

Process Interface Valve Installation and Operation Instructions

Swagelok®

Introduction

These instructions are to be used for the installation and operation of Swagelok® process interface valve assemblies. The assemblies may have one or more valves contained within a single body. The individual valves may be ball, needle, check or any combination of the three. The process connection type may be flanged, hub, threaded or welded.



Installation

Pre-installation

1. Carefully unpack the valve and check tags, identification labels, direction of rotation of levers/hand wheels, etc., against specifications and drawings. Read all literature and note any special warning tags attached to or accompanying the valve assembly and take appropriate action.
2. If the valve has been removed from the original packaging ensure that it has not been damaged and has been stored with all process connection protectors in place. Poor handling and storage of the valve may result in its deterioration.
3. Verify that the valve is suitable for the application.

WARNING

Using a valve with incorrect process connections, materials and/or pressure and temperature ratings could result in a hazardous situation.

Installation (all connection types)

1. Valve outlet ports may be supplied already fitted with pressure retaining plugs (not plastic plugs). These plugs should remain in place unless their removal is necessary.
2. It is common practice to clean the system by flushing to remove debris and dirt after installation. Valves may be damaged during this process if not performed properly.
3. All valves should be operated to verify they are functional by cycling open then closed. Unless otherwise specified all valves should be left in the closed position.

⚠ WARNING

Incorrect installation of end connections could result in leaks and possible failure under pressure. Use applicable end connection installation instructions.

⚠ WARNING

Assemblies must be properly aligned and supported to prevent excessive loading (e.g longitudinal loads). Improper alignment or inadequate support may result in leakage or premature valve failure.

Installation (flanged connections).

1. Check the mating flanges of the valve and pipe work for correct nominal size, ratings, gasket finish, condition and cleanliness.
2. Ensure that the flange bolting and gasket are the correct size, length and material for the application. The make-up of the flange joint is critical to the safety of the joint.

Installation (threaded connections)

1. Check the threads and sealing faces of the mating parts for the correct size and type, condition, and cleanliness.
2. Apply an appropriate tape or thread compound if the mating fitting seals on the thread; otherwise use an appropriate gasket.

Note: Hold the valve end connection steady with a wrench while assembling the mating end connection.

Installation (welded end connections)

1. Verify the preparation of the mating component to be welded is the correct size and schedule.
2. Welded joints should be made-up using suitably qualified weld procedures. Damage to the seats and flange seals may occur if they are exposed to excessive heat from the welding operation.

Installation (Swagelok tube fitting end connections)

Install according to *Swagelok Tube Fitting Instructions for 1 in. (25 mm) and smaller fittings*, [MS-12-01](#), or *Installation Instructions for over 1 in. or 25 mm Swagelok Tube Fittings*, [MS-12-20](#).

Installation (hub connections).

1. Check the mating hubs for correct nominal size, ratings, condition and cleanliness.
2. Ensure that the hub clamp set and seal ring are the correct size and material for the application. The make-up of the hub connector is critical to the safety of the joint.
3. Follow applicable hub manufacturer installation instructions.

Operation

1. The operating procedure for valves is critical to ensure satisfactory performance and operator safety. Prior to operation read all literature and note any special warning tags attached to the valve assembly before taking appropriate action.
2. Check the valve for any marks indicating flow direction; appropriate care should be taken to install the valve assembly in the proper flow orientation.
3. Familiarization with each valve in the assembly is important to ensure safe operation. The location and type (ball, needle, etc.) of each valve should be checked against the appropriate general arrangement drawing.
4. Ensure that the assembly has been installed correctly and all connecting joints are fully assembled. Special care should be taken to ensure that vent/bleed outlets are directed to a safe area.
5. Ball valves are lever operated quarter-turn valves. Turning the handle 90° will operate these valves open and closed.
6. Needle valves are operated by T-bar, anti-tamper, or hand wheel. Turn the handle clockwise to close and counter-clockwise to open. The valve stem backseats when fully open.
7. Throttling may cause damage to the ball/needle and seats and may reduce cycle life.



CAUTION

Swagelok ball and needle valves are designed to be operated in a fully open or fully closed position.

8. Check valves are spring loaded, normally closed and are unidirectional.
9. The force required to operate the valves (i.e. break away and cycle) will vary depending on the media, pressure and length of time between cycles. The valve levers and handles are sized to the maximum expected operating forces and should not be altered.



WARNING

Do not exceed the minimum or maximum pressure and/or temperature ratings of the product. This could result in a hazardous situation (e.g. improper discharge, trapped pressure, etc.). If these conditions occur verify the functional integrity of the valve(s) before continued use.



WARNING

Valve surfaces may become hot or cold in service. Handle with caution.

Packing Adjustment

Needle valve packing adjustment may be required periodically to increase service life and to prevent leakage. Adjust the packing as needed according to *Valve Packing Adjustment*, [MS-CRD-0112](#).

Maintenance

Field maintenance and servicing of Swagelok process interface valves is not recommended. Contact your authorized Swagelok sales and service representative for assistance.

Additional Product Information

See these catalogs:

Process Interface Valves, [MS-02-340](#)

Process Interface Valves for Reduced Fugitive Emissions, VB05 Series, MS-02-467

Safe Product Selection

When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.

WARNING

Do not mix/interchange Swagelok products or components not governed by industrial design standards, including Swagelok tube fitting end connections, with those of other manufacturers.

Warranty Information

Swagelok products are backed by The Swagelok Limited Lifetime Warranty. For a copy, visit swagelok.com or contact your authorized Swagelok representative.