AX2HP Fittings

Product Brochure & Technical Datasheets

www.axess.energy

AX2HP & AX2HPH

Access Fittings

Axess offers a complete range of high pressure access fitting assemblies for installation of intrusive corrosion monitoring, chemical injection, and sampling devices.

The product range comprises both the 2" mechanical system as well as the 2" hydraulic system. The 2" retrievable access system is a high pressure access system for the installation 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.

Axess 2" retrievable access system products are compatible and interchangeable with industry standard products.

Janus

Enhanced Sealing Access Fittings

The unique patented design is the first advance in high-pressure access fittings in decades and enhances safety by providing extra layers of protection against process entering the environment, and environment damaging the access fitting.

An external 3" ACME thread enables installation of portable isolation valves used while retrieving devices under line pressure. It is common for double isolation valves to be specified, yet these valves do not provide a double seal at the access fitting. The Janus™ fitting solves this problem with a radial sealing surface for the secondary seals installed in the Janus™ service valve or retrokit designed to attach to existing service valves.

A third seal is fixed to the access fitting providing external thread and sealing surface protection from the environment. Axess provide the Janus advanced sealing system as standard unless legacy access fittings are specifically requested.

JANUSGUARD

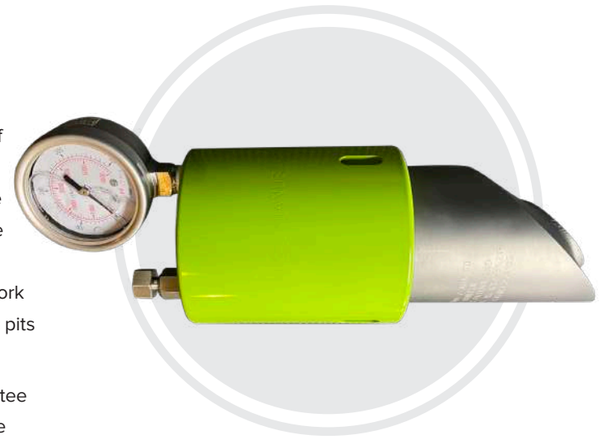
Horizon

Side Entry for BOL and TOL Monitoring

This patented design removes the need to position access fittings at the 6 o'clock position for bottom of the line (BOL) monitoring or sampling, or 12 o'clock for top-of-the-line monitoring (TOL). The benefits are significant and range from safety, integrity, and more accurate data. Engineers consider side entry as the safest and easiest type of fitting to design on pipework and the Horizon fitting removes the need for access pits and in many cases scaffolding.

Common alternatives to BOL monitoring is to install tee trap systems which provide questionable data as the monitored fluids can be stagnant and not representative of the process flow. Multiple joins and valves add to integrity management inspections and these systems may also freeze in some climates.

Standardizing on Horizon fittings will reduce device lengths and ultimately lead to shorter and lighter retrieval equipment, reducing cost and risk.



HORIZON

HP Mechanical

Access Fitting

Mechanical access fittings have an internal 1¾" UN parallel thread to receive carrier plugs that connect to various devices and seal into place at pressures up to 10,000 PSI (689 Bar) and temperatures up to 204 °C (400 °F). The access fitting and plug body can be supplied with an ACME plug thread to special order.

An external 3" ACME thread enables installation of portable isolation valves used while retrieving devices under line pressure and pressure retaining covers providing secondary isolation.

HP Hydraulic

Access System

The Axess hydraulic access and retrieval system provides a complete solution for the online safe, reliable installation and retrieval of probes and coupons from high pressure piping, and vessels at pressures up to 10,000 PSI (690 Bar) and temperatures of up to 204 °C (400 °F).

Axess 2" hydraulic access products are compatible and interchangeable with industry standard products also supplied by other vendors.

Axess 2" Access and Retrieval system comprises the following components:

- High pressure access fitting
- Hollow and solid plugs
- Heavy duty pressure retaining covers (up to 10,000 PSI/690 Bar)
- Retrieval tool and service valve (see separate brochure and data sheet)

- **PRESSURE RATED UP TO 10,000 PSI / 689 BAR**
- **TEMPERATURE TO 204°C / 400°F**
- **RF / RTJ / API FLANGES, WELDED & HUB CONNECTIONS IN MANY MATERIALS**
- **SIDE TEE CONNECTIONS FOR INJECTION OR SAMPLING**
- **NACE MR0175 NORSOK AND PED COMPLIANCE UPON REQUEST**

Carrier Plugs

Hollow or Solid (standard 1-3/4 UN & ACME)

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 seal is made from PTFE (25% glass filled) as standard but are available in a range of materials including metal seals for high temperature service. The mechanical solid plug has an O-ring that must be selected according to application.

Hollow plugs are used for online probes like ER (Electric Resistance) and LPR (Linear Polarization Resistance) probes.

Solid plugs are used for passive monitoring devices including weight loss coupons, bio coupons and injection/ sampling equipment.

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

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

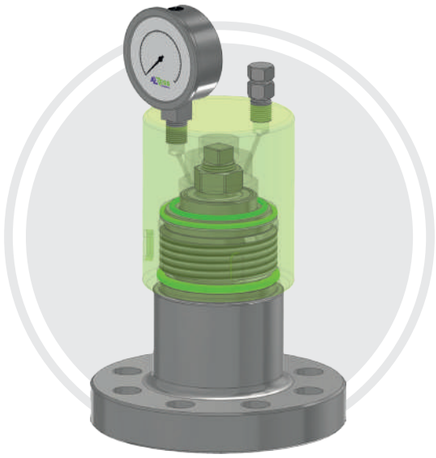
Safety Cover

Access Fitting

The Pressure Retaining Cover provides secondary isolation up to 10,000 PSI / 689 Bar (subject to material). The pressure gauge indicates whether the plug seals have leaked and the bleed port allows bleed off prior to removal.

2-hole pressure retaining covers are used for coupon locations and incorporate a pressure indicator and bleed plug for assessment and servicing. All components are available in numerous materials.

For probe locations 3-hole pressure retaining covers also include a central hole for installation of a probe adaptor. Lighter duty covers in vinyl or carbon steel are available and are recommended for thread protection during transport and installation only. Axess recommends all HP Access Fittings, once commissioned, are installed with Pressure Retaining Covers. The covers are coated as standard and Axess can also coat to client specifications.



It is important that correct procedures are followed for the installation and removal of all covers.

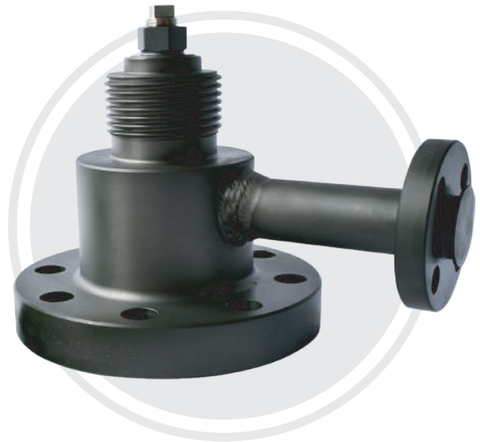
Side Tees

Access Fitting

2" HP access fittings are commonly used for the injection of chemicals to process or for sampling from the process. Sand probes also utilise tee-type access fittings. The ability to maintain or change the injection head under pressure can save time and cost and ensure optimum flow.

The tee can be between ¼" and 1" diameter and configured to suit the type of service. Options for NPT threaded, socket-weld, butt-weld, and flanged tees are available. Where threaded connections are contemplated, the relevant piping codes should be consulted to ensure these are acceptable.

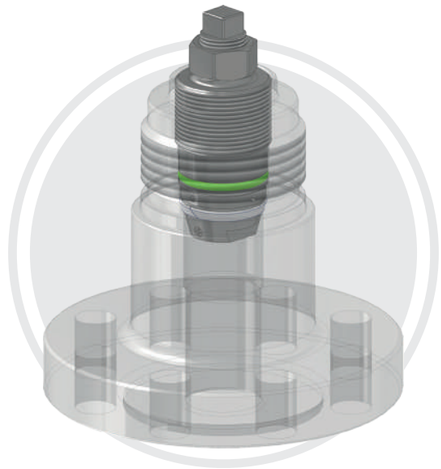
The addition of a tee adds between 1 and 3" to the height of the standard access fitting (5¼") according to the diameter and rating. Where real estate is in short supply, Axess provides Direct Injection and teeless sand probe fittings that remove the need for a side tee connection. Please see the Teeless Kamikaze and Chemical Injection and Sampling Datasheets for more information.



Seals

Access Fitting

Correct seal selection is vital to ensure safety and longevity of service. Axess has innovated in this area and developed our Janus enhanced sealing system. This adds additional seals to the access fitting cover to increase safety, protect the environment from spillage in case of leaks and to increase access fitting life by protecting the cover threads.



Typical seal service temperatures* are detailed below

O-Ring

Viton	**-45 to +175°C**	(-49 to +350°F)
Ethylene Propylene	**-50 to +150°C**	(-58 to +302°F)
Kalrez	**-21 to +250°C**	(-5 to +480°F)
Nitrile	**-30 to +120°C**	(-22 to +248°F)
Viton EDR	**-45 to +175°C**	(-49 to +350°F)
FF582-90 (AED)	**-15 to +275°C**	(5 to +525°F)
EOL-101	**-33 to +160°C**	(-27 to +320°F)
EOL-985	**-55 to +150°C**	(-67 to +302°F)
Viton 75	**-20 to +200°C**	(-4 to +392°F)

Primary Seal

Teflon 25% GF PTFE	**-200 to +260°C**	(-328 to +500°F)
Dupont Vespel SP-1 Polymide	**-150 to +260°C**	(-238 to +500°F)
PEEK	**-70 to +200°C**	(-94 to +392°F)
Fluoroloy N39 PTFE	**-268 to +316°C**	(-450 to +600°F)
316L SS	**>+287°C**	(+550°F)
Nitronic 60	**>+287°C**	(+550°F)
Hastelloy C276	**>+287°C**	(+550°F)
Incoloy A825	**>+287°C**	(+550°F)

*Temperatures relate to seal material and are not necessarily relevant to their use in access fittings.

Retrievable Access Fitting Part Number Breakdown

+1 (832) 990-6754
info@axess.energy

01 System
- `-` Mechanical
- `H` Hydraulic

02 Enhanced Sealing
- `JA` Janus

03 Plug Thread
- `-` 1 ¾" UNF
- `AT` ACME Thread

04 Fitting Type
- `FW` Flare-Weld
- `BW` Butt-Weld
- `HZ` Horizon
- `RF` RF Flange
- `RJ` RJ Flange
- `API` API Flange

05 FW/BW Base Radius

2"	02
3"	03
4"	04
6"	06
8"-10"	10
12"-18"	18
20"-36"	35
>36"	FL
BW	FL

Flange Rating

RF Flange
- 150
- 300
- 600
- 900
- 1500
- 2500

RJ Flange
- 150
- 300
- 600
- 900
- 1500
- 2500

API RJ
- 2000
- 3000
- 5000
- 10000

06 Tee Size
- `NT` Non Tee
- `STQ` ¼"
- `STH` ½"
- `STT` ¾"
- `STO` 1"

07 Tee Type
- `-` Non Tee
- `BW` Butt-weld
- `NPT` NPT
- `SW` Socket-weld
- `RF` Raised Face
- `RJ` Ring Joint

08 Tee Rating

RF Flange
- 150
- 300
- 600
- 900
- 1500
- 2500

RJ Flange
- 150
- 300
- 600
- 900
- 1500
- 2500

API RJ
- 2000
- 3000
- 5000
- 10000

09 Body Material
- `A3` 316/316L SS
- `A4` A105 CS
- `A5` A350LF2
- `A7` F51 DSS
- `A8` F60 DSS
- `A9` F53 SDSS
- `B1` F55 SDSS
- `B4` Hastelloy C276
- `B5` A625
- `B6` A825
- `C1` 304 SS
- `C3` 6061-T6 Al
- `C4` A694 F65 CS

10 System
- `-` Mechanical
- `H` Hydraulic

11 Plug Type
- `SP` Solid
- `HP` Hollow

12 Plug Thread
- `-` 1 ¾" UNF
- `AT` ACME Thread

13 Plug Material
- `A1` 1008 CS
- `A3` 316/316L SS
- `A4` A105 CS
- `A5` A350LF2 CS
- `A6` 1018 CS
- `A7` F51 DSS
- `A8` F60 DSS
- `A9` F53 SDSS
- `B1` F55 SDSS
- `B2` Nitronic 50
- `B3` Nitronic 60
- `B4` Hastelloy C276
- `B5` A625
- `B6` A825
- `B7` EN1A
- `B8` 4130 CS
- `B9` 1022 CS
- `C1` 304 SS
- `C3` 6061-T6 Al
- `C5` A193-B7
- `C4` A694 F65 CS

14 O-Ring
- `1` Viton
- `2` Ethylene Propylene
- `3` Kalrez
- `4` Nitrile
- `5` Viton EDR
- `6` FF 582-90 (AED)
- `7` EOL-101
- `8` EOL-985
- `9` Viton 75

15 Primary Seal
- `1` Teflon (25% GF PTFE)
- `2` Duport Vespel SP-1 Polymide
- `3` PEEK
- `4` Fluoroloy N39 PTFE
- `5` 316L SS
- `6` Nitronic 60
- `7` Hastelloy C276
- `8` A825

16 System
- `-` Mechanical
- `H` Hydraulic

17 Cover Type

2PRCJA
2 Hole - Janus Pressure Retaining

3PRCJA
3 Hole - Janus Pressure Retaining

2PRC
2 Hole - Pressure Retaining

3PRC
3 Hole - Pressure Retaining

TP0
Thread Protector without hole

TP1
Thread Protector with hole at centre

19 Cover O-Ring
- `1` Viton
- `2` Ethylene Propylene
- `3` Kalrez
- `4` Nitrile
- `5` Viton EDR
- `6` FF 582-90 (AED)
- `7` EOL-101
- `8` EOL-985
- `9` Viton 75

18 Cover Material
- `A1` 1008 CS
- `A3` 316/316L SS
- `A4` A105 CS
- `A5` A350LF2 CS
- `A6` 1018 CS
- `A7` F51 DSS
- `A8` F60 DSS
- `A9` F53 SDSS
- `B1` F55 SDSS
- `B2` Nitronic 50
- `B3` Nitronic 60
- `B4` Hastelloy C276
- `B5` A625
- `B6` A825
- `B7` EN1A
- `B8` 4130 CS
- `B9` 1022 CS
- `C1` 304 SS
- `C3` 6061-T6 Al
- `C5` A193-B7
- `C4` A694 F65 CS

20 Locking Pins
- `LP` Hydraulic
- `-` Mechanical

AX2HP	H	JA		-	RF	600	-	ST	RF	600	-	A4	/	H	SP		-	A3	-	4	-	2	/	H	2PRCJA	-	A5	-	4	/	LP
Axess 2" High Pressure	01 Hydraulic / Mechanical	02 Janus Enhanced Sealing	03 Plug Thread		04 Fitting Type	05 Base Radius / Flange Rating		06 Tee Size	07 Tee Type	08 Tee Rating		09 Body Material		10 Hydraulic / Mechanical	11 Plug Type	12 Plug Thread		13 Plug Material		14 O-Ring		15 Primary Seal		16 Hydraulic / Mechanical	17 Cover Type		18 Cover Material		19 Cover O-Ring		20 Locking Pins (Hydraulic Only)
AX2HP			AT	-	FW	FL	-	NT			-	A3	/		HP	AT	-	B3	-		-	3	/		3PRC	-	A3	-	3	/	

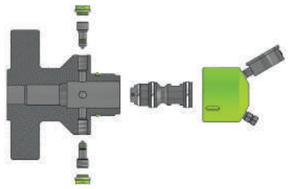
Standard Part Numbering

Access Fittings

AX2HP — Axess Corrosion 2" High Pressure Access Fitting, suitable for pressures up to 10,000 PSI (689 Bar) and temperatures up to 204 °C (400 °F).

01 Hydraulic / Mechanical

Hydraulic



H

OR

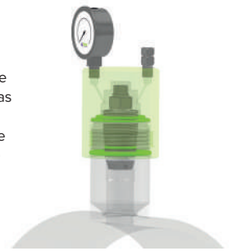
Mechanical

-

02 Janus Enhanced Sealing

Janus Enhanced Cover Sealing System

The Janus Enhanced Sealing System has multiple O-rings to increase the safety and longevity of the pressure retaining cover, as well as providing a secondary seal on the service valve sealing face to increase user protection.



JA

OR

Legacy Access Fitting Cover Seal

The Legacy sealing system only has one O-ring for the cover and only one O-ring face for sealing during the retrieval process.

-

03 Plug Thread

1 ¾" UN

-

OR

ACME (Mechanical Only)

AT

OR

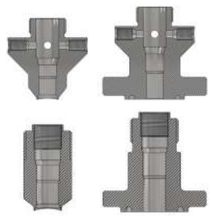
Hydraulic

-

04 Fitting Type

Fitting Type

- FW Flare-Weld
- BW Butt-weld
- HZ Horizon
- RF RF Flange
- RJ RJ Flange
- API API



Flare-weld, Butt-weld & Horizon fittings weld directly to the pipe. Horizon is an Axess Innovation, allowing true bottom of the line retrievable monitoring without requiring under pipe access.

Flange fittings connect to the pipe via flanged branches. Raised Face and Ring Joint are available to suit ANSI and API flanges.

05 Base Radius / Flange Rating

Base Radius

FW & HZ access fittings for use with pipes up to 36" require the base of the fitting to be radiused to suit the pipe outside diameter. Axess can add this radius at the factory to speed up installation.

- 02 For use with pipes 2" NB
- 03 For use with pipes 3" NB
- 04 For use with pipes 4" NB
- 06 For use with pipes 6" NB
- 10 For use with pipes 8"-10" NB
- 18 For use with pipes 12"-18" NB
- 36 For use with pipes 20"-36" NB
- FL For use with pipes >36" NB
- FL For BW fittings

OR

Flange Rating

RF & RJ Flanged access fittings can be offered in various flange ratings to suit the specific application. Please contact the factory for any special requirements not listed below:

150	150# Flange Rating	ANSI RF & RJ
300	300# Flange Rating	
600	600# Flange Rating	
1500	900/1500# Flange Rating	
2500	2500# Flange Rating	
2000	2000# Flange Rating	API RJ
3000	3000# Flange Rating	
5000	5000# Flange Rating	
10000	10000# Flange Rating	

06 Tee Size

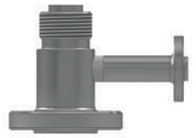
Fitting Without Tee

- NT Non-tee

OR

Fitting With Tee

- STO ¼" Tee Size
- STH ½" Tee Size
- STT ¾" Tee Size
- STO 1" Tee Size



07 Tee Type

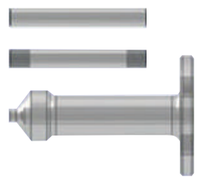
Leave Blank For

- Non-tee

OR

Access Fitting Tee Type

- NPT NPT
- SW Socket-weld
- BW Buttweld
- RF Raised Face Flange
- RJ Ring Joint Flange
- API API RJ Flange



08 Tee Rating

Leave Blank For

- Non-tee
- BW Butt-weld
- NPT NPT
- SW Socket-weld

OR

Access Fitting Tee Rating

150	150# Flange Rating	ANSI RF & RJ
300	300# Flange Rating	
600	600# Flange Rating	
1500	900/1500# Flange Rating	
2500	2500# Flange Rating	
2000	2000# Flange Rating	API RJ
3000	3000# Flange Rating	
5000	5000# Flange Rating	
10000	10000# Flange Rating	

09 Body Material

Access Fitting Body Material

- A3 316/316L SS
- A4 A105 CS
- A5 A350LF2
- A7 F51 DSS
- A8 F60 DSS
- A9 F53 SDSS
- B1 F55 SDSS
- B4 Hastelloy C276
- B5 A625
- B6 A825
- C1 304 SS
- C3 6061-T6 Al
- C4 A694 F65 CS

Other materials are available, please contact us with your requirements.

10 — **H** Hydraulic OR **-** Mechanical

11

HP Hollow Plug SP Solid Plug

12 Plug Thread

1 ¾" UN (-)

OR

ACME (Mechanical Only) (AT)

OR

Hydraulic (-)

13 Plug Material

A1 1008 CS	A9 F53 SDSS	B7 EN1A
A3 316/316L SS	B1 F55 SDSS	B8 4130 CS
A4 A105 CS	B2 Nitronic 50	B9 1022 CS
A5 A350LF2 CS	B3 Nitronic 60	C1 304 SS
A6 1018 CS	B4 Hastelloy C276	C3 6061-T6 Al
A7 F51 DSS	B5 A625	C5 A193-B7
A8 F60 DSS	B6 A825	C4 A694 F65 CS

Other materials are available, please contact us with your requirements.

14 O-Ring

Mechanical Solid Plug O-ring Material

1. Viton
2. Ethylene Propylene
3. Kalrez
4. Nitrile
5. Viton EDR
6. FF582-90 (AED)
7. EOL-101
8. EOL-985
9. Viton 75

15 Primary Seal

Plug Primary Seal Material

1. Teflon (25% GF PTFE)
2. Dupony Vespel SP-1 Polymide
3. PEEK
4. Fluoroloy N39 PTFE
5. 316L SS
6. Nitronic 60
7. Hastelloy C276
8. A825

Hollow Plug's Probe seal is GF PTFE as standard

16 — **H** Hydraulic OR **-** Mechanical

17 Cover Type

Thread Protector

TP0 Thread Protector

TP1 Thread Protector with centre hole

OR

Pressure Retaining

2PRC Pressure retaining cover with 2x ¼" NPT holes for bleed port & pressure gauge

3PRC Pressure retaining cover with 2x ¼" NPT holes for bleed port & pressure gauge plus central ½" NPT hole for probe adaptor

OR

Janus Enhanced

2PRCJA 2PRC with Janus Enhanced Sealing System

3PRCJA 3PRC with Janus Enhanced Sealing System

18 Cover Material

Cover Material

A1 1008 CS	A9 F53 SDSS	B7 EN1A
A3 316/316L SS	B1 F55 SDSS	B8 4130 CS
A4 A105 CS	B2 Nitronic 50	B9 1022 CS
A5 A350LF2 CS	B3 Nitronic 60	C1 304 SS
A6 1018 CS	B4 Hastelloy C276	C3 6061-T6 Al
A7 F51 DSS	B5 A625	C5 A193-B7
A8 F60 DSS	B6 A825	C4 A694 F65 CS

Other materials are available, please contact us with your requirements.

19 Cover)-Ring

Pressure Retaining Cover O-Ring Material

1. Viton
2. Ethylene Propylene
3. Kalrez
4. Nitrile
5. Viton EDR
6. FF582-90 (AED)
7. EOL-101
8. EOL-985
9. Viton 75

20 — **LP** Hydraulic OR **-** Mechanical

Additional Requirements

Access Fittings

These codes can be listed after your access fitting part number to capture customer specific requirements.

Painting / Coating

ZP	Carbon steel access fitting bodies & covers are Zinc Phosphate coated as standard
NC	No Coating (CRA access fitting bodies & covers are not coated as standard)
SC	Special Coating (please provide the coating specification, system & top coat colour)

Tag Plates

T	Standard tag plate fitted to access fitting body
ZT	Supply access fitting body without tag plate
LT	Supply tag plates loose for customer to attach
BT	Tag plate supplied without text

Inspection & Testing*

HT	Hydro test (Pressure test) of access fitting body
PMI	Positive Material Identification of CRA plug body plus cover & fitting body if applicable
MPI	Magnetic Particle Inspection of carbon steel access fitting body
LPI	Liquid / Dye Penetrant Inspection of CRA access fitting body
UT	Ultrasonic Test of access fitting body, usually on welded tee only
RT	Radiographic (X-Ray) Test of access fitting body, on welded tee only
TPI	Provision of third party inspector to witness stages & perform final inspection

*Please advise and provide any specific test procedures and inspection scope to be followed.

For more information about any of our products or services please get in touch with us

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