

hydratight®

**PROCESS INTEGRITY –
Engineering Solutions and On-Site Services**



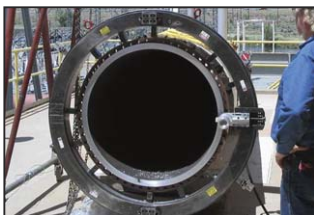
Specialised Engineering Services

Hydratight is an innovative provider of engineering solutions and on-site services designed to maintain the integrity of production and process plant and pipework.



On-Site Bolting

- In-house designed and manufactured bolt tightening tools
- Competent supervisors and technicians
- Leak-free start-up and production



Pipe cutting and Beveling

- Flexible internal or external mount cutting and beveling equipment
- High quality pipe cutting, bore matching for connection of pipes
- Suitable for Onshore, Offshore or Subsea projects



On-Line Industrial Leak-Sealing

- Avoid production losses and unscheduled plant shutdowns by using our on-line Leak Sealing service
- Cost effective and safe sealing of flanges, bonnet, valves and fittings with around the clock availability



On-Site Machining

- Hydratight's On-Site, In-Situ Machining capability provides the services of a fully equipped machine shop direct to your site, including; Turning, Drilling, Milling and Grinding
- Dismantling and transport of vessels/equipment is unnecessary, reducing plant downtime to a minimum



Hot Tapping and Line Plugging

- Tapping – integrating tie-ins without production loss
- Plugging – isolating product flow during normal production
- Tapping and plugging – bypassing and replacing of damaged lines, defective valves etc



On-Line Thermowell Installation

- Installation of Thermowells under operating conditions to provide temperature data collection without production loss
- Ideal where temperature measurement of high temperature, abrasive or corrosive media may result in premature failure of an unprotected sensor



On-Line Freeze Plugging

- Fast, safe plugging of process lines without draining or interruption is possible with our on-line Freeze Plugging service
- Liquid nitrogen or carbon dioxide are expertly applied, freezing the process media to create a pressure tight plug, allowing efficient modification to plant with minimal disruption



On-Site Condenser and Heat-Exchanger Repair and Restoration

- Hydratight offer Turnkey refurbishment and maintenance packages for Heat Exchangers and Condensers
- Experienced personnel efficiently restore components to original specification and performance, on-site and on time



On-Line Safety Valve Testing

- Cutting the cost associated with Safety Valve Testing, verifying operation at production pressures
- Avoids the cost of unnecessary valve removal and replacement and provides reassurance that safety systems are in good working order



Induction Heat Treatment

- Through the DL Ricci operation, Hydratight offer on-site Resistance and Induction Heat Treatment services
- Modern portable equipment and experienced field technicians combine to deliver accurate and affordable in-situ heat treatment

Sales and Rental Services



Bolting and Process Integrity

- Hydratight offers a tailored solution to meet customer's needs, with a range of in-house manufactured products
- All products and services are carried out to the highest quality standards and best practices worldwide



Largest Portable Tool Rental Fleet

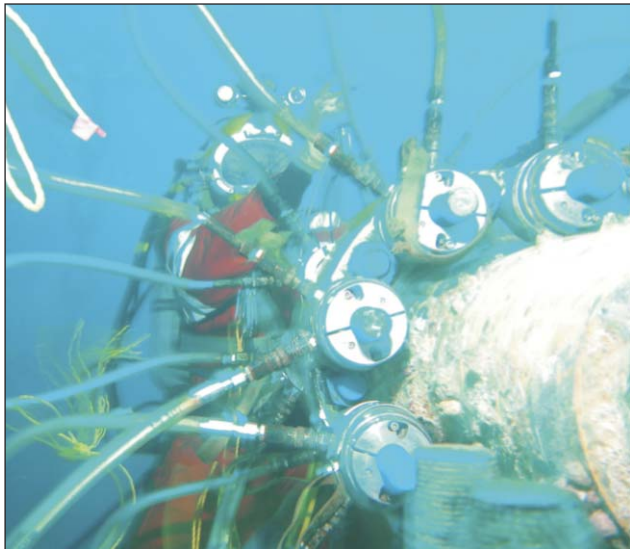
- With the largest inventories of market leading products, Hydratight brings a truly flexible approach and outstanding value in both bolting and machining, underpinned with local technical support

On-Site Bolting

Hydratight pioneers global standards, making leak-free bolted connections safely and competently with full regard to the environment.

Hydratight's highly trained and competent service teams inspire confidence that all bolting operations, whether torque or tension, will be carried out efficiently and safely, ensuring the correct bolt loads are achieved and not just applied.

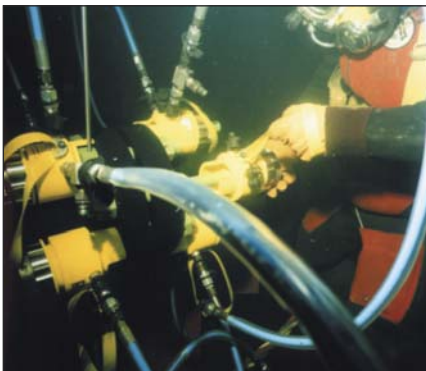
Hydratight utilises innovative, purpose designed and manufactured products and well trained crews to provide an unrivalled quality of service and value for money.



Whether the requirement is for torque or tension equipment, Hydratight has extensive stocks of in-house designed and manufactured product available, ensuring leak-free bolted connections.

Selection of the required tooling may be influenced by:

- Access to the joints and bolt length
- Accuracy needed
- Site preference and experience of personnel



Technical Support

Hydratight can quickly assess the suitability of equipment to fit particular joints through its bolting calculation software In-formate and Boltup, or in more complex cases via the Technical Support teams based in the company's regional facilities.

Consideration is given to;

- Height restrictions
- Bolt pitch issues
- Proximity of bolt circle diameter to the base of the hub or weld neck



Pipe Cutting & Weld Preparation

DL Ricci portable Pipe Cutting and Weld Preparation machines have led the market for many years becoming an industry standard.

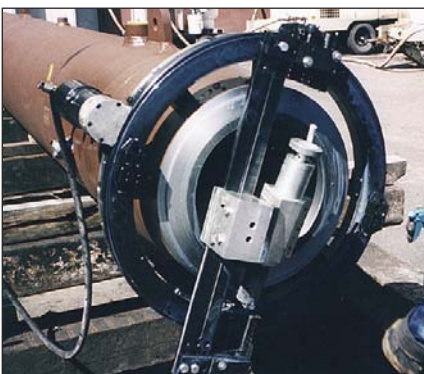
The company's extensive range of machines offers the perfect match for any application from the small to the heavy duty.

The patented bearing technology built into the DL Ricci clamshells, provide easy set-up and robust operation in any environment.



The Company

DL Ricci is one of the more recent additions to the Hydratight business, adding new capability in respect of manufacture and supply of specialist machines, in addition to a global on-site service operation.



Examples of applications

- Machining of weld excavations to remove defective material in preparation for re-welding
- Internal or external match boring to allow pipes with a different wall thickness to be paired together
- Single 'V', double angle or 'J' prep can all be produced

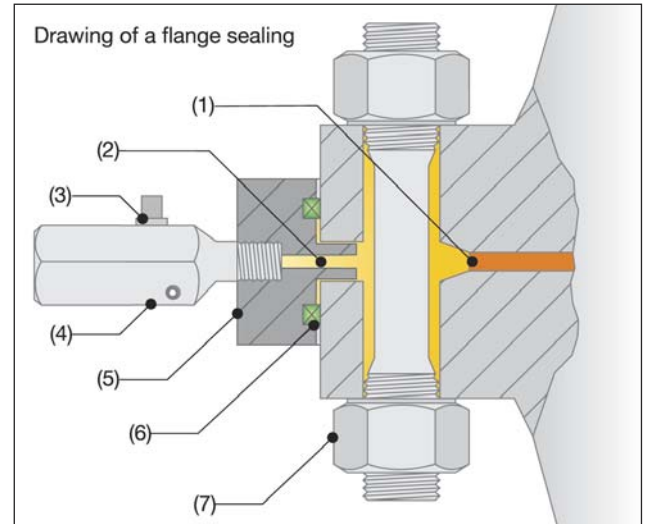


On-Line Industrial Leak-Sealing

Hydratight's history of developing innovative technologies continues with the addition of On-Line Leak Sealing.

With continuous on-call availability, Hydratight's specialist on-line leak sealing of flanges, bonnets, valves and fittings offer a fast, efficient and cost effective solution for leaks.

With a right first time philosophy, safety is ensured and environmental performance optimised whilst plant down-time and costs are reduced to a minimum.



- (1) Broken down flange sealing
- (2) Compound (substitute sealant)
- (3) Injection adapter (closed)
- (4) Injection adapter (valve to inject compound)
- (5) Sealing clamp
- (6) Copper seal pipe
- (7) Bolted flange connection

Using expert knowledge, the selection of the right process and materials ensures leaks are efficiently and permanently fixed.



Benefits

- Minimum disruption to production or process
- Safe, efficient, non-destructive and cost-efficient sealing of flanges, bonnets, fittings, elbows etc.
- Rapid response with large stocks and dedicated in-house mechanical workshops
- High quality standards
- Around the clock advice and service



On-Site Machining

Modifications and repairs with portable machinery

Hydratight executes on-site repairs, improvements and modifications to all kinds of equipment, plant and construction parts with a wide range of mobile machinery. Highly qualified engineers and technicians ensure quality without compromise, comparable to stationary machining.

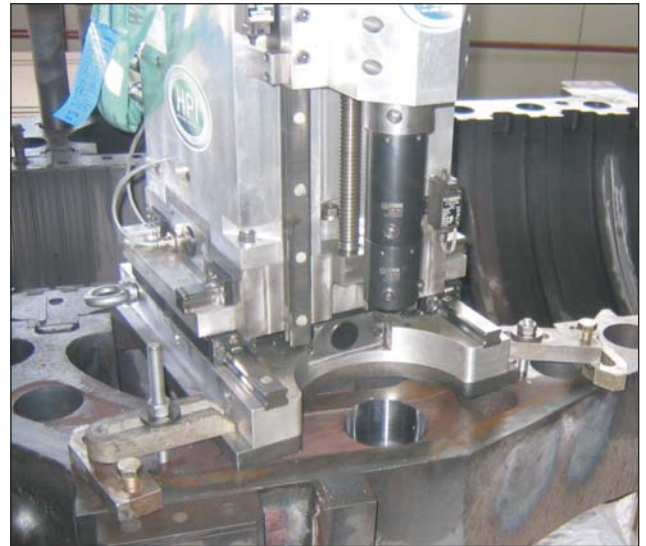
Portable machining is recommended for turning, drilling, milling and grinding of plant components, which either cannot or can only be disassembled and/or transported with great difficulty. Reducing costs for dismantling, assembling, and transport of vessels and equipment, on-site machining significantly reduces downtime and increases plant safety.

Turning

- Capacity up to Ø 5.500 mm
- Facing and grooving of flanges and heat-exchangers
- Pipe cutting and weld preparation of pipe ends
- Machining of shafts

Milling

- Pump, motor and machine bedplates
- Resurfacing, milling of profiles
- Keyways in bores and shafts
- CNC-milling of threading up to Ø 200 mm, depth 300 mm

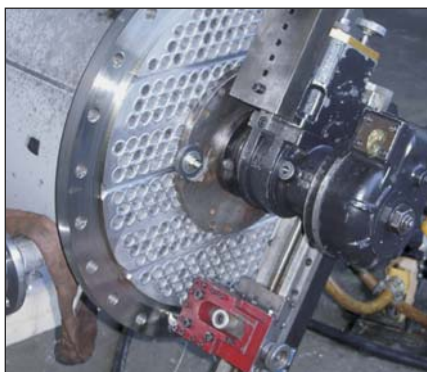


Drilling and Line Boring

- Machining of bushes, bearings and multiple in-line borings
- Drilling up to Ø 150 mm in solid material
- Machining up to 800 mm of nozzles in vessels

Grinding

- Large diameter rotating equipment eg: dryers and turn furnaces



Benefits

Hydratight offers all the facilities of a fully equipped machine shop right where it is needed – on-site.

Significantly reducing;

- Plant down-time
- Cost of dismantling/re-assembly
- Transport costs

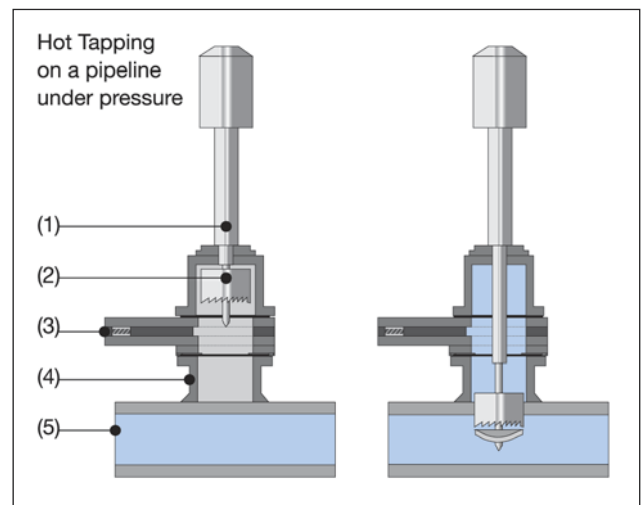


Hot Tapping of Pipelines

Tapping of pipelines at full operating pressure

Meet deadlines safely and with minimum disruption to production; Hydratight's Hot and Cold Tapping service provides the solution to plant and pipeline modifications without the need to decommission, thus maximising plant up-time. It is a precise process of drilling a hole in a piping system under pressure, without draining or spilling the products inside.

A valve (3) is mounted on the fitting (4) welded to the line. The tapping machine (1) installed on top of the valve drills through (2) the opened valve into the pipe (5) and retains the coupon. Once retracted the valve is closed and the machine removed.



Safe, fast tie-ins, repairs, modifications and bypass of faulty or damaged systems all under full operating conditions provides exceptional value and efficiency.



Benefits

- On-line integration of tie-ins or bypass lines without production loss
- Installation of thermowells with minimum disruption

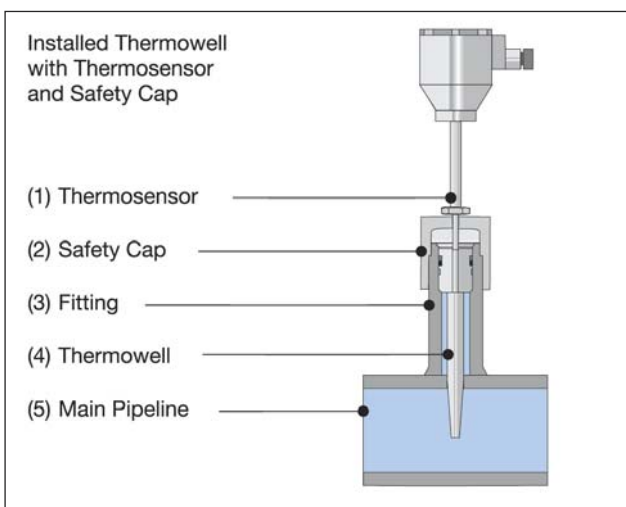


On-Line Thermowell Installation

Installation of thermowells at full operating pressure

Hydratight's technique of On-Line Thermowell installation is approved by the TUV, offering assurance of safe and efficient performance.

The connection of resistance thermometers or thermocouples to existing pipelines under pressure requires qualified engineers and special tapping equipment.



Thermowell installation offers precise, robust and permanent temperature measurement of process media where the media may be corrosive, abrasive or at high pressures.

Procedures

- Welding of tapping nozzle to pipe
- Assembly of gate valve and adapters
- Assembly of tapping machine
- Hot-Tapping of product pipeline
- Disassembly of tapping machine
- Positioning of thermowell on the machine
- Assembly of tapping machine
- Installing thermowell
- Disassembly of tapping machine
- Assembly of cap with thermosensor
- Assembly of thermosensor

Limitations

- Operating temperature up to 315 °C
- Operating pressure up to 48 bar
- Thermocouples up to Ø 50 mm



Benefits

- Installation of Thermowell at operating pressure
- Minimum disruption to process/production
- Ideal for temperature measurement of media where the abrasive or corrosive nature of the media can limit sensor life

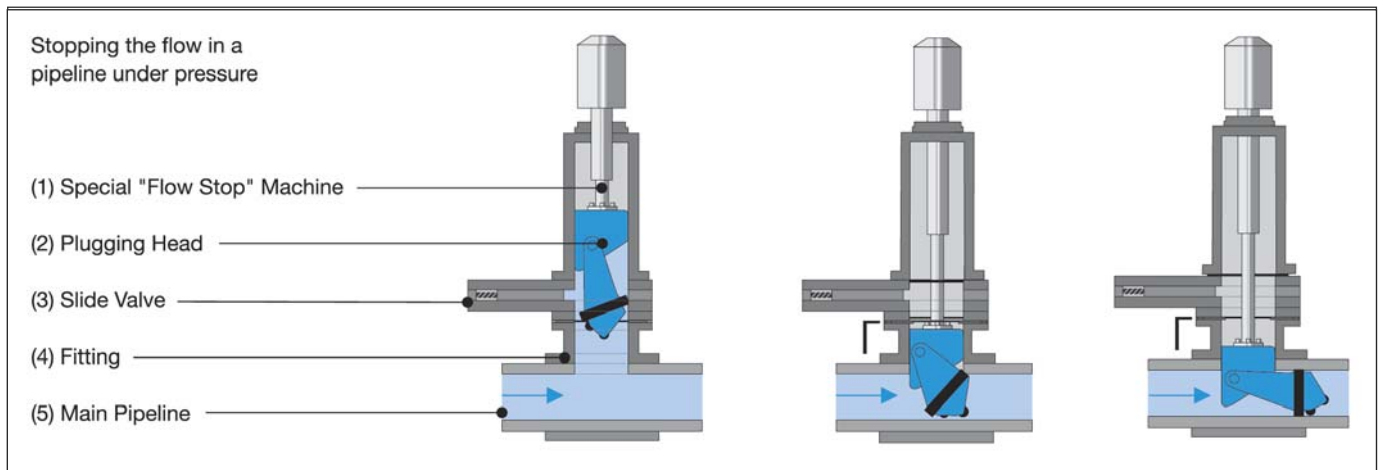


On-Line Mechanical Plugging

Emergency and scheduled stopping of a liquid or gas flow in a pipeline at full operating pressure

Purpose designed equipment in the hands of highly skilled technicians enables fast and safe Mechanical Line Plugging at full operating pressure.

Hydratight's Line Plugging service is ideal for temporary or permanent isolation of pipe work, allowing repair or modification without the need for plant shut-down or the loss of production or process media.



Benefits

- Isolate, repair or modify pipe-work without production loss
- Plug and bypass without interruption to process flow



On-Line Freeze Plugging

Cryogenic freezing of process or production media at full operating pressure to provide temporary isolation of pipe work

A non-invasive alternative to Mechanical Plugging suitable for pipelines up to 48" diameter.

Freezing the media down to form a plug allows modifications or repairs downstream without the need to drain the pipeline.

This process requires the operator to stop the flow of media through the pipeline to allow freezing to take place.



Isolation of the downstream pipe is achieved by fitting a purpose made enclosure through which cryogenic Liquid Nitrogen or Carbon Dioxide are piped.

Rapid cooling of the process media inside the pipe quickly follows forming a pressure tight frozen plug.

With no pipe modifications necessary, this temporary plugging method offers a solution to maintenance or repair needs.



Benefits

- Continued production during pipe work modification or repair
- Integrity of pipe work maintained – no need to re-test plug location
- Drainage of media avoided, production performance maintained



On-Site Condenser and Heat-Exchanger Restoration

Repair and restoration of
condensers and heat-exchangers

Extend life of Heat Exchanger and Condensers by cost effectively returning their tubes to optimum performance using the CTI Shield/Seal Service.

The CTI Shield/Seal is a high grade alloy thin-walled tube insert which prevents erosion and repairs damage at the inlet and outlet of the tubes. This process can in many cases return leaking tubes to full service at a fraction of the cost of a full tube replacement.

Close tolerance machining and the thin-wall design of the insert prevent turbulence normally associated with this type of repair.



Applications

- Erosion at the tube end, pitting corrosion
- Big corrosion cracks
- Gaps due to corrosion
- Improper tube widening
- Weak tube to tube connections

CTI Full Length Tube Liner™ as tube insert

If damage to the tubes is more extensive, the patented CTI Full Length Tube Liner offers an effective solution to erosion, corrosion wall thinning and plugged leaking tubes.



Benefits

- On-site – cost and disruption of plant transportation avoided
- Fast, economic re-instatement to original specification
- The real alternative to full tube replacement



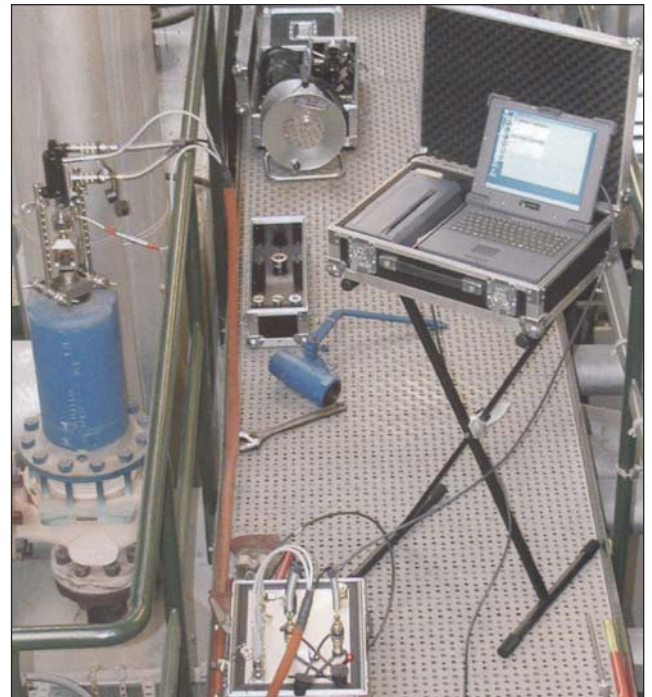
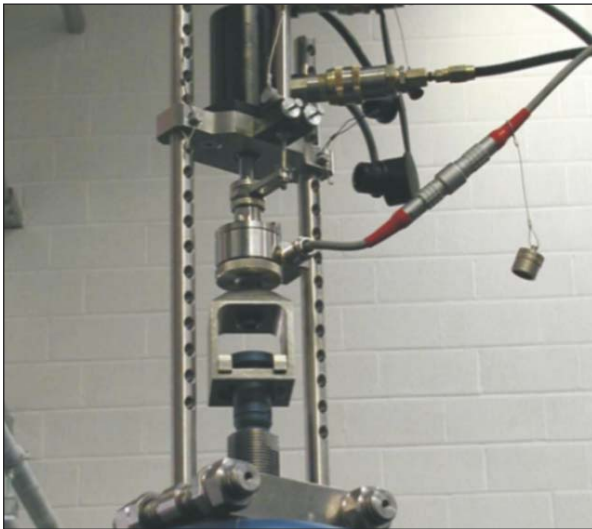
On-Line Safety-Valve Testing

Safety-valve tests under normal operating conditions

Hydratight is able to test the response pressure of safety relief valves under normal operating conditions. This TÜV-approved computerised test system does not require any increase of operating pressure.

Hydratight's state of the art technology provides the assurance and meets the obligation to regularly test the operation of safety valves.

This market leading process enables testing without the need to increase line pressure and eliminates the need for unnecessary valve replacement.



Test procedure

The difference between operating and nominal response pressure is simulated by a pulling force in a special procedure. Applying this test procedure, no increase of the operating pressure is required. This method is applicable to all manufacturers and nominal diameters of spring-loaded full-stroke or proportional safety relief valves.

Benefits

- Test procedure applicable for all sizes
- TÜV approved certification for all tested valves
- Enables testing of response pressures without increasing the operational pressure
- Avoids down time and labour costs associated with valve removal/ replacement
- Eliminating costs for transport of the valves, avoids transport damage
- Efficient management of test data including settings and results
- Reducing costs
- Suitable for gas, steam, condensate and water



Qualification Management

An overview of Hydratight's Approvals and Certificates.
Hydratight utilise quality standards and best practises worldwide.



German Certificate of Approval DIN EN ISO 9001

German Certificate of Approval SCC**

German Certificate for on-line leak-sealing

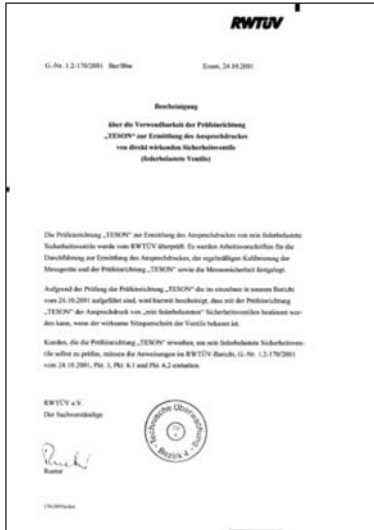


Netherlands Certificate of Approval VCA

British Certificate of Approval BS EN ISO 9001:2000

British Certificate of Approval ISO 14001:2004

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German Certificate for safety-valve-testing



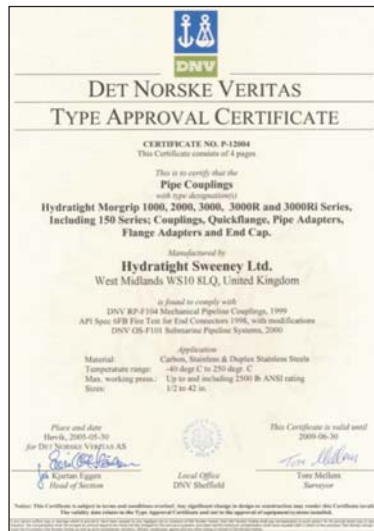
German Certificate for installing thermowells



German Certificate of Approval SCC**



British Certificate of Approval BS EN ISO 18001:1999



Norwegian Certificate of Approval DNV



US Certificate of Approval ABS

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

