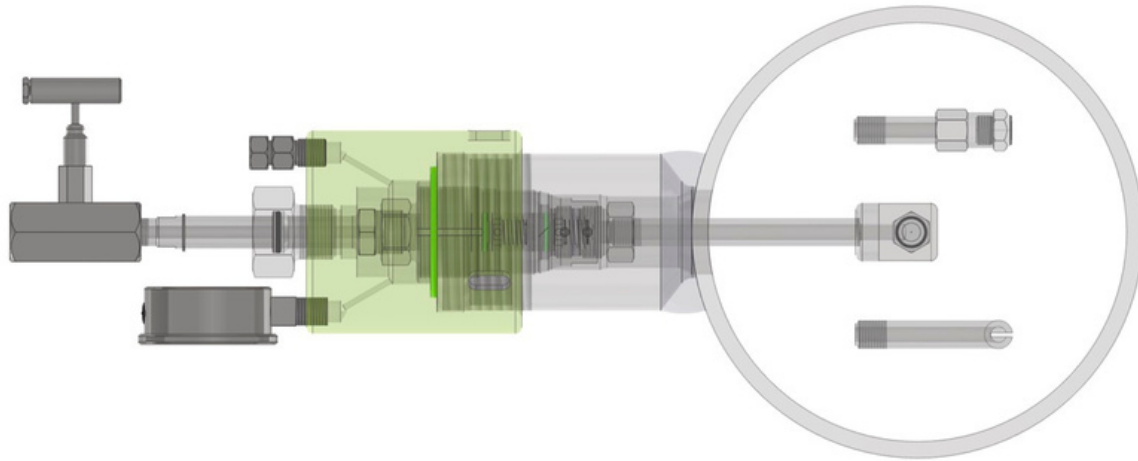


DIRECT INJECTION FITTING



Tee-less Repurpose Fittings

Precise, reliable injection of chemical treatments is crucial for any corrosion control system. Whilst many injection devices can only be serviced and maintained during shutdown conditions Axess provides a range of high and low pressure injection systems which can be serviced safely online at pressures up to 6,000 PSI / 413 Bar and temperatures up to 232°C / 450°F.

Retrievable injection systems typically utilize a 2" high pressure access fitting with integral side tee in a range of configurations including NPT, welded and flanged (see separate Axess datasheets).

The Axess Direct Injection system provides an alternate solution allowing the use of non-tee fittings whilst still maintaining the safety, reliability, and online servicing capability of our tee'd systems including secondary isolation with pressure retaining cover. These fittings provide the flexibility to repurpose existing monitoring fittings or allow installation of new injection points at critical locations where space may be restricted.

In addition, there are integrity management benefits with reduced side connections that may be threaded or welded. Significant cost and lead time reduction can be realised through the simple design and the required wetted parts materials.

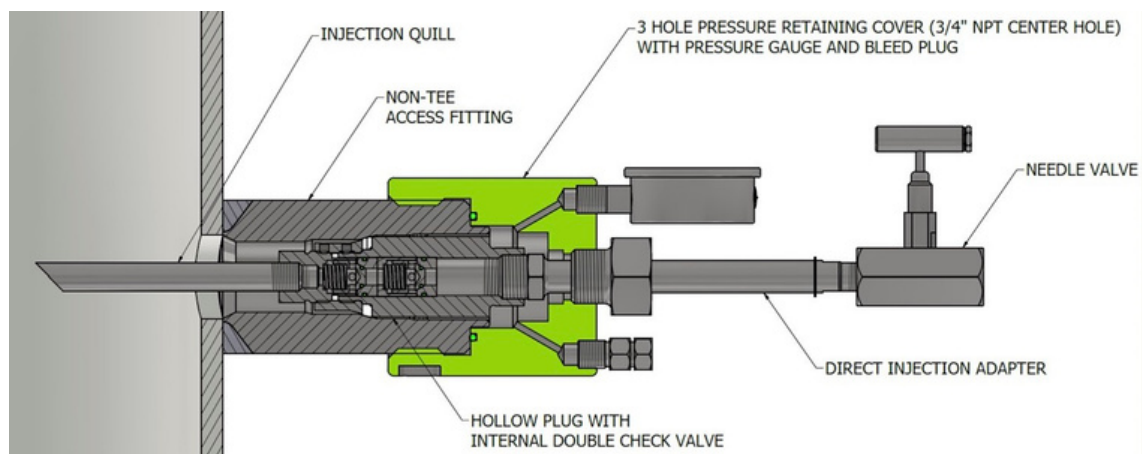
**IDEAL FOR RESTRICTED
ACCESS PREVENTING
CONVENTIONAL TEES**

**ELIMINATES INTEGRITY
CONCERNS WITHSIDE
TEE CONNECTIONS**

**SIGNIFICANT COST
SAVINGS RELATED TO
REDUCTION IN
MATERIALS**

**CRA WETTED PARTS AND
EASILY INSPECTED AND
REPLACED**

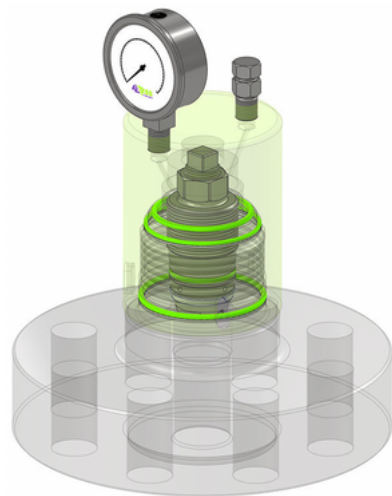
**PRESSURE RATED UP TO
10,000 PSI / 689 BAR
TEMPERATURE UP TO
204°C / 400°F**



Self Contained Access Systems

The Janus™ Access System is a high pressure access system for the mounting of devices into pipework and vessels. The system allows insertion and retrieval of the devices under pressure, enabling monitoring to be maintained continuously without the need to shut down the process.

Access fittings are available in flareweld and flanged, mechanical and hydraulic versions and are manufactured in ASTM A105, ASTM A350 Gr.LF2 and Duplex steel as standard materials. However, other versions (e.g. HUB fittings) and materials are available upon request.



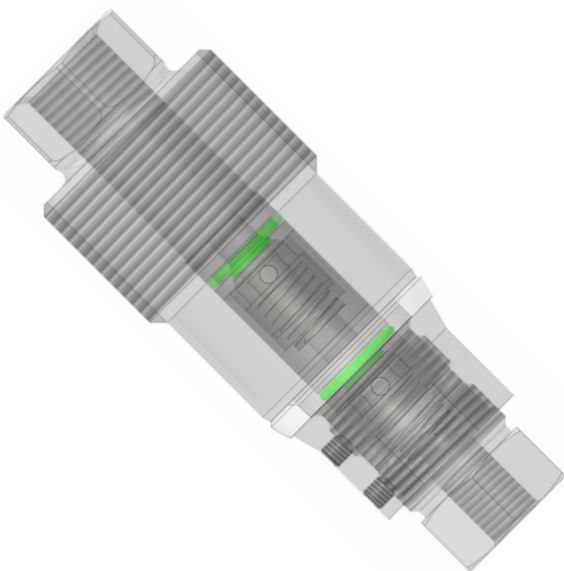
Direct Injection Hollow Plug

The Hollow or Solid Plug provides the pressure seal in the access fitting and is the carrier for the corrosion monitoring device (probe or coupon holder). The primary packing is made from PTFE (15% glass filled) as standard but are available in a range of materials including metal seals for high temperature service.

Axess plugs are available in 316 SS and Duplex as standard. Plug threads are coated and Axess experts can assist with material selection to reduce or eliminate galling risks.

The Direct Injection system uses a special version of the hollow plug incorporating two internal one way check valves. This allows chemical to be injected into the line through the center of the plug, and prevents flowback of process into the injection line.

Special plug designs are available for high velocity applications based on results from wake frequency calculations. Please consult Axess for more information.



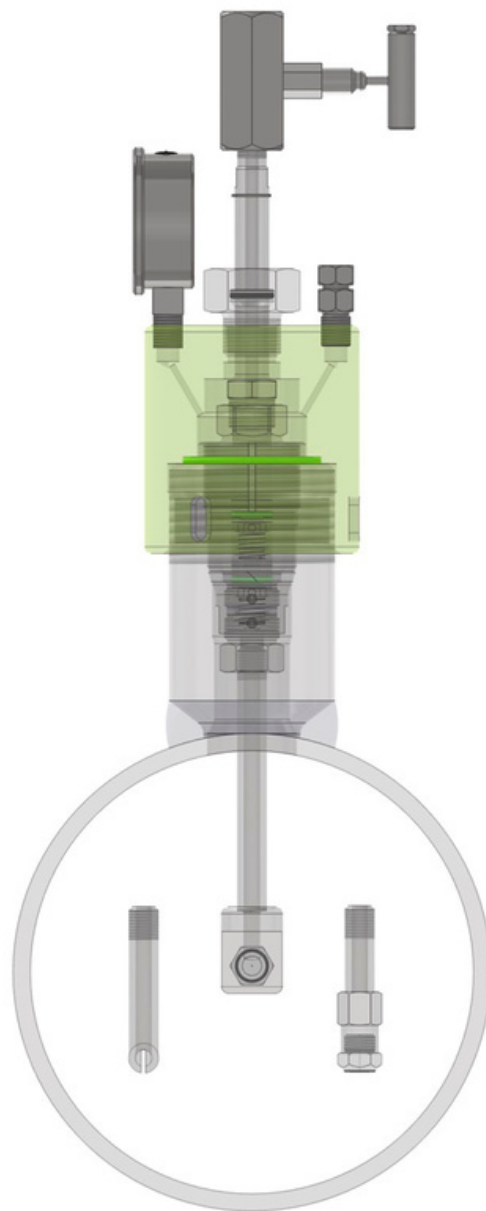
Injection Devices Quills or Atomize

Axess offers a range of injection tubes, quills, and nozzles to suit the injection method, rate and atomization required.

Injection Options: the injection fluid can be drip fed or atomized, though atomization is only useful for injection into gas filled spaces or treating gas systems. Both methods of injection can be either top or middle of line, usually referred to as perpendicular and parallel (to line flow) injection, respectively. Top of line can be specified as flush for pigable lines.

Drip Feed Tubes and Quills: for perpendicular drip feeds an open end tube is used. This method relies on the natural turbulence in the flow to disperse the chemical feed and may not be suitable when complete dispersal of a small volume of chemical is needed. Parallel injection uses a notched quill design at the center of the line which creates an artificial turbulence in the fluid flow to disperse the treatment chemical more effectively. The term quill is derived from the diagonally cut end of the tube which resembles a quill pen. As both designs may be used in fast fluid flows it is necessary to consider the strength and wake frequency of the design. Quill and tube diameters are otherwise selected to suit the rate of injection. Standard sizes range between 1/4" and 3/4".

Atomizing Nozzles & Tubes: perpendicular atomizing nozzles are screwed into the end of an injection tube of the required length. Parallel nozzles require a tube with a mounting block holder. Nozzles are selected based on the desired injection flow rate by calculating the pressure differential (ΔP) between the pipe operating pressure and chemical injection pump pressure. The tube diameter must be capable of delivering the required flow and withstanding the system pressures and forces.



Reference

Janus™ Retrieval Tools and Service Valves
Axess Chemical Injection and Sampling Solutions

Certification

NACE MR0175
NORSOK and PED Compliance Upon Request



Innovating Safety...

