

Introduction of the valve



1. This valve doesn't need flange because a tube card hoop is enough.
2. Moreover its spherical surface belt with good precision ensures a long-term use without leakage.
3. It is also suitable for a single standard card hoop installation.
4. The Grooved butterfly valve presents an optimized structure design with small volume, light weight and easy accessibility.

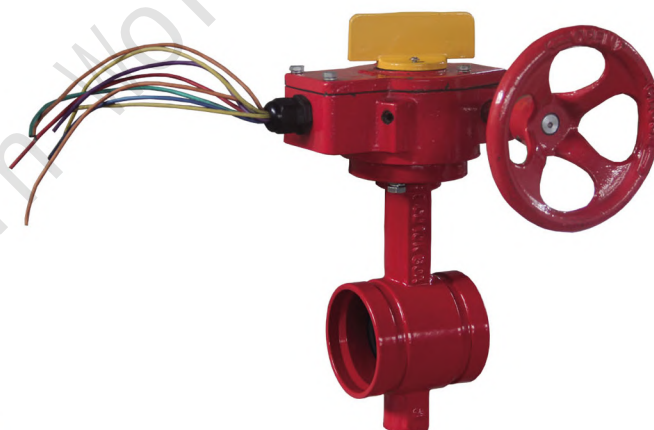
Description

The Grooved End Wafer type Butterfly valves are indicating type designed for use in fire protection systems where a visual indication is required as to whether the valve is open or closed. They are used, for example, as system, sectional, and pump water control valves. They have cut groove inlet and outlet connections that are suitable for use with grooved end pipe couplings that are listed and approved for fire protection systems.

Friction loss

The approximate friction loss, based on the Hazen Williams formula and expressed in equivalent length of pipe with $c=120$, is as follows. The data is based on friction loss information collected at a typical flow rate of 15 feet per sec.

- * 6.9 of 2½" Sch. 40 pipe for the 2½" valve
- * 8.7 of 3" Sch. 40 pipe for the 3" valve.
- * 4.5 of 4" Sch. 40 pipe for the 4" valve.
- * 11.1 of 6" Sch. 40 pipe for the 6" valve.
- * 10.2 of 8" Sch. 30 pipe for the 8" valve.



Body

Material	Referencesstandard	Coating
Cast iron	GG20 GG25 A126	Epoxy Ral 5005
Ductile iron	GGG40 GGG45 GGG50 A536 A395	Epoxy Ral 5005

Disc

Material	References	Coating
Ductile iron	GGG40 GGG45 GGG50 A536	Disc+Rubber
Carbon steel	WCB WCC LCC LCB	Disc+Rubber
Stainless steel	CF8 CF8M CF3 CF3M SAF2507 SAF2205	Disc+Rubber
Aluminuim-bronze	C95400 C95500 C95800	Disc+Rubber

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	Sillicon Rubber	SR	-60/+190	Water,food,Drinks
CSM	Chlorosulfonate	HYPALON	-20/+125	Acids,mineral
	Polychloroprene			bases,Alcohols,Hydrocarbons

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.

Main Spare Part Material Quality (DN50-DN300)



Max working pressure

Size: DN50-DN300

Max Pressure : 300PSI

Flange : AWWA C606 150LB

GB 5135.11 PN16

KSB2822 10K

Design

ISO5211 AWWA C606 GB5135.11 KSB2822

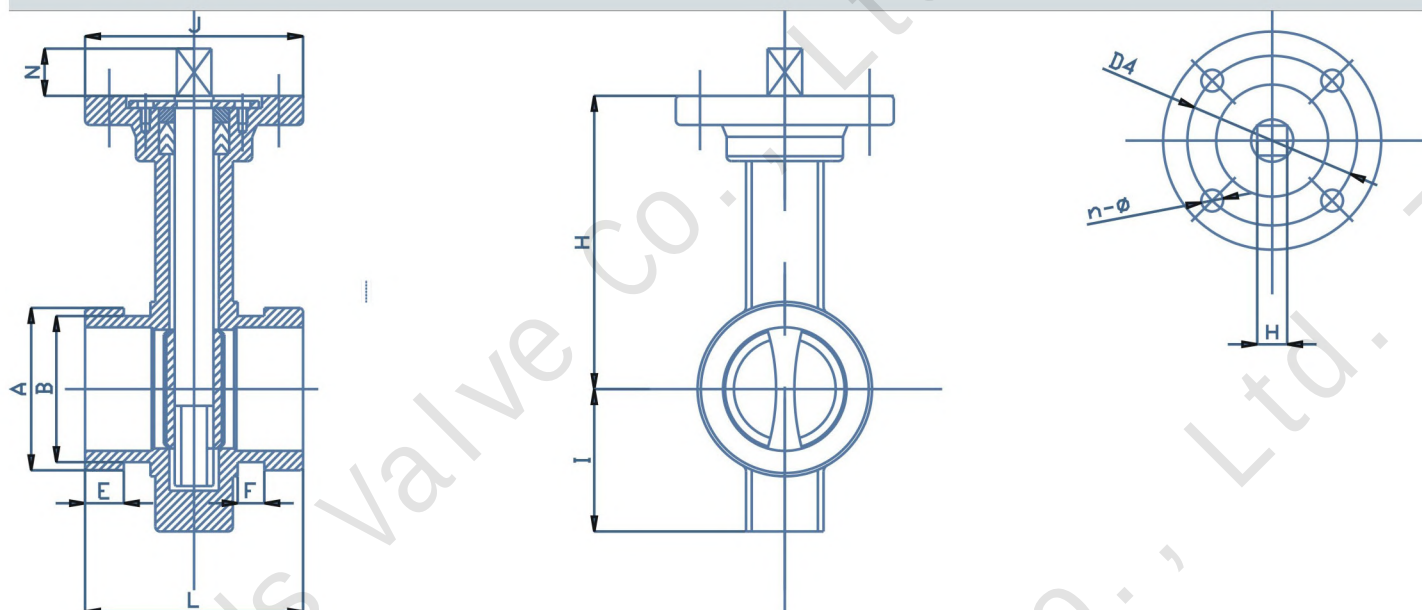
Face to Face

MSS SP67

Testing

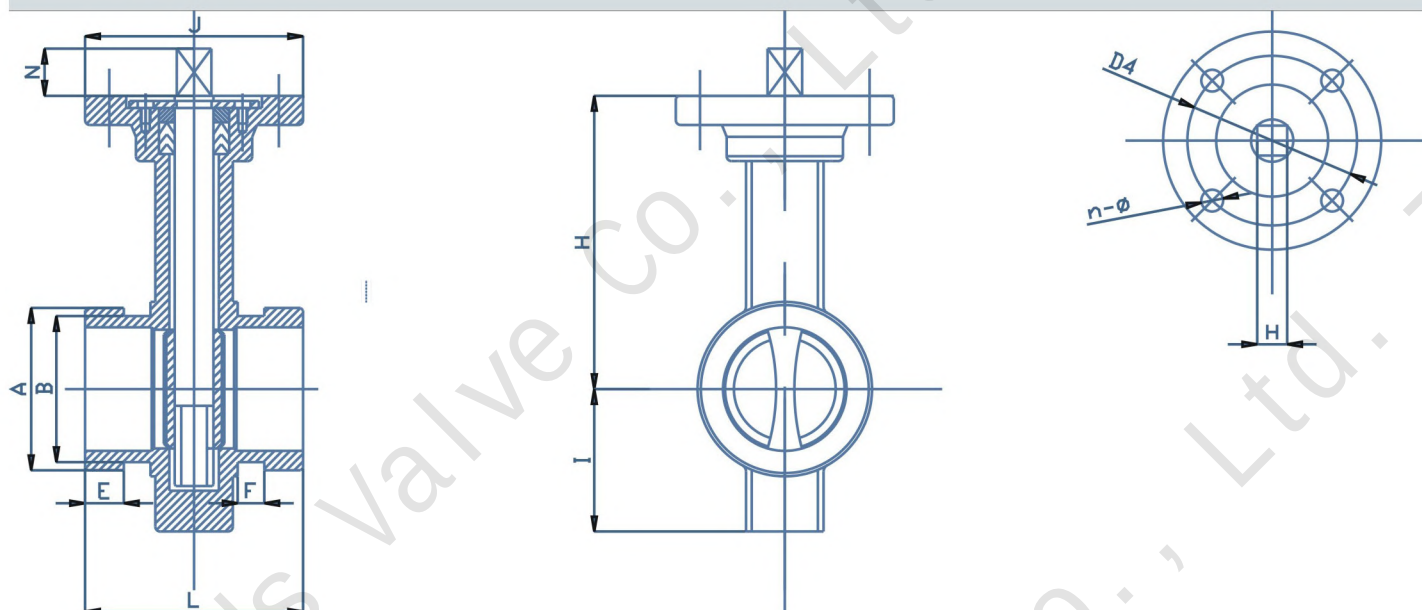
EN 12266-1 ISO5208 API598



Drawing (50-300)

Outline Dimensions PN16

SIDE	A	B	E	F	H	I	ISO5211	J	D4	n-ø	L	H	N
50	60.3	57.15	15.88	7.93	125	59	F07	90	70	4-10	81	11	14
65	76.1	72.26	15.88	7.93	133	64	F07	90	70	4-10	96.8	11	14
80	88.9	84.94	15.88	7.93	140	73	F07	90	70	4-10	96.8	11	14
100	114.3	110.08	15.88	9.53	150	84	F07	90	70	4-10	115.8	11	14
125	139.7	135.48	15.88	9.53	165	103	F07	90	70	4-10	147.6	14	17
150	168.3	163.96	15.88	9.53	180	113	F07	90	70	4-10	147.6	14	17
200	219.1	214.40	19.05	11.10	203	145	F10	125	102	4-12	133.4	17	22
250	273.0	268.28	19.05	12.7	235	177	F10	125	102	4-12	158.8	22	22
300	323.9	318.29	19.05	12.7	263	205	F10	125	102	4-12	165.1	22	22

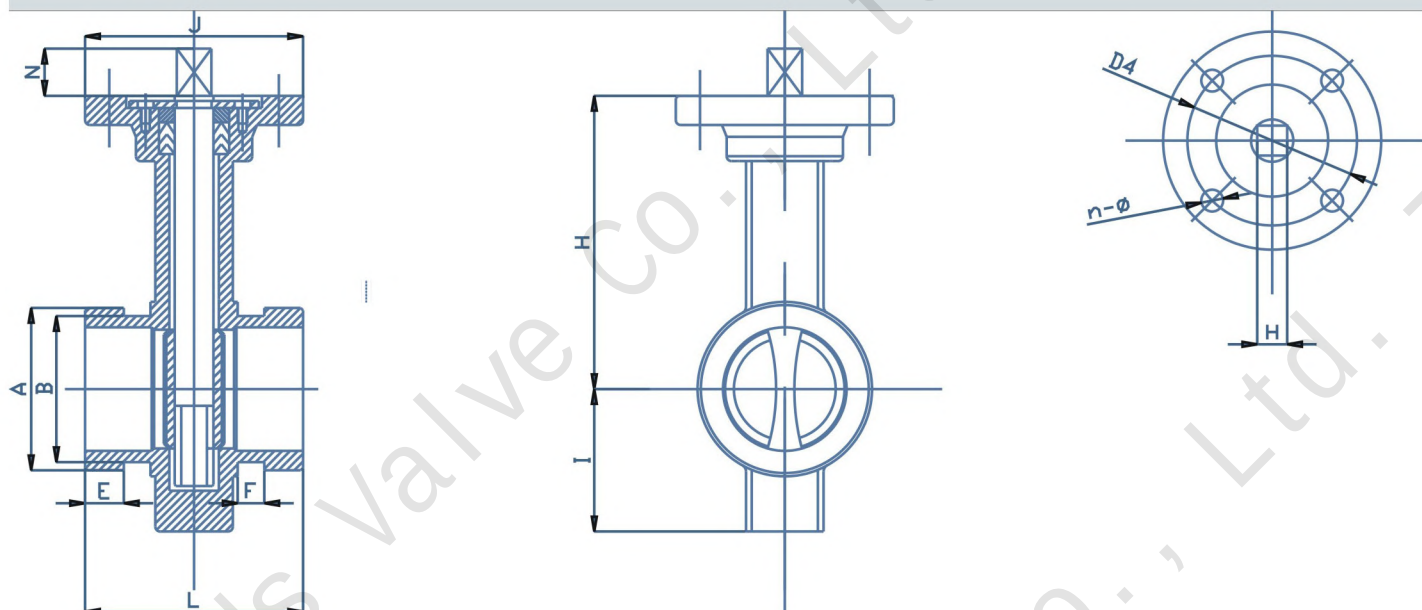
Drawing (50-300)



Outline Dimensions 150LB

SIDE	A	B	E	F	H	I	ISO5211	J	D4	n-ø	L	H	N
2"	60.3	57.15	15.87	7.93	125	59	F07	90	70	4-10	81	11	14
2.5"	73.03	69.00	15.87	7.93	133	64	F07	90	70	4-10	96.8	11	14
3"	88.9	84.94	15.87	7.93	140	73	F07	90	70	4-10	96.8	11	14
4"	114.3	110.08	15.87	9.53	150	84	F07	90	70	4-10	115.8	11	14
5"	141.3	137.03	15.87	9.53	165	103	F07	90	70	4-10	147.6	14	17
6"	168.28	163.96	15.87	9.53	180	113	F07	90	70	4-10	147.6	14	17
8"	219.08	214.40	19.00	11.13	203	145	F10	125	102	4-12	133.4	17	22
10"	273.05	268.27	19.00	12.7	235	177	F10	125	102	4-12	158.8	22	22
12"	323.85	318.29	19.00	12.7	263	205	F10	125	102	4-12	165.1	22	22

Drawing (50-300)



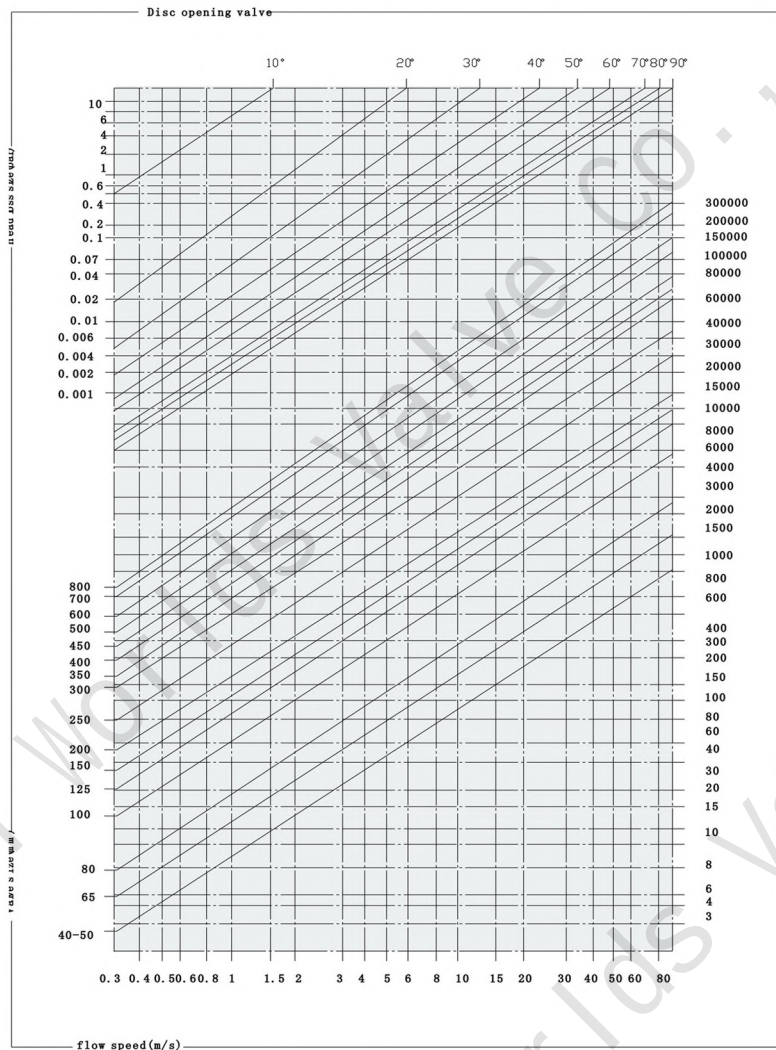
Outline Dimensions 10K

SIDE	A	B	E	F	H	I	ISO5211	J	D4	n-ø	L	H	N
2"	60.5	57.2	16	8.7	125	59	F07	90	70	4-10	81	11	14
2.5"	76.3	72.3	16	8.7	133	64	F07	90	70	4-10	97	11	14
3"	89.1	85	16	8.7	140	73	F07	90	70	4-10	97	11	14
4"	114.3	110	16	8.7	150	84	F07	90	70	4-10	116	11	14
5"	139.8	135.5	16	8.7	165	103	F07	90	70	4-10	148	14	17
6"	165.2	160.8	16	8.7	180	113	F07	90	70	4-10	148	14	17
8"	216.3	211.6	19	11.9	203	145	F10	125	102	4-12	133	17	22
10"	267.4	262.8	19	11.9	235	177	F10	125	102	4-12	159	22	22
12"	318.5	312.9	19	11.9	263	205	F10	125	102	4-12	165	22	22

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 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	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

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

The Grooved End Butterfly valves may be installed with flow in either direction and can be positioned either horizontally or vertically. The grooved end pipe couplings used must be listed or approved for fire protection service and installed in accordance with the manufacturers instructions. The Grooved Butterfly Valve may be installed with any schedule of pressure class of pipe or tubing that is listed or approved for fire protection.

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.

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