
COSASCO[®] TWO-INCH SYSTEM

ACCESS FITTING MANUAL



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Chapter 1

Introduction

The Cosasco Access Fitting Assembly is the key to the concept of “Access under pressure – any time, any place”. When used with a Cosasco Retriever and Service Valve, the Access Fitting Assembly permits safe, easy insertion and retrieval of corrosion and erosion monitoring systems as well as preventive maintenance devices for injecting inhibitors or for sampling, while under full operating pressure.

The Cosasco Access Fitting Assembly consists of three main components:



1. Optional Protective Cover



2. Carrier Plug



3. Access Fitting Body

For “Access Under Pressure”, a Cosasco Retriever and Service Valve are required. One Retriever and Service Valve may be used to maintain a number of Access Fitting Assemblies.

Chapter 2

General

Safety Considerations:

The Cosasco Access assembly system has been in use for over 30 years, and has proven itself to be safe and reliable. However, when working with any high pressure system, safety must be a primary consideration.

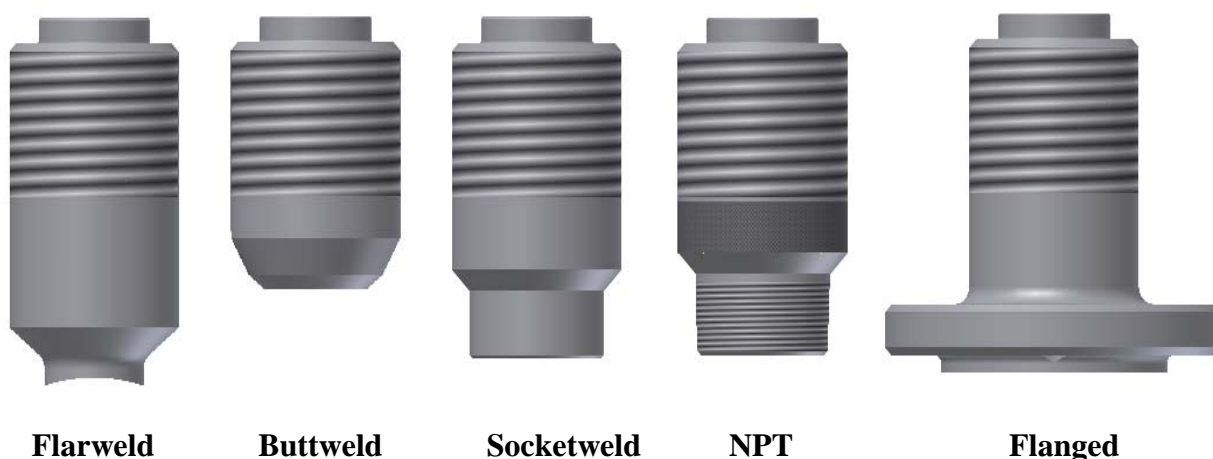
1. Safe operation under pressure requires a minimum of 2 trained operators.
2. Do not use retrieval equipment unless you have been trained in its safe operation.
3. If it has been longer than 90 days since your last operation, you should review the manual and first practice on a dummy fitting prior to use.
4. Make sure you have complied with all plant safety requirements and environmental regulations.
5. Identify the type media its pressure and temperature. Review material safety data information on the media prior to operation.
6. Insure you have all the required safety equipment for the given media, "i.e. hard hat, safety glasses, protective clothing, safety gloves, respirator, spill safety equipment, etc...
7. Any actions which could vary system pressure such as surges caused by opening and closing of valves and chokes should be delayed until completion of retrieval operations.
8. Ensure you have enough clearance for safe operation. Note wind direction prior to starting operations involving hazardous products.

Chapter 3

Access Fitting Body

Access Fitting Body Types

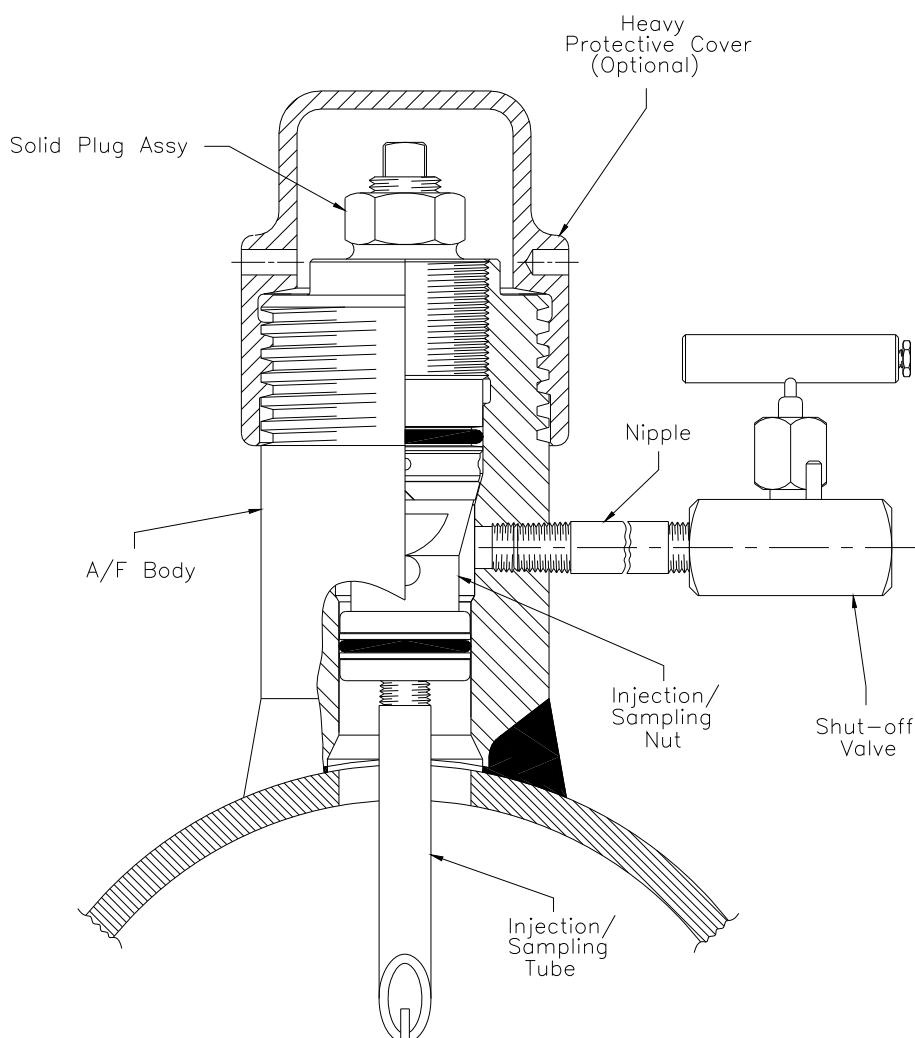
The Cosasco Access Fitting Body is available in several standard mounting configurations:



1. Flarweld – The model 50 Flarweld access fitting body is designed to be welded directly to the pipe or vessel. The fitting incorporates a radius to match the curvature of the pipe or vessel, with a maximum 1/16” weld gap. It also incorporates a thick body to provide adequate branch reinforcement area to help strengthen the weld joint. It is the most popular type of mounting configuration.
2. Butt weld – The model 52 Butt weld (aka. Butt weldolet) fitting is designed to be butt welded directly to a 2” schedule 160 pipe end. Possible configurations include welding to an industry standard “Weldolet” fitting, which is then welded to a pipe or vessel, or welding to a 2” schedule 160 butt weld “Tee”.
3. Socket weld – The model 53 Socket weld fitting is designed to be socket welded directly to a 2” socket end. Possible configurations include welding to an industry standard “Sockolet” fitting, which is then welded to a pipe or vessel, or welding to a 2” schedule 160 socket weld “Tee”.
4. NPT – The model 54 NPT fitting can be threaded into a 2” female NPT fitting. ***Please note that NPT connections are not recommended for sour gas service.***
5. Flanged – Flanged fittings are available in several standard configurations:
 - a. Model 56 – 2” ANSI Ring Joint
 - b. Model 57 – 2” ANSI Raised Face
 - c. Model 58 – 2-1/16” API

All configurations of Access Fitting Bodies are available in two types:

1. Non-Tee Type – Non-Tee fittings are used for all devices which do not require injection or sampling of the process fluid, such as coupon holders, corrosion monitoring probes, and hydrogen monitoring probes.
2. Tee Type – Tee fittings incorporate a $\frac{1}{4}$ ", $\frac{1}{2}$ ", $\frac{3}{4}$ ", or 1" NPT threaded outlet on the side of the fitting body. This type of fitting is used with an injection/sampling nut for product injection or process fluid sampling. They are also used with sand monitoring probes. The illustration below depicts a typical injection system arrangement through a Tee Type access fitting assembly.



Access fitting bodies are available in a wide variety of materials. Typically, the access fitting body material will be chosen to be compatible with the pipe or vessel material. For severe service locations, Rohrback Cosasco Systems offers a patented type CR "Corrosion Resistant" option on all access fitting bodies. This option provides internal threads and seal areas of Hastelloy C276, while the access fitting body remains a material compatible to the pipe or vessel.

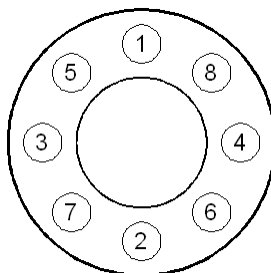
Attaching the Access Fitting Body

Cosasco Access Fitting Bodies which have a welded end connection, (flarweld, buttweld, or socketweld), welding must be performed in accordance with local and plant codes. Guidelines for preparing Welding Procedures are available in Cosasco manual P/N 740074, “Trepanning, Positioning & Welding Manual”.

NPT type access fittings are manufactured in accordance with ANSI/ASME B1.20.1 - Specification for Taper Pipe Threads. As with any taper pipe thread, the joint must be made up wrench tight, using a suitable sealant. The pipe sealant must be compatible with the process fluid and conditions.

ANSI flange fittings are manufactured in accordance with ANSI B16.5 – Specification for Flanges and Flanged Fittings. Flange gaskets and stud-and-nut sets are not provided with the access fitting body, and must be chosen to be compatible with the process fluids and conditions. The suggested sequence for tightening flange bolts is shown below. To provide even sealing pressure on the flange gasket, the bolts should be hand tightened according to the sequence until the flange faces are in contact with the gasket. Then firmly tighten the bolts in the same sequence.

NOTE: “Hot Flow” of gasket material may occur under operating conditions, resulting in loss of bolt pressure. Bolts should be retightened after operating temperature has been reached.

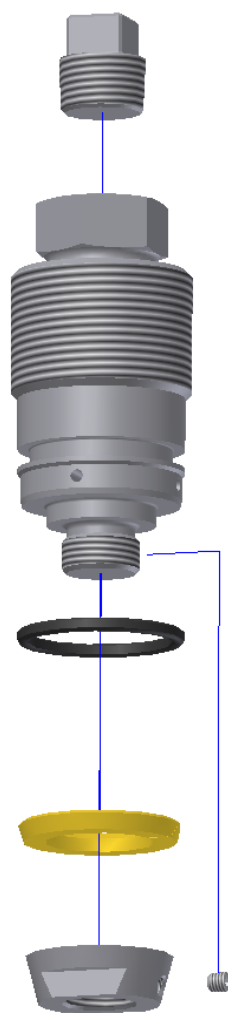


Chapter 4

Access Fitting Plug

The access fitting plug is the retrievable “carrier” which holds the device (coupon holder, probe, chemical injection nut, etc.) which may be installed into the access fitting. There are two types of plugs:

1. Solid Plug – This plug has a solid bore, and is used to hold devices which do not require external connections, such as coupon holders. They are always used in conjunction with devices which interface to a side-tee access fitting, such as injection or sampling systems, or sand probes.



Pipe Plug – Protects internal threads and provides secondary backup seal. Must be removed during retrieval operations.

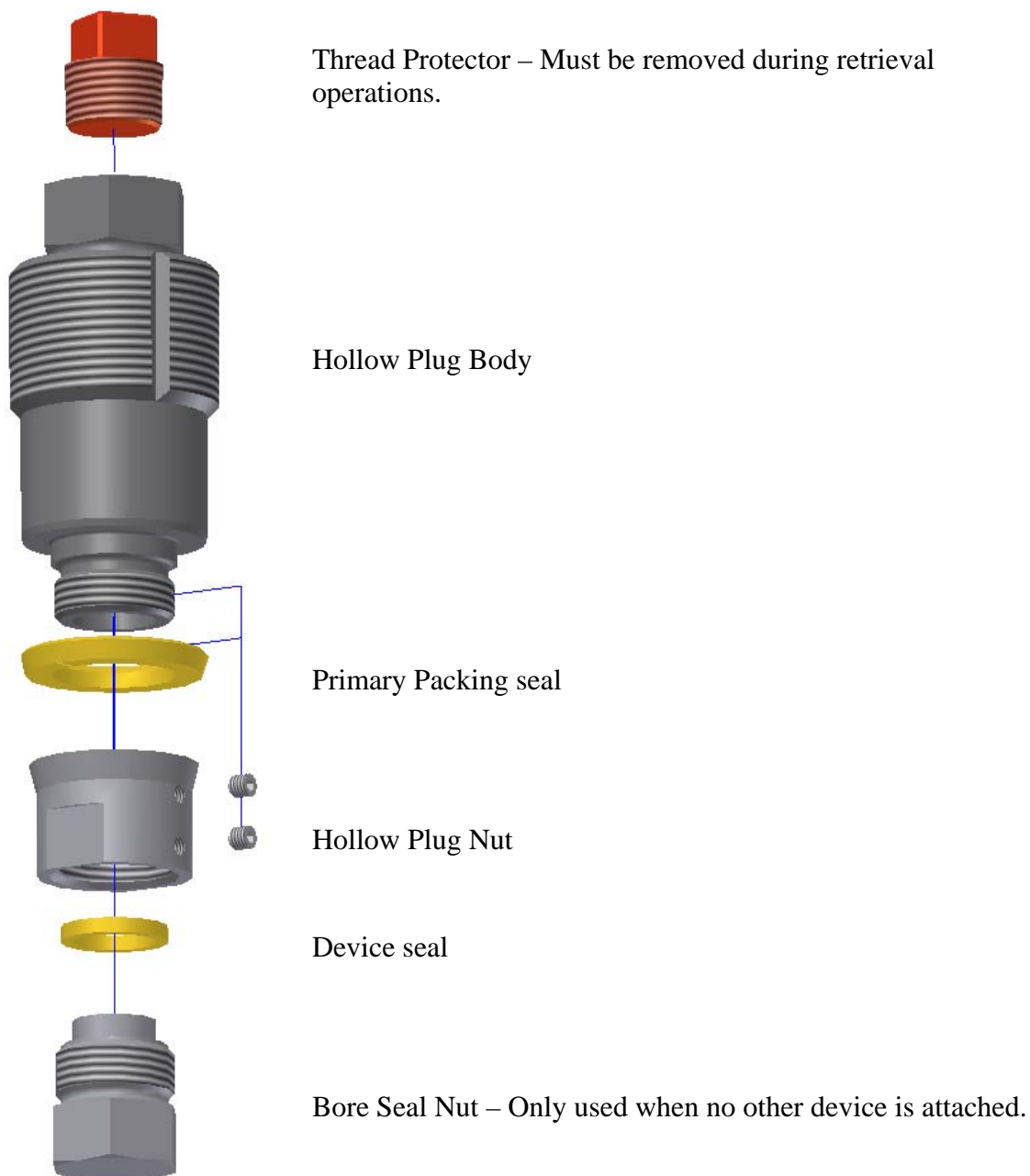
Solid Plug Body

O-ring seal

Primary Packing seal

Solid Plug Nut – Only used when no other device is attached.

2. Hollow Plug – This plug has a hollow bore through the plug, and is used to hold devices which require an external connection, such as corrosion monitoring probes and hydrogen monitoring probes.



Installing & Orienting the Plug

Remove the plug from the access fitting body. Loosen the Allen head set screw and remove the nut. The solid plug nut and the hollow plug bore seal nut are both *left hand* threads, to help prevent the device from coming loose during retrieval operations. Connect the corrosion monitoring or preventing device to the plug assembly (with left-hand threads). (See specific manual for each monitoring/preventing device). After initial packing contact, compress the packing by tightening the device up to 1/4 turn more. Please note that the Primary Packing seal is not compressed by the tightening of the nut, as the nut is tightened against the plug body. It is normal for the Primary packing seal to remain loose after the nut is tightened. Securely lock into place by tightening the anti-vibration Allen head set screw.

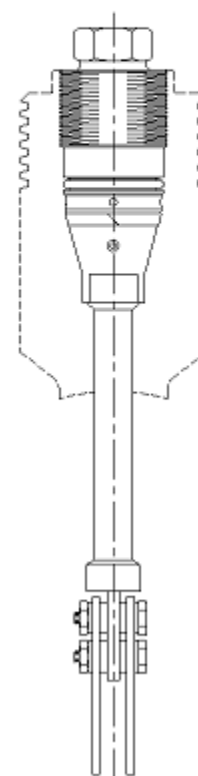
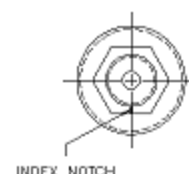
If the corrosion monitoring or preventing device requires orienting with the product flow, “reference” or “index” the plug assembly by filing a notch across the top of the hex (see right). The notch should be filed so that the device can be aligned with the product flow. Apply an appropriate grease to the full length of the plug assembly, including threads, seals and packing. **DO NOT** apply grease to the monitoring or preventing device.

If inserting the plug under pressure with the use of the Retriever and Service Valve, refer to the manual supplied with the Retriever and/or Service Valve (i.e. 600000-MANUAL for RBS/RBSA type Retrievers or 600006-MANUAL for RSL type Retrievers).

If inserting the plug manually, gently thread the plug assembly into the access fitting body. Do not use excessive force and be sure that the threads engage properly to prevent cross-threading. If cross-threading does occur, it will be necessary to use the Access Fitting Body Tap Assembly, Part Number 125111.

The reference mark as previously mentioned must now be aligned to product flow direction. Turn the plug assembly hex clockwise until the mark does align to the flow direction. If the plug assembly was installed as described, sufficient room for travel to allow orienting will be available. **CAUTION: DO NOT TURN THE PLUG ASSEMBLY HEX COUNTERCLOCKWISE TO ACHIEVE ORIENTATION!**

Make sure the fitting is clean and dry, and install the thread protecting pipe plug into the top of the plug.



Chapter 5

Protective Cover

Protective covers thread onto the external thread on the access fitting body, and protect the external thread and external seal area on the access fitting body from damage. Several configurations are available:

(-1) P/N 122734 – Heavy Protective Cover without Hole

- A non-pressure retaining steel cover for use with devices that do not require routine access to the plug assembly (such as coupon holders).



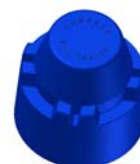
(-2) P/N 122732 – Heavy Protective Cover with Hole

- A non-pressure retaining steel cover with an access hole on the top for use with devices that require routine access to the plug assembly (such as corrosion monitoring probes).



(-5) P/N 206436 – Polycarbonate Cover without Hole

- A non-pressure retaining polycarbonate cover for use with devices that do not require routine access to the plug assembly (such as coupon holders). This is a lighter duty alternative to the standard steel cover.



(-6) P/N 206435 – Polycarbonate Cover with Hole

- A non-pressure retaining polycarbonate cover with an access hole on the top for use with devices that require routine access to the plug assembly (such as corrosion monitoring probes). This is a lighter duty alternative to the standard steel cover.



(-10) P/N 740090 – Pressure Retaining Cover with Bleed Valve & Pressure Gauge

- A pressure retaining steel cover with an integral bleed valve and pressure gauge rated for a maximum pressure of 10,000 PSI. The bleed valve must always be opened prior to removing the cover. If pressure cannot be bled, the cover must be left in place and the fitting repaired with the line depressurized.



(-11) P/N 740093 – Pressure Retaining Cover With Bleed Valve, Pressure Gauge and ½” NPT Center Hole for Standard Probe Adapter

- A pressure retaining steel cover with an integral bleed valve and pressure gauge rated for a maximum pressure of 10,000 PSI. This cover has a ½” NPT in the top of the cover to accommodate a standard (2500 PSI) pressure retaining Probe Adapter. The bleed valve must always be opened prior to removing the cover. If pressure cannot be bled, the cover must be left in place and the fitting repaired with the line depressurized.



(-12) P/N 740095 – Pressure Retaining Cover With Bleed Valve, Pressure Gauge and Center Hole for High Pressure Probe Adapter

- A pressure retaining steel cover with an integral bleed valve and pressure gauge rated for a maximum pressure of 10,000 PSI. This cover has center hole in the top of the cover to accommodate a high pressure (10,000 PSI) retaining Probe Adapter. The bleed valve must always be opened prior to removing the cover. If pressure cannot be bled, the cover must be left in place and the fitting repaired with the line depressurized.



Cover Installation & Removal

All pressure retaining covers are supplied with an internal o-ring. Make certain that the o-ring is fitted into the internal groove. Make certain the external threads on the access fitting body are clean and dry. Lubricate the threads with an appropriate grease, and thread the cover onto the fitting. Non-pressure retaining covers can be installed hand-tight. Pressure retaining covers should be tightened with a spanner wrench.

To remove the cover, simply unthread the cover from the fitting, using a spanner wrench to loosen the cover, if required. If pressure retaining covers are used, be sure all pressure is bled from the cover before removal. If it is not possible to bleed pressure, the cover should not be removed until the line is depressurized.