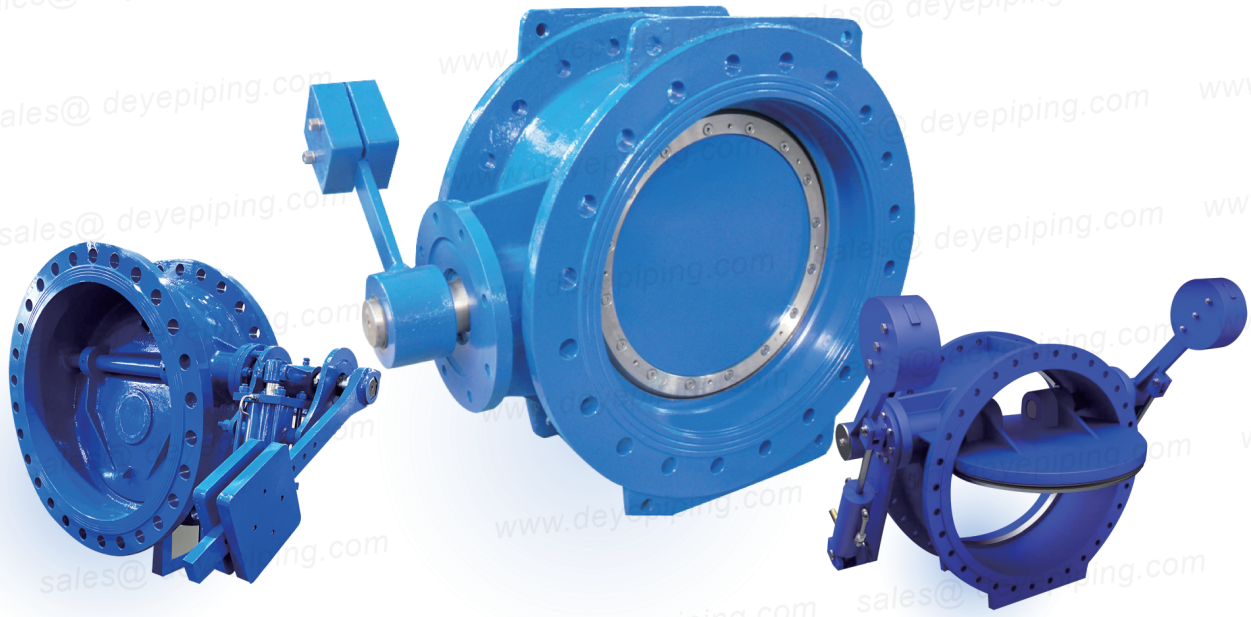
DOUBLE OFFSET TILTING DISC CHECK VALVES



Technical information

WRAS approved materials For potable water/Drinking Water

WRAS Approved Materials

Manufacture

BS EN ISO9001:2015 Q M S
ISO 14001:2004 E M S

Design Standard

ISO5752 & BS5155
F/F EN558 Series 14

Applications

- Potable water reticulation
- Raw water
- River water
- Grey water
- Screened effluent

Product Attributes

- Compact design required small Space
- Low operational torque
- Fleixable Design for maintenance
- Stainless steel weld deposit seat
- Long Seal life for Double double Eccentric Design
- Water hammer prevention

APPPROVED Standard

- EN 558–1 /14 face to face dimensions
- Working tests to EN 1074 EN 12266

Quality

- ISO 9001:2015 Quality Management
- ISO 14001:2004 Enviromental Management
- WRAS
- CE 2014/68/EU

TILTING CHECK VALVE DN150–DN2000

Tilting Check Valve with Dash Pot/Damper

Tilting disc check valve, with counterweight and hydraulic damper in option, is designed as double eccentric type with double flange connection, it is a new type of butterfly check valve that prevents medium back flow and eliminates destructive water hammer.

In the design, the requirements of the use environment are fully considered to achieve no vibration, no noise, stable operation and long service life.

MODEL – CV–H– 001

With Hydraulic Dash Pot/Damper/ Lever and Weight

Technical Standard

Working Pressure : 10/ 16/ 25 Bar.
Drilling : DIN 2501 , ISO 2531,EN1092–2
Face to face: DIN 3202– F4/ ISO 5752– 14
Option : With Hydraulic damper for anti hammer
Coating : Epoxy powder coating (200 – 300) microns
Temperature Range: –40°C– 125°C
Pressure Test : As EN12266–1
Seat Test: 1.1 X working pressure
Shell Test: 1.5 X working pressure

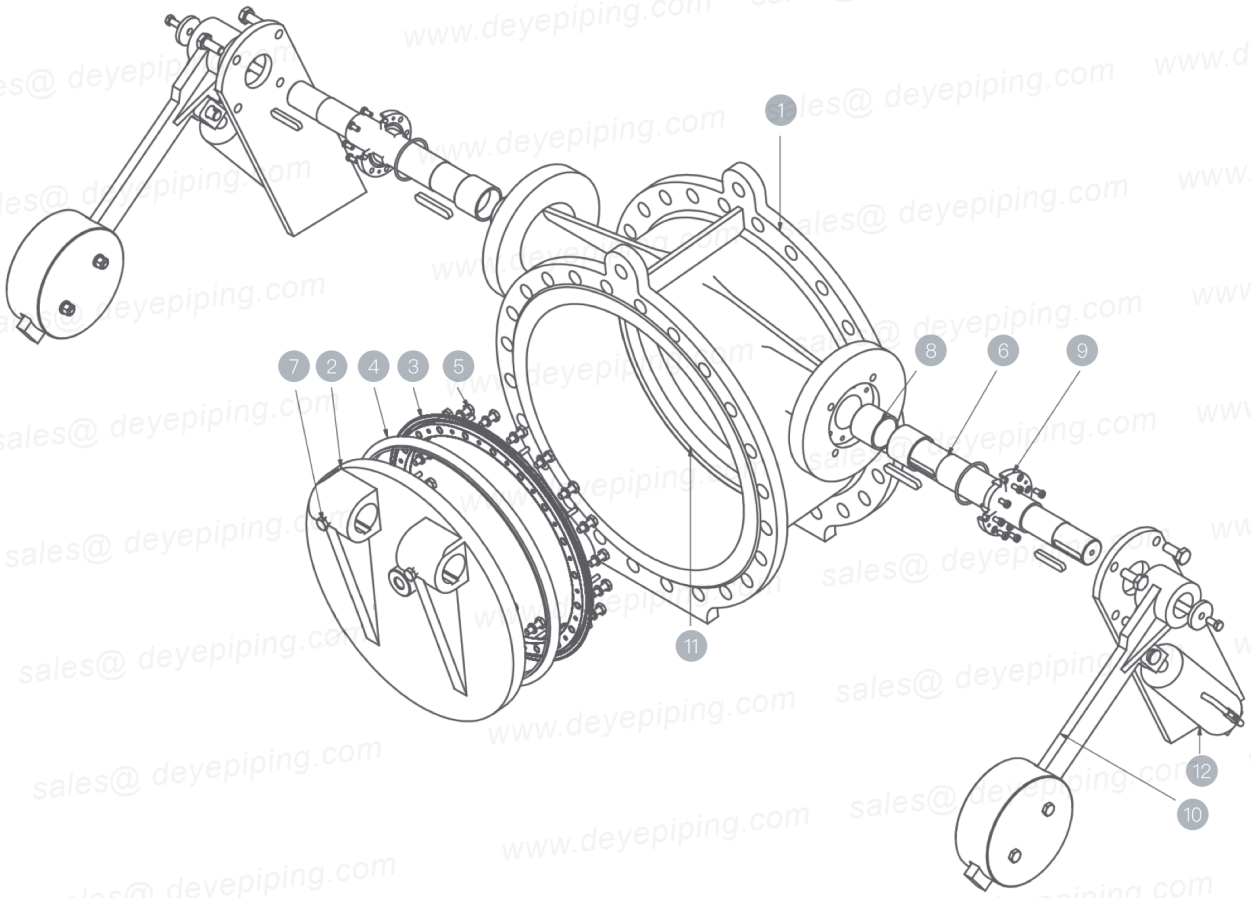
MODEL – CV–H– 002

Optional of double Dash Pot/Damper for Size DN900 above

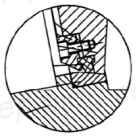
Application

DEYE Valves and Actuators are the “Right Choice for Valves and Actuation” when quality matters.
Servicing industries such as :Water & Waste Water, Mining, Pumping, Industrial Processing, Irrigation, Materials Handling and General Industries.

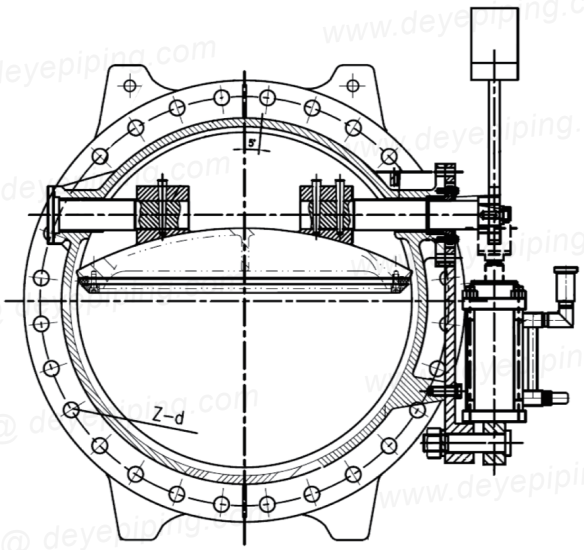
MATERIAL STANDARDS

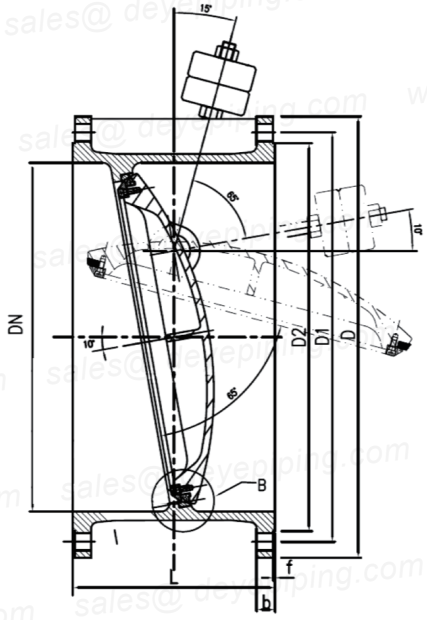


ITEM NO	ITEM DESCRIPTION	MATERIAL		STANDARDS
		STANDARD	OPTION	
1	Valve Body	Ductile Iron EN-GJS-500/7	Ductile Iron EN-GJS-400/12	EN1563
2	Valve Disc	Ductile Iron EN-GJS-500/7	Ductile Iron EN-GJS-400/12	EN1563
3	Retainer Ring (A)	Ductile Iron EN-GJS-500/7	Ductile Iron EN-GJS-400/12	EN1563
	Retainer Ring (B)	SS304	SS316	EN10088
4	Disc Seal	EPDM	NBR	
5	Retainer Bolts	SS304	SS316	EN10088
6	Shaft	X20Cr13 (AISI 420)	SS316	EN10088
7	Hex Head Bolt	SS304	SS316	EN10088
8	Bearing	Self-lubricating PTFE/Steel	–	
9	Gland	Ductile Iron EN-GJS-500/7	Ductile Iron EN-GJS-400/12	EN1563
10	Counter weight & arm	Ductile Iron EN-GJS-500/7	Ductile Iron EN-GJS-400/12	EN1563
11	Body seat	SS316	Integrated in valve body	EN10088
12	Hydraulic Damper	Carbon Steel		



Seal Construction





Design features

Nomina Diameter	F to F		PN10					PN16					PN25				
DN	L	f	ØD	ØD1	ØD2	b	Ølxn	ØD	ØK	Ød	b	Ølxn	ØD	ØK	Ød	b	Ølxn
100	190	3	220	180	156	19	19x8	220	180	156	19	19x8	235	190	156	19	23x8
125	200	3	250	210	184	19	19x8	250	210	184	19	19x8	270	220	184	19	28x8
150	210	3	285	240	211	19	23x8	285	240	211	19	23x8	300	250	211	20	28x8
200	230	3	340	295	266	20	23x8	340	295	266	20	23x12	380	310	274	22	28x12
250	250	3	405	350	319	22	23x12	405	355	319	22	28x12	425	370	330	24.5	28x16
300	270	4	460	400	370	24.5	23x12	460	410	370	24.5	28x12	485	430	389	27.5	31x16
350	290	4	505	460	429	24.5	23x16	520	470	429	26.5	28x16	555	490	448	30	34x16
400	310	4	565	515	480	24.5	28x16	580	525	480	28	31x16	620	550	503	32	37x16
450	330	4	615	565	530	25.5	28x20	640	585	548	30	31x20	670	600	548	34.5	37x20
500	350	4	670	620	582	28.5	28x20	715	650	609	31.5	34x20	730	660	609	36.5	37x20
600	390	5	780	725	682	30	31x20	840	770	720	36	37x20	845	770	720	42	41x20
700	430	5	895	840	794	32.5	31x24	910	840	794	39.5	37x24	960	875	820	46.5	44x24
800	470	5	1015	950	901	35	34x24	1025	950	901	43	41x24	1085	990	928	51	50x24
900	510	5	1115	1050	1001	37.5	34x28	1125	1050	1001	46.5	41x28	1165	1090	1028	55.5	50x28
1000	550	5	1230	1160	1112	40	37x28	1255	1170	1112	50	44x28	1320	1210	1140	60	57x28
1100	590	5	1355	1270	1218	53.5	37x32	1355	1270	1218	53.5	44x32	1420	1310	1240	64.5	57x32
1200	630	5	1455	1380	1328	45	41x32	1485	1390	1328	57	50x32	1530	1420	1350	69	57x32
1300	670	5	1585	1490	1432	59	42x32	1585	1490	1432	59	50x32	–	–	–	–	–
1400	710	5	1675	1590	1530	46	44x36	1685	1590	1530	60	50x36	1755	1640	1560	74	62x36
1500	750	5	1820	1700	1640	47	44x36	1820	1710	1640	62.5	57x36	1865	1750	1678	77.5	62x36
1600	790	5	1915	1820	1750	49	50x40	1930	1820	1750	65	57x40	1975	1860	1780	81	62x40
1800	870	5	2115	2020	1950	52	50x44	2130	2020	1950	70	57x44	2195	2070	1985	88	70x44
2000	950	5	2325	2230	2150	55	50x48	2345	2230	2150	75	62x48	2425	2300	2210	95	70x48

TILTING DISC CHECK VALVE ADVANTAGES

- Quick closing system
- Stability at low and pulsating flow
- Moderate pressure drop
- Tight sealing of metal seats contacts don't occur until the disc is seated and closed.

DOUBLE OFFSET

A high performance tiling disc check valve has double offset pivot (hinge pin) design.
The pivot offsets are made when constructing the valve with hinge pins which are located behind the centerline of sealing surface and slightly to one side of pipe centerline.
The offset purpose is to reduce rubbing and the wear between seat and seal while valve is travelling.

MANUAL

This manual will provide you with the information to properly install and maintain the check valve to ensure a long service life. The Tilting Disc Check Valve is ruggedly constructed with rubber or stainless steel trim to give years of trouble free operation. The valve should be installed in water pipelines three diameters downstream of pumps to prevent reverse flow.

The valve is designed to open after pump start and allow water to flow through the pipeline or water main while creating a mini- mal amount of headloss. A top or bottom mounted oil dashpot may be included to control the opening and closing of the valve. The valve size, cold working pressure, and model number are stamped on the nameplate for reference.

RECEIVING AND STORAGE

Inspect valves upon receipt for damage in shipment. Unload all valves carefully to the ground without dropping. When lifting, the valve should be lifted with straps or bolts in the flange holes. The valve should never be lifted by the dashpot assembly.

The valves should remain crated, clean and dry until installed to prevent weather related damage. For long-term storage greater than six months, the valves should be stored indoors or the ends of the valve should be sealed with plastic wrap to prevent weather related damage.

OPERATION

The Tilted Disc Check Valve consists of two discs sections bolted together at a central 55–degree diagonal flange assembly, The inlet section contains a seat ring positioned and captured by the diagonal flanges.

The outlet section contains two eccentrically located pivot pins from which a disc, containing a beveled disc ring, pivots 40 degrees from the closed to the fully open position.

The location of the eccentric pivot trunnions allows the seating surface of the disc ring to rotate away from the seating surface of the seat ring, without contact when the valve opens. Conversely, during closing, the seating surface of the disc ring moves into the
seating surface of the seat ring without contact, until final sealing contact is made.

A small amount of space exists between the pivot pin and the pivot pin bushing when the disc ring makes full contact with the seat ring to ensure a tight seal. The flow area throughout the valve equals or exceeds the flow area of the pipe, thus minimizing the head loss through the valve.

Upon pump start–up, the forward flow of water will start to rotate the disc around the pivot pins until the disc rotates through a 40–degree arc and contacts the integral body stops. The partially balanced disc assists in opening the disc and stabilizes the disc in low–flow cases where the valve remains partially open.

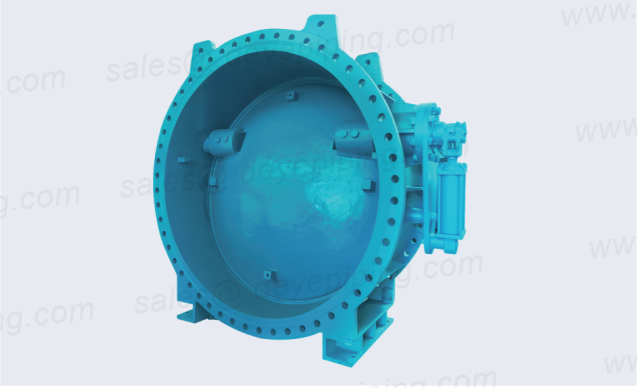
On pump shutdown, the forward velocity of the water starts to diminish, until the disc is no longer held against the body stops and the partially balanced disc will move to the closed position. When the forward velocity reaches zero, the disc will have moved to the closed position and the prevent the reversal of flow.

The 40–degree travel of the disc and the partially balanced disc reduces the potential risk of the check valve slam and water hammer. However, ideal hydraulic conditions are not always predictable and the potential for water hammer can still exist.

If the reversal of flow occurs before the disc fully close, it will be driven to the closed position by the rapid flow reversal.

For these rapid flow reversal conditions, a bottom mounted hydraulic dashpot can be fitted in the bottom inspection port, consider that sufficient space is provided for installation. The bottom mounted oil dashpot will control the last 10 degrees of disc travel between 1 and 5 seconds. A top mounted dashpot can also be used.

A top mounted oil dashpot performs the same function as a bottom dashpot and in addition, independently controls the full open and closing strokes between 5 and 30 seconds to prevent line surges.

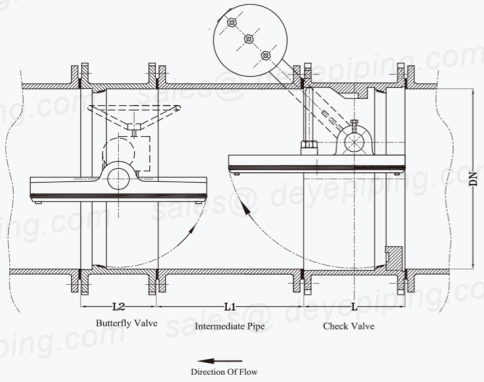


INSTALLATION

- The installation of the valve is important for its proper operation. The Tilted Disc Check Valve can only be used for horizontal flow or vertical flow–up applications.
- Lower valve into the pipeline using slings or chains around the valve body. Eye bolts or bars can also be used in the bolt holes.
- Lubricate the flange bolts and insert them around the flange. Lightly turn bolts until gaps are eliminated. The tightening of the bolts should be done in graduated steps with cross–over tightening method. Recommended lubricated torques with resilient gaskets (75 durometer). Do not exceed bolt rating or crush gasket more than 50 percent of its thickness.
- For horizontal flow applications, the valve must be installed with both of the eccentric pivot pin trunnions located above the horizontalcenterline of the valve and they must be level to the horizontal plane of the valve.
- Each valve is provided with a flow arrow integrally cast on the valve body and a flow arrow printed on the metal label attached to the valve. These flow arrows must point the direction of the water flow when the system is operating.
- The valve and adjacent piping must be supported and aligned to prevent cantilevered stress being transferred to the valve's flanges when installing the flange bolts or studs.

FIGURE (1)

It's recommended to take into account the required distance between the check valve and the butterfly valve as shown in the figure in order to avoid any problems during operation such as discs knocking.



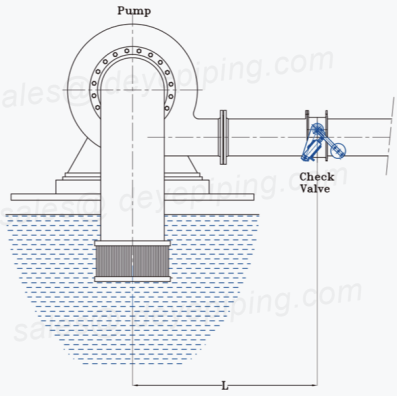


FIGURE (2)

It's recommended to install the check valve at a distance (L=5*pipe DN) downstream the pump (Fig 2), in order to avoid the turbulent flow from the pump and to ensure valve stability during steady state operation.

DEYE

One Stop Solution for Piping Fluid control

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