armatec

DVC4930

PTFE Lined Butterfly Valve

Installation and Operating Instructions

1 Intended Use

The operation of the valve is the responsibility of the system operator. The **valve** may only be used within the pressure-temperature limits. The pressure, temperature and corrosion & media resistance of the valve must be checked for the specific operating conditions!

2 Storage and Transportation

The **valve** is delivered ready for use. It must be transported and stored in its original packa-ging and must be handled with care. The valve must always be protected from dust and moisture.

The **valve** is delivered with the disc in a slightly open position. The valve disc should not be moved until installation is complete.

3 Dismounting an existing valve

Warnings & Precautions

- During installation and maintenance work, suitable protective clothing, including gloves and protective goggles, must be worn.
- Prior to installation and maintenance work, the pipe must be depressurised and emptied. If the valve operates with dangerous flow media, the pipe has to be emptied completely and flushed with an appropriate cleaning fluid. Inappropriate cleaning products can harm the valve!
- If flange connections or locking screws are detached, hot water, steam, caustic fluids or toxic gases can be emitted. Severe scalding, burns and poisoning are possible!
- During operation the valve may become very hot or very cold. Installation and maintenance work should only be carried out if the valve's temperature is the same as the ambient temperature.
- Prior to dismounting the valve, preventative measures against the possible leakage of dangerous media should be made.
- When removing the valve from the pipeline, it is important to ensure that the valve disc and liner are not damaged. Damaged parts may only be replaced by genuine parts.

3.1 Procedure

Pipeline medium may remain in the dead space of the valve

1. Secure the valve against falling
2. Close the valve disc
3. Loosen and remove the flange screws
4. Spreads the flanges with an appropriate tool
5. Remove valve from the pipeline

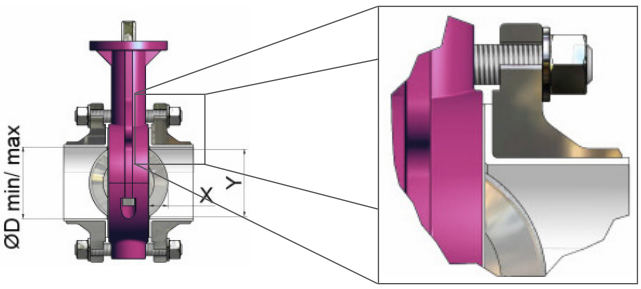
4 Preparing for Installation

Warnings & Precautions

- During installation and maintenance work, suitable protective clothing, including gloves and protective goggles, must be worn.

4.1 Flange and Pipe Connection

The inner diameter of the pipe must be at least as large as the relevant Y value in the below table, so that the valve disc has enough room to open.
The **valve** is designed exclusively as a wafer or lug valve for use with weld neck flanges according to DIN EN 1092-1, Typ 11, PN 10–16 and ASME ANSI B16.5/B16.47 Class 150.



Pipe Diameters					
DN [mm]	DN [Inch]	X	Y	Dmin*	Dmax
25	1"	2.7	21.6	24.6	37
40	1½"	7	34	37	43.1
50	2"	6	31	34	54.5
65	2½"	11	48	51	70.3
80	3"	17	63	66	82.5
100	4"	27	90	93	107.1
125	5"	38	118	121	131.7
150	6"	47	137	140	159.3
200	8"	71	189	192	206.5
250	10"	92	239	242	260.4
300	12"	112	290	293	309.7
350	14"	125	328	331	341.4
400	16"	146	377	381	392.2
450	18"	164	417	421	442.8
500	20"	184	477	481	493.8
600	24"	215	560	564	595.8
700	28"	204	664	668	690
750	30"	289	716	721	736.6
800	30"	314	767	772	795
900	36"	360	861	865	894.0
1000	40"	408	958	563	982
1050	42"	433	1009	1014	1022.4
1200	48"	485	1153	1159	1182

*Between concentric flanges

4.2 Valve Orientation and Positioning

In horizontal pipes, the **valve** should be installed with the valve stem positioned horizontally. The lower edge of the disc should open in the flow direction. This helps to reduce the chance of pollutants building up around the stem seal.

4.3 Flange Seal

The **valve** requires no extra seals when mounted between flat-faced flanges. In case of installation between non-flat flanges (e.g. rubberised or enamel flanges), the use of a PTFE-coated seal is recommended.

5 Valve Installation

Warnings & Precautions

- During installation and maintenance work, suitable protective clothing, including gloves and protective goggles, must be worn.
- Prior to installation and maintenance work, the pipe must be depressurised and emptied. If the valve operates with dangerous flow media, the pipe has to be emptied completely and flushed with an appropriate cleaning fluid. Inappropriate cleaning products can harm the valve!
- Under no circumstances should the **valve** be installed between flanges which are not parallel. The axes of the pipes and valve must be aligned. Furthermore, it is absolu-tely prohibited to weld on the pipe while the valve is mounted between the flanges, as this would destroy the liner. Finally, when installed at the end of a piping system, it is mandatory to mount a blind flange to cap the piping system!

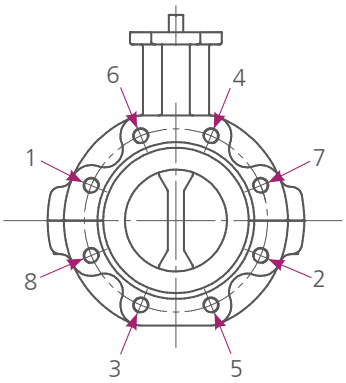
5.1 Procedure

1. Clean flange and sealing surfaces in order to protect the valve lining and ensure flange sealing performance.
2. Remove the protective cover from the butterfly valve.
3. While keeping the valve in a slightly open position (the entire disc must remain within the faces of the liner!), place it carefully between the two flanges.
4. Centre the valve with lubricated bolts or screws accordingly before hand-tightening.
5. Adjust the position of the valve, pipe and seal to ensure they are fully aligned.
6. Slowly open the valve to the fully-open position.
7. Tighten the screws and nuts according to the following recommended bolting pattern using the bolting torques shown in the following table. Using larger torques can damage the body and liner!

5.2 Bolting

Bolts must be tightened in a star pattern

1. Tighten each bolt to 10% of recommended torque
2. Tighten each bolt to 30% of recommended torque
3. Tighten each bolt to 60% of recommended torque
4. Tighten each bolt to 100% of recommended torque



Recommended Bolting Torques		
DN [mm]	DN [Inch]	Locked Torque [Nm]
25	1"	12
40	1½"	25
50	2"	35
65	2½"	40
80	3"	45
100	4"	50
125	5"	60
150	6"	70
200	8"	85
250	10"	95
300	12"	105
350	14"	145
400	16"	165
450	18"	185
500	20"	215
600	24"	230
700	28"	280
750	30"	300
800	30"	380
900	36"	460
1000	40"	460
1050	42"	500
1200	48"	405

5.3 Cleaning

After installation, the **valve** must be fully opened and the pipe flushed before closing the valve. Cleaning products and tools must be compatible with the valve. The use of incompatible products or tools can damage the valve.

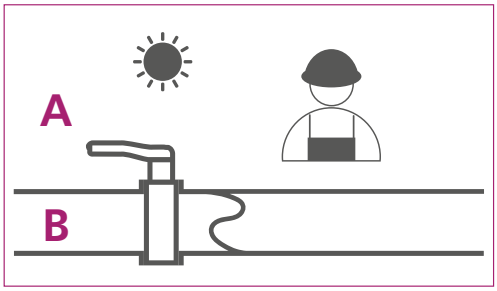
5.3 Function Test

Prior to active use in the piping system, the **valve** should be opened and closed several times to check its freedom of movement.

6 Potentially explosive atmospheres

The **valve** does not fall within the scope of the ATEX Directive 2014/34/EU, however the following models are available, which may be used in potentially explosive atmospheres according to the described conditions.

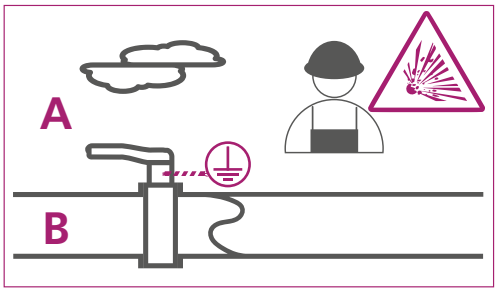
Standard



Area A: No potentially explosive atmosphere
Area B: No potentially explosive atmosphere

No restriction on materials and no earthing required.

Ex_{min}

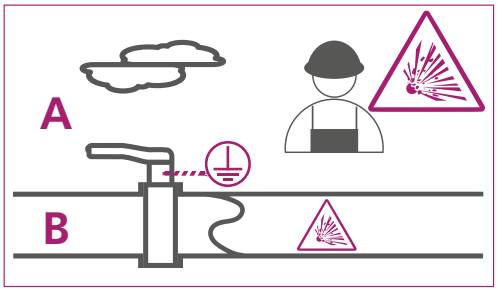


Area A: Potentially explosive atmosphere*
Area B: No potentially explosive atmosphere

An electrostatic charge may occur inside the pipeline, as the medium is not flammable. The disc and actuator (eg hand lever) are grounded to protect against external electrostatic charge.

Insulating materials on disc and liner may be used.

Ex_{max}



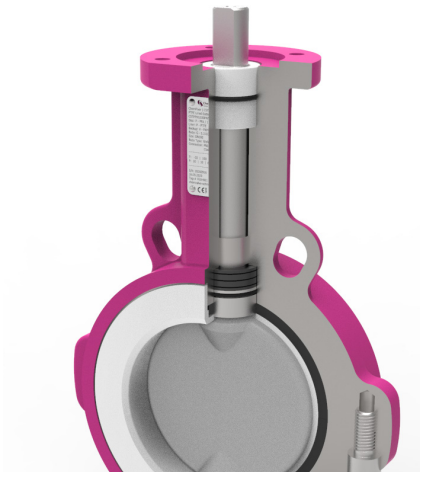
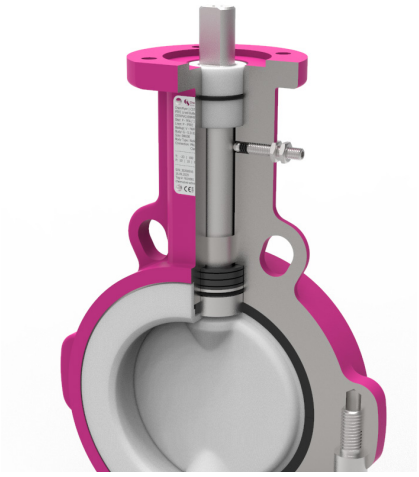
Area A: Potentially explosive atmosphere*
Area B: Potentially explosive atmosphere*

Only conductive materials may be used, in combination with a conductive assembly to discharge the disc and liner.

*Potentially explosive atmospheres may occur during maintenance or cleaning as well as during regular operation.

For further details see the enclosed manufacturer's declaration in the appendix.

Recognising Explosion Prevention Models

Standard	EX_{min}	EX_{max}
		
Earthing Bolt: No earthing bolt on the neck of the valve	**Earthing Bolt**: An earthing bolt on the neck of the valve allows for the connection of a ground cable	**Earthing Bolt**: An earthing bolt on the neck of the valve allows for the connection of a ground cable
Standard PTFE: The liner and disc will be made of white, non-conductive PFA/PTFE	**Standard PTFE**: The liner and disc are made of white, non-conductive PFA/PTFE	**Conductive PTFE**: The liner and disc are made of black, conductive PFA/PTFE

Explosion Prevention Installation Instructions

6.1 Procedure

1. Install the valve as per the instructions in section 5.
2. Connect a ground cable to the earthing point on the valve body.
3. Test the conductivity of the assembly to ensure correct installation.

Warnings & Precautions

- The butterfly valve may not bear the specific ⟨Ex⟩ ATEX mark nor the EX mark in accordance with Directive 2014/34/EU!
- The assembly of the butterfly valve with a pneumatic or electric actuator does not create any additional potential sources of igni-tion!
- Upon delivery of the butterfly valve together with pneumatic and electric actu-ators, the manufacturer will provide the correspondent ATEX declarations of conformity.
- The requirements according to TRGS 727 chapter 8 regarding grounding and potential equalisation must be observed!
- The responsibility for the safe use and operation of the device in potentially explosive atmospheres lies with the operator, who must produce an explosion protection document in accordance with Directive 1999/92/EC. This declaration of conformity serves as a safety statement and the manufacturer recommends that this be listed in the annex to the explosion protection document.
- If accessories are provided by the customer (e.g. actuators, limit switches, etc.), the operator is responsible for ensuring that these accessories are appropriately compliant!
- The information relating to ATEX Directives 2014/34/EU and 1999/92/EC contained in this manual does not constitute legal advice and any responsibilities of the plant operator are solely theirs to understand and comply with.

7 Maintenance

Please see the Maintenance Instructions for details

8 Decommissioning

Warnings & Precautions

- During installation and maintenance work, suitable protective clothing, including gloves and protective goggles, must be worn.
- Prior to installation and maintenance work, the pipe must be depressurised and emptied. If the valve operates with dangerous flow media, the pipe has to be emptied completely and flushed with an appropriate cleaning fluid. Inappropriate cleaning products can harm the valve!
- If flange connections or locking screws are detached, hot water, steam, caustic fluids or toxic gases can be emitted. Severe scalding, burns and poisoning are possible!
- During operation the valve may become very hot or very cold. Installation and maintenance work should only be carried out if the valve's temperature is the same as the ambient temperature.
- Prior to dismounting the valve, preventative measures against the possible leakage of dangerous media should be made.
- When removing the valve from the pipeline, it is important to ensure that the valve disc and liner are not damaged. Damaged parts may only be replaced by genuine ChemValve-Schmid AG parts.

8.1 Procedure

Pipeline medium may remain in the dead space of the valve

1. Secure the valve against falling
2. Close the valve disc
3. Loosen and remove the flange screws
4. Spreads the flanges with an appropriate tool
5. Remove valve from the pipeline

9 Disposal

It is possible that residues can remain inside the valve, which are harmful to human and environment. Therefore the valve has to be treated with adequate precaution. Parts of the valves which are no longer serviceable have to be disposed of professionally and in an environmentally friendly manner.