



Tianjin Worlds Valve Co.,Ltd



Operation And Maintenance Manual

PTFE/PFA Butterfly Valves

CBF04-TA04



Introduction of the valve

Introduction

The two pieces of body wafer 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

Application Field

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

Chemical Beverage

Brewing/Wine Making

Pharmaceutical

Food Processing

Petroleum Refining & Oilfield

Transportation

Ultrapure Water

Marine

Pulp & Paper

Mining

Power/FGD

Nuclear Power

Irrigation

Water & Wastewater Treatment

Textile Desalination

Steel Production

Sugar/Ethanol

HVAC



Parts of name and purpose



CE 0038



ISO 9000



APPROVED PRODUCT



Attestation de Conformité Sanitaire

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 wafer 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.

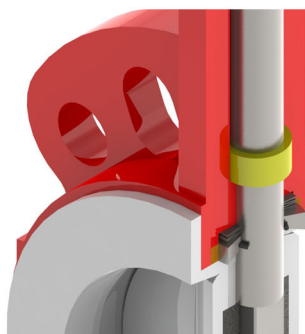
TOP STEM BUSHING: A top stem bushing, retained by a stainless steel ring, is provided to absorb actuator side thrusts and is acetal as standard or PTFE as an option.

BODY: Bodies are two piece wafer or lug 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.



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.

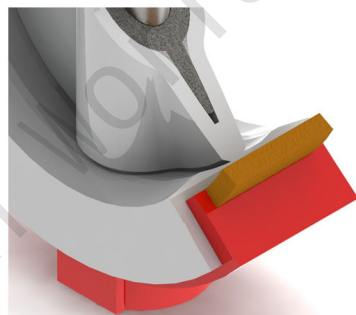


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A resilient seat energizer extends completely around the seat, including the disc hub. This provides uniform force sufficient for bubble-tight shut off.



Technical Data(DN50-DN900)

Design Standard

EN593 API 609 BS5155 MSS SP-67

Face to Face

DIN558-1 API609 DIN3202 K1 ISO5752 BS5155

Testing Inspection

EN 12266-1 ISO5208 API598

Flange Accommodation

ASME B 16.1 125LB ASME B 16.5 150LB BS 4504 PN10/16
DIN 2501 PN10/16 ISO7005 PN10/16 EN1092 PN10/16 JIS B 2220 10K

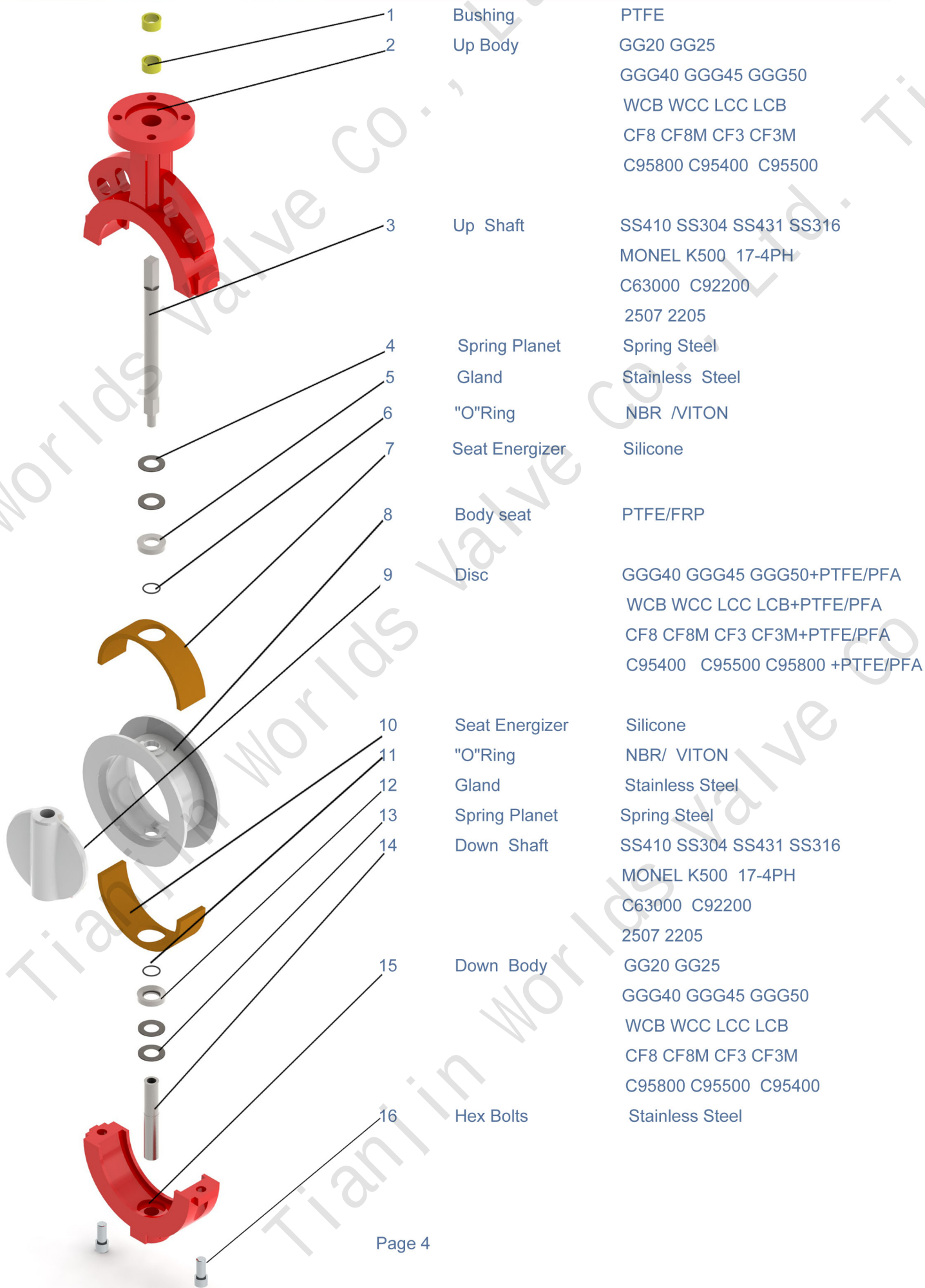
Top Flange

ISO 5211(accroding to the customer need)

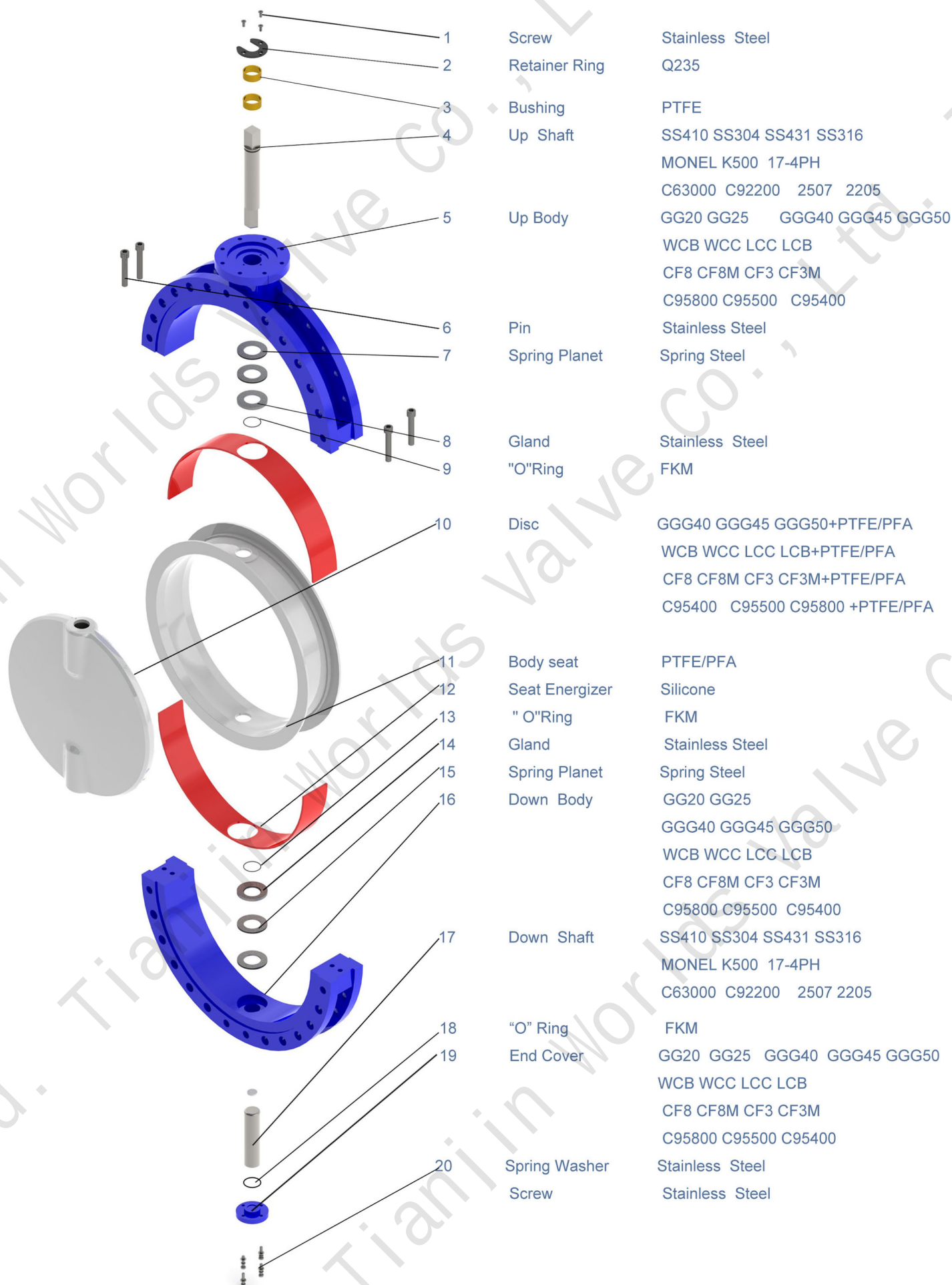
Temperature Range

- 20 to +180 (depending on pressure, medium and material)

Main Spare Part Material Quality (DN50-DN300)



Main Spare Part Material Quality (DN350-DN1200)



Shipment & Storage

- A. The seat, disc, stem and bushing of the resilient seated butterfly valve should be coated with silicone lubricant
- B. The disc should be positioned at 10° open.
- C. Valves should be stored indoors with a preferred temperature range from 40° F (4°C) to 85° F (29°C).
- D. When valves are stored for a long time, open and close the valves once every 3 months.
- E. Ship and store valves so that no heavy loads are applied to the bodies.

Disassembly

- 1. Remove handle, gear operator or power actuator from actuator mounting flange.
- 2. Remove the body bolts and pull the lower body half away from the seat.
- 3. Pull the seat and disc stem from the upper body half.
- 4. Remove bushing and seal from the upper body.
- 5. Push the seat into an oval shape and remove the disc stem by withdrawing the short stem end first.

Assembly

- 1. Push the long stem end of the disc into the seat.
- 2. Then push the seat over the disc's short stem.
- 3. Place the disc stem and seat into the upper body half.
- 4. Align the lower body with the upper body and position lower body in the seat.

NOTICE The body halves have a matching casting node on one side only to ensure correct assembly of body halves.

- 5. Replace the body bolts and tighten.
- 6. Install the stem seal, then the stem bushing.

Note: It is recommended that the stem bushing be coated with a light amount of silicone grease before installation in the valve body. This coating of silicone grease will assist in keeping the stem bushing in the valve body until an actuator is mounted on the valve.

- 7. Replace handle, manual gear operator or power actuator on the actuator mounting flange.

Installation Considerations – Piping and Valve Orientation and Placement

Piping and Flanged Compatibilities Piping

These valves have been engineered so that the critical disc chord dimension at the full open position will clear the adjacent inside diameter of most types of piping, including Schedule 40, lined pipe, heavy wall, etc

Metal Flanges

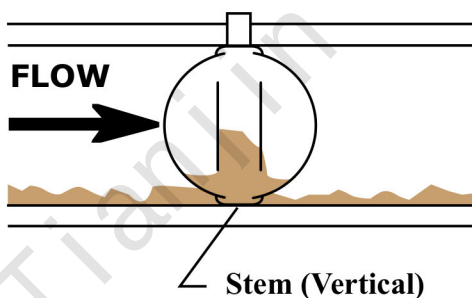
PTFE butterfly valves have been designed to be suitable for all types of flanges (ASME, AWWA), whether flat-faced. Proper alignment of any butterfly valve between flanges is critical to good performance of the valve. The flange bolts must also be evenly tightened around the circumference of the valve, providing consistent flange compression of the molded o-ring in the seat face

Valve Orientation

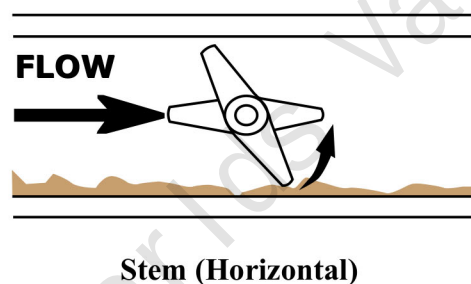
a. In general, WDS recommends the resilient seated valve be installed with the stem in the vertical position and the actuator mounted vertically directly above the valve; however, there are those applications as discussed below where the stem should be horizontal.

NOTE: WDS does not recommend valves be installed in an upside-down position.

b. For slurries, sludge, mine tailing, pulp stock, dry cement, and any media with sediment or particles, WDS recommends the resilient seated valve be installed with the stem in the horizontal position with the lower disc edge opening in the down stream direction.



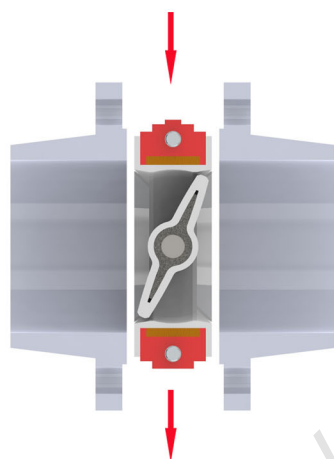
INCORRECT INSTALLATION
Sludge builds up on disc



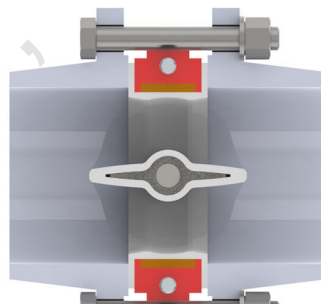
CORRECT INSTALLATION
Sludge passes under disc

INSTALLATION

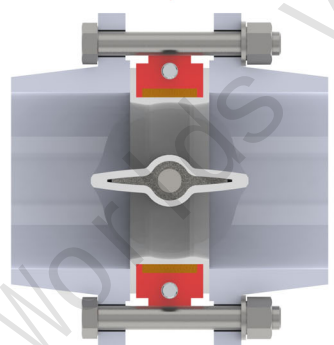
Assembly



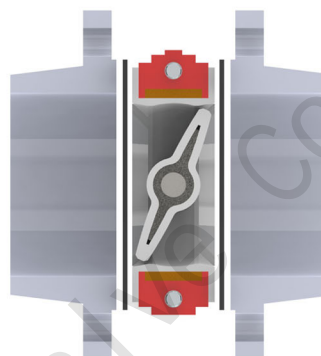
1 Leave a space between flanges so that valve can be easily inserted and removed and move the valve in accordance with the arrow



2 Open completely the valve before tightening flanges



3 Tighten bolts till flanges are in contact with valve body

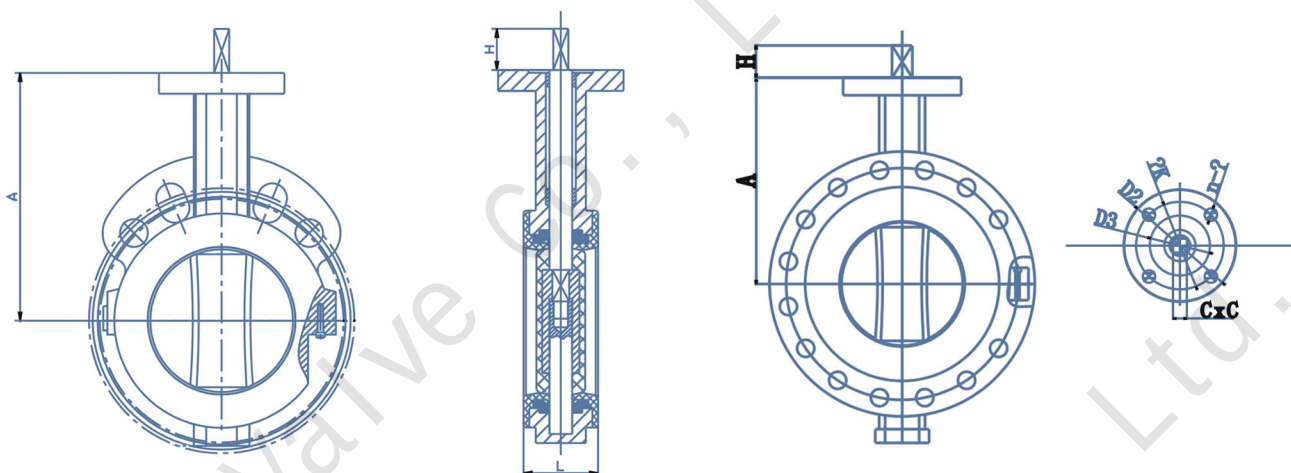


4 **NOTE:** do not insert other packing between flange and valve

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

Values CV (CV=1.16KV)

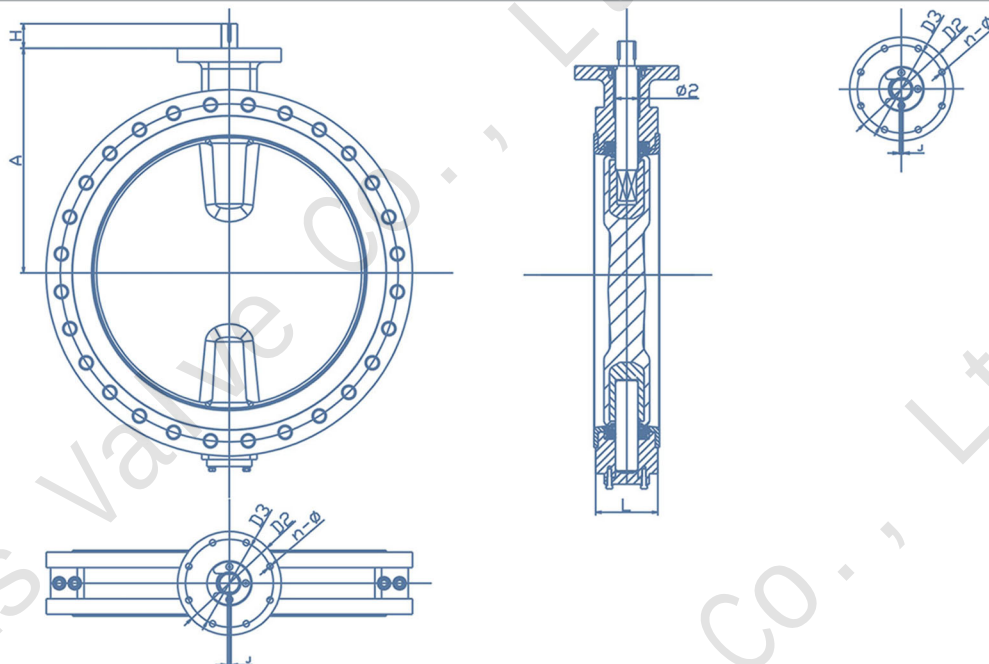
Size	Flow in Gpm@1 PSI P@ Various Disc Angles								
(mm)	10°	20°	30°	40°	50°	60°	70°	80°	90°
50	0.1	5	12	24	45	64	90	125	135
65	0.2	8	20	37	65	98	144	204	220
80	0.3	12	22	39	70	116	183	275	302
100	0.5	17	36	78	139	230	364	546	600
125	0.8	29	61	133	237	392	620	930	1022
150	2	45	95	205	366	605	958	1437	1579
200	3	89	188	408	727	1202	1903	2854	3136
250	4	151	320	694	1237	2047	3240	4859	5340
300	5	234	495	1072	1911	3162	5005	7507	8250
350	6	338	715	1549	2761	4568	7230	10844	11917
400	8	464	983	2130	3797	6282	9942	14913	16388
450	11	615	1302	2822	5028	8320	13168	19752	21705
500	14	971	1674	3628	6465	10698	16931	25396	27908
600	22	1222	2587	5605	9989	16528	26157	39236	43116
700	30	1633	3522	7630	12599	20036	30482	46899	58696
800	45	2387	4791	8736	13786	20613	31395	48117	68250
900	60	3021	6063	11055	17449	26086	39731	60895	86375
1000	84	4183	8395	15307	24159	36166	55084	84425	119750
1200	102	4651	10365	17010	27242	43853	70431	108968	132888

Drawing (50-600)

Outline Dimensions

SIZE	L	A	H	CxC	ISO5211	D2	D3	k	n- Ø	Ø2
DN50	43	140	14	9x9	F07/F05	90/65	55/35	70/50	4-10/7	12.6
DN65	46	150	14	9x9	F07/F05	90/65	55/35	70/50	4-10/7	12.6
DN80	46	160	14	9x9	F07/F05	90/65	55/35	70/50	4-10/7	12.6
DN100	52	178	14	11x11	F07	90	55	70	4-10	15.77
DN125	56	190	17	14x14	F07	90	55	70	4-10	18.92
DN150	56	200	17	14x14	F07	90	55	70	4-10	18.92
DN200	60	240	22	17x17	F10	125	70	102	4-12	22.10
DN250	68	273	22	22x22	F10	125	70	102	4-12	28.45
DN300	78	310	22	22x22	F10	125	70	102	4-12	31.60
DN350	78	346	22	22x22	F10	125	70	102	4-12	31.60
DN400	102	375	36	27x27	F14	175	100	140	4-18	33.15
DN450	114	406	36	27x27	F14	175	100	140	4-18	37.95
DN500	127	438	36	36x36	F14	175	100	140	4-18	41.12
DN600	154	495	46	36x36	F16	210	130	165	4-22	50.65

Connection Dimensis

DN	Outer Diameter Of Flange				Diameter Of Center Circle				Number And Diameter Of Bolt Holes			
	150LB	PN10	PN16	JIS10K	150LB	PN10	PN16	JIS10K	150LB	PN10	PN16	JIS10K
50	150	165	165	155	120.7	125	125	120	4-19	4-19	4-19	4-19
65	180	185	185	175	139.7	145	145	140	4-19	4-19	4-19	4-19
80	190	200	200	185	152.4	160	160	150	4-19	8-19	8-19	8-19
100	230	220	220	210	190.5	180	180	175	8-19	8-19	8-19	8-19
125	255	250	250	250	215.9	210	210	210	8-22	8-19	8-19	8-23
150	280	285	285	280	241.3	240	240	240	8-22	8-23	8-23	8-23
200	345	340	340	330	298.5	295	295	290	8-22	8-23	12-23	12-23
250	405	395	405	400	362	350	355	355	12-26	12-23	12-28	12-25
300	485	445	460	445	431.8	400	410	400	12-26	12-23	12-28	16-25
350	535	505	520	490	476.3	460	470	445	12-29	16-23	16-28	16-25
400	595	565	580	560	539.8	515	525	510	16-29	16-28	16-31	16-27
450	635	615	640	620	577.9	565	585	565	16-32	20-28	20-31	20-27
500	700	670	715	675	635	620	650	620	20-32	20-28	20-34	20-27
600	815	780	840	795	749.3	725	770	730	20-35	20-31	20-37	24-33

Drawing (700-1200)

Outline Dimensions

SIZE	L	A	H	J	IS05211	D2	D3	n-φ	φ2
DN700	165	600	110	18	F25	300	200	8-18	63.35
DN750	165	610	110	18	F25	300	200	8-18	63.35
DN800	190	672	110	18	F25	300	200	8-18	63.35
DN900	203	720	110	20	F25	300	200	8-18	75
DN1000	216	800	110	22	F35	415	356	8-33	85
DN1200	254	920	130	28	F35	415	356	8-33	105

Connection Dimensis

DN	Outer Diameter Of Flange				Diameter Of Center Circle				Number And Diameter Of Bolt Holes			
	150LB	PN10	PN16	JIS10K	150LB	PN10	PN16	JIS10K	150LB	PN10	PN16	JIS10K
700	927	895	910	905	863.6	840	840	840	28-35	24-31	24-37	24-33
800	1060	1015	1025	1020	977.9	950	950	950	28-42	24-34	24-41	28-33
900	1168	1115	1125	1120	1085.85	1050	1050	1050	32-42	28-34	28-41	28-33
1000	1289	1230	1255	1235	1200.15	1160	1170	1160	36-42	28-37	28-44	28-39
1200	1511	1455	1485	1465	1422.4	1380	1390	1380	44-42	32-41	32-50	32-39

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.



Tianjin Worlds Valve Co., Ltd.

天津沃得斯阀门有限公司



International Sales Department:

QQ:596019673

Face Book: Fan Diego

Tel:0086-22-28522277

Skype:Diegofan3

Domestic Sales Department:

QQ:915085812

Fax: 0086-22-28522288

Website : www.worldsvalve.com

Linkedin: TianJin Worlds Valve Co., Ltd

Email: worlds@worldsvalve.com

sales@worldsvalve.com

Address: NO.25 Fuhui Road,Beizhakou Industrial Park,

Jinnan District,Tianjin-China

