3Z

4-Way Diverter Plug Valves



Plug Valves Specialists

www.3zvalve.com

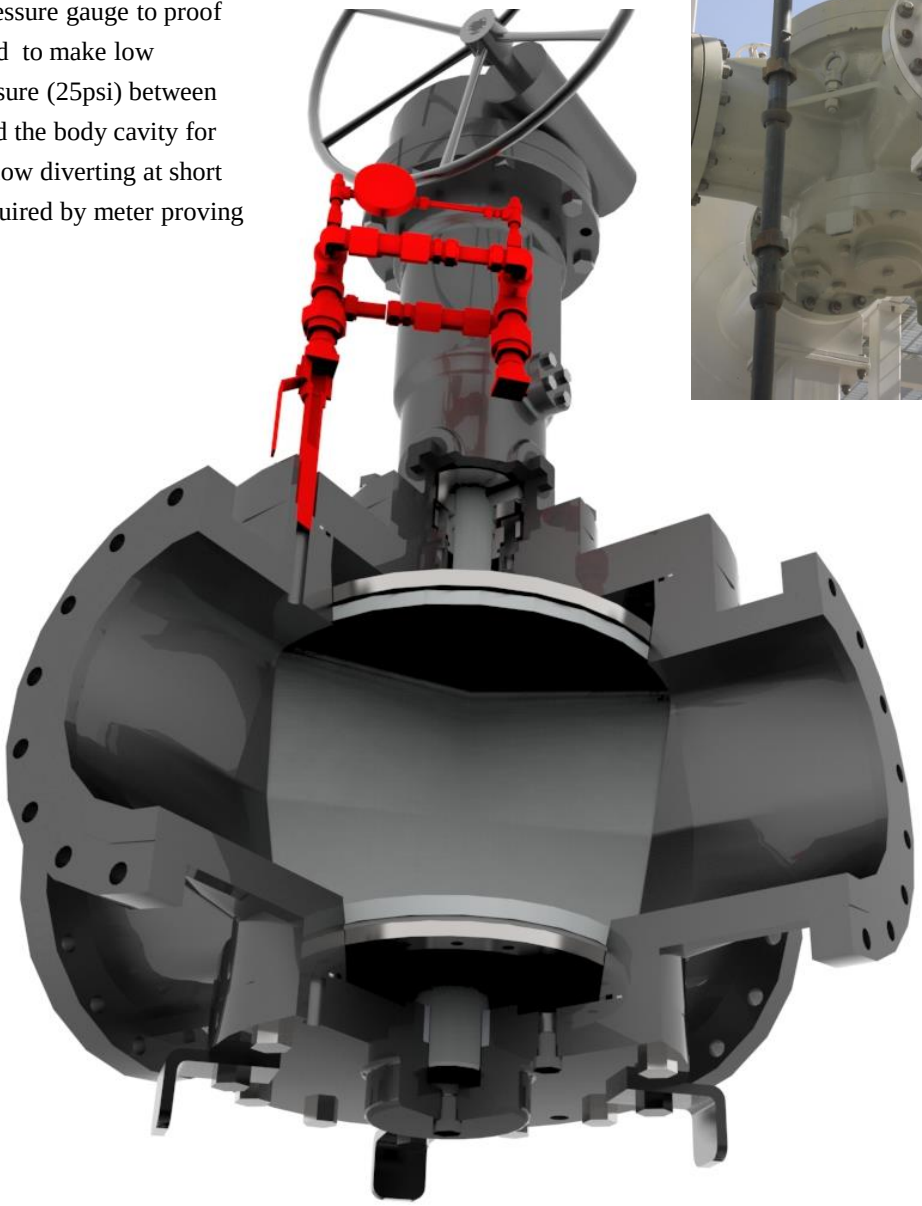
4-way Diverter Plug Valve

3Z 4-way diverter plug valves are designed for the rigid requirements of bi-directional meter proving which especially requires the valve to be cycled hundreds of times per day and has a short cycling time around 10 seconds during valve operation.



Proof of Seal Integrity

3Z 4-way diverter valves supply special low differential pressure device systems with pressure gauge to proof seal integrity and to make low differential pressure (25psi) between the upstream and the body cavity for the purpose of flow diverting at short cycling time required by meter proving systems.



How the 3Z 4-way Diverter Plug Valve Works

STEP 1:
Lowered and seated position: The plug and slip seal are lowered and seated at fully open or closed position.

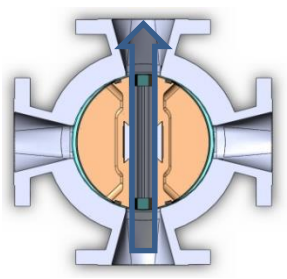
STEP 2:
Lifted position: The plug and slip seal are lifted slightly to avoid galling or abrasion during this step.

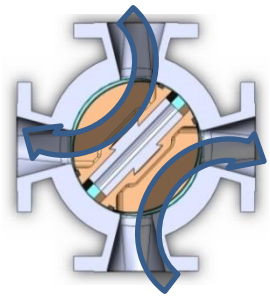
STEP 3:
90° Rotated position: The plug and slip seal are rotated 90° for the purpose of flow diverting with short cycling time, required in meter proving system. No rubbing. No friction.

STEP 4:
Lowered & reseated position: The plug is lowered and reseated at fully open or closed position.

3Z developed a unique patented ball-locking mechanism. The 3Z mechanism provides low torque and smooth, frictionless operation. This mechanism is provided as a standard in 3Z 4-way Diverter Plug Valves.

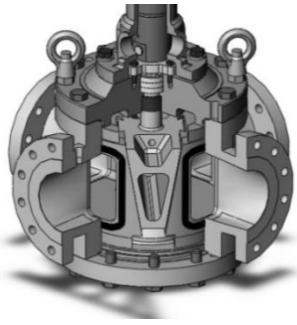


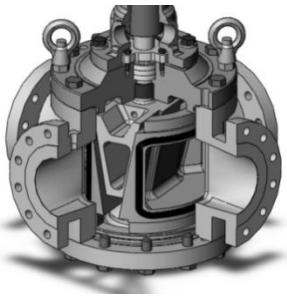


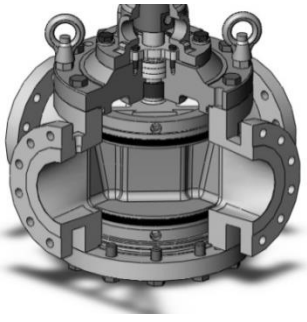


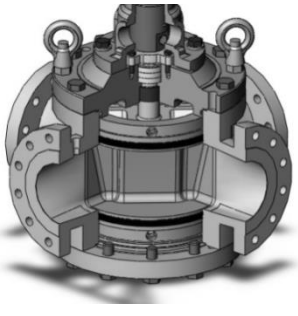


STEP 1	STEP 2&3	STEP 3	STEP 4









Parts and Material

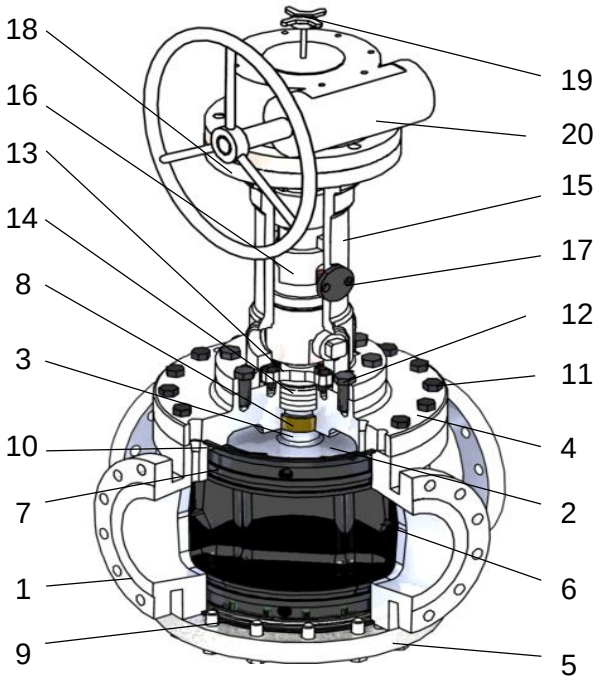


Size: 3” - 8”

No	Parts	Specification
1	Body	A216 WCB + Cr plated
2	Plug	A216 WCB + ENP
3	Stem	17-4PH
4	Top cover	A216 WCB
5	Bottom cover	A216 WCB
6	Slip	A536 80-55-06 + MPC
7	Slip Seal	Viton
8	Bushing	A436 Type 2
9	Gasket	(Graphite + 316) SWG
10	O-ring	Viton
11	Cover bolt & Nut	A193 B7 & A194 2H
12	Housing bolt	STEEL
13	Gland	A216 WCB + Zn plated
14	Gland packing	Graphite
15	Housing	A216 WCB
16	Operator	A322 4140
17	Guide	A322 4140
18	Housing cover	AISI 1045
19	Indicator	AISI 1020
20	Gear operator	Ductile iron

4-way Diverter Plug Valve with Slip Seal

Sizes 3”- 8” 3Z 4-way diverter plug valves are designed with slip seals. It is possible to inspect and replace the sealing slips simply. The valve has top and bottom bolted cover that is disassembled to replace the sealing slips on the pipe line.



4-way Diverter Valve - Parts and Material

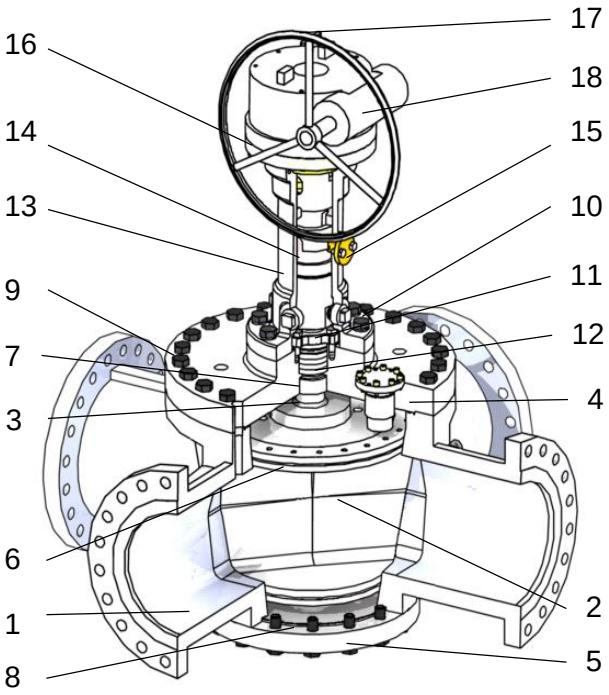


Size: 10” - 20”

No	Parts	Specification
1	Body	A216 WCB + Cr plated
2	Plug	A216 WCB + ENP
3	Stem	17-4PH
4	Top cover	A216 WCB
5	Bottom cover	A216 WCB
6	Plug Seal	Viton
7	Bushing	A436 Type 2
8	Gasket	(Graphite + 316) SWG
9	Cover bolt & Nut	A193 B7 & A194 2H
10	Housing bolt	STEEL
11	Gland	A216 WCB + Zn plated
12	Gland packing	Graphite
13	Housing	A216 WCB
14	Operator	A322 4140
15	Guide	A322 4140
16	Housing cover	AISI 1045
17	Indicator	AISI 1020
18	Gear operator	Ductile iron

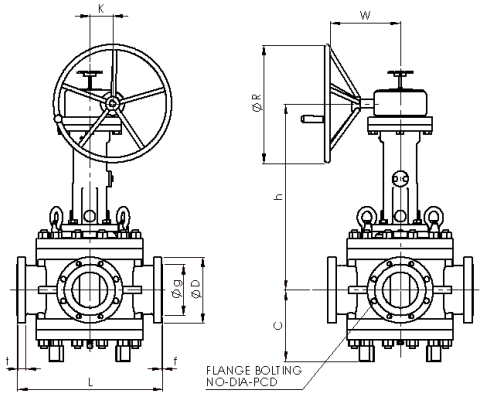
4-way Diverter Plug Valve

Sizes 10” – 20” 3Z 4-way diverter plug valves are designed with plug seals. The plug seal has an especially simple design to replace simply. The valve has top and bottom bolted cover that is disassembled to replace the plug seal on the pipe line.

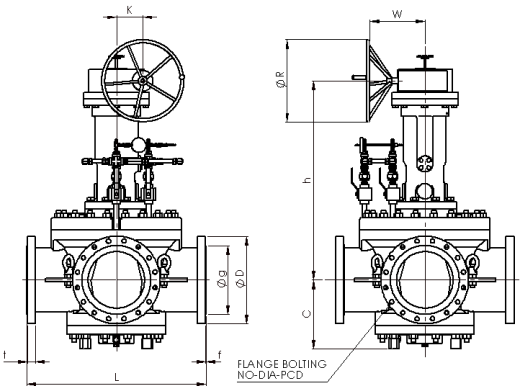


4-way Diverter Plug Valve - Dimensions

Size: 3” - 8”



Size: 10”- 20”



Unit: mm

Class	Size	* L	D	PCD	NO	DIA	g	t	f	h	R	K	W	+ C
150	4	508	229	190.5	8	19	157.2	*30.2	1.5	695	400	83	260	255
	6	614	279	241.3	8	22	215.9	*35.1	1.5	780	500	97	294	305
	8	711	343	298.4	8	22	269.7	*39.6	1.5	1015	610	153	370	355
	10	930	406	362	12	25	323.8	*46.0	1.5	1200	710	180	400	-
	12	930	483	431.8	12	25	381	*49.3	1.5	1,200	710	180	400	-
	16	1,219	597	539.8	16	29	469.9	*55.6	1.5	1,370	710	180	400	-
	20	1,473	698	635.0	20	32	584.2	*62.0	1.5	1,500	800	230	488	-
300	4	508	254	200.2	8	22	157.2	30.2	1.5	695	400	83	260	255
	6	614	318	269.7	12	22	215.9	35.1	1.5	800	500	97	294	305
	8	711	381	330.2	12	25	269.7	39.6	1.5	1,020	610	153	370	355
	10	930	444	387.4	16	29	323.8	46.0	1.5	1,200	710	180	400	-
	12	930	521	450.8	16	32	381.0	49.3	1.5	1,200	710	180	400	-
	16	1,219	648	571.5	20	35	469.9	55.6	1.5	1,370	710	180	400	-
	20	1,473	775	685.8	24	35	584.2	62.0	1.5	1,500	800	230	488	-
600	4	530	273	215.9	8	25	157.2	38.1	6.4	760	400	97	294	300
	6	645	356	292.1	12	29	215.9	47.8	6.4	870	560	112	324	330
	8	820	419	349.2	12	32	269.7	55.6	6.4	1,020	610	153	370	400
	10	1,020	508	431.8	16	35	323.8	63.5	6.4	1,200	710	180	400	-
	12	1,020	559	489.0	20	35	381.0	66.5	6.4	1,200	710	180	400	-
	16	1,319	686	603.2	20	41	469.9	76.2	6.4	1,370	710	180	400	-
900	3	660	241	190.5	8	25	127	38.1	6.4	800	500	97	294	330
	4	660	292	235.0	8	32	157.2	44.5	6.4	800	500	97	294	330
	6	711	381	317.5	12	32	215.9	55.6	6.4	870	560	112	324	350
	8	813	470	393.7	12	38	269.7	63.5	6.4	1,150	610	153	370	530
	10	1,020	546	469.9	16	38	323.8	69.8	6.4	1,260	710	180	400	-

\+ Minimum Clearance for installation, repair and replacement

* Manufacturing Standard

\- If additional classes and sizes are required, please consult the factory when ordering.

Technical Data

Approx CV Factor (GPM)

Class 150 - 900

2-way Standard Type, Full Bore Type, 4-way - Diverter Type

Class	150	300	600	900	150	300	600	150	300	600	900
Fig / Size	124	324	624	924	124 FB	324 FB	624 FB	144	344	644	944
2	200	200	280	-	525	525	525	-	-	-	-
3	260	220	300	-	1,100	1,100	1,100	-	-	-	400
4	620	600	500	500	2,100	2,100	2,000	600	600	600	600
6	1,100	1,200	1,300	1,300	5,000	5,000	4,900	1,200	1,200	1,200	1,200
8	2,500	2,000	2,100	2,500	9,300	9,700	9,600	2,200	2,200	2,200	2,200
10	3,700	3,100	3,300	3,300	14,600	14,600	14,000	4,200	4,200	4,200	4,200
12	4,200	3,700	4,800	5,000	21,500	21,500	21,000	5,100	5,100	5,100	-
14	5,600	5,000	6,000	-	28,000	28,000	-	-	-	-	-
16	7,000	8,300	7,400	-	35,000	35,000	34,000	8,800	8,800	8,800	-
18	7,000	10,000	10,000	-	47,000	47,000	-	-	-	-	-
20	15,900	13,000	18,000	-	59,000	59,000	58,000	14,000	14,000	-	-
22	19,000	-	-	-	-	-	-	-	-	-	-
24	23,000	18,000	-	-	85,000	85,000	-	-	-	-	-
28	-	29,000	-	-	-	-	-	-	-	-	-
30	37,000	33,000	-	-	-	-	-	-	-	-	-
36	53,000	-	-	-	-	-	-	-	-	-	-
40	65,600	-	-	-	-	-	-	-	-	-	-

Approx Weight (kg)

Class 150 - 900

2-way - Standard Type, Full Bore Type, 4-way - Diverter Type

Class	150	300	600	900	150	300	600	150	300	600	900
Fig / Size	124	324	624	924	124 FB	324 FB	624 FB	144	344	644	944
2	30	35	50	-	40	50	80	-	-	-	-
3	40	50	60	-	90	100	145	-	-	-	650
4	55	65	130	170	125	170	235	350	360	535	680
6	120	150	355	570	255	345	550	555	580	750	850
8	195	240	575	770	485	655	935	1,130	1,150	1,420	1,700
10	285	350	900	1,270	720	910	1,740	1,660	1,700	2,310	2,100
12	405	530	1,260	2,520	920	1,740	2,580	1,750	1,790	2,420	-
14	585	960	1,750	-	1,460	2,500	-	-	-	-	-
16	680	1,350	2,320	-	2,090	2,910	4,540	2,900	2,990	3,970	-
18	875	1,800	3,260	-	3,330	4,210	-	-	-	-	-
20	1,810	2,450	4,720	-	4,080	4,820	7,680	5,050	5,220	-	-
22	1,980	-	-	-	-	-	-	-	-	-	-
24	2,310	3,640	7,900	-	5,360	8,220	-	-	-	-	-
28	-	5,900	-	-	-	-	-	-	-	-	-
30	4,500	8,800	-	-	-	-	-	-	-	-	-
36	7,200	-	-	-	-	-	-	-	-	-	-
40	11,300	-	-	-	-	-	-	-	-	-	-

How to Order

FIG

124: Class 150 2-way Double block-&-bleed valve
324: Class 300 2-way Double block-&-bleed valve
624: Class 600 2-way Double block-&-bleed valve
924: Class 900 2-way Double block-&-bleed valve
144: Class 150 4-way Diverter valve
344: Class 300 4-way Diverter valve
644: Class 600 4-way Diverter valve
944: Class 900 4-way Diverter valve
124 FB: Class 150 2-way Full bore DBB valve
324 FB: Class 300 2-way Full bore DBB valve
624 FB: Class 600 2-way Full bore DBB valve

CODE

ANSI / JIS / DIN

BLEED OPTION

DTR + UP/S
DTR + DOWN/S
MANUAL
DTR + UP/S + GAUGE
DTR + DOWN/S + GAUGE
ABBV
FLANGE
4-WAY

LONG STEM

L100: Long Stem 100mm
L150: Long Stem 150mm
L2000: Long Stem 2000mm

BODY

WCB: A216 WCB + Cr plated
WCC: A216 WCC + Cr plated
CF8 A351 CF8 + Cr plated
CF3M: A351 CF3M + Cr plated
LCB: A352 LCB + Cr plated

SLIP

DI: A536 Gr 65-45-12 + MPC
D2: A439 D2 + MPC

124 - DIN - RTJ - ABBV - WR – L100 - LD - NACE - WCB – CF8M – DI - VITON

END CONNECTION

RF: Raised Face
RTJ: Ring Type Joint

OPERATOR

WR: Wrench
GR: Worm Gear
BA: Bare Stem
AOV: Air Operated Valve
MOV: Motor Operated Valve

LOCKING DEVICE

LD: Locking Device

SERVICE

NACE: NACE MR0175/0103

PLUG

WCB: A216 WCB + ENP
WCC: A216 WCC + ENP
CF8: A351 CF8 + ENP
CF3M: A351 CF3M + ENP
LCB: A352 LCB + ENP

SEAT

VITON
TEFLON(PFA)
NBR
HNBR
LOW TEMPERATURE NBR

- If additional information is required, please consult the factory when ordering.



#1 Plant (3Z Manufacturing & Assembly) :
254, Sihwa Venture-Ro, Siheung-City, Gyeonggi-Do, Korea

#2 Plant (3Z Foundry) :
117, Hwanggeum 2-ro, Yangchon-eup Gimpo-city in Gyeonggi-Do, Korea

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