



OrbiMAX



subsea

"Superior Subsea Equipment"

PRODUCT CATALOGUE MARCH 2015



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1800 734 000



Combination Prep Tool
See Page 22

ABOUT US

Orbimax Subsea specializes in cutting and bolting solutions, supplying products to support the maintenance and repair activities of the offshore oil and gas industries.

MISSION

Continually advancing Australasia's pipework & mechanical capabilities.

VISION

To be the leading partner of choice in the pipe and mechanical construction industry throughout Australasia.

CORPORATE VALUES

Professional & Consistent
Integrity & Trust
Positive & Energetic
Continuous Improvement & Momentum



"Superior Subsea Equipment"

RENTAL EQUIPMENT

CUTTING EQUIPMENT

BOLTING EQUIPMENT

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RENTAL EQUIPMENT

CUTTING EQUIPMENT

BOLTING EQUIPMENT

SUBSEA RENTAL EQUIPMENT

Orbimax Subsea specializes in Subsea Cutting and Bolting Solutions, manufacturing products to support the maintenance and repair activities of the offshore oil and gas industries. Orbimax products are used topside on rigs and are suitable or adaptable to either shallow or deepwater operations.

When it makes more sense to rent than to buy, much of the Orbimax Subsea product lineup is available for rental. We maintain a large inventory of rental machines and accessories at select Orbimax Sales, Service & Rental Centers, ready to ship on short notice. Orbimax Subsea also offers onsite technicians for training and maintenance of these precision machines.

Rental choices include diamond wire saws (DWS), split frame rotating ring cutters and platforms, the Guillotine® pipe saw and the Trav-L-Cutter®. Other rentals include subsea drills, offshore hydraulic power units, deck plate and rail mills and much more.



"Superior Subsea Equipment"

RENTAL EQUIPMENT

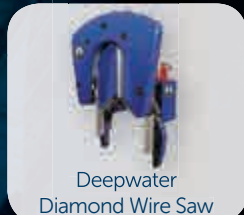
CUTTING EQUIPMENT

BOLTING EQUIPMENT

SUBSEA RENTAL EQUIPMENT



Diamond Wire Saw 8



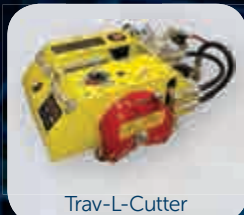
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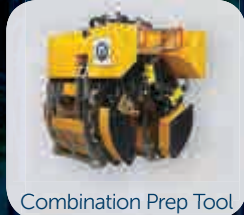
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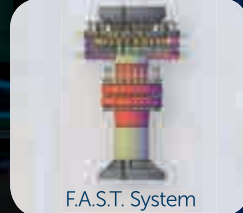
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DIAMOND WIRE SAWS



FAST & EFFICIENT

Diamond Wire Saws

Wachs Subsea Diamond Wire Saws (DWS) are designed for underwater cutting of horizontal or vertical pipe or structures, with four models available to cut from 4" to 84" O.D. (122-2134mm). Running on hydraulic power, the saws are controlled remotely with dedicated HPU controls, topside control panels or by ROV control operable via zero leak hot stabs.

All Wachs Subsea DWS feature a unique hydrodynamic design that dramatically reduces centrifugal forces during operation, which means less power wasted in churning water and more power directed to cutting the workpiece.

Self Adjusting Auto Feed System

The Wachs Diamond Wire Saw is the only machine of its kind with a self adjusting auto feed system that controls wire tension, automatically matching the feed rate to the cutting rate. With the ability to adjust or stop the feed entirely until the cutting action catches up, it delivers a more efficient cutting action with minimal operator intervention and greatly extended wire life. All Wachs DWS are designed to allow less skilled operators to get great results, from the first cut to the last.



DWS saws are ideal for mixed materials and multi string casings

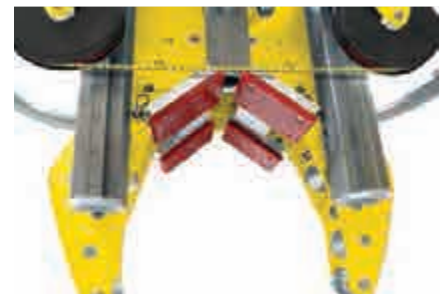
Self Adjusting Auto Feed System & Hydrodynamic Design



Self adjusting auto feed system controls wire tension, automatically matching the feed rate to the cutting rate



Diamond wire cutting element quickly and cleanly cuts pipe and structure of varying material and thicknesses without stalling



Fully adjustable power clamping system with hydraulically actuated arms that pivot inward to ensure square and secure clamping

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DIAMOND WIRE SAWS

Diamond Wire Saws

Synchronised Clamping

Wachs DWS models are equipped with a fully adjustable power clamping system, designed to grasp the workpiece more accurately with fewer contact pads. It features two synchronized, hydraulically actuated clamping arms that pivot inward, providing easy and secure remote control mounting. Synchronized clamping arms ensure uniform, square and secure mounting and prevent damage to the arms from unequal forces. Because the machine mounts more accurately, less visual supervision is required.

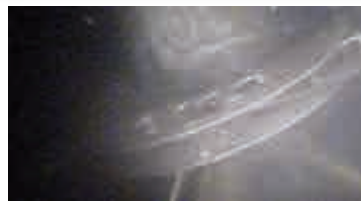
Compression Cuts

The diamond wire saw is ideal where the possibility exists of a compression cut. The rapidly rotating diamond wire media has the ability to keep cutting if the workpiece move or shifts slightly during the operation. It's also the best choice for mixed materials such as steel combined with concrete, grout or aggregate.

Features

- Lightweight aluminum plate construction Four models cut from 4" to 84" O.D. (DN100-2100)
- Easily replaceable long-life diamond wire cutting assembly
- Corrosion resistant with anode protection
- Mounts vertically, horizontally or any position in between
- Hydraulically operated synchronized arms for square secure clamping
- Overload clutch for auto feed system protection

The Wachs Diamond Wire Saw is the only machine of its kind with a self adjusting auto feed system that controls wire tension and automatically matches the feed rate to the cutting rate.



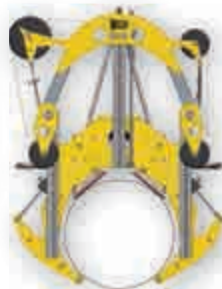
Wachs Diamond Wire Saw in position on a platform leg



DWS - 1604



DWS - 3012



DWS - 3612



DWS - 5230



DWS - 8460

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RENTAL EQUIPMENT

CUTTING EQUIPMENT

BOLTING EQUIPMENT

DEEPWATER DIAMOND WIRE SAW

RENTAL EQUIPMENT

CUTTING EQUIPMENT

BOLTING EQUIPMENT



**ROV
Compatible**

Deepwater Diamond Wire Saw

The Wachs Subsea DWDWS Deepwater Diamond Wire Saw is designed for underwater cutting of horizontal or vertical pipe where diverless or ROV operation is required. 3 models are available for cutting pipe from 4 inch - 52 inch (101.6 - 1321mm) OD. Running on hydraulic power, the DWDWS is controlled remotely using the Wachs Subsea Topside Control/Hydraulic Power Unit or by ROV control operable via zero leak hot stab with flying lead.

Advanced Design

The ergonomic design of the ROV side interface panel allows for simple operation with feedback in the form of flow meters and pressure gauges. Built-in flotation utilizes a compact design that does not significantly increase the saws footprint over Wachs Subsea DWS models. Like the DWS the Deepwater DWS features a self-adjusting autofeed system that automatically matches the feed rate to the cutting rate. They are ideal for compressive cuts, or for use on mixed material such as multi-strand steel and concrete casings.

Design Highlights

- Lightweight planetary feed drive
- Large diameter high contact area wire drive wheels
- Hydraulic wire drive motor w/overhung bearing support
- Lift interfaces for vertical or horizontal deployment
- Lightweight aluminum plate construction
- User replaceable clamp contact pads and wheel inserts



DWDWS with pressure compensated deployment basket



Clutched control knobs allow full control of the saw by ROV manipulation



Clutched control knobs allow full control of the saw by ROV manipulation



Diamond wire cutting element is easily replaced in the field, and is ideal for mixed materials and compressive cuts

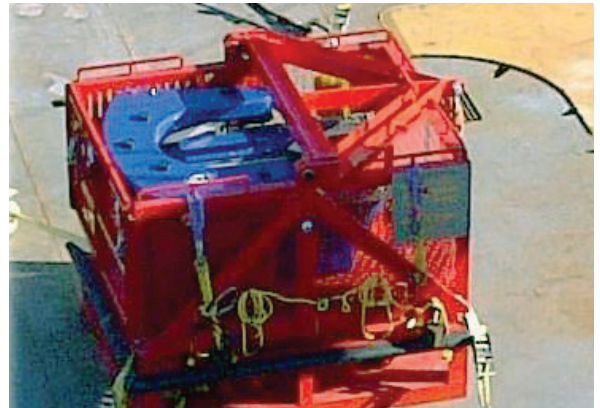
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DEEPWATER DIAMOND WIRE SAWS

Deepwater Diamond Wire Saw

Features

- Easily replaceable, long life diamond wire cutting element
- Hydraulically operated synchronized clamping arms
- Anti-slip hardened steel clamp grippers
- Self adjusting automatic feed system with override clutch
- Flotation rated to 3000 meters (9843 sfw)
- Fiberglass encapsulated flotation
- No significant increase to footprint
- Weight in air = approximately 2000lbs for DWDWS 3616 model
- Weight in water = Neutral to 100lbs (45.36kg) negative (adjustable) all models
- Center of buoyancy coincident to center of gravity (allows saw to be rotated subsea)
- 5 compliant ROV handles
- Aluminum "mono-block" control manifold
- Single zero leak hot stab with 20 ft (6m) flying lead
- Simple and intuitive (color coded) ROV interface panel equipped with pressure gauges and flow meters
- Heavy duty pressure compensated shipping/deployment basket (optional)



Optional deployment basket provides storage and protection for the DWDWS



Every saw is quality control tested before leaving the assembly facility



Low profile syntactic flotation package is rated for 3000msw (9843fsw)



Multiple ROV compliant handles for vertical or horizontal deployment

RENTAL EQUIPMENT

CUTTING EQUIPMENT

BOLTING EQUIPMENT

Model	DWDWS 1604	DWDWS 3616	DWDWS 5230
Pipe Capacity (max)	16 inch (406mm)	36 inch (914mm)	52 inch (1321mm)
Pipe Capacity (min)	4 inch (102mm)	16 inch (406mm)	30 inch (762mm)
Height	62 inch (1575mm)	83 inch (2108mm)	118 inch (2997mm)
Width	53 inch (1346mm)	72 inch (1829mm)	87 inch (2209mm)
Depth	46 inch (1168mm)	41 inch (1041mm)	55 inch (1397mm)
Weight (in air)	1200 lbs (544kg)	2000 lbs (908 Kg)	2400 lbs (1089kg)
Product Part	10-10-516-ROV	10-10-536-ROV	10-10-552-ROV
Replacement Eire	P09-071-710	P08-051-710	P08-021-710
Deployment Basket	H11-029-000	H11-029-000	H11-029-001

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SPLIT FRAMES

RENTAL EQUIPMENT



Split Frames

Wachs LCSF Low Clearance Split Frames are the world's most versatile and comprehensive line of lightweight, clamshell style portable machine tools on the market today. For subsea applications the LCSF can be split around inline pipe or structures, or used as a machining platform for various applications. Standard LCSF models mount to pipe, tube and structures ranging from 2" to 48" O.D. (51-1219mm). The HDSF heavy duty split frame models cover O.D. ranges from 12" to 84" and up (305-2134mm).

Split frames are equally versatile topside or subsea, serving double duty in or out of the water

Unrivaled Versatility

Wachs split frames are ideal for all types of pipe cutting, beveling and end prepping both above the surface and below. Our split frames are named for their ability to split in half at the frame, or "break open" and bolt back together again. This allows them to open and mount around the O.D. of inline piping or structures, or they can be slipped closed over open ended pipe. The LCSF has been engineered to apply precise, consistently square cuts and bevels on pipe, tube and casing the first time, every time.

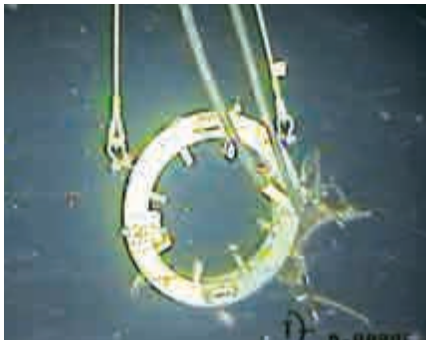
CUTTING EQUIPMENT



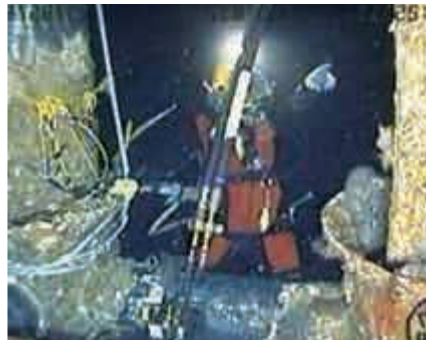
TOPSIDE OR SUBSEA



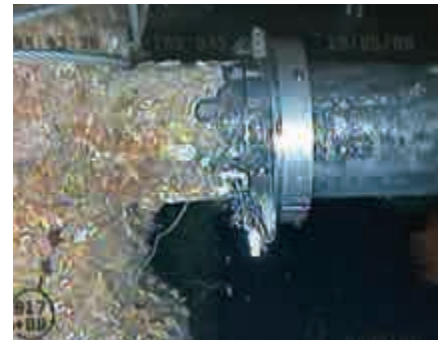
BOLTING EQUIPMENT



LCSF split frame lowered for diver placement



Diver positions LCSF split frame prior to cut



Split frame in position for precision cutting

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SPLIT FRAMES

Split Frames

Superior Construction

Designed with a compact cross section for low clearance applications, the LCSF is constructed of steel and aluminum components - steel where strength is needed, aluminum where strength is less critical than weight. A major advantage of the Wachs LCSF is their light weight; these machines typically can be set up by one operator without the need for additional lifting devices. The HDSF features a bigger cross section with larger gear sets and all steel construction for maximum durability.

With thirteen standard LCSF models and six HDSF models plus additional sizes available by special order, there's a Wachs split frame to fit your every need. For topside or subsea use Wachs subsea split frames are the most productive, best supported machines in the industry.

Features

- Machine quickly splits to mount around OD of inline pipe or structures
- Parts and accessories interchangeable between various sizes
- Cuts and bevels pipe and structures with heavy wall thickness
- Cuts tough materials including carbon steel, high yield and other exotic materials

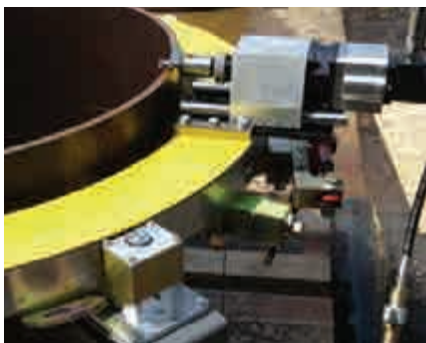


Heavy duty models feature all steel construction for maximum durability and pivot open for ease of positioning



HDSF platform being lowered, note hinge for mounting

Wachs split frames are ideal for all types of pipe cutting, beveling and end prepping both above the surface and below.



Split frames can be used as cutters or as platforms



HDSF performing parting operation with milling module on an offshore platform



Detail of milling module which makes plunge cut before rotating on HDSF platform

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RENTAL EQUIPMENT

CUTTING EQUIPMENT

BOLTING EQUIPMENT

GUILLOTINE SAW

RENTAL EQUIPMENT



Goliath Guillotine

Guillotine Saw

Wachs Guillotine saws are versatile, reciprocating designs for cold cutting 2" to 36" O.D. (51-914mm) pipe and vessels, as well as structures, solids, and multi-stranded casing strings. Our Guillotines, known throughout the industry as the "Wachs Saw", provide easy set up and fast accurate cuts. The steel mounting saddle assures square cuts at right angles. Optional mounting saddles are available for unusual or complex shapes such as I Beams.

Multiple Sizes

Wachs Subsea offers five different Guillotine models, from smallest to largest the Super C, Model D, Super D, Goliath and Super Goliath. Every model utilizes an orbital cutting motion that lifts the blade on the return stroke for efficient cutting and dramatically extended blade life. Their compact design requires minimal operating clearances, and many configurations are suitable for both topside and subsea usage. Multiple control options are available ranging from fully manual to advanced topside control.

Corrosion Resistant

The Super Goliath is the largest in the series, and features a twin hydraulic drive with auto feed and auto trim for true remote operation. Subsea specific Guillotines incorporate corrosion treated steel components, heat treated ground stainless steel guide rods, self lubricated bushings and bearings plus wipers and seals to help protect moving parts from the corrosive and abrasive effects of subsea operation.

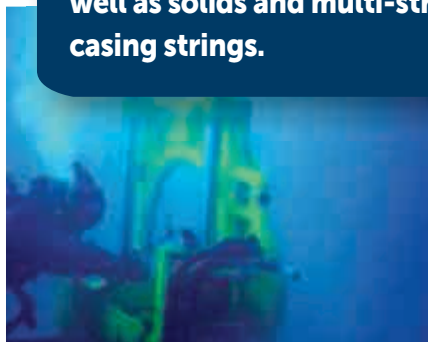


Powerful, closed loop hydraulic drive system for subsea use

Wachs Guillotine Saws are designed to cold cut 2" to 36" (51-914mm) pipe and vessels, as well as solids and multi-stranded casing strings.

CUTTING EQUIPMENT

BOLTING EQUIPMENT



Many models are available for both topside and subsea applications



Diver positioning Goliath Subsea Guillotine saw horizontally



Control options range from fully manual to advanced topside control

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GUILLOTINE SAW

Guillotine Saw

Easy Setup & Operation

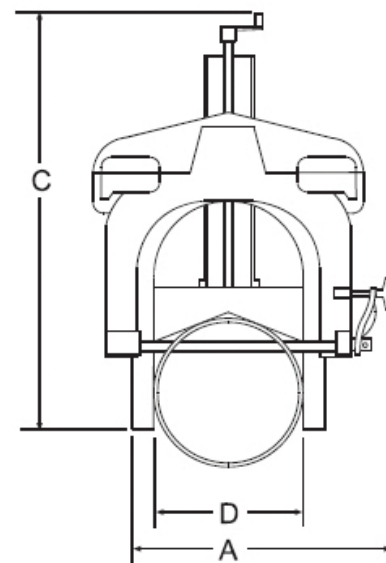
Wachs Guillotine saws set up quickly, using a positive chain mounting system with a machined cast iron "V" saddle for perfectly square cuts. They can be mounted horizontally, vertically or anywhere in between, and come standard with finger-tip feed control for ease of operation. The saws require minimal operating clearances, in fact as little as 2.5" (63.5mm) to one side of a Super C.

Available with pneumatic and hydraulic drive motor options, select Guillotine models including the Goliath can be optionally equipped with autofeed or autoclamping mechanisms (with Rapid Retract), or with both. This allows the machine to be remotely controlled from a distance via Wachs Manifolds or by the UCP-3 Universal Control Panel that controls the feed rate, the cutting speed and the clamping hydraulics.

Features

- Rugged yet compact design requires minimal clearances
- Four models cut from 2" to 32" (DN50-800)
- Easy fingertip feed control, quick change blades
- Fast setup and cutting, both horizontally and vertically
- Pneumatic and hydraulic drive options
- Optional autofeed and autoclamping on select models

GUILLOTINE SAW DIMENSIONS



RENTAL EQUIPMENT

CUTTING EQUIPMENT

	SUPER C	MODEL D	SUPER D	GOLIATH
Pipe Diameter	2"-12" (51mm-305mm)	6"-18" (152mm-457mm)	10"-24" (254mm - 610 mm)	16"-32" (406mm - 813mm)
Maximum Solid Thickness	12 3/4" (324 mm)	18 5/8" (473 mm)	24 1/2" (622 mm)	33" (838 mm)
Clearance Overall Width	28" (711 mm)	32" (813 mm)	39" (991 mm)	66" (1676 mm)
Clearance One side min	2 1/2" (63.5 mm)	3" (76 mm)	3" (76 mm)	Call
Operating Weight	115 lbs (51.75 kg)	340 lbs (153 kg)	515 lbs (232 kg)	1800 lbs (816 kg)
Shipping Weight	180 lbs (81 kg)	415 lbs (186.75 kg)	620 lbs (279 kg)	Call
Dimension A	23 1/2" (596.9 mm)	31 1/4" (793.7 mm)	38 1/4" (971.55 mm)	66" (1676 mm)
Dimension B	12 3/4" (323.85 mm)	14 1/2" (368 mm)	14 1/2" (368 mm)	25" (635 mm)
Dimension C	31 1/2" (800.1 mm)	37" (939.8 mm)	44" (1117.6 mm)	76.5" (1943 mm)
Dimension D	13 1/4" (336.55 mm)	18 3/4" (476.25 mm)	24 3/4" (628.65 mm)	33" (838 mm)
Stroke	2" (50.8 mm)	2" (50.8 mm)	4" (101.6 mm)	Call

BOLTING EQUIPMENT

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TRAV - L - CUTTER

RENTAL EQUIPMENT



Model HE Hydraulic

Trav - L - Cutter

The Wachs Trav-L-Cutter is a portable milling machine capable of cold cutting and beveling simultaneously on pipe and circular structures ranging from 6" to 72" O.D (152-1829mm). Secured by its own tensioning chain, the Trav-L-Cutter drives itself around the pipe on the mounting chain as it machines. Used all over world above and below the surface, the Trav-L-Cutter covers a wide range by simply ordering additional chain sections. Hydraulic Model HE with its powerful, closed loop hydraulic drive system is recommended for subsea applications.

Horizontal or Vertical

The Wachs Trav-L-Cutter can be mounted and operated horizontally, vertically or anywhere in between. Its self-propelled chain drive system maintains continuous out-of-round compensation while providing positive drive under all conditions (including zero visibility). Its milling process removes 3/16" of metal while cutting, leaving an accurate, machined finish. The lightweight, low profile design needs only 10" to 12" (254-305mm) of clearance to operate.



The Wachs Trav-L-Cutter is a portable milling machine capable of cold cutting and beveling simultaneously while it drives itself on its tensioning chain.

CUTTING EQUIPMENT

BOLTING EQUIPMENT



Model HE Trav-L-Cutter operates topside or subsea with its closed loop hydraulic drive system



Wachs Trav-L-Cutters are in use all over the world, many operating in extreme environments

FEATURES

- Safe Cold Cutting
- Compact Design
- Easy Set-Up
- Horizontal and Vertical Cutting

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DUAL PIN DRILL

Dual Pin Drill

The Wachs Subsea Dual Pin Drill is designed to drill holes for pin insertion to facilitate removal and decommissioning in subsea structures such as multiple string casings. Utilizing two hydraulically powered opposed drills, each drill motor is powerful enough to drill up to a 5-1/2" (140mm) diameter hole drilled to center on a 36" (914mm) conductor.

Single or Dual Drill Operation

The Wachs Subsea Dual Pin Drill is capable of single or dual operation of the drill motors, offering the user maximum flexibility. Each pin drill spindle motor and feed motor is operated separately to deliver independent, precise cutting tool loads. Multiple frame sizes are available to accommodate conductors up to 36" (914mm). Like all Wachs Subsea products the dual pin drill is built to withstand the harsh subsea environment, and rigid to resist twisting under high torque loads.

Features

- Auto-feed drill head system
- Single or dual drill head operation
- Hydraulically actuated clamshell frame
- Easily adjustable to different pipe sizes
- Heavy duty drill guide bushings
- Rugged construction for subsea environments

The Wachs Subsea Dual Pin Drill is designed to drill holes for pin insertion to facilitate removal and decommissioning.



Single or dual drill motor operation for versatility



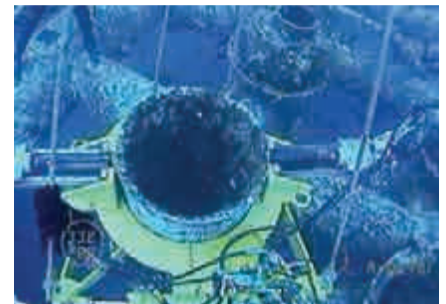
Pin drill spindle motor and feed motor operate separately



Wachs Dual Pin Drill is ideal for platform removal and decommissioning



Diver friendly design with rugged construction to resist torque loads



Hydraulic motor is powerful enough to drill up to a 5-1/2" (140mm) diameter hole

RENTAL EQUIPMENT

CUTTING EQUIPMENT

BOLTING EQUIPMENT

SUBSEA DRILL



Subsea Drill

The Wachs Subsea Drill is the ideal drill for subsea and decommissioning projects, and is engineered specifically for harsh and demanding subsea environments. Built of corrosion resistant materials, the subsea drill can be deployed to most working depths. This hydraulically powered, manual or auto feed variable speed tool is powerful enough to drill up to a 5" (127mm) diameter hole.

It features a reliable saddle mounting system that ensures a secure, square connection to the pipe, casing or structure, with other mounting adaptors available by special order. A Wachs multi-circuit control panel or offshore control panel equipped HPU is available for remote control of the drilling operation on auto feed models.

Applications

- Rigging holes
- Inspection / Investigation holes
- Grouting / Grouting release holes
- Pinning holes for pulling multi-string conductors

Features

- 5 inch (127mm) maximum hole diameter
- 11.6 inch (295mm) stroke
- Variable Speed hydraulic drive (250 Max RPM)
- Max 15 GPM @ 1500PSI (Spindle Drive)
- 5 GPM @ 1500 PSI (auto-Feed)
- Available hydraulic auto feed (0-.056"/Min)
- Multiple feed configurations available
- Versatile mounting configurations



Hydraulically driven variable speed drill is powerful enough to drill a 5" (127mm) diameter hole



Wachs Subsea drill features heavy duty construction and powerful hydraulic drive



Wachs Subsea drill, like all our products, is built to withstand the rigors of the harsh offshore and subsea environments

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OFFSHORE HPU

Offshore Hydraulic Power Units

Wachs Subsea Offshore Hydraulic Power Units (HPU) are specially designed and built to meet the unique needs of the offshore and subsea industry. Wachs HPU's are built with heavy duty industrial water cooled diesel engines and powder coated frames and skids for long life and ease of transport.

They include industry specific features such as air start with disc type spark arrestor and over speed shut down protection. Available in horsepower ratings and flow capacities to fit most topside and offshore applications, specific models are equipped with a built in three circuit control panel to eliminate the need for a free standing panel. Wachs Subsea HPUs are Class One, Zone D Rated.

Features

- Certified Lifting Padeyes
- Double Pass Hydraulic Cooling
- Up to 65 Gallon Steel Fuel Tank
- Up to 105 Gallon Steel Hydraulic Tank
- Variable Displacement Piston Pump
- Zinc Underlay Powder Coat Finish
- Stainless Steel Ultra-Quiet Muffler
- Delivers up to 45 gpm (170 lpm)
- Variable flow control assembly (up to 3,000 psi /207 bar)
- Standard safety bypass valve on hydraulic controls
- Air start with spark arrestor and ESD
- Over-speed shut down protection
- Three circuit control panel on select models



Wachs Subsea Offshore Hydraulic Power Units (HPU) are specially designed and built to meet the unique needs of the offshore and subsea industry.



Wachs Offshore HPUs are heavy duty industrial grade hydraulic power units designed and built for the needs of the offshore industry

RENTAL EQUIPMENT

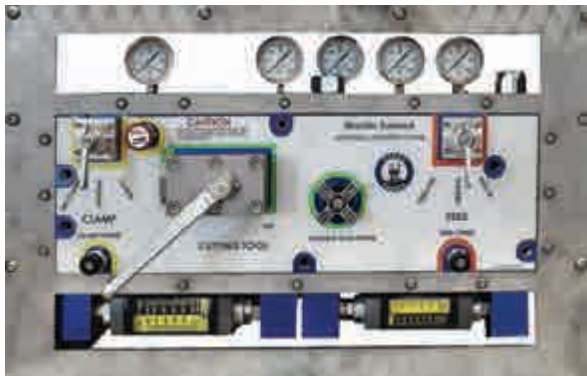
CUTTING EQUIPMENT

BOLTING EQUIPMENT

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SUBSEA CONTROL PANEL

RENTAL EQUIPMENT



Large gauges are easy to read, even in low light. Front mounted controls are logically placed for ease of operation

Subsea Control Panel

Description

Wachs SCP-3 Subsea Control Panel is a heavy duty, 3 circuit panel used to control and operate Wachs hydraulically powered machines requiring more than one drive circuit, such as Wachs Guillotine auto feed and auto clamping reciprocating saws and Wachs Subsea DWS Diamond Wire Saws. Used topsides these controls are used to enhance diver operations or to add full remote capability.

Three Circuits

The SCP-3 (part number H10-023-000) controls two circuits with variable flow and pressure used to power the main drive and auto feed mechanism. Additionally one non-variable circuit powers the auto clamping mechanism. The SCP-3 features large pressure/flow gauges, and heavy duty construction with corrosion resistant aluminum, stainless steel and brass components designed to withstand harsh saltwater environments. Components are rated to 3000 PSI (207 BAR) to handle even the largest equipment and flow requirements.

CUTTING EQUIPMENT



SCP - Flow Range	Max Flow	Max Pressure
Drive Flow 10-29 GPM (38-110 LPM)	35 GPM (132 LPM)	3000 PSI (207 BAR)
Feed Flow 2 - 4 GPM (7.6-15 LPM)	5.5 GPM (21 LPM)	3000 PSI (207 BAR)
Clamp Flow 4 GPM (15 LPM)	5.5 GPM (21 LPM)	3000 PSI (207 BAR)

BOLTING EQUIPMENT



The SCP-3 is integrated and included with the Wachs Subsea HPU-84 hydraulic power unit



Topside controls enhance diver safety or add full remote capability, mountable on an HPU, hose reel, or in a control room



Rear mounted heavy duty stainless and brass quick disconnects for corrosion resistance.

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SUBSEA CONTROL PANEL

Subsea Control Panel

Mounting Options

Options for mounting the panel include the H10-023-001 Stainless Stand Kit with integral forklift pockets, which positions the panel at a convenient operating height (pictured). The H10-023-002 Machine Mounting Kit is used to mount the SCP-3 to a HPU or hose reel. The SCP-3 is integrated and included with the Wachs Subsea HPU-84 hydraulic power unit. A deepwater ROV marinized version of the SCP-3 is available for seawater immersion at depths to 3000 msw or 9843 sfw. Ships without hydraulic fluid, requires hydraulic hose sets or subsea hose reels for machine connections, sold separately.

Features

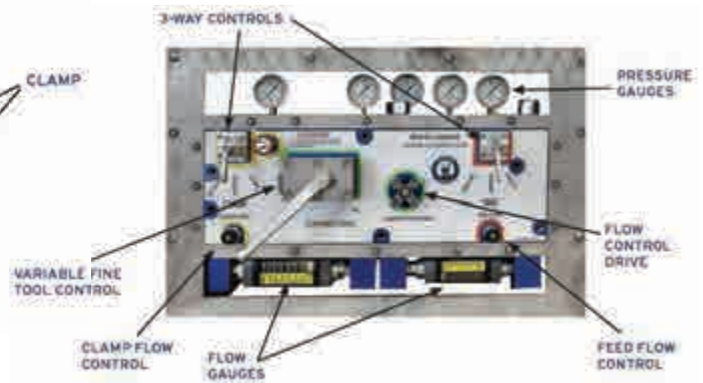
- Control multiple hydraulic circuits
- Easily legible pressure and flow gauges
- Rear mounted quick disconnects standard
- 3000 PSI (207 BAR) pressure capability
- Aluminum, stainless and brass construction
- Deepwater ROV marinized version available
- Multiple mounting options including stand



Optional heavy duty stainless steel stand brings panel to operator height



Optional stainless steel stand features forklift pockets and lifting hooks for ease of transport



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RENTAL EQUIPMENT

CUTTING EQUIPMENT

BOLTING EQUIPMENT

COMBINATION PREP TOOL



- 12" - 23" Capacity
- Severing
- Beveling (inside & outside)
- FBE Removal
- Weld Seam Removal

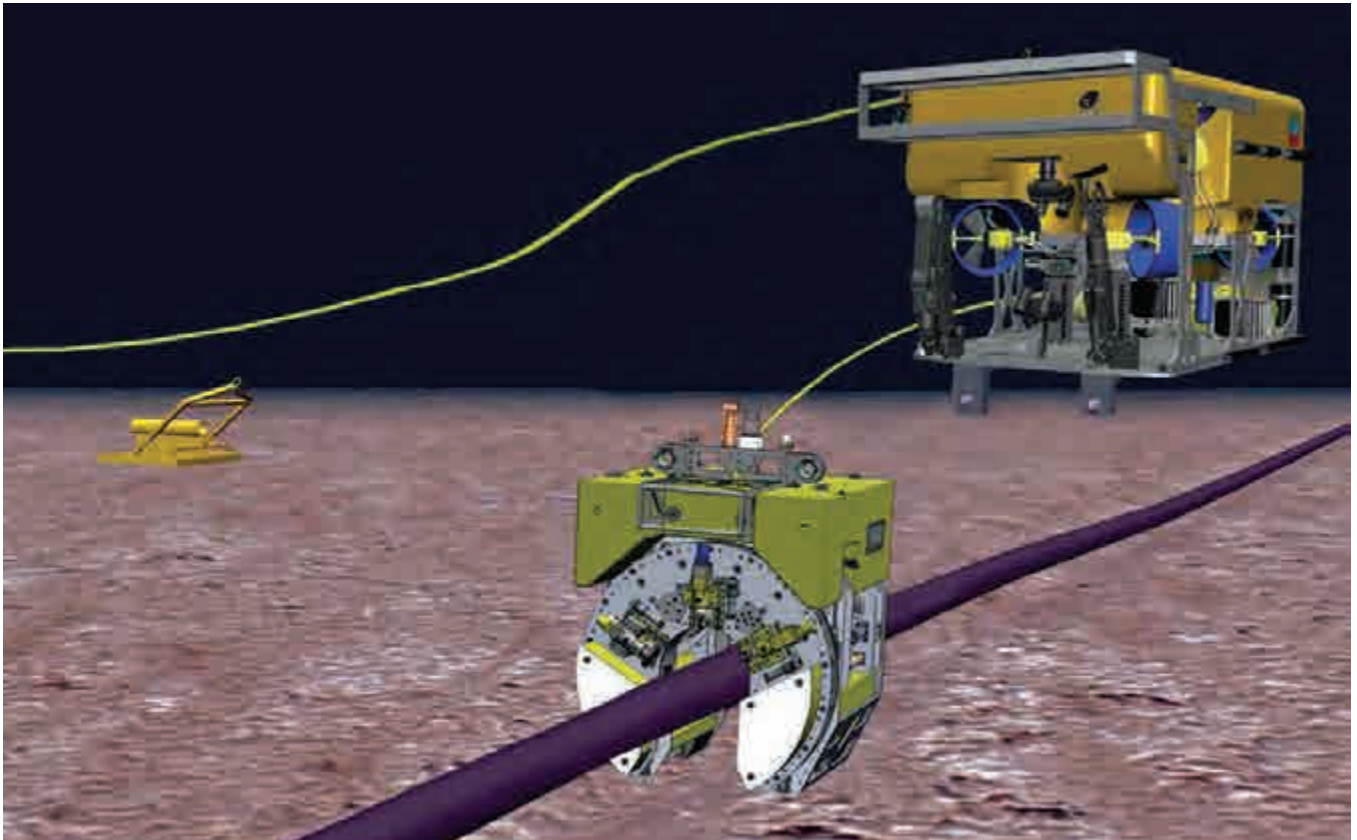
Combination Prep Tool

Wachs CPT-3 Combination Prep Tool is a rotary machining platform, ROV deployed, with a 12in to 24in (DN300-600) O.D. capacity. It is comprised of an open "C" style frame with twin clamps that allow the machine to propel itself down the axis of the pipe. This mechanism allows the machine to position itself for multiple machining operations.

The severing and beveling module utilizes a vertical mill fitted with a roughing and chamfering tools with autofeed for smooth indexing. It provides a successful, pinch free sever operation in pipelines under compression loads.

The FBE removal module oscillates with an abrasive disk to remove the powder coated surfaces. And the Weld Seam removal module uses a custom dovetail style cutter to skin cut the crown of the weld, then indexes and pull mills the I.D. to create an internal bevel.

The deployment frame is used to facilitate the storage and deployment of the platform and end effectors via a single point, swing arm skid.



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DECK PLATE & RAIL MILLS

Deck Plate & Rail Mills

Wachs Subsea Rail Mills are designed for safe, uninterrupted axial cold cuts and bevels on multistrand conductor and casing pipe. The integrated lifting attachments allow for quick and easy positioning for vertical or horizontal operation. The hydraulic milling cutter head features bi-directional rotation, with speed controlled via machine mounted controls or Wachs topside control panel. Wachs Subsea Rail Mills are a valuable tool for well remediation related to corroded casing repair.

Wachs Subsea Plate Mill incorporates our proven milling technology and readily available components. This machine is extremely flexible and offers a wide choice of mounting options such as magnets, chains or clamps. Wachs Plate Mills virtually eliminate blade pinching, and mounts on a variety of surfaces for access holes, venting and reconfiguring platforms. This diver friendly tool can work in any position on any cutting surface orientation. With its linear travel and power capability, it cuts extremely thick plate in one pass. Stitch cuts are no problem and as a drill head it can quickly do multiple 5" (127mm) holes in thick plate. Its operated via machine mounted controls or as a remote device with topside control.



RENTAL EQUIPMENT

CUTTING EQUIPMENT



BOLTING EQUIPMENT

OTHER PRODUCTS

RENTAL EQUIPMENT



Subsea Shipping Baskets

Wachs Subsea Shipping Baskets are made for surface shipment and storage, and are designed to survive tough subsea environments. They are used to safely and efficiently transport equipment to subsea locations, and are built with heavy gauge steel double galvanized to resist corrosion from repeated subsea immersion.

Available in three standard sizes with additional sizes available by special order, they offer excellent protection and a great working platform for deploying subsea equipment. Wachs shipping baskets are lift tested to five times maximum payload (up to 52,000 lbs / 23,000 kg) so you know your vital equipment is well protected.

CUTTING EQUIPMENT



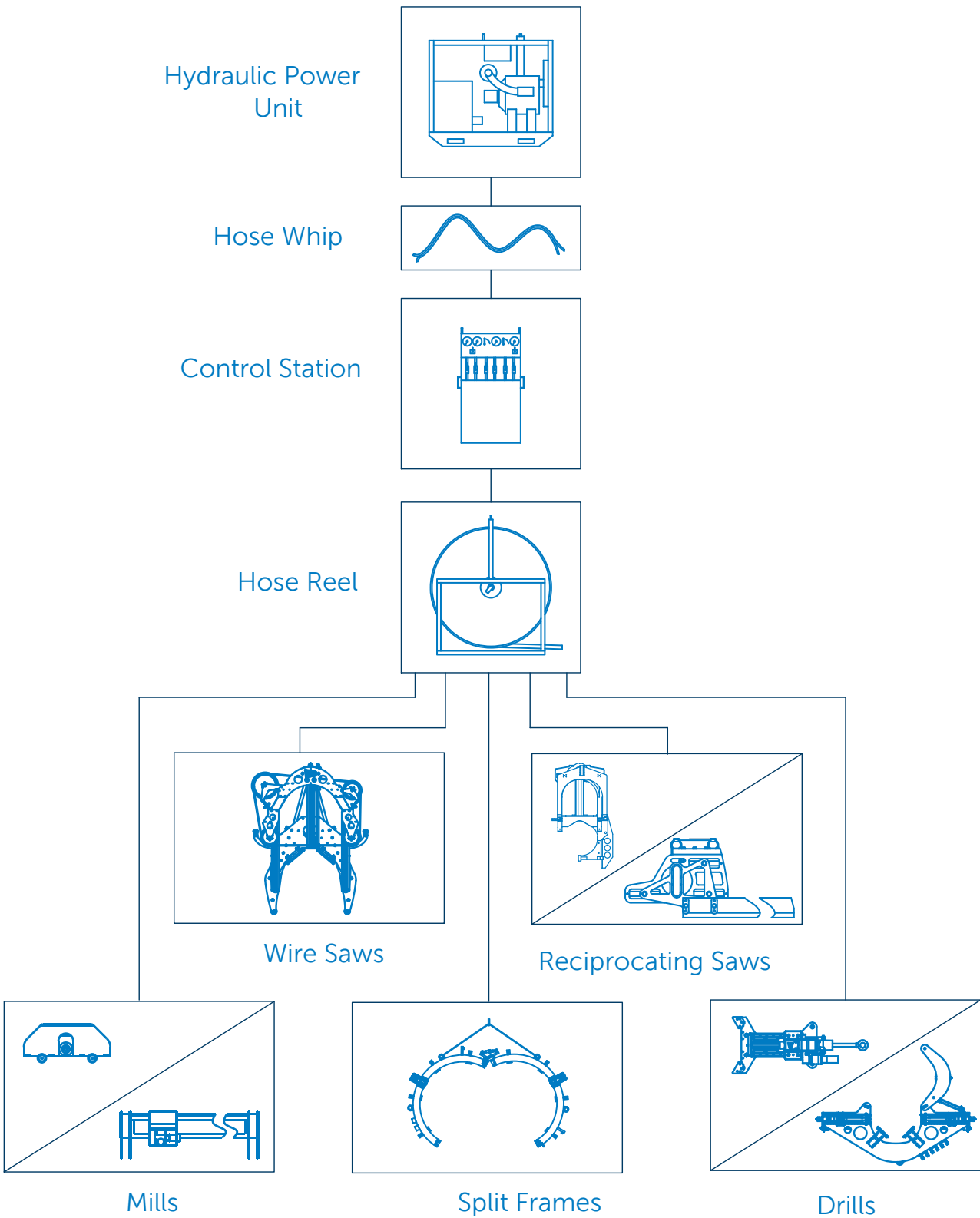
Hose Sets & Hose Reels

Wachs Subsea hydraulic hose set and hose reels are designed to connect the HPU power unit, control panel and Wachs machine tools. For topside applications hose sets are used. Subsea applications use a hose set between the HPU and the control panel with a hose reel connecting the control panel to the machine tool. All Wachs lines feature burst resistant construction with heavy duty fittings. Twin line hose assemblies are available in 300' (92M), 450' (137M), 600' (183M) and 750' (229M) lengths. Single and dual reels are offered with triples available by special order. All Wachs Subsea hose reels include hose assemblies and feature heavy duty construction and powder coating for durability.

BOLTING EQUIPMENT

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SUBSEA CUTTING TECHNOLOGIES



Simplified view of Wachs Subsea product families and technologies

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The logo for OrbiMAX subsea is positioned in the upper left corner. It features the word "OrbiMAX" in a bold, white, sans-serif font, with a white curved arrow above the "i" pointing towards the top right. Below "OrbiMAX" is the word "subsea" in a smaller, white, sans-serif font, preceded by three white wavy lines that suggest water or motion.

OrbiMAX
subsea

The background of the entire page is a close-up photograph of subsea equipment, likely a manifold or wellhead. The image is dominated by a teal or blue color cast. It shows several large, hexagonal nuts and bolts securing metal components. The lighting is dramatic, with strong highlights and deep shadows, emphasizing the industrial and rugged nature of the equipment.

"Superior Subsea Equipment"

2

BOLTING

ZipTensioner - Stud Tensioner	28
F.A.S.T. System	30
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ZIP TENSIONER - STUD TENSIONER

RENTAL EQUIPMENT

CUTTING EQUIPMENT

BOLTING EQUIPMENT



Eliminate threading with the slide-on/slide-off motion.

Stud Tensioner

Fastest tensioner in the industry!

In an industry where joint and bolt-load problems cause leaks and leave headaches as consolation prizes, it's time to stop accepting the norm and adopt the only stud tensioner that stops leaks and reduces job time by up to 90 percent - FASTORQ's revolutionary ZipTENSIONER.

The one-piece design provides 100-percent coverage on the same side of the flange and simultaneous tension of multiple fasteners. By evenly loading on all fasteners in the joint, ZipTENSIONERs eliminate elastic interactions (cross talk), provide uniform bolt load and achieve leak-free joints.

The ZipTENSIONER works by incorporating FASTORQ's own patented and innovative ZipNut Double-Zip Technology, which uses spring-loaded thread segments to allow the tensioner to easily slide on and off protruding stud threads without twisting or turning.

This technology eliminates worries about stud condition such as rust, corrosion and damaged threads. Conventional stud tensioners cannot make this claim since they assemble on the bolts by threading puller nuts onto fasteners. Thread condition is detrimental for their ability to work properly, but not with ZipTENSIONER.

Features

- Subsea, nuclear & wind applications
- Cuts job time up to 90%
- Fastest tensioning available
- 100% same side flange coverage
- Compact & lightweight
- Revolutionary ZipNut® Technology



**ROV or Diver
Compatible**

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ZIP TENSIONER - STUD TENSIONER

Applications and specifications

The ZipTENSIONER is customizable and a great option for all industries in need of improved stud-tensioning speed, such as onshore, nuclear, petrochemical, steel and mining.

A great choice for subsea applications, the ZipTENSIONER is ROV and diver compatible and can be specially fitted through a hydraulic release mechanism and hydraulic motor driven nut rotator.

Fastorq's ZipTENSIONER is customizable for especially challenging jobs and can be manufactured to accommodate bolt size and thread pitch.



ZipTensioner is perfect for subsea and ROV applications.

Stud Dia. (inches)	"Metric Diam."	Max. Initial Load ¹ (lb.)	"Max Load (% yield*)"	Hydraulic Area (inches ²)	Max Oper. (psi)	"Tensioner OD (inches)"
3/4	M20	26.3	75	1.01	26,000	1.86
7/8	M22	36.4	75	1.40	26,000	2.14
1	M24	47.4	75	1.82	26,000	2.43
1-1/8	M30	62.2	75	2.39	26,000	2.64
1-1/4	M33	78.8	75	3.03	26,000	2.88
1-3/8	M36	97.1	75	3.74	26,000	3.16
1-1/2	M39	101.4	65	3.90	26,000	3.27
1-5/8	M42	120.9	65	4.65	26,000	3.54
1-3/4	M45	142.1	65	5.47	26,000	3.79
1-7/8	M48	164.7	65	6.34	26,000	4.08
2	M52	189.2	65	7.28	26,000	4.36
2-1/4	M56	242.8	65	9.34	26,000	4.91
2-1/2	M64	253.2	60	9.74	28,000	5.18
2-3/4	M72	309.0	60	11.04	28,000	5.64
3	M76	370.8	60	13.24	28,000	6.16
3-1/4	M85	438.0	60	15.64	28,000	6.68
3-1/2	M90	510.9	60	18.25	28,000	7.20
3-3/4	M95	589.2	60	21.04	28,000	7.71
4	M100	673.2	60	24.04	28,000	8.23

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RENTAL EQUIPMENT

CUTTING EQUIPMENT

BOLTING EQUIPMENT

F.A.S.T. - FULLY AUTOMATED STUD TENSIONING SYSTEM

RENTAL EQUIPMENT



F.A.S.T.

- All operations of the F.A.S.T. are hands-free. The operator shall conduct all operations of the system from the Hydraulic Control Console. The Hydraulic Control Console shall use Power Arm supplied hydraulics for its operation with no electrical or pneumatic requirements.
- F.A.S.T. shall be presented to the 21.75-IN DRILLING FLANGE ASSEMBLY with studs, nuts, and washers previously installed.
- The Power Arm shall be programmed to repeat the initial alignment of the F.A.S.T. to the flange assembly with the wings of the F.A.S.T. in the "open" position.
- The operator shall "close" the wings on the F.A.S.T., engaging the flange assembly.
- The F.A.S.T. shall be rotated to "center" on the bolts in the flange assembly.
- The F.A.S.T. shall be lowered on the flange assembly by the Power Arm.
- F.A.S.T. shall simultaneously tension (24) studs on the flange assembly.
- Resulting bolt load shall be 206,875 – 217,219 lbs.
- The F.A.S.T. shall be raised from the flange assembly by the Power Arm.
- The operator shall "open" the wings on the F.A.S.T., disengaging the flange assembly.
- The Power Arm shall retract the F.A.S.T. from the flange assembly.

CUTTING EQUIPMENT

Fully Automated Stud Tensioning Systems to tension bolts without human intervention

BOLTING EQUIPMENT



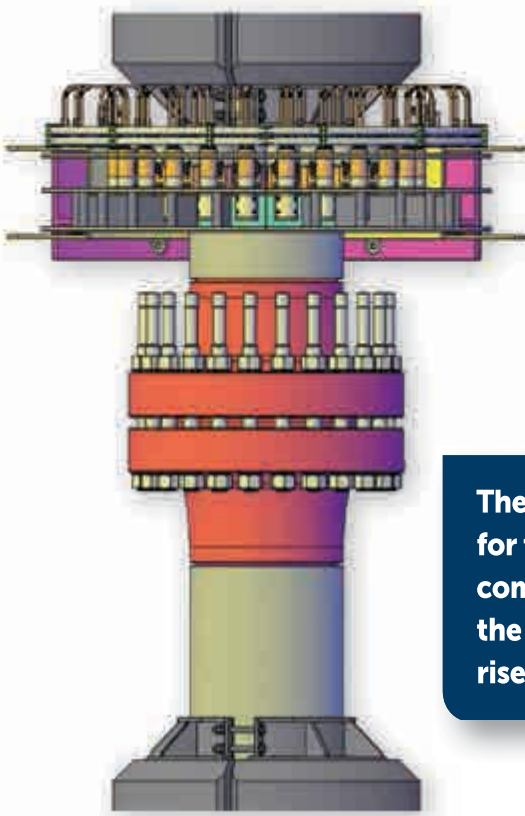
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F.A.S.T. - FULLY AUTOMATED RISER TENSIONING SYSTEM

RENTAL EQUIPMENT

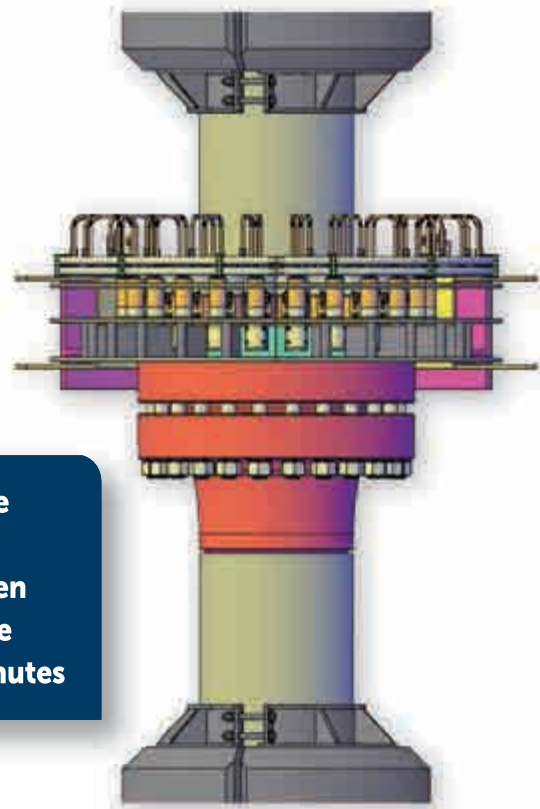
CUTTING EQUIPMENT

BOLTING EQUIPMENT

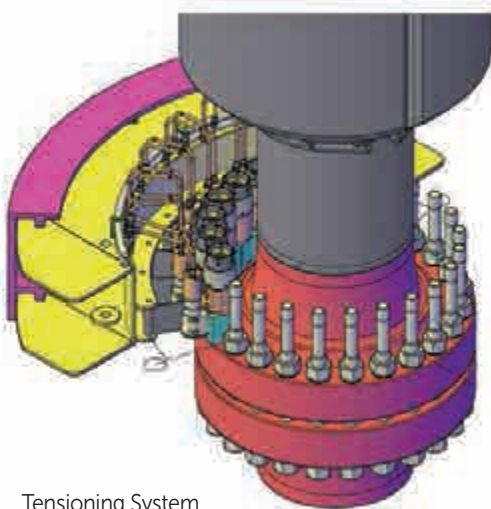


Fast Raised

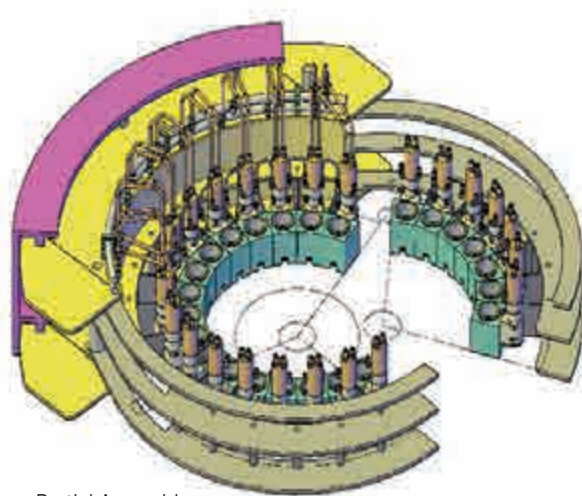
The estimate time for the F.A.S.T. to completely tighten the 24 bolts in the riser joint is 9 minutes



Fast Lowered



Tensioning System



Partial Assembly

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THINLINE HYDRAULIC TORQUE WRENCH

RENTAL EQUIPMENT



ThinLINE is the toughest tool on the planet and available in a wide selection of standard sizes.

Thinline

Strength when strength matters!

When trying to break bolts loose there's no time for a wimpy torque wrench. Only one wrench in the industry can handle break-out without breaking a sweat... and that's ThinLINE.

Designed to fit tight spaces with ease, ThinLINE provides the strength and dependability to get the job done every time without breaking.

Unlike competing hydraulic ratcheting wrenches, ThinLINE has a self-contained, semi-ratcheting mechanism that's not susceptible to breakage. It also delivers 60-degree nut turn before wrench reset is needed. When paired with the torque power of a long wrench arm and larger cylinder size, ThinLINE's strength is unmatched.

CUTTING EQUIPMENT



ThinLINE can be customized to fit your job specifications.

Applications and specifications

ThinLINE's standard range of interchangeable wrench heads and reaction units fit almost any application but are also customizable for especially difficult projects and unusual nut sizes.

Each ThinLine wrench is engineered to fit on all standard ANSI and API flanges, is thinner than the nut height and perfect for:

- Wellheads
- Blowout preventers
- Heat exchanger channel heads
- Piping flanges
- Restricted spaces above and around the nut

For best speed and performance, pair ThinLINE with FASTORQ's 610A Power Unit.

BOLTING EQUIPMENT



MODEL	MAXIMUM TORQUE		RANGE OF BOLT SIZES		RANGE OF NUT SIZES - ATF		RADIAL CLEARANCE	
	FT-LB @ 5500 PSI	N•M @ 380 BAR	INCHES	MM	INCHES	MM	INCHES	MM
150-4	3,240	4,406	3/4 - 1-1/4	19-32	1-1/4 - 2	32-51	9	228
200-6	8,640	11,710	1-3/8 - 2	33-52	2-3/16 - 3-1/8	55-80	11	280
250-9	20,250	27,450	1-7/8 - 3	48-85	2-5/16 - 4-5/8	75-120	14	365
325-12	41,840	56,730	2-3/4 - 3-1/2	70-89	4-1/2 - 5-3/8	110-135	20	500
325-18	68,440	92,790	3-1/2 - 4 1/4	89-108	5-3/8 - 6-1/2	135-165	25	685
400-24	138,230	187,410	4 - 5 1/4	102-133	6-1/8 - 8	135-210	30	762

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SPINTORQ

Spintorq

There's only one like it in the world!

When speed matters, only one torque wrench blows all the others out of the water: SpinTorq.

SpinTORQ is the only low-profile, continuously rotating torque wrench available today. It provides 360-degree continuous rotation at incredibly fast speeds that are from 36 to more than 100 times faster at turning a nut than ratcheting hydraulic wrenches.

A specially designed, double-enveloping worm gear gives SpinTORQ the power to get the job done fast. SpinTORQ never locks up and is removed with ease.

Everyone knows that dive time is expensive. A subsea flange that normally takes two hours to make-up with a hydraulic ratcheting wrench can be completed in less than 30 minutes with the SpinTorq!

Applications and specifications

With a size range that covers most applications, SpinTORQ is:

- Perfect for subsea and surface projects.
- Customizable for special projects.

SpinTORQ's 3,000 psi system easily adapts to ROVs without the use of a hydraulic hose down line.

All SpinTORQ models are covered for three years with the added benefit of free warranty extension with our annual free inspection and calibration program.

Features

- More than 36 times faster at nut turn than ratcheting wrenches
- Full power forward and reverse
- Hydraulic, electric and pneumatic models
- Patented design
- Fits tight spaces
- Custom sizes available

**ROV
Compatible**



The double-enveloping worm gear is the heart of SpinTorq's continuous rotation in forward and reverse.



HYDRAULIC				
MODEL	HEX SIZES		TORQUE RANGE	
	INCHES	MM	FT-LB.	N•M
IL360-113	1-13/16	46	200-700	272-950
IL360-200	2	50	200-900	272-1220
IL360-203	2-3/16	55	300-1200	407-1627
IL360-206	2-3/8	60	400-1600	543-2170
IL360-209	2-9/16	65	600-2200	814-2983
IL360-212	2-3/4	70	800-2800	1085-3797
IL360-215	2-15/16	75	1000-3400	1356-4601
IL360-302	3-1/8	80	1200-4000	1627-5424
IL360-308	3-1/2	90	1400-5000	1900-6780
IL360-314	3-7/8	98	2100-7000	2848-9491

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RENTAL EQUIPMENT

CUTTING EQUIPMENT

BOLTING EQUIPMENT

AUTOSPLITTER - NUT SPLITTER

RENTAL EQUIPMENT

CUTTING EQUIPMENT

BOLTING EQUIPMENT



Nut Splitter

Versatile and efficient, AutoSplitter's cut more nut sizes per model than competing nut splitters and come with adapters that cut multiple nut shapes. Incredibly, they do all of this without sacrificing speed, strength and safety. Now that's savings!

Cut through the largest frozen nuts in just seconds with virtually no risk of injury. Simply slip the AutoSPLITTER head over the nut and apply hydraulic pressure. One cut frees the nut for turning, and two cuts, 180 degrees apart, cleanly breaks the nut away.

FASTORQ's nut splitters work in tight spaces and from several angles thanks to their specially designed heads. Made with a special metallurgy and hardening process, AutoSPLITTER's specially designed chisels perform dozens of cuts before resharpening and handle many resharpenings before replacing. Due to its unique compound angle chisel design, the AutoSPLITTER even cuts stainless steel nuts!

Double-Cut, Angle Head Auto Splitter

Some jobs just call for speed. When time matters, double your performance with FASTORQ's double-cutting nut splitter.

Available in 5/8-inch to 3-3/8-inch cutting range, cutting across the flats just became faster and easier.

The Double-Cut AutoSPLITTER works by eliminating the need to move the nut splitter to a second position 180 degrees from the first to break the nut from the stud! That's a serious time saving benefit.



No matter the hardness or condition of the nut, AutoSplitter's will remove it quickly every time!

Only Fastorq has the doublecutting AutoSPLITTER - removing a nut in a single application!

Features

- Straight, Angle Head & Double-Cutting models available
- Versatile
- Fast & safe
- Fits tight spaces
- Precision, re-sharpenable chisel cuts only the nut

DUO KIT	MODEL	STUD DIAMETER		NUT SIZE ATF	
		INCHES	METRIC	INCHES	METRIC
AS-DU025AH-DC	AS105AH-DC	7/16 - 3/4	8-20	5/8 - 1-1/4	16 - 34
	AS200AH-DC	7/8 - 1-1/8	22-30	1-7/16 - 1-13/16	36 - 50
AS-DU055AH-DC	AS204AH-DC	1-1/4 - 14-3/8	33-36	1-7/8 - 2-3/16	50 - 60
	AS210AH-DC	1-3/8 - 1-1/2	36-39	2-1/16 - 2-3/8	55 - 65
AS-DU0100AH-DC	AS308AH-DC	1-3/4 - 2	45-52	2-5/8 - 3-1/8	65 - 85
	AS314AH-DC	2 - 2-1/4	52-56	3 - 3-1/2	80 - 90

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POWER UNITS

200 Series

ZipPULLER Subsea Flange Pullers can be operated with portable, hydraulic 10,000 psi power units. FASTORQ® Air Model 205A or Electric Model 215E will provide an ideal combination of pressure and flow. Standard equipment includes filter, regulator, lubricator, fittings and safety locks on quick disconnects, pressure gauge, remote controlled hoses and hydraulic hoses.



Air Model 205A

Electric Model 215E

RENTAL EQUIPMENT

603A

Fastorq's 603A 3,000 psi Power Unit is the perfect complement to the speed of FASTORQ's SpinTORQ torque wrench and the safety and reliability of the AutoTorq Hydraulic Chain Pipe Wrench. When used with these Fastorq tools, you get unbeatable speed, durability and performance.

All 603A Power Units come standard with two-wheel portability, 25-foot remote control hoses, 25-foot oil-filled hydraulic hoses, quick disconnect fittings and safety locks.



CUTTING EQUIPMENT

606A & 610A

Recognized as the fastest hydraulic power units in the industry, the 606A and 610A Power Units increase productivity by running 10 times faster than other competitive units.

Both the 606A & 610A Power Units are ideal for demanding turnaround and shut-down maintenance situations. The four hydraulic port option gives you the ability to operate up to four torque wrenches at one time.

The 606A has a maximum operating pressure of 6,000 psi and the 610A's maximum pressure is 10,000 psi. Each unit features a precise valve for pressure control, a reciprocating pump, easy-to-read gauge and low maintenance. Safety features include twin exhaust valves and immediate pump shutoff when the remote operation button is released.



BOLTING EQUIPMENT

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SUBSEA HYDRAULIC FLANGE PULLER

RENTAL EQUIPMENT

CUTTING EQUIPMENT

BOLTING EQUIPMENT



**ROV
Compatible**

Largest Load Capacity Pulling System on the Market



Zip Puller

The ZipPULLER flange puller makes fast work of pulling, aligning or mating a wide range of flange sizes on land or underwater with the largest load capacity pulling system around.

Available in 30-ton (6-inch) and 60-ton (5-inch) stroke models, the ZipPULLER powers that difficult flange into place. Using ZipNut Technology, ZipPULLER slides right over the threaded rod during the retraction process.

In addition, it can be pulled off standard threaded rods and has quick release levers to open and close the ZipNuts for fast installation and removal. No more time-consuming tightening of nuts and bolts.

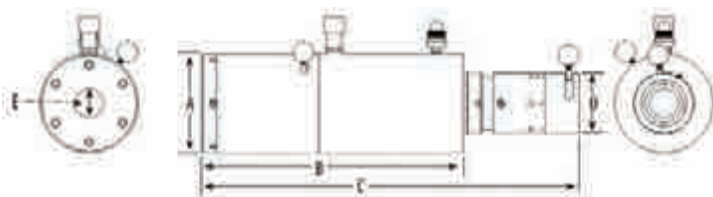
Well-suited for subsea flange pulling and alignment, the versatile ZipPULLER is perfectly suited for use with ROV's, hard suits and divers since it can be operated at any depth

Features

- Fast and easy way to pull, align or mate flanges
- LARGEST load capacity pulling system in the industry
- ZipNut® holds the load as the cylinder retracts
- Hydraulic powered, 10,000 PSI working pressure
- Versatile for ROV's, Hard Suits or Divers
- Available in 30-Ton 6" and 60-Ton 5" stroke models
- Designed to use in multiple units with a single pump

Model		A	B	C	D	E	Stroke	Weight	Pull Capacity
FP3006Z104	Imperial	4.75"	18.00"	25.00"	2.65"	1.30"	6.00"	65 Lb	30 Ton
	Metric	12.06 mm	45.72 mm	63.50 mm	6.71 mm	3.30 mm	15.24 mm	29.5 Kg	
FP6005Z114	Imperial	6.50"	17.25"	25.0"	4.00"	2.00"	5.00"	100 Lb	60 Ton
	Metric	16.51 mm	43.81 mm	63.50 mm	10.16 mm	5.08 mm	12.7 mm	45.3 Kg	

TECHNICAL SPECIFICATIONS



FASTORQ'S® ZipPULLER Flange Pullers are available in TWO STANDARD MODELS:

- Model #FP3006Z104 30 Ton Capacity 6" Stroke
- Model #FP6005Z114 60 Ton Capacity 5" Stroke

Custom Configurations Available

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ZIP LIFT ROBOTIC LOAD CONNECTOR

Zip Lift Robotic Load Connector

Features

- Fully automated
- Easy connect and release
- Perfect for hazardous areas
- ROV Compatible

Easily connect and release heavy loads with the ZipLift load connector and crane grapple. It provides safe and reliable industrial strength lifting in hazardous work areas such as nuclear, subsea or other areas where limited human contact is required.

ZipLift's unique segmented nut opens while positioned on a threaded rod, then closes on the mating threads and locks on the rod with the weight of the load. The ZipLIFT will not release until the load is safely landed. Once that happens, slack in the line allows the thread segments to open and disengage the ZipLIFT from the load.

By employing ZipNut Technology, quick installation of the ZipLIFT over a threaded stud is easy and effective no matter how much rust, thread wear or paint is on the rod.

FASTORQ'S ZipLIFT also allows for remote disconnect of heavy loads. It has models with lifting capacity from 35,000 to 600,000 lb and can be fitted with hydraulic, pneumatic and electric cylinders.

ZipLift's have proven their worth in subsea use to retrieve well heads and blowout preventers.



Model Number	Bolt Diameter (in)	Maximum Load* (kg)	Maximum Load* Using 4-Pt. Lift (lb)	OD (in)
ZL-012	3/4	35,118v	140,472	1.855
ZL-014	7/8	219991	193,928	2.142
ZL-100	1	28 849	254,412	2.489
ZL-102	1-1/8	82,997	331,988	2.635
ZL-104	1-1/4	37 646	419,876	2.883
ZL-106	1-3/8	58 747	518,068	3.159
ZL-108	1-1/2	71 052	626,572	3.27
ZL-110	1-5/8	84 525	745,384	3.538
ZL-112	1-3/4	99 167	874,504	3.793
ZL-114	1-7/8v	114 977	1,013,932	4.078
ZL-200	2	131 957	1,163,668	4.356
ZL-204	1-7/8	169 424	1,494,064	4.912
ZL-208	2-1/2	191 417	1,688,012	5.178

**ROV
Compatible**

*Maximum load is based on minimum yield strength of ASTM A193-B7 bolt material. Divide this amount for your required safety factor. Additional sizes available upon request. Specifications are subject to change without notice.

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RENTAL EQUIPMENT

CUTTING EQUIPMENT

BOLTING EQUIPMENT

ZIP NUT TECHNOLOGY

RENTAL EQUIPMENT

CUTTING EQUIPMENT

BOLTING EQUIPMENT



**ROV
Compatible**

Zip Nut Technology

Space Age technology

Looking for an out of this world solution to your bolt tension problems? Look no further than FASTORQ's revolutionary ZipNut® Technology. First developed for NASA for use on the Space Shuttle, International Space Station and Hubble Telescope, ZipNut's are designed to eliminate the time-consuming motion of threading a traditional nut on a bolt in applications where speed, accuracy and reliability are vital. FASTORQ's ZipNut is quickly installed by simply pushing it onto a bolt in one motion. When it reaches the end of the bolt, it is tightened by a simple twist. That's it. It's locked in place. ZipNut's also come in a Double ZipNut option that slides onto the nut in the same manner as the original, but give users the option to also remove the nut the same way with one quick turn and slide off the bolt. It doesn't get much easier than that! Not only is ZipNut Technology quick, it conquers many common bolt problems such as rust, paint and damaged threads.

Applications and specifications

ZipNut Technology is a viable option for many industries where speed, accuracy and reliability are important and even life saving.

Additionally, robotic adaptability makes ZipNut's and ZipNut Technology tools ideal for subsea, land-based, wind and nuclear applications.

Standard ZipNuts's replace heavy hex nuts and fit standard bolts. Available in stainless steel, nickel-plated or corrosion protection coating, ZipNut's come in many different materials and custom sizes to meet your needs, including Super Duplex materials for subsea installation.

PART NUMBER	BOLT DIAMETER (INCHES)	ACROSS THE FLATS	NUT HEIGHT
ZN008	1/2	15/16	11/16
ZN010	5/8	1-1/4	1
ZN012	3/4	1-7/16	1-1/8
ZN014	7/8	1-5/8	1-1/4
ZN100	1	1-13/16	1-3/8
ZN102	1-1/8	2	1-1/2
ZN104	1-1/4	2-3/16	1-5/8
ZN106	1-3/8	2-3/8	1-3/4
ZN108	1-1/2	2-9/16	1-7/8
ZN110	1-5/8	2-3/4	2
ZN112	1-3/4	2-15/16	2-1/8
ZN114	1-7/8	3-1/8	2-1/4
ZN200	2	3-1/2	2-3/8
ZN204	2-1/4	3-7/8	2-5/8
ZN208	2-1/2	4-1/4	2-7/8
ZN212	2-3/4	4-5/8	3-1/8
ZN300	3	5	3-3/8

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ZIPNUT® VIV FASTENING MECHANISM

Zip Nut Fastening Mechanism

The Robotic Solution

Vortex Induced Vibration (VIV) occurs when ocean currents flow past the risers that transport well fluids from the sea bottom to the surface/offshore production structures. The vibration is extremely destructive to risers and associated equipment. To counteract VIV, suppression fairings are fastened around the risers. This fastening task is usually carried out with tooling that is mounted on an ROV. One of the challenges encountered is fastening the fairings to the risers once they are in place. To accomplish this, the fastener must:

- lend itself to robotic installation using an ROV and its tooling capabilities.
- allow free movement of the fairing so it can re-orient itself to the ocean currents.
- not loosen under unpredictable natural forces.
- stay secure for at least 30 years.

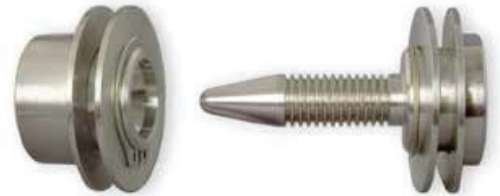
Standard threaded fasteners DO NOT meet these criteria.

The Solution - The Fastorq ZipNut Fastening Mechanism

The FASTORQ ZipNut Fastening Mechanism follows the same principle of a check valve by allowing movement only in one direction. The design solution incorporates a female fastener with segmented threads which separate slightly to allow entry and engagement of the male fastener as it is pushed into the female segment. No rotation is required!

The Fastorq Zip-Nut Fastening Mechanism is:

- compatibility with ROV tooling capabilities.
- rugged enough to withstand vibration and rotational stresses.
- made of material that is corrosion-resistant for 30 years.



ROV
Installation

RENTAL EQUIPMENT

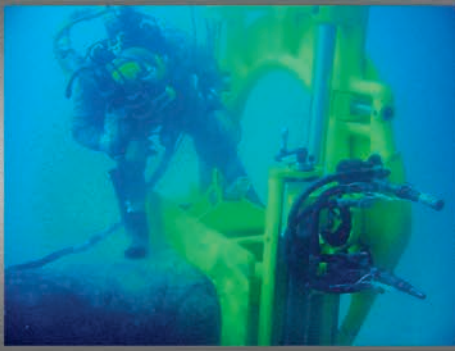
CUTTING EQUIPMENT

BOLTING EQUIPMENT

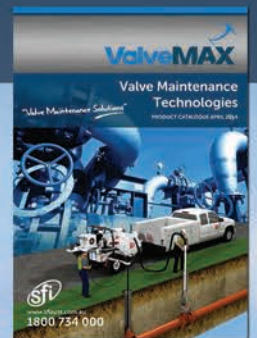
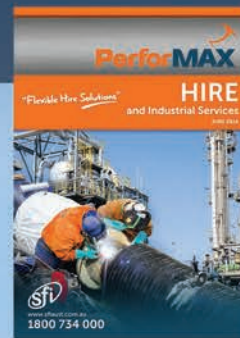


This series of photos show the mounting and closing of the fairing around the steel riser.

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Continually advancing Australasia's
pipework and mechanical capabilities.



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