz vulcanized/ neoprene-coated fabric. Mil-C-17415 type 9A	■	* 3	□ ■	6 0*	■ -	2 6	■	■ -	■ ■	1 □	□ □	?	*+2x Foot stirrups **design load = 272kg 600lb. *No bolsters, fore and aft transverse sponsons act as thwarts.	dibboats.com
5.5cm 14"	1700 L 53 cuft <3->12mins	?	30oz vulcanized/ neoprene-coated fabric. Mil-C-17415 type 9A	■	* 4	□ ■	6 0*	■ -	2 6	■	■ -	■ ■	1 □	□ □	?	*+4x Foot stirrups Inflatable transom will take 10HP outboard. *No bolsters, fore and aft transverse sponsons act as thwarts.	dibboats.com
51cm 24"	2400 L 85 cuft 10-15mins	0.16-0.2 BAR 2.8-3 Psi 0.6-0.7 BAR 9-10 Psi	1.2mm Hypertex, polyester, dual coated	■	2 5	□ ■	6 0	■ -	6 4	■	■ -	6 ■	1/ 3 ■	□ ■	■	*Rescue Agencies=$2995	inmarboats.com
60cm 24"	1600 L 56.5 cuft <15mins	0.17 BAR 2.5 Psi 0.17 BAR 2.5 Psi	32/42oz PVC coated Polyester drop-thread deck	■	2 8	□ ■	0 2	- -	4 0	■	■ -	- -	5-10 ■	- -	■ ■ ■	10" bow kick. Removable drop-stitch floor. Foot thwarts. Rescue Celubra is power - capable so will be in the powered craft GUIDE	jpwinc.com
3cm 13"	1815 L 64cuft 3mins	0.2 BAR 3.25 Psi 0.4 BAR 6 Psi	Hypalon TPU 12cm/5" drop-thread deck	NO	- 3	□ □	7 0	■ -	0 3	■	■ -	2 ■	2 ■	□ ■	■ ■	*Height is not tube diameter hence low volume Leafield Valves. Optional rear bolster and storage pockets	mfc-international.com
5cm 14"	2000 L 70.6cuft 3mins	0.2 BAR 3.25 Psi 0.4 BAR 6 Psi	Hypalon TPU 12cm/5" drop-thread deck	NO	- 3	□ □	4 0	■ -	0 3	■	■ -	2 ■	2 ■	□ ■	■ ■	*Height is not tube diameter hence low volume Leafield Valves. Optional rear bolster and storage pockets	mfc-international.com

Images NOT to Scale
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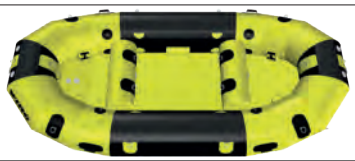
COST: Approx, INC local tax/VAT
N/A = info Not Available/not given
INFLATION TIME: Hand Pump/ Compressed Air
VALVES PRV=Pressure Relief Valve

	MODEL	COMPANY	ORIGIN	approx COST inc tax / VAT	WEIGHT	LOAD CAPACITY Kg/sq Metre lb/Sq Foot	DIMENSIONS L x W x H EXTERNAL INTERNAL/USABLE WIDTH	PACKED SIZE
	MRR130	MUSTANG SURVIVAL (WING INFLATABLES)		N/A	50kg 110lb	909kg 2000lb	3.96 x 1.96 x 0.53cm 156 x 77 x 21" 0.89m 35"	96.5 x 11 125cm 38 x45 x4
	2.4m Raft	NORTHERN DIVER		£606 $800 €700	25kg 55.1lb	400kg 882lb	2.4 x 1.3 x 0.35m 94.5 x 55 x 14" 0.6m 23"	92 x 67 x 2 36.2 x 26.4 x
	CBS6	NORTHERN DIVER		£1260 $1600 €1550	62kg 136.7lb	700kg 1543lb	380 x 80/170 x 45cm 150x31.5/67 x17.7" 00m 00"	120 x 60 x 4 47 x 24 x 1
	CBS8	NORTHERN DIVER		£1460 $1850 €1750	70kg 154.3lb	900kg 1984lb	420x100/200x50cm x39.4/x 19.7" 00m 00"	135 x 68 x 4 53 x 27 x 1
	R120	NRS		£2550 $3095 €3250	54.5kg 120lb	N/A	371 x 71/163 x 46cm 146 x 40/76 x 18" 00m 00"	114 x 66 x 3 45 x 26 x 1
	R130	NRS		£2800 $3395 €3550	60.5kg 133lb	N/A	396 x 71/163 x 46cm 156 x 37/74 x 18" 00m 00"	125 x 66 x 1 49 x 26 x 1
	R140	NRS		£3500 $3695 €3850	76kg 167lb	N/A	430x109/221x 56cm 169 x 43/87 x 22" 00m 00"	125 x 66 x 6 49 x 26 x 1
	Slice XL Cataraft	NRS/STAR		£1950 $2195 €1766	30-36kg 66-79lb	900kg 1980lb	361 x 66/178x56cm 142 x 26/70x 22" 00m 00"	152 x 76 60 x 30"
	Rescue Cat	RAPID APPROACH RESCUE		£2000 $2150 €2100	34kg 75lb	900kg 1980lb	358 x 61/173 x 56cm 141 x 24/68 x 22" 00m 00"	115 x 81 x 6 45 x 32 x 1
	12'Rescue Raft Self bailing version	ROCKY MOUNTAIN RAFTS		£2600 $3150 €2750	54.5kg 120lb	>800kg >1760lb	366 x 66/158 x 46cm 144 x 26/62 x 18" 00m 00"	117 x 76 x 3 46 x 30 x 1

INFLATABLE NON-POWERED RAFTS

	approx. AIR CAPACITY INFLATION TIME (Hand) (Powered or CA)	MAX WORKING PRESSURE FLOOR/DECK	MATERIALS: TUBES/SPONSONS FLOOR/DECK	INFLATE		LOADING			VALVES		ACC		VIZ		NOTES	WWW.
				SELF-BAILING	CHAMBERS /THWARTS	MANUAL/POWERPUMP	GRAB/LIFT HANDLES	FLIP TAB / GRAB CORD	HD-TOW/ LT DUTY EYES	PRESSURE RELIEF VALVE	1-WAY / 2-WAY VALVE	CARRY BAG/ PADDLES	REPAIR KIT/ WARRANTY	REFLECTIVE/ CUSTOM	OTHER COLOURS	
4 x 9"	2350 L 83 cuft <2/>5mins	0.24 BAR 3.5Psi 0.31 BAR 4.5 Psi	33oz PU-coated Polyester. I-beam floor	■	2 5	- □	6 0	■ ■	32 2* 16	■	■ ■	□ ■	1 ■	- ■	■	Federal Aviation specification reflective panels 10" bow kick *2x3" Tow Eyes + 16x2" eyes. Flip cord/web housed in internal pouches	mustangsurvival.com
15cm x 9.8"	692 L 24.4 cuft <1 - 3.8mins*	0.35 BAR 5Psi 0.7 BAR 10 Psi	1.2mm PVC 8cm/3" drop-thread DWF/PVC Floor	NO	- 3	□ ■	0 6	■ -	0 0	■	■ -	2 ■	2 ■	□ □	■	*Power pump to Hand Inflation time calculated at 50 pump strokes/min. NB the 2.7 and 3.3 raft are power-capable so will be in the powered craft GUIDE	ndiver-rescue.com
40cm 16"	1753 L 62cuft 1-10mins*	0.35 BAR 5Psi 0.7 BAR 10 Psi	1.2mm PVC 8cm/3" drop-thread DWF/PVC Floor	NO	0 5	□ ■	8 0	■ -	0 12	■	■ -	■ ■	2 ■	□ □	■	UK DEFRA/Flood Approved * Power pump to Hand Inflation time calculated at 50 pump strokes/minute. NB the 2.7 and 3.3 raft are power-capable so will be in the next GUIDE	ndiver-rescue.com
45cm 18"	2397 L 85cuft 2- 13mins*	0.35 BAR 5Psi 0.7 BAR 10 Psi	1.2mm PVC 8cm/3" drop-thread DWF/PVC Floor	NO	0 5	□ ■	8 0	■ -	0 12	■	■ -	■ ■	2 ■	□ □	■	UK DEFRA/Flood Approved * Power pump to Hand Inflation time calculated at 50 pump strokes/minute. NB the 2.7 and 3.3 raft are power-capable so will be in the next GUIDE	ndiver-rescue.com
38cm 15"	1600 L 56.5cuft 1- <5mins	0.28 BAR 4Psi 0.55- 0.7 BAR 8-10 Psi	2000D PVC 10cm/4"drop-thread deck	■	2 5	□ ■	6 6	- □	0 16	■	■ -	□ □	3 ■	□ ■	■	Foot retention pouches on deck +3 toe-holds under each thwart. Armoured underside to sponsons & hull. Leafield C7 & D7 valves. * Height does not include 29" kick of the angled bow	nrs.com
40cm 14"	1800 L 63.6cuft 1- <6mins	0.28 BAR 4Psi 0.55- 0.7 BAR 8-10 Psi	2000D PVC 10cm/4"drop-thread deck	■	2 5	□ ■	8 6	- □	0 18	■	■ -	□ □	3 ■	□ ■	■	Foot retention pouches on deck +3 toe-holds under each thwart. Armoured underside to sponsons & hull. Leafield C7 & D7 valves. 30" bow kick	nrs.com
66cm 16"	2700 L 95cuft >2/ >15mins	0.28 BAR 4Psi 0.55- 0.7 BAR 8-10 Psi	2000D PVC 10cm/4"drop-thread deck	■	3 5	□ ■	8 8	- □	0 22	■	■ -	□ □	3 ■	□ ■	■	Foot retention pouches on deck +3 toe-holds under each thwart. Armoured underside to sponsons & hull. Leafield C7 & D7 valves. * Height does not include 30" kick of the angled bow	nrs.com
cm "	2300 L 81cuft <2/ >10mins	0.2 BAR 3 Psi 0.55 BAR 8 Psi	44oz/1000D PVC 8cm/3" Drop-thread deck	■	1* 5	□ □	0 8	- □	10 0	■	■ -	□ □	3/ 5 ■	□ □	■ ■	*1x detachable bolster + two integral, transverse bolsters/ chambers. 2x Self-draining zipped compartments.+2 toe-holds under each thwart.Leafield C7 & D7 valves. 30" Bow/stern kick	nrs.com
66cm 16"	2250 L 79cuft <2/ >10mins	0.2 BAR 3 Psi 0.2 BAR 3 Psi	2000 Denier - 44 oz PVC 60oz Deck	■	* 4	□ □	0 6	- -	4 10	■	■ -	□ □	5 ■	□ ■	■	*2 of the 4 chambers are integrated transverse 'thwarts'. Transom frame available. Leafield D7 valves	rapidapproachrescue.com
84cm 14"	1650 L 58cuft 1/ <5mins	0.17 BAR 2.5 Psi 0.14 BAR 2 Ps	44oz/3000 Denier Rockshield PVC. 66oz drop-stitch floor	□	3 5	□ ■	6 0	■ -	0 12	■	■ -	■ ■	2/ 6 ■	□ □	■ ■ ■ ■ □	Also 13 and 14' models. Leafield D7 valves. *Also non-'rescue' colours: green, grey, Blue, Torqoise, Beige, purple. Also Self-bailing with I-beam deck 27" Bow rise	rockymountainrafts.com

Images NOT to Scale
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●= PARTIAL FEATURE and/or OK BUT NOT IDEAL
COST: Approx, INC local tax/VAT
N/A = info Not Available/not given
INFLATION TIME: Hand Pump/ Compressed Air
VALVES PRV=Pressure Relief Valve

	MODEL	COMPANY	ORIGIN	approx COST inc tax / VAT	WEIGHT	LOAD CAPACITY Kg/sq Metre lb/Sq Foot	DIMENSIONS L x W x H EXTERNAL INTERNAL/USABLE WIDTH	PACKED SIZE
	**6'Rescue Raft drop-Stitch Deck**	**ROCKY MOUNTAIN RAFTS**		£3300 $3800 $4550 €3550	88.6kg 195lb	>1350kg >3000lb	4.88 x 2.34 x 0.56m 192 x 92 x 22" 1.22m 48"	152 x 76 x 4 60 x 30 x 1
	**Phat Cat** PC120	**ROCKY MOUNTAIN RAFTS**		£1500 $1650 €1750	23-29kg 51-63lb	>180kg >400lb	3.58 x 1.73 x 0.56m 141 x 68 x 22" 0.61m 24"	76 x 56 x 3 30 x 22 x 1
	**Ionic Urban Raft**	**SAFEQUIP**		£3600 $5040 €4320	42kg 92.4lb	1000kg 2200lb	3.2 x 2.2 x 0.38m 126 x 87 x 15" 1.44m 57"	100 x 70 x4 39 x 27.6 x
	**WWR3700** SIT38040	**SIT Ltd**		N/A	37kg 81.4lb	300kg 660lb	3.7 x 1.75 x 0.45m 146 x 69 x 18" 0.85m 33.5"	80 x 80 x 5 31.5 x 31.5 x
	**WWR4300** SiT38006	**SIT Ltd**		N/A	60kg 132lb	450kg 990lb	4.3 x 2 x 0.5m 169 x 79 x 19.5" 100m 39.4"	90 x 90 x 5 35.4 x 35.4 x
	**RTB1 SEB**	**SURVITEC/ DSB gmbH/ IC BRINDLE**		£3995 €4550	43kg 94.6lb	600kg 1320lb	3 x 1.2 x 0.4m 118 x 47 x 15.8" 0.4m 15.8"	105 x 50 x 3 41.3 x 19.7 x
	**IBS**	**WING INFLATABLES**		$13000	49kg 108lb	612kg 1350lb	3.66 x 1.65 x 0.43m 144 x 65 x 17" 0.79m 31"	117 x 86 x 6 46 x 34 x 2
	**LifeRamp** 6601-10/15	**TULMAR SAFETY**		$6073	12.7kg 28lb 19.1kg 42lb	?	3.14.6 x 00 x 00m 1015 x 00 x 00" 0.00m 00"	?
	**3.6m Raft**	**WRS INTERNATIONAL**		£3900 $5000 €4366	55kg 122lb	700kg 1544lb	3.6 x 1.8 x 0.48m 142 x 71 x 18.9" 0.84m 33"	120 x 60 x 6 47.2 x 23. 23.6"
	**4m Raft**	**WRS INTERNATIONAL**		£5210 $6500 €5900	60kg 122lb	1000kg 2200lb	4 x 1.85 x 0.52m 157.5 x 73 x 20.5" 0.8m 31.5"	100 x 100 x 39 x 39 x 2

INFLATABLE NON-POWERED RAFTS

	approx. AIR CAPACITY INFLATION TIME (Hand) (Powered or CA)	MAX WORKING PRESSURE FLOOR/DECK	MATERIALS: TUBES/SPONSONS FLOOR/DECK	INFLATE		LOADING			VALVES		ACC		VIZ		NOTES	WWW.
				SELF-BAILING	CHAMBERS /THWARTS	MANUAL/POWER/CA	GRAB/LIFT HANDLES	FLIP TAB / GRAB CORD	HD-TOW/ LT DUTY EYES	PRESSURE RELIEF VALVE	1-WAY / 2-WAY VALVE	CARRY BAG/ PADDLES	REPAIR KIT/ WARRANTY	REFLECTIVE/ CUSTOM	OTHER COLOURS	
41cm 16"	3200 L 113cuft >15mins	0.17 BAR 2.5 Psi 0.14 BAR 2 Psi	44oz/3000-denier RockShield PVC. 66oz PVC I-Beam lace-in floor	■ *	2-4 5	□ □	8 0	- -	2-4 12-14	■	■ -	□ ■	3/5 ■	□ □	■ ■ ■ □	Also 13 and 14' models. Leafield D7 valves. Also non-'rescue' colours: Green, Grey, Blue, Torqoise, Beige, Purple. *Option as non-self bailing- drop-thread deck. 31" bow rise	rockymountainrafts.com
6cm 14"	2300 L 81cuft >10mins	0.17 BAR 2.5 Psi 0.14 BAR 2 Psi	44oz/2000-denier RockShield PVC. 66oz PVC floor	■	0* 4	□ □	0 0	- -	12 8	■	■ -	□ ■	3/6 ■	□ □	■ ■ ■ □	*two integral, transverse bolsters/chambers. Leafield D7 valves. Also non-'rescue' colours: Green, Grey, Blue, Torqoise, Beige, Purple. Splash net & foot cups	rockymountainrafts.com
45cm 18"	1550 L 54.7cuft <2/>10mins	0.2BAR 3 Psi 0.4BAR 6 Psi	'Orca' Hypalon. 6" drop-thread deck	NO	1 5	□ □	8 2	■ ■	2 8*	■	■ -	■ ■	5 ■	□ □	■ ■ ■	Leafield valves. 6" Deck. * D-Ring under deck can provide flip tab	safequip.co.uk
0cm 19.7"	1740 L 61.4cuft <1/<8m	0.2BAR 3 Psi 0.4BAR 6 Psi	Neoprene-coated Hypalon. 6" drop-thread deck	■	2 5	□ □	7 4	- ■	4 5	■	■ -	2 ■	2 ■	□ □	■ ■ ■	Leafield valves	sitltd.co.uk
0cm 19.7"	2480 L 87.6cuft >2/ >10mins	0.2BAR 3 Psi 0.4BAR 6 Psi	Neoprene-coated Hypalon. 6" drop-thread deck	■	3 5-6	□ □	8 2	■ ■	0 14	■	■ -	2 ■	2 ■	□ □	■ ■ ■	Larger WWR5000 also available. Leafield valves.	sitltd.co.uk
38cm x 14"	1000 L 35.3cuft <1/<4mins	0.2BAR 3 Psi 0.4BAR 6 Psi	Hypalon/Neoprene coated polyester. 6" drop-thread deck	NO	0* 4	□ ■	0 0	■ -	4 8	■	■ -	2 ■	4 ■	□ □	■	* 2x Wooden seats SEB=quick inflation version with CA cylinder	icbrindle.com
51cm 24"	1415 L 50cuft 3-10mins	0.31 BAR 4.5Psi 0.31 BAR 4.5 Psi	40oz Polyurethane. drop-thread deck	NO	2 6	□ □	0 *	■ -	0 0	■	■ ■	□ ■	5 ■	□ ■	-	*Perimeter cord acts as lift/ grab handles	inflatablesolutions.com
	? <1/<6mins	?	?	NO	0 2	□ □ □	0 0	■ -	18 4	■	■ -	□ ■	? -	- -	-	For longer lengths 30,50&80ft see Paths/ Walkways Guide	tulmar.com
60cm 6 x	1900 L 67cuft <2/>8min	0.3 BAR 3.6 Psi 0.1 BAR 1.5 Psi	PVC/PU. 15cm I-Beam deck*	■ *	2 5	- ■	6 0	□ -	0 12	■	■ -	□ ■	3 ■	□ □	-	Leafield C7 7 A6 valves. *Available as non-self bailing with drop-thread deck.	wrsinternational.com
60cm 3.6"	2200 L 78cuft <2/>10min	0.3 BAR 3.6 Psi 0.1 BAR 1.5 Psi	PVC/PU. 15cm I-Beam deck	■	3 5	- ■	6 4	■ -	0 5	■	■ -	□ ■	3 ■	□ ■	-	Leafield C7 7 A6 valves. 6 x Foot retaining cups/loops.	wrsinternational.com

INFLATABLE & SOLID 'SHORT' RESCUE BOARDS

'Short' as distinct from the numerous long boards and basically modified surf boogie or body boards. These short boards are often called 'sleds' in North America because they are huge compared to a standard sport body board. Most derive from the surf community but in rescue terms it is probably the Carlson Board from the 80's that steered the entire water rescue and swiftwater community towards use of short boards for water entry rescue (as distinct from towing). High-speed towing is now where you see most short boards - on the back of a PWC/RWCs both as a rescue measure in surf, flood and swiftwater and for general transport of a surfer to or from the hairy wave face on a surf beach. Be aware though that just because a board/sled has forward-mounted D-rings, doesn't mean it can be towed by an RWC - these exert a degree of force through acceleration that surfers long ago realised needed to be mitigated by additional elastic connections or strengthened fixings. Of course you could bypass the RWC altogether and power the board itself which is what the ASAP 156 jet-board on the right does. With an average 50minute run-time this is an exciting, if rather more expensive option! The 156 does have a forward towing option but more for recovery than deployment. Swiftwater rescue boards either have no tow eyes because they're intended for swimmers or the eyes are more for control lines and hauling, neither of which involves fast acceleration. True surf-oriented boards are also more able to cope with large waves that can bend or snap boards not designed for that environment. Some, like the Peruvian Suntech boards are reinforced - in their case with a longitudinal aluminium I-beam.

Another offshoot has been ice rescue which has spawned a few quite odd designs like the *Angel-Guard* but in principle the main players like *Ice Rescue Systems RTS* and *MARSARS sled* above, are modified boards, longer than most RWC boards but not quite a lifeguard's long board. They are however, considerably more complex than simply a flotation aid. Both are rectangular with numerous integrated slings and the *MARSARS* sled has a 4:1 hauling mechanism built into the centre of the board that helps haul an in-water victim on board the sled via a set of forearm straps- there are even two rollers in the end to facilitate easier victim movement onto the sled.

We see a definite difference between boards with a US surf background like Extractor, *P2P* and *Lifesled* (better known in surf circles as *Wahoo International*) and those from a European water rescue background like *WRSMFC, WRS and NDiver*. These latter boards and indeed most inflatable short boards are better suited to 'flat' or flood water (and ice or mud) than they are to rough water like surf or swiftwater. They can however be deflated and stored in a considerably smaller space than a solid board although deployment times are also considerably longer. In general, the inflatable boards are the domain of multi-discipline rescue agencies not necessarily using them on every call or with simply no more space on the truck for any more kit. We have dealt with the specifics of inflatable craft in the previous guides to watercraft so no need to discuss that further here - the same rules apply, the materials are the same, the valves are the same only the sheer size and volume and therefore the time to inflate (a couple of minutes even with a hand pump) are different. Beach rescue and standby rescue teams are more likely to go for a solid board and for some boards storage as a flat- one piece can sometimes be easier to fit on or around a rescue vehicle than a plump bag of deflated board.

Something that all 'short' boards have in common is a plethora of handles and all go to great lengths to ensure that they are strongly fixed to the deck. In the case of inflatables it is exactly the same as all inflatable watercraft with glued or preferably

'SHORT' RESCUE BOARDS/SLEDS

welded seams having a considerable track record. Solid boards (which aren't necessarily solid as we'll see shortly) can be a bit trickier because the plastic or foam 'shell' that they have to be fixed into can have inherent localised weakness. So most overcome this by spreading the load either by broadening the rivet bed as you can see on the *MARSARS* or by running the handles as a continuous length into and out of the body of the board as you see with the *Lifesled*s. *Extractor* mould the threaded receiver into the HDPE shell and claim a 7000lb/3181kg test pull which is quite impressive and likely one of the strongest options. P2P have neoprene covered solid rubber handles while NRS has low-profile flat straps. Some have a 'last-chance' handle right at the back and some even have a last chance sling/cord hanging off the back. Apart from the special purpose boards all of the towable boards have a curved 'stern' both in terms of smoothing off the roughly 4"/100mm side profile and the crescent shape which accommodates the shape of a 'casualty' who is hanging on for grim death more comfortably and safely than a square back edge. In the case of the title picture opposite from *Lifesled* the rescuer is using the board as an in-water access tool and is knelt on it while assisting the casualty that has just been hot-loaded after having his hand grabbed by the RWC driver. He will then be swung back to the waiting rescuer who ensures he has a firm handhold for the journey back to shore.

For inland swiftwater and floods the use of the not-so-short, short board was pioneered for rescue by Robert Carlson after using a regular surf boogie board for sport riverboarding or river sledging as its sometimes called since the early 70s. The Carlson Board took the standard boogie design, added a slick, hardened plastic base and deep crescent curve to the rear as well as four handles, none of which had been seen on rescue boards before. These days the board's curved body channel has evolved into two 'limb' channels that retain the forearms better when grasping the handles. The boards still have their original vivid green base as well as a curved profile nose to tail.

The NRS board opposite shows a textured, padded surface common to most boards that offers a tactile surface to help grip the body, ExtractorX Sled for instance has a 3/8" thick dimpled PVC layer while some like *Extractor* and *Carlson* have scallops in the top surface to better hug the body arms. In fast moving water and particularly on the back of a fast moving RWC any slight turn can make it hard to hang on and virtually impossible on a slick


The WRS Rapid D inflatable board

top-surface. This sideways skid at higher speeds is mitigated in some models like *Extratcor's River X* and *JetRescue's Newk* by use of strakes or channels in the underside that keep the board in line - much as you see on RIBs.

We mentioned earlier that the non-inflatable sleds are not necessarily 'solid', some like the *Extractor* range are expanded foam but have differing densities and are hollow. Some are solid 'polystyrene' but it may surprise some to learn that regular polystyrenes (EPS more-so than EPP) will absorb some water - perhaps up to 7% of total board volume. Talking of volumes, the relative board sizes is not immediately apparent in our tables

as the images are NOT to scale but the difference between a river board/body board compared to one intended to be towed by an RWC can be huge. The *Extractor River X Extreme* above middle is 4'8" long and approximately130L in volume while the *WRS* on the left is 6'4" long and around 180L and the *NDiver* on the right is 6'8" long and 280L. Make sure you read the dimensions and volumes to get an accurate idea of size.

KEY to TABLES.....

Any use, feature, accessory or component that is **inherent** in the product 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.
ORIGIN: The 'manufacturer's country, not necessarily the country of manufacture, If we know it's made in a different country there will be a smaller inset flag. = Peru = Greece
COST: a rough guide only - **includes** local taxes/VAT. Varies with exchange rates, extra taxes etc. We usually round up to the nearest Pound£/US Dollar$/Euro€. We now give a currency conversion figure in orange £$€ which is simply to give an idea of price, it is not the selling price which will have import duties and bulk shipping etc. to add.
LOAD BUOYANCY VOLUME: These are all linked but all manufacturers show it differently. LOAD capacity in terms of the weight of person that the board is designed to carry or more importantly that the connecting D-Rings can cope with. **BUOYANCY** of the board, like a PFD or lifejacket is directly related to the weight it can carry whereas **VOLUME** is more an indication of the sheer size of the board usually correlating with load capacity - - the greater the volume the greater the load capacity. As with inflatable platforms, you can work on roughly 100kg per square metre or 67.2 pounds per square foot.
DIMENSIONS: Length by width by depth/thickness.
MATERIALS: (and type of construction) for the board itself, for the top surface and for the bottom which is often the same as the entire board if it is rotomoulded or a solid foam. EPS=Expanded Polystyrene. EPP=Expanded Polypropylene
HANDLES TETHER POINTS: Tether points are th attachment D-Rings or in some cases simple thru-board holes that can be used for towing, hauling, securing and directional control but NOT NECESSARILY high speed towing by an RWC - see the next category for clarification.
RWC TOWING: whether or not the board can be towed at high speed by an RWC/PWC or similar high speed watercraft.
NOSEGUARD VALVE PLUG: NOSEGUARD or Bump protection - this can be a separate plastic or rubber nose, sometimes detachable as with the P2P Rescue Sled or it may be protection offered by a continuation up the side of a hull protection as with the WRS board. VALVE for inflatbale boards - usually a combined inflate/deflate valve, some have an additional PRV or Pressure Release Valve in case of over-inflation. **PLUG** is present on some hollow boards as a drainage measure but can also be used to add ballast or extra floatation (expanded foam) .
SURF/SWIFTFLAT WATERICE: Surf and swiftwater are not necessarily the same as you can get fast moving water with virtually no wave-forms. Here we mean operating in sea waves/ surf and fast moving water *with* waves where point loading on the crest or in the dip of a wave can snap or fold if not designed for the purpose. Flat water is flood, lakes and mud where the load is evenly distributed but this can also be 'calmer' swiftwater. **ICE** Any board/sled can be used if you're careful but true ice design requires a longer board, tougher materials (not usually inflatable) and provision for dragging, ice awls, etc.

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WATER RESCUE CRAFT

Proudly made in the USA and New Zealand
Backed up with a 12-year warranty, four times the industry average.

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Everything you need for your next call out.

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Easy-to-order parts and accessories

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Exceptional quality and endurance

The RDC is built to withstand the stresses incurred in demanding, water-related rescue situations. Our products are proudly made in the USA and New Zealand and come with a **12-year warranty**, four times the coverage that is typical in the industry.

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Images NOT to Scale

COSTS: £$€ in burnt orange are currency conversions only- excludes shipping, import duty and tax

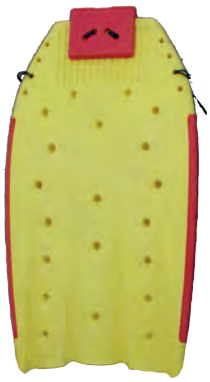
USES/ FEATURES:

● = PARTIAL FEATURE and/or OK BUT NOT IDEAL

☐☐☐= Option

INFLATION TIME: 300L= 1-2mins with manual/electric pump

VALVES PRV=Pressure Relief Valve



MANUFACTURER	ASAP	AQUACENTER	CARLSON	EXTRACTOR SLED	EXTRACTOR SLE
MODEL VARIANT	Rescue 156 -	Jet Ski Rescue -	Carlson River Rescue -	Mega -	Pro -
ORIGIN					
COST	£7421 $9040 €8600	£565 $700 €650	£405 $500 €470	£1940 $2400 €2250	£1724 $2100 €199
WEIGHT	30kg 66lb	13.6kg 30lb	5.7kg 12lb 9oz	31.8kg 70lb	27kg* 55lb*
INFLATABLE SOLID HOLLOW	■	■	■	■	■
LOAD BUOYANCY VOLUME	60kg 132lb 230L		75kg 165lb 120L	270kg 600lb 310L	180kg 397lb 160L
DIMENSIONS height x width x Depth	145 x 60 x 28cm 4'9" x 2' x 11"		142 x 61 x 10cm 4'8" x 2' x 4"	206 x 104 x 14cm 6'9" x 3'6" x 5.5"	160-170 x95x10cm 5'3"-5'7"x3'1.5"x<
MATERIALS: CORE EXTERIOR - Top EXTERIOR - Bottom	HD EPP ? ?	Drop-Stitch PVC UV-safe Mil-Rubber hard plastic 'sheet'	Closed cell polyethylene foam - hard plastic 'sheet'	HDPE & 10-13mm LDPE inner ⅜" PVC deck pad hard plastic 'sheet'	HDPE & 10-13mm LDPE inn ⅜" PVC deck pad HDPE
HANDLES TETHER POINTS	11+2* 3 (rear)	14 3	4 -	10 3	8or10 3
RWC TOWABLE	NO	■	NO	■	■
NOSE-GUARD VALVES PLUG	- - -	- 1 -	- - -	■ - 1	☐ - 1
SURF/SWIFTFLAT-WATERICE	■ ■	■ ■	■ ■	■ ■	■ ■
OTHER COLOURS				■ ■ ■	■ ■ ■ ■ ■
NOTES	A water-Jet-propelled board 16kmh/. Price includes battery charger. *2 'pilot' handles	Includes handpump and repair kit		Range of RWC connection option packages	*Wt includes all option extras. Tail buoyancy reduced f easier loading and inclin ride when towed. Optional Nose bumpe
WEBSITE	asapwatercrafts.com	aquacenter.gr	carlsonriverboard.com	extractorsled.com	extractorsled.com

'SHORT' RESCUE BOARDS/SLEDS






	EXTRACTOR SLED	EXTRACTOR SLED	EXTRACTOR SLED	HSA	ICE RESCUE SYSTEMS	JETRESCUE
	River X Rescue -	RWCiD Pro -	RWCiD Mega -	Standard/Tow -	RTS RaipdTransit-Sled (Ice)-	Newks SLSA -
90	£905 $1100 €1045	-	-	£1940 $2400 €2250 $2600	£2300 $2800 €2660	£789 $978 €915
	8.2kg 18lb	11kg 24lb	16kg 35lb		12.7kg 28lb	12kg 26.4lb
	■	■	■		■	■
	54.5kg 120lb 130L	approx 200L	>260L	114kg 250lb 200L 160kg 350lb 300L	310L	approx 120L
n 4"	142 x 61 x 15cm 4'8" x 2' x 6"	185 x 107 x 10cm 6'1" x 3'6" x 4"	229 x 109 x 10cm 7'6" x 3'7" x 4"	173211x96107x13cm 5'8"6'11x3'26"x5"	158 x 127 x 15.4cm 5'2" x 4'2" x 6"	150 x 90 x 9cm 4'11" x 3' x 3.5"
er	Rotomoulded PE ⅜" Textured PVC PE	Coated Drop-Stitch PVC Chemical welding Grooved PVC pad PE	Coated Drop-Stitch PVC Chemical welding Grooved PVC pad PE		HD Polyethylene Foam deck pad HD Polyethylene	Heat Laminated PE Soft Deck Pad Hard skin
	6 7*	8 3	11-12 5	1113 3	6 4	10 3
	NO	■	■	□	NO	■
	□ - 1	■ HalkeyRoberts+PRV -	■ HalkeyRoberts+PRV -		- - -	■ - -
	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■
						■
al for ned r	Elbow recesses in deck. Base-Pic shows optional HDPE ice rails	DISCONTINUED inc pump with pressure gauge &, bag. Optional Reflective strips	DISCONTINUED There was also a 16ft long 'TEAM' model to carry up to 10 people	PWC Mount kit NOT included. Also a larger 'Fish'-board with 180/400lb bouyancy.	Ice Awl pouches.	
	extractorsled.com	extractorsled.com	extractorsled.com	highsurfrescue.com	icerescuesystems.com	jetrescue.com

Images NOT to Scale

COSTS: £$€ in burnt orange are currency conversions only- excludes shipping, import duty and tax

USES/ FEATURES:

● = PARTIAL FEATURE and/or OK BUT NOT IDEAL

☐☐☐= Option

INFLATION TIME: 300L= 1-2mins with manual/electric pump

VALVES PRV=Pressure Relief Valve

MANUFACTURER	LIFESLED WAHOO INTERNATIONAL	LIFESLED WAHOO INTERNATIONAL	LIFESLED WAHOO INTERNATIONAL	MARSARS	MFC INTERNATIONAL
MODEL VARIANT	LS1 -	LS2 -	LS Inflatable -	Ice Rescue Sled -	Jet-Ski Board WR0213/001
ORIGIN					
COST	£1700 $2100 €1970	£2100 $2600 €2440	£805 $995 €935	?	£2100 $2700 €250
WEIGHT	15.5kg 34lb	19kg 42lb	13.6kg 30lb	?	9kg 20lb
INFLATABLE SOLID HOLLOW	■	■	■	■	■
LOAD BUOYANCY VOLUME	approx 170L	approx 200 L	approx 160 L	240lb 350 L	150kg/330lb 300
DIMENSIONS height x width x Depth	160 x 95 x 12cm 5'3" x 3'1" x4"	188 x 104.1 x10cm 6'2"x 3'5"4"	107 x 96 x 15.25cm 5'6" x 3'2" x 6"	195 x 104.1 x18cm 6'5"x 2'3" x 7"	160 x 95 x 12.5cm 5'3" x 3'1" x 5"
MATERIALS: CORE EXTERIOR - Top EXTERIOR - Bottom	Composite - -	Composite - -	V-Drop-Stitch UV-safe Mil-Rubber -	HD Polyethylene HD Polyethylene HD Polyethylene	Glued Hypalon or Welded TPU - Double-Skin
HANDLES TETHER POINTS	10 3	12 3	12 3	8 3	10 3
RWC TOWABLE	■	■	■	NO	■
NOSE-GUARD VALVES PLUG	■ - -	■ - -	■ 1 -	- - -	- 1x Leafield -
SURF/SWIFT FLAT-WATER ICE	■ ■	■ ■	- ■	■ ■	■ ■
OTHER COLOURS	■	■	-		■
NOTES			Includes pump, transport bag & repair kit	integrated 4:1 haul system & rollers within the board to pull victims on-board. Ice Awl pouches.	Inflation Pressure=0.86B Includes Repair kit & Ca Bag
WEBSITE	lifesled.com	lifesled.com	lifesled.com	marsars.com	mfc-international.co

'SHORT' RESCUE BOARDS/SLEDS

AL	N DIVER	NRS	P2P RESCUE	P2P RESCUE	P2P RESCUE	P2P RESCUE
	Rescue Life Board V2	Rescue Board -	Rescue Sled -	Inflatable Sled -	Lg Inflatable Sled -	Responder -
00	£627 $777 €728	£400 $495 €465	£1780 $2200 €2065	£767 $950 €890	£805 $995 €935	£2660 $3295 €3090
	14kg 30.9lb	18.2kg 11lb	14.5kg 32lb	9kg 20lb	10.5kg 23lb	18.2kg 40lb
	■	■	■	■	■	■
L	200kg 441lb 280L	135L	100L	approx 160L	approx 200L	135 L
n	185 x 105 x 15cm 6'1"x 3'5" x 5.9"	145x 63.5 x 10cm 4'9' x 2'1" x 4"	167.6 x 91.5 x 10cm 5'6" x 3' x 4"	167.6 x 91.4 x 10cm 5'6" x 3'3"" x 4"	182.9 x106.7x10cm 6' x 3'6" x 4"	213.3 x 86.3 x 10cm 7' x 34" x 4"
	PVC Drop Stitch or Hypalon Non-slip EVA PVC/EVA	PVC Drop Stitch - -	EPP High Density Plastic Multi-layer skin	- Neoprene Multi-layer skin	- Neoprene Multi-layer skin	EPS/Fibreglass - -
	12 7	6 2	9 3	12 5	14 3	11 3
	■	■	■	■	■	■
	- 1x Leafield -	- Leafield 1xD7 1x PRV -	■ - -	- 1 -	- 1 -	■ - -
	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■
			■	■■□	■■	
Bar rry	Inc Hand-pump, bag & repair kit.	Includes pump and repair kit	Replaceable Nose Cone	Includes pump, transport bag & repair kit	Includes pump, transport bag & repair kit	Plastic protection nose-skid
om	ndiver.com	nrs.com	p2prescue.com	p2prescue.com	p2prescue.com	p2prescue.com

Images NOT to Scale
COSTS: £$€ in burnt orange are currency conversions only- excludes shipping, import duty and tax
USES/ FEATURES:
● = PARTIAL FEATURE and/or OK BUT NOT IDEAL
☐☐☐= Option
INFLATION TIME: 300L= 1-2mins with manual/electric pump
VALVES PRV=Pressure Relief Valve






MANUFACTURER	PPC FOILING	SEA EAGLE	SUNTECH	SUNTECH	SUNTECH
MODEL VARIANT		Rescue	5859" Rescue Sled	62" Rescue Sled	66" Rescue Sled
ORIGIN					
COST	£1010 $1290 €1220	£245 $300 €285	£735 $909 €853	£760 $939 €881	£810 $999 €940
WEIGHT	0kg 0lb	7kg 15lb	9kg 20lb	10.8kg 23.8lb	13kg 28.6lb
INFLATABLE SOLID HOLLOW	■	■	■	■	■
LOAD BUOYANCY VOLUME	approx 200L	105kg 231lb 105 L	93/124L	131L	139L
DIMENSIONS height x width x Depth	184 x 106 x 11cm 6'1" x 3'3" x 4.4"	152 x 74 x 13cm 5' x 2'5" x 5"	148 x 89 x 11cm 4'10/11"x 2'11"x 4.4"	158 x 92 x 11cm 5'1" x 3' x 4.4"	168 x 92 x11cm 5'6" x 3' x 4.4"
MATERIALS: CORE EXTERIOR - Top EXTERIOR - Bottom	Moulded Foam EVA traction top triple layer PVC	Glued 1000Denier Non-Slip EVA pad Multi-layer skin	EPS & Alu stringers non-slip. Anti-Delamination Vinyl 0.6-0.9mm vinyl	EPS & Alu stringers non-slip. Anti-Delamination Vinyl 0.6-0.9mm vinyl	EPS & Alu stringer non-slip. Anti-Delamination Vinyl 0.6-0.9mm vinyl
HANDLES TETHER POINTS	8 3	4(+6cord) 11	14 3	14 3	14 3
RWC TOWABLE	■	■	■	■	■
NOSE-GUARD VALVES PLUG	■ 1 -	- 1-	■ - 1	■ - 1	■ - 1
SURF/SWIFTFLAT-WATERICE	■ ■	■	■ ■	■ ■	■ ■
OTHER COLOURS					
NOTES	Foam core is moulded not CNC cut.	DISCONTINUED Pack size 6x14x32" 15x36x81cm Inflate <30seconds HiVis Reflective strips. Inc Pump, Bag & Repair kit	Alu stringer is an H-profile aluminium bar running thru centre line	Alu stringer is an H-profile aluminium bar running thru centre line	Alu stringer is an H-prof aluminium bar running t centre line
WEBSITE	ppcfoiling.com	rescue.seaeagle.com	suntechboard.com	suntechboard.com	suntechboard.com

'SHORT' RESCUE BOARDS/SLEDS

						
						
	SUNTECH	TIKI FACTORY	TIKI FACTORY	TIKI FACTORY	TIKI FACTORY	WRS
d	72" Rescue Sled	Rescue Rocket	Rescue Sweammer	Rescue Sled	Rescue Plan 205*	Rapid D
	-	-	-	-	-	-
)	£840 $1039 €975	£80 $100 €92	£140 $171 €160	£560 $700 €650	£1076 $1335 €1250	£860 $1120 €985
	0kg 0lb	2kg 4.4lb	3kg 6.6lb	8kg 17.6lb	7.5kg 15.5lb	13.5kg 30lb
	■	■	■	■	■	■
	162L	38L	70L	160L	150L	180L
	181 x 99 x 11cm 6'1" x 3'3" x 4.4"	98 x 43 x 10cm 3'2" x 1'5" x 4"	110 x 70 x 10cm 3'8" x 2'4" x 4"	168 x 99 x 10cm 5'6" x 3'3" x 4"	205 x 70 x 10cm 5'6" x 2'4" x 4"	160 x 95 x 12cm 6.3 x 3.7 x 4.7"
rs l	EPS & Alu stringers non-slip. Anti-Delamination Vinyl 0.6-0.9mm vinyl	Drop-Stitch PVC Tactile EVA pad PVC	Drop-Stitch PVC Tactile EVA pad PVC	Drop-Stitch PVC Tactile EVA pad Extra PVC half layer	Drop-Stitch PVC Tactile EVA pad Extra PVC half layer	Drop-Stitch PVC Non-Slip EVA pad Polymer clad
	14 3	4 0	2 10	12 3	6 0	10 3
	■	NO	NO	■	NO	■
	■ - 1	- 1 -	- 1 -	- 1 -	- 1 -	■ 2x Leafield -
	■ ■	■ ■	■ ■	■ ■	■ ■	■
file hru	Alu stringer is an H-profile aluminium bar running thru centre line	Alternative to the lifeguard can or torpedo. Inflation in <1min pack size 40x27x10cm	Inflation in 1min Optional, detachable stabilising fins (for hull) pack size 70x15x15cm	Inflation in 3mins or <1min with CO cylinder pack size 70x50x20cm	*also a 215cm version with inflatable side walls see WATER RESCUE BUYERS GUIDE Inflation in 3mins or <30sec with CO cylinder pack size 70x27x18cm	Pack size 100x55x15cm
n	suntechboard.com	rescue.tiki-factory.com	rescue.tiki-factory.com	rescue.tiki-factory.com	rescue.tiki-factory.com	wrsinternational.com

Powered, Inflatable IRBs/ RESCUE BOATS <16ft/4.9m

Inflatable Rescue Boats or IRBs can be fully deflated and rolled up for compact storage/transport so this guide does not include any rigid-hull versions and also does not include inflatable craft that need to be retro-fitted with a transom or frame in order to use a motor. Many white water rafts and catarafts including the WING IBS, Oceanids WRC and RDC, RAR's Rescue Cat etc. can all accommodate an outboard engine with modification of the basic craft making them extremely versatile craft. This GUIDE is concerned only with straight-out-of the bag inflatable rescue boats with a transom on which to mount an outboard as exemplified by the original Zodiac and Avon ERBs (Avon now owned by Zodiac).

Such craft pre-date the specialist open-ended inflatable craft we looked at in our first 'boats' GUIDE but have developed alongside the white-water style rafts. These IRBs are the kind of boats long-favoured by beach rescue and lifeguard teams, in Australia affectionately called rubber duckies, by inshore rescue teams and coastguards operating in near-coastal and inland waters and by fire-rescue departments operating on inland waterways and in floods. They are typically a U or V shape with two side sponsons terminated by a cone or dome cap and then joined across the stern by a transom which keeps the water out and provides a solid mount for an outboard engine. They are the smaller sized rescue boats, less than 4.5 metres/13-15 feet able to manoeuvre in small spaces and with a shallow draft that can drive easily onto a beach or shoreline and operate in shallow water (remembering to lift the outboard where necessary. The smaller boats are easier and faster to deploy or from a package or roll and can fit more easily into a rescue truck compartment or even the back of 4WD or pick-up.

Our cut-off for the length of craft is largely dictated by the manufacturers but whether a 4.2 is considered a good size for a rescue boat but a 4.7m is too long is arbitrary but we had to set a limit somewhere.

Matt Carlin of Australia's **Surf Life-Saving Tasmania** gives some background to the types of usage and specific differences between Rescue Boats and swiftwater rafts:

Rescue services worldwide have adapted techniques from various disciplines, continually modifying and improving methods to enhance outcomes for both rescuers and victims. Flood and swiftwater rescue techniques integrate marine, cliff, fire, and whitewater rafting and kayaking industry practices. Over the last 50 years, advancements in rescue techniques, equipment, personal protective equipment, and training have significantly reduced fatalities for both victims and rescuers. This chapter highlights the evolution of these techniques and equipment, primarily derived from the commercial whitewater rafting industry and surf rescue services, and how continuous learning and adaptation from different industries are crucial to providing the best outcomes in flood and swiftwater environments.

HISTORICAL PERSPECTIVE

Humans have been rescuing victims from floodwaters for hundreds of years, initially using simple tools and methods such as throwing something to hold onto and trying to pull the victim to safe ground. Techniques have evolved, equipment has been designed to suit specific purposes, and some form of training has been conducted within organisations or communities. Fast forward to the twentieth century, with urbanisation, vehicles, infrastructure, increased and concentrated populations, altering of natural watercourses, and intensified rainfall, all resulting in water behaving very differently and impacting larger areas and populations. With greater impact on our communities, governments have attempted to solve this problem by identifying organisations to take responsibility, funding them to provide rescue services, and educating the public on how to avoid the dangers.

Formalised rescue services bring together a broad range of

people to train and develop techniques that improve the safety of rescuers and increase the success of rescuing victims. However, "you don't know what you don't know." Looking outside your lived experiences, organisation, industry, or country will help you learn and improve on what you do.

Surf Life Saving Tasmania (Australia)

In 2016, Tasmania experienced some of the worst flooding in living memory. Whole communities and towns were flooded and cut off. Emergency services requested the assistance of Surf Life Saving Tasmania (SLST) in using surf rescue inflatable rescue boats (IRBs) to access flood victims and assist with welfare checks, evacuations, and rescue of people impacted by floodwaters. Volunteers from many surf clubs mobilised and assisted using and adapting boats and equipment throughout the rescue efforts over a couple of weeks. Upon reflection, SLST undertook a review of the rescue efforts, examining what worked, what didn't work, and what should be done next time. The first step was to look at other organisations in other states of Australia, followed by reaching out to the international life-saving community. Surf Life Saving Great Britain (SLSGB) had been involved in flood and swiftwater rescue for more than ten years, learning from international organisations and incorporating those lessons into their operations. This informed SLST on risk management, operational procedures, rescue equipment, rescue techniques, structures of rescue training, rescue teams, and effective personal protective equipment (PPE) for rescuers (2). SLST continues to work closely with SLSGB, adopting similar learnings into their operational framework and now sharing this knowledge with other states in Australia through the Centre of Excellence: Flood and Swiftwater Rescue and Surf Life Saving Australia.

PHASES OF FLOODING

Flooding occurs through four phases:

1. Preparation: Monitoring weather forecasts, utilising prediction models, and ensuring rescue workers and volunteers are prepared to respond if the rainfall event is extreme enough to result in flooding.
2. Flash Flooding: Heavy rainfall in a localised area resulting in increased speeds and volume of water in natural waterways and channels that cannot handle the volume of water (stormwater channels, roads, canals). This phase is sudden and can put lives at risk in a very short period.
3. Broadwater Flooding: The overtopping of river channels, dams, lakes, and the expansion of water into open territory, inundating towns, farmland, roads, and transport networks. This phase can last for an extended period, usually trapping people, cutting off towns and cities, and disrupting services such as power, water, sewage, and communications.
4. Recovery: The receding of floodwaters, clean-up, re-housing of affected people, reinstating services, and supporting affected communities with transport, accommodation, food, water, clothing, and other basic needs.

Flood and swiftwater rescue operates in all four phases but primarily in Phases 2 and 3. During Phase 2: Flash Flooding, rescuers help people who may be trapped by rapidly rising water. People often underestimate the forces of water when

attempting to cross a swollen waterway, resulting in trouble and an inability to get out of the water. Phase 3: Broadwater Flooding inundates communities for weeks, cutting people off from basic needs. Large numbers of volunteers (surge capacity) are needed to support those communities, conducting welfare checks, supplying food and water, or evacuating people to alternative accommodation. This usually involves the use of boats to access people as roads become impassable.

ADAPTATION AND TRAINING

Surf Life Saving has become involved in flood rescue through extensive experience in the use of IRBs. The organisation can mobilise hundreds of IRBs, drivers, and crew to assist in broadwater flooding disasters. Standard surf rescue IRBs are currently suitable for broadwater flooding environments, and with targeted training and suitable PPE, volunteers are well equipped to handle the demands of broadwater flood response.

The use of IRBs in swiftwater is an emerging area of flood rescue. Organisations worldwide use modified IRBs in swiftwater to rescue victims in various situations. Surf Life Saving Tasmania has been training with SLSGB for over six years, developing skills, training courses and materials, rescue equipment, risk management, and operational procedures around IRBs in swiftwater. More recently, SLST has been working with several organisations in Australia that use IRBs in swiftwater rescues. One of the challenges of adapting to a new rescue environment is ensuring the equipment is fit for the task. Current IRB manufacturers in Australia produce craft similar to those used in surf rescue or the military. Manufacturers often only make modifications based on feedback from users. If rescue organisations do not look beyond their organisation, state, or country, they may miss advancements in techniques, equipment, and training that could inform necessary modifications to IRBs.

SLST recently examined the commercial whitewater rafting industry and IRB manufacturers in Great Britain and the United States. A guideline in the commercial whitewater rafting industry is that there should be no ropes, lines, or equipment on a raft that could entrap a person's limbs. Perimeter lines are tight, bow and stern lines are coiled and secured to the boat with small loops, and equipment tied onto a raft has no loose straps, loops, or holes (1). Unfortunately, these lessons were learned through client and guide deaths during the 1970s and 1980s when the industry was emerging.

Standard surf rescue IRBs have loose perimeter lines, loosely coiled tow ropes inside the boat, a rescue tube strapped inside the boat with potential loops that could entrap a person, a fuel line running from the bow to the stern with only three attachment points (leaving loops on the boat floor), the motor secured to the transom with a wire safety cable (3) (which cannot be cut and released if the motor comes off the transom), and paddles that are not rated for swiftwater. While these guidelines suit the surf zone, they are unsuitable for swiftwater. Swiftwater is continuous and forceful, pushing people and boats into objects that can entrap them and quickly carry them into more danger. The nature of the water and potential hazards should dictate the design modifications to rescue equipment.

Several IRB manufacturers worldwide have addressed some of these safety issues, such as tight perimeter ropes, stern-mounted fuel cells (no long, loose fuel lines), and rated rescue rings positioned around the outside for rope-tethered rescue systems. However, rescue organisations must ensure that other equipment on these IRBs meets minimum standards, is tested in different situations, and is included in training courses to ensure rescuers know how and why something is attached a particular way and how to access it quickly. Rescue organisations need to continually ask the "what if" questions:

- What if the boat overturns?
- What if the motor is disabled?
- What if the IRB is pushed against a bridge pylon/car/rock and overturned?

The next series of questions revolves around what equipment on board can assist the crew to respond effectively (rollover rope easily accessible, strong paddles, no limb entrapment points, knives on life jackets to cut rope, motor that can be cut away if wedged in a strainer). Training of rescuers must include drills using these techniques to ensure quick responses in emergencies.

CONCLUSION

Rescue agencies worldwide are being asked by governments to respond to new rescue challenges. When an agency decides to tackle a new challenge or a different form of rescue (fire to water), it faces many new challenges and costs. Sometimes, budget constraints can lead to shortcuts in equipment, training, and professional development of rescuers. However, you are not the first—there is another organisation that has done this, made mistakes, learned, evolved, and continues to modify and train to ensure the safety of rescuers and victims. Reach out to similar organisations nationally and internationally. Research how other countries set up their operating standards, rescue team typing, PPE standards for operating in contaminated floodwaters (International Life Saving Federation standards), and training programs. Consult with people and organisations with experience in similar fields. The broader you search, the more people you consult, and the more you involve in the research stage, the greater the diversity of ideas generated.

REFERENCES

1. Worksafe New Zealand. White Water Rafting: Guidance for Commercial Rafting Operators. Published June 2020. ISBN: 978-1-98-856768-6. Worksafe NZ
2. International Life Saving Federation. Lifesaving Position Statement – LPS 23: Flood Disaster Rescuer Responder Personal Protection Equipment (PPE). 2023.
3. International Life Saving Federation. Equipment Specification Inflatable Rescue Boat (IRB). 2015.

Abbreviations:

- SLST: Surf Life Saving Tasmania
- SLSGB: Surf Life Saving Great Britain
- PPE: Personal Protective Equipment
- IRB: Inflatable Rescue Boat
- ILS: International Life Saving Federation

SPEED/PERFORMANCE TUBES
are additional lines of narrow tubing that run along the bottom of the side-sponsons and effectively carve a line through the water and limit the resistance of the wider sponsons:

IN THE FOLLOWING TABLES:

Use common data notes from the GUIDE to RAFTS on page __. These are the IRB-unique definitions.....
In the previous inflatable guides we referenced the inflation methods as hand pump, electric pump or CABA for compressed air. In IRBs this latter may be described as HPP for High Pressure Air and may be a different model to the same craft inflated by hand or electric pump Zodiac for example offer the ERB models as either a fully rigid craft, a roll-up which inflates with hand or electric pump or HPP which is permanently inflated or inflated on-scene with high pressure compressed air.

Images NOT to Scale
☐☐☐= Option
●● = Partial Feature/ OK but not ideal
COST: £$€ Approx, inc local tax/VAT
£$€=currency conversion only
N/A = info Not Available/not given
INFLATION TIME: Hand Pump/CABA
VALVES PRV=Pressure Relief Valve

	MODEL	COMPANY	ORIGIN	COST inc tax / VAT	WEIGHT	LOAD CAPACITY Kg/Sq Metre lb/Sq Foot	DIMENSIONS L x int/ext Wx H/D PACKED	CA IN
		CPI Rescue Products		£ $ €	50kg 44lb	950kg lb	0 x 0/0 x 0cm 119 x 47/91 x 22" 0 x 0 x 0cm 0 x 0 x 0"	
	430-SR-HD 430-SR-HYP	INMAR		£ $3896 $7996 €	kg 195lb	3kg 0lb	0 x 0/0 x 0cm 150 x 37/77 x 20" 0 x 0 x 0cm 55 x 33 x 24"	
	380-SR-HD 380-SR-HYP	INMAR		£ $3696 $6996 €	kg 185lb	kg 1750lb	0 x 0/0 x 0cm 150 x 37/77 x 20" 0 x 0 x 0cm 52 x 34 x 20"	
		JPW inc		£ $4444 €	32.7kg 72lb	400kg 882lb	0 x 0/0 x 0cm 120x65 x 19.5" 0 x 0 x 0cm 0 x 0 x 0"	
		MFC INTERNATIONAL		£ $ €	26kg 57.2lb	820kg lb	350x134/190x56cm 137 x52.7/75 x 22" 88 x 50 x 33cm 35 x 19.7 x 13"	1
	RC4000	MFC INTERNATIONAL		£ $ €	53kg 00lb	800kg lb	400x0/200 x84cm 0 x 0/0 x 0" 140 x 50 x 35cm 0 x0 x 0"	3
	DS400	NORTHERN DIVER		£1330 $ €	25kg 55.1lb	400kg 882lb	240 x 60/130 x 35cm 94.5 x23.6/55 x 14" 92 x 67 x 25cm 36.2 x 26.4 x 9.8"	1
	DS420	NORTHERN DIVER		£1480	62kg 136.7lb	700kg 1543lb	380 x 80/170 x 45cm 0 x 0/0 x 0" 120 x 60 x 40cm 0 x 0 x 0"	
	DS520	NORTHERN DIVER		£1530	62kg 136.7lb	700kg 1543lb	380 x 80/170 x 45cm 0 x 0/0 x 0" 120 x 60 x 40cm 0 x 0 x 0"	

POWERED INFLATABLE RESCUE BOATS

AIR CAPACITY INFLATION TIME	MAX WORKING PRESSURE MAX ENGINE HP	INFLATION OPTIONS & TIMES HAND ELECTRIC HP/CABA	MATERIALS TRANSOM	INFLATION					LOADING			EXTRAS				VIZ		NOTES	WWW.
				INFLATION	REGULATOR / HOSE	MANUAL/POWERPUMP	SAFETY PRV / DUMP	INFLATABLE/ HARD DECK	HANDLES	FLIP TAB / GRAB CORD	TOW/HD/LT DUTY EYES	POUCHES / BOW BAG		CARRY BAG/ PADDLES	REPAIR KIT/ WARRANTY	REFLECTIVE/ CUSTOM	COLOUR OPTIONS		
? L cuft ?mins	? BAR ? Psi		32oz PVC 40oz Evaloy- drop-thread deck	0 -	☐ ☐	☐ ■	■ -	- 10		14 - 6				■ ■	1 ☐	☐ ☐	■		cpiwaterresqproducts.com
? L cuft ?mins	? BAR ? Psi		1.2mm Mehler, Orca Hypalon Welded seams Fiberglass	0 5	☐ ☐	☐ ■	■ -	■ -	■ ■	11 4	☐ -	■ ■	☐ ☐	☐ ■	1* ■	☐ ☐	■	Shown with fold-up Aluminium Floor/deck	inmarboats.com
? L cuft ?mins	? BAR ? Psi		1.2mm Mehler, Orca Hypalon Welded seams Fiberglass	0 5	4 5	☐ ■	■ -	6 -	■ ■	11 4		■ ■	☐ ☐	☐ ■	1* ■	☐ ☐	■	Shown with inflatable floor/deck	inmarboats.com
? L cuft ?mins	? BAR ? Psi		32/42oz PVC coated Polyester drop-thread deck	? ?	? ?	☐ ■	■ -	- 2		4 - -				- -	10 ■	- -	■ ■ ■		jpwinc.com
1815 L cuft 3mins	0.2 & 0.4 BAR 3.25 & 6 Psi		Hypalon TPU drop-thread deck	? ?	? ?	☐ ☐	■ -	7 -		- - 3				2 ■	2 ■	☐ ■	■ ■		mfc-international.com
3000 L 0cuft 0mins	0.2 & 0.4 BAR 3.25 & 6 Psi		Hypalon TPU drop-thread deck	? ?	? ?	☐ ☐	■ -	4 -		- - 3				2 ■	2 ■	☐ ■	■ ■		mfc-international.com
? L ?cuft - 3mins*	0.35 & 0.7 BAR 5 &10 Psi		1.2mmPVC 8cm drop-stitch DWF/PVC Floor	? ?	? ?	☐ ■	■ ■	- 6		- - -				2 ■	2 ■	☐ ☐	■ ■ ■ ■ ■	add £20 for Alu Deck	ndiver-rescue.com
? L ?cuft 1- 3 & 4mins*	0.35 BAR 5 Psi		1.2mm PVC 8cm drop-stitch DWF/PVC Floor	? ?	? ?	☐ ■	■ -	8 -		- - 12				■ ■	2 ■	☐ ☐	■		ndiver-rescue.com
? L ?cuft 1- 3 & 4mins*	0.35 BAR 5 Psi		1.2mm PVC 8cm drop-stitch DWF/PVC Floor	? ?	? ?	☐ ■	■ -	8 -		- - 12				■ ■	2 ■	☐ ☐	■		ndiver-rescue.com

Images NOT to Scale
□□□= Option
●● = Partial Feature/ OK but not ideal
COST: £$€ Approx, inc local tax/VAT
£$€=currency conversion only
N/A = info Not Available/not given
INFLATION TIME: Hand Pump/CABA
VALVES PRV=Pressure Relief Valve

MODEL	COMPANY	ORIGIN	COST inc tax / VAT	DRY WEIGHT	LOAD PERSON CAPACITY Kg/Sq M lb/Sq Ft	DIMENSIONS L x int/ext W x H/D PACKED	CA IN
DS400	NORTHERN DIVER		£1850	62kg 136.7lb	700kg 1543lb	380 x 80/170 x 45cm 0 x 0/0 x 0" 120 x 60 x 40cm 0 x 0 x 0"	
DS420	NORTHERN DIVER		£1960	62kg 136.7lb	700kg 1543lb	380 x 80/170 x 45cm 0 x 0/0 x 0" 120 x 60 x 40cm 0 x 0 x 0"	
DS460	NORTHERN DIVER		£1260	62kg 136.7lb	700kg 1543lb	380 x 80/170 x 45cm 0 x 0/0 x 0" 120 x 60 x 40cm 0 x 0 x 0"	

POWERED INFLATABLE RESCUE BOATS

AIR APACITY FLATION TIME	MAX WORKING PRESSURE MAX ENGINE HP	INFLATION OPTIONS & TIMES HAND ELECTRIC HP/CABA	HULL FORM MATERIALS TRANSOM	INFLATION: INFLATION	INFLATION: REGULATOR / HOSE	INFLATION: MANUAL/POWERPUMP	INFLATION: SAFETY PRV / DUMP	INFLATION: INFLATABLE/ HARD DECK	LOADING: HANDLES	LOADING: FLIP TAB / GRAB CORD	LOADING: TOW/HD/LT DUTY EYES	EXTRAS: POUCHES / BOW BAG	EXTRAS:	EXTRAS: CARRY BAG/ PADDLES	EXTRAS: REPAIR KIT/ WARRANTY	VIZ: REFLECTIVE/ CUSTOM	VIZ: COLOUR OPTIONS	NOTES	WWW.
? L ?cuft 1- 3 & 4mins*	0.35 BAR 5 Psi	■ ■ ■	1.2mm PVC 8cm drop-stitch DWF/PVC Floor	? ?	? ?	□ ■	■ ■		8 -		- - 12			■ ■	2 ■	□ □	■	add £15 for Alu Deck	ndiver-rescue.com
? L ?cuft 1- 3 & 4mins*	0.35 BAR 5 Psi	■ ■ ■	1.2mm PVC 8cm drop-stitch DWF/PVC Floor	? ?	? ?	□ ■	■ -		8 -		- - 12			■ ■	2 ■	□ □	■		ndiver-rescue.com
? L ?cuft 1- 3 & 4mins*	0.35 BAR 5 Psi	■ ■ ■	1.2mm PVC 8cm drop-stitch DWF/PVC Floor	0 5	■ □	□ ■	■ -		8 -		- - 12			■ ■	2 ■	□ □	■		ndiver-rescue.com
		HAND																	

TRAIN IN SAFETY AT THE NEWEST FACILITY IN THE USA

In an increasingly flood-prone world, swift water rescue training is critically important for first responders. specialized training can often be difficult and dangerous to arrange in natural outdoor settings.

In spring 2023,Fayetteville Technical Community College (FTCC), already known for its educational and training services to Fort Bragg, will open the only indoor swift water rescue training facility on the east coast of the United States.

An 88,000-gallon indoor tank allows for a variety of training scenarios, including different weather, water temperatures, obstacles, and rescue challenges, including simulated rescues at night. Located on FTCC's 30-acre state-of-the-art Fire & Rescue Training Complex on Tom Starling Road in Fayetteville, North Carolina.

Learn more https://www.faytechcc.edu/swrtf

Images NOT to Scale
□□□= Option
●● = Partial Feature/ OK but not ideal
COST: £$€ Approx, inc local tax/VAT
£$€=currency conversion only
N/A = info Not Available/not given
INFLATION TIME: Hand Pump/CABA
VALVES PRV=Pressure Relief Valve

	MODEL	COMPANY	ORIGIN	COST inc tax / VAT	DRY WEIGHT	LOAD PERSON CAPACITY Kg/Sq M lb/Sq Ft	DIMENSIONS L x int/ext Wx H/D PACKED	CA INF
		SAFEQUIP		£3600 $5040 €4320	42kg 92.4lb	1000kg 2200lb	320 x144/220 x 38cm 126 x 57/87 x 15" 100 x 70 x45cm 39 x 27.6 x 18"	5
	ResQCraft3800 SIT38040	SIT Ltd		£ $ €6074	23.8kg 52.4lb	650kg 1430lb	300 x 70/120x35cm 118 x27.6/47 x 14" 90 x 30 x 30cm 35.4 x 12 x 12"	3
	ResQCraft4000 SIT38006	SIT Ltd		£ $ €	42kg 92.4lb	1000kg 2200lb	320 x 120/220 x 38cm 126 x 47/87 x 15" 80 x 60 x40cm 31.5 x 23.6 x 15.75"	5
		SURVITEC/ DSB gmbH IC BRINDLE		£3994	00kg 00lb		00 x 00/000 x 00cm 00 x00/x00" 00 x 00 x 00cm 00 x 00 x00"	
	P4.2 RESCUE	WING INFLATABLES		$	77.3kg 170lb	952kg 00lb	420x81/173x45.7cm x/x" 63.5 x 74 x 122cm xx"	
	ZMSR 380 (Surf Rescue)	ZODIAC		£ $ €	81kg 00lb	6 617kg 00lb	381 x 00/168 x 00cm 00 x00/x00" 120 x 60 x 40cm 00 x 00 x00"	
	ERB310 Roll-Up HPP Rigid	ZODIAC MILPRO		£ $ €	74kg 00lb	7 700kg 00lb	393x??/168x45.7cm x/x" 140 x 30 x 72cm xx"	
	ERB380 Roll-Up HPP Rigid	ZODIAC			00kg 00lb		00 x 00/000 x 00cm 00 x00/x00" 00 x 00 x 00cm 00 x 00 x00"	
	ERB400 Roll-Up HPP Rigid	ZODIAC			00kg 00lb		00 x 00/000 x 00cm 00 x00/x00" 00 x 00 x 00cm 00 x 00 x00"	

POWERED INFLATABLE RESCUE BOATS

AIR CAPACITY INFLATION TIME	MAX WORKING PRESSURE MAX ENGINE HP	INFLATION OPTIONS & TIMES HAND ELECTRIC HP/CABA	HULL FORM MATERIALS TRANSOM	INFLATION					LOADING			ACC				VIZ		NOTES	WWW.
				CHAMBERS /SEATS	REGULATOR / HOSE	MANUAL/POWERPUMP	SAFETY PRV / DUMP	INFLATABLE/ HARD DECK	HANDLES	FLIP TAB / GRAB CORD	TOW/HD/LIGHT EYES	POUCHES / BOW BAG		CARRY BAG/ PADDLES	REPAIR KIT/ WARRANTY	REFLECTIVE/ CUSTOM	COLOUR OPTIONS		
1550 L 4.7cuft <2mins	0.2 & 0.4BAR 3 & 6 psi 0HP	■ ■ ■	'Orca' Hypalon 6" drop-thread deck	5	□ □	□ □	- ■		8 2	■ ■	2 - 8*	■ -		■ ■	5 ■	□ ■	■ ■ ■ ■	Leafield valves. 6" Deck. * D-Ring under deck can provide flip tab	safequip.co.uk
860 L 0.4cuft <1min	0.2 & 0.4BAR 3 & 6 psi 0HP	■ ■ ■	'Orca' Hypalon Neoprene-coated 6" drop-thread deck	3	□ □	□ □	- ■		7 4	■	4 - 5	■ -		■ ■	2 ■	□ ■	■ ■ ■ ■	Leafield valves	sitltd.co.uk
1550 L 4.7cuft >2mins	0.2 & 0.4BAR 3 & 6 psi 0HP	■ ■ ■	'Orca' Hypalon 6" drop-thread deck	5	□ □	□ □	- ■		8 2	■ ■	2 - 8*	■ -		■ ■	2 ■	□ ■	■ ■ ■ ■	Leafield valves. * D-Ring under deck can provide flip tab. Inboard stowage loops	sitltd.co.uk
0 L 00cuft 00>min	00BAR 00psi 30HP	■ ■ ■																markus.bolay@sur- vitecgroup.com	icbrindle.com
0 L 00cuft 00>min	00BAR 00psi 30HP	■ ■ ■	Polyurethane. drop-thread deck. Composite	3	□ ■	□ ■	- ■		4 -	■ -	- - 3	■ ■		□ ■	- ■	□ ■	■ ■	also available with composite hard deck	inflatablesolu- tions.com
0 L 00cuft 00>min	00BAR 00psi 30HP	■ ■ ■	V Polyurethane. drop-thread deck. Composite																
0 L 00cuft 00>min	00BAR 00psi 30HP	■ ■ ■																	
0 L 00cuft 00>min	00BAR 00psi 30HP	■ ■ ■																	
0 L 00cuft 00>min	00BAR 00psi 30HP	■ ■ ■																	

DRY BAGS

Unlike the gear bags in our Arborist and Rope Equipment BUYERS GUIDES which contain many waterproof bags, these bags go one step further and are water tight. That means that you could theoretically, use them as a water container and indeed we often do with the smaller bags anyway. Dry bags will keep the contents entirely dry even if the bag were somehow submerged. Not an easy proposition given the degree of buoyancy so unless it was being jettisoned from a submarine hatch, we'll go with inundation, it will keep your gear dry even in the event of prolonged inundation.

To achieve this, the seams are welded or glued and welded instead of sewn although they could be sewn if they were then patch welded over the entire seam. The main players in this category of bags tend not to be the same as the main players in rope and tackle bags because the market is more specialised along with the manufacturing processes.

Some have taken a leaf out of drysuit technology and use high grade waterproof zips while the majority use rolled lids that are then buckled together to complete the seal

, see the ROPE EQPT BUYERSGUIDE. There will also be separate guides for **THROWLINE BAGS/BOXES** in this BUYERSGUIDE but check out Palmu's squarerope bag which looks like a throwline cube but is a full strngth rope bag. **TRAUMA PACKS** are in the MEDEVAC/PPE BUYERSGUIDE and watertight **WATER RESCUE BAGS** ARE in the WATERRESCUEBUYERSGUIDE. This introduction and the KEY to the tables covers *all* organiser bags. A separate KEY to Duffles and basic rope/gear bags with fewer data rows is on pages 368 & 372.

-

IN THE FOLLOWING TABLES:.....

A large, modern transport pack is quite sophisticated with a whole load of different features that are not always apparent from simply looking at it.

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

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

STYLE/FUNCTION: The bags in this guide can be defined as one or two of the following

- ***BUCKET/ROPE BAG*** - an upright, top-feeder that holds its shape to allow rope to be fed in or out.
- **BACKPACK**: two shoulder straps and maybe a waist belt but either way- carried on the back giving both hands free to carry even more stuff. Often a combo with a rope bucket.
- **DUFFLE/DUFFEL**: a horizontally carried bag with handles on the top. May also has hidden rucksack straps in the base to convert to vertical orientation.
- **TRANSPORTER**: a multi-compartmented pack - usually a rucksack style - that will either present the equipment in a cabinet style or will open out entirely on the ground to show everything in pockets/pouches or attached.

VOLUME: in Litres/liters /US Gallons (20% less than UK Gallon)
Market Origin: Bags are either specifically designed for arborists (Pro Arb), or for the Rope Access and/ore rescue markets - both requiring tough equipment. Sport can be equally tough if its caving and canyoning but tends not to be used all day every day.

NOMINAL/INTENDED ROPE CAPACITY: As provided by the manufacturer but varies with the diameter. In organiser packs, rope storage may only be part of the overall volume whereas it may be all of the internal volume in a dedicated rope bag/duffle.
46m/150ftx 12.7mm/½"=76m/250'x11mm7/16"= 91m/300'x9mm/⅜"

WEIGHT: empty with no optional extras included

MAX DIMENSIONS: Height and the width and maybe depth front-to-back. These figures are for the body of the bag and do not include extraneous handles or external pouches that are stuffed to bursting. Most bags will end up much wider!
2xBACK STRAPS=rucksack style carrying straps
1xSHOULDER=a single strap for slinging over your shoulder
WAIST BELT=rucksack style waist belt to keep the pack tight to your body when walking any distance
[PADDED]=in brackets[] indicates straps padded for comfort.

BACK/LUMBAR PADDING=padding on the pack itself rather than straps, again for improved comfort carrying a heavy load.

Lumbar is lower back, behind the waist belt if there is one.

DETACH/STOW CARRY STRAPS: refers to rucksack style straps that can either be ditched entirely or can be stuffed into an integral pocket so that no straps are exposed to snagging.

REINFORCED SIDES (Free-standing)=the pack has stiffened panels or bars that keep the bag upright during rope feed.

CARRY HANDLES WLL **ENDS SIDE** dedicated carrying handles with ergonomic adjuncts to make carrying a heavy weight more comfortable. Mounted on the top or for duffle-style side-carry. Can also be used to clip on kit. WLL=the max weight you can carry via these handles or an additional haul eye.....

ADDITIONAL HAUL WLL **SEWN EYES RINGS** Top handles can be used for hauling but there is often a sewn loop between the top of shoulder straps or there may be metal eyes around the top.

GEAR (individual) EYES EXTERNAL INTERNAL These can be daisy chain eyes, Molle eyes or individual plastic eyelets but all are intended to clip one carabiner and/or clippable hardware

GEAR LOOPS [STRAPS] EXTERNAL INTERNAL harness-style larger semi-circles of cord or plastic that allow multiple items to be clipped into the same loop. All handles could be used as a gear loop! **[STRAPS]** [in brackets] is securing web with buckles

TOTAL POCKETS EXTERNAL INTERNAL The total number of closable pockets and open pouches outside and inside the bag. This does not include saw pockets/pouches listed separately.
of which.. MESH/CLEAR EXTERNAL INTERNAL of the total number of pockets those which are clear plastic or open mesh allowing free drainage but more importantly visibility of the contents. Mesh makes the bag lighter than a full, heavy duty enclosure.

CLOSURES Velcro POP Zipped Draw-Cord Buckle Referring ONLY to the outside pockets - a colour square indicates the type of closure and the number is the pockets that have that specific closure.

LID ZIPPED BUCKLE ROLL-TOP Referring ONLY to the top lid and compartment doors if it is an organiser type pack.

LOCKABLE: the main compartment(s) can be locked with a small padlock (not usually supplied). Usually needs a chunky YKK style zip large enough to clip in a padlock clasp but may be a tougher, bespoke element like the *FTC-Tree Koompassia*.
ID PANEL: a small-see-through rectangle for a luggage style label or large enough for an inventory or risk assessment sheet.
END/SIDE STRAPS: in addition to the carry straps these are adjustable webbing straps on the sides that can either act to compress the bag to a smaller size if it's not fully filled or you can secure items behind them. Side straps are often set above open pouches that can house a saw, pole or spikes or end straps can be used to secure a hank of rope or a tarpaulin etc.
REFLECTIVE TRIM: not seen as much on arb packs as they are on rescue packs- light reflective to provide high visibility.

TARPAULIN: a separate or integral ground sheet. ☐=if an option
RAINCOVER: a separate cap or complete cover. ☐=if an option

MATERIALS: just the main body panel materials
OTHER COLOURS: colours available *OTHER* than the colour shown in the product image at the top of the column.

Images NOT to Scale
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Backstraps &/or Waist Belts in square brackets [ ]= padded
HAUL EYES = can carry the entire weight of the bag & contents eg. for hauling or attaching to harness. May double as handles shown as 1/1
POP= Popper or press stud
BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle
=Partial feature or OK but not ideal
= Option

	MANUFACTURER	FTC TREE	FTC TREE			
	MODEL litres/liters VARIANT					
	ORIGIN					
	COST (inc Tax/VAT) Currency conversion only					
SPECIFICATIONS	VOLUME L/US Gallon intended market					
SPECIFICATIONS	LOAD CAPACITY					
SPECIFICATIONS	WEIGHT empty					
SPECIFICATIONS	DIMENSIONS					
FEATURES	BACK STRAPS HANDLES WAIST BELT					
FEATURES	POCKETS Ext/Int EYES/LOOP Ext/Int EXT MESH					
FEATURES	ID-PANEL DRAIN/VENT HAUL EYE(S)					
FEATURES	LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP					
	OUTER MATERIALS REFLECTIVE TRIM					
	OTHER COLOURS					
	NOTES					
	WEBSITE					

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= Option

	MANUFACTURER	KONG	KONG	KONG	KONG	
	MODEL litres/liters VARIANT	RopeBag 28 -	Genius II 30 -	Linnhà 40 982522000KK	RopeBag 43 -	
	ORIGIN					
	COST (inc Tax/VAT) Currency conversion only	£0 $0 €0	£0 $0 €0	£0 $0 €0	£0 $0 €0	
SPECIFICATIONS	VOLUME L/US Gallon intended market	28L/7.4gal Pro	30L/7.9gal Pro	40L/10.6gal Canyoning	43L/11.4gal Pro Access	50
SPECIFICATIONS	LOAD CAPACITY	0m 0'	0m 0'	0m 0'	0m 0'	
SPECIFICATIONS	WEIGHT empty	0kg 0lb	0.85kg 0lb	0kg 0lb	0kg 0lb	
SPECIFICATIONS	DIMENSIONS	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	
FEATURES	BACK STRAPS HANDLES WAIST BELT	---	---	---	---	
FEATURES	POCKETS Ext/Int EYES/LOOP Ext/Int EXT MESH	--- --- -	--- --- -	--- --- -	--- --- -	
FEATURES	ID-PANEL DRAIN/VENT HAUL EYE(S)	----	----	----	----	
FEATURES	LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP	------	------	------	------	
	OUTER MATERIALS REFLECTIVE TRIM	--	PVC	--	--	
	OTHER COLOURS					
	NOTES	-	-	-	-	
	WEBSITE	Kong.it	kong.it	Kong.it	Kong.it	

ROPE/GEAR BAGS

					
			HUSQVARNA	KONG	
			Xplorer Backpack 596 93 63-11	RopeTube 17 982525000KK	
				£0 $0 €0	
				17L/4.5gal Pro	
			0m 0'	0m 0'	
			0kg 0lb	155g 0oz	
			0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	
			---	---	
			--- ---	--- ---	
			----	----	
			------	------	
			--	--	
			-	-	
			husqvarna.com	Kong.it	

					
KONG	KONG				
WorkBag 50 982528N00KK	OmniBag 60 -				
£0 $0 €0	£0 $0 €0				
0L/13.2galPro Access	60L/15.8gal Pro Access				
0m 0'	0m 0'				
0kg 0lb	0kg 0lb				
0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"				
---	---				
--- ---	--- ---				
----	----				
------	------				
PVC	--				
Being phased out	-				
Kong.it	Kong.it				

Images NOT to Scale
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POP= Popper or press stud
BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle
=Partial feature or OK but not ideal
= Option

	MANUFACTURER		ORTLEIB	ORTLIEB	ORTLIEB
	MODEL litres/liters **VARIANT**				
	ORIGIN				
	COST (inc Tax/VAT) Currency conversion only				
SPECIFICATIONS	**VOLUME** L/US Gallon intended market				
SPECIFICATIONS	**LOAD CAPACITY**				
SPECIFICATIONS	**WEIGHT** empty				
SPECIFICATIONS	**DIMENSIONS**				
FEATURES	**BACK STRAPS** HANDLES WAIST BELT				
FEATURES	**POCKETS** Ext/Int EYES/LOOP Ext/Int EXT MESH				
FEATURES	ID-PANEL DRAIN/VENT HAUL EYE(S)				
FEATURES	**LID** VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP				
	OUTER MATERIALS REFLECTIVE TRIM				
	OTHER COLOURS				
	NOTES				
	WEBSITE				

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POP= Popper or press stud
BUCKLE ROLL TOP= all roll tops are closed with a push-fit/Fastex buckle
=Partial feature or OK but not ideal
= Option

	MANUFACTURER	ORTLEIB	ORTLIEB	ORTLIEB	PETZL
	MODEL litres/liters **VARIANT**				Bucket 15
	ORIGIN				
	COST (inc Tax/VAT) Currency conversion only				£41 $50 €42
SPECIFICATIONS	**VOLUME** L/US Gallon intended market				15L/4gal Pro Access
SPECIFICATIONS	**LOAD CAPACITY**				50kg 45m x11mm 88'x½"
SPECIFICATIONS	**WEIGHT** empty				465g 1lb
SPECIFICATIONS	**DIMENSIONS**				30 x 25cm 11.8 x 9.8"
FEATURES	**BACK STRAPS** HANDLES WAIST BELT				-2 1
FEATURES	**POCKETS** Ext/Int EYES/LOOP Ext/Int EXT MESH				1 1 - 2 -
FEATURES	ID-PANEL DRAIN/VENT HAUL EYE(S)				-
FEATURES	**LID** VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP				
	OUTER MATERIALS REFLECTIVE TRIM				TPU (PVC-free)
	OTHER COLOURS				
	NOTES				*two loops intended for tieo=ing in the rope ends.
	WEBSITE				

ORTLEIB	ORTLIEB	ORTLIEB	ORTLEIB	ORTLIEB	ORTLIEB
					
PETZL	PETZL				
Bucket 30	Bucket 45				
£58 $70 €60	£76 $90 €78				
0L/7.9gal Pro Access	45L/11.8gal Pro Access				
kg 110m x11mm 225'x½"	50kg 180m x11mm 369'x½"				
735g 1.6lb	890g 2lb				
40 x 30cm 15.8 x 11.8"	45 x 35cm 17.7 x 13.8"				
221	221				
11 - 6 -	11 - 6 -				
-	-				
TPU (PVC-free)	TPU (PVC-free)				
*two loops intended for eo=ing in the rope ends.	*two loops intended for tieo=ing in the rope ends.				
petzl.com	petzl.com				

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= Option




	MANUFACTURER	SEALINE	SEALINE	SEALINE	SEALINE
	MODEL litres/liters VARIANT	Discovery View 5	Discovery View 10	Discovery View 20	Discovery View 30
	ORIGIN				
	COST (inc Tax/VAT) Currency conversion only	£0 $0 €0	£0 $0 €0	£0 $0 €0	£0 $0 €0
SPECIFICATIONS	VOLUME L/US Gallon intended market	0L/0gal Pro & Exped	0L/0gal Pro & Exped	0L/0gal Pro & Exped	0L/0gal Pro & Exped
SPECIFICATIONS	LOAD CAPACITY	0m 0'	0m 0'	0m 0'	0m 0'
SPECIFICATIONS	WEIGHT empty	0kg 0lb	0kg 0lb	0kg 0lb	0kg 0lb
SPECIFICATIONS	DIMENSIONS	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"
FEATURES	BACK STRAPS HANDLES WAIST BELT	- - -	- - -	- - -	- - -
FEATURES	POCKETS Ext/Int EYES/LOOP Ext/Int EXT MESH	- - - - -	- - - - -	- - - - -	- - - - -
FEATURES	ID-PANEL DRAIN/VENT HAUL EYE(S)	- - -	- - -	- - -	- - -
FEATURES	LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP	- - - - - -	- - - - - -	- - - - - -	- - - - - -
	OUTER MATERIALS REFLECTIVE TRIM	- -	- -	- -	- -
	OTHER COLOURS				
	NOTES	-	-	-	-
	WEBSITE	sealinegear.com	sealinegear.com	sealinegear.com	sealinegear.com

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= Option


	MANUFACTURER	SEALINE	SEALINE	SEALINE	SEALINE
	MODEL litres/liters VARIANT	Skylake 18	Pro Dry Pack 40	Pro Dry Pack 40	Black Canyon 65
	ORIGIN				
	COST (inc Tax/VAT) Currency conversion only	£0 $0 €0	£0 $0 €0	£0 $0 €0	£0 $0 €0
SPECIFICATIONS	VOLUME L/US Gallon intended market	0L/0gal Pro & Exped	0L/0gal Pro & Exped	0L/0gal Pro & Exped	0L/0gal Pro & Exped
SPECIFICATIONS	LOAD CAPACITY	0m 0'	0m 0'	0m 0'	0m 0'
SPECIFICATIONS	WEIGHT empty	0kg 0lb	0kg 0lb	0kg 0lb	0kg 0lb
SPECIFICATIONS	DIMENSIONS	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"
FEATURES	BACK STRAPS HANDLES WAIST BELT	- - -	- - -	- - -	- - -
FEATURES	POCKETS Ext/Int EYES/LOOP Ext/Int EXT MESH	- - - - -	- - - - -	- - - - -	- - - - -
FEATURES	ID-PANEL DRAIN/VENT HAUL EYE(S)	- - -	- - -	- - -	- - -
FEATURES	LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP	- - - - - -	- - - - - -	- - - - - -	- - - - - -
	OUTER MATERIALS REFLECTIVE TRIM	- -	- -	- -	- -
	OTHER COLOURS				
	NOTES	-	-	-	-
	WEBSITE	sealinegear.com	sealinegear.com	sealinegear.com	sealinegear.com




SEALINE	SEALINE	SEALINE	SEALINE		
ocker Compression 5	Blocker Compression10	BlockerCompression 20	Blocker Compression30		
£0 $0 €0	£0 $0 €0	£0 $0 €0	£0 $0 €0		
0L/0gal Pro & Exped	30L/0gal Pro & Exped	40L/0gal Pro & Exped	70L/0gal Pro & Exped		
0m 0'	0m 0'	0m 0'	0m 0'		
0kg 0lb	0kg 0lb	0kg 0lb	0kg 0lb		
0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"		
---	---	-61	-61		
-- -- -	-- -- -	-- 10- -	-- 10- -		
---	---	---	---		
------	------	------	------		
--	--	--	--		
-	-	-	-		
sealinegear.com	sealinegear.com	sealinegear.com	sealinegear.com		





SEALINE	SEALINE	SEALINE	SEALINE	SEALINE	
lack Canyon 115	Bigfork Daypack 30	Pro Zip Duffel 40	Pro Zip Duffel 70	Pro Zip Duffel 100	
£0 $0 €0	£0 $0 €0	£0 $0 €0	£0 $0 €0	£0 $0 €0	
0L/0gal Pro & Exped	30L/0gal Pro & Exped	40L/0gal Pro & Exped	70L/0gal Pro & Exped	100L/0gal Pro & Exped	
0m 0'	0m 0'	0m 0'	0m 0'	0m 0'	
0kg 0lb	0kg 0lb	0kg 0lb	0kg 0lb	0kg 0lb	
0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	
---	---	-61	-61	-61	
-- -- -	-- -- -	-- 10- -	-- 10- -	-- 10- -	
---	---	---	---	---	
------	------	------	------	------	
--	--	--	--	--	
-	-	-	-	-	
sealinegear.com	sealinegear.com	sealinegear.com	sealinegear.com	sealinegear.com	

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= Option

	MANUFACTURER	SINGING ROCK	SINGING ROCK	SINGING ROCK	SINGING ROCK
	MODEL litres/liters VARIANT	Drybag 40 -	Drybag 40 -	Dry Duffle 40 C0046BB70	Dry Duffle 60 C0046BB90
	ORIGIN				
	COST (inc Tax/VAT) Currency conversion only	£0 $0 €0	£0 $0 €0	£0 $0 €0	£0 $0 €0
SPECIFICATIONS	VOLUME L/US Gallon intended market	40L/10gal Pro Access	40L/10gal Pro Access	40L/10.6gal Pro Access	60L/15.8gal Pro Access
SPECIFICATIONS	LOAD CAPACITY	0m 0'	0m 0'	0kg 0lb	0kg 0lb
SPECIFICATIONS	WEIGHT empty	0kg 0lb	0kg 0lb	0kg 0lb	0kg 0lb
SPECIFICATIONS	DIMENSIONS	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"
FEATURES	BACK STRAPS HANDLES WAIST BELT	- - -	- - -	- - -	- - 6
FEATURES	POCKETS Ext/Int EYES/LOOP Ext/Int EXT MESH	- - - - -	- - - - -	- - - - -	- - - - -
FEATURES	ID-PANEL DRAIN/VENT HAUL EYE(S)	- - -	- - -	- - - -	- - - -
FEATURES	LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP	- - - - - -	- - - - - -	- - - - - -	- - - - - -
	OUTER MATERIALS REFLECTIVE TRIM	- -	- -	- -	- -
	OTHER COLOURS				
	NOTES	-	-	-	-
	WEBSITE	singingrock.com	singingrock.com	singingrock.com	singingrock.com

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	MANUFACTURER	TYPHOON	TYPHOON	TYPHOON	TYPHOON
	MODEL litres/liters VARIANT	Osea Backpack 20 C0046BB90	Osea Backpack 40 C0046BB90	Osea Duffel 40 360340	Osea Duffel 60 360360
	ORIGIN				
	COST (inc Tax/VAT) Currency conversion only				
SPECIFICATIONS	VOLUME L/US Gallon intended market				
SPECIFICATIONS	LOAD CAPACITY				
SPECIFICATIONS	WEIGHT empty				
SPECIFICATIONS	DIMENSIONS				
FEATURES	BACK STRAPS HANDLES WAIST BELT				
FEATURES	POCKETS Ext/Int EYES/LOOP Ext/Int EXT MESH				
FEATURES	ID-PANEL DRAIN/VENT HAUL EYE(S)				
FEATURES	LID VELCRO POP ZIPPED DRAW-CORD BUCKLE ROLL-TOP				
	OUTER MATERIALS REFLECTIVE TRIM	250D Tarp	250D Tarp	500D Tarp	500D Tarp
	OTHER COLOURS				
	NOTES				
	WEBSITE	typhoon-int.co.uk	typhoon-int.co.uk	typhoon-int.co.uk	typhoon-int.co.uk

					
TYPHOON	TYPHOON	TYPHOON	TYPHOON	TYPHOON	TYPHOON
Mersea 8	Mersea 12	Mersea 15	Osea Backpack 20	Osea Cool Bag 12	Seaton 20
C0046BB90	C0046BB90	C0046BB90	C0046BB90	C0046BB90	C0046BB90
500D tarp	500D tarp	500D tarp	250D Tarp	500D tarp	250D tarp
typhoon-int.co.uk	typhoon-int.co.uk	typhoon-int.co.uk	typhoon-int.co.uk	typhoon-int.co.uk	typhoon-int.co.uk
	ZULUPACK	ZULUPACK	ZULUPACK	ZULUPACK	ZULUPACK
	zulupack.com	zulupack.com	zulupack.com	zulupack.com	zulupack.com

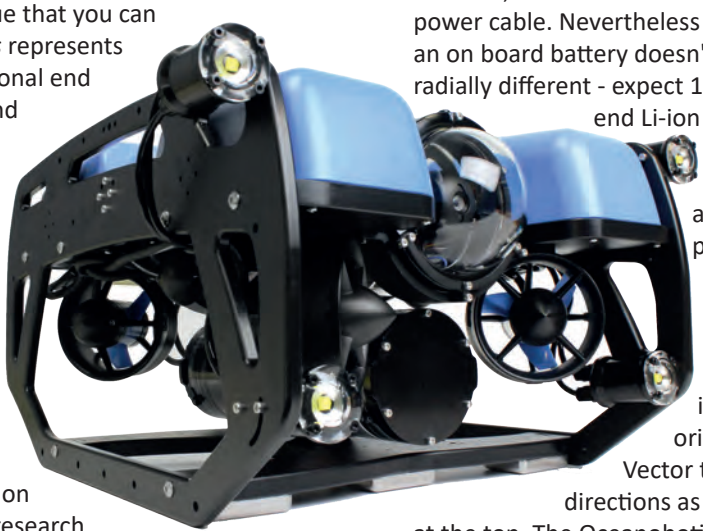
HAND-PORTABLE SUB-SEA ROVS

VideoRay's Pro3 (now in it's Pro4 & 5 versions) in use with St. Louis County Sheriff's Rescue Squad in Minnesota's sector of the Great Lakes

We should first define the acronym that we're using here - ROV or Remote Operated Vehicle - further defined by the term SubSea because an ROV could just as easily be your kids toy car. There are other terms - UUV is Underwater Unmanned Vehicle and AUV is an Autonomous Underwater Vehicle which is not directly controlled by an operator but rather preprogrammed to carry out a specific task via a specified route and mode - these don't use a tether and are not usually utilised by rescue teams. As far as ROVs are concerned, there is a fine line between a mini or hand-portable underwater Remote Operated Vehicle that rescue agencies would or could use and the smaller end of the scientific and oilfield ROVs defined as Work-Class ROVS that look like a block of flats with arms. The difference of course is the ability for your average search team to be able to carry and deploy it and their ability to buy it in the first place. All of the models in this guide cost less than a fire truck - some of them cost less than a set of tyres for your Off Road vehicle but those big boxy exploration and maintenance ROVs are 5 and 6 figure sums or they weigh the same as a small elephant at their smallest! Take this Oceaneering OmniMaxx on the right - it looks a lot like some of the models in our guide if you look at this picture in isolation, but it's 1.3m/50" long and over a quarter of a tonne and don't even bother about asking the cost. They know you can't afford it, rescue/emergency response isn't mentioned once in their blurb. Most of the big ROV manufacturers don't mention rescue or search & recovery in their list of possible taskings and industries served. They are all about inspection and maintenance of piplelines, subsea comms cables, ships and submarines - you can see where all the money is - oil, gas, shipping and the military.... rescue, not so much. So even though ROV's like that Omni Maxx might be the kind of vehicle that a dive team would crave, it is, to all intents and purposes, 'out of your league'.

As we said earlier, it's a fine line between the most 'recreational' ROV and the cheapest Search and/or Rescue ROV but cost is often the first consideration. Emergency responders and Government agencies not related to defence are unlikely to have money to burn and for most, an ROV is a luxury. It will be tempting to look at some of the numerous Chinese 'recreational' models costing only a few hundred up to a thousand or two on the basis that any capability is better than nothing? Or is it? Once you rock up to a scene with expectations of a capability in underwater search and maybe light-recovery you effectively have a duty of care to perform that task to a level of professionalism expected of any emergency service. Deploying an ROV that looks like your kids skillfully constructed it using one of those month by month publications that builds into a complete ROV might leave you with egg on your face. Because, despite the fact it worked fine in the practice pool, when it came to deployment at an actual incident with time pressing, weather rubbish and the incident commander waiting for you to perform, the video graphics looked sketchy, the tether ran out 20feet short of the target and the battery packed up after 7 minutes because the water is pretty chilly. Not buying 'cheap' is a broad concept that you could apply to any technological kit used for rescue but ROVs - whether aerial or subsea - are a relatively new phenomenon with many new companies vying for your attention and most don't have the kind of track

record that you might otherwise look for in selecting equipment. That's certainly true of aerial ROVs but in fact, subsea ROVs do have some specialists from our sector. Regular readers of **TECHNICALRESCUE** magazine will be familiar with *JW Fishers* who have been featuring for the past 30 years and this century we have seen Canadian company *DeepTrekker* and US company *VideoRay* targeting the rescue, inspection and research sectors. It's fair to say that *Deeptrekker* and *VideoRay* represent perhaps the more technological end of things - reliable modern complex subsea robotics with a range of vehicles that include an absolute maze of mission possibilities. Compared to the many Chinese models available (which may or may not be good) *Deeptrekker, VideoRay* and *JW Fishers* have skin in the game, a track record in rescue that you can hang your hat on. *JW Fishers* represents the bombproof, more traditional end of robotics. Their *Sea Lion* and slightly more basic *Sea Otter* are perhaps the most robust in this sector with a simple cylinder modified to take the lighting units, thrusters and manipulators common to all ROV's. We often think of them in terms of that great (and probably urban myth) analogy that retells how NASA engineers were proud of their latest innovation after thousands of hours of research and design and hundreds of thousands of dollars - a pen that could write in any orientation, underwater, in zero gravity, in freezing temperatures or extreme heat to which the Soviets replied that they too has such an innovation - they called it a pencil. Whether this is true or not, and we doubt it, the point of the analogy is that simple is often the best option. With ROVs being operated in an alien environment by rescuers who rarely get level of use and experience that deep-sea explorers and maintenance workers get but who may be operating under critical time and environmental constraints, the less to go wrong the better.



POWER/BATTERIES

All of these ROVs are electrically driven but not all have an independent on-board battery system. Some can only operate via hardwire connection to a top-side power source usually housed in a Pelican style hardcase like this Video-Ray power-case (right). With transformers, many can use other top-side power sources like vehicle batteries or even mains supplies. Many fuel-driven generators on rescue trucks have AC power sockets which some, like *Video-Ray*'s *Defender,* can use. But for the most part, in rescue we're talking independent battery power. The top-side systems provide much greater longevity and easier power monitoring and management than autonomous on-board batteries and, since a tether is usually used for retrieval, control and live feed, it is not a stretch to add a power cable. Nevertheless a tether adds bulk and drag which an on board battery doesn't but work/search durations are radially different - expect 1 to 4 hours with an on-board high end Li-ion or polymer. The BlueRov2 above quotes 2hours for heavy use up to 6 hours with 'light' use. A tether may allow up to 8 hours from a top-side powerpack.

CONTROL of THRUSTERS

In terms of controlling your ROV this relies on thrusters, basically impellers that can have variable orientation but are more usually fixed. Vector thrusters are paired in opposing directions as you can see in the *Fishers Sea Lion* at the top, The Oceanobotics model in the titles and the *Blue ROV* above with additional vertical thrusters for lift. Variable thrusters can be rotated to give infinite directional control. The way you control might be via a simple thumb toggle or, taking a leaf out of military UAVs, the *Play Station*-style controller is seen by many under 50 year-olds as an easier means to control the ROV. The control systems and imaging options are often pre-mounted into a *Peli*-style hard case with the monitor handily located in the lid and ready for use when you open the case like the Fisher system top for their Sea lion2. Lighter weight, out-of-the-box controllers are also available like the *Deeptrekker* system above left used to control its DTG3 ROV and *Video-Ray*'s *Expeditionary* controller above using a tablet with add-ons from the main control box. Lap top computers are another common interface to provide video and sonar viewing.

SENSORS

On-board sensors can provide data on temperature, depth, direction/ orientation, size of and proximity to objects.

Exact location of your ROV has to be achieved via transponders ***rather than GPS because satellite-based systems only work in the surface layers of water***. A little easier to work out is orientation of the ROV in terms of whether it is upside down etc and this is achieved with an onboard gyroscope or gimbal relaying attitude to the system. This is all important information that affects the ability of the ROV to perform and enable the controller to carry out specific tasks. Some ROVs have these sensors as standard, most can be added to a package.

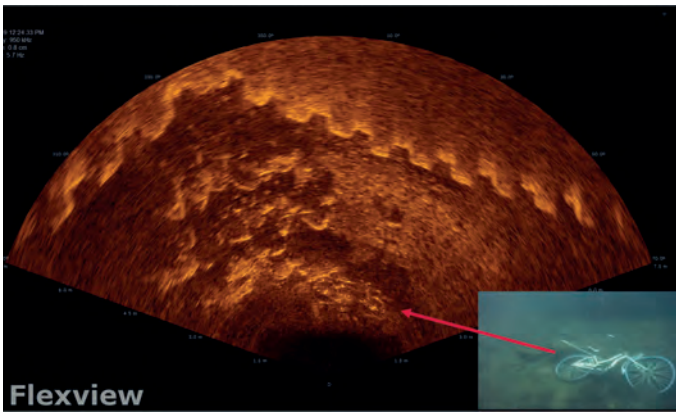
At a minimum, rescuers will want the option of temperature because the colder it is, the shorter time your battery will last and a navigation package. Navigation in terms of directing the ROV where to go is usually undertaken with **USBL** tracking which uses the surface boat (if you are using one) as its reference GPS. There are also computer analytics that use DVL or Doppler Velocity Log (speed relative to the seabed) and distance from mother-ship figures to calculate location. Usually,DVL just give you an accurate speed.

VIDEO, IMAGING & LIGHTING

Getting your Remotely Operated Vehicle to the underwater scene is only one part of the package requirements, in fact, by itself is of no use whatsoever. The ROVs need to be able to do something tangible and this means at least the ability to scan an area with Sonar or IR etc or film and illuminate a scene and to relay that back in real time to the team on top. There they will view data and control the ROV from a mobile 'command-Post' like the *Fishers* model above. Real-time visuals include video and higher resolution stills and these generally need to be well illuminated. All ROVs have on-board lighting - arrays of LEDs these days offering differing lighting levels and types of beam from long range spot to short range wide-area flood.

Something that doesn't require lighting is Sonar. Sonar is the most often used asset by rescue agencies and this is a complex field in itself with most ROVs designed to accommodate a specific brand/model of multi-beam rather than scanning or side-scansonar (see our separate GUIDE to SONAR). The image below is via a Kongsberg Flexview sonar which can be retrofitted to many ROVs and in this case has picked out the outline of a bicycle but humans can be far less distinct and it takes a skilled operator with lots of experience to discern a bone-fide target from all the other clutter than may be adorning a lake, bay or river bed.

Your ROV may be equipped with a manipulator arm that can either grab and retrieve objects (to a very specified weight) or perform other manipulation and or cutting tasks but the vast majority of dive and surface water rescue teams are using their ROVs as a search tool so it is the video capability and/or acoustic/sonar imaging that are most important. And these are elements that can really rack up the bill on your ROV. Imaging sonar will triple the price of a US$10K ROV. it's always the add-ons that get you but these add-ons can be crucial. High Definition video aided by high intensity white light LEDs with images relayed by a hard-wire (fibre-optic) thether offer the most reliabl way to get the best quality images to the controller on top though there are WiFi telemetry systems that will undoubtedly improve in the coming years. This may not be quite as useful



a development as you might think because virtually all ROV deployments would use a tether to the surface anyway in order to deploy, recover or find your ROV should it shut-down and become lost or entrapped. The downfall of video is that it relies on fairly clear water and this is often not what you're dealing with in inclement weather which is why acoustic imaging or sonar is a more favoured function - it not only 'sees' through the murk, it does so over distance of 100s of feet. It is sonar which sets apart the more serious ROV packages.

MORE TECHNICAL INFO on Cameras VIDEO & IMAGING

TETHERS

Technically a tether is simply the load-capable connection between your ROV and top-side that enables you to drag it back should it lose power. Once you add a power cable and data transmission cable (fibre-optics) your tether is actually an umbilical providing and receiving vital power and/or data as well as being the distance restrain and haul-back line. Power

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

Hand Held Underwater Metal Detectors

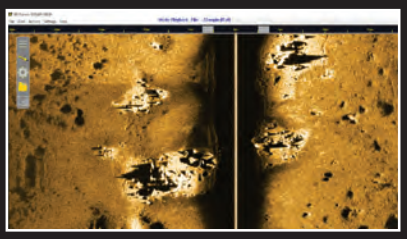
Pulse 8X

- 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

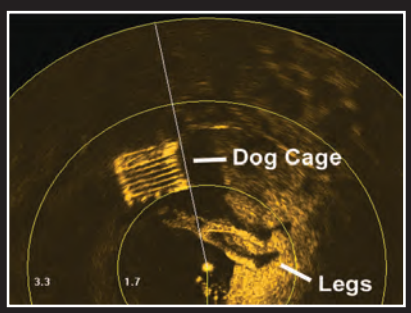
450kHz / 900 kHz - CHIRP

- 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

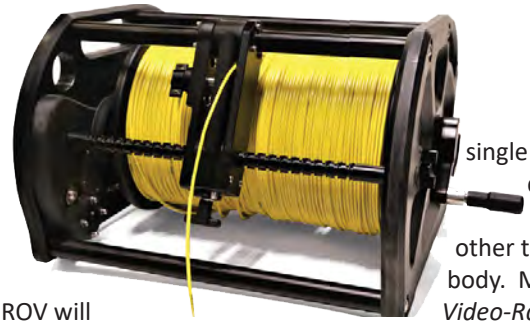


SCAN-650

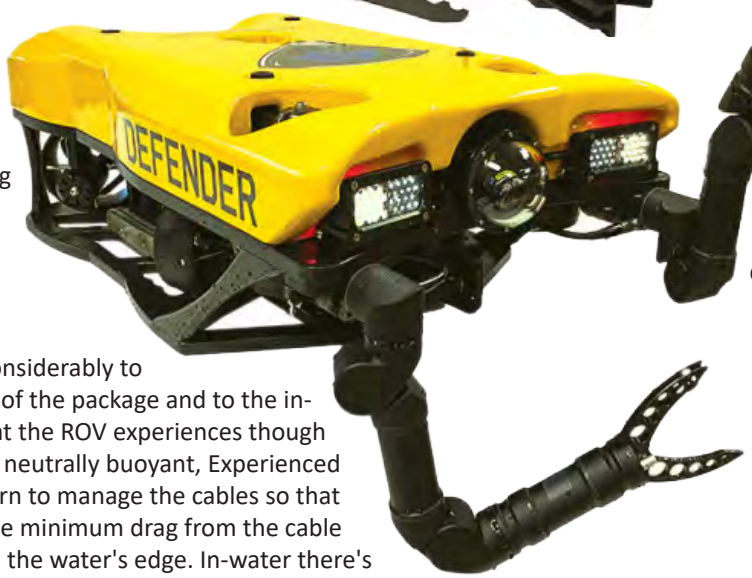
- Target sizing capability
- 360° sweep pattern
- High resolution imagery
- User friendly software
- Commercial construction
- ROV, pole or tripod mountable
- Starting at $6,995

JW FISHERS

PHONE: (508) 822-7330
info@jwfishers.com
jwfishers.com



transmission cables like the Video-Ray Expedition Reel below, may not be as long as a simple tether cord or cord & fibre-optic tether which is only limited in length by the capabilities of your ROV and sheer weight and bulk of log tether lengths. Your ROV will have a depth rating which is related to water pressure and what the casing can withstand. This can be anything from 5metres/16feet to 2000m/6560ft. Two things to note here - 1) you might think 5metres - what the hell use is that? But if you are a an inland water rescue or dive team it is highly likely that the vast majority of your incidents will involve water depths of less than 30ft so size isn't everything. 2) Equally, do not think that if your ROV has a limit of say 100feet, you only need 100 feet of tether or umbilical. Again, it's not about depth, it's about lateral searching. JWFisher's tether option for the 1000ft rated Seal Lion is 1500ft, not so that you can run it so far beyond 1000feet that you might break it but so that you can move up to 1500ft laterally from your control position - it might only ever be 15ft deep. Of course you then have concerns about the battery life and in particular if you are fighting a current or water flow. That's when that tether might become even more crucial as it allows you to run your ROV out to the max and then manually haul it back rather than operating on only half the limit because you are guiding it back under power before passing the PONR.



Tethers add considerably to the air weight of the package and to the in-water drag that the ROV experiences though they are often neutrally buoyant, Experienced controllers learn to manage the cables so that they impart the minimum drag from the cable reel or pack to the water's edge. In-water there's not too much you can do other than avoid changes of direction after obstacles or even seaweed wracks that will conspire to add drag and limit the endurance time of your ROV.

MANIPULATION ARM, GRABS & TOOLS

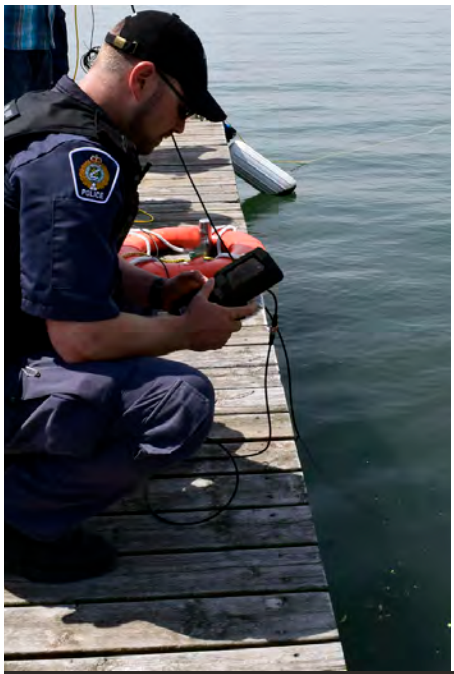
Other add-ons include the ubiquitous grasping jaws that you see in every deep-sea film but for rescuers, it's not so common even though it can prove immensely useful. Some are more versatile than others, the simplest, cheapest options are single axis arms that only move up and down or left and right. Some don't move at all and are 'grabbers' or other tools that connect direct to the ROV body. Manipulators like the set sported by *Video-Ray's Defender* below, can operate in all axis directions, swivelling at the union and articulating at the elbow and 'wrist'. The best option might be a modular arrangement that allows you to quickly remove or attach a **MANIPULATOR ARM** or a head (connecting directly to an ROV without the articulated arm) and if that also allowed you the choice of **GRAB** jaws, hydraulic **CUTTER** or even a **LASER** so much the better. But as an inherent feature that you specify at the time of purchase, these are extra expenses, complications to electronics and snag hazards that could trip you up if you are only using them infrequently. Blueprint make a generic series of manipulator arms and tools (pic right) that are used by *Boxfish* and *Video-Ray* among others.

In terms of retrieval of an object or body by grabbing it with jaws, the grip strength is not the same as the ROV's load capacity. You must remember that a strong grip closure can damage an item or disintegrate a cadaver so your control needs to be finite and accurate. You have the advantage that the load capacity is significantly increased by the buoyancy of water - a 10kg/22lb payload may just be enough to move an adult weighing 100kg/220lb under the water. *DeepTrekker*, *Video-Ray* and *Boxfish* offer a **LASER** (scaler) which is not a James Bond villain cutting tool but a rangefinder or incredibly accurate measuring device using two beams.

KEY to TABLES.....

Any use, feature, accessory or component that is **inherent** in the product 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.
ORIGIN: The 'manufacturer's country, not necessarily the country of manufacture, If we know it's made in a different country there will be a smaller inset flag.
COST: a rough guide only - **includes** local taxes/VAT. Varies with exchange rates, extra taxes etc. We usually round up to the nearest Pound£/US Dollar$/Euro€. We now give a currency conversion figure in orange £$€ which is simply to give an idea of price, it is not the selling price which will have import duties and bulk shipping etc. to add.
WEIGHT (with cable/tether) Weight of the ROV only - this does not include the control system usually housed in a waterprof case like Pelican - such systems can add 15-25kg/33-55lb to the weight of the ROV and tether as an entire system
DIMENSIONS height x width x Depth: of the ROV only
DEPTH RATING
ROV LIFT/GRAB CAPACITY
SUPPLIED OPTIONAL TETHER
SPEED OPERATING TEMP
POWER- BATTERY TETHER
ONBOARD BATTERY DURATION
TEMP SONAR GPS DIRECTION GPS = TRANSPONDER that can be interrogated for position because satelite GPS only functions in shallow water.BAE's POSYDEN system seeks to have acoustic buoys across the world to provide a bat-like response to a know location to provide GPS style data.
METAL DETECTION LASER RF
MANIPULATOR GRAB CUTTER
VECTOR/VERTVARIABLETHRUSTERS
CAMERA(S)
RESOLUTION
B W COLOUR PAN TILT
LID LAPTOP HAND MONITOR
DIRECTIONAL LIGHTING
CASE SD/STORAGE
WARRANTY
SLOW FAST FLOW/CURRENT: Conditions under which the ROV can reasonably operate - dictated by the engine/thruster power. All will operate in still , slow moving water and a current that a person could remain standing in.

Fill in explanations



Images NOT to Scale ~ = approximate COST: ~ includes local tax/VAT £$€=Currency conversion only USES/ FEATURES: ●= OK BUT NOT IDEAL ☐☐☐☐= Option N/A = info Not Available/not given			
MANUFACTURER	BLUE EYE	BLUE EYE	BLUE EYE
MODEL VARIANT	Pioneer	X1 -	X3 -
ORIGIN			
COST	£0 $4650/4940* €0	£0 $0 €0	£0 >$40,000 €0
WEIGHT (with cable/tether)	11 12kg 24 27lb	24kg* 53lb	35kg 75lb
DIMENSIONS height x width x Depth	45.7 x 33.8 x 25.4cm 28 x 17 x 14"	71.4 x 43.5 x 35.1cm 28 x 17 x 14"	71.7 x 0 x 0cm 0 x 0 x 0"
DEPTH RATING	100300m 328984ft	500/1000m 1640/3300ft	305m 1000ft
SPEED OPERATING TEMP	3 knots -00to00°C/ 00-00°F	-10to45°C/ 14-113°F	-10to50°C/ 14-122°F
ROV LIFT/GRAB CAPACITY	1.2-1.4kg/2.6-3.1lb	??	32kg/70lb
SUPPLIED OPTIONAL TETHER	100m/330ft 300m/984ft	350m/1150ft 3000m/10000ft	300m/984ft <2000m/6560ft
POWER= BATTERY TETHER		Lithium Polymer 21.6v ■	21.6v ■
ONBOARD BATTERY DURATION	2-6hrs	4-14hrs	3hrs
TEMP SONAR GPS DIRECTION		☐ ☐ ☐	☐ ☐ ☐
METAL DETECTION LASER RF	☐	☐	☐
MANIPULATOR GRAB CUTTER		☐	☐ ■ ■ rotates 260°
VECTOR/VERTVARITHRUSTERS	4 +2 Vertical	8	6
CAMERA(S) RESOLUTION OPTION B W COLOUR PAN TILT	1 main 1080p ■ +-90°	1main + 2 fore/aft NavCams 4K ■	1x front 4K HD 1920x1080, 30FPS ■
LID LAPTOP HAND MONITOR		17"	
DIRECTIONAL LIGHTING	2 or 4x 0 to 1500 lumen	2 x 0 to 8500 lumen 1 rear light	1000 lumen (option 1-4000lmn)
CASE(S) SD/STORAGE		■	■ ■
WARRANTY		1 year	1 year
SLOW FAST FLOW/CURRENT	■	■	■
NOTES	*Price excludes controllers, montor etc.	*Weight includes salt water ballast. 5hrs Battery mains Recharge or 1.5hrs Field recharge. Auto RTB if comms are lost Blueprint Oculus and tool compatible	Field-changeable tool heads.
WEBSITE	bluerobotics.com	boxfish.nz	deeptrekker.com

			
BLUE ROBOTICS	**BOXFISH**	**CHASER**	**CHASER**
BlueROV2 Alu-frame -	**ROV +** -	**000** -	**000** -
£0 $4650/4940* €0	£0 $0 €0	£0 $0 €0	£0 $0 €0
11 12kg 24 27lb	24kg* 53lb	00kg 00lb	00kg 00lb
45.7 x 33.8 x 25.4cm 28 x 17 x 14"	71.4 x 43.5 x 35.1cm 28 x 17 x 14"	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"
100300m 328984ft	500/1000m 1640/3300ft	000m 000ft	000m 000ft
3 knots -00to00°C/ 00-00°F	-10to45°C/ 14-113°F	-00to00°C/ 00-00°F	-00to00°C/ 00-00°F
1.2-1.4kg/2.6-3.1lb	??		
100m/330ft 300m/984ft	350m/1150ft 3000m/10000ft	00m/000ft 00m/000ft	00m/000ft 00m/000ft
	Lithium Polymer 21.6v ■	■	■
2-6hrs	4-14hrs	0hrs	0hrs
	☐ ☐ ☐	☐ ☐	☐ ☐
☐	☐		
	☐	☐ ☐ ☐ rotates 180°	☐ ☐ ☐ rotates 180°
4 +2 Vertical	8	3	3
1 main 1080p ■ +-90°	1main + 2 fore/aft NavCams 4K ■	1x ■	1x ■
	17"		
2 or 4x 0 to 1500 lumen	2 x 0 to 8500 lumen 1 rear light	lumen	lumen
	■	■ ■	■ ■
	1 year	0 year	0 year
■	■		
*Price excludes controllers, montor etc. The BlueROV2 is the world's most affordable high-performance ROV. With a 6-thruster vectored configuration, open-source electronics and software, and plenty of expandability.	*Weight includes salt water ballast. 5hrs Battery mains Recharge or 1.5hrs Field recharge. Auto RTB if comms are lost Blueprint Oculus and tool compatible		
bluerobotics.com	boxfish.nz	oooooo.com	oooooo.com

Images NOT to Scale
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COST: ~ includes local tax/VAT
£$€=Currency conversion only
USES/ FEATURES:
●= OK BUT NOT IDEAL
☐☐☐☐= Option
N/A = info Not Available/not given

MANUFACTURER	CHASER	CHASER	DEEPTREKKER
MODEL VARIANT	000 00 -	000 00 -	Revolution -
ORIGIN			
COST	£0 $0 €0	£0 $0 €0	£0 >$40,000 €0
WEIGHT (with cable/tether)	00kg 00lb	00kg 00lb	35kg 75lb
DIMENSIONS height x width x Depth	00 x 00 x 00cm 00 x 00 x 00"	00 x 00 x 00cm 00 x 00 x 00"	71.7 x 0 x 0cm 0 x 0 x 0"
DEPTH RATING	000m 000ft	000m 000ft	305m 1000ft
SPEED OPERATING TEMP	-00to00°C/ 00-00°F	-00to00°C/ 00-00°F	-10to50°C/ 14-122°F
ROV LIFT/GRAB CAPACITY			32kg/70lb
SUPPLIED OPTIONAL TETHER	00m/000ft 00m/000ft	00m/000ft 00m/000ft	300m/984ft <2000m/6560ft
POWER= BATTERY TETHER	■	■	21.6v ■
ONBOARD BATTERY DURATION	0hrs	0hrs	3hrs
TEMP SONAR GPS DIRECTION	☐ ☐	☐ ☐	☐ ☐ ☐
METAL DETECTION LASER RF			☐
MANIPULATOR GRAB CUTTER	☐ ☐ ☐ rotates 180°	☐ ☐ ☐ rotates 180°	☐ ■ ■ rotates 260°
VECTOR/VERTVARITHRUSTERS	3	3	6
CAMERA(S) RESOLUTION OPTION B W COLOUR PAN TILT	1x ■	1x ■	1x front 4K HD 1920x1080, 30FPS ■
LID LAPTOP HAND MONITOR			
DIRECTIONAL LIGHTING	lumen	lumen	1000 lumen (option 1-4000lmn)
CASE(S) SD/STORAGE	■ ■	■ ■	■ ■
WARRANTY	0 year	0 year	1 year
SLOW FAST FLOW/CURRENT			■
NOTES			Field-changeable tool heads.
WEBSITE	oooooo.com	oooooo.com	deeptrekker.com

			
DEEPTREKKER	**DEEPTREKKER**	**DEEPTREKKER**	
Pivot -	**Photon** -	**DTG3** -	
£0 $17600 €0	£0 $0 €0	£0 $8500 €0	
20kg 45lb	11.6kg 25.6lb	8.5kg 18lb	
57.6 x 36 x 31.3cm 0 x 0 x 0"	57.6 x 36 x 31cm 0 x 0 x 0"	27.9 x32.5 x 25.8cm 11 x 12.8 x 10.2"	
305m 1000ft	120-305m 400-1000ft	200m 656ft	
-10to50°C/ 14-122°F	-10to50°C/ 14-122°F	-00to00°C/ 00-00°F	
100-150m/328-492ft <2000m/6560ft	<2000m/6560ft	75m/246ft 200m/656ft	
19.2v ■	19.2v ■	■	
1.5hrs	2.5hrs	1.5hrs	
□ □ □	□ □ □	□ □	
□	□		
□ ■ ■ rotates 97°	□ □ □ rotates 0°	□ □ □ rotates 180°	
6	6	3	
1x front 4K HD 1920x1080, 30FPS ■	1x front 4K HD 1920x1080, 30FPS ■	1x front 4K HD 1920x1080, 30FPS ■	
	178 mm (7") Wide-Angle LCD		
1000 lumen (option 1-4000lmn)	1000 lumen (option 1-4000lmn)	1000 lumen (option 1-4000lmn)	
■ ■	■ ■	■ ■	
1 year	1 year	1 year	
■	■		
deeptrekker.com	deeptrekker.com	deeptrekker.com	

Images NOT to Scale ~ = approximate COST: ~ includes local tax/VAT £$€=Currency conversion only USES/ FEATURES: ●= OK BUT NOT IDEAL ☐☐☐☐= Option N/A = info Not Available/not given			
MANUFACTURER	FIFISH	FIFISH	0000
MODEL VARIANT	V-Evo -	V6 Expert -	000 00 -
ORIGIN			
COST	£0 $4650/4940* €0	£0 $0 €0	£0 $0 €0
WEIGHT (with cable/tether)	11 12kg 24 27lb	24kg* 53lb	00kg 00lb
DIMENSIONS height x width x Depth	45.7 x 33.8 x 25.4cm 28 x 17 x 14"	71.4 x 43.5 x 35.1cm 28 x 17 x 14"	00 x 00 x 00cm 00 x 00 x 00"
DEPTH RATING	100300m 328984ft	500/1000m 1640/3300ft	000m 000ft
SPEED OPERATING TEMP	3 knots	-10to45°C/ 14-113°F	-00to00°C/ 00-00°F
ROV LIFT/GRAB CAPACITY	1.2-1.4kg/2.6-3.1lb	??	
SUPPLIED OPTIONAL TETHER	100m/330ft 300m/984ft	350m/1150ft 3000m/10000ft	00m/000ft 00m/000ft
POWER= BATTERY TETHER		Lithium Polymer 21.6v ■	■
ONBOARD BATTERY DURATION	2-6hrs	4-14hrs	0hrs
TEMP SONAR GPS DIRECTION		☐ ☐ ☐	☐ ☐
METAL DETECTION LASER RF	☐	☐	
MANIPULATOR GRAB CUTTER		☐	☐ ☐ ☐ rotates 180°
VECTOR/VERTVARITHRUSTERS	4 +2 Vertical	8	3
CAMERA(S) RESOLUTION OPTION B W COLOUR PAN TILT	1 main 1080p ■ +-90°	1main + 2 fore/aft NavCams 4K ■	1x ■
LID LAPTOP HAND MONITOR		17"	
DIRECTIONAL LIGHTING	2 or 4x 0 to 1500 lumen	2 x 0 to 8500 lumen 1 rear light	lumen
CASE(S) SD/STORAGE		■	■ ■
WARRANTY		1 year	0 year
SLOW FAST FLOW/CURRENT	■	■	
NOTES	*Price excludes controllers, montor etc.	*Weight includes salt water ballast. 5hrs Battery mains Recharge or 1.5hrs Field recharge. Auto RTB if comms are lost Blueprint Oculus and tool compatible	
WEBSITE	bluerobotics.com	boxfish.nz	oooooo.com

DOLPHIN 1

ROBOTIC LIFEGUARD

ZERO RISK FOR RESCUERS

Dimension	119x85x20cm	***Buoyancy***	32kg
Weight	13kg	***Floatability***	150kg
Propulsion	Water-jet thruster	***Max. Speed***	13km/h(8mph)
Battery Life	30mins	***Control Range***	800m

Your Best Choice for Water Rescue!

Ergonomic Remote Design

Highly Visible Warning Light

100% More Buoyancy

Tangle and Injury Free

High-Speed Water-Jet Propulsion

OCEANα sales@oceanalpha.com +86 756 2592836 ENQUIRY NOW

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£$€=Currency conversion only
USES/ FEATURES:
●= OK BUT NOT IDEAL
☐☐☐☐= Option
N/A = info Not Available/not given

MANUFACTURER	HSE	HSE	JW FISHE
MODEL VARIANT	M2 -	M2Pro -	Sea Otte -
ORIGIN			
COST	£0 $0 €0	£0 $0 €0	£0 $21000 €0
WEIGHT (with cable/tether)	0kg 0lb	0kg 0lb	0kg 0lb 0oz
DIMENSIONS height x width x Depth	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0cm 0 x 0 x 0"	0 x 0 x 0c 0 x 0 x 0'
DEPTH RATING			152m 50
SPEED OPERATING TEMP			4mph
ROV LIFT/GRAB CAPACITY			
SUPPLIED OPTIONAL TETHER			250ft 150
POWER= BATTERY TETHER	■	■	
ONBOARD BATTERY DURATION			
TEMP SONAR GPS DIRECTION	■	■	■ ☐ ■
METAL DETECTION LASER RF			☐
MANIPULATOR GRAB CUTTER		■	☐
VECTOR/VERTVARITHRUSTERS			4
CAMERA(S) RESOLUTION OPTION B W COLOUR PAN TILT			1x Front 1x ■ ■
LID LAPTOP HAND MONITOR			■ ☐ ☐ 10.5"
DIRECTIONAL LIGHTING			■ 2200 Lumen LI LED Ring - R
CASE(S) SD/STORAGE			2 ■ ■
WARRANTY			2 years
SLOW FAST FLOW/CURRENT	■		■
NOTES			
WEBSITE	hse-uav.com	hse-uav.com	jwfishers.c

RS	JW FISHERS	THOR ROBOTICS	THOR ROBOTICS
r II	Sea Lion II -	TrenchRover 110	TrenchRover 200H
	£0 $30,000 €0	£0 $0 €0	£0 $0 €0
	0kg 0lb	4.2kg 9.25lb	15kg 9.25lb
m "	0 x 0 x 0cm 0 x 0 x 0"	36 x 20 x 20cm 14.2 x 7.9 x 7.9"	50 x 34 x 28cm 19.7 x 13.4 x 11"
0ft	305m 1000ft	5-30m 16-98ft	30m 98ft
	4mph	1.5kn 2.8kmh	2kn 3.7kmh
0ft	250ft 1500ft	30m	30m
		12v 3Ah NiMH or 5Ah LiPo	12v 3Ah NiMH or 5Ah LiPo
	☐ ☐ ☐		
	☐		
	☐		■
	4	4 x 8000rpm	8 x 8000rpm
Rear			
Colour	■ ☐ ☐ 15" Colour		■ ☐ ☐
ED - Front ear	■ 2200 Lumen LED - Front LED Ring - Rear	2x 300 lumen	2x 300 lumen
	2 ■ ■	■ ■	■ ■
	2 years	2 years	2 years
	■	■	■
	Has a power-boost option to counter sudden current/flow change	Wireless version available. NB: uses proprietry battery not supplied	Wireless version available. NB: uses proprietry battery not supplied
om	jwfishers.com	thorrobotics.com	thorrobotics.com

Images NOT to Scale
~ = approximate
COST: ~ includes local tax/VAT
£$€=Currency conversion only
USES/ FEATURES:
●= OK BUT NOT IDEAL
☐☐☐☐= Option
N/A = info Not Available/not given

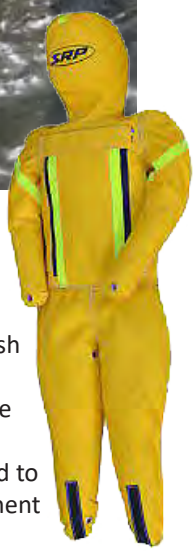
MANUFACTURER	VIDEO RAY	VIDEO RAY	VIDEO RA
MODEL VARIANT	Pro4 ip65 Ultra	Pro5	Mission Specialist
ORIGIN			
COST	£0 $0 €0	£0 $0 €0	£0 $0 €0
WEIGHT (with cable/tether)	6.1kg 13.5lb	11.8 36.6kg 26 80.9lb	17.2 32k 38 71.6l
DIMENSIONS height x width x Depth	37.5 x 28.9 x 22.3cm 14.75 x 11.4 x 8.75"	51.6 x 33 x 25.7cm 20.3 x 13 x 10.1"	71.1 x 39.4 x 2 28.8 x 15.5 x
DEPTH RATING	305m 1000ft	305m 1000ft	1000m 328
SPEED OPERATING TEMP		4.4 kn	4.4 kn
ROV LIFT/GRAB CAPACITY		11.3 22.6kg 25 50lb	11.3- 22.6kg 2
SUPPLIED OPTIONAL TETHER		76m/250ft 550m/1804ft	76m/250ft 550m
POWER= BATTERY TETHER		48vDC NiMH or Li-ion & 48vDC	48vDC NiMH or Li-io
ONBOARD BATTERY DURATION			NIMH 1-2hrs, Li-ion 2
TEMP SONAR GPS DIRECTION	■ ☐ ☐ ☐	■ ☐ ☐ ■	■ ☐ ☐
METAL DETECTION LASER RF	☐	☐	☐
MANIPULATOR GRAB CUTTER	☐	☐ ☐ ☐	■ ☐ ☐
VECTOR/VERTVARITHRUSTERS		2 + 1 vertical	4 + 3 vertic
CAMERA(S) RESOLUTION OPTION B W COLOUR PAN TILT		1x Front 13mp still. 16x digital zoom ■ ■ ■	1x Front 1x 13mp still. 16x dig ■ ■
LID LAPTOP HAND MONITOR	■ ☐ 15" Colour	■ ☐ ☐ 15-21" Colour	■ ☐ ☐ 15-21
DIRECTIONAL LIGHTING		2x7600 Lumen spot & flood on both LED arrays	2x7600 Lum spot & flood on both
CASE(S) SD/STORAGE	2 ■ ■	3 ■ ■	3 ■ ■
WARRANTY	2 years	2 years	2 years
SLOW FAST FLOW/CURRENT	■	■	■
NOTES	Ultra a simpler system with lighter control system (8.4kg) but doesn't accept most accessories including sonar and does not operate in fast flow/currents.	Sonar options include Teledyne, Tritech and Blue-print systems. Bluepribnt Oculuus systems offer 5 to 120m/394ft ranges.	Sonar options include Teledyn print systems. Bluepribnt Oculu 120m/394ft ran
WEBSITE	videoray.com	videoray.com	videoray.co

			
AY	OCEANBOTICS	OCEANBOTICS	
t Defender	SRV-8 -	SRV-8X Optimus ATS -	
	£0 $0 €0	£0 $0 €0	
g b	6.1kg 13.5lb	6.1kg 13.5lb	
23.8cm 10.4"	37.5 x 28.9 x 22.3cm 14.75 x 11.4 x 8.75"	37.5 x 28.9 x 22.3cm 14.75 x 11.4 x 8.75"	
30ft	305m 1000ft	305m 1000ft	
5 50lb			
n/1804ft			
on & 48vDC			
-4hrs 1-8.5hr			
■	■ □ □ □	■ □ □ □	
	□	□	
	■ □ □	■ □ □	
cal			
Rear gital zoom			
" Colour	■ □ 15" Colour	■ □ 15" Colour	
nen n LED arrays			
	2 ■ ■	2 ■ ■	
	2 years	2 years	
	■	■	
e, Tritech and Blue- us systems offer 5 to ges..	Ultra a simpler system with lighter control system (8.4kg) but doesn't accept most accessories including sonar and does not operate in fast flow/currents.	ATS ais a specialist 'ping' detector option with a sensitive acoustic (sonar) detection system for locating downed craft. Also an MDV Mine Disposal Vehicle for remote detonation of undersea mines	
om	oceanbotics.com	oceanbotics.com	

WATER RESCUE TRAINING MANIKINS

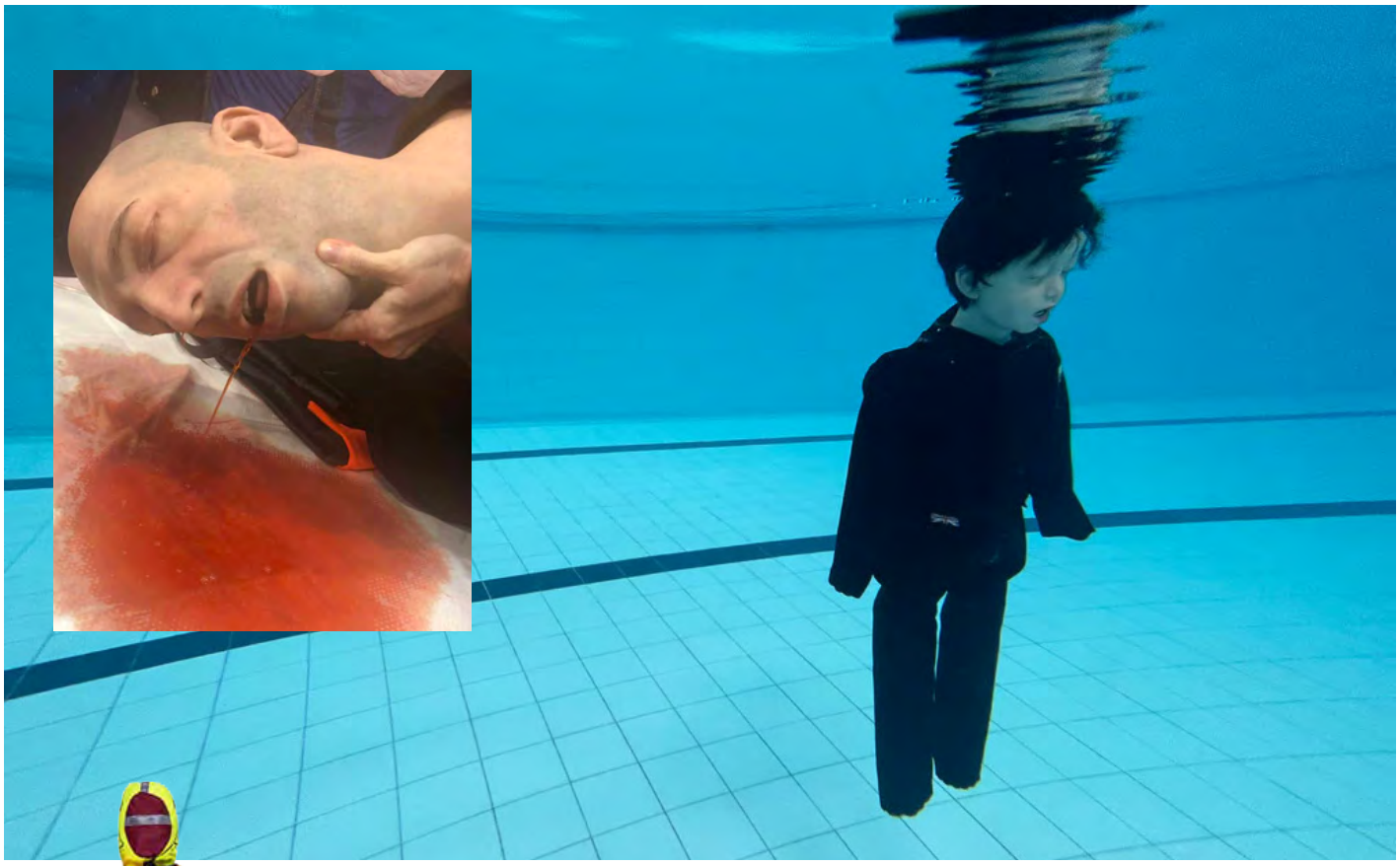
Ruth Lee's Man-Overboard manikin is given low-visisbility clothing in it's Search & Rescue variant to make finding it harder. No reflective tape or bright colours.

In its simplest form, an in-water training manikin hasn't necessarily changed much in the past 50 years - a bunch of yacht fenders tied together for arms and legs and stuffed into overalls with more shoved into the chest area to make the torso and finished off with a crab-fishing marker buoy as the head. Simple. But rescuers soon got tired of the lack of realism that a fully floating and relatively light dummy provided and started to improvise by drilling and filling with sand or water for weight and adding extra layers of clothing. The Dacon Dummy on the left is the modern incarnation of these early fender-style manikins. These also worked OK on dry land and in fact many a fire service had their own versions of dummies made out of tyres, fenders and fire hoses stuffed with material. Even though medical sector companies like Simulaids were producing trauma manikins or bits of manikins as long ago as the 60's we didn't really start seeing more realistic full-weight manikins that could be thrown and dragged around in any rescue sceanrio until the 80's when we had the iconic lifelike rubber/plastic/metal *Rescue Randy* from *Simulaids* costing a small fortune and the more amorphous but distinctly more affordable *Ruth Lee* filled fabric manikins. There were others of course producing both realistic and amorphous dummies alongside these early market leaders like the Swedish SRP (right) and ELJI Sport models but as you'll see from our tables - none have quite the scope of these two brands that have tried to corner the market by covering every type of rescue. Water rescue seemed to take a back seat for a while because early development of more realistic training manikins centred on the needs of land-based fire & Rescue services and medical responders. These 'land' manikins could be used short term for water rescue but it quickly became apparent that your hugely expensive and definitely submerged, Rescue Randy with metal components didn't last so long in salt water and chlorinated water submersions. Similarly a lot of the fabric models quickly succumbed to mould, disintegration of fibres and some truly unwelcome smells. They all needed materials and constructions more suited to us in water and even today, there is a specific delineation of tasking between land and water manikins - water can do land tasks (but not fire involved training) but land can't do water unless you're treating them as semi-disposable. One very amorphous model, the Fibrlight BOB is effectively a giant, shaped dry bag where you fill with whatever weight of water you can deal with and roll the top closed as with any dry bag.



Simulaids (right) were always oriented towards patient

WATER RESCUE MANIKINS



ABOVE: The future should be hyper-realistic manikins like these Lifecast/RuthLee adult and juvenile models with full CPR/Airway management interaction but fiscal prudence will mean that more traditional designs will always have a place.

treatment so they always had a more realistic head for *Rescue Randy* that allowed rescuers to at least try mouth-to-mouth on a mouth rather than a sword fencing face shield but *Ruth Lee* manikins were more about handling and rough handling at that. Despite their amorphous, Squid-Games appearance, they offered softer limbs and body than the human-replicants and were/are perhaps more realistic to handle than they look especially for those models with some kind of skeletal-like inserts that mimic human bone in the way it maintains rigidity of limbs and torso. Ultimately of course this arms race between the realism of a very human-looking manikin and the more utilitarian fabric and fender manikins collided with Ruth Lee's collaboration with the Silicon-meister himself Dave Halliwell and his company *Lifecast body simulation* (*lifecastbodysim.com*)producing the most scarily realistic manikin heads and torsos in the world. Hollywood-quality medical manikins in fact that are now termed 'hyper-realsitic' and include full size and fully featured babies and toddlers - scary stuff. We have to confess that we consider Dave as one of our own here at TECHNICAL RESCUE as he's been a local paramedic and ALS trainer for decades as many of our own Unit personnel going back to the early nineties can attest. However, we don't blow smoke without good cause and Dave/Lifecast literally lead the world in this stuff. We featured some of his work in TECHNICAL RESCUE#81 including the ability (inset-top-left) for their advanced water manikin to aspirate foamy, pinkish water during and after CPR in about the most realistic post-drowning resus training currently available. What *Ruth Lee* did was to come up with a rugged outer-skin that attached

Half page ad

securely to the hyper-realistic torso (above) and provided the correct orientation, weight and durability for water rescue training. It ain't cheap but at the moment, this is

the gold-standard for water rescue - something that provides the physical needs of handling a victim in-water together with proper medical intervention.

Meanwhile back in the original realistic replicant world and *Rescue Randy* was modified and had some offspring. He was given rust-proof joints and salt/chlorine tolerant skin before immaculately and miraculously conceiving three youngsters all of whom were sent off to work in water . Simulaids and other plastic body'd manikins had the advantage of being able to easily alter the weight and orientation by adding/removing water or sand in some models. Simulaids have ports and valves (below) that mean you don't have to suffer the firefighters curse of having to drag your heavy-ass manikin hundreds of yards across all kinds of terrain and up or down stairs and ladders to set up your training scenario. You could empty your manikin for storage or transport and fill it up on-site. As a readily available and heavy filling, water is perfect for changing the weight and orientation of the manikin from full floating to full sinking (with some clothes on and possibly a dive weight). The valves allow filling and rapid draining.

KEY to TABLES.....

Any use, feature, accessory or component that is **inherent** in the product 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.

ORIGIN: The 'manufacturer's country, not necessarily the country of manufacture, If we know it's made in a different country there will be a smaller inset flag.

COST: a rough guide only - **includes** local taxes/VAT. Varies with exchange rates, extra taxes etc. We usually round up to the nearest Pound£/US Dollar$/Euro€. We now give a currency conversion figure in orange £$€ which is simply to give an idea of price, it is not the selling price which will have import duties and bulk shipping etc. to add.

AMORPHOUS HUMAN FACE: Amorphous is a general representative shape. HUMAN closely resembles a human in the head and upper torso and will always have a realistic face. Some amorphous manikins have a human face to enhance realism and/or allow CPR actions but not necessarily actual CPR

SPINAL RESISTANCE WAISTNECK: Generally a reinforcing strip, alloy, plastic or carbon-fibre that runs up the spine. It keeps the manikin in-line rather than completely bending at the waist or the neck but not fully rigid - will allow limited bend under pressure.

ARTICULATE ELBOW SHOULDER: The arm will bend at these points. Shoulder joints often rotate as well as hinge.

ARTICULATE KNEE WAIST NECK: The legs will bend at the knee and hip. The head will 'flop' forward or backward unless it has a spinal resistance insert.

LIFTING ATTACHMENTS: To suspend the full weight of the manikin out of water for drying

CPR AIRWAY CAPABLE: CPR has a mouth into which you can breath or entrain air/oxygen and will have a torso that can resist compressions. AIRWAY is a much more advanced feature allowing realistic intubation

ADVANCED FEATURES: D

VARIABLE WEIGHT: You can make the manikin heavier or lighter either by removing/adding internal weight packs or by adding external weight packs or replacing limbs/components with lighter/heavier options.

REDISTRIBUTE WEIGHT: The orientation and buoyancy of the manikin can be adjusted by manipulating the weight distribution with the dummy eg. weight shift from upper torso to upper legs to orient into a more upright stance in the water.

SOLAS REFLECTIVE: SOLAS is the international maritime approval/standard for quality reflective tape but there are non-SOLAS reflective materials and some may want the manikin to be low vis in order to test search capabilities!

IN WATER ORIENTATION: How the manikin sits in water,most will be head-up with the body and legs at an angle or upright as if treading water. Most will also be semi-submerged with the help of saturated material covers but some may sink. Body recovery manikins sink but of course a drowning victim that may still be alive and able to be resuscitated may also be underwater depending on their attire.

WITH REPLACEABLE BOOTS: May be integrated and difficult to remove/replace - others are usually slip-on/off rubber wellies.

Images NOT to Scale					
MANUFACTURER	CQC FIBRELIGHT	CQC FIBRELIGHT	DACON	ELJI SPORT	ELJI SPORT
MODEL VARIANT	BoB	BoB+	Rescue Dummy	Water Rescue Woman	Water Rescu Man
ORIGIN					
COST	£00 $00 €00	£00 $00 €00	£0 >$40,000 €0	£0 $00 €0	£0 $0 €0
DRY WEIGHT	1-30kg 2.2-66lb	1.2-55kg 2.6-121lb	22-85kg 49-187lb	30kg 66lb	30kg 66lb
HEIGHT	1.74m 5'8"	1.74m 5'8"	1.9m 6'2"	1.5m 5'	1.7m 5'7"
MATERIALS OUTER INNER	Coated Polyester Foam + Water	Coated Polyester + Polyurethane Liner Foam + Water	PVC/ Stainless Steel Air/Water	PVC, Polyester, Rubber ?	PVC, Polyeste Rubber ?
AMORPHOUS HUMAN FACE	■	■	■	■ ■	■ ■
SPINAL RESISTANCE WAIST NECK					■
ARTICULATE ELBOW SHOULDER	□ □*	□ □*	■ ■	■ ■	■ ■
ARTICULATE KNEE WAIST NECK	□ □ □*	□ □ □*	■ ■ ■	■ ■	■ ■
LIFTING ATTACHMENTS			Rear lifting eye		
CPR AIRWAY CAPABLE					
ADVANCED FEATURES					
VARIABLE WEIGHT	Water	Water			
REDISTRIBUTE WEIGHT	No	No			
SOLAS REFLECTIVE	No	No	■	■	■
IN WATER ORIENTATION	FLOAT/NEUTRAL	FLOAT/NEUTRAL	SINK* FLOAT 90-180°		
WITH REPLACEABLE BOOTS	No	No	□ □ □	□ □ □	□ □ □
STORAGE BAG HARD-CASE			■	■	■
WARRANTY			1 year	1 year	1 year
OTHER COLOURS					
NOTES	*All extremities can bend depending on how much water is put in.	Will retain 80% of start weight on land after 3hrs. *All extremities can bend depending on how much water is put in.	Extremely robust, can be dropped from height * negative buoyancy version available for body-recovery training		
WEBSITE	cqc.co.uk	cqc.co.uk	daconrescue.com	eljisport.com	deeptrekker.co

NOTES: COST: Approx, INCLUDES local tax/VAT USES/ FEATURES: = PARTIAL FEATURE and/or OK BUT NOT IDEAL □ □ □ = Option

WATER RESCUE MANIKINS

	ELJI SPORT	PAX	RUTH LEE	RUTH LEE	RUTH LEE	RUTH LEE
ue	Water Rescue Child	Water Rescue -	MOB II Adult -	MOB Youth -	MOB Toddler -	MOB Toddler -
	£0 $8500 €0	£0 $00 €1250	£0 $800 €0	£0 $0 €0	£0 $0 €0	£0 $0 €0
	10kg 22lb 1m 3'3"	45kg 99lb 1.82m 6'	40kg 88lb 1.8m 5'11"	20kg 44lb 1.3m 4'3"	8kg 17.6lb 0.9m 2'11"	5kg 11lb 0.7m 2'4"
r,	PVC, Polyester, Rubber ?		Nylon Mesh/ Reinforced PVC Polypropylene plastic /non-absorbant (1 Day <0.1%) closed cell foam	Nylon Mesh/ Reinforced PVC Polypropylene plastic /non-absorbant (1 Day <0.1%) closed cell foam	Nylon Mesh/ Reinforced PVC Polypropylene plastic /non-absorbant (1 Day <0.1%) closed cell foam	Nylon Mesh/ Reinforced PVC Polypropylene plastic /non-absorbant (1 Day <0.1%) closed cell foam
			rear web loop	rear web loop	rear web loop	rear web loop
			Foam pads	Foam pads		
			FLOAT 45-90°	FLOAT 45-90°	FLOAT 45°	FLOAT 45°
	1 year					
		includes solid foam lifejacket DISCONTINUED				
m	deeptrekker.com	pax-bags.com	ruthlee.com.com	ruthlee.com.com	ruthlee.com.com	ruthlee.com.com

N/A = info Not Available/not given INFLATION TIME: Hand Pump/ Compressed Air VALVES PRV=Pressure Relief Valve

Images NOT to Scale					
MANUFACTURER	RUTH LEE	RUTH LEE	RUTH LEE	RUTH LEE	RUTH LEE
MODEL VARIANT	Surf Adult -	Pool Adult	Pool Youth	Advanced Adult	Advanced Todd
ORIGIN					
COST	£0 $0 €0	£0 $1400 €0	£0 $900 €0	£0 $0 €0	£0 $0 €0
DRY WEIGHT	20kg 44lb	30kg 66lb	16kg 35.3lb	0kg 0lb	12kg 26.4lb
HEIGHT	1.5m 5'	1.3m 4'3"	1.1m 3'7"	1.9m 6'2"	0.95m
MATERIALS OUTER INNER	Nylon Mesh/ Reinforced PVC Polypropylene plastic /non-absorbant (1 Day <0.1%) closed cell foam	Nylon Mesh/ Reinforced PVC Polypropylene plastic /non-absorbant (1 Day <0.1%) closed cell foam	Nylon Mesh/ Reinforced PVC Polypropylene plastic /non-absorbant (1 Day <0.1%) closed cell foam	Nylon Mesh/ Reinforced PVC Polypropylene plastic /non-absorbant (1 Day <0.1%) closed cell foam	Nylon Mesh/ Reinforced PV Polypropylene pl /non-absorbant (1 <0.1%) closed c foam
AMORPHOUS HUMAN FACE	■	■ ■	■ ■	■ ■	■
SPINAL RESISTANCE WAISTNECK					
ARTICULATE ELBOW SHOULDER		■	■	■	■
ARTICULATE KNEE WAIST NECK					
LIFTING ATTACHMENTS	rear web loop	rear web loop	rear web loop		
CPR AIRWAY CAPABLE				■ ■	■ ■
ADVANCED FEATURES				Lung fluid/foam	Lung fluid/foa
VARIABLE WEIGHT					
REDISTRIBUTE WEIGHT					
SOLAS REFLECTIVE	■	■	■	■	■
IN WATER ORIENTATION	FLOAT 90°	SINK/NEUTRAL BUOY-	SINK/NEUTRAL BUOY-	FLOAT 45°	FLOAT 45°
WITH REPLACEABLE BOOTS	-	-	-	■	■
STORAGE BAG HARD-CASE					
WARRANTY					
OTHER COLOURS	■	■	■	■	■
NOTES	Arms loped above head for in-water pick-up			*lifecastbodysim.com*	*lifecastbodysim.*
WEBSITE	ruthlee.com.com	ruthlee.com.com	ruthlee.com.com	ruthlee.com.com	ruthlee.com.co

NOTES: COST: Approx, INCLUDES local tax/VAT USES/ FEATURES: = PARTIAL FEATURE and/or OK BUT NOT IDEAL ■ ■ ■ = Option

WATER RESCUE MANIKINS

	RUTH LEE	RUTH LEE	RUTH LEE	RUTH LEE	SIMULAIDS	SIMULAIDS
dler	Heli-Winch	Body Recovery Adult	Body Recovery Youth	Body Recovery Toddler	Water Rescue Adult	Water Rescue CPR Adult
						
	£0 $0 €0	£0 $0 €0	£0 $0 €0	£0 $0 €0	£1260 $985 €1665	£1446 $0 €2261
	40kg 88lb 1.8m 5'11"	50kg 110lb 1.8m 5'11"	30kg 66lb 1.3m 4'3"	10kg 22lb 0.9m 2'11"	20kg 44lb 1.65m 5'5"	20kg 44lb 1.65m 5'5"
/ VC astic Day ell	Nylon Mesh/ Reinforced PVC Polypropylene plastic /non-absorbant (1 Day <0.1%) closed cell foam	Nylon Mesh/ Reinforced PVC Polypropylene plastic /non-absorbant (1 Day <0.1%) closed cell foam	Nylon Mesh/ Reinforced PVC Polypropylene plastic /non-absorbant (1 Day <0.1%) closed cell foam	Nylon Mesh/ Reinforced PVC Polypropylene plastic /non-absorbant (1 Day <0.1%) closed cell foam	Vinyl/ Stainless Steel Air/Water	Vinyl/ Stainless Steel Air/Water
	■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■
	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■
					■ ■ ■ ■	■ ■ ■ ■
		rear web loop	rear web loop	rear web loop		
						■ ■
m					Water	Water
	■	■	■	■		
	FLOAT 45°	SINKS	SINKS	SINKS	FLOAT 90°	FLOAT 45°
	■	■	■	-	-	-
	■	■	■	■	3 Years ■	3 Years ■
com	Shorter legs and different weight distribution to MOB version. Lifetec-Australia version shown.	Includes hair. Can withstand drop height into water of 5-6m	Includes hair. Can withstand drop height into water of 5-6m	Includes hair. Can withstand drop height into water of 5-6m	Arms loped above head for in-water pick-up	
m	ruthlee.com.com	ruthlee.com.com	ruthlee.com.com	ruthlee.com.com	ruthlee.com.com	ruthlee.com.com

N/A = info Not Available/not given **INFLATION TIME**: Hand Pump/ Compressed Air **VALVES** PRV=Pressure Relief Valve

Images NOT to Scale					
MANUFACTURER	SIMULAIDS	SIMULAIDS	SIMULAIDS	SIMULAIDS	SIMULAIDS
MODEL VARIANT	Water Rescue Adolescent	Water Rescue CPR Adolescent	Water Rescue Timmy	Water Rescue Billy	Water Rescue C
ORIGIN					
COST	£1065 $840 €1412	£1542 $0 €2190	£323 $273 €0	£317 $267 €0	£285 $252 €0
DRY WEIGHT	9kg 19.8lb	5kg 11lb	5kg 11lb	40kg -12lb	2.3kg 5lb
HEIGHT	1.25m	0.7m 2'4"	0.7m 2'4"	1.8m 5'11"	0.5m 20"
MATERIALS OUTER INNER	Vinyl/ Stainless Steel Air/Water	Vinyl/ Stainless Steel Air/Water	Vinyl/ Stainless Steel Air/Water	Vinyl/ Stainless Steel Air/Water	Nylon Mesh/ Reinforced PV Polypropylene pl /non-absorbant Day<0.1%) closed foam
AMORPHOUS HUMAN FACE	■ ■	■ ■	■ ■	■ ■	■ ■
SPINAL RESISTANCE WAISTNECK	■ ■	■ ■	■ ■	■ ■	■ ■
ARTICULATE ELBOW SHOULDER	■ ■	■ ■	■ ■	■ ■	■ ■
ANKLE KNEE WAIST NECK	■ ■ ■	■ ■ ■	■ ■	■ ■	■
LIFTING ATTACHMENTS					rear web loo
CPR AIRWAY CAPABLE		■ ■			
ADVANCED FEATURES					
VARIABLE WEIGHT	Water	Water	Water		
REDISTRIBUTE WEIGHT					
SOLAS REFLECTIVE					
IN WATER ORIENTATION	FLOAT	FLOAT	FLOAT	FLOAT	SINKS
WITH REPLACEABLE BOOTS	-	■	■	■	■
STORAGE BAG HARD-CASE					
WARRANTY	3 Years	3 Years	3 Years	3 Years	3 Years
OTHER COLOURS	■	■	■	■	■
NOTES			3 Years old	6-9 month old	baby
WEBSITE	simulaids.com	simulaids.com	simulaids.com	simulaids.com	simulaids.com

NOTES: COST: Approx, INCLUDES local tax/VAT USES/ FEATURES: = PARTIAL FEATURE and/or OK BUT NOT IDEAL ■ ■ ■ = Option

						
athy	SRP Water CPR	SRP Water Floating 15-9161F	SRP Water Sinking 15-9161S	SRP Water Sinking Child 15-9161SB		
	£285 $252 €0	£00 $00 €00	£00 $00 €00	£00 $00 €00		
	40kg 88lb 1.8m 5'11"	40kg 88lb 1.8m 5'11"	40kg 88lb 1.8m 5'11"	18kg 39.6lb 1m 3'3"		
VC astic (1 cell	PVC ■	PVC ■	■	■		
	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ ■		
p						
	■					
		Heat bar for FLIR searching				
	■	■	■	■		
	FLOAT	FLOAT	SINKS	SINKS		
	□	□	□ ▣	□ ■		
		Heat bar for FLIR searching				
n	srp.se	srp.se	srp.se	srp.se		

N/A = info Not Available/not given INFLATION TIME: Hand Pump/ Compressed Air VALVES PRV=Pressure Relief Valve