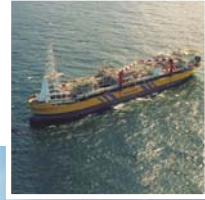


hydratight®

SUBSEA



Who we are

One Company – Meeting Stringent Standards

Over many years Hydratight has provided, as its core business, world class bolted joint solutions and continues to set international standards in joint integrity for its customers on a global scale. In addition, Hydratight can provide innovative and unique subsea engineered solutions, including Morgrip DNV approved mechanical couplings and HydraQuick Release System. Both are field-proven in deepwater applications.

Hydratight works in partnership with the world's leading OEMs using the latest computer technology and market leading development facilities. We continue to push back the boundaries of technology to provide fast, accurate and reliable solutions to critical assembly problems.

Our people are the key to our success: qualified, competent and innovative – working closely with our customers ensures a total understanding of their requirements.

One Company – Meets Standards

Totally committed to safety and quality, all Hydratight products and services are designed, manufactured and carried out within a management system in accordance with ISO 9001:2000 (quality management); ISO 14001:2004 (environmental management); OHSAS 18001:2007 (occupational health and safety)

Our extensive engineering services include:

- DNV approved Morgrip technology
- HydraQuick Release System
- Unique engineered solutions
- Torque and tension bolting equipment
- Portable machining equipment
- Product sales, rental and technical support
- Product service and training



What Makes Us Different

One Company – A Multitude of Solutions

Hydratight plays a leading role within the complex and changing world of subsea, providing innovative and unique services to improve cost effectiveness in this competitive industry.



MORGRIP®

Morgrip is a range of weldless mechanical couplings, which provide high-integrity connections for all types of metal pipe work. The Morgrip product has over 20 years of proven leak-free service history for permanent usage and can be used for all sizes and pressure ratings of metal pipes, in critical and non-critical service.

Hydratight's innovative designs have produced a connection, which is the equivalent in strength and sealing performance to that of a welded joint. Available in a variety of formats, including standard flange termination and the unique pipe-to-pipe direct coupling connector. All formats suit specific applications whether for use on carbon steel, stainless steel or duplex pipes.



Benefits include:

- High strength gripping mechanism using ball bearings which swage into the pipe's outer surface
- Patented metal/graphite sealing system
- Designed for the life of the pipeline
- No hot-work required
- Safer, simpler and quicker than a welded joint
- Full type-approval of DNV and Lloyds Register
- API Monogrammed
- Sizes up to 42"
- Pressure rated up to 2500 lb
- All water depths

MORGRIP®

HydraQuick Release System

Hydratight, the global leader in joint integrity, specializes in customized solutions for subsea applications. Such solutions have been implemented worldwide over the last 15 years, with initial projects into offshore West Africa. Hydratight has an international network of engineers linking directly into the center of excellence for this technology in Paris, ensuring a quick and effective response to any customer enquiry.



As oil and gas production has ventured into deeper and deeper water, the requirement for remote activation in bolted applications has increased. This highlighted the need for reliable methods of remote disconnection devices. In response to this need, Hydratight developed the HydraQuick Release System. This system, operated via ROV hot stab, offers a fast, efficient and highly reliable method of remote disconnection (typical disconnection time is four minutes per stud instead of two hours when using ROV and torque tools).

HydraQuick Release System:

The HydraQuick's unique design utilizes hydraulics to allow remote, fast removal from a tightened stud bolt. The principal characteristics are the following:

- The design consists of a three segment nut set into a cage
- Low pressure release; less than 120Bar actuates the casing sleeve to move on the piston rod
- The actuation movement retracts the outer cage and releases the three nut segments which immediately frees the nut from the stud bolt thread





This technology offers a significant increase in offshore operational time savings and consequently a cost reduction to the project. Hydratight is continually looking for new and innovative methods of utilizing this technology within the subsea industry and welcomes opportunities to work with new and existing customers in developing any such solutions.

A Hydratight DVD included on the inside back cover of this brochure highlights the following applications:

- Temporary closure: Girasol/Acergy, Jasmine/Acergy, Dalia/Technip & Greater Plutonio/Acergy in Angola
- Bend stiffener removal tool: Moho Bilondo/Acergy in Congo
- Release of clump weight: Technip
- Quick structure dismantling: Bahr Essalam in Libya
- Temporary flange protector: Greater Plutonio/Acergy in Angola, Moho Bilondo/Acergy in Congo and Agbami/Acergy in Nigeria



Joint Integrity

For over 30 years Hydratight has been supporting the bolted joint needs of the subsea industry. When it comes to torque and tension, no other company in the world has the engineering technology, experience and expertise of Hydratight.



AquaMax Subsea Tensioner

The new AquaMax Tensioner from Hydratight is the only range of subsea tensioner to be specifically developed to generate the very high loads required for SPO/Vector compact flanges. This versatile range has been designed to be suitable for use with all standard flanges, including ANSI, API, Taperlok and SPO/Vector compact flanges ensuring maximum flange/bolt coverage:

- High load capacity
- Eight tools form a core range covering bolt sizes 1" - 3 1/2"
- All tools are compatible with Aquajack quick fastening nuts



Aquajack Subsea Bolt Tensioner

By tightening all the bolts simultaneously, a saving of up to 80% can be achieved over alternative methods. This provides the most cost effective solution to subsea bolt or stud tightening.

The Aquajack's unique reaction nut design: SPLIT NUT® allows rapid tool removal and application to long bolts:

- 1 3/16" (30mm) maximum piston stroke for tools AJ2 to AJ8
- 3/4" (20mm) maximum for tools AJ0 and AJ1



HydraMax Topside Tensioner

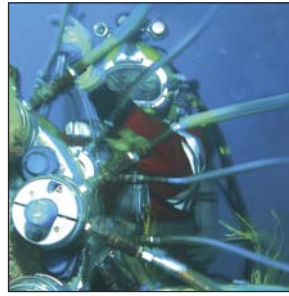
The HydraMax Tensioner is for topside assembly of flange applications for deep subsea use.

The HydraMax Tensioner's compact flange design helps to achieve high bolt loads with a maximum stroke of 5/8" and maximum working pressure of 21,750 psi.

Such flange applications with reduced bolt circle diameters include SPO compact flanges, custom designed stress risers, hull piping and customized SCRs.

The HydraMax Tensioner can also be used to install pullheads for risers, specialized connectors and 'stopper', 'bear', or 'friction' clamps, as well as standard ANSI, MSS and API flange systems.





Multi Stud Tensioner (MST)

Hydratight's MST offers significant time reduction in operation while simultaneously tensioning 100% of the bolts in a connection, providing the fastest and technically most efficient method of tightening any such connection.

Using lightweight materials combined with the minimum required number of segments keeps weight to a minimum, allowing easy and fast operation by a single operator.

Benefits include:

- Design consists of a segmented annular ring with integrally machined, internally connected hydraulic chambers
- Simple tool fitting as per a single tensioner
- Only one single hydraulic connection is required for each segment
- All hydraulic rams are energized simultaneously
- Unique, innovative, asymmetric ram solution available for use in space-restricted environments

Designs can be to a basic standard or can be customized to include such features as:

- Geared-nut driving sockets
- Hinged carrying handles
- Magnetic socket location
- Overstroke preventors
- Tooling position aids



RSL™ Hydraulic Torque Wrench

Hydratight RSL hydraulic torque wrenches provide a comprehensive range of interchangeable hexagon and square drive heads, ideal when working on a variety of nut sizes on one or more applications:

- Minimum maintenance; only three moving parts
- Safe and durable
- Compact and lightweight
- Fast and versatile



Joint Integrity continued

Hydratight has established a dedicated Subsea Engineered Solutions department supported by a global centre of excellence. This enables Hydratight to respond quickly, working in partnership with customers (including being integrated into client project teams) to develop new, or improve existing applications to reduce offshore time and risk. As always, safety is an integral part of the solutions we deliver.



Nutsplitter

The Hydratight Nutsplitter is a fast, sure and safe method to remove corroded or seized nuts without the need for hot cutting, chiseling or grinding. With a range of cylinders and interchangeable heads, the tool is designed to cover all ANSI flanges up to 36".

Features include:

- Spring return cylinders for topside use
- An optional double-acting hydraulic cylinder is available for subsea use
- Cutting blade can be easily preset to prevent damage to bolt threads



Flange Puller

The Hydratight Flange Puller is a compact device used to align or pull together flanges prior to the application of bolts and gaskets.

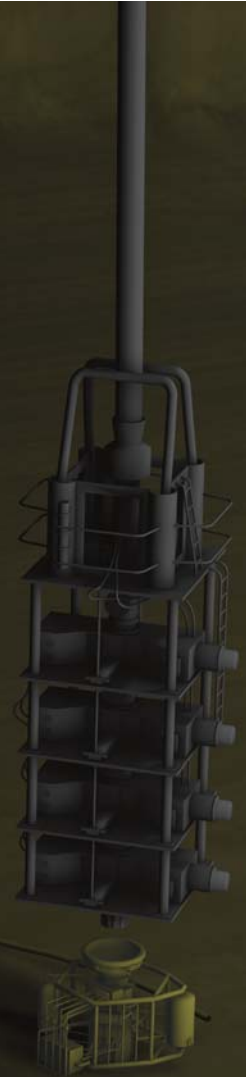
The system utilizes a 6" (150mm) stroke double acting hollow cylinder and can be operated with either **wire rope** or **threaded bars**. A uniquely designed jaw assembly is used to grip and release the rope and a four-way valve is incorporated into the unit to provide fast and simple operation and close operator control. Any number of cylinders can be used individually or simultaneously to provide constant load or controlled displacement.



Flange Spreader

The Hydratight Flange Spreader utilizes a high load compact hydraulic cylinder, together with a uniquely designed wedge and retaining mechanism to smoothly and evenly force open the flanged joint.

All tools are available throughout the world for sale, service or rental. Check the map on the back of this brochure for the details of your nearest Hydratight supplier.



In-Situ Machining

Hydratight is not only a premier manufacturer of world-class bolting equipment, but also of machining equipment for pipe cutting, beveling, flange re-facing and journal turning. The DL Ricci brand of equipment is engineered, designed and manufactured by Hydratight to the highest standards.

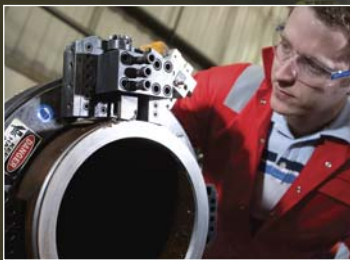
Tooling is made to withstand harsh conditions of subsea environments while performing the task it was designed to complete. Such tasks include pipe and casing cutting, flange re-facing and gasket re-grooving, while maintaining their diver-friendly operations. The line of tools available can be custom designed by Hydratight for your specific needs. Technical support is available 24/7, as well as experienced, trained and competent technicians for your service needs.



Clamshells

The Clamshell range of tools available cover virtually all pipe sizes from 0.5" to 180". All Hydratight supplied clamshells are designed to deliver the power and accuracy to work on virtually all pipe materials and wall thicknesses.

The Clamshell utilizes our unique patented bearing system, which produces excellent surface finishes and helps extend clamshell life and durability. The low and narrow profile allows this portable cutting machine to be set up with ease in the most difficult of environments. These machines are capable of cutting and beveling all wall thicknesses and alloys. The Split Frame Clamshell can be fitted with a variety of drive motors or mounting configurations. The Clamshell offers many innovative design features including a new gear clamping feature and motor mount, which allows for a faster, more secure set-up and increased rigidity. Compatible locator extensions with other clamshell tool blocks/slides give our Split Frame Clamshells more on-site field machining versatility.



These portable Clamshells also have available a variety of accessories specific to the subsea market, including our Casing Cutter attachments.

Training

Hydratight was founded on a culture devoted to safety. As a designer and manufacturer of high quality joint-integrity products, the safe and correct use of this equipment remains of prime importance in ensuring our 'right first time' philosophy.



As accredited training providers, Hydratight offers a range of courses to ensure all personnel are fully trained and assessed to industry best practice standards.

Our fully qualified training instructors are experts in their field and can deliver additional courses on the operation of Hydratight equipment or services on a global scale, as well as specially commissioned courses to suit your work systems and equipment. All courses are fully documented and content is available on request.

Course Contents:

- Safety procedures
- Safe and correct use of equipment - theory
- Safe and correct use of equipment – practical
- Equipment and tightening procedures
- Equipment specification
- Operation
- Features and benefits
- Maintenance of equipment
- Tool pressures and calculation methods

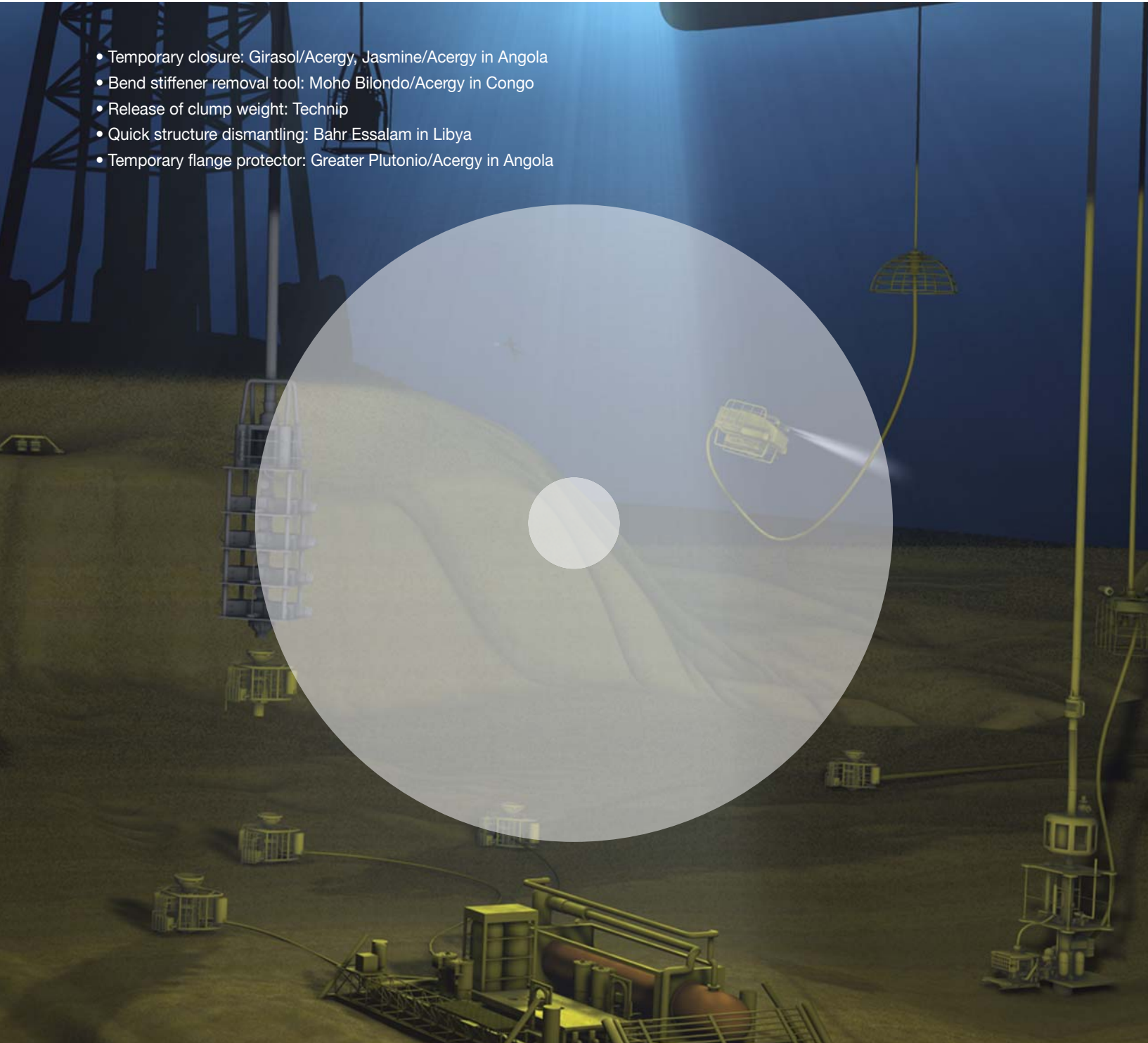


For more information on our training and product familiarization courses visit Hydratight.com or email training@hydratight.com

DVD

This Hydratight applications DVD demonstrates our capabilities in the subsea market with examples of customized solutions we have provided for applications.

- Temporary closure: Girasol/Aceryg, Jasmine/Aceryg in Angola
- Bend stiffener removal tool: Moho Bilondo/Aceryg in Congo
- Release of clump weight: Technip
- Quick structure dismantling: Bahr Essalam in Libya
- Temporary flange protector: Greater Plutonio/Aceryg in Angola



hydratight®

Global Standards Local Delivery

Our global network means you can rely on the right people, products and services wherever you are in the world.

Email us at: solutions@hydratight.com
Or find your local representative at:
hydratight.com/contact

