



Workshop under authorization
by American Petroleum Institute
of the indication.

YTYPE 3WAY BALL VALVE FOR POWDER, HIGH VISCOSITY FLUID

HISAKA BALL VALVES

■ HY1	■ HY1M	■ HY1-AR	■ HY1M-AR
■ HY2	■ HY2M	■ HY2-AR	■ HY2M-AR

HISAKA WORKS, LTD.

●Y-TYPE, 3-WAY BALL VALVE●

HISAKA Y-type ball valve is unique 3-way diverter valve designed to convey powder materials. It has features reducing pressure loss for full port and tight sealing by PTFE Ball Seat. In case of using as diverting for high viscosity fluid, it is effective for reducing flow loss. About the automating, this valve can be realized by combining with the newly developed AR-type actuator.

FEATURES

- As each body cap is fitted individually to the body, piping direction can be varied as necessary, which ensures rational arrangement of valve.
- Because fluid route curvature is larger(equal to or larger than long elbow curvature), pressure loss is reduced.
- An elastic is fitted to back side of ball seat so as to prevent reduction of sealing effect due to seat wear by powder material and to prevent increasing of rotating torque.
- The bearing provided at the rotating shaft sliding part prevents scuffing.
- Each seal employs O-ring to ensure stable sealing.
Especially, the dual O-rings on the shaft prevent troubles resulting from entry of powder material.

FEATURES OF METAL TOUCH (HY1M, HY2M)

The surface of PTFE seat gotten a damage and worn depend on characteristic of fluid. In such a situation, PTFE seat worn and dropped the sealing and need often to be repaired ball seat. That is waste time and cost.

In case of prohibited wearing piece of PTFE seat into the fluid, Metal touch(metak seat)is suitable for this application, too. In such case, Metal touch realize to improve of wearing resistance.

SPECIFICATION

- MAX.OPERATION TEMPERATURE } as page 4
- MAX.OPERATION PRESSURE }
- FLANGE CONNECTION:JIS10K, CLASS 150LB

OPTIONAL DEVICE

- CERAMIC LINNING(1.5,3.0mm) for High Erosion Service
- PORT POINT TAPER TREATMENT ●PORT SURFACE BUFFING ●OIL, WATER FREE TREATMENT

STANDARD MANUFACTURING RANGE

MATERIAL SIZE	SS304	SS316	SS316L	CAST IRON (JIS10K only)
1B	○	△	△	
1½B	○	△	△	○
2B	○	△	△	○
2½B	○	△	△	○
3B	○	△	△	○
4B	○	△	△	○
5B	○	△	△	○
6B	○	△	△	○
8B	○	△	△	○
10B	△	△	△	
12B	△	△	△	

※Please contact us about the other size and material.
※HY1, HY1M:25~100A HY2, HY2M:125A~300A

● AR MODEL, DOUBLE ACTING CYLINDER ●

This cylinder designed for Y-type 3-way ball valve Rotating degree is 135degree. Cylinder Drive is Rack Pinion type, and realized to get stable and smooth operation Design is simply and safety rate taken into consideration for each parts, The result of it, cylinder realize high performance and mitigation of a maintenance.

☆ Electric Motor Operator also can be supplied. Please contact to us.

FEATURES

SUPPLY FLUID : AIR

MAX.OPERATION AIR : 0.69MPa

ATMOSPHERE TEMP : 15°C~80°C

LUBRICATE OIL : NO NEED

AIR TUBING CONNECTION : Rc (PT) 1/4 smaller than AR04
Rc (PT) 3/8 AR05,AR06,AR07
Rc (PT) 1/2 AR08

GUARANTEE PERIOD(OPERATION TIME) : 100,000CYCLE

ROTATING DEGREE : 135DEGREE

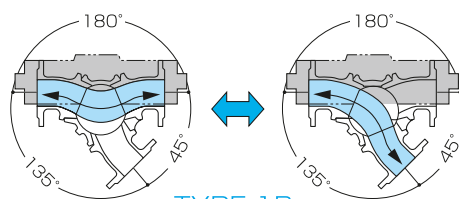
MODEL	VALVE SIZE (B)											CYLINDER VOLUME 1STROKE cm ³	AIR CONSUMPTION 0.P.0.4MPa	WEIGHT kg	O-RING DIMENSION
	HY1,HY1M					HY2,HY2M									
	1	1 1/2	2	2 1/2	3	4	5	6	8	10	12				
AR 01	■											370	1.85	7	P60
AR 02		■		■	■							930	4.65	19	P90
AR 03			■	■		■						1,600	8.00	29	P110
AR 04					■		■	■				3,800	19.0	57	P140
AR 05						■			■			6,000	30.0	95	P165
AR 06							■	■		■		12,300	61.5	165	P205
AR 07									■		■	24,500	122.5	300	P205
AR 08										■	■	47,300	236.5	510	P265

(注) ■HY1 · HY2, ■HY1M · HY2M

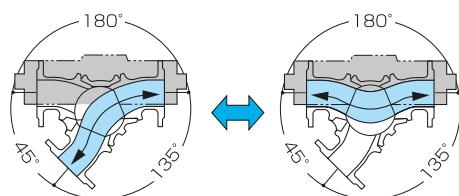
APPLICABLE FLUID

NYLON PELLETT, POVAL POWDER, PVC POWDER, BAKELITE POWDER, ABS POWDER, PET PELLETT, EPOXY RESIN POWDER, POLYCARBONATE RESIN, POLYCARPOLATE, POLYSTYRENE PELLETT, ACRYLIC RESIN, FILM SCRAP, MONOMER, CARBON FINE POWDER, VINYL CHLORIDE POWDER, MATERIAL OF LASER DISC, MELAMINE, CARBON DUST, PULP SOLUTION, ORE POWDER, CEMENT POWDER, COKE POWDER, FLY ASH, ALUMINUM ASH, CLAY SPRAY, SODA ASH, LIME, SULFUR POWDER, DIATOMITE, DUST COAL, SILICON POWDER, CALCIUM CARBONATE, BLACK LEAD, TITANIUM OXIDE, IRON OXIDE, SODIUM CARBONATE, SILICA POWDER, etc

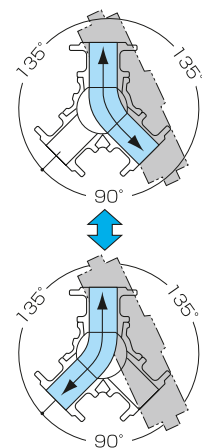
FLOW DIRECTION



TYPE-1R

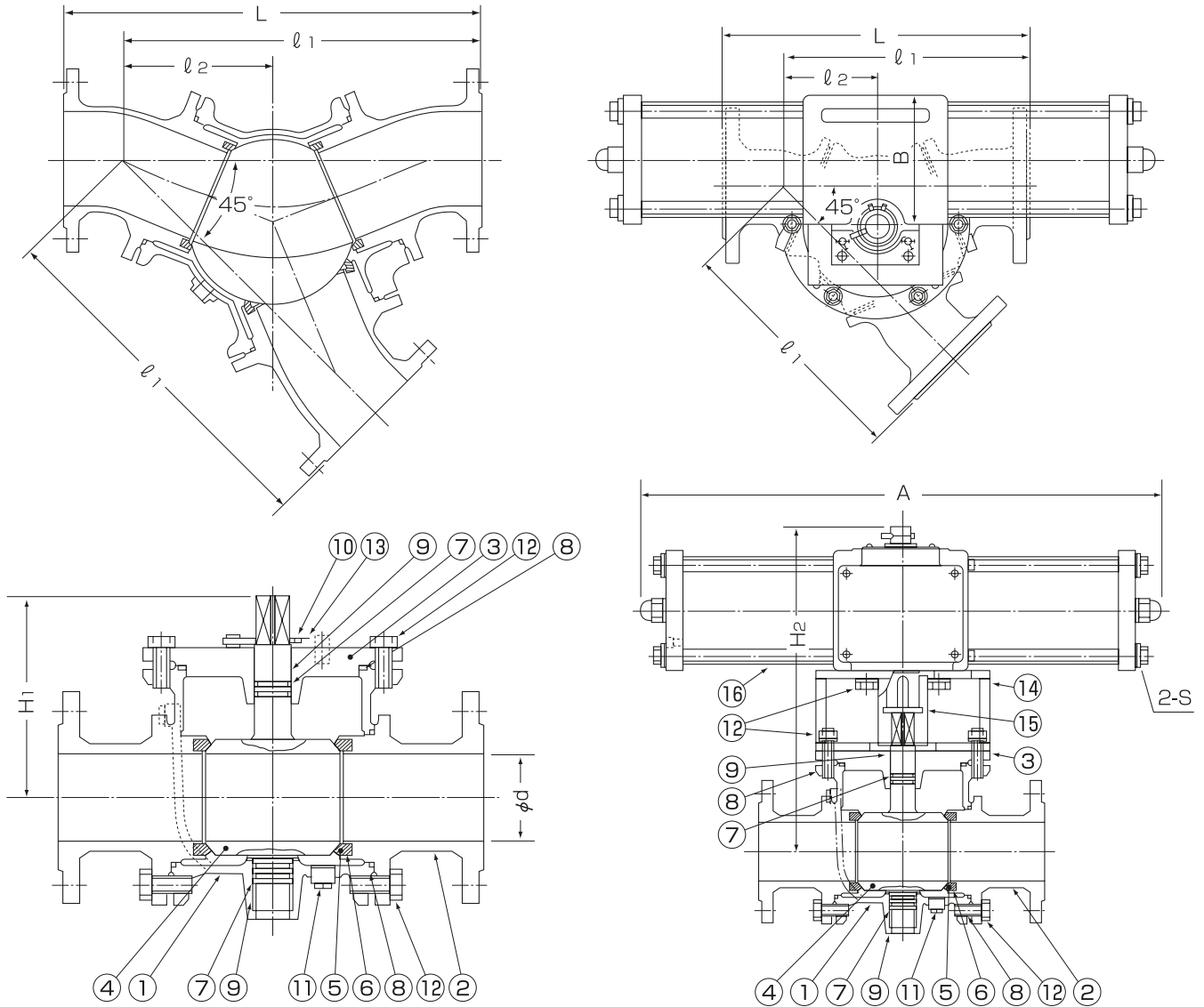


TYPE-1L



TYPE-18R

●HY1/HY1M● ●HY1-AR/HY1M-AR●
 ●HY2/HY2M● ●HY2-AR/HY2M-AR●

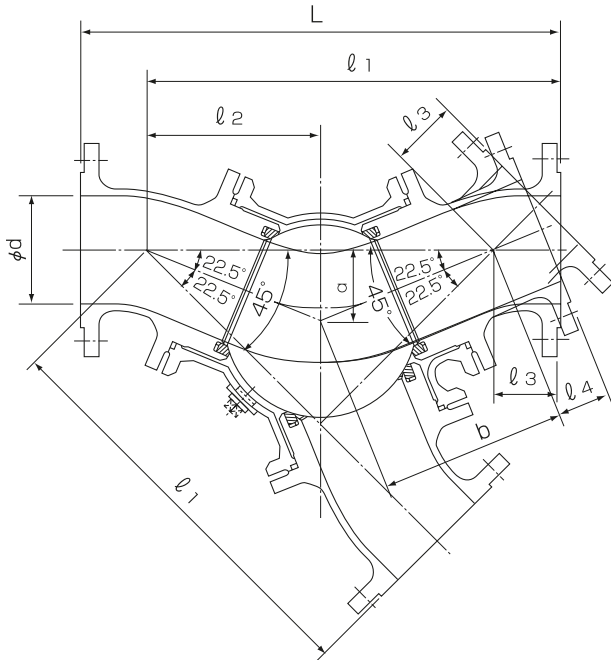


MAIN DIMENSION

SIZE	HY1/HY2M, HY2/HY2M							HY1-AR, HY2-AR					HY1M-AR, HY2M-AR						
	d	L	l ₁	l ₂	H ₂	☆	HY1 WEIGHT	H ₂	A	B	S	CYLINDER SIZE	WEIGHT	H ₂	A	B	S	CYLINDER SIZE	WEIGHT
1B	25	230	180	65	115	250	10	266	432	95.5	Rc(PT) 1/4	AR01	19	266	432	95.5	Rc(PT) 1/4	AR01	19
1 1/2B	38	250	199	74	125	250	17	276	432	95.5	Rc(PT) 1/4	AR01	26	329	554	127.5	Rc(PT) 1/4	AR02	40
2B	51	280	224	84	145	300	22	286	432	95.5	Rc(PT) 1/4	AR01	35	375	652	149.5	Rc(PT) 1/4	AR03	59
2 1/2B	64	320	264	104	160	350	33	364	554	127.5	Rc(PT) 1/4	AR02	57	390	652	149.5	Rc(PT) 1/4	AR03	70
3B	76	360	291	111	175	400	41	380	554	127.5	Rc(PT) 1/4	AR02	67	449	848	188.5	Rc(PT) 1/4	AR04	103
4B	102	460	384	154	210	600	71	444	652	149.5	Rc(PT) 1/4	AR03	124	533	1036	228.5	Rc(PT) 3/8	AR05	186
5B	127	560	483	203	245	1000	127	519	848	188.5	Rc(PT) 1/4	AR04	200	619	1242	275	Rc(PT) 3/8	AR06	291
6B	152	660	547	217	275	1200	173	554	848	188.5	Rc(PT) 1/4	AR04	249	649	1242	275	Rc(PT) 3/8	AR06	351
8B	203	800	677	277			430	636	1036	228.5	Rc(PT) 3/8	AR05	437	689	1195	280	Rc(PT) 3/8	AR07	700
10B	254	950	805	330			640	787	1242	275	Rc(PT) 3/8	AR06	723	872	1591	348	Rc(PT) 1/2	AR08	1100
12B	305	1100	934	384			960	872	1195	574	Rc(PT) 3/8	AR07	1180	—	—	—	—	—	—

☆Length of hand lever HY1、HY2 (Different length of hand lever HY1M、HY2M)

SOCKET COMBINATION DIMENSION LIST



SIZE	d	L	l ₁	l ₂	a	b	l ₃	l ₄
1B	25	230	180	65	26.9	70.4	50	44.6
1½B	38	250	199	74	30.7	80.1	51	44.9
2B	51	280	224	84	34.8	90.9	56	49.1
2½B	64	320	264	104	43.1	112.6	56	47.4
3B	76	360	291	111	46.0	120.1	69	59.9
4B	102	460	384	154	63.8	166.7	76	63.3
5B	127	560	483	203	84.1	219.7	77	60.3
6B	152	660	547	217	89.9	234.9	113	95.1
8B	203	800	677	277	114.7	299.8	123	100.2
10B	254	950	805	330	136.7	357.2	145	117.8
12B	305	1100	934	384	159.1	415.6	166	134.4

MAIN MATERIAL LIST

	MAME OF PARTS	HY1, HY2 (SOFT SEAT)	HY1M, HY2M (METAL SEAT)
1	BODY	Stainlee Steel, C.I.	←
2	BODY CAP	Stainlee Steel, C.I.	←
3	TOP FLANGE	Stainlee Steel, C.I.	←
4	BALL	STAINLESS STEEL	STAINLESS STEEL (HCr PLATING)
5	BALL SEAT	R.PTFE	STAINLESS STEEL (STELLITED)
6	BACK SEAT	SILICONE RUBBER	←
7	STEM PAKING (O-RING)	NBR or VITON	←
8	GASKET (O-RING)	NBR or VITON	←
9	BERRING	SUS+R.PTFE	←
10	STOPPER	SUS (3B) SS41 PAINTED (4B)	←
11	PLUG	SUS or FC	←
12	BOLT	SS41 (PLATING)	←
13	PLATE	A 4	←
14	YOKE	SS41 (PAINTING)	←
15	JOINT	SS41 (PLATING)	←
16	CYLINDER	AC2A-F, etc	←

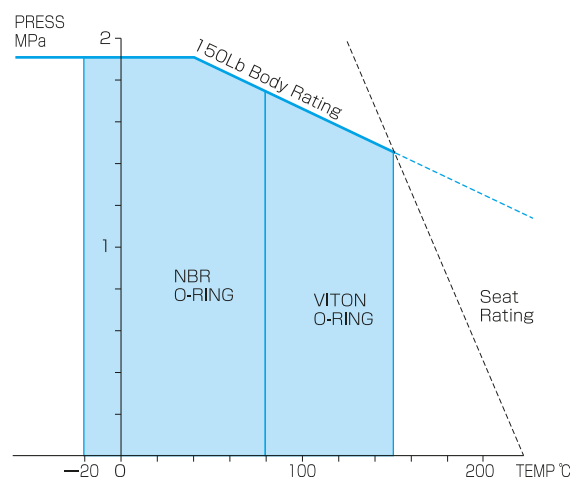
O-RING DIMENSION LIST

	STEM PACKING	GASKET
1B	P16 - 4PCS	G55 - 3PCS, G70 - 1PCE
1½B	P16 - 4PCS	G70 - 3PCS, G90 - 1PCE
2B	P21 - 4PCS	G85 - 3PCS, G105 - 1PCE
2½B	P24 - 4PCS	G105 - 3PCS, G130 - 1PCE
3B	P26 - 4PCS	G115 - 3PCS, G150 - 1PCE
4B	P34 - 4PCS	G145 - 3PCS, G195 - 1PCE
5B	P44 - 4PCS	G180 - 3PCS, G240 - 1PCE
6B	P50A - 4PCS	G220 - 3PCS, G280 - 1PCSE
8B	P60 - 4PCS	G270 - 3PCS, SPECIAL DIMENSION - 1PCE
10B	P80 - 4PCS	P335 - 3PCS, SPECIAL DIMENSION - 1PCE
12B	P100 - 4PCS	SPECIAL DIMENSION - 4PCS

TEST PRESSURE

MATERIAL	RATING	SHELL	SEAT
STAINLESS STEEL	JIS10K	1.5MPa (AIR)	0.59MPa (AIR)
	150Lb	2.1MPa (AIR)	0.59MPa (AIR)
CAST IRON	JIS10K	1.5MPa (AIR)	0.59MPa (AIR)

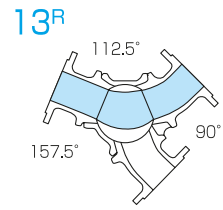
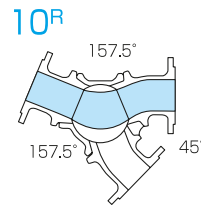
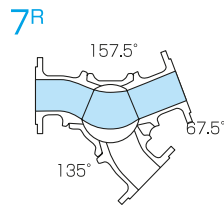
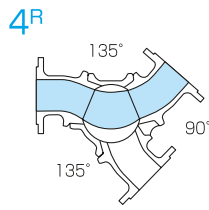
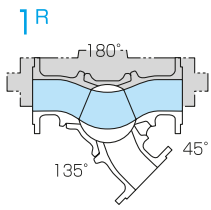
TEMP-PRESS. RATING



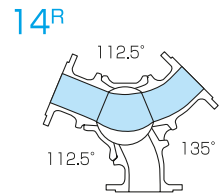
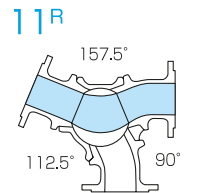
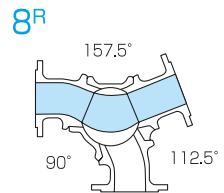
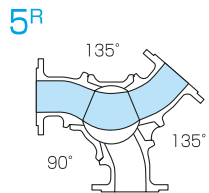
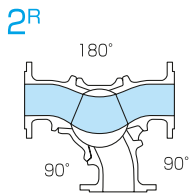
● BODY CAP COMBINATION LIST ●

FLOW DIRECTION Left → Right

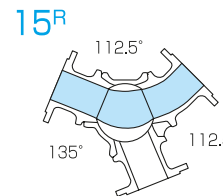
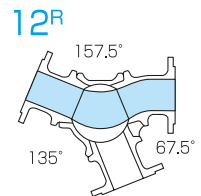
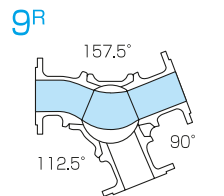
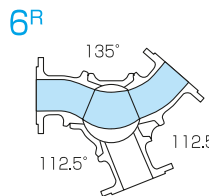
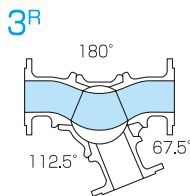
※ The following drawing is for top vien of the valve.



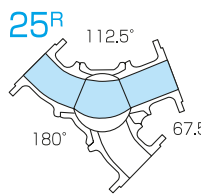
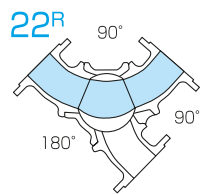
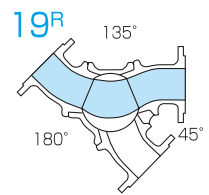
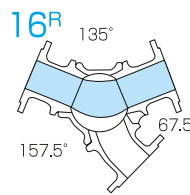
FLOW DIRECTION



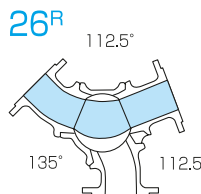
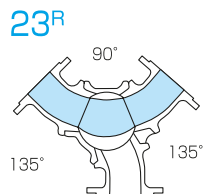
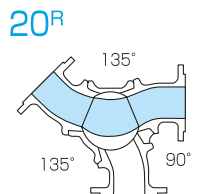
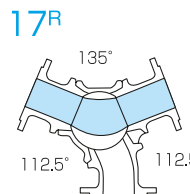
FLOW DIRECTION



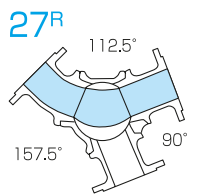
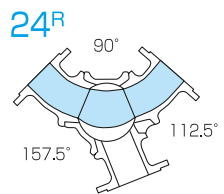
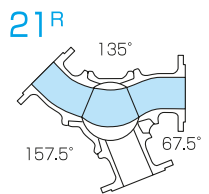
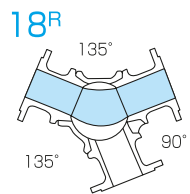
FLOW DIRECTION



FLOW DIRECTION



FLOW DIRECTION



FLOW DIRECTION

PLEASE INFORM US THE FOLLOWING POINTS AT THE TIME OF AN ORDER

BODY CAP COMBINATION TYPE

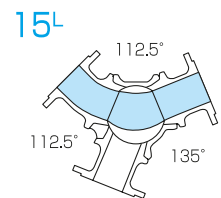
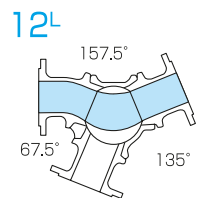
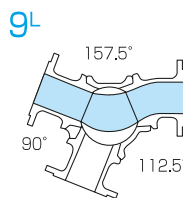
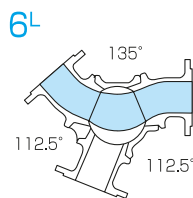
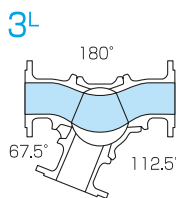
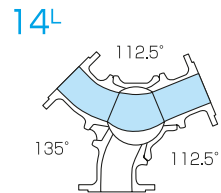
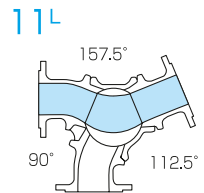
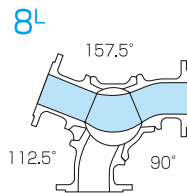
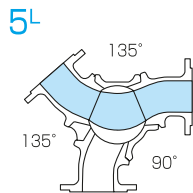
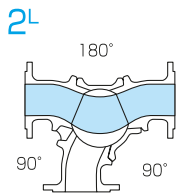
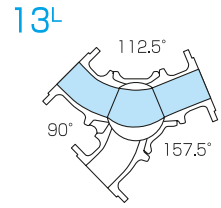
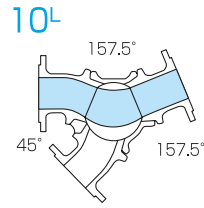
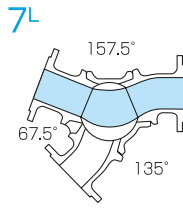
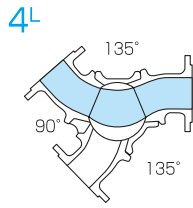
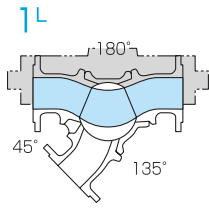
Please select as list and inform us (1R~27R, 1L~27L)

IN CASE OF ATTACH THE SINGLE SOLENOID VALVE

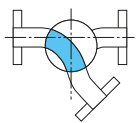
Please inform us energized position as right drawing (P53, P54)

FLOW DIRECTION Right → Left

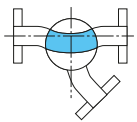
※ The following drawing is for top vien of the valve.



R-TYPE

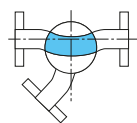


P54 : ENERGIZED

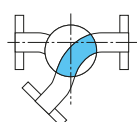


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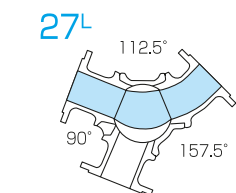
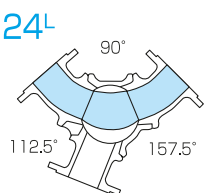
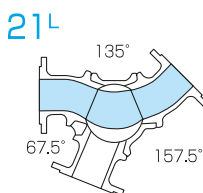
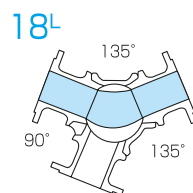
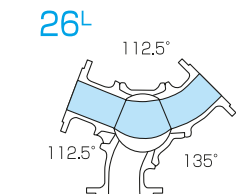
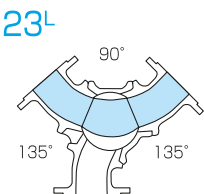
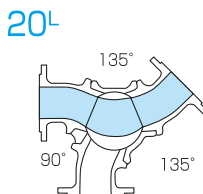
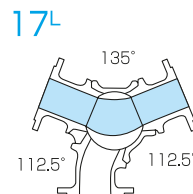
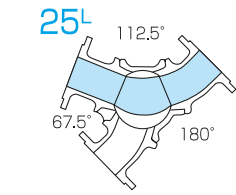
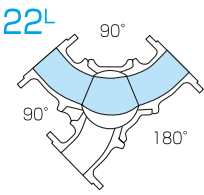
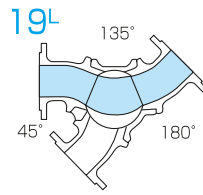
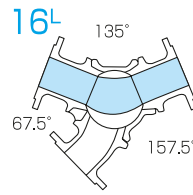
L-TYPE



P54 : ENERGIZED



P53 : ENERGIZED



FOR PROPER USE OF HISAKA BALL VALVE

Following points must be considered in order to use HISAKA ball valves in a proper way.

1. Do not allow the slurry (dirts in the pipe, welding slag, rust, etc.) to enter into the standard valve. If the slurry thrust into the ball seat or causes damage on it, the leakage or defective function may result.
Install the valve only after the through cleaning is made inside the pipe.
If the liquid containing the slurry is to be supplied, exchange the standard valve with the valve for slurry use.
2. Do not use the standard valve to the liquid which shows a large temperature fluctuation. If the high temperature liquid is supplied to the low temperature condition, the liquid inside the valve body shows the heat expansion, forming the high pressure. In such a case, the leakage or defective function may be caused.
Either reduce the temperature fluctuation or exchange with the valve having the relief port in the above case.
3. Do not apply undue force (as caused by one-side tightening of bolts, the tightening against a large gap, etc.) or vibration to the valve. Otherwise, the leakage or faulty function may happen. Observe the piping dimensions as instructed and arrange the support for a heavy valve.
4. Bolts and nuts are loosened in some cases due to the vibration during the transport. Therefore, check the tightening condition before use. If found Loose, retighten the bolts.
5. Special treatment is necessary, if the valve is used for oxygen or hydrogen service. Please clarify the detail of operation condition and fluid.
6. The flow direction of fluid is designated in certain valves. The reverse flow may cause the leakage. Install the valves as instruction, if the flow direction is designated.
7. At the time of disassembling the automatic valve, do not disassemble the pneumatic cylinder if the pressure still remains inside. Otherwise, the parts pop out. disassemble it only after the air is purged.
8. Do not disassemble the pneumatic cylinder of spring back type.
If it is to be disassembled under unavoidable circumstances, exchange the end cap set bolt with the long bolt before disassembling. Otherwise, the spring may jump out what is dangerous.
9. Make the working test once a month or so, automatic valve is kept out of operation over a long period.
10. In case of using the teflon seat valve only for ON-OFF operation, the interim opening position deforms the seat and the leakage is caused.
11. If you have any question or requirement about our product, please contact us or our local sales agent.



- ISO 14001 CERTIFIED FACTORY
- ISO 9001 CERTIFIED FACTORY
- HIGH PRESSURE GAS AUTHORISED FACTORY
- API CERTIFIED FACTORY

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Printed in Japan