3-WAY/4-WAY
BALL VALVE SERIES

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3-WAY/4-WAY BALL VALVE

USAGE

The three-way/four-way ball valve is used for switching, converging and diverging pipeline medium flow direction. It is widely applied in metallurgy, mine, petroleum, chemical industry, electric power, light industry, shipping industry and automation control systems, suitable for service conditions such as switching, mixing and diverging of fluid, gas and powder.

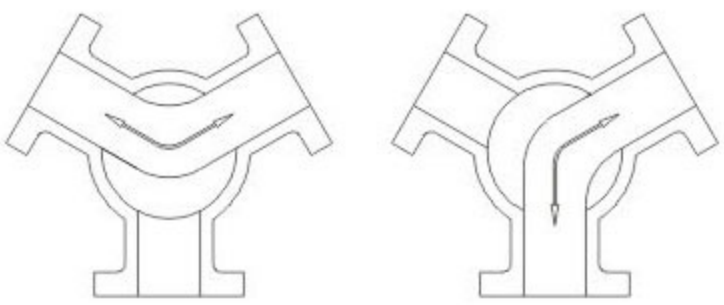
STRUCTURAL CHARACTERISTICS

The three-way/four-way ball valve is provided with reliable sealing and smooth flow channel so as to ensure accuracy of opening and closing through small fluid pressure loss and stable flow channel. According to the forms of flow channel, the valve can be classified into “Y” pattern three-way ball valve, “L” pattern three-way ball valve, “T” pattern three-way ball valve and “LL” pattern four-way ball valve.

“Y” pattern Three-way Ball Valve (q42 Type)

The form of flow channel is “Y” pattern, which can effectively realize switching from service condition 1 to service condition 2. It is mainly used for switching “Y” pattern pipeline flow direction.

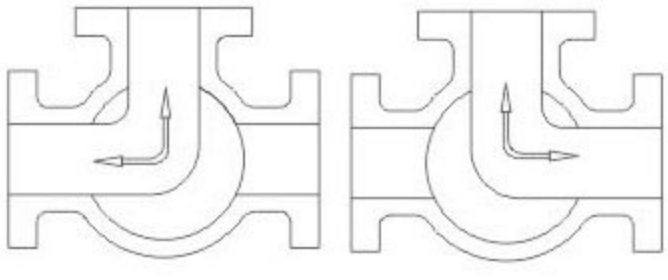
Two service conditions of “Y” pattern three-way ball valve



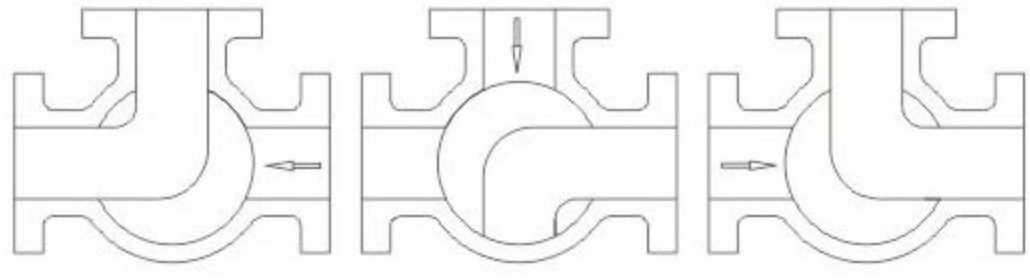
“L” Pattern Three-way Ball Valve (q44 Floating Type, Q49 Trunnion Type)

The “L” pattern three-way ball valve is used for switching pipeline medium flow direction. It can connect two flow channels that are vertical with each other. The ordinary “L” pattern floating three-way ball valve may not be suitable for some service conditions, which shall be paid special attention to when users select it.

Two service conditions of “L” pattern three-way ball valve



Several service conditions for which the ordinary “L” pattern floating three-way ball valve is not suitable



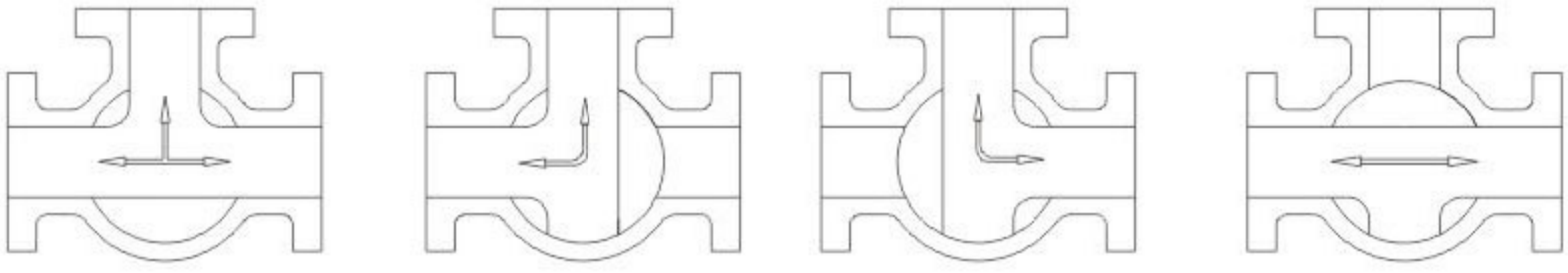
3-WAY/4-WAY BALL VALVE

STRUCTURAL FEATURES

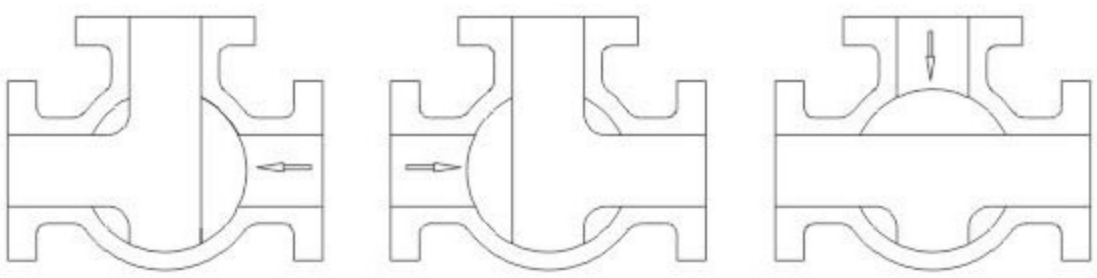
“T” Pattern Three-way Ball Valve (q45 Floating Type, Q48 Trunnion Type)

The “T” pattern three-way ball valve is used for switching, converging and diverging medium flow direction. The “T” pattern ball channel can make three channels connect with each other or two of them connect with each other to realize two, three or found kinds of functions. Different valve designs are adopted to realize different functions. Therefore, users shall make detailed descriptions to the service requirements when selecting and ordering the “T” pattern three-way ball valve, so that our company can make designs and configurations correctly. The ordinary “T” pattern floating three-way ball valve may not be suitable for some service conditions, which shall be paid special attention to when users select it.

Several service conditions of “T” pattern three-way ball valve



Several service conditions for which the ordinary “T” pattern floating three-way ball valve is not suitable



“LL” Pattern Four-way Ball Valve

The “LL” pattern four-way ball valve is provided with four seats to realize switching from service condition 1 to service condition 2. It can simultaneously switch the flow direction of two media, which realizes the effect of multiple functions in one valve with convenience and swiftness.

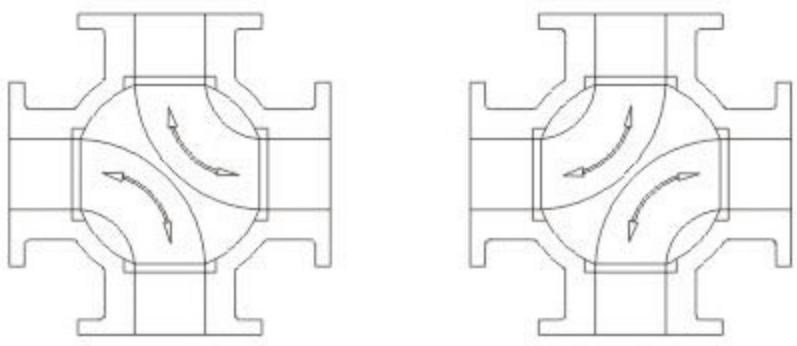
The work form is shown as follows:

1. When A(C) is the inlet, the two connections of A→B（C→D） or A→C（C→A） can be realized.

3. A cannot be realized.

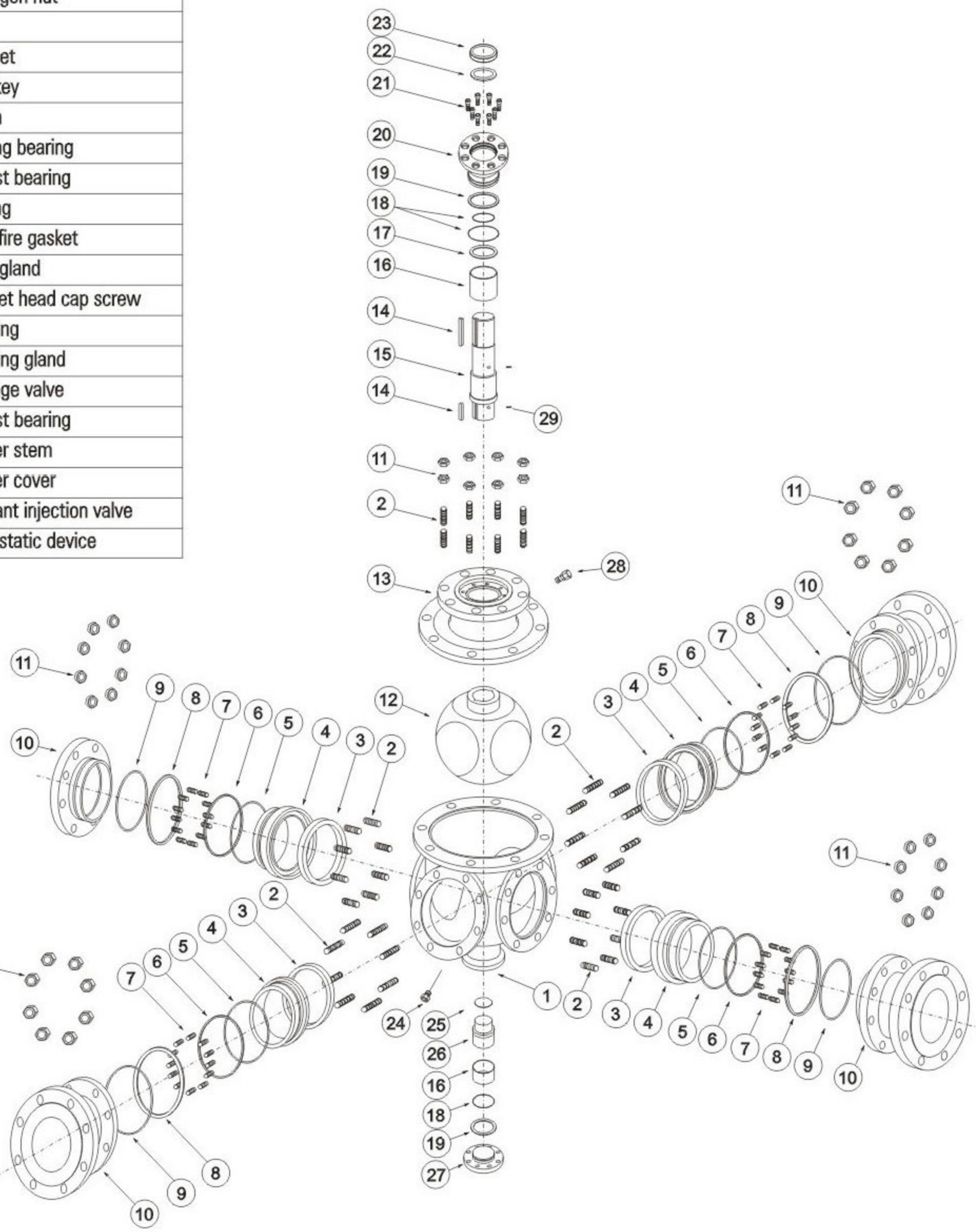
3、A→D（C→B）或D→A（B→C）is impossible.

Service conditions of “LL” pattern four-way ball valve



T PATTERN THREE-WAY BALL VALVE

1	Body
2	Stud
3	Seat
4	Seat ring
5	O Ring
6	Anti-fire packing
7	Spring
8	Anti-fire gasket
9	O Ring
10	Bonnet
11	Hexagon nut
12	Ball
13	Bonnet
14	Flat key
15	Stem
16	Sliding bearing
17	Thrust bearing
18	O Ring
19	Anti-fire gasket
20	Seal gland
21	Socket head cap screw
22	Packing
23	Packing gland
24	Drainge valve
25	Thrust bearing
26	Lower stem
27	Lower cover
28	Sealant injection valve
29	Anti-static device

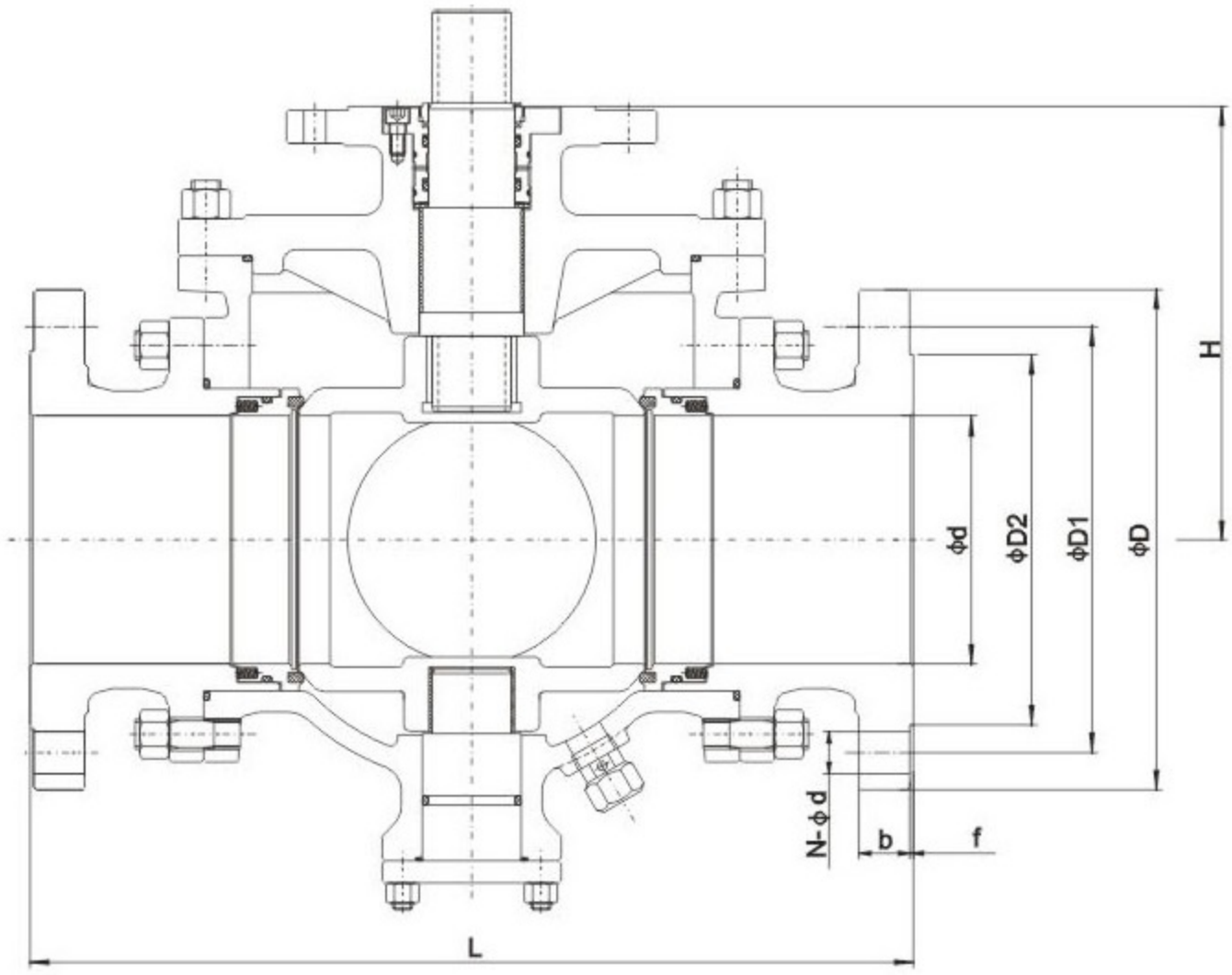


T PATTERN THREE-WAY BALL VALVE

Part Materials And Main Parameters

Nominal Diameter（in）			NPS 2～20				
Nominal Pressure（MPa）			Class150～Class300				
Materials of parts	No.	Part Name	Materials				
			Carbon steel	Stainless steel			
	1	Body	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
	2	Stud	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
	3	Seat	PTFE/NYOLN/PEEK/PPL				
	4	Seat Ring	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	5	O Ring	VITON				
	6	Anti-fire Packing	Graphite				
	7	Spring	17-7PH				
	8	Anti-fire Gasket	SST+Graphite				
	9	O Ring	VITON				
	10	Bonnet	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
	11	Hexagon Nut	A194 2HM	A194-8	A194 -8M	A194-8	A194-8M
	12	Ball	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	13	Bonnet	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M	ASTM A351 CF3	ASTM A351 CF3M
	14	Flat Key	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045	ANSI 1045
	15	Stem	ASTM A182 F6a	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	16	Sliding Bearing	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE	Metal+PTFE
	17	Thrust Bearing	PTFE				
	18	O Ring	VITON				
	19	Anti-fire Gasket	SST+Graphite				
	20	Seal Gland	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	21	Socket Head Cap Screw	A193 B7M	A320 B8	A320 B8M	A320 B8	A320 B8M
	22	Packing	Graphite				
	23	Packing Gland	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a
	24	Drainge Valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
	25	Thrust Bearing	PTFE				
	26	Lower Stem	ASTM A182 F6a	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	27	Lower Cover	ASTM A105 • ENP	ASTM A182 304	ASTM A182 316	ASTM A182 304L	ASTM A182 316L
	28	Sealant Injection Valve	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
	29	Anti-static Device	Combined parts	Combined parts	Combined parts	Combined parts	Combined parts
Applicable Service Conditions		Applicable Media	Water, steam, oil, gas, liquefied petroleum gas, natural gas etc	Nitric acid	Acetic acid	Strong Oxidizer	Urea
		Applicable Temperature	≤120℃（PTFE）、≤80℃(NYLON)≤250℃(PEEK)、≤250℃(PPL)				
Design And Manufacturing			API 608、API 6D				
Type Of Connection			Flange	ASME B16.5		Wafer	ASME B16.5
Pressure Test			API 598、API 6D				
Transmission Mode			Manual, worm and worm gear transmission, pneumatic, electric				

T PATTERN THREE-WAY BALL VALVE



Pressure Rating	Nominal Diameter		d	L	Flanged							H	Weight (kg)
Class	NPS	DN			D	D1	D2	D3	f	b	N-Φd		
150	2"	50	50	260	150	120.5	92	-	2	14.5	4-Φ19	205	△
	3"	80	75	320	190	152.5	127	-	2	17.5	4-Φ19	245	△
	4"	100	100	370	230	190.5	157	-	2	22.5	8-Φ19	305	△
	6"	150	150	510	280	241.5	216	-	2	24	8-Φ22	340	△
	8"	200	201	580	345	298.5	270	-	2	27	8-Φ22	425	△
	10"	250	252	670	405	362	324	-	2	29	12-Φ25	450	△
	12"	300	303	760	485	432	381	-	2	30.5	12-Φ25	530	△
	14"	350	334	850	535	476	413	-	2	33.5	12-Φ29	630	△
	16"	400	385	980	595	540	470	-	2	35	16-Φ29	680	△
	18"	450	436	1080	635	578	533	-	2	38.5	16-Φ32	625	△
	20"	500	487	1220	700	635	584	-	2	41.5	20-Φ32	670	△
	24"	600	589	1360	815	749.5	692	-	2	46.5	20-Φ35	705	△
300	2"	50	50	260	165	127	92	-	2	21	8-Φ19	205	△
	3"	80	75	320	210	168.5	127	-	2	27	8-Φ22	245	△
	4"	100	100	370	255	200	157	-	2	30.5	8-Φ22	305	△
	6"	150	150	510	320	270	216	-	2	35	12-Φ22	340	△
	8"	200	201	580	380	330	270	-	2	40	12-Φ25	425	△
	10"	250	252	670	445	387.5	324	-	2	46.5	16-Φ29	450	△
	12"	300	303	760	520	451	381	-	2	49.5	16-Φ32	530	△
	14"	350	334	850	585	514.5	413	-	2	52.5	20-Φ32	630	△
	16"	400	385	980	650	571.5	470	-	2	56	20-Φ35	680	△
	18"	450	436	1080	710	628.5	533	-	2	59	24-Φ35	625	△
	20"	500	487	1220	775	686	584	-	2	62	24-Φ35	670	△
	24"	600	589	1360	915	813	692	-	2	68.5	24-Φ41	705	△

Note: The weight value is only for flanged valve. Please consult our factory for higher nominal diameter or weight. Any modification to sizes H, H1 and weight will not be notified otherwise.