

Introduction of the valve



The two pieces of body Double Flange type butterfly valve and a concentric disc and seat configuration to with whole pack age PTFE sealed structure, takes whole package PTFE painting skills for the body. The painting thickness can reach up to 3~4mm ,which effectively avoids the direct interaction between the body and the medium and the medium's corrosion for the body. Different painting skills and materials of valve's disc are taken according to the customer's need, such as PTFE and nylon painting, stainless steel and bronze material for the body, etc.

Features

Absolutely tight sealing with flow in either direction

The valve body and disc are accurately machined which results in low operating torque and long service life and reliability

PTFE liner seated prevents corrosion and guarantees long service life

Can be disassembled, material specific recycling possible

Can be installed at the end of pipe for lugged type butterfly valve

General Applications

The products are used in a wide range of industries worldwide including:

- Chemical and petrochemical industries
- Water & Wastewater Treatment
- Pneumatic materials handling technology
- Shipbuilding
- Food Processing
- Petroleum Refining & Oilfield
- Power generation industry
- Mining
- Irrigation
- Textile
- Desalination
- Steel Production
- Sugar/Ethanol
- HVAC



Parts of name and purpose (DN50-DN600)



CE 0038 ISO9000



NECK: An extended neck design in all valve sizes allows for 2" of piping insulation and provides easy access for mounting actuators.

FLANGE LOCATING HOLES:

Locating holes in the Flange version provide quick and precise alignment during valve installation eliminating disc interference with adjacent pipe I.D.

DISC: The PTFE disc has 1/8" (3 mm) minimum thickness of pure, virgin PTFE encapsulated over Stainless Steel.

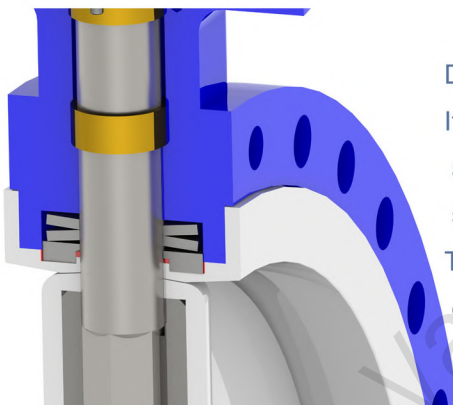
SEAT DESIGN: The seat design reduces seating unseating torque and, at the same time, reduces wear on the contacting parts. Curvatures machined into the inner seat area minimize contact forces between the disc and seat as the disc approaches, or opens from, the closed position. This unique seat geometry permits lower torques and reduces seat wear.

TOP STEM BUSHING: A top stem bushing, retained by a Luberized Bronze ring, is provided to absorb actuator side thrusts and is acetal as standard or PTFE as an option

BODY: Bodies are two piece Flange style and are epoxy coated. All bodies meet full ASME Class 150 and DIN 3840 pressure ratings for hydrostatic requirements.

Seat Energizer: A resilient seat energizer extends completely around the seat, including the disc hub. This provides uniform force sufficient for bubble tight shut off.

Key Design

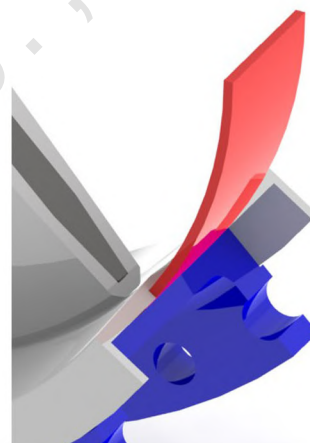


Disc spring, two sets for a group, is a state of compressive deformation in the body.

It will impose elastic force on the press sleeve, compact the O ring and seat, improve axial sealing, then provided the bearing stress for the seat and disc, to cover the shortage of elasticity about PTFE seat.

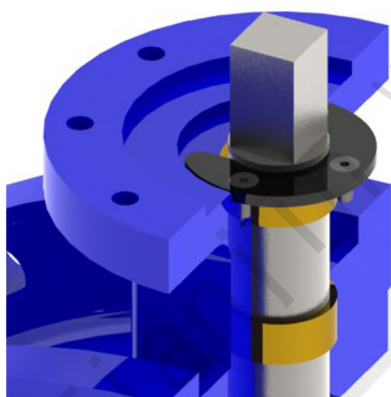
The seat is designed as shown in the figure, the advantage of this design is better sealing, effectively preventing the media leakage from the valve cavity.

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Seat Energizer:

A resilient seat energizer extends completely around the seat, including the disc hub. This provides uniform force sufficient for bubble-tight shut off.



TOP STEM BUSHING:

The bushing can assure the correct interaction between the upper shaft and the lower shaft, at the same time, it can make sure the smooth running of the shaft.



CBF04-TF01


Extensive field research and engineering have developed this state of the art design which provides excellent shut off protection (bubbletight shut off) and high Cv values. The Series CBF04-TF01 is crafted in a variety of materials such as PTFE, Stainless Steel, UHMWPE and special alloys to fit a wide range of customer requirements. As with all WORLDS's products, precision manufacturing and exceptional quality remain the keys to a proven record of long service life.

Technical Data(DN50-DN600)
Design Standard

EN593 BS5155

Face to Face

DIN558-1 API609 DIN3202 F16 ISO5752 BS5155

Testing Inspection

EN 12266-1 ISO5208 API598

Flange Accommodation

ASME B 16.1 125LB

ASME B 16.5 150LB

BS4504 PN10/16

DIN2501 PN10/16

ISO7005 PN10/16

EN1092 PN10/16

Top Flange

ISO 5211(accroding to the customer need)

Temperature Range

- 35 to +200(depending on pressure,medium and material)

Suitable Medium

flesh water, waste water,sewage,seawater,air,vapor,food,oils,medicine

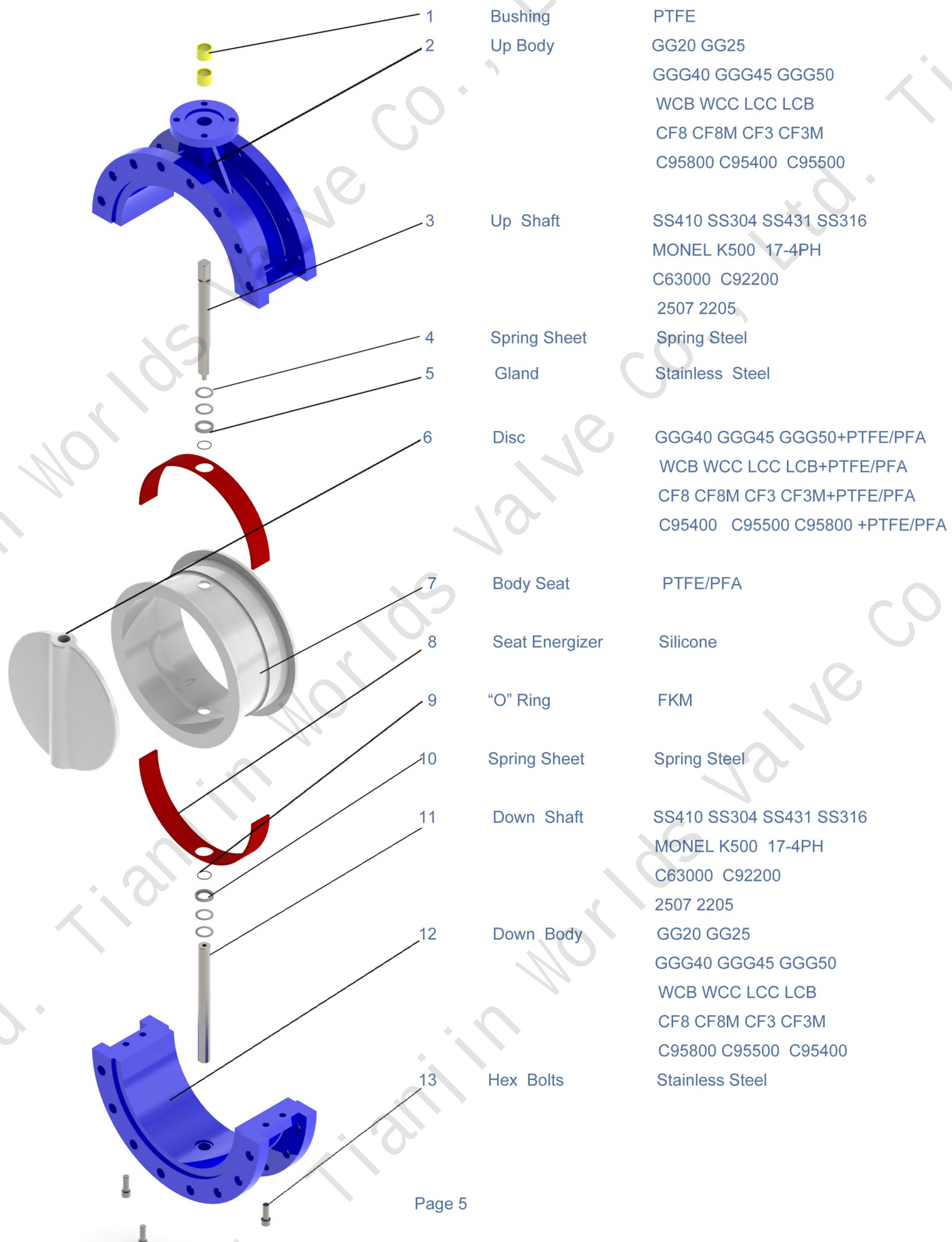
alkailis, salt, ect

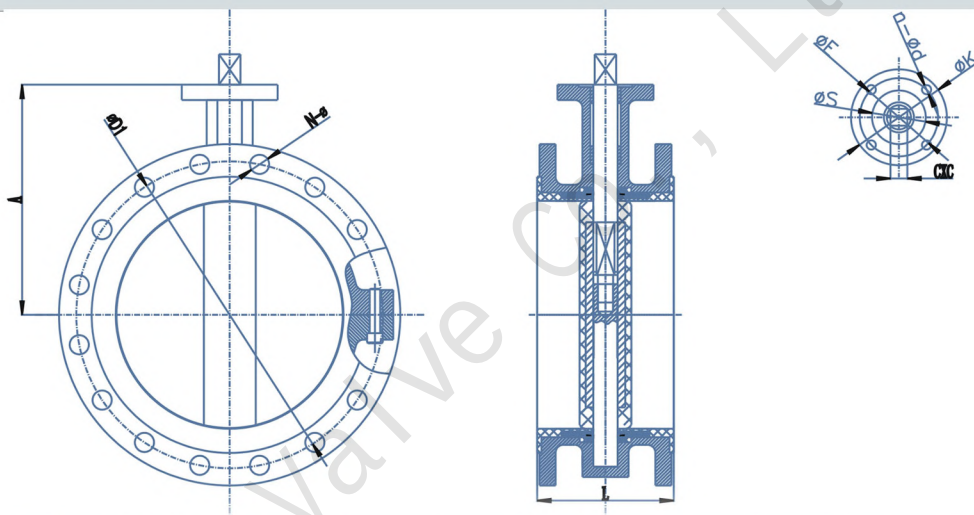
Max Working Pressure

DN50-DN250 16Bar

DN300-DN600 10Bar

Main Spare Part Material Quality (DN50-DN600)

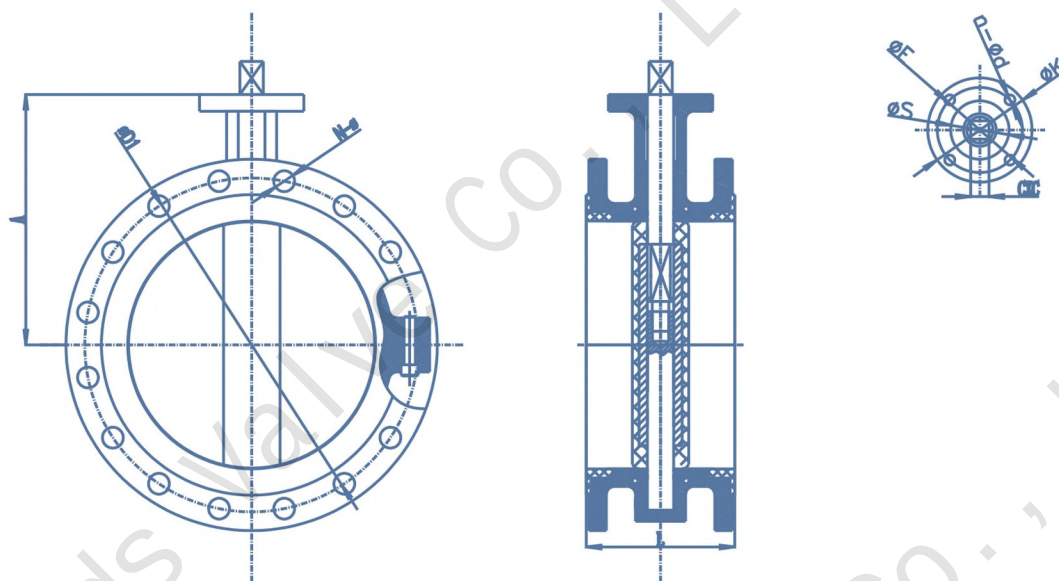


Drawing (50-600)

Outline Dimensions

SIZE	L	A	CxC	IS05211	K	E	S	n- d
DN50 (2")	108	135	11x11	F05/F07	65/90	50/70	35/55	4-8/10
DN65 (2.5")	112	135	11x11	F05/F07	65/90	50/70	35/55	4-8/10
DN80 (3")	114	138	11x11	F05/F07	65/90	50/70	35/55	4-8/10
DN100 (4")	127	158	11x11	F07	90	70	55	4-10
DN125 (5")	140	175	14x14	F07	90	70	55	4-10
DN150 (6")	140	190	14x14	F07	90	70	55	4-10
DN200 (8")	152	240	17x17	F10	125	102	70	4-12
DN250 (10")	165	275	22x22	F10	125	102	70	4-12
DN300 (12")	178	300	22x22	F10	125	102	70	4-12
DN350 (14")	190	330	22x22	F10	125	102	70	4-12
DN400 (16")	216	385	27x27	F14	175	140	100	4-18
DN450 (18")	222	430	27x27	F14	175	140	100	4-18
DN500 (20")	229	460	36x36	F14	175	140	100	4-18
DN600 (24")	267	520	36x36	F16	210	165	130	4-22

Torque values-Nm
APPLICATION IN WATER

SIZE		10 Bar	16 Bar	SIZE		10 Bar	16 Bar
mm	inch			mm	inch		
DN40	1.5"	17	19	DN250	10"	387	464
DN50	2"	17	19	DN300	12"	568	647
DN65	2.5"	22	26	DN350	14"	1012	1214
DN80	3"	33	40	DN400	16"	1584	
DN100	4"	55	66	DN450	18"	1958	
DN125	5"	85	102	DN500	20"	2431	
DN150	6"	133	160	DN600	24"	4378	
DN200	8"	266	320				

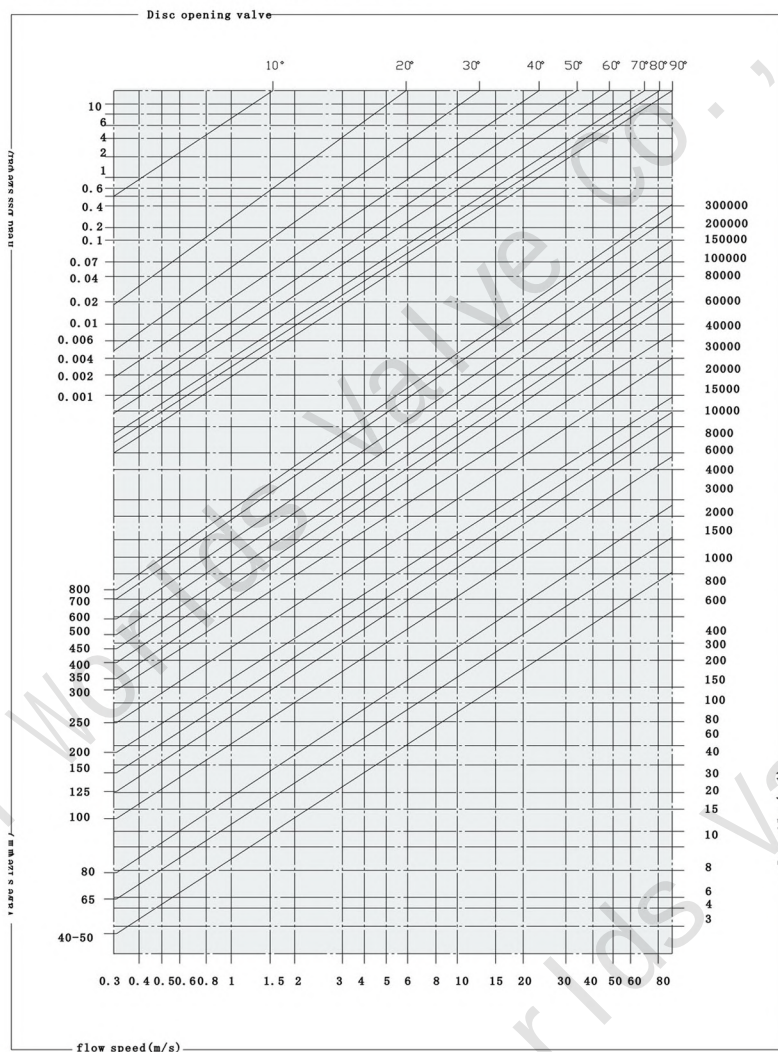
Drawing (50-600)

Connection Dimensis

	ASME		DIN PN10		DIN PN16		JIS		BS PN10		BS PN16	
SIZE	D1	N- ϕ	D1	N- ϕ	D1	N- ϕ	D1	N- ϕ	D1	N- ϕ	D1	N- ϕ
DN50 (2")	120.65	4-19.05	125	4-19	125	4-19	120	4-19	125	4-19	125	4-19
DN65 (2.5")	139.7	4-19.05	145	4-19	145	4-19	140	4-19	145	4-19	145	4-19
DN80 (3")	152.4	4-19.05	160	8-19	160	8-19	150	8-19	160	8-19	160	8-19
DN100 (4")	190.5	8-19.05	180	8-19	180	8-19	175	8-19	180	8-19	180	8-19
DN125 (5")	215.9	8-22.35	210	8-19	210	8-19	210	8-23	210	8-19	210	8-19
DN150 (6")	241.3	8-22.35	240	8-23	240	8-23	240	8-23	240	8-23	240	8-23
DN200 (8")	298.45	8-22.35	295	8-23	295	12-23	290	12-23	295	8-23	295	12-23
DN250 (10")	361.95	12-25.4	350	12-23	355	12-28	355	12-25	350	12-23	355	12-28
DN300 (12")	431.8	12-25.4	400	12-23	410	12-28	400	16-25	400	12-23	410	12-28
DN350 (14")	476.25	12-28.4	460	16-23	470	16-28	445	16-25	460	16-23	470	16-28
DN400 (16")	539.75	16-28.4	515	16-28	525	16-31	510	16-27	515	16-28	525	16-31
DN450 (18")	577.85	16-31.75	565	20-28	585	20-31	565	20-27	565	20-28	585	20-31
DN500 (20")	635	20-31.75	620	20-28	650	20-34	620	20-27	620	20-28	650	20-34
DN600 (24")	749.3	20-35.1	725	20-31	770	20-37	730	24-33	725	20-31	770	20-37

Head losses

Formulae for calculation of rate flow

Notes: Values indicated in this page is only for information



Liquids: $Q = \frac{KV}{\sqrt{\frac{PS}{\Delta P}}}$

Q rate of flow (m³/h)

PS specific gravity (water=1)

ΔP pressure drop (bar)

Gas: $Q = 28.5 \frac{KV}{\sqrt{\frac{PS}{P_2 \cdot \Delta P}}}$

Q rate of flow (m³/h)

PS specific gravity (air=1)

ΔP pressure drop (bar)

(less than 1/2 inlet pressure)

P2 outlet pressure

Steam: $Q = 22.5 \cdot KV \cdot \sqrt{P_2 \cdot \Delta P}$

Q rate of flow (Kg/h)

ΔP pressure drop (bar)

(less than 1/2 inlet pressure)

P2 outlet pressure

Calculation of the rate of flow equivalent to H2O:

For different liquid, gas or steam head losses are determined by equivalent water of flow, as follows:

Qe equivalent water flow

(mc/l o l/s)

Q fluid flow

(mc/l o l/s)

d fluid specific gravity

(Kg/mc)

Values CV (CV=1.16KV)

	Flow in Gpm@1 PSI P@ Various Disc Angles									Full 90°
(mm)	10°	20°	30°	40°	50°	60°	70°	80°	Open	
40	0.04	3	6	12	23	32	46	60	69	
50	0.08	4	10	20	38	54	77	106	115	
65	0.17	7	17	31	55	83	122	173	187	
80	0.26	10	19	33	60	99	156	234	257	
100	0.43	14	31	66	118	196	309	464	510	
125	0.68	25	52	113	201	333	527	791	869	
150	1.7	38	81	174	311	514	814	1221	1342	
200	2.55	76	160	347	618	1022	1618	2426	2666	
250	3.4	128	272	590	1051	1740	2754	4130	4539	
300	4.3	199	421	911	1624	2688	4254	6381	7013	
350	5	287	608	1317	2347	3883	6146	9217	10129	
400	7	394	836	1811	3227	5340	8451	12676	13930	
450	9	523	1107	2399	4274	7072	11193	16789	18449	
500	12	825	1423	3084	5495	9093	14391	21587	23722	
600	19	1039	2199	4764	8491	14049	22233	33351	36649	

Installation Instructions

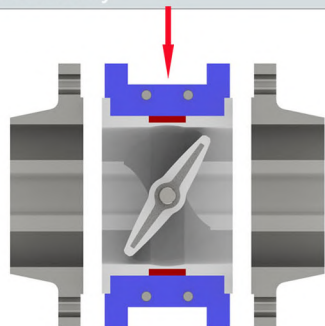


The butterfly valve can be installed on the pipeline, which is at any angle.

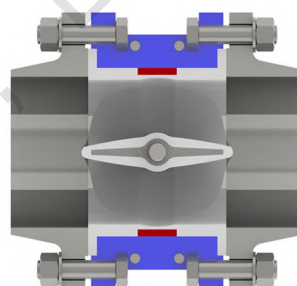
- 1.The valve should be installed in the location being sure to provide convenient operation, maintenance and replacement.
- 2.As mounting the butterfly valve, fail to consider flow direction of mediums in pipeline, that is to say, the valve can be used in double way.
- 3.Before installation, the butterfly valve should be stored in ware house and prevent it from moisture and in so doing, the disc should be kept to open at an angle of 15 degree.
- 4.Before installation, the following processes should be completed:
 - (1)Check carefully and confirm the operation condition of the valve is in line with the technical specification and requirements.
 - (2)Clean the disc sealing area and body sealing completely. It is not permitted to open the disc before cleaning.
 - (3)Check and confirm the handle is strongly collected to the flange and stem.
- 5.As mounting the butterfly valve in pipeline, the load for tightening connection bolts should be uniformed.
- 6.After installation, the disc must be opened in the case of the strength pressure test on pipeline being carried out.
- 7.After being installed, the valve should be examined regularly. The main item to be checked are as follows:
 - (1)Whether the valve seat and 'O' sealing ring have been damaged.
 - (2)Check the sealing effects of the disc sealing area.
 - (3)After the valve was examined and assembled, no scuffing happens at the time of on-off rotation.
 - (4)After the valve was examined and assembled, the sealing test should be carried out as the introduction.
 - (5)After each examination, detailed records should be filed for reference.

INSTALLATION

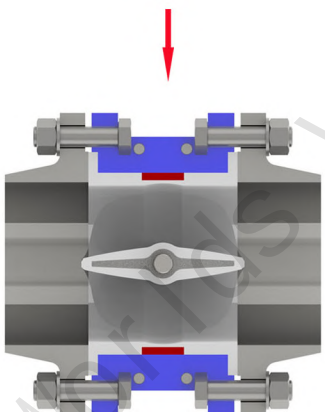
Assembly



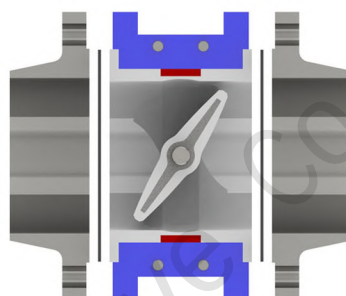
1 Leave a space between flanges so that valve can be easily inserted and removed .and move the valve in accordance with the arrow



2 Open completely the valve before tightening flanges



3 Tighten bolts till flanges are in contact with valve body

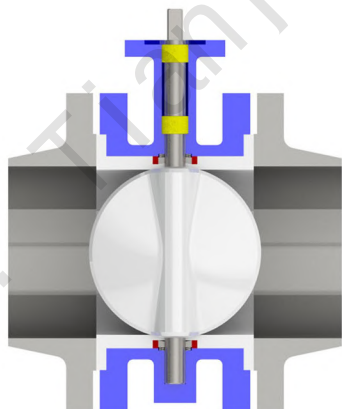


4 NOTE: do not insert other packing between flange and valve

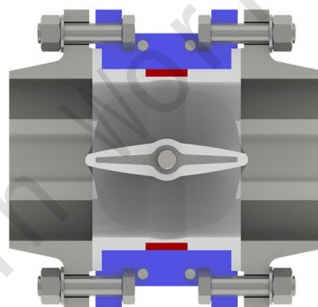
NOTE:Weld the pipe only in spots with the valve between flanges. Remove the valve before finishing welding to avoid that heat damage the seat, Clean carefully the welding to avoid that slags damage the seat

Installation for powders and muddy fluids

In case of use with powders or muddy fluids,install the valve with horizontal rotation axis,to allow sediments to flow easily on opening



Wrong
Vertical rotation axis



Right
Horizontal rotation axis

Work principle

This product mainly consists of body, stem, disc, seat bushings etc. The rotation of actuating device makes stem and disc revolved, which ensures on-off operations and flow control.

The rotation of the actuating device ensures dependability and position disc control and position disc control and water flow control. Rotate handle wheel clockwise, the valve is close.

Advantage

- 1.Small in size and light in weight. Easy installation and maintenance. It can be mounted wherever needed.
- 2.Simple and compact construction, quick 90degrees on-off operation.
- 3.Minimized operating torque, energy saving.
- 4.Bubbles-tight sealing with no leakage under the pressure testing
- 5.Wide selection of materials, applicable for various medium.
- 6.Long service life. Standing the test of tens of thousands opening/closing operations.
- 7.Flow curve tending to straight line. Excellent regulation performance.

Trouble & remedy

Trouble	cause	remedy
Leakage in sealing area	Disc sealing area or body sealing seat scratched, disc is not closed completely. Hexagonal socket head bolts on clamping ring are not tightened completely.	Repair the disc sealing replace repair the body sealing seat, adjust actuator to close the disc completely, tighten loosed hexagonal socket head bolts.
Leakage in shaft end	The seat or The 'O' ring is not pressed completely.	Replace the body sealing seat
Leakage in joint area between valve face and relevant flange on pipeline	Connection bolts are not screwed up uniformly.	Tighten the connection bolts evenly.