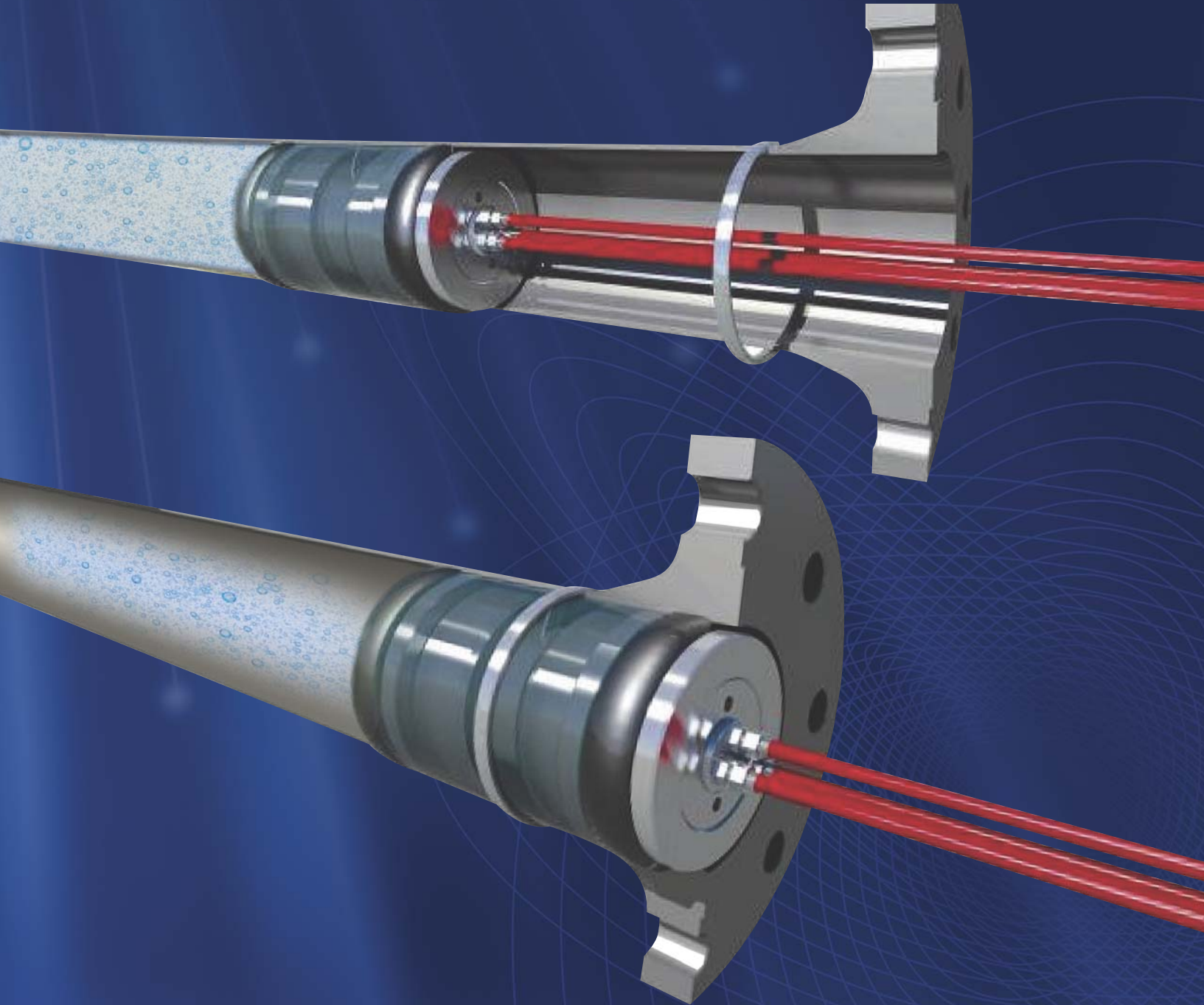


HYDRABLOCK

IN-LINE WELD TEST TOOL



Who we are

One Company, Total Support, Complete Solutions

Over many years Hydratight has provided world-class bolted joint solutions and continues to set international standards in joint integrity for its customers on a global scale. By supplying a comprehensive range of products and services supported by a strong, experienced engineering team, we apply global standards through our network of local operations.

Hydratight works in partnership with the world's leading Original Equipment Manufacturers (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 repair problems.

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 9001:2008 (Quality Management), ISO 14001: 2004 (Environmental Management) and OHSAS 18001:2007 (Occupational Health and Safety).

One Company

Our extensive engineering services include:

- Torque and tension bolting equipment
- Machining equipment
- Product sales, rental and technical support
- Product service and training



INVESTOR IN PEOPLE

What makes us different

One Company - A Multitude of Solutions

Hydratight has acquired several brands that have earned leadership status in service to the nuclear industry. The most recent to join is nuclear tensioning specialist Biach Industries with its credentials of having been in use in over 90% of US nuclear facilities. Our DL Ricci brand of machining and heat treating tools and our MST systems have also gained wide nuclear industry credibility as leaders. Below are examples of how Hydratight has led the way in meeting the needs of nuclear plant facilities.



In-Line Weld Test tools are commonly used during the maintenance and modification of piping or process equipment, enabling hydrostatic pressure testing. Providing a fast and efficient method of creating a vapor barrier and verifying the integrity of butt welds, joints or other welded pipe components.

Why use an In-Line Weld Test tool

With very few exceptions all pressure vessel and piping codes require fabrications to be proved by pressure test.

The purpose of a pressure test is twofold:

- To prove the integrity of the items subject to the test - to ensure no porosity, cracks and other weld defects exist, allowing leakage.
- To remove the residual stresses induced during fabrication shake down.

In the case of a closure weld between modules already tested or a simple flange replacement, it may not be appropriate to flood the complete system with water and even less with gas.

The Hydratight range of In-Line Weld Test tools can isolate single welds and carry out the proof test over a limited length of pipe.



Hydratight's In-Line Weld Test tools are designed to do both by holding internal pressure at the weld until integrity is confirmed. At the same time the tool and pressure held, induce hoop stress which adequately removes residual stresses. Firstly hoop stress is approximately double the axial stress and secondly the combination of hoop and radial stress is higher than if axial was added.

ASME B31.3 section 345.2.3 refers to a closure weld in a system already tested. This weld when tested by a Hydratight In-Line Weld Test tool would be over and above that required.

Please note: In-line Weld Test tools should only ever be used for ambient isolation. With ambient isolation there is no pressure differential across the tool, therefore there is no force trying to move the tool towards the worksite. Where there is a potential for a pressure or force to move the tool, then the isolation is not ambient and an isolation tool with locks must be used.

In-Line Weld Test Tools

Double block & bleed isolation

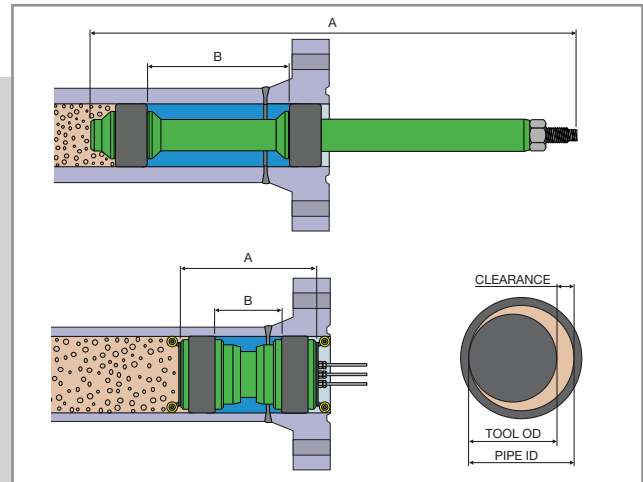
Hydratight In-Line Weld Test tools provide a safe, reliable and cost-effective means for the localised pressure testing of piping. Commonly used during the maintenance and modification of piping or process equipment, the tool is inserted into the pipe or equipment component to be tested to provide a fast and efficient method of verifying the integrity of butt welds, joints or other welded pipe components.

Localized pressure testing is a means of verifying the integrity of a welded or formed joint or flange installation/ weld which has been made on a piping system. Typically these are made as a repair or modification of part of a process piping system which is undertaken during plant shutdown activities.

The test is typically undertaken using water as the test medium, but can be undertaken using inert gas where necessary. The test undertaken is normally a strength test of the joint at 1.5 times the design pressure, but can also be used as a leak testing means, typically undertaken at 1.1 times the design pressure.

As there are multiple variants in piping nominal size, pipe wall thicknesses and flange configurations, Hydratight supplies a broad range of test tools to accommodate all requirements.

In-Line Weld Test tools feature double block and bleed isolation. Once set in position these tools provide a verified vapor barrier allowing hot work activities to take place safely onsite.



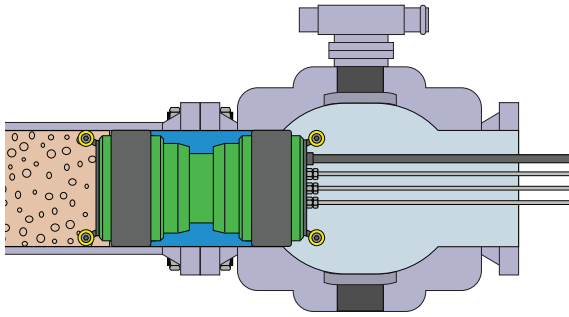
Specification:

- Size range: common pipe sizes ¾" - 36" as standard. Sizes up to 72" available on request
- Hydraulically actuated above 2"
- Verified double block and bleed isolation
- Pressure range: up to 690 Bar/10,000 PSI depending on specification, maximum test pressure to suit system
- Pressure assisted sealing

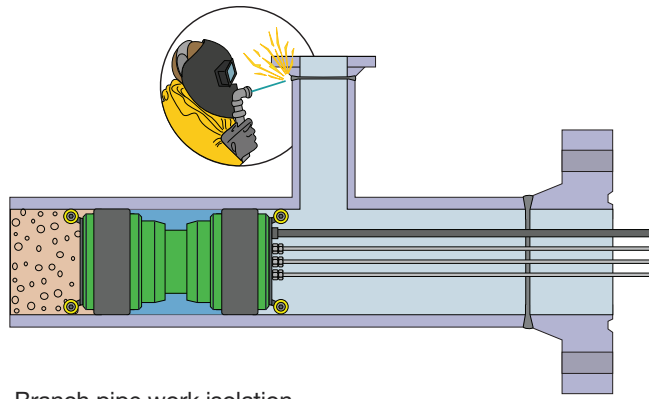
In-Line Weld Test tool – Clearance dimensions

Nominal Pipe Size (inches)	Outside Diameter (inches)	Clearance (mm)														
		Sch 5s & 5	Sch 10s	Sch 10	Sch 20	Sch 30	Sch 40s & STD	Sch 40	Sch 60	Sch 80s & XS	Sch 80	Sch 100	Sch 120	Sch 140	Sch 160	Sch XXS
1"	1.32"		6.6				5.3	5.3		3.0	3.0				3.1	
1.5"	1.9"						6.9	6.9		4.1	4.1					6.6
2"	2.38"	12.0	9.8				7.5	7.5		4.3	4.3					4.2
3"	3.5"						4.9	4.9		4.0	4.0					
4"	4.5"						6.0	6.0		6.0	6.0					7.1
6"	6.63"						8.5	8.5		7.4	7.4					
8"	8.63"				15.9	14.5	12.2	12.2	8.0	12.8	12.8	8.1				
10"	10.75"						11.0	11.0	14.7	14.7	9.9					
12"	12.75"	11.9	10.7				9.8	8.2			12.0					
14"	14"	15.7	14.0	10.9	17.8	14.6	14.6	11.4			13.5			15.1		

Disclaimer: All values provided in this table are based on ASME B36, 10M & B36, 19M pipe specification.



Valve reinstatement primary joint leak test



Branch pipe work isolation

In-Line Weld Test tool – Interface dimensions

Tool Ref Size (inches)	Tool Model Number	Tool Diameter	Compatible Pipe Schedules	Tool Maximum Working Pressure	Overall Length – A	Length Between Seals – B	Weight
1"	TT0021	21.3mm – 0.84"	1" 10s, STD, XS, 40 40s 80, 80s 1 1/2" XXS 3/4" 5s, 10s	250bar – 3626psi	245mm – 9.65"	90mm – 3.54"	1kg – 2.2lbs
1 1/2"	TT0034	34.0mm – 1.34"	1 1/2" STD, XS, 40, 40s, 80, 80s 2" XXS	600bar – 8702psi	280mm – 11.02"	100mm – 3.94"	2kg – 4.4lbs
2"	TT0045	45.0mm – 1.77"	2" 5s, 10s, STD, XS, 40, 40s, 80, 80s	400bar – 5802psi	280mm – 11.02"	100mm – 3.94"	2kg – 4.4lbs
3"	TT0073	73.0mm – 2.87"	3" STD, 40, 40s 4" XXS	350bar – 5076psi	200mm – 7.87"	94mm – 3.70"	12kg – 26.4lbs
3"	TT0069	69.7mm – 2.74"	3" XS, 80, 80s	400bar – 5802psi	200mm – 7.87"	94mm – 3.70"	12kg – 26.4lbs
4"	TT0096	96.3mm – 3.79"	4" STD, 40, 40s 5" XXS	250bar – 3626psi	206mm – 8.11"	120mm – 4.72"	20kg – 45.4lbs
4"	TT0091	91.2mm – 3.59"	4" XS, 80, 80s	350bar – 5076psi	206mm – 8.11"	120mm – 4.72"	20kg – 45.4lbs
6"	TT0146	146.6mm – 5.77"	6" STD, 40, 40s	350bar – 5076psi	308mm – 12.13"	197mm – 7.76"	50kg – 110lbs
6"	TT0138	138.9mm – 5.47"	6" 80, 80s	420bar – 6092psi	308mm – 12.13"	197mm – 7.76"	50kg – 110lbs
8"	TT0190	190.5mm – 7.50"	8" STD, 20, 30, 40, 40s 60	160bar – 2321psi	413mm – 16.26"	239mm – 9.41"	100kg – 220lbs
8"	TT0180	180.9mm – 7.12"	8" XS, 80, 80s, 100	210bar – 3046psi	413mm – 16.26"	239mm – 9.41"	100kg – 220lbs
10"	TT0243	243mm – 9.53"	10" STD, 40, 40s	1000bar – 14504psi	413mm – 16.26"	239mm – 9.41"	120kg – 264lbs
10"	TT0233	233mm – 9.17"	10" XS, 60, 80, 80s	1200bar – 17405psi	499mm – 19.65"	269mm – 10.59"	180kg – 397lbs
12"	TT0291	291mm – 11.46"	12" STD, 40, 40s	540bar – 7832psi	499mm – 19.65"	269mm – 10.59"	180kg – 397lbs
12"	TT0277	277mm – 10.91"	12" 80 14" 140	610bar – 8847psi	499mm – 19.65"	269mm – 10.59"	180kg – 397lbs
14"	TT0322	322mm – 12.68"	14" 5s, 10, 10s, STD, 20, 30, 40	350bar – 5076psi	499mm – 19.65"	269mm – 10.59"	200kg – 440lbs
14"	TT0304	304mm – 11.97"	14" 80 12" 5s, 10s	450bar – 6527psi	499mm – 19.65"	269mm – 10.59"	200kg – 440lbs

Disclaimer: All values provided in this table are based on ASME B36, 10M & B36, 19M pipe specification.

In-Line Weld Test Tools

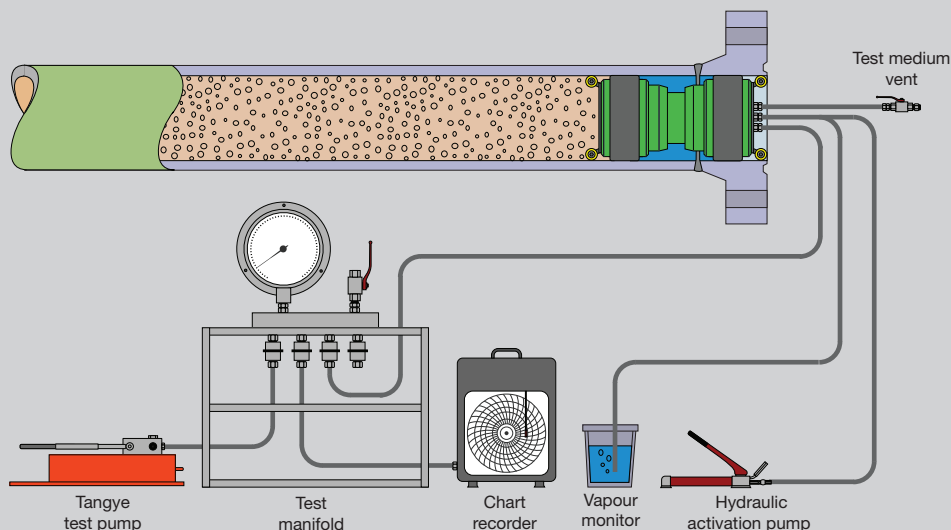
Hydratight's range of In-Line Weld Test tools is available for worldwide sale or rental. Or if you'd prefer we also provide skilled technicians to perform the testing and manage the project in its entirety; from pipe cutting with our world class Split Frame Clamshell to tensioning studs on the new flange with our TensionMAX range of Hydraulic tensioners.

Key Features:

- Simple, straight forward installation and operation
- Installed and activated in a matter of minutes
- Large section high quality elastomer seals ensure a leak tight seal, even in pitted pipework
- Designed with generous radial clearance to cope with typical internal obstructions such as weld beads, ovality, etc.
- Easily installed pre-hot work operations to provide a verified double block and bleed vapor barrier
- Suitable for use with most test mediums (liquid or gas)
- High performance elastomer seals provide excellent radial expansion and relaxation properties, even after many operating cycles
- Robust construction ensures years of trouble free operation even in the harshest environments
- Suitable for installation in horizontal, vertical and inclined piping

Operator Benefits:

- Reduces system down time and increases worksite safety by minimising pressure test volume
- Saves time and reduces costs by limiting the test area to only the new weld or welded component
- Installed and activated in a matter of minutes
- Minimised pressure-test volume reduces system down-time and increases worksite safety
- Timely completion of maintenance and modification activities
- No requirement to flood and de-water gas systems
- No requirement for full system pressurisation beneficial to 'mature' systems by decreasing potential for spading, leakage etc.
- Sale or rental options available, complete with full ancillary equipment
- Fully certified client training provided by highly trained Hydratight personnel to support weld test tool hire



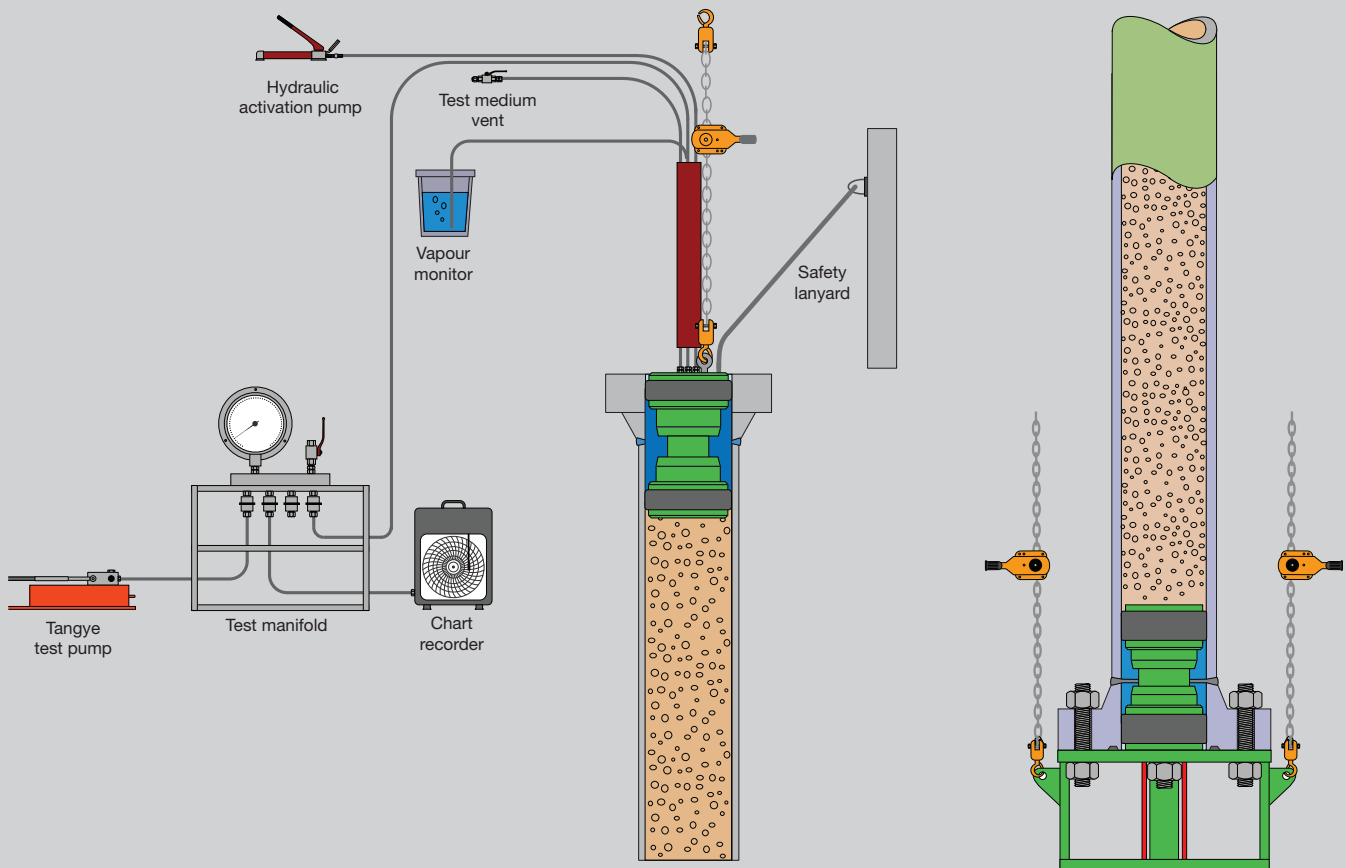
Localized pressure test

In-Line Weld Test tool located across the weld to enable localized butt weld strength and leak test

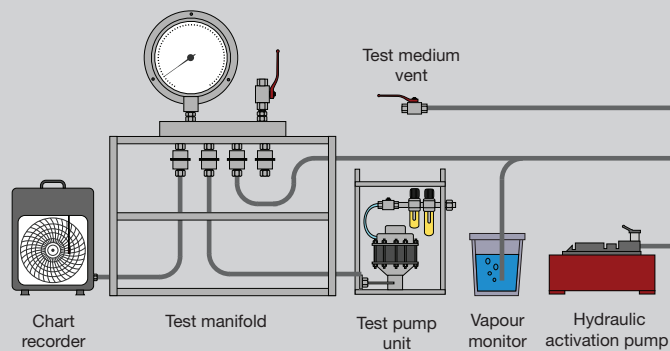
Applications

In-Line Weld Test tools provide localized pressure testing to confirm the integrity of new welds or similar joint modifications made to piping systems. Additionally these tools can also be used for ambient isolation, providing a guaranteed vapor barrier allowing hot work activities to take place safely onsite.

Typical application – Vertically downwards



Typical application – Vertically upwards



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

