

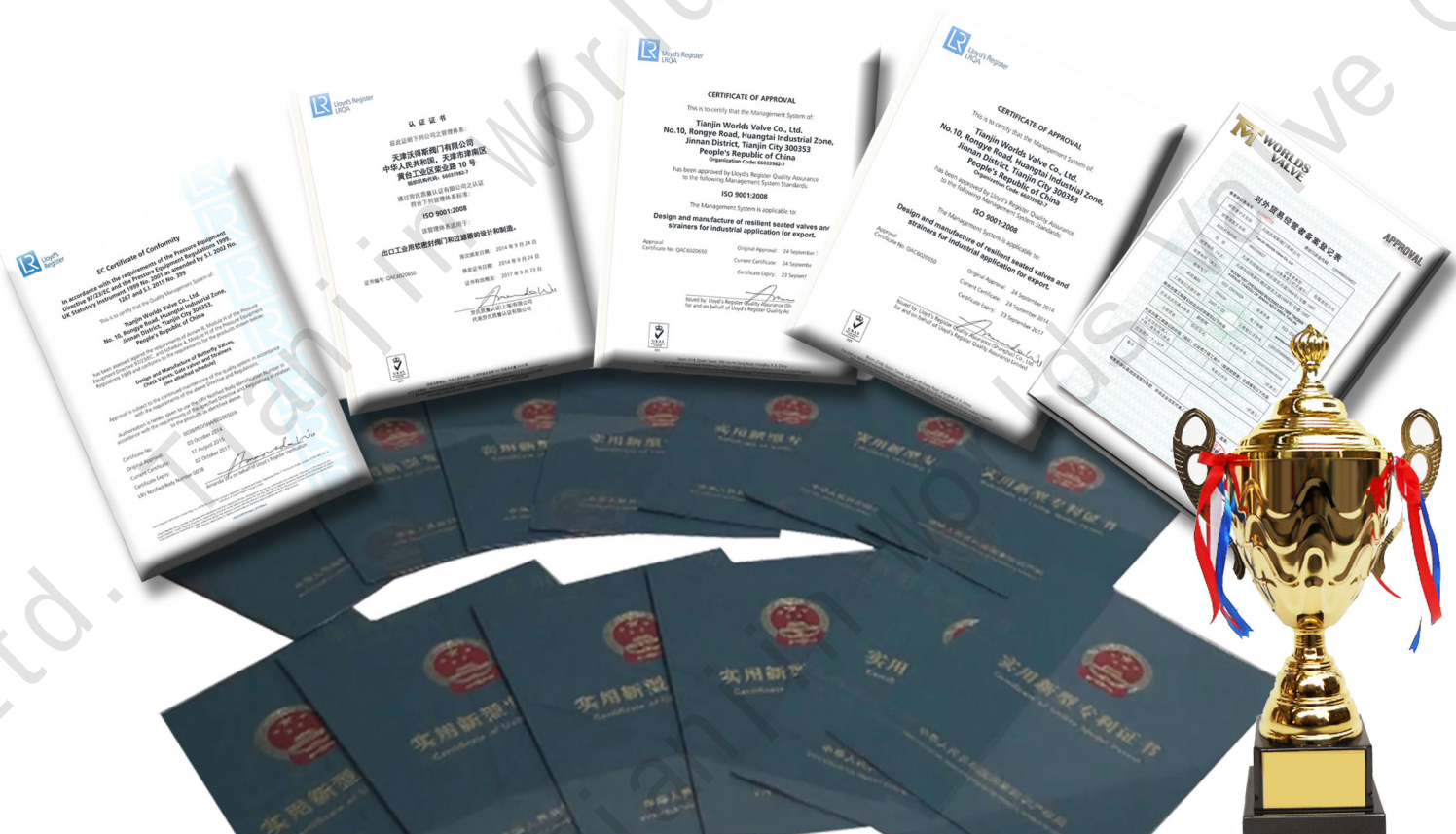
TIANJIN WORLDS VALVE LTD. is located at TIAN JIN BIN HAI where is only 3 kilometers away from Tianjin Xingang Port, TIANJIN WORLDS VALVE LTD. is a specialized manufacture enterprise that focuses producing, installing, sale and service. The main products include Center Line Butterfly Valve, Flanged Butterfly Valve, Metal Butterfly Valve, Check Valve, Gate Valve, Waterpower Control Valve, Microresistance Slow Close Check Valve, Multi-function Pump Control Valve and their series products. Moreover, we can produce control valve and pressure reducing valve that are different materials, pressures, specifications actuation ways. Our products include more than 50 serials and 1200 species, and the annual production output is more than 8.000 metric tons. WORLDS valves have been selling well all over China and exporting to Europe, America and other countries and areas, which are used widely in water supply and drainage, electric power, petrol chemical industry, metallurgy and other trades. Our products are quite creative, good quality, good price and excellent credit, so customers trust our products.

WORLDS has advanced technicians and engineers and has a lot of large and middle machines including 178 sets of manufacturing equipments and 32 sets of performance testing equipments importing from overseas. Our products have original design, exquisite technique, perfect manufacture and complete testing ways. It has passed ISO 9001 international quality system certification of DNV. WORLDS must supply best products and service for all customers.



Certificates And Patents

WORLDS has advanced technicians and engineers and has a lot of large and middle machines including 178 sets of manufacturing equipments and 32 sets of performance testing equipments importing from overseas. Our products have original design, exquisite technique, perfect manufacture and complete testing ways. It has made special equipment license TS, ISO9001 quality system certification and the European Pressure Equipment CE certification, the American Petroleum Institute API certification and a series of international certification authority, over the years, with its first class enterprise management and product quality consistent valve industry . in order to ensure product quality, the company's main production equipment and testing instruments all use well-known brand, all products are in strict accordance with international standards, whether it is production management, and quality assurance system are comprehensive use of international advanced mode.



Measuring And Packaging



Production System

The perfect process not only because of our advanced manufacturing technique equipment and complete tests but also for worlds multi department teams.

The technicians participation make our products be equipped with excellent quality and potential value during they being well manufactured



FEATURES AND BENEFITS



As one of the most durable resilient-seated butterfly valves in the industry, WDS's butterfly valve excels in a variety of applications. Cast in both wafer and tapped lug patterns in a variety of material choices, butterfly valves feature a one-piece body for reduced weight and increased strength. The unique stem hole design in the disc ensures the dry stem journal, and the hard-backed seat allows ease of installation, reliable operation and in-field repairability without special tools. The valves are available in sizes 2" to 12" (50 mm to 300 mm). Engineered for long-term, reduced-maintenance performance,

Applications

The valves are commonly selected for a variety of applications in the following industries:

- Chemical and petrochemical
- Agriculture
- Oil and gas drilling and production
- Food and beverage
- Water and waste water
- Cooling towers (HVAC)
- Power
- Mining and materials
- Dry bulk handling
- Marine and government

Features And Flange

Bi-Directional Sealing

The butterfly valve provides bi-directional sealing at full-rated pressure with identical flow from either direction.

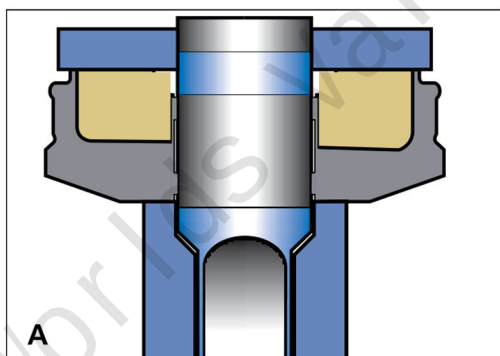
Integral Flange Seal

An integral flange seal molded into the edge of the seat accommodates ASME weld neck, slip-on, threaded, socket and stub end type C flanges.

FEATURES AND BENEFITS

Multiple Pressure Ratings

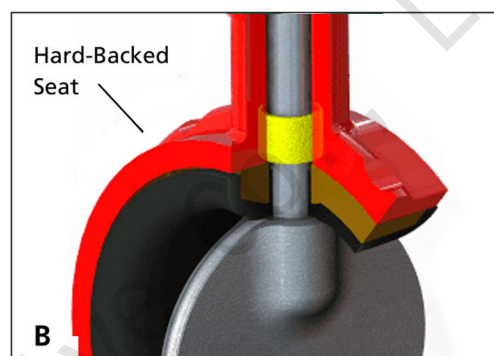
Three drop-tight pressure ratings are offered for 2" to 12" (50 mm to 300 mm) sizes. The standard shut-off pressure rating is 200 psi, but 285 and 50 psi shut-off ratings are also available. A throttling 0 psi-rated valve is available where drop-tight closure is not required and minimal torque is desired. Both the 50 psi and throttling ratings allow for smaller actuators, which can significantly reduce overall installation cost in automated applications.



A. Dry Stem Journal Reduces Potential for Leakage

The valve's disc is uniquely designed with a continuous annular-raised band around the stem hole and disc edge, which presses into the seat flat at every angular position.

The resilient seat presses back with a higher force than the line pressure, preventing leakage to the stem. In addition, two O-ring ribs are provided in the seat stem bore, creating a triple stem seal. In competitive stem seal designs with boot seats, a seal is accomplished by an interference squeezing on the stem or an O-ring in the stem journal. The potential for leakage behind the seat is high for this competitive design. As the disc wipes the seat, elongation of the stem seal area allows leakage to collect behind the seat. This condition is reduced by the valve's dry stem journal and hardbacked seat.



B. Hard-Backed Cartridge Seat

The valve's cartridge seat is constructed by permanently bonding a resilient elastomer to a rigid backing ring. In addition to superior sealing integrity, this design:

- Makes valve installation easier because no special precautions are required for disc position. This is especially advantageous when installing valves with fail-closed actuators.
- Reduces high torque and premature failure caused by elastomer distortion, as found in other non-rigid seat designs.
- Simplifies seat replacement because the seat is slip-fitted into the body with no need for special tools.

Introduction of the valve

Sizes

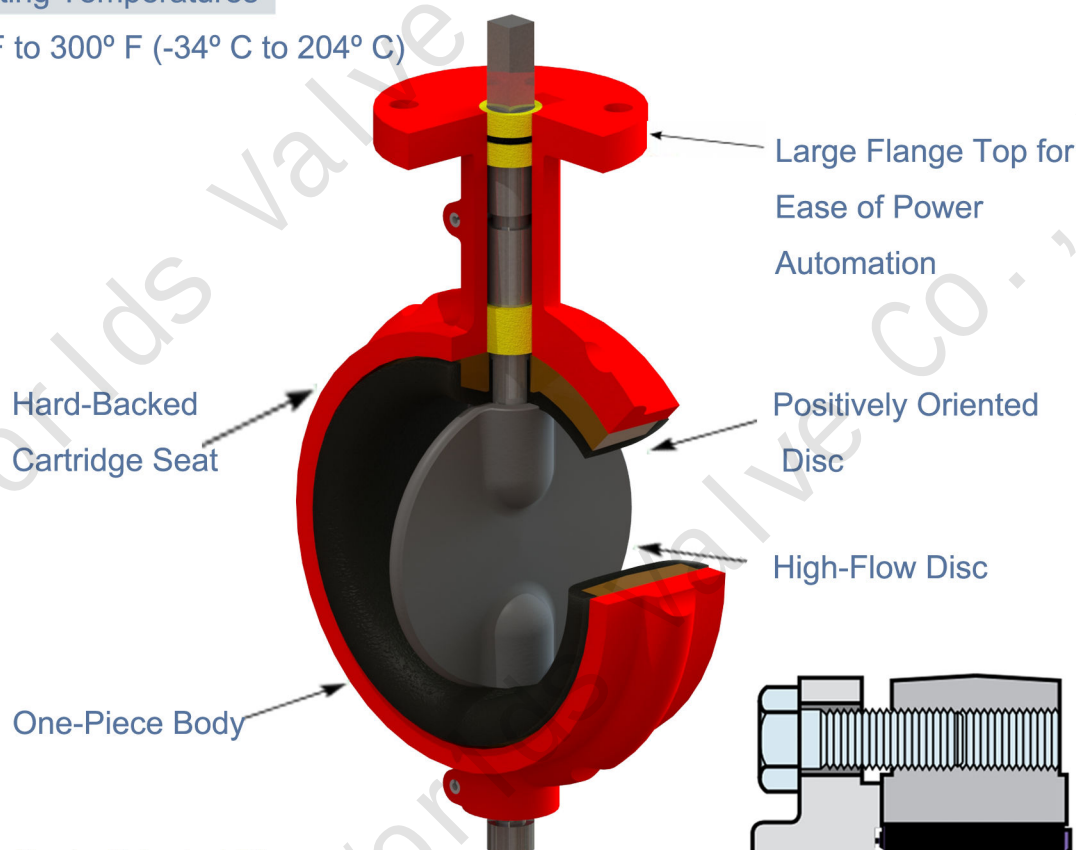
2" to 12" (50 mm to 300 mm)

Pressure Rating

50, 200 and 285 psi

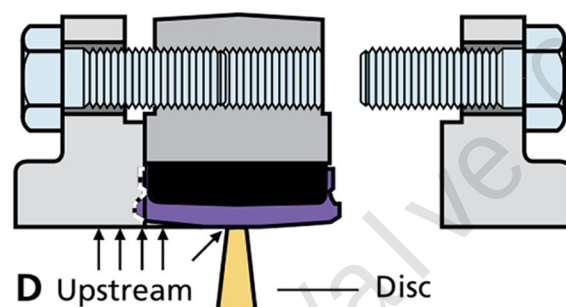
Operating Temperatures

-30° F to 300° F (-34° C to 204° C)



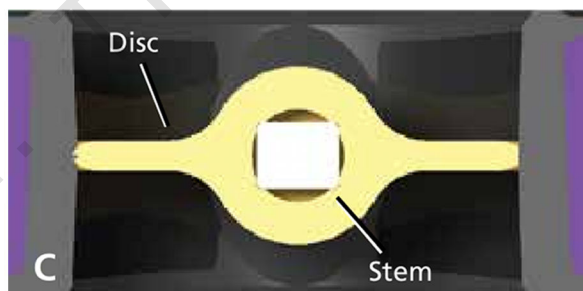
C. Positively Oriented Disc

The rectangular drive ensures the proper orientation of the stem disc connection. In 2" to 12" (50 mm to 300 mm) size valves, the disc is permitted to float on the stem to center in the valve seat. This design enhances drop-tight sealing and prolongs service life.



D. End-of-Line Service

Lug body valves may be used in end-of-line service with downstream piping removed. Only weld-neck or socket flanges can be used for this service. Since upstream pressure is excluded between the flange and the seat face by the flange seal design, there is no effective force to slide the seat downstream. 2" to 12" (50 mm to 300 mm)



Max working pressure

DN50-DN300 16Bar

Flange Oil Pipeline

Design

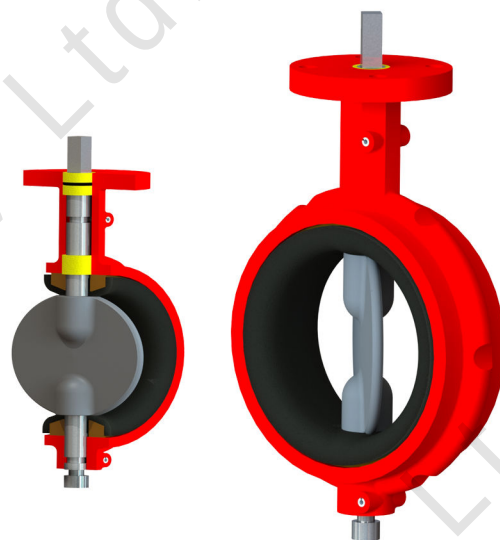
API EN1092 ISO5211

Face to Face

Oil Pipeline

Testing

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	

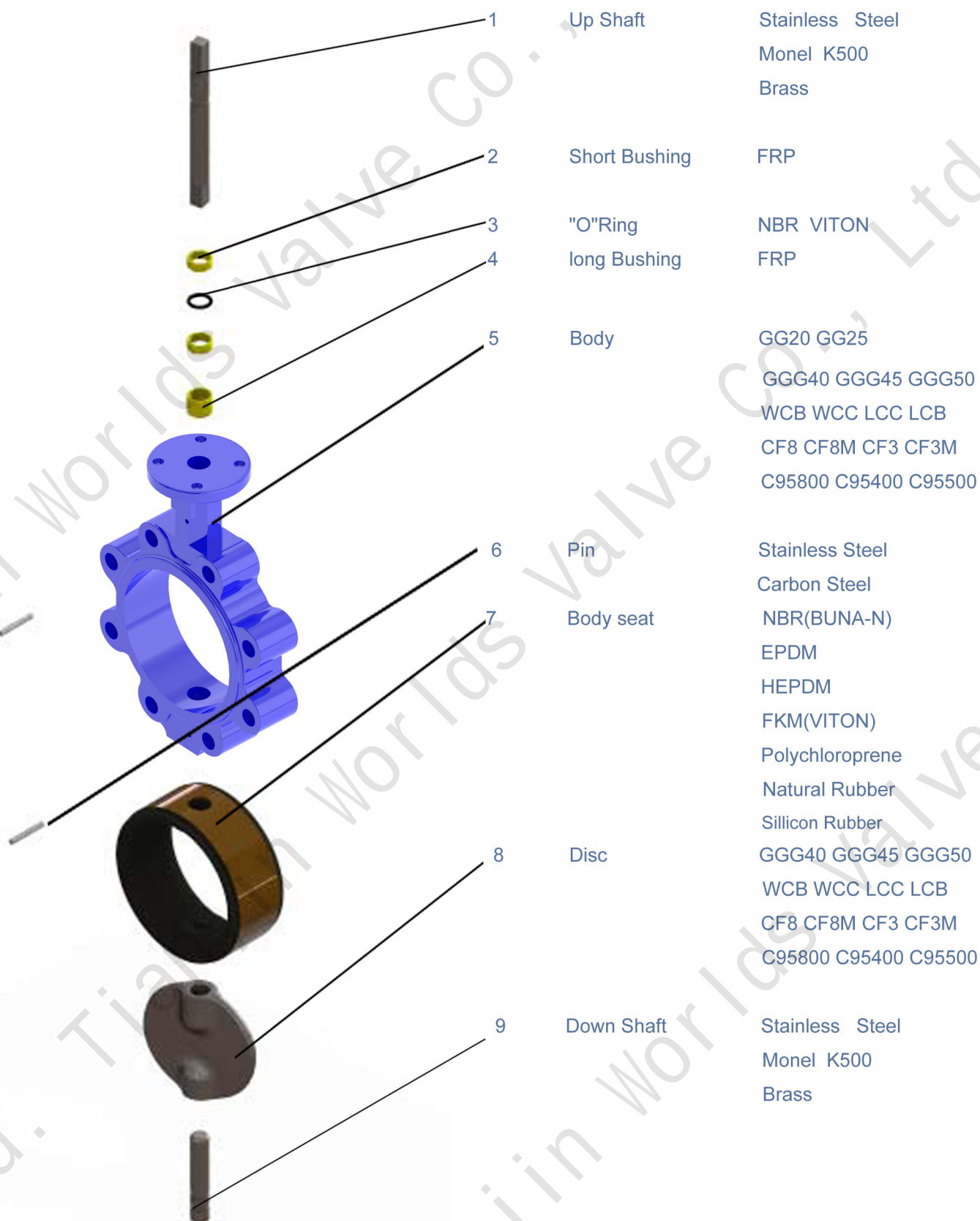
Disc

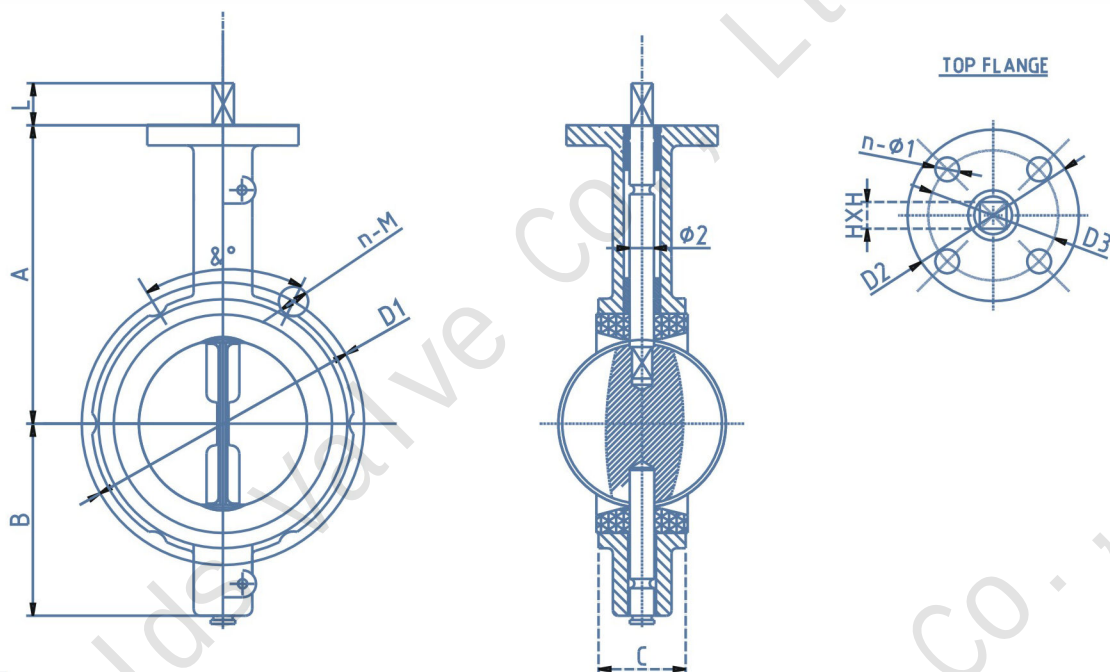
Material	References	Standard coating
Ductile iron	GGG40 GGG45 GGG50 A536	Nickel Brass-Nickle
Carbon steel	WCB WCC LCC LCB	
Stainless steel	CF8 CF8M CF3 CF3M SAF2507 SAF2205	
Aluminum-bronze	C95400 C95500 C95800	

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	Alkail, Bases,Water
NR	Natural Rubber	NR	-40/+80	Glycols,Abrasive media
MVQ	Silicon Rubber	SR	-60/+190	Water,food,Drinks
CSM	Chlorosulfonate Polychloroprene	HYPALON	-20/+125	Acids,mineral bases,Alcohols,Hydrocarbons

Main Spare Part Material Quality (DN50-DN300)


Main Spare Part Material Quality (DN50-DN300)


Drawing(50-300)

Outline Dimensions

SIZE	A	B	C	ø2	ISO5211	D2	D3	n-ø1	ASME B16.5 CLASS150			Custom-made Standard			HXH	L
									D1	n-M	8°	D1	n-M	8°		
50	100	70	43	12.6	F07	90	70	4-10	120.7	4-5/8"	90	108	4-3/8"	90	11X11	14
65	114	75	46	12.6	F07	90	70	4-10	139.7	4-5/8"	90	135	4-3/8"	90	11X11	14
80	125	85	46	12.6	F07	90	70	4-10	152.4	4-5/8"	90	125	6-3/8"	60	11X11	14
100	152	95	52	15.77	F07	90	70	4-10	190.5	8-5/8"	45	179	6-1/2"	60	11X11	14
125	152	105	56	18.92	F07	90	70	4-10	215.9	8-3/4"	45	192	6-1/2"	60	14X14	17
150	165	120	56	18.92	F07	90	70	4-10	241.3	8-3/4"	45	233	8-1/2"	45	14X14	17
200	205	150	60	22.10	F10	125	102	4-12	298.5	8-3/4"	45	298	8-5/8"	45	17X17	22
250	255	180	68	28.45	F10	125	102	4-12	362	12-7/8"	30	348	8-5/8"	45	22X22	22
300	277	235	78	31.60	F10	125	102	4-12	431.8	12-7/8"	30	422	12-1/2"	30	22X22	22

Torque values-Nm

SIZE		6 Bar	10 Bar	16 Bar	SIZE		6 Bar	10 Bar	16 Bar
mm	Inch				mm	Inch			
DN40	1.5"	8	10	11	DN125	5"	60	67	77
DN50	2"	9	11	12	DN150	6"	94	110	121
DN65	2.5"	15	18	20	DN200	8"	165	201	242
DN80	3"	22	25	30	DN250	10"	253	310	352
DN100	4"	39	43	50	DN300	12"	352	473	490



GENERAL TECHNICAL INFORMATION

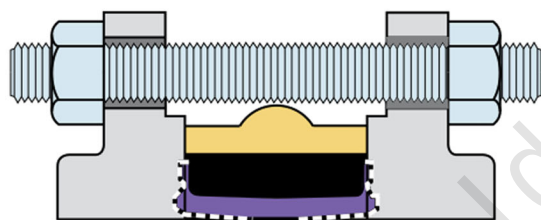
Pressure Rating

Three drop-tight pressure ratings are offered for butterfly valves. Normally, 200-psi shutoff is used in butterfly applications. However, 285-psi shutoff is optionally available for higher pressure applications. For smaller actuator sizing, 50-psi valves offer reduced torque. For reduced torque, throttling valves, which do not provide drop-tight closure, are available.

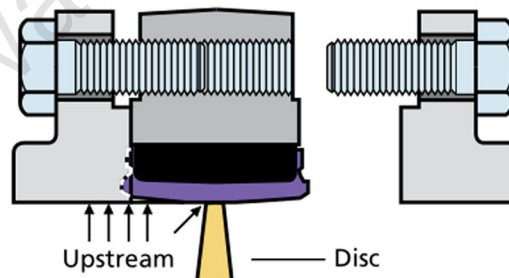
Actuation

Positive latch handles, worm gear operators and automatic actuators are available and interchangeable on the valve. The top flange is dimensionally compatible with other competitive butterfly valves. With the optional "utility top" stem, the valve interchanges directly with competitive valves allowing valve replacement without the need for new actuation.

Installation and Maintenance



Wafer Valve Connection

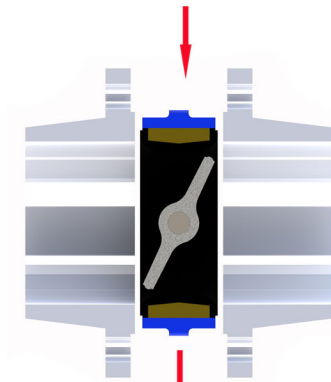


Lug Valve Connection

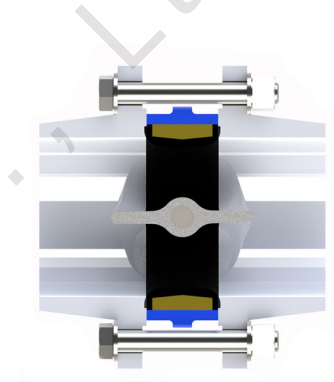
The butterfly valves are bi-directional, with identical flow way from either face. To install, simply close the valve, insert between flanges and make up with studs or capscrews. No regular maintenance or lubrication is ever required. Disassembly for inspection or replacement of parts is simple. Open the valve, remove handle or actuator, remove tangential pins, pull out the stems, and push the disc and seat out of the body. Reassemble in reverse order, with a small amount of general purpose non-hydrocarbon based lubricant on the outside of stems, seat and disc flats. Steel or cast iron flanges of either raised or flat-faced type are suitable for use with the butterfly valves.

INSTALLATION

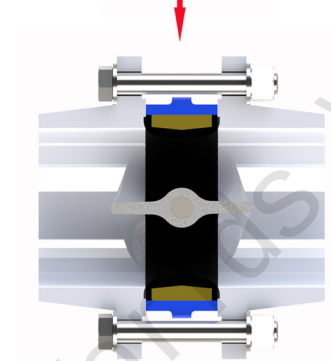
Assembly



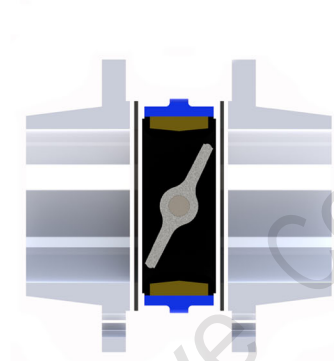
1 Leave a space between flanges so that valve can be easily inserted and removed and move the valve in accordance with the arrow



2 Open completely the valve before tightening flanges



3 Tighten bolts till flanges are in contact with valve body

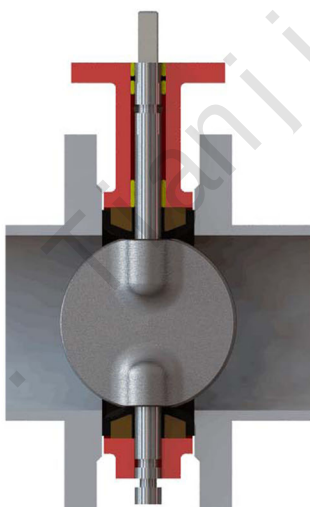


4 **NOTE:** do not insert other packing between flange and valve

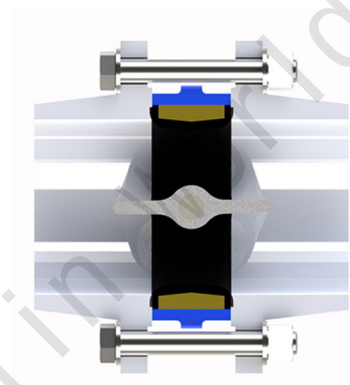
NOTE: Weld the pipe only in spots with the valve between flanges. Remove the valve before finishing welding to avoid that heat damage the seat. Clean carefully the welding to avoid that slags damage the seat

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

Installation Instructions

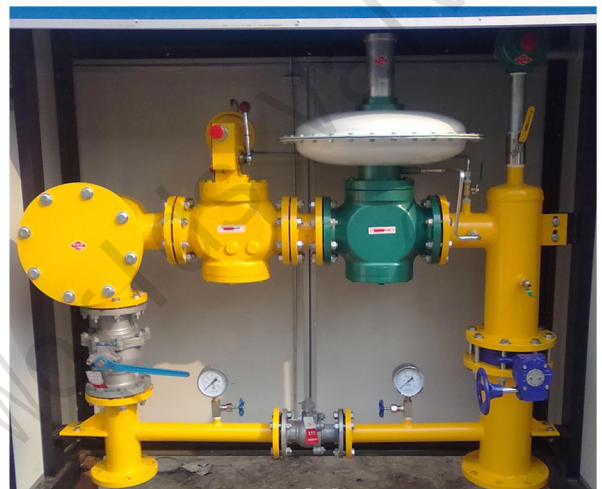
The butterfly valve can be installed on the pipeline, which is at any angle.

- 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:

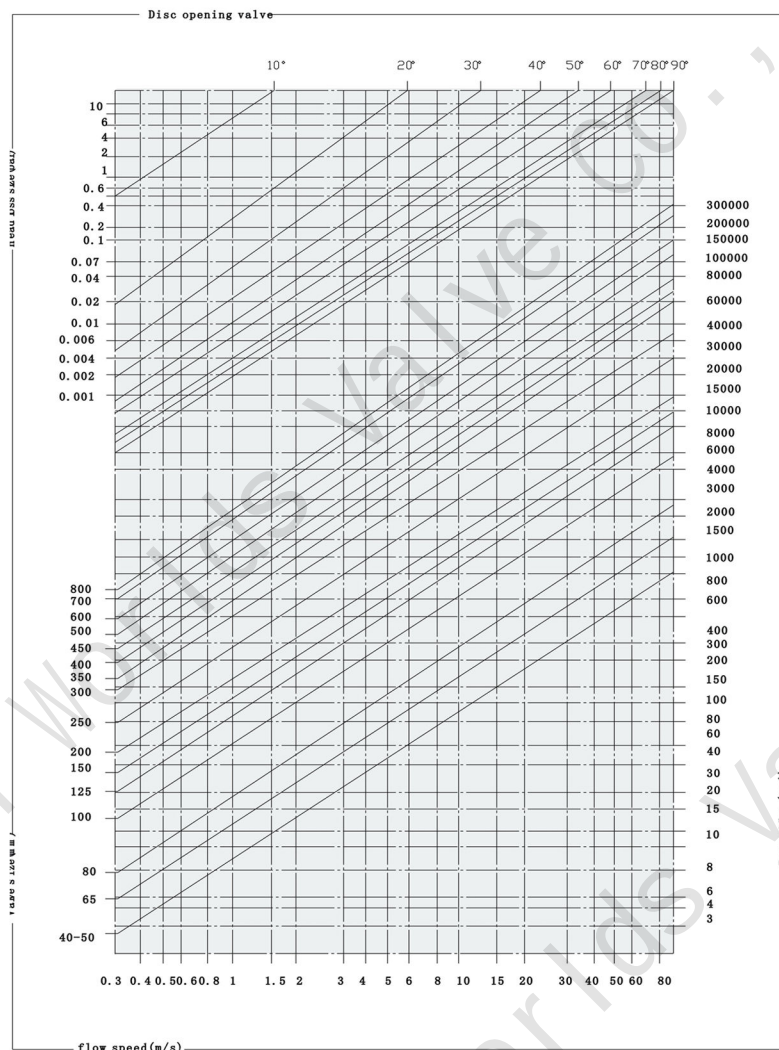


- (1)Whether the valve seat and 'O' sealing ring have been damaged.
- (2)Check the sealing effects of the disc sealing area.
- (3)After the valve was examined and assembled, no scuffing happens at the time of on-off rotation.
- (4)After the valve was examined and assembled, the sealing test should be carried out as the introduction.
- (5)After each examination, detailed records should be filed for reference.

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

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 follow:

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)

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

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.