



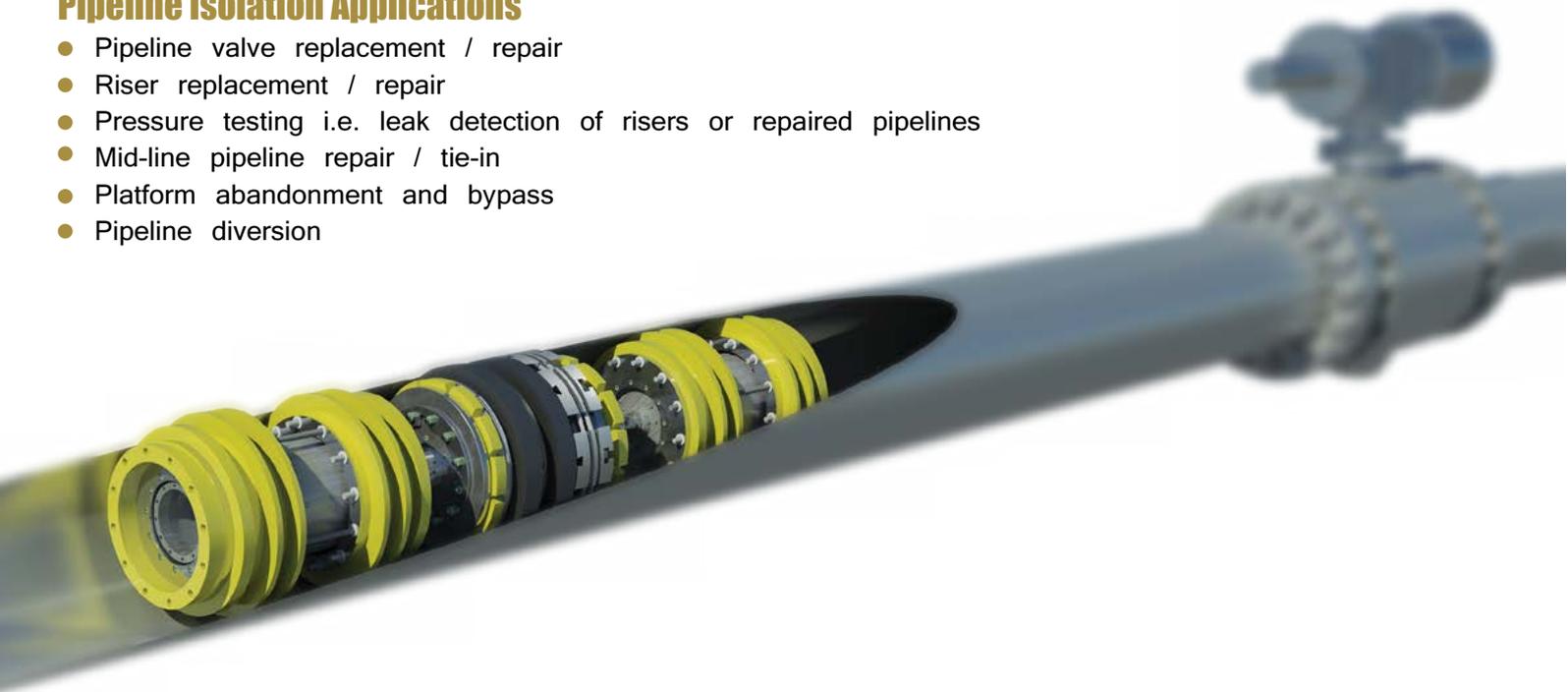
Tecno Plug™ - Process & Pipeline Isolation

STATS comprehensive Tecno Plug™ range provides fail-safe double block and bleed isolation tools for high pressure operations. These dual seal isolation plugs are available for remote, tethered, piggable or manual deployment and operation.

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 at 110% of the maximum potential isolation 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 customised to suit corrosion or ovality issues ensuring a leak tight seal even in ageing assets. A through-port is provided for downstream pressure monitoring or pressure application as required.

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



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 Taper lock-ring provides twice the required lock contact area giving 100% contingency. In the event that the hydraulic 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) radio control 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 is ATEX rated and provides a robust system for safety critical activities, undertaken a rigorous validation programme.



Tecno Plug™ - Process & Pipeline Isolation

Operator Benefits

- De-commissioning (bleeding down) and re-commissioning (refilling / 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 / hydrocarbon vapour to 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

Key Features Tecno Plug™

- Size range: 3" - 42". Pressure range: up to 350 Bar / 5075 psi
- Available as 3D or 5D compliant
- 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 & ovality issues
- High integrity isolation, taper lock-ring provides twice the required lock contact area (100% contingency)
- Annulus bleed between seals allows pressure to be vented to ambient creating a zero energy zone providing effective double block & bleed isolation
- Fail-safe design feature: lock & seals energised by differential pressure, referred to as self-energisation
- Self-energisation feature maintains safe isolation while differential pressure exists across the plug
- Hydraulic system override releases the plug setting mechanism when pressure is equalised
- Both seals fully energised by pressure (rubber pressure 1.1 - 1.4 times greater than pipeline pressure)
- Reverse pressure can be applied across the isolation plug to facilitate system leak testing
- Outboard pressure monitoring options



Tecno Plug™



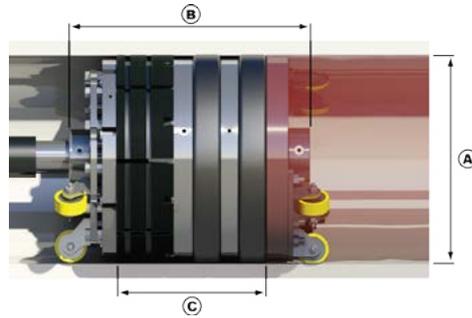
Remote Tecno Plug™

Key Features Remote Tecno Plug™

- Size range: 12" - 42"
- Standard remote control module housing rated for 200 Bar / 2900 psi external pressure
- The remote control module provides a robust system for safety critical activities and has undertaken a rigorous validation programme with ATEX rating to Ex P2 II 3 GT3
- The external communication system is housed in an ATEX rated enclosure EE xd IIB T5
- Through-wall communication is achieved using an extremely low frequency (ELF) radio control 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



Tecno Plug™ - Data



* Dimension B reduces by approximately 15-20% when the tool is in the set position

Plug Nominal Diameter	Plug Outside Diameter	A - Pipe ID (Min-Max)	B - Overall Length	C - Seal To Lock (Unset)*	Weight
6"	130mm	140 - 150mm	274mm	177mm	15kg
6"	143mm	153 - 163mm	285mm	189mm	19kg
8"	163mm	173 - 193mm	326mm	205mm	30kg
8"	190mm	200 - 230mm	257mm	207mm	33kg
10"	210mm	220 - 245mm	372mm	248mm	50kg
10"	235mm	245 - 268mm	372mm	249mm	57kg
12"	277mm	287 - 301mm	578mm	307mm	112kg
12"	293mm	303 - 317mm	578mm	307mm	123kg
14"	294mm	318 - 332mm	578mm	308mm	128kg
14"	308mm	328 - 358mm	578mm	308mm	130kg
16"	346mm	356 - 376mm	683mm	355mm	197kg
16"	366mm	376 - 396mm	683mm	355mm	218kg
18"	388mm	398 - 423mm	683mm	357mm	262kg
18"	405mm	415 - 440mm	683mm	358mm	264kg
20"	430mm	440 - 465mm	751mm	391mm	355kg
20"	450mm	460 - 500mm	676mm	392mm	403kg
22"	480mm	490 - 530mm	676mm	393mm	405kg
22"	500mm	510 - 550mm	676mm	395mm	426kg
24"	520mm	530 - 570mm	947mm	457mm	681kg
24"	550mm	560 - 600mm	947mm	458mm	755kg
26"	595mm	605 - 645mm	967mm	460mm	833kg
30"	625mm	635 - 675mm	1025mm	584mm	986kg
30"	644mm	654 - 694mm	1025mm	584mm	1062kg
30"	694mm	704 - 744mm	1025mm	587mm	1201kg
32"	744mm	754 - 794mm	1156mm	674mm	1567kg
34"	770mm	780 - 820mm	1151mm	671mm	1686kg
34"	794mm	804 - 844mm	1151mm	674mm	1785kg
36"	825mm	835 - 875mm	1105mm	705mm	2039kg
36"	869mm	879 - 919mm	1105mm	705mm	2180kg