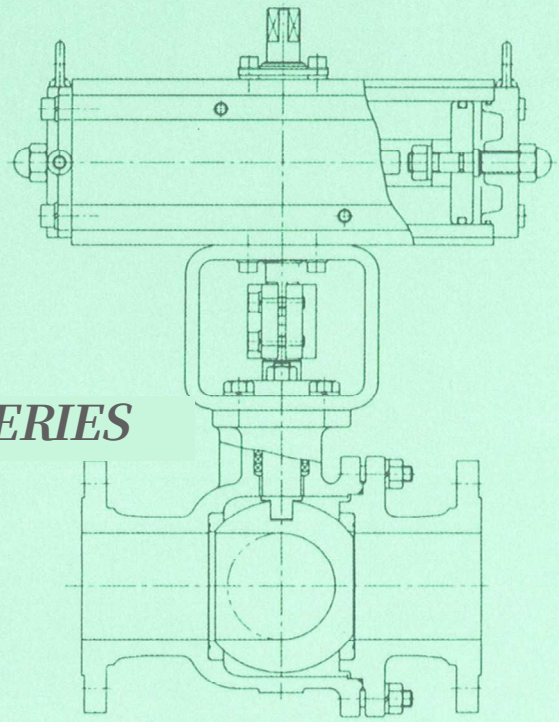
STANDARD SPECIFICATION

3 WAY TYPE BALL-VALVE



302L, 302T SERIES

KOSO

KOSO'S Control Valves and Instrumentation Systems

KOSO ,the leading industrial control valve manufacturer with strong reserch and development capability of its own, has been meeting requirements of the time. Always making available a wide range of product lines that can satisfy the needs of the coming century, KOSO is committed to providing control valves and the system thereof, of highest quality and reliability, produced under its quality assurance system complying with ISO 9001 standard.

Here KOSO presents its technological catalog, introducing various types of KOSO. control valves, hoping to be of service as you select valves for your specific applications.

If you have questions on this technological catalog or require additional printed materials, please contact our sales representative nearest you.

3 WAY TYPE 302L, 302T SERIES

GENERAL

The Series 302L, 302T two-position automatic ball valves are available in two types.
The diverting type (L) splits flow by switching between two directions of inlets while the converging type (T) mixes two fluids by switching between two outlets.
Both of those moves are made with a mere quarter turn of the stem.

STANDARD SPECIFICATIONS

BODY

Type	L port 2 seat (330L series)
	T port 4 seat (330T series)
Size	Full bore type : 1/2" ~ 8"
	Reduced bore type : 8" ~ 10"
Rating	JIS 10K, 20K / ANSI 150#, 300#
Connection	Flanged (RF, FF)
Material	SCPH2, SCS14 / A216 WCB, A351 CF8M
Bonnet	Standard type : -34~+204℃
	If steam jacket type is necessary, please use two of those in the Series 300K.
Gland Packing	PTFE
Gaset	PTFE
Painting color	Munsell N-6 (Epoxy resin group) is standard. In the case of stainless steel body,
	no painting is standard.

※ Features : Anti-Static devices, Optional grafoil Body seal & stem packing for fire safe design.

ACTUATOR

Type	6300RB : Pneumatic cylinder type	
Specification	Spring return type	Double acting type
Purpose	On-Off	
Air supply	400, 500 kPa[guage]	
Connection	Rc1/4	
Angle rotation	90 deg.	
Direct action	Air to valve shut	Valve open or shut by On-Off Signal.
Reverse action	Air to valve open	
Ambient Temp.	Standard type : -20 ~ +80℃	
	High temperature service (option) : -20 ~ +100℃	
	Low temperature service (option) : -40 ~ +80℃	
Painting	Cylinder ---------- Alodur(Special hard anodized): Gray	
	End cap ---------- Chromatized + Polyster cated: Gray	
Option	Air-set, Solenoid valve, Limit switch, Speed controller,	
	Lock valve, Speed controller, Rotation stopper, Manual handle, etc.	

PERFORMANCE

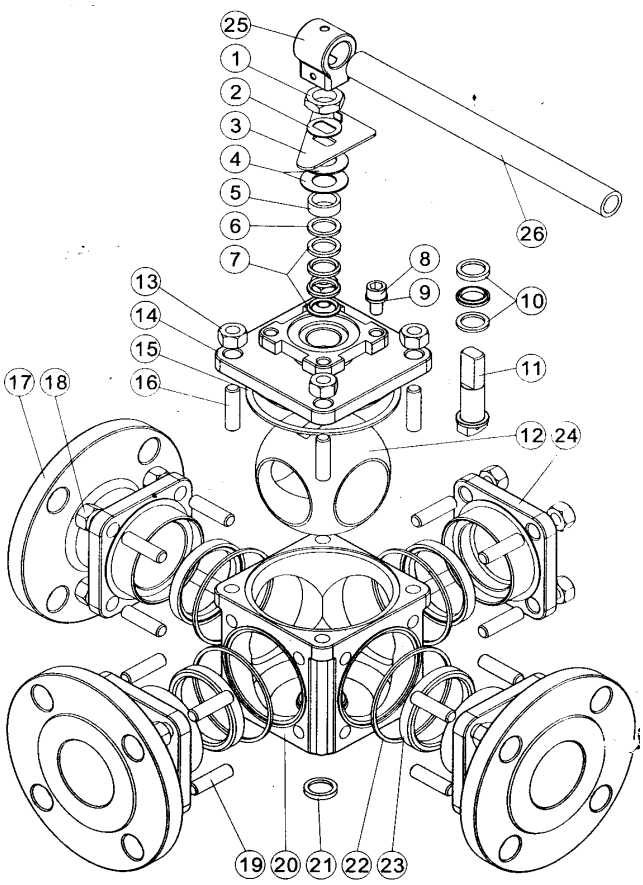
Rated Cv	See Table.3.
Seat leakage	Tight shut-off

OPTIONAL SPECIAL SPECIFICATIONS (Additional cost is required)

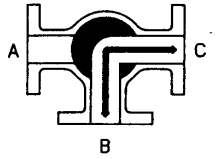
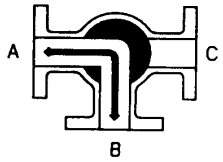
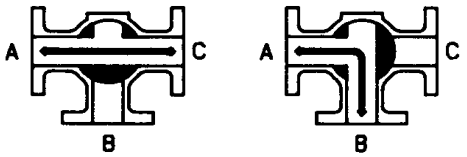
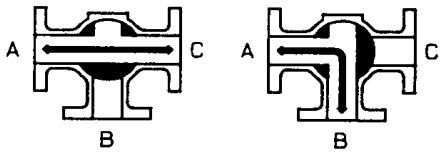
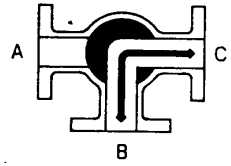
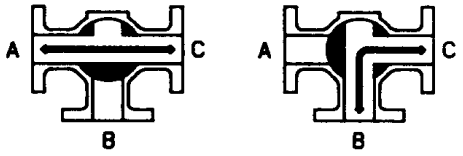
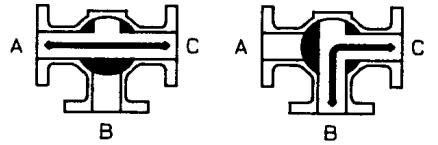
Special testing for body	Material certificate, Liquid penetment testing, Radiographic testing, Flow characteristic testing, Low temperature testing, Steam testing
Special cleaning for body	Oxygen clean, Oil-free, Water-free.
Special specification for body and actuator	Sand and Dust proof, Sally environment proof, Cold area proof, Tropical area proof, Copper-free alloy, Vacuum service proof, Special piping and fitting, SUS bolt and nut for exposed parts, Non-standard painting
Authorization	Japanese government authorization for High pressure gas.

Material of construction

NO	PART NAME	MATERIAL	
1	HANDLE NUT	SUS304	S45C
2	LOCK WASHER	SUS304	
3	TRIANGLE STOPPER	SUS304	
4	BELLEVILLE WASHER	SUS301	WCB1075
5	GLAND	SUS304	
6	THRUST WASHER	50% PTFE/50% SS POWDER	
7	V-RING STEM PACKING	PTFE	
8	STOP BOLT	A193 Gr.B8	A193 Gr.B7
9	SPRING WASHER	SUS304	S45C
10	SEAL ARRANGEMENT	TFM 1600 SUS316 50% PTFE/50% SS POWDER	
11	ANTI-STATIC STEM	A276 TYPE 316	
12	BALL	ASTM A351 Gr. CF8M	ASTM A351 Gr. CF8M
13	NUT	A194 Gr.8	A194 Gr.2H
14	COVER	ASTM A351 Gr. CF8M	ASTM A216 WCB
15	COVER SEAL	PTFE	
16	STUD	A193 Gr.B8	A193 Gr.B7
17	FLANGE CAP	ASTM A351 Gr. CF8M	ASTM A216 WCB
18	NUT	A194 Gr.8	A194 Gr.2H
19	STUD	A193 Gr.B8	A193 Gr.B7
20	BODY	ASTM A351 Gr. CF8M	ASTM A216 WCB
21	BALL SUPPORT BEARING	25% CARBON FILLED PTFE	
22	BODY SEAL	PTFE	
23	BALL SEAT	RPTFE	
24	BLOCK CAP	ASTM A351 Gr. CF8M	ASTM A216 WCB
25	HANDLE ADAPTOR	ASTM A351 Gr. CF8M	
26	PIPE HANDLE	SUS304	



Flow Direction for valve action

<table>
<tr><th colspan="2">302L series (L port 2 seat)</th><th colspan="2">302T series (T port 4 seat)</th></tr>
<tr><td>Double Acting Cylinder</td><td>Spring Return Cylinder</td><td>Double Acting Cylinder</td><td>Spring Return Cylinder</td></tr>
<tr><td>☐ Solenoid Valve Energized B⇔A
☐ Solenoid Valve Energized B⇔C</td><td>☐ In case DA Action Actuator
Air To B⇔A / Air Less B⇔C</td><td>☐ Case 1 A : Solenoid Valve Energized A⇔C
☐ Case 1 B : Solenoid Valve Energized A⇔B</td><td>☐ In case DA Action Actuator
Air To A⇔C / Air Less A⇔B</td></tr>
<tr><td rowspan="3"></td><td></td><td></td><td></td></tr>
<tr><td>☐ In case RA Action Actuator
Air To B⇔C / Air Less B⇔A</td><td>☐ Case 2 A : Solenoid Valve Energized A⇔C
☐ Case 2 B : Solenoid Valve Energized B⇔C</td><td>☐ In case RA Action Actuator
Air To A⇔C / Air Less B⇔C</td></tr>
<tr><td></td><td></td><td></td></tr>
</table>

* 302L(2 seat) : The inlet of valve don’t have seat. (Diverting only available)
* 302T(4 seat) : Available for Diverting and Mixing service.

Range of Pressure and Temp. for Seat-Ring (Mat'L: RPTFE)

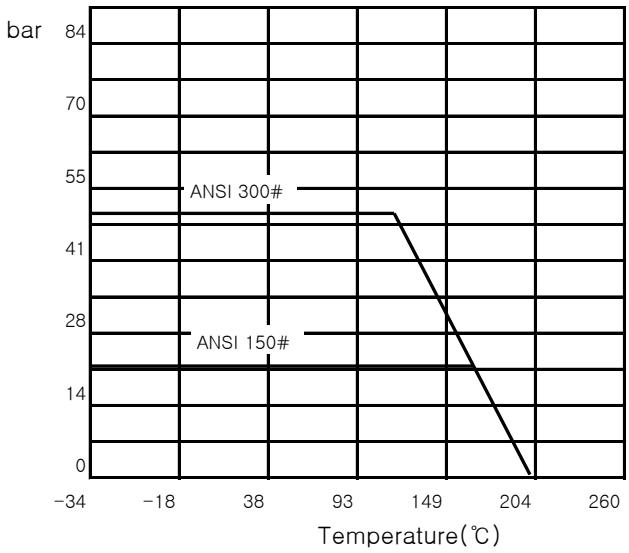


Table 3 Rated Cv Value

Valve Size Inch(mm)	Staight Through	Side
	Cv	Cv
1/2" (15A)	16	10
3/4" (20A)	24	14
1" (25A)	45	25
1-1/4" (32A)	58	32
1-1/2" (40A)	100	56

Valve Size Inch(mm)	L port	T port
	Cv	Cv
2" (50A)	110	100
2-1/2" (65A)	160	150
3" (80A)	260	240
4" (100A)	430	400
6" (150A)	980	970
8" (200A) Full / Reduce	1900 / 520	1850 / 500
10" (250A) Full / Reduce	1090	1050

Torque Figure (For 3-way Ball Valve Full Port)

Close to Open Torque at △P=10 Bar
Standard Seats(PTFE)

Size	Nm	Nm
1/2"	11	3.5~10.7
3/4"	13.5	4.2~12.7
1"	23	6.5~19.6
1-1/2"	35	12.9~39.2
2"	51	17.7~53.9
2-1/2"	102	29.1~88.2
3"	135	42.0~127.4
4"	254	64.6~196
6"	458	139.7~423.4

RPTFE SEAT	Actuator Sizing
x 1.15	x 1.2
12.65	15.18
15.525	18.63
26.45	31.74
40.25	48.3
58.65	70.38
117.3	140.76
155.25	186.3
292.1	350.52
526.7	632.04

* Torque values can depending upon temperature,pressure,line medium and seat material.
  Above figures are for clean fluids only.

15% for dry gas
35% for fluids with solid or abrasive contents.
15% for RPTFE seat
25% for MG1241 (carbon & ss filled seat)

* For actuator sizing, we recommend to add at least 20% of the break-away torque of the valve as safety factor.

*** T-port ball valve torque is same as L-port ball valve torque**

[ACTUATOR SELECTION TABLE] ==> 302L & 302T + CYLINDER ACTUATOR

Size	Required Torque (N-m)	BEST ACTUATOR					
		Spring Return	Torque (N-m)	Remark	Double Acting	Torque (N-m)	Remark
1/2"	15.18	AT200 SR5	22.1		AT100 (5K)	29.3	
3/4"	18.63	AT250 SR4	27		AT100 (5K)	29.3	
1"	31.74	AT300 SR5	50.7		AT200 (5K)	58.2	
1-1/2"	48.3	AT400 SR4	84		AT200 (5K)	58.2	
2"	70.38	AT400 SR5	105		AT250 (5K)	91.5	
2-1/2"	140.76	AT500 SR5	224	7317RA	AT400 (5K)	277	
3"	186.3	AT500 SR5	224	7317RA(5)	AT400 (5K)	277	
4"	350.52	7323RB (5)	589		AT500 (5K)	567	
6"	632.04	7328RB (5)	995		AT600 (5K)	1064	

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Wuxi Koso Control Valve Co., Ltd., China	Tel.(86)510-2408634	FAX.(86)510-2402498
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