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I & M Diaphragm Valve Bonnets

Installation & Maintenance Instructions for Diaphragm Valve Bonnets

Please read these instructions carefully!

Your Steriflow product will provide you with long, trouble free service if it is correctly installed and maintained. Spending a few minutes now reading these instructions can save hours of trouble and downtime later. When making repairs, use only genuine Steriflow Valve parts, available for immediate shipment from the factory.

Technical Data

1. Operating Pressure and Temperature
   - 1/4" - 1": 200 psi @ 100°F (13,8 bar @ 38°C)
   - 1-1/2" - 2": 175 psi @ 100°F (12,1 bar @ 38°C)
   - 2-1/2" - 4": 150 psi @ 100°F (10,3 bar @ 38°C)
2. Pressure at Maximum Temperature: 50 psig @ 300°F (3,45 barg @ 150°C)*

   *Note: Linear interpolation may be used qqqbetween the maximum working pressure temperature and maximum working temperature points. Additionally, these ratings are set under non-shock conditions.

Storage

Linear interpolation may be used between the maximum working pressure temperature and maximum working temperature points. Additionally, these ratings are set under non-shock conditions.

Installation

Prior to installation, check the body marks to ensure a proper installation and the pipe work for cleanliness, damage, or debris. Supplied plugs in ports or any other protector should be removed.

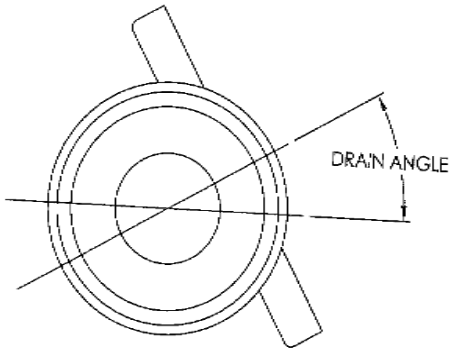
Valves are carefully manufactured, and they should de handled properly and carefully to avoid damage and particles, dirt, or any unwanted object to enter the body. Interior or the body is polished and must be free of damage.

Installation must guarantee that the valve can be access for cleaning, maintenance and repair and the pipe lines must be supported to avoid extra forces on the valve.

If installation requires welding, disassemble the bonnet with the diaphragm before welding the valve body into the pipeline, refer to the "Assembly: Bonnet, Diaphragm & Body" section below. Allow butt weld spigots to cool down before assembling the bonnet.

1. Drain Angler

Type	Size	Drain Angle
Compact	1/4"	36°
	3/8"	30°
	1/2"	25°
Standard	1/2"	30°
	3/4"	22.5°
	1"	28°
	1 1/2"	20°
	2"	20°
	2 1/2"	25°
	3"	20°
	4"	15°



Assembly: Bonnet, Diaphragm & Body

1. Install the diaphragm on the bonnet:

   Bayonet Style:
   a. Insert the bayonet/stem on the diaphragm (1) into the brass insert (3) in the compressor (2)

   b. Rotate the diaphragm 90° so the straight sides of the liner are parallel to the straight edges of the bonnet.

   Screw Style:
   a. Screw the threaded stud on the diaphragm (1) into the brass insert (3) in the compressor (2) until the bolt holes of the diaphragm and bonnet align.

b. Do not over tighten the stud on the diaphragm as it might tear out the diaphragm.

2. Turn the handwheel counterclockwise to get to open position to make sure the diaphragm assembly is in place in the compressor insert. The diaphragm should be pulled in towards the bonnet.
3. Inspect body flange and weir for indentations, scratches, or dirt prior mating the bonnet with the diaphragm onto the body.
4. Place the bonnet with the diaphragm onto the body making sure that the weir of the body and the bead on the diaphragm are aligned properly and that the bonnet reminds in the open position.
5. Hand tighten the bonnet to the body, and then tighten the bolts with a wrench to the proper torque specified below following a diagonal pattern in small increments.

Body/Bonnet Torque Values		
Valve Size	**EPDM Diaphragm**	**TFM/EPDM Diaphragm**
½”	30 in/lbs	55 in/lbs
¾”	35 in/lbs	65 in/lbs
1”	45 in/lbs	90 in/lbs
1 ½”	60 in/lbs	130 in/lbs
2”	150 in/lbs	190 in/lbs

Maintenance

General

1. Relieve system pressure ensuring that all line media has drained and make sure that any valve that has come in contact with hazardous media has been decontaminated prior to any maintenance work
2. Correct use of tools and equipment is imperative, and personnel should take proper precautions.
3. External parts must be inspected periodically and any part that shows damage or excessive wear must be replaced.
4. Media leaking from the body/diaphragm joint indicates that the bolts need to be re-tightened
5. Diaphragm should be inspected periodically and if it shows damage or excessive wear, it must be replaced. Life of the diaphragm depends on the type of media, operating temperature and pressure, frequency of operation and SIP process.

Replacing the Diaphragm

1. Diaphragm can be changed without removing the valve form the pipeline.
2. De-pressurize and isolate the valve that need to be maintained
3. Rotate the handwheel counter-clock wise so the valve is in full open position.
4. Remove the bolts on the bonnet.
5. Turn the handwheel clockwise to un-mate the diaphragm and the bonnet
6. Remove Diaphragm
   a. For bayonet connection, rotate the diaphragm 90° so the bayonet/pin gets unlock form the brass insert.
   b. For screw connection, unscrew the threaded stud of the diaphragm from the brass insert.
7. Replace the used diaphragm with a new one. Diaphragm replaced should be the same size and grade as the diaphragm being replaced.
8. Before assembling the new diaphragm, check sealing surfaces and interior of the body for contamination or damage.
9. Install the new diaphragm on the bonnet:

   Bayonet style:
   a. Insert the bayonet/stem on the diaphragm (1) into the brass insert (3) in the compressor (2)
   b. Rotate the diaphragm 90° so the straight sides of the liner are parallel to the straight edges of the bonnet.
10. Turn the handwheel counterclockwise to get to open position to make sure the diaphragm assembly is in place in the compressor insert. The diaphragm should be pulled in towards the bonnet.
11. Inspect body flange and weir for indentations, scratches, or dirt prior mating the bonnet with the diaphragm onto the body.
12. Place the bonnet with the diaphragm onto the body making sure that the weir of the body and the bead on the diaphragm are aligned properly and that the bonnet reminds in the open position.
13. Hand tighten the bonnet to the body, and then tighten the bolts with a wrench to the proper torque specified below following a diagonal pattern in small increments.

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Lubrication

Valves are lubricated in the factory and they do not need to get additional lubrication under normal operating conditions. When valves are exposed to external weather conditions or corrosive atmospheres, bonnet assemblies should be lubricated. The use of Krytox 206 grease is recommended.

Adjustable Handwheel

1. Open the valve 4 turns approximately
2. Loosen the screw (1) but do not remove the set screw entirely
3. Move handwheel to the desired position
4. Re-tighten the set screw (1)

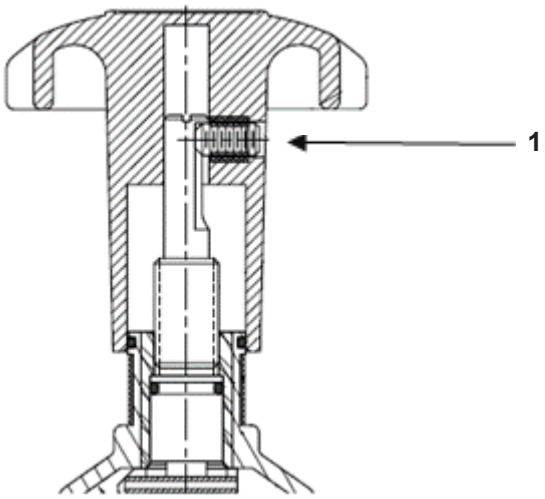
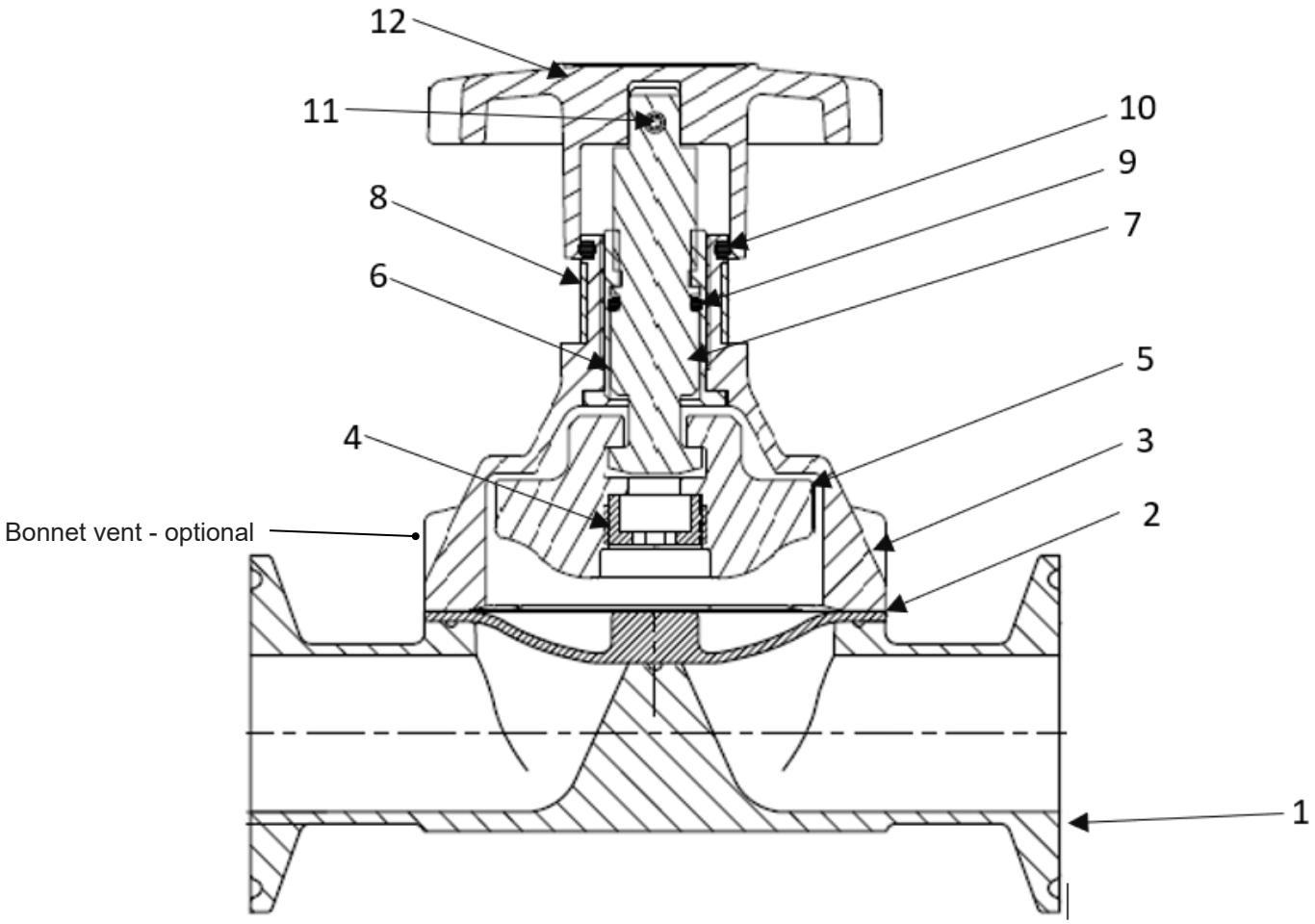


Illustration and Parts List



Item	Qty	Description	Material	Item	Qty	Description	Material
1	1	Body	Stainless Steel	9	1	O-Ring	Viton
2	1	Diaphragm	TFE/EPDM	10	1	O-Ring	Viton
3	1	Bonnet	Stainless Steel	11	1	Handwheel	Glass Reinforced PPS
4	1	Insert Compressor	Brass	12	1	Spring Pin	Stainless Steel
5	1	Compressor	Stainless Steel	13*	4	Inserts	Brass
6	1	Bushing	Brass	14*	4	Hex socket cap screw	Stainless Steel
7	1	Stem	Stainless Steel	15**	4	Hex Nut	Stainless Steel
8	1	Yellow Indicator	Polyolefin heat shrink tubing	* Not shown ** Spot face bonnets use studs with nuts instead of inserts and screws			

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