

## Introduction of the valve



The valve body shall be one-piece wafer or lug design with extended neck to allow for 2"~12" of piping insulation, have flange hole drilling per international flange standards and be provided with a non-corrosive self-adjusting stem seal. Flange locating holes shall be provided on wafer and lug 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 valve stem shall be one-piece design and be mechanically retained in the body neck and no part of the stem shall be exposed to the line media. The seat shall totally encapsulate the body isolating the body from the line media and no flange gaskets shall be required. The wafer and lug valve shall be rated for bubble-tight shut-off for bidirectional service to 16 Bar on sizes 2"-12" (50mm-300mm) . 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/PED Certification, ANSI 61- 2008 (Potable Water) Certification, SIL, ABS, Bureau Veritas, DNV, ISO9001,API,



## Max working pressure

DN50-DN300 16Bar  
 Flange PN10 PN16 150LB JIS10K AS"D""E"

## Design

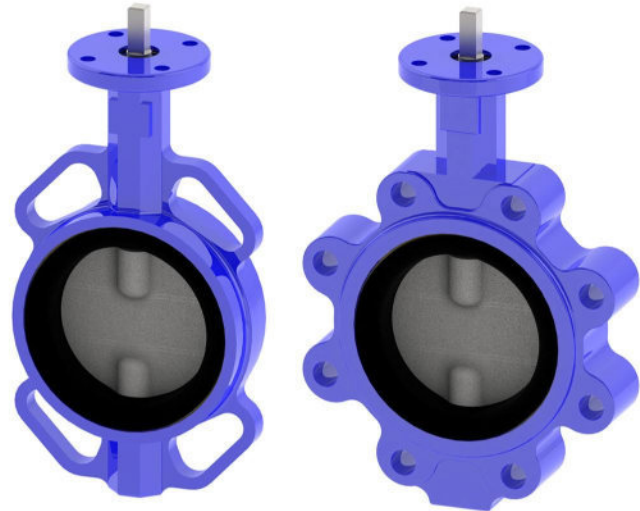
EN593 API 609 BS5155 EN1092 ISO5211

## Face to Face

DIN558-1 API609 DIN3202 ISO5752 BS5155

## Testing

EN 12266-1 ISO5208 API598



## 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	
Stainless steel	CF8 CF8M CF3 CF3M SAF2507 SAF2205	
Aluminum-bronze	C95400 C95500 C95800	

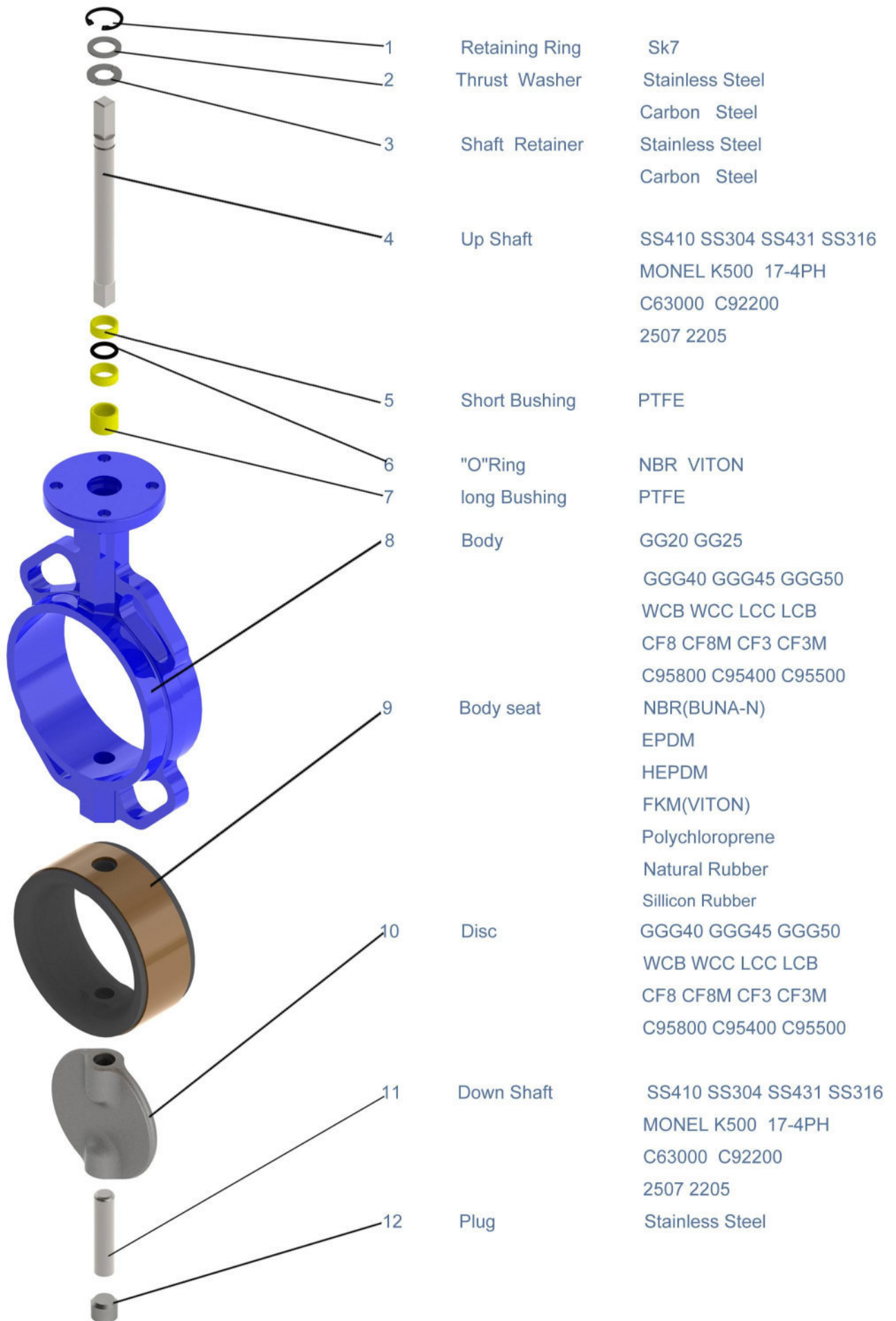
## Disc

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

## Body Rubber Seat

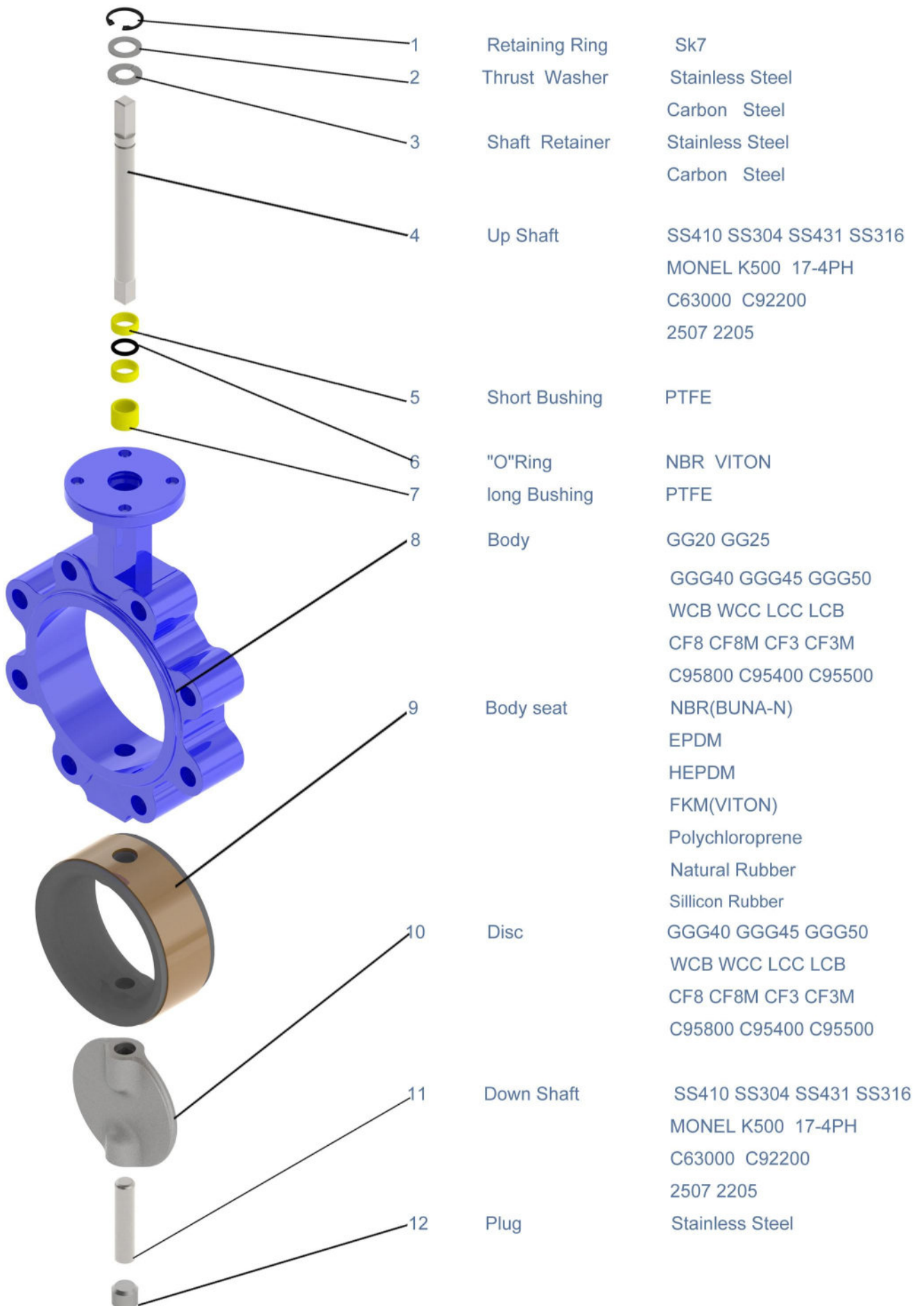
References	Desigation	Trade Name	Working temp	Applications
NBR	Nitrile Rubber	BUNA-N	-25/+100	Oils ,Hydrocarbons ,Gas, Air ,Water
EPDM	Copolymer	EPDM	-35/+130	Water ,Sea Water,Steam,Diluted Acids
FKM	Fluoroelastomer	VITON	-20/+200	Oils, Hydrocarbons, Acids
CR	Polychloroprene	NEOPRENE	-20/+100	Alkail, 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
PTFE	PolyTetraFluoroEthyl-ene	TEFLON	-180/+260	Acidity Alkaline

## Main Spare Part Material Quality (DN50-DN300)

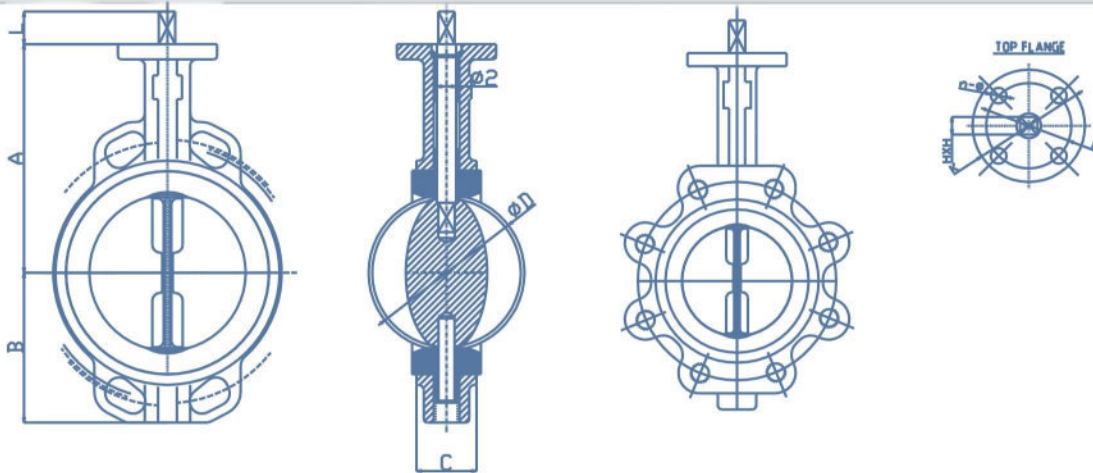




## Main Spare Part Material Quality (DN50-DN300)



## Drawing(50-300)



## Outline Dimensions & Weight

SIZE	A	B	C	D	φ2	ISO5211	K	E	n-φ	HXH	L
DN50	140	80	43	52.9	12.6	F07	90	70	4-10	11X11	14
DN65	150	89	46	64.5	12.6	F07	90	70	4-10	11X11	14
DN80	158	95	46	78.8	12.6	F07	90	70	4-10	11X11	14
DN100	176	114	52	104	15.77	F07	90	70	4-10	11X11	14
DN125	190	127	56	123.3	18.92	F07	90	70	4-10	14X14	17
DN150	212	139	56	155.6	18.92	F07	90	70	4-10	14X14	17
DN200	235	174	60	202.5	22.10	F10	125	102	4-12	17X17	22
DN250	265	203	68	250.5	28.45	F10	125	102	4-12	22X22	22
DN300	305	242	78	301.6	31.60	F10	125	102	4-12	22X22	22

## 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

## Torque values-Nm

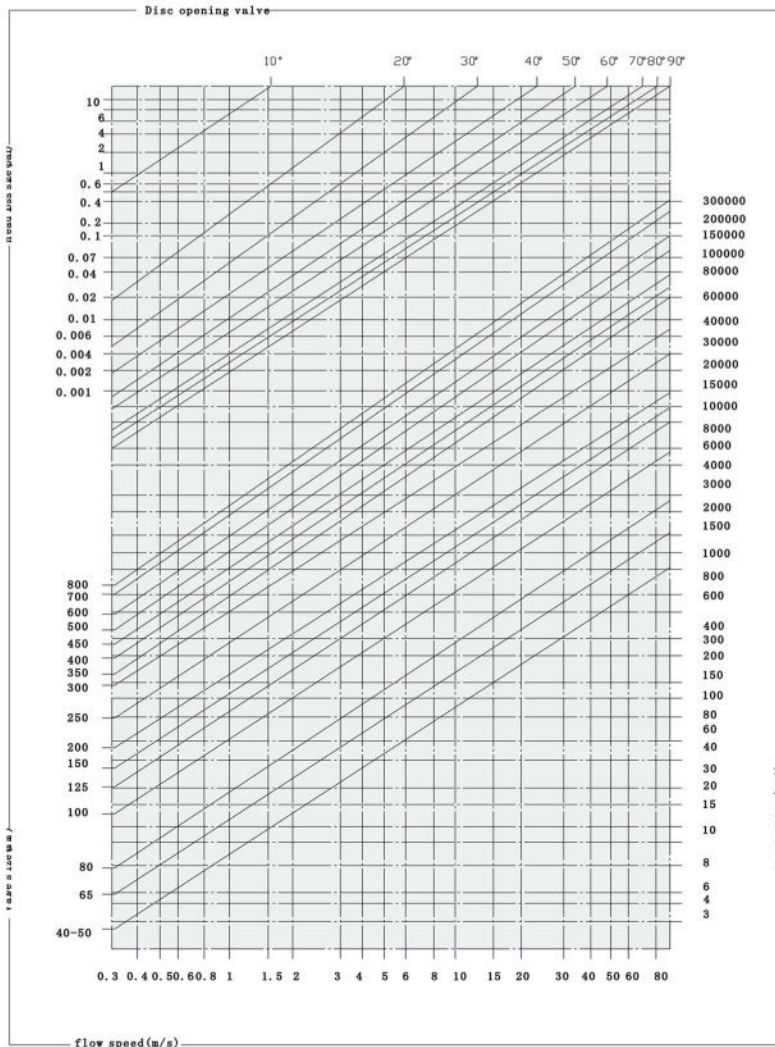
SIZE		APPLICATION IN WATER			APPLICATION IN AIR		
mm	inch	Deltap 6 bar (Nm)	Deltap 10 bar (Nm)	Deltap 16 bar (Nm)	Deltap 6 bar (Nm)	Deltap 10 bar (Nm)	Deltap 16 bar (Nm)
DN50	2	12	13	14	14	15	15
DN65	2 ½	14	16	18	17	19	22
DN80	3	21	23	24	24	27	29
DN100	4	35	39	42	41	46	53
DN125	5	55	61	66	74	82	90
DN150	6	90	100	109	158	175	205
DN200	8	165	183	204	204	227	252
DN250	10	274	304	343	362	402	444
DN300	12	410	455	521	550	611	708



## 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)
- $\Delta P$  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)
- $\Delta P$  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)
- $\Delta P$  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 KV (CV=1.16KV)

Size (mm)	Flow in Gpm@1 PSI P@ Various Disc Angles								Full 90°
	10°	20°	30°	40°	50°	60°	70°	80°	Open
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

## Installation Instructions



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

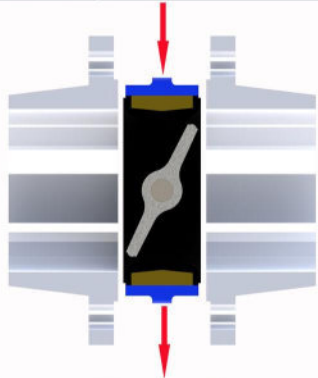
- 1.The valve should be installed in the location being sure to provide convenient operation, maintenance and replacement.
- 2.As mounting the butterfly valve, fail to consider flow direction of mediums in pipeline, that is to say, the valve can be used in double way.
- 3.Before installation, the butterfly 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.



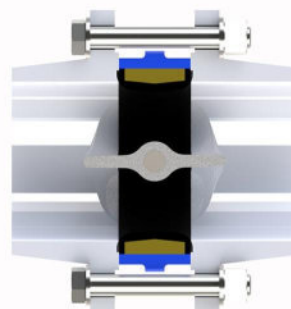


## INSTALLATION

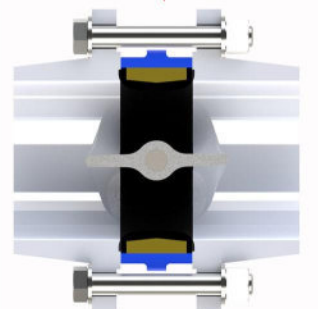
Assembly



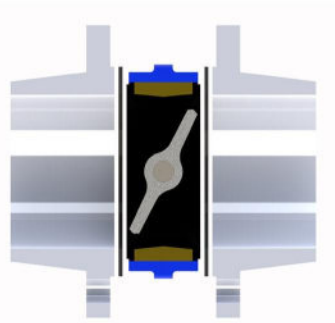
1 Leave a space between flanges so that valve can be easily inserted and removed .and move the valve in accordance with the arrow



2 Open completely the valve before tightening flanges



3 Tighten bolts till flanges are in contact with valve body

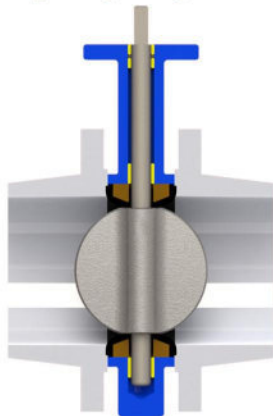


4 **NOTE: do not insert other packing between flange and valve**

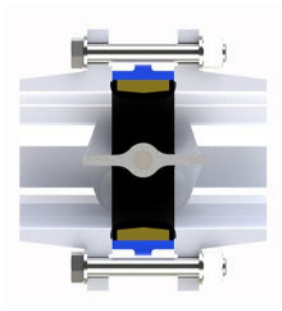
NOTE:Weld the pipe only in spots with the valve between flanges. Remove the valve before finishing welding to avoid that heat damage the seat, Clean carefully the welding to avoid that slags damage the seat

## 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



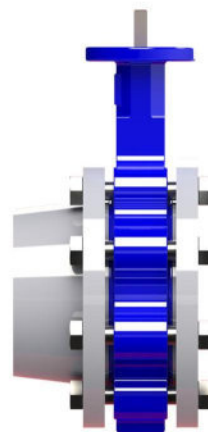
Right  
Horizontal rotation axis

## End piping installation

When valves are installed end of piping,a counterflange as per dwg type B is needed to secure tightness at max peressure.



Type A installation without end piping



Type B installation with end piping

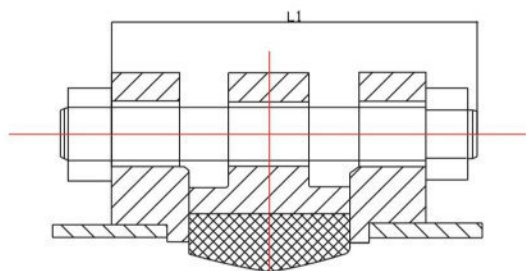
Pressure (max) :

Type B installation is 16 Bar

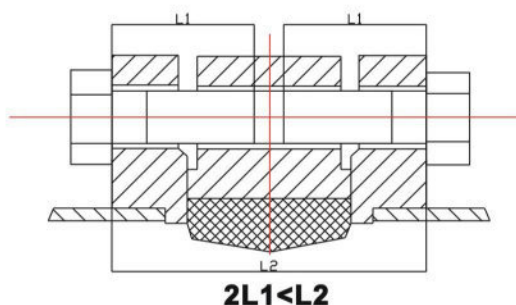


## Length & Quantity of Bolts for Valve Installation

### Bolt Connection of Wafer Butterfly Valve



### Bolt Connection of Lug Butterfly Valve



EN1092-1 PN10/16 ISO7005 PN10/16

size	1.0Mpa					1.6Mpa				
	Stud Bolt for Type of wafer valve			Hexagon Heed Bolt for Type of Lug		Stud Bolt for Type of wafer valve			Hexagon Heed Bolt for Type of Lug	
inch	Qty	Dia×L1	Length	Qty	Dia×L1	Qty	Dia×L1	Length	Qty	Dia×L1
50	4	M16×110	130	4×2	M16×40	4	M16×110	130	4×2	M16×40
65	4	M16×120	140	4×2	M16×45	4	M16×120	140	4×2	M16×45
80	8	M16×120	140	8×2	M16×45	8	M16×120	140	8×2	M16×45
100	8	M16×130	150	8×2	M16×50	8	M16×130	150	8×2	M16×50
125	8	M16×130	150	8×2	M16×50	8	M16×130	150	8×2	M16×50
150	8	M20×140	165	8×2	M20×50	8	M20×140	165	8×2	M20×50
200	8	M20×150	175	8×2	M20×55	12	M20×150	175	12×2	M20×55
250	12	M20×160	185	12×2	M20×60	12	M24×160	185	12×2	M24×60
300	12	M20×170	195	12×2	M20×65	12	M24×170	195	12×2	M24×65

ASME B 16.5 150LB JIS B2220 10K

size	150LB					10K				
	Stud Bolt for Type of wafer valve			Hexagon Heed Bolt for Type of Lug		Stud Bolt for Type of wafer valve			Hexagon Heed Bolt for Type of Lug	
inch	Qty	Dia×L1	Length	Qty	Dia×L1	Qty	Dia×L1	Length	Qty	Dia×L1
50	4	5/8"×110	130	4×2	5/8"×40	4	M16×110	130	4×2	M16×40
65	4	5/8"×120	140	4×2	5/8"×45	4	M16×120	140	4×2	M16×45
80	4	5/8"×120	140	4×2	5/8"×45	8	M16×120	140	8×2	M16×45
100	8	3/4"×130	150	8×2	3/4"×50	8	M16×130	150	8×2	M16×50
125	8	3/4"×130	150	8×2	3/4"×50	8	M20×130	150	8×2	M20×50
150	8	3/4"×140	165	8×2	3/4"×50	8	M20×140	165	8×2	M20×50
200	8	3/4"×150	175	8×2	3/4"×55	12	M20×150	175	12×2	M20×55
250	12	7/8"×160	185	12×2	7/8"×60	12	M22×160	185	12×2	M22×60
300	12	7/8"×170	195	12×2	7/8"×65	16	M22×170	195	16×2	M22×65

## 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.