JFS

BEIJING JOINT FLOW SYSTEM CO.

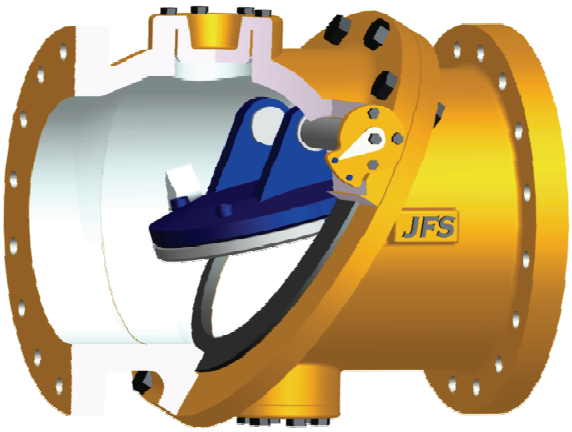
CHECK VALVE

SERIES 3 CHECK VALVE

JFS

TILTING DISC CHECK VALVE

INTRODUCTION



The tilting disc check valve shall consist of a circular disc with conical rim, hinged about a fixed pivot above its center-line and offset from the plane of the seat, sealing against a body seat clamped between the two sections of the valve body.

The body shall be two-piece, consisting of an entrance and a discharge section bolted together at an angle with the pipeline. An O-ring seal in a groove between the body flanges shall be in place to prevent leakage between the flanges when bolted together. The valve shall be complete with ANSI class flanges to mate with adjacent equipment.

A body seat shall be clamped in place in a slot between the two body sections. The body seat shall have a conical finish to mate with the disc seat. There shall be an inspection port provided in both the entrance and discharge sections to provide visual access both upstream and downstream of the disc. An indicator shall be provided to show disc position for the full range of travel. Bosses shall be cast in both the entrance and discharge sections to allow for either bottom mounted dashpot or top mounted oil dashpot for controlled opening and closing.

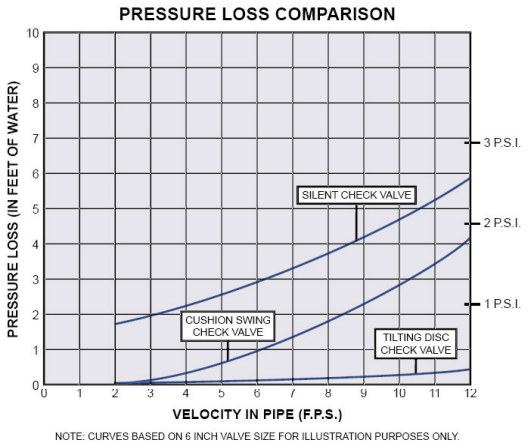
LOW HEAD-LOSS DESIGN

The Tilting Disc Check Valve offers significant energy savings compared to other types of conventional check valves because of its larger flow area and low head loss characteristics. The valve achieves full opening when the disc "tilts" in the flow of the media. The tilting disc design through lifting and stabilizing in the full-open position provides minimal flow resistance.

The head loss across any valve in feet of water column is easily computed using the equation:

$$H = 2.31\left(\frac{Q}{Cv}\right)^2 S_g$$

H = head-loss, ft.
Q = flow rate, gal/min
Cv= valve flow coefficient
S_g= specific gravity



SERIES 3 CHECK VALVE

TILTING DISC CHECK VALVE

FEATURE

- Available in sizes 12 inches through 60 inches, larger size available on request.
- Ductile iron body, disc and cover standard, WCB or Stainless Steel for option.
- Bronze disc and body seat rings.
- Stainless steel hinge pin.
- Variable opening and closing speed.
- Short disc travel from full open to full close provides the ability to close very rapidly or very slowly to avoid contributing to slamming and surges.
- Cushioned closure.
- Permits smooth passage of water with minimum turbulence and low potential for cavitation.
- Low maintenance.
- The stainless steel stub shafts do not come in contact with fluid and can be lubricated either manually or automatically.
- Non-slam characteristics.
- The design of the seat and hydraulic dashpot cushions the closing forces on the disc to allow for smooth operation. This prevents slamming of the disc into the seat.
- Minimal effort to keep the disc open is achieved through the balanced disc design that provides light weight lifting properties, which translates to minimal flow resistance.
- Less risk of reverse flow.

STANDARD

Design and Manufacture	BS EN 12334
Inspection and Testing	API 598/ISO 5208
Face to Face Dimension	ISO 5752/EN 558
Flange Dimension	ASME B16.1/ASME B16.42/AWWA C207/ISO 7005/EN 1092

*More standard specifications are available on request.

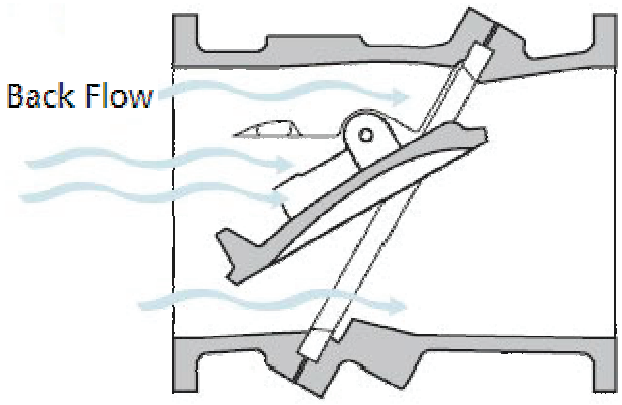
TEST DATA

Nominal Diameter DN (mm)	300-1500						
Nominal Pressure PN (Lb)	1.0	1.6	2.5	4.0	125	150	250
Hydraulic Shell Test Pressure (MPa)	1.5	2.4	3.75	6.0	2.4	3.0	6.0
Hydraulic Seal Test Pressure (MPa)	1.1	1.76	2.75	4.4	1.76	2.2	4.4
Temperature (℃)	-196～550						

*More test specifications are available on request.

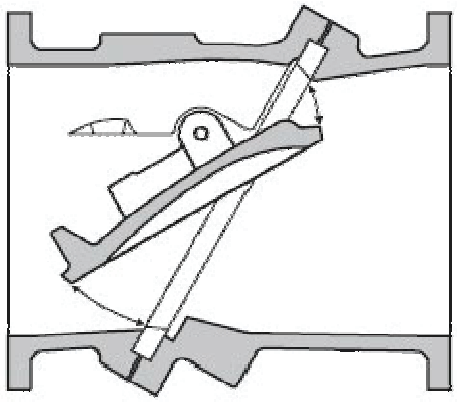
TILTING DISC CHECK VALVE

OPERATION



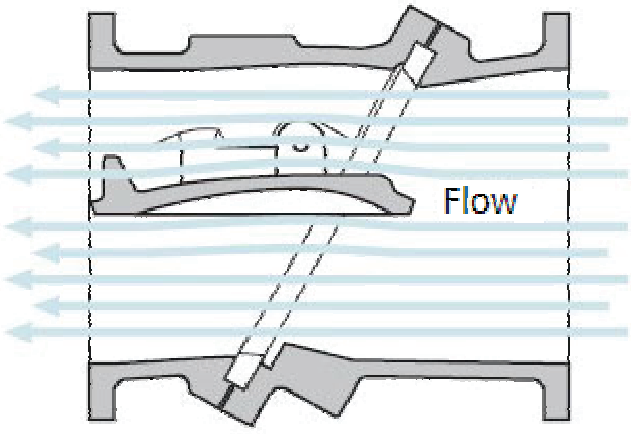
Non-slam Characteristic

Reverse flow forces on the upper one-third of the disc cushion the closing forces on the lower two-thirds of the disc.



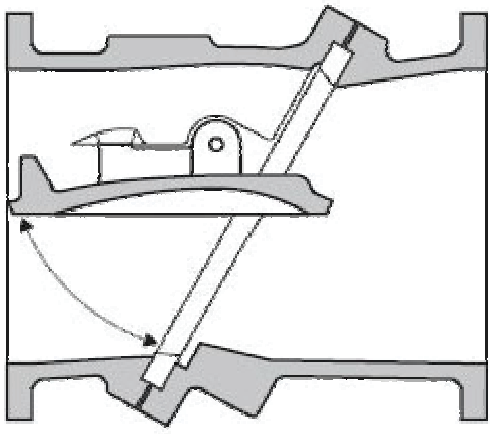
Unique Disc Movement

Offset shaft allows disc to move into and out of body seat, which decreases low cracking pressure and accelerate tight shutoff.



Laminar Flow

When valve in full open position, its middle chamber will be enlarged to reduce head-loss and cost of pump operating.

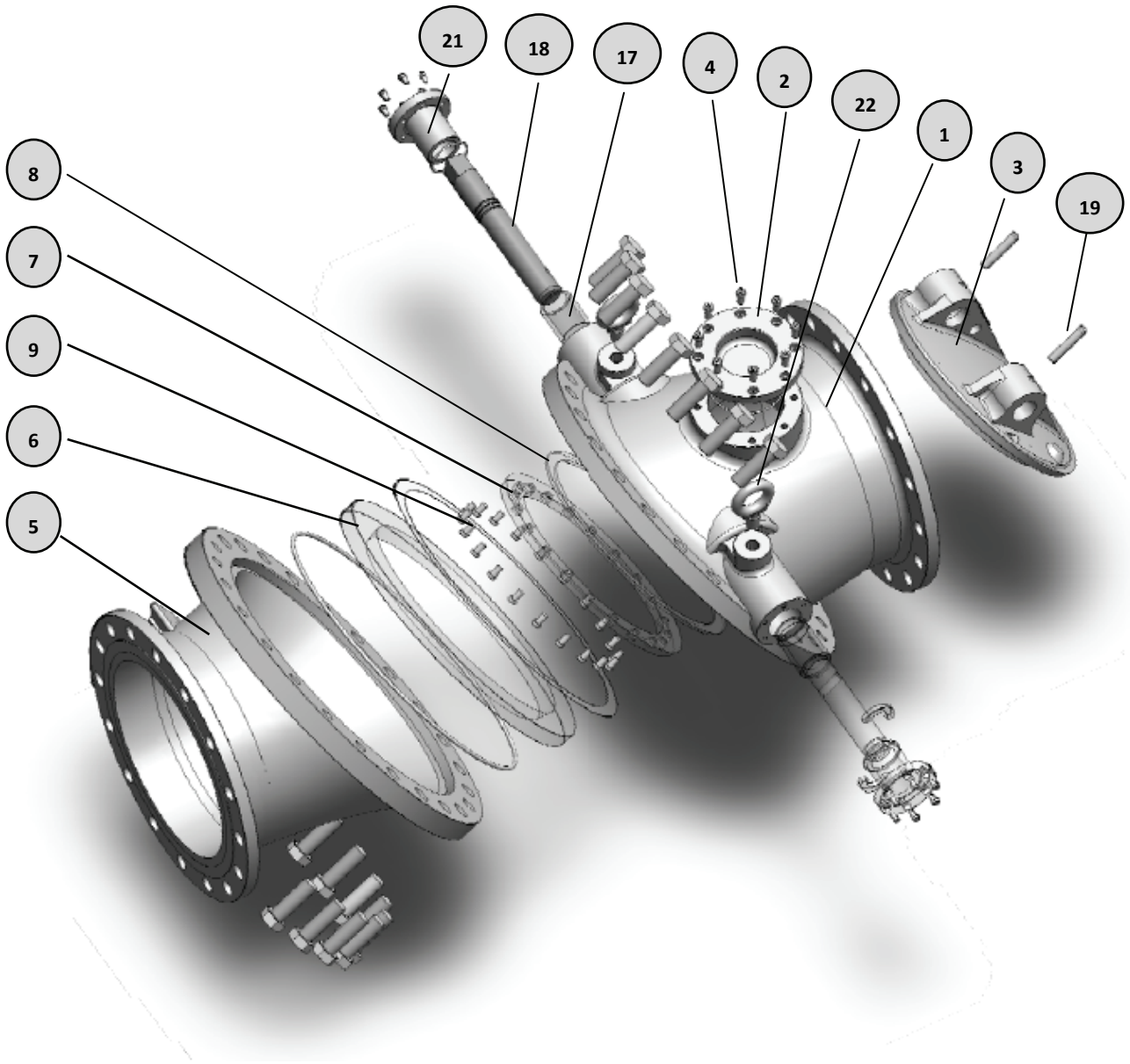


Quick Opening and Closing

Short disc travel from full open to full close

TILTING DISC CHECK VALVE

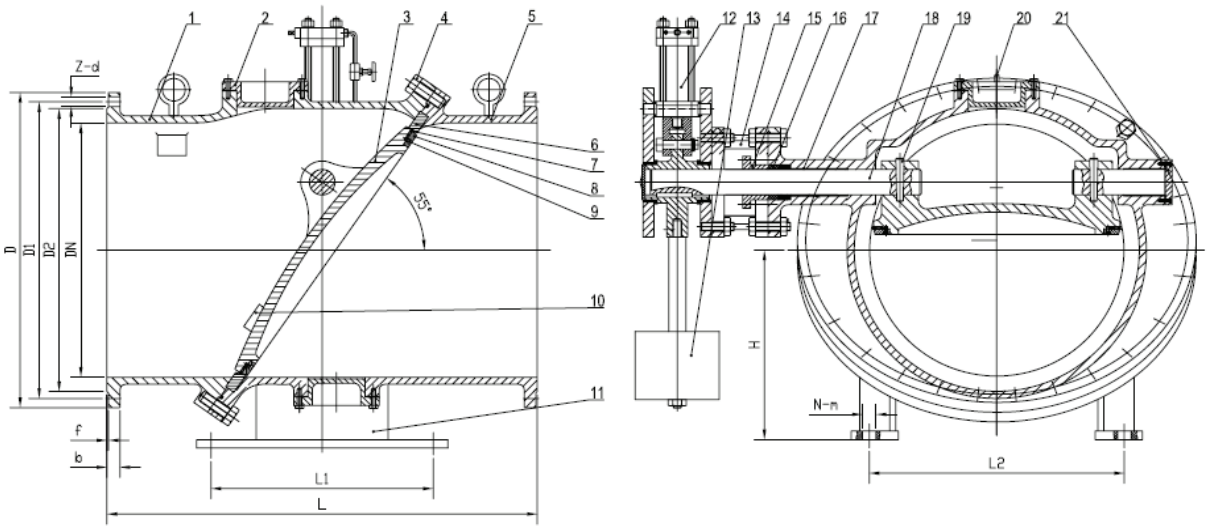
CONSTRUCTION



The body is flanged to connect to a pipe flange. The body consists of a pivot body half (1) and a seat pivot half (5). The seat (6) is held in place by the two body halves. Top and bottom inspection hole covers (2 and 22) are provided for servicing the valves or to allow installation of an upper dashpot by replacing the top hole cover (2).

TILTING DISC CHECK VALVE

PARTS LIST AND MATERIAL

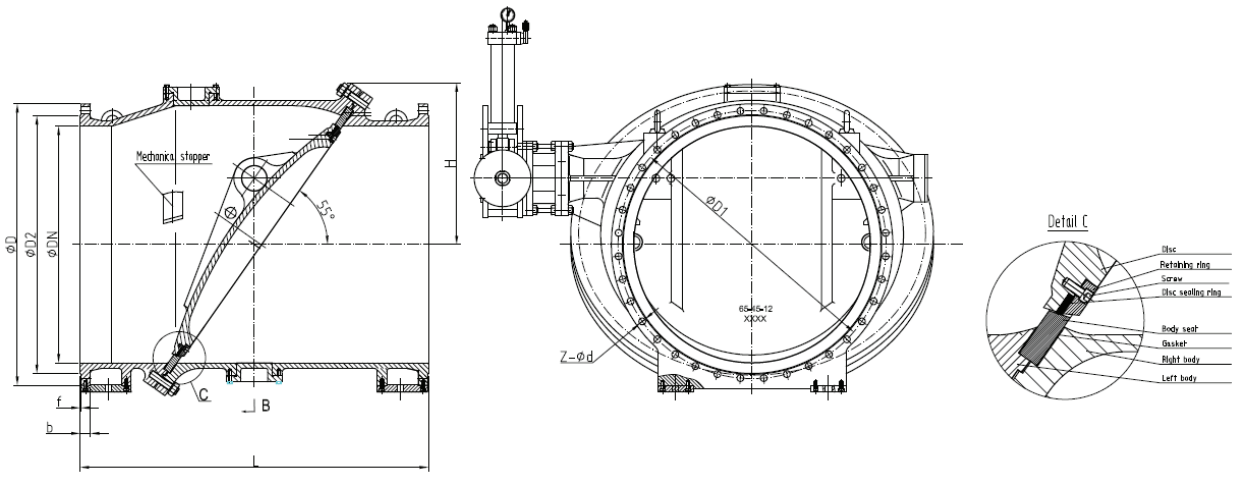


No.	Parts Name	Material
1	Pivot Body	Cast Iron/Ductile Iron/Carbon Steel/Stainless Steel
2	Top Cover	Cast Iron/Ductile Iron/Carbon Steel/Stainless Steel
3	Disc	Cast Iron/Ductile Iron/Carbon Steel/Stainless Steel
4	Bolt	Carbon Steel
5	Seat Body	Cast Iron/Ductile Iron/Carbon Steel/Stainless Steel
6	Body Seat Ring	Stainless Steel/Copper Alloy
7	Disc Sealing Ring	Laminated Seal Ring (Stainless Steel+Graphite, Asbestos Sheet or PTFE)/Copper Alloy
8	Retaining Ring	Carbon Steel/Stainless Steel
9	Screw	Carbon Steel
10	Mechanical Stopper	Ductile iron
11	Foot	Carbon Steel
12	Hydraulic Cylinder	Carbon Steel
13	Counter Weight	Carbon Steel
14	Adapter	WCB
15	Gland	Carbon Steel
16	Packing	NBR/EPDM/PTFE/VITON/Graphite
17	Bearing Bushing	Copper/Bronze/ Stainless Steel
18	Shaft	Stainless Steel/Aluminium Bronze
19	Key	Stainless Steel/Aluminium Bronze
20	Lifting Eye	Carbon Steel
21	Shaft Cover	Carbon Steel

*More material specifications are available on request.

TILTING DISC CHECK VALVE

DIMENSION



DN	NPS	L	H≈	Est. Weight (kg)		
				10/16/125lb	150lb	25/40/250lb
80	3	241	125	26	28	45
100	4	292	140	37	40	60
150	6	381	165	79	84	101
200	8	495	203	143	151	160
250	10	622	241	206	224	262
300	12	610	280	297	320	373
350	14	762	305	420	448	518
400	16	762	356	550	594	680
450	18	838	381	663	708	827
500	20	813	406	803	868	918
600	24	965	483	1248	1351	1567
750	30	1321	584	2278	2464	2760
900	36	1511	686	3458	3747	4140
1050	36	1588	813	4840	5248	5751
1200	42	1651	940	6336	6881	7683
1350	54	1981	990	8037	8718	9900
1500	60	2210	1067	10530	11440	12920

*Flange dimensions (D, D_1, D_2, Z-d, b, f) refer to Catalogue of Accessory: Series 8 – Flange.

*More dimension specifications are available on request.