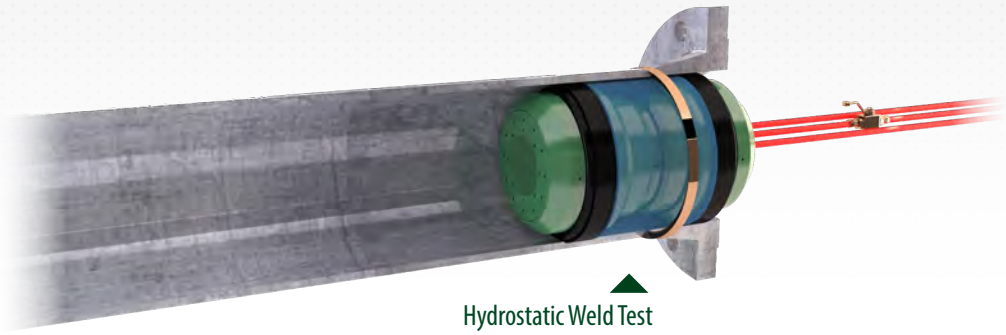
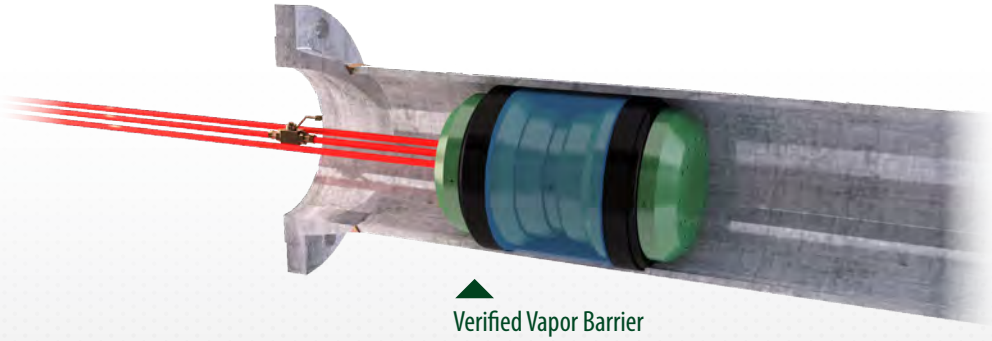
STATS GROUP

Managing Pressure, Minimizing Risk

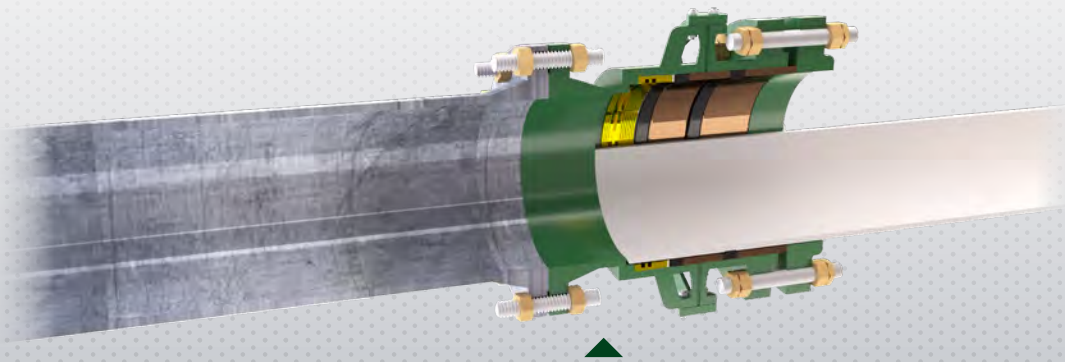
Process Plant Solutions



Hydrostatic Weld Test



Verified Vapor Barrier



Mechanical Pipe Connection

STATSGROUP.COM

Process Plant Solutions

The safety of personnel and asset integrity is the primary consideration for any task and the execution of all repair work demands the use of safe, reliable and efficient equipment operated by experienced and professional technicians.

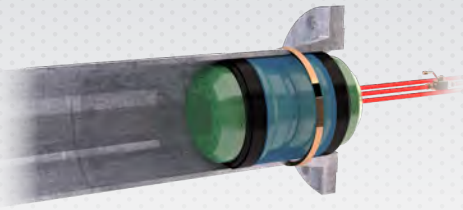
STATS understand the criticality of system outages, and that operators need to meet production and export commitments in conjunction with managing safety obligations, reducing outage costs and complying with environmental requirements.

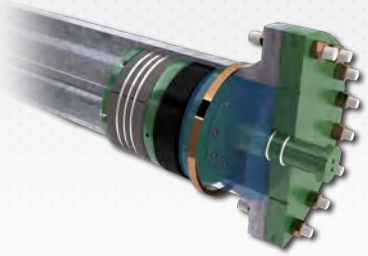
With an extensive track record, STATS provides best in class equipment for sale or rental to major operators and contractors during maintenance shutdowns and turnarounds. STATS has gained an excellent reputation for providing a responsive service, improving safety, efficiency and reducing client expenditure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

PRODUCTS & SERVICES

Localized Hydrostatic Test Tools

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



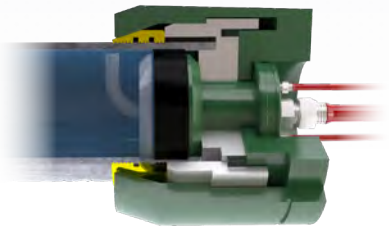


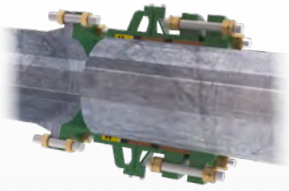
Axial Weld Tension Tools

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.



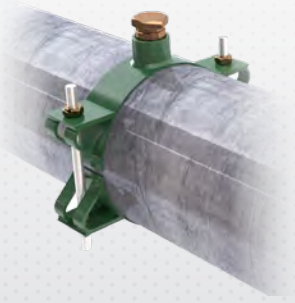


Mechanical Pipe Connectors

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 localized leak points.



Encapsulation Repair Clamp

STATS patented strap clamp provides a localized seal on a pipe surface to encapsulate a branch or off-take. Lightweight in design they are simple to install and offer a robust isolation for localized sealing.

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 downtime, minimizing environmental impact and increasing worksite safety.

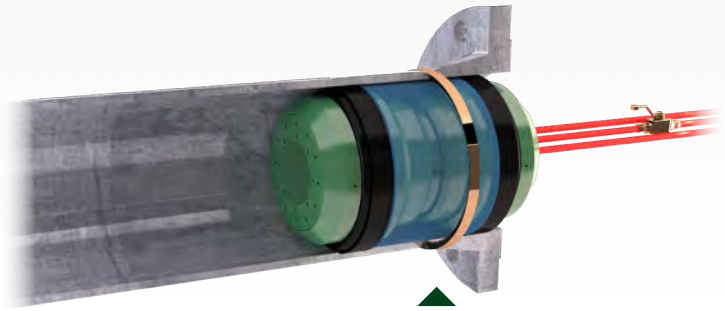
Additionally these tools can be used to provide a verified atmospheric barrier adjacent to the hot work source.

Specification

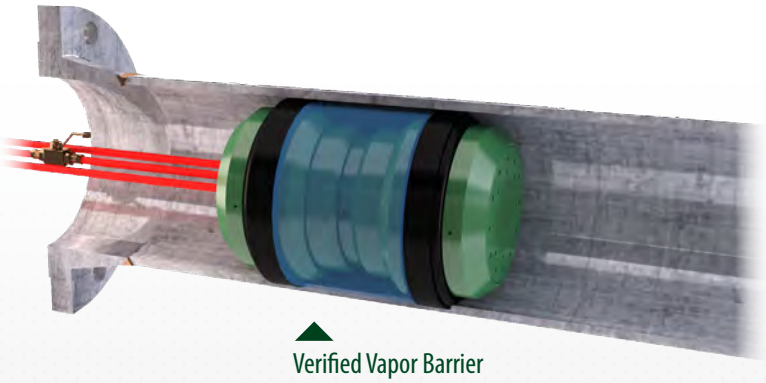
- Size range: common pipe sizes ¾"- 36" as standard. Sizes up to 72" available on request
- Hydraulically actuated above 2"
- Pressure range up to 690 bar / 10,000 psi dependent on specification, maximum test pressure to suit system
- Pressure assisted sealing

Operator Benefits

- Reduces system downtime and increases worksite safety by minimizing 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 and de-water gas systems
- No requirement for full system pressurization 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



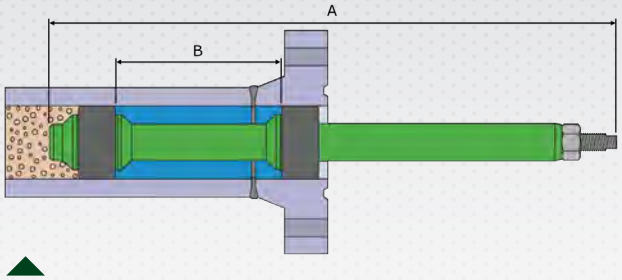
Verified Vapor Barrier

Key Features

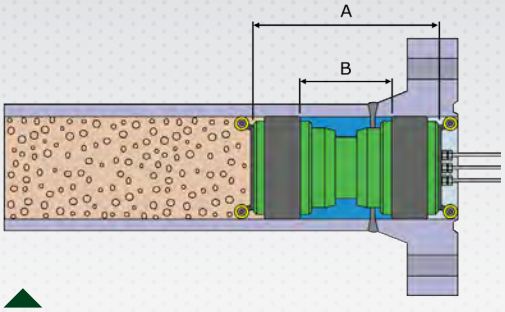
- Simple, straight forward installation and operation
- Installed and activated in a matter of minutes
- Large section high quality elastomer seals ensure a leak-tight seal, even in pitted pipework
- Designed with generous radial clearance to cope with typical internal obstructions such as weld beads, ovality, etc
- Easily installed pre hot work operations to provide a verified vapor 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

In-Line Weld Test Tool

Interface Dimensions



Mechanical In-Line Weld Test Tool ¾″ up to 2″



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

Tool Ref Size	Tool Model Number	Tool Diameter (in)	Compatible Pipe Schedules	Tool Maximum Working Pressure (psi)	Overall Length - A (in)	Length Between Seals -B (in)	Weight (lbs)
¾″	TT0013	0.5	¾″ XS, 80, 80s	8702	8.7	3.4	1
¾″	TT0017	0.7	¾″ 30, 40, 40s, Std	7252	8.7	3.4	1
¾″	TT0021	0.8	¾″ 5, 5s, 10, 10s	5802	8.7	3.4	1
1″	TT0017	0.7	1″ 160	7977	8.7	3.4	1
1″	TT0021	0.8	1″ 10, 10s, 30, 40, Std, XS, 80, 80s	7977	9.6	3.5	2
1″	TT0027	1.1	1″ 5, 5s	7977	9.6	3.5	2
1½″	TT0024	0.9	1½″ XXS	7977	9.6	3.5	2
1½″	TT0030	1.2	1½″ 160	5076	9.6	3.5	2
1½″	TT0034	1.3	1½″ 30, 40, 40s, Std, XS, 80, 80s	11603	11.0	3.9	2
1½″	TT0037	1.5	1½″ 5, 5s, 10, 10s	8702	11.0	3.9	2
2″	TT0034	1.3	2″ XXS	14504	11.0	3.9	2
2″	TT0037	1.5	2″ 160	10877	11.0	3.9	2
2″	TT0045	1.8	2″ 5, 5s, 10, 10s, 30, 40, Std, XS, 80, 80s	5802	11.0	3.9	2
3″	TT0054	2.2	3″ XXS	14504	7.9	3.7	11
3″	TT0062	2.5	3″ 160	11893	7.9	3.7	11
3″	TT0069	2.7	3″ XS, 80, 80s	8557	7.9	3.7	11
3″	TT0073	2.9	3″ 30, Std, 40, 40s	8702	8.1	4.7	14
3″	TT0078	3.1	3″ 10, 10s	7614	8.1	4.7	14
3″	TT0081	3.2	3″ 5, 5s	6889	8.1	4.7	14
4″	TT0073	2.9	4″ XXS	7977	8.1	4.7	14
4″	TT0081	3.2	4″ 160	6164	8.1	4.7	14
4″	TT0086	3.4	4″ 120	5076	8.1	4.7	14
4″	TT0091	3.6	4″ XS, 80, 80s	4714	8.1	4.7	14
4″	TT0096	3.8	4″ 30, Std, 40, 40s	3989	8.1	4.7	14
4″	TT0102	4.0	4″ 5, 5s, 10, 10s	3263	8.1	4.7	14
5″	TT0096	3.8	5″ XXS	3989	8.1	4.7	14
5″	TT0102	4.0	5″ 120, 160	3263	8.1	4.7	14
5″	TT0124	4.9	5″ 5, 5s, 10, 10s, Std, 40, 40s	7252	12.1	7.8	53
5″	TT0116	4.6	5″ XS, 80, 80s	9427	12.1	7.8	53
6″	TT0116	4.6	6″ XXS	9427	12.1	7.8	53
6″	TT0124	4.9	6″ 160	7977	12.1	7.8	53
6″	TT0132	5.2	6″ 120	6527	12.1	7.8	53
6″	TT0138	5.5	6″ XS, 80, 80s	5802	12.1	7.8	53
6″	TT0146	5.8	6″ Std, 40, 40s	5076	12.1	7.8	53
6″	TT0154	6.1	6″ 5, 5s, 10, 10s	4351	12.1	7.8	53
8″	TT0165	6.5	8″ 140, 160, XXS	13053	16.3	10.6	132
8″	TT0174	6.9	8″ 120	11603	16.3	10.6	132
8″	TT0180	7.1	8″ XS, 80, 80s, 100	10153	16.3	10.6	132
8″	TT0190	7.5	8″ Std, 20, 30, 40, 40s, 60	7977	16.3	10.6	132
8″	TT0204	8.1	8″ 5, 5s, 10, 10s	7252	16.3	10.6	132

Tool Ref Size	Tool Model Number	Tool Diameter (in)	Compatible Pipe Schedules	Tool Maximum Working Pressure (psi)	Overall Length - A (in)	Length Between Seals -B (in)	Weight (lbs)
10″	TT0204	8.1	10″ 160	7252	16.3	10.6	132
10″	TT0212	8.4	10″ 140, XXS	6527	16.3	10.6	132
10″	TT0220	8.7	10″ 120	5802	16.3	10.6	132
10″	TT0226	8.9	10″ 100	5439	16.3	10.6	132
10″	TT0233	9.2	10″ XS, 60, 80, 80s	14504	19.7	10.6	353
10″	TT0243	9.6	10″ Std, 40, 40s	13779	19.7	10.6	353
10″	TT0246	9.7	10″ 20, 30	13053	19.7	10.6	353
10″	TT0253	10.0	10″ 5, 5s, 10, 10s	11603	19.7	10.6	353
12″	TT0243	9.6	12″ 160	13779	19.7	10.6	353
12″	TT0260	10.2	12″ 120, 140, XXS	10877	19.7	10.6	353
12″	TT0270	10.6	12″ 100	9427	19.7	10.6	353
12″	TT0277	10.9	12″ 80	8702	19.7	10.6	353
12″	TT0285	11.2	12″ XS, 60, 80s	7977	19.7	10.6	353
12″	TT0291	11.5	12″ 40,40s	7252	19.7	10.6	397
12″	TT0295	11.6	12″ Std, 30	7252	19.7	10.6	397
12″	TT0300	11.8	12″ 10, 10s, 20	6527	19.7	10.6	397
12″	TT0304	12.0	12″ 5, 5s	6527	19.7	10.6	397
14″	TT0270	10.6	14″ 160	9427	19.7	10.6	397
14″	TT0277	10.9	14″ 140	8340	19.7	10.6	397
14″	TT0285	11.2	14″ 120	7977	19.7	10.6	397
14″	TT0295	11.6	14″ 100	7252	19.7	10.6	397
14″	TT0304	12.0	14″ 80	6527	19.7	10.6	397
14″	TT0311	12.2	14″ 60	6164	19.7	10.6	397
14″	TT0316	12.4	14″ XS	5802	19.7	10.6	397
14″	TT0322	12.7	14″ Std, 20, 30, 40	5439	19.7	10.6	397
14″	TT0332	13.1	14″ 5, 5s, 10, 10s	5076	19.7	10.6	397
16″	TT0311	12.2	16″ 160	14504	29.4	18.2	838
16″	TT0319	12.6	16″ 140	14504	29.4	18.2	838
16″	TT0330	13.0	16″ 120	14504	29.4	18.2	838
16″	TT0339	13.3	16″ 100	13053	29.4	18.2	838
16″	TT0350	13.8	16″ 80	12690	29.4	18.2	838
16″	TT0358	14.1	16″ 60	11966	29.4	18.2	838
16″	TT0364	14.4	16″ XS, 40	10877	29.4	18.2	838
16″	TT0373	14.7	16″ Std, 20, 30, 40	10153	29.4	18.2	838
16″	TT0381	15.0	16″ 5, 5s, 10, 10s	9427	29.4	18.2	838
18″	TT0350	13.8	18″ 160	12690	29.4	18.2	838
18″	TT0358	14.1	18″ 140	10877	29.4	18.2	838
18″	TT0364	14.4	18″ 120	10153	29.4	18.2	838
18″	TT0388	15.3	18″ 30, XS, 40, 60, 80, 100	6164	23.6	12.6	871
18″	TT0430	16.9	18″ 5, 5s, 10, 10s 20, Std	5439	23.6	12.4	871
20″	TT0388	15.3	20″ 120, 140, 160	6527	23.6	12.6	871
20″	TT0430	16.9	20″ 80, 100	4714	23.6	12.4	992
20″	TT0450	17.7	20″ 60, 40	5802	24.4	12.2	1268
20″	TT0478	18.8	20″ 20, Std, 10, 10s, 5, 5s	13053	28.0	13.6	1598
22″	TT0430	16.9	22″ 160, 140	4714	23.6	12.4	992
22″	TT0478	16.9	22″ 100, 80, 60	14504	28.0	13.6	992
22″	TT0520	20.5	22″ 5, 5s, 10, 10s, Std, 20, XS, 30	7977	28.0	13.6	992
24″	TT0478	18.8	24″ 120, 140, 160	12328	28.0	13.6	1598
24″	TT0520	20.5	24″ 100, 80, 60	7252	28.0	13.6	1676
24″	TT0550	21.7	24″ Std, 20, XS, 30, 40	5802	28.0	13.6	1819
28″	TT0660	26.0	28″ XS, 20, 30	3626	33.2	16.2	2601
28″	TT0680	26.8	28″ 10, Std	3626	33.2	16.2	2756
30″	TT0720	28.3	30″ 10, Std, XS, 20, 30	3626	33.2	16.2	3086
36″	TT0837	33.0	36″ 10, Std, XS, 20, 30, 40	4931	32.4	14.0	4409

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, minimize environmental impact and improve testing productivity and are robustly designed to sustain the rigors 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.

16" E-PEP™ in Shipping Skid

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

Mechanical I-PEP™ with Securing Clamp

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.

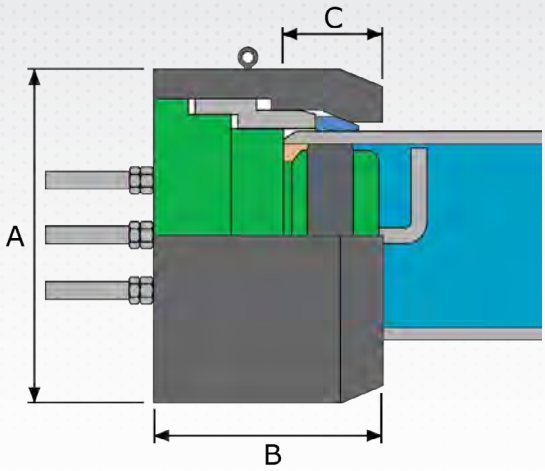
Key Features

- 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-energized 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 localized material deformity and localized 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 energizing 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 pressurized 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-energizing 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 (in)	B - Overall Length (in)	C - Length Required Of Engagement (in)	Weight (lbs)
3"	7.1	8.3	3.0	77
4"	8.1	7.9	3.1	90
6"	10.4	10.5	4.1	163
8"	13.8	10.0	4.5	353
10"	16.9	14.4	6.5	741
12"	18.5	14.6	6.9	875
14"	24.4	22.1	7.9	1327
16"	26.7	22.1	8.1	1552
18"	28.8	22.3	8.5	1819
20"	32.0	23.1	9.6	2388
24"	35.1	23.5	9.6	2780
30"	42.5	28.7	10.2	4489
36"	50.4	29.9	10.4	6724

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

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

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 pipework.

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.

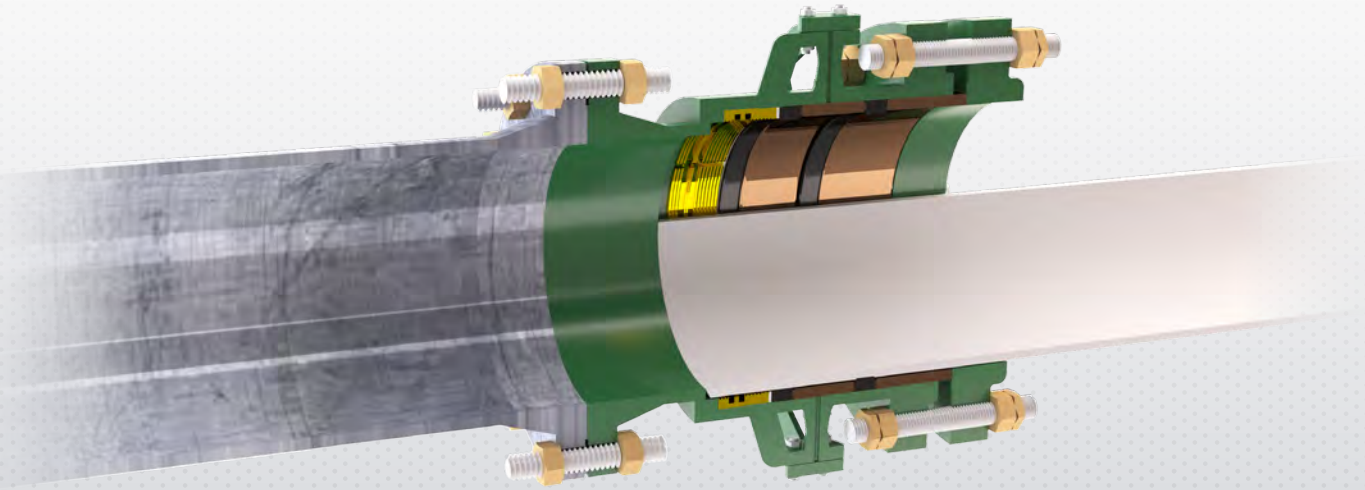
Connectors are suitable for topside, terminal, FPSO or subsea installation and compatible with processed water, air systems and hydrocarbon applications. Available to suit a wide range of pipe materials including carbon steel, stainless steel, duplex and super duplex.

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 pipework



Pipe to Flange Mechanical Connection

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 localized material deformity and localized stress fractures
- External lock and seal assembly eliminates flow restriction or turbulence
- Removable and reusable with no damage to existing pipework

4" Mechanical Connector

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

18" Mechanical Connectors

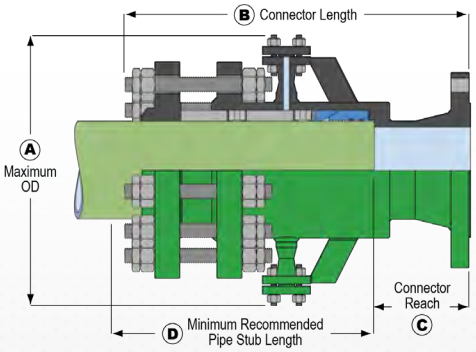
Key Features

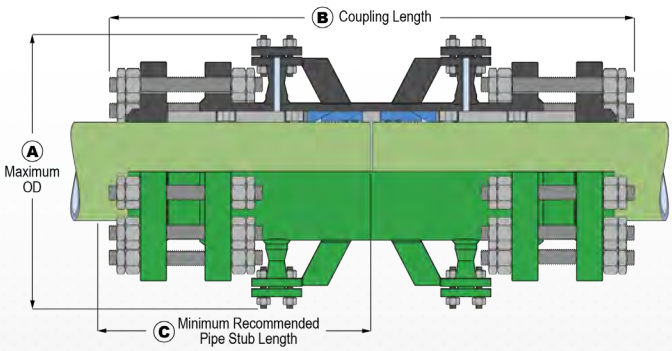
- Maintenance free mechanical pipe connection in accordance with API Specification 6H and certified fire-safe to API 6FA
- Seal verification port can be fitted with a DBB valve to comply with specific operator inspection requirements
- Robust construction provides equivalent or greater design criteria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

Stainless Steel Connector End Cap

Connector Weights & Dimensions

Nom Size	Max Design Pressure (psi)	A-OD (in)	B-Length (in)	C-Reach (in)	D-Pipe Stub Length (in)	Weight (lbs)
2″	290	11.5	13.2	3.6	8.8	33
2″	725	11.5	13.7	3.8	8.8	33
3″	290	13.0	14.7	3.8	10.3	71
3″	725	13.0	15.2	4.2	10.3	73
4″	290	14.3	18.9	4.5	12.9	115
4″	725	14.3	19.3	4.9	12.9	112
6″	290	16.6	19.6	4.8	13.9	165
6″	725	16.6	19.9	5.1	13.9	190
8″	290	19.1	21.2	5.4	15.2	254
8″	725	19.1	21.6	5.7	15.2	282
10″	290	21.0	24.0	5.9	16.5	342
10″	725	21.0	24.4	6.5	16.3	408
12″	290	23.4	25.8	6.3	18.4	505
12″	725	23.4	26.6	7.0	18.4	580
14″	290	25.4	27.5	6.9	19.8	858
14″	725	25.4	28.1	7.5	19.7	966
16″	290	27.6	28.5	6.9	20.5	893
16″	725	27.6	29.2	7.7	20.6	1027
18″	290	29.6	30.9	8.1	21.8	1111
18″	725	29.6	31.7	8.9	21.7	1270
24″	290	36.0	34.7	9.1	23.9	1986
24″	725	36.0	35.4	9.6	24.1	2205





Coupling Weights & Dimensions

Nom Size	Max Design Pressure (psi)	A-OD (in)	B-Length (in)	C-Pipe Stub Length (in)	Weight (lbs)
2″	725	11.8	19.6	8.8	44
3″	725	13.3	21.8	10.4	95
4″	725	14.5	27.2	13.0	179
6″	725	16.7	30.7	14.4	287
8″	725	19.0	31.5	15.0	412
10″	725	21.1	35.0	16.5	562
12″	725	23.3	39.4	18.5	816
14″	725	25.4	43.0	20.5	899
16″	725	27.6	44.8	21.3	1504
18″	725	29.3	46.9	22.6	1773

All data correct at time of publication

STATS GROUP
Managing Pressure, Minimizing Risk

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