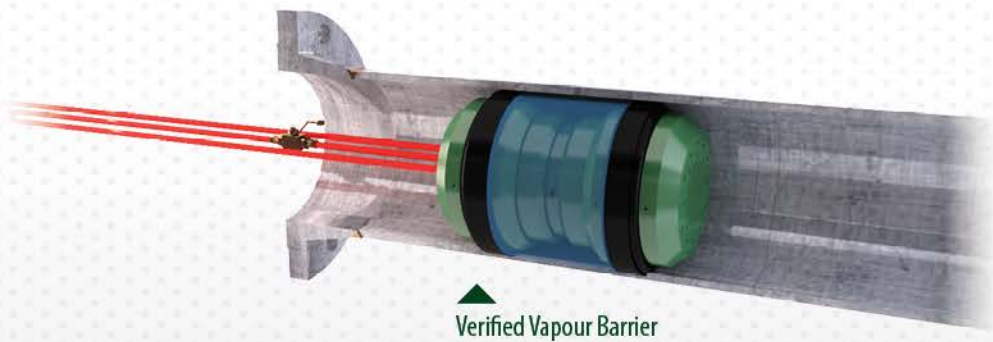
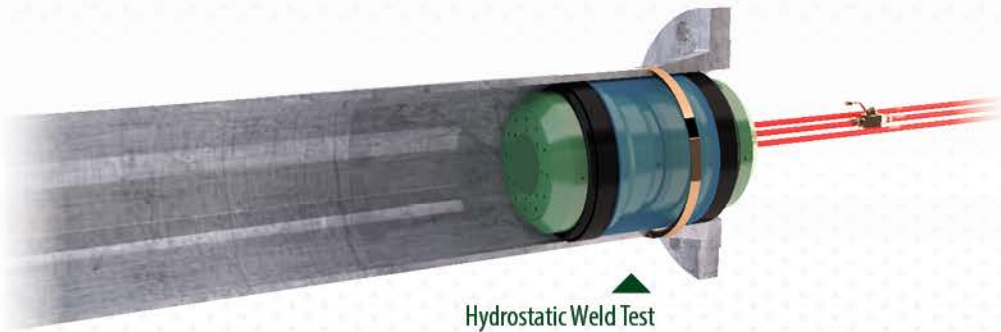




STATS GROUP

Managing Pressure, Minimising Risk

Process Plant Solutions



STATSGROUP.COM



Process Plant Solutions

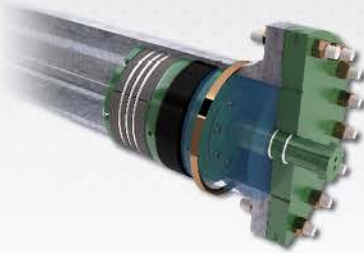
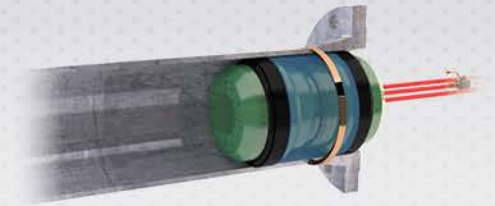
By far the most challenging activity for any facility is the planning and execution of shutdown maintenance activities and repairs. With the safety of personnel and asset integrity being the primary consideration for any task, the execution of all repair work demands the use of safe, reliable and efficient equipment operated by experienced and professional technicians. STATS understand the criticality of system outages, and that operators need to meet production and export

commitments in conjunction with managing safety obligations, reducing outage costs and complying with environmental requirements. With an extensive track record, STATS provides best in class equipment for sale or rental to major operators and contractors during maintenance shutdowns and turnarounds. STATS has gained an excellent reputation for providing a responsive service, improving safety, efficiency and reducing client expenditure and downtime during maintenance activities.

PRODUCTS & SERVICES

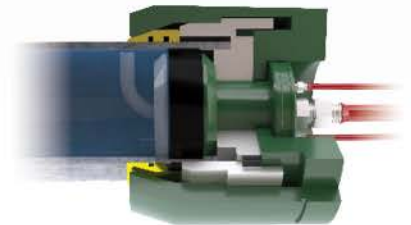
Localised Hydrostatic Test Tools

In-Line and Flanged Test Tools provide hot work barriers and localised hydrostatic testing to verify the integrity of welds or fittings, reducing system downtime, minimising environmental impact and increasing worksite safety.



Axial Weld Tension Tools

Axial Weld Tension Tools are available as a safe and efficient means of locally proving the leak tightness and structural integrity of welded, cold formed and mechanical-grip type pipe fittings.



Pipe End Plugs

Pipe End Plugs provide a fast and efficient method of installing temporary test caps on open ended pipe, pipe spools or piping systems to facilitate hydrostatic leak and strength tests. Pipe End Plugs reduce time and costs compared to traditional methods of welding end caps to the pipe spool. The Pipe End Plug range covers two separate products with the I-PEP™ fitting the pipe internally and the patented E-PEP™ gripping the pipe externally.

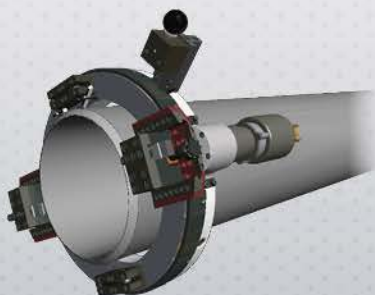


Mechanical Pipe Connectors

DNV GL Type Approved Mechanical Connectors provide a permanent pipe to pipe or pipe to flange connection where welded or hot work options may be undesirable. The slipover design and external gripping assembly enables quick and efficient installation, providing cost-effective piping repair, tie-in or capping of redundant pipework.

Pin-Hole Leak Repair Clamps

Pin-Hole Leak Repair Clamps have been developed for process piping repair in oil and gas process facilities. Easily installed with minimal disruption to the pipework or operation of the system, the repair clamps provide a rapid and versatile solution for localised leak points.



Onsite Machining Services

Onsite machining services include pipe cutting and weld prep application, trepanning, flange re-facing and controlled bolting to complement our extensive range of time-saving Process Plant Solutions equipment. Multi-disciplined, trained and competent technicians available to support all product lines.

In-Line Weld Test Tool

In-Line Weld Test Tools provide a fast and efficient method of verifying the integrity of welds or joints by reducing system down-time, minimising environmental impact and increasing worksite safety.

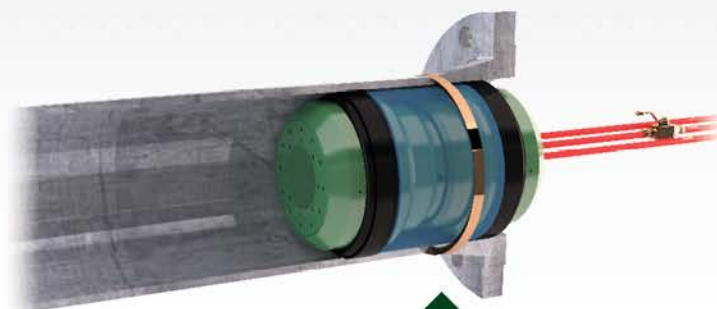
Additionally these tools can be used to provide a verified atmospheric barrier adjacent to hot work source.

Specification

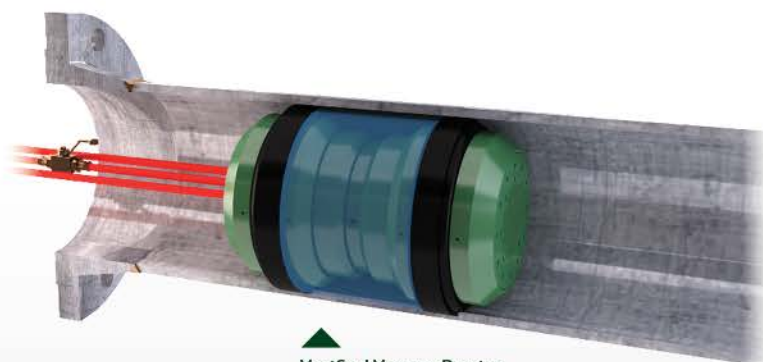
- ◆ Size range: common pipe sizes ¾" - 36" as standard. Sizes up to 72" available on request
- ◆ Hydraulically actuated above 2"
- ◆ Pressure range up to 690 bar / 10,000 psi dependent on specification, maximum test pressure to suit system
- ◆ Pressure assisted sealing

Operator Benefits

- ◆ Reduces system downtime and increases worksite safety by minimising pressure test volume
- ◆ Operators save time and reduce costs by limiting test area to only new welds or welded components
- ◆ Timely completion of maintenance and modification activities
- ◆ No requirement to flood & de-water gas systems
- ◆ No requirement for full system pressurisation beneficial to 'mature' systems by decreasing potential for spading / leakage
- ◆ Installed and activated in a matter of minutes
- ◆ Sale or rental options available, complete with full ancillary equipment



Hydrostatic Weld Test



Verified Vapour Barrier

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 vapour barrier
- ◆ Suitable for use with most test mediums (liquid or gas)
- ◆ High performance elastomer seals provide excellent radial expansion and relaxation properties, 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

Flanged Weld Test Tool

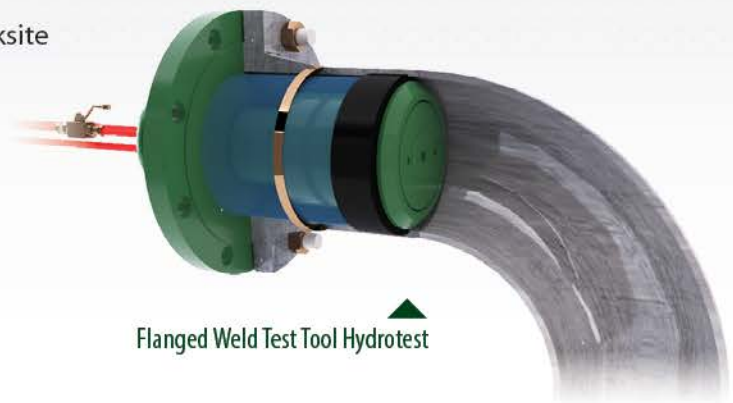
Flanged Weld Test Tools enable localised pressure testing of new flange welds. These tools minimise the test system limits and reduce the time required to undertake maintenance or modification work. The tools are designed with a single seal and flange configuration and are available in a range of sizes compatible with common pipe schedules and flange types / sizes.

Operator Benefits

- ♦ Reduces system downtime and increases worksite safety by minimising pressure test volume
- ♦ Operators save time and reduce costs by limiting test area to only the new weld or welded component
- ♦ 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
- ♦ Easily installed, activated in a matter of minutes
- ♦ Sale or rental options available, complete with full ancillary equipment

Specification

- ♦ Size range: common pipe sizes ½" - 36" as standard. Sizes up to 48" available on request
- ♦ Hydraulically actuated above 2"
- ♦ Designed to provide recommended test pressure requirements up to ASME 2500#
- ♦ Separate fill and vent ports
- ♦ Pressure assisted sealing



Flanged Weld Test Tool Hydrotest



Mechanical Flanged Weld Test Tools

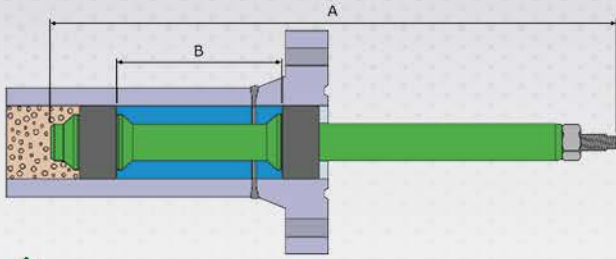
18" Flanged Weld Test Tool

Key Features

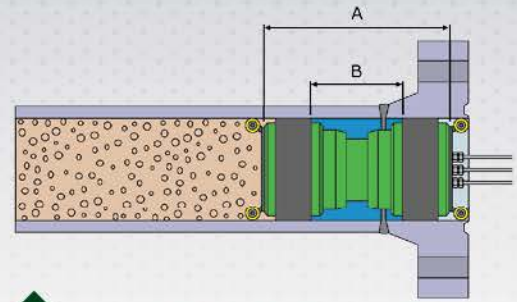
- ♦ Simple, straight forward installation and operation
- ♦ Easily installed, activated in a matter of minutes
- ♦ Large section high quality elastomer seals ensure a leak tight seal, even in pitted pipework
- ♦ Designed with generous radial clearance to cope with typical internal obstructions such as weld beads / ovality
- ♦ Tools can be configured to suit applications where hydrotest is required on butt weld between flange and welded fitting such as an elbow or tee
- ♦ 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

In-Line Weld Test Tool

Interface Dimensions



Mechanical In-Line Weld Test Tool 3/4" up to 2"



Hydraulic In-Line Weld Test Tool 3" up to 36"

Tool Ref Size	Tool Model Number	Tool Diameter	Compatible Pipe Schedules	Tool Maximum Working Pressure	Overall Length - A	Length Between Seals -B	Weight
3/4"	TT0013	13mm	3/4" XS, 80, 80s	600 Bar	222mm	86mm	0.5kg
3/4"	TT0017	17.6mm	3/4" 30, 40, 40s, Std	500 Bar	222mm	86mm	0.5kg
3/4"	TT0021	21.3mm	3/4" 5, 5s, 10, 10s	400 Bar	222mm	86mm	0.5kg
1"	TT0017	17.6mm	1" 160	550 Bar	222mm	86mm	0.5kg
1"	TT0021	21.3mm	1" 10, 10s, 30, 40, Std, XS, 80, 80s	550 Bar	245mm	90mm	1kg
1"	TT0027	27mm	1" 5, 5s	550 Bar	245mm	90mm	1kg
1 1/2"	TT0024	24mm	1 1/2" XXS	550 Bar	245mm	90mm	1kg
1 1/2"	TT0030	30mm	1 1/2" 160	350 Bar	245mm	90mm	1kg
1 1/2"	TT0034	34mm	1 1/2" 30, 40, 40s, Std, XS, 80, 80s	800 Bar	280mm	100mm	1kg
1 1/2"	TT0037	37mm	1 1/2" 5, 5s, 10, 10s	600 Bar	280mm	100mm	1kg
2"	TT0034	34mm	2" XXS	1000 Bar	280mm	100mm	1kg
2"	TT0037	37mm	2" 160	750 Bar	280mm	100mm	1kg
2"	TT0045	45mm	2" 5, 5s, 10, 10s, 30, 40, Std, XS, 80, 80s	400 Bar	280mm	100mm	1kg
3"	TT0054	54.9mm	3" XXS	1000 Bar	200mm	94mm	5kg
3"	TT0062	62.6mm	3" 160	820 Bar	200mm	94mm	5kg
3"	TT0069	69.7mm	3" XS, 80, 80s	590 Bar	200mm	94mm	5kg
3"	TT0073	73mm	3" 30, Std, 40, 40s	600 Bar	206mm	120mm	6.5kg
3"	TT0078	78.8mm	3" 10, 10s	525 Bar	206mm	120mm	6.5kg
3"	TT0081	81mm	3" 5, 5s	475 Bar	206mm	120mm	6.5kg
4"	TT0073	73mm	4" XXS	550 Bar	206mm	120mm	6.5kg
4"	TT0081	81mm	4" 160	425 Bar	206mm	120mm	6.5kg
4"	TT0086	86mm	4" 120	350 Bar	206mm	120mm	6.5kg
4"	TT0091	91.2mm	4" XS, 80, 80s	325 Bar	206mm	120mm	6.5kg
4"	TT0096	96.3mm	4" 30, Std, 40, 40s	275 Bar	206mm	120mm	6.5kg
4"	TT0102	102.5mm	4" 5, 5s, 10, 10s	225 Bar	206mm	120mm	6.5kg
5"	TT0096	96.3mm	5" XXS	275 Bar	206mm	120mm	6.5kg
5"	TT0102	102.5mm	5" 120, 160	225 Bar	206mm	120mm	6.5kg
5"	TT0124	124.3mm	5" 5, 5s, 10, 10s, Std, 40, 40s	500 Bar	308mm	197mm	24kg
5"	TT0116	116.9mm	5" XS, 80, 80s	650 Bar	308mm	197mm	24kg
6"	TT0116	116.9mm	6" XXS	650 Bar	308mm	197mm	24kg
6"	TT0124	124.3mm	6" 160	550 Bar	308mm	197mm	24kg
6"	TT0132	132.2mm	6" 120	450 Bar	308mm	197mm	24kg
6"	TT0138	138.9mm	6" XS, 80, 80s	400 Bar	308mm	197mm	24kg
6"	TT0146	146.6mm	6" Std, 40, 40s	350 Bar	308mm	197mm	24kg
6"	TT0154	154.6mm	6" 5, 5s, 10, 10s	300 Bar	308mm	197mm	24kg
8"	TT0165	165.8mm	8" 140, 160, XXS	900 Bar	413mm	269mm	60kg
8"	TT0174	174.6mm	8" 120	800 Bar	413mm	269mm	60kg
8"	TT0180	180.9mm	8" XS, 80, 80s, 100	700 Bar	413mm	269mm	60kg
8"	TT0190	190.5mm	8" Std, 20, 30, 40, 40s, 60	550 Bar	413mm	269mm	60kg
8"	TT0204	204.7mm	8" 5, 5s, 10, 10s	500 Bar	413mm	269mm	60kg

Tool Ref Size	Tool Model Number	Tool Diameter	Compatible Pipe Schedules	Tool Maximum Working Pressure	Overall Length - A	Length Between Seals - B	Weight
10"	TT0204	204.7mm	10" 160	500 Bar	413mm	269mm	60kg
10"	TT0212	212.3mm	10" 140, XXS	450 Bar	413mm	269mm	60kg
10"	TT0220	220.2mm	10" 120	400 Bar	413mm	269mm	60kg
10"	TT0226	226.6mm	10" 100	375 Bar	413mm	269mm	60kg
10"	TT0233	233mm	10" XS, 60, 80, 80s	1000 Bar	500mm	269mm	160kg
10"	TT0243	243.5mm	10" Std, 40, 40s	950 Bar	500mm	269mm	160kg
10"	TT0246	246mm	10" 20, 30	900 Bar	500mm	269mm	160kg
10"	TT0253	253.7mm	10" 5, 5s, 10, 10s	800 Bar	500mm	269mm	160kg
12"	TT0243	243.5mm	12" 160	950 Bar	500mm	269mm	160kg
12"	TT0260	260mm	12" 120, 140, XXS	750 Bar	500mm	269mm	160kg
12"	TT0270	270mm	12" 100	650 Bar	500mm	269mm	160kg
12"	TT0277	277mm	12" 80	600 Bar	500mm	269mm	160kg
12"	TT0285	285mm	12" XS, 60, 80s	550 Bar	500mm	269mm	160kg
12"	TT0291	291mm	12" 40, 40s	500 Bar	500mm	269mm	180kg
12"	TT0295	295mm	12" Std, 30	500 Bar	500mm	269mm	180kg
12"	TT0300	300mm	12" 10, 10s, 20	450 Bar	500mm	269mm	180kg
12"	TT0304	304mm	12" 5, 5s	450 Bar	500mm	269mm	180kg
14"	TT0270	270mm	14" 160	650 Bar	500mm	269mm	180kg
14"	TT0277	277mm	14" 140	575 Bar	500mm	269mm	180kg
14"	TT0285	285mm	14" 120	550 Bar	500mm	269mm	180kg
14"	TT0295	295mm	14" 100	500 Bar	500mm	269mm	180kg
14"	TT0304	304mm	14" 80	450 Bar	500mm	269mm	180kg
14"	TT0311	311mm	14" 60	425 Bar	500mm	269mm	180kg
14"	TT0316	316mm	14" XS	400 Bar	500mm	269mm	180kg
14"	TT0322	322mm	14" Std, 20, 30, 40	375 Bar	500mm	269mm	180kg
14"	TT0332	332mm	14" 5, 5s, 10, 10s	350 Bar	500mm	269mm	180kg
16"	TT0311	311mm	16" 160	1000 Bar	748mm	462mm	380kg
16"	TT0319	319mm	16" 140	1000 Bar	748mm	462mm	380kg
16"	TT0330	330mm	16" 120	1000 Bar	748mm	462mm	380kg
16"	TT0339	339mm	16" 100	900 Bar	748mm	462mm	380kg
16"	TT0350	350.5mm	16" 80	875 Bar	748mm	462mm	380kg
16"	TT0358	358mm	16" 60	825 Bar	748mm	462mm	380kg
16"	TT0364	364.8mm	16" XS, 40	750 Bar	748mm	462mm	380kg
16"	TT0373	373mm	16" Std, 20, 30, 40	700 Bar	748mm	462mm	380kg
16"	TT0381	381.2mm	16" 5, 5s, 10, 10s	650 Bar	748mm	462mm	380kg
18"	TT0350	350.5mm	18" 160	875 Bar	748mm	462mm	380kg
18"	TT0358	358mm	18" 140	750 Bar	748mm	462mm	380kg
18"	TT0364	364.8mm	18" 120	700 Bar	748mm	462mm	380kg
18"	TT0388	388mm	18" 30, XS, 40, 60, 80, 100	425 Bar	600mm	320mm	395kg
18"	TT0430	430mm	18" 5, 5s, 10, 10s 20, Std	375 Bar	600mm	315mm	395kg
20"	TT0388	388mm	20" 120, 140, 160	450 Bar	600mm	320mm	395kg
20"	TT0430	430mm	20" 80, 100	325 Bar	600mm	315mm	450kg
20"	TT0450	450mm	20" 60, 40	400 Bar	620mm	311mm	575kg
20"	TT0478	478mm	20" 20, Std, 10, 10s, 5, 5s	900 Bar	710mm	345mm	725kg
22"	TT0430	430mm	22" 160, 140	325 Bar	600mm	315mm	450kg
22"	TT0478	430mm	22" 100, 80, 60	1000 Bar	710mm	345mm	450kg
22"	TT0520	520mm	22" 5, 5s, 10, 10s, Std, 20, XS, 30	550 Bar	710mm	345mm	760kg
24"	TT0478	478mm	24" 120, 140, 160	850 Bar	710mm	345mm	725kg
24"	TT0520	520mm	24" 100, 80, 60	500 Bar	710mm	345mm	760kg
24"	TT0550	550mm	24" Std, 20, XS, 30, 40	400 Bar	710mm	345mm	825kg
28"	TT0660	660mm	28" XS, 20, 30	250 Bar	844mm	412mm	1180kg
28"	TT0680	680mm	28" 10, Std	250 Bar	844mm	412mm	1250kg
30"	TT0720	720mm	30" 10, Std, XS, 20, 30	250 Bar	844mm	412mm	1400kg
36"	TT0837	837mm	36" 10, Std, XS, 20, 30, 40	340 Bar	823mm	356mm	2000kg

All data correct at time of publication

Axial Weld Tension Tool

Axial Weld Tension Tools are available as a safe and efficient means of locally proving the leak tightness and structural integrity of welded, cold formed and mechanical-grip type pipe fittings.

Axial Weld Tension Tools provide independent test boundaries which support the testing requirements of the ASME Boiler and Pressure vessel code and equivalent universal codes and directives that stipulate the verification of structural integrity of a system repair or modification.

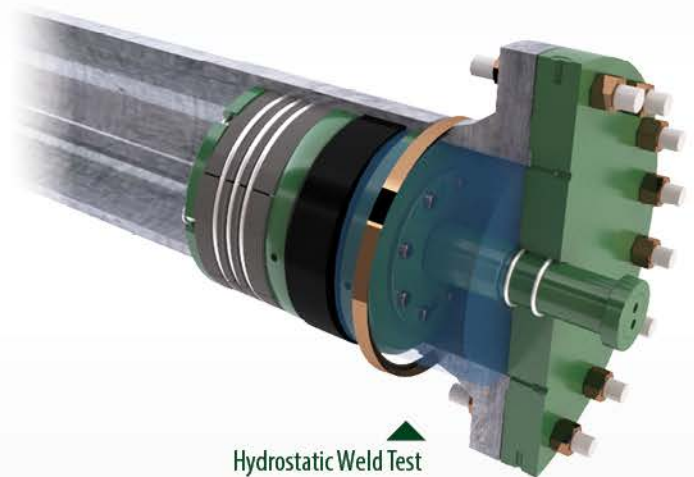
Axial Weld Tension Tools eliminate the need to flood and pressurise the entire piping system, eliminating the exposure of the existing system to a proof test pressure. Localised testing eliminates the need to dispose of a large volume of potentially contaminated test fluids.

- ◆ Reduces system downtime and increases worksite safety by minimising pressure-test volume
- ◆ Operators save time and reduce costs by limiting test area to only the new weld, mechanically swaged or gripping connection
- ◆ Timely completion of maintenance and modification activities
- ◆ No requirement to flood and dewater gas systems or dispose of potentially contaminated test fluids
- ◆ No requirement for full system pressurisation beneficial to 'mature' systems by decreasing potential for leakage

Operator Benefits



8" Axial Weld Tension Tool



Hydrostatic Weld Test

Key Features

- ◆ Simple, straight forward installation and operation
- ◆ Installed and activated in the same manner and time frame as rigid Flanged Weld Test Tools
- ◆ 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 or ovality issues
- ◆ High performance elastomer seal provides excellent radial expansion and relaxation properties over many operating cycles
- ◆ Capacity for containment monitoring on tools above 2" nominal size
- ◆ Robust construction ensures years of trouble free operation even in the harshest environments
- ◆ Suitable for installation in horizontal, vertical and inclined piping
- ◆ Size range: common pipe sizes $\frac{3}{4}$ " - 16" as standard
- ◆ Hydraulically actuated above 2"
- ◆ MWP: Suitable for systems rated up to class 1500#

Pipe End Plugs

Pipe End Plugs provide a fast and efficient method of installing temporary test caps on plain end pipe for hydrostatic testing up to 350 bar / 5076 psi. Pipe End Plugs reduce time and material costs, minimise environmental impact and improve testing productivity and are robustly designed to sustain the rigours of the fabrication yard environment. STATS range of Pipe End Plugs cover two separate products with the I-PEP™ fitting the pipe internally and the patented E-PEP™ gripping the pipe externally.

Operator Benefits

- ♦ Reduced cost associated with welding / cutting end caps during construction and fabrication activities
- ♦ Saves time with faster completion of hydrostatic testing during construction and fabrication activities
- ♦ Sale or rental options available complete with full ancillary equipment

All Pipe End Plugs are designed in accordance with STATS engineering standards (based on international codes) to facilitate testing in accordance with ASME B31.3 and similar piping codes. Sizes are based on standard pipe with interchangeable seals to cover ASME B36.10 and ASME B36.19 schedules.



16" E-PEP™ in Shipping Skid



Mechanical I-PEP™ with Securing Clamp

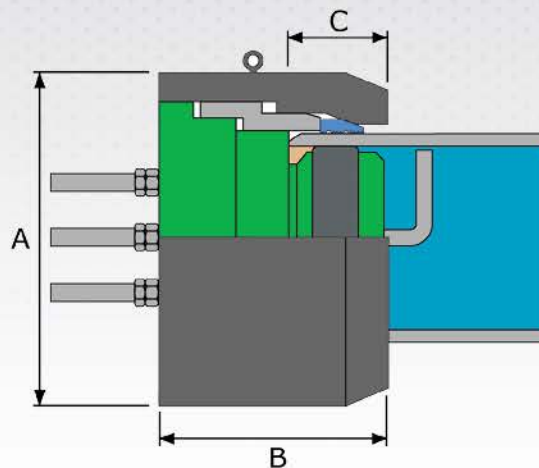
Key Features

- ♦ Simple, straight forward installation, installed and activated in a matter of minutes
- ♦ Test pressure applies differential pressure across the tool keeping the locks and seals self-energised ensuring fail-safe operation
- ♦ Generous radial clearance to cope with typical internal obstructions such as weld beads, ovality, etc
- ♦ Non-destructive, does not damage the interior / exterior wall of pipes or vessels
- ♦ Internal / external grip lock assembly applies even linear and circumferential grip load around the host pipe, eliminating localised material deformity and localised stress fractures
- ♦ High performance, large section, quality elastomer seals ensure a leak tight seal and provide excellent radial expansion and relaxation properties, even after many operating cycles
- ♦ Through-port allows efficient fill or vent of the test medium
- ♦ Robust construction ensures years of trouble free operation even in the harshest environments
- ♦ Suitable for installation in horizontal, vertical and inclined piping

E-PEP™ (External Pipe End Plug)

The E-PEP™ series of patented Pipe End Plugs are fitted to the pipe end and hydraulically actuated, gripping the pipe externally.

The introduction of hydraulic set pressure activates a mechanical lock assembly that grips the OD of the pipe whilst simultaneously energising an elastomeric seal in the ID. This allows the pipework to be quickly and efficiently pressure tested with minimum preparation to the pipe end and no remedial work after the E-PEP™ is removed. A through-port allows the system to be filled and pressurised or vented through the E-PEP™. To remove the E-PEP™ from the pipe end, hydraulic pressure is applied to the unset circuit. Retracting the lock assembly and de-energising the seal, allowing the tool to be removed. The E-PEP™ range covers pipe sizes from 3" to 36" complementing the I-PEP™ range.




E-PEP™ 3" - 36" Weights & Dimensions

Tool Ref Size	A - Outside Diameter	B - Overall Length	C - Length Required Of Engagement	Weight
3"	180mm	211mm	75mm	35kg
4"	205mm	200mm	80mm	41kg
6"	265mm	266mm	105mm	74kg
8"	350mm	255mm	115mm	160kg
10"	430mm	365mm	165mm	336kg
12"	470mm	370mm	175mm	397kg
14"	621mm	562mm	200mm	602kg
16"	678mm	562mm	205mm	704kg
18"	732mm	567mm	215mm	825kg
20"	814mm	587mm	245mm	1083kg
24"	892mm	597mm	245mm	1261kg
30"	1080mm	730mm	260mm	2036kg
36"	1279mm	760mm	265mm	3050kg

* E-PEP™ maximum working pressure up to 350 bar / 5076psi.

All data correct at time of publication



 E-PEPs™ installed onto spool to provide hydrostatic pressure test

Pressurised Pipe Spooling, Aasta Hansteen

Case Study - Subsea 7

STATS Group provided positive isolation of pressurised mechanically lined BuBi® pipe to facilitate reeling onto a pipe lay vessel at Vigra, Norway, prior to installation at the Aasta Hansteen gas field.

To allow 12" BuBi® pipe to be welded and reeled onto the vessel, STATS provided positive isolation of the pressurised pipe during spool reeling operations.

STATS used their pipe end plugs which feature locks and dual seals which can conduct pressure tests up to 350 bar.



Prior to the arrival of the pipe lay vessel the first pipe stalk of 1.5 kilometers was positioned on the spooling rollers and hi-diff pigs were inserted into the vessel end of the stalk. Once installed, a reel flooding head was welded to the pipe stalk and a pull-in head was bolted to the stalk flange. The second pipe stalk of 1.5 kilometers was positioned and welded to the first stalk.

After the arrival of the vessel, the pipe stalk was attached to the vessel using the pull-in head. A STATS E-PEP™ was then installed to the pipe stalk and a small volume of water was injected through the E-PEP™ into the stalk.

This water would be used to act as a buffer for the hi-diff pigs which are pigged through the stalk as the pipe is pressurised from the vessel. The pipe stalk was then pressurised to 45 bar and the high-diff pigs were pigged towards the E-PEP™.

Once water began to flow through the open valve on the E-PEP™, the valve was closed and the pressure held. The pipe stalk was then reeled onto the vessel until the end of the pipe stalk was located in the welding station. The pipe stalk was then depressurised and the valve on the E-PEP™ was opened allowing the water to drain from the stalk and the E-PEP™ was hydraulically unset and removed from the end of the stalk.

Then the pipe stalks were welded together and non-destructive testing (NDT) was carried out to confirm the integrity of the new weld. The E-PEP™ was then positioned and installed at the end of the pipe stalk and water was injected through the valve on the E-PEP™. The sequence was repeated to pressurise the pipe stalk, pigging the high-diff pigs through the stalk and allowing the mechanically lined stalk to be reeled onto the vessel.

Prior to starting the final stage of the spooling operation, STATS installed a 12" I-PEP™ into the pipe stalk, the internally installed I-PEP™ features locks and seals which grip the inside of the pipe. Installing this tool ensured there was nothing on the outside of the pipe that could clash or restrict the pipe stalk as it was reeled through the pipe rollers between the quayside and the vessel.

In total 17 km of BuBi mechanically clad flowlines were reeled onto the vessel and installed at the Aasta Hansteen gas field. This successful project follows a similar workscope completed in the ultra-deep Guara and Lula fields offshore Brazil at water depths of 2100 meters. STATS I-PEPs™ and E-PEPs™ were used to facilitate the pressurised installation of 85 km of 8" BuBi® mechanically clad flowlines.



I-PEP™ installed in end of pipe stalk



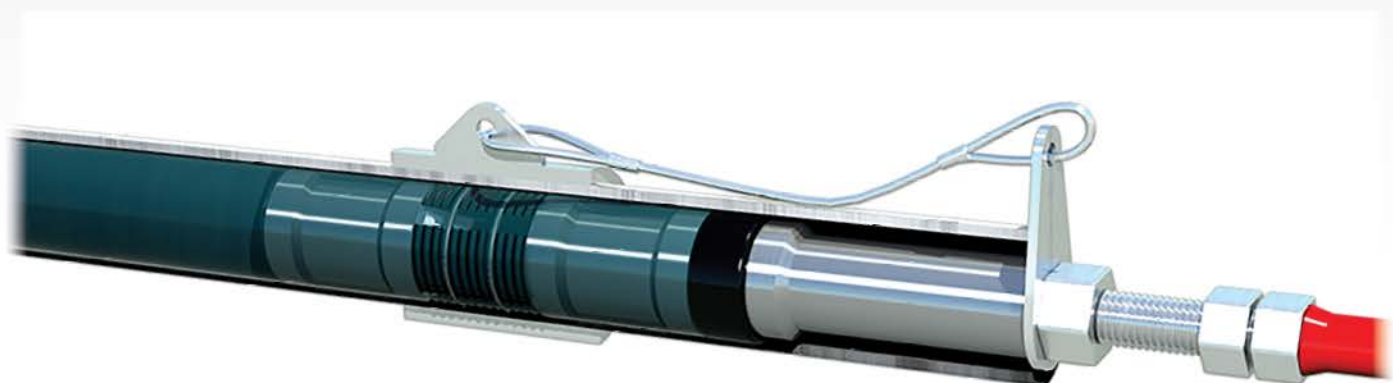
E-PEP™ installed on first pipe stalk

I-PEP™ (Internal Pipe End Plug)

The I-PEP™ series of Pipe End Plugs are inserted into the bore of the pipe and hydraulically actuated. These tools internally grip the pipe allowing hydrostatic pressure tests to be quickly and efficiently performed.

The introduction of hydraulic set pressure activates a mechanical lock assembly that grips the internal diameter of the pipe whilst simultaneously energising an elastomeric seal. This allows the pipework to be quickly and efficiently pressure tested with minimum preparation required to

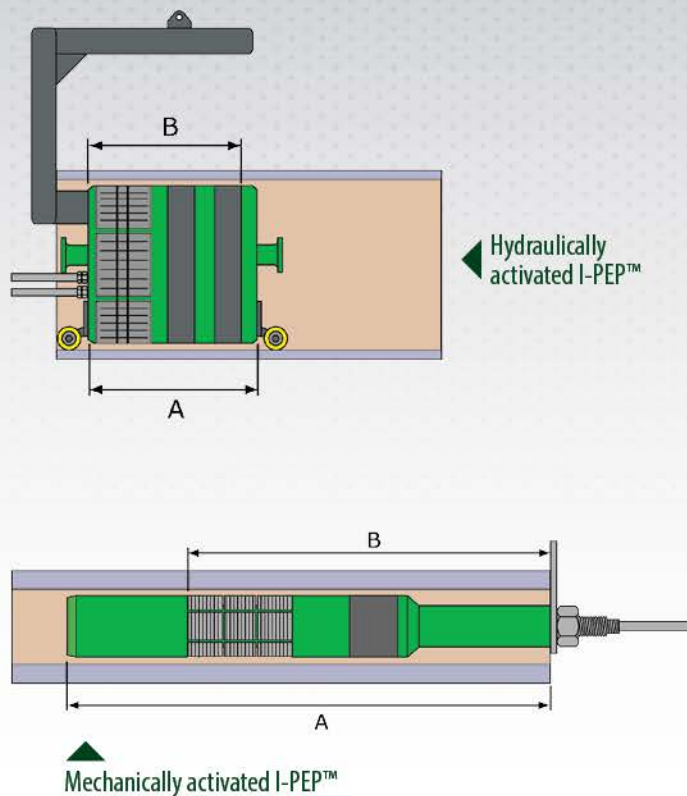
the internal surface of the pipe and no remedial work after the I-PEP™ is removed. A through-port allows the system to be filled and pressurised or vented through the I-PEP™. To remove the I-PEP™ from the pipe, hydraulic pressure is applied to the unset circuit, retracting the lock assembly and de-energising the seal allowing the tool to be removed. Hydraulic I-PEPs™ cover pipe sizes from 30" to 42", however for sizes ¾" to 2" mechanical tools are used and fitted with securing clamps for added safety.



▲ I-PEP™ installed in spool to provide hydrostatic pressure test, securing clamp fitted for added safety



▲ I-PEPs™ installed in spool to provide hydrostatic pressure test



36" I-PEP™ in Shipping Skid

I-PEP™ 3/4" - 2" Weights & Dimensions

I-PEP Nominal Diameter	Pipe ID (Min - Max)	I-PEP OD	A - Overall Length	B - Length of Engagement	Weight
3/4"	19 - 22mm	17mm	222mm	126mm	1kg
1"	24 - 28mm	22mm	245mm	165mm	1.5kg
1 1/2"	38 - 42mm	34mm	280mm	184mm	2.5kg
2"	49 - 57mm	45mm	280mm	184mm	2.5kg

* Mechanical I-PEP™ maximum working pressure up to 350 bar / 5076 psi.
All data correct at time of publication

I-PEP™ 30" - 42" Weights & Dimensions

I-PEP Nominal Diameter	Pipe ID (Min - Max)	I-PEP OD	A - Overall Length	B - Seal To Lock (Unset)*	Weight
30"	635 - 675mm	625mm	1025mm	584mm	993kg
30"	654 - 694mm	644mm	1025mm	584mm	1062kg
30"	704 - 744mm	694mm	1025mm	587mm	1223kg
32"	754 - 794mm	744mm	1156mm	674mm	1567kg
34"	780 - 820mm	770mm	1151mm	671mm	1686kg
34"	804 - 844mm	794mm	1151mm	674mm	1785kg
36"	835 - 875mm	825mm	1105mm	705mm	2039kg
36"	879 - 919mm	869mm	1105mm	705mm	2180kg
42"	1000 - 1048mm	990mm	1077mm	726mm	2600kg

*Dimension B reduces by approximately 15% - 20% when the tool is in the set position
Hydraulic I-PEP™ maximum working pressure up to 350 bar / 5076 psi.

Mechanical Pipe Connectors

STATS DNV GL Type Approved Connectors provide a permanent mechanical pipe connection method replacing the need for welding. The slipover design and external gripping assembly enables quick and efficient installation, providing cost-effective piping repair, tie-in or capping of redundant pipe work.

Once installed the integrity of the Connector is verified with a simple pressure test. An integrated seal verification port provides access to the annulus void between the seals allowing a leak-test to be carried out.

A double block and bleed (DBB) valve can be fitted to the seal verification port to provide a means of periodically monitoring the integrity of the connection, as part of a routine maintenance or inspection programme. Mechanical connectors have been fitted to a variety of piping systems with a 100% leak-free service history.

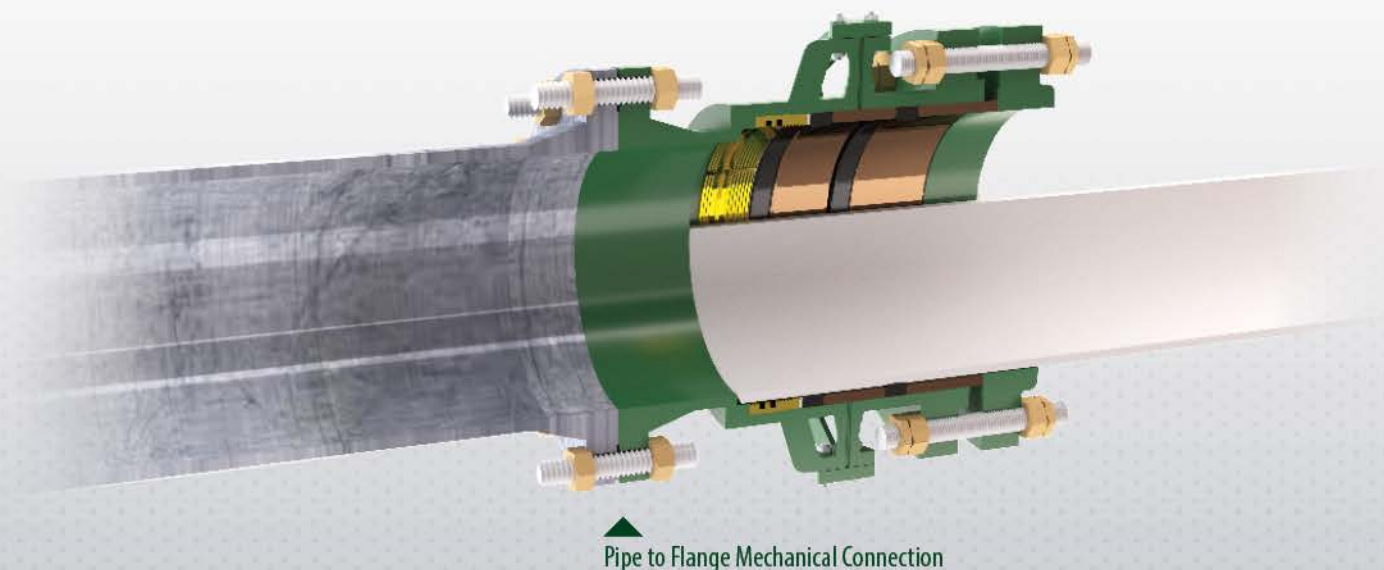
Connectors are suitable for topside, terminal, FPSO or subsea installation and compatible with processed water, air systems and hydrocarbon applications. Available to suit a wide range of pipe materials including carbon steel, stainless steel, duplex and super duplex.

Connectors conform to ISO 21329 Standard and are DNV GL Type Approved, compliant with DNV-OS-F101:2012 Submarine Pipeline Repair and DNV-RP-F113:2007, Pipeline Subsea Repair. (Cert No: TAP00000BE).

The Connector assembly and components are designed in accordance with API 6H requirements, with design strength verified in accordance with ASME B31.3 and other codes (ASME B31.4, B31.8, ASME VIII, etc.). Designed to fit standard pipe specification (ASME B36.10 & B36.19, API 5L, etc.) and fire tested to API 6 FA.

Connectors available in the following configurations:

- ♦ Flanged outlet for connecting plain-end pipe to a pre-flanged termination
- ♦ Coupling for connecting plain-end pipe to plain-end pipe
- ♦ End Cap for capping plain-end redundant pipe work



Operator Benefits

- ◆ No hot-work required, significantly reducing associated risk and costs
- ◆ Quick to install resulting in timely completion of maintenance activities
- ◆ Easily installed and commissioned with only basic pipework preparation
- ◆ Significantly reduces maintenance time and cost by eliminating the need for welding equipment and personnel
- ◆ External grip assembly applies even linear and circumferential load around the host pipe, eliminating localised material deformity and localised stress fractures
- ◆ External lock and seal assembly eliminates flow restriction or turbulence
- ◆ Removable and reusable with no damage to existing pipework

Specification

- ◆ Sizes 2" to 36" as standard, sizes out with this range available on request
- ◆ Maximum working pressure: up to ASME 300# (50 bar / 725 psi) as standard, up to ASME 1500# (256 bar / 3713 psi) available on request.
- ◆ Temperature range: -40°C to 300°C as standard
- ◆ Dual graphite seal arrangement with verification port to enable pre-commission leak-test
- ◆ Minimum design life 20 years

Key Features

- ◆ Maintenance free mechanical pipe connection in accordance with API Specification 6H and certified fire-safe to API 6FA
- ◆ Seal verification port can be fitted with a DBB valve to comply with specific operator inspection requirements
- ◆ Robust construction provides equivalent or greater design criteria than host pipework
- ◆ Coating provided to client specification
- ◆ Fabricated design provides a lightweight unit for topside applications



▲ 4" Mechanical Connector



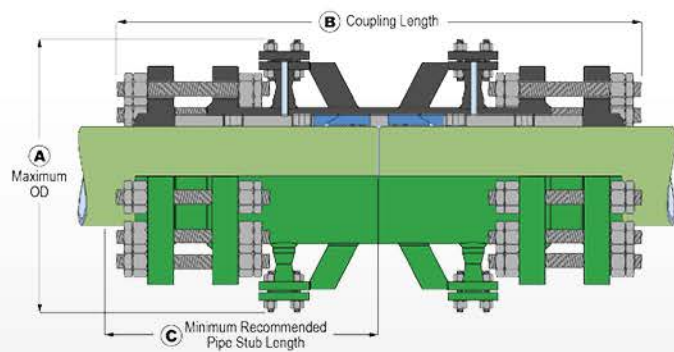
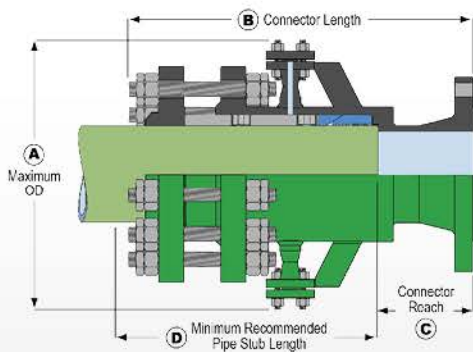
▲ 24" Mechanical Connector



▲ Stainless Steel Connector End Cap

Connector Weights & Dimensions

Nom Size	Max Design Pressure	A-OD	B-Length	C-Reach	D-Pipe Stub Length	Weight
2"	20 Bar / 290 psi	293mm	335mm	91mm	224mm	15kg
2"	50 Bar / 725 psi	293mm	347mm	97mm	224mm	15kg
3"	20 Bar / 290 psi	330mm	374mm	97mm	261mm	32kg
3"	50 Bar / 725 psi	329mm	387mm	107mm	261mm	33kg
4"	20 Bar / 290 psi	364mm	480mm	115mm	327mm	52kg
4"	50 Bar / 725 psi	363mm	490mm	124mm	327mm	51kg
6"	20 Bar / 290 psi	422mm	497mm	121mm	354mm	75kg
6"	50 Bar / 725 psi	422mm	506mm	130mm	354mm	86kg
8"	20 Bar / 290 psi	484mm	538mm	136mm	385mm	115kg
8"	50 Bar / 725 psi	484mm	548mm	146mm	385mm	128kg
10"	20 Bar / 290 psi	534mm	609mm	149mm	418mm	155kg
10"	50 Bar / 725 psi	534mm	621mm	166mm	414mm	185kg
12"	20 Bar / 290 psi	595mm	656mm	159mm	467mm	229kg
12"	50 Bar / 725 psi	595mm	675mm	178mm	467mm	263kg
14"	20 Bar / 290 psi	646mm	699mm	175mm	502mm	389kg
14"	50 Bar / 725 psi	646mm	715mm	191mm	501mm	438kg
16"	20 Bar / 290 psi	701mm	723mm	175mm	521mm	405kg
16"	50 Bar / 725 psi	701mm	742mm	195mm	522mm	466kg
18"	20 Bar / 290 psi	753mm	785mm	206mm	554mm	504kg
18"	50 Bar / 725 psi	753mm	804mm	225mm	552mm	576kg
24"	20 Bar / 290 psi	914mm	881mm	230mm	606mm	901kg
24"	50 Bar / 725 psi	915mm	898mm	245mm	611mm	1000kg



Coupling Weights & Dimensions

Nom Size	Max Design Pressure	A-OD	B-Length	C-Pipe Stub Length	Weight
2"	50 Bar / 725 psi	299mm	499mm	224mm	20kg
3"	50 Bar / 725 psi	337mm	554mm	263mm	43kg
4"	50 Bar / 725 psi	368mm	690mm	331mm	81kg
6"	50 Bar / 725 psi	423mm	780mm	365mm	130kg
8"	50 Bar / 725 psi	483mm	799mm	380mm	187kg
10"	50 Bar / 725 psi	535mm	890mm	418mm	255kg
12"	50 Bar / 725 psi	593mm	1000mm	470mm	370kg
14"	50 Bar / 725 psi	645mm	1091mm	521mm	408kg
16"	50 Bar / 725 psi	702mm	1138mm	540mm	682kg
18"	50 Bar / 725 psi	745mm	1190mm	573mm	804kg

All data correct at time of publication

Pin-Hole Leak Clamp

Pin-Hole Leak Clamps have been developed for process piping repair in oil and gas process facilities.

Installation can be undertaken with minimal disruption to the pipework or operation of the system to which they are fitted. Designed for simple installation, Pin-Hole Leak Clamps are designed to provide a rapid and versatile solution for localised leak points.

Weights & Dimensions

Pipe Nominal Size	Maximum Pin-Hole Size (mm)	Model Number	Shipping Dimensions (mm)	Weight (Kgs)
2"	6	DAK-13-0001-0001	117 x 115 x 40	0.9
3"	6	DAK-17-0001-0001	138 x 144 x 40	1.1
4"	6	DAK-19-0001-0001	181 x 208 x 75	3.2
6"	12	DAK-21-0001-0001	242 x 249 x 75	3.9
8"	12	DAK-22-0001-0001	304 x 300 x 75	4.8
10"	12	DAK-23-0001-0001	365 x 300 x 75	5.4
12"	12	DAK-24-0001-0001	429 x 322 x 75	5.9
14"	12	DAK-25-0001-0001	472 x 300 x 75	6.8
16"	12	DAK-26-0001-0001	541 x 365 x 75	7.4
18"	12	DAK-27-0001-0001	567 x 389 x 75	7.4
20"	12	DAK-28-1000-0001	631 x 414 x 75	7.9
22"	12	DAK-29-0001-0001	694 x 404 x 75	8.5
24"	12	DAK-30-1000-0001	744 x 465 x 75	8.4
28"	12	DAK-32-1000-0001	854 x 516 x 75	9
30"	12	DAK-33-1000-0001	919 x 554 x 75	9.9
34"	12	DAK-35-1000-0001	1028 x 637 x 75	11
42"	12	DAK-39-1000-0001	1248 x 739 x 75	12.2
48"	12	DAK-42-1000-0001	1407 x 805 x 75	13

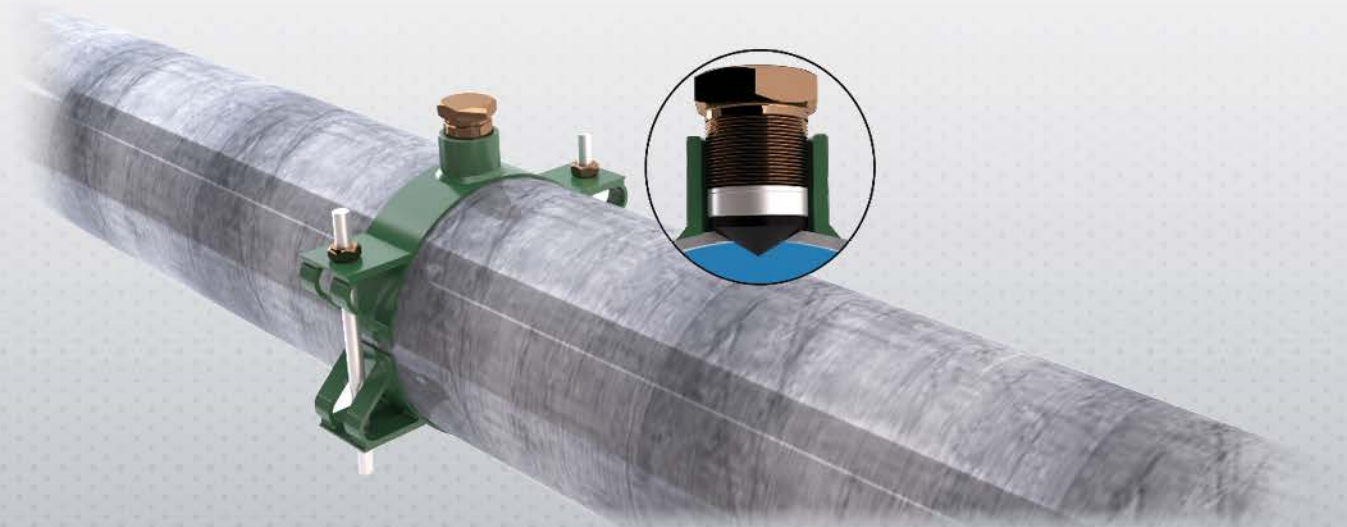
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6" Pin Hole Leak Clamp

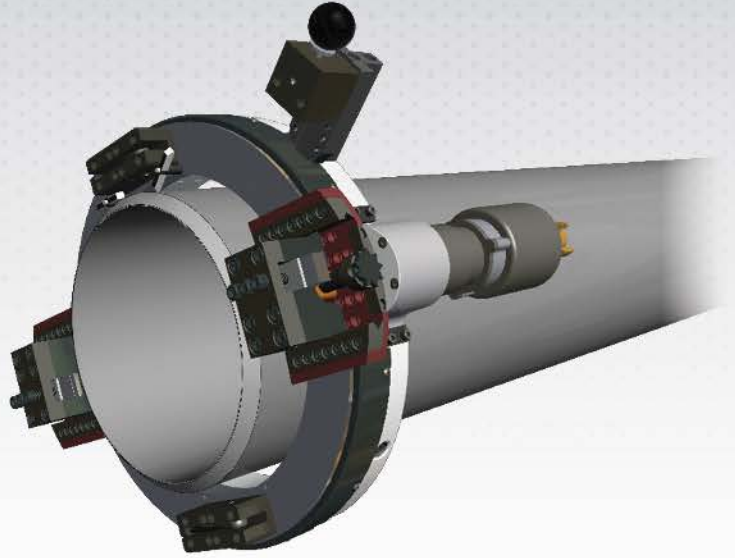
Key Features

- ♦ All pipe range sizes 2" upwards
- ♦ Pressure range: up to 153 Bar (900lbs)
- ♦ Maximum pin-hole size up to 12mm
- ♦ No preparation required
- ♦ Can be fitted onto live leak
- ♦ Simple to install
- ♦ Xylan coating provides excellent corrosion resistance



Onsite Machining Services

To ensure asset integrity and efficient operations, regular maintenance of facilities is required. STATS onsite machining services have been developed to provide efficient repair or maintenance activities on location preventing the need for equipment to leave the facility for rework or replacement. Onsite machining services are ideal for new construction projects, modifications, planned shutdowns or emergency repairs. Multi-disciplined, trained and competent technicians are available to support all products and onsite machining services.



▲ 24" Header branch deconstruct, Gas Terminal, Scotland

Cold Cutting and Beveling

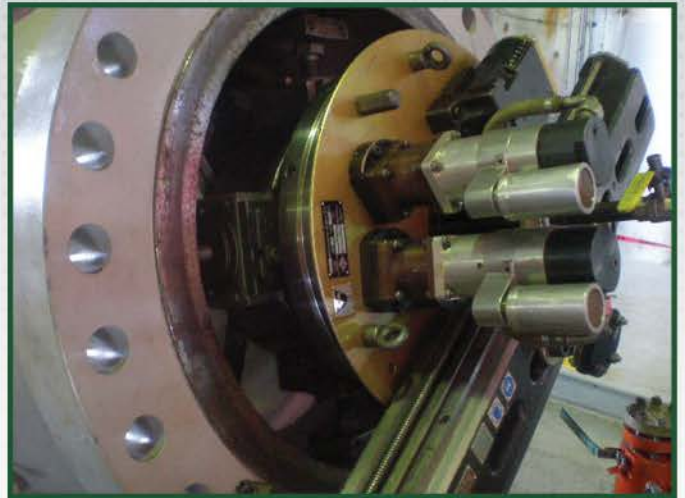
Cold cutting and beveling machines replace traditional cutting methods such as torches, reed cutters, and grinders, removing the risk of fire or explosion. These machines simultaneously sever and bevel as they cut, fully preparing the pipe-end for welding with greater accuracy and a higher level of safety. Cuts can be performed quickly and effectively often without the requirement for hot work permits. Portable clamshell machines are designed for precision onsite severing, severing / beveling, and severing / double beveling.

The aluminum frame is a split ring assembly capable of being disassembled to allow installation around in-line piping, elbows, tees, valves, nozzles and flanges. These lightweight low clearance clamshells are designed to fit into tight working areas whilst retaining rigidity during operation.

Flange Re-Facing

STATS range of portable Flange Facing machines allow for all types of flange facing, seal groove machining, weld prep and counter boring. Onsite Flange Re-Facing reduces downtime and costs by carrying out repairs onsite to ensure systems run efficiently and safely. Internal and externally mounted Flange Re-Facing machines are available on a rental basis.

Flange Re-Facing, Trinidad ►



Trepanning

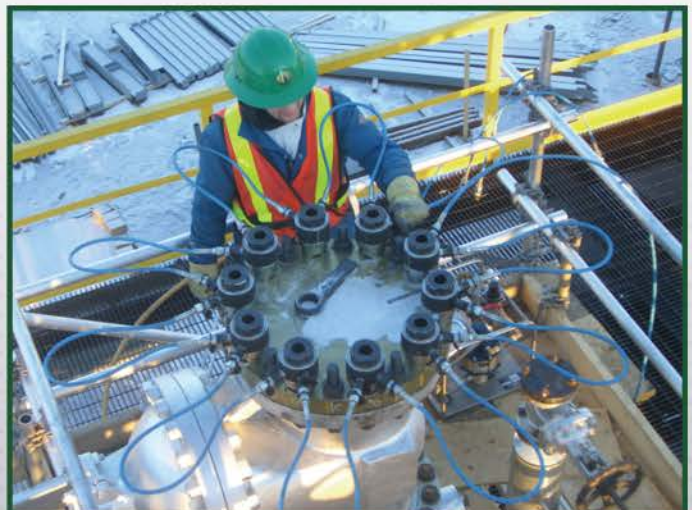
STATS Trepanning services include drilling and tapping services, including supply of bolted clamp connections for use on a variety of materials and applications.

◀ Trepanning, FPSO, Central North Sea

Controlled Bolting

STATS controlled bolting provides a safe and efficient service for hydraulic bolting, bolt tensioning, and bolt torqueing. Controlled bolting enables the correct bolt loads to be accurately applied ensuring leak-free bolted connections.

Hydraulic Bolt Tensioning, Canada ►





STATS GROUP
Managing Pressure, Minimising Risk

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