

STATS GROUP[®]

Product Catalogue

STATS GROUP

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Tecno Plug®

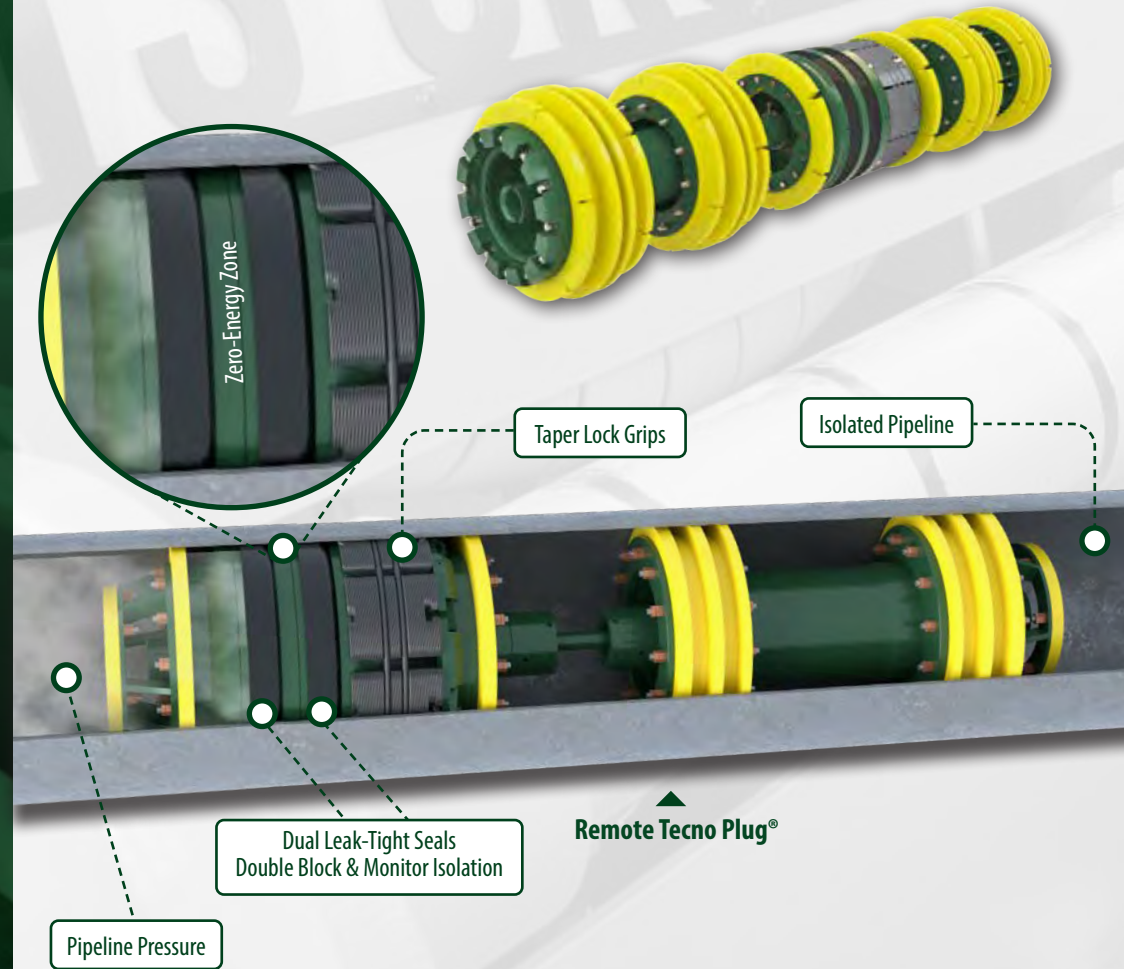
Non-Intrusive Inline Isolation

The safe isolation of pipelines and pipework systems is a key requirement for the maintenance and modification of oil, gas and petrochemical infrastructure. STATS Group has an extensive global track record of providing temporary pressurised isolation of onshore, topsides and subsea pipelines up to 56" and in a range of pipeline mediums. Piggable isolation tools require no welding or cutting into live lines, leaving no residual fittings or hardware on the pipeline.

STATS DNV type approved Tecno Plug® provides fail-safe double block and bleed / monitor isolation of pressurised pipelines while the system remains live and at operating pressure. Dual seals provide a zero-energy zone to enable maintenance work on pressurised systems to be carried out safely and efficiently. The dual seal configuration of the Tecno Plug provides an annulus void which can be pressure tested to verify both seals are leak-tight before maintenance work is carried out. Both seals are leak tested with full pipeline pressure. Once the seal integrity has been proved the annulus is then vented to ambient to create a zero-energy zone, providing effective double block and bleed isolation.

The large section elastomer seals are highly compatible with poor pipe surfaces and are engineered to suit corrosion or ovality issues ensuring a leak-tight seal even in ageing assets. The Tecno Plug has the ability to monitor the isolated pipeline pressure, this is achieved via a dual sealed pressure impulse line and ensures there is no leak path through the tool. If required, pressure application through the tool is attained by adding an additional module containing a second equalisation valve. Isolation safety is ensured as two separately controlled valves need to be functioned to allow pressure communication through the Tecno Plug.

The Tecno Plug fail-safe design uses differential pressure acting on the tool to energise the locks and seals, this is referred to as self-energisation. When the isolation plug is self-energised the isolation is maintained independent of the control system, it is however backed up by the hydraulic control system which maintains the isolation when the differential pressure is below the self-energisation threshold. Once the Tecno Plug is activated the hydraulic circuits are locked in by pilot operated check valves and manual isolation valves (tether controlled) or fail-safe solenoid valves (remote controlled). The check valve pilot lines can be separate lines controlled independently if required. The Taper locking provides twice the required lock contact area giving 100% contingency. In the event that the control system is compromised, the tool actuation mechanism will unset when differential pressure is equalised. This feature ensures pipeline integrity is maintained and the Tecno Plug is always recoverable upon job completion.



The remotely operated Tecno Plug system is a piggable, remote controlled, tetherless isolation tool. The remote control system provides a high degree of flexibility and eliminates the need for tethers or specially modified pig-trap doors. Through-wall communication is achieved using an extremely low frequency (ELF) inductive system for reliable tracking and accurate positioning of the Tecno Plug. An onboard hydraulic power pack provides the necessary actuation and control functions for the tool.

The Remote Control Module provides a robust system for safety critical activities. Certain Remote Control Modules can be made available for use in a Zone 2, Potentially Explosive environment. The communication antenna and field cable are available for use in a Zone 1, Potentially Explosive environment.

Pipeline Isolation Applications

- ✔ Pipeline valve replacement / repair
- ✔ Riser replacement / repair
- ✔ Pressure testing i.e. leak detection of risers or repaired pipelines
- ✔ Mid-line pipeline repair / tie-in
- ✔ Platform abandonment and bypass
- ✔ Pipeline diversion



12" Remote Tecno Plug®, New Zealand

Operator Benefits

- ✔ Safe breaking of containment on pressurised pipelines, providing a fully proved double block and bleed / monitor isolation, with a zero-energy zone maintained between the two barrier seals - in accordance with topside and subsea isolation guidelines
- ✔ Piggable isolation tools require no welding or cutting into live lines, leaving no residual fittings or hardware on the pipeline
- ✔ De-commissioning (bleeding down) and re-commissioning (refilling and re-pressurising) of pipelines minimised or eliminated, saving time and reducing costs
- ✔ Production continued during pipeline maintenance or modifications
- ✔ No flaring of gas or displacement of pipeline inventory
- ✔ No emissions of gas or hydrocarbon vapour to the atmosphere during blow down
- ✔ No danger of accidentally flooding offshore pipelines during construction
- ✔ No need to dispose of hydrates, chemicals and contaminated water
- ✔ Isolates short sections of pipeline anywhere in the pipeline system
- ✔ Emergency preparedness and operational readiness



STATS Tecno Plugs are fully certified by DNV to verify that the design criteria satisfies the requirements for Pipeline Isolation Plugs to provide dual seal and isolation in accordance with Offshore Standards; DNV-OS-F101 (Submarine Pipeline Systems) and recommended Practices; DNV-RP-F113 (Subsea Pipeline Repair) and in compliance with the following code; ASME BPVC Section VIII, Division 2.

Fully Proved Double Block: Seal Test Sequence

Once the Tecno Plug arrives at the isolation location it is hydraulically activated, setting the isolation plug. Setting the Tecno Plug retracts the internally mounted hydraulic cylinder within the plug activating the locks and seals to create the initial barrier.

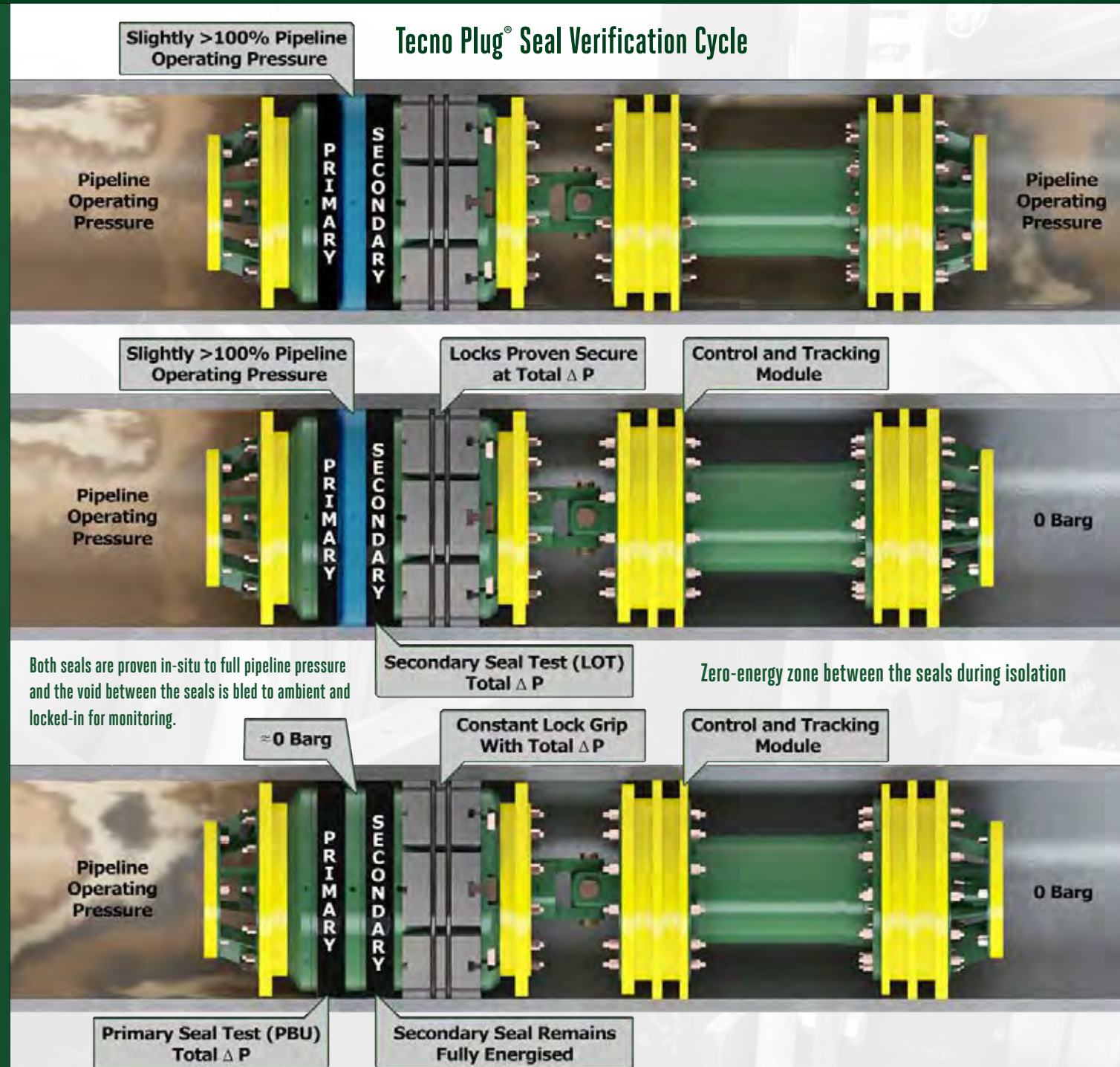
Once the Tecno Plug is confirmed as set, the pipeline pressure inboard (portion of the pipe to be isolated) is vented generating a pressure differential across the plug module.

As the pressure differential is applied, the trapped pipeline content in the annulus between the seals is compressed due to the seal compression. The other effect is that the hydraulic pressure in the actuation system drops.

The remaining hydraulic set pressure once the pipe is fully vented is locked-in by pilot operated check valves to ensure it is maintained, even in the unlikely event of a loss of power in the control module.

Once inboard pressure is fully vented, the Tecno Plug secondary seal is tested in-situ to above the pipeline pressure, in the correct direction. This proves the integrity of the secondary seal.

The annulus is then vented to the tail pressure and locked-in. This allows the primary seal to be tested to the full differential pressure. The isolation is then monitored for an extended period prior to breaching the pipeline integrity.



Tethered Tecno Plug®



Key Features

- ✔ Size range: 3" – 56"
- ✔ Standard Tecno Plug up to 230 bar / 3336 psi with bespoke solutions up to 600 bar / 8702 psi available upon request
- ✔ DNV Type Approval in accordance with; DNV-OS-F101 (Submarine Pipeline Systems) and recommended Practices; DNV-RP-F113 (Subsea Pipeline Repair)
- ✔ Available as 3D bend compliant as standard with 1.5D on request
- ✔ Robust compact design, enables Tecno Plug to be set in short sections of pipeline. In many instances production can be continued during pipeline maintenance or modifications activities
- ✔ Twin compression elastomer seals are highly effective even in pipelines with corrosion and ovality issues
- ✔ High integrity isolation, taper lock grips provides twice the required lock contact area i.e. 100% contingency
- ✔ Annulus bleed between seals allows pressure to be vented to ambient creating a zero-energy zone providing true double block and bleed isolation
- ✔ Fail-safe design feature; taper lock grips and seals energised by differential pressure; referred to as self-energisation
- ✔ Self-energisation feature maintains safe isolation while differential pressure exists across the Tecno Plug
- ✔ Both seals fully energised by pressure – rubber pressure 1.1 – 1.4 times greater than pipeline pressure
- ✔ Reverse pressure can be applied across the Tecno Plug to facilitate system leak testing
- ✔ Outboard pressure monitoring options



30" Tethered Tecno Plug®, New Zealand

Remote Tecno Plug[®]

Key Features

- ✔ Size range: 10" – 56"
- ✔ Pressure range: standard remote control module housing is rated for 200 bar / 2900 psi external pressure
- ✔ DNV type approval in accordance with; DNV-OS-F101 (Submarine Pipeline Systems) and recommended Practices; DNV-RP-F113 (Subsea Pipeline Repair)
- ✔ The Remote Control Module provides a robust system for safety critical activities. Certain Remote Control Modules can be made available for use in a Zone 2, Potentially Explosive environment
- ✔ The communication antenna and field cable are available for use in a Zone 1, Potentially Explosive environment.
- ✔ Hydraulic system override releases the plug setting mechanism when pressure is equalised (Fail-safe passive unset feature)
- ✔ Through-wall communication is achieved using an extremely low frequency (ELF) inductive system for reliable tracking and accurate positioning
- ✔ Subsea communication via acoustic link (3000m depth rating)
- ✔ Remote Tecno Plug does not use lithium batteries negating the need for Emergency Response Procedures for the transportation / use of extremely hazardous materials



36" Remote Tecno Plug[®], Middle East

Piggable Bypass Technology - Unpiggable Lines

STATS have developed a patented pigging bypass system for our isolation plugs which allows two Tecno Plugs to be pigged towards a blind centre.

The technology was developed to facilitate the pipeline repair of unpiggable defects. This system allows a section of pipeline to be isolated where full bore pipeline access is unavailable due to a defect such as a pipeline buckle or dent. Each Tecno Plug is pigged from either end of the pipeline towards the defect to isolate the section and allow repair or replacement.



32" and 38" Remote Tecno Plugs®, Qatargas

Supporting client to achieve their sustainability goals

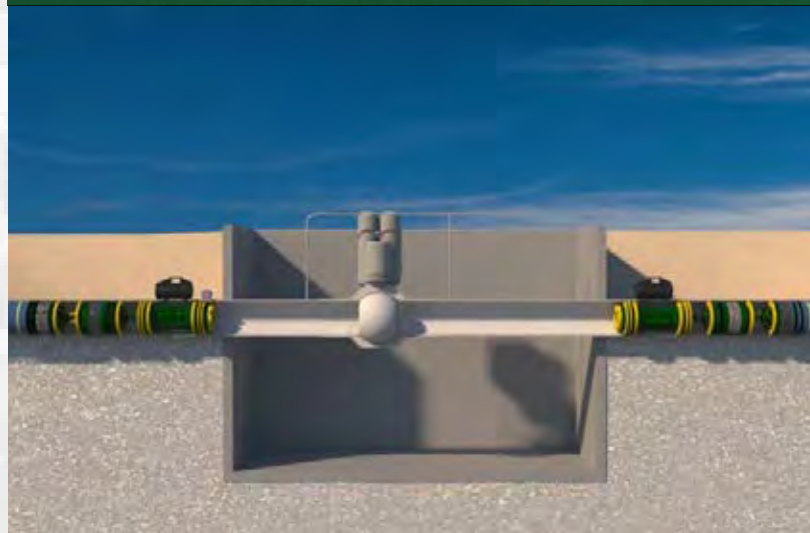
Reducing flaring and venting during repair and maintenance

Large sections of pipelines and process plant systems are frequently vented to facilitate valve repairs and other maintenance activities. Temporary isolation tools minimise this requirement by providing safe, localised isolations where incumbent valves are not available.

Using STATS proprietary double block isolation technologies for localised repair and maintenance allows worksites to be safely isolated without the need to depressurise large sections of the pipeline, thereby avoiding the need to discharge significant quantities of greenhouse gases into the atmosphere.

STATS isolation technologies have been independently verified to deliver carbon emissions savings of over 99% compared to venting a pipeline for repair and maintenance.

PROJECT EXAMPLES



Middle East

38" 80bar Pipeline - 80km

Welded repair required to remove an integrity threat. Tecno Plug® Double block isolation prevented the potential discharge of approximately 9,600 tons of CO2 into the atmosphere.

North Sea

36" 120 bar Subsea Pipeline, 450km

Onshore isolation valve replacement. Using Tecno Plug® Double block isolation prevented the potential discharge of approximately 70,000 tons of CO2 into the atmosphere

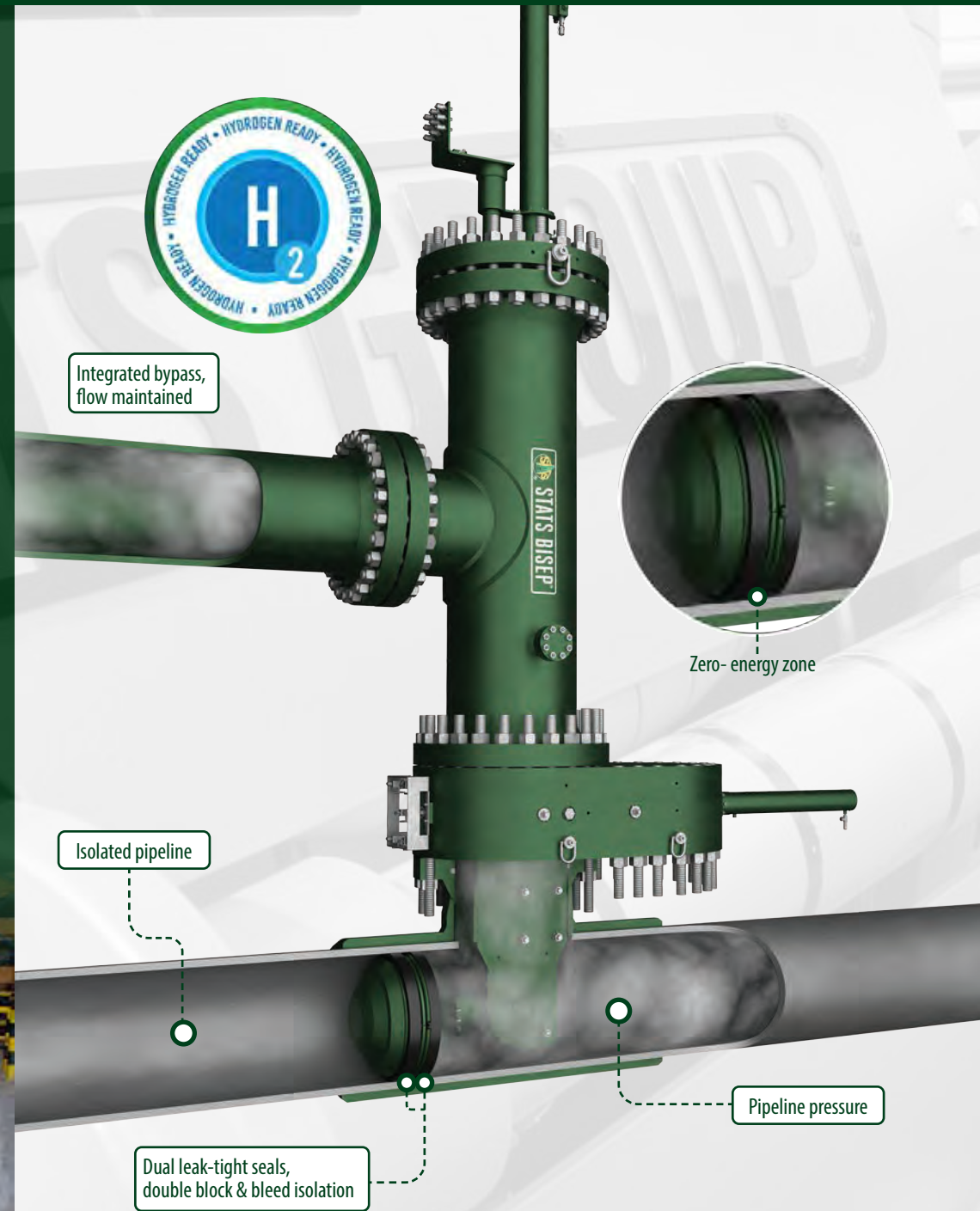
BISEP® Hot Tapping & Plugging

STATS BISEP® offers pipeline operators an industry leading technology solution for temporary line plugging. Achieved using patented and DNV Type Approved technology, the BISEP provides a fail-safe double block and bleed isolation deployed through a single full bore hot tap intervention, without the need for additional hot tapped bleed or vent ports. The BISEP offers significant safety advantages over traditional line stop technologies, with the hydraulically activated dual seals providing leak-tight isolation of live, pressurised pipelines.

This high integrity isolation is provided by a spherical dual seal plug which is hydraulically deployed into the pipeline from a pressure competent launcher, through a dual seal isolation valve. The seals are hydraulically compressed resulting in radial expansion against the pipe bore. During isolation barrier proving, each seal is independently tested with full pipeline pressure in the direction of the expected pressure differential, proving both seals of the double block isolation are leak-tight. Following successful seal proving, the vented annulus void is then closed and monitored confirming isolation integrity throughout the isolation period.

The line pressure acting against the BISEP pressure head offers a fail-safe feature by providing actuation independent of the hydraulic system. The ejection load resistance is provided by the BISEP deployment head.

Multiple BISEPs can be used to provide mid-line isolation of pipeline sections and the introduction of a bypass line allows sectional isolation to take place without the need to shut down the entire system or affect product flow.



Pipeline Isolation Applications

- ✔ Pipeline / launcher valve installation or replacement
- ✔ Pipeline / riser repair, replacement or decommissioning
- ✔ Pipeline / pipework re-routing
- ✔ Mid-line repair of pipeline defects
- ✔ Isolate pressure vessels
- ✔ Water or gas injection line isolation
- ✔ Isolation of pipeline end manifolds, pipeline end terminals for repair, upgrade or replacement

▶ ONSHORE

▶ OFFSHORE

▶ SUBSEA

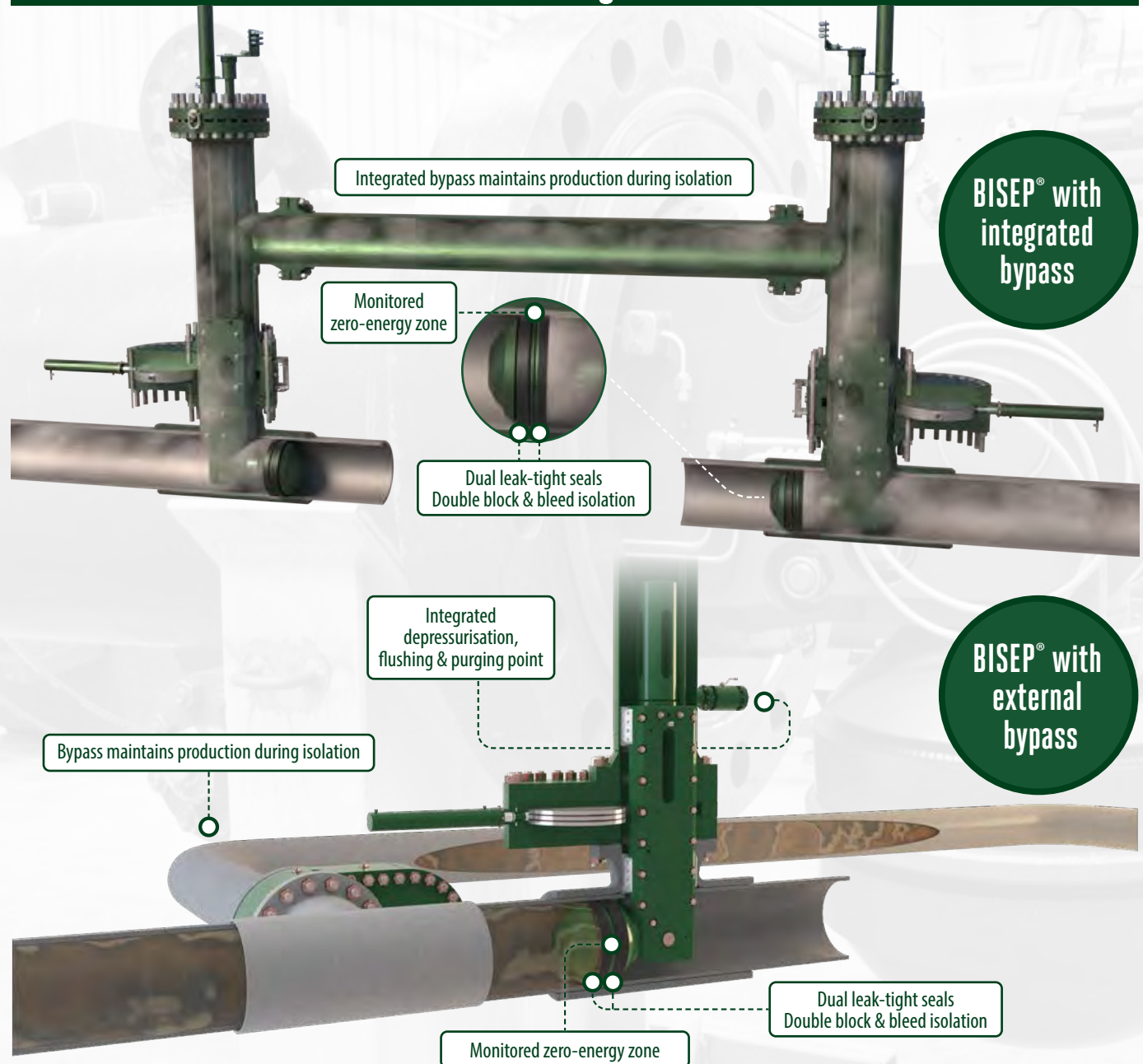
▶ TOPSIDES

▶ PROCESS PLANT

Main Industries Served



BISEP® Configurations



Reinstatement Pressure Testing

The BISEP is designed to resist back pressure and therefore can also be used as a test boundary for pipeline reinstatement testing. Uniquely the BISEP is designed to take 50% of its design pressure in the reverse direction. This allows pressure higher than the isolated pipeline pressure to be applied to the reinstated pipework (as a pressure test or purge) prior to removing the BISEP.

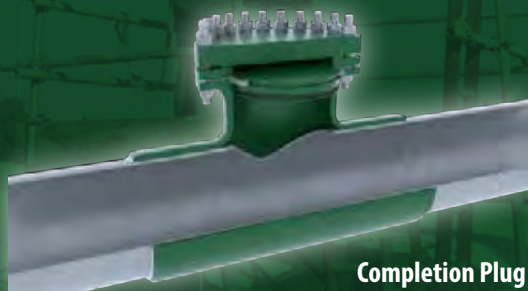
STATS also supply welded and mechanical split tee fittings for hot tap and BISEP applications along with its patented dual seal slab valves and hot tapping services. To allow the BISEP and valve to be recovered fittings can be supplied with a completion plug and blind flange to isolate the branch off-take.



Welded Split Tee



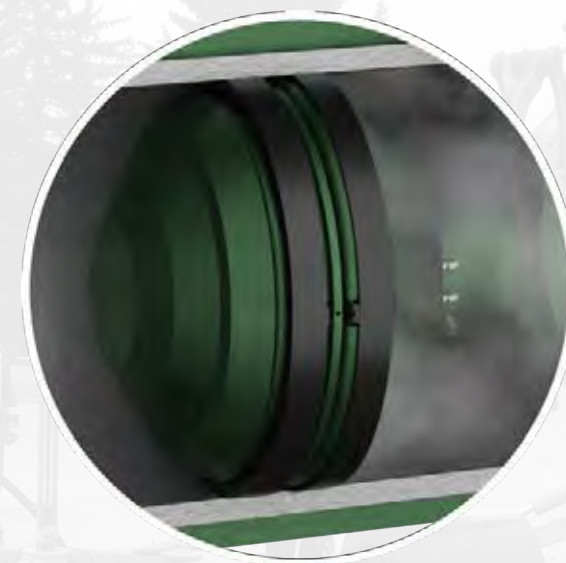
Mechanical Clamp



Completion Plug

Operator Benefits

- Fully verified double block and bleed isolation through a single hot tap intervention
- Leak-tight isolation dramatically increases safety over traditional line stop technologies
- Isolation remains stable and leak-tight even with significant fluctuating pipeline pressures
- Single hot tap intervention significantly reduces timescales and costs and also allows installation on short sections of pipework.
- Full compliance with oil and gas industry standard double block and bleed requirements
- Minimal production disruption on interconnected pipeline networks during valve repairs / tie-ins



The BISEP is fully certified by DNV to verify the design criteria satisfies the requirements for Pipeline Isolation Plugs to provide dual seal and isolation in accordance with Offshore Standards: DNV-OS-F101 (Submarine Pipeline Systems) and recommended Practices: DNV-RP-F113 (Subsea Pipeline Repair) and code compliant with: ASME BPVC Section VIII, Division 2.

Specification:

Size range: 3" – 56"

**Pressure range: up to 153 bar,
available in ANSI Class 600 and 900
ratings**

**Maximum operating temperature:
100°C, minimum operating
temperature: -20°C**

**Other pressure and temperature
combinations available by request**



BISEP® Key Features

- Monitored dual seal annulus void proves seal integrity before and during intervention work
- Isolation integrity continuously monitored through annulus void, hydraulic set circuit and body vents
- Seal annulus void provides a Zero-Energy Zone (minimal volume x pressure)
- Design provides axial restraint through bearing on dual clevis plates (no single point failure)
- Dual compression seals provide higher integrity isolation than traditional cup seals
- Hydraulically activated seals can be manipulated to improve performance when sealing in pipes with issues such as ovality and internal surface irregularities; ie weld seams, corrosion, erosion
- No additional pipeline hot taps required for bleed or vent ports
- Self-Energisation of seals maintains isolation integrity independent of hydraulic control circuit
- Ability to accommodate reinstatement pressure test against the rear of the plugging head
- BISEP isolation installed upstream of fitting, maintaining fitting in safe zone during workscope
- BISEP launcher ported to facilitate venting, purging and flushing of isolated section
- Can be deployed through a conventional equal tee, clamp or branch
- Design allows for deployment into flow conditions (Engineering Assessment Required)
- Hydraulic rotation of the plugging head enables BISEP deployment into pipes in any orientation. In addition to horizontal and vertical pipes the BISEP can also operate in pipes inclined from the horizontal making it more versatile than traditional line stop systems

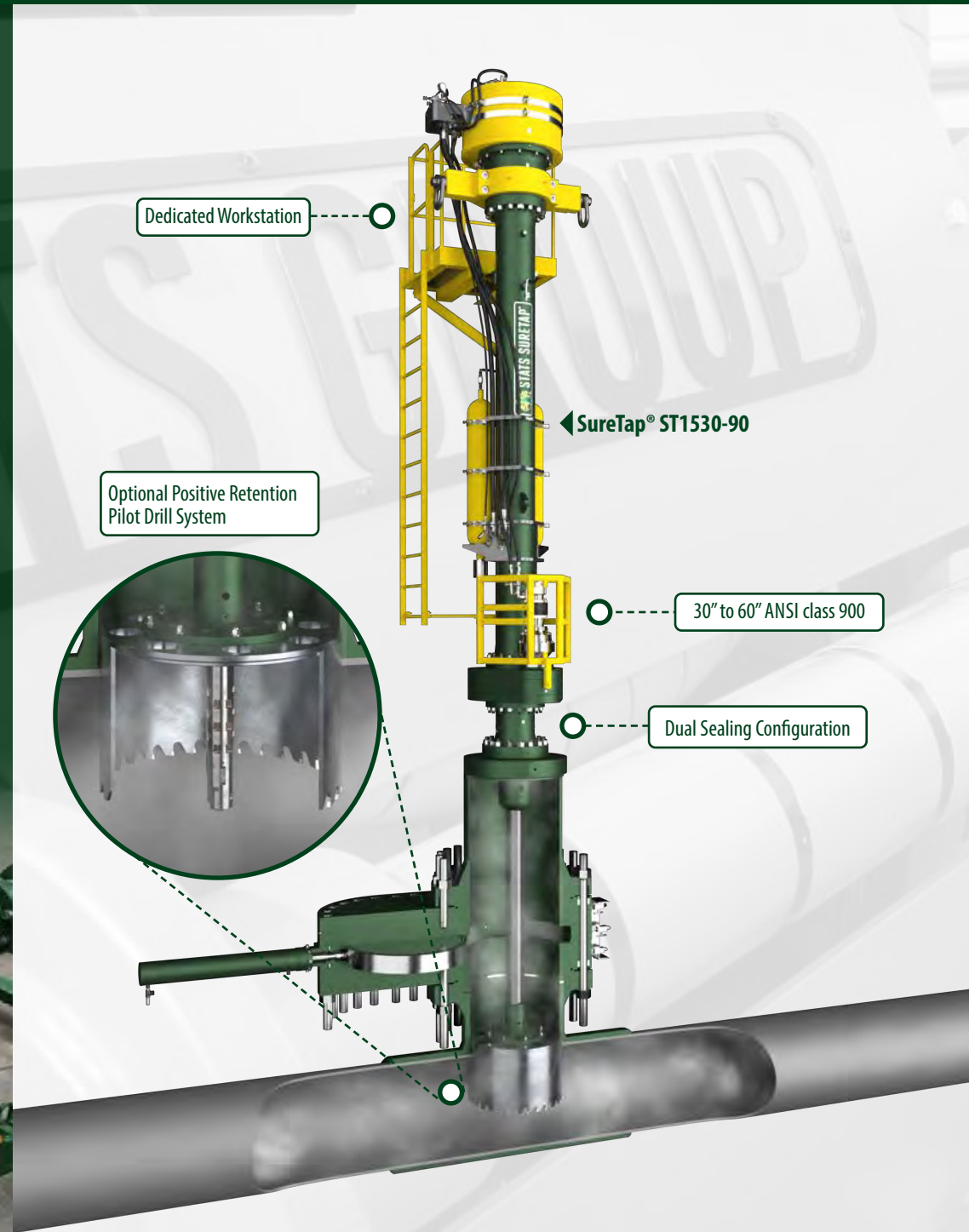
SureTap[®] Hot Tapping Machines

The SureTap range of proprietary tapping machines provide performance and reliability to meet all your critical, high pressure tapping requirements. Designed and built to incorporate industry leading features, the SureTap range incorporates a dual sealing configuration allowing taps to be performed safely on a wide range of pipeline materials and mediums, including use with sour (H₂S) products. A positive retention pilot drill system has been incorporated to ensure robust securing and recovery of the cut pipeline coupon.

All SureTap machines have the capability for onshore, topsides or subsea operation and are fully compatible with industry standard tapping equipment including the deploying and recovery of completion plugs.










Materials of Construction

The SureTap machines are manufactured from high quality materials to European or North American standards. All components used to contain pressurised process fluids are manufactured from pressure vessel grade materials (to ASTM or EN standards), impact tested at sub-zero temperatures and resistant to sulphide stress cracking (SSC).



Legislation, Codes & Directives

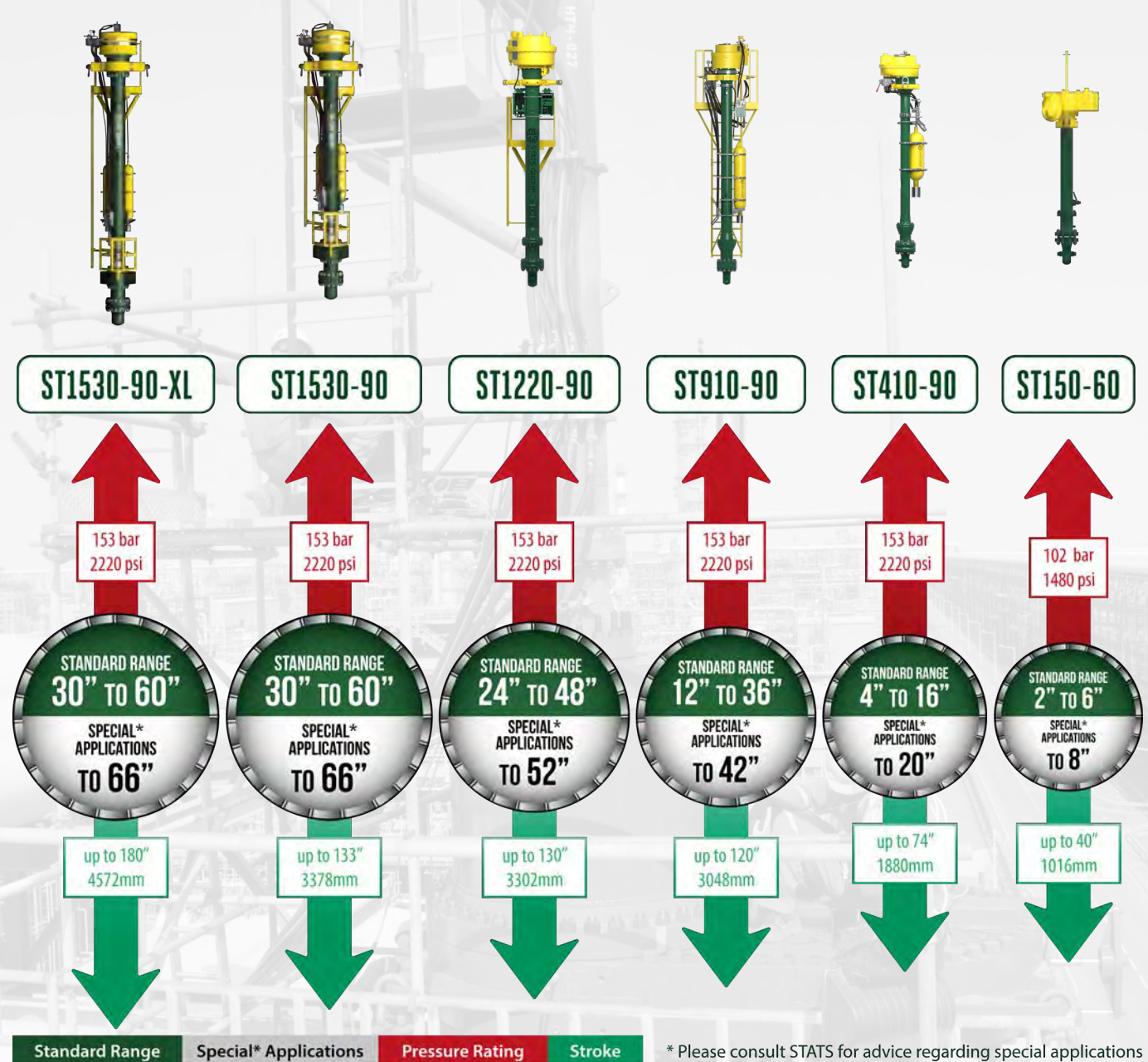
Design Compliant with:

-  **ASME B16.5: Pipe flanges and flanged fittings**
-  ASME B31.3: Process piping
-  ASME B31.4: Pipeline Transportation System for Liquid Hydrocarbons and Other Liquids
-  ASME B31.8: Gas Transmission & Distribution Piping Systems
-  ASME BPVC. Section VIII, Division 1: Design and Fabrication of Pressure Vessels
-  ASME BPVC. Section VIII, Division 2: Alternative Rules
-  **NACE MR0175/ISO 15156-2: Petroleum and natural gas industries - Materials for use in H₂S containing environments in oil and gas production.**
-  EU directive 2006/42/EC: Machinery
-  EU directive 97/23/EC: Pressure equipment



SureTap® ST410-90

SureTap® Range



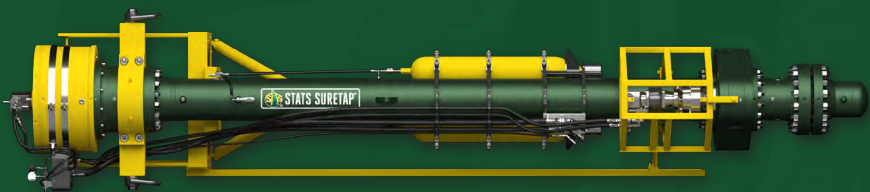
* Please consult STATS for advice regarding special applications

SureTap[®] ST1530-90-XL MACHINE

30" – 60"* cutter size

153 bar / 2220 psi pressure rating

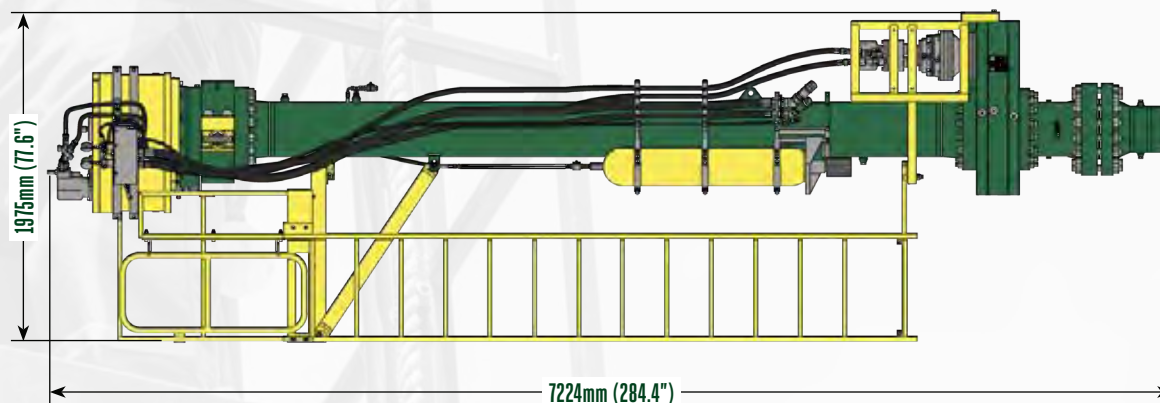
- ✔ Process fluid seal housing features dual seal configuration
- ✔ Positive retention pilot drill system for robust securing and recovery of the cut pipe coupon
- ✔ Pressure compensated feed system
- ✔ Variable speed and feed configuration
- ✔ Suitable for use with sour (H2S) products
- ✔ Compatible with industry standard tapping equipment
- ✔ Capable of deploying and recovering completion plugs
- ✔ Dedicated transportation frame for secure shipping, storage and routine maintenance
- ✔ Dedicated work station for ease of use and operator safety
- ✔ Power provided from a portable, custom hydraulic power unit (HPU)
- ✔ Subsea compatible
- ✔ Pressure class: ANSI Class 900



* Please consult STATS for cuts up to 66"

Operating Parameters

Pressure – temperature rating:	ASME B16.5 Class 900. Table 2 - 1.1	
Maximum operating pressure:	153 Bar @38°C	2220 psi @ 100°F
Operating temperature range - process fluid:		
<i>Standard configuration</i>	-20°C to 150°C	-4°F to 302°F
Operating temperature range - ambient (atmospheric):	-20°C to 40°C	-4°F to 104°F
Minimum cutter size:	30"	
Maximum cutter size: <i>STANDARD RANGE</i>	60"	
Maximum cutter size: <i>SPECIAL APPLICATIONS</i>	66"	
Boring bar rotational speed:	0 to 17 rpm	
Boring bar feed rates:		
<i>Feed rate 1</i>	0.08mm/rev	0.003"/rev
<i>Feed rate 2</i>	0.18mm/rev	0.007"/rev
<i>Feed rate 3</i>	0.28mm/rev	0.011"/rev
<i>Auxiliary feed</i>	343mm/min	13.5"/min
Boring bar travel:		
<i>Standard machine</i>	4572mm	180"
Machine weight:	6480kg	14286lbs
Overall dimensions, L x W x H:	7224 x 1400 x 1975mm	284.4 x 55.1 x 77.6"
Machine + Skid Weight:	7410kg	16336lbs
Shipping dimensions, L x W x H:	7300 x 1430 x 2110mm	287.5 x 56 x 83"

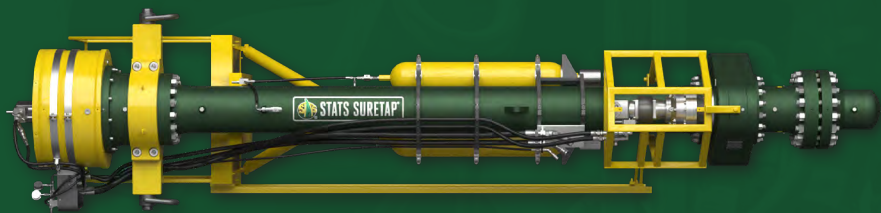


SureTap[®] ST1530-90 MACHINE

30" – 60"* cutter size

153 bar / 2220 psi pressure rating

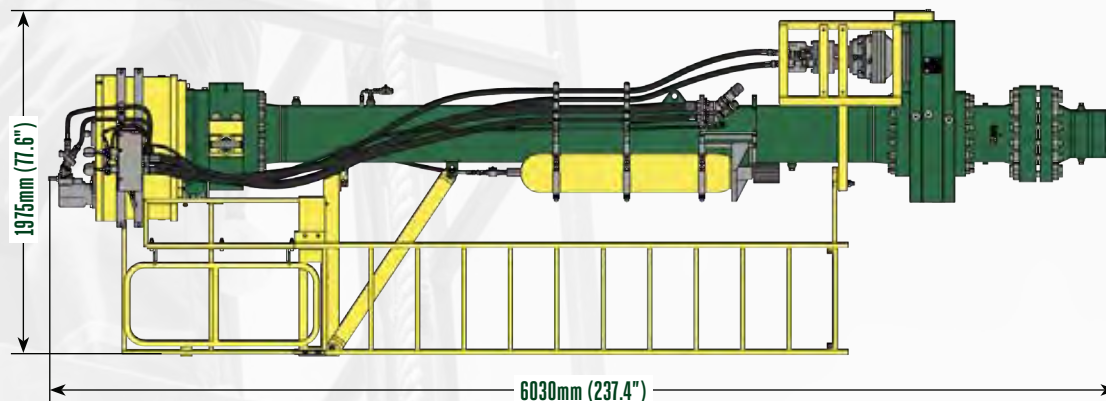
- ✔ Process fluid seal housing features dual seal configuration
- ✔ Positive retention pilot drill system for robust securing and recovery of the cut pipe coupon
- ✔ Pressure compensated feed system
- ✔ Variable speed and feed configuration
- ✔ Suitable for use with sour (H2S) products
- ✔ Compatible with industry standard tapping equipment
- ✔ Capable of deploying and recovering completion plugs
- ✔ Dedicated transportation frame for secure shipping, storage and routine maintenance
- ✔ Dedicated work station for ease of use and operator safety
- ✔ Power provided from a portable, custom hydraulic power unit (HPU)
- ✔ Subsea compatible
- ✔ Pressure class: ANSI Class 900



* Please consult STATS for cuts up to 66"

Operating Parameters

Pressure – temperature rating:	ASME B16.5 Class 900. Table 2 - 1.1	
Maximum operating pressure:	153 Bar @38°C	2220 psi @ 100°F
Operating temperature range - process fluid:		
<i>Standard configuration</i>	-20°C to 150°C	-4°F to 302°F
Operating temperature range - ambient (atmospheric):	-20°C to 40°C	-4°F to 104°F
Minimum cutter size:	30"	
Maximum cutter size: <i>STANDARD RANGE</i>	60"	
Maximum cutter size: <i>SPECIAL APPLICATIONS</i>	66"	
Boring bar rotational speed:	0 to 17 rpm	
Boring bar feed rates:		
<i>Feed rate 1</i>	0.08mm/rev	0.003"/rev
<i>Feed rate 2</i>	0.18mm/rev	0.007"/rev
<i>Feed rate 3</i>	0.28mm/rev	0.011"/rev
<i>Auxiliary feed</i>	343mm/min	13.5"/min
Boring bar travel:		
<i>Standard machine</i>	3378mm	133"
Machine weight:	6142kg	13541lbs
Overall dimensions, L x W x H:	6030 x 1400 x 1975mm	237.4 x 55.1 x 77.6"
Machine + Skid Weight:	6971kg	15369lbs
Shipping dimensions, L x W x H:	6100 x 1430 x 2110mm	240 x 56 x 83"

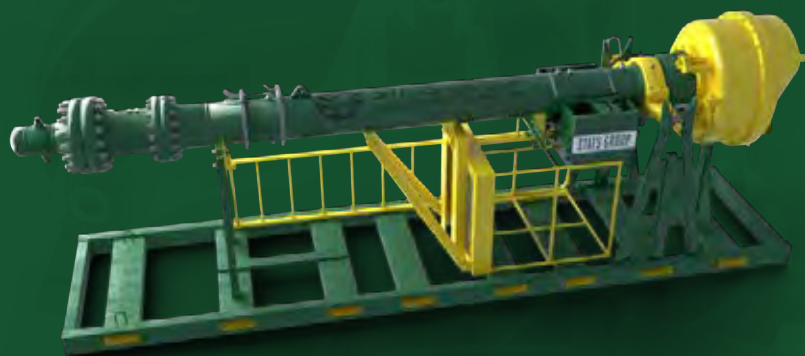


SureTap[®] ST1220-90 MACHINE

24" – 48"* cutter size

153 bar / 2220 psi pressure rating

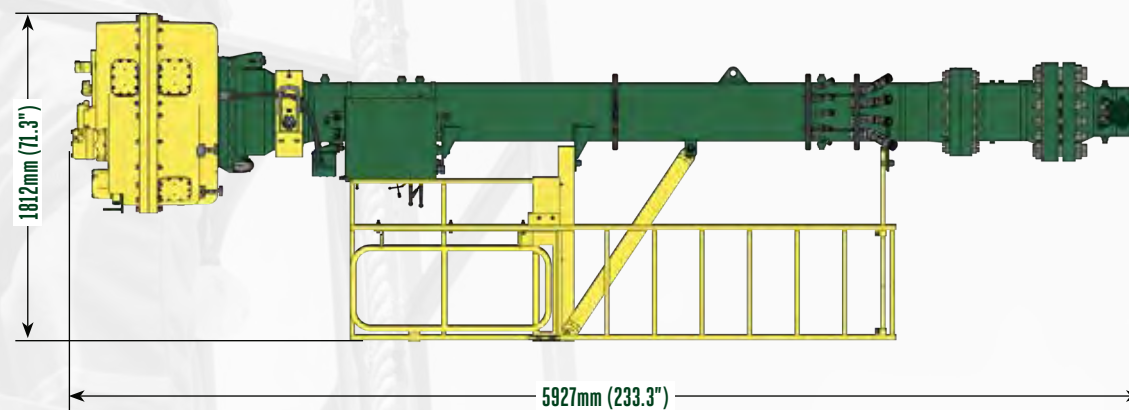
- ✔ Process fluid seal housing features dual seal configuration
- ✔ Positive retention pilot drill system for robust securing and recovery of the cut pipe coupon
- ✔ Pressure compensated feed system
- ✔ Variable speed and feed configuration
- ✔ Suitable for use with sour (H2S) products
- ✔ Compatible with industry standard tapping equipment
- ✔ Capable of deploying and recovering completion plugs
- ✔ Dedicated transportation frame for secure shipping, storage and routine maintenance
- ✔ Dedicated work station for ease of use and operator safety
- ✔ Power provided from a portable, custom hydraulic power unit (HPU)
- ✔ Subsea compatible
- ✔ Pressure class: ANSI Class 900



* Please consult STATS for cuts up to 52"

Operating Parameters

Pressure – temperature rating:	ASME B16.5 Class 900. Table 2 - 1.1	
Maximum operating pressure:	153 Bar @38°C	2220 psi @ 100°F
Operating temperature range - process fluid:		
<i>Standard configuration</i>	-20°C to 150°C	-4°F to 302°F
Operating temperature range - ambient (atmospheric):	-20°C to 40°C	-4°F to 104°F
Minimum cutter size:	24"	
Maximum cutter size: <i>STANDARD RANGE</i>	48"	
Maximum cutter size: <i>SPECIAL APPLICATIONS</i>	52"	
Boring bar rotational speed:	0 to 30 rpm	
Boring bar feed rates:		
<i>Feed rate 1</i>	0.13 mm/rev	0.005" / rev
<i>Feed rate 2</i>	0.18 mm/rev	0.007" / rev
<i>Auxiliary feed</i>	343mm/min	13.5"/min
Boring bar travel:		
<i>Standard machine</i>	3302mm	130"
Machine weight:	4650kg	10250lbs
Overall dimensions, L x W x H:	5927 x 1400 x 1812mm	233.3 x 55.1 x 71.3"
Machine with Ladder / Platform & Transport Frame Weight:	5120kg	11290lbs
Shipping dimensions, L x W x H:	6010 x 1430 x 1955mm	236.6 x 56.3 x 77"

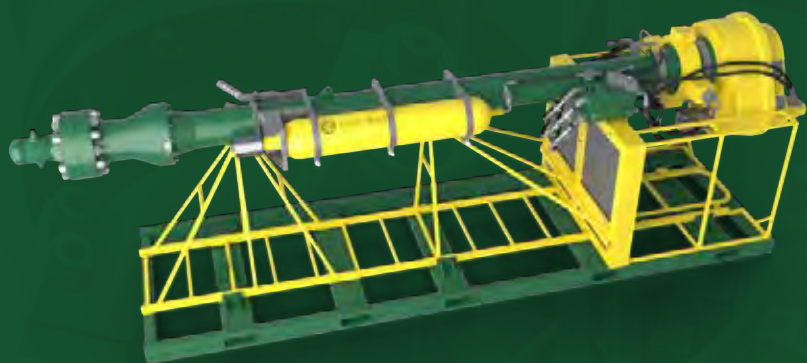


SureTap[®] ST910-90 MACHINE

12" – 36"* cutter size

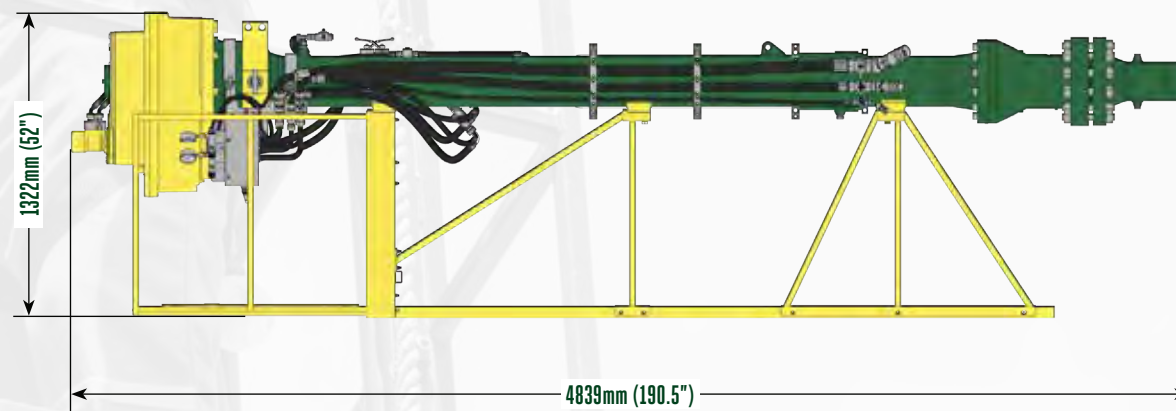
153 bar / 2220 psi pressure rating

- ✔ Process fluid seal housing features dual seal configuration
- ✔ Positive retention pilot drill system for robust securing and recovery of the cut pipe coupon
- ✔ Pressure compensated feed system
- ✔ Variable speed and feed configuration
- ✔ Suitable for use with sour (H2S) products
- ✔ Compatible with industry standard tapping equipment
- ✔ Capable of deploying and recovering completion plugs
- ✔ Dedicated transportation frame for secure shipping, storage and routine maintenance
- ✔ Subsea compatible
- ✔ Pressure class: ANSI Class 900



Operating Parameters

Pressure – temperature rating:	ASME B16.5 Class 900. Table 2 - 1.1	
Maximum operating pressure:	153 Bar @38°C	2220 psi @ 100°F
Operating temperature range - process fluid:		
<i>Standard configuration</i>	-20°C to 121°C	-4°F to 250°F
Operating temperature range - ambient (atmospheric):	-20°C to 40°C	-4°F to 104°F
Minimum cutter size:	12"	
Maximum cutter size: <i>STANDARD RANGE</i>	36"	
Maximum cutter size: <i>SPECIAL APPLICATIONS</i>	42"	
Boring bar rotational speed:	0 to 30 rpm	
Boring bar feed rates:		
<i>Feed rate 1</i>	0.10mm/rev	0.004" / rev
<i>Feed rate 2</i>	0.15mm/rev	0.006" / rev
Boring bar size:	101.6mm	4"
Boring bar travel:	3048mm	120"
Machine weight:	1934kg	4264lbs
Overall dimensions, L x W x H:	4839 x 1221 x 1322mm	190.5 x 48 x 52"
Machine with Ladder / Platform & Transport Frame weight:	2800kg	6172lbs
Shipping dimensions, L x W x H:	5131 x 1700 x 1422mm	202 x 66.9 x 56"



* Please consult STATS for cuts up to 42"

SureTap[®] ST410-90 MACHINE

4" – 16"* cutter size

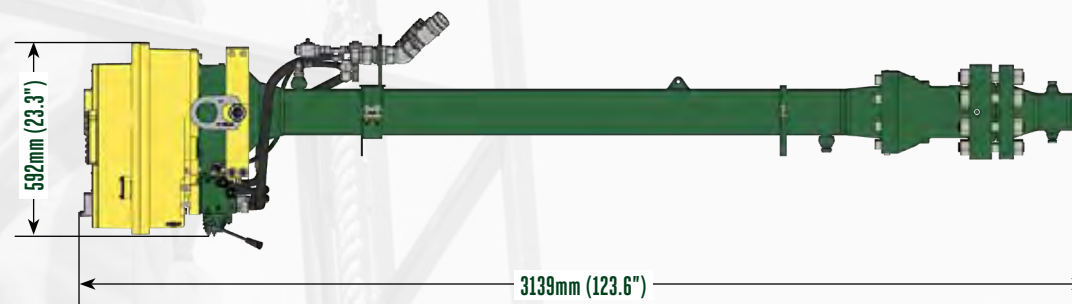
153 bar / 2220 psi pressure rating

- ✔ Process fluid seal housing features dual seal configuration
- ✔ Positive retention pilot drill system for robust securing and recovery of the cut pipe coupon
- ✔ Pressure compensated feed system
- ✔ Variable speed and feed configuration
- ✔ Suitable for use with sour (H2S) products
- ✔ Compatible with industry standard tapping equipment
- ✔ Capable of deploying and recovering completion plugs
- ✔ Dedicated transportation frame for secure shipping, storage and routine maintenance
- ✔ Subsea compatible
- ✔ Pressure class: ANSI Class 900



Operating Parameters

Pressure – temperature rating:	ASME B16.5 Class 900. Table 2 - 1.1	
Maximum operating pressure:	153 Bar @38°C	2220 psi @ 100°F
Operating temperature range - process fluid:		
<i>Standard configuration</i>	-20°C to 121°C	-4°F to 250°F
Operating temperature range - ambient (atmospheric):	-20°C to 40°C	-4°F to 104°F
Minimum cutter size:	4"	
Maximum cutter size: <i>STANDARD RANGE</i>	16"	
Maximum cutter size: <i>SPECIAL APPLICATIONS</i>	20"	
Boring bar rotational speed:	0 to 40 rpm	
Boring bar feed rates:		
<i>Feed rate 1</i>	0.08mm/rev	0.003" / rev
<i>Feed rate 2</i>	0.13mm/rev	0.005" / rev
Boring bar size:	69.9mm	2.8"
Boring bar travel:	1880mm	74"
Machine weight:	540kg	1190lbs
Overall dimensions, L x W x H:	3139 x 611 x 592mm	123.6 x 24.1 x 23.3"
Machine with Ladder / Platform & Transport Frame weight:	809kg	1784lbs
Shipping dimensions, L x W x H:	3300 x 800 x 750mm	129.9 x 31.5 x 29.5"



* Please consult STATS for cuts up to 20"

SureTap[®] ST150-60 MACHINE

2" – 6"* cutter size

102 bar / 1480 psi pressure rating

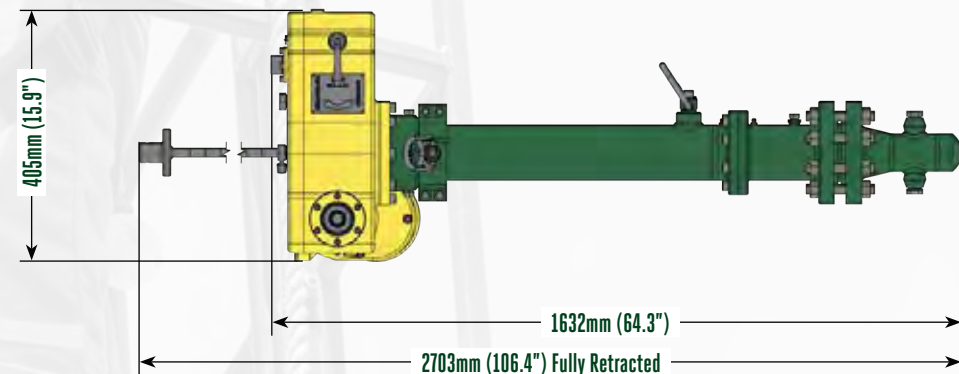
- ✔ Variable speed and feed configuration
- ✔ Suitable for use with sour (H2S) products
- ✔ Compatible with industry standard tapping equipment
- ✔ Capable of deploying and recovering completion plugs
- ✔ Dedicated transportation frame for secure shipping, storage and routine maintenance
- ✔ Subsea compatible
- ✔ Pressure class: ANSI Class 600



* Please consult STATS for cuts up to 8"

Operating Parameters

Pressure – temperature rating:	ASME B16.5 Class 600. Table 2 - 1.1	
Maximum operating pressure:	102 Bar @38°C	1480 psi @ 100°F
Operating temperature range - process fluid:		
<i>Standard configuration</i>	-20°C to 121°C	-4°F to 250°F
<i>High temperature service module</i>	0 to 370°C	32°F to 698°F
Operating temperature range - ambient (atmospheric):	-20°C to 40°C	-4°F to 104°F
Minimum cutter size:		2"
Maximum cutter size: <i>STANDARD RANGE</i>		6"
Maximum cutter size: <i>SPECIAL APPLICATIONS</i>		8"
Boring bar rotational speed:	0 to 40 rpm	
Boring bar feed rates:		
<i>Feed rate 1</i>	0.08mm/rev	0.003" / rev
<i>Feed rate 2</i>	0.13mm/rev	0.005" / rev
Boring bar size:	42.8mm	1.7"
Boring bar travel:	1016mm	40"
Machine weight:	125kg	276lbs
Overall dimensions, L x W x H:	1632 x 595 x 405mm	64.3 x 23.4 x 15.9"
Machine with Transport Frame weight:	210kg	463lbs
Shipping dimensions, L x W x H:	1800 x 700 x 530mm	70.9 x 27.6 x 20.9"



BI-STOP™

Small Bore Temporary Line Plugging

The patented BI-STOP™ provides a unique temporary line plugging system to address the challenges with small-bore pipework with absent or limited isolation facilities. This cost-effective solution enables small bore pipework to be isolated, cut and if required, terminated with a full bore valve whilst the system remains live. The BI-STOP™ allows maintenance or remediation activities to be carried out safely and reliably, eliminating the need for a system shutdown.

Applications

- ✔ Provide a temporary isolation to facilitate pipework repair or modification
- ✔ Install a system specified full bore valve where isolation facilities are absent or limited
- ✔ Cap and terminate dead leg or redundant pipework
- ✔ Provide a permanent or temporary pipework tie-in

BI-STOP Specification:

Standard Nominal Size Range 1", 1.5" and 2"

Pressure Rating ANSI Class 300 (51.1 bar / 741 psi)



Operator Benefits

- Cost-effective solution for temporary isolation of small bore pipework eliminating the need for a system shutdown
- Unplanned outage and maintenance costs either eliminated or significantly reduced
- No need to leave temporary mechanical fittings on the pipe
- Temporary isolation allowing modifications without the need for hot-work
- Innovative equipment design addresses pipe destruct and construct requirements including pipework reinstatement testing



STEP 1

Install and leak test temporary hot tap fitting, isolation valve and hot tap machine.



STEP 2

Conduct hot tap and deploy BI-STOP isolation barrier.



STEP 3

Cut pipework behind BI-STOP isolation barrier and install inline isolation tool and launcher.



STEP 4

Recover BI-STOP isolation and deploy inline isolation tool and set at location.



STEPS 5 & 6

Remove temporary hot tap fitting, inline isolation tool launcher and cut pipework to remove hot tap penetration.

Install welded or mechanical flange and permanent isolation valve complete with isolation tool launcher. Unset and recover inline isolation tool into launcher and close valve.



STEP 7

Install new pipework to isolation valve.

In-Line Weld Test Tool

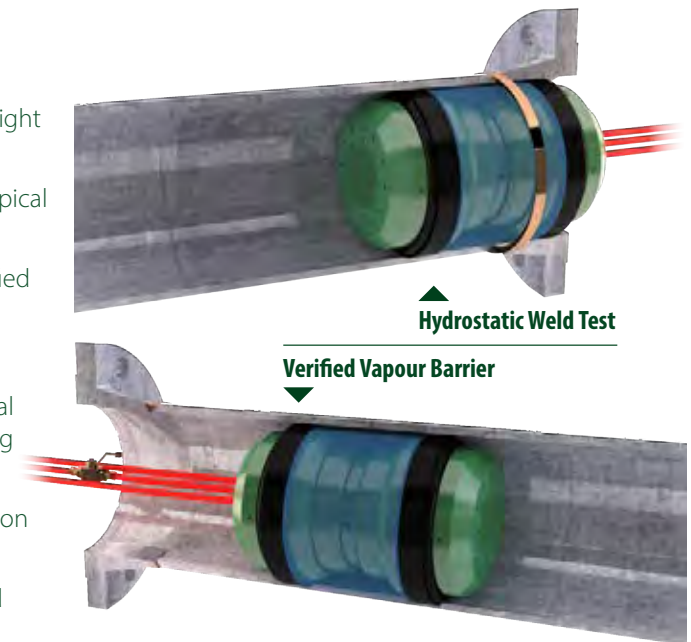
In-Line Weld Test Tools provide a fast and efficient method of verifying the integrity of welds or fittings. Localised hydrostatic testing reduces system downtime, minimising environmental impact and increasing worksite safety. Additionally, In-Line Weld Test Tools can be used to provide a verified atmospheric barrier adjacent to the hot work source, only where containment is maintained at atmospheric pressure.

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 or leakage
- ✔ Installed and activated in a matter of minutes
- ✔ Sale or rental options available, complete with full ancillary equipment

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



Specification

- ✔ Size range: common pipe sizes ¾" - 36" as standard. Sizes up to 72" available on request
- ✔ ABSA Certified: CRN – 0H11625.2
- ✔ 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



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**
- ✔ **Saves times and reduces 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 or leakage**
- ✔ **Sale or rental options available, complete with full ancillary equipment**

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



▲ **Flanged Weld Test Tool Hydrotest**



▲ **Mechanical Flanged Weld Test Tools**

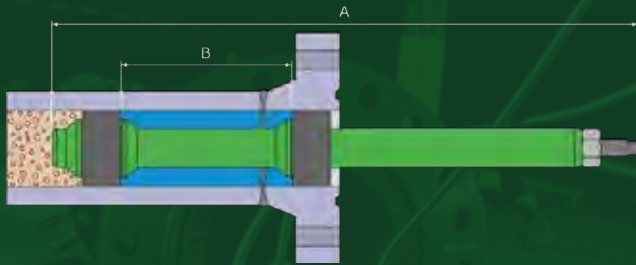
Specification

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

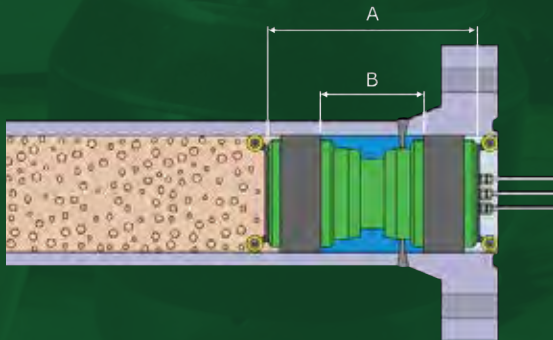


▶ **18" Flanged Weld Test Tool**

In-Line Weld Test Tool Interface Dimensions



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



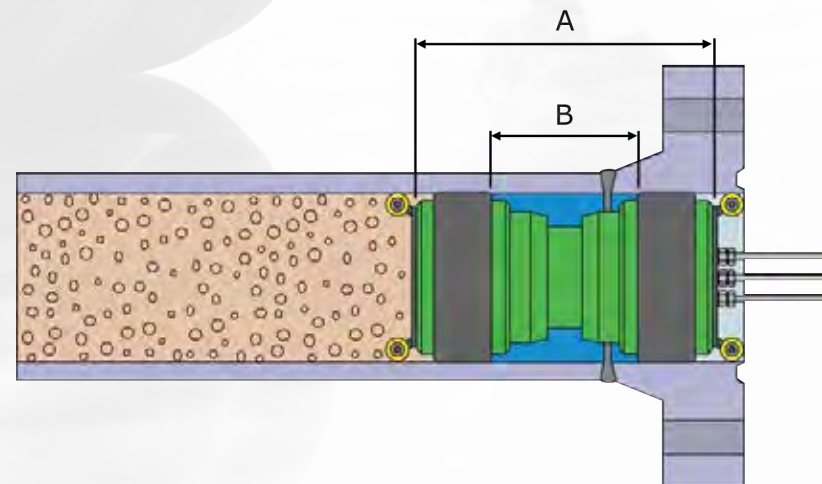
Hydraulic In-Line Weld Test Tool 3" up to 36"

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

In-Line Weld Test Tool Interface Dimensions

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

Tool Ref Size	Tool Model Number	Tool Diameter	Compatible Pipe Schedules	Tool Maximum Working Pressure	Overall Length - A	Length Between Seals - B	Weight
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"	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



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.

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

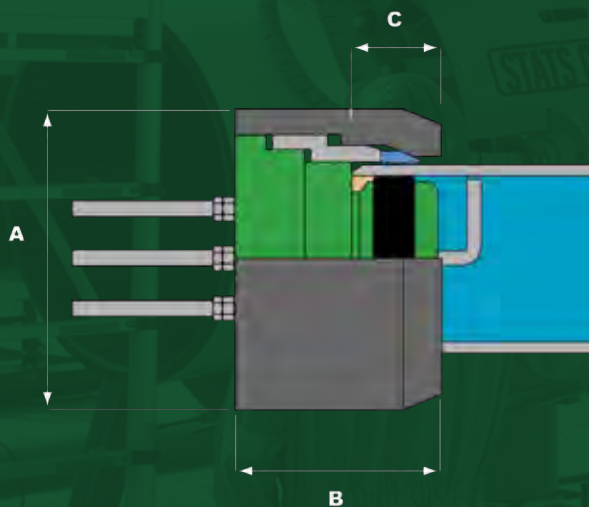


E-PEP™ (External Pipe End Plug)

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 outside diameter of the pipe whilst simultaneously energising an elastomeric seal in the inside diameter. 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.

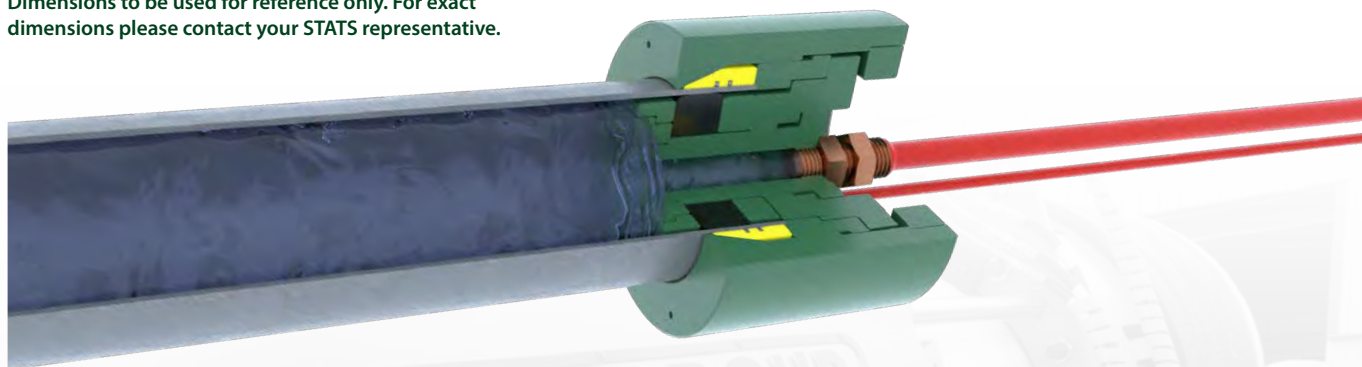
To remove the E-PEP from the pipe end, hydraulic pressure is applied to the unset circuit. Retracting the lock assembly and de-energising the seal, allowing the tool to be removed. The E-PEP range covers pipe sizes from 3" to 36" complementing the I-PEP range.



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.
Dimensions to be used for reference only. For exact dimensions please contact your STATS representative.



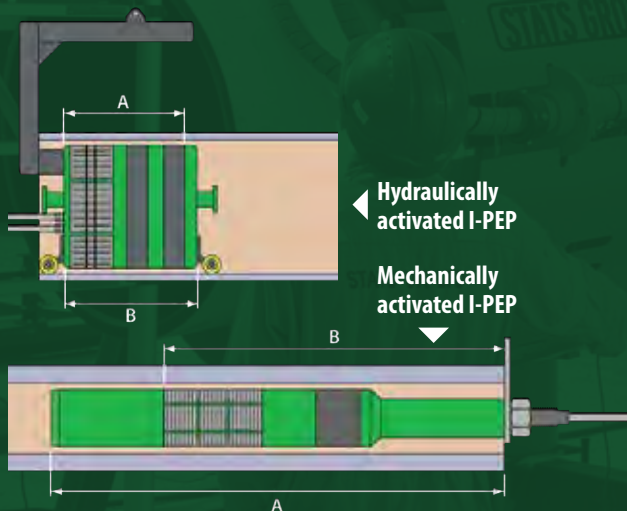
E-PEPs installed onto spool to provide hydrostatic pressure test

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 3/4" to 2" mechanical tools are used and fitted with securing clamps for added safety.



I-PEP™ Weights & Dimensions

I-PEP™ 3/4" - 2" Weights & Dimensions

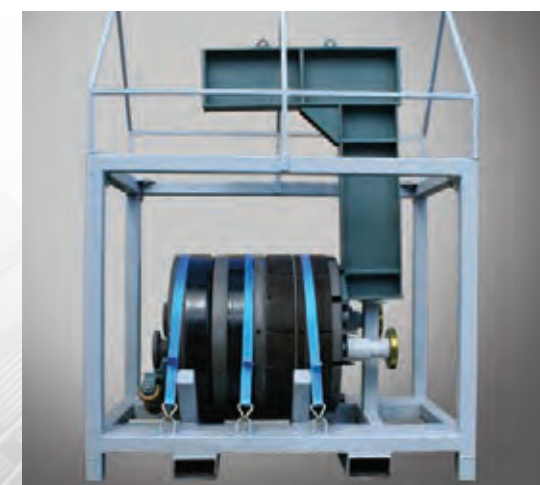
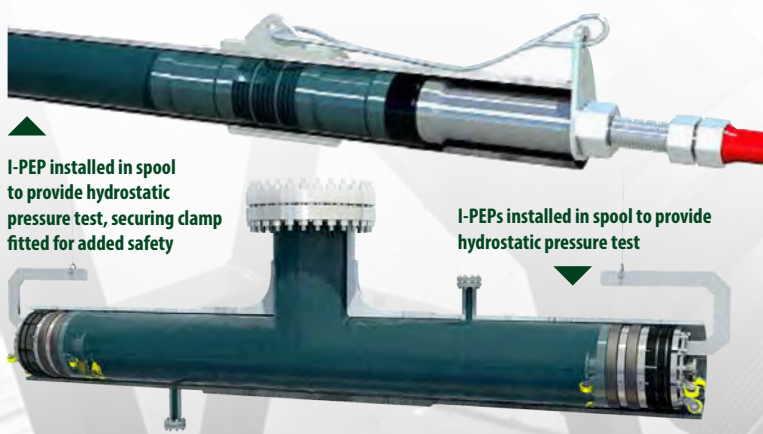
I-PEP Nominal Diameter	Pipe ID (Min - Max)	I-PEP OD	A - Overall Length	B - Length of Engagement	Weight
3/4"	19 - 22mm	17mm	222mm	126mm	1kg
1"	24 - 28mm	22mm	245mm	165mm	1.5kg
1 1/2"	38 - 42mm	34mm	280mm	184mm	2.5kg
2"	49 - 57mm	45mm	280mm	184mm	2.5kg

I-PEP™ 30" - 42" Weights & Dimensions

* I-PEP maximum working pressure up to 350 bar / 5076psi.
Dimensions to be used for reference only. For exact dimensions please contact your STATS representative.

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.



36" I-PEP in Shipping Skid

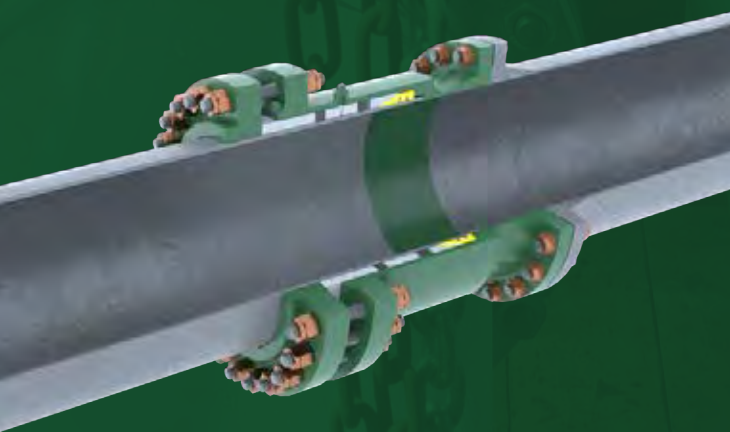
Mechanical Pipe Connectors

STATS Type Approved mechanical pipe connectors provide a cold-work solution, removing the associated risks of welding. Quick and efficient to install, this permanent solution significantly reduces maintenance duration and provides a cost-effective solution for piping repair, tie-in or capping of pipework.

Easy to install with only basic pipework preparation, STATS mechanical connectors follow a simple standard bolted installation with no specialist tools required. This results in timely completion of maintenance activities and avoids the costly hire of specialist installation or activation equipment.

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 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.



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**

Key Features

- ⊕ Simple standard bolted installation, no specialist tools required
- ⊕ 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

20" Mechanical Connector, UKCS



20" & 10" Mechanical Connector, UKCS



2" - 8" Mechanical Connectors & Couplings

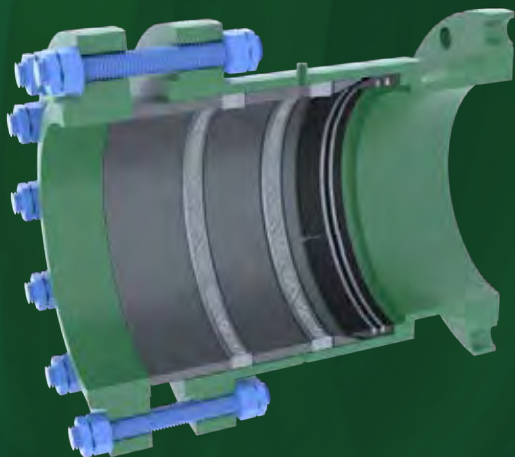


Mechanical Pipe Connectors

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 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.



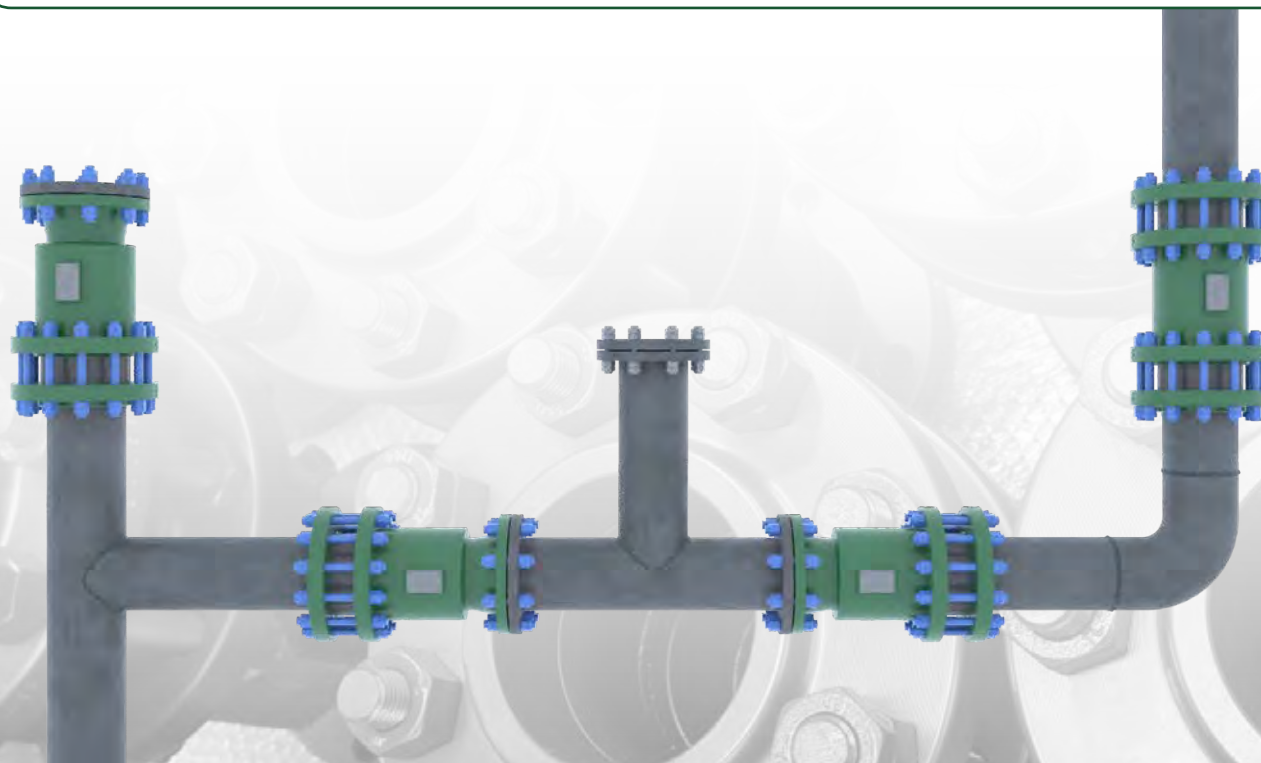
Specification

- ✔ Sizes 1" to 36" as standard, sizes up to 72" 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

* Pressure/Temperature rating on the Connector will be the lesser of ASME codes for flanges and/or seal material

Connector Configurations

- ✔ **Connector:** Flanged outlet for connecting plain-end pipe to a pre-flanged termination
- ✔ **Coupling:** Connecting plain-end pipe to plain-end pipe
- ✔ **End Cap:** Capping plain-end redundant pipework

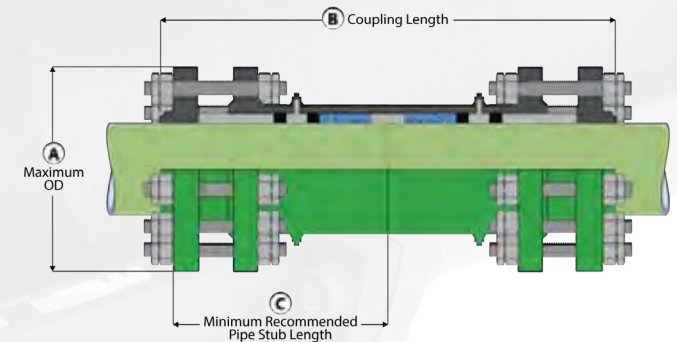
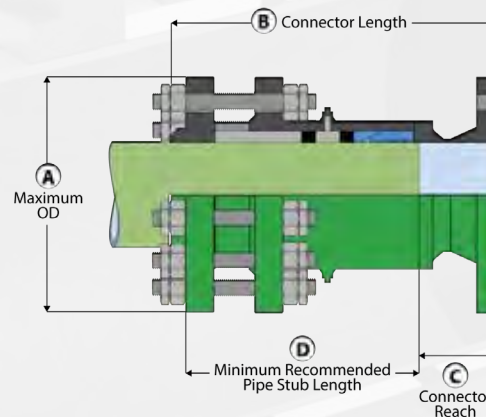


Connector Weights & Dimensions

Nom Size	Max Design Pressure	A-OD	B-Length	C-Reach	D-Pipe Stub Length	Weight	Nom Size	Max Design Pressure	A-OD	B-Length	C-Reach	D-Pipe Stub Length	Weight
1"	20 Bar / 290 psi	155mm	366mm	75mm	265mm	13kg	10"	20 Bar / 290 psi	445mm	601mm	149mm	419mm	169kg
1"	50 Bar / 725 psi	155mm	366mm	75mm	265mm	13kg	10"	50 Bar / 725 psi	445mm	617mm	166mm	419mm	189kg
1.5"	20 Bar / 290 psi	155mm	346mm	85mm	233mm	12kg	12"	20 Bar / 290 psi	521mm	662mm	161mm	471mm	245kg
1.5"	50 Bar / 725 psi	155mm	346mm	85mm	233mm	12kg	12"	50 Bar / 725 psi	521mm	678mm	178mm	471mm	269kg
2"	20 Bar / 290 psi	165mm	335mm	91mm	235mm	16kg	14"	20 Bar / 290 psi	584mm	713mm	178mm	503mm	345kg
2"	50 Bar / 725 psi	165mm	347mm	97mm	235mm	16kg	14"	50 Bar / 725 psi	584mm	729mm	194mm	503mm	384kg
3"	20 Bar / 290 psi	210mm	390mm	98mm	269mm	27kg	16"	20 Bar / 290 psi	647mm	737mm	178mm	522mm	423kg
3"	50 Bar / 725 psi	210mm	403mm	107mm	269mm	32kg	16"	50 Bar / 725 psi	647mm	756mm	197mm	522mm	451kg
4"	20 Bar / 290 psi	254mm	487mm	115mm	349mm	44kg	18"	20 Bar / 290 psi	711mm	819mm	211mm	572mm	552kg
4"	50 Bar / 725 psi	254mm	496mm	124mm	349mm	43kg	18"	50 Bar / 725 psi	711mm	838mm	230mm	572mm	618kg
6"	20 Bar / 290 psi	318mm	489mm	120mm	351mm	72kg	20"	20 Bar / 290 psi	775mm	850mm	215mm	601mm	615kg
6"	50 Bar / 725 psi	318mm	499mm	130mm	351mm	81kg	20"	50 Bar / 725 psi	775mm	835mm	231mm	588mm	651kg
8"	20 Bar / 290 psi	381mm	549mm	138mm	385mm	116kg	24"	20 Bar / 290 psi	914mm	873mm	230mm	609mm	915kg
8"	50 Bar / 725 psi	381mm	548mm	148mm	385mm	131kg	24"	50 Bar / 725 psi	915mm	888mm	246mm	609mm	1035kg

Coupling Weights & Dimensions

Nom Size	Max Design Pressure	A-OD	B-Length	C-Pipe Stub Length	Weight
2"	50 Bar / 725 psi	165mm	503mm	228mm	23Kg
3"	50 Bar / 725 psi	210mm	590mm	264mm	40Kg
4"	50 Bar / 725 psi	254mm	757mm	354mm	76Kg
6"	50 Bar / 725 psi	318mm	747mm	354mm	118Kg
8"	50 Bar / 725 psi	381mm	820mm	379mm	172Kg
10"	50 Bar / 725 psi	445mm	759mm	418mm	208Kg
12"	50 Bar / 725 psi	521mm	1012mm	473mm	401Kg
14"	50 Bar / 725 psi	584mm	1093mm	521mm	400Kg
16"	50 Bar / 725 psi	648mm	1138mm	544mm	675kg
18"	50 Bar / 725 psi	711mm	1267mm	599mm	886kg



* Dimensions to be used for reference only. For exact dimensions please contact your STATS representative.