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CST Butterfly Valves

Installation and Operation Instructions

0. Introduction

For achieving a proper functionality it is compulsory to follow this Installation and Operating Instruction, we will not assume liability for faults resulting of improper installation. Detailed information about the valve (dimensions, materials and operating conditions) can be seen in the document Butterfly Valve Type CST, Product Information.

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1. Storing and Transportation

The ChemValve Butterfly Valve Type CST delivered is ready-for-use. It has to be treated with the appropriate care and it has to be transported and stored in the original packing. Never expose the unprotected ChemValve Butterfly Valve Type CST to dust or humidity. While shipped, the valve is in a slight opened position. This status has to be kept until the valve has been mounted.

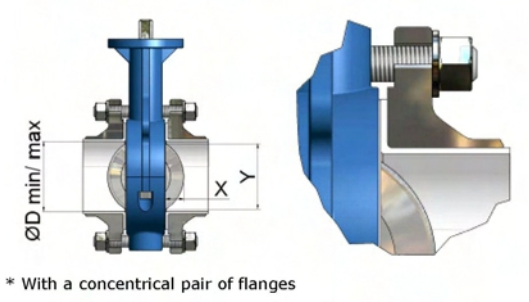
2. Installation Preparation

2.1 Intended Application

The application area of the ChemValve Butterfly Valve Type CST is subject to the responsibility of the operator of the facility. It is only allowed to use the ChemValve Butterfly Valve Type CST within the range of pressure and temperature which shows the documentation "Product Information". The resistance of corrosion and media of the valve, the pressure and the temperature have to be verified for particular operating conditions.

2.2. Flange and Piping Connection

The inner diameter of the pipe has to feature at .st the corresponding Y value of the following table. In this case the disc has enough play concerning the internal surface of the pipe. The ChemValve Butterfly Valve Type CST as a wafer and lug valve has been designed exclusively for installation together with weld neck flanges according to DIN EN 1092-1, Type 11, PN 10-16 and to ASME ANSI B16.5/B16.47 Class 150.



* With a concentrical pair of flanges

Inch	X	Y	Dmin	Dmax	DN
1½"	7	34	37*	43.1	40
2"	6	31	34*	54.5	50
2½"	11	48	51*	70.3	65
3"	17	63	66*	82.5	80
4"	27	90	93*	107.1	100
5"	38	118	121*	131.7	125
6"	47	137	140*	159.3	150
8"	71	189	192*	206.5	200
10"	92	239	242*	260.4	250

* Bei konzentrischen Flanschpaaren

Inch	X	Y	Dmin	Dmax	DN
12"	112	290	293*	309.7	300
14"	125	328	331*	341.4	350
16"	146	377	381*	392.2	400
18"	164	417	421*	442.8	450
20"	184	477	481*	493.8	500
24"	215	560	564*	595.8	600
30"	289	716	721*	736.6	
36"	360	861	865*	894.0	900
42"	433	1009	1014*	1022.4	

2.3. Positioning / Fitting Position

If the ChemValve Butterfly Valve Type CST will be mounted in a horizontal piping system we recommend to install the shaft of the valve also in a horizontal manner. The lower edge should open in the direction of the flow. This method avoids the deposition of pollution in the area of the shaft seal.

2.4. Flange Sealing

The ChemValve Butterfly Valve Type CST with its TFM - Liner needs no sealing if it has been mounted between plane flanges. In case of installation together with non plane flanges (e.g. gummed or enameled coils of flanges) the use of a PTFE coated sealing is recommended.

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3. Dismounting of an Existent Valve

3.1. Warning and Precaution

During installation and maintenance work adequate protective clothing, work gloves and protective goggles have to be worn.

For installation and maintenance the pipe has to be depressurized and depleted. If the valve should be applied with dangerous flow mediums, the pipe has to be depleted completely and rinsed with an adequate cleaning fluid. Inappropriate mediums can harm the valve.

If flange connections or locking screws will be detached, hot water, steam, caustic fluids or toxic gases can emit. Heavy scalds and burn-ups on the whole body as well as grave contamination are possible.

During operation the valve is hot or very cold. Installation and maintenance work have only to be realized, if the valve's temperature is the same as the ambient temperature.

Previous to the dismounting of the valve preventive measures and dispositions against the possible leakage of dangerous mediums have to be made.

While dismounting the valve pay attention that disc and liner will not be injured. It is mandatory to replace broken parts with original replacement parts.

3.2. Procedure

1. Turn the disk in a slight opened position.
2. Release and remove all flange connections of the valve.
3. With the adequate tool force the flanges apart and lift the disc out of the piping system.

3.3. Disposal

Inside the valve it is possible that residues exist which are harmful to human and environment. Therefore the valve has to be treated with the adequate precaution. Parts of the valves which are no longer serviceable have to be disposed professional and beneficial to the environment.

4. Mounting in the Piping System

4.1. Basics

It is absolutely forbidden to mount the ChemValve Butterfly Valve Type CST-K between flanges which are not positioned parallel to each other. The axis of the pipes and valves have to be aligned. Furthermore it is prohibited to weld on the pipe while the ChemValve Butterfly Valve Type CST-K is mounted between the flanges. This would destroy the liner of the ChemValve Butterfly Valve Type CST-K.

4.2. Recommended Locked Torques of the Flange Screws

The TFM material of the liner tends to cold flow. Furthermore, the thermosetting body of the valve has to be considered. Therefore the following locked torques have to be applied:

Synoptical Table about Breakaway and Allowable Torque

Inches	2"	2½"	3"	4"	6"	8"	10"	12"	Zoll
DN	50	65	80	100	150	200	250	300	DN
Locked Torque (NM)	25	25	25	25	50	50	50	60	Anzugsmoment (NM)

Please note: Higher locked torques can damage the thermoset body.

4.3. Procedure

1. Clean connection flange and sealing surface in order that the lining of the valve as well as the plane flanges will not be destroyed.
2. Remove the casing of the valve.
3. Shift the valve with its slight opened position of the disk (the edge of the disk has to be placed behind the edge of the liner.) accurately between both flanges.
4. Center the valve with screws and studs respectively.
5. Tighten the screw-nut by hand. Subsequently adjust the valve, flange pipe and sealing.
6. Open the valve slowly and fully.
7. Tighten the greased screws and screw-nuts diagonally with the recommended lock torques shown in chapter "4.2. Recommended Locked Torques of the Flange Screws".

4.4. Conform Version to ATEX in the Cluster II

In explosive areas the earth connection adapter of the ChemValve Butterfly Valve Type CST-K ATEX Version has to be connected with the correspondent earth connection adapter to establish the appropriate join.

5. Cleaning of the Piping System

After the installation the ChemValve Butterfly Valve Type CST-K has to be opened fully and the piping system has to be rinsed before closing the valve. Cleaning mediums and purifiers have to be compatible with the valve. Improper mediums and purifiers can damage the valve.

6. Function Control

Subsequent to the cleaning the ChemValve Butterfly Valve Type CST-K has to be activated several times while checking its free moving space.

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ChemValve CST-K Butterfly Valves

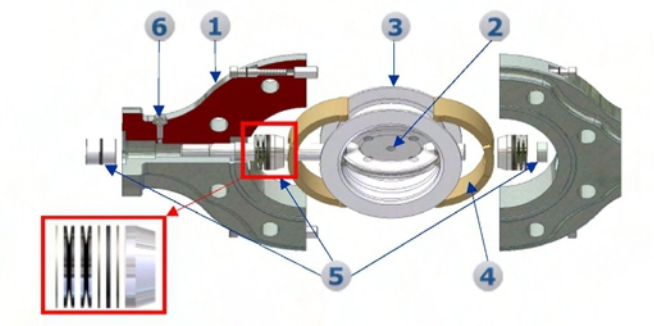
Maintenance Instructions

0. Introduction

Only original spare parts may be used. For faults due to repair work Chemline will not assume liability. The teflon parts of the ChemValve Butterfly Valve CST-K are very delicate. An injury of these parts will easily lead to a leak. Considering this, the parts have to be handled very carefully.

This instruction refers to the exchange of the liner and the disc. Detailed information concerning the device (dimensions, materials and range of applications) can be found in the document “ChemValve Butterfly Valve CST-K - Product Information“.

1. Parts List



Position	Description	Bezeichnung	Position
1	Split Body	2-teiliges Gehäuse	1
2	Disc	Klappenscheibe	2
3	Liner	Ringbalg	3
4	Back-Up	Einlage	4
5	Complete Bearing and Pressure Package	Komplettes Lager– und Druckpaket	5
6	Atex Type*	Atex Ausführung*	6

2. Dismounting

2.1. Warning and Precaution

During installation and maintenance work adequate protective clothing, work gloves and protective goggles have to be worn.

For installation and maintenance the pipe has to be depressurized and depleted. If the valve should be applied with dangerous flow mediums, the pipe has to be depleted completely and rinsed with a an adequate cleaning fluid. Inappropriate mediums can harm the valve.

If flange connections or locking screws will be detached, hot water, steam, caustic fluids or toxic gases can emit. Heavy scalds and burn-ups on the whole body as well as grave contamination are possible.

During operation the valve is hot or very cold. Installation and maintenance work have only to be realized, if the valve’s temperature is the same as the ambient temperature.

Previous to the dismounting of the valve preventive measures and dispositions against the possible leakage of dangerous mediums have to be made.

While dismounting the valve pay attention that disc and liner will not be injured. It is mandatory to replace broken parts with original replacement parts.

2.2. Procedure

1. Turn the disk in a slight opened position.
2. Release and remove all flange connections of the valve.
3. With the adequate tool force the flanges apart and lift the disc out of the piping system.

2.3. Disposal

Inside the valve it is possible that residues exist which are harmful to human and environment. Therefore the valve has to be treated with the adequate precaution. Parts of the valves which are no longer serviceable have to be disposed professional and beneficial to the environment.be injured. It is mandatory to replace broken parts with original replacement parts.

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ChemValve CST-K Butterfly Valves

Maintenance Instructions

3. Disassembling

3.1. Preparations

Handlever, gear or actuator has to be dismantled. Prior to disassembling both body halves have to be marked so that after maintenance work the body will be assembled accurate to side.

3.2. Separating of the Split Body

Loosen both screws on the body and alternately unscrew in several steps. Pull upper half of body off. Pull liner and disc off lower body half whereas the correct order of the spring set has to be noted for the assembling later. Remove the silicone back up.

3.3. Dismantling of the Disc out of the Liner

To disassemble the TFM material of the liner easier, it has to be put in the oven with the disc for at least 5 minutes at 180° C. Take liner out of the oven and open disc 90° to liner. Trough the warming up treatment the liner can be squeezed in oval shape. This way th short end of the disc can be extended. Damaged liners can be cut in pieces and disposed professional.

4. Assembly

4.1. Preparations

Prior to the assembling, all parts have to be cleaned thoroughly and checked properly for damages and scratches. Damaged parts have to be replaced only with original parts. Use only new gaskets.

4.2. Assembling of Disc in Liner

In preparation the liner has to be warmed up at least 5 minutes at 180° C and the shaft has to be fixed in a vice using protecting jaws. When the liner is warmed up sufficient push the long end of the spindle through the liner. As the disc is in 90° position to the liner, the liner has to be squeezed oval and the short end of the shaft has to be pushed in. Now the disc has to be turned in closed position. Trough to squeezing manually in warm condition the liner can still be formed into the initial shape.

4.3. Assembling of Liner in Body

The further assembling has to be with the still warmed up liner. The spring set has to be put into the lower body half in correct order. After this insert the silicone back up. The stub shaft with the liner has to be put into the lower body half. After that the upper silicone back up can be placed and the upper spring set mounted in the switch shaft. Both back ups have to be controlled permanently of correct positioning.

4.4. Screwing of Body Halves

During the true sided assembling of both body halves (The marking done when preparing the disassembling helps) the valve has to be turned repeatedly trough to the liner. The body socket screws have to be tightened while the valve is in closed position.

4.5. Final Check

After assembling effective the revised ChemValve Butterfly Valve CST-K has to be checked (tested) regarding functionality and tightness. The following initial breakaway torques can only be checked while the valve has been mounted.

Synoptical Table about Breakaway and Allowable Torque

Inches	2"	2½"	3"	4"	6"	8"	10"	12"	Zoll
DN	50	65	80	100	150	200	250	300	DN
Initial Breakaway Torque (NM)	30	35	45	60	110	190	300	400	Losbrechmoment (NM)
Max. allowable Torques Shaft	61	61	61	179	309	309	604	604	Max. zul. Drehmomente Welle

5. Storage and Transportation

After the effective final check, the disc of the ChemValve Butterfly Valve CST-K has to be in a slight opened position. For the transport use the original packing material. Never expose the unprotected ChemValve Butterfly Valve CST-K to dust or humidity. If the original packing material is not available anymore, equal packing material in so far as functionality has to be created.

6. Installation in the Piping System

Please find these details in the document "ChemValve Butterfly Valve CST - Installation and Operating Instruction".