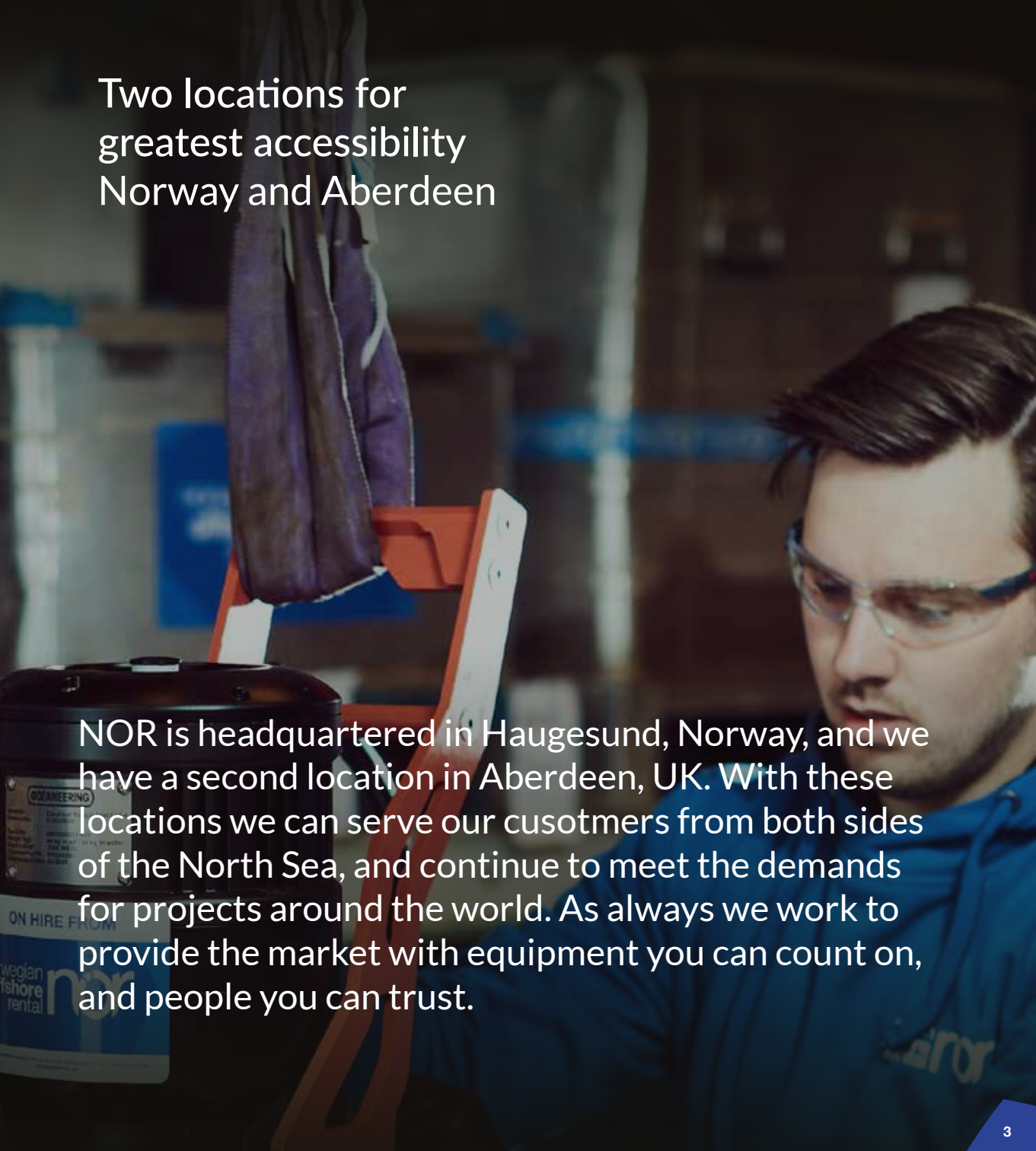


# 2022 Equipment List

# Rent from our inventory of over 100 products

In 2021 Norwegian Offshore Rental (NOR) celebrated 10 years. In the recent years we made a major shift in our business, and started acquiring equipment that allowed us to better serve the renewable energy industry. This included expanding our inventory for the surveying industry.

A man with short brown hair and a beard, wearing safety glasses and a blue long-sleeved shirt, is focused on his work. He is holding a red metal component, possibly part of a larger machine or structure. In the background, there are shelves with various items, including a purple bag hanging from a red frame. The overall scene is a workshop or warehouse setting.

Two locations for  
greatest accessibility  
Norway and Aberdeen

NOR is headquartered in Haugesund, Norway, and we have a second location in Aberdeen, UK. With these locations we can serve our customers from both sides of the North Sea, and continue to meet the demands for projects around the world. As always we work to provide the market with equipment you can count on, and people you can trust.

# Cutting Tools & Accessories

MANTIS ROV CUTTING TOOL

SOFTLINE CUTTER SL55

SOFTLINE CUTTER SL80

SOFTLINE CUTTER SL135

SOFTLINE CUTTER SL165

WEBTOOL WIRE CUTTER 38 MM

WEBTOOL WIRE CUTTER 54 MM

WEBTOOL WIRE CUTTER 75 MM

WEBTOOL WIRE CUTTER 115 MM

WEBTOOL WIRE CUTTER 135 MM

WEBTOOL WIRE CUTTER 155 MM

SABRE CABLE CUTTER 135 MM

WEBTOOL CABLE CUTTER 270 MM

HYDRAULIC INTENSIFIER PANEL

ROV SCISSOR S180

S270 HYDRAULIC ROV SCISSOR

VERSATILE SUPER GRINDER

GR29 UNDERWATER GRINDER

NOR SAW 30-120 MM

NOR SAW 60-200 MM



# Mantis ROV Cutting Tool



## Key features

- Blades are easy to replace
- Small and easy to transport and handle
- ROV friendly grabber bar
- External hydraulic supply and control via built-in hot stabs
- Supplied with full documentation and instructions

The Imenco Mantis Subsea Hydraulic Cutter is a compact and versatile tool with interchangeable claws to suit operational needs without complete system change out. Can be supplied with a variety of fixing brackets to suit project requirements.



# Mantis Cutting Tool

## SPECIFICATIONS

Height	1100 mm x 740 mm x 630 mm
Mass in air	185 kg
Mass in water (approx.)	42 kg
Max pipe cutting capacity	Ø275 mm
Max cutting capacity for chain size, one cut Studless Link W-3, 35D	152 mm
Max cutting capacity for chain size, two cuts	275 mm
Max operation depth	2000 MSW
Temperature range	-15°C to +40°C
Cutting blade	Tungsten carbide tipped – ø700 mm blade
Main structure	Aluminum
Clamping claws	Stainless steel

# Softline Cutter SL55



## Key features

- Hydraulically operated soft and fibre line cutting tool
- Lightweight aluminium and stainless-steel construction
- Diver or ROV operable design
- Quick and efficient operation
- Long blade life ensures that tool maintenance is kept to a minimum
- Can be used at any water depth

The hydraulically operated SL55 Softline Cutter is a lightweight aluminium and stainless-steel construction, designed for ROV and diver operations. It is a heavy duty soft and fibre line cutting tool that can be used at any water depth.



# Softline Cutter SL55

## SPECIFICATIONS

Weight w/D-handle	10 kg
Length	487 mm
Height	135 mm
Width	155 mm

## TECHNICAL DETAILS

- Capable of cutting softlines, fibre ropes and lifting slings including aramids, Dyneema®, Spectra® and Twin-Path® up to 55 mm (2.15") diameter.
- Hydraulic Supply – 210 bar (3000 psi) input pressure.
- Compatible with ISO32 hydraulic oil.
- Swept Volume (Cut Stroke) – 0.25 litres
- Swept Volume (Return Stroke) – 0.2 litres
- 7/16" JIC male adaptors (stainless steel, 690 bar rated) fitted as standard.
- 2 hydraulic ports (blade up, blade down)
- Weight in air – 10 kg
- Weight in water – 7 kg

# Softline Cutter SL80



## Key features

- Hydraulically operated soft and fibre line cutting tool
- Lightweight aluminium and stainless-steel construction
- Diver or ROV operable design
- Quick and efficient operation
- Long blade life ensures that tool maintenance is kept to a minimum
- Can be used at any water depth

The Softline Cutter 80 (SL80) is a heavy duty, hydraulically-operated soft and fibre line cutting tool. With lightweight aluminium and stainless-steel construction, it can be used at any water depth. The design is diver or ROV operable for quick and efficient operation. The long blade life ensures that tool maintenance is kept to a minimum.





# Softline Cutter SL80

## SPECIFICATIONS

Cutting capacity - Maximum	Ø80 mm
Maximum operating pressure	690 bar
Approx. Weight in air	15 kg
Approx. Weight in water	10.5 kg
Swept volume cut stroke	0.15 litres
Swept volume return stroke	0.1 litres

# Softline Cutter SL135



## Key features

- Hydraulically operated soft and fibre line cutting tool
- Lightweight aluminium and stainless-steel construction
- Diver or ROV operable design
- Quick and efficient operation
- Long blade life ensures that tool maintenance is kept to a minimum
- Can be used at any water depth

The Webtool Softline Cutter can cut fibre rope up to 135 mm in hostile environments and under harsh conditions.



# Softline Cutter SL135

## SPECIFICATIONS

<b>Weight in air</b>	34 kg
<b>Weight in water</b>	23 kg
<b>Dimensions</b>	300 mm x 155 mm x 927 mm
<b>Cutting capacity</b>	Maximum Ø135 mm fibre rope
<b>Max operation pressure</b>	690 bar

# Softline Cutter SL165



## Key features

- Hydraulically operated soft and fibre line cutting tool
- Lightweight aluminium and stainless-steel construction
- Diver or ROV operable design
- Quick and efficient operation
- Long blade life ensures that tool maintenance is kept to a minimum
- Can be used at any water depth

The Softline Cutter 165 (SL165) is a heavy duty, hydraulically-operated soft and fibre line cutting tool. With lightweight aluminium and stainless-steel construction, it can be used at any water depth. The design is diver or ROV operable for quick and efficient operation. The long blade life ensures that tool maintenance is kept to a minimum.



# Softline Cutter SL165

## SPECIFICATIONS

<b>Cutting capacity - Maximum</b>	Ø165 mm
<b>Maximum operating pressure</b>	690 bar
<b>Approx. weight in air</b>	54 kg
<b>Approx. weight in water</b>	36. 5kg



# WEBTOOL Wire Cutter 38 mm



## Key features

- Designed to cut wire up to 38mm diameter
- Closed jaw design
- Low pressure cylinder removes the need for intensifier panel
- Can be used at any water depth

The Webtool Wire Rope Cutter can cut rope and cables with large diameters in hostile environments and under harsh conditions.



# WEBTOOL Wire Cutter 38 mm

## SPECIFICATIONS

Input pressure	220 bar maximum input pressure
Approx. weight in air/water	16.5 kg / 14 kg
Swept volume cut stroke	0.5 litres
Swept volume return stroke	0.4 litres

## CAPABILITIES

Wire rope size	13 mm	19 mm	25 mm	32 mm	38 mm
Wire rope grade N/mm2	2160	2160	2060	1960	1770

# WEBTOOL Wire Cutter 54 mm



## Key features

- Proven design
- Designed to cut wire rope up to 54 mm diameter
- Open sided to allow easy positioning of the cutter along a rope length particularly useful when cutting in confined spaces
- Hydraulic return

Cutting large diameter wire rope and cable in the most hostile environments, under the toughest of conditions and the most demanding of circumstances requires something special.



# WEBTOOL Wire Cutter 54 mm

## SPECIFICATIONS

Wire diameter	54 mm
Dimensions (A - B - C - D - E)	710 mm - 125 mm - 165 mm - 55 mm - 107 mm
Weight	30 kg
Operating Pressure	700 bar
Swept Volume	375 cm3

# WEBTOOL Wire Cutter 75 mm



## Key features

- Proven design
- Designed to cut wire rope up to 75 mm diameter
- Hydraulically operated anvil for easy ROV deployment
- Integrated interlock ensures that the blade cannot activate until anvil is fully deployed
- Integrated hydraulic intensifier and internal relief valve

Cutting large diameter wire rope and cable in the most hostile environments, under the toughest of conditions and the most demanding of circumstances requires something special.





# WEBTOOL Wire Cutter 75 mm

## SPECIFICATIONS

Wire diameter	75 mm
Weight	43 kg
Input pressure	Max 210 bar

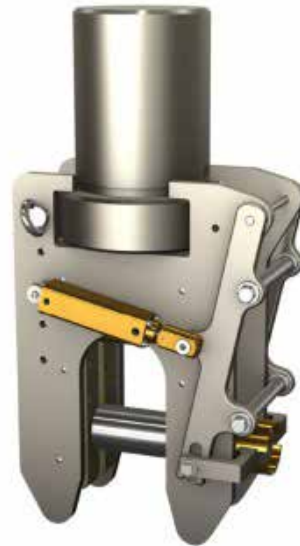
# WEBTOOL Wire Cutter 115 mm



## Key features

- Designed to cut wire rope up to 115 mm diameter
- Hydraulically operated anvil for easy ROV deployment
- Optional intensifier available

The WEBTOOL Wire Cutter can cut rope and cables with large diameters in hostile environments and under harsh conditions.



# WEBTOOL Wire Cutter 115 mm

## SPECIFICATIONS

Input pressure main cylinder	Max 690 bar
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Input pressure anvil	Max 210 bar
----------------------	-------------

## CAPABILITIES

Wire rope size	38 mm	45 mm	51 mm	64 mm	76 mm	102 mm	115 mm
Wire rope grade N/mm2	2160	2160	2160	2160	2160	1960	1770

# WEBTOOL Wire Cutter 135 mm



## Key features

- Designed to cut wire rope up to 135 mm diameter
- Hydraulically operated anvil for easy ROV deployment
- Optional intensifier available

The WEBTOOL Wire Cutter can cut rope and cables with large diameters in hostile environments and under harsh conditions.



# WEBTOOL Wire Cutter 135 mm

## SPECIFICATIONS

Input pressure main cylinder	Max 690 bar
------------------------------	-------------

Input pressure anvil	Max 210 bar
----------------------	-------------

## CAPABILITIES

Wire rope size	51 mm	64 mm	76 mm	102 mm	115 mm	127 mm
Wire rope grade N/mm2	2160	2160	2160	1960	1770	1770



# WEBTOOL Wire Cutter 155 mm



## Key features

- Designed to cut wire rope up to 155 mm diameter
- Hydraulically operated anvil for easy ROV deployment
- Optional intensifier available

The WEBTOOL Wire Cutter can cut rope and cables with large diameters in hostile environments and under harsh conditions.



# WEBTOOL Wire Cutter 155 mm

## SPECIFICATIONS

Input pressure main cylinder	Max 690 bar
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Input pressure anvil	Max 210 bar
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## CAPABILITIES

Wire rope size	76 mm	102 mm	115 mm	127 mm	153 mm
Wire rope grade N/mm2	2160	2160	2160	1960	1880

# Sabre Cable Cutter 135 mm



## Key features

- Designed to cut cable up to 135 mm diameter
- Open jaw for easy ROV deployment
- Optional intensifier available
- Optional accumulator system for emergency cutting operations

The Imenco Sabre™ Subsea Hydraulic Cable Cutter is a compact and high performance tool with replaceable share blade. Every tool arrives with a Cable rope gate and optionally can be delivered with integrated pressure booster and ROV Hot stab system.



# Sabre Cable Cutter 135 mm

## SPECIFICATIONS

Cable diameter	135 mm
Weight	179 kg
Input pressure main cylinder	Max 700 bar
Main Dimension	978 mm x 205 mm x 307 mm

# WEBTOOL Cable Cutter 270 mm



## Key features

- Proven design
- Designed to cut umbilicals up to  $\varnothing 270$  mm diameter
- Hydraulically operated anvil for easy ROV deployment
- Optional intensifier available

The Webtool Cable Cutter cuts large diameter cables, umbilicals and risers in the most hostile environments



# WEBTOOL Cable Cutter 270 mm

## SPECIFICATIONS

Weight	352 kg
Dimensions	883 cm x 114 cm
Cutting Diameter	270 mm
Input pressure main cylinder	Max 690 bar
Input pressure anvil	Max 210 bar

# Hydraulic Intensifier Panel



## Key features

- Compatible with 2 port hot stabs. No additional drain port is required
- Fitted with industry standard MiniBOOST<sup>TM</sup> Intensifier
- All fittings rated to 690 bar (10,000 psi)
- Suitable for use at any water depth
- Compact unit – Fits into limited ROV payload space
- Aluminium and stainless steel construction – Corrosion resistant
- Robust Design – Pressure gauges are recessed into the body
- Dual pressure gauges – Input and output pressures can be accurately monitored
- Factory set relief valve on output stage for additional safety

The HP690 features a unique integrated safety circuit that automatically bleeds excess pressure caused by surfacing or temperature variation back to tank. Comes with removable mounting straps.



# Hydraulic Intensifier Panel

## SPECIFICATIONS

<b>Dimensions</b>	153 mm x 252 mm x 144 mm
<b>Weight in air (approx.)</b>	10.7 kg (including mounting straps)
<b>Weight in water (approx.)</b>	7.1 kg (including mounting straps)
<b>Fitted with</b>	4:1 ratio intensifier
<b>Max input pressure</b>	172.5 bar (2500 PSI)
<b>Max output pressure</b>	690 bar (10,000 PSI)
<b>Max input flow</b>	14 litre/minute
<b>Max output flow</b>	2 litre/minute



# S180 ROV Scissor



## Applications

Hydraulic Rescue Equipment  
for Emergency Use

The hydraulic S180 ROV Scissor is a quick and efficient cutting method in ROV and Diver operations.



# ROV scissor S180

## SPECIFICATIONS

Opening width	185 mm
Weight	13.9 kg
Max. cutting performance with solid bar	Ø 30 mm
Power input	170 bar
Power output	700 bar
Built in booster	690 bar

# S270 Hydraulic ROV Scissor



The ROV Scissor is used and operated by an ROV, and used for cutting pipes, round bars, scaffolding and other materials. There is a built-in booster, which enables the scissor to get 680 bar when operating through ROV. The scissor also has a fishtail handle making it easy to operate for the ROV.



# S270 Hydraulic ROV Scissor

## SPECIFICATIONS

Opening width	270 mm
Weight	18 kg
Power input	170 bar
Power output	700 bar
Built in booster	690 bar

# Versatile Super Grinder



## Applications

Designed for cutting steel and concrete materials

## Key features

- Supplied with diamond cutting blades
- Requires low maintenance
- Ready for installation to ROV
- All together Supplied in an aluminum case

The Versatile Super Grinder is designed for quick and efficient cutting of concrete and steel materials. The Grinder can cut through almost anything with the 300mm diamond blade. The Super Grinder is powered by a bent axis variable displacement motor, and can run in both directions.



# Versatile Super Grinder

## SPECIFICATIONS

Effect with 50 L/min	15,8 Kw
Speed 210 bar-50 L/min	2700 rpm
Weight in air	19k g
Manipulator handle	Fishtail
Blade interface	1" /25,4 mm
Flow Range	5-50 lpm
Pressure range	70-210 bar
Hose length	3500 mm
Hose connections	JIC 8 fi male
Blade dimension	300 mm

# GR29 Underwater Grinder



## Key features

- Stainless steel spools and fasteners
- Two position assist handle for right/left hand operation
- Oversize trigger with guard for diver comfort
- Adjustable wheel guard for infinite positions
- Plastisol covered handle for comfortable ergonomic grip
- Use with grinding wheels, hull scrubbing brushes, wire and nylon brushes, barnacle busters and Desmond wheels
- 3200 rpm @ 12 gpm
- Cast-in lifting eye
- Can be operated by ROV

The hydraulic GR29 Underwater Grinder is a right angle grinder (vertical grinder) that can be used for grinding and cleaning underwater applications with a variety of wheels, brushes and attachments. The high torque gear motor drives a standard 5/8 -11 threaded spindle. A 9" adjustable wheel guard, two position assist handle and trigger guard are standard. Painted in high-visibility yellow.



# GR29 Underwater Grinder

## SPECIFICATIONS

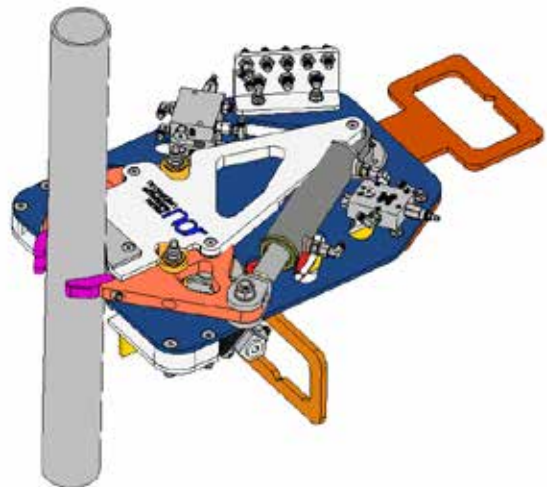
Length	28 cm
Width (with guard)	26 cm
Weight (with guard)	6.8 kg
Capacity	23 cm wheel
Spindle	5/8" – 11 Threaded
Circuit type	Open center
Flow range	15-45 lpm
Hydraulic ports	-8 SAE O-ring
Connection type	3/8" male pipe adapter



# NOR SAW 30-120 mm



The equipment is constructed to cut pipes under water by attaching it to an ROV and operating it with hydraulics. The saw is held in place during operation by built in clamps and contains a rotating blade that is fed into the work piece.



# NOR SAW 30-120 mm

## SPECIFICATIONS

<b>Ø 400 mm blade</b>	Min 30 mm / max 120 mm
<b>Weight in air (complete assembly)</b>	81 kg

<b>Hydraulics input connections (ROV/tool interface)</b>	
<b>Feed motor</b>	JIC 9/16"
<b>Clamp cylinder</b>	JIC 9/16"
<b>Blade rotation motor</b>	JIC 3/4"

<b>Feed motor</b>	
<b>Work -pressure pre-set</b>	10 bar
<b>Max pressure</b>	40 bar
<b>Flow max</b>	40 l/min

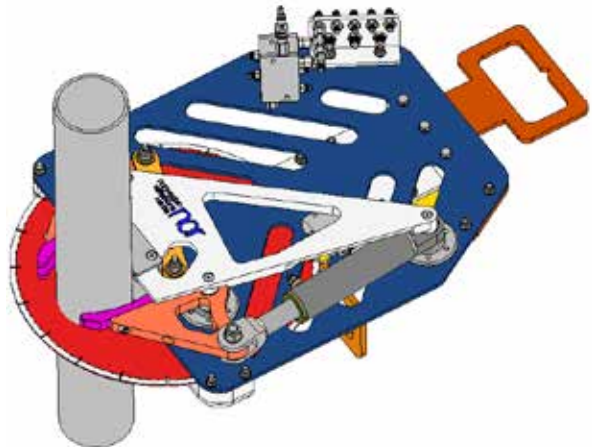
<b>Clamp cylinder</b>	
<b>Work-pressure pre-set</b>	110 bar
<b>Max pressure</b>	110 bar
<b>Flow max</b>	40 l/min

<b>Blade rotation motor</b>	
<b>Work-pressure</b>	200 bar
<b>Max pressure</b>	400 bar
<b>Flow min</b>	46 l/m
<b>Flow max</b>	100 l/min

# NOR SAW 60-200 mm



This equipment is constructed to cut pipes under water by attaching it to a ROV and operating it with hydraulics. The saw is held in place during operation by built in clamps and contains a rotating blade that is fed into the work piece.



# NEW NOR SAW 60-200 mm

## SPECIFICATIONS

<b>Ø 612 mm blade</b>	Min 30 mm / max 120 mm
<b>Weight in air (complete assembly)</b>	81 kg

<b>Hydraulics input connections (ROV/tool interface)</b>	
<b>Feed motor</b>	JIC 9/16"
<b>Clamp cylinder</b>	JIC 9/16"
<b>Blade rotation motor</b>	JIC 3/4"

<b>Feed motor</b>	
<b>Work -pressure pre-set</b>	10 bar
<b>Max pressure</b>	40 bar
<b>Flow max</b>	40 l/min

<b>Clamp cylinder</b>	
<b>Work-pressure pre-set</b>	110 bar
<b>Max pressure</b>	110 bar
<b>Flow max</b>	40 l/min

<b>Blade rotation motor</b>	
<b>Work-pressure</b>	200 bar
<b>Max pressure</b>	400 bar
<b>Flow min</b>	46 l/m
<b>Flow max</b>	100 l/min

# Torque Tools

TORQUE TOOLS CLASS 1-2

TORQUE TOOLS CLASS 1-4

ETORQUE TOOL CLASS 1-4

TORQUE TOOLS CLASS 5

TORQUE TOOLS CLASS 6-7

GEARBOX CLASS 4-7

GEARBOX ADAPTER

PETROBRAS TORQUE TOOL

SYCLONE 1 TORQUE TOOL

17D TO 17H TORQUE TOOL ADAPTER

TORQUE TOOL RETROFIT ANODES

TORQUE LIMITER TOOL

MANUAL LOW TORQUE TOOL SMART SOCKET

MANUAL LOW TORQUE TOOL SMART API 17H TYPE A, B & C

JUPITER 2

FLYING LEAD ORIENTATION TOOL - FLOT

PINEAPPLE TOOLS

VERIFICATION UNIT CLASS 1-4

VERIFICATION UNIT CLASS 5

VERIFICATION UNIT CLASS 6-7 20 KNM

RETROFIT ANODE TORQUE TOOL VERIFICATION UNIT TOOL

VERIFICATION UNIT CLASS 6-7 40 KNM

# Torque Tools Class 1-2



## Key features

- Torque range 30-160 Nm (22-120 ft lbs)
- Conforms to ISO 13628-8 Class 1 and 2 bucket interface
- Overrides valves operated by ROV
- Tool can be supplied with a socket to operate paddle and t-bar style interfaces to ISO 13628-8
- Sensors directly measure the torque between the reaction lugs and the driven shaft of the tool
- The sensor is a strain gauge bridge optimized for torsion measurement
- Has a fishtail handle
- Includes operation maintenance manual

This torque tool has been specifically developed to provide the highest level of performance. It has integral torque and turns counting sensors. When matched with a FORUM supplied torque tool control manifold, it can provide precise feedback on torque response of any subsea operation. These can alternately be utilized by connecting a FORUM Universal Subsea Display, which would give a visual read-out of live torque feedback and turns count. USD sold separately.



# Torque Tools Class 1-2

## SPECIFICATIONS

<b>Weight (air/water)</b>	26 kg/18 kg
<b>Torque interface</b>	ISO 13628-8:2001 € Fig. 18 & 13
<b>Torque range</b>	30-160 Nm (22-120 ft lbs)
<b>Typical repeatability</b>	+/- 6% (geroter variation at full load)
<b>Socket sizes</b>	Class 1 & 2, Paddler/T-barto ISO q13 Socket
<b>Electrical connector</b>	8 Pin Burton
<b>Hydraulic</b>	Mineral oil

# Torque Tools Class 1-4



## Key features

- ISO 13628-8 Fig 18 (API 17D) Class 1-4
- Max Torque 2,700 Nm (2,000 ft lbs)
- Dual range
- Dual Sensor Electronic Turns Counter
- Internal Strain Gauge
- Latching Wings
- Supplied in offshore suitable transit case

## What's in the box

- Torque Tool.
- Class 1 & 2 Socket (11/16" Sq)
- Class 3 socket (1-1/8" Sq)
- Class 4 socket (1-1/2" Sq)
- JIC Hose Set
- Low range motor
- Turns and torque Display
- 8 Pin Burton Dummy
- Operations & Maintenance Manual

This torque tool has integral torque and turns-counting sensors. When matched with a FORUM supplied torque tool control manifold, it can provide precise feedback on torque response of any subsea operation. These can alternatively be utilised by connecting a FORUM Universal Subsea Display (supplied), which would give a visual read-out of live torque feedback and turns count. The tool conforms to the ISO 13628-8 Fig 18 Class 1-4 bucket interface used extensively in the subsea industry for valve overrides operated by ROV. With latching wings it holds onto the interface. The latching wings are hydraulically driven forward and spring retracted. Thus in the case of a loss of hydraulic power the wings will release. The tool uses a high specification drive motor for consistent torque output characteristics, even if used with direct hydraulic pressure control without the feedback sensor.





# Torque Tools Class 1-4

## SPECIFICATIONS

<b>Torque Interface</b>	ISO 13628-8 fig 18 Class 1-4
<b>Torque Range</b>	405-2700 Nm (300-2000 ft lbs) (80cc motor fitted) 81-405 Nm (60-300 ft lbs) (12.5cc motor fitted)
<b>Motor Size</b>	12.5 cc nominal and 80 cc nominal
<b>Latching Strength</b>	1 tonne @ 160 bar
<b>Weight (Air/Water)</b>	45 kg / 35 kg (98 lbs / 77 lbs)
<b>Hydraulic</b>	Mineral Oil (Tellus 32)
<b>Electrical Connector</b>	8 Pin Burton
<b>Sensors</b>	Dual Sensor Inductive Turns count sensor Internal Strain Gauge

# eTorque Tool Class 1-4



The Universal Electrical Torque Tool is designed to improve operational efficiency with the highest level of performance. The eTorque Tool provides precise torque and turn feedback and control. It is able to operate all rotational valves continuously when submersed, without the need for any change of motor size, gears steps or valve interfaces, and thereby saves valuable rig/vessel time.



# eTorque Tool Class 1-4

## INTERFACE INFORMATION

Manufacturer	Oceaneering
L x W x H	570 mm (480 mm without ROV handle) x 228 mm x 240 mm
Weight in air	43 kg
Weight in water	32 kg
Temperature	-10° to 50°
Depth rating	3.000 m
Torque range	From 50 to 2.700 Nm
Material	Aluminium / 316 L
Fastener materials	A4-80
Power source input	3-phase 0-380VDC 0-25A
Oil type	Hydraway 22 or similar

# Torque Tools Class 5



## Key features

- ISO 13628-8 Fig 18 (API 17D) Class 5
- Max Torque 6,750 Nm (5,000 ft lbs)
- Dual Sensor Electronic Turns Counter
- Supplied in offshore suitable transit case

## What's in the box

- Torque Tool
- Fish tail Handle
- Universal Subsea Display
- USD Battery Pack
- USD Battery Pack
- Interconnect Cables
- USD Charger
- Operations & Maintenance Manual

This torque tool has been specifically developed to provide the highest level of performance using a high specification motor and robust gearbox in an efficient, low weight assembly. The socket is specially profiled for easy alignment. A range of control accessories is available including a precision surface torque verification unit for pre-dive testing.

The tool conforms to the ISO 13628-8 Fig 18 Class 5 interface used extensively in the subsea industry for pipeline valve operations by ROV. The tool uses a high specification drive motor for consistent torque output characteristics.



# Torque Tools Class 5

## SPECIFICATIONS

<b>Torque Interface</b>	ISO 13628-8 Fig 18 Class 5
<b>Maximum Torque</b>	6,750 Nm (5,000 ft lbs)
<b>Torque Range</b>	1,350-6,750 Nm (1,000-5,000 ft lbs)
<b>Socket Size</b>	2" Square
<b>Motor Size</b>	315 cc
<b>Weight (Air/Water)</b>	54 kg / 41 kg (119 lbs / 90 lbs)
<b>Hydraulic</b>	Mineral Oil
<b>Electrical Connector</b>	8 Pin Burton
<b>Sensors</b>	Dual Sensor Inductive Turns count sensor

# Torque Tools Class 6-7



## Key features

- ISO 13628-8 Fig 18 (API 17D) Class 6/7
- Max Torque 17,000 Nm (12,600ft lbs)
- Dual Sensor Electronic Turns Counter
- Supplied in offshore suitable transit case

## What's in the box

- Torque Tool.
- Class 6 Socket
- Class 7 Socket
- Universal Subsea Display
- USD Battery Pack
- Fish Tail Handle
- Bladder style compensator
- Operations & Maintenance Manual
- USD Charger

This torque tool has been specifically developed to address the increasing requirement for a 17 kNm Tool. The interface is based on the ISO 13628-8 Fig 18 Class 7, with the exception of the length of the nose of the tool, this is based on the industry standard. The tool can be supplied with a Class 6 Socket option.

The tool can be supplied with a hot stab receptacle, electronic turns counter and integrated compensator unit, to allow the tool to be deployed to the sub-sea work site in a basket, separate from the ROV and then connections made with a hot stab.

A socket inset is used to allow Class 6 size socket or Class 7 size socket valves to be operated.



# Torque Tools Class 6-7

## SPECIFICATIONS

<b>Torque Interface</b>	ISO 13628-8 Fig 18 (Reduced Length)
<b>Maximum Torque</b>	17,000 Nm (12,600 ft lbs)
<b>Socket Sizes</b>	3-1/2" Square & 2-5/8" Square
<b>Weight in air/water</b>	74/55 kg
<b>Electrical Connector</b>	8 Pin Burton
<b>Sensors</b>	Dual Sensor Inductive Turns count sensor
<b>Hydraulic</b>	Mineral Oil

# Gearbox Class 4-7



The Class 7 Gearbox is designed to enable operation of Class 7 and Class 6 interfaces using a Class 4 torque tool for maximum flexibility at minimum cost.

The gearbox can be configured for both short and long Class 7 interface, in addition to Class 6 using a square insert.

The gearbox is delivered as a complete kit including required components to adapt the tool to the interfaces as described above. Maximum output is 40 kNm.





# Gearbox Class 4-7

## SPECIFICATIONS

Overall dimensions	Ø280 mm x 514 mm
Weight (Air/Water)	71.1 kg / 56.94 kg
Pressure rating	300 bar
Max water depth	3000 m
Max output, gear ration 1:14,273	40 kNm
Max output, gear ration 1:6	15 kNm
Max output, gear ration 1:3,78	10 kNm
Gear oil	Q8 T 65 75W-90

# Gearbox Adapter Class 6-7



The Gearbox Adaptor contains a class 6/7 output interface and a receptacle for a class 4 torque tool. This adaptor provides all the required torque and maintains the control of a class 4 torque tool. This Gearbox Adaptor enables you to achieve the 35,000 Nm. This cannot be achieved with a standalone tool, because it needs to be very large.



# Gearbox Adapter Class 6-7

## SPECIFICATIONS

<b>Input</b>	API 17D class 4 rotary torque receptacle
<b>Output</b>	2,700 Nm maximum with 1.5" male square drive 35,000 Nm with female square adaptors
<b>Ratio</b>	12.2:1 mechanical advantage / 14.1:1 velocity ration
<b>Depth rating</b>	3,000 m with integral pressure compensation
<b>Compact dimensions</b>	562.2 mm x 400 mm
<b>Extended dimensions</b>	770 mm x 400 mm
<b>Weight class 7 standard in air/water</b>	76 kg / 54 kg
<b>Weight class 7 short in air/water</b>	60 kg / 54 kg

# Petrobras Standard Torque Tool



## Key features

- Petrobras Interface
- Max Torque 2,700 Nm (2,000 ft lbs)
- Dual Sensor Electronic Turns Counter
- Internal Strain Gauge
- Supplied in offshore suitable transit case
- Three torque ranges

## What's in the box

- Torque Tool
- T-Bar Handle
- Bladder style compensator
- Socket 1-1/16" Hex
- Socket 1-1/4" Hex
- Socket 1-3/8" Hex
- Socket 1-5/16" A/F Hex
- Socket 1-7/16" A/F Hex
- Burton Flying Lead
- Operations & Maintenance Manual

This torque tool has been specifically developed to provide the highest level of performance. It has integral torque and turns count sensors. When matched with a FORUM supplied control manifold, it can provide precise feedback on torque response of any subsea operation.

The tool conforms to the Petrobras style interface used in the subsea industry for valve overrides operated by ROV. Most common applications are used with Tool Deployment Units (TDU). It can be configured in three ways to provide 3 torque ranges, with a maximum of 2700 Nm



# Petrobras Standard Torque Tool

## SPECIFICATIONS

<b>Torque Interface</b>	Petrobras Standard
<b>Torque Range</b>	-
<b>High</b>	445-2,700 Nm (600-2,000 ft. lbs.)
<b>Med</b>	90-445 Nm (120-600 ft. lbs.)
<b>Low</b>	20-90 Nm (25-120 ft. lbs.)
<b>Weight (Air/Water)</b>	39 kg /31 kg (85 lbs /68 lbs.)
<b>Electrical Connector</b>	8 Pin Burton
<b>Sensors</b>	Dual Sensor Inductive Turns count sensor
<b>Hydraulic</b>	Mineral Oil
<b>Socket Sizes</b>	1-1/16", 1-1/4", 1-3/8", 1-5/16", 1-7/16" A/F hex

# Syclone 1 Torque Tool



## Key features

- ROV-operated torque tool
- Small, continuously rotating torque tool with a lot of force
- Rotates both ways with high precision and speed
- Fully adjustable torque
- Uses a standard reaction arm or a custom-made reaction arm 3D assembly available

Syclone is a small powerful torque tool which can be used in various applications, rotates both ways with high precision and speed. Can be used with different reactions arms and a wide range of sockets.



# Syclone 1 Torque Tool

## SPECIFICATIONS

<b>Model</b>	Syclone 1
<b>Type</b>	Lightweight subsea torque tool
<b>Drive size</b>	3/4" square
<b>Work pressure range</b>	20-100 bar
<b>Torque range</b>	150-480 Nm
<b>Max rpm</b>	42 rpm @ 20 l/mm
<b>Max flow</b>	20 l/mm
<b>Weight</b>	3.3 kg
<b>Dimensions</b>	70.4 mm x 212 mm

# 17D to 17H Torque Tool Adapter



## Key features

- ISO 13628-8 Class 4 Female Bucket
- API 17H Male interface 35mm AF square
- Max torque 2,700 Nm (2,000 ft lbs)
- Supplied with 900 Nm and 2,700 Nm Shear Pin
- Supplied in offshore suitable transit case

## What's in the box

- Adaptor
- Shear Pins

The adaptor is used to convert from ISO 13628-8 Class 4 (API 17D) to API 17H High Torque interface. Shear pins are supplied with the tool to protect the high torque interface from over torque.





# 17D to 17H Torque Tool Adapter

## SPECIFICATIONS

<b>Female Interface</b>	ISO 13628-8 fig 18 Class 1-4
<b>Male Interface</b>	ISO 13628-8 fig 14 High Torque
<b>Maximum Torque</b>	2,700 Nm (2,000ft lbs)
<b>Weight in air/water</b>	14/10 kg

# Torque Tool Retrofit Anodes



## Key features

- Fish tail handle
- Comes with required hoses comes with Operating Maintenance Manual
- Optional verification unit

This purpose made Torque Tool is specially designed for secure installation of Imenco Retrofit Clamps. With its automatic hold function, Imenco Retrofit Clamps can be picked up, carried and installed by the Torque Tool in one continuous operation. With the integrated reaction fingers, no torque tension is transferred to the ROV manipulator.



# Torque Tool Retrofit Anodes

## SPECIFICATIONS

Dimensions (ex. ROV Handle)	Ø182 mm x 533 mm
Operating pressure	0-200 bar
Torque	100 Nm-2000 Nm
Weight in water	30 kg
Weight in air	35 kg
Maximum pressure	210 bar
Hydraulic connections	4 JIC

# Torque Limiter Tool



## Key features

- Torque range from 10 to 135 Nm
- Adjustable maximum output torque
- Mechanically operated by ROV
- Accurate torque adjustment
- Low weight

The tool can be adjusted to a maximum output torque setting to avoid damaging subsea valves caused by over torque. The torque limiter is highly accurate for both clockwise and counter-clockwise turns.



# Torque Limiter Tool

## SPECIFICATIONS

Dimensions	L 546 mm x Ø95
Weight in air/submerged	~15 kg /~12 kg
Depth rating	MSW 3000
Max. inlet torque	170 Nm
Max output torque	135 Nm

## TORQUE LIMITER RANGES

Configuration 1	10-35 Nm
Configuration 2	30-80 Nm
Configuration 3	40-135 Nm

# Manual Low Torque Tool Smart Socket



## Key features

- Torque range from 20 to 200 Nm
- Adjustable maximum output torque
- Mechanically operated by ROV
- Supplied with torque wrench to allow accurate torque settings
- No need to dismantle tool for torque adjustment
- Low weight
- “Smart” multi socket

The Manual Torque Tool or Torque Limiter is designed to allow the ROV manipulator operation of API class 1-4 rotary torque interfaces. The tool limits the torque that can be transmitted from the ROV manipulator to the valve stem during an ROV intervention operation, mitigating against the possibility of over-torquing and damaging the valve or valve stem. The tool is fitted with an integral, adjustable torque limiting clutch which can be pre-set to any torque from 20 – 200 Nm. The nose of the tool features a “smart” multi-socket interface which eliminates tool reconfiguration time on deck.



# Manual Low Torque Tool Smart Socket

## SPECIFICATIONS

<b>Torque range</b>	20 – 200 Nm
<b>Weight in air/submerged</b>	~14 kg /~12 kg
<b>Depth rating</b>	Any water depth

# Manual Low Torque Tool API 17H Type A, B & C



## Key features

- Torque range from 20 to 200 Nm
- Adjustable maximum output torque
- Mechanically operated by ROV
- Supplied with torque wrench to allow accurate torque settings
- No need to dismantle tool for torque adjustment
- Low weight
- Multi-function end effector

The Manual Torque Tool or Torque Limiter is designed to allow the ROV manipulator operation of API 17H / ISO 13628-8 TYPE A, B & C torque interfaces. The tool features an adjustable torque limiting clutch mechanism, which acts to limit the maximum torque that can be transmitted from the ROV manipulator to the valve interface during an ROV intervention operation, mitigating against the possibility of over-torquing and damaging the valve or valve stem. The tool end effector is designed to be capable of interfacing onto either type A (flat paddle) or a type B & C (T-bar) Valve handles.





# Manual Low Torque Tool Smart API 17H Type A, B & C

## SPECIFICATIONS

<b>Torque range</b>	20 – 200 Nm
<b>Weight in air/submerged</b>	~8 kg /~6 kg
<b>Depth rating</b>	Any water depth

# Jupiter 2



## Key features

- 1 x NG6 Pressure & Flow Control
- Proportional Valve drives use stable 12 bit Constant Current Drive
- Pressure Control Valve has 250 bar transducer to monitor tool pressure
- 4 x NG3 Bi-directional solenoid valves with externally adjustable fully shrouded meter and throttles

The Jupiter Torque Tool Control System offers an accurate and repeatable solution to client requirements for the control of Torque Tools in high integrity applications.



# Jupiter 2

## SPECIFICATIONS

Size	245 mm x 325 mm x 187mm
Depth	3000 msw
Weight	28.8 kg in air / 16.8 kg in seawater
Voltage	115 Volts
Current	2 Amps
Power	240 Watts
Water Detect	1 x Internal Water Detector (2 x Sense Points)

# Flying Lead Orientation Tool - FLOT



## Applications

ROV Tools.

## Key features

- +/- 15 deg roll angle
- Plus 60 minus 90 deg pitch
- Counterbalance Valve on both actuators
- 250 kg Payload
- Supplied in offshore suitable transit case

## What's in the box

- Flying Lead Orientation Tool
- Adaptor to fit Forum Torque Tool
- Supply and return hoses
- Operations & Maintenance Manual

The FLOT tool is designed to operate in conjunction with a torque tool and is used to orientate and guide flying leads into the stab plate connections. The FLOT tool is designed to take the FORUM Class 1-4 torque tool, but can easily accommodate similar tools from other manufacturers. A rotary actuator allows a pitch alignment of plus 60 or minus 90 degrees with a load of up to 250 kg attached. The tool is also equipped with a roll alignment function giving a rotation of plus or minus 15 degrees.

The FLOT tool is compact and the tool mounting base is supplied with a selection of mounting holes for mounting within the forward structure of the ROV. The pitch and roll actuators are controlled from the ROV's spare directional control valves.



# Flying Lead Orientation Tool - FLOT

## SPECIFICATIONS

<b>Weight in air/water</b>	77 kg / 57 kg (169 lbs / 125 lbs)
<b>Pitch</b>	(excel torque tool)
<b>Rotation</b>	+60,- 90 degrees
<b>Payload Capacity</b>	250 kg (550 lb) mounted on torque tool, through full range of travel
<b>Hydraulic control from ROV</b>	Two off bi directional solenoid control valves plus drain
<b>Operating Fluid</b>	Hydraulic Oil
<b>Operating Pressure</b>	207 bar (3000 psi)
<b>Hydraulic Fittings</b>	JIC or Swagelok

# Pineapple Tools



## Key features

- Fishtail handle
- Flex joint

The tool is used to operate ISO Class 1, 2, and 4 interfaces without the use of a torque tool.

The tool utilizes the rotate function on the manipulator to generate the required torque.



# Pineapple Tools

## SPECIFICATIONS

<b>Length</b>	285 mm
<b>Width of socket</b>	70 mm
<b>Width of handle</b>	120 mm
<b>Interface</b>	ISO 13628-8 Class 1, 2, & 4 sockets
<b>Maximum torque</b>	Dependant on manipulator
<b>Materials</b>	Stainless steel
<b>Weight in air/water</b>	3 kg /2 kg

# Verification Unit Class 1-4



## Key features

- ISO 13628-8 Fig 18 (API 17D) Class 1-4
- Max Torque 2,700 Nm (2,000ft lbs)
- Hand Held Digital Read Out
- USB output to Torque Tool Control System
- Includes easily Interchangeable Shafts to suit full range
- Supplied in offshore suitable transit case

## What's in the box

- Torque Tool Bucket inc sensor
- Class 1 & 2 Adaptor (11/16" Sq)
- Class 3 Adaptor (1-1/8" Sq)
- Class 4 Adaptor (1-1/2" Sq)
- Hand-held Display
- Bucket to Display Cable
- Display to PC Cable

The Class 1-4 Verification Unit consists of a standard ISO class 1-4 torque reaction bucket with sturdy base and built in torque sensor. The unit comes complete with USB cable to connect to the FORUM Torque Tool Control System for Auto Calibration.





# Verification Unit Class 1-4

## SPECIFICATIONS

<b>Torque Interface</b>	ISO 13628-8 fig 18 Class 1-4
<b>Maximum Torque</b>	2,700 Nm (2,000 ft lbs)
<b>Hand-held Unit</b>	Battery Powered
<b>Materials</b>	Steel Shaft, Aluminium Housing

# Verification Unit Class 5



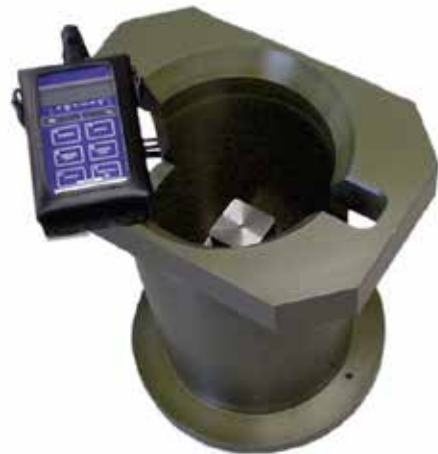
## Key features

- ISO 13628-8 Fig 18 (API 17D) Class 5
- Max Torque 6,750 Nm (5,000ft lbs)
- Hand Held Digital Read Out
- USB output to Torque Tool Control System
- Supplied in offshore suitable transit case

## What's in the box

- Torque Tool Bucket inc sensor
- Hand-held Display
- Bucket to Display Cable
- Display to USB Cable
- Hand-held Display Charger
- Power Adaptors for display charger
- Operations & Maintenance

This unit is used to give pre-dive surface confirmation of the torque tool calibration. It consists of a standard ISO class 5 torque reaction bucket with sturdy base and built in torque sensor. The unit comes complete with USB cable to connect to the PSS Torque Tool Control System for Auto Calibration.



# Verification Unit Class 5

## SPECIFICATIONS

<b>Torque Interface</b>	ISO 13628-8 fig 18 Class 5
<b>Maximum Torque</b>	6,750 Nm (5,000 ft lbs)
<b>Hand-held Unit</b>	Battery Powered
<b>Materials</b>	Steel Shaft, Aluminium Housing

# Verification Unit

## Class 6-7 20 kNm



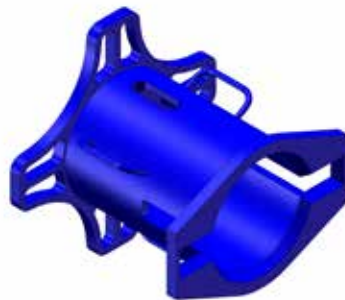
### Key features

- ISO 13628-8 Fig 18 (API 17D) Class 6 & 7
- Max Torque 20,000 Nm (15,000ft lbs)
- Hand Held Digital Read Out
- USB output to Torque Tool Control System
- Supplied in offshore suitable transit case

### What's in the box

- Torque Tool Bucket inc sensor
- Hand-held Display
- Bucket to Display Cable
- Display to USB Cable
- Operations & Maintenance Manual

This unit is used to give pre-dive surface confirmation of the torque tool calibration. It consists of a standard ISO class 6-7 torque reaction bucket with sturdy base and built in torque sensor. The unit comes complete with USB cable to connect to the FORUM Torque Tool Control System for Auto Calibration. The ISO standard is unclear on bucket depth so it is best to check detail drawings before purchase. The unit can be used up to 20 kNm and has adaptor for both Class 6 and Class 7 tools.



# Verification Unit Class 6-7 20 kNm

## SPECIFICATIONS

<b>Torque Interface</b>	ISO 13628-8 Fig 18 Class 6 & 7
<b>Maximum Torque</b>	20,000 Nm (15,000 ft lbs)
<b>Input Square</b>	Class 7 (3.5" Square) - Class 6 (2-5/8" Square)

# Retrofit Anode Torque Tool Verification Unit Tool



## What's in the box

- Torque Tool Bucket inc sensor
- Imenco torque reaction bucket
- Hand-held Display
- Bucket to Display Cable
- Display to PC Cable

This unit is used to give pre-dive surface confirmation of the torque tool calibration. It consists of a Imenco torque reaction bucket with sturdy base and built

In torque sensor. The unit comes complete with USB cable to connect to the FORUM Torque Tool Control System for Auto Calibration.



# Retrofit Anode Torque Tool Verification Unit Tool

## SPECIFICATIONS

<b>Torque</b>	0-2700 Nm
<b>Weight</b>	20 kg
<b>Dimensions (ex. ROV handle)</b>	Ø150 mm x 350 mm

# Verification Unit

## Class 6-7 40 kNm



### Key features

- Conform to ISO 13628-8:2002(E)
- Conform to IP65/67
- Bi-Directional calibration provided as standard
- Norbar 'SMART' built in intelligence for plug & play
- Limit indication for up to 8 user defined target values
- Single or continuous RS-232 serial data output
- Lightweight all aluminium construction Incorporated lifting handles
- Torque range 4 kNm - 40 kNm

This unit is used to give pre-dive surface confirmation of the torque tool calibration. It consists of a standard ISO Class 7 torque reaction bucket with a sturdy base, and built-in torque sensor. The unit can be used up to 40 kNm and has adaptor for Class 7 tools.





# Verification Unit Class 6-7 40 kNm

## SPECIFICATIONS

<b>Torque Interface</b>	ISO 13628-8 Fig 18 Class 6 & 7
<b>Maximum Torque</b>	20,000 Nm (15,000 ft lbs)
<b>Input Square</b>	Class 7 (3.5" Square) - Class 6 (2-5/8" Square)

# Manipulators

**SCHILLING ATLAS 7R**

**SCHILLING T4**

**4 FINGER MANIPULATOR JAW**

**3 FINGER MANIPULATOR JAW**

# Schilling Atlas 7R



The ATLAS 7R is a new class of heavy-duty, seven-function grabber that has been designed to lift heavy loads, while being lightweight and easy to control. With six degrees of freedom, a high lift capacity and a depth rating of 6,500 msw, the ATLAS gives operators the freedom and strength to perform a wider range of heavy-duty jobs in harsh subsea environments.



# Schilling Atlas 7R

## SPECIFICATIONS

Weight in air/water	73 kg / 50 kg
Arm	Maximum lift, nominal 500 kg
Depth rating	6,500 msw
Hydraulics flow	5.7 lpm
Hydraulics maximum pressure	3000 psi / 207 bar
Wrist torque	205 Nm

# Schilling T4



## Key features

- Acute Precision Control
- Durable Through the Harshes Conditions
- Reliability Through the Harshes Conditions
- Large Operating Envelope
- High Lift-to-Weight Ratio
- Titanium Construction

The TITAN 4 is widely regarded as the world's premier servo-hydraulic remote manipulator system. Since 1987, these systems have been the industry standard for dexterous manipulator systems used in subsea applications, and are extensively used on ultra-heavy work class ROVs.



# Schilling T4

## SPECIFICATIONS

<b>Standard Depth</b>	4,000 msw
<b>Extended Depth</b>	7,000 msw
<b>Weight in air</b>	100 kg
<b>Weight in water</b>	78 kg
<b>Lift at full extension</b>	122 kg
<b>Maximum lift, nominal</b>	454 kg
<b>Standard Gripper Opening</b>	99 mm
<b>Grip Force, nominal</b>	4,092 N
<b>Wrist torque, nominal</b>	170 Nm
<b>Wrist rotate, cont.</b>	6-35 rpm
<b>Available Flow</b>	5.7 – 19 lpm
<b>Max pressure</b>	3,000 psi

# 4 Finger Manipulator Jaw



Imenco's 4-Finger Manipulator Jaw is the first choice for the vast majority of ROV Operators around the world.

The 4 fingered manipulator jaw is intended as a hydraulically operated tool for attachment to a Schilling Robotics work-class ROV manipulator arm.

The product is ideal for ROV operations where a combination of precision, flexibility and strength are required.



# 4 Finger Manipulator Jaw

## SPECIFICATIONS

<b>Main Dimensions</b>	Ø115 x 263 mm
<b>Cylinder Working Pressure</b>	207 bar
<b>Maximum jaw opening</b>	170 mm (For jaw made before 2012: 165 mm)
<b>Depth rating</b>	7000 msw
<b>Material</b>	S165M Stainless steel



# 3 Finger Manipulator Jaw



Imenco's 3-Finger Manipulator Jaw is the first choice for the vast majority of ROV Operators around the world.

The 3 fingered manipulator jaw is intended as a hydraulically operated tool for attachment to a Schilling Robotics work-class ROV manipulator arm.

The product is ideal for ROV operations where a combination of precision, flexibility and strength are required.



# 3 Finger Manipulator Jaw

## SPECIFICATIONS

Main Dimensions	Ø115 x 263 mm
Cylinder Working Pressure	207 bar
Maximum jaw opening	170 mm (For jaw made before 2012: 165 mm)
Depth rating	7000 msw
Material	S165M Stainless steel
Weight	5.1 kg

# Dredging & Excavation

TRITECH SUPER ZIP  
TRITECH ANCHOR ZIP  
DALAGRIPEN DGE35

# Tritech Super Zip



## Key features

- Improved performance
- Improved ROV mounting system
- Modular pump core, readily removable for easier in-field maintenance
- Suction and jetting aligned for ease of hose management
- Multiple mounting and handling configurations
- The integrated educator-based excavation system is designed to pump mud, sand, gravel, drill cuttings, shale etc. without damage

The Super ZipJet excavation and jetting system is designed to pump mud, sand, gravel, drill cuttings, shale etc. without risk of blockage. A heavy-duty cylinder reverses the flow at the nozzle to eject any object, which may be causing an obstruction. A second cylinder operates a diverter valve to provide a powerful direct jet to break up heavy and cohesive seabed mud.



# Tritech Super Zip

## SPECIFICATIONS

Weight in air/water	25 kg / 11 kg
Materials	Nylacast, UMMWPE
Pressure	150-220 bar
Flow	40 – 60 litres min
Suction flow (typical)	500-1000 litres/min
Solid removal rate	5-10 tones/hour
Jetting performance (typical)	1000 litres/min @ 2 bar

## NOZZLE & HOSE DIMENSIONS

Jetting hose	25 mm ID
Inlet	100 mm
Discharge hose diameter	100 mm
Suction hose diameter	75 mm ID

# Tritech Anchor Zip



## Key features

- Flow reversal for anchor recovery
- Variable suction release valve preset
- Durable moving body design
- High efficiency
- High performance
- Easily interfaced
- Proven ZipJet technology
- Worldwide support

The Tritech Anchor Zip 10 is a unique product which has been developed using the highly successful ZipPump and ZipJet technologies. The Anchor Zip 10 is a heavy-duty suction anchor pump designed for work-class vehicles able to produce 25hp of hydraulic power.



# Tritech Anchor Zip

## SPECIFICATIONS

<b>Weight in air</b>	30 kg (66 lbs.)
<b>Weight in water</b>	14 kg (31 lbs.)
<b>Materials</b>	Stainless steel, Nylacast, UHMWPE
<b>Pressure</b>	276 bar 4000 psi
<b>Flow</b>	70 litres per minute (15 USgpm)
<b>Minimum pressure</b>	70 bar (1000 psi)
<b>Maximum pressure</b>	240 bar (3480 psi)
<b>Motor A &amp; B</b>	No. 12 JIC male
<b>Motor case drain</b>	No. 6 JIC male
<b>Actuator connection</b>	No. 4 JIC male
<b>Typical differential pressure</b>	Up to 9.5 bar (140 psi)
<b>Typical suction flow</b>	Up to 80 cubic metres per hour at 7.5 bar
<b>Anchor port connection</b>	Square flange with 72 mm port
<b>Minimum hose diameter</b>	72 mm (2.8")

# Dalagripen DGE35



## Key features

- Ø60 2-port valve stab fitted
- 12te padeye on top

The Dalagripen is used for boulder and debris removal subsea. The Dalagripen is connected to the vessel crane while operated by ROV through Hot-Stab or Valve Stab.





# Dalagripen DGE35

## SPECIFICATIONS

<b>Manufacturer</b>	Sit Right
<b>Model</b>	Dalgripen DGE35
<b>Max working pressure</b>	250 bar
<b>Gripping force arms tip</b>	25.4 kN
<b>Cylinder force</b>	146.2 kN
<b>Max load</b>	5000 kg
<b>Weight in air</b>	275 kg
<b>Weight with handle and padeye</b>	290 kg
<b>Length (when closed)</b>	930 mm
<b>Height (when closed)</b>	610 mm
<b>Max width</b>	495 mm
<b>Hydraulic volume cylinders</b>	1.5 ltr.

# Cleaning Tools

**WIRE BRUSH CLEANING TOOL**

**FLEXICLEAN**

**MULTI-PURPOSE CLEANING TOOL**

**520 BAR ROV HIGH PRESSURE WATER JET**

# Wire Brush Cleaning Tool



## Applications

Designed for cleaning a wide range of surfaces

## Key features

- Can be fitted with a wide range of brushes
- Requires low maintenance
- Fitted with flexible fishtail handle
- Small tool. Easy to operate
- Removes paint, rust, growth, etc

The Wire Brush Tool consists of a wire brush head rotated by a hydraulic motor. The tool was designed to be as small as possible to give the ROV operator the best possible view on the brush to minimize the risk of unwanted brushing on fragile parts near the area getting cleaned. The Wire Brush Tool is equipped with a flexible fishtail ROV handle and can be fitted with a wide range of brushes.



# Wire Brush Cleaning Tool

## SPECIFICATIONS

<b>Dimensions (LxWxH)</b>	450 mm x 250 mm x 110 mm
<b>Weight (air)</b>	7,4 kg
<b>Max inlet pressure / flow</b>	140 bar / 20 ltr/min
<b>Max speed</b>	630 rpm/min
<b>Rotation</b>	Reversible / Bi-directional
<b>Hydraulic fluid</b>	Tellus 22 or similar

# Lateral FlexiClean



## Key features

- Rapid cleaning of marine growth
- Manipulator deployed
- Light weight
- 3000mtr rated

FlexiClean is a ROV-deployed cleaning tool that quickly removes marine growth and debris on underwater structures and equipment. It rapidly, safely and thoroughly cleans even damage-prone surfaces without clogging, or performance degradation regardless of water depth.



# Lateral FlexiClean

## SPECIFICATIONS

Hydraulic flow / pressure	30-60 LPM / 140 bar
Weight in air	15 kg
Max speed	750 rpm
Main Dimension	200 mm x 240 mm x 600 mm

# Multi-purpose Cleaning Tool



## Applications

Designed for cleaning a wide range of surfaces

## Key features

- Supplied with Nylon Brushing Discs
- Requires low maintenance
- Fitted with Fishtail Handle for installation to ROV manipulators
- All together Supplied in a Plastic Pelicase
- Removes Marine Growth

The Multi-purpose Cleaning Tool (MCT) consists of a brush head rotated by a hydraulic motor. The MCT uses a mild acid cleaning solution dispensed through the brush head. The MCT is equipped with a flexible fishtail ROV handle.



# Multi-purpose Cleaning Tool

## SPECIFICATIONS

<b>Dimensions (LxWxH)</b>	580 mm x 310 mm x 260 mm
<b>Weight (air) w/hoses and brush</b>	15,9 kg
<b>Hose length (fitted)</b>	3,5 m
<b>Rotation</b>	Reversible / Bi-directional
<b>Hydraulic fluid</b>	Tellus 22 or similar



# 520 Bar ROV High Pressure Water Jet



Dynaset 520 Bar Jetting Pump is used as a field-proven, user-friendly and highly efficient tool for subsea cleaning.

The pump is capable of jetting at 520 bar with a standard nozzle. The kit comes with all necessary items for operating, which includes hoses, handle, and nozzle.



# 520 Bar ROV High Pressure Water Jet

## SPECIFICATIONS

Dimensions	575 mm x 570 mm x 540 mm
Weight	35 kg / 30 kg in water
Max input	207 bar
Max output	520 bar
Max input flow	85 l/min
Max output flow	30 l/min
ROV pressure	Jic 12
ROC return	Jic 12
Depth rating	3000 m

# Hot Stabs

## HOT STABS

Ø60 2-PORT VALVE STAB SYSTEM

Ø60 3-PORT VALVE STAB SYSTEM

# Hot Stabs



We offer a wide range of hot stabs and receptacles for rent. They are used in operations to increase efficiency and minimize hydraulic leaks.



# Ø60 2-port Valve Stab System



The Ø60 Blue Logic 2-port Hot stab system consists of a hot stab and receptacle. This system is designed for connecting two units and to transfer fluid in subsea applications. This is used in operations to increase efficiency and minimize hydraulic leaks.



# Ø60 2-port Valve Stab System

## SPECIFICATIONS

Weight in air (Complete)	9.3 kg
Overall length	443 mm
Shaft length	192 mm
Height	120 mm
Hydraulic	BSP 3/4"

# Ø60 3-port Valve Stab System



## Key features

- 250 bar Pressure Rating
- Machined holes for fastening
- ROV friendly

The Ø60 Blue Logic 3-port Hot stab system consist of a hot stab and Receptacle. This system is designed for connecting two units and transfer fluid in subsea applications.



# Ø60 3-port Valve Stab System

## SPECIFICATIONS

	HOT STAB	RECEPTACLE
Pressure Rating Bar	250 bar	250 bar
Weight	9,3 kg	8,7 kg
Volume	1,3 dm <sup>3</sup>	1,98 dm <sup>3</sup>
Hydraulic	2x3/4" BSP - 1x 1/2" BSP	2x3/4" BSP - 1x1/2" BSP



# Sampling Tools

PC-1 ROV PUSH CORER

PC-2 ROV PUSH CORER

GAS SAMPLER

# PC-1 ROV Push Corer



## Key features

- Stainless steel and plastic non corrosive materials
- Pressure balanced for full ocean depth use
- Rugged – Robust – Reliable
- Simple operation

The PC-1 Push Core device is designed to be operated by ROV's to obtain sediment cores in shallow or deep water applications. A one way valve at the top of the sample chamber allows water to escape as it is replaced by the sediment core. Upon removal from the sediment, the sample is returned to its housing. At the base of the housing is a tapered, rubber plug which seals the sample within the assembly.



# PC-1 ROV Push Corer

## SPECIFICATIONS

Material	ABS, PVC glass, stainless steel, rubber
Max operation depth	6000 m
Weight in air (corer)	1.5 kg
Weight in air (complete)	20 kg
Overall length (includes T bar)	280 mm
Core length	55 mm
Core volume	0,665 L
Handle	T-bar / D-bar

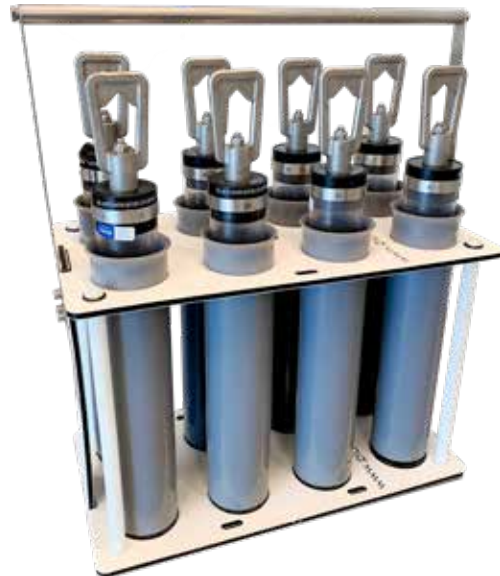
# PC-2 ROV Push Corer



## Key features

- Stainless steel and plastic non corrosive materials
- Pressure balanced for full ocean depth use
- Rugged – Robust – Reliable
- Simple operation

The PC-2 Push Core device is designed to be operated by ROV's to obtain sediment cores in shallow or deep water applications. A one way valve at the top of the sample chamber allows water to escape as it is replaced by the sediment core. Upon removal from the sediment, the sample is returned to its housing. At the base of the housing is a tapered, rubber plug which seals the sample within the assembly.



# PC-2 ROV Push Corer

## SPECIFICATIONS

Material	ABS, PVC glass, stainless steel, rubber
Max operation depth	6000 m
Weight in air (corer)	2.5 kg
Weight in air (complete)	25.0 kg
Overall length (includes T bar)	480 mm
Core length	78 mm
Core volume	2.47 L
Handle	D- bar

# Gas Sampler



## Applications

Sampling of fluid and gas.

## Key features

- Easy to operate
- Cost efficient
- Hot stabs can be added

The Gas Sampler is designed to measure gas flow and bring back samples from a subsea leakage. The lower part of the funnel can be separated from the gas sampler, in order to get better access in confined spaces. It was also designed to be operated by a work class ROV.



# Gas Sampler

## ROV REQUIREMENTS

A dexterous manipulator is recommended for handling the tool

Minimum of 2 hydraulic functions as specified below

2 x JIC-04 w/ flow reduction valves for the measuring tube actuator

2 x JIC-04 w/ flow reduction valves for the sample cylinder actuator

# Misc. ROV Tooling

TOOL BASKET

DUAL MAGNETS

ROV MAGNET

SUBSEA MARKER PEN

INJECTION BACKPACK

DWP BACKPACK SKID

NOR BACKPACK

MULTI-PURPOSE TOOLING SKID

NOR COMPENSATOR BACKPACK

SUCTION KIT

SUBSEA BULLSEYE 0-5 DEGREES 250MM

SUBSEA BULLSEYE 0-7 DEGREES 350MM

SUBSEA BULLSEYE 0-10 DEGREES 350MM

ADJUSTABLE MARKER PEN



# Tool Basket



The Tool Basket is specially made for intervention and increases the efficiency of subsea operations. The Tool Basket has pre-installed receptacles, and can be delivered with hot stabs that fit. The hoses connected for the receptacles also has custom made brackets for the JIC fittings. They will not loosen during operation which prevents the fittings from leaking.



# Tool Basket

## SPECIFICATIONS

<b>Dimensions</b>	140 cm x 92 cm x 30 cm
<b>Weight</b>	100 kg
<b>2X Bluelogic ø35mm 4-port receptacles</b>	4 meter 3/8 inch hoses with JIC 6 fitting, c/w dummy stabs
<b>1x Bluelogic ø60mm 3-port receptacle</b>	2x 4 meter 1/2 inch hoses with JIC 8 fitting and 1x 4 meter 3/8 inch hose with JIC 6 c/w dummy stab

### SPECIAL NOTE

Recommended ROV - Kystdesign Supporter, Installer & Constructor.

# Dual Magnets



## Key features

- Holding force is 2x 450 kg
- Removable magnets for adjustable holding force
- Handle bars are perfect for rigmaster, Atlas or Schilling T4

The Dual Magnets are used to hold ROVs steady while working, including a ROV-friendly handle to engage magnets. By using the Dual Magnets you can help minimize damage to equipment, and decrease downtime on equipment and projects. It can also be used by divers or to hold subsea equipment in place.



# Dual Magnets

## SPECIFICATIONS

### Dimensions

340 mm x 300 mm x 250 mm

### Weight

14 kg in total

# ROV Magnet



## Applications

- Stabilizing ROVs (welding inspections, etc.)
- Temporary storage of ROV tools
- Fixing points for lights and/or cameras

The switchable Miko ROV magnet has a fully mechanical on/off function and a holding force of 750 kg when activated.



# ROV Magnet

## SPECIFICATIONS

Holding force	750 kg
Footprint	200 mm x 312 mm
Weight in air	24 kg
Weight in water	19 kg
Depth rating	Full ocean depth
Quantity in box	1 pcs

# Subsea Marker Pen



## Key features

- Stainless steel
- Changeable color
- Lightweight

The ROV Subsea Marker Pen is an efficient solution when marking of underwater items are required.



# Subsea Marker Pen

## SPECIFICATIONS

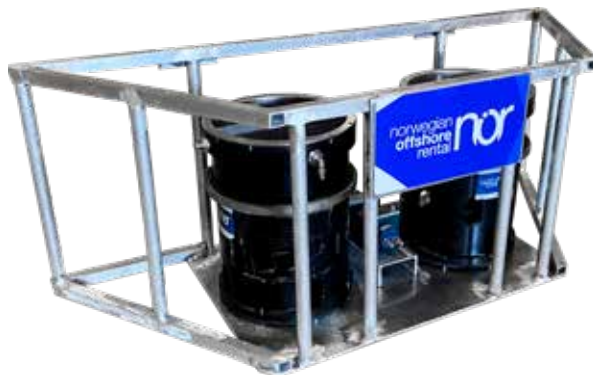
Weight in air	1,85 kg
Weight in water	1,40 kg
ROV Handle	Fishtail



# Injection Backpack



The NOR Backpack injection skid can be used for fluid injection up to 10 bar. It has a fluid capacity of 32 litres, and works with all fluids.



# Injection Backpack

## SPECIFICATIONS

Dimensions	161.5 cm x 68 cm x 61 cm
Weight	78 kg
Capacity 2 x 16 ltr Compensators	
Motor	OMM 8 motor
Max Pressure	100 bar
Hydraulic connections	2x JIC 4
Pump	
Max Output Pressure	10 bar
Hydraulic connections	2x JIC 4

# DWP Backpack Skid



## Key features

- Low weight in water
- Easy integration
- Versatile set up
- Up to 3x 16ltr Compensators
- Level sensor on compensator

The High Flow DWP is a compact isolated hydraulic system, which is easily integrated to a ROV System. It is a very versatile system which can be integrated with various options of set up and features.



# DWP Backpack Skid

## SPECIFICATIONS

Dimensions	1050 mm x 968 mm x 1484mm
Weight in air	390 kg (with DWP and 3x Compensators)
Weight in water	44 kg (with DWP and 3x Compensators)
Depth rating	3000 MSW
Maximum inlet pressure	4,000 psi (275 bar)
Maximum inlet flow rate	180 LPM
Maximum outlet pressure	3,000 psi (207 bar)
Maximum outlet flow rate	120 Lmin
Suction	2" hose barb
Output	12 JIC
Pressure	12 JIC
Return	16 JIC
Case drain	8 JIC
Pilot	4 JIC

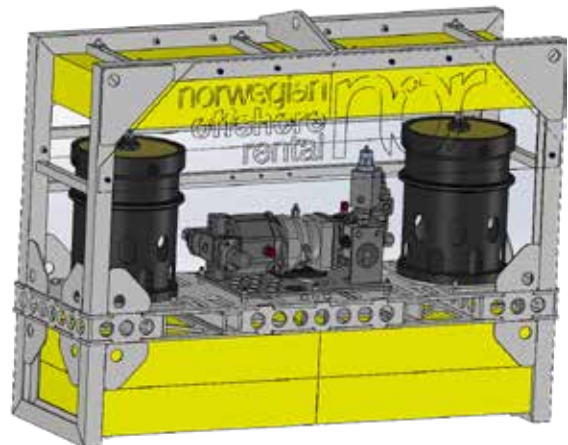
# NOR Backpack



## Key features

- Low weight in water
- Easy integration
- Versatile set up
- 2x 16ltr Compensators (More can be added on request)
- Level sensor on compensator
- Made to fit Schilling HD and Kystdesign ROV's
- (Other interface brackets available on request)

NOR Backpack was made to be integrated on the back of various ROVs for easy and quick installation. It has great capabilities in regards to operating various ROV tooling or other intervention tasks. With brackets on the back, the backpack can go into the ROV frame for connection points. It also has a lifting point on top to help installation on the ROV.



# NOR Backpack

## SPECIFICATIONS

<b>Dimensions</b>	1650 mm x 546 mm x 1264 mm
<b>Weight in air</b>	400 kg (with DWP, 2x Compensators and IVP)
<b>Weight in water</b>	-15 kg
<b>Depth rating</b>	2000 MSW
<b>Maximum inlet flow rate</b>	180 LPM
<b>Maximum outlet pressure</b>	3,000 psi (207 bar)
<b>Maximum outlet flow rate</b>	120 Lmin

# Multi-purpose Tooling Skid



## Key features

- Compressive & tensile load tested aluminium framework.
- Configurable core / ROV interface to allow fitting to most WROVs.
- Full width, hydraulically actuated tool basket.
- Large space in rear and sides for fitment of dedicated tooling modules
- Standard depth rating of 3,000 msw buoyancy (can be configured to client requirements)
- Nominal 50kg payload capacity (can be configured to client requirements)
- Supplied with lifting adapters and sling set for ease of deck handling.

Tool Tec's Multi-Purpose Tooling Skid is ideal for many applications and can be fitted directly to most WROVs. It comes fitted with a full width, hydraulically actuated basket which can be used for storing manipulator deployed tools. The rear and sides of the skid have ample open space to allow fitting of client required equipment such as an IHPU, pressure intensification module or compensators/bladders etc. and these can be easily accessed for adjustment or maintenance through the removal of the skids bolted structural outer members and modular buoyancy



# Multi-purpose Tooling Skid

## SPECIFICATIONS

<b>Length</b>	3047 mm
<b>Width</b>	1910mm
<b>Height</b>	600mm (without ROV mounting posts)
<b>Basket size</b>	1488mm x 661mm
<b>Payload</b>	50kg payload capacity (other payloads available on request)
<b>Weight</b>	~700kg (with 3,000msw buoyancy and 50kg payload)



# NOR Compensator Backpack



## Key features

- Lightweight
- Easy integrated
- Large amount of compensated fluid

NOR ROV intervention backpack is a lightweight rack which can hold 4x 16ltr compensators. This can be fitted to the back of the ROV and will enable the ROV to hold fluids up to 64ltr. This can be used for fluid injection or to operate subsea tooling which requires a large amount of hydraulic oil. Can be connected to NOR IHPU, DWP etc.



# NOR Compensator Backpack

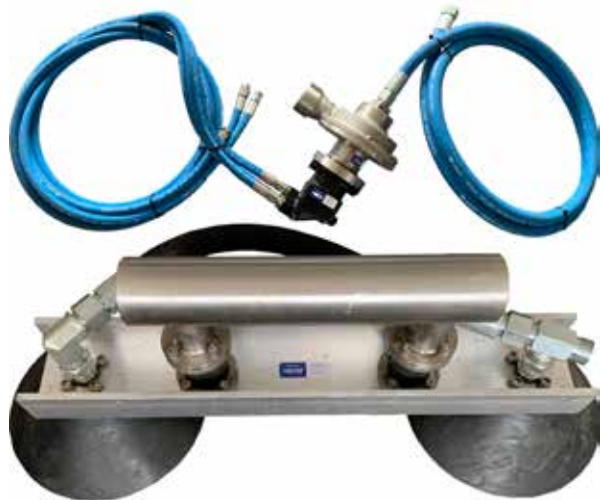
## SPECIFICATIONS

Dimensions	1640 mm x 460 mm x 665 mm
Weight	80kg (without any compensators)
Weight in water	28kg
Weight in water	90kg (includes compensators)
Material	POM (high strength plastic)

# Suction Kit



This suction kit is used to hold ROVs steady while working. By using the suction kit you can help minimize damage to equipment, and decrease downtime on equipment and projects. It can also be used for vacuum pressurizing suction anchors.



# Suction Kit

## SPECIFICATIONS

Dimensions	291 mm x 190 mm x 296 mm
Flow Max	Approx. 36 m3/H
Pressure Max	Approx. 23 MWC
Pressure	150 bars
Flow	15 l/mm
Port A & B	1/2 BSP
Drain	1/4 BSP
Suction Outlet	2" BSP

# Subsea Bullseye 0-5 Degree 250 mm



## Key features

- +/- 0.25 degree accuracy
- All polymer construction, non-corrosive materials
- Low weight for easy handling
- ROV friendly

The 250 mm Bullseye with 0-5 degree range provides an accurate and cost-effective solution for monitoring inclination. When calibrated to a subsea structure the bullseye gives a true reading of inclination to an accuracy of +/- 0.25 degree. Readings can easily be taken by ROV, camera systems, or divers.



# Subsea Bullseye 0-5 Degree 250 mm

## SPECIFICATIONS

Outer diameter	250 mm
Overall height (without handle)	191 mm
Weight in air (complete)	6.8 kg
Max operation depth	6000 m

# Subsea Bullseye 0-7 Degree 350 mm



## Key features

- $\pm 0.25$  degree accuracy
- All polymer construction, non-corrosive materials
- Low weight for easy handling
- ROV friendly

The 350 Bullseye with 0-7 degree range provides an accurate and cost-effective solution for monitoring inclination. When calibrated to a subsea structure the bullseye gives a true reading of inclination to an accuracy of  $\pm 0.25$  degree. Readings can easily be taken by ROV, camera systems, or divers.



# Subsea Bullseye 0-7 Degree 350 mm

## SPECIFICATIONS

Outer diameter	350 mm
Overall height (without handle)	200 mm
Weight in air (complete)	13.1kg
Max operation depth	6000 m



# Subsea Bullseye

## 0-10 Degree 350 mm



### Key features

- All-polymer construction, non-corrosive materials
- Low weight for easy handling
- ROV friendly

The 350 mm Bullseye with 0-10 degree range provides an accurate and cost effective solution for monitoring inclination subsea. When calibrated to a subsea structure the bullseye gives a true reading of inclination to an accuracy of  $\pm 0,25$  degree. Readings can easily be taken by ROV, camera systems or divers.



# Subsea Bullseye 0-10 Degree 350 mm

## SPECIFICATIONS

Accuracy	+/-0,25 degree
Max Operation Depth	6000 m
Wight in air (Complete)	13,1 kg
Overall height (without handle)	200 mm
Outer Diameter	350 mm
Dome Diameter	313 mm

# Adjustable Marker Pen



## Key features

- Stainless steel
- Changeable colour
- Lightweight
- Crayon colour stick can be adjusted subsea

NOR's new ROV PEN allows the ROV to adjust the crayon colour sticks subsea. This helps save operational time so the ROV does not have to recover back to deck to retract the crayon when used for subsea marking.



# Adjustable Marker Pen

## SPECIFICATIONS

Weight	20 kg
ROV Handle	Fishtail
Length	281 mm
Width	69 mm

# Subsea Video Inspection

**TIGER SHARK DIGITAL CAMERA**

**SEALED 65**

**SEALED 125**

**SEALED 300**

**SILKY SHARK SUBSEA LASER**

**DUSKY SHARK GREEN LINE LASER**

**ANGEL SHARK LASER**

**OTAQ OCEANSENSE**

**LED R-SERIES**

# Tiger Shark Digital Camera



The Tiger camera is based on the SDS 1210 stills camera with its proven track record for high quality subsea images. Quality and user friendliness is taken to a new level.

It is perfect for ROV use or as a stand-alone camera for re-search purposes with high resolution, Ethernet control and download capabilities. Integrated flash (1 - 3 m) and red dot laser for reference scaling. Can be supplied with timer function and battery packaged for advanced and quality image capturing.



# Tiger Shark Digital Camera

## SPECIFICATIONS

Resolution	14 mpx
Lens	5.0 – 30 mm / F2.8 - 5.9
Focal length	4 x Zoom
Focus	Auto
Lights	Internal / External Flash connector MCBH4F
Housing	Duplex Stainless Steel. Optional: Aluminium, Titanium by request
Diameter	83 mm
Length ex. Con	169 mm
Weight	3.1 kg in air – 2.2 kg in water
Depth rating	6000 msw
Power	24V – 12 – 37 W
Sta. Connector	Mini Burton 5506 – 1508 / RS 232/485 Control

# SeaLED 65



The Imenco SeaLED 65 is a high output multi-purpose light for ROV / tools and inspection points. Equipped with the latest high quality LED and built in temperature protection which produces an increased lifespan compared to the traditional Halogen and HID lights. The light output is easy regulated from 0-100% by different regulation methods, including remote control option.





# SeaLED 65

## SPECIFICATIONS

Dimension (mm)	Ø65 mm x 162 mm
Light output (Lumen)	3,000
Light temperature	3,200 Kelvin or 5,000 Kelvin
Light fan angle	40° or 80°
Front port	Acrylic
Housing	Titanium
Depth rating	4,000 msw
Regulation	RS232 / RS485, 0 - 10VDC or Triac
Standard connector	RMG 3
Power requirements	24VDC – 44W
Mass in water	0,2 g

# SeaLED 125



High output multi-purpose SEA LED light panel for ROV / inspection points.

Imenco SeaLED 125 is fitted with the latest high quality LED arrays which has much longer lifespan then traditional Halogen / HID lights. SeaLED 125 can be delivered with different color temperatures and lens angles. LED 125 light output is easily regulated from 0 - 100%.



# SeaLED 125

## SPECIFICATIONS

Input Power	1000W (≈ 300W Halogen)
Power	110V AC
Light output	7500 Lumen
Light temperature	3200 K or 6500 K
Light Beam Angel	25°, 40° or 70°
Light regulation area	0-100%
Regulation modes	Triac dimmable or by 0-10V DC
LED array life expectancy	50,000 hours
Depth rating	3,000 m
Housing	Hard Anodised Aluminum
Dimension ex. Connector	76 mm x 137 mm x 43 mm
Weight	0,83 kg in air / 0,6 kg in water
Connector	MCBH3M (or specified)
Temperature protected	Yes

# SeaLED 300



The SeaLED 300 is a high output subsea LED panel for ROV and inspection points. Fitted with the latest quality LED's producing increased lifespan compared to the traditional Halogen and HID lights.

SeaLED 300 can be delivered with different lens angles and the light output is easily regulated from 0- 100% with either Triac, 0-10V DC or RS232 and RS485.



# SeaLED 300

## SPECIFICATIONS

Light output	15,000 Lumen
Light temperature	3,200 K
Light beam angle	40° or 25°
Regulation area	0-100%
Regulation	Triac, 0-10VDC, RS232 / RS485
Housing	Hard anodised aluminium
LED array life expectancy	50,000 hours
Dimensions ex. Con	108 mm x196 mm x 48 mm
Weight	2,50 kg (air) / 1,30 kg (water)
Depth rating	3,000MSW
Power	110VAC
Connector	5507-1508

# Silky Shark Subsea Laser



The Silky Shark Subsea Laser is the newest laser from Imenco. It has an output of 50mW, a very uniform sharp line and a fan angle of 67° in water (90° in air).



# Silky Shark Subsea Laser

## SPECIFICATIONS

Main Dimensions	69 mm / 248 mm
Weight (in water)	1,1 kg
Depth Rating	6.000 MSW
Power	24V (12-32) / 7,5W
Material	Titanium
Front Port	Sapphire
Connector	Seacon 5506-1508
Laser Output	50 mW
Wave Length	518 Nm
Available Angles (in water)	67°

# Dusky Shark Green Line Laser



The Dusky Green Line Laser is a small size & low weight laser for Subsea measurements.

The Dusky laser is a green line laser used when measurements are needed from video images. The green light ensure good visibility due to reduced absorption of green light in water.





# Dusky Shark Green Line Laser

## SPECIFICATIONS

<b>Wavelength</b>	532 Nm
<b>Output</b>	30 mW
<b>Lens</b>	60° (30°, 45°, 90° on request)
<b>Housing</b>	High grade Aluminum
<b>Power</b>	12 – 32VDC / 2 W
<b>Diameter</b>	35 mm
<b>Length ex. Con.</b>	195 mm
<b>Weight</b>	0.4 kg / 0.3 kg
<b>Depth rating</b>	3000 msw
<b>Std. Connector</b>	MCBH4M

# Angel Shark Laser



The Angel Laser is a powerful green line laser used when measurements are needed from video images.

The green light ensures good visibility even at long distances due to reduced absorption of green light in water. By using two lasers in a fixed bracket, calibrated at set distance, accurate measurements from video images is possible.



# Angel Shark Laser

## SPECIFICATIONS

Wave length	532 mm
Output	150 mW
Lens	60° (30°, 45°, 90° on request)
Housing	Duplex Stainless steel
Power	12-32 VDC – 12W
Diameter	69 mm
Length ex. Con.	248 mm
Weight	3.5 kg / 2.8 kg
Depth rating	6000 msw
Sta. Connector	Mini Burton 5506-1508

# OTAQ OceanSENSE



## Applications

- Leak Detection; locating leaks in hydraulic control systems, flowlines, risers and subsea Infrastructure
- Commissioning; confirms structural integrity of spool tie ins and subsea structures
- Cement Detection; confirming cement returns at seafloor when forming new wells
- Decommissioning; cement returns during plug and abandonment

The industry standard OTAQ OceanSENSE™ Leak & Cement Detection System has been field proven on hundreds of offshore jobs in the harshest of environments achieving a detection success rate of close to 100%.



# OTAQ OceanSENSE

## SPECIFICATIONS

Model	OceanSENSE ROV 3K	OceanSENSE ROV 6k	OceanSENSE Diver
Max detect range	Up to 15 m		
Material	Anodised aluminium	Titanium	Anodised aluminium
Depth rating	3000 m	6000 m	200 m
Weight in air/water	1.9 kg/0.97 kg	3.8 kg/2.7 kg	3.5 kg /1.8 kg
Voltage	18-32 VDC		24vDC from supplied battery pack (approx. 10 hours)
Power requirements	500mA @24vDC		
Data	RS232 / RS485		n/a
Connector	MCBH8M wet mate		n/a
Interface	Oceansense App supplied on fully configured laptop		On board display
Part no	OS-200100	OS-200105	OS-200110

# LED R-Series



The Teledyne Bowtech LED-R-SERIES underwater LED lights are supplied with 120Vac. Due to Teledyne Bowtech's continued history of innovation, these lights feature the latest and best underwater LED lighting technology available. Rated to operate at 3,000 metres ocean depth, the lamps are manufactured with anodised aluminium. The 80° wide beam angle light produced, is ideal for colour video inspection tasks.



# LED R-Series

## SPECIFICATIONS

<b>Input Power</b>	120VAC 7200 lumen
<b>Dimensions</b>	76 mm x 38,1 mm x 146 mm
<b>Weight Air/Water</b>	760 g / 400 g
<b>Depth rating</b>	3000 m
<b>Connector</b>	MCBH3M

# Subsea Video IP Cameras

**OTAQ EAGLE IP 180/360**

**OTAQ EAGLE IP**

**ORCA SUBSEA IP CAMERA**

**GOBLIN SHARK IP CAMERA**

**ZEBRA SHARK SUBSEA IP CAMERA**

**SUBVIS PILOT IP CAMERA**

**LABRUS IP CAMERA**

**MEGALODON SHARK 4K IP CAMERA**



# OTAQ Eagle IP 180/360



## Applications

- Situational awareness
- ROVs of all sizes
- AUVs
- Fixed installations
- Landers
- Nuclear

## Key features

- Advanced software enables 'Back to Back' image generation and correction
- Full 180° / 360° real-time viewing and software-based zoom capability
- Orbital viewing removes requirement for mechanical pan & tilt
- Enables 'single pass' image capture of work site
- Enables post process reviewing of work site

OTAQ Eagle IPTM 180 and 360 cameras deliver an incredible blend of high performance specifications and features in a cost effective package. With market leading field of view (FOV), distortion correction and in vision orbital movement the Eagle IP 180 & 360 cameras enable wide field image capture and manipulation on a previously unobtainable budget.

A single Eagle IP 180 camera gives a highly impressive 180° FOV, while the 360 version generates a full 360° FOV 'orbital' image. The software corrects for image distortion and generates 'back to back' imagery when deploying the 360 version in a single viewing window.



# OTAQ Eagle IP 180/360

## SPECIFICATIONS

<b>Resolution &amp; frame rate</b>	8 Megapixel / 4K / 3840 x 2160P @ 15 FPS (variable) - 2 x 8 Megapixel / 4K / 3840 x 2160P @ 15 FPS (variable)
<b>Communication</b>	10/100 BaseT ethernet
<b>Compression protocol</b>	H.264 & H.265
<b>Focus</b>	Fixed with digital zoom
<b>Field of view</b>	180 Degrees - 360 Degrees
<b>Min. light level</b>	0.01 Lux
<b>Dimensions</b>	81 mm x 66 mm - 147 mm x 69 mm x 48 mm
<b>Weight</b>	250 g in air / 0 g in water - 460 g in air / -90 g in water (floating)
<b>Depth rating</b>	300 m
<b>Material</b>	Acetal
<b>Power</b>	18-20VDC @ 200mA - 18-20VDC @ 500mA
<b>Connector</b>	MCBH-6-M (options available)
<b>Topside</b>	Software GUI, laptop

# OTAQ Eagle IP



## Applications

- Commercial ROVs and AUVs of all sizes
- Monitoring platforms
- Landers
- Marine renewables inspection
- Touchdown monitoring
- Oceanographic research

Class leading low light colour optics are the key to the superb HD image that our camera produces. The camera is available as either a fixed focus (F) or 18x optical zoom (Z) model with all models having up to 1080P resolution and light sensitivity as low as 0.001 lux. Eagle IPTM cameras are available in a wide range of depth ratings from 300 m to 6000 m and materials including acetal, anodised aluminium and stainless steel.



# Eagle IP

## SPECIFICATIONS

Eagle IP Zoom						Eagle IP Fixed			
Model	IPZ/300	IPZ/1000	IPZ/1000	IPZ/4000	IPZ/6000	IPF/300	IPF/1000	IPF/4000	IPF/6000
Lens	4.7-84.6 mm Motorized 18 x Zoom Lens					3.6 mm Fixed (digital zoom through GUI)			
Material	Acetal	Anodised Aluminium	Stainless Steel	Anodised Aluminium	Titanium	Acetal	Anodised Aluminium	Anodised Aluminium	Titanium
Depth rating	300 m	1000 m	1000 m	4000 m	6000 m	300 m	1000 m	4000 m	6000 m
Power	18-30vDC@250mA					18-30vDC@200mA			
Transmission	H.264, ONVIF, RTSP								
Data	10/100 BaseT Ethernet								
Min light	0.001 lux								
Latency	400 ms								
Max res	920x1080 (1080P @25fps) variable through GUI								
Field of view	60°~4.5°in air, 45°~3.3°in water					98°in air, 73°in water			
Connector	MCBH6M wet mat								
Part no	OS-120100	OS-120105	OS-120106	OS-120110	OS-120115	OS-120200	OS-120205	OS-120210	OS-120220

# Orca Subsea IP Camera



## Key features

- HD Ethernet 1080p@60fps low latency video streaming
- Camera with a powerful Embedded Computer
- Ready for advanced image enhancement and Computer Vision
- Software client with basic OSD
- Standard video streaming protocols RTSP/RTP
- Basic client for four cameras included

Step into the world of fully digital subsea video with the new SubVIS Camera  
HD Ethernet 1080p@60fps low latency video streaming

Camera with powerful Embedded Computer  
Ready for advanced image enhancement and Computer Vision

Software client with basic OSD

Standard video streaming protocols RTSP/RTP

HTTP commands for configuration and control

Basic client for four cameras included

12x Optical Zoom



# Orca Subsea IP Camera

## SPECIFICATIONS

<b>Main dimensions (ex conn.)</b>	Ø140 mm / 117 mm x 226 mm
<b>Optical Zoom</b>	12x
<b>Angel of view</b>	65° - horizontal
<b>Housing</b>	Titanium
<b>Depth rating</b>	4 000 msw
<b>Standard connector</b>	Subconn DHB13M
<b>Power requirements</b>	24VDC (18 – 75)
<b>Mass In air</b>	5,3 kg
<b>Mass in water</b>	3,7 kg

# Goblin Shark IP Camera



Imenco's new Goblin Shark IP Camera - High Quality ultra-compact Wide Angle overview camera.

The Goblin Shark is an impressively compact, IP HD Wide Angle Overview Subsea Video Camera. Exceptionally high quality 1080p@30fps IP HD video. Standard 6000 m titanium housing and three available FOV options. This makes the Goblin Shark the preferred choice for ROV and AUV operations. Thus the Goblin Shark camera offers the ability to view both manipulators at once on the same video screen, cage/TMS monitoring, rear facing ROV camera, etc.



# Goblin Shark IP Camera

## SPECIFICATIONS

Main dimensions (ex conn.)	Ø 79 mm / 74 mm x 122 mm
Video Resolution / Format	1080p @ 30fps
Video format	H.264 – RTP / RTSP / UDP
Latency (Glass to Glass)	250 – 300 ms
Angle of view – wide (in water)	151° diagonally / 132° horizontal
Front port type	Dome – BK7
Housing	Titanium
Depth rating	6 000 msw
Standard connectors	DBH13 / 5506-1508
Power requirements	12VDC / 5W
Mass in air / water	1,0 kg / 0,5 kg



# Zebra Shark Subsea IP Camera



The Zebra Shark Camera is a reasonably priced IP Subsea camera with good image quality.

Available in Power over Ethernet or 24DC version.  
Can be integrated into Imenco's SubVIS Client. Fitted with sapphire port for high image quality god scratch and resistance.



# Zebra Shark Subsea IP Camera

## SPECIFICATIONS

Video format	H.264 compression
Video Resolution / Format	720p@30fps
Minimum Illumination	5 lx
Angle of view (in water)	69° diagonally / 60° horizontal
Port	Sapphire Glass
Housing	Titanium
Depth rating	1 000 msw
Standard connectors	SubConn DBH13
Power requirements	PoE or 24VDC (9 – 36) - 2,4w
Main dimensions (ex conn.)	Ø 56 mm x 145 mm
Weight in water	0,2 kg
Ethernet	10 / 100 Mbit TP

# Subvis Pilot IP Camera



## Key features

- Video resolutions: 1080p@60/50/30/25
- 10x optical zoom
- Flat front port
- 6,000 msw depth rating

The Subvis Pilot IP Camera allows users to capture digital subsea video at low latency streaming. Video resolution is 1080p@60fps, with 10x optical zoom, a flat front port, and a 6,000 msw depth rating.



# Subvis Pilot IP Camera

## SPECIFICATIONS

Dimensions	Ø79/74 x 238 (mm)
Housing	Titanium
Mass in air	2.6 kg 5.7 lbs
Mass in water	1.5 kg 3.9 lbs
Standard connector	SubConn DBH13M
Power requirements	24VDC / 15W

# Labrus IP Camera



## Key features

- High quality low-cost wide-angle IP camera for shallow waters.
- Housing in POMK (Delrin), front port in Perspex.
- Can be supplied with different fields of view and in PoE version.

Imenco's new Goblin Shark IP Camera - High Quality ultra-compact Wide Angle overview camera.

The Goblin Shark is an impressively compact, IP HD Wide Angle Overview Subsea Video Camera. Exceptionally high quality 1080p@30fps IP HD video. Standard 6000 m titanium housing and three available FOV options. This makes the Goblin Shark the preferred choice for ROV and AUV operations. Thus the Goblin Shark camera offers the ability to view both manipulators at once on the same video screen, cage/TMS monitoring, rear facing ROV camera, etc.



# Labrus IP Camera

## SPECIFICATIONS

Video Resolution	1080p @ 30fps
Video format	H.264-RTP/RTSP/UDP
Latency (glass to glass)	~250 ms
Minimum illumination (DDS off)	0,2 Lux
Angle of view in water - 3,6 lens	100° dia. / 92° hor.
Angle of view in water - 2,8 lens	122° dia. / 115° hor.
Angle of view in water - 1,8 lens	142° dia. / 137° hor.
Front port type	Dome-Perspex
Housing	POM (Delrin)
Standard connector	DBH13
Power requirements	PoE
Main dimensions (ex. conn)	Ø 79 / 74 x 12 (mm) 3.1 / 2.9 x 4.8 (inches)
Mass in air / water	0,6 kg / 0,2 kg

# Megalodon Shark 4K IP Camera



Imenco's new 4K IP Zoom Camera - High Quality  
Main ROV Camera with specially designed lens  
system for premium optical quality.



# Megalodon Shark 4K IP Camera

## SPECIFICATIONS

Main dimensions (ex conn.)	Ø = 340 mm x L= 373 mm
Video Resolution / Format	Ø 140 / 117 x 226
Lights sensitivity	2160p @ 30fps / 1080p @ 60fps
Optical Zoom	20x
Angle of view – wide (in water)	78° D / 70° H / 39° V
Lens system	Rebikoff–Ivanoff, Fused Silica
Housing	Titanium
Depth rating	6 000 msw
Standard connectors	Subconn DBCR2013M
Power requirements	24VDC (12 – 36v / 8w)
Mass in air / water	5,0 Kg / 2,5 kg



# Subsea Video Cameras

TRESHER SHARK CAMERA

NIGHT SHARK CAMERA

SUPER WIDE

SILVERTIP SHARK CAMERA

GREYTIP SHARK CAMERA

BASKING SHARK CAMERA

SPINNER II SHARK CAMERA

LIZARD SHARK CAMERA

BULL SHARK CAMERA

HAMMERHEAD SHARK CAMERA

WHITETIP SHARK CAMERA

LIZARD HD CAMERA

WHITETIP HD CAMERA

# Tresher Shark Camera



The Imenco Thresher Shark HD Wide Angle Subsea Camera is primarily designed for ROV operations. The camera provides highly detailed video images for inspection tasks giving a 92° angle of view in sea water (horizontal).



# Tresher Shark Camera

## SPECIFICATIONS

Resolution	1920x1080 1280x720
Lens	f=3.0 mm (w) to 9.0mm (t)
Sensitivity	0,25 Lux (1.2, IROCOFF)
Zoom	3x Optical
Focus	Auto / Manual
Angle of view (in water)	92° horizontal
Housing	Titanium
Diameter	76 mm
Length ex.con	176 mm
Weight	2,6 kg (air) / 1,7 kg (water)
Depth Rating	6.000 MSW
Power	24VDC / 12W
Control	RS232

# Night Shark Camera



The Night Shark represents Imenco's latest generation of Ultra Low Light Subsea Video Cameras.

This camera delivers unprecedented image quality and performance, exceptional light sensitivity, 3D Noise Reduction, Digital Wide Dynamic Range & Dead Pixel Correction. The Night Shark offers a significant improvement over its predecessor (Imenco Basking Shark) with extremely low noise levels throughout the Digital Wide Dynamic Range.



# Night Shark Camera

## SPECIFICATIONS

Video format	Composite video 1.0v 75Ω
Video Resolution	570TVL
Minimum Illumination	0,00001 lx. F1.4
Angle of view (in water)	105° diagonally / 92° - horizontal
Port	BK7 Dome
Housing	Titanium
Depth rating	6 000 msw
Standard connectors	5506 – 1508
Power requirements	24VDC – 3,2w
Main dimensions (ex conn.)	Ø 79 mm / 74 mm x 180 mm
Weight in water	1,2 kg

# Super Wide-i SeaCAM



## Key features

- Extreme wide angle 150° HFOV
- No vignetting
- Up to 6,000 m depth rating

The Super Wide-i SeaCam has an impressive 150° HFOV underwater with no vignetting. It includes titanium housing with up to 6,000 meter depth rating.



# Super Wide-i SeaCAM

## SPECIFICATIONS

<b>Lens</b>	1.4 mm, F/2.2
<b>Focus</b>	Fixed
<b>Depth of field</b>	25 mm (1.0) to infinity
<b>Dome diameter</b>	150° H x 120° V x 185° D
<b>Sensor resolution</b>	PAL: 795 H x 596 V
<b>Measured resolution</b>	450 TVL (center)
<b>Faceplate illumination</b>	0.1 Lux F/1.2
<b>Depth rating</b>	6,000 m
<b>Power</b>	11-30 VDC
<b>Current</b>	145 mA
<b>Housing</b>	6Al-4V Titanium
<b>Outer diameter</b>	58.4 mm (2.30 in)
<b>Overall length (without connector)</b>	104.9 mm (4.13 in)
<b>Weight in air / water</b>	0.47 kg (1.5 lbs.) / 0.23 kg (0.51 lbs.)

# Silvertip Shark Camera



Silvertip Shark subsea camera is rated to 4,000msw and fitted with a wide-angle lens and 4 high intensity LED lights. This color video subsea camera is ideal when great scene illumination is an imperative.

The Silvertip Shark is a small, user friendly subsea camera with LED lights, high quality color video and up to 90° angle of view. The camera is fitted with Duplex Stainless Steel housing capable of depths of 4,000MSW





# Silvertip Shark Camera

## SPECIFICATIONS

<b>Sensor</b>	1/3 Super HAD CCD II
<b>Diameter</b>	50 mm
<b>Resolution</b>	600 TVL
<b>Lens</b>	3.6 mm / F2.0
<b>Sensitivity</b>	0,0001 Lux (Sense-up)
<b>Focal Length</b>	Fixed
<b>Lights</b>	LED dimmable
<b>Housing</b>	Duplex Stainless Steel
<b>Length ex. Conn.</b>	117 mm
<b>Weight</b>	0.5 kg in air – 0.4 kg in water
<b>Depth rating</b>	3000 msw
<b>Power</b>	24V / 5W
<b>Std. Connector</b>	Mini Burton 5507-1508

# Greytip Shark Camera



The Greytip camera is ideal as a tool camera for use in narrow and tight spaces, and also preferred by ROV and diving operators.

A high resolution color camera module is built into the small duplex steel housing, enabling the Greytip to withstand pressures at 6,000 m.



# Greytip Shark Camera

## SPECIFICATIONS

<b>Sensor</b>	1/3 Super HAD CCD II
<b>Resolution</b>	600 TVL
<b>Lens</b>	3.6 mm / F2.0
<b>Sensitivity</b>	0,0001 Lux (Sense-up)
<b>Focal Length</b>	Fixed
<b>Focus</b>	Fixed
<b>Housing</b>	Duplex Stainless Steel
<b>Diameter</b>	50 mm
<b>Length ex. Con.</b>	116 mm
<b>Weight</b>	0.5 kg in air – 0.4 kg in water
<b>Depth Rating</b>	6000 msw
<b>Power</b>	12V – 1.2W
<b>Std. Connector</b>	Mini Burton 5507-1508 – other options

# Basking Shark Camera



Low light monochrome camera with high sensitivity at 0,0002 Lux for use on work-class ROV's and smaller observation vehicles where low light or murky conditions affect the working environment.

The Basking Shark is also available as a Wide Angle version.



# Basking Shark Camera

## SPECIFICATIONS

Sensor	1/2 " Interline Transfer CCD
Diameter	70 mm
Resolution	570 TVL
Lens	3.5 mm / F1.4
Sensitivity	0,0002 Lux
Focal length	Fixed
Focus	Auto / Manual
Length ex. Con.	155 mm
Weight	1.9 kg in air – 1.4 kg in water
Depth rating	3000 msw
Power	24V/5W
Sta. Connector	Mini Burton 5506-1508

# Spinner II Shark Camera



The Imenco Spinner II Shark Wide Angle HD SDI zoom camera is a high quality subsea camera designed primarily for ROV operations. It has a specially designed wide angle lens system for premium optical quality, 30x optical zoom and its titanium housing is rated to 4,000 msw. Can be supplied with various connector, options for fiber output.



# Spinner II Shark Camera

## SPECIFICATIONS

Video Output	HD SDI
Resolution	1080p @ 60fps
Sensitivity (lux)	1,4
Angel of view in water diagonally	73°
Angel of view in water horizontally	64°
Optical Zoom	30x
Housing Material	Titanium
Depth Rating	4,000 / 6,000 MSW
Front Port	Fused Silica Water Corrected
Connector	Seacon MINL FCRL
Diameter	140 / 117 mm
Length	227 mm
Weight in water	1,2 kg
Power	24VDC / 12,0W

# Lizard Shark Camera



## Key features

- ROV Pan/ tilt camera
- High quality 10 x zoom camera
- Small overall diameter
- Provided with RS232 or RS485

ROV Pan /Tilt / Zoom inspection Colour Video with built in LED lights. Versatile subsea inspection zoom colour camera for ROV use in confined areas down to 1000 MSV. Can be mounted on electric / hydraulic extension arm. Small overall diameter gives easy access to previously unreachable areas for pan, tilt and zoom controlled inspection as well as built in dimmable LED lights. High quality 10 x zoom camera module inside.





# Lizard Shark Camera

## SPECIFICATIONS

Main dimensions	Ø 90 mm / 296 mm
Housing Material	Stainless steel / Titanium
Mass in air	6.2 kg / 4.2 kg
Mass in water	5.8 kg / 2.5 kg
Depth rating	1,000 msw
Resolution	460 TVL
Output format	VBS:1.0V p-p

# Bull Shark Camera



## Key features

- High Definition 20:1 Optical Zoom
- 1080p/30 HD
- HD-SDI Option
- RS232

The Bull Shark Camera is a high definition (HD-SDI) camera, ideal to use when operators need high quality zoom capabilities combined with excellent resolution. When quality is essential. High definition combined with zoom capability gives high quality images for demanding documentation of ROV work.



# Bull Shark Camera

## SPECIFICATIONS

<b>Sensor</b>	1/2.8-type HD CMOS
<b>Resolution</b>	Full1920 x 1080 HD
<b>Lens</b>	4.7 – 94.0 mm / F1.6 – F3.5
<b>Sensitivity</b>	0.5 Lux
<b>Focal length</b>	20 x zoom (optical)
<b>Focus</b>	Auto / manual
<b>Diameter</b>	100 mm
<b>Housing</b>	Duplex Stainless Steel
<b>Length ex. Con.</b>	225 mm
<b>Weight</b>	5.0 kg / 3.0 kg
<b>Depth rating</b>	3000 msw
<b>Power</b>	24V/16W
<b>Std. Connector</b>	Mini L 5515-75 ohm (Seacon)

# Hammerhead Shark Camera



The Hammerhead wide angle color camera is often used as main camera on work class ROV's. Praised by major operators world wide of being a reliable and professional wide angle zoom camera.

Main camera for work class ROV, with a 60° wide angel lens and 18 x optical zoom. Giving high quality video images and good control options by using a RS232 control unit.



# Hammerhead Shark Camera

## SPECIFICATIONS

<b>Sensor</b>	1/4 " Exview HAD CCD
<b>Diameter</b>	100 mm
<b>Resolution</b>	470 TVL
<b>Length ex. Con.</b>	240 mm
<b>Lens</b>	4.1 mm – 74 mm / F1.4 – 3.0
<b>Weight</b>	5.5 kg in air – 3.5 kg in water
<b>Sensitivity</b>	0.7 Lux
<b>Depth rating</b>	3000msw
<b>Focal Length</b>	18 x zoom (optical)
<b>Focus</b>	Auto / Manual
<b>Power</b>	24V / 3W
<b>Std. Connector</b>	Mini Burton 5506-1508
<b>Housing</b>	Duplex Stainless Steel / Aluminum

# Whitetip Shark Camera



The An ideal inspection colour camera for any ROV work that require close-up LED illumination and inspection with high quality video images.

The Whitetip is a colour camera with dimmable LED's and often used as a tool camera for close-up inspections where illumination is needed. Producing excellent quality video images with 10 x optical zoom.



# Whitetip Shark Camera

## SPECIFICATIONS

<b>Sensor</b>	1/4" Exview HAD CCD
<b>Resolution</b>	470 TVL
<b>Lens</b>	4.2 mm - 24 mm/F1.8-2.9
<b>Sensitivity</b>	1.5 Lux
<b>Focal length</b>	10x zoom (opitcal)
<b>Focus</b>	Auto / manual
<b>Housing</b>	Duplex Stainless Steel
<b>Diameter</b>	58 mm
<b>Length ex. con</b>	143 mm
<b>Weight</b>	1.3 kg / 1.0 kg
<b>Depth rating</b>	3,000 msw
<b>Power</b>	24V / 6W
<b>Std. Connector</b>	Mini Burton 5506-1508
<b>Lights</b>	LED dimmable

# Lizard Shark HD Camera



## Key features

- HD image quality Built-in dimmable LED lights
- 10x optical zoom Titanium housing
- 1,000 msw depth rating 90 mm diameter

Imenco's Lizard SharkHD is a small sized Pan/Tilt/Zoom camera rated to 1,000msw. The 10 x optical zoom and built-in dimmable LED lights makes this a unique subsea camera for the ROV market. With a diameter of only 90 mm it allows for access and inspection of difficult targets in an efficient and safe manner.

The Lizard SharkHD has been proven to be an excellent camera to use i.e. while inspecting sealing surfaces prior to hookups. The ROV's manipulator arm may be used to control the subsea camera with a removable fish tail-grip. This camera can be delivered with specially designed add-ons; Extension rod with ROV handle (fish tail grip), flex-joint and protection sleeve for the camera. This tool enables inspections of i.e. flanges, seals, spool pieces and targets with difficult access.





# Lizard Shark HD Camera

## SPECIFICATIONS

Main dimensions	Ø 90 mm / 296 mm
Housing Material	Titanium
Mass in air	4.2 kg
Mass in water	2.5 kg
Depth rating	1,000 msw
Image sensor	1/3" CMOS / 4Mpx
Resolution	1080p 60fps
Output format	3G HD-SDI
Optical zoom	10x
Angel of view (diagonally)	50° Wide / 8° Tele (in water)
Tilt angle	270°
Pan angle	350°
Integrated LED light	4 x 3W LED dimmable
Power	18-36 VDC
Current draw	17W max
Standard connector	MINL

# Whitetip Shark HD Camera



The Imenco Whitetip SharkHD Colour Zoom Camera incorporates a 4Mpx - 1/3" CMOS sensor and features a 10x optical zoom lens. With built-in LED lights and ultra-compact and lightweight Titanium body rated to 4.000 msw, it is an ideal camera for inspection of restricted spaces and for use in tooling.



# Whitetip Shark HD Camera

## SPECIFICATIONS

<b>Main dimensions (ex conn.)</b>	Ø 58 mm x 143 mm
<b>Resolution</b>	1080p @60 fps
<b>Output format</b>	3G HD-SDI
<b>Zoom</b>	10x optical
<b>View angle in water (wide)</b>	50°dia / 44° hor.
<b>Front Ports</b>	Sapphire glass (camera) / acrylic (lights)
<b>Housing</b>	Titanium
<b>Depth rating</b>	4.000 MSW
<b>Standard connector</b>	Seacon MINL
<b>Light output</b>	600 lumens
<b>Light control</b>	RS232 / RS485, Bipolar / Tri-state
<b>Power requirements</b>	24VDC (12-36) – max 12w
<b>Mass in air/water</b>	0.8 kg / 0.5 kg

# Lifting Equipment

ROV CHAIN HOIST  
CROSBY ROV SHACKLE  
GREEN PIN ROV SHACKLE  
IMENCO ROV SHACKLE  
SUBSEA HOOK  
ROV EYE HOOK  
TRITON HOOK  
ROV SHANK HOOK  
RUD ROV-HOOK  
SNAPPER WEAK LINK  
LATCHES

# ROV Chain Hoist



## Key features

- Hot stab 2-port type A
- 10-ton lifting capacity
- User friendly, compact and light weight
- Stainless steel 316 framework and handle
- Proven subsea brake system
- Hand wheel feature for on-deck height of lift adjustment
- Each unit is thoroughly tested and certified

Lifts up to 10 tons when supplied with 210 bar hydraulic pressure through a hot stab connection.

Chain block with a unique design for easy handling and maximum flexibility. The hydraulic motor is driven through a dual port hot stab type A. Can be pre-set to meet the exact starting point required within the rigging drawings.



# ROV Chain Hoist

## SPECIFICATIONS

ROV block capacity	10 Te
Chain length	12 m
Chain block effort	40 kg / 88 lbs
No of falls	3
Standard H.O.L	3 m / 9.8 ft
Mass at standard H.O.L	62.3 kg / 13.8 lbs
ROV block max torque	50 Nm / 36 ft lbs
Load Chain diameter	10 mm / 0.39 in

# Crosby ROV Shackle



The Crosby G-209R ROV Shackle is delivered with capacities from 6.5 Te to 55 Te. The G- 209R shackle is made from forged steel and the shackle bow is galvanized then painted fluorescent yellow.



# Crosby ROV Shackle

## SPECIFICATIONS

Working Load Limit (t)*	G-209R Stock No.	Weight Each (kg)	Dimension (mm)								
			A +/- 6.35	B	C	H	L	O	P	S	T
6-1/2	1020872	1.69	36.6	25.4	84.0	148	102	50	58	17	10
8-1/2	1020902	2.59	42.9	28.7	95.5	167	119	50	61	18	10
9-1/2	1020932	3.77	46.0	31.8	108	190	131	70	83	18	12
12	1020952	5.02	51.5	35.1	119	210	146	70	84	23	12
13-1/2	1020972	6.65	57.0	38.1	133	233	162	75	91	23	15
17	1020992	8.58	60.5	41.4	146	254	175	75	93	24	15
25	1021102	14.1	73.0	51.0	178	313	225	90	114	29	17.5
35	1021125	21.4	82.5	57.0	197	348	253	106	132	30	20
55	1021158	42.8	105	70.0	267	453	327	120	145	45	25

\* Minimum Ultimate Load is 5 times the Working Load Limit.



# Green Pin ROV Shackle



## Applications

For in-line use only. This shackle is assembled with wire rope slings and monkey's fist. For sizes WLL 42.5-15 t a special compression tool (sold separately) is required.

Green Pin® ROV shackles were specially designed with a quick release system. Without compromising safety, the quick release can be manipulated by a hydraulically-operated ROV arm. This shackle was developed for subsea applications, and can significantly reduce the time needed to disassemble shackles underwater.



# Green Pin ROV Shackle

## SPECIFICATIONS

<b>Material</b>	Bow and pin alloy steel, grade 8, quenched and tempered
<b>Safety Factor</b>	MBL equals 5 x WLL
<b>Finish</b>	Body painted white, pin painted green
<b>Temperature Range</b>	-40°C up to +200°C

Working load limit	Diameter bow	Diameter pin	Diameter eye	Width eye	Width inside	Length inside	Width bow	Length	Length bolt	Width	Weight each
t	a mm	b mm	c mm	d mm	e mm	f mm	g mm	h mm	i mm	j mm	kg
12	32	35	72	32	51	115	83	201	291	147	5.24
13.5	35	38	80	35	57	133	92	227	301	162	7
17	38	42	88	38	60	146	99	249	360	175	9.25
25	45	50	103	45	74	178	126	300	370	216	15.5
35	50	57	116	50	83	197	198	334	400	238	20.4
42.5	57	65	130	57	95	222	160	377	460	274	32
55	65	70	145	65	105	260	180	433	490	310	42
85	75	83	162	75	127	329	190	527	587	340	67
120	95	95	208	91	147	399	238	646	687	428	123
150	105	108	238	102	169	410	275	688	727	148	168

# Imenco ROV Shackle



## Key features

- The locking plate can be fitted with a “Monkey Fist” or similar arrangement for the ROV to pull on
- Lock/unlock positions are clearly marked on the front cover plate: L & U
- The shackle body and the majority of other parts are made of High Tensile Stainless Steel; S165M
- The shackle pin is made of forged high tensile 34CrNi steel
- All shackles are supplied with an aluminum storage case and a full set of documentation
- All Shackles are CE Marked

The Imenco ROV Operated Shackle is a semi-automatic shackle with an easy-to use positive, double locking system which ensures safe lifting operations. Due to its smart design and high quality, the Imenco ROV Shackle is firmly established as the industry standard for ROV Shackles.



# Imenco ROV Shackle

## SPECIFICATIONS

Shackle Size (WLL)	Pin Dia. D1(mm)	Inside Width A (mm)	ROV Handle Dia. D2 (mm)	Body Dim. (mm)			Top Padeye (mm)			O/A Length L (mm)	Dry Weight (kg)
				W	T1	H	T2	D3	R		
6.5 Te	25	36	270	75	60	230	32	27	40	321	9
12 Te	35.1	51	300	102	80	300	45	36	50	375	16
17 Te	42	60.5	340	125	90	350	52	44	55	444	27
25 Te	51	73	380	156	110	415	65	53	65	502	44
35 Te	57	83	380	172	115	428	70	59	71	556	52
55 Te	70	105	420	205	135	485	95	72	85	644	81
85 Te	83	127	550	250	170	565	115	85	105	794	145
120 Te	95.5	145	839	310	200	745	145	98	130	1050	380
150 Te	108	165	839	325	210	755	150	110	130	1080	404

# Nautilus Subsea Hook



## Key features

- Unique “positive locking” function eliminates risk of self release
- Outward opening locking arm eliminates “slings” fouling behind latch
- Self locking under load – load remains
- Securely locked until released by ROV
- Nautilus subsea hooks are manufactured to EU standard BS/EN 1677-1+A1/2008 Individually proof tested to 2.5 x working load limit
- 4:1 safety factor – working load limit 22 tonnes
- Nautilus ROV Hooks are fatigue rated to 20,000 cycles at 1.5 x the working load limit. Supplied with manufacturer’s test certification

Technically advanced design with patented “positive locking” function sets new standard for safe, secure subsea lifting. Nautilus ROV hooks incorporate patented locking technology with unique “Positive Locking” function, ensuring load integrity in the subsea environment. Innovative and cost effective, Nautilus subsea hooks eliminate the risk of load self-release, ensuring safe and secure subsea lifting operations.



# Nautilus Subsea Hook

## SPECIFICATIONS

Component	Model / Part No	WLL	Weight	L	W	H
Long Shank ROV Hook	NH-ROV22E	22 Te	21.0 kg	684 mm	264 mm	62 mm
Primary Activation Wire	NH-PW200	1200 kg	Bespoke 316 SS stud / wire assembly	Bespoke 316 SS stud / wire assembly	Bespoke 316 SS stud / wire assembly	Bespoke 316 SS stud / wire assembly
Secondary Activation Wire	NH-SW230	900 kg	230 mm x 3 mm SS wire and ferules	230 mm x 3 mm SS wire and ferules	230 mm x 3 mm SS wire and ferules	230 mm x 3 mm SS wire and ferules

# ROV Eye Hook



ROV operated eye hooks for efficient subsea lifting operations.

The ROV Eye Hooks are safe and reliable when performing subsea lifting operations. The hooks are made from quenched and tempered alloy steel. The hooks are opened remotely by pulling the release wire. The safety factor is 4:1.



# ROV Eye Hook

## SPECIFICATIONS

WILL ton	MBL ton	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	Weight kg
8	32	38	62	53	46	174	20	32	20	35	3
12.5	50	53	79	67	58	219	25	40	25	45	6
16	64	58	88	75	65	246	28	46	28	50	9
20	80	64	99	85	73	277	32	52	32	56	12
28	112	71	112	96	83	313	36	60	36	63	17
31	125	81	125	106	92	349	40	66	40	70	23
40	160	93	140	116	103	386	45	72	45	78	34
50	200	106	158	135	116	442	50	84	50	89	49
63	250	119	176	151	130	494	56	90	56	99	63
80	320	131	198	168	145	610	63	102	63	110	99
100	400	151	225	195	172	650	74	116	74	125	160
150	600	173	250	225	199	765	86	130	86	160	260
200	800	200	275	260	237	850	102	150	102	180	417
250	1000	233	310	290	269	928	120	170	120	200	576
300	1200	264	350	330	310	1052	140	190	140	220	820
400	1600	303	400	380	344	1195	170	210	170	240	1125



# Triton Hook



## Key features

- Safety latch can be locked in closed position.
- Eye designed to correspond with shackles
- RR-C-271 U.S. Federal specification.
- Ergonomic entry guide tip.
- Made of Stainless Steel 2324.
- One-piece construction for safety.
- Proper snag-free design with hexagonal long shank.
- Ergonomic safety latch with stainless release wire.

The safe and dependable remote operated hook for subsea use. It is of paramount importance that a remote operated hook for sub-sea use is safe and dependable. The Triton® ROV. Hook series was designed with these specific criteria in mind.



# Triton Hook

## SPECIFICATIONS

WLL	8.5T	12T	25T	35T
<b>A</b>	31 mm	37 mm	51 mm	51 mm
<b>B</b>	78 mm	93 mm	140 mm	140 mm
<b>C</b>	36 mm	44 mm	78 mm	78 mm
<b>D</b>	57 mm	70 mm	119 mm	119 mm
<b>E</b>	57 mm	51 mm	119 mm	119 mm
<b>F</b>	50 mm	61 mm	90 mm	90 mm
<b>G</b>	72 mm	64 mm	128 mm	128 mm
<b>H</b>	40 mm	45 mm	70 mm	70 mm
<b>I</b>	72 mm	48 mm	80 mm	80 mm
<b>L</b>	438 mm	527 mm	736 mm	736 mm
<b>Weight</b>	9 kg	13 kg	46 kg	46 kg

# ROV Shank Hook



The ROV Shank Hooks are safe and reliable when performing subsea lifting operations.

The hooks are made from quenched and tempered alloy steel and have a long hexagonal body for easy handling by ROV manipulators. The hooks are opened remotely by pulling the release wire. The safety factor is 4:1.



# ROV Shank Hook

## SPECIFICATIONS

WILL ton	MBL ton	A mm	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	K mm	L mm	Weight kg
5	20	35	50	161	40	515	34	31	68	32	45	250	150	6
12.5	50	40	63	200	58	565	45	40	90	45	60	260	180	11
16	64	45	70	224	67	610	48	44	102	53	60	280	190	16
25	100	50	80	248	75	650	56	52	105	60	70	270	230	21
32	128	60	90	288	85	800	65	60	140	67	80	360	265	34
40	160	70	100	316	95	820	70	70	150	75	85	330	285	42
50	200	75	112	343	106	850	75	72	160	85	100	350	285	54
63	252	85	125	376	118	900	85	85	180	95	110	360	322	74
80	320	100	140	418	132	950	100	85	210	106	120	290	390	104

# RUD ROV-Hook



## Key features

- Smooth outer profile with no protruding hook nose
- Safety latch opens outward
- Safety latch is securely locked in closed position
- Operated by RV manipulators, including the grabber

The RUD ROV-Hook was designed to minimize the time the ROV takes to carry out the attachment/detachment operation, and also eliminate the risk of snagging and accidental rigging. The safety latch automatically closes when the

ROV releases the triggers. The hook can be operated by all commonly used ROV manipulators, including the grabber, and the opening and closing of the safety latch can be operated by a single ROV manipulator.



# RUD ROV-Hook

## SPECIFICATIONS

Weight	10.50 kg	26.00 kg
Nominal WLL	10000 kg	25000 kg
T	393 mm	484 mm
A	112 mm	132 mm
B	45 mm	55 mm
C	45 mm	55 mm
D	55 mm	92 mm
E	166 mm	249 mm
F	65 mm	96 mm
G	38 mm	52 mm
H	82 mm	82 mm

# Snapper Weak Link



## Key features

- The different Weak Link size fit direct into the same shackles size
- Easy to install
- Safety factor 1,5
- Wide Shear pin range

The Imenco Snapper Weak link is used in a situation where a controlled emergency release point is required. The Snapper™ Weak Link will ensure a high safety standard for your operations.



# Snapper Weak Link

## SPECIFICATIONS

Snapper 6,5	Snapper 12	Snapper 35
1 Te	8 Te	15 Te
2 Te	10 Te	-
3 Te	12 Te	20 Te
4 Te	15 Te	25 Te
4,5 Te	18 Te	30 Te
5 Te	20 Te	35 Te
6,8 Te	25 Te	-



# Latches



Improve the safety and "well being" of your expensive equipment and valuable personnel. We offer mini-, midi-, and micro-latch, which will ease deployment and recovery of ROV's (and other equipment carrying a messenger line). The latches can also increase overall safety and health. The lock latches enable easy attachment/detachment to your tether using its unique cable entrance door solution.



# Latches

## SPECIFICATIONS

Micro Latches	
Safe working load	0.5 ton WLL
Dynamic factor (DAF)	3
Weight in air	6 kg
Materials	Aluminum 6082T6 & Stainless Steel S165M/31655
Umbilical/tether size	Up to 22 mm diameter
Mini Latches	
Safe working load	1,5 ton WLL
Dynamic factor (DAF)	3x1,5
Weight in air	7 kg
Materials	Aluminum 6082T6, S165M and 316SS
Umbilical size	Up to 33 mm diameter
Midi Latches	
Safe working load	5 ton SWL
Dynamic factor (DAF)	3
Weight in air	42 kg
Materials	Aiuminium 6082T6 & Stainless Steel S165M/316SS
Umbilical/tether size	Up to 50 mm diameter

# Baskets

**4 TE SUBSEA BASKET**

**7 TE SUBSEA BASKET**

**20 TE HEAVY DUTY**

**20 FT BASKET**

**HEAVY DUTY DECOM SUBSEA BASKET**

**8 FT BASKET**

**40 FT BASKET**

**10 FT BASKET**

**FLYING LEAD BASKET**

**GUIDEPOST/EXTENSION SUBSEA BASKET  
CAGE**

# 4 Te Subsea Basket



## Key features

- Removable grabber bars
- Certification according to DNV 2.7.3
- Optional hatch with ROV lock
- Optional compartment dividers
- Single point of lifting

Multi-purpose Subsea basket certified according to DNV 2.7.3. The payload capacity is 4,000 kg and weight in air is 1,085 kg. The basket can be delivered with hatch with ROV lock and compartment dividers.



# 4 Te Subsea Basket

## SPECIFICATIONS

Weight in air (Tara)	1085 kg
Payload	4000 kg
MGW	5085 kg
Outside dim. - W x D x H	2,45 m x 2,45 m x 2,16 m
Inside dim.- W x D x H	2,35 m x 2,35 m x 0,75 m

# 7 Te Subsea Basket



## Key features

- Removable grabber bars
- Certification according to DNV 2.7.3
- Optional hatch with ROV lock
- Optional compartment dividers
- Optional lifting from a single point or 4 points

Multi-purpose Subsea basket certified according to DNV 2.7.3. The payload capacity is 7,000 kg and weight in air is 1,085 kg. The basket can be delivered with hatch with ROV lock and compartment dividers.



# 7 Te Subsea Basket

## SPECIFICATIONS

Weight in air (Tara)	1735 kg
Payload	7000 kg
MGW	8735 kg
Outside dim. - W x D x H	2,45 m x 2,45 m x 2,38 m
Inside dim.- W x D x H	2,1 m x 2,1 m x 0,95 m

# 20 ft Heavy Duty Basket



## Key features

- DNV2.7-3 Certified
- Wiresling 2x2 Leg, 6.4m. DNV2.7-1 with masterlink in top
- Built to stack and save deck space

The 20 ft Subsea Basket are used for safely and efficiently transport of equipment to and from subsea locations.





# 20 ft Heavy Duty Basket

## SPECIFICATIONS

Dimensions	2438 mm x 1675 mm x 6058 mm
Inner Dimensions	1878 mm x 1350 mm x 5698 mm
Tare	5T
Payload	20T
Gross Weight	25T

# 20 ft Basket



## Key features

- Certification according to DNV2.7-3
- Forklift holes for easy handling
- Delivered with 2x21eg wire sling

The 20 ft Subsea Basket is designed to deploy and recover items from the seabed.



# 20 ft Basket

## SPECIFICATIONS

<b>Payload</b>	10T
<b>Tara</b>	2T
<b>Gross weight</b>	12T
<b>External size</b>	6056 mm x 2437 mm x 1378 mm

# Heavy Duty Decom Subsea Basket



The HD Decom baskets is a big subsea basket which is intended for the heaviest and most challenging lifting operations.



# Heavy Duty Decom Subsea Basket

## SPECIFICATIONS

Dimensions	5284 mm x 2950 mm x 3050 mm
Certified according to	DNVGL-ST2.7-3
Lifting sling	2x2 leg, 6mtr, DNV 2.7-1 with masterlink in top
Tara	5500 kg
Payload	30000 kg
MGW	35500 kg

# 8 ft Basket



## Key features

- 2 by 2-part lifting slings 4 meters length
- Robust steel on sides and floor for rough recovery tasks

The 8 ft Subsea Basket is designed for deployment and recovery from the seabed. It has a payload up to 3,0 Te with robust steel on the floor and sides. With the 4 point (2 by 2) lifting slings the rigging arrangement can easily be moved outside of the basket under loading into the basket.



# 8 ft Basket

## SPECIFICATIONS

<b>Payload</b>	3,0 Te
<b>Tara</b>	810 kg
<b>Gross Weight</b>	3,81 Te
<b>External size (L x W x H)</b>	2000 mm x 2000 mm x 1320 mm
<b>Internal size (L x W x H)</b>	1720 mm x 1720 mm x 1070 mm

# 40 ft Basket



## Key features

- Built to stack and save deck space
- Designed to survive tough subsea environments
- Wiresling 2x2 Leg, 8,6 m. DNV2.7-1 w/ masterlink in top

The 40" Subsea basket is used to safely and efficiently transport equipment to and from subsea locations. Most notably to recover pipe/casing or drill pipe with a large payload.





# 40 ft Basket

## SPECIFICATIONS

<b>Dimensions</b>	2440 mm x 1519 mm x 13000 mm
<b>Inner Dimensions</b>	2120 mm x 1319 mm x 12680mm
<b>Tare</b>	4.5T
<b>Payload</b>	20T
<b>Gross Weight</b>	24.5T

# 10 ft Subsea Basket



## Key features

- 2 by 2-part lifting slings 4 meters length
- Container corners below for sea fastening
- Forklift pockets for easy mobilization
- Robust steel on sides and floor for rough recovery tasks

The 10 ft Subsea Basket is designed for deployment and recovery from the seabed. It has a payload up to 3,5 Te with robust steel on the floor and sides. With the 4 point (2 by 2) lifting slings the rigging arrangement can easily be moved outside of the basket under loading into the basket.



# 10 ft Subsea Basket

## SPECIFICATIONS

<b>Payload</b>	3,5 Te
<b>Tara</b>	1,47 Te
<b>Gross Weight</b>	4,97 Te
<b>External size (L x W x H)</b>	2990 mm x 2437 mm x 1378 mm
<b>Internal size (L x W x H)</b>	2787 mm x 2259 mm x 975 mm

# Flying Lead Basket



## Key features

- Certification according to DNV2.7-3
- Forklift holes for easy handling
- Delivered with 2x21eg wire sling

The 20 ft Flying Lead Basket is designed to deploy and recover items from the seabed. The compartments can be reconfigured to customer specifications.



# Flying Lead Bakset

## SPECIFICATIONS

<b>Payload</b>	10T
<b>Tara</b>	2T
<b>Gross weight</b>	12T
<b>External size</b>	6056 mm x 2437 mm x 1378 mm

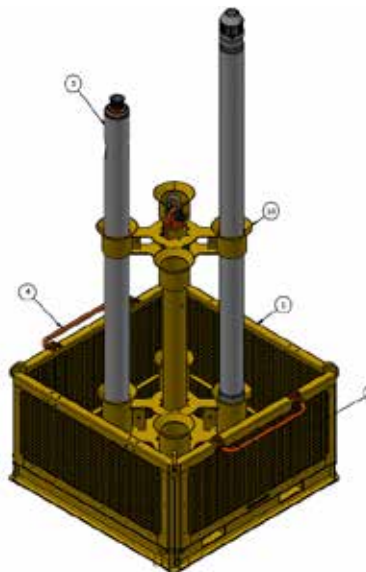
# Guidepost/Extension Subsea Basket



## Key features

- Certified DNGL-ST-E273
- Forklift pockets
- M4-L Extension & Top releasable guide post

Guidepost/extension basket is used for lifting guidepost safely to seabed and installing them on subsea assets. Center Pole basket can be re-modified to multi-purpose basket with or without hatches.



# Guidepost/Extension Subsea Basket

## SPECIFICATIONS

Type	Lifting/transport
Model basket	7 tonne
Material	Steel w/Norsok System 7
Inner dimensions (LxWxH)	1950 mm x 1950 mm x 990 mm
Outer dimensions (LxWxH)	2488 mm x 2256 mm x 1290 (3145*) mm
Weight in air	2700 kg
Weight in water	2322 kg
Payload	7000 kg
MGW	8300 kg

# Cage



## Key features

- Designed for deploying and retrieving subsea buoyancy modules.
- Hinged door with ROV friendly lock on the side for easy access.
- Lifting padeyes on top
- ROV handles on the sides for easy operation

The buoyancy cage is designed especially for safe and efficient deploying and retrieving of subsea buoyancy modules.

With ROV friendly design, combined with bespoke rigging it is a preferred solution for saving ROV time and safe operations subsea.





# Cage

## SPECIFICATIONS

Weight	Approx 3,200 kg
Outside dim	1910 mm x 1910 mm x 1500 mm
Inside dim	1509 mm x 1509 mm x 1300 mm

# Deck Handling

**U ROLLERS**

**OVERBOARDING CHUTE 1.5 TE**

**S HOOK LIFTING ANCHOR**

**UNIVERSAL MINI REEL**

**CABLE REELS**

**HYDRAULIC HOSE REEL**

# U-Rollers



## Key features

- Can be adjusted from 1.7 m to 2.2 m at 5 cm increments
- Designed for 2t horizontal loading
- Lifting rigging with certificate included

These U-Rollers come in a large and an adjustable size. The large U-Roller is at a fixed height of 3 m. The adjustable size can be adjusted from 1.7 m to 2.2 m.



# U Rollers

## SPECIFICATIONS

### Dimensions for Large U-roller

1440 mm x 4000 mm x 1000 mm

### Dimensions for Adjustable U-roller

1440 mm x 3180 mm x 1000 mm

# Overboarding Chute 1.5 Te



An overboarding chute is used to transition cables, umbilical, etc. to or from a vessel in a safe way. This overboarding chute is delivered with rollers but can be delivered with plate if required. The overboarding chute has a WLL of 1500 kg and a 1000 mm bend radius.



# Overboarding Chute 1.5 Te

## SPECIFICATIONS

Weight	330 kg
WLL	1500 kg
Length	2424 mm
Width	774 mm
Height	1535 mm
Bend radius	1000 mm

# S Hook Lifting Anchor



## Key features

- Robust design
- Safe lifting due to its self-locking design
- Visual indication to verify if the latching device is correctly locked
- Easy unlocking function – moderate release force
- The S-Hook Lifting Anchor can be released and subsequently re-stabbed without any manual resetting

The Imenco S-Hook Lifting Anchor is developed with a purpose to achieve a safe handling when steel structures e.g. riser pipes are being removed during demolition and decommissioning of offshore structures. The Imenco S-Hook Lifting Anchor is designed for loads in parallel to normal direction relative to the riser. The anchor is furthermore equipped with a self-locking latch dog that will automatically activate when the anchor is correctly mounted into a pre-drilled anchoring hole.



# S Hook Lifting Anchor

## VERSIONS

Model	Ref. Dwg	Wall Thickness Capacity	OD	Weight, dry
Std. Type	1-985	28 mm	273 mm	20 kgs

## MAIN DATA

Design codes & Regulations regulations regulations	Materials	Surface treatment	Load capacity	Proof test load
DnV Lifting Appliances 1994	High strength steel	Zinc treatment	12 Te SWL	15 Te (normal direction)



# Universal Mini Reel



## Key features

- Proudest in Stainless steel
- Easy mobilized
- WLL 500 Kg

The hand operated mini reel is a light weight construction, easy mobilized for operations that require electrical, hydraulic or pneumatic umbilicals. Made of non-corrosion material and equip with welding interface plates, certified lifting padeyes, hold back brake and transmission gearbox for easy hand rotation.



# Universal Mini Reel

## SPECIFICATIONS

WLL	500 kg
Length	1000 mm
Height	13000 mm
Width	1000 mm
Drum Diameter	321 mm
Drum Length	700 mm
Drum Height	690 mm

# Cable Reels



We have more than 30 cable/wire reels available for rent or purchase. They are certified to DNV. Due to their large size they require special transportation, which we can help arrange. The reels are also delivered with a cradle for easy handling onshore.



# Cable Reels

## SPECIFICATIONS

OA diameter	3,500 mm
Drum diameter	1,525 mm
OA length	2,655 mm
SWL	39.7 Te

# GUIDEWIRE EQUIPMENT

IMENCO LIFTING ANCHOR

IMENCO GUIDEWIRE ANCHOR LIFTING TYPE EXTENDED 6 TE

IMENCO GUIDEWIRE ANCHOR WITH SAFETY SLEEVE

IMENCO GUIDEWIRE SLIM LINE

WEPCO LIFTING ANCHOR

WEPCO GUIDEWIRE ANCHOR

IMENCO GUIDEPOST BOTTOM RELEASABLE

IMENCO GUIDEPOST TOP RELEASABLE

IMENCO GUIDEPOST EXTENSION

IMENCO GL-4 GUIDEPOST EXTENSION

# Imenco Lifting Anchor



## Key features

- Specially developed for lifting operations.
- Three locking dogs for increased capacity.
- Proven and patented design. Widely used worldwide since 1988.
- Simple installation and release by ROV. No special tools needed.
- Fits standard API guidepost with 3" receptacle hole.
- Release and re-installation possible in same run.
- Supplied with full documentation and instructions.
- Special designs available on request.

The IMENCO guidewire anchors have been manufactured and used for close to 24 years and is known in the subsea market for its ease of use and dependability. Easily installed and released by ROV.

The Guide Wire Anchor is built from high strength stainless steel and is hence very durable and dependable.



# Imenco Lifting Anchor

## SPECIFICATIONS

<b>Anchor stab diameter</b>	74 mm
<b>Overall length</b>	710 mm
<b>Standard socket wire diameter</b>	3/4"
<b>Weight</b>	25 kg
<b>Available shear-pin capacity</b>	Solid steel pin
<b>WLL</b>	5 Te

# Imenco Guidewire Anchor Lifting Type Extended 6 Te



The IMENCO guidewire anchors have been manufactured and used for close to 24 years and is known in the subsea market for its ease of use and dependability. Easily installed and released by ROV. The Guide Wire Anchor is built from high strength stainless steel and is hence very durable and dependable





# Imenco Guidewire Anchor Lifting Type Extended 6Te

## SPECIFICATIONS

<b>Anchor stab diameter</b>	74 mm
<b>Overall length</b>	1011 mm
<b>Standard socket wire diameter</b>	3/4"
<b>Weight</b>	35 kg
<b>Available shear-pin capacity</b>	Solid steel pin
<b>WLL</b>	6 Te

# Imenco Guidewire Anchor With Safety Sleeve



## Key features

- Safety Sleeve for additional security against unplanned release
- Proven and patented design. Widely used worldwide since 1988
- Simple installation and release by ROV. No special tools needed
- Fits standard API guidepost with 3" receptacle hole
- Release and re-installation possible in same run
- Shear-pin release with shear capacity up to 15,000 lbs.
- All shear-pin parts are automatically retrieved after operation.
- Special designs available on request.
- Desired shear-pin capacity to be specified when ordering.

The IMENCO guidewire anchors have been manufactured and used for close to 24 years and is known in the subsea market for its ease of use and dependability. Easily installed and released by ROV. The Guide Wire Anchor is built from high strength stainless steel and is hence very durable and dependable.



# Imenco Guidewire Anchor With Safety Sleeve

## SPECIFICATIONS

<b>Anchor stab diameter</b>	74 mm
<b>Overall length</b>	695 mm
<b>Standard socket wire diameter</b>	3/4"
<b>Weight</b>	18 kg
<b>Available shear-pin capacity</b>	From 2,200 lbs to 20,000 lbs
<b>WLL</b>	5 Te

# Imenco Guidewire Anchor Slim Line



## Key features

- Safety Sleeve for additional security against unplanned release
- Simple installation and release by ROV. No special tools needed
- Fits standard API guidepost with 3" receptacle hole
- Release and re-installation possible in same run
- Shear-pin release with shear capacity up to 15,000 lbs.
- Supplied with full documentation and instructions.
- Desired shear-pin capacity to be specified when ordering.

The IMENCO guidewire anchors have been manufactured and used for close to 24 years and is known in the subsea market for its ease of use and dependability. Easily installed and released by ROV. The Guide Wire Anchor is built from high strength stainless steel and is hence very durable and dependable.



# Imenco Guidewire Anchor Slim Line

## SPECIFICATIONS

<b>Anchor stab diameter</b>	74 mm
<b>Overall length</b>	695 mm
<b>Standard socket wire diameter</b>	3/4"
<b>Weight</b>	18 kg
<b>Available shear-pin capacity</b>	From 2,200 lbs to 20,000 lbs
<b>WLL</b>	5 Te

# Wepco Lifting Anchor



## Key features

- The anchor is tested and certified.
- Operation Maintenance Manual & Lifting Certificate is following the equipment with delivery. The status of the certification is indicated by color code rings of the year paints or taped around the body for the lifting anchor.
- Please follow close attention to the following documentation before using in operations.

The ROV Operated Lifting Anchor is specially designed for lifting of guide posts up to the surface. It is manufactured in confirmation with the requirements of the Machinery Directive and it is certified for 4 tons and will fit any post with 76-80 mm hole and internal 90° shoulder.



# Wepco Lifting Anchor

## SPECIFICATIONS

<b>Total length of anchor</b>	720 mm
<b>Total length including wire</b>	1720 mm / 2720 mm
<b>Weight including 2 m wire</b>	20,5 kg
<b>Weight including transport bag</b>	24 kg
<b>I.D. of wire-eye</b>	60 mm
<b>Wire Diameter</b>	19 mm

# Wepco Guidewire Anchor



ROV operated anchor for efficient subsea connection of guidewires.





# Wepco Guidewire Anchor

## SPECIFICATIONS

Anchor stab diameter	73 mm
Overall length	650 mm
Standard socket wire diameter	19 mm
Weight	15 kg
Max tension on shear pin	10 Te
Max tension on back-up shear pin	14 Te
Proof tested tension capacity	22 Te
Retainer dogs	4

# Imenco Guidepost Bottom Releasable



## Key features

- Simple installation and retrieval by assistance of standard Work ROV with standard work manipulator.
- Standard IMENCO Guidewire anchor can be used for normal operation and for installation and release operations. The anchor and guidepost can be stabbed by its own weight.
- The guidepost can be released and subsequently re-stabbed without any manual resetting at surface.
- Self-aligning when installed into the dedicated receptacle.
- Locking and release bolt for simple operation by work class ROV. No special tools are required.
- Lock Pin for securing the post on receptacle.

The IMENCO Bottom Releasable Guidepost for ROVCON is designed for installation on subsea structures for guiding of modules, trees etc. during landing and retrieval. The Guideposts shall be handled / lifted by the guideline anchor/lifting anchor and be simply installed or retrieved by assistance of a standard Work ROV.



# Imenco Guidepost Bottom Releasable

## SPECIFICATIONS

Description	Net length (L2) (mm)	Overall length (L) (mm)	Weight (kg.)
GPBR-8-77-RC-L3500	3190	3500	310
GPBR-8-77-RC-L4500	4190	4500	375
GPBR-8-77-RC-L1500	1190	1500	180

# Imenco Guidepost Top Releasable



## Key features

- Proven design.  
Widely used worldwide since 1988
- Simple installation and release by ROV. No special tools needed
- Release and re-installation possible in same run
- Supplied with full documentation and instructions
- Special designs available on request

The IMENCO guide posts have been manufactured and used for close to 24 years and is known in the subsea market for its ease of use and dependability. Easily installed and released by ROV. The guideposts are installed and recovered using an Imenco Guidewire Anchor with the assistance of a ROV to lock/unlock the guidepost to the guidepost receptacle.



# Imenco Guidepost Top Releasable

## SPECIFICATIONS

<b>OD</b>	219 mm
<b>Overall length</b>	From 3200 mm to 4910 mm
<b>Weight</b>	From 350 kg to 600 kg

# Imenco Guidepost Extension



## Key features

- Proven design. Widely used worldwide since 1988
- Simple installation and release by ROV
- Supplied with full documentation and instructions
- Special designs available on request

The IMENCO guide posts extension model M4-L are made from high strength stainless steel and outer pipe in carbon steel. The Extension is easy to operate and no tools other than a ROV are required. Release of the extension is the same as for Imenco Guidewire anchor, just lift the release sleeve. Available lengths according to customer requirement, standard lengths are listed below.



# Imenco Guidepost Extension

## SPECIFICATIONS

Type	Extended length L (mm)	Overall length L1 (mm)	Weight (kg)
GPE M4-L 6000	6000	6496	484
GPE M4-L 4500	4500	4996	383
GPE M4-L 3500	3500	3996	316
GPE M4-L 2500	2500	2996	249
GPE M4-L 1500	1500	1996	182

# Imenco GL-4 Guidepost Extension



## Key features

- Easy installation on existing GL4 profile
- Can be installed Subsea on existing guideposts
- Locking of the extension by operating the lock mechanism at top of the extension
- Must be installed with the aid of a work class ROV
- Allows for use of Imenco's proven line of Guidewire Anchors
- No need for special tools for mounting or dismantling

An extension to a GL-4 Guidepost with a standard Guideline Anchor interface at top.





# Gyro Compasses

**IXBLUE OCTANS 3000**

**IXBLUE ROVINS**

**ROVINS NANO**

**IXBLUE PHINS 6000**

**TELEDYNE TSS ORION**

**TELEDYNE TSS MERIDAN**

**TSS DMS-05 MOTION SENSOR**

# iXBlue Octans 3000



## Key features

- Complete gyrocompass and motion sensor
- Smart HeaveTM
- Fiber Optic Gyroscope (FOG), unique strapdown technology
- Ethernet, Web-based Man-Machine
- Interface (MMI)
- Titanium made, small, portable plug and play system
- Optional full featured Inertial Navigation System

iXBlue Octans 3000 is a subsea survey-grade gyrocompass and complete motion sensor for water depths up to 3,000 m. Based on iXBlue's FOG technology it outputs heading, roll, pitch, heave, rate of turn and acceleration. OCTANS 3000 can be easily upgraded to full INS mode (i.e. ROVINS).



# iXBlue Octans 3000

## SPECIFICATIONS

Preformance	
Heading	0.1 deg secant latitude
Accuracy	0.01 deg
Resolution	< 5 min
Full accuracy settling time (all conditions)	2,5 cm or 2,5% (whichever is greater)
Heave accuracy Roll / Pitch	0.01 deg
Dynamic accuracy	0.001 deg

Operating Range / Enviornment	
Operating / Storage Temperature	20 to +55°C/ -40 to +80 °C
Follow-up speed	Up to 750 deg/s
Acceleration dynamic range	+ 15 g
Heading / Roll / Pitch	0 to +360 deg / ±180 deg / ±90 deg
MTBF (computed/observed)	40,000 hours / 80,000 hours
No warm-up effects, insensitive to thermal shocks	
Shock and vibration proof	

# iXBlue Rovins



## Key features

- Complete gyrocompass and motion sensor
- Smart HeaveTM
- Fiber Optic Gyroscope (FOG), unique strapdown technology
- Ethernet, Web-based Man-Machine Interface (MMI)
- Titanium made, small, portable plug and play system
- Optional full featured Inertial Navigation System

Rovins is a combined survey-grade full featured Inertial Navigation System (INS) for water depths up to 3,000 m. Designed specifically for offshore survey and construction works, Rovins improves the efficiency of all operations where accurate position, heading, 3D speeds and attitude are key benefits.



# iXBlue Rovins

## SPECIFICATIONS

Position Accuracy	
With USBL/LBL	Three times better than USBL/LBL accuracy
With DVL	0.2% of traveled distance
No aiding for 1 min/2 min	1.5 m/6 m
Heading accuracy	Adjustable data packet output rate down to 1 Hz
With GPS/USBL/LBL/DVL	0.05 deg secant latitude
Roll and Pitch accuracy	0.01 deg
Heave accuracy	2,5 cm or 2,5% (whichever is greater)
Operating Range / Environment	
Operating/Storage Temperature	-20 to 55 °C / -40 to 80 °C
Rotation rate dynamic range	Up to 750 deg/s
Acceleration dynamic range	± 15 g
Heading/Roll/Pitch	0 to +360 deg / ±180 deg / ±90 deg
MTBF (computed/observed)	40,000 hours/80,000 hours
No warm-up effects	
Shock and Vibration proof	

# Rovins Nano



## Key features

- True north, roll & pitch, rotation rates
- DVL & Depth sensor available as options
- Optimized interface with Ramses for extending operations
- Web GUI and legacy serial control commands
- Stand-alone, small and light weight

Rovins Nano merges the established high-grade iXblue inertial navigation system with our competitive IMU. It is built on iXblue's renowned FOG solid state technology and offshore instrumentation expertise. Rovins Nano offers the unbeatable stability and accuracy of the inertial position while simplifying the operation with its autonomous external sensor management. Rovins Nano is the navigation solution you can rely on, bringing an additional level of safety in case of deficient aiding sensors.



# Rovins Nano

## SPECIFICATIONS

### Performance / characteristics

<b>With GNSS/USBL/LBL</b>	Three times better than GNSS / USBL / LBL
<b>DVL-Aided straight line performance</b>	0.20 %TD (CEP 50)
<b>DVL-aided optimal performances in typical conditions</b>	0.04 %TD (CEP 50)
<b>No aiding for 60s / 120s</b>	0.6 m / 2.2 m (CEP50)
<b>With GNSS (or USBL/LBL) &amp; DVL</b>	0.10 deg secant latitude RMS
<b>With GNSS or DVL or USBL/ LBL</b>	0.15 deg secant latitude RMS

### Operating range

<b>Operating / storage temperature</b>	-20 to 55°C/-40 to 80°C
<b>Rotation rate dynamic range</b>	Up to 250° /Sec
<b>Acceleration dynamic range</b>	+/- 5 g
<b>Heading /roll/ pitch ranges</b>	0 to +360 deg / ±180 deg / ±90 deg
<b>MTBF</b>	150,000 hours (System observed) 500,000 hours (FOG + Accelerometers)
<b>Robust to harsh environment, shock and vibration proof</b>	Robust to harsh environment, shock and vibration proof
<b>Depth rating</b>	4,000 m

# iXBlue Phins 6000



## Key features

- All-in-one 3D positioning with heading, roll and pitch
- Fiber-Optic Gyroscope (FOG), unique strap-down technology
- Multiple aiding options (DVL, USBL, LBL, RAMSES, GPS, depth sensor)
- DVL Ready option available
- RAMSES option available (tight coupled acoustic aiding)

PHINS 6000 is a subsea inertial navigation system providing position, true heading, attitude, speed, depth and heave. Its high-accuracy inertial measurement unit is coupled with an embedded digital signal processor that runs an advanced Kalman filter. PHINS DVL Ready is pre-assembled and pre-calibrated with a Doppler Velocity Log version making the system easy to install and ready to use for more precise navigation.





# iXBlue Phins 6000

## SPECIFICATIONS

Position Accuracy	
With USBL/LBL	Three times better than USBL/LBL accuracy
With DVL	0.1% of travelled distance
No aiding for 1 min/2 min	0.8 m/ 3.2 m
With GPS	0.01 deg secant latitude
With DVL/USBL/LBL	0.02 deg secant latitude
Roll and Pitch accuracy (2)	0.01 deg
Heave accuracy	5 cm or 5% (whichever is greater)
Operating Range / Environment	
Operating/Storage Temperature	-20 to 55 °C / -40 to 80 °C
Rotation rate dynamic range	Up to 750 deg/s
Acceleration dynamic range	± 15 g
Heading/Roll/Pitch	0 to +360 deg / ±180 deg / ±90 deg
MTBF (computed/observed)	40,000 hours/80,000 hours
No warm-up effects	
Shock and Vibration proof	

# Teledyne TSS Orion



## Key features

- 0.1° heading with single GPS antenna aiding
- Heave, 5 cm or 5% of range whichever is greater
- 0.01° roll, pitch
- Speed and position outputs
- Latitude and speed corrected
- IMU raw data outputs
- RLG MTBF of 300,000 hours
- Three configurable I/O Channels
- Easy set-up using OrionView software
- Surface and subsea (aluminium or titanium) options

Orion incorporates three single axis ring laser elements and three highly accurate accelerometers. These specific components, widely used in many of the world's commercial aircraft, were chosen for Orion because of availability, accuracy and their very high meantime between failures. These core elements enabled the TSS research and development team to design this high specification Inertial Navigation System which is configured and controlled by the latest easy-to use interface – OrionView.



# Teledyne TSS Orion

## SPECIFICATIONS

Heading	Dynamic Accuracy - GPS Aided	0.1° sec/lat RMS
	Dynamic Accuracy – Unaided	0.15° sec/lat RMS
	Resolution	0.01° (or as dictated by the O/P packet format)
	Settling time	15 minutes or less
Roll & Pitch	Heading Data Latency	< 3 ms
	Range	± 90°
	Accuracy	0.01°
	Resolution	0.01°
	Limits	None
	Axis alignment	< 0.005°
Heave	Data Latency	< 3 ms
	Accuracy	5 cm or 5% whichever is greater
	Bandwidth	0.05-10 Hz
	Range	± 99 m
Position	Resolution	1 cm
	Free Inertial	< 5 nautical miles/hour

# Teledyne TSS Meridian



## Key features

- IMO & Wheelmark certified
- Innovative chassis design incorporating state-of-the-art digital electronics for improved reliability
- Maintenance-free DTG element
- Dynamic heading accuracy of  $\pm 0.2^\circ$
- Static heading accuracy of  $0.05^\circ$
- <40 minutes settling time
- Start-up power requirement of 1.8A
- Comprehensive range of analogue and digital output options
- MTBF of 30,000 hours
- High turn rate of  $200^\circ$  per second
- User-friendly digital set-up and self-test

The Meridian Surveyor boasts a wide range of interfaces to enable use on any marine vessel. The unit utilises a DTG gyro element which provides exceptional performance with an accuracy unmatched by even the latest fibre optic designs. Unlike conventional spinning mass gyrocompasses, the Meridian Surveyor uses a dry tuned element (DTG) that removes the need for routine maintenance thereby significantly reducing cost of ownership.



# Teledyne TSS Meridian

## SPECIFICATIONS

<b>Display type</b>	360° compass card and VFD display
<b>Settle point</b>	0.1° secant latitude
<b>Static accuracy</b>	0.05° RMS secant latitude
<b>Dynamic accuracy</b>	0.2° secant latitude
<b>Follow up speed</b>	200°/sec
<b>Settling time</b>	<40 minutes, to within 0.7°
<b>Latitude input</b>	Automatic – via RS232 or RS422, NMEA 0183 from GPS or Manual
<b>Speed input</b>	Automatic – via RS232 or RS422, NMEA 0183 from log or pulse/ contact closure at 100, 200 or 400 per NM from log or manual
<b>Latitude compensation</b>	80N to 80S
<b>Speed compensation</b>	0 – 90 knots

# TSS DMS-05 Motion Sensor



## Key features

- Dynamic roll and pitch accuracy to 0.05°
- Depth rated to 3000 m (optional 6000 m)
- Survey to Class 1 IHO standard
- High dynamic accuracy during vessel turns

The DMS range of motion sensors is designed specifically for the motion measurement needs of the marine industry. Whether it is achieving IHO standard survey from any size of vessel, or providing safety critical monitoring of offshore platforms, large vessels, helicopter landing decks, cranes and positioning systems, the DMS provides accurate motion measurement in all sea conditions.



# TSS DMS-05 Motion Sensor

## SPECIFICATIONS

Dynamic accuracy	Heave	Roll & Pitch			
		DMS-05	DMS-10	DMS-25	DMS-RP25
	All (except DMS-RP25) 5 cm or 5% whichever is greater (period 0 to 20s)	0.05°	0.10°	0.25°0.25°	
Maximum range	±10 m	±60°			

Dimensions	99 mm (d) x 172 mm (h) (excluding connector and mounting plate)
Weight	3000 m <2.3 kg; (6000 m <4.0 kg)
Power supply	15-30 Vdc
Temperature range	0°C to 55°C operating; -20°C to +70°C storage
Power requirement	10-36V, <6.5W

# USBL Systems

TRANSPONDER CNODE

SONARDYNE 6G 819

TRANSPONDER MST

RANGER 2



# Transponder cNODE



## Key features

- The various cNODE® models have either 4000 metre or 7000 metre depth rating. They have different source levels, dependant on the beam pattern, lifetime and functions.
- The cNODE® transponders can use both frequency shift (FSK) modulation technique and the Cymbal acoustic protocol which utilizes wideband Direct Sequence Spread Spectrum (DSSS) signals.

cNODE® is a series of transponders for underwater acoustic positioning and data link. They have more than 500 channels available, and can all be positioned by HiPAP® underwater positioning systems. Each underwater target to be positioned must have a transponder or a responder installed. The transponder operates acoustically while the responder requires a cable for triggering. The cNODE® range of transponders are backwards compatible with the older FSK channels and telemetry protocols and can therefore be used by any HiPAP® system.



# Transponder cNODE

## SPECIFICATIONS

Depth rating	4000 m
Housing	Aluminum
Typical range capability	5000 m
Source level	203 dB
Beam width	40 vertical
Dimensions (L x Dia)	321 mm x 105 mm
Weight in air/water	4.6 kg / 2.1 kg

# Sonardyne 6G 819



## Key features

- Full two-way Sonardyne Wideband® 2 interrogation and reply – mitigates any interference and multi-path issues
- Mini size – lightweight and small
- Responder mode
- Li-Ion rechargeable battery pack
- Optional remote transducer
- Depth sensor fitted as standard.
- Full RS232 control from the surface
- External On/Off switch
- New, versatile and future-proof design

Sonardyne's existing Wideband Sub- Mini transponder (WSM) is typically interrogated by a responder trigger sent down the ROVs' umbilical or a narrow band tone signal. In some situations, reverberation or multipath of the tone interrogation can cause interference problems. The new WMT is Sonardyne's first mini-sized transponder. It is slightly larger than the WSM and provides full two-way Wideband interrogation and reply which completely mitigates interference from and to other users.



# Sonardyne 6g 819

## SPECIFICATIONS

System features		Type 8190-3111	Type 8190-3112
Depth Rating		3,000 Meters	3,000 Meters
Frequency Band		MF (19-36kHz)	MF (19-36kHz)
Transducer Beam Shape		Omni-Directional ±130°	Semi-Directional ±40°
Source Level (re 1 μPa @ 1m)	High power	187 dB	193 dB
	Low power	181 dB	187 dB
Tone Equivalent Energy*(TEE) WBv2+	High power	193 dB	199 dB
	Low power	187 dB	193 dB
Range Precision		Better than 15 mm	Better than 15 mm
Depth Sensor		± 0.5% full scale	± 0.5% full scale
Communications Interface		RS232 (9,600 – 115,200 baud)	
External Supply Voltage		18-50 Volts DC	18-50 Volts DC
External Power	Sleep	<300mW	<300mW
	Wideband listening	<500mW	<500mW
	Battery charging	6W	6W
	Peak (during transmission)	<50W	<50W
Battery Life (Lithium Ion 15V)	Listening	30 days	30 days
	Continuous 5 sec interrogation	Approx 6 days at low power	Approx 6 days at low power
Mechanical Construction		Anodised Aluminium Alloy and Plastics	Anodised Aluminium Alloy and Plastics
Weights (Air / Water)		5.1 kg / 2.2 kg	7.0 kg / 3.5 kg

# Transponder MST



## Key features

- External selection switches
- Channels for use with the:
  - HiPAP system / HPR 400 series
  - HPR 300
- Operator selectable source level to optimise battery life requirements
- Operator selectable sensitivity
- Fast battery charging
- Both transponder and responder function (external power supply)
- Expandability for the future addition of various sensors is built-in
- Fast battery charger (requires rechargeable battery)

The Mini SSBL transponders (MST) are medium frequency mini transponders. The MST transponders are to be used with the following underwater positioning and navigation systems:

- HiPAP system
- HPR series

It is to be used for applications where a small and light- weight unit is required.



# Transponder MST

## SPECIFICATIONS

Transponder Type	Overall length	Weight in air/ water	External diameter
MST 319	348 mm	2.4 kg / 1 kg	76 mm
MST 342	349 mm	4.1 kg / 2 kg	85 mm

# Ranger 2



## Key features

- Tracks an unlimited number of targets; ROVs, towfish, AUVs
- Operating range beyond 6,000 metres
- 0.1% system accuracy when optimised
- Up to 1 second position updates
- Supports standard DP telegrams
- Automated setup reduces delays
- Easy to use software

Ranger 2 is a survey grade Ultra-Short BaseLine (USBL) acoustic positioning system designed for deep water, long range tracking of underwater targets and position referencing for dynamically positioned (DP) vessels. The system calculates the position of a subsea target, for example an ROV, by measuring the range and bearing from a vessel-mounted transceiver to an acoustic transponder fitted to the target. Multiple subsea targets over a wide area and range of water depths can be simultaneously and precisely positioned.



# Ranger 2

## SPECIFICATIONS

<b>Operating Range</b>	>6,000 metres
<b>System Accuracy (Typical Optimised)</b>	0.2% of Slant Range. 0.1% of Slant Range
<b>Number of Targets Tracked</b>	1 surface, unlimited subsea
<b>Position Update Rate</b>	1 second, independent of water depth
<b>Output Telegrams</b>	Supports all industry standard survey and DP telegrams



# Multibeam

RESON SEABAT 7125

RESON SEABAT 8125

SONIC 2022

SONIC 2024 700 KHZ

# Reson Seabat 7125



## Key features

- Up to 512 beams in selectable modes optimises operations for any survey type
- Real-time roll stabilization maximizing usable swath
- Dual frequency provides seamless coverage from 0.5 to 400 m typical depth
- Compliance with IHO SP44Ed5 over entire depth range
- Advanced diagnostics
- High ping rate allows high- speed operations without compromising data density
- Allows collection of high density water column data for advanced processing

The new generation SeaBat 7125 builds on the field experience and feedback from many users around the world and brings unparalleled resolution and installation flexibility. The system is available in three separate configurations; one designed specifically for installation on small survey vessels and a 6000 m depth rated system for either ROV or AUV use.



# Reson Seabat 7125

## SPECIFICATIONS

	7125 SV2	7125 ROV2	7125 AUV
Power requirement	111/220 VAC, 50/60 Hz 500W average	48V DC ( $\pm 10\%$ ) 200W max	48V DC ( $\pm 10\%$ ) 110W max
Transducer cable lenght	25 m standard	3 m standar 10 m optional	3 m standar 10 m optional
LCU to processor cable lenght	N/A	25 m (ST), 6 m, 5 m (pigtail)	N/A
System depth trating	25 m	6000 m	6000m optional
Frequency	200kHz or 400kHz (dual frequency available)		
Along-track transmit beamwidth	2° at 200kHz & 1° at 400kHz		
Across-track recieve beamwidth	1° at 200kHz & 0.5° at 400kHz		
Max ping rate	50Hz ( $\pm 1$ Hz)		
Pulse length	33µsec to 300µsec		
Number of beams	512EA/ED at 400kHz, 256EA/ED at 200kHz		
Max swath angle	140° (165°)		
Typical depth	0.5 m to 150 m at 400kHz, 0.5m to 400m at 200kHz		
Max depth	175 m at 400kHz, 450 m at 200kHz		
Depth resolution	6 mm		
Data output	Bathmetry, sidescan and snippets 7K data format		
Temperature	-2° to +35°C		
Flexmode	Optional		

# Reson Seabat 8125



## Key features

- 455 kHz Frequency
- Up to 512 beams in selectable modes optimises operations for any survey type
- 120° swath angle
- Fast, simple, economical upgrade
- New sonar processor only, no changes to existing 8125 head or cables
- Improved raw data display and water column

The SeaBat 8125 upgrade adds an advanced feature set to the great selling high resolution multibeam. The upgrade consists simply of replacing the 81P sonar processor with the new processor, unlocking a large range of features providing a huge increase in efficiency and productivity.



# Reson Seabat 8125

## SPECIFICATIONS

<b>Frequency</b>	455kHz
<b>Along-track transmit beamwidth</b>	1.0°
<b>Along-track receive beamwidth</b>	0.5° (at nadir)
<b>Max ping rate</b>	40Hz
<b>Pulse length</b>	10 µsec to 300 µsec
<b>Number of beams</b>	Up to 512 beams in selectable modes
<b>Max swath angle</b>	120°
<b>Depth resolution</b>	6 mm
<b>Data interface</b>	Bathymetry, sidescan & snippets, 7K data format, Gigabit Ethernet
<b>Power requirement</b>	110/220 VAC, 50/60 Hz, 500W max
<b>Head to processor cable length</b>	25 m
<b>System depth rating (aluminum)</b>	400 m
<b>System depth rating (titanium)</b>	1500 m
<b>Processor temperature: Operating, storage</b>	0° to + 40° C, -30° to +55° C
<b>Sonar head temperature: Operating, storage</b>	-2° to +35° C, -30° to +70° C
<b>Weight (titanium)</b>	40 kg (air), 18k g (water)

# R2 Sonic 2022



## Key features

- Ultra Compact
- Wideband 170 kHz – 450 kHz
- Optional UHRTM 700 kHz
- Beam Widths to 0.6° x 0.6°\*
- Selectable swath 10° to 160°
- Sounding Depth to 400 m+
- Embedded processor/controller
- Low weight, volume and power consumption

The Sonic 2022 is a compact wideband shallow water multibeam echo sounder, suitable for a wide variety of general mapping applications.



# R2 Sonic 2022

## SPECIFICATIONS

Selectable Frequencies	170 kHz - 450 kHz to 1 Hz resolution. Optional 700 kHz
Beamwidth, Across Track	0.6°*
Beamwidth, Along Track	0.6°*
Number of Soundings	Up to 1024 per swath, per head
Selectable Swath Sector	10° to 160°
Sounding Depth	400 m+**
Pulse Length	15 µs – 1115 µs
Ping Rate	Up to 60 Hz
Depth Rating	100 m
Operating Temperature	-10° C to 50° C
Storage Temperature	-30° C to 55° C

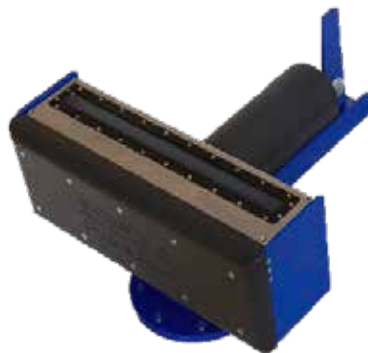
# R2 Sonic 2024 700 kHz



## Key features

- Focused Beams to  $0.3^\circ \times 0.6^\circ$ \*
- Wideband 170 kHz – 450 kHz
- 700 kHz Option
- Selectable swath sector  $10^\circ$  to  $160^\circ$
- Swath sector rotation
- Sounding Depth to 400 m+
- Embedded Processor/Controller
- Low Weight, Volume and Power

The Sonic 2024 is the world's first broadband - wideband high resolution shallow water multibeam echo sounder. With proven results and unmatched performance, the Sonic 2024 has become an industry standard, setting the bar in innovation and compelling customer value.





# R2 Sonic 2024 700 kHz

## SPECIFICATIONS

Frequency	170 kHz-450 kHz & 700 kHz (optional)
Beamwidth, Across Track	0.3°*
Beamwidth, Along Track	0.6°*
No. of Beams	256
Selectable Swath Sector	10° to 160°
Sounding Depth	400 m+**
Pulse Length	15 µs – 1115 µs
Ping Rate	Up to 60 Hz
Depth Rating	100 m
Operating Temperature	-10° C to 50° C
Storage Temperature	-30° C to 55° C

# Bathymetric & Profiling Systems

DRAGONFISH

SWIFT SVP

TRITECH SEANET SCU V5

TRITECH SEAKING 704 BATHY

SUPER SEAKING DFP

ISD4000 DEPTH & TEMPERATURE SENSOR

VALEPORT MINIIPS

PAROSCIENTIFIC DIGIQUARTZ

VALEPORT MIDAS CTD

VALEPORT MIDAS SVX2

VALEPORT MODEL 106

# Dragonfish



## Key features

- Laser Calliper laser measurement and profiling with video and software analysis
- Any underwater task where highly accurate measurement and profiling is required
- Provides sub millimetric point to point measurements and profiling of shapes, enabling diameter, circumference, radius, angle, distance.
- Ideal for weld seams, mooring chains, depletion, integrity, impact damage
- Driver held and ROV mount
- Harsh environment proven, reliable, compact and easy to use Enables measurement up to 0.5 mm accuracy
- Does not require INS / positioning input from Survey
- No offshore technician or data related post processing costs

The DragonFish is a highly compact and rugged underwater laser measurement and profiling system with topside video and software analysis. The system has been designed for a wide range of subsea measurement applications including the width and depth of cracks and gaps, pipeline radius, diameter and circumference and precise distance and angular measurements.

Depending on the range to target, the DragonFish generates results with an accuracy of up to 0.5 mm. The package is very compact and has been designed to integrate to the smallest of ROV systems or it can be modified for diver use using the attachable handle.



# Dragonfish

## SPECIFICATIONS

Model	DragonFish DH	DragonFish RM
Max range	100-2000 mm	100-2000 mm
Accuracy	Up to 0.5 mm	Up to 0.5 mm
Resolution	Up to 0.3 mm	Up to 0.3 mm
Laser wavelength	450 nm (blue)	450 nm (blue)
Laser power	70mW	70mW
Fan angle	45°	45°
Depth rating	300 m	3000 m
Weight air/water	0.5 kg / 0.3 kg	0.5 kg / 0.3 kg
Power	250mA @ 24 VDC	250mA @ 24 VDC
Housing material	Anodised aluminium	Anodised aluminium
Topside	Software GUI, laptop	Software GUI, laptop

# Swift SVP



Designed from the outset with the intention of a seamless workflow, the SWiFT profiler provides survey-grade sensor technology coupled with the convenience of Bluetooth connectivity and rechargeable batteries. An integral GPS module, to geo-locate each profile, completes the package. Data can be easily and quickly downloaded and reviewed wirelessly, via Bluetooth, using the SWiFT App on iOS devices and instantly shared, in industry standard data formats through email and cloud services. Using the provided USB adapter or cable.



# Swift SVP

## SPECIFICATIONS

### Sound Velocity

**Range** 1375-1900 m/s

**Resolution** 0.001 m/s

**Accuracy**  $\pm 0.02$  m/s

### Pressure

**Range** 50 bar

**Resolution** 0.001% FS

**Accuracy**  $\pm 0.01$  FS

**Available output parameters** Adjustable data packet output rate down to 1 Hz

### Temperature

**Range**  $-5^{\circ}\text{C}$  -  $+35^{\circ}\text{C}$

**Resolution**  $0.001^{\circ}\text{C}$

**Accuracy**  $\pm 0.01^{\circ}\text{C}$

# Tritech Seanet SCU V5



## Application

- Tritech sonar control
- Tritech survey sensor control
- Third party equipment control
- Integration of GPS with survey data
- Logging and playback of sonar scans

## Key features

- High resolution video output
- Multiple input/output ports
- USB ports included
- Flash card reader
- Port activity lights
- RS232, RS485, ARCNET, Ethernet

The Seanet SCU is a multi-tasking control unit running under Microsoft Windows™ Embedded, which is installed on an internal solid-state disk. The Seanet SCU allows for complete control of the software using a Remote Access Terminal (RAT). This is an ergonomically designed device which either neatly clips onto the front of the unit or is used as a remote via a cable. The built in mini-joystick on the RAT provides a useful tool for carrying out range and bearing measurements on sonar data.



# Tritech Seanet SCU V5

## SPECIFICATIONS

Case width	432 mm
Front panel width	482 mm (19")
Height	133 mm (3U)
Depth	325 mm
Depth including handles	376 mm
Weight	~10 kg
Materials	Aluminium, Stainless Steel
Operating temperature	5 to 35°C
Storage temperature	-20 to 50°C



# Tritech SeaKing 704 Bathy



## Key features

- Real-time monitoring of conductivity
- Real-time monitoring of temperature
- 700 m to 4000 m depth ratings available
- Robust and proven design
- Reliable and accurate sensors

The SeaKing Bathymetric System operates as a stand-alone instrument, or a single subsea node on the SeaKing network and shares the same twisted pair wiring as the SeaKing Profiler or SeaKing Sonar. Vehicle integration is very simple since only a single pair of conductors are required on the ROV.



# Tritech Seaking 704 Bathy

## SPECIFICATIONS

### Altimeter

<b>Make</b>	Tritech International
<b>Type</b>	PA500
<b>Weight in air</b>	1.15 kg
<b>Weight in water</b>	0.8 kg
<b>Frequency</b>	500kHz
<b>Beamwidth</b>	6° conical
<b>Range</b>	0.3 m to 50 m
<b>Resolution</b>	1 mm
<b>Material</b>	Stainless steel (titanium 6Al4V optional)

### System - physical

<b>Weight in air</b>	Aluminium: 3.5 kg (4.2 kg with CT probe)
<b>Weight in water</b>	Aluminium: 1.5 kg (2.1 'kg with CT probe)
<b>Materials</b>	Anodised aluminium alloy (6Al4V titanium alloy or stainless steel optional)

### System - electrical

<b>Power consumption</b>	24 - 28V DC at 8VA (nominal)
<b>Communications</b>	ARCNET, RS232

### Depth Sensor

<b>Make</b>	Paroscientific Digiquartz
<b>Repeatability</b>	0.01% FSD
<b>Hysteresis</b>	0.015% FSD
<b>Drift</b>	0.015% FSD

### Temperature Sensor

<b>Make</b>	Teledyne RDI (Falmouth Scientific)
<b>Type</b>	Platinum resistance
<b>Range</b>	-5 to 35°C
<b>Accuracy</b>	±0.05°C
<b>Drift</b>	±0.005°C per month

### Conductivity Sensor

<b>Make</b>	Teledyne RDI (Falmouth Scientific)
<b>Range</b>	0 to 6.5 S·m-1
<b>Accuracy</b>	±2.0mS·m-1
<b>Drift</b>	±0.5mS·m-1 per month

# Super Seaking DFP



## Applications

- Pipeline and trench profiling
- Precision positioning of mattresses
- Storage tank survey
- Underwater surveying of bridge supports

## Key features

- Dual frequency transducer
- Hard boot for protection
- Connector options available
- 4000 m depth rating
- Fast scan rates
- ARCNET or RS232

The Super SeaKing Dual Frequency Profiler uses the latest technological advances available in transducer design. A composite transducer technology has been used to ensure that this sonar offers substantially increased range and image resolution.



# Super seaking DFP

## SPECIFICATIONS

Acoustic	High Frequency	Low Frequency
Operating frequency	1.1MHz	600kHz
Beamwidth	1° conical	2° conical
Maximum range	40 m	80 m

Physical	
Weight in air	3.5 kg (aluminium)
Weight in water	1.7 kg (aluminium)
Materials	Boot: Acetal copolymer Body tube: Anodised aluminium alloy (6Al4V Titanium optional)
Depth rating	4000 m
Temperatures	Operating: -10 to 35°C Storage: -20 to 50°C

Electrical and Communications	
Power requirement	20 to 36V DC at 1A
Communications protocols	ARCNET, RS232
Communication rate	ARCNET: 156kbit-s-1, 78kbit-s-1 RS232: 115.2kBd
ARCNET line driver	1500m at 156kbit-s-1 2500m at 78kbit-s-1
Connector options	Tritech 6-pin (standard) Others available on request

# ISD4000 Depth & Temperature Sensor



## Key features

- $\pm 0.01\%$  FS Depth
- $0.01^{\circ}\text{C}$  accuracy
- Heading
- Pitch & roll
- Maintenance free
- Titanium housing

Compact, lightweight and highly robust, the ISD4000 is ideal for ROV, AUV and other underwater depth and temperature measurement applications with optional integrated Attitude & Heading Reference System (AHRS).



# ISD4000 Depth & Temperature Sensor

## SPECIFICATIONS

Depth	
Accuracy	± 0.01% Full Scale
Resolution	0.001% Full Scale
Range	10, 30, 50, 100, 300, 400 or 600 Bar
Type	Temperature Compensated Piezo-Resistive
Communications & Power	
Digital	RS232 & RS485
Protocol	300 to 115,200 baud
Data	Continuous or on demand
Data rate	Up to 100Hz
Input voltage	7 to 32V DC
Power (No Altitude)	<30mA @ 24V DC

# Valeport miniIPS



The Valeport miniIPS is a precision underwater pressure sensor; 0.01% accuracy, a titanium housing and a choice of pressure ranges make it a cost effective solution for offshore engineers, vehicle pilots, and other operators who require highly accurate depth information in real time.

The miniIPS is also compatible with Valeport's MIDAS BathyPack and BathyLog software, allowing the depth data to be continually updated for Density variations in the water column.



# Valeport miniIPS

## SPECIFICATIONS

<b>Housing</b>	Titanium (6,000 m Rated)
<b>Size</b>	Ø40 mm x 185 mm (including connector)
<b>Weight</b>	<1 kg (air)
<b>Connector</b>	Subconn MCBH6F (titanium)



# Paroscientific Digiquartz



## Key features

- 0.01% Accuracy
- $1 \times 10^{-8}$  Resolution
- Low Power Consumption
- High Stability and Reliability
- Fully Calibrated and Characterized
- Frequency Outputs or Dual RS-232 and RS-485 Interfaces

Digiquartz® Depth Sensors provide the ultimate precision in water level measurements. Typical application accuracy of 0.01% is achieved even under difficult environmental conditions. Desirable characteristics include excellent long-term stability,  $1 \times 10^{-8}$  resolution, low power consumption, and high reliability.



# Paroscientific Digiquartz

## SPECIFICATIONS

Performance Characteristics	
Pressure performance	Accuracy typically better than 0.01% Full Scale (See SCD)
Calibrated Temperature Range	-2C to +40C
Hysteresis	8CB $\leq \pm 0.01\%$ Full Scale 8CDP $\leq \pm 0.005\%$ Full Scale
Repeatability	8CB $\leq \pm 0.01\%$ Full Scale 8CDP $\leq \pm 0.005\%$ Full Scale
Over Pressure	1.2 times Full Scale
Thermal Sensitivity	<0.0008% Full Scale / deg C
Electrical Characteristics	
Input Voltage	+6 (Min) to +16 VDC
Current Consumption	16.5 mA Quiescent, 32 mA max @ +6 VDC
Output Signal	RS-232 meets EIA/TIA specs RS-485 meets EIA/TIA specs
Environmental Characteristics	
Weight	8CB Dry: 2.94 lbs (1.33 kg) Max 8CDP Dry: 3.48 lbs (1.58 kg) Max 8CDP 700m Dry: 5.0 lbs (2.26 kg) Max
Housing Materials/Wetted	8CB - Stainless Steel 8CDP-PVC Type 1 or Acetal, White

# Valeport Midas CTD



The MIDAS CTD is an accurate, robust CTD Profiler. As well as using Valeport's high stability conductivity sensor, which maintains performance at extreme temperatures and pressures, the MIDAS CTD is fitted with a high accuracy 0.01% pressure sensor as standard.



# Valeport Midas CTD

## SPECIFICATIONS

### Productivity

**Range:** 0 - 80 mS/cm

**Resolution:** 0.002 mS/cm

**Accuracy:**  $\pm 0.01$  mS/cm

### Temperature

**Range:**  $-5^{\circ}\text{C}$  to  $+35^{\circ}\text{C}$

**Resolution:**  $0.005^{\circ}\text{C}$

**Accuracy:**  $\pm 0.01^{\circ}\text{C}$

### Pressure

**Range:** 300 or 600 bar

**Resolution:** 0.001% range

**Accuracy:**  $\pm 0.01\%$  range

# Valeport Midas SVX2



The MIDAS SVX2 is the latest version of Valeport's unique instrument. Recognising the conflict faced by users requiring the superior Sound Velocity data from an SVP, but still needing the Salinity and Density data from a CTD, the MIDAS SVX2 combines both technologies to give the best of both worlds. Now fitted with a 0.01% pressure sensor as standard, the SVX2 also uses synchronised sampling to ensure perfect profiles, and since the digital time of flight SV sensor is the most accurate in the world, it's also possible to compare the true sound velocity data with that generated by commonly used equations.



# Valeport Midas SVX2

## SPECIFICATIONS

### Sound Velocity

**Range** 1375 – 1900 m/s

**Resolution** 0.001 m/s

**Accuracy**  $\pm 0.02$  m/s

### Temperature

**Range** 5°C to +35°C

**Resolution** 0.005°C

**Accuracy**  $\pm 0.01$ °C

### Conductivity

**Range** 0 to 80 mS/cm

**Resolution** 0.003 mS/cm

**Accuracy**  $\pm 0.01$  mS/cm

### Pressure

**Range** 300 or 600 bar

**Resolution** 0.001% range

**Accuracy**  $\pm 0.01$ % range

### Physical

**Materials** Titanium housing, polycarbonate & composite sensor components, stainless steel (316) cage

**Depth Rating** 6000m (may be limited by pressure sensor)

**Instrument size** Ø88 mm x 665 mm long

**Cage Size** 750 mm x 140 mm x 120 mm

**Weight (in cage)** 11.5 kg (in air), 8.5 kg (in water)

**Shipping** 95 cm x 17 cm x 49 cm, 2 4kg

### Electrical

**Internal** 8 x C cells, 1.5v alkaline or 3.6v lithium

**External** 9 - 30vDC

**Power** 0.7W (sampling), <1mW (sleeping)

**Battery Life** <100 hours operation (alkaline)  
<250 hours operation (lithium)

**Connector** Subconn Titanium MCBH10F

# Valeport Current Meter 106



The Model 106 Current Meter is a light weight, cost effective impeller current meter, designed for real time current measurement or short to medium term autonomous deployments.



# Valeport Current Meter 106

## SPECIFICATIONS

Speed	
Type:	High Impact Styrene Impeller
Size:	125 mm diameter by 270 mm pitch
Range:	0.03 m/s to 5 m/s
Accuracy:	±1.5% of reading above 0.15 m/s. ±0.004 m/s below 0.15 m/s
Direction	
Type:	Flux gate compass
Range:	0 to 360°
Accuracy:	± 2.5°
Resolution:	0.5°
Temperature	
Type:	Thermistor
Range:	5 to 35°C
Accuracy:	± 0.2°C
Resolution:	0.01°C



# Multiplexers, Matrix and Subsea IP Mux

MATRIX MK II+  
Q-LINK EXTENDER  
Q-HUB IP

# Matrix MK II+



## Key features

- 7-inch Linux based touch screen interface for control and diagnostics
- Status for all channels on screen
- Voltage and current monitoring
- Alarm / warning logging
- Operational hours logged
- Web-browser based interface for mirrored control
- Ethernet connection for control
- 19" 3U rack mount

The Matrix is a stand-alone fibre optic multiplexer and control solution, providing a simple, plug and play interface for a large array of sensors and equipment to any remotely operated system. The system consists of a compact, one- atmospheric subsea unit rated for 3000 MSW, and a 19" rack mounted topside unit with touch screen and status for all channels on the screen.



# Matrix MK II+

## SPECIFICATIONS

Power Output	2 x 48 VDC/24 VDC noise attenuated 6A - Software switchable
	1 x 48 VDC 3A/24V, 6A for 2x100Mbps Ethernet - Fixed output. Hardware switchable
	10 x 24 VDC 2A outputs 2-pole relay
	1 x 110 VAC 2-pole relay output
	Software resettable fuses on DC power output
	1200 W available DC power
Single Interface	9 x RS232
	4 x software switchable RS232/RS485
	3 x 100 Mbps Ethernet
	2 x Gb Ethernet
	2 x single direction PECL
	3 x HD-SDI
	2 x 5V TTL trigger
	All serial and trigger interfaces are isolated

# Q-Link Extender



## Applications

- Inspection class ROVs with no fibre optic link
- Commercial ROVs of all sizes
- Monitoring platforms
- Landers
- Marine renewables inspection
- Touchdown monitoring
- Oceanographic research

The OTAQ Q-LINK IPTM is a subsea 10/100 ethernet extender unit that allows the use of ethernet based devices when only a shielded twisted pair (STP) or COAX cable is available.

The system comprises a subsea module and a topside unit with a proven operating distance of up to 1km (tether & application dependant). The Q-LINK is ideal for enhancing non fibre optic inspection class ROVs by enabling the integration of a variety of ethernet devices including cameras. Our 300 m Acetal variants are extremely lightweight making them perfect for use with compact ROVs.

The OTAQ Q-LINK IPTM is an ideal partner to the OTAQTM range of IP underwater cameras.



# Q-Link Extender

## SPECIFICATIONS

Q LINK IP 2CH			
Model	2CH 300M ACE	2CH 1000M AA	2CH 4000M AA
Material	Acetal	Anodised Aluminium	Anodised Aluminium
Depth rating	300 m	1000 m	4000 m
Maximum STP cable length	1000 m	1000 m	1000 m
Weight (in air)	1 kg	1.7 kg	2.0 kg
Weight (in water)	-0.1 kg	0.6 kg	0.9 kg
Data	10/100 BaseT Ethernet		
Power	18-30vDC @ 300 mA		
Power and STP connector	MCBH4M		
IP Connector	2 x MCBH6F	2 x MCBH6F	2 x MCBH6F
Part no	OS-130100	OS-130105	OS-130105

# Q-Hub IP



## Applications

- Commercial ROVs and AUVs of all sizes
- Monitoring platforms
- Landers
- Marine renewables inspection
- Touchdown monitoring
- Oceanographic research

The OTAQ Q-HUB IP is a 6 channel underwater ethernet switch with on board power switching system. It allows you to access the wasted capacity in your Gigabyte (GBE) and 10/100 Ethernet channels.

The Q-HUB IP is a 10/100/1000Mbps ethernet switch capable of connecting up to six 10/100/1000 devices to a single GBE or 10/100 channel. Power switching to the six channels is controlled from embedded GUI software accessed over the ethernet connection.

Q-HUB IP is perfect for ROVs to enable the use of additional ethernet devices and its compact size enables mounting to variety of vehicles or monitoring platforms, landers and towed systems. It is available in 300 m (lightweight Acetal) or 3000 m (anodised aluminium) depth ratings.



# Q-Hub IP

## SPECIFICATIONS

	Q HUB IP 6CH	Q HUB IP 6 CH
<b>Model</b>	300M ACE	4000M AA
<b>Material</b>	Acetal	Hard anodised aluminium
<b>Depth rating</b>	300 m	4000 m
<b>Weight in air</b>	3 kg	6 kg
<b>Weight in water</b>	1.5 kg	3 kg
<b>Data</b>	10/100/1000 Mbps Ethernet	10/100/1000 Mbps Ethernet
<b>Power</b>	18-30 VDC	18-30 VDC
<b>10/100/1000 out connector</b>	1 x BH13M	1 x BH13M
<b>10/100/1000 in connector</b>	6 x BH13F	6 x BH13F

# Sonars

**GEMINI 720IS**

**SUPER SEAKING SONAR HEAD**

**SEAPRINCE DST**

**MESTOTECH 1071**

**KLEIN 3000 SIDE SCAN SONAR**

**K-CHIRP SUB BOTTOM PROFILER**

**EDGETECH 4200**

**EDGETECH 4205**

**COMPACT IMAGING SONAR**

**AIRS EXPLORER 3000**



# Gemini 720is



## Key features

- 720kHz operating frequency
- Wide 120° field of view
- Real-time updates for video like imagery
- Integrated velocimeter for accurate ranging
- Ethernet or VDSL communications
- Software Development Kit available
- SeeByte target tracking capability

The 720is is the latest generation from Tritech's renowned multibeam sonar range and offers a real-time, high frequency imaging solution. The Gemini 720is operates at 720kHz and this combined with Tritech's state-of-the-art processing electronics, produces images of superb clarity. This latest design is ideal for pan and tilt mounting on observation class ROVs.



# Gemini 720is

## SPECIFICATIONS

Acoustic Specifications		Physical Specifications	
Operating Frequency	720kHz	Depth Rating	1000 m (Aluminium) 4000 m (Titanium)
Angular Resolution	1.0° acoustic, 0.5° effective	Weight in air	3.5 kg (Aluminium) 5.0 kg (Titanium)
Field of view	120°	Weight in water	1.5 kg (Aluminium) 3.0 kg (Titanium)
Number of Beams	256	Temperature ranges	-10 to 35°C (operating), -20 to 50°C (storage)
Vertical Beamwidth	20° (tilted down 10°)		
Range	0.2 m to 120 m		
Update Rate	5-30Hz (range dependent)		
Range Resolution	8 mm (range dependent)		
Interface			
Power requirement	25W maxq		
Supply Voltageq	19 to 74V DC		
Communications Protocols	Ethernet or VDSL		
Additional I/O	RS232, RS485 (half duplex), TTL in, Ethernet		
Connector Type	SeaCon 55 series, SeaCon MCBH or Schilling SeaNet(single port as standard)		
VDSL cable length	Maximum length for VDSL and power is 300m, if power is provided locally then maximum cable length for VDSL communication is 500m.		

# Super SeaKing Sonar Head



## Applications

- Pipeline and trench cross sectional profiling
- Precision positioning of mattresses and rock dumping
- Storage tank survey
- Underwater surveying of road and rail bridge foundations

## Key features

- 0.6MHz profiler for use in water containing suspended particles or where longer ranges are required
- 1.1MHz profiler for higher accuracy work at short ranges in clearer water
- Hard Boot protection
- Increased scan rate

The Super SeaKing Dual Frequency Profiling sonar Head uses the latest technological advances available in transducer design. Using composite transducer technology this sonar offers substantially increased ranges and image resolution.



# Super SeaKing Sonar Head

## SPECIFICATIONS

### Main Specifications

<b>Operating Frequency</b>	600 kHz & 1.1 MHz
<b>Beamwidth</b>	2° Conical [600 kHz]
<b>Beamwidth</b>	1° Conical[1.1 MHz]
<b>Maximum range</b>	80 m [600 kHz]
<b>Maximum range</b>	40 m [1.1 MHz]
<b>Minimum range</b>	0.3 m
<b>Timing resolution</b>	1 mm
<b>Source level</b>	210 dB re 1uPA @ 1 m
<b>Pulse length</b>	20 - 200 microsec
<b>System bandwidth</b>	30 kHz
<b>Scan modes</b>	Combinations of speed and resolution available
<b>Mechanical step sizes</b>	0.45°,0.9°, 1.35° & 1.8°
<b>Mechanical resolution</b>	0.45°
<b>Scanned sector</b>	Variable to 360°
<b>Continuous 360° mode available</b>	Yes
<b>Sector offset mode available</b>	Yes

### Mechanical

<b>Overall maximum diameter</b>	110 mm
<b>Maximum length</b>	287 mm
<b>Weight in air</b>	3.5 kg
<b>Weight in water</b>	1.7 kg
<b>Maximum operational depth</b>	4,000 m

# SeaPrince DST



## Applications

- Survey and observation
- Light work-class ROV
- Obstacle avoidance
- Port and harbour surveillance

## Key features

- 4000 m depth rating
- CHIRP sonar tuned to 675kHz
- True acoustic zoom
- Instant scan reversal
- ARCNET, RS232 and RS485
- Single or dual port option

The Super SeaPrince DST sets new standards in sonar technology, offering the same industry standard features as the Super SeaKing sonar, in a compact design. Broad band frequency response from 500kHz up to 900kHz, for maximum range and higher resolution in a single channel sonar.



# SeaPrince DST

## SPECIFICATIONS

### Acoustic

<b>Operating frequency</b>	Maximum bandwidth 500kHz to 900kHz (default of 675kHz)
<b>Beamwidth</b>	38° vertical, 2.3° horizontal
<b>Maximum range</b>	100 m
<b>Minimum range</b>	1 m
<b>Resolution (step size)</b>	0.45°, 0.9°, 1.8°, 3.6°
<b>Pulse length</b>	200µs

### Physical

<b>Weight in air (single port model)</b>	1 kg
<b>Weight in air (dual port model)</b>	1.05 kg
<b>Weight in water (single port model)</b>	0.39 kg
<b>Weight in water (dual port model)</b>	0.44 kg
<b>Depth rating</b>	4000 m
<b>Temperatures</b>	-10 to 35°C operating (-20 to 50°C storage)

### Electrical and Communications

<b>Power requirement</b>	12 to 36V DC at 10VA (18 to 56V DC optional)
<b>Supported protocols</b>	ARCNET, RS232, RS485
<b>Communication rate</b>	ARCNET: 156kbit-s-1 (maximum) RS232/RS485: 115.2kBd (maximum)

# Mestotech 1071



This version of the 1071-Series Sonar has been specifically designed to produce the highest resolution scanning sonar images possible with 675 kHz. Its design is targeted at bottom clearance, body recovery, underwater construction and applications where data clarity supercedes any other requirement.



# Mestotech 1071

## SPECIFICATIONS

Operating Frequency	675 kHz
Beam Width	0.9° X 30° Fan (nominal)
Range	0.5 - 100 Metres typical; 150 Metres obtainable
Telemetry	RS 485/RS 232 auto switching asynchronous serial data
Operating depth	3000 meters



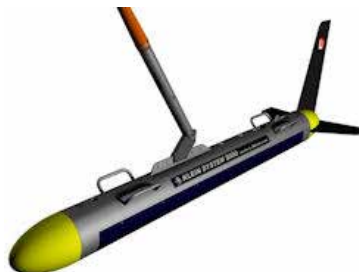
# Klein 3000 Side Scan Sonar



## Key features

- Advanced signal processing and transducers produce superior imagery
- Cost-effective, affordable
- PC-based operation with SonarPro® software, dedicated to Klein sonars
- Small, lightweight and simple designs — easy to run and maintain
- Easily adapted to ROVs and custom towfish
- Meets IHO & NOAA Survey specifications

The System 3000 System presents the latest technology in digital side scan sonar imaging. The simultaneous dual-frequency operation is based on new transducer designs, as well as the high-resolution circuitry recently developed for the Klein multi-beam focused sonar. The System 3000 performance and price is directed to the commercial, institutional and governmental markets.



# Klein 3000 Side Scan Sonar

## SPECIFICATIONS

<b>Frequencies</b>	100 kHz (132 kHz $\pm$ 1% act) 500 kHz (445 kHz, $\pm$ 1% act)
<b>Transmission pulse</b>	Tone burst, operator selectable from 25 to 400 $\mu$ secs. Independent pulse controls for each frequency
<b>Beams: Horizontal Vertical</b>	0.7° @ 100 kHz, 0.21° @ 500 kHz 40°
<b>Beam tilt</b>	5, 10, 15, 20, 25° down, adjustable
<b>Range scales</b>	15 settings — 25 to 1,000 meters
<b>Maximum range</b>	600 meters @ 100 kHz 150 meters @ 500 kHz
<b>Depth rating</b>	1,500 meters standard, other options available
<b>Construction</b>	Stainless steel
<b>Body length</b>	122 cm (48 in)
<b>Body diameter</b>	8.9 cm (3.5 in)
<b>Weight (in air)</b>	29 kg (63.9 lbs)
<b>Standard sensors</b>	Roll, pitch, heading
<b>Options</b>	Magnetometer, pressure, acoustic positioning, sub-bottom profiler

# K-chirp Sub Bottom Profiler



## Key features

- Cable & Route Surveys
- Geophysical and Geological Surveys
- EEZ Surveys
- Sediment Classification
- Buried objects, Cables and Pipelines
- Dredging Surveys
- Hazards Surveys

The K-Chirp Model 3310 SPB is a “Chirp” sub bottom profiler attachment for the Model 3000 Side Scan Sonar. It mounts directly to the Model 3210 Side Scan towfish and uses the existing physical connections and electrical communications to accommodate this added capability.



# K-chirp Sub Bottom Profiler

## SPECIFICATIONS

Host Sonar	3000 Side Scan Sonar
Frequency (Chirp)	2-8 kHz
Beam	@ 5kHz 20° along track and 40° crosstrack
Selected Pulses (sync to sync rate)	to 30 PPS
Selectable Pulse Lengths	2.5, 10,20, 30 msec (limited by side scan range scale)
Resolution	to 12.5 cm
Power	1 KW (peak)
Source Level	204 dB re 1μPa @ 1m
Depth Rating	600 meters
Weight in Air	123 kg, 270 pounds including side scan
Software	SonarPro®
Tow Cable	Single 50 ohm Coax
Data Format	SDF, XTF, SEG-Y
Sea Bed Penetration	5-50 Meters, Variable depending upon soil density

# Edgetech 4200



## Key features

- Optional Multi-Pulse (MP) technology for high speed surveys
- Crisp, high resolution CHIRP images
- Multiple dual simultaneous frequency sets to choose from
- Stainless steel towfish
- Easily integrates to other 3rd party sensors
- Meets IHO & NOAA Survey Specifications

The 4200 Series is a versatile side scan sonar system that can be configured for almost any survey application from shallow to deep water operations. The 4200 utilizes EdgeTech's Full Spectrum® CHIRP technology to provide crisp, high resolution imagery at ranges up to 50% greater than non-CHIRP systems; thus allowing customers to cover larger areas and save money spent on costly surveys.



# Edgetech 4200

## SPECIFICATIONS

<b>Towfish</b>	<b>Stainless Steel</b>
<b>Diameter</b>	11.4 cm (4.5 inches)
<b>Length</b>	125.6 cm (49.5 inches)
<b>Weight in Air/Saltwater</b>	48 kg / 36 kg (105 / 80 pounds)
<b>Depth Rating (Max)</b>	2,000 m
<b>Standard Sensors</b>	Heading, pitch & roll
<b>Optional Sensor Port</b>	(1) Serial – RS 232C, 9600 Baud, Bi-directional & 27 VDC
<b>Options</b>	Pressure Sensor, Magnetometer, Integrated USBL Acoustic Tracking System, Built-in Responder Nose, Depressor, Power Loss Pinger and Custom Sensors

# Edgetech 4205



## Key features

- Tri frequency side scan sonar
- Motion tolerant mode
- Improved target positioning
- Crisp, high resolution CHIRP imagery
- Increased towfish power to support wider range of 3rd party sensors
- Single pulse high resolution mode

The next generation 4205 is a versatile side scan sonar system that can be configured for almost any survey application from shallow to deep water operations. The 4205 is available in either a tri-frequency side scan sonar configuration or motion tolerant and multi-pulse configuration



# Edgetech 4205

## SPECIFICATIONS

<b>Towfish</b>	<b>Stainless Steel</b>
<b>Diameter</b>	12 cm (4.75 inches)
<b>Length</b>	140 cm (55 inches)
<b>Weight in Air</b>	52 kg (115 pounds)
<b>Depth Rating (Max)</b>	2,000 m
<b>Standard Sensors</b>	Heading, pitch & roll
<b>Optional Sensor Port</b>	(1) Serial – RS 232C, Bi-directional & 28 VDC +/- 4%
<b>Options</b>	Pressure Sensor, Magnetometer interface, USBL Responder interface, Depressor, Power Loss Pinger and Custom Sensors



# ISS360 Compact Imaging Sonar



## Key features

- 90 Meter Range
- 4,000 m Depth Rating
- Integrated AHRS
- Small Form Factor
- Broadband Transducer
- No Slip Rings

Impact Subsea is proud to present the most compact imaging sonar in the world - the ISS360. The ISS360 is optionally available with integrated Attitude & Heading Reference System (AHRS) providing Heading, Pitch & Roll. Utilising a broadband composite transducer together with an advanced digital acoustic engine provides excellent range capability and image clarity. For applications where Sonar Imaging, Heading, Pitch & Roll are required; all can be provided from a single device. The ISS360 is provided in a highly robust Titanium housing. The unit can be supplied without the AHRS. Alternative OEM configurations are available upon request.



# ISS360 Compact Imaging Sonar

## SPECIFICATIONS

Acoustic	
Frequency	700kHz Centre 650 to 750kHz Standard Bandwidth
Range	0.15 to 90 meters
Range Resolution	7.5 mm (100kHz CHIRP)
Beam Angle	23° Vertical at 700kHz 2.2° Horizontal at 700kHz
Signalling (Selectable)	CHIRP & CW
Step Size (Selectable)	0.225°, 0.45°, 0.9°, 1.8°, 3.6° & 7.2°
Scan Angle	360° Continuous or Sector Scan

Physical	
Weight (Air/Fresh Water)	0.38 kg / 0.3kg
Depth Rating	4,000 m
Temperature	-10 to 40° operating -20 to 60° storage
Connector	Subconn MCBH8M-SS (other options available)

Communications & Power	
Digital	RS232, RS485 & Ethernet
Protocol	9600 to 115,200 baud
Input Voltage	12 to 65V DC
Power (Standby)	110mA @ 24V DC
Power (Scanning)*	150mA @ 24V DC

Heading	
Accuracy	± 3°
Resolution	0.1°

Attitude	
Pitch	± 90°
Roll	± 180°
Accuracy	0.2°
Resolution	0.1°

# Aris Explorer 3000



## Applications

- Underwater Inspection
- Monitor Operations & Divers
- Construction Monitoring
- Equipment & Tool Placement
- Hull & Berth Inspection
- Environmental Monitoring
- Port & Harbor Security
- Target Identification & Classification

## Key features

- Dual Frequency, 3.0 MHz & 1.8 MHz
- Unprecedented High Definition Imagery
- Capable of imaging at close range
- Built in compass & depth gauge
- Low Power Requirement
- Ethernet Interface
- Windows™ based Software

With 128 distinct physical beams operating at 3MHz, the ARIS Explorer 3000 can provide higher resolution than any other imaging sonar in its class, with unprecedented image clarity even in dark or turbid waters. For longer range applications, Sound Metrics offers the Explorer 1800 and Explorer 1200 models. All models offer dual frequencies, dynamic focusing, multiple recording and output options, background subtraction and innovative soft- ware. Teamed with the ARIS Rotator AR2 on a tripod, pole- mount or ROV, the ARIS Explorer line opens up exciting new possibilities of underwater discovery.



# Aris Explorer 3000

## SPECIFICATIONS

Number of Transducer Beams	128
Beam Width	0.25°
Field-of-view	30° x 14°
Frame Rate	Up to 15 frames/sec
Range Resolution	Down to 3 mm
Power Consumption	20 Watts typical
Weight in Air	5.17 kg
Weight in Water	1.06 kg
Dimensions	26 cm x 16 cm x 14 cm
Cable Length	Up to 150 m

# Navigation, Pipetracker, etc.

PIPE TRACKER TSS 440

CABLE TRACKER TSS 350

RDI WORKHORSE NAVIGATOR

NORTEK DVL

# Pipe Tracker TSS 440



## Key features

- Suitable for pipe and cable tracking, burial and survey requirements
- Excellent detection and tracking performance
- High accuracy repeatable range data
- Pulse induction technology allows autonomous operation
- System design facilitates quick and easy mobilisation

TSS technologies are proven in operation in some of the most exacting environments world-wide, and its equipment is established as the most accurate means of obtaining pipe and cable burial data.



# Pipe Tracker tss440

## SPECIFICATIONS

440		
<b>System Performance</b>	Detection Range	Pulse Indication 3 cm armoured cable depth and tracking at 1.2 m; 1 cm unarmoured cable depth and tracking at 0.6 m
<b>Subsea Electronics Pod (SEP)</b>	Dimensions Weight per pod SDC communication  Voltage input  ROV connection Voltage input  ROV connection	140 mm (dia) x 450mm (h) (440 – 2 pods, 350 – 1 pod) 10 kg in air; 2 kg in water 2-wire 20mA digital current loop or 4-wire 20mA digital current loop RS232 via a multiplexer Standard 110V AC (input range 98-135V AC); Optional 240V AC (input range 198-270V AC) Via 8-way waterproof connector Standard 110V AC (input range 98-135V AV) Optional 240V AC (input range 198-270V AC) Via 8-way waterproof connector
<b>SDC</b>	Hardware  Display resolution Dimensions Power consumption Shock resistance	19" military grade touch screen panel PC Rear mounted comms endorse for all external interfaces 1280 x 1080 599 mm x 480 mm x 345 mm (including transit case) 250W max Operating: better than 5 g for <10 ms Non-operating: better than 40 g for <10 ms
<b>Altimeter</b>	Dimensions Frequency Range Connection cable Connection to	140 mm (dia) x 290 mm (h) 200kHz 30 cm to 30 m 4 m length (7 m length optional) Subsea electronics pod
<b>Depth Rating</b>	All subsea components are depth rated to 3000 m (optional 6000 m)	

# Cable Tracker TSS 350



## Key features

- Cable location data and depth of burial data
- Cable fault location
- Vehicle skew angle data
- Look-ahead information
- Tone discrimination

The TSS 350 system is designed specifically for the detection and survey of tone-carrying cables. Featuring a comprehensive software display and menu structure, real-time information is presented in a clear graphical format and provided as a digital output for storage and subsequent processing.





# Cable Tracker TSS 350

## SPECIFICATIONS

350		
<b>System Performance</b>  (dependent on tone – stated performance is based on 25Hz tone at 30mA current)	Vertical measurement accuracy	5 cm or 5% of slant range whichever is greater Stated accuracy applies within an envelope approximately 4.2 m wide and 4.0 m deep
	Maximum detection range	Cable detected at vertical range up to 10 m and within a total horizontal swath width of 20 m centred on the coil array

# RDI Workhorse Navigator



## Key features

- Bottom track velocity
- Water track velocity
- Altitude: 4 individual measurements
- Error velocity (data quality indicator)
- Temperature
- Heading/Tilt
- Acoustic echo intensity
- Pressure and depth (optional)
- Current profiling (optional)

The WORKHORSE NAVIGATOR is the industry's first choice for precision navigation applications. Teledyne RDI's highly acclaimed Doppler Velocity Log (DVL) provides precise velocity and altitude updates for a wide variety of underwater tasks.



# RDI Workhorse Navigator

## SPECIFICATIONS

Technical Specifications		
Bottom Velocity	Single-ping precision	
	Std dev at 1 m/s1	±0.3 cm/s
	Std dev at 3 m/s1	±0.5 cm/s
	Std dev at 5 m/s1	±0.7 cm/s
	Long-term accuracy	±0.2%±0.1cm/s
	Minimum altitude	0.5 m (0.25 optional)
Parameters	Maximum altitude	25 m
	Velocity range	±10 m/s
	Velocity resolution	0.1 cm/s
	Ping rate	7Hz max
Water Reference Velocity	Accuracy	±0.2% ±0.1 cm/s
	Layer size	selectable
	Minimum range	0.8 m
	Maximum range	15 m

# Nortek DVL



## Key features

- Industry's smallest DVL
- Bottom track from 0.2-75 m range
- Quality estimates - per beam and ping

The DVL1000 is the world's smallest commercially available Doppler Velocity Log. It combines compact design with unprecedented functionality, being able to fly higher in the water column and closer to the seabed than similar equipment. It has a maximum operational depth of 4000 m and is ideally suited for subsea navigation where size and weight are a concern. This 1 MHz Doppler Velocity Log is used by industry leaders in the subsea market because of its high accuracy and state-of-the-art technology.



# Nortek DVL

## SPECIFICATIONS

Bottom Velocity	
Single ping std @ 3 m/s	0.5 cm/s
Long-term accuracy	±0.1% / ±0.1 cm/s
Minimum altitude	0.2 m
Maximum altitude	75 m
Velocity resolution	0.01 mm/s
Maximum ping rate	8 Hz max

Current Profiling	
Minimum accuracy	0.3% of measured value ± 0.3 cm/s
Velocity resolution	0.1 cm/s
Interval	User-specific Nth ping
Maximum range	30 m
Blanking	0.1 m
Cell size	0.2-2.0 m
Max # cells	150

Water Tracking	
Minimum accuracy	0.3% of measured value ± 0.3 cm/s
Minimum range	2.0 m

Power	
DC input	12-48 V
Maximum peak current	1.5 A
Average power	1.3 W

Main Body	
Height	164 mm
Diameter	ø114 mm

Mechanical	
Depth rating	4000 m
Weight	2.7 kg
Weight in water	1.7 kg

# NDT & Inspection

DIGITAL CP SYSTEM

ISFMD FLOODED MEMBER DETECTION SYSTEM

BATHYCORROMETER

CALIBRATION KIT

ASAMS 12 MPI

ASAMS 3 MPI

PHASEC 3 EDDY CURRENT

CYGNUS MK 5 ROV

CYGNUS DIVE

# Digital CP System



## Key features

- Automatic comport selection
- Local isolated analogue to digital conversion
- ASCII Protocol for simple integration to third party applications
- DDE Link for data supply to third party software

The iCsys Digital CP System connects to standard CP sensors and converts the analogue signal locally to a digital RS232 or CAN-Bus communication.

It simplifies integration into existing systems by eliminating the need for specialized CP sensor inputs.

It is possible to log the reading and add notes to be able to print or archive the readings for later lookup.



# Digital CP System

## SPECIFICATIONS

Controll Unit Specification	
Dimensions	195 mm x 40 mm
Weight	1 kg
Material	Stainless steel 316L
Depth rating	3000 m
Communication	RS232/CAN-Bus
Supply voltage	8-30VDC
Power consumption	< 1W
Sensor connector	Subconn MCBH2F
Main connector	Burton 5507-1508

Polatrak ROV II Specifications	
Weight	1 kg
Dimensions	57 mm W x 57 mm H x 292 mm
Connector description	Seacon RMG-3FS
Electrode elements	AG/AGCl (Silver/Silver Chloride)
Depth rating	3000 m



# ISFMD Flooded Member Detection System



## Key features

- seaView Software
- Titanium Probe
- Integrated AHRS
- Multi-Echo Output
- Depth

Suitable for Diver or ROV use, the ISFMD utilises a broadband composite transducer probe together with an advanced digital acoustic engine to provide the highest level of accuracy and reliability in readings.



# ISFMD Flooded Member Detection System

## SPECIFICATIONS

Acoustic	
Frequency	500kHz
Range	0.1 m to 30 m (Maximum range dependant on seabed member type)
Resolution	1 mm
Beam angle	6° conical in water
Signalling	Monotonic
Pulse length	Automatic

Communications & Power	
Digital	RS232 & RS485
Protocol	300 to 115,200 baud
Analogue	0 to 5V DC, 0 to 10V DC or 4-20mA
Data	Continuous or on demand
Data rate	Up to 10Hz
Input voltage	9 to 36V DC
Power (No Altitude)	25mA @ 24V DC
Power (With Altitude)*	51mA @ 24V DC

Heading	
Accuracy	± 1°
Resolution	0.1°

Attitude	
Pitch	± 90°
Roll	± 180°
Accuracy	0.2°
Resolution	0.1°

Probe Physical	
Weight (air/fresh water)	0.5 kg /0.325 kg
Depth rating	6000 m (Titanium)
Temperature	10 to 40° operating -20 to 50° storage
Connector	Subconn MCBH8M-SS other options available

# Bathycorrometer



## Key features

- A high-visibility LCD display for improved clarity
- Latest surface technology electronics
- Depth of operation – up to 350 metres
- Facility for remote monitoring via Surface Display Unit Pro'
- Proven, rugged construction
- Single handed and light
- Robust and inert housing
- Contact with structure by hardened stainless steel probe
- Supplied with Calibration Certificate

The BathyCorrometer® Pro' is the latest generation of the tried-and-tested, industry-standard BathyCorrometer® which has been provided reliable service for subsea corrosion monitoring surveys since 1971. The latest version of the industry-standard BathyCorrometer® brings a host of developments including a negative display of the structure-to-electrolyte potential and is designed to make it simpler than ever to carry out subsea cathodic protection surveys and further enhance the BathyCorrometer's reliability.



# Bathycorrometer

## SPECIFICATIONS

Dimensions (packed)	39 cm x 50 cm x 20 cm
Packed weight (standard kit)	9.05 kg
Dimensions (carrying case)	38 cm x 49 cm x 19 cm
Dimensions (unit only)	10 cm x 27.5 cm
Weight (unit only)	in air 2.5 kg, in water 0.85 kg
Display	0.001 to -1.999v 3 1/2 digit high visibility backlit LCD
Accuracy	0.05% typical, instrument calibration accuracy +/- 1mV +/- 1 count
Battery charger	14hr standard 110-230V AC
Input impedance	1M Ohm
Operating temperature range	0 to 30°C, temperature stability 100 ppm/°C
Operating time on full charge	50hr +
Reference electrode	silver/silver chloride/seawater

# Calibration Kit



## Key features

- Easy to use
- All kit parts can be replaced individually
- Full instructions included

## What's in the box

- 3 x screw-on K-Series reference electrode cells
- Sea water corrosion test mixture
- 3 x Adaptor leads
- 1 x zinc block
- 1 x magnesium block
- Full instructions for 'in-house' verification

The Calibration Kit has been created to provide all the necessary components to enable customers to verify the accuracy of the readings on the Buckleys Contact and Proximity Probes so that 'in-house' verification certificates can be issued.



# Calibration Kit

## SPECIFICATIONS

Electrical connection	screw fit
Output	+208mV @ 25°C vs SHE
Accuracy	±5mV @ 25°C vs SHE
Temperature coeff	-0.64mV per/°C
Temperature range	0 - 40 °C
Working life	up to 1 year
Dimensions	155 mm long x 25 mm diam
Packed weight (calibration kit)	1.2 kg
Dimensions (packed)	26 cm x 14 cm x 30 cm

# ASAMS 12 MPI



## Key features

- Totally self contained
- 12 volt battery powered
- High intensity switchable UV lamp
- Switchable 12V DC electromagnetic yoke
- Ink supply (optional)

Produced following extensive research and development effort by ASAMS, the SYSTEM 12 underwater magnetic particle inspection unit has been developed as the ideal diver operated underwater MPI system for shallow water/tidal water use.



# ASAMS 12 MPI

## SPECIFICATIONS

U/V Lamp	
U/V Output	2.3MW at 450 mm
Voltage	12V DC
Power Consumption	35 Watts
Dimensions	110 mm diameter x 175 mm overall length
Weight	4 kg (in air)
Depth	1000ft

Battery	
Power	12V
Capacity	12 Amp hour
Outputs	2 (U/V lamp and yoke/charger)
Dimensions	135 mm x 200mm x 230mm (h)
Weight	9 kg (in air)
Depth	600ft

Yoke	
Voltage	12V DC
Current Drawn	2.5 Amps
Pull	20 kg at 150 mm spacing
Dimensions	480 mm (w), 200 mm (h), 220 mm (l)
Weight	3 kg (in air)
Depth	600ft with switch, 1000ft (surface operation)



# ASAMS 3 MPI



## Key features

- Three magnetising techniques in one system
- Full surface control and monitoring facilities
- High intensity Ultra-Violet (U/V) lamp
- De-magnetising facility
- Transformer isolated power supply
- Built-in Earth Leakage detectors
- Operates at any depth

Manufactured now by ASAMS, the SYSTEM 3 MPI is a modular design employing a sophisticated power control Surface Unit and an integrated, pressure compensated, Subsea Unit with built-in ink management systems.



# ASAMS 3 MPI

## SPECIFICATIONS

U/V Lamp	
<b>Mercury Arc Lamp</b>	Life typically > 1000 hours
<b>Warm-up time</b>	3-5 minutes
<b>Light Output</b>	1.4mw/cm2 at 450 mm
<b>Dimensions</b>	150 mm diameter x 240 mm overall length
<b>Weight</b>	1.6 kg (in sea water)

Surface Unit	
<b>Front Panel</b>	Mains Supply Indicator. Earth Leakage Trips- Mains and U/V lamp. Dual Range Ammeter 40A to 1500A (for magnetising current). Independent Switching og U/V lamp and Ink Pump supplies. Magnetising Loop Indicator. Demagnetising Facility. UV Lamp Indicator
<b>Housing / Case</b>	Stainless Steel with removable front cover.
<b>Dimensions</b>	480 mm x 250 mm x 250 mm
<b>Weight</b>	35.5 kg

Subsea Unit	
<b>Housing</b>	Anodised Aluminum, oil filled - pressure compensated.
<b>Outputs</b>	(a) 7KVA Power Transformer (magnetising current):- 1500A ac (Continuous), open circuit voltage of 5V RMS 1500A dc (5min. On/off duty cycle). (b) 200V ac Output for U/V Lamp via supply conditioning choke.
<b>Ink System</b>	10 litre Stainless Steel housed Reservoir Bag with quick-release onnectors. The ink is agitated by a motor driven pump system in the Subsea Unit.
<b>Dimensions</b>	365 mm diameter x 450 mm overall height.
<b>Weight</b>	56.8 kg in air, 26 kg in seawater.

# Phasec 3 Eddy Current



## Key features

- Safety latch can be locked in closed position.
- Eye designed to correspond with shackles
- RR-C-271 U.S. Federal specification.
- Ergonomic entry guide tip.
- Made of Stainless Steel 2324.
- One-piece construction for safety.
- Proper snag-free design with hexagonal long shank.
- Ergonomic safety latch with stainless release wire.

The Phasec 3 is suitable for a wide range of applications from high frequency surface inspection to low frequency sub-surface inspection. Lightweight, rugged and portable are major features of the Phasec 3. The equipment weighs just 1.1 kg including batteries and roughly the size of a hard backed book. Each instrument is housed in a tough, robust case and instrument internals have been designed to resist moist, tropical or salt-laden atmospheres. While offering a large display the instrument housing is kept as compact as possible. Advanced technology batteries allow up to 6 hours operating life with none of the adverse memory effects of more traditional batteries. Furthermore the instruments have been specifically designed to allow the interchangeability of accessories such as probes, cables and test pieces, reducing the amount of kit the operator needs to purchase or carry around for inspections.



# Phasec 3 Eddy Current

## SPECIFICATIONS

Weight (inc battery)	1.1 kg
Size (W x H x D) mm	192 mm x 139 mm x 57 mm
Operating temp	0-40°C
IP Rating	54

# CYGNUS MK 5 ROV



## Key features

- Available in two models: M5-ROV-2K 2,000 m (6,526 ft) depth rated and M5-ROV-4K 4,000 m (13,123 ft) depth rated.
- The ROV Gauge sends thickness measurement data to the surface via an RS-422 serial link. Cygnus can supply the RS-422 umbilical cable up to 1,200 m (4,000 ft) in length. For longer distances, using a fibre optic multiplexer, the ROV gauge can output data in RS-232 mode.

Measures metal thickness to determine wastage or corrosion accurately, quickly and without removing protective coatings.



# CYGNUS MK 5 ROV

## SPECIFICATIONS

Accuracy	0.1 mm (0.005”) when calibrated in accordance with Cygnus Instruments calibration Procedures
Power	7.0 - 30 V dc @ 150 mA (max)
Weight	Model M5-ROV-2K = 0.975 kg (2.150 lbs) Model M5-ROV-4K = 4.100 kg (9.039 lbs)
Communication	RS-422, Simplex Single Pair or RS-232 TXD 2400 or 9600 Baud

# CYGNUS Dive



## Key features

- The latest innovation from the pioneers of the digital multiple echo ultrasonic thickness gauge, the Cygnus DIVE is designed for the professional diver and is accurate, reliable and easy to use. Worn on the diver's forearm, it gives an invaluable free hand while performing thickness surveys.
- Made from a tough glass-filled resin, the Cygnus DIVE can withstand the knocks and bumps of the diving environment. A large bright colour TFT screen displays the thickness measurements in big numbers that really stand out - choose the display colour that suits you.

Measures metal thickness to determine wastage or corrosion accurately, quickly and without removing protective coatings.



# CYGNUS Dive

## SPECIFICATIONS

Dive Specifications	
Measurement Range in Steel	3 mm - 250 mm (0.110"- 9.995") with 2.25 MHz probe 2 mm - 150 mm (0.065"- 6.000") with 3.5 MHz probe 1 mm - 50 mm (0.045"- 4.000") with 5.0 MHz probe
Accuracy	0.1 mm (0.005") when calibrated in accordance with Cygnus Instruments Calibration Procedures
Resolution	±0.05 mm (±0.002") High <100 mm ±0.1 mm (±0.005") Low
Battery Life	Rechargeable Lithium-Ion Battery pack, 10 hours
Display	2.8" Colour TFT with LED Backlight 320 x 240 pixels
Size	105 mm x 110 mm x 35 mm (4.1" x 4.3" x 1.4")
Weight	Complete Gauge 905 g (2 lb.)
Operating Temp.	-10°C to +50°C (14°F to 122°F)
Depth Rating	IP68 Rated to 300 m (984 ft) continuous immersion in sea water
Receiver	Automatic TCG, 1 to 10 MHz Bandwidth 10 Bit Digitiser 60 MSPS
Data Storage (Data Logging Version)	32 Mb Flash Memory (5000 Measurement Points)
Data Output	RS-485 Half Duplex to DIVELink
Compliance	BS EN 15317:2007
Warranty	3 years on DIVE gauge, 6 months on probe



# Buoyancy

## SPHERICAL BUOYS

SUBSEA SUPPORT BUOY 200

SUBSEA SUPPORT BUOY 400

SUBSEA SUPPORT BUOY 850

MODULAR SUPPORT BUOY 111

MODULAR SUPPORT BUOY 162

MODULAR SUPPORT BUOY 234

# Spherical Buoys



Our spherical buoys product range have a broad range of sizes and depths. The buoys are single-piece devices, and suitable for operations and needs where buoyancy requirement are modest. Sizes up to Ø450 mm have a 50 mm hole through the buoy, through which a rope or wire can be threaded. Pad eyes can be mounted as an option. The holes are also suitable for manual handling. The Ø800 mm and Ø1000 mm buoys have a Ø110 mm hole, and are most often delivered with pad eyes. Standard color: bright yellow, optional: orange. Buoyancy figures are given seawater with a density of 1,025 kg/dm<sup>3</sup>. Weight figures are dry weight in air. Buoyancy figures are nominal net buoyancy.



# Spherical Buoys

## SPECIFICATIONS

Depth	Ø300		Ø340		Ø400		Ø450		Ø450 extended		Ø800		Ø100	
	Bouyancy	Weight	Bouyancy	Weight	Bouyancy	Weight	Bouyancy	Weight	Bouyancy	Weight	Bouyancy	Weight	Bouyancy	Weight
250 m	9.5	4.1	15	6	23	9	34	12	65	23	215	65	405	125
500 m	7.5	6	12	9	19	13	28	19	50	38	175	105	335	195
1000 m	6	7.5	9.5	11	15	17	23	24	43	45	135	140	270	265
1500 m	4.9	9	8	13	12	20	18	29	33	55	110	170	210	325

# Subsea Support Buoy 200



The SSB200 series is our smallest modular buoy. It consists of two module sizes and can be assembled in a wide range of combinations. The combination of two element sizes enables precise correspondence to actual buoyancy needs. The elements have pegs for fitting into each other. Standard pad eyes have a MBL of 22t. Standard color: bright yellow, optional: orange. Buoyancy figures are given seawater with a density of 1,025 kg/dm<sup>3</sup>. Weight figures are dry weight in air. Buoyancy figures are nominal net buoyancy.



# Subsea Support Buoy 200

## SPECIFICATIONS

	SSB200/0-1	SSB200/1-0	SSB200/0-2	SSB200/1-1
Depth	Buoyancy Weight	Buoyancy Weight	Buoyancy Weight	Buoyancy Weight
250 m	65 (95) - 90 (55)	95 (125) - 110 (80)	155 - 145	185 - 165
500 m	60 (85) - 95 (60)	90 (115) - 115 (85)	145 - 160	170 - 180
1500 m	37 (65) - 115 (85)	60 (90) - 145 (110)	100 - 200	125 - 230
2000 m	32 (60) - 120 (90)	55 (80) - 150 (120)	90 - 210	110 - 240

	SSB200/2-0	SSB200/0-3	SSB200/1-2	SSB200/2-1	SSB200/3-0
Depth	Buoyancy Weight	Buoyancy Weight	Buoyancy Weight	Buoyancy Weight	Buoyancy Weight
250 m	215 - 190	250 - 205	280 - 225	305 - 245	335 - 270
500 m	200 - 205	230 - 220	255 - 245	285 - 270	310 - 295
1500 m	145 - 260	165 - 285	185 - 315	210 - 345	235 - 375
2000 m	135 - 275	150 - 300	170 - 330	190 - 365	215 - 395

	SSB200/1-3	SSB200/2-2	SSB200/3-1	SSB200/4-0
Depth	Buoyancy Weight	Buoyancy Weight	Buoyancy Weight	Buoyancy Weight
250 m	370 - 285	400 - 305	430 - 325	460 - 350
500 m	340 - 310	370 - 335	395 - 360	425 - 385

# Subsea Support Buoy 400



The SSB400 series consists of two module sizes and can be assembled in a wide range of combinations. The combination of two element sizes enables precise correspondence to actual buoyancy needs. The elements have pegs for fitting into each other. Standard pad eyes have a MBL of 22t.



# Subsea Support Buoy 400

## SPECIFICATIONS

	SSB400/0-1	SSB400/1-0	SSB400/0-2	SSB400/1-1
Depth	Buoyancy Weight	Buoyancy Weight	Buoyancy Weight	Buoyancy Weight
250 m	165 (195) - 140 (110)	230 (255) - 175 (145)	360 - 255	420 - 285
500 m	155 (185) - 155 (125)	210 (235) - 190 (160)	335 - 280	390 - 315
1000 m	115 (150) - 195 (160)	165 (195) - 240 (205)	260 - 355	305 - 405
1500 m	105 (135) - 205 (170)	150 (175) - 255 (220)	235 - 375	280 - 425

	SSB400/2-0	SSB400/0-3	SSB400/1-2	SSB400/2-1	SSB400/3-0
Depth	Buoyancy Weight	Buoyancy Weight	Buoyancy Weight	Buoyancy Weight	Buoyancy Weight
250 m	480 - 320	550 - 365	610 - 400	670 - 430	730 - 465
500 m	445 - 355	510 - 405	570 - 440	630 - 480	680 - 510
1000 m	350 - 450	400 - 520	445 - 570	495 - 610	540 - 660
1500 m	325 - 475	370 - 550	410 - 600	455 - 650	495 - 700

	SSB400/1-3	SSB400/2-2	SSB400/3-1	SSB400/4-0
Depth	Buoyancy Weight	Buoyancy Weight	Buoyancy Weight	Buoyancy Weight
250 m	810 - 510	870 - 540	930 - 570	990 - 610
500 m	750 - 570	810 - 600	860 - 640	920 - 680
1000 m	590 - 730	630 - 780	680 - 820	730 - 870
1500 m	540 - 770	590 - 820	630 - 870	670 - 920

# Subsea Support Buoy 850



The SSB850 series is a mid-range buoy, and can be delivered with between one to five elements mounted together. The element has a cross-profile shape allowing elements to fit into each other. Standard Pad eyes have a MBL of 22t for up to four elements. The buoy with five elements has a steelwork with MBL 40t. Standard color: bright yellow, optional: orange. Buoyancy figures are given seawater with a density of 1,025 kg/dm<sup>3</sup>. Weight figures are dry weight in air. Buoyancy figures are nominal net buoyancy.





# Subsea Support Buoy 850

## SPECIFICATIONS

	SSB850/1	SSB850/2	SSB850/3	SSB850/4	SSB850/5
Depth	Buoyancy Weight	Buoyancy Weight	Buoyancy Weight	Buoyancy Weight	Buoyancy Weight
250 m	530 (560) - 330 (295)	1080 - 640	1630 - 940	2200 - 1240	2700 - 1640
500 m	490 (520) - 370 (335)	1000 - 710	1520 - 1050	2000 - 1400	2500 - 1830
1000 m	400 (420) - 470 (430)	810 - 910	1230 - 1350	1640 - 1790	1980 - 2300
1500 m	360 (390) - 500 (470)	750 - 970	1130 - 1440	1520 - 1910	1820 - 2500

# Modular Support Buoy 111



The MSB111 series has two element types. The buoy has an elegant design, and suits well demands that are smaller than the largest buoys. The steel work has an MBL of 40t. Standard color: bright yellow, optional: orange. Buoyancy figures are given seawater with density 1,025 kg/dm<sup>3</sup>. Weight figures are dry weight in air. Buoyancy figures are nominal net Buoyancy.



# Modular Support Buoy 111

## SPECIFICATIONS

	MSB111/1	MSB111/2	MSB111/3	MSB111/4
Depth	Buoyancy Weight	Buoyancy Weight	Buoyancy Weight	Buoyancy Weight
250 m	435 (570) - 420 (270)	770 - 610	1110 - 810	1440 - 1000
500 m	395 (530) - 460 (310)	710 - 680	1020 - 890	1340 - 1110
1000 m	285 (415) - 570 (425)	530 - 850	780 - 1130	1030 - 1420
1500 m	255 (385) - 600 (455)	485 - 900	710 - 1200	940 - 1500

# Modular Support Buoy 162



The MSB 162 series offers two different sizes, with two element types. The buoy has an elegant design, and is well suited to situations that demand a smaller buoy. The steel work has a MBL of 40t.

Standard color: bright yellow, optional: orange.  
Buoyancy figures are given seawater with density 1,025 kg/dm<sup>3</sup>. Weight figures are dry weight in air.  
Buoyancy figures are nominal net Buoyancy.



# Modular Support Buoy 162

## SPECIFICATIONS

	MSB162/1	MSB162/2	MSB162/3	MSB162/4
Depth	Buoyancy Weight	Buoyancy Weight	Buoyancy Weight	Buoyancy Weight
250 m	1250 (1390) - 830 (670)	2200 - 1300	3100 - 1780	4000 - 2300
500 m	1160 (1290) - 920 (770)	2000 - 1460	2800 - 2000	3700 - 2500
1000 m	1080 (1210) - 1000 (840)	1870 - 1590	2700 - 2200	3400 - 2800
1500 m	980 (1110) - 1100 (950)	1700 - 1760	2400 - 2400	3100 - 3100

# Modular Support Buoy 234



This is the most commonly used large modular buoy, both for permanent and temporary use. Available in all depth ratings from surface to 2500 meters. For surface buoys, AIS, radar reflector and light system can be provided as an option, with a nominal detection range of four nautical miles.



# Modular Support Buoy 234

## SPECIFICATIONS

	MSB234/1	MSB234/2	MSB234/3	MSB234/4
Depth	Buoyancy Weight	Buoyancy Weight	Buoyancy Weight	Buoyancy Weight
250 m	2200 (2700) - 1910 (1340)	4900 - 3300	7200 (2400) - 4600 (1240)	9600 - 5900
500 m	2000 (2500) - 2100 (1520)	4500 - 3700	6700 (2200) - 5200 (1410)	8900 - 6600
1000 m	1880 (2400) - 2200 (1670)	4200 - 4000	6300 (2100) - 5600 (1530)	8400 - 7200
1500 m	1680 (2200) - 2500 (1880)	3800 - 4400	5700 (1950) - 6200 (1710)	7600 - 7900

	MSB234/5	MSB234/6	MSB234/7
Depth	Buoyancy Weight	Buoyancy Weight	Buoyancy Weight
250 m	12000 - 7200	14300 - 8500	16700 - 9800
500 m	11100 - 8100	13300 - 9500	15500 - 11000
1000 m	10400 - 8700	12500 - 10300	14600 - 11900
1500 m	9500 - 9700	11400 - 11500	13300 - 13200

# DIVING EQUIPMENT

HD13 HAMMER DRILL

GR29

BR67



# HD13 Hammer Drill



## Key features

- Anti vibration handle according to CE regulations for comfort and safety of operators Works at flow 20 or 30 L/ min (to be specified upon order)
- Few moving parts which are constantly lubricated by oil
- Unbeatable operative longevity and reliability
- Can be used with long oil hoses due high pressure tolerance
- Adjustable side handle
- The Standard bit attachment SDS MSX allows a wide availability of accessories

The HD13 Hammer Drill is light, compact and powerful. The hydraulic function makes it safe for use while completely submerged under water. It is also safe in situations where the operator is inside a trench with his/her feet in water and/or mud, a scenario where electrical tools would normally not be safe to use. This robust tool is lubricated by the oil that powers it. This gives it a long operative life and unmatched reliability.



# HD13 Hammer Drill

## SPECIFICATIONS

Weight	13 kg
Dimensions	18 cm x 30 cm
Tool bit size	SDS Max
Flow	20-30 L/min
Ideal flow	20 L/min
Pressure	140 Bar
Drill capacity	ø5-50 mm
Ideal drill capacity	ø10-32 mm
Distance hole/wall	55 mm

# GR29



## Key features

- Stainless steel spools and fasteners
- Two position assist handle for right/left hand operation
- Oversize trigger with guard for diver comfort
- Adjustable wheel guard for infinite positions
- Plastisol covered handle for comfortable ergonomic grip
- Use with grinding wheels, hull scrubbing brushes, wire and nylon brushes, barnacle busters and Desmond wheels
- 3200 rpm @ 12 gpm
- Cast-in lifting eye
- Can be operated by ROV

The hydraulic GR29 Underwater Grinder is a right angle grinder (vertical grinder) that can be used for grinding and cleaning underwater applications with a variety of wheels, brushes and attachments. The high torque gear motor drives a standard 5/8 -11 threaded spindle. A 9" adjustable wheel guard, two position assist handle and trigger guard are standard. Painted in high-visibility yellow.



# GR29

## SPECIFICATIONS

Length	28 cm
Width (with guard)	26 cm
Weight (with guard)	6.8 kg
Capacity	23 cm wheel
Spindle	5/8" – 11 Threaded
Circuit type	Open center
Flow range	15-45 lpm
Hydraulic ports	-8 SAE O-ring
Connection type	3/8" male pipe adapter

# BR67



## Key features

- T-Handle with large on/off trigger for precise control
- Stainless steel spool and fasteners
- Trouble-free diaphragm accumulator provides additional blow energy and reduces recoil  
Feathering on/off valve allows easy initial tool bit placement
- Uses standard 11/8" x 6" hex shank tool bits
- Four tie rod design for durability
- Operates in any position
- Modular design for ease of services
- Can be modified to be used by ROV
- Latch retainer

The BR67 is in the 70-lbs class and is used for medium concrete and rock breaking, coral removal and rod driving.



# BR67

## SPECIFICATIONS

Length	73.6 cm
Width	41 cm
Weight (less tool bit)	73 lbs / 33 kg
Handle type	T-Handle
Circuit type	Open Center
Performance	1300 bpm @ 8 gpm
Flow range	7-9 gpm / 26-34 lpm
Optimum flow	8 gpm / 30 lpm
Working pressure	1500-2000 psi / 105-140 bar
Full relief setting	2250 psi / 155 bar
Hydraulic ports	-8 SAE O-ring
Couplers	No
Hose Whips	Yes (3/8" NPT Male Thread)

# Topside Equipment

**HYDRAULIC HOSE REEL**

**75L EMERGENCY RELEASE SYSTEM**

**4-WAY MANIFOLD BLOCK**

**10FT HALF HEIGHT CONTAINER**

**20FT HALF HEIGHT CONTAINER**

**10FT HALF OFFSHORE CONTAINER**

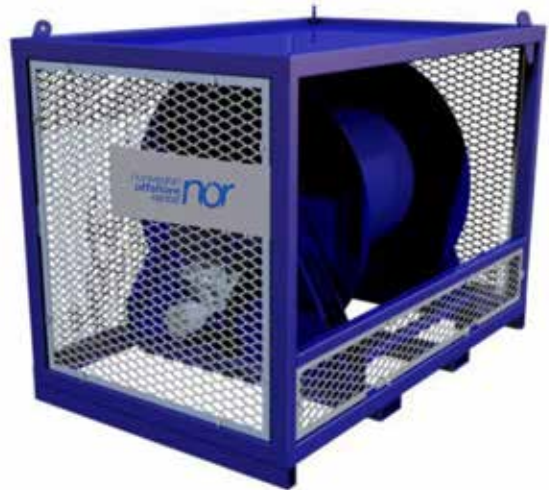
**20FT OFFSHORE CONTAINER**

**FLOATING FENDERS**

# Hydraulic Hose Reel



This hose reel is driven by an integrated electrical hydraulic power pack. It's equipped with a hydraulic-operated brake as a safety precaution. The brake is automatically activated in the event of power shut off, or when the reel is not in operation. It has a directional stick with three positions (pull, neutral, and release) on a pedestal connected to the HPU.





# Hydraulic Hose Reel

## SPECIFICATIONS

<b>Weight</b>	2,300 kg
<b>Dimensions</b>	3.280 mm x 2.070 mm x 2.350 mm
<b>Max. pull on full reel</b>	7.550 N (= 770kg) at 115 bar
<b>Drum capacity</b>	A- Traverse (length) 1350 mm. B- Flange (outside diameter) ø1900 mm. C- Barrel (inner diameter) ø1010 mm
<b>Hydraulic motor</b>	Parker TF 0475 VX 46 0 AAA B
<b>Max. Hydraulic pressure</b>	115 bar
<b>Connections</b>	A: 1/2" BSPP. B: 1/2" BSPP
<b>HPU info</b>	Q= 20 l/min P=210 bar
<b>Tank</b>	55 liter

# 75L Emergency Release System



## Key features

- Easy to operate
- "All in one box" HPU and accumulator system
- 630 bar outlet pressure

This accumulator system has been designed especially to be used together with a wire/hose cutter. Using an accumulator in conjunction with one of our wire cutters will enable you to operate the wire cutter in an emergency situation where all power from the ship/rig is lost. The accumulator system will be pre-loaded with sufficient power to cut the designated wire/cable without any external power needs. The accumulator can be used for all hydraulic units and can be used as an operative HPU.



# 75L Emergency Release System

## SPECIFICATIONS

<b>Dimensions</b>	1,226 mm L x 1020 mm W x 1509 mm H
<b>Weight</b>	900 kg Gross
<b>Frame</b>	Welded steel box section, 4 pad eye lift points
<b>Electric HPU Motor</b>	7.5kW, IP55 B35 440V 60HZ IE2
<b>Electric Supply</b>	7.5kW 415/440v 3ph 50/60Hz
<b>Accumulator capacity</b>	3x25 litres S/N's. K252-WS-71 CG09071. K252-WS-81 CG09081. K144-RH-90 CG090.
<b>Accumulator charge pressure</b>	300 bar
<b>Pre charge gas pressure</b>	140 bar
<b>Hydraulic intensifier</b>	4:1 Ration
<b>Max outlet pressure</b>	700 bar
<b>Certification</b>	Full certification package for hose test, MPI, slings, shackles and load test

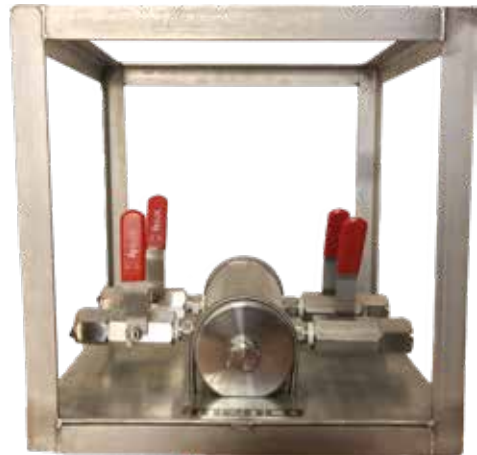
# 4-Way Manifold Block



## Key features

Output connection points on manifold can be changed to desired fittings

The 4-way manifold is used with an accumulator/HPU and wire cutters. This equipment can connect multiple cutters for a simultaneous cutting operation. The manifold can operate with 690 bar and has 4 manually-operated valves for safety. The valves can be locked as an additional safety measure.



# 4-Way Manifold Block

## SPECIFICATIONS

Weight	15 kg
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Dimensions	30 cm x 35 cm x 35 cm
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# 10ft Half Height Container



## Key features

- DNV2.7-1 Certified
- 4-part Wiresling, DNV2.7-1 with masterlink in top
- Built to stack

The 10ft DNV 2.7-1 Half Height Offshore container is a safe and efficient unit for offshore logistics.



# 10ft Half Height Container

## SPECIFICATIONS

Dimensions	2438 mm W x 3086 mm L x 2991 mm H
Specifications	Equipped with doors and splash proof cargo hood
Tare	2,150 Te
Payload	10 Te
Gross Weight	12,150 Te

# 20ft Half Height Container



## Key features

- DNV2.7-1 Certified
- 4-part Wiresling, DNV2.7-1 with masterlink in top
- Built to stack

The 20ft DNV 2.7-1 Half Height Offshore container is a safe and efficient unit for offshore logistics.





# 20ft Half Height Container

## SPECIFICATIONS

Dimensions	2438 mm W x 6058 mm L x 1280 mm H
Specifications	Equipped with doors and splash proof cargo hood
Tare	2,500 Te
Payload	14 Te
Gross Weight	16,500 Te

# 10ft Offshore Container



## Key features

- DNV2.7-1 Certified
- 4-part Wiresling, DNV2.7-1 with masterlink in top
- Built to stack

The 10ft DNV 2.7-1 Offshore Container can be used for rigging or as a workshop. It can be outfitted with tool racks, benches, drawers, rigging lofts, and more. Units can be customized to customer specifications.



# 10ft Half Offshore Container

## SPECIFICATIONS

Dimensions	2438 mm W x 2991 mm L x 2800 mm H
Tare	2.5 Te
Payload	7.85 Te
Max Gross Weight	10 Te

# 20ft Offshore Container



## Key features

- DNV2.7-1 Certified
- 4-part Wiresling, DNV2.7-1 with masterlink in top
- Built to stack

The 20ft DNV 2.7-1 Offshore Container can be used for rigging or as a workshop. It can be outfitted with tool racks, benches, drawers, rigging lofts, and more. Units can be customized to customer specifications.



# 20ft Offshore Container

## SPECIFICATIONS

Dimensions	2438 mm W x 6058 mm L x 2896 mm H
Tare	4.4 Te
Payload	15.6 Te
Gross Weight	20 Te

# Floating Fenders



## Key features

- Safety latch can be locked in closed position.
- Eye designed to correspond with shackles
- RR-C-271 U.S. Federal specification.
- Ergonomic entry guide tip.
- Made of Stainless Steel 2324.
- One-piece construction for safety.
- Proper snag-free design with hexagonal long shank.
- Ergonomic safety latch with stainless release wire.

Yokohama began manufacturing floating pneumatic fenders in 1958. Since then, more than 60,000 Yokohama fenders have been supplied into ship-to-quay and ship-to-ship applications worldwide.

The fenders are constructed using several layers of strong tyre cord and are therefore extremely resistant to pressure and cutting. The larger sizes are fitted with a safety valve to prevent accidents in the event of over compression.



