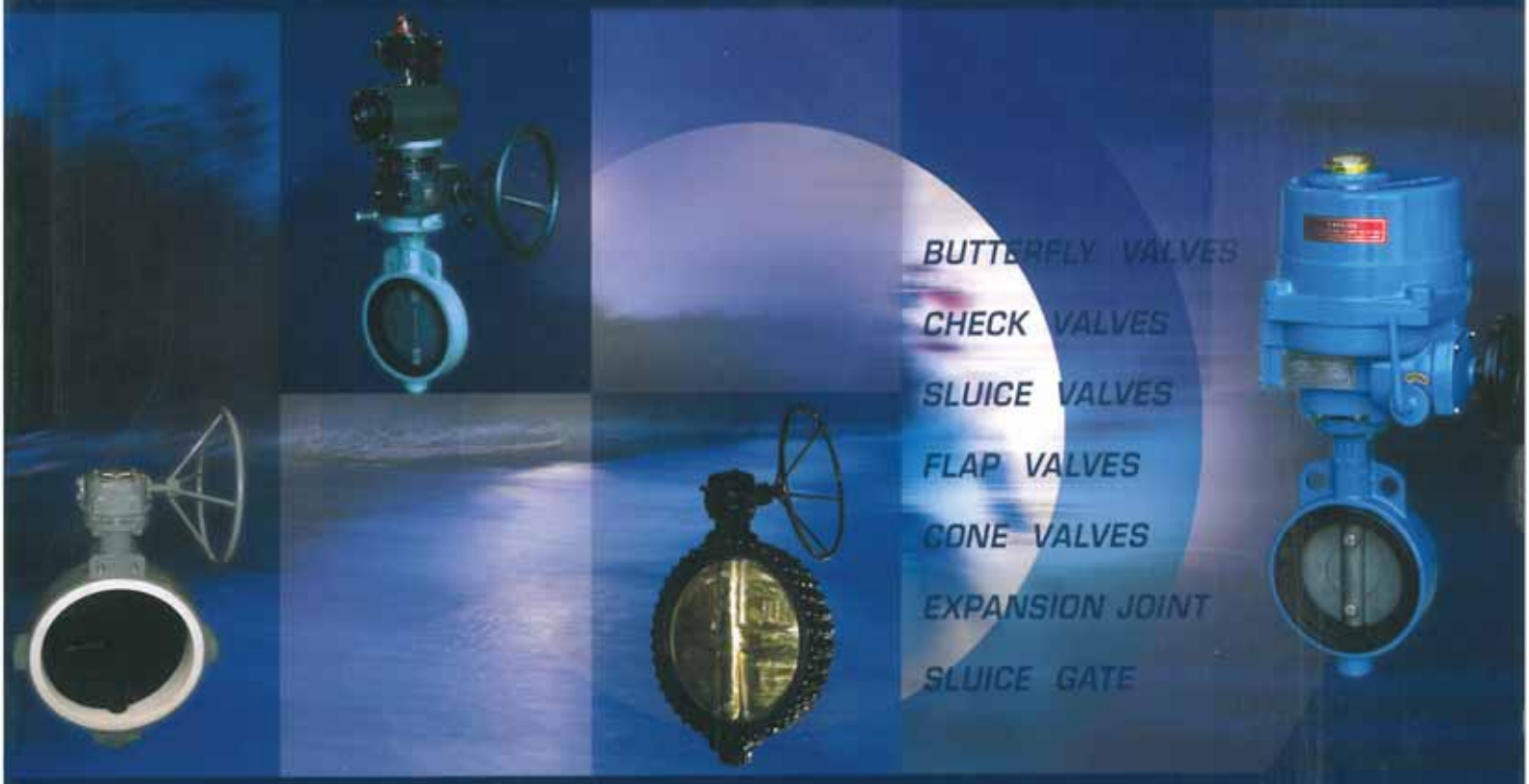
SEJIN VALVE RESILIENT SEATED FOR C SERIES BUTTERFLY VALVES



Company thinking first of human being and nature

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whatsapp	+82-10-2746-2125

LIMANNTECH
LIMANNTECH CO., LTD

BUTTERFLY VALVES FOR C SERIES PRODUCTS

FOR RESILIENT SEATED GENERAL SERVICE PIPE LINE

Model No. CRB3E-42GO

Butterfly Valve With Worm Gear Type

SIZE RANGE DN40–1200
PRESSURE RATING 10Kg/cm²
FACE to FACE API 609-A, ISO 5752
END CONN. ISO PN 6/10, ANSI # 150, JIS 5K/10K
END CONN. TYPE Flanged Type

Model No. CRB3E-06GO

Butterfly Valve With Worm Gear Type

SIZE RANGE DN40–1200
PRESSURE RATING 10Kg/cm²
FACE to FACE API 609-A, ISO 5752
END CONN. ISO PN 6/10, ANSI # 150, JIS 5K/10K
END CONN. TYPE Flanged Type

Model No. CRB3E-40M0

Butterfly Valve With Motor Actuator Type

SIZE RANGE DN40–1200
PRESSURE RATING 10Kg/cm²
FACE to FACE API 609-A, ISO 5752
END CONN. ISO PN 6/10, ANSI # 150, JIS 5K/10K
END CONN. TYPE Flanged Type

Model No. CRB1E-08HO

Butterfly Valve With Hydraulic Type

SIZE RANGE DN40–1200
PRESSURE RATING 10Kg/cm²
FACE to FACE API 609-A, ISO 5752
END CONN. ISO PN 6/10, ANSI # 150, JIS 5K/10K
END CONN. TYPE Wafer Type

Model No. CHB1A-08PO

Butterfly Valve With Pneumatic Actuator Type

SIZE RANGE DN40–1200
PRESSURE RATING 20Kg/cm²
FACE to FACE API 609-A, ISO 5752
END CONN. ISO PN 10, ANSI # 150/300, JIS 10K/20K/30K
END CONN. TYPE Wafer Type

Model No. CRB1E-04MO

Butterfly Valve With Motor Actuator Type

SIZE RANGE DN40–1200
PRESSURE RATING 10Kg/cm²
FACE to FACE API 609-A, ISO 5752
END CONN. ISO PN 6/10, ANSI # 150, JIS 5K/10K
END CONN. TYPE Wafer Type

Model No. CRB2E-28GO

Butterfly Valve With Worm Gear Type

SIZE RANGE DN40–1200
PRESSURE RATING 10Kg/cm²
FACE to FACE API 609-A, ISO 5752
END CONN. ISO PN 6/10, ANSI # 150, JIS 5K/10K
END CONN. TYPE Lug Type

Model No. CHB1A-04LO

Butterfly Valve With Lever Gear Type

SIZE RANGE DN40–1200
PRESSURE RATING 20Kg/cm²
FACE to FACE API 609-A, ISO 5752
END CONN. ISO PN 10, ANSI # 150/300, JIS 10K/20K/30K
END CONN. TYPE Wafer Type

Model No. CTB1E-24GO

Butterfly Valve With Worm Gear Type

SIZE RANGE DN40–1200
PRESSURE RATING 10Kg/cm²
FACE to FACE API 609-A, ISO 5752
END CONN. ISO PN 6/10, ANSI # 150, JIS 5K/10K
END CONN. TYPE Wafer Type

BUTTERFLY VALVES FOR WF SERIES PRODUCTS

FOR RESILIENT SEATED WATER WORK SERVICE PIPE LINE

Model No. WFK3E-60GO

Butterfly Valve With Worm Gear Type

SIZE RANGE DN200~3000
PRESSURE RATING 10Kg/cm², 20Kg/cm²
FACE to FACE KS B 2333 / ISO 5752 / BS 5155
END CONN. ISO PN 6/10, ANSI # 150, JIS 5K/10K
END CONN. TYPE Flange Type

Model No. WFA3E-78MO

Butterfly Valve With Motor Actuator Type

SIZE RANGE DN200~3000
PRESSURE RATING 10Kg/cm², 20Kg/cm²
FACE to FACE AWWA C 504 / BS 5155 / ISO 5752
END CONN. AWWA C 207, ANSI # 150, JIS 10K
END CONN. TYPE Flange Type

Model No. WFA3E-48GO

Butterfly Valve With Worm Gear Type

SIZE RANGE DN200~3000
PRESSURE RATING 10Kg/cm², 20Kg/cm²
FACE to FACE AWWA C 504 / BS 5155 / ISO 5752
END CONN. AWWA C 207, ANSI # 150, JIS 10K
END CONN. TYPE Flange Type

Model No. WFK3E-40HO

Butterfly Valve With Hydraulic Actuator

SIZE RANGE DN200~3000
PRESSURE RATING 10Kg/cm², 20Kg/cm²
FACE to FACE AWWA C 504 / BS 4504 / ISO 5752
END CONN. AWWA C 207, ANSI # 150, JIS 10K
END CONN. TYPE Flange Type

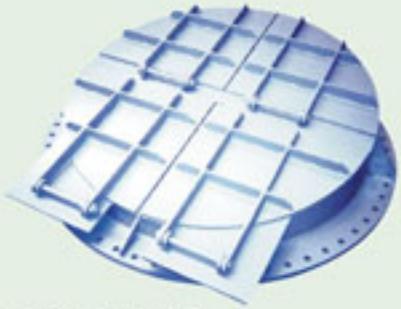
Model No. SVN3E-20CP

Sluice Valve With Cap Type

SIZE RANGE DN50~500
PRESSURE RATING 20Kg/cm²
FACE to FACE KS B 2334
END CONN. ISO PN 6/10, ANSI # 150, JIS 5K/10K
END CONN. TYPE Flange Type

Model No. FVS3E-80

Flap Valves (4-door type)



SIZE RANGE DN600~3000
PRESSURE RATING 10Kg/cm²
FACE to FACE Maker STD.
END CONN. ISO PN 6/10, ANSI # 150, JIS 5K/10K
END CONN. TYPE Flange Type

Model No. EPS3E-72

Expansion Joint (spigot Type)

SIZE RANGE DN200~3000
PRESSURE RATING 10Kg/cm², 20Kg/cm²
FACE to FACE Maker STD.
END CONN. ISO PN 6/10, ANSI # 150, JIS 5K/10K
END CONN. TYPE Flange Type

Model No. SGR-48

Sluice Gate (Rectangular Type)

SIZE RANGE □200~1200/ø320~ø2500
PRESSURE RATING 1Kg/cm²
FACE to FACE Maker STD.
END CONN. Maker STD.
END CONN. TYPE Flange Type

Model No. CON1E-24MO

Cone Valve With Motor Actuator Type

SIZE RANGE DN400~2500
PRESSURE RATING 10Kg/cm²
FACE to FACE Maker STD.
END CONN. ISO PN 6/10, ANSI # 150, JIS 5K/10K
END CONN. TYPE Flange Type

BUTTERFLY VALVES FOR HF SERIES PRODUCTS

FOR RESILIENT & METAL SEATED HIGH-PERFORMANCE VALVES

Model No. HFT2A-30GO

Butterfly Valve With Worm Gear Type

SIZE RANGE DN50-1500
PRESSURE RATING 20Kg/cm²/600LB
FACE to FACE API 609-B, ISO 5752
END CONN. PN 10/16, ANSI # 150/300, JIS 10K/16K
END CONN. TYPE Lug Type

Model No. HFT1A-16GO

Butterfly Valve With Worm Gear Type

SIZE RANGE DN50-1500
PRESSURE RATING 20Kg/cm²/600LB
FACE to FACE API 609-B, ISO 5752
END CONN. PN 10/16, ANSI # 150/300, JIS 10K/16K
END CONN. TYPE Wafer Type

Model No. HFM3E-12PO

Butterfly Valve With Pneumatic Actuator Type

SIZE RANGE DN50-1500
PRESSURE RATING 20Kg/cm²/600LB
FACE to FACE API 609-B, ISO 5752
END CONN. PN 10/16, ANSI # 150/300, JIS 10K/16K
END CONN. TYPE Flange Type

Model No. HFM6A-30GO

Butterfly Valve With Worm Gear Type

SIZE RANGE DN50-1500
PRESSURE RATING 20Kg/cm²/600LB
FACE to FACE API 609-B, ISO 5752, ANSI B 16.10
END CONN. PN 10/16, ANSI # 150/30, JIS 10K/16K
END CONN. TYPE Butt-Weld Type

Model No. HFT1A-06GO

Butterfly Valve With Worm Gear Type

SIZE RANGE DN50-1500
PRESSURE RATING 20Kg/cm²/600LB
FACE to FACE API 609-B, ISO 5752
END CONN. ISO PN 6/10, ANSI # 150/300, JIS 10K/16K
END CONN. TYPE Wafer Type

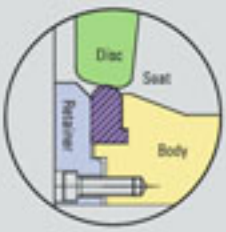
Model No. HFM3E-36PO

Butterfly Valve With Pneumatic Actuator Type

SIZE RANGE DN50-1500
PRESSURE RATING 20Kg/cm²/600LB
FACE to FACE API 609-B, ISO 5752, ANSI B 16.10
END CONN. PN 10/16, ANSI # 150/300, JIS 10K/16K
END CONN. TYPE Flanged Type

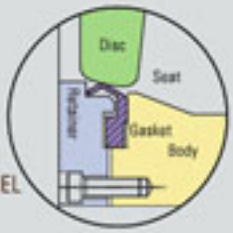
Seat Construction

HF- Series High-Performance Butterfly valve for Features



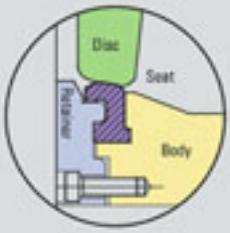
HF-R

EPDM / NBR / VITON
Rubber Seat



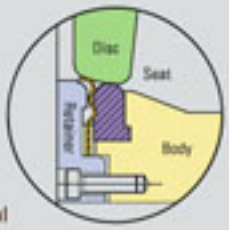
HF-SM

SF.St.steel 316 / MONEL
Solid Metal Seat



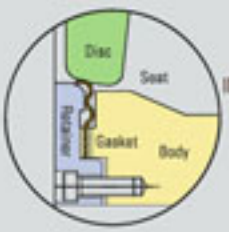
HF-T

PTFE / RTFE
Teflon Seat



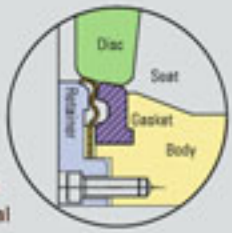
HF-RF

Rubber / St.steel 316
Fire Safe-Rubber+ Metal



HF-FM

INCONEL 625 / St.steel 316
Flat Metal seat



HF-TF

Teflon / St.steel 316
Fire Safe-Teflon+ Metal

BUTTERFLY VALVES FOR TOM SERIES PRODUCTS

FOR TRIPLE-OFFSET METAL SEATED - MAX. TEMP. -320°F(-196°C) TO 1112°F(600°C)

Model No. TOM2C-24MO(#600LB)

Motor Operated Triple-Offset Metal Seated

SIZE RANGE DN80~1500
Max. PRESSURE RATING 60Kg/cm²/900LB
FACE to FACE API 609-B, ISO 5752, ANSI B 16.10
TESTING API 598/6D(Zero leakage), ANSI B 16.104 CLVI
END CONN. TYPE Lug Type

Model No. TOM2B-24PO(#300LB)

Pneumatic Operated Triple-Offset Metal Seated

SIZE RANGE DN80~1500
Max. PRESSURE RATING 60Kg/cm²/900LB
FACE to FACE API 609-B, ISO 5752, ANSI B 16.10
TESTING API 598/6D(Zero leakage), ANSI B 16.104 CLVI
END CONN. TYPE Lug Type

Model No. TOM2C-24PO(#600LB)

Pneumatic Operated Triple-Offset Metal Seated

SIZE RANGE DN80~1500
Max. PRESSURE RATING 60Kg/cm²/900LB
FACE to FACE API 609-B, ISO 5752, ANSI B 16.10
TESTING API 598/6D(Zero leakage), ANSI B 16.104 CLVI
END CONN. TYPE Lug Type

Model No. TOM1A-88MO(#150LB)

Motor Operated Triple-Offset Metal Seated

SIZE RANGE DN80~2500
Max. PRESSURE RATING 60Kg/cm²/900LB
FACE to FACE API 609-B, ISO 5752, ANSI B 16.10
TESTING API 598/6D(Zero leakage), ANSI B 16.104 CLVI
END CONN. TYPE Flanged Type

Model No. TOM3C-18GO(#600LB)

Gear Operated Triple-Offset Metal Seated

SIZE RANGE DN80~2500
Max. PRESSURE RATING 60Kg/cm²/900LB
FACE to FACE API 609-B, ISO 5752, ANSI B 16.10
TESTING API 598/6D(Zero leakage), ANSI B 16.104 CLVI
END CONN. TYPE Flanged Type

Model No. TOM3B-16GO(#300LB)

Gear Operated Triple-Offset Metal Seated

SIZE RANGE DN80~2500
Max. PRESSURE RATING 60Kg/cm²/900LB
FACE to FACE API 609-B, ISO 5752, ANSI B 16.10
TESTING API 598/6D(Zero leakage), ANSI B 16.104 CLVI
END CONN. TYPE Flanged Type(Long Pattern to B 16.10)

Model No. TOM6A-28GO(#150LB)

Gear Operated Triple-Offset Metal Seated

SIZE RANGE DN80~1500
Max. PRESSURE RATING 60Kg/cm²/900LB
FACE to FACE API 609-B, ISO 5752, ANSI B 16.10
TESTING API 598/6D(Zero leakage), ANSI B 16.104 CLVI
END CONN. TYPE Butt-Weld Type

Model No. TOM1A-8PO(#150LB)

Pneumatic Operated Triple-Offset Metal Seated

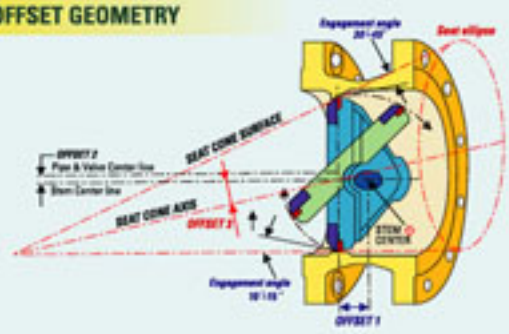
SIZE RANGE DN80~1500
Max. PRESSURE RATING 60Kg/cm²/900LB
FACE to FACE API 609-B, ISO 5752, ANSI B 16.10
TESTING API 598/6D(Zero leakage), ANSI B 16.104 CLVI
END CONN. TYPE Wafer Type

Model No. TOM3B-20GO(#300LB)

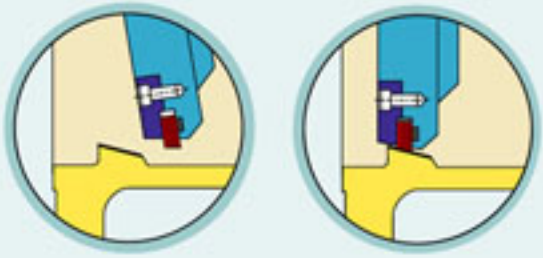
Gear Operated Triple-Offset Metal Seated

SIZE RANGE DN80~1500
Max. PRESSURE RATING 60Kg/cm²/900LB
FACE to FACE API 609-B, ISO 5752, ANSI B 16.10
TESTING API 598/6D(Zero leakage), ANSI B 16.104 CLVI
END CONN. TYPE Flanged Type

TRIPLE-OFFSET GEOMETRY



SEALING FOR LONG CYCLE LIFE



CHECK VALVES FOR CK SERIES PRODUCTS

FOR RESILIENT & METAL SEATED GENERAL SERVICE PIPE LINE

Model No. CKD3B-52

Duo-Check Valve With Metal To Metal

SIZE RANGE DN50–1500
PRESSURE RATING 20Kg/cm², 30Kg/cm²/300P/600P
FACE to FACE API 594, ANSI B 16.10
END CONN. ANSI # 150/300/600, JIS 16K/20K/30K
END CONN. TYPE Flange Type

Model No. CKD3B-52

Duo-Check Valve With Metal To Metal

SIZE RANGE DN50–1500
PRESSURE RATING 20Kg/cm², 30Kg/cm²/300P/600P
FACE to FACE API 594, ANSI B 16.10
END CONN. ANSI # 150/300/600, JIS 16K/20K/30K
END CONN. TYPE Flange Type

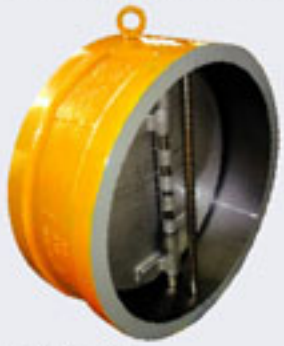
Model No. CKD3E-16

Duo-Check Valve With Rubber To Metal

SIZE RANGE DN50–1500
PRESSURE RATING 20Kg/cm², 30Kg/cm²/300P/600P
FACE to FACE API 594, ANSI B 16.10
END CONN. ANSI # 150/300/600, JIS 16K/20K/30K
END CONN. TYPE Flange Type

Model No. CKD1A-24

Duo-Check Valve With Rubber To Metal



SIZE RANGE DN50–1500
PRESSURE RATING 20Kg/cm², 30Kg/cm²/300P/600P
FACE to FACE API 594, ANSI B 16.10
END CONN. ANSI # 150/300/600, JIS 16K/20K/30K
END CONN. TYPE Wafer Type

Model No. CKD1A-10

Duo-Check Valve With Rubber To Metal

SIZE RANGE DN50–1500
PRESSURE RATING 20Kg/cm², 30Kg/cm²/300P/600P
FACE to FACE API 594, ANSI B 16.10
END CONN. ANSI # 150/300/600, JIS 16K/20K/30K
END CONN. TYPE Wafer Type

Model No. CKD7C-10-RTJ

Duo-Check Valve With Metal To Metal

SIZE RANGE DN50–1500
PRESSURE RATING 20Kg/cm², 30Kg/cm²/300P/600P
FACE to FACE API 594, ANSI B 16.10
END CONN. ANSI # 150/300/600, JIS 16K/20K/30K
END CONN. TYPE Ring joint Type

Model No. CKT1A-8

Tilting Check Valve With Metal To Metal

SIZE RANGE DN50–1500
PRESSURE RATING 20Kg/cm², 30Kg/cm²/300P/600P
FACE to FACE API 594, ANSI B 16.10
END CONN. ANSI # 150/300/600, JIS 16K/20K/30K
END CONN. TYPE Wafer Type

Model No. CKS3E-24

Swing-Check Valve With Rubber To Metal

SIZE RANGE DN200–1200
PRESSURE RATING 10Kg/cm²
FACE to FACE ANSI B 16.10, ISO 5752
END CONN. ISO PN 6/10, ANSI # 150, JIS 5K/10K
END CONN. TYPE Flange Type

Model No. CKB3A-12

Butterfly-Check Valve With Rubber To Metal

SIZE RANGE DN200–1200
PRESSURE RATING 10Kg/cm²
FACE to FACE ANSI B 16.10, ISO 5752
END CONN. ISO PN 6/10, ANSI # 150, JIS 5K/10K
END CONN. TYPE Flange Type

BUTTERFLY VALVES WITH RESILIENT REPLACEABLE SEAT-SERIES CRB

SEJIN VALVE for **C** series butterfly valves.
Our company endeavor ceaselessly to develop new products.
And for quality improvement.

Realized according to API standard 609-MSS SP 67, ISO 5752, DIN 3202 K1, BS 5155.

NUMBERING SYSTEM

The Following Example Describes a wafer Body Butterfly Valve with Bronze Disc,304 stainless steel stem, BUNA-N seat and 10 Position LOCK lever Handle

CRB (Valve Type) 1A- (Body Type) 06 (Size) LO (Actuator) C (Body material) B (Disc material) S1 (Stem material) -B (Seat material)

LEGEND

Body Type	Body	Disc	STEM	SEAT	ACTUATOR
1A-Wafer	C-Cast Iron	B-Aluminum Bronze	S1-410 S.S	B-Buna-n	LO-10 Position lever
2A-Lug	D-Ductile iron	S-18-8, 316 S.S	S2-304 S.S	E-EPDM	GO-Gear operator
3A-Flange	S-18-8, 316 S.S	R-Coated EPDM,	S3-316 S.S	V-Viton	MO-Motor operator
	B-Aluminum Bronze	Viton, Buna-N etc.	S4-17-4 PH	N-Neoprene	PO-Pneumatic operator
			S5-MONEL	S-Silicone	HO-Hydraulic operator

MAIN APPLICATIONS

- Potable water distribution
- Power plant
- Industrial and waste water
- Cooling and heating water (conditioning)
- Water transmission system
- Shipyards
- Fire fighting system
- Petrochemical industry
- Gas ...

Butterfly valves shall be CRB Series 10, 20, 30. The liner and seat shall be a one-piece, dovetail design, which fully encapsulates the body. Molded in the liner shall be double "O" ring seals to allow installation with all style ANSI, JIS, BSI, DIN flanges. No flange gaskets are required for installation. The shaft will be one piece stainless steel with self adjusting double "U" cup shaft seal. Valve shaft to be blow out proof with a corrosion resistant shaft retainer ring. No lubrication will be required. Field adjustment will not be required.

Product Line Guide

Standard Features Common To All CRB Series Valves
- Body and shaft isolated from flow
- Bi-directional bubble tight shut-off
- One-piece shaft standard stainless steel
- Extended neck for insulation
- Secondary shaft seal and bushing
- Stainless steel nameplate

Series CRB-1A Wafer Type

Sizes : 1½"-48"(40mm-1200mm)
(with flange locating holes for ease of installation)

Rating : differential pressure in the closed position to 150 psi (1000kPa)

Applications:
- On-off or throttling on most services
- General all purposes

Series CRB-2A Lug Type

Sizes : 1½"-48"(40mm-1200mm)
(lug tapping to ANSI standards)

Rating : differential pressure in the closed position to 150psi (1000kPa)

Applications : On-off or throttling on most services
When removal or downstream piping is necessary

Series CRB-3A *Double Flanged Type

Sizes : 1½"-48"(40mm-1200mm)

Rating : differential pressure in the closed position to 150psi (1000kPa)
*Available upon request.

Applications:
- On-off or throttling on most services
- When removal or downstream piping is necessary

Handle/Series : LO

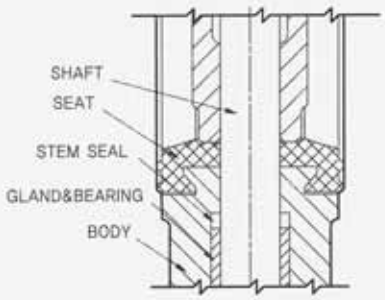
Features :
- Stamped steel multi-position lever lock handle
- Quarter-turn operation
- Bolt on throttle plate with disc position indicator
- Size range:1½"-12"(40mm-300mm)

Gear Actuator/Series : GO

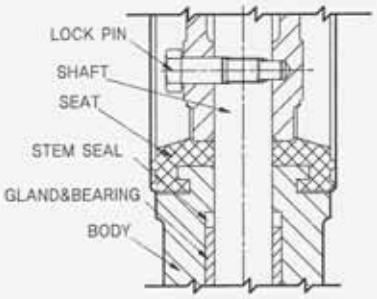
Features:
- Self locking worm gear
- High strength combined with low weight
- Built in adjustable travel stops
- Cast iron housings
- Complete weatherproof and lubricated for life
- Visual position indicator

THESE ARE THE FETURES ON WHICH SEJIN BUTTERFLY VALVE IS SELECTED ALL AROUND WORLD

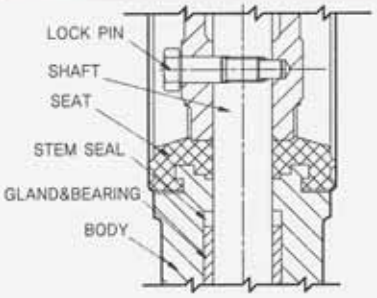
SEAT TYPE FOR 1/2"-12"

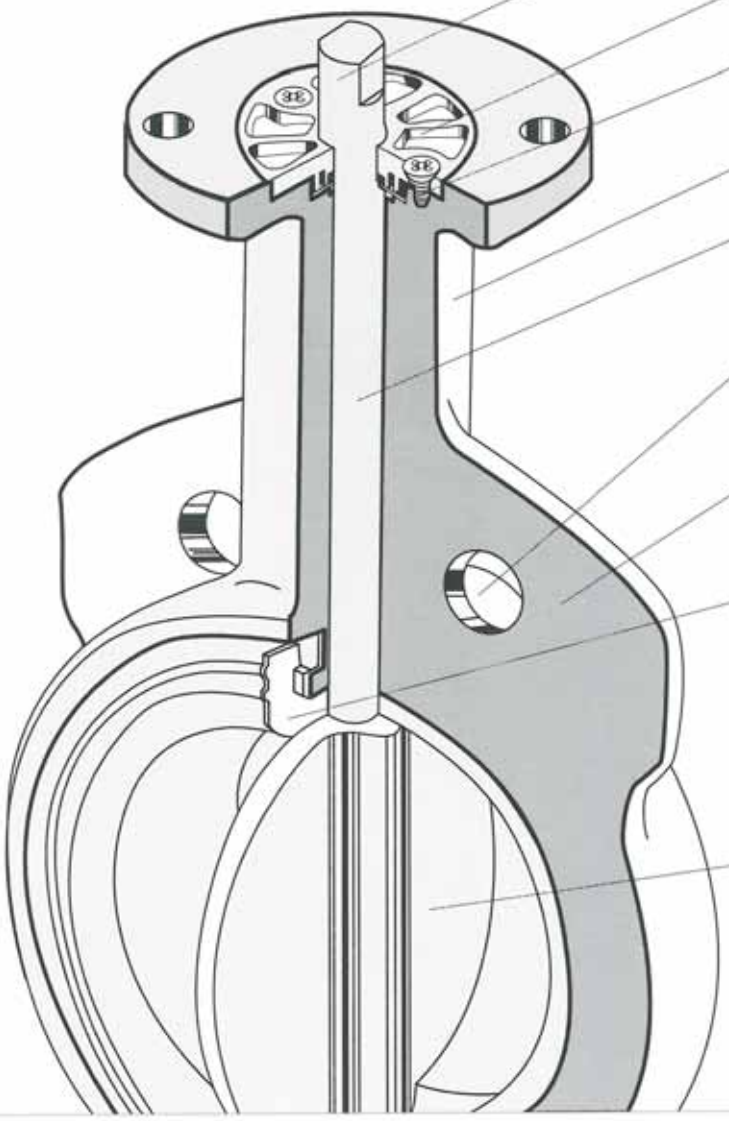


SEAT TYPE FOR 14"-22"



SEAT TYPE FOR 24"-48"





Parallel Flats
Insures positive actuator connection and serves as disc position indicator.

Safety Retainer Ring
Prevents shaft blowout

Shaft Seal
The O-Ring
design for positive sealing both directions.

Extended Neck
Allows room for 2 of piping insulation.

Shaft
One piece stainless steel with brochaed connection thru 12 diameter provides positive disc drive connection and ease of maintenance.

Flange Location Holes
Permit quick installation and proper Valve/flange alignment and prevent problems associated with improper installation

Body
Single piece-water, lug or double flanged-cast iron or rilsan coasted both internally and extemally for erosion/corrosion protection.

Seat
An easily replaceable one-pieces seat provides tight shutoff and completely isolates the service media from the body. The molded-in double O rings on the liner face insure positive sealing between all flanges and eliminate flanges gasket requirement.
Designed to be used with slip on as well as weld neck ANSI, JIS, BSI, DIN, flanges, seat is disigned to stay flat to the body when installed between flanges resulting in exceptional seat rogidity.

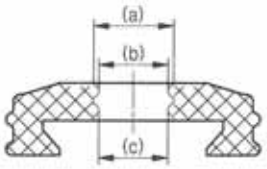
Disc
One-piece casting with wide disc edge:ground and polished for extended seat lift and shut-off.

Quater -Turn
Excellent flow characterisics with ease of operation and throtting.
Capabillty through 90 degrees of operation.

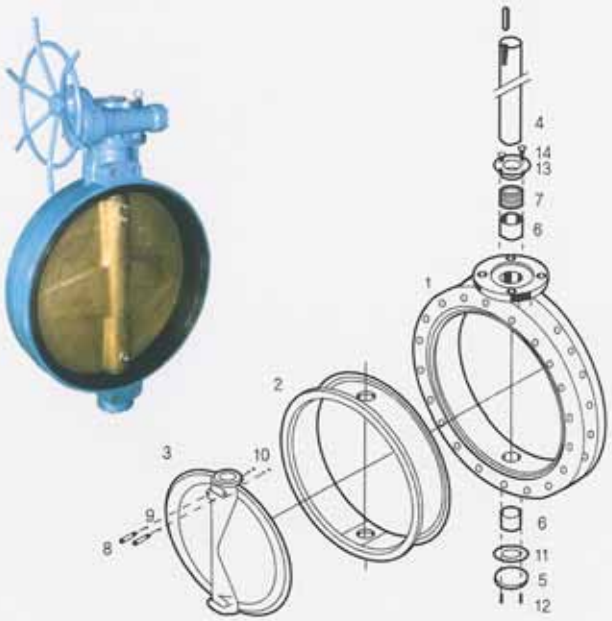
BUTTERFLY VALVE COMPONENT PARTS LISTS-SERIES CRB ▶

SEJIN VALVE for **C** series butterfly valves.
Our company endeavor ceaselessly to develop new products,
And for quality improvement.

Primary Secondary Seal



Primary and secondary seal shaft seals provide exellent protection from stem and pipeline leakage.
*Primary Liner-Shaft Seal is a compression fit between the disc hub and the liner
** Secondary Seal is achieved by an interference fit created by molding the liners shaft holed(a) smaller than the shaft diameter and enhanced by the unique molded in channel(b) and O ring (C). Secondary seal utilizes a 2-point-contact disign.
This results in a triple stem seal without the need for an extra separate o-ring.



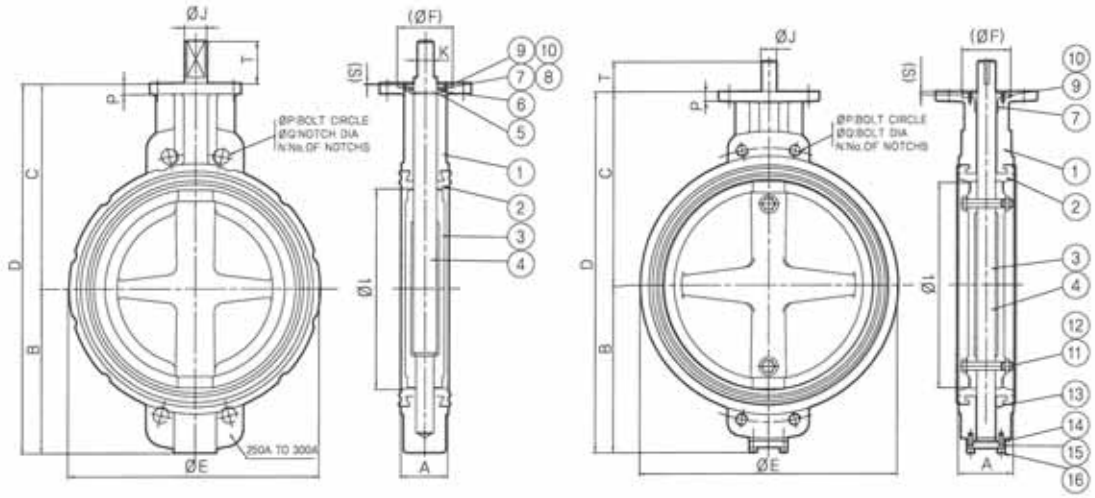
Parts and Materials

Part And Materials For 1½ (40A)~12 (300)

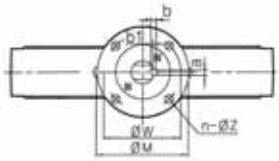
No.	PART NAME	MATERIALS
1	BODY	CAST IRON/DUCTILE IRON CAST STEEL/STAINLESS STEEL
2	SEAT	EPDM/NBR/VITON
3	DISC	ALUMINUM BRONZE STAINLESS STEEL ALLOY STELL (DUPLEX)
4	STEM	STANINLESS STEEL (304,316,410,17-4PH)
5	C-CLIP	STEEL
6	STEM RETAINER	STEEL
7	O-RING	NBR
8	O-RING	NBR
9	SEAL GLAND	NYLON
10	SCREW	STEEL

Part And Materials For 14 (350A)~48"(1200A)

No.	PART NAME	MATERIALS
1	BODY	CAST IRON/DUCTILE IRON
2	SEAT	EPDM/NBR/VITON ALUMINUM BRONZE
3	DISC	STAINLESS STELL ALLOY STEEL (DUPLEX)
4	STEM	ALLOY STEEL (304, 316, 410, 17-4 PH)
5	BOTTOM PLATE	SAME MATERIAL AS BODY
6	BEARING	SELF-LUBRICATION
7	PARKING	NBR
8	LOCK PIN	17-4 PH STAINLESS STEEL
9	O-RING	NBR
10	NUT	STAINLESS STEEL
11	GASKET	NBR
12	SCREW	STEEL
13	PACKING GLAND	STEEL
14	SCREW	STEEL
15	KEY	STEEL



No.	PART NAME	Q'TY
1	BODY	1
2	SEAT	1
3	DISC	1
4	STEM	1
5	C-CLIP	1
6	STEM RETAINER	1
7	PACKING	1
8	O-RING	1
9	SEAL GLAND	1
10	SCREW	2
11	LOCK PIN	-
12	GASKET	-
13	BUSH	2
14	GASKET	1
15	END COVER	1
16	BOLT	4



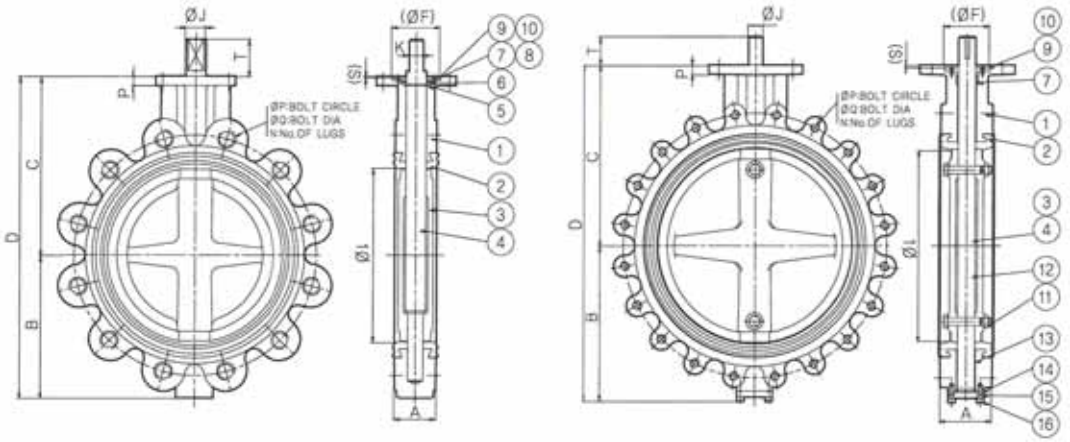
Valve Dimensions

Valve size		Øi	FtoF	B	C	D	ØE	P	Stem					Top Flange to ISO 5211							Weight
inch	mm		A						T	key(axb)	b1	a(K)	ØJ	Type	ØM	Ø(F)	(S)	Ø(W)	n	ØZ	kg
1½	40	40	33	50	100	150	80	10	32	6×6	3.5	6(9.5)	14	F07	90	55	3	70	4	9.5	2.8
2	50	50	43	55	120	175	92	10	32	6×6	3.5	6(9.5)	14	F07	90	55	3	70	4	9.5	3.2
2½	65	64	46	65	130	195	106	11	32	6×6	3.5	6(9.5)	14	F07	90	55	3	70	4	9.5	4.1
3	80	76	46	75	140	215	122	11	32	6×6	3.5	6(9.5)	16	F07	90	55	3	70	4	9.5	4.5
4	100	102	52	95	160	255	150	12	32	6×6	3.5	6(12.5)	16	F07	90	55	3	70	4	9.5	5.8
5	125	127	56	115	180	295	178	12	32	6×6	3.5	6(12.5)	19	F07	90	55	3	70	4	9.5	7.8
6	150	146	56	130	205	335	206	12	40	8×7	3.5	6(15.0)	19	F07	90	55	3	70	4	9.5	9.5
8	200	197	60	160	230	390	258	14	40	8×7	4.0	8(15.0)	22	F10	125	72	3	102	4	12	17.0
10	250	246	68	195	270	465	324	14	40	8×7	4.0	8(20.0)	22	F10	125	72	3	102	4	12	24.0
12	300	292	78	220	300	520	370	16	40	8×7	4.0	8(20.0)	28	F10	125	72	3	102	4	12	40.0

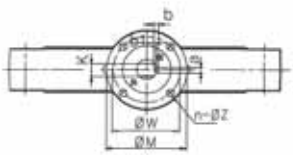
Valve size		Øi	FtoF	B	C	D	ØE	P	Stem					Top Flange to ISO 5211							Weight
inch	mm		A						T	key(axb)	b1	a(K)	ØJ	Type	ØM	Ø(F)	(S)	Ø(W)	n	ØZ	kg
14	350	330	78	250	340	590	410	16	40	8×7	4.0	8	32	F10	125	72	3	102	4	12	55
18	400	380	102	300	370	670	418	20	50	12×8	5.0	12	38	F14	175	100	4	140	4	18	84
18	450	430	114	320	400	720	528	20	64	12×8	5.0	12	38	F14	175	130	4	140	4	18	97
20	500	482	127	360	440	800	578	20	64	14×9	5.5	14	45	F16	210	130	5	165	4	22	142
22	550	528	142	420	460	880	636	22	64	16×10	6.0	16	55	F16	210	130	5	165	4	22	175
24	600	575	154	450	500	950	680	22	100	16×10	6.0	16	55	F16	210	130	5	165	4	22	195
26	650	622	170	480	530	1010	750	24	100	16×10	6.0	16	55	F16	210	130	5	165	4	22	225
28	700	674	170	540	580	1120	828	24	100	18×11	7.0	18	65	F16	210	130	5	165	4	22	268
30	750	724	190	570	610	1180	880	28	100	20×12	7.5	20	70	F16	210	130	5	165	4	22	310
32	800	822	200	600	630	1230	925	28	120	22×14	9.0	22	80	F25	300	200	6	254	8	18	360
34	850	822	200	635	660	1296	970	28	120	22×14	9.0	22	80	F25	300	200	6	254	8	18	410
36	900	876	203	660	690	1350	1008	32	120	22×14	9.0	22	85	F25	300	200	6	254	8	18	480
38	950	925	203	670	725	1395	1075	32	120	22×14	9.0	22	85	F25	300	200	6	254	8	18	570
40	1000	975	216	700	750	1450	1110	32	120	28×16	10.0	28	95	F25	300	200	6	254	8	18	610
42	1050	1020	216	730	795	1525	1175	32	150	28×16	10.0	28	100	F25	300	200	6	254	8	18	820
44	1100	1075	254	750	815	1565	1210	32	150	28×16	10.0	28	110	F25	300	200	6	254	8	18	880
48	1200	1175	254	800	870	1670	1310	32	150	28×16	10.0	28	120	F30	350	230	6	298	8	22	920

BUTTERFLY VALVE SERIES CRB-LUG TYPE (CRB-20) ▶

SEJIN VALVE for C series butterfly valves.
Our company endeavor ceaselessly to develop new products.
And for quality improvement.



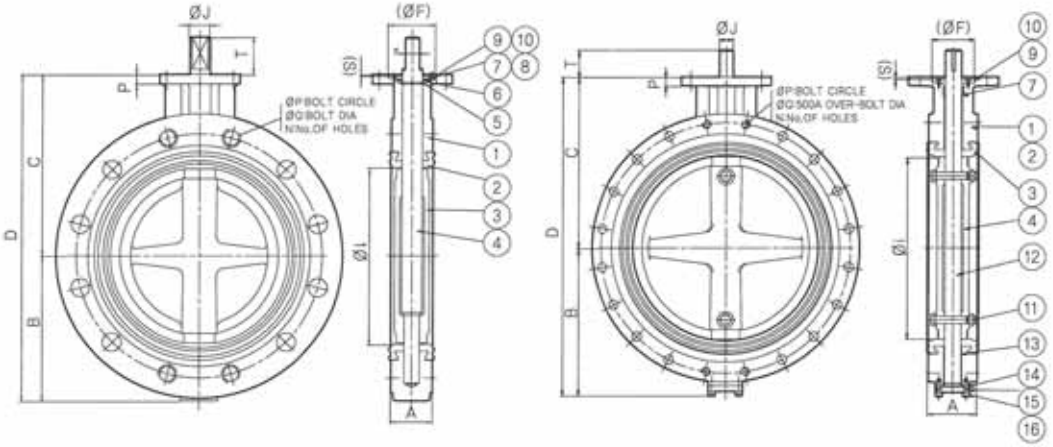
No.	PART NAME	Q'TY
1	BODY	1
2	SEAT	1
3	DISC	1
4	STEM	1
5	C-CLIP	1
6	STEM RETAINER	1
7	PACKING	1
8	O-RING	1
9	SEAL GLAND	1
10	SCREW	2
11	LOCK PIN	-
12	GASKET	-
13	BUSH	2
14	GASKET	1
15	END COVER	1
16	BOLT	4



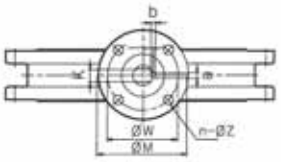
Valve Dimensions

Valve size		Øi	FtoF	B	C	D	ØE	P	Stem					Top Flange to ISO 5211							Weight
inch	mm		A						T	key(axb)	b1	a(K)	ØJ	Type	ØM	Ø(F)	(S)	Ø(W)	n	ØZ	kg
1½	40	40	33	50	100	150	80	10	32	6×6	3.5	6(9.5)	14	F07	90	55	3	70	4	9.5	3.2
2	50	50	43	55	120	175	92	10	32	6×6	3.5	6(9.5)	14	F07	90	55	3	70	4	9.5	3.9
2½	65	64	46	65	130	195	106	11	32	6×6	3.5	6(9.5)	14	F07	90	55	3	70	4	9.5	4.8
3	80	76	46	75	140	215	122	11	32	6×6	3.5	6(9.5)	16	F07	90	55	3	70	4	9.5	5.5
4	100	102	52	95	160	255	150	12	32	6×6	3.5	6(12.5)	18	F07	90	55	3	70	4	9.5	8.2
5	125	127	56	115	180	295	178	12	32	6×6	3.5	6(12.5)	19	F07	90	55	3	70	4	9.5	9.5
6	150	146	56	130	205	335	206	12	40	8×7	3.5	6(15.0)	19	F07	90	55	3	70	4	9.5	12.5
8	200	197	60	160	230	390	258	14	40	8×7	4.0	8(15.0)	22	F10	125	72	3	102	4	12	19.5
10	250	246	68	195	270	465	324	14	40	8×7	4.0	8(20.0)	22	F10	125	72	3	102	4	12	28.0
12	300	292	78	220	300	520	370	16	40	8×7	4.0	8(20.0)	28	F10	125	72	3	102	4	12	50.0

Valve size		Øi	FtoF	B	C	D	ØE	P	Stem					Top Flange to ISO 5211							Weight
inch	mm		A						T	key(axb)	b1	a(K)	ØJ	Type	ØM	Ø(F)	(S)	Ø(W)	n	ØZ	kg
14	350	330	78	250	340	590	410	16	40	8×7	4.0	8	32	F10	125	72	3	102	4	12	64
18	400	380	102	300	370	670	418	20	50	12×8	5.0	12	38	F14	175	100	4	140	4	18	107
18	450	430	114	320	400	720	528	20	64	12×8	5.0	12	38	F14	175	130	4	140	4	18	115
20	500	482	127	360	440	800	578	20	64	14×9	5.5	14	45	F16	210	130	5	165	4	22	160
22	550	528	142	420	460	880	636	22	64	16×10	6.0	16	55	F16	210	130	5	165	4	22	205
24	600	575	154	450	500	950	680	22	100	16×10	6.0	16	55	F16	210	130	5	165	4	22	270
26	650	622	170	480	530	1010	750	24	100	16×10	6.0	16	55	F16	210	130	5	165	4	22	315
28	700	674	170	540	580	1120	828	24	100	18×11	7.0	18	65	F16	210	130	5	165	4	22	370
30	750	724	190	570	610	1180	880	28	100	20×12	7.5	20	70	F16	210	130	5	165	4	22	430
32	800	822	200	600	630	1230	925	28	120	22×14	9.0	22	80	F25	300	200	6	254	8	18	480
34	850	822	200	635	660	1296	970	28	120	22×14	9.0	22	80	F25	300	200	6	254	8	18	505
36	900	876	203	660	690	1350	1008	32	120	22×14	9.0	22	85	F25	300	200	6	254	8	18	540
38	950	925	203	670	725	1395	1075	32	120	22×14	9.0	22	85	F25	300	200	6	254	8	18	680
40	1000	975	216	700	750	1450	1110	32	120	28×16	10.0	28	95	F25	300	200	6	254	8	18	775
42	1050	1020	216	730	795	1525	1175	32	150	28×16	10.0	28	100	F25	300	200	6	254	8	18	990
44	1100	1075	254	750	815	1565	1210	32	150	28×16	10.0	28	110	F25	300	200	6	254	8	18	1230
48	1200	1175	254	800	870	1670	1310	32	150	28×16	10.0	28	120	F30	350	230	6	298	8	22	1250



No.	PART NAME	Q'TY
1	BODY	1
2	SEAT	1
3	DISC	1
4	STEM	1
5	C-CLIP	1
6	STEM RETAINER	1
7	PACKING	1
8	O-RING	1
9	SEAL GLAND	1
10	SCREW	2
11	LOCK PIN	-
12	GASKET	-
13	BUSH	2
14	GASKET	1
15	END COVER	1
16	BOLT	4



Valve Dimensions

Valve size		Øi	FtoF A		B	C	D	ØE	P	Stem					Top Flange to ISO 5211							Weight
inch	mm		Short	Long						T	key(axb)	b1	a(K)	ØJ	Type	ØM	Ø(F)	(S)	Ø(W)	n	ØZ	kg
1½	40	40	33	33	50	100	150	80	10	32	6×6	3.5	6(9.5)	14	F07	90	55	3	70	4	9.5	3.8
2	50	50	43	40	55	120	175	92	10	32	6×6	3.5	6(9.5)	14	F07	90	55	3	70	4	9.5	4.7
2½	65	64	46	40	65	130	195	106	11	32	6×6	3.5	6(9.5)	14	F07	90	55	3	70	4	9.5	5.8
3	80	76	46	60	75	140	215	122	11	32	6×6	3.5	6(9.5)	16	F07	90	55	3	70	4	9.5	6.6
4	100	102	52	60	95	160	255	150	12	32	6×6	3.5	6(12.5)	16	F07	90	55	3	70	4	9.5	10.0
5	125	127	56	100	115	180	295	178	12	32	6×6	3.5	6(12.5)	19	F07	90	55	3	70	4	9.5	11.5
6	150	146	56	100	130	205	335	208	12	40	6×6	3.5	6(15.0)	19	F07	90	55	3	70	4	9.5	15.0
8	200	197	60	100	160	230	390	258	14	40	8×7	4.0	8(15.0)	22	F10	125	72	3	102	4	12	23.0
10	250	246	68	110	195	270	465	324	14	40	8×7	4.0	8(20.0)	22	F10	125	72	3	102	4	12	34.0
12	300	292	78	110	220	300	520	370	16	40	8×7	4.0	8(20.0)	28	F10	125	72	3	102	4	12	60.0

Valve size		Øi	FtoF A		B	C	D	ØE	P	Stem					Top Flange to ISO 5211							Weight
inch	mm		Short	Long						T	key(axb)	b1	a	ØJ	Type	ØM	Ø(F)	(S)	Ø(W)	n	ØZ	kg
14	350	330	78	120	250	340	590	410	16	40	8×7	4.0	8	32	F10	125	72	3	102	4	12	70
16	400	380	102	130	300	370	670	418	20	50	12×8	5.0	12	38	F14	175	100	4	140	4	18	98
18	450	430	114	150	320	400	720	258	20	64	12×8	5.0	12	38	F14	175	100	4	140	4	18	146
20	500	482	127	160	360	440	800	578	20	64	14×9	5.5	14	45	F16	210	130	5	165	4	22	165
22	550	528	142	160	420	460	880	636	22	64	16×10	6.0	16	55	F16	210	130	5	165	4	22	205
24	600	575	154	170	450	500	950	680	22	100	16×10	6.0	16	55	F16	210	130	5	165	4	22	225
26	650	622	170	170	480	530	1010	750	24	100	16×10	6.0	16	55	F16	210	130	5	165	4	22	270
28	700	674	170	170	540	580	1120	828	24	100	18×11	7.0	18	65	F16	210	130	5	165	4	22	330
30	750	724	190	190	570	610	1180	880	28	100	20×12	7.5	20	70	F16	210	130	5	165	4	22	380
32	800	822	200	200	600	630	1230	925	28	120	22×14	9.0	22	80	F25	300	200	6	254	8	18	450
34	850	822	200	200	635	660	1295	970	28	120	22×14	9.0	22	80	F25	300	200	6	254	8	18	540
36	900	876	203	-	660	690	1350	1008	32	120	22×14	9.0	22	85	F25	300	200	6	254	8	18	620
38	950	925	203	-	670	725	1395	1075	32	120	22×14	9.0	22	85	F25	300	200	6	254	8	18	790
40	1000	975	216	-	700	750	1450	1110	32	120	28×16	10.0	28	95	F25	300	200	6	254	8	18	920
42	1050	1020	216	-	730	795	1525	1175	32	150	28×16	10.0	28	100	F25	300	200	6	254	8	18	1030
44	1100	1075	254	-	750	815	1565	1210	32	150	28×16	10.0	28	110	F25	300	200	6	254	8	18	1250
48	1200	1175	254	-	800	875	1670	1310	32	150	28×16	10.0	28	120	F30	350	230	6	298	8	22	1280

BUTTERFLY VALVES WITH PHENOLIC BACKED CARTRIDGE RUBBER LINED-SERIES CHB ▶

SEJIN VALVE for **C** series butterfly valves.
Our company endeavor ceaselessly to develop new products.
And for quality improvement.

Applications;

- water transmission system
- Power plant – FGD System
- Shipyards
- Industrial and waste water
- Fire fighting system
- Cooling and heating water
- Oil rigs (offshore)

Technical Data

Size range	2"(50A)~24"(600A)
Pressure Rating	20Bar (285psi)
Testing	seat(305psi=full rating×1.1Body(415psi) = full rating× 1.5
Temperature range	-40℃ PO + 200℃
Flange drilling	ANSI B16.5(CL150) PN(16,25)JIS B 2201(16K,20K)
Face to face dimension	ISO 5752, API 609, MSS SP-67, DIN 3202 K1, BS 5155
Body style	WAFER, LUG
Top flange mounting	ISO 5211
Actuator	Lever handle, Worm gear, Electric actuator, Pneumatic actuator

Design Features / Lugged type Water type

Mounting flange

- The mounting flange is designed so that the ease of fitting any actuator to be guaranteed.With adaptor flange to ISO 5211 on request.

Shaft bushings

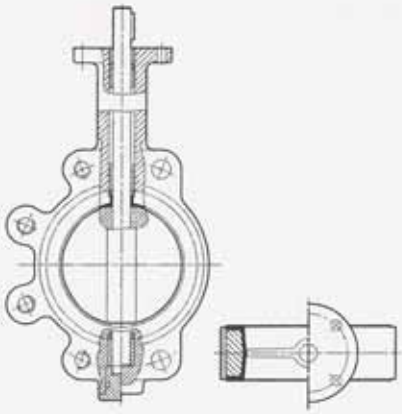
- The shaft is support in 3 positions by maintenace-free PTF/Teflon or luberized bronze bushings.O-ring sealing provides on additional splash-proof sealing the outside.

Body neck

- Long neck to accommodate insulation according to heating facilities regulations.

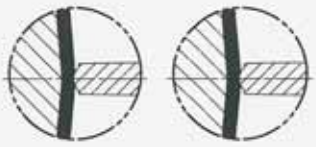
Flange alignment

- Wafer type valves are provided with 4 alignment lugs by drilled holes to ensure concentricity of the valve and flanges and at the same time facillitate the assembly of valve.



Body liner/seat

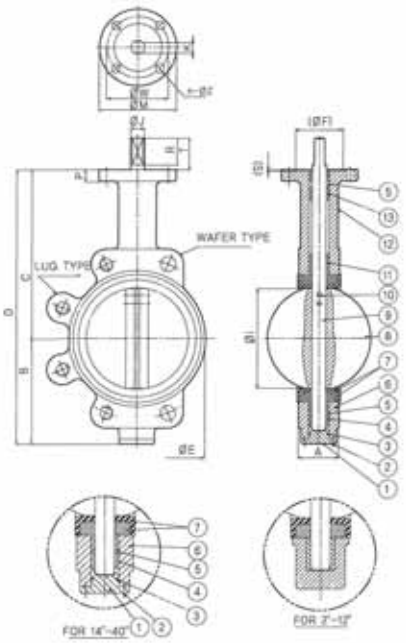
- Rugged phenol-resin backing ring eliminates seat distortion even under maximum working pressure. The elastomeric seat is bonded to the phenolic backing ring
- Non-collapsible blow-out proof seat.
- Bi-directional line flow
- Seat serve as its own flange gasket. Dry-back seat for maximum corrosion resistance.
- Line fluid is isolated from valve body, shaft, and external parts.
- Different elastomers to suit most service conditions.
- Seat design permit valve to be bolted between weld-neck flanges, special end -of- line type on request.
- Easily field replaceable. End Stem
- Axial bearing for all sizes DN 50-350 : Mono-directional-bearing through one contact point on stem end.
- DN 400-600 : Double acting bearing through a specially machined spilt bearing.



Disc edge profile

- The advntages of the disc that it has smooth cotoured edges and streamlined flow design with obstructions held to a minimum.
The smooth precision surface shall be ensured a bubble tight shut-off substantially, lowers the closing torque of the valve, and increase the expected life span of the disc and seat.

BUTTERFLY VALVE SERIES CHB WAFER/LUG TYPE (CHB-10/20)



Material List

PART	SPECIFICATION
1. Bottom Plate	Steel ASTM A
2. Bolts	Steel ASTM A 307 Gr.B
3. O-Ring	Nitrile(Buna -N)Rubber
4. BUSHING	Bronze, ASTM B 584 grade C83600
5. O-Ring(2)	Nitrile(Buna -N)Rubber
6. Body	Iron, ASTM A 126 CLB
7. Liner	EPDM Rubber with Phonolic Backing
	Nitrile(Buna -N)Rubber with Phonolic Backing
8. Disc	Al.Bronze, ASTM B 148 Alloy C95400
	Stainless Steel, ASTM A 351 grade CF8
	Duplex Alloys ASTM A 351 grade CD4M Cu
9. Stem	Stainless Steel, ASTM A 276 Type 410
10. Taper Pin(2)	Stainless Steel, ASTM A 276 Type 410
11. Bushing	Bronze,ASTM B 584 grade C83600
12. Nameplate	Aluminum
13. Bushing(2)	Brass,ASTM B 584 grade C83600
14. key	Steel Plat AISI 1045

Valve Dimensions

Valve size		Øi	A	B	C	D	ØE	P	Stem				Top Flange to ISO 5211						Wafer	Lug
inch	mm								T	R	K	ØJ	Type	ØM	Ø(F)	(S)	Ø(W)	n	ØZ	Weight kg	Weight kg
2	50	50	43	55	120	175	92	10	32	30	9.5	14	F07	90	55	3	70	4	9.5	2.7	3.9
2½	65	64	46	65	130	195	106	11	32	30	9.5	14	F07	90	55	3	70	4	9.5	3.2	4.8
3	80	76	46	75	140	215	122	11	32	30	9.5	14	F07	90	55	3	70	4	9.5	3.9	6.5
4	100	102	52	95	160	255	150	12	32	30	13.0	19	F07	90	55	3	70	4	9.5	5.0	7.5
5	125	127	56	115	180	295	178	12	32	30	13.0	19	F07	90	55	3	70	4	9.5	7.3	10.0
6	150	146	56	130	210	278	206	12	40	35	16.0	22	F07	90	55	3	70	4	9.5	7.7	12.0
8	200	197	60	160	245	390	264	14	40	35	16.0	22	F10	125	72	3	102	4	12	13.5	22.7
10	250	246	68	210	278	465	324	14	40	35	22.0	30	F10	125	72	3	102	4	12	21.0	270.
12	300	292	78	245	323	520	370	16	40	35	22.0	30	F10	125	72	3	102	4	12	34.0	47.0
14	350	330	78	250	340	590	410	16	40	-	-	30	F10	125	72	3	102	4	12	46.0	65.0
16	400	380	102	300	370	670	468	20	50	-	-	38	F14	175	100	4	140	4	18	61.0	94.0
18	450	430	114	320	400	720	528	20	64	-	-	38	F14	175	100	4	140	4	18	78.0	117.0
20	500	482	127	360	440	800	578	20	64	-	-	55	F16	210	130	5	165	4	22	116.0	175.0
24	600	575	154	450	500	950	680	22	100	-	-	60	F16	210	130	5	165	4	22	196.0	289.0

Anticpated Seating Unseating Torque Values-Nm (Fully Rated)

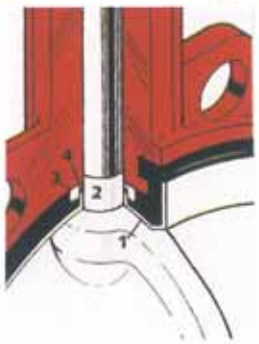
Valve size (mm)	Shut Off Pressure kg/cm²(PSI) Normal Service 10 (150)	16 (232)	20 (285)	Valve size (mm)	Normal Service 10 (150)	16 (232)	20 (285)
50	14	16	20	250	286	325	365
65	16	23	28	300	430	490	555
80	22	30	37	350	680	710	740
100	38	48	58	400	1146	1250	1560
125	59	64	91	450	1616	1748	1980
150	94	105	136	500	1855	1905	2080
200	172	192	211	600	3423	3800	4300

BUTTERFLY VALVE WITH TEFLON & RUBBER MOLDED DISCS & SEAT-SERIES CTB

SEJIN VALVE for **C** series butterfly valves.
Our company endeavor ceaselessly to develop new products,
And for quality improvement.

Design for

- Chemical Plants
- Pharmaceutical Plants
- Pulp and Paper Mills
- Breweries
- Food and Beverage
- Processing Plants



Technical Data

Size range	2"(50A)~24"(600A)
Pressure Rating	7Bar, 10 Bar
Temperature range	-40℃ TO + 200℃
Flange drilling	ANSI B16.5(CL.150),DIN 2501(PN10) BS 4504(PN10),JIS B2210(10K)
Face to face dimension	ISO 5752, API 609, MSS SP-67, DIN 3202 K1
Body style	WAFER, LUG(Two pieces)
Top flange mounting	ISO 5211
Actuator	Lever handle, Worm gear, Electric actuator, Pneumatic actuator

UNIQUE 4-WAY SEAL

1. The primary seal is achieved by an interference fit between the seat flat and disc hub.
2. The secondary seal is an interference fit due to the stem diameter being larger than seat's stem hold diameter. Teflon is molded up the stem which eliminates line media contact with the stem or body material.
3. The third seal is a Teflon compression seat ring set in place around the interior resilient seat material. The compression seat ring is compressed against the secondary seal, therefore Teflon is compressed against Teflon.
4. The final seal is a back-up Viton O-ring around the stem behind the seat. The seat's elastomer support material is completely isolated from corrosive line media, thus valve failure is greatly reduced over traditional resilient backed Teflon molded butterfly valves.

PRESSURE RATINGS

For bi-directional bubble-tight shut off, disc in closed position :
316 SS Disc/Stem & Teflon Molded Seat : 50mm-600mm 10 bar, 2"-24" 150psi
Teflon Molded Disc & Seat : 50mm-300mm 7 bar, 2"-24" 100psi
Elastomer Coated Disc 50mm-300mm 7 bar, 2"-24" 100psi

Body

- Cast Iron ASTM A126 Class B
- 316 Stainless Steel ASTM A351 CF8M
- Aluminium Bronze ASTM B148
- Ductile Iron ASTM A536

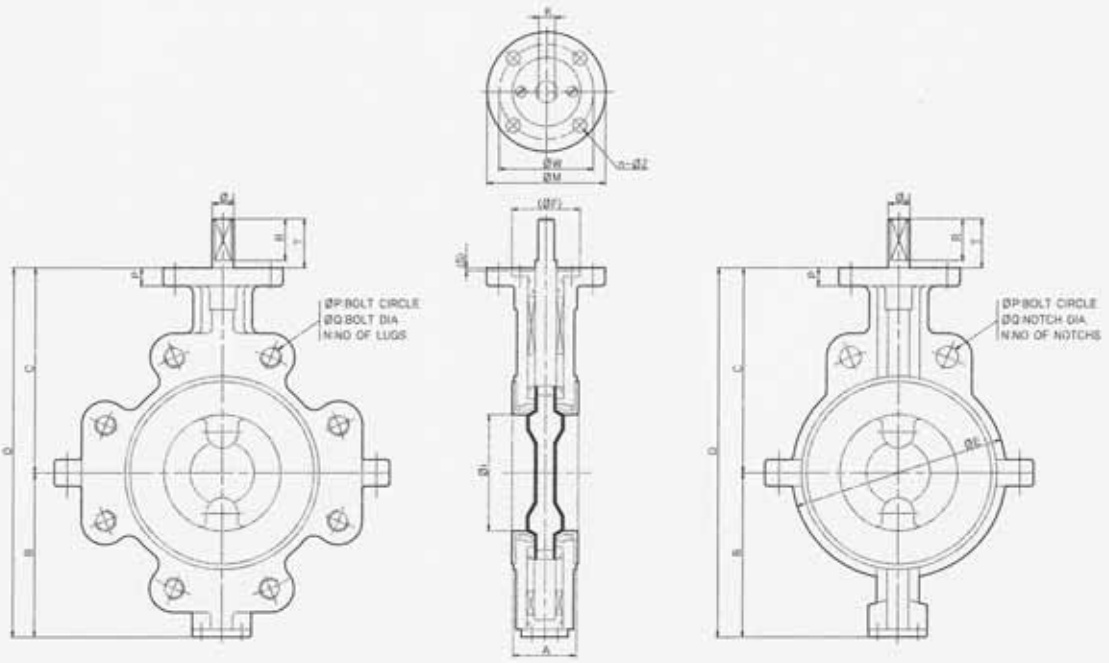
Seat

- Teflon-Molded EPDM
- EPDM · Buna-N · Viton

Disc/Stem

- Teflon Molded 316 Stainless Steel ASTM A351 CF8M with PFA Molded
- EPDM Molded 316 Stainless Steel/316 Stainless Steel ASTM A351 CF8M with EPDM Molded
- Nylon Coated Ductile Iron/316 Stainless Steel ASTM A536/ASTM A351 CF8M with NYLON Molded

BUTTERFLY VALVE SERIES CTB WAFER/LUG TYPE (CTB-10/20)



Valve Dimensions

Valve size		Øi	A	B	C	D	ØE	P	Stem				Top Flange to ISO 5211							Wafer	Lug
inch	mm								T	R	K	ØJ	Type	ØM	Ø(F)	(S)	ØW	n	ØZ	Weight kg	Weight kg
1½	50	50	43	55	120	175	92	10	32	30	9.5	14	F07	90	55	3	70	4	9.5	3.6	4.5
2	65	64	46	65	130	195	106	11	32	30	9.5	14	F07	90	55	3	70	4	9.5	5.0	6.2
2½	80	76	46	75	140	215	122	11	32	30	9.5	14	F07	90	55	3	70	4	9.5	6.0	7.5
3	100	102	52	95	160	255	150	12	32	30	13.0	19	F07	90	55	3	70	4	9.5	8.8	11.0
4	125	127	56	115	180	295	178	12	32	30	13.0	19	F07	90	55	3	70	4	9.5	11.0	13.8
5	150	146	56	130	210	278	206	12	40	35	16.0	22	F07	90	55	3	70	4	9.5	13.5	17.0
6	200	197	60	160	245	390	264	14	40	35	16.0	22	F10	125	72	3	102	4	12	20.6	26.0
8	250	246	68	210	278	465	324	14	40	35	22.0	30	F10	125	72	3	102	4	12	29.8	38.0
10	300	292	78	245	323	520	370	16	40	35	22.0	30	F10	125	72	3	102	4	12	52.0	66.0
12	350	330	78	250	340	590	410	16	40	–	–	30	F10	125	72	3	102	4	12	67.0	84.0a

Flange Dimensions

Valve size		JIS 5K			JIS 10K			JIS 16K			ANSI 150LB			BS 4504 PN6			BS 4504 PN10			BS 4504 PN16		
inch	mm	ØP	N	ØQ	ØP	N	ØQ	ØP	N	ØQ	ØP	N	ØQ	ØP	N	ØQ	ØP	N	ØQ	ØP	N	ØQ
2	50	105	4	15	120	4	19	120	8	19	120.5	4	19	110	4	15	125	4	19	125	4	19
2½	65	130	4	15	140	4	19	140	8	19	139.5	4	19	130	4	15	145	4	19	145	4	19
3	80	145	4	19	150	8	19	160	8	23	152.5	4	19	150	4	19	160	8	19	160	8	19
4	100	165	8	19	175	8	19	185	8	23	190.5	8	19	170	4	19	180	8	19	180	8	19
5	125	200	8	19	210	8	23	225	8	25	216.5	8	22	200	8	19	210	8	19	210	8	19
6	150	230	8	19	240	8	23	260	12	25	241.5	8	22	225	8	19	240	8	23	240	8	23
8	200	280	8	23	290	12	23	305	12	25	298.5	8	22	280	8	19	295	8	23	295	12	23
10	250	345	12	23	355	12	25	380	12	27	362.0	12	25	335	12	19	350	12	23	355	12	28
12	300	390	12	23	400	16	25	430	16	27	432.0	12	25	395	12	23	400	12	23	410	12	28
14	350	435	12	25	415	16	25	480	16	33	476.0	12	28	448	12	23	460	16	23	470	13	28

LEVER OPERATOR, SERIES LO (VALVE SIZES DN-40~300) ▶

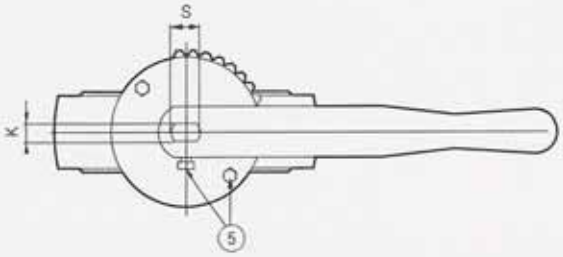
SEJIN VALVE for **C** series butterfly valves.
Our company endeavor ceaselessly to develop new products.
And for quality improvement.

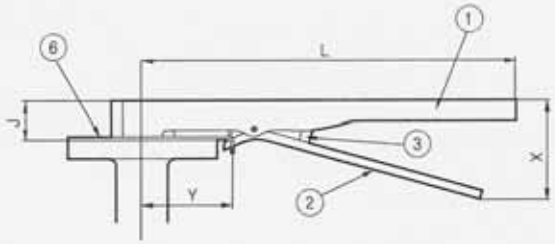
USE
General purpose manual operator for on/off or throttling duties

SEJIN VALVE
40 to 300mm (gear operators are recommended on 200 to 300mm valves over 5kg/㎠ duty)

FEATURES
- Quarter turn action, self locks into 10 position notchplate at 10° intervals
- Handle indicates valve position
- Can be mounted in any 90° quadrant

OPTIONS
- Padlock Tag
- 2 position notchplate for full open or closed positions only
Memory stops.
- Infinite position notchplate
- Limit Switches
- S/S construction

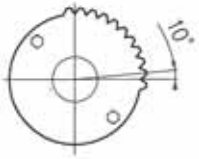




MODEL No.	VALVE RANGE	DIMENSIONS J mm	S.dia mm	K.flats mm	X mm	L mm	Y mm	WT. (kg)
LO-3	40, 50, 65, 80	32	14.05	9.55	44	267	60	1
LO-6	100, 125, 150	32	19.05	14.55	44	267	60	1
LO-8	200	40	22.05	16.05	51	356	85	1.5
LO-12	250, 300	40	30.05	22.02	51	356	85	1.5

STANDARD MATERIALS		
1	HANDLE	TYPE = Plated Steel OTHERS = Stainless Steel, Ductile Iron
2	LEVER	TYPE A = Plated Steel OTHERS = Stainless Stell, Ductile Iron
3	PIN	TYPE A = 18.8 S/S ROLL PIN OTHERS PLATED STEEL
4	SPRING	18.8 S/S
5	SCREWS	TYPE A = Steel OTHERS = Stainless Steel
6	NOTCH PLATE	TYPE A = Plated Steel OTHERS = Stainless Steel

90° BOLT-ON MULTI-POSITION NOTCH PLATE



MATERIAL
2mm Steel or stainless steel

LOCATION
4Fits between handle and valve top plate.
SUPPLIED with two plated steel retaining bolts, nuts and washers.
STANDARD SUPPLY in plated steel on DN 40~200 size valves.

40	Plated Steel STANDARD
50, 65, 80, 100, 125, 150	Plated Steel OPTIONAL 18.8 S/S OPTIONAL
200, 250, 300	Plated Steel STANDARD

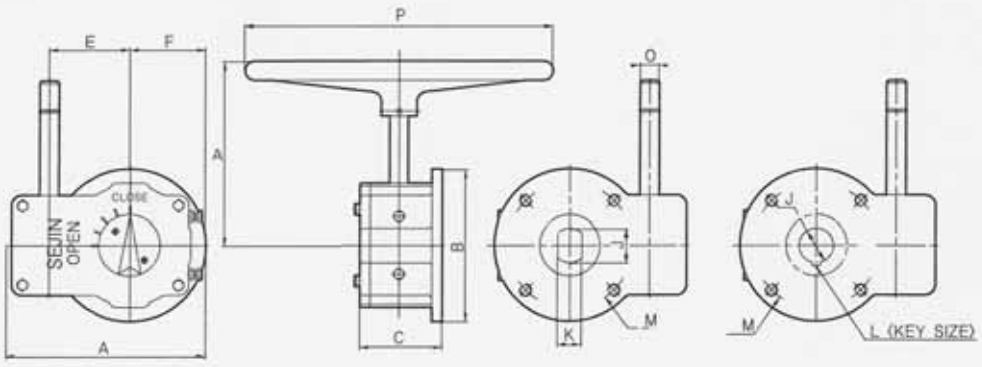
GEAR OPERATOR, SERIES GO (VALVE SIZES DN-40~1200)

USE
General purpose manual operator for on/off or throtting duties.

FEATURES
Heavy duty, weatherproof type with position indicator, grease packed, self-locking, worm and segment gearing with adjustable travelstops.

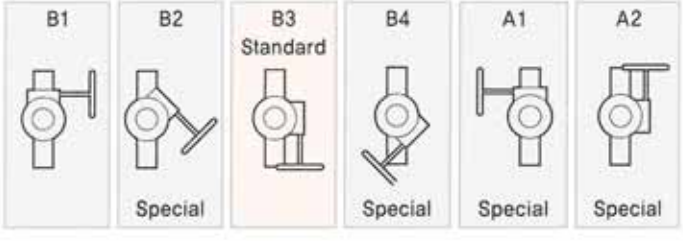
OPTIONS
- Limit switches
- Chainwheel
- Floor stands
- Padlock and chain
- Submerged duties

NOTE : See reverse side for dimensions and weights.



MODEL No.	A	B	C	D	E	F	Valve size PCD	Valve size No. of Holes	Valve size N (Tgreads)	J	K	L	O	P	ØS	Ratio	WT. (kg)
GO-24	115	90	54	140	45	45	70	4	M8	14 19	9.5 14.5	-	16	150	4.0	24:1	4.0
GO-32	165	125	64	200	66	63	102	4	M10	22 30	16.0 22.0	- 10×8	19	203	5.0	32:1	7.2
GD-48	185	175	90	225	77	88	140	4	M16	38	-	14×9	25	305	5.0	48:1	16.0
GO-68	300	210	120	300	120	105	165	4	M20	55 60	- -	16×10 16×10	28	457	6.3	68:1	32.0
GO-80	350	300	150	400	177	150	254	8	M16	60 75 80	- - -	16×10 20×12 20×12	32	700	6.3	80:1	56.0

ORIENTATIONS
STANDARD = B3 Pdsition(input shaft @90° top pipe line)
= Clockwise close valve
OPTIONAL = B1 Position (input shaft paralle to pipe line) providing handwheel clears pipe/flanges
For = A1/A2 Position(mirror reverse) lockwise opening-consuilt SEJIN

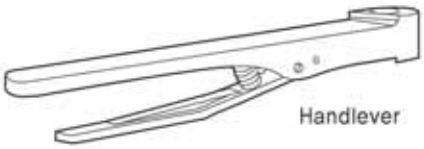


OPERATION METHODS

SEJIN VALVE for **C** series butterfly valves.
Our company endeavor ceaselessly to develop new products.
And for quality improvement.

Handlever

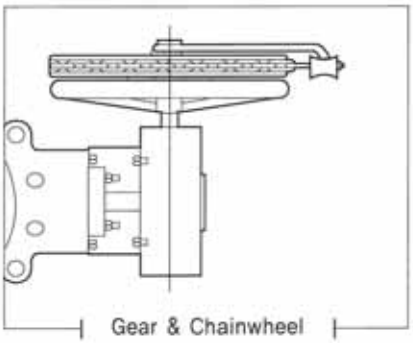
The lever operator incorporates a lockable spring loaded release arm allowing the valve to be set in intermediate positions for throttling service. A lever stop plate ensures perfect alignment between lever and disc in the closed position. Levers are fitted as standard on valves up to 12"



Handlever

Gearbox

On larger valves requiring manual operation, a gearbox is mounted directly on to the valve top flange. The gearbox incorporates position indication and travel adjustment stops.



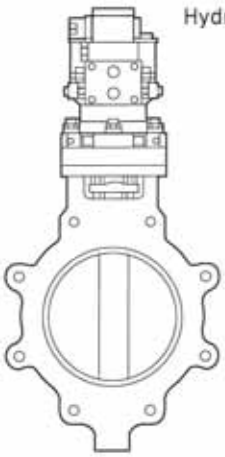
Gear & Chainwheel

Gearbox

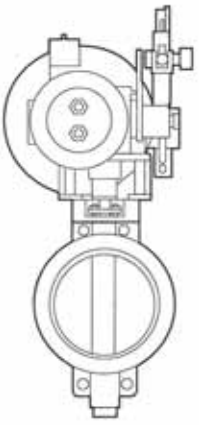
Powered Operation · Control

Pneumatic, electric or hydraulic actuators with ancillary equipment such as solenoid valves, limit switches, positioners etc., can be supplied.

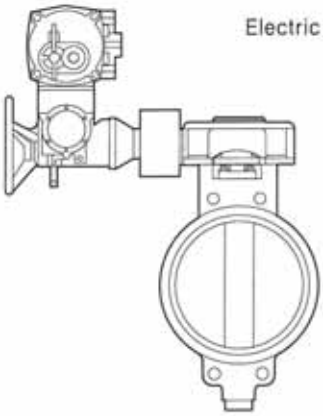
Hydraulic



Pneumatic



Electric

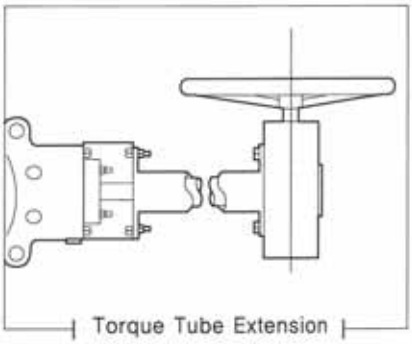


I.S.O. Mounting Flange.

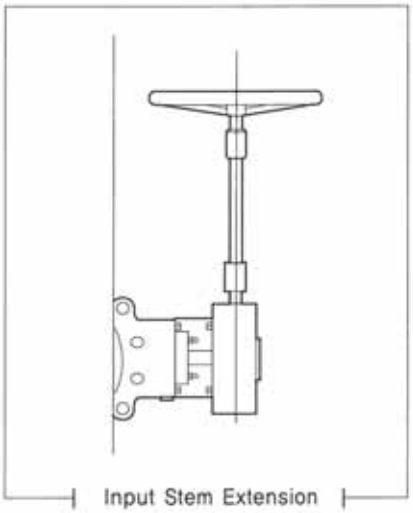
The operator mounting yoke may be adapted, by the addition of a mounting flange, to provide compatability with I.S.O 5211.

Extension

Extended stem operation and other adaptions are available as required.



Torque Tube Extension



Input Stem Extension

Center Handle Gear

The handwheel is placed of top of the valve stem facing upwards to allow greater freedom of installation and reducing space requirements.
A big benefit when using where space is limited, such as in buildings or on ship, can be obtained.

ANSI	B 16.5	Steel pipeline flanges
	B 16.34	Steel valves
MSS	SP-6	Standard finishes for pipe flanges
	SP-25	Standard marking system for valves
	SP-44	Steel pipeline flanges
	SP-55	Quality standard for steel castings
	SP-61	Pressure testing of steel valves
	SP-67 narrow(C1-D1)	Butterfly valves
API	598	Valve inspections and testing
	609	Butterfly valves Wafer and LUG type (face-to-face on valve)
ISO	7005	Meatallic flanges
	5208	Industrial valves - pressure testing of valves
	5209	General purpose industrial valves - marking
	5211/1	Part-turn valve actuator attachment - top flange dimensions
	5752 Tab.5 (20 series)	Face-to-face and centre-to-face dimensions
DIN	3202-K1	Face-to-face dimensions
	50049-2.2	Certificates on material tests (standard)
	50049-3.1B	Certificates on material tests (on request)
BS	5155 short	Butterfly valves for general purposes
AWWA	C504	Rubber Seated Butterfly valves
JIS	B2002	Face to Face dimensions
	B2003	valve Test

INSPECTION AND TESTING ACCORDING AS ISO 5208, MSS SP61, AWWA C, 504. JIS B 2003 API 598 and BS 5155

The body test is performed at 1.5 time of the nominal pressure while the Seat Test at 1.1 time of the nominal pressure, using for both emulsified water at room temperature. While testing, no leakage shall be noticed from the stems, as for the Body test, not from upstream to downstream, as for the Seat Test. For the Pneumatic Test with disc closed the butterfly is covered with water and soap on that side where the visual control of the seal is performed, in order to show up a possible leak. SEJIN's valves are tested 100% before delivery.

TORQUE REQUIREMENTS

Torque plays an important part in the cost,operation and life span of butterfly valves. The following explains why.

TORQUE CHARACTERISTICS

Bearing friction,seal or seating friction,and fluid dynamic effects on the disc are primary factors in determining torque requirements for a butterfly valve. These are described below.

BEARING FRICTION TORQUE

Any unbalanced pressure across the butterfly valve disc places a direct load on the shaft bearings. The projected area of the disc decreases with valve opening, thus bearing friction varies from a maximum as the disc rotates from the closed to the fully open position.

SEAT FRICTION TORQUE

Seating friction is maximum during the first few degrees of opening (or the last few degrees of closing) and is the result of the valve disc edge action against the seat.
The seating torque acts to oppose the rotation of the disc.
The contact of the seat around the full periphery of the disc creates the bubble tight seal.

FLUID DYNAMIC TORQUE

From the dynamic standpoint, a butterfly valve disc is torque balanced only when totally closed or fully open.In all intermediate
positions,a fluid dynamic torque is present because the fluid velocity over the disc surface is always higher on the trailing edge of the disc than on the leading edge. This torque acts in a valve "disc-closing"direction, tending to reach its highest point at about 70 degrees open.

ELASTOMER GENERAL TABLE

Elastomer seats have been chosen to satisfy every service need. Application suggested derive from recommendation given by the elastomers manufacturers and are purely indicative.Since many factors influence corrosion and abrasion (type of fluid,concentration,temperature,turbulence, impurities ect.), the final choice is to be taken by the customer,based on characteristics and specific application.
COMMON

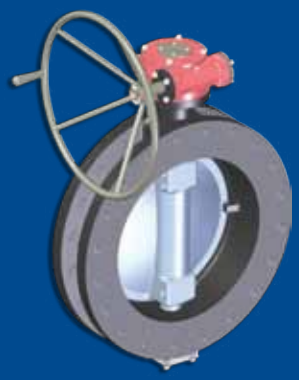
COMMON NAME	Composition (Chemical Type)	General application	Temperature limit		Other limit	Availability
EPDM (EPT) (EPR)	Ehtylene-Propyiene Diene mononer	Water-steam Sea water Brine Esters Ketone Alkalis Caustic Soda	-35°C +110°C	-30°F +230°F	Not recommended for hydrocabons-oils-fats	On stock for immediate delivery
BUNA N (Nitrile) (NBR)	Nitrile Butadiene	Hydrocarbons Natural Gas Oils and fat Air Gasoline	-18°C +100°C	0°F +212°F	Not recommended for solvents-Benzzene-Xylol	On stock for immediate delivery
Neoprene	Chioro Butadiene	Fats Oils Diluted mineral acids Alkalis	-18°C +90°C	0°F +194°F	Not recommended for solvents-Benzzene-Xylol	On stock in limited quantities
Hypalon	Chlorosulfanated Polyethylene	Mineral acids Organic acids Oxidising substances Fats	-18°C +100°C	0°F +212°F	Not recommended for Nitric acid-Steam Ketones	On stock in limited quantities
Viton	Fluorocarbon polymer	Acids Oils Hydrocarbons	-10°C +160°C	14°F +320°F	Not recommended for Steam-Freon 22 Solvents-Ketones-Esters-Alkalis	On stock in limited quantities
Natural rubber	Latex (vegetable)	Abrasive products	-35°C +160°C	-30°F +320°F	Not recommended for Steam Oils-Hydrocabons	On stock in limited quantities
Silicone	Organic silicone Polymer	Food & Beverage	-35°C +150°C	-22°F +300°F	Not recommended for Steam Sovents-Hydrocabons	On stock in limited quantities

Note : 1. * For pipe conveying oil, the flange needs 8 studs instead of 4
2. Vlave bodies in thread according to ANSI B 1. 1 type UNC up to 1" size for holes 1"1/8 and larger thread wih be 8 UN

DOUBLE - OFFSET BUTTERFLY VALVES

ASME Class 150, 300

BFO-DDF Series



DOUBLE FLANGE TYPE

18~21P

STANDARD FEATURES	FEATURES UPON REQUEST
Double-offset Disc Rotation	
ASME Class 150, 300	
SIZE : 3"~60" (Short, Long Pattern)	SIZE : 66"~144"
END CONNECTION : Raised Face	
SEAT : Rubber	SEAT : EPDM, Teflon, Metal
MATERIALS : Cabon steel, Stainless steel	MATERIALS : Nickel Alloys
Manual Gear Operation	Actuators(Pneumatic,Hydraulic,Electric)

BFO-DLF Series

LUG TYPE

22-25P

STANDARD FEATURES	FEATURES UPON REQUEST
Double-offset Disc Rotation	
ASME Class 150, 300	
SIZE : 3"~60" (Short, Long Pattern)	SIZE : 66"~144"
END CONNECTION : Raised Face	
SEAT : Rubber	SEAT : EPDM, Teflon, Metal
MATERIALS : Cabon steel, Stainless steel	MATERIALS : Nickel Alloys
Manual Gear Operation	Actuators(Pneumatic,Hydraulic,Electric)

BFO-DWF Series

WAFER TYPE

26-29P

STANDARD FEATURES	FEATURES UPON REQUEST
Double-offset Disc Rotation	
ASME Class 150, 300	
SIZE : 3"~60" (Short, Long Pattern)	SIZE : 66"~144"
END CONNECTION : Raised Face	
SEAT : Rubber	SEAT : EPDM, Teflon, Metal
MATERIALS : Cabon steel, Stainless steel	MATERIALS : Nickel Alloys
Manual Gear Operation	Actuators(Pneumatic,Hydraulic,Electric)

REFERENCE DATA

30P

BUTTERFLY VALVES
TRIPLE-OFFSET

Double-Flanged Type
ASME Class 150, 300, 600

Standard Specification

STANDARD DESIGN	API 609
FACE-TO-FACE DIMENSIONS	API 609
END FLANGE DIMENSIONS	ASME B16.5 / B16.47 Series A
PRESSURE AND TEMPERATURE RATINGS BODY THICKNESS	ASME B16.34, API 609
TEST & INSPECTION	API 609, API 598
MATERIAL	ASTM Material Specifications as per ASME B16.34

Design Features

- TRIPLE-OFFSET DISC ROTATION
- ONE-PIECE SHAFT DESIGN
- HARD FACED SEAT
- METAL-TO-METAL SEAT SEALING
- SHORT, LONG PATTERN DESIGN
- FIRE SAFE DESIGN
- CRYOGENIC TYPE DESIGN (OPTION)
- SPECIAL FLANGS OR END CONNECTIONS
- ACTUATORS (PNEUMATIC, HYDRAULIC, ELECTRIC)

Product Range

ASME B16.5 / B16.47 Series A, Class 150, 300	3" ~ 60" (SHORT PATTERN)
ASME B16.5 / B16.47 Series A, Class 600	3" ~ 24" (SHORT PATTERN)
ASME B16.5 / B16.47 Series A, Class 150, 300, 600	3" ~ 36" (LONG PATTERN)

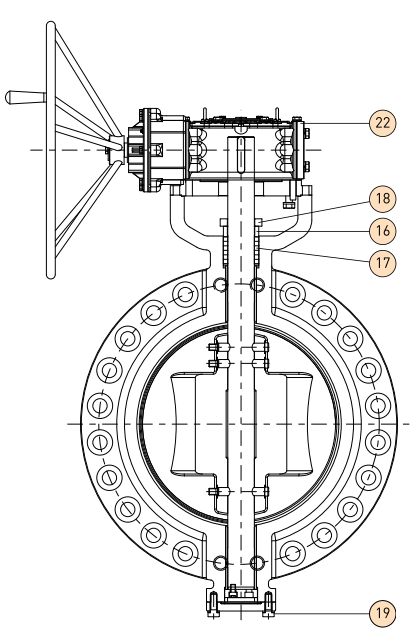
Materials (Applicable ASTM Specification)

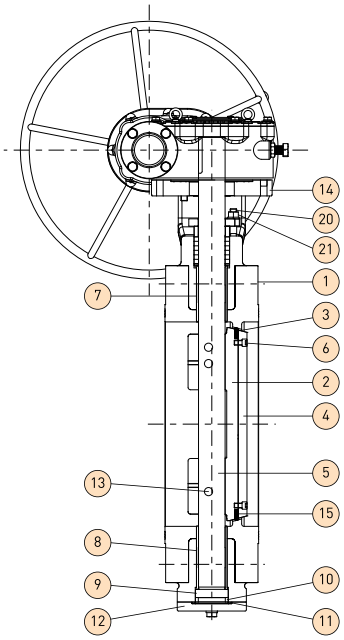
Cabon Steel	A105, A216 WCB, A216 WCC
Low Temperature Cabon Steel	A350 LF2, A352 LCB, A352 LCC
Austenitic Stainless Steel	A182 F304, A182 F316, A351 CF8, A351 CF8M
Duplex Stainless Steel	A182 F51 (UNS S31803), A182 F53 (UNS S32750), A182 F55 (UNS S32760)
Nickel Alloys	Inconel 625 (UNS N06625), Monel 400 (UNS N04400)

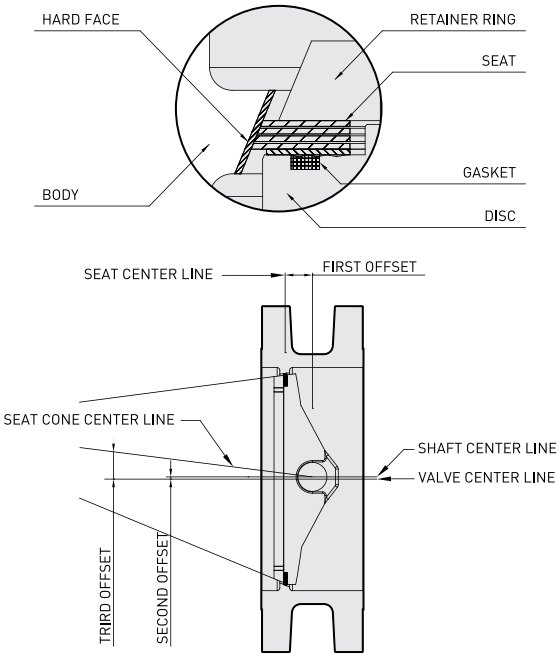
Pressure Testing (Working & Test Pressure at Ambient Temperature)

CLASS	Working Pressure		Hydrostatic Shell Test		Hydrostatic Seat Test		Air Seat Test		Duration of Required Test Pressure (API 598 Standard)	
	bar	psi	bar	psi	bar	psi	bar	psi	size (NPS)	Test Time (sec)
ASME 150	19	275	29	413	21	303	6	100	2" ~ 6"	60
ASME 300	50	720	75	1080	56	792	6	100	8" ~ 12"	120
ASME 600	99	1440	149	2160	109	1584	6	100	≥14	120

BFO-TDF Series







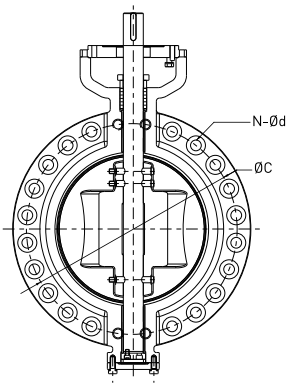
TRIPLE-OFFSET GEOMETRY

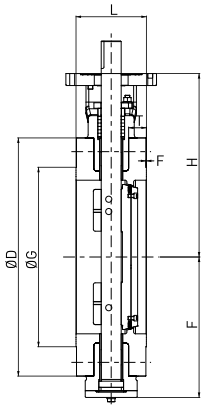
Parts List	No.	Parts Name	Standard Materials Specification		
			Cabon Steel	Austenitic Stainless Steel	Duplex Stainless Steel
	1	BODY	A216 WCB	A351 CF8M	A995 4A(S31803)
	2	DISC	A351 CF8	A351 CF8M	A995 4A(S31803)
	3	SEAT	SS316+GRAPHITE	SS316+GRAPHITE	DUPLEX + GRAPHITE
	4	SHAFT	A276 304A	A276 316	A182 F51
	5	RETAINER	240 304	A240 316	S31803
	6	SOCKET BOLT	A197 B8	A320 B8M	A320 B8M
	7	BUSING-TOP	A276 304	A276 316	A182 F51
	8	BUSING-BOTTOM	A276 304	A276 316	A182 F51
	9	THRUST BEARING	A276 304	A276 316	A182 F51
	10	COLLER	A276 304	A276 316	A182 F51
	11	GASKET-COVER	SS316+GRAPHITE	SS316+GRAPHITE	DUPLEX + GRAPHITE
	12	COVER	A36	A240 316	A182 F51
	13	DISC PIN	A276 304	A276 316	A182 F51
	14	FLANGE-TOP	A36	A240 316	A240 316
	15	GASKET-SEAT	SS316+GRAPHITE	SS316+GRAPHITE	DUPLEX + GRAPHITE
	16	GLAND BUSING	A276 304	A276 316	A182 F51
	17	PACKING	GRAPHITE	GRAPHITE	GRAPHITE
	18	PACKING GLAND	A276 304	A276 316	A240 316
	19	BOLT-COVER	A193 B8	A320 B8M	A193 B8M
	20	BOLT-GLAND	A193 B7	A320 B8M	A193 B8M
	21	NUT-GLAND	A194 2H	A320 8M	A194 8M
	22	GEAR BOX	-	-	-

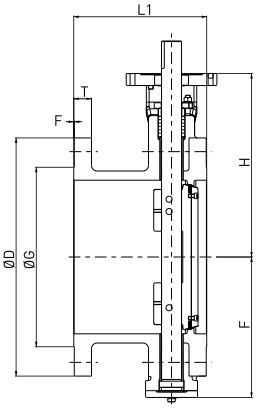
Double-Flanged Type

ASME B16.5 Class 150, 300, 600

BFO-TDF Series (Short, Long Pattern)







Dimensions and Weights

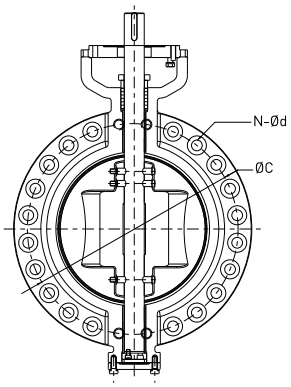
SIZE		CLASS	DIMENSIONS (mm)								Diameter of Bolt Circle (ϕC)	Number of Bolt (N)	Diameter of Bolt Holes (ϕd)	Diameter of Bolt	Bolt Length	Approx Weight (kg)	
DN	NPS		L (Short)	L1 (Long)	F	H	ϕD	ϕG	T	F						Short	Long
80	3"	150	114	203	137	208	190	127	23.9	2	152.4	4	19	5/8"	105	32	
		300	180	282	139	208	210	127	28.4	2	168.3	8	23	3/4"	121	36	
		600	180	356	143	208	210	127	31.8	7	168.3	8	23	3/4"	127	43	
100	4"	150	127	229	155	213	230	157.2	23.9	2	190.5	8	19	5/8"	105	37	
		300	190	305	166	233	255	157.2	31.8	2	200	8	23	3/4"	127	46	
		600	190	432	182	275	275	157.2	38.1	7	215.9	8	26	7/8"	150	69	
150	6"	150	140	267	170	263	280	215.9	25.4	2	241.3	8	23	3/4"	115	48	
		300	210	403	203	293	320	215.9	36.6	2	269.9	12	23	3/4"	140	76	
		600	210	559	222	300	355	215.9	47.8	7	292.1	12	29	1"	175	135	
200	8"	150	152	292	210	308	345	269.7	28.4	2	298.5	8	23	3/4"	121	89	
		300	230	418	240	330	380	269.7	41.1	2	330.2	12	26	7/8"	155	93	
		600	230	660	248	350	420	269.7	55.6	7	349.2	12	32	1-1/8"	200	162	
250	10"	150	165	330	230	340	405	323.9	30.2	2	362	12	26	7/8"	127	112	
		300	250	457	264	375	445	323.9	47.8	2	387.4	16	29	1"	175	164	
		600	250	787	325	436	508	323.9	63.5	7	431.8	16	35	1-1/4"	220	268	
300	12"	150	178	356	280	394	483	381	31.8	2	431.8	12	26	7/8"	135	161	
		300	270	502	299	419	521	381	50.8	2	450.8	16	32	1-1/8"	185	222	
		600	270	838	348	455	559	381	66.5	7	489	20	35	1-1/4"	230	369	
350	14"	150	190	381	308	435	533	412.8	35.1	2	476.3	12	29	1"	150	228	
		300	290	762	349	485	584	412.8	53.8	2	514.4	20	32	1-1/8"	195	298	
		600	290	889	378	485	603	412.8	69.9	7	527	20	38	1-3/8"	235	364	
400	16"	150	216	406	345	480	597	469.9	36.6	2	539.8	16	29	1"	150	303	
		300	310	838	389	499	648	469.9	57.2	2	571.5	20	35	1-1/4"	210	357	
		600	310	991	425	515	686	469.9	76.2	7	603.2	20	42	1-1/2"	260	632	
450	18"	150	222	432	383	517	635	533.4	39.6	2	577.9	16	32	1-1/8"	160	364	
		300	330	914	430	530	711	533.4	60.5	2	628.6	24	35	1-1/4"	215	499	
		600	330	1092	458	552	743	533.4	82.6	7	654	20	45	1-5/8"	275	739	
500	20"	150	229	457	393	543	699	584.2	42.9	2	635	20	32	1-1/8"	175	499	
		300	350	991	471	597	775	584.2	63.5	2	685.8	24	35	1-1/4"	230	621	
		600	350	1194	500	658	813	584.2	88.9	7	723.9	24	45	1-5/8"	290	879	
600	24"	150	267	508	470	622	813	692.2	47.8	2	749.3	20	35	1-1/4"	185	699	
		300	390	1143	553	695	914	692.2	69.9	2	812.8	24	42	1-1/2"	260	910	
		600	390	1397	560	725	940	692.2	101.6	7	838.2	24	51	1-7/8"	335	1423	

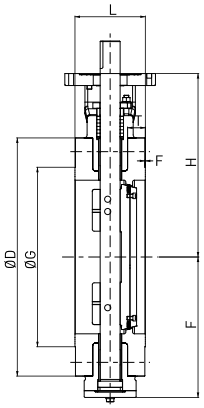
Double-Flanged Type

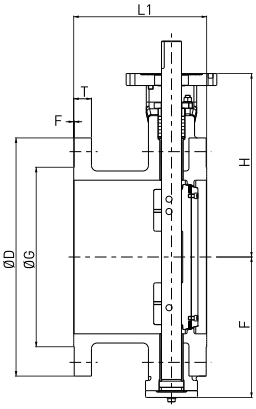
ASME B16.47 Series-A Class 150, 300, 600

BUTTERFLY VALVES
TRIPLE-OFFSET

BFO-TDF Series (Short, Long Pattern)







Dimensions and Weights

SIZE		CLASS	DIMENSIONS (mm)								Diameter of Bolt Circle (ϕC)	Number of Bolt (N)	Diameter of Bolt Holes (ϕd)	Diameter of Bolt	Bolt Length	Approx Weight (kg)	
DN	NPS		L (Short)	L1 (Long)	F	H	ϕD	ϕG	T	F						Short	Long
650	26"	150	292	559	490	635	870	749	68.7	2	806.5	24	35	1-1/4"			
		300	410	1245			970	749	84.6	2	876.3	28	45	1-5/8"			
		600		1448			1015	749	132.5	7	914.4	28	51	1-7/8"			
700	28"	150	292	610	555	686	925	800	71.9	2	863.6	28	35	1-1/4"		860	
		300	430	1346			1035	800	90.9	2	939.8	28	45	1-5/8"		1417	
		600		1549			1075	800	137.8	7	965.2	28	54	2"			
750	30"	150	318	610	580	711	985	857	75.1	2	914.4	28	35	1-1/4"		1085	
		300	450	1397			1090	857	95.7	2	997	28	48	1-3/4"		1715	
		600		1651	705	815	1130	857	146.7	7	1022.4	28	54	2"			
800	32"	150	318	660	620	760	1060	914	81.4	2	977.9	28	42	1-1/2"		1241	
		300	470	1524			1150	914	100.5	2	1054.1	28	51	1-7/8"		1957	
		600		1778	725	870	1195	914	154.7	7	1079.5	28	61	2-1/4"			
850	34"	150	318		660	800	1110	965	83	2	1028.7	32	42	1-1/2"			
		300					1205	965	105.2	2	1104.9	28	51	1-7/8"			
		600					1245	965	161	7	1130.3	28	61	2-1/4"			
900	36"	150	330	711	676	845	1170	1022	90.9	2	1085.9	32	42	1-1/2"		1716	
		300	510	1727			1270	1022	111.6	2	1168.4	32	54	2"		2590	
		600		2083			1315	1022	169	7	1193.8	28	67	2-1/2"			
950	38"	150	410		712	870	1240	1073	87.8	2	1149.4	32	42	1-1/2"			
		300	530				1170	1029	108.4	2	1092.2	32	42	1-1/2"			
		600					1270	1054	162	7	1162	28	61	2-1/4"			
1000	40"	150	410		757	915	1290	1124	90.9	2	1200.2	36	42	1-1/2"		2208	
		300	550				1240	1086	114.8	2	1155.7	32	45	1-5/8"		2585	
		600					1320	1111	169	7	1212.9	32	61	2-1/4"			
1050	42"	150	410		784	920	1345	1194	97.3	2	1257.3	36	42	1-1/2"		2488	
		300	570				1290	1137	119.5	2	1206.5	32	45	1-5/8"		2849	
		600					1405	1168	178.5	7	1282.7	28	67	2-1/2"			
1100	44"	150	470		824	975	1405	1245	102.1	2	1314.5	40	42	1-1/2"			
		300					1355	1194	124.3	2	1263.7	32	48	1-3/4"			
		600					1455	1226	184.8	7	1333.5	32	67	2-1/2"			
1200	48"	150	470		862	1052	1510	1359	108.4	2	1422.4	44	42	1-1/2"		3440	
		300	630				1465	1302	133.8	2	1371.6	32	51	1-7/8"		4106	
		600					1595	1334	202.3	7	1460.5	32	74	2-3/4"			

* Please contact the sales office.

Lug Type
ASME Class 150, 300, 600

Standard Specification

STANDARD DESIGN	API 609
FACE-TO-FACE DIMENSIONS	API 609
END FLANGE DIMENSIONS	ASME B16.5 / B16.47 Series A
PRESSURE AND TEMPERATURE RATINGS BODY THICKNESS	ASME B16.34, API 609
TEST & INSPECTION	API 609, API 598
MATERIAL	ASTM Material Specifications as per ASME B16.34

Design Features

- TRIPLE-OFFSET DISC ROTATION
- ONE-PIECE SHAFT DESIGN
- HARD FACED SEAT
- METAL-TO-METAL SEAT SEALING
- FIRE SAFE DESIGN
- CRYOGENIC TYPE DESIGN (OPTION)
- SPECIAL FLANGS OR END CONNECTIONS
- ACTUATORS (PNEUMATIC, HYDRAULIC, ELECTRIC)

Product Range

ASME B16.5 / B16.47 Series A, Class 150	3" ~ 48"
ASME B16.5 / B16.47 Series A, Class 300	3" ~ 36"
ASME B16.5 / B16.47 Series A, Class 600	3" ~ 24"

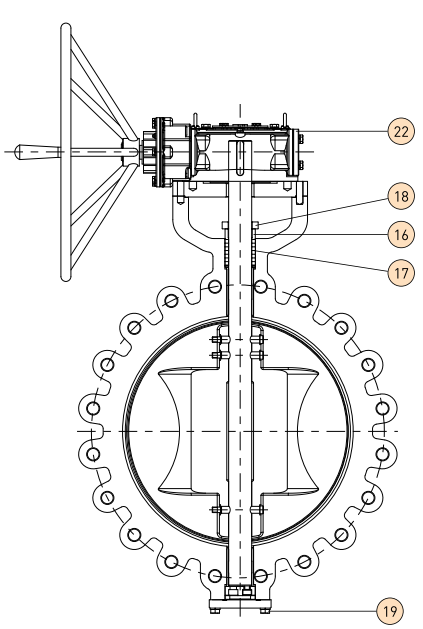
Materials (Applicable ASTM Specification)

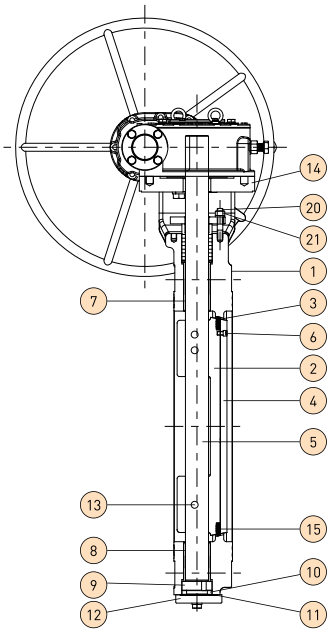
Cabon Steel	A105, A216 WCB, A216 WCC
Low Temperature Cabon Steel	A350 LF2, A352 LCB, A352 LCC
Austenitic Stainless Steel	A182 F304, A182 F316, A351 CF8, A351 CF8M
Duplex Stainless Steel	A182 F51 (UNS S31803), A182 F53 (UNS S32750), A182 F55 (UNS S32760)
Nickel Alloys	Inconel 625 (UNS N06625), Monel 400 (UNS N04400)

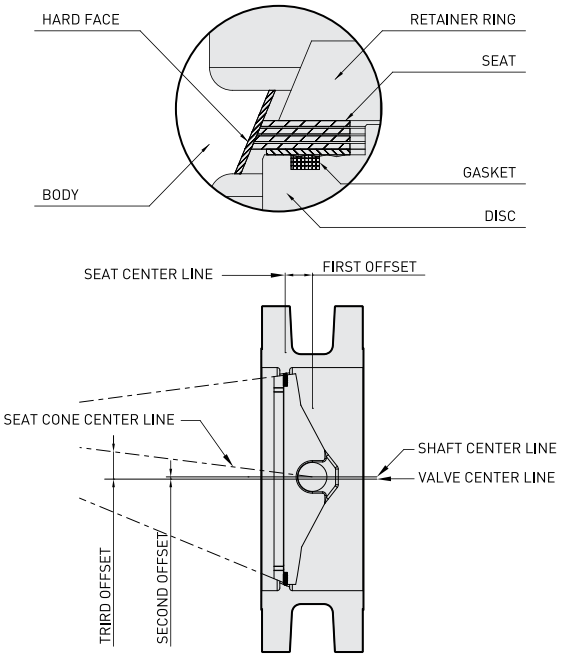
Pressure Testing (Working & Test Pressure at Ambient Temperature)

CLASS	Working Pressure		Hydrostatic Shell Test		Hydrostatic Seat Test		Air Seat Test		Duration of Required Test Pressure (API 598 Standard)	
	bar	psi	bar	psi	bar	psi	bar	psi	size (NPS)	Test Time (sec)
ASME 150	19	275	29	413	21	303	6	100	2" ~ 6"	60
ASME 300	50	720	75	1080	56	792	6	100	8" ~ 12"	120
ASME 600	99	1440	149	2160	109	1584	6	100	≥14	120

BFO-TLF Series







TRIPLE-OFFSET GEOMETRY

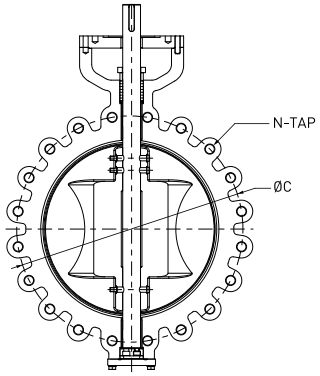
Parts List

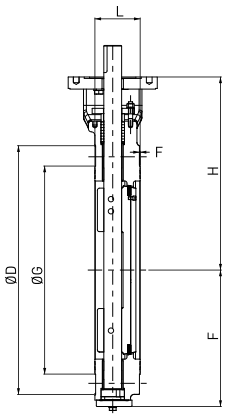
No.	Parts Name	Standard Materials Specification		
		Cabon Steel	Austenitic Stainless Steel	Duplex Stainless Steel
1	BODY	A216 WCB	A351 CF8M	A995 4A(S31803)
2	DISC	A351 CF8	A351 CF8M	A995 4A(S31803)
3	SEAT	SS316+GRAPHITE	SS316+GRAPHITE	DUPLEX + GRAPHITE
4	SHAFT	A276 304	A276 316	A182 F51
5	RETAINER	A240 304	A240 316	S31803
6	SOCKET BOLT	A197 B8	A320 B8M	A320 B8M
7	BUSING-TOP	A276 304	A276 316	A182 F51
8	BUSING-BOTTOM	A276 304	A276 316	A182 F51
9	THRUST BEARING	A276 304	A276 316	A182 F51
10	COLLER	A276 304	A276 316	A182 F51
11	GASKET-COVER	SS316+GRAPHITE	SS316+GRAPHITE	DUPLEX + GRAPHITE
12	COVER	A36	A240 316	A182 F51
13	DISC PIN	A276 304	A276 316	A182 F51
14	FLANGE-TOP	A36	A240 316	A240 316
15	GASKET-SEAT	SS316+GRAPHITE	SS316+GRAPHITE	DUPLEX + GRAPHITE
16	GLAND BUSING	A276 304	A276 316	A182 F51
17	PACKING	GRAPHITE	GRAPHITE	GRAPHITE
18	PACKING GLAND	A276 304	A276 316	A240 316
19	BOLT-COVER	A193 B8	A320 B8M	A193 B8M
20	BOLT-GLAND	A193 B7	A320 B8M	A193 B8M
21	NUT-GLAND	A194 2H	A320 8M	A194 8M
22	GEAR BOX	-	-	-

Lug Type

ASME B16.5 Class 150, 300, 600

BFO-TLF Series





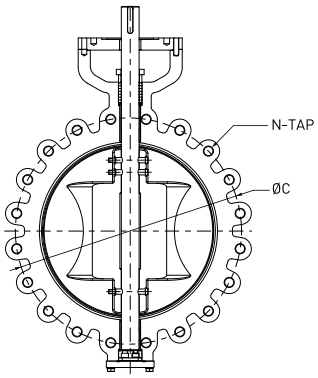
Dimensions and Weights

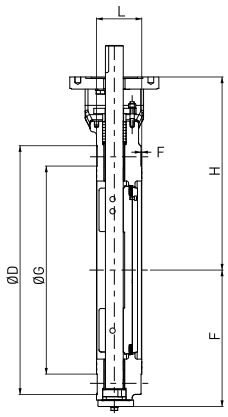
SIZE		CLASS	DIMENSIONS (mm)							Diameter of Bolt Circle (ϕC)	Number of Bolt (N)	Diameter of Bolt Holes (ϕd)	Diameter of Bolt	Bolt Length	Approx Weight (kg)
DN	NPS		L	F	H	ϕD	ϕG	T	F						
80	3"	150	48	137	208	190	127		2	152.4	4	19	5/8"	105	
		300	48	139	208	210	127		2	168.3	8	23	3/4"	121	
		600	54	143	208	210	127		7	168.3	8	23	3/4"	127	
100	4"	150	54	155	213	230	157.2		2	190.5	8	19	5/8"	105	
		300	54	166	233	255	157.2		2	200	8	23	3/4"	127	
		600	64	182	275	275	157.2		7	215.9	8	26	7/8"	150	
150	6"	150	57	170	263	280	215.9		2	241.3	8	23	3/4"	115	
		300	59	203	293	320	215.9		2	269.9	12	23	3/4"	140	
		600	78	222	300	355	215.9		7	292.1	12	29	1"	175	
200	8"	150	64	210	308	345	269.7		2	298.5	8	23	3/4"	121	
		300	73	240	330	380	269.7		2	330.2	12	26	7/8"	155	
		600	102	248	350	420	269.7		7	349.2	12	32	1-1/8"	200	
250	10"	150	71	230	340	405	323.9		2	362	12	26	7/8"	127	
		300	83	264	375	445	323.9		2	387.4	16	29	1"	175	
		600	117	325	436	508	323.9		7	431.8	16	35	1-1/4"	220	
300	12"	150	81	280	394	483	381		2	431.8	12	26	7/8"	135	
		300	92	299	419	521	381		2	450.8	16	32	1-1/8"	185	
		600	140	348	455	559	381		7	489	20	35	1-1/4"	230	
350	14"	150	92	308	435	533	412.8		2	476.3	12	29	1"	150	
		300	117	349	485	584	412.8		2	514.4	20	32	1-1/8"	195	
		600	155	378	485	603	412.8		7	527	20	38	1-3/8"	235	
400	16"	150	102	345	480	597	469.9		2	539.8	16	29	1"	150	
		300	133	389	499	648	469.9		2	571.5	20	35	1-1/4"	210	
		600	178	425	515	686	469.9		7	603.2	20	42	1-1/2"	260	
450	18"	150	114	383	517	635	533.4		2	577.9	16	32	1-1/8"	160	
		300	149	430	530	711	533.4		2	628.6	24	35	1-1/4"	215	
		600	200	458	552	743	533.4		7	654	20	45	1-5/8"	275	
500	20"	150	127	393	543	699	584.2		2	635	20	32	1-1/8"	175	
		300	159	471	597	775	584.2		2	685.8	24	35	1-1/4"	230	
		600	216	500	658	813	584.2		7	723.9	24	45	1-5/8"	290	
600	24"	150	154	470	622	813	692.2		2	749.3	20	35	1-1/4"	185	
		300	181	553	695	914	692.2		2	812.8	24	42	1-1/2"	260	
		600	232	560	725	940	692.2		7	838.2	24	51	1-7/8"	335	

Lug Type
ASME B16.47 Series-A Class 150, 300, 600

BUTTERFLY VALVES
TRIPLE-OFFSET

BFO-TLF Series





Dimensions and Weights

SIZE		CLASS	DIMENSIONS (mm)							Diameter of Bolt Circle (ϕC)	Number of Bolt (N)	Diameter of Bolt Holes (ϕd)	Diameter of Bolt	Bolt Length	Approx Weight (kg)
DN	NPS		L	F	H	ϕD	ϕG	T	F						
650	26"	150	165	490	635	870	749		2	806.5	24	35	1-1/4"		
		300	209	640	800	970	749		2	876.3	28	45	1-5/8"		
		600				1015	749		7	914.4	28	51	1-7/8"		
700	28"	150	165	555	686	925	800		2	863.6	28	35	1-1/4"		
		300	209	660	810	1035	800		2	939.8	28	45	1-5/8"		
		600				1075	800		7	965.2	28	54	2"		
750	30"	150	165	580	711	985	857		2	914.4	28	35	1-1/4"		
		300	241	690	825	1090	857		2	997	28	48	1-3/4"		
		600		705	815	1130	857		7	1022.4	28	54	2"		
800	32"	150	190	620	760	1060	914		2	977.9	28	42	1-1/2"		
		300	241	720	860	1150	914		2	1054.1	28	51	1-7/8"		
		600		725	870	1195	914		7	1079.5	28	61	2-1/4"		
850	34"	150	190	660	800	1110	965		2	1028.7	32	42	1-1/2"		
		300	241	740	920	1205	965		2	1104.9	28	51	1-7/8"		
		600				1245	965		7	1130.3	28	61	2-1/4"		
900	36"	150	200	676	845	1170	1022		2	1085.9	32	42	1-1/2"		
		300	300	750	930	1270	1022		2	1168.4	32	54	2"		
		600				1315	1022		7	1193.8	28	67	2-1/2"		
950	38"	150	200	712	870	1240	1073		2	1149.4	32	42	1-1/2"		
		300				1170	1029		2	1092.2	32	42	1-1/2"		
		600				1270	1054		7	1162	28	61	2-1/4"		
1000	40"	150	216	757	915	1290	1124		2	1200.2	36	42	1-1/2"		
		300				1240	1086		2	1155.7	32	45	1-5/8"		
		600				1320	1111		7	1212.9	32	61	2-1/4"		
1050	42"	150	251	784	920	1345	1194		2	1257.3	36	42	1-1/2"		
		300				1290	1137		2	1206.5	32	45	1-5/8"		
		600				1405	1168		7	1282.7	28	67	2-1/2"		
1100	44"	150	251	824	975	1405	1245		2	1314.5	40	42	1-1/2"		
		300				1355	1194		2	1263.7	32	48	1-3/4"		
		600				1455	1226		7	1333.5	32	67	2-1/2"		
1200	48"	150	276	862	1052	1510	1359		2	1422.4	44	42	1-1/2"		
		300				1465	1302		2	1371.6	32	51	1-7/8"		
		600				1595	1334		7	1460.5	32	74	2-3/4"		

* Please contact the sales office.

Wafer Type
ASME Class 150, 300, 600

Standard Specification

STANDARD DESIGN	API 609
FACE-TO-FACE DIMENSIONS	API 609
END FLANGE DIMENSIONS	ASME B16.5 / B16.47 Series A
PRESSURE AND TEMPERATURE RATINGS BODY THICKNESS	ASME B16.34, API 609
TEST & INSPECTION	API 609, API 598
MATERIAL	ASTM Material Specifications as per ASME B16.34

Design Features

- TRIPLE-OFFSET DISC ROTATION
- ONE-PIECE SHAFT DESIGN
- HARD FACED SEAT
- METAL-TO-METAL SEAT SEALING
- FIRE SAFE DESIGN
- CRYOGENIC TYPE DESIGN (OPTION)
- SPECIAL FLANGS OR END CONNECTIONS
- ACTUATORS (PNEUMATIC, HYDRAULIC, ELECTRIC)

Product Range

ASME B16.5 / B16.47 Series A, Class 150	3" ~ 48"
ASME B16.5 / B16.47 Series A, Class 300	3" ~ 36"
ASME B16.5 / B16.47 Series A, Class 600	3" ~ 24"

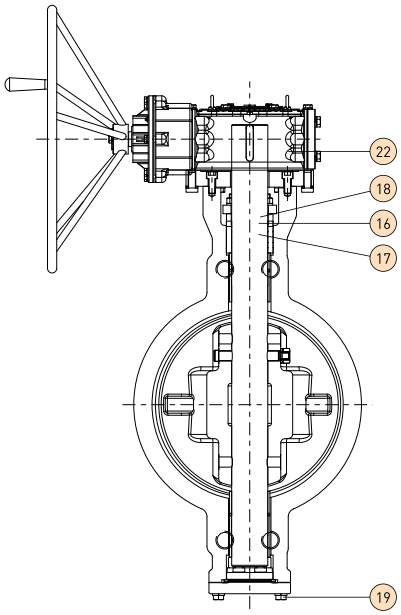
Materials (Applicable ASTM Specification)

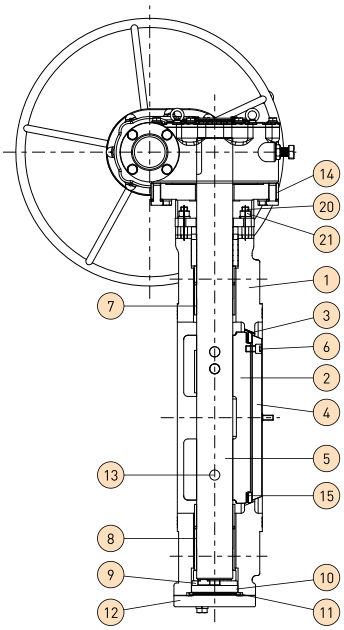
Cabon Steel	A105, A216 WCB, A216 WCC
Low Temperature Cabon Steel	A350 LF2, A352 LCB, A352 LCC
Austenitic Stainless Steel	A182 F304, A182 F316, A351 CF8, A351 CF8M
Duplex Stainless Steel	A182 F51 (UNS S31803), A182 F53 (UNS S32750), A182 F55 (UNS S32760)
Nickel Alloys	Inconel 625 (UNS N06625), Monel 400 (UNS N04400)

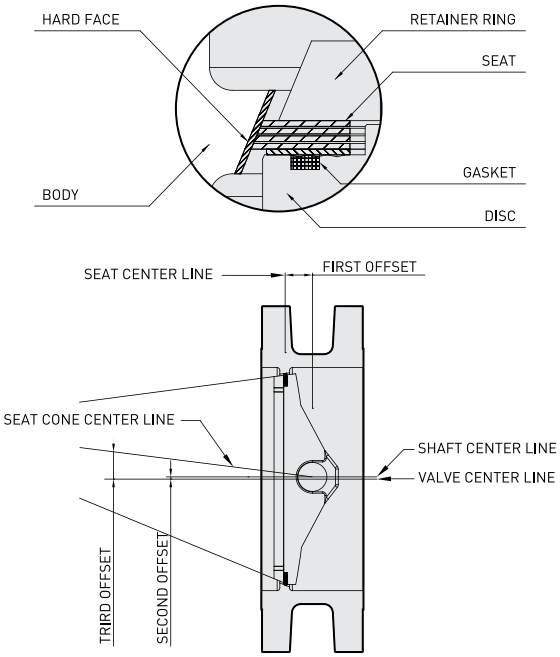
Pressure Testing (Working & Test Pressure at Ambient Temperature)

CLASS	Working Pressure		Hydrostatic Shell Test		Hydrostatic Seat Test		Air Seat Test		Duration of Required Test Pressure (API 598 Standard)	
	bar	psi	bar	psi	bar	psi	bar	psi	size (NPS)	Test Time (sec)
ASME 150	19	275	29	413	21	303	6	100	2" ~ 6"	60
ASME 300	50	720	75	1080	56	792	6	100	8" ~ 12"	120
ASME 600	99	1440	149	2160	109	1584	6	100	≥14	120

BFO-TWF Series







TRIPLE-OFFSET GEOMETRY

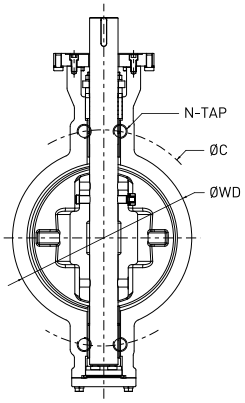
Parts List

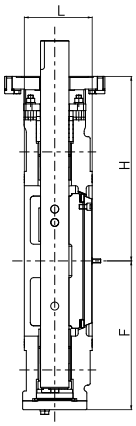
No.	Parts Name	Standard Materials Specification		
		Cabon Steel	Austenitic Stainless Steel	Duplex Stainless Steel
1	BODY	A216 WCB	A351 CF8M	A995 4A(S31803)
2	DISC	A351 CF8	A351 CF8M	A995 4A(S31803)
3	SEAT	SS316+GRAPHITE	SS316+GRAPHITE	DUPLEX + GRAPHITE
4	SHAFT	A276 304	A276 316	A182 F51
5	RETAINER	A240 304	A240 316	S31803
6	SOCKET BOLT	A197 B8	A320 B8M	A320 B8M
7	BUSING-TOP	A276 304	A276 316	A182 F51
8	BUSING-BOTTOM	A276 304	A276 316	A182 F51
9	THRUST BEARING	A276 304	A276 316	A182 F51
10	COLLER	A276 304	A276 316	A182 F51
11	GASKET-COVER	SS316+GRAPHITE	SS316+GRAPHITE	DUPLEX + GRAPHITE
12	COVER	A36	A240 316	A182 F51
13	DISC PIN	A276 304	A276 316	A182 F51
14	FLANGE-TOP	A36	A240 316	A240 316
15	GASKET-SEAT	SS316+GRAPHITE	SS316+GRAPHITE	DUPLEX + GRAPHITE
16	GLAND BUSING	A276 304	A276 316	A182 F51
17	PACKING	GRAPHITE	GRAPHITE	GRAPHITE
18	PACKING GLAND	A276 304	A276 316	A240 316
19	BOLT-COVER	A193 B8	A320 B8M	A193 B8M
20	BOLT-GLAND	A193 B7	A320 B8M	A193 B8M
21	NUT-GLAND	A194 2H	A320 8M	A194 8M
22	GEAR BOX	-	-	-

Wafer Type

ASME B16.5 Class 150, 300, 600

BFO-TWF Series

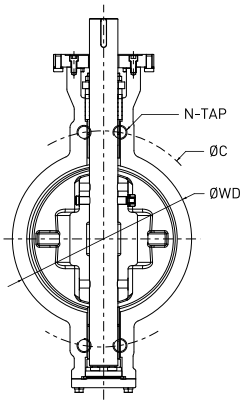


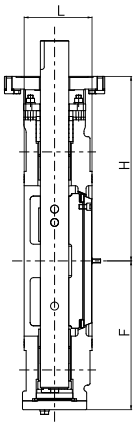


Dimensions and Weights

SIZE		CLASS	DIMENSIONS (mm)							Diameter of Bolt Circle (ϕC)	Number of Bolt (N)	Diameter of Bolt Holes (ϕd)	Diameter of Bolt	Bolt Length	Approx Weight (kg)
DN	NPS		L	F	H	ϕWD	ϕG	T	F						
80	3"	150	48	137	208					152.4	4	19	5/8"		
		300	48	139	208					168.3	4	23	3/4"		
		600	54	143	208					168.3	4	23	3/4"		
100	4"	150	54	155	213					190.5	4	19	5/8"		
		300	54	166	233					200	4	23	3/4"		
		600	64	182	275					215.9	4	26	7/8"		
150	6"	150	57	170	263					241.3	4	23	3/4"		
		300	59	203	293					269.9	4	23	3/4"		
		600	78	222	300					292.1	4	29	1"		
200	8"	150	64	210	308					298.5	4	23	3/4"		
		300	73	240	330					330.2	4	26	7/8"		
		600	102	248	350					349.2	4	32	1-1/8"		
250	10"	150	71	230	340					362	4	26	7/8"		
		300	83	264	375					387.4	4	29	1"		
		600	117	325	436					431.8	4	35	1-1/4"		
300	12"	150	81	280	394					431.8	4	26	7/8"		
		300	92	299	419					450.8	4	32	1-1/8"		
		600	140	348	455					489	4	35	1-1/4"		
350	14"	150	92	308	435					476.3	4	29	1"		
		300	117	349	485					514.4	4	32	1-1/8"		
		600	155	378	485					527	4	38	1-3/8"		
400	16"	150	102	345	480					539.8	4	29	1"		
		300	133	389	499					571.5	4	35	1-1/4"		
		600	178	425	515					603.2	4	42	1-1/2"		
450	18"	150	114	383	517					577.9	4	32	1-1/8"		
		300	149	430	530					628.6	4	35	1-1/4"		
		600	200	458	552					654	4	45	1-5/8"		
500	20"	150	127	393	543					635	4	32	1-1/8"		
		300	159	471	597					685.8	4	35	1-1/4"		
		600	216	500	658					723.9	4	45	1-5/8"		
600	24"	150	154	470	622					749.3	4	35	1-1/4"		
		300	181	553	695					812.8	4	42	1-1/2"		
		600	232	560	725					838.2	4	51	1-7/8"		

BFO-TWF Series





Dimensions and Weights

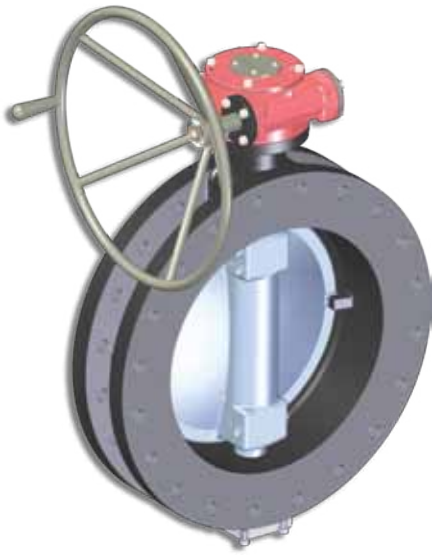
SIZE		CLASS	DIMENSIONS (mm)							Diameter of Bolt Circle (ϕC)	Number of Bolt (N)	Diameter of Bolt Holes (ϕd)	Diameter of Bolt	Bolt Length	Approx Weight (kg)
DN	NPS		L	F	H	ϕWD	ϕG	T	F						
650	26"	150	165	490	635					806.5	4	35	1-1/4"		
		300	209	640	800					876.3	4	45	1-5/8"		
		600								914.4	4	51	1-7/8"		
700	28"	150	165	555	686					863.6	4	35	1-1/4"		
		300	209	660	810					939.8	4	45	1-5/8"		
		600								965.2	4	54	2"		
750	30"	150	165	580	711					914.4	4	35	1-1/4"		
		300	241	690	825					997	4	48	1-3/4"		
		600		705	815					1022.4	4	54	2"		
800	32"	150	190	620	760					977.9	4	42	1-1/2"		
		300	241	690	825					1054.1	4	51	1-7/8"		
		600		725	870					1079.5	4	61	2-1/4"		
850	34"	150	190	660	800					1028.7	4	42	1-1/2"		
		300	241	740	920					1104.9	4	51	1-7/8"		
		600								1130.3	4	61	2-1/4"		
900	36"	150	200	676	845					1085.9	4	42	1-1/2"		
		300	300	750	930					1168.4	4	54	2"		
		600								1193.8	4	67	2-1/2"		
950	38"	150	200	712	870					1149.4	4	42	1-1/2"		
		300								1092.2	4	42	1-1/2"		
		600								1162	4	61	2-1/4"		
1000	40"	150	216	757	915					1200.2	4	42	1-1/2"		
		300								1155.7	4	45	1-5/8"		
		600								1212.9	4	61	2-1/4"		
1050	42"	150	251	784	920					1257.3	4	42	1-1/2"		
		300								1206.5	4	45	1-5/8"		
		600								1282.7	4	67	2-1/2"		
1100	44"	150	251	824	975					1314.5	4	42	1-1/2"		
		300								1263.7	4	48	1-3/4"		
		600								1333.5	4	67	2-1/2"		
1200	48"	150	276	862	1052					1422.4	4	42	1-1/2"		
		300								1371.6	4	51	1-7/8"		
		600								1460.5	4	74	2-3/4"		

* Please contact the sales office.

Double-Flanged Type
ASME Class 150, 300

Standard Specification

STANDARD DESIGN	API 609
FACE-TO-FACE DIMENSIONS	API 609
END FLANGE DIMENSIONS	ASME B16.5 / B16.47 Series A
PRESSURE AND TEMPERATURE RATINGS BODY THICKNESS	ASME B16.34, API 609
TEST & INSPECTION	API 609, API 598
MATERIAL	ASTM Material Specifications as per ASME B16.34



Design Features

- DOUBLE-OFFSET DISC ROTATION
- ONE-PIECE SHAFT DESIGN
- HARD FACED SEAT (OPTION)
- TEFLON, METAL-TO-METAL SEAT SEALING (OPTION)
- SHORT, LONG PATTERN DESIGNF
- SPECIAL FLANGS OR END CONNECTIONS
- ACTUATORS (PNEUMATIC, HYDRAULIC, ELECTRIC)

Product Range

ASME B16.5 / B16.47 Series A, Class 150, 300	3" ~ 60" (SHORT PATTERN)
ASME B16.5 / B16.47 Series A, Class 150, 300	3" ~ 36" (LONG PATTERN)

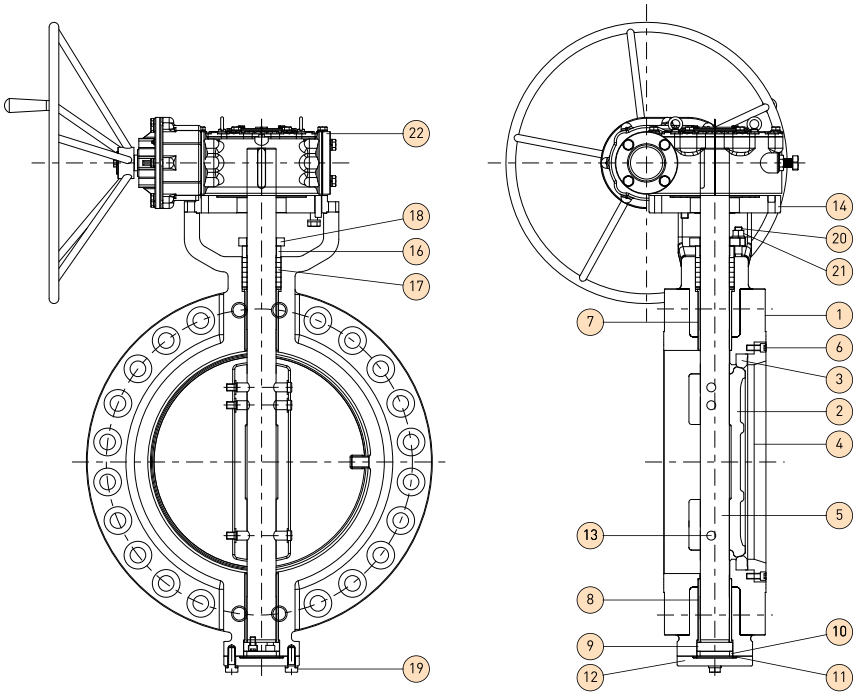
Materials (Applicable ASTM Specification)

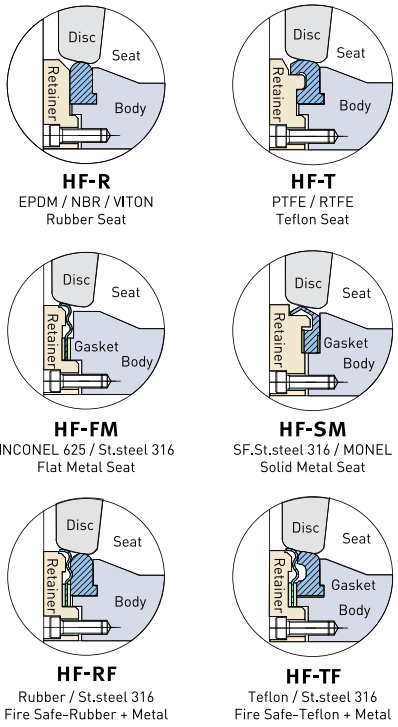
Cabon Steel	A105, A216 WCB, A216 WCC
Low Temperature Cabon Steel	A350 LF2, A352 LCB, A352 LCC
Austenitic Stainless Steel	A182 F304, A182 F316, A351 CF8, A351 CF8M
Duplex Stainless Steel	A182 F51 (UNS S31803), A182 F53 (UNS S32750), A182 F55 (UNS S32760)
Nickel Alloys	Inconel 625 (UNS N06625), Monel 400 (UNS N04400)

Pressure Testing (Working & Test Pressure at Ambient Temperature)

CLASS	Working Pressure		Hydrostatic Shell Test		Hydrostatic Seat Test		Air Seat Test		Duration of Required Test Pressure (API 598 Standard)	
	bar	psi	bar	psi	bar	psi	bar	psi	size (NPS)	Test Time (sec)
ASME 150	19	275	29	413	21	303	6	100	2" ~ 6"	60
ASME 300	50	72	75	1080	56	792	6	100	8" ~ 12"	120
									≥14	120

BFO-DDF Series





HF-R
EPDM / NBR / VITON
Rubber Seat

HF-T
PTFE / RTFE
Teflon Seat

HF-FM
INCONEL 625 / St.steel 316
Flat Metal Seat

HF-SM
SF.St.steel 316 / MONEL
Solid Metal Seat

HF-RF
Rubber / St.steel 316
Fire Safe-Rubber + Metal

HF-TF
Teflon / St.steel 316
Fire Safe-Teflon + Metal

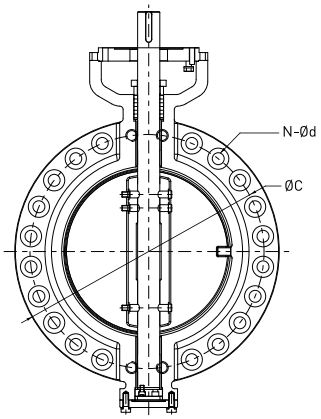
Parts List

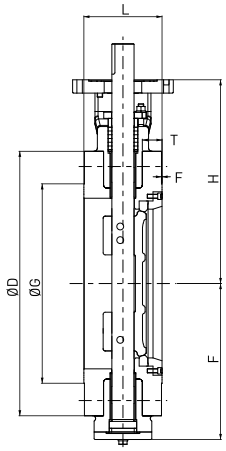
No.	Parts Name	Standard Materials Specification		
		Cabon Steel	Austenitic Stainless Steel	Duplex Stainless Steel
1	BODY	A216 WCB	A351 CF8M	A995 4A(S31803)
2	DISC	A351 CF8	A351 CF8M	A995 4A(S31803)
3	SEAT	SS316+GRAPHITE	SS316+GRAPHITE	DUPLEX + GRAPHITE
4	SHAFT	A276 304	A276 316	A182 F51
5	RETAINER	A240 304	A240 316	S31803
6	SOCKET BOLT	A197 B8	A320 B8M	A320 B8M
7	BUSING-TOP	A276 304	A276 316	A182 F51
8	BUSING-BOTTOM	A276 304	A276 316	A182 F51
9	THRUST BEARING	A276 304	A276 316	A182 F51
10	COLLER	A276 304	A276 316	A182 F51
11	GASKET-COVER	SS316+GRAPHITE	SS316+GRAPHITE	DUPLEX + GRAPHITE
12	COVER	A36	A240 316	A182 F51
13	DISC PIN	A276 304	A276 316	A182 F51
14	FLANGE-TOP	A36	A240 316	A240 316
15	GASKET-SEAT	-	-	-
16	GLAND BUSING	A276 304	A276 316	A182 F51
17	PACKING	GRAPHITE	GRAPHITE	GRAPHITE
18	PACKING GLAND	A276 304	A276 316	A240 316
19	BOLT-COVER	A193 B8	A320 B8M	A193 B8M
20	BOLT-GLAND	A193 B7	A320 B8M	A193 B8M
21	NUT-GLAND	A194 2H	A320 8M	A194 8M
22	GEAR BOX	-	-	-

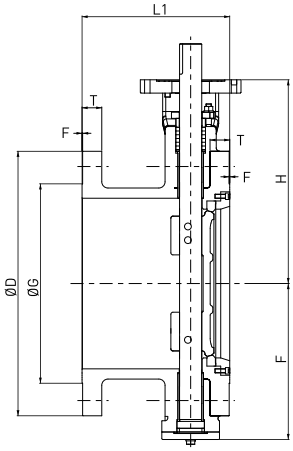
Double-Flanged Type

ASME B16.5 Class 150, 300

BFO-DDF Series (Short, Long Pattern)



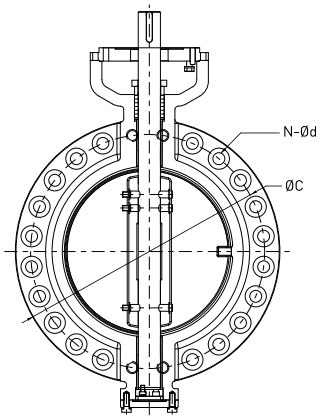


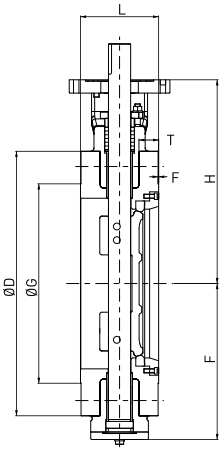


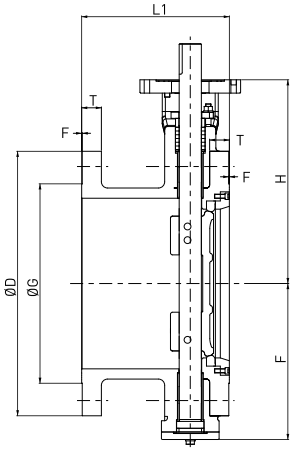
Dimensions and Weights

SIZE		CLASS	DIMENSIONS (mm)								Diameter of Bolt Circle (ϕC)	Number of Bolt (N)	Diameter of Bolt Holes (ϕd)	Diameter of Bolt	Bolt Length	Approx Weight (kg)	
DN	NPS		L (Short)	L1 (Long)	F	H	ϕD	ϕG	T	F						Short	Long
80	3"	150	114	203	137	208	190	127	23.9	2	152.4	4	19	5/8"	105	32	
		300	180	282	139	208	210	127	28.4	2	168.3	8	23	3/4"	121	36	
100	4"	150	127	229	155	213	230	157.2	23.9	2	190.5	8	19	5/8"	105	37	
		300	190	305	166	233	255	157.2	31.8	2	200	8	23	3/4"	127	46	
150	6"	150	140	267	170	263	280	215.9	25.4	2	241.3	8	23	3/4"	115	48	
		300	210	403	203	293	320	215.9	36.6	2	269.9	12	23	3/4"	140	76	
200	8"	150	152	292	210	308	345	269.7	28.4	2	298.5	8	23	3/4"	121	89	
		300	230	418	240	330	380	269.7	41.1	2	330.2	12	26	7/8"	155	93	
250	10"	150	165	330	230	340	405	323.9	30.2	2	362	12	26	7/8"	127	112	
		300	250	457	264	375	445	323.9	47.8	2	387.4	16	29	1"	175	164	
300	12"	150	178	356	280	394	483	381	31.8	2	431.8	12	26	7/8"	135	161	
		300	270	502	299	419	521	381	50.8	2	450.8	16	32	1-1/8"	185	222	
350	14"	150	190	381	308	435	533	412.8	35.1	2	476.3	12	29	1"	150	228	
		300	290	762	349	485	584	412.8	53.8	2	514.4	20	32	1-1/8"	195	298	
400	16"	150	216	406	345	480	597	469.9	36.6	2	539.8	16	29	1"	150	303	
		300	310	838	389	499	648	469.9	57.2	2	571.5	20	35	1-1/4"	210	357	
450	18"	150	222	432	383	517	635	533.4	39.6	2	577.9	16	32	1-1/8"	160	364	
		300	330	914	430	530	711	533.4	60.5	2	628.6	24	35	1-1/4"	215	499	
500	20"	150	229	457	393	543	699	584.2	42.9	2	635	20	32	1-1/8"	175	499	
		300	350	991	471	597	775	584.2	63.5	2	685.8	24	35	1-1/4"	230	621	
600	24"	150	267	508	470	622	813	692.2	47.8	2	749.3	20	35	1-1/4"	185	699	
		300	390	1143	553	695	914	692.2	69.9	2	812.8	24	42	1-1/2"	260	910	

BFO-DDF Series (Short, Long Pattern)







Dimensions and Weights

SIZE		CLASS	DIMENSIONS (mm)								Diameter of Bolt Circle (ϕC)	Number of Bolt (N)	Diameter of Bolt Holes (ϕd)	Diameter of Bolt	Bolt Length	Approx Weight (kg)	
DN	NPS		L (Short)	L1 (Long)	F	H	ϕD	ϕG	T	F						Short	Long
650	26"	150	292	559	490	635	870	749	68.7	2	806.5	24	35	1-1/4"			
		300	410	1245			970	749	84.6	2	876.3	28	45	1-5/8"			
700	28"	150	292	610	555	686	925	800	71.9	2	863.6	28	35	1-1/4"		860	
		300	430	1346			1035	800	90.9	2	939.8	28	45	1-5/8"		1417	
750	30"	150	318	610	580	711	985	857	75.1	2	914.4	28	35	1-1/4"		1085	
		300	450	1397			1090	857	95.7	2	997	28	48	1-3/4"		1715	
800	32"	150	318	660	620	760	1060	914	81.4	2	977.9	28	42	1-1/2"		1241	
		300	470	1524			1150	914	100.5	2	1054.1	28	51	1-7/8"		1957	
850	34"	150	318		660	800	1110	965	83	2	1028.7	32	42	1-1/2"			
		300					1205	965	105.2	2	1104.9	28	51	1-7/8"			
900	36"	150	330	711	676	845	1170	1022	90.9	2	1085.9	32	42	1-1/2"		1716	
		300	510	1727			1270	1022	111.6	2	1168.4	32	54	2"		2590	
950	38"	150	410		712	870	1240	1073	87.8	2	1149.4	32	42	1-1/2"			
		300	530				1170	1029	108.4	2	1092.2	32	42	1-1/2"			
1000	40"	150	410		757	915	1290	1124	90.9	2	1200.2	36	42	1-1/2"		2208	
		300	550				1240	1086	114.8	2	1155.7	32	45	1-5/8"		2585	
1050	42"	150	410		784	920	1345	1194	97.3	2	1257.3	36	42	1-1/2"		2488	
		300	570				1290	1137	119.5	2	1206.5	32	45	1-5/8"		2849	
1100	44"	150	470		824	975	1405	1245	102.1	2	1314.5	40	42	1-1/2"			
		300					1355	1194	124.3	2	1263.7	32	48	1-3/4"			
1200	48"	150	470		862	1052	1510	1359	108.4	2	1422.4	44	42	1-1/2"		3440	
		300	630				1465	1302	133.8	2	1371.6	32	51	1-7/8"		4106	

* Please contact the sales office.

Lug Type
ASME Class 150, 300

Standard Specification

STANDARD DESIGN	API 609
FACE-TO-FACE DIMENSIONS	API 609
END FLANGE DIMENSIONS	ASME B16.5 / B16.47 Series A
PRESSURE AND TEMPERATURE RATINGS BODY THICKNESS	ASME B16.34, API 609
TEST & INSPECTION	API 609, API 598
MATERIAL	ASTM Material Specifications as per ASME B16.34

Design Features

- DOUBLE-OFFSET DISC ROTATION
- ONE-PIECE SHAFT DESIGN
- HARD FACED SEAT (OPTION)
- TEFLON, METAL-TO-METAL SEAT SEALING (OPTION)
- SPECIAL FLANGS OR END CONNECTIONS
- ACTUATORS (PNEUMATIC, HYDRAULIC, ELECTRIC)

Product Range

ASME B16.5 / B16.47 Series A, Class 150	3" ~ 48"
ASME B16.5 / B16.47 Series A, Class 300	3" ~ 36"

Materials (Applicable ASTM Specification)

Cabon Steel	A105, A216 WCB, A216 WCC
Low Temperature Cabon Steel	A350 LF2, A352 LCB, A352 LCC
Austenitic Stainless Steel	A182 F304, A182 F316, A351 CF8, A351 CF8M
Duplex Stainless Steel	A182 F51 (UNS S31803), A182 F53 (UNS S32750), A182 F55 (UNS S32760)
Nickel Alloys	Inconel 625 (UNS N06625), Monel 400 (UNS N04400)

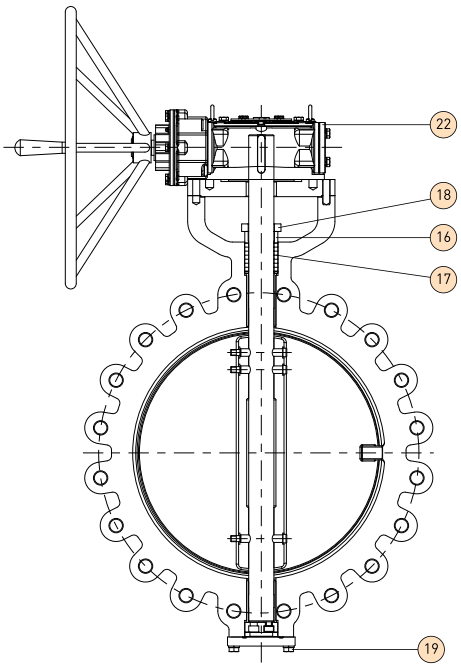
Pressure Testing (Working & Test Pressure at Ambient Temperature)

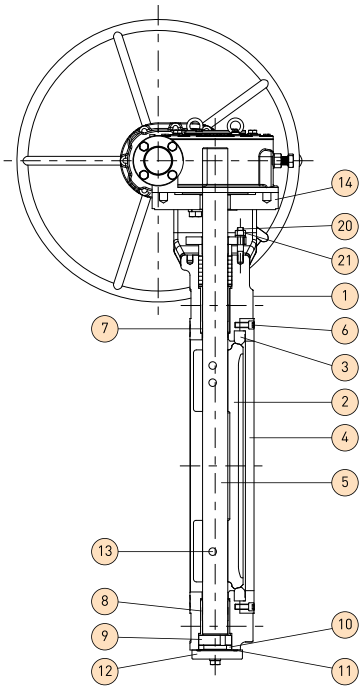
CLASS	Working Pressure		Hydrostatic Shell Test		Hydrostatic Seat Test		Air Seat Test		Duration of Required Test Pressure (API 598 Standard)	
	bar	psi	bar	psi	bar	psi	bar	psi	size (NPS)	Test Time (sec)
ASME 150	19	275	29	413	21	303	6	100	2" ~ 6"	60
ASME 300	50	720	75	1080	56	792	6	100	8" ~ 12"	120
									≥14	120

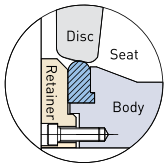
Lug Type
ASME Class 150, 300

BUTTERFLY VALVES
DOUBLE-OFFSET

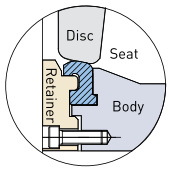
BFO-DLF Series



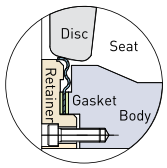




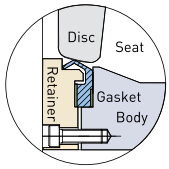
HF-R
EPDM / NBR / VITON
Rubber Seat



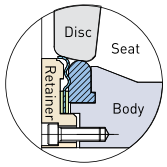
HF-T
PTFE / RTFE
Teflon Seat



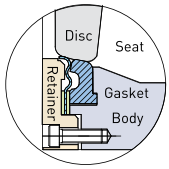
HF-FM
INCONEL 625 / St.steel 316
Flat Metal Seat



HF-SM
SF.St.steel 316 / MONEL
Solid Metal Seat



HF-RF
Rubber / St.steel 316
Fire Safe-Rubber + Metal



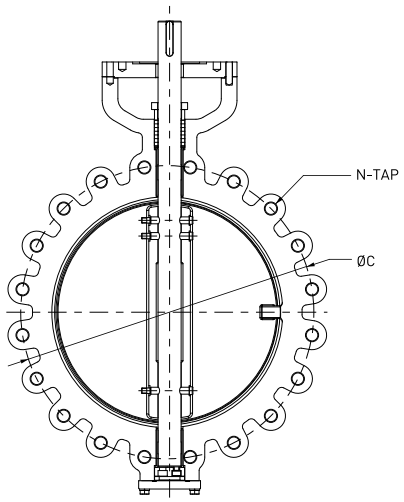
HF-TF
Teflon / St.steel 316
Fire Safe-Teflon + Metal

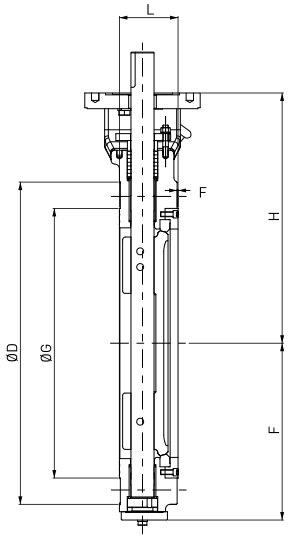
Parts List

No.	Parts Name	Standard Materials Specification		
		Cabon Steel	Austenitic Stainless Steel	Duplex Stainless Steel
1	BODY	A216 WCB	A351 CF8M	A995 4A(S31803)
2	DISC	A351 CF8	A351 CF8M	A995 4A(S31803)
3	SEAT	SS316+GRAPHITE	SS316+GRAPHITE	DUPLEX + GRAPHITE
4	SHAFT	A276 304	A276 316	A182 F51
5	RETAINER	A240 304	A240 316	S31803
6	SOCKET BOLT	A197 B8	A320 B8M	A320 B8M
7	BUSING-TOP	A276 304	A276 316	A182 F51
8	BUSING-BOTTOM	A276 304	A276 316	A182 F51
9	THRUST BEARING	A276 304	A276 316	A182 F51
10	COLLER	A276 304	A276 316	A182 F51
11	GASKET-COVER	SS316+GRAPHITE	SS316+GRAPHITE	DUPLEX + GRAPHITE
12	COVER	A36	A240 316	A182 F51
13	DISC PIN	A276 304	A276 316	A182 F51
14	FLANGE-TOP	A36	A240 316	A240 316
15	GASKET-SEAT	-	-	-
16	GLAND BUSING	A276 304	A276 316	A182 F51
17	PACKING	GRAPHITE	GRAPHITE	GRAPHITE
18	PACKING GLAND	A276 304	A276 316	A240 316
19	BOLT-COVER	A193 B8	A320 B8M	A193 B8M
20	BOLT-GLAND	A193 B7	A320 B8M	A193 B8M
21	NUT-GLAND	A194 2H	A320 8M	A194 8M
22	GEAR BOX	-	-	-

Lug Type
ASME B16.5 Class 150, 300

BFO-DLF Series





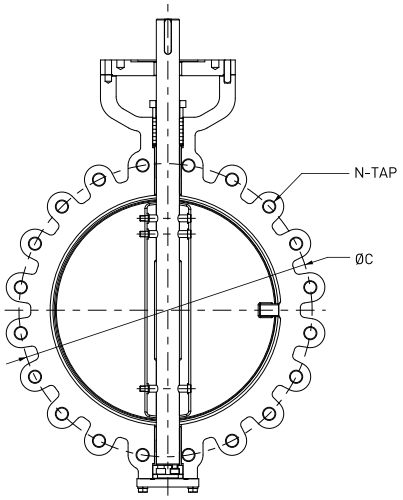
Dimensions and Weights

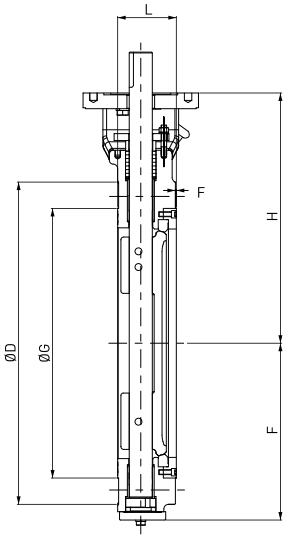
SIZE		CLASS	DIMENSIONS (mm)							Diameter of Bolt Circle (ϕC)	Number of Bolt (N)	Diameter of Bolt Holes (ϕd)	Diameter of Bolt	Bolt Length	Approx Weight (kg)
DN	NPS		L	F	H	ϕD	ϕG	T	F						
80	3"	150	48	130	190	190	127	23.9	2	152.4	4	19	5/8"	105	
		300	48			210	127	28.4	2	168.3	8	23	3/4"	121	
100	4"	150	54	149	209	230	157.2	23.9	2	190.5	8	19	5/8"	105	
		300	54	160	230	255	157.2	31.8	2	200	8	23	3/4"	127	
150	6"	150	57	175	260	280	215.9	25.4	2	241.3	8	23	3/4"	115	
		300	59	203	288	320	215.9	36.6	2	269.9	12	23	3/4"	140	
200	8"	150	64	213	298	345	269.7	28.4	2	298.5	8	23	3/4"	121	
		300	73	240	330	380	269.7	41.1	2	330.2	12	26	7/8"	155	
250	10"	150	71	247	342	405	323.9	30.2	2	362	12	26	7/8"	127	
		300	83	275	375	445	323.9	47.8	2	387.4	16	29	1"	175	
300	12"	150	81	289	394	483	381	31.8	2	431.8	12	26	7/8"	135	
		300	92	313		521	381	50.8	2	450.8	16	32	1-1/8"	185	
350	14"	150	92	321	426	533	412.8	35.1	2	476.3	12	29	1"	150	
		300	117	349		584	412.8	53.8	2	514.4	20	32	1-1/8"	195	
400	16"	150	102	357	462	597	469.9	36.6	2	539.8	16	29	1"	150	
		300	133	390	510	648	469.9	57.2	2	571.5	20	35	1-1/4"	210	
450	18"	150	114	383	498	635	533.4	39.6	2	577.9	16	32	1-1/8"	160	
		300	149	427		711	533.4	60.5	2	628.6	24	35	1-1/4"	215	
500	20"	150	127	418	533	699	584.2	42.9	2	635	20	32	1-1/8"	175	
		300	159	457	592	775	584.2	63.5	2	685.8	24	35	1-1/4"	230	
600	24"	150	154	481	596	813	692.2	47.8	2	749.3	20	35	1-1/4"	185	
		300	181	535	680	914	692.2	69.9	2	812.8	24	42	1-1/2"	260	

Lug Type
ASME B16.47 Series-A Class 150, 300

BUTTERFLY VALVES
DOUBLE-OFFSET

BFO-DLF Series





Dimensions and Weights

SIZE		CLASS	DIMENSIONS (mm)							Diameter of Bolt Circle (ϕC)	Number of Bolt (N)	Diameter of Bolt Holes (ϕd)	Diameter of Bolt	Bolt Length	Approx Weight (kg)
DN	NPS		L	F	H	ϕD	ϕG	T	F						
650	26"	150	165	490	635	870	749	68.7	2	806.5	24	35	1-1/4"		
		300	209	640	800	970	749	84.6	2	876.3	28	45	1-5/8"		
700	28"	150	165	555	686	925	800	71.9	2	863.6	28	35	1-1/4"		
		300	209	660	810	1035	800	90.9	2	939.8	28	45	1-5/8"		
750	30"	150	165	580	711	985	857	75.1	2	914.4	28	35	1-1/4"		
		300	241	690	825	1090	857	95.7	2	997	28	48	1-3/4"		
800	32"	150	190	620	760	1060	914	81.4	2	977.9	28	42	1-1/2"		
		300	241	690	825	1150	914	100.5	2	1054.1	28	51	1-7/8"		
850	34"	150	190	660	800	1110	965	83	2	1028.7	32	42	1-1/2"		
		300	241	740	920	1205	965	105.2	2	1104.9	28	51	1-7/8"		
900	36"	150	200	676	845	1170	1022	90.9	2	1085.9	32	42	1-1/2"		
		300	300	750	930	1270	1022	111.6	2	1168.4	32	54	2"		
950	38"	150	200	712	870	1240	1073	87.8	2	1149.4	32	42	1-1/2"		
		300				1170	1029	108.4	2	1092.2	32	42	1-1/2"		
1000	40"	150	216	757	915	1290	1124	90.9	2	1200.2	36	42	1-1/2"		
		300				1240	1086	114.8	2	1155.7	32	45	1-5/8"		
1050	42"	150	251	784	920	1345	1194	97.3	2	1257.3	36	42	1-1/2"		
		300				1290	1137	119.5	2	1206.5	32	45	1-5/8"		
1100	44"	150	251	824	975	1405	1245	102.1	2	1314.5	40	42	1-1/2"		
		300				1355	1194	124.3	2	1263.7	32	48	1-3/4"		
1200	48"	150	276	862	1052	1510	1359	108.4	2	1422.4	44	42	1-1/2"		
		300				1465	1302	133.8	2	1371.6	32	51	1-7/8"		

* Please contact the sales office.

Wafer Type
ASME Class 150, 300

Standard Specification

STANDARD DESIGN	API 609
FACE-TO-FACE DIMENSIONS	API 609
END FLANGE DIMENSIONS	ASME B16.5 / B16.47 Series A
PRESSURE AND TEMPERATURE RATINGS BODY THICKNESS	ASME B16.34, API 609
TEST & INSPECTION	API 609, API 598
MATERIAL	ASTM Material Specifications as per ASME B16.34

Design Features

- DOUBLE-OFFSET DISC ROTATION
- ONE-PIECE SHAFT DESIGN
- HARD FACED SEAT (OPTION)
- TEFLON, METAL-TO-METAL SEAT SEALING (OPTION)
- SPECIAL FLANGS OR END CONNECTIONS
- ACTUATORS (PNEUMATIC, HYDRAULIC, ELECTRIC)

Product Range

ASME B16.5 / B16.47 Series A, Class 150	3" ~ 48"
ASME B16.5 / B16.47 Series A, Class 300	3" ~ 36"

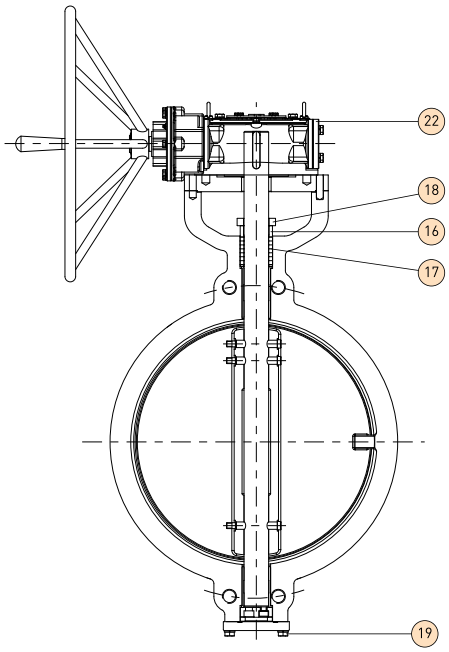
Materials (Applicable ASTM Specification)

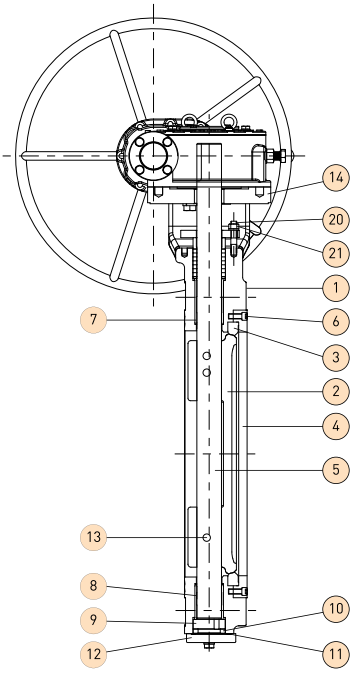
Cabon Steel	A105, A216 WCB, A216 WCC
Low Temperature Cabon Steel	A350 LF2, A352 LCB, A352 LCC
Austenitic Stainless Steel	A182 F304, A182 F316, A351 CF8, A351 CF8M
Duplex Stainless Steel	A182 F51 (UNS S31803), A182 F53 (UNS S32750), A182 F55 (UNS S32760)
Nickel Alloys	Inconel 625 (UNS N06625), Monel 400 (UNS N04400)

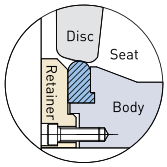
Pressure Testing (Working & Test Pressure at Ambient Temperature)

CLASS	Working Pressure		Hydrostatic Shell Test		Hydrostatic Seat Test		Air Seat Test		Duration of Required Test Pressure (API 598 Standard)	
	bar	psi	bar	psi	bar	psi	bar	psi	size (NPS)	Test Time (sec)
ASME 150	19	275	29	413	21	303	6	100	2" ~ 6"	60
ASME 300	50	720	75	1080	56	792	6	100	8" ~ 12"	120
									≥14	120

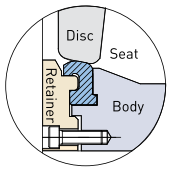
BFO-DWF Series



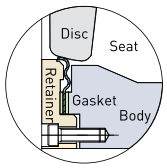




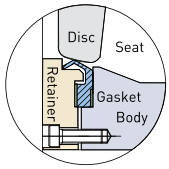
HF-R
EPDM / NBR / VITON
Rubber Seat



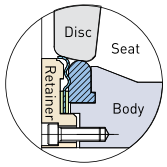
HF-T
PTFE / RTFE
Teflon Seat



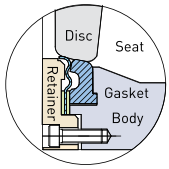
HF-FM
INCONEL 625 / St.steel 316
Flat Metal Seat



HF-SM
SF.St.steel 316 / MONEL
Solid Metal Seat



HF-RF
Rubber / St.steel 316
Fire Safe-Rubber + Metal



HF-TF
Teflon / St.steel 316
Fire Safe-Teflon + Metal

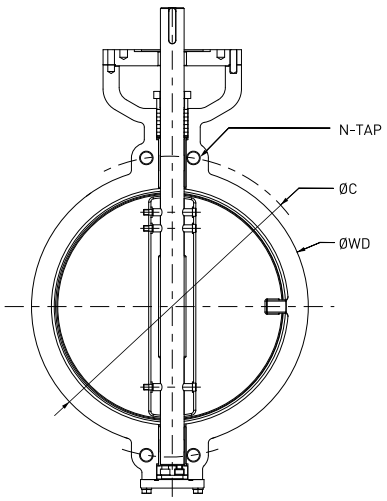
Parts List

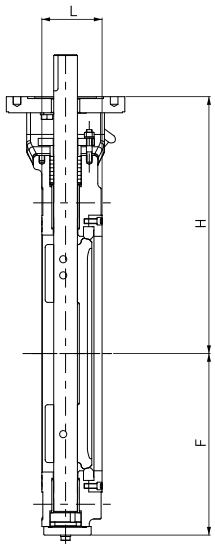
No.	Parts Name	Standard Materials Specification		
		Cabon Steel	Austenitic Stainless Steel	Duplex Stainless Steel
1	BODY	A216 WCB	A351 CF8M	A995 4A(S31803)
2	DISC	A351 CF8	A351 CF8M	A995 4A(S31803)
3	SEAT	SS316+GRAPHITE	SS316+GRAPHITE	DUPLEX + GRAPHITE
4	SHAFT	A276 304	A276 316	A182 F51
5	RETAINER	A240 304	A240 316	S31803
6	SOCKET BOLT	A197 B8	A320 B8M	A320 B8M
7	BUSING-TOP	A276 304	A276 316	A182 F51
8	BUSING-BOTTOM	A276 304	A276 316	A182 F51
9	THRUST BEARING	A276 304	A276 316	A182 F51
10	COLLER	A276 304	A276 316	A182 F51
11	GASKET-COVER	SS316+GRAPHITE	SS316+GRAPHITE	DUPLEX + GRAPHITE
12	COVER	A36	A240 316	A182 F51
13	DISC PIN	A276 304	A276 316A	A182 F51
14	FLANGE-TOP	A36	240 316	A240 316
15	GASKET-SEAT	-	-	-
16	GLAND BUSING	A276 304	A276 316	A182 F51
17	PACKING	GRAPHITE	GRAPHITE	GRAPHITE
18	PACKING GLAND	A276 304	A276 316	A240 316
19	BOLT-COVER	A193 B8	A320 B8M	A193 B8M
20	BOLT-GLAND	A193 B7	A320 B8M	A193 B8M
21	NUT-GLAND	A194 2H	A320 8M	A194 8M
22	GEAR BOX	-	-	-

Wafer Type

ASME B16.5 Class 150, 300

BFO-DWF Series

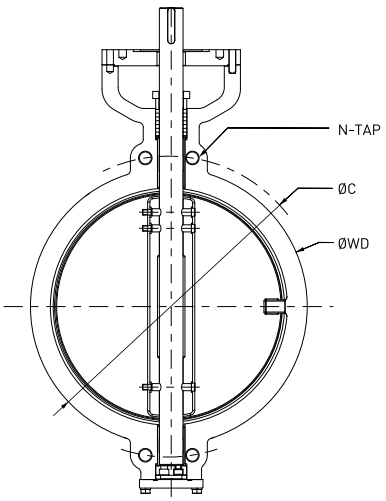


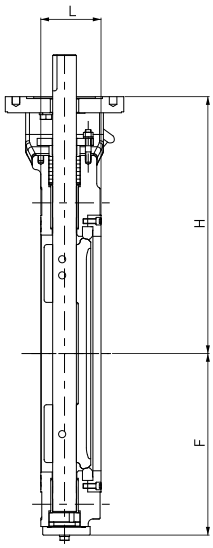


Dimensions and Weights

SIZE		CLASS	DIMENSIONS (mm)							Diameter of Bolt Circle (ϕC)	Number of Bolt (N)	Diameter of Bolt Holes (ϕd)	Diameter of Bolt	Bolt Length	Approx Weight (kg)
DN	NPS		L	F	H	ϕWD	ϕG	T	F						
80	3"	150	48	130	190					152.4	4	19	5/8"	105	
		300	48							168.3	8	23	3/4"	121	
100	4"	150	54	149	209					190.5	8	19	5/8"	105	
		300	54	160	230					200	8	23	3/4"	127	
150	6"	150	57	175	260					241.3	8	23	3/4"	115	
		300	59	203	288					269.9	12	23	3/4"	140	
200	8"	150	64	213	298					298.5	8	23	3/4"	121	
		300	73	240	330					330.2	12	26	7/8"	155	
250	10"	150	71	247	342					362	12	26	7/8"	127	
		300	83	275	375					387.4	16	29	1"	175	
300	12"	150	81	289	394					431.8	12	26	7/8"	135	
		300	92	313						450.8	16	32	1-1/8"	185	
350	14"	150	92	321	426					476.3	12	29	1"	150	
		300	117	349						514.4	20	32	1-1/8"	195	
400	16"	150	102	357	462					539.8	16	29	1"	150	
		300	133	390	510					571.5	20	35	1-1/4"	210	
450	18"	150	114	383	498					577.9	16	32	1-1/8"	160	
		300	149	427						628.6	24	35	1-1/4"	215	
500	20"	150	127	418	533					635	20	32	1-1/8"	175	
		300	159	457	592					685.8	24	35	1-1/4"	230	
600	24"	150	154	481	596					749.3	20	35	1-1/4"	185	
		300	181	535	680					812.8	24	42	1-1/2"	260	

BFO-DWF Series





Dimensions and Weights

SIZE		CLASS	DIMENSIONS (mm)							Diameter of Bolt Circle (ϕC)	Number of Bolt (N)	Diameter of Bolt Holes (ϕd)	Diameter of Bolt	Bolt Length	Approx Weight (kg)
DN	NPS		L	F	H	ϕWD	ϕG	T	F						
650	26"	150	165	490	635					806.5	24	35	1-1/4"		
		300	209	640	800					876.3	28	45	1-5/8"		
700	28"	150	165	555	686					863.6	28	35	1-1/4"		
		300	209	660	810					939.8	28	45	1-5/8"		
750	30"	150	165	580	711					914.4	28	35	1-1/4"		
		300	241	690	825					997	28	48	1-3/4"		
800	32"	150	190	620	760					977.9	28	42	1-1/2"		
		300	241	690	825					1054.1	28	51	1-7/8"		
850	34"	150	190	660	800					1028.7	32	42	1-1/2"		
		300	241	740	920					1104.9	28	51	1-7/8"		
900	36"	150	200	676	845					1085.9	32	42	1-1/2"		
		300	300	750	930					1168.4	32	54	2"		
950	38"	150	200	712	870					1149.4	32	42	1-1/2"		
		300								1092.2	32	42	1-1/2"		
1000	40"	150	216	757	915					1200.2	36	42	1-1/2"		
		300								1155.7	32	45	1-5/8"		
1050	42"	150	251	784	920					1257.3	36	42	1-1/2"		
		300								1206.5	32	45	1-5/8"		
1100	44"	150	251	824	975					1314.5	40	42	1-1/2"		
		300								1263.7	32	48	1-3/4"		
1200	48"	150	276	862	1052					1422.4	44	42	1-1/2"		
		300								1371.6	32	51	1-7/8"		

* Please contact the sales office.