

Introduction of the valve



The valve body shall be one-piece U section design and a concentric disc and seat configuration to allow for 2"-56" of piping insulation, have flange hole drilling per international flange standards and be provided with a non-corrosive bushing and self-adjusting stem seal. Flange locating holes shall be provided on U section bodies to allow for quick and precise alignment during valve installation. The valve disc edge and hub on metal discs shall be spherically machined and hand polished for minimum torque and maximum sealing capability. The disc-to-stem connection shall be an internal Square design with no possible leak paths in the disc-to-stem connection. External disc-to-stem connections such as screws

or pins are not allowed. The valve seat shall be a tongue-and groove design. The seat shall totally encapsulate the body isolating the body from the line media and no flange gaskets shall be required. The U section valve shall be rated for bubble-tight shut-off for bidirectional service to 16 Bar on sizes 2"-12" (50mm-300mm) and to 10 Bar on sizes 14"-56" (350mm-1400mm). The valve shall be tested for tight shut-off to 110% of the rated pressure. The Valve shall have the following approvals and certifications: CE, ISO9001, WRAS.

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



Introduction of the valve

Valve Type:

CBF02-TU03



CE 0038 ISO9000

Body:

Shall be one-piece U section design to allow for 2"-48" of piping insulation.

Flange locating holes shall be provided on U section bodies to allow for quick and precise alignment during valve installation.

Flange hole drilling per international flange standard as specified.

A non-corrosive bushing and a self-adjusting stem seal shall be provided. No field adjustment shall be necessary to maintain optimum field performance.

Disc:

Disc edge and hub on metal discs shall be spherically machined and hand polished for torque and maximum sealing capability

Stem:

Disc to stem connection shall be square shaft design with no possible leak paths in the disc-to-stem connection. External disc to stem connections such as disc screws or pins are not allowed.

Stem shall be mechanically retained in the body neck and no part of the stem shall be exposed to the line media.

Seat:

Shall be tongue-and-groove seat

The seat shall totally encapsulate the body isolating it from the line media and no flange gaskets shall be required.

Features

- 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 test
- 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.



Max working pressure

DN50-DN300 16Bar

Flange 125LB 150LB

DN350-DN1400 10Bar

Flange 125LB 150LB

Design

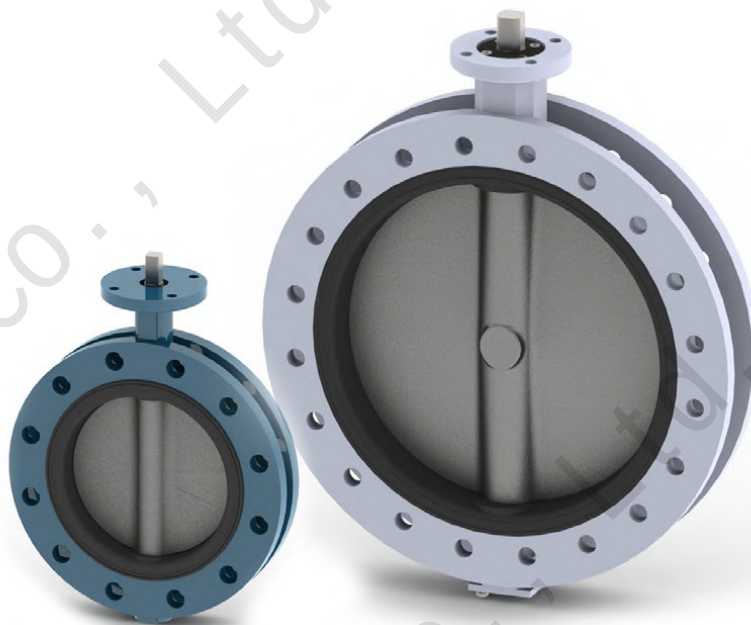
API609 ASME B 16.1/ 16.5/16.47 ISO5211

Face to Face

API 609 ASME B 16.10 EN558-1

Testing

API 598



Body

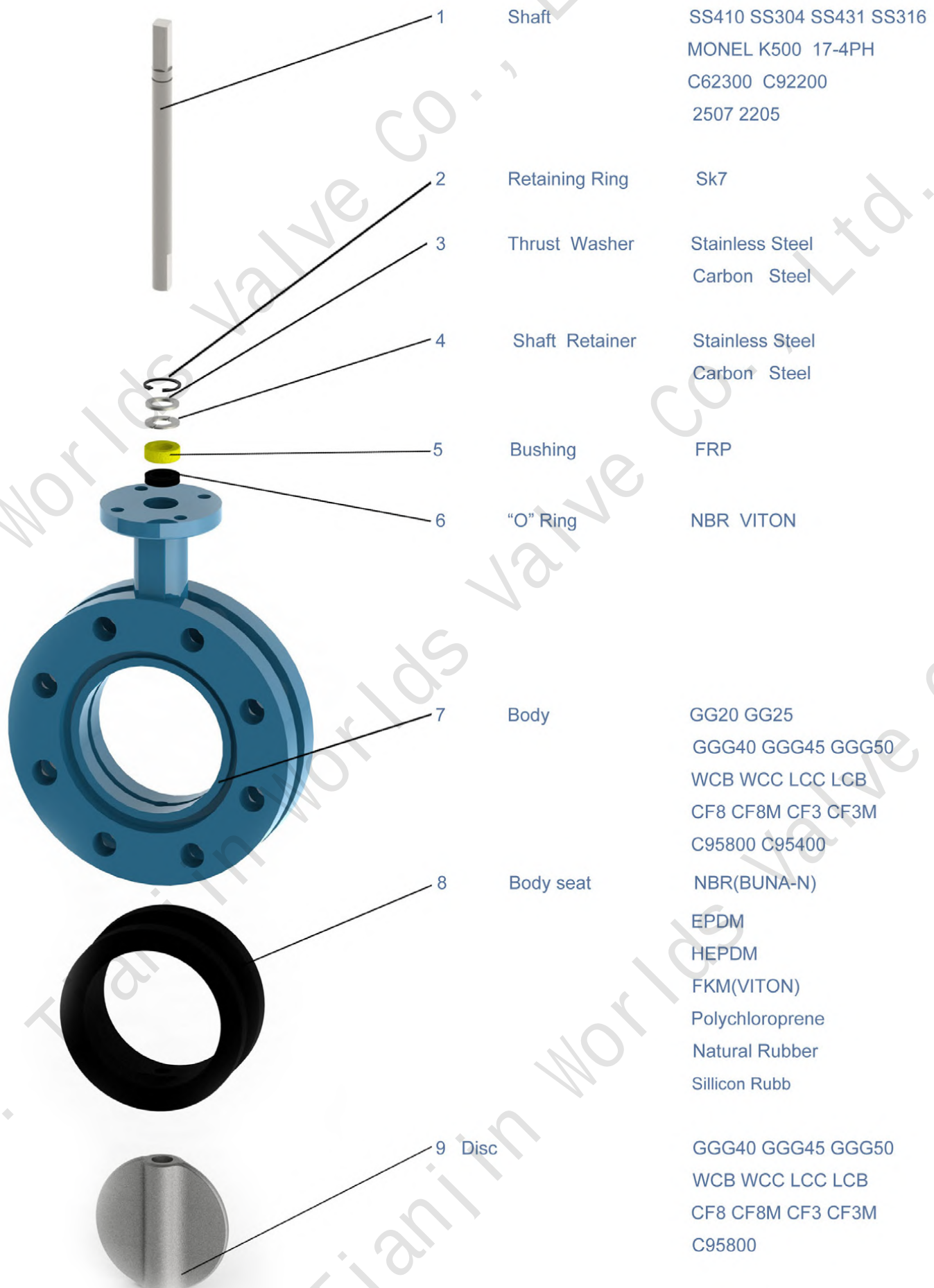
Material	Referencesstandard	Coating
Cast iron	GG20 GG25 A126	Epoxy Ral 5005
Ductile iron	GGG40 GGG45 GGG50 A536 A395	Epoxy Ral 5005
Carbon steel	WCB WCC LCC LCB	Epoxy Ral 7011
Stainless steel	CF8 CF8M CF3 CF3M SAF2507 SAF2205	
Aluminum-bronze	C95400 C95500 C95800	

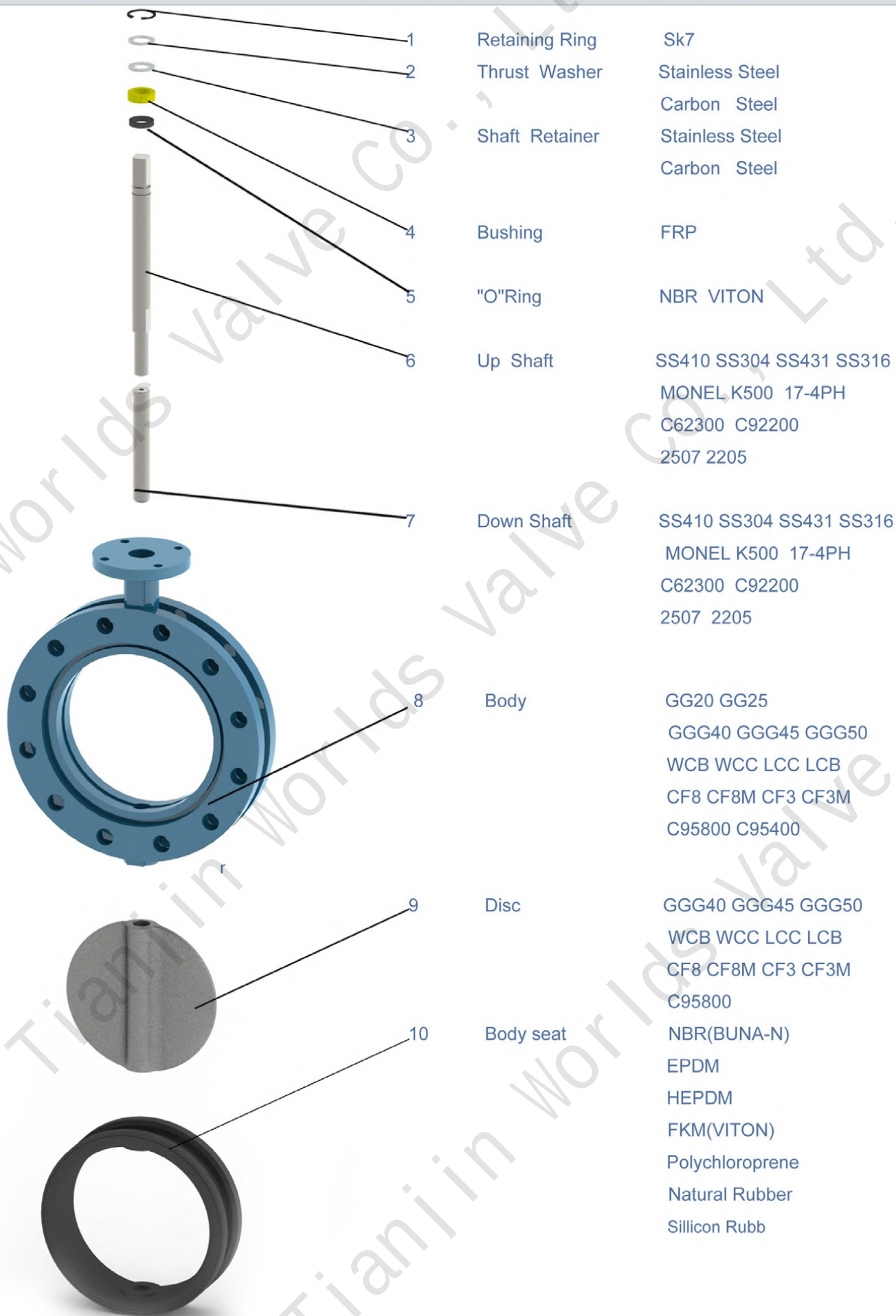
Disc

Material	References	Standard coating
Ductile iron	GGG40 GGG45 GGG50 A536	Nickel Brass-Nickle
Carbon steel	WCB WCC LCC LCB	
Stainless steel	CF8 CF8M CF3 CF3M SAF2507 SAF2205	
Aluminum-bronze	C95400 C95500 C95800	

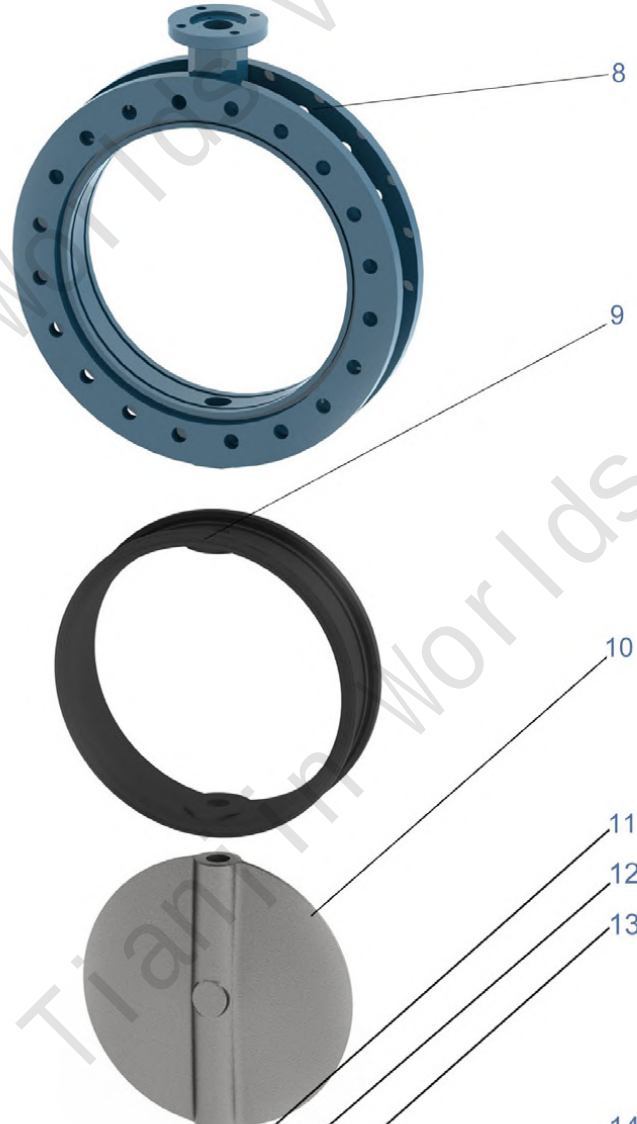
Body Rubber Seat

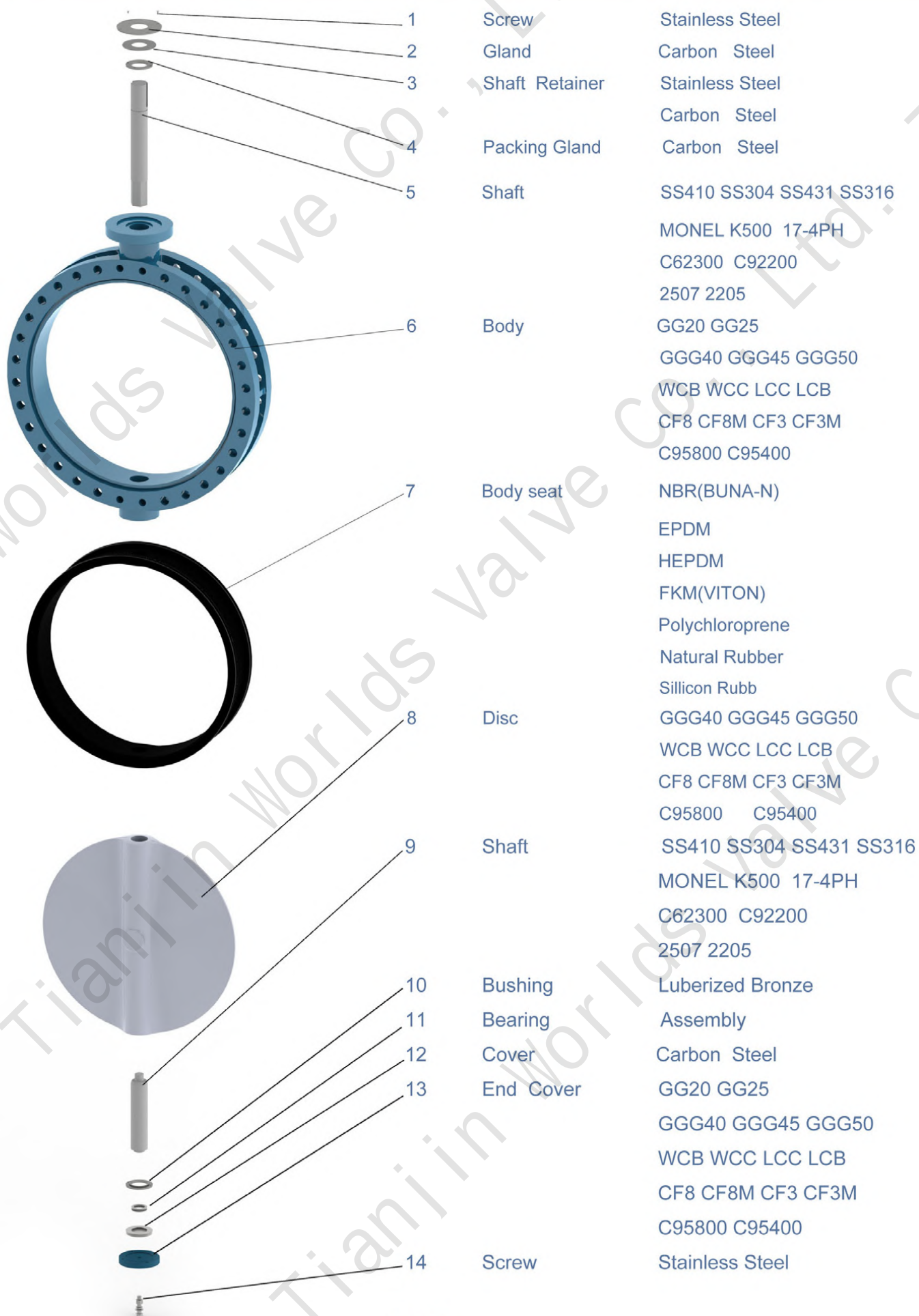
References	Designation	Trade Name	Working temp	Applications
NBR	Nitrile Rubber	BUNA-N	-25/+100	Oils ,Hydrocarbons ,Gas, Air ,Water
EPDM	Copolymer	EPDM	-35/+130	Water ,Sea Water,Steam,Diluted Acids
FKM	Fluoroelastomer	VITON	-20/+200	Oils, Hydrocarbons, Acids
CR	Polychloroprene	NEOPRENE	-20/+100	Alkali, Bases,Water
NR	Natural Rubber	NR	-40/+80	Glycols,Abrasive media
MVQ	Silicon Rubber	SR	-60/+190	Water,food,Drinks
CSM	Chlorosulfonate	HYPALON	-20/+125	Acids,mineral
	Polychloroprene			bases,Alcohols,Hydrocarbons

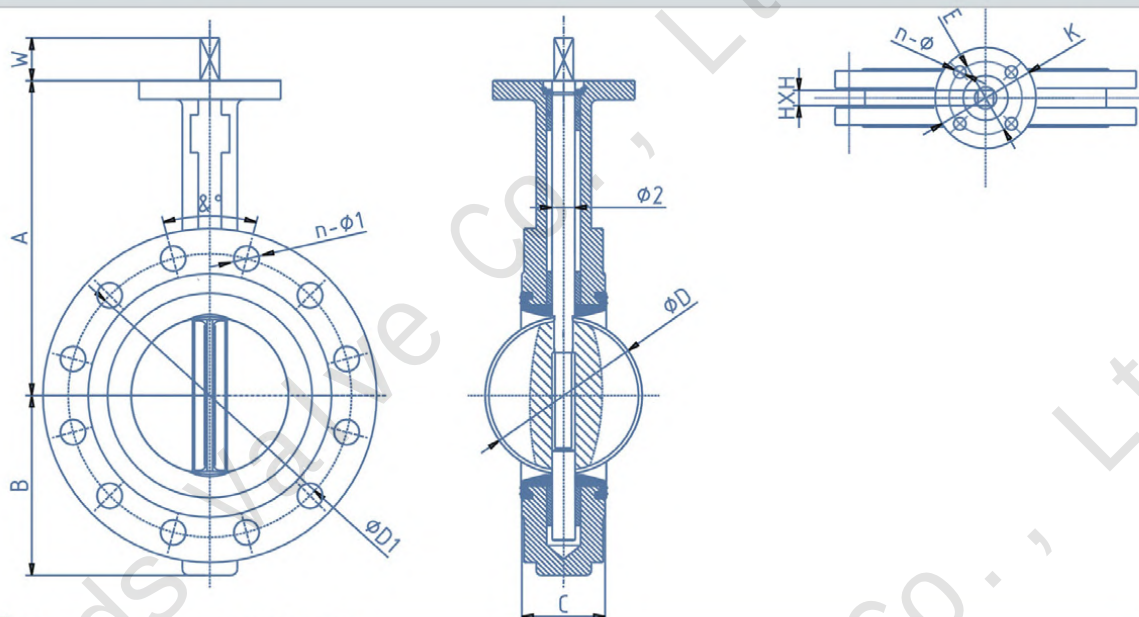
Main Spare Part Material Quality (2 “-3”)


Main Spare Part Material Quality (4 “-14”)


Main Spare Part Material Quality (16" -24")

	1	Screw	Stainless Steel
	2	Shaft Retainer	Stainless Steel
			Carbon Steel
	3	Packing Gland	Carbon Steel
	4	Packing	NBR
	5	Bushing	Luberized Bronze
	6	Bushing	Luberized Bronze
	7	Shaft	SS410 SS304 SS431 SS316 MONEL K500 17-4PH C62300 C92200 2507 2205
	8	Body	GG20 GG25 GGG40 GGG45 GGG50 WCB WCC LCC LCB CF8 CF8M CF3 CF3M C95800 C95400
	9	Body seat	NBR(BUNA-N) EPDM HEPDM FKM(VITON) Polychloroprene Natural Rubber Sillicon Rubb
	10	Disc	GGG40 GGG45 GGG50 WCB WCC LCC LCB CF8 CF8M CF3 CF3M C95800 C95400
	11	Bushing	Luberized Bronze
	12	Bushing	Luberized Bronze
	13	Shaft	SS410 SS304 SS431 SS316 MONEL K500 17-4PH C62300 C92200 2507 2205
	14	"O"Ring	NBR
	15	End Cover	GG20 GG25 GGG40 GGG45 GGG50 WCB WCC LCC LCB CF8 CF8M CF3 CF3M C95800 C95400
	16	Screw	Stainless Steel

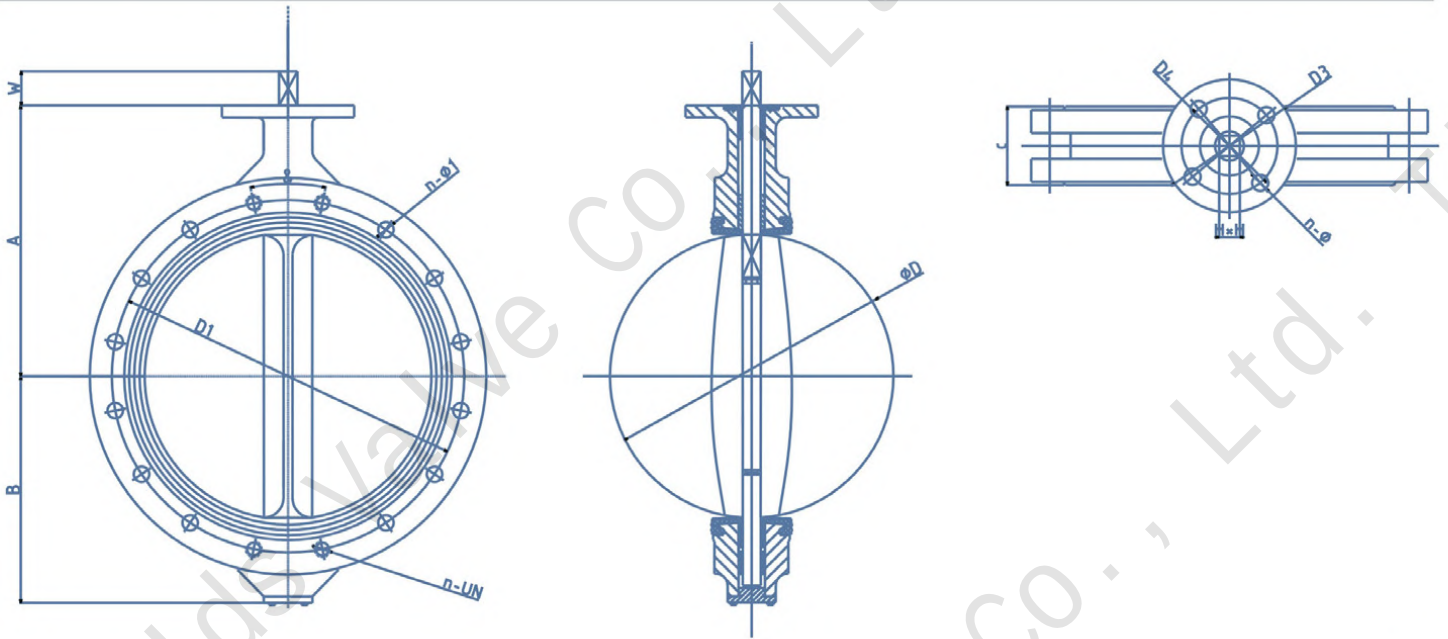
Main Spare Part Material Quality (28" -56")


Drawing (2"-14")

Outline Dimensions (125LB)

SIZE	A	B	C	D	Ø2	ISO5211	K	E	n-Ø	D1	n-Ø1	&°	HxH	W
2"	161	80	43	52.6	12.6	F07	90	70	4-10	120.7	4-19	90	11X11	14
2.5"	175	89	46	64.3	12.6	F07	90	70	4-10	139.7	4-19	90	11X11	14
3"	181	95	46	78.8	12.6	F07	90	70	4-10	152.4	4-19	90	11X11	14
4"	200	114	52	104	15.77	F07	90	70	4-10	190.5	8-19	45	11X11	14
5"	213	127	56	123.3	18.92	F07	90	70	4-10	215.9	8-22	45	14X14	17
6"	226	139	56	155.7	18.92	F07	90	70	4-10	241.3	8-22	45	14X14	17
8"	260	175	60	202.4	22.10	F10	125	102	4-12	298.5	8-22	45	17X17	22
10"	292	203	68	250.42	28.45	F10	125	102	4-12	362	12-26	30	22X22	22
12"	337	242	78	301.5	31.60	F10	125	102	4-12	431.8	12-26	30	22X22	22
14"	368	267	78	333.5	31.60	F10	125	102	4-12	476.3	12-29	30	22X22	22

Outline Dimensions (150LB)

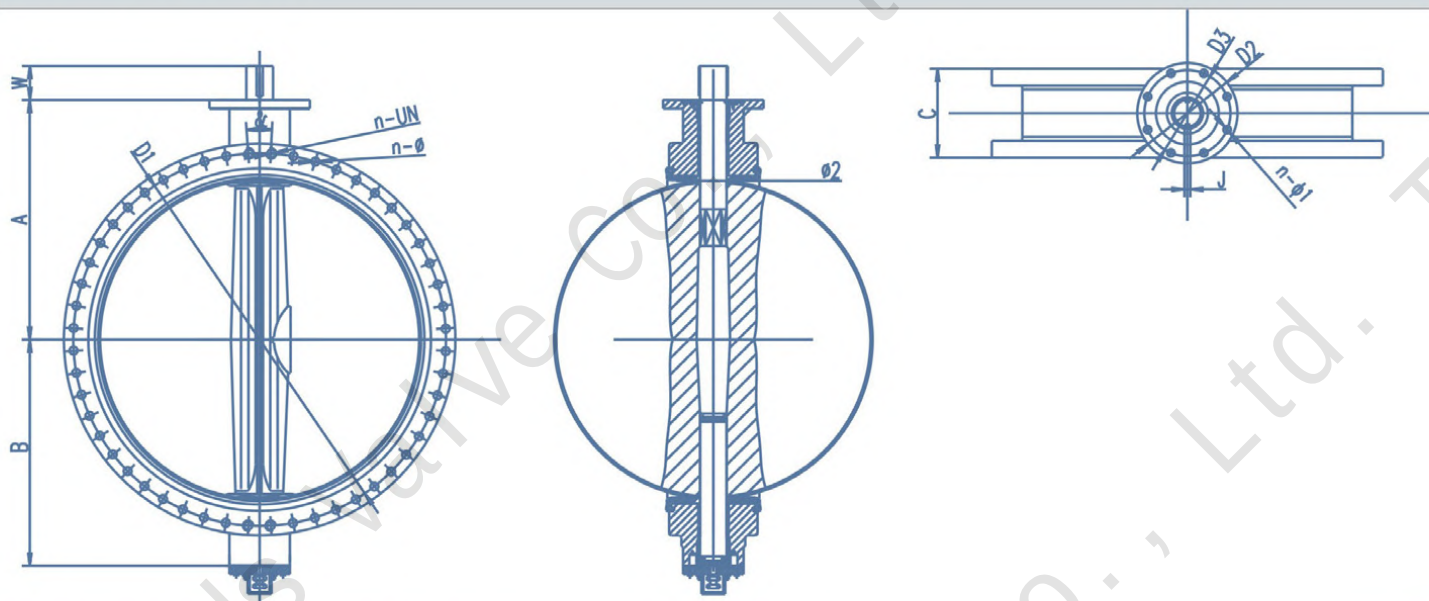
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2.5"	175	89	46	64.3	12.6	F07	90	70	4-10	139.7	4-19	90	11X11	14
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4"	200	114	52	104	15.77	F07	90	70	4-10	190.5	8-19	45	11X11	14
5"	213	127	56	123.3	18.92	F07	90	70	4-10	215.9	8-22	45	14X14	17
6"	226	139	56	155.7	18.92	F07	90	70	4-10	241.3	8-22	45	14X14	17
8"	260	175	60	202.4	22.10	F10	125	102	4-12	298.5	8-22	45	17X17	22
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12"	337	242	78	301.5	31.60	F10	125	102	4-12	431.8	12-26	30	22X22	22
14"	368	267	78	333.5	31.60	F10	125	102	4-12	476.3	12-29	30	22X22	22

Drawing (16"-24")

Outline Dimensions (125LB)

SIZE	A	B	ØD	C	D1	n-Ø1	n-UN	&	ISO5211	D3	D4	n-Ø	H	W
16"	400	309	389.6	102	539.8	12-29	4-1"8UNC-2B	22.5	F14	175	140	4-18	27	36
18"	422	328	440.5	114	577.9	12-32	4-1 1/8-8UN-2B	22.5	F14	175	140	4-18	27	36
20"	480	361	491.6	127	635	16-32	4-1 1/8-8UN-2B	18	F14	175	140	4-18	36	36
24"	562	459	592.5	154	749.3	16-35	4-1 1/4-8UN-2B	18	F16	210	165	4-22	36	46

Outline Dimensions (150LB)

SIZE	A	B	ØD	C	D1	n-Ø1	n-UN	&	ISO5211	D3	D4	n-Ø	H	W
16"	400	309	389.6	102	539.8	12-29	4-1"8UNC-2B	22.5	F14	175	140	4-18	27	36
18"	422	328	440.5	114	577.9	12-32	4-1 1/8-8UN-2B	22.5	F14	175	140	4-18	27	36
20"	480	361	491.6	127	635	16-32	4-1 1/8-8UN-2B	18	F14	175	140	4-18	36	36
24"	562	459	592.5	154	749.3	16-35	4-1 1/4-8UN-2B	18	F16	210	165	4-22	36	46

Drawing (28"-56")

Outline Dimensions (125LB)

SIZE	A	B	C	Ø2	ISO5211	ØD2	ØD3	n-Ø1	ØD1	n-Ø	n-UN	&°	J	W
28"	624	520	165	63.35	F25	300	254	8-18	863.6	24-35	4-1 $\frac{1}{4}$ "-8UN-2B	12.85	18	110
30"	650	510	190	63.35	F25	300	254	8-18	914.4	24-35	4-1 $\frac{1}{4}$ "-8UN-2B	12.85	18	110
32"	672	591	190	63.35	F25	300	254	8-18	977.9	24-42	4-1 $\frac{1}{2}$ "-8UN-2B	12.85	18	110
36"	720	636	200	75	F25	300	254	8-18	1085.85	28-42	4-1 $\frac{1}{2}$ "-8UN-2B	11.25	20	110
40"	805	710	216	85	F25	300	254	8-18	1200.15	32-42	4-1 $\frac{1}{2}$ "-8UN-2B	10	22	110
42"	858	758	251	95	F25	300	254	8-18	1257.3	32-42	4-1 $\frac{1}{2}$ "-8UN-2B	10	25	110
48"	957	843	276	105	F30	350	298	8-22	1422.4	40-42	4-1 $\frac{1}{2}$ "-8UN-2B	8.18	28	130

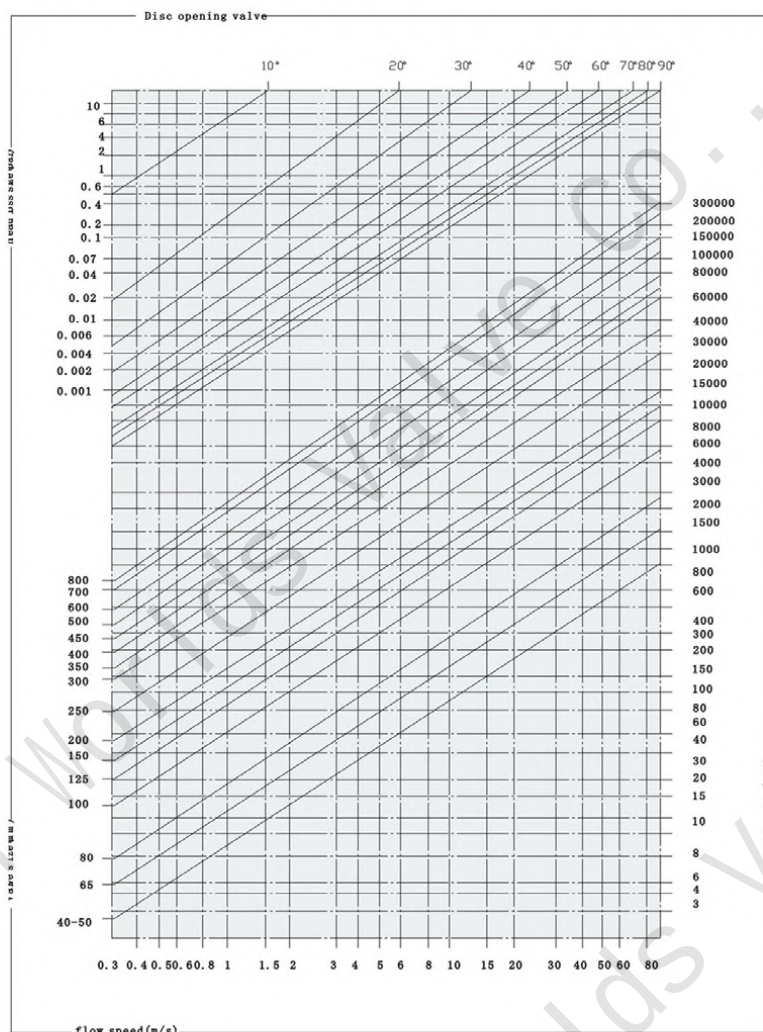
Outline Dimensions (150LB)

SIZE	A	B	C	Ø2	ISO5211	ØD2	ØD3	n-Ø1	ØD1	n-Ø	n-UN	&°	J	W
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30"	650	510	190	63.35	F25	300	254	8-18	914.4	24-35	4-1 $\frac{1}{4}$ "-8UN-2B	12.85	18	110
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40"	805	710	216	85	F25	300	254	8-18	1200.15	32-42	4-1 $\frac{1}{2}$ "-8UN-2B	10	22	110
42"	858	758	251	95	F25	300	254	8-18	1257.3	32-42	4-1 $\frac{1}{2}$ "-8UN-2B	10	25	110
48"	957	843	276	105	F30	350	298	8-22	1422.4	40-42	4-1 $\frac{1}{2}$ "-8UN-2B	8.18	28	130

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

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 or l/s)

Q fluid flow
(mc/l or l/s)

d fluid specific gravity
(Kg/mc)

Values CV (CV=1.16KV)

Size (mm)	Flow in Gpm@1 PSI P@ Various Disc Angles								
	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

Installation Instructions

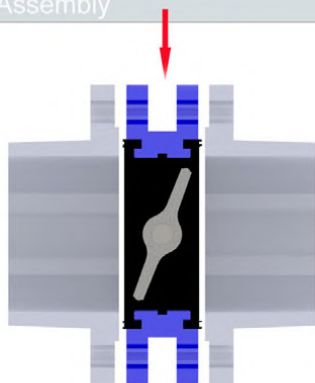
The butterfly valve can be installed on the pipeline, which is at any angle.

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 warehouse 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.

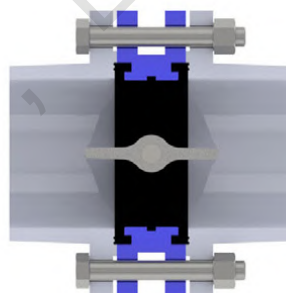


INSTALLATION

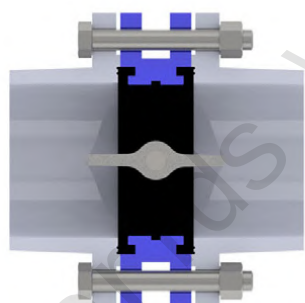
Assembly



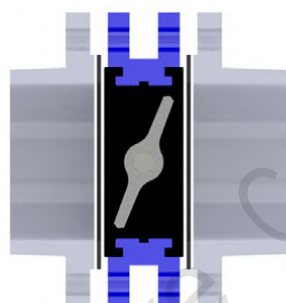
1 Leave a space between flanges so that valve can be easily inserted and removed and move the valve in accordance with the arrow



2 Open completely the valve before tightening flanges



3 Tighten bolts till flanges are in contact with valve body

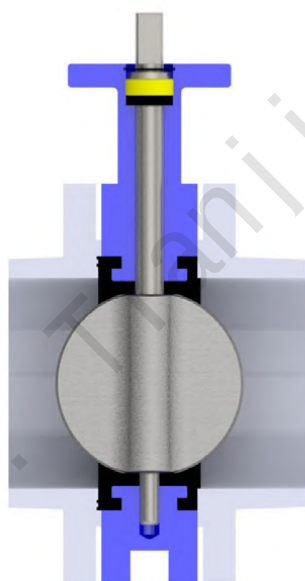


4 NOTE: do not insert other packing between flange and valve

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

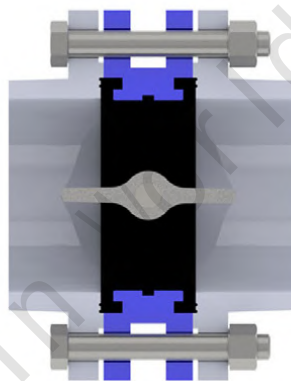
Installation for powders and muddy fluids

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 AL-Bronze 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.

Features

- 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.