



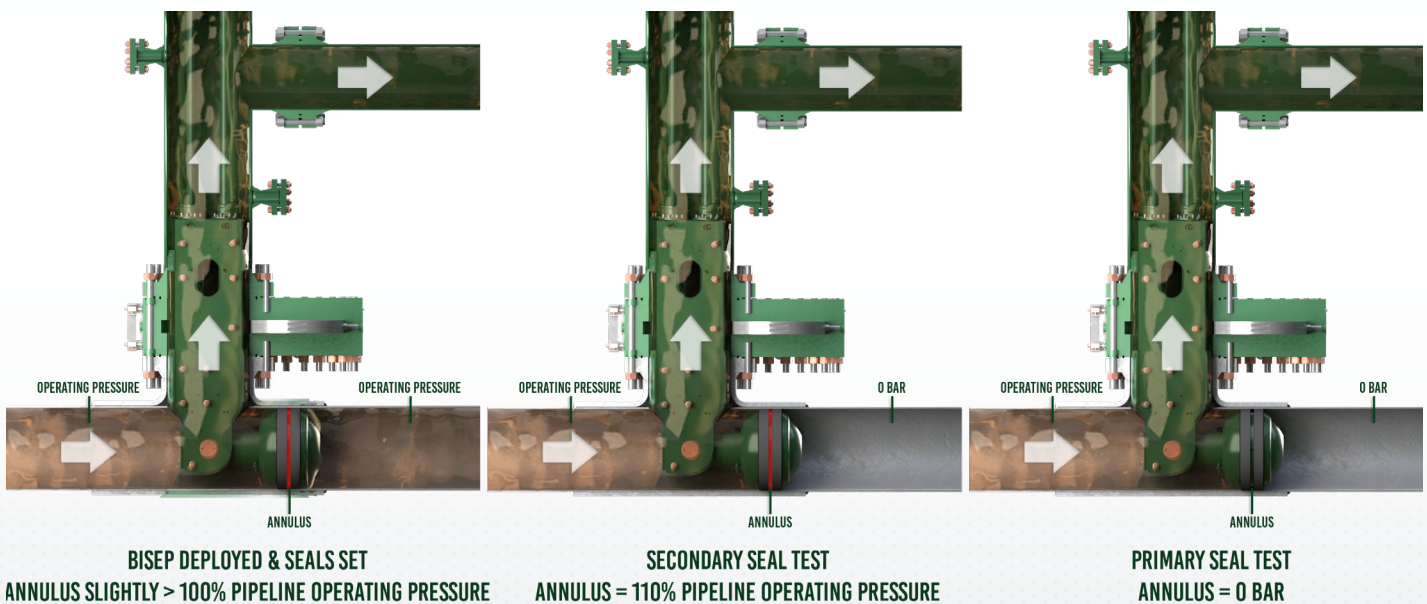
STATS GROUP
Managing Pressure, Minimising Risk

BISEP[®] Hot Tapping & Plugging

BISEP Seal Verification Sequence

Once deployed into the pipeline, the BISEP is hydraulically set which retracts the internally mounted hydraulic cylinder with the BISEP plugging head. This causes the seals to radially expand and contact the pipe wall. Hydraulic activation allows for high integrity sealing in pipelines with pitting, ovality and other internal issues.

During the setting process, the pressure within the annulus (space between the primary and secondary seal) will rise as the annular space is compressed by the radially expanding seals. Monitoring this pressure to prove no pressure loss is an initial indication that the seals are isolating prior to the client venting or cross compressing the isolated section of the pipeline. The annulus pressure is continually monitored and the pipeline pressure in the isolated section of the pipeline is vented, thereby generating a differential pressure across the BISEP plugging head. Once pressure on the isolated side is fully vented the BISEP secondary seal is tested in-situ to above the pipeline pressure (normally 1.1x pipeline pressure), in the correct direction. This proves the integrity of the secondary seal. The annulus is then vented to a safe area and locked-in. This allows the primary seal to be monitored for sealing performance to the full differential pressure and in the direction of the pressure threat. The secondary and primary seal tests provide for proof of isolation prior to STATS issuing an isolation certificate and allow safe work to proceed in the isolated section of pipeline.



The BISEP provides a fail-safe isolation as the seals are activated and maintained by two independent mechanisms; hydraulic activation and pressure differential across the seals provided by the pipeline pressure. The differential pressure maintains self-energisation of the seals ensuring isolation integrity independent of the hydraulic control circuit.

The BISEP can be configured for insertion into the pipeline in either direction, allowing for an integrated bypass (as shown above) or safe depressurisation of the isolated pipeline using BISEP launcher (housing) flanged ports. Flushing, cross compression or purging can be efficiently conducted without welding any additional fittings with this configuration option. In addition, once maintenance activities have been completed the BISEP seals can be used as a pressure boundary to perform a reinstatement test of the newly repaired or replaced pipe section as the seals are designed to resist back pressure.

The BISEP is the only hot tap installed isolation tool that satisfies the design criteria for DNV Type Approval for Pipeline Isolation Plugs. 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 is code compliant with: ASME BPVC Section VIII, Division 2.

