

# ASAHI

## BALL VALVE

P.043 BALL VALVE TYPE 21, 21 $\alpha$

P.053 WATER BALL VALVE

P.057 3 WAY BALL VALVE TYPE 23

P.063 3 WAY BALL VALVE TYPE 23 H

P.065 LAB COCK

P.067 COMPACT BALL VALVE TYPE 27



## BALL VALVE LINEUP

APPLICATION	TYPE	SIZE	MATERIAL			
			U-PVC	C-PVC	PP	PVDF
FOR CHEMICALS	21 $\alpha$	15 — 50mm	●	●		
	21	15 — 50mm			●	●
		65 — 100mm	●	●	●	●
FOR WATER	WATER BALL VALVE	15 — 50mm	●			
3 WAY BALL	23	15 — 100mm	●	●	●	●
	23H	25 — 40mm			●	
LAB COCK	—	1/4 — 3/8inch	●			
COMPACT SIZE	27	13 — 50mm	●	●		

## AVAILABLE OPTIONS **AUTOMATIC** \* Options other than those listed below are also available. Contact us for inquiry.

	PNEUMATIC			ELECTRIC	
	TYPE TA	TYPE AA	TYPE VC	TYPE T	TYPE V
SOLENOID VALVE (NAMUR)	●	●			
SOLENOID VALVE (WITH EXHAUST THROTTLE VALVE WITH SILENCER)			● <sup>*1</sup>		
FILTER REGULATOR	●	●			
SPEED CONTROLLER	●	●	●	● <sup>*3</sup>	
BYPASS VALVE (WITH SPEED CONTROLLER)	●	●			
LIMIT SWITCH BOX	●	●	●		
LIMIT SWITCH	●	●			
OUTPUT CONTACT LIMIT SWITCH				STANDARD	
INTERMEDIATE OUTPUT CONTACT LIMIT SWITCH				● <sup>*3</sup>	
PROXIMITY SWITCH	●				
E/P POSITIONER	●				
P/P POSITIONER	●				
E/E POSITIONER				● <sup>*3</sup>	
MANUAL OPERATION LEVER	●				
MANUAL OVERRIDE	●			●	
FULL OPENING ADJUSTMENT	●				
SPECIAL PAINTING (ACTUATOR ONLY)	●			●	
SPECIAL FITTING (STAINLESS STEEL)	●	●		●	
METAL INSERT PROVIDED (WITH ENSAT)	●	●		●	
SPACE HEATER				● <sup>*2</sup>	STANDARD
POTENTIOMETER				● <sup>*3</sup>	

\*1 Not compatible with the NAMUR standard. \*2 Provided as standard for 65 mm or more.

\*3 When it is mounted on a valve with a size of 50 mm or less, the actuator specifications will change.



SOLENOID VALVE



SPEED CONTROLLER



LIMIT SWITCH BOX



LIMIT SWITCH



POSITIONER

# BALL VALVE TYPE 21, 21α

- EQUIPPED WITH TOP FLANGE, ALLOWING FOR EASY CHANGE TO AUTOMATIC VALVE.
- COMES WITH BOTTOM STAND TO FACILITATE MOUNTING ON RACKS AND PANELS (See the Ensat mounting procedure on page 69).
- DOUBLE O-RING ON THE STEM IMPROVES DURABILITY AND SEALING PROPERTY.

MANUAL



AUTOMATIC



## BASIC SPECIFICATIONS

**VALVE TYPE** ————— **BALL VALVE TYPE 21, 21α**  
**SIZE** ————— **15 mm—100 mm (1/2 inch—4 inch)**  
**BODY MATERIAL** ————— **U-PVC C-PVC PP PVDF**  
**SEAL MATERIAL / O-RING** ————— **EPDM FKM etc.**  
**CONNECTION / FLANGED** ————— **JIS5K, JIS10K, DIN PN10, ANSI CLASS150**  
**SOCKET** ————— **JIS, DIN, ANSI**  
**THREADED** ————— **Rc, Rp, NPT**  
**HIGH PURITY SERIES** ————— **LUBRICANT FREE**

	FLUID TEMPERATURE	MAXIMUM WORKING PRESSURE (NORMAL TEMPERATURE) (MPa)(kgf/cm <sup>2</sup> )	CONNECTION METHOD		
			FLANGED	SOCKET	THREADED
U-PVC	0°C ~ 50°C	1.0 {10.2}	○	○	○
C-PVC	0°C ~ 90°C	1.0 {10.2}	○	○	○
PP	-20°C ~ 80°C	1.0 {10.2}	○	○	○
PVDF	-20°C ~ 100°C	1.0 {10.2}	○	○	○

**NOTE** (1) The ball-type valves have dead spaces for structural reasons. Note that volatile liquids, such as hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) and sodium hypochlorite (NaClO), vaporize in those dead spaces, which may cause abnormal pressure increase in the valve. (When the internal pressure abnormally increases due to vaporization, the gas will be compressive fluid. If the valve breaks in this state, it will be very dangerous, causing explosion and scattering of fragments.) (2) The maximum working pressure is the value including the water hammer pressure. Be careful that the maximum working pressure is not exceeded during use.

\* Concerning the allowable pressure for each temperature and material, see the technical documents at the end of this catalog.



### Multi Functional Handle

Removing the handle and placing the raised lugs into the carrier allow for easy disassembly of the valve.

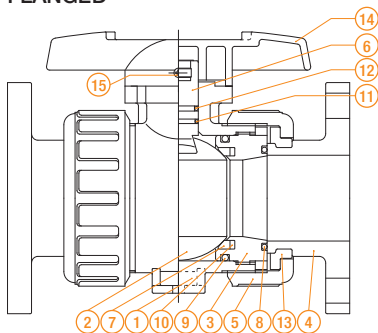
\* The handle has other colors.

(blue, white, yellow)(Option)

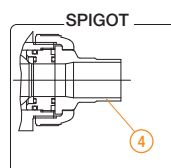
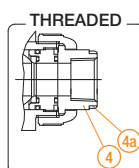
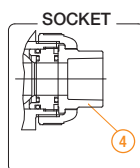
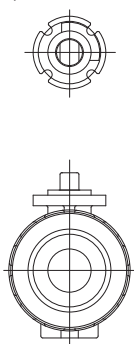


## PARTS LIST **MANUAL**

### FLANGED



### (DETAILS OF STEM)



(DETAILS OF ENSAT FITTING MOUNTING HOLE)

PART NO. / NAME	QTY	MATERIAL	PART NO. / NAME	QTY	MATERIAL	PART NO. / NAME	QTY	MATERIAL
① BODY	1	U-PVC, C-PVC, PP, PVDF	⑥ STEM	1	U-PVC, C-PVC, PP, PVDF	⑫ O-RING (E)	1	EPDM, FKM, etc.
② BALL	1	U-PVC, C-PVC, PP, PVDF	⑦ SEAT	2	PTFE	⑬ STOP RING	2	PVDF (Used for flanged type.)
③ UNION	1	U-PVC, C-PVC, PP, PVDF	⑧ O-RING (A)	2	EPDM, FKM, etc.	⑭ HANDLE	1	ABS
④ END CONNECTOR	2	U-PVC, C-PVC, PP, PVDF	⑨ O-RING (B)	1	EPDM, FKM, etc.	⑮ TAPPING SCREW (A)	1	SUS304
④a RING	2	SUS304 (Made of C-PVC. Used for threaded type of 15 to 25 mm.)	⑩ O-RING (C)	2	EPDM, FKM, etc.			
⑤ UNION NUT	2	U-PVC, C-PVC, PP, PVDF	⑪ O-RING (D)	1	EPDM, FKM, etc.			

## COMPATIBLE ACTUATOR **AUTOMATIC**

**PNEUMATIC TYPE TA**

For detailed specifications, see p.124

**ELECTRIC TYPE T**

For detailed specifications, see p.139

**PNEUMATIC TYPE AA**

For detailed specifications, see p.123

## TYPE CATEGORY **MANUAL** **AUTOMATIC**

The types are classified according to the size and material.

SIZE	BODY MATERIAL			
	U-PVC	C-PVC	PP	PVDF
15mm - 50mm	TYPE 21α			
65mm - 100mm	TYPE 21		TYPE 21	

PRODUCT MODEL CODE LIST	ACTUATION	TYPE	OPERATING SYSTEM	BODY MATERIAL	SEAL MATERIAL	CONNECTION	STANDARD	SIZE	HIGH PURITY SERIES
<b>MANUAL</b>	V	**	LV	*	*	*	*	***	1
	V MANUAL VALVE	21 TYPE 21 2A TYPE 21 $\alpha$	LV LEVER TYPE	U U-PVC C C-PVC P PP F PVDF	E EPDM V FKM	S SOCKET N THREADED P SPIGOT F FLANGED	J JIS D DIN A ANSI 1 JIS10K 5 5K	015 15mm 100 100mm	1 LUBRICANT FREE

PRODUCT MODEL CODE LIST	ACTUATION	TYPE	ACTUATOR TYPE	ACTION / POWER SOURCE	BODY MATERIAL	SEAL MATERIAL	CONNECTION	STANDARD	SIZE	SPACE HEATER	HIGH PURITY SERIES
<b>AUTOMATIC</b>	A	**	*	*	*	*	*	*	***	OC*	1
	A AUTOMATIC VALVE	21 TYPE 21 2A TYPE 21 $\alpha$	PNEUMATIC K TYPE TA A TYPE AA ELECTRIC T TYPE T	PNEUMATIC F DOUBLE ACTING G AIR TO OPEN S AIR TO CLOSE ELECTRIC 1 Single-Phase 100V 2 Single-Phase 200V	U U-PVC C C-PVC P PP F PVDF	E EPDM V FKM	S SOCKET N THREADED P SPIGOT F FLANGED	J JIS D DIN A ANSI 1 JIS10K 5 JIS5K	015 15mm 100 100mm	OC OC * Indicate only for electric type only.	1 LUBRICANT FREE

**NOTE** (1) PP and PVDF socket types are weld type. Note, however, that JIS PP 32-mm socket type is not produced.  
(2) PVDF socket type compatible with the JIS standard is not available.  
(3) A handle set with a lock mechanism (for malfunction prevention) is available as an option.

### Compatibility of face-to-face dimensions

Both valve face-to-face dimensions and body face-to-face dimensions are compatible between type 21 $\alpha$  and conventional type 21. Also, a change to type 21 $\alpha$  is available using the end connector and union nut for the existing piping (type 21).

### Compatibility of parts

Some of the body component parts are not compatible between type 21 $\alpha$  and type 21. Be careful when parts are changed on site. For details of parts compatibility, contact our sales office in your area.

### Identification of product

[Difference between products] (See Fig. 1.) The body appearance of type 21 $\alpha$  is different from that of type 21 to discriminate between them.

### Related materials

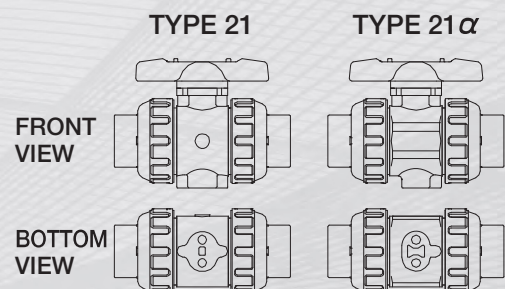
Due to the modification and release of type 21 $\alpha$ , some parts of related materials, such as outline drawing, instruction manual, and set parts list, have been revised.

Please obtain the latest version at our sales office in your area.

### Performance and options

There is no change in the performance (relationship between the working pressure and temperature, Cv value, chemical resistance, etc.) and options between type 21 and 21 $\alpha$ .

Fig. 1: Difference between products

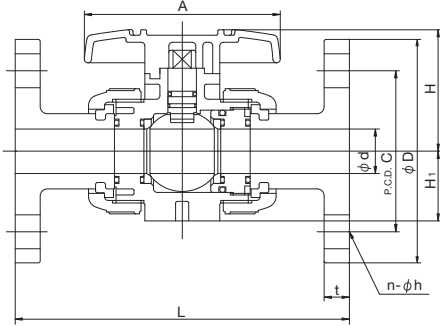


BALL VALVE TYPE 21, 21 $\alpha$

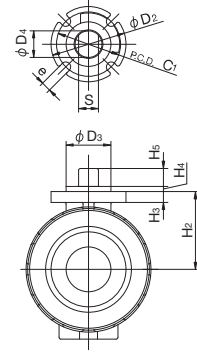
TYPE—V21LV, V2ALV

CONNECTION / FLANGED, SOCKET, THREADED—JIS, DIN, ANSI SPIGOT—DIN

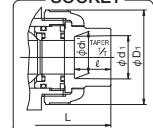
FLANGED



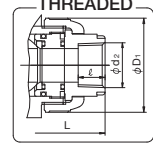
(DETAILS OF STEM)



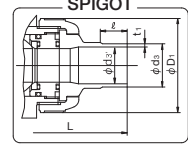
SOCKET



THREADED



SPIGOT



JIS, DIN (Unit: mm)

Table with columns for dimensions (mm): mm, d, d', D1, D2, D3, D4, C1, H, H1, H2, H3, H4, H5, A, S, S1, S2, S3, e. Rows represent nominal diameters from 10 to 100 mm.

JIS specification table with columns for connection types: FLANGED (JIS5K, JIS10K), SOCKET (U-PVC, C-PVC), THREADED (PP, PVDF), and SPIGOT. It includes dimensions for body and connections.

DIN specification table with columns for connection types: FLANGED (DIN PN10/PN16), SOCKET (U-PVC, C-PVC), THREADED (PP, PVDF), and SPIGOT. It includes dimensions for body and connections.

ANSI (Unit: inch)

ANSI specification table with columns for dimensions (inch): inch, mm, d, d', D1, D2, D3, D4, C1, H, H1, H2, H3, H4, H5, A, S, S1, S2, S3, e. Rows represent nominal diameters from 1/2 to 4 inches.

ANSI specification table with columns for connection types: FLANGED (ANSI CLASS 150), SOCKET (ASTM SCH40, ASTM SCH80), THREADED (PP, PVDF), and SPIGOT. It includes dimensions for body and connections.

AUTOMATIC

PNEUMATIC

TYPE TA

DOUBLE ACTING

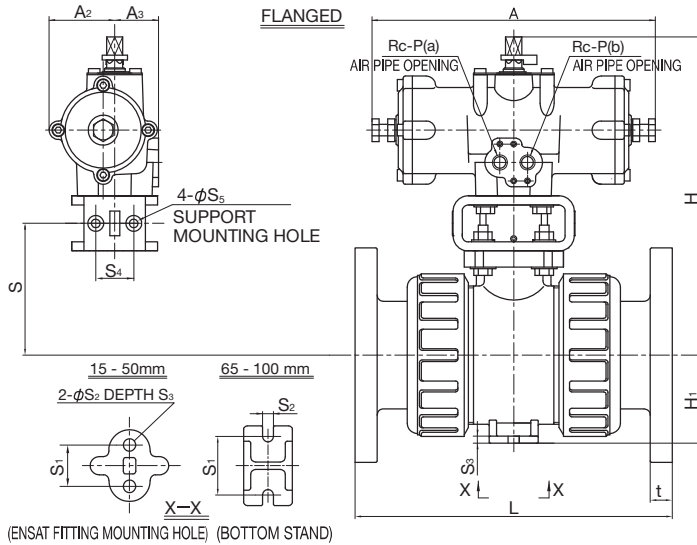
AIR TO OPEN

AIR TO CLOSE

# BALL VALVE TYPE 21, 21α

TYPE—A21K, A2AK

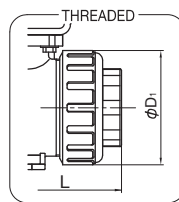
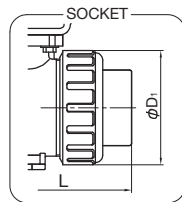
CONNECTION / FLANGED, SOCKET, THREADED—JIS, DIN, ANSI SPIGOT—DIN



### ACTUATOR SELECTION CHART

SIZE	ACTUATOR TYPE
15mm ( 1/2inch)	TA2A-0402D
20mm ( 3/4inch)	
25mm ( 1inch)	
32mm (1 1/4inch)	
40mm (1 1/2inch)	TA2A-050D
50mm ( 2inch)	
65mm (2 1/2inch)	TA2A-063D
80mm ( 3inch)	
100mm ( 4inch)	TA2A-080D

For detailed specifications, see P.124



### JIS, DIN (Unit: mm)

mm	D <sub>1</sub>	H	H <sub>1</sub>	A	A <sub>2</sub>	A <sub>3</sub>	S	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	S <sub>4</sub>	S <sub>5</sub>	P
15	48	159.5	29	110	25	32	-	19	7.3	11	-	-	1/8
20	60	166	35	110	25	32	-	19	7.3	11	-	-	1/8
25	70	173	39	110	25	32	-	19	7.3	11	-	-	1/8
32	82	182	47	110	25	32	-	30	9	15	-	-	1/8
40	100	224	55	210	46	46	-	30	9	15	-	-	1/4
50	126	235.5	66	210	46	46	-	30	9	15	-	-	1/4
65	133	268	72	250	57	38	107.5	48	9	6	32	7	1/4
80	152	277	85	250	57	38	116.5	55	11	7	32	7	1/4
100	210	348	110	292	71	45	151.5	65	11	8	42	9	1/4

mm	JIS										DIN												
	FLANGED JIS5K, JIS10K				SOCKET			THREADED			FLANGED DIN PN10/PN16				SOCKET			THREADED			SPIGOT		
	U-PVC C-PVC	PP	PVDF	t	U-PVC C-PVC	PP	U-PVC C-PVC	PP	PVDF	U-PVC C-PVC	PP	PVDF	t	U-PVC C-PVC	PP	PVDF	U-PVC C-PVC	PP	PVDF	U-PVC	PP	PVDF	
15	143	143	143	12	109	108	102	100	100	130	130	130	12	109	99	99	102	100	100	124	124	124	
20	172	172	172	14	128	126	120	119	119	150	150	150	14	128	113	113	120	119	119	144	144	144	
25	187	187	187	14	145	141	131	130	130	160	160	160	14	145	123	123	131	130	130	154	154	154	
32	190	190	190	16	162	-	150	146	146	180	180	180	16	162	139	139	150	146	146	174	174	174	
40	212	212	212	16	189	171	163	160	160	200	200	200	16	189	149	149	163	160	160	194	194	194	
50	234	234	234	16	220	192	197	194	194	230	230	230	16	220	176	176	197	194	194	224	224	224	
65	261	257	256	18	273	219	215	213	212	290	288	287	18	273	205	204	215	213	212	285	245	244	
80	306	305	302	18	316	257	265	264	261	312	311	308	21	316	252	249	265	264	261	299	296	293	
100	374	374	369	18	419	341	362	362	357	352	352	347	18	419	312	307	340	340	335	358	355	350	

### ANSI (Unit: inch)

inch	mm	ANSI																						
		FLANGED ANSI CLASS150							SOCKET			THREADED												
		U-PVC C-PVC	PP	PVDF	t	U-PVC C-PVC	PP	PVDF	U-PVC C-PVC	PP	PVDF	U-PVC C-PVC	PP	PVDF	U-PVC C-PVC	PP	PVDF							
1/2	15	1.89	6.28	1.14	4.33	0.98	1.26	-	0.75	0.29	0.43	-	-	1/8	5.63	5.63	5.63	0.47	4.45	4.45	4.45	4.02	4.02	4.02
3/4	20	2.36	6.54	1.38	4.33	0.98	1.26	-	0.75	0.29	0.43	-	-	1/8	6.77	6.77	6.77	0.55	5.08	5.08	5.08	4.72	4.72	4.72
1	25	2.76	6.81	1.54	4.33	0.98	1.26	-	0.75	0.29	0.43	-	-	1/8	7.36	7.36	7.36	0.55	5.75	5.75	5.75	5.16	5.16	5.16
1 1/4	32	3.23	7.17	1.85	4.33	0.98	1.26	-	1.18	0.35	0.59	-	-	1/8	7.48	7.48	7.48	0.63	6.46	6.46	6.46	5.91	5.91	5.91
1 1/2	40	3.94	8.82	2.17	8.27	1.81	1.81	-	1.18	0.35	0.59	-	-	1/4	8.35	8.35	8.35	0.63	7.24	7.24	7.24	6.42	6.42	6.42
2	50	4.96	9.27	2.60	8.27	1.81	1.81	-	1.18	0.35	0.59	-	-	1/4	9.21	9.21	9.21	0.63	8.23	8.23	8.23	7.76	7.76	7.76
2 1/2	65	5.24	10.55	2.83	9.84	2.24	1.50	4.23	1.89	0.35	0.24	1.26	0.28	1/4	10.20	10.12	10.08	0.71	9.45	9.37	9.33	8.46	8.39	8.35
3	80	5.98	10.91	3.35	9.84	2.24	1.50	4.59	2.17	0.43	0.28	1.26	0.28	1/4	12.05	12.01	11.89	0.71	11.14	11.10	10.98	10.43	10.39	10.28
4	100	8.27	13.70	4.33	11.50	2.83	1.77	5.96	2.56	0.43	0.31	1.65	0.35	1/4	14.72	14.72	14.53	0.71	13.86	14.37	14.13	14.25	14.25	14.06

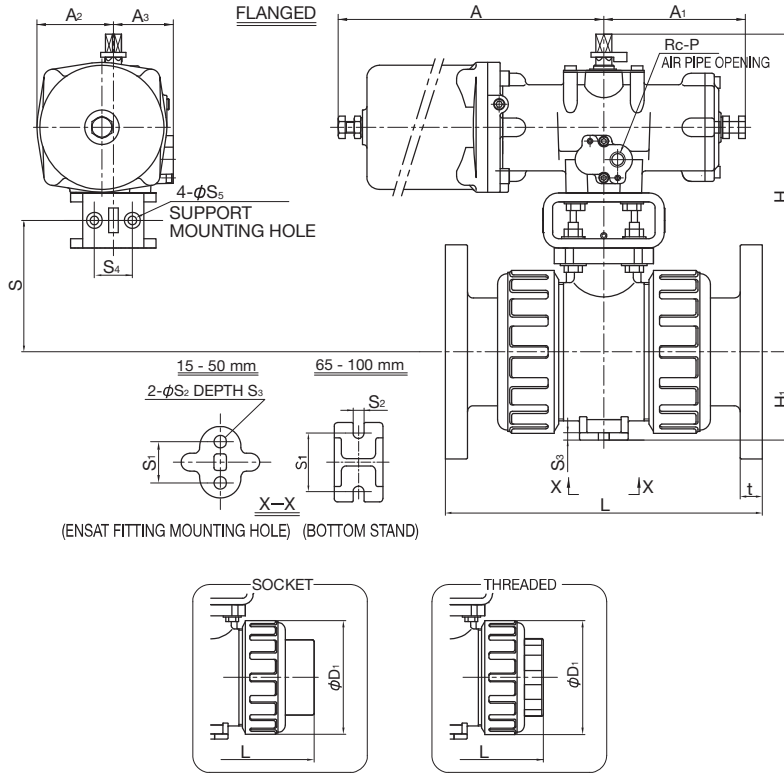
**AUTOMATIC PNEUMATIC TYPE TA**

DOUBLE ACTING  
AIR TO OPEN  
AIR TO CLOSE

# BALL VALVE TYPE 21, 21α

TYPE—A21K, A2AK

CONNECTION / FLANGED, SOCKET, THREADED—JIS, DIN, ANSI SPIGOT—DIN



**ACTUATOR SELECTION CHART**

SIZE	ACTUATOR TYPE
15mm ( 1/2inch)	TA2A-0402R
20mm ( 3/4inch)	
25mm ( 1inch)	
32mm (1 1/4inch)	
40mm (1 1/2inch)	TA2A-050R
50mm ( 2inch)	
65mm (2 1/2inch)	TA2A-063R
80mm ( 3inch)	
100mm ( 4inch)	TA2A-080R

For detailed specifications, see P.124

■ JIS, DIN (Unit: mm)

mm	D <sub>1</sub>	H	H <sub>1</sub>	A	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	S	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	S <sub>4</sub>	S <sub>5</sub>	P
15	48	159.5	29	194	55	46	46	-	19	7.3	11	-	-	1/4
20	60	166	35	194	55	46	46	-	19	7.3	11	-	-	1/4
25	70	173	39	194	55	46	46	-	19	7.3	11	-	-	1/4
32	82	182	47	194	55	46	46	-	30	9	15	-	-	1/4
40	100	224	55	240	105	53	50	-	30	9	15	-	-	1/4
50	126	235.5	66	240	105	53	50	-	30	9	15	-	-	1/4
65	133	268	72	288	125	67	52	107.5	48	9	6	32	7	1/4
80	152	277	85	288	125	67	52	116.5	55	11	7	32	7	1/4
100	210	348	110	341	146	82.5	59	151.5	65	11	8	42	9	1/4

mm	JIS									DIN														
	FLANGED JIS5K, JIS10K			SOCKET			THREADED			FLANGED DIN PN10/PN16				SOCKET			THREADED			SPIGOT				
	L	U-PVC C-PVC	PP	PVDF	t	U-PVC C-PVC	PP	U-PVC C-PVC	PP	PVDF	U-PVC C-PVC	PP	PVDF	t	U-PVC C-PVC	PP	PVDF	U-PVC C-PVC	PP	PVDF	U-PVC C-PVC	PP	PVDF	
10	-	-	-	-	-	-	-	-	-	-	120	119	119	12	99	96	96	99	98	98	114	114	114	
15	143	143	143	12	109	108	102	100	100	100	130	130	130	12	102	99	99	102	100	100	124	124	124	
20	172	172	172	14	128	126	120	119	119	119	150	150	150	14	119	113	113	120	119	119	144	144	144	
25	187	187	187	14	145	141	131	130	130	130	160	160	160	14	131	123	123	131	130	130	154	154	154	
32	190	190	190	16	162	-	150	146	146	146	180	180	180	16	150	139	139	150	146	146	174	174	174	
40	212	212	212	16	189	171	163	160	160	160	200	200	200	16	164	149	149	163	160	160	194	194	194	
50	234	234	234	16	220	192	197	194	194	194	230	230	230	16	197	176	176	197	194	194	224	224	224	
65	261	257	256	18	273	219	215	213	212	212	290	288	287	18	233	205	204	215	213	212	285	245	244	
80	306	305	302	18	316	257	265	264	261	261	312	311	308	21	284	252	249	265	264	261	299	296	293	
100	374	374	369	18	419	341	362	362	357	357	352	352	347	18	351	312	307	340	340	340	335	358	355	350

■ ANSI (Unit: inch)

inch	mm	ANSI																							
		FLANGED ANSI CLASS150					SOCKET					THREADED													
		L	U-PVC C-PVC	PP	PVDF	t	U-PVC C-PVC	PP	PVDF	U-PVC C-PVC	PP	PVDF	U-PVC C-PVC	PP	PVDF	U-PVC C-PVC	PP	PVDF							
1/2	15	1.89	6.28	1.14	7.64	2.17	1.81	1.81	-	0.75	0.29	0.43	-	-	1/4	5.63	5.63	5.63	0.47	4.45	4.45	4.45	4.02	4.02	4.02
3/4	20	2.36	6.54	1.38	7.64	2.17	1.81	1.81	-	0.75	0.29	0.43	-	-	1/4	6.77	6.77	6.77	0.55	5.08	5.08	5.08	4.72	4.72	4.72
1	25	2.76	6.81	1.54	7.64	2.17	1.81	1.81	-	0.75	0.29	0.43	-	-	1/4	7.36	7.36	7.36	0.55	5.75	5.75	5.75	5.16	5.16	5.16
1 1/4	32	3.23	7.17	1.85	7.64	2.17	1.81	1.81	-	1.18	0.35	0.59	-	-	1/4	7.48	7.48	7.48	0.63	6.46	6.46	6.46	5.91	5.91	5.91
1 1/2	40	3.94	8.82	2.17	9.45	4.13	2.09	1.97	-	1.18	0.35	0.59	-	-	1/4	8.35	8.35	8.35	0.63	7.24	7.24	7.24	6.42	6.42	6.42
2	50	4.96	9.27	2.60	9.45	4.13	2.09	1.97	-	1.18	0.35	0.59	-	-	1/4	9.21	9.21	9.21	0.63	8.23	8.23	8.23	7.76	7.76	7.76
2 1/2	65	5.24	10.55	2.83	11.34	4.92	2.64	2.05	4.23	1.89	0.35	0.24	1.26	0.28	1/4	10.20	10.12	10.08	0.71	9.45	9.37	9.33	8.46	8.39	8.35
3	80	5.98	10.91	3.35	11.34	4.92	2.64	2.05	4.59	2.17	0.43	0.28	1.26	0.28	1/4	12.05	12.01	11.89	0.71	11.14	11.10	10.98	10.43	10.39	10.28
4	100	8.27	13.70	4.33	13.43	5.75	3.25	2.32	5.96	2.56	0.43	0.31	1.65	0.35	1/4	14.72	14.72	14.53	0.71	13.86	14.37	14.13	14.25	14.25	14.06

AUTOMATIC

PNEUMATIC

TYPE AA

DOUBLE ACTING

AIR TO OPEN

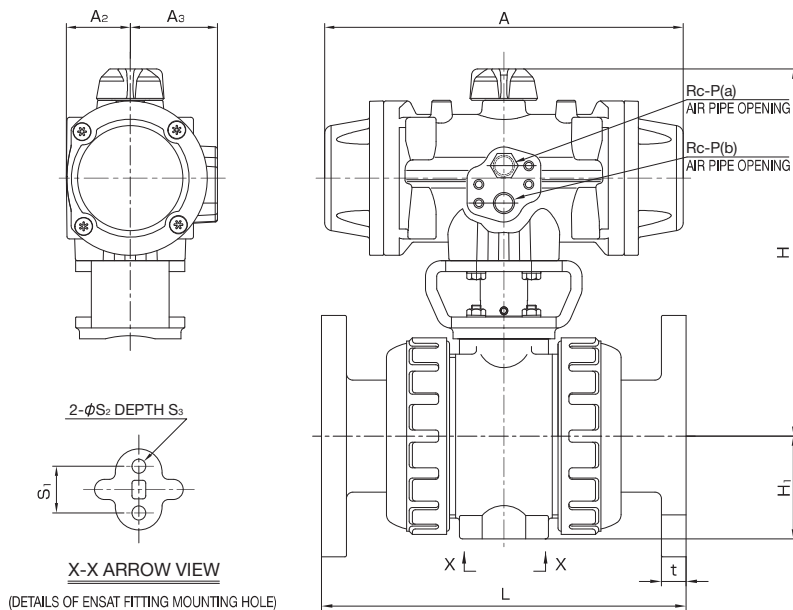
AIR TO CLOSE

# BALL VALVE TYPE 21, 21 $\alpha$

TYPE—A21A, A2AA

CONNECTION / FLANGED, SOCKET, THREADED—JIS, DIN, ANSI SPIGOT—DIN

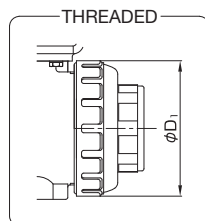
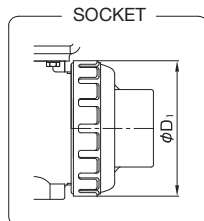
## FLANGED



## ACTUATOR SELECTION CHART

SIZE	ACTUATOR TYPE
15mm ( 1/2inch)	PPW
20mm ( 3/4inch)	
25mm ( 1inch)	
32mm (1 1/4inch)	PPOO
40mm (1 1/2inch)	
50mm ( 2inch)	

For detailed specifications, see P.123



### JIS, DIN (Unit: mm)

mm	D1	H	A	A2	A3	H1	S1	S2	S3	P	JIS						DIN						
											FLANGED JIS5K, JIS10K		SOCKET		THREADED		FLANGED DIN PN10/PN16		SOCKET		THREADED		SPIGOT
											L	t	U-PVC C-PVC PP, PVDF	PP	U-PVC C-PVC PP, PVDF	PP PVDF	L	t	U-PVC C-PVC PP, PVDF	PP PVDF	U-PVC C-PVC PP, PVDF	PP PVDF	U-PVC PP, PVDF
15	48	159	144	28	42	29	19	7.3	11	1/4	143	12	109	108	102	100	130	12	102	99	102	100	124
20	60	165.5	144	28	42	35	19	7.3	11	1/4	172	14	128	126	120	119	150	14	119	113	120	119	144
25	70	172.5	144	28	42	39	19	7.3	11	1/4	187	14	145	141	131	130	160	14	131	123	131	130	154
32	82	181.5	144	28	42	47	30	9	15	1/4	190	16	162	-	150	146	180	16	150	139	150	146	174
40	100	203	157	31	48	55	30	9	15	1/4	212	16	189	171	163	160	200	16	164	149	163	160	194
50	126	214.5	157	31	48	66	30	9	15	1/4	234	16	220	192	197	194	230	16	197	176	197	194	224

### ANSI (Unit: inch)

inch	mm	D1	H	A	A2	A3	S	S1	S2	S3	P	ANSI					
												FLANGED ANSI CLASS150		SOCKET		THREADED	
												L	t	U-PVC C-PVC PP, PVDF	PP	U-PVC C-PVC PP, PVDF	U-PVC C-PVC PP, PVDF
1/2	15	1.89	6.26	5.67	1.10	1.65	1.14	0.75	0.29	0.43	1/4	5.63	0.47	4.45	4.02		
3/4	20	2.36	6.52	5.67	1.10	1.65	1.38	0.75	0.29	0.43	1/4	6.77	0.55	5.08	4.72		
1	25	2.76	6.79	5.67	1.10	1.65	1.54	0.75	0.29	0.43	1/4	7.36	0.55	5.75	5.16		
1 1/4	32	3.23	7.15	5.67	1.10	1.65	1.85	1.18	0.35	0.59	1/4	7.48	0.63	6.46	5.91		
1 1/2	40	3.94	7.99	6.18	1.22	1.89	2.17	1.18	0.35	0.59	1/4	8.35	0.63	7.24	6.42		
2	50	4.96	8.44	6.18	1.22	1.89	2.60	1.18	0.35	0.59	1/4	9.21	0.63	8.23	7.76		



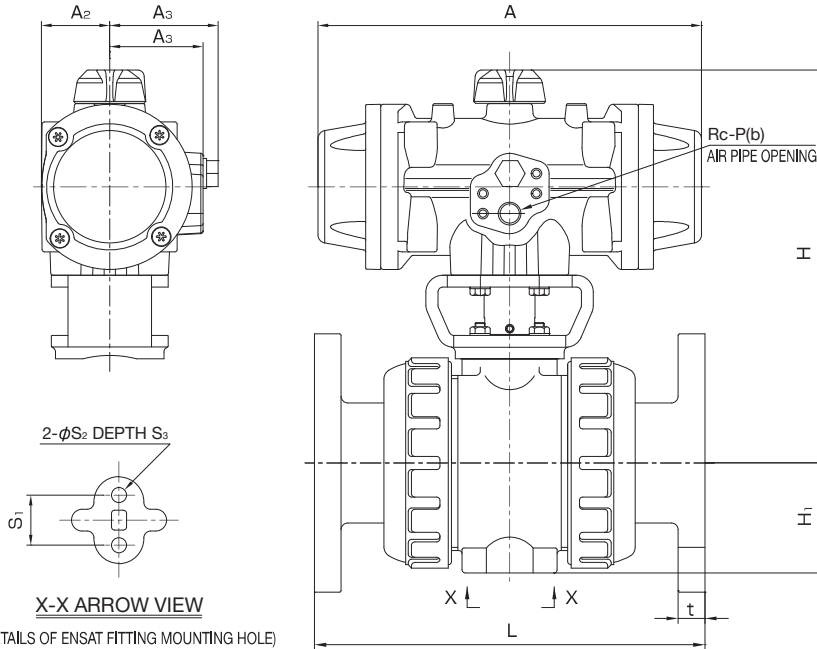
**AUTOMATIC PNEUMATIC TYPE AA**  
 DOUBLE ACTING  
 AIR TO OPEN  
 AIR TO CLOSE

# BALL VALVE TYPE 21, 21 $\alpha$

TYPE—A21A, A2AA

CONNECTION / FLANGED, SOCKET, THREADED—JIS, DIN, ANSI SPIGOT—DIN

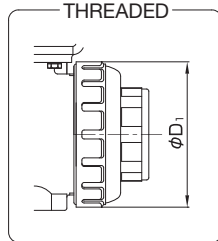
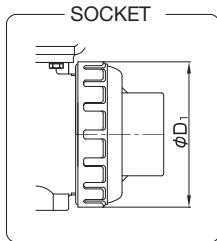
### FLANGED



X-X ARROW VIEW  
 (DETAILS OF ENSAT FITTING MOUNTING HOLE)

SIZE	ACTUATOR TYPE
15mm ( 1/2inch)	PP00S
20mm ( 3/4inch)	
25mm ( 1inch)	
32mm (1 1/4inch)	
40mm (1 1/2inch)	PP10S
50mm ( 2inch)	

For detailed specifications, see P.123



■ JIS, DIN (Unit: mm)

mm	D <sub>1</sub>	H	A	A <sub>2</sub>	A <sub>3</sub>	A <sub>3</sub> '	H <sub>1</sub>	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	P	JIS						DIN							
												FLANGED JIS5K, JIS10K		SOCKET		THREADED		FLANGED DIN PN10/PN16		SOCKET		THREADED		SPIGOT	
												L	t	U-PVC C-PVC PP, PVDF	PP	U-PVC C-PVC	PP PVDF	L	t	U-PVC C-PVC PP, PVDF	PP PVDF	U-PVC C-PVC	PP PVDF	U-PVC PP, PVDF	PP PVDF
15	48	172	157	31	48	57	29	19	7.3	11	1/4	143	12	109	108	102	100	130	12	102	99	102	100	124	
20	60	178.5	157	31	48	57	35	19	7.3	11	1/4	172	14	128	126	120	119	150	14	119	113	120	119	144	
25	70	185.5	157	31	48	57	39	19	7.3	11	1/4	187	14	145	141	131	130	160	14	131	123	131	130	154	
32	82	194.5	157	31	48	57	47	30	9	15	1/4	190	16	162	-	150	146	180	16	150	139	150	146	174	
40	100	224	230	41	56	65	55	30	9	15	1/4	212	16	189	171	163	160	200	16	164	149	163	160	194	
50	126	235.5	230	41	56	65	66	30	9	15	1/4	234	16	220	192	197	194	230	16	197	176	197	194	224	

■ ANSI (Unit: inch)

inch	mm	D <sub>1</sub>	H	A	A <sub>2</sub>	A <sub>3</sub>	A <sub>3</sub> '	H <sub>1</sub>	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	P	ANSI					
													FLANGED ANSI CLASS150		SOCKET		THREADED	
													L	t	U-PVC C-PVC PP, PVDF	PP	U-PVC C-PVC PP, PVDF	PP PVDF
1/2	15	1.89	6.77	6.18	1.22	1.89	2.24	1.14	0.75	0.29	0.43	1/4	5.63	0.47	4.45	4.02		
3/4	20	2.36	7.03	6.18	1.22	1.89	2.24	1.38	0.75	0.29	0.43	1/4	6.77	0.55	5.08	4.72		
1	25	2.76	7.30	6.18	1.22	1.89	2.24	1.54	0.75	0.29	0.43	1/4	7.36	0.55	5.75	5.16		
1 1/4	32	3.23	7.66	6.18	1.22	1.89	2.24	1.85	1.18	0.35	0.59	1/4	7.48	0.63	6.46	5.91		
1 1/2	40	3.94	8.82	9.06	1.61	2.20	2.56	2.17	1.18	0.35	0.59	1/4	8.35	0.63	7.24	6.42		
2	50	4.96	9.27	9.06	1.61	2.20	2.56	2.60	1.18	0.35	0.59	1/4	9.21	0.63	8.23	7.76		

AUTOMATIC

PNEUMATIC

TYPE AA

DOUBLE ACTING

AIR TO OPEN

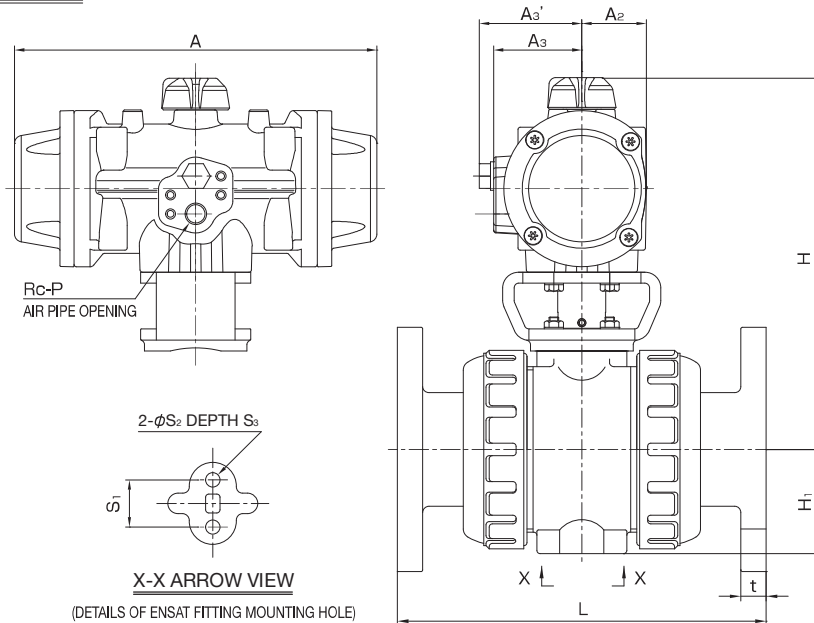
AIR TO CLOSE

# BALL VALVE TYPE 21, 21 $\alpha$

TYPE—A21A, A2AA

CONNECTION / FLANGED, SOCKET, THREADED—JIS, DIN, ANSI SPIGOT—DIN

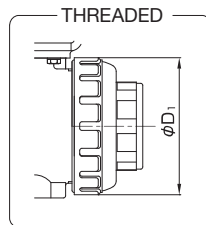
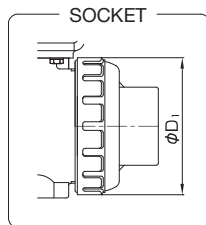
## FLANGED



### ACTUATOR SELECTION CHART

SIZE	ACTUATOR TYPE
15mm ( 1/2inch)	PP00S
20mm ( 3/4inch)	
25mm ( 1inch)	
32mm (1 1/4inch)	
40mm (1 1/2inch)	PP10S
50mm ( 2inch)	

For detailed specifications, see **P.123**



### JIS, DIN (Unit: mm)

mm	D <sub>1</sub>	H	A	A <sub>2</sub>	A <sub>3</sub>	A <sub>3</sub> '	H <sub>1</sub>	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	P	JIS						DIN						
												FLANGED JISSK, JIS10K		SOCKET		THREADED		FLANGED DIN PN10/PN16		SOCKET		THREADED		SPIGOT
												L	t	U-PVC C-PVC PP, PVDF	PP	U-PVC C-PVC PP, PVDF	PP	L	t	U-PVC C-PVC PP, PVDF	PP	U-PVC C-PVC PP, PVDF	PP	L
15	48	172	157	31	48	57	29	19	7.3	11	1/4	143	12	109	108	102	100	130	12	102	99	102	100	124
20	60	178.5	157	31	48	57	35	19	7.3	11	1/4	172	14	128	126	120	119	150	14	119	113	120	119	144
25	70	185.5	157	31	48	57	39	19	7.3	11	1/4	187	14	145	141	131	130	160	14	131	123	131	130	154
32	82	194.5	157	31	48	57	47	30	9	15	1/4	190	16	162	-	150	146	180	16	150	139	150	146	174
40	100	224	230	41	56	65	55	30	9	15	1/4	212	16	189	171	163	160	200	16	164	149	163	160	194
50	126	235.5	230	41	56	65	66	30	9	15	1/4	234	16	220	192	197	194	230	16	197	176	197	194	224

### ANSI (Unit: inch)

inch	mm	D <sub>1</sub>	H	A	A <sub>2</sub>	A <sub>3</sub>	A <sub>3</sub> '	H <sub>1</sub>	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	P	ANSI					
													FLANGED ANSI CLASS150		SOCKET		THREADED	
													L	t	U-PVC C-PVC PP, PVDF	PP	U-PVC C-PVC PP, PVDF	U-PVC C-PVC PP, PVDF
1/2	15	1.89	6.77	6.18	1.22	1.89	2.24	1.14	0.75	0.29	0.43	1/4	5.63	0.47	4.45	4.02		
3/4	20	2.36	7.03	6.18	1.22	1.89	2.24	1.38	0.75	0.29	0.43	1/4	6.77	0.55	5.08	4.72		
1	25	2.76	7.30	6.18	1.22	1.89	2.24	1.54	0.75	0.29	0.43	1/4	7.36	0.55	5.75	5.16		
1 1/4	32	3.23	7.66	6.18	1.22	1.89	2.24	1.85	1.18	0.35	0.59	1/4	7.48	0.63	6.46	5.91		
1 1/2	40	3.94	8.82	9.06	1.61	2.20	2.56	2.17	1.18	0.35	0.59	1/4	8.35	0.63	7.24	6.42		
2	50	4.96	9.27	9.06	1.61	2.20	2.56	2.60	1.18	0.35	0.59	1/4	9.21	0.63	8.23	7.76		

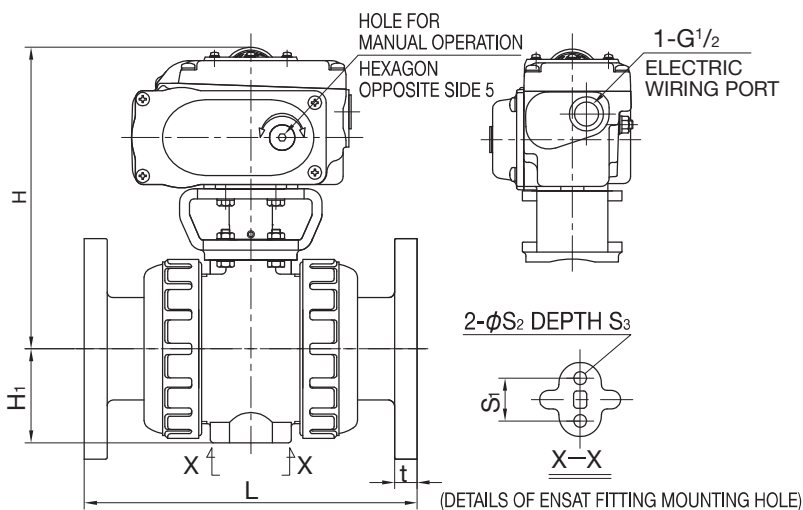
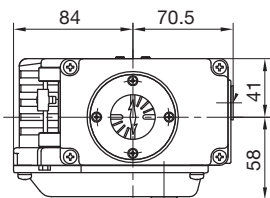
**AUTOMATIC** **ELECTRIC** **TYPE T** Single-Phase 100V  
Single-Phase 200V

# BALL VALVE TYPE 21, 21 $\alpha$

TYPE—A21T, A2AT

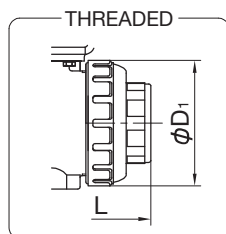
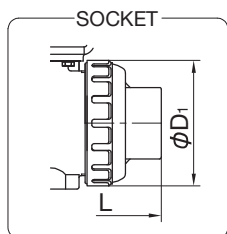
CONNECTION / FLANGED, SOCKET, THREADED—JIS, DIN, ANSI SPIGOT—DIN

FLANGED



SIZE	ACTUATOR TYPE
15mm ( 1/2inch)	T-00
20mm ( 3/4inch)	
25mm ( 1inch)	
32mm (1 1/4inch)	
40mm (1 1/2inch)	
50mm ( 2inch)	

For detailed specifications, see **P.139**



■ JIS, DIN (Unit: mm)

mm	D <sub>1</sub>	H	H <sub>1</sub>	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	JIS						DIN						
							FLANGED JIS5K, JIS10K		SOCKET		THREADED		FLANGED DIN PN10/PN16		SOCKET		THREADED		SPIGOT
							L	t	L	PP	L	PP	L	t	L	PP	L	PP	L
15	48	169.5	29	19	7.3	11	143	12	109	108	102	100	130	12	102	99	102	100	124
20	60	176	35	19	7.3	11	172	14	128	126	120	119	150	14	119	113	120	119	144
25	70	183	39	19	7.3	11	187	14	145	141	131	130	160	14	131	123	131	130	154
32	82	192	47	30	9	15	190	16	162	-	150	146	180	16	150	139	150	146	174
40	100	200.5	55	30	9	15	212	16	189	171	163	160	200	16	164	149	163	160	194
50	126	212	66	30	9	15	234	16	220	192	197	194	230	16	197	176	197	194	224

■ ANSI (Unit: inch)

inch	mm	D <sub>1</sub>	H	H <sub>1</sub>	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	ANSI					
								FLANGED ANSI CLASS150		SOCKET		THREADED	
								L	t	L	PP	L	PP
1/2	15	1.96	6.67	1.14	0.75	0.29	0.43	5.63	0.47	4.45	4.02		
3/4	20	2.45	6.93	1.38	0.75	0.29	0.43	6.77	0.55	5.08	4.72		
1	25	2.86	7.20	1.54	0.75	0.29	0.43	7.36	0.55	5.75	5.16		
1 1/4	32	4.08	7.56	1.85	1.18	0.35	0.59	7.48	0.63	6.46	5.91		
1 1/2	40	4.08	7.89	2.17	1.18	0.35	0.59	8.35	0.63	7.24	6.42		
2	50	5.14	8.35	2.60	1.18	0.35	0.59	9.21	0.63	8.23	7.76		

AUTOMATIC

ELECTRIC

TYPE T

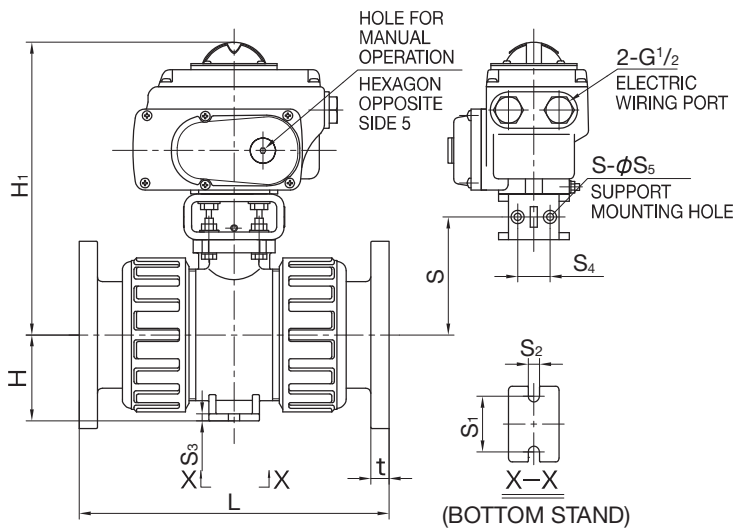
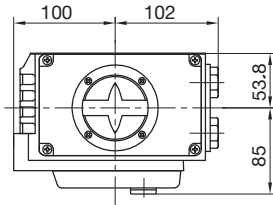
Single-Phase 100V  
Single-Phase 200V

# BALL VALVE TYPE 21, 21 $\alpha$

TYPE—A21T

CONNECTION / FLANGED, SOCKET, THREADED—JIS, DIN, ANSI SPIGOT—DIN

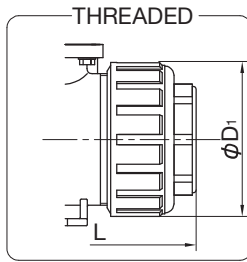
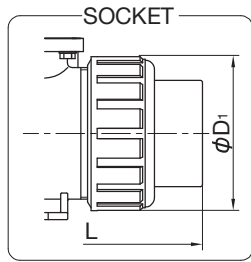
FLANGED



### ACTUATOR SELECTION CHART

SIZE	ACTUATOR TYPE
65mm (2 1/2inch)	T-O
80mm ( 3inch)	
100mm ( 4inch)	

For detailed specifications, see **P.139**



■ JIS, DIN (Unit: mm)

mm	D <sub>1</sub>	H	H <sub>1</sub>	S	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	JIS						DIN															
								FLANGED JIS5K, JIS10K			SOCKET		THREADED			FLANGED DIN PN10/PN16			SOCKET			THREADED			SPIGOT				
								U-PVC C-PVC	PP	PVDF	t	U-PVC C-PVC	PP	U-PVC C-PVC	PP	PVDF	U-PVC C-PVC	PP	PVDF	t	U-PVC C-PVC	PP	PVDF	U-PVC C-PVC	PP	PVDF	U-PVC	PP	PVDF
65	133	280	72	107.5	48	9	6	261	257	256	18	273	219	215	213	212	290	288	287	18	233	205	204	215	213	212	285	245	244
80	152	289	85	116.5	55	11	7	306	305	302	18	316	257	265	264	261	312	311	308	21	284	252	249	265	264	261	299	296	293
100	210	327	110	151.5	65	11	8	374	374	369	18	419	341	362	362	357	362	352	347	18	351	312	307	340	340	335	358	355	350

■ ANSI (Unit: inch)

inch	mm	D <sub>1</sub>	H	H <sub>1</sub>	S	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	ANSI									
									FLANGED ANSI CLASS150				SOCKET			THREADED		
									U-PVC C-PVC	PP	PVDF	t	U-PVC C-PVC	PP	PVDF	U-PVC C-PVC	PP	PVDF
2 1/2	65	5.43	11.02	2.83	4.23	1.89	0.35	0.24	10.20	10.12	10.08	0.71	9.45	9.37	9.33	8.46	8.39	8.35
3	80	6.20	11.38	3.35	4.59	2.17	0.43	0.28	12.05	12.01	11.89	0.71	11.14	11.10	10.98	10.43	10.39	10.28
4	100	8.57	12.87	4.33	5.96	2.56	0.43	0.31	14.72	14.72	14.53	0.71	13.86	14.37	14.13	14.25	14.25	14.06

# WATER BALL VALVE (WATER ONLY)

- EQUIPPED WITH TOP FLANGE, ENABLING EASY CHANGE TO AUTOMATIC VALVE.  
(Change to an automatic valve requires an actuator set.)
- TYPE 21 FOR CHEMICAL SOLUTION LINES AND WATER BALL VALVE FOR WATER/SEA WATER LINES CAN BE SELECTIVELY USED, WHICH CONTRIBUTES TO TOTAL COST REDUCTION.

## BASIC SPECIFICATIONS

VALVE TYPE ————— WATER BALL VALVE  
 SIZE ————— 15 mm—50 mm (1/2 inch—2 inch)  
 BODY MATERIAL ————— U-PVC  
 SEAL MATERIAL / O-RING ————— EPDM  
 CONNECTION / SOCKET ————— JIS  
 THREADED ————— Rc  
 HIGH PURITY SERIES ————— WETTED PARTS LUBRICANT FREE

U-PVC	FLUID TEMPERATURE	MAXIMUM WORKING PRESSURE (NORMAL TEMPERATURE) (MPa/kgf/cm <sup>2</sup> )	CONNECTION METHOD	
	0°C ~ 50°C	1.0 {10.2}	SOCKET	THREADED
			○	○

**NOTE** (1) The water ball valves are dedicated for water/sea water lines. They cannot be used for chemical solution lines. (2) For chemical solution lines, use the ball valve type 21 or compact ball valve. (3) The face-to-face dimensions and parts are not compatible between the water ball valve and the ball valve type 21α. (4) Parts for the water ball valve are not sold separately. (5) For switching from a manual valve to an automatic valve, order an actuator set.

\* Concerning the allowable pressure for each temperature and material, see the technical documents at the end of this catalog.

MANUAL

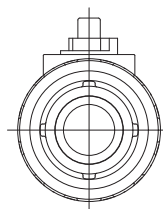
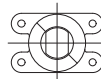
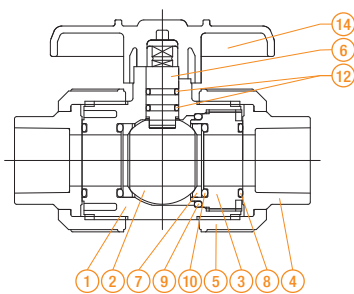


AUTOMATIC

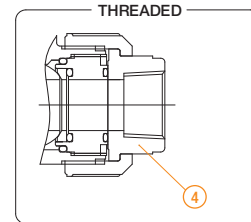


## PARTS LIST MANUAL

SOCKET



THREADED



PART NO. / NAME	QTY	MATERIAL
① BODY	1	U-PVC
② BALL	1	U-PVC
③ UNION	1	U-PVC
④ END CONNECTOR	2	U-PVC
⑤ UNION NUT	2	U-PVC
⑥ STEM	1	U-PVC

PART NO. / NAME	QTY	MATERIAL
⑦ SEAT	2	PTFE
⑧ O-RING (A)	2	EPDM
⑨ O-RING (B)	1	EPDM
⑩ O-RING (C)	2	EPDM
⑫ O-RING (E)	2	EPDM
⑭ HANDLE	1	ABS

## COMPATIBLE ACTUATOR AUTOMATIC

**PNEUMATIC TYPE VC**

For detailed specifications, see P.125

**ELECTRIC TYPE V**

For detailed specifications, see P.143

PRODUCT MODEL  
CODE LIST  
**MANUAL**

ACTUATION	TYPE	OPERATING SYSTEM	BODY MATERIAL	SEAL MATERIAL	CONNECTION	STANDARD	SIZE	HIGH PURITY SERIES									
V	WB	LV	U	E	*	J	***	2									
V	MANUAL VALVE	WB	WATER BALL VALVE	LV	LEVER TYPE	U	U-PVC	E	EPDM	S	SOCKET	J	JIS	015	15mm	2	WETTED PARTS LUBRICANT FREE
										N	THREADED			050	50mm		

PRODUCT MODEL  
CODE LIST  
**AUTOMATIC**

ACTUATION	TYPE	ACTUATOR TYPE	ACTION / POWER SOURCE	BODY MATERIAL	SEAL MATERIAL	CONNECTION	STANDARD	SIZE	HIGH PURITY SERIES								
A	WB	*	*	U	E	*	*	***	2								
A	AUTOMATIC VALVE	WB	WATER BALL VALVE	U	U-PVC	E	EPDM	S	SOCKET	J	JIS	015	15mm	2	WETTED PARTS LUBRICANT FREE		
										N	THREADED			050	50mm		

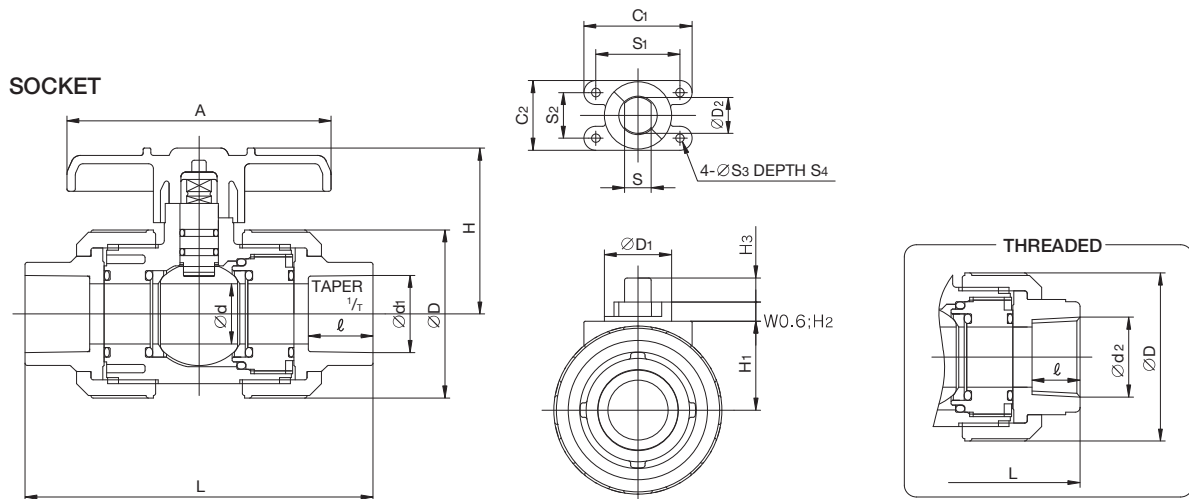
**PNEUMATIC**  
 C TYPE VC  
**ELECTRIC**  
 V TYPE V  
**PNEUMATIC**  
 F DOUBLE ACTING  
 G AIR TO OPEN  
 S AIR TO CLOSE  
**ELECTRIC**  
 1 Single-Phase 100V  
 2 Single-Phase 200V  
 D DC24V

MANUAL

## WATER BALL VALVE (WATER ONLY)

TYPE—VWBLV

CONNECTION / SOCKET, THREADED—JIS



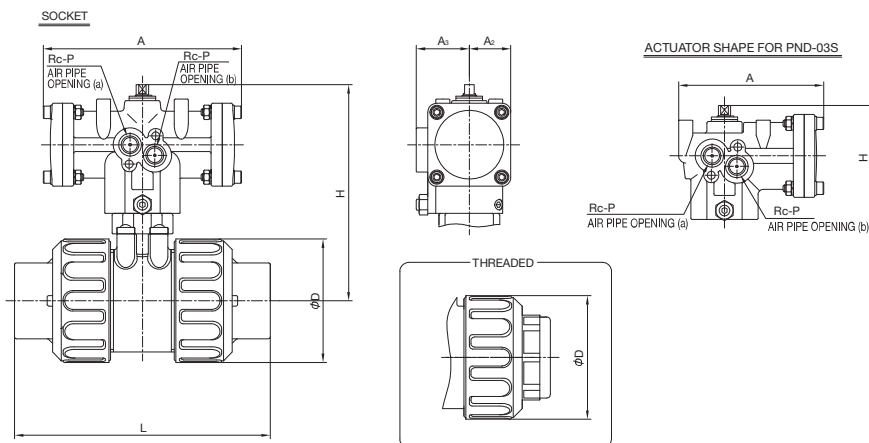
■ JIS (Unit: mm)

mm	d	D	D <sub>1</sub>	D <sub>2</sub>	H	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	A	S	C <sub>1</sub>	C <sub>2</sub>	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	S <sub>4</sub>	JIS						
																	SOCKET			Threaded End			
																	d <sub>1</sub>	ℓ	1/T	L	d <sub>1</sub>	ℓ	L
15	15	48	24	13.5	54	25	6	7.5	92	10.5	40	25	31.5	15	3.5	12	22.11	20	1/34	104	Rc 1/2	15	98
20	20	60	27	15	62	31	8	10	100	11	45	29	35	19	3.5	12	26.13	24	1/34	128	Rc 3/4	17	119
25	25	70	28	15	69	38	8	10	100	11	45	29	35	19	3.5	12	32.16	27	1/34	145	Rc 1	20	135
32	30	80	34	19	79	43	10	10	121	15	58.5	38	45.5	25	4.5	15	38.19	30	1/34	162	Rc 1 1/4	22	150
40	40	96	38	23	88	50	10	12	131	18	58.5	38	45.5	25	4.5	15	48.21	37	1/37	189	Rc 1 1/2	25	170
50	51	120	40	23	102	56	12	12	159	18	60	40	47	27	4.5	15	60.25	42	1/37	220	Rc 2	28	198

**AUTOMATIC PNEUMATIC TYPE VC**  
**DOUBLE ACTING**  
 AIR TO OPEN  
 AIR TO CLOSE

# WATER BALL VALVE

TYPE—AWBC  
 CONNECTION / SOCKET, THREADED—JIS



**ACTUATOR SELECTION CHART**

SIZE	ACTUATOR TYPE	
	AIR TO OPEN	AIR TO CLOSE
15mm ( 1/2inch)	PND-03S	
20mm ( 3/4inch)	PND-03D	
25mm ( 1inch)	PND-03D	
32mm (1 1/4inch)	PND-03D	
40mm (1 1/2inch)	PND-04D	
50mm ( 2inch)	PND-04D	

For detailed specifications, see **P.125**

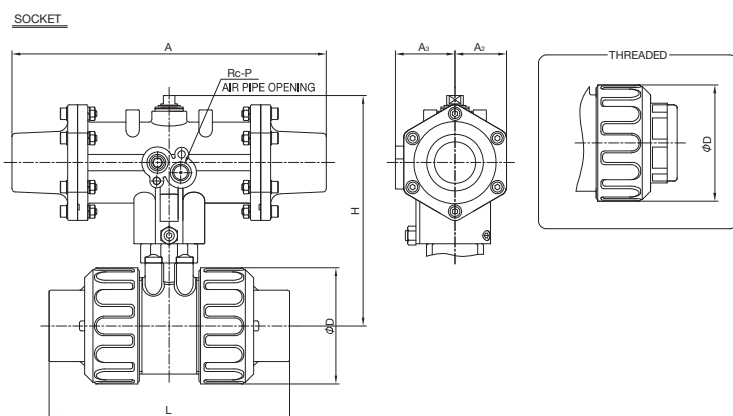
■ JIS (Unit: mm)

mm	D	H	A	A <sub>2</sub>	A <sub>3</sub>	P	JIS	
							SOCKET	THREADED
15	48	96.5	83	24	30	1/8	L	98
20	60	107	83	24	30	1/8	104	119
25	70	122.5	113	24	30	1/8	128	135
32	80	145.5	113	24	30	1/8	145	150
40	96	169	132	31	36	1/8	162	170
50	120	177	132	31	36	1/8	189	198

**AUTOMATIC PNEUMATIC TYPE VC**  
**DOUBLE ACTING**  
 AIR TO OPEN  
 AIR TO CLOSE

# WATER BALL VALVE

TYPE—AWBC  
 CONNECTION / SOCKET, THREADED—JIS



**ACTUATOR SELECTION CHART**

SIZE	ACTUATOR TYPE	
	AIR TO OPEN	AIR TO CLOSE
15mm ( 1/2inch)	PSO-03D	PSC-03D
20mm ( 3/4inch)	PSO-03D	PSC-03D
25mm ( 1inch)	PSO-04D	PSC-04D
32mm (1 1/4inch)	PSO-04D	PSC-04D
40mm (1 1/2inch)	PSO-04W	PSC-04W
50mm ( 2inch)	PSO-04W	PSC-04W

For detailed specifications, see **P.125**

■ JIS (Unit: mm)

mm	D	H	A	A <sub>2</sub>	A <sub>3</sub>	P	JIS	
							SOCKET	THREADED
15	48	105	165	24	30	1/8	L	98
20	60	115.5	165	24	30	1/8	104	119
25	70	139	190	31	36	1/8	128	135
32	80	162	279	31	36	1/8	145	150
40	96	169	279	31	36	1/8	162	170
50	120	177	279	31	36	1/8	189	198

AUTOMATIC

ELECTRIC

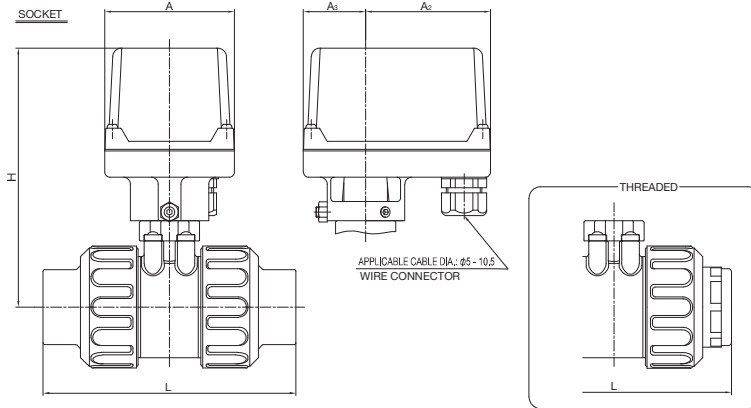
TYPE V

Single-Phase 100V  
Single-Phase 200V  
DC24V

# WATER BALL VALVE

TYPE—AWBV

CONNECTION / SOCKET, THREADED—JIS



## ACTUATOR SELECTION CHART

SIZE	ACTUATOR TYPE	
	AC100V AC200V	DC24V
15mm ( 1/2inch)	AM1-030	DM2-030
20mm ( 3/4inch)	AM1-070	DM2-070
25mm ( 1inch)	AM1-180	DM2-180
32mm (1 1/4inch)		
40mm (1 1/2inch)		
50mm ( 2inch)		

For detailed specifications, see P.143

■ JIS (Unit: mm)

mm	H	A	A <sub>2</sub>	A <sub>3</sub>	JIS	
					SOCKET	THREADED
15	131	74	71	36	104	98
20	141.5	74	71	36	128	119
25	148.5	74	71	36	145	135
32	213.5	74	54	53	162	150
40	220.5	74	54	53	189	170
50	228.5	74	54	53	220	198



# 3 WAY BALL VALVE TYPE 23

- ENABLES SWITCHING BETWEEN TWO FLOW PATHS AND COMPLETE CLOSING. (ONLY ONE VALVE IS NECESSARY IN A LINE CONVENTIONALLY REQUIRING TWO BALL VALVES.)
- THE SHAPE OF VALVE ELEMENT (BALL) IS SELECTABLE FROM THREE KINDS, ALLOWING FOR SWITCHING OF FLOW DIRECTION ACCORDING TO THE APPLICATION.

## BASIC SPECIFICATIONS

**VALVE TYPE** ————— **3 WAY BALL VALVE TYPE 23**  
**SIZE** ————— **15 mm—100 mm (1/2 inch—4 inch)**  
**BODY MATERIAL** ————— **U-PVC C-PVC PP PVDF**  
**SEAL MATERIAL / O-RING** ————— **EPDM FKM etc.**  
**CONNECTION / FLANGED** ————— **JIS5K, JIS10K, DIN PN10, ANSI CLASS150**  
**SOCKET** ————— **JIS, DIN, ANSI**  
**THREADED** ————— **Rc, Rp, NPT**  
**PORT** ————— **DOUBLE L PORT, CROSS PORT, L PORT**  
**HIGH PURITY SERIES** ————— **LUBRICANT FREE**

	FLUID TEMPERATURE	MAXIMUM WORKING PRESSURE (NORMAL TEMPERATURE) (MPa)(kgf/cm <sup>2</sup> )	CONNECTION METHOD		
			FLANGED	SOCKET	THREADED
U-PVC	0°C ~ 50°C	1.0 {10.2}	○	○	○
C-PVC	0°C ~ 90°C	1.0 {10.2}	○	○	○
PP	-20°C ~ 80°C	1.0 {10.2}	○	○	○
PVDF	-20°C ~ 100°C	1.0 {10.2}	○	○	○

**NOTE** (1) The ball-type valves have dead spaces for structural reasons. Note that volatile liquids, such as hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) and sodium hypochlorite (NaClO), vaporize in those dead spaces, which may cause abnormal pressure increase in the valve. (When the internal pressure abnormally increases due to vaporization, the gas will be compressive fluid. If the valve breaks in this state, it will be very dangerous, causing explosion and scattering of fragments.) (2) The maximum working pressure is the value including the water hammer pressure. Be careful that the maximum working pressure is not exceeded during use.

\* Concerning the allowable pressure for each temperature and material, see the technical documents at the end of this catalog.

MANUAL

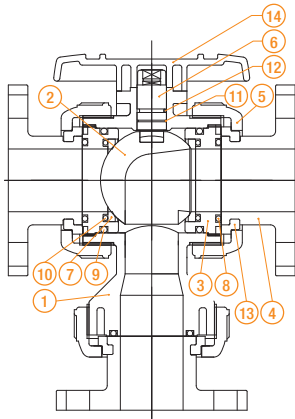


AUTOMATIC

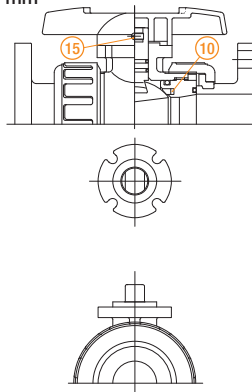


## PARTS LIST **MANUAL**

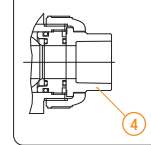
FLANGED



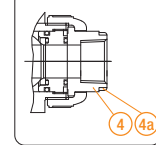
65 mm - 100 mm



SOCKET



THREADED



PART NO. / NAME	QTY	MATERIAL	PART NO. / NAME	QTY	MATERIAL	PART NO. / NAME	QTY	MATERIAL
① BODY	1	U-PVC, C-PVC, PP, PVDF	⑥ STEM	1	U-PVC, C-PVC, PP, PVDF	⑪ O-RING (D)	1	EPDM, FKM, etc.
② BALL	1	U-PVC, C-PVC, PP, PVDF	⑦ SEAT	2	PTFE	⑫ O-RING (E)	1	EPDM, FKM, etc.
③ UNION	2	U-PVC, C-PVC, PP, PVDF	⑧ O-RING (A)	3	EPDM, FKM, etc.	⑬ STOP RING	3	PVDF (Used for flanged type)
④ END CONNECTOR	3	U-PVC, C-PVC, PP, PVDF	⑨ O-RING (B)	2	EPDM, FKM, etc.	⑭ HANDLE	1	ABS
④a RING	3	SUS304 (Used for C-PVC 15-, 20-, or 25-mm threaded type)	⑩ O-RING (C)	2	EPDM, FKM, etc. (Used for 15 to 50 mm)	⑮ TAPPING SCREW (A)	1	SUS304 (Used for 65 to 100 mm)
⑤ UNION NUT	3	U-PVC, C-PVC, PP, PVDF	⑩ CUSHION	2	EPDM, FKM, etc. (Used for 65 - 100 mm)			

## COMPATIBLE ACTUATOR **AUTOMATIC**

**PNEUMATIC TYPE TA**

For detailed specifications, see **P.124**

**ELECTRIC TYPE T**

For detailed specifications, see **P.139**

## FLOW DIRECTION DIAGRAM FOR EACH HANDLE ROTATION ANGLE **MANUAL** **AUTOMATIC**

For details of flow direction diagram, see **OP.058**.

PRODUCT MODEL CODE LIST	ACTUATION	TYPE	OPERATING SYSTEM	BODY MATERIAL	SEAL MATERIAL	CONNECTION	STANDARD	SIZE	HIGH PURITY SERIES
<b>MANUAL</b>	V	23	LV	*	*	*	*	***	1
	V MANUAL VALVE	23 TYPE 23	LV LEVER TYPE	U U-PVC C C-PVC P PP F PVDF	E EPDM V FKM	S SOCKET N THREADED P SPIGOT F FLANGED	J JIS D DIN 1 JIS10K 5 JIS5K A ANSI	015 15mm 100 100mm	1 LUBRICANT FREE

PRODUCT MODEL CODE LIST	ACTUATION	TYPE	ACTUATOR TYPE	ACTION / POWER SOURCE	BODY MATERIAL	SEAL MATERIAL	CONNECTION	STANDARD	SIZE	SPACE HEATER	HIGH PURITY SERIES
<b>AUTOMATIC</b>	A	23	*	*	*	*	*	*	***	OC*	1
	A AUTOMATIC VALVE	23 TYPE 23	PNEUMATIC K TYPE TA ELECTRIC T TYPE T	PNEUMATIC F DOUBLE ACTING G AIR TO OPEN S AIR TO CLOSE ELECTRIC 1 Single-Phase 100V 2 Single-Phase 200V	U U-PVC C C-PVC P PP F PVDF	E EPDM V FKM	S SOCKET N THREADED P SPIGOT F FLANGED	J JIS D DIN 1 JIS10K 5 JIS5K A ANSI	015 15mm 100 100mm	OC OC * Indicate only for electric type only.	1 LUBRICANT FREE

### FLOW DIRECTION DIAGRAM **MANUAL** **AUTOMATIC**

THE DIRECTION OF FLOW IS SELECTABLE ACCORDING TO THE APPLICATION.

THREE TYPES OF VALVE ELEMENT (BALL) ARE AVAILABLE: "L PORT", "DOUBLE L PORT" AND "CROSS PORT". THE DIRECTION OF FLOW CAN BE SWITCHED ACCORDING TO THE APPLICATION.

	COMPATIBLE ACTUATION METHOD	ROTATION ANGLE					BALL SHAPE
		0°	45°	90°	135°	180°	
<b>L PORT</b> (90° or 180°)	MANUAL ..... ○						
	ELECTRIC ..... △						
<b>DOUBLE L PORT</b> (90°)	MANUAL ..... △						
	PNEUMATIC ..... ○						
	ELECTRIC ..... ○						
<b>CROSS PORT</b> (90° or 180°) * For 15 - 50 mm only.	MANUAL ..... △						
	PNEUMATIC ..... △						
	ELECTRIC ..... △						

○ indicates standard products. △ indicates optional products.

\* Our products are vertical type. The double L port and cross port cannot completely stop the flow in three directions. \* For automatic valves, the direction of flow is determined as follows according to the operation system:

[Air to open: Right opens during air supply. | Air to close: Left opens during air supply. | Double acting: Right opens during air supply on ⊙ side. Left opens during air supply on ⊗ side.]

\* Also for the solenoid valve, the right side opens when energized and the left side opens when de-energized.



AUTOMATIC

PNEUMATIC

TYPE TA

DOUBLE ACTING

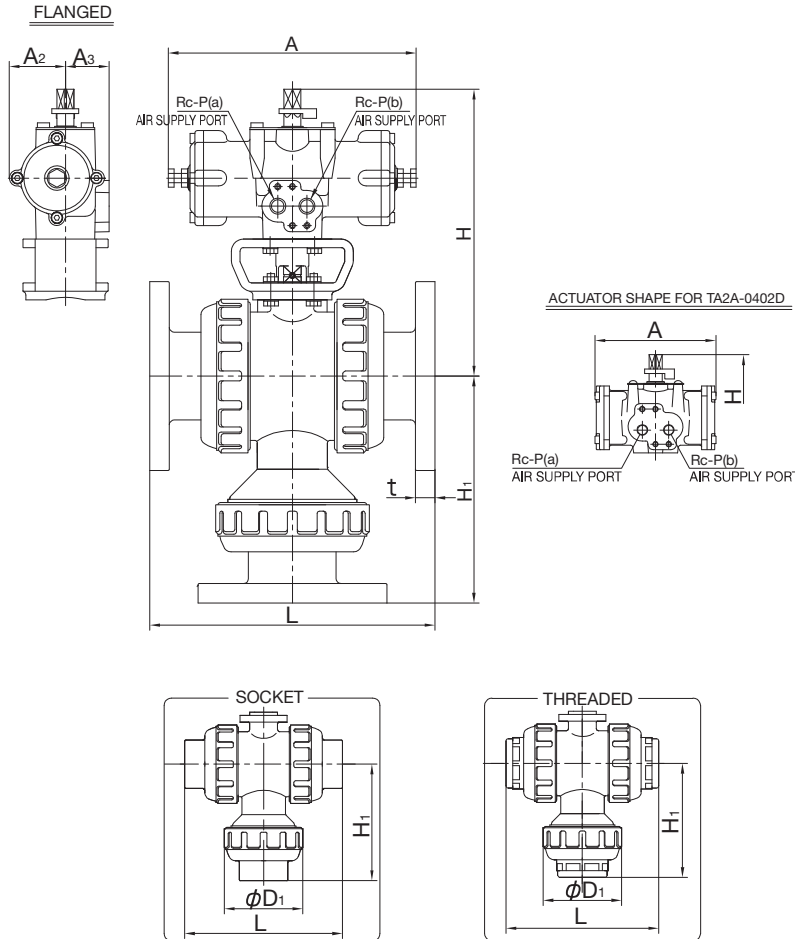
AIR TO OPEN

AIR TO CLOSE

# 3 WAY BALL VALVE TYPE 23

TYPE—A23K

CONNECTION / FLANGED, SOCKET, THREADED—JIS, DIN, ANSI



### ACTUATOR SELECTION CHART

SIZE	ACTUATOR TYPE
15mm ( 1/2inch)	TA2A-0402D
20mm ( 3/4inch)	
25mm ( 1inch)	
32mm (1 1/4inch)	TA2A-050D
40mm (1 1/2inch)	
50mm ( 2inch)	TA2A-063D
65mm (2 1/2inch)	
80mm ( 3inch)	
100mm ( 4inch)	TA2A-080D

For detailed specifications, see **P.124**

■ JIS, DIN (Unit: mm)

mm	D <sub>1</sub>	H	H <sub>1</sub>	A	A <sub>2</sub>	A <sub>3</sub>	P	JIS									DIN								
								FLANGED JIS10K			SOCKET			THREADED			FLANGED DIN PN10			SOCKET			THREADED		
								L	t	H <sub>1</sub>	U-PVC, C-PVC	PP	L	H <sub>1</sub>	L	H <sub>1</sub>	L	t	H <sub>1</sub>	U-PVC, C-PVC	PP	L	H <sub>1</sub>	L	H <sub>1</sub>
15	48	159.5	29	110	25	32	1/8	143	12	94	108	77	108	77	102	74	130	12	88	102	72	99	71	102	74
20	60	166	35	110	25	32	1/8	172	14	115	128	93	126	92	120	89	150	14	104	120	85	114	83	120	89
25	70	173	39	110	25	32	1/8	187	14	133	145	112	141	110	131	105	160	14	120	131	104	123	100	131	105
32	100	224	55	210	46	36	1/4	212	16	165	174	154	-	-	163	141	212	16	165	173	147	148	131	163	141
40	100	224	55	210	46	36	1/4	212	16	165	189	154	171	145	163	141	200	16	159	163	142	148	131	163	141
50	126	235.5	66	210	46	36	1/4	234	16	187	220	180	192	166	197	168	230	16	185	197	170	176	154	197	168
65	152	277	85	250	57	38	1/4	304	18	256	316	261	264	235	264	235	304	18	256	282	245	256	227	264	235
80	152	277	85	250	57	38	1/4	304	18	256	316	261	258	232	264	235	310	21	259	282	245	251	224	264	235
100	210	348	110	292	71	45	1/4	372	18	305	418	328	340	289	360	299	350	18	305	349	305	310	279	338	299

■ ANSI (Unit: inch)

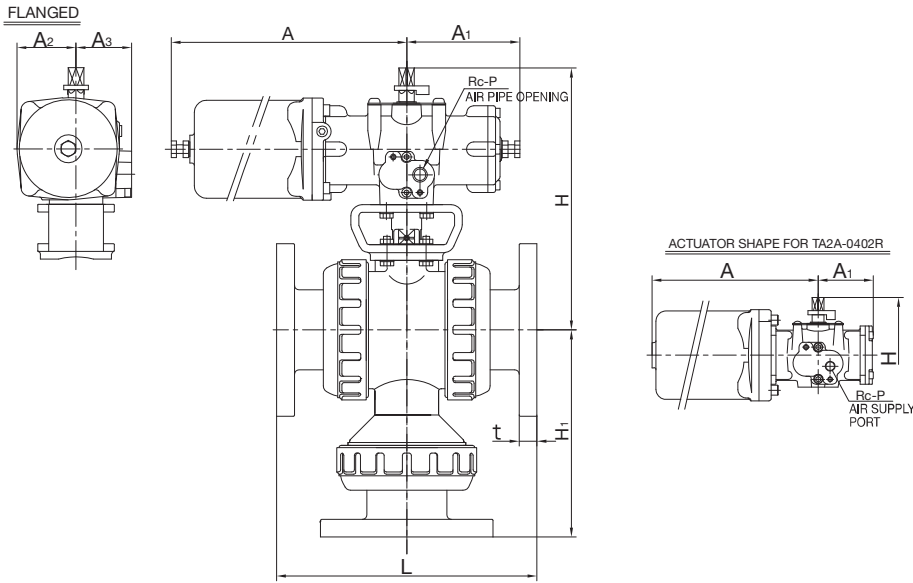
inch	mm	D <sub>1</sub>	H	H <sub>1</sub>	A	A <sub>2</sub>	A <sub>3</sub>	P	ANSI																
									FLANGED ANSI CLASS150			SOCKET			THREADED										
									L	t	H <sub>1</sub>	U-PVC, C-PVC	PP, PVDF	L	H <sub>1</sub>	L	H <sub>1</sub>	L	H <sub>1</sub>						
1/2	15	1.89	6.28	1.14	4.33	0.98	1.26	1/8	5.63	0.47	3.70	4.45	3.08	4.45	3.09	4.02	2.89								
3/4	20	2.36	6.54	1.38	4.33	0.98	1.26	1/8	6.77	0.55	4.50	5.08	3.56	5.08	3.61	4.72	3.48								
1	25	2.76	6.81	1.54	4.33	0.98	1.26	1/8	7.36	0.55	5.24	5.75	4.32	5.75	4.37	5.16	4.13								
1 1/4	32	3.94	8.82	2.17	8.27	1.81	1.42	1/4	8.35	0.63	6.50	6.85	5.51	7.04	5.75	6.42	5.53								
1 1/2	40	3.94	8.82	2.17	8.27	1.81	1.42	1/4	8.35	0.63	6.50	7.24	5.71	7.24	5.85	6.42	5.53								
2	50	4.96	9.27	2.60	8.27	1.81	1.42	1/4	9.21	0.63	7.34	8.23	6.66	8.23	6.76	7.76	6.61								
2 1/2	65	5.98	10.91	3.35	9.84	2.24	1.50	1/4	11.97	0.71	10.06	11.21	9.65	11.21	9.65	10.39	9.25								
3	80	5.98	10.91	3.35	9.84	2.24	1.50	1/4	11.97	0.71	10.06	11.10	9.59	11.10	11.10	10.39	9.25								
4	100	8.27	13.70	4.33	11.50	2.80	1.77	1/4	14.66	0.71	12.01	13.90	11.58	14.37	14.37	14.17	11.77								

**AUTOMATIC PNEUMATIC TYPE TA**

**DOUBLE ACTING**  
**AIR TO OPEN**  
**AIR TO CLOSE**

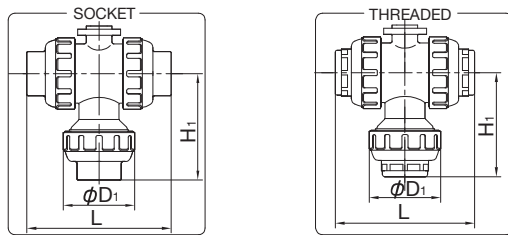
### 3 WAY BALL VALVE TYPE 23

TYPE—A23K  
 CONNECTION / FLANGED, SOCKET, THREADED—JIS, DIN, ANSI



SIZE	ACTUATOR TYPE
15mm ( 1/2inch)	TA2A-0402R
20mm ( 3/4inch)	
25mm ( 1inch)	
32mm (1 1/4inch)	TA2A-050R
40mm (1 1/2inch)	
50mm ( 2inch)	TA2A-063R
65mm (2 1/2inch)	
80mm ( 3inch)	
100mm ( 4inch)	TA2A-080R

For detailed specifications, see **P.124**



■ JIS, DIN (Unit: mm)

mm	D <sub>1</sub>	H	H <sub>1</sub>	A	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	P	JIS								DIN															
									FLANGED JIS10K				SOCKET				THREADED				FLANGED DIN PN10				SOCKET				THREADED			
									L	t	H <sub>1</sub>	P	U-PVC, C-PVC	PP	L	H <sub>1</sub>	L	H <sub>1</sub>	L	t	H <sub>1</sub>	P	U-PVC, C-PVC	PP	L	H <sub>1</sub>	L	H <sub>1</sub>				
15	48	159.5	29	190	55	42	49	1/8	143	12	94	108	77	108	77	102	74	130	12	88	102	72	99	71	102	74						
20	60	161.5	35	190	55	42	49	1/8	172	14	115	128	93	126	92	120	89	150	14	104	120	85	114	83	120	89						
25	70	168.5	39	190	55	42	49	1/8	187	14	133	145	112	141	110	131	105	160	14	120	131	104	123	100	131	105						
32	100	224	55	240	105	53	50	1/4	212	16	165	174	154	-	-	163	141	212	16	165	173	147	148	131	163	141						
40	100	224	55	240	105	53	50	1/4	212	16	165	189	154	171	145	163	141	200	16	159	163	142	148	131	163	141						
50	126	235.5	66	240	105	53	50	1/4	234	16	187	220	180	192	166	197	168	230	16	185	197	170	176	154	197	168						
65	152	277	85	288	125	67	52	1/4	304	18	256	316	261	264	235	264	235	304	18	256	282	245	256	227	264	235						
80	152	277	85	288	125	67	52	1/4	304	18	256	316	261	258	232	264	235	310	21	259	282	245	251	224	264	235						
100	210	348	110	341	146	82.5	59	1/4	372	18	305	418	328	340	289	360	299	350	18	305	349	305	310	279	338	299						

■ ANSI (Unit: inch)

inch	mm	D <sub>1</sub>	H	H <sub>1</sub>	A	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	P	ANSI																		
										FLANGED ANSI CLASS150					SOCKET					THREADED								
										L	t	H <sub>1</sub>	P	U-PVC, C-PVC	PP, PVDF	L	H <sub>1</sub>	L	H <sub>1</sub>	L	H <sub>1</sub>							
1/2	15	1.89	6.28	1.14	7.48	2.17	1.65	1.93	1/8	5.63	0.47	3.70	4.45	3.08	4.45	3.09	4.02	2.89										
3/4	20	2.36	6.36	1.38	7.48	2.17	1.65	1.93	1/8	6.77	0.55	4.50	5.08	3.56	5.08	3.61	4.72	3.48										
1	25	2.76	6.63	1.54	7.48	2.17	1.65	1.93	1/8	7.36	0.55	5.24	5.75	4.32	5.75	4.37	5.16	4.13										
1 1/4	32	3.94	8.82	2.17	9.45	4.13	2.09	1.97	1/4	8.35	0.63	6.50	6.85	5.51	7.04	5.75	6.42	5.53										
1 1/2	40	3.94	8.82	2.17	9.45	4.13	2.09	1.97	1/4	8.35	0.63	6.50	7.24	5.71	7.24	5.85	6.42	5.53										
2	50	4.96	9.27	2.60	9.45	4.13	2.09	1.97	1/4	9.21	0.63	7.34	8.23	6.66	8.23	6.76	7.76	6.61										
2 1/2	65	5.98	10.91	3.35	11.34	4.92	2.64	2.05	1/4	11.97	0.71	10.06	11.21	9.65	11.21	9.65	10.39	9.25										
3	80	5.98	10.91	3.35	11.34	4.92	2.64	2.05	1/4	11.97	0.71	10.06	11.10	9.59	11.10	11.10	10.39	9.25										
4	100	8.27	13.70	4.33	13.43	5.75	3.25	2.32	1/4	14.66	0.71	12.01	13.90	11.58	14.37	14.37	14.17	11.77										

AUTOMATIC

ELECTRIC

TYPE T

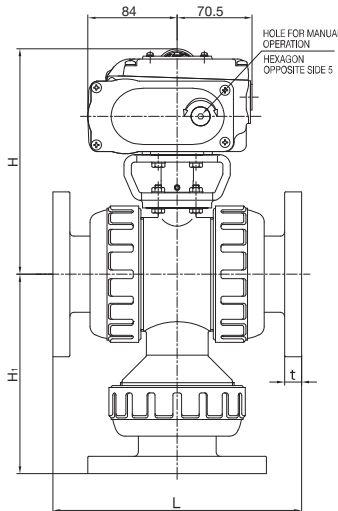
Single-Phase 100V  
Single-Phase 200V

# 3 WAY BALL VALVE TYPE 23

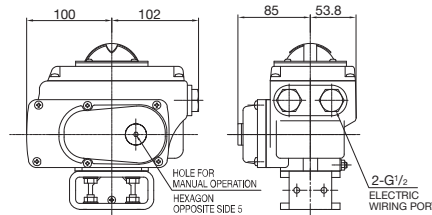
TYPE—A23T

CONNECTION / FLANGED, SOCKET, THREADED—JIS, DIN, ANSI

FLANGED FOR 15 - 50 mm



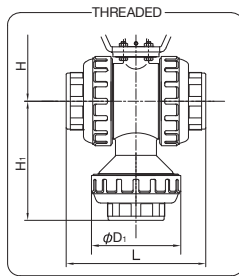
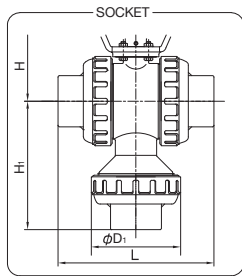
FOR 65 - 80 mm



### ACTUATOR SELECTION CHART

SIZE	ACTUATOR TYPE
15mm ( 1/2inch)	T-00
20mm ( 3/4inch)	
25mm ( 1inch)	
32mm (1 1/4inch)	
40mm (1 1/2inch)	
50mm ( 2inch)	T-0
65mm (2 1/2inch)	
80mm ( 3inch)	
100mm ( 4inch)	

For detailed specifications, see **P.139**



■ JIS, DIN (Unit: mm)

mm	D <sub>1</sub>	H	JIS										DIN							
			FLANGED JIS10K			SOCKET			THREADED				FLANGED DIN PN10			SOCKET			THREADED	
			L	t	H <sub>1</sub>	U-PVC, C-PVC	PP	L	H <sub>1</sub>	L	H <sub>1</sub>	L	H <sub>1</sub>	L	t	H <sub>1</sub>	U-PVC, C-PVC	PP	L	H <sub>1</sub>
15	48	169.5	143	12	94	108	77	108	77	102	74	130	12	88	102	72	99	71	102	74
20	60	176	172	14	115	128	93	126	92	120	89	150	14	104	120	85	114	83	120	89
25	70	183	187	14	133	145	112	141	110	131	105	160	14	120	131	104	123	100	131	105
32	100	200.5	212	16	165	174	154	-	-	163	141	212	16	165	173	147	148	131	163	141
40	100	200.5	212	16	165	189	154	171	145	163	141	200	16	159	163	142	148	131	163	141
50	126	212	234	16	187	220	180	192	166	197	168	230	16	185	197	170	176	154	197	168
65	152	289	304	18	256	316	261	264	235	264	235	304	18	256	282	245	256	227	264	235
80	152	289	304	18	256	316	261	258	232	264	235	310	21	259	282	245	251	224	264	235
100	210	327	372	18	305	418	328	340	289	360	299	350	18	305	349	305	310	279	338	299

■ ANSI (Unit: inch)

inch	mm	D <sub>1</sub>	H	ANSI									
				FLANGED ANSI CLASS150			SOCKET				THREADED		
				L	t	H <sub>1</sub>	U-PVC, C-PVC	PP, PVDF	L	H <sub>1</sub>	L	H <sub>1</sub>	
1/2	15	1.89	6.67	5.63	0.47	3.70	4.45	3.08	4.45	3.09	4.02	2.89	
3/4	20	2.36	6.93	6.77	0.55	4.50	5.08	3.56	5.08	3.61	4.72	3.48	
1	25	2.76	7.20	7.36	0.55	5.24	5.75	4.32	5.75	4.37	5.16	4.13	
1 1/4	32	3.94	7.89	8.35	0.63	6.50	6.85	5.51	7.04	5.75	6.42	5.53	
1 1/2	40	3.94	7.89	8.35	0.63	6.50	7.24	5.71	7.24	5.85	6.42	5.53	
2	50	4.96	8.35	9.21	0.63	7.34	8.23	6.66	8.23	6.76	7.76	6.61	
2 1/2	65	5.98	11.38	11.97	0.71	10.06	11.21	9.65	11.21	9.65	10.39	9.25	
3	80	5.98	11.38	11.97	0.71	10.06	11.10	9.59	11.10	11.10	10.39	9.25	
4	100	8.27	12.87	14.66	0.71	12.01	13.90	11.58	14.37	14.37	14.17	11.77	

# 3 WAY BALL VALVE TYPE 23 H

- HORIZONTAL 3 WAY BALL VALVE
- T-SHAPED FLOW PATH ALLOWS FOR EASY SWITCHING OF FLOW CHANNEL.
- END CONNECTOR AND UNION NUT ARE COMPATIBLE WITH 3 WAY BALL VALVE TYPE 23.

## BASIC SPECIFICATIONS

**VALVE TYPE** ————— **3 WAY BALL VALVE TYPE 23H**

**SIZE** ————— **25 mm—40 mm (1 inch—1 1/2 inch)**

**BODY MATERIAL** ————— **PP**

**SEAL MATERIAL / SEAT** ————— **PTFE**

**O-RING** ————— **EPDM FKM etc.**

**CONNECTION / FLANGED** ————— **JIS10K, DIN PN10, ANSI CLASS150**

**SOCKET** ————— **JIS, DIN, ANSI**

**THREADED** ————— **Rc, Rp, NPT**

	FLUID TEMPERATURE	MAXIMUM WORKING PRESSURE (NORMAL TEMPERATURE) MPa(kgf/cm <sup>2</sup> )	CONNECTION METHOD		
			FLANGED	SOCKET	THREADED
PP	-20°C ~ 80°C	1.0 {10.2}	○	○	○

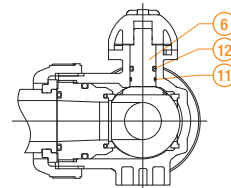
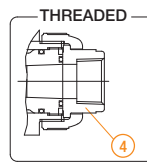
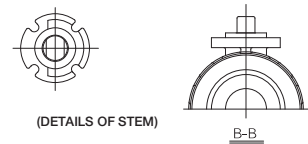
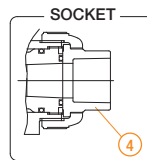
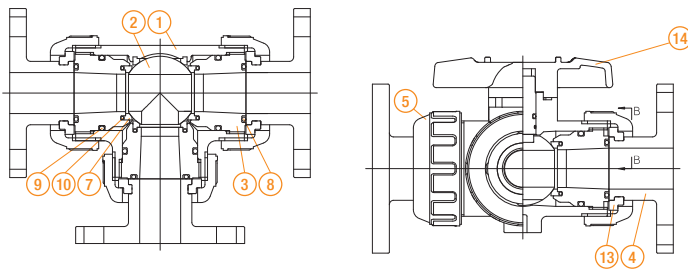
**NOTE** The maximum working pressure is the value including the water hammer pressure. Be careful that the maximum working pressure is not exceeded during use. Cannot completely stop the flow in three directions.  
 \* Concerning the allowable pressure for each temperature and material, see the technical documents at the end of this catalog.

MANUAL



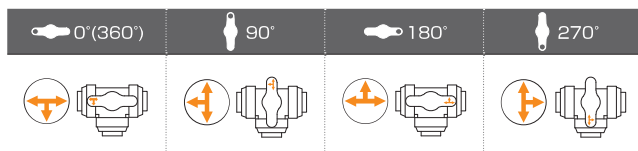
## PARTS LIST MANUAL

### FLANGED



PART NO. / NAME	QTY	MATERIAL	PART NO. / NAME	QTY	MATERIAL	PART NO. / NAME	QTY	MATERIAL
① BODY	1	PP	⑦ SEAT	4	PTFE	⑬ STOP RING	3	PVDF (Used for flanged type.)
② BALL	1	PP	⑧ O-RING (A)	3	EPDM, FKM, etc.	⑭ HANDLE	1	ABS
③ UNION	3	PP	⑨ O-RING (B)	3	EPDM, FKM, etc.			
④ END CONNECTOR	3	PP	⑩ O-RING (C)	3	EPDM, FKM, etc.			
⑤ UNION NUT	3	PPG	⑪ O-RING (D)	1	EPDM, FKM, etc.			
⑥ STEM	1	PP	⑫ O-RING (E)	1	EPDM, FKM, etc.			

## FLOW DIRECTION DIAGRAM MANUAL



PRODUCT MODEL CODE LIST

MANUAL

ACTUATION	TYPE	OPERATING SYSTEM	BODY MATERIAL	SEAL MATERIAL	CONNECTION	STANDARD	SIZE
V	3H	LV	P	*	*	*	***
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
V MANUAL VALVE	3H 23H	LV LEVER TYPE	PP PP	E EPDM V FKM	S SOCKET N THREADED P SPIGOT F FLANGED	J JIS D DIN A ANSI I JIS10K	025 25mm 032 32mm 040 40mm

**NOTE** (1) The available ball shape is T port only. (2) The socket and spigot types are weld type.  
 (3) Not compatible with 32-mm spigot type and JIS socket type. (4) Parts compliant with connection standards other than JIS (such as ANSI and DIN) are also available.

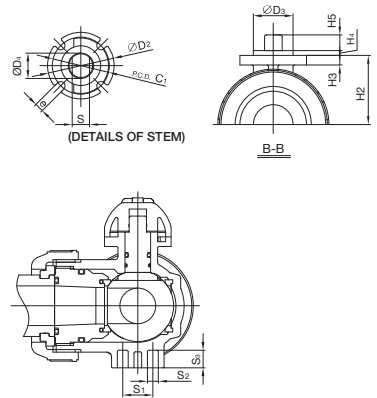
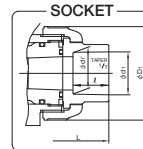
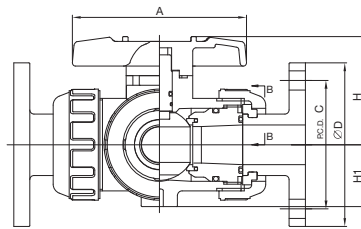
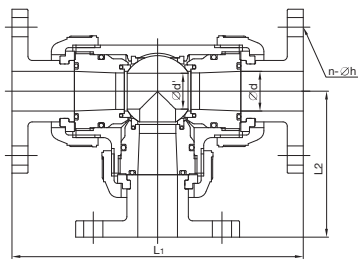
MANUAL

### 3 WAY BALL VALVE TYPE 23 H

TYPE—V3HLV

CONNECTION / FLANGED, SOCKET, THREADED—JIS, DIN, ANSI SPIGOT—DIN

FLANGED



JIS, DIN (Unit: mm)

mm	d	d'	D1	D2	D3	D4	C1	H	H1	H2	H3	H4	H5	A	S	S1	S2	S3	e	JIS															
																				FLANGED						SOCKET			THREADED						
																				D	C	n	h	t	L1	L2	d1	d1'	ℓ	L1	L2	d2	ℓ	L1	L2
25	25	22	70	42	25	15	36	68	39	44	6	3	10	110	11	19	7.3	11	5.5	125	90	4	19	14	216	108	33	32	25	170	85	Rc1	20	159	80
32	40	34	100	57	35	23	50	89	55	61	10	3	12	131	18	30	9	15	6.5	135	100	4	19	16	260	130	-	-	-	-	-	Rc1 1/4	22	208	104
40	40	34	100	57	35	23	50	89	55	61	10	3	12	131	18	30	9	15	6.5	140	100	4	19	16	260	130	47	46	28	219	109.5	Rc1 1/2	25	208	104

DIN

mm	FLANGED												SOCKET				THREADED				SPIGOT			
	DIN PN10																							
	D	C	n	h	t	L1	L2	d1	d1'	ℓ	L1	L2	d2	ℓ	L1	L2	d3	ℓ	t	L1	L2			
25	115	85	4	14	14	189	94.5	31.5	31.3	18	152	76	Rp 1	20	159	79.5	32	22.5	3.0	183	91.5			
32	140	100	4	16	16	260	130	39.45	39.2	20.5	197	98.5	Rp 1 1/4	22	208	104	-	-	-	-	-			
40	150	110	4	16	16	248	124	49.45	49.2	23.5	197	98.5	Rp 1 1/2	25	208	104	50	32	4.6	242	121			

ANSI (Unit: inch)

inch	mm	d	d'	D1	D2	D3	D4	C1	H	H1	H2	H3	H4	H5	A	S	S1	S2	S3	e
1	25	0.98	0.87	2.76	1.65	0.98	0.59	1.42	2.68	1.54	1.71	0.24	0.12	0.39	4.33	0.43	0.75	0.29	0.43	0.22
1 1/4	32	1.57	1.34	3.94	2.24	1.38	0.91	1.97	3.50	2.17	2.40	0.39	0.12	0.47	5.16	0.71	1.18	0.35	0.59	0.26
1 1/2	40	1.57	1.34	3.94	2.24	1.38	0.91	1.97	3.50	2.17	2.40	0.39	0.12	0.47	5.16	0.71	1.18	0.35	0.59	0.26

ANSI

inch	mm	FLANGED												SOCKET				THREADED			
		ANSI CLASS150																			
		D	C	n	h	t	L1	L2	d1	ℓ	L1	L2	d2	ℓ	L1	L2	d3	ℓ	L1	L2	
1	25	4.25	3.13	4	0.62	0.55	8.50	4.25	1.30	1.13	6.77	3.39	1-11 1/2NPT	0.79	6.26	3.13	-	-	-	-	
1 1/4	32	4.62	3.50	4	0.62	0.63	10.24	5.12	1.65	1.25	8.74	4.37	1 1/4-11 1/2NPT	0.87	8.19	4.09	-	-	-	-	
1 1/2	40	5.00	3.88	4	0.62	0.63	10.24	5.12	1.89	1.37	8.94	4.47	1 1/2-11 1/2NPT	0.98	8.19	4.09	-	-	-	-	



# LAB COCK

- LIGHT-WEIGHT AND COMPACT PLASTIC VALVE WITH EXCELLENT CORROSION RESISTANCE, FLOW CHARACTERISTICS, DURABILITY AND FUNCTIONALITY
- WIDE SELECTION FROM A PRODUCT LINE OF 16 TYPES
- OCTAGON BODY ALLOWING FOR EASY PIPING WITH SPANNER
- FLOW CONTROL IS AVAILABLE.

## BASIC SPECIFICATIONS

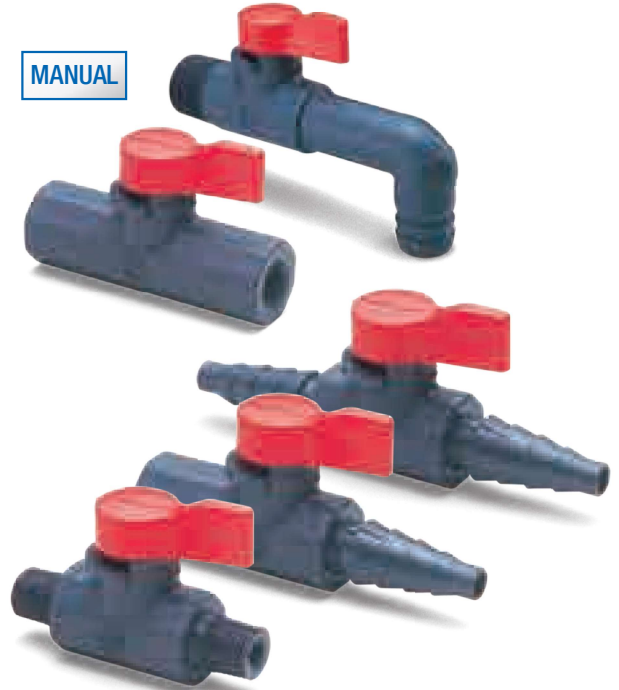
VALVE TYPE — LAB COCK  
 BODY MATERIAL — U-PVC  
 SEAL MATERIAL / SEAT — PTFE EPDM etc.  
 O-RING — EPDM FKM etc.  
 HIGH PURITY SERIES — LUBRICANT FREE

	FLUID TEMPERATURE	MAXIMUM WORKING PRESSURE (NORMAL TEMPERATURE MPa(kgf/cm <sup>2</sup> ))	CONNECTION METHOD
U-PVC	0°C ~ 50°C	1.0 {10.2}	Hose type, Male thread type, Female thread type (Any combination is available.)

**NOTE** (1) Degreased type is also available by made-to-order. (2) The maximum working pressure is the value including the water hammer pressure. Be careful that the maximum working pressure is not exceeded during use.

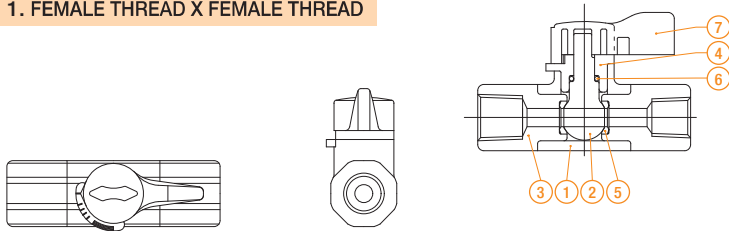
\* Concerning the allowable pressure for each temperature and material, see the technical documents at the end of this catalog.

MANUAL



## PARTS LIST MANUAL

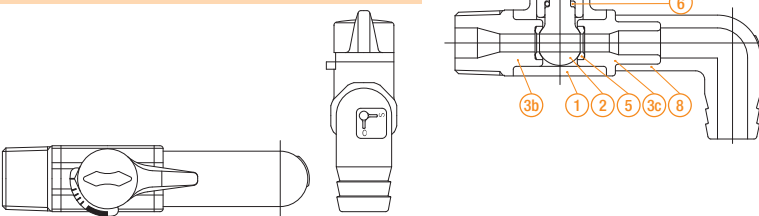
### 1. FEMALE THREAD X FEMALE THREAD



PART NO. / NAME	QTY	MATERIAL
① BODY	1	U-PVC
② BALL STEM	1	U-PVC
③ END CONNECTOR	2	U-PVC
④ STEM HOLDER	1	U-PVC
⑤ SEAT*	2	EPDM, PTFE, etc.
⑥ O-RING	1	EPDM, etc.
⑦ HANDLE	1	ABS

\* For degreased type, PTFE only.

### 7. MALE THREAD X ELBOW 16 mm LUB. FREE



PART NO. / NAME	QTY	MATERIAL
① BODY	1	U-PVC
② BALL STEM	1	U-PVC
③b END CONNECTOR	1	U-PVC
③c END CONNECTOR	1	U-PVC
④ STEM HOLDER	1	U-PVC
⑤ SEAT	2	PTFE
⑥ O-RING	1	EPDM, etc.
⑦ HANDLE	1	ABS
⑧ ELBOW	1	U-PVC

\* Standard products are degreased.

### PRODUCT MODEL CODE LIST

MANUAL

ACTUATION	TYPE	OPERATING SYSTEM	BODY MATERIAL	SEAL MATERIAL	STANDARD	CONNECTION	HIGH PURITY SERIES
V	LC	LV	U	*	*	****	1
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
V	LC	LV	U	E EPDM V FKM 1 PTFE/EPDM	J JIS D DIN A ANSI	SEE CONNECTION P.66.	1 LUBRICANT FREE

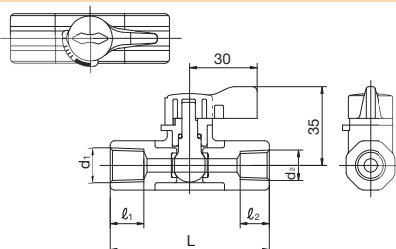
# LAB COCK

TYPE—VLCLV

CONNECTION / MALE THREAD, FEMALE THREAD, HOSE—JIS, DIN, ANSI

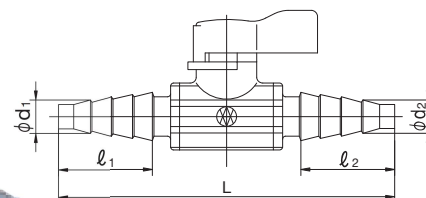
## 1. Female thread x Female thread

- 1/4 female thread x 1/4 female thread
- 3/8 female thread x 1/4 female thread
- 3/8 female thread x 3/8 female thread



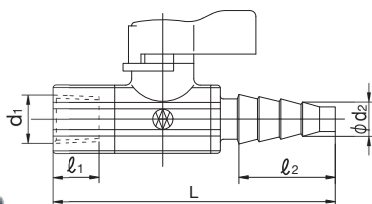
## 2. Hose x Hose

- Hose x Hose



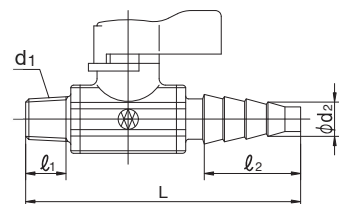
## 3. Female thread x Hose

- 1/4 female thread x Hose
- 3/8 female thread x Hose



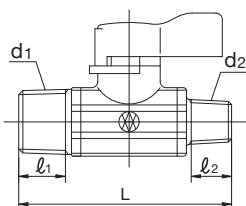
## 4. Male thread x Hose

- 1/4 male thread x Hose
- 1/2 male thread x Hose



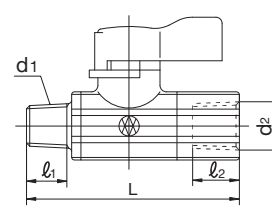
## 5. Male thread x Male thread

- 1/4 male thread x 1/4 male thread
- 1/2 male thread x 1/4 male thread
- 1/2 male thread x 1/2 male thread



## 6. Male thread x Female thread

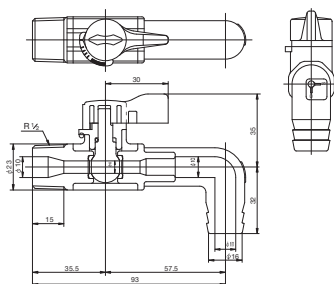
- 1/4 male thread x 1/4 female thread
- 1/4 male thread x 3/8 female thread
- 1/2 male thread x 1/4 female thread
- 1/2 male thread x 3/8 female thread



## 7. Male thread x Elbow 16 mm degreased

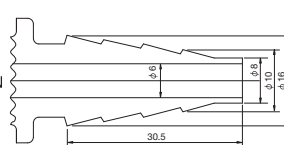
- 1/2 male thread x Elbow 16 mm

\* Standard products are LUB. FREE.

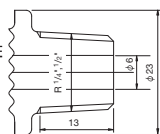


### CONNECTION CONNECTOR

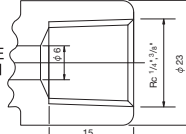
HOSE TYPE CONNECTION CONNECTOR



THREAD TYPE CONNECTION CONNECTOR



FEMALE THREAD TYPE CONNECTION CONNECTOR



CONNECTION	CONNECTION	JIS					DIN					ANSI					
		d <sub>1</sub>	d <sub>2</sub>	l <sub>1</sub>	l <sub>2</sub>	L	d <sub>1</sub>	d <sub>2</sub>	l <sub>1</sub>	l <sub>2</sub>	L	d <sub>1</sub>	d <sub>2</sub>	l <sub>1</sub>	l <sub>2</sub>	L	
1. Female thread x Female thread	N4N4	Rc 1/4	Rc 1/4	15	15	71	Rp 1/4	Rp 1/4	15	15	71	1/4-18NPT	1/4-18NPT	0.51	0.51	2.80	
	N8N4	Rc 3/8	Rc 1/4	15	15	71	Rp 3/8	Rp 1/4	15	15	71	3/8-18NPT	1/4-18NPT	0.59	0.51	2.80	
	N8N8	Rc 3/8	Rc 3/8	15	15	71	Rp 3/8	Rp 3/8	15	15	71	3/8-18NPT	3/8-18NPT	0.59	0.59	2.80	
2. Hose x Hose	H0H0	10	10	30.5	30.5	111	10	10	30.5	30.5	111	0.39	0.39	1.20	1.20	4.37	
	N4H0	Rc 1/4	10	15	30.5	91	Rp 1/4	10	15	30.5	91	1/4-18NPT	1/4-18NPT	0.39	0.51	1.20	3.58
3. Female thread x Hose	N8H0	Rc 3/8	10	15	30.5	91	Rp 3/8	10	15	30.5	91	3/8-18NPT	1/4-18NPT	0.39	0.59	1.20	3.58
	O2H0	R 1/2	10	15	30.5	91	R 1/2	10	15	30.5	91	1/2-14NPT	1/2-14NPT	0.39	0.59	1.20	3.58
4. Male thread x Hose	O4H0	R 1/4	10	13	30.5	88.5	R 1/4	10	13	30.5	88.5	1/4-18NPT	1/4-18NPT	0.39	0.51	1.20	3.48
	O2H0	R 1/2	10	15	30.5	91	R 1/2	10	15	30.5	91	1/2-14NPT	1/2-14NPT	0.39	0.59	1.20	3.58
	O4O4	R 1/4	R 1/4	13	13	66	R 1/4	R 1/4	13	13	66	1/4-18NPT	1/4-18NPT	0.51	0.51	2.60	
5. Male thread x Male thread	O2O4	R 1/2	R 1/4	15	13	68.5	R 1/2	R 1/4	15	13	68.5	1/2-14NPT	1/4-18NPT	0.59	0.51	2.70	
	O2O2	R 1/2	R 1/2	15	15	71	R 1/2	R 1/2	15	15	71	1/2-14NPT	1/2-14NPT	0.59	0.59	2.80	
	O4N4	R 1/4	Rc 1/4	13	15	68.5	R 1/4	Rp 1/4	13	15	68.5	1/4-18NPT	1/4-18NPT	0.51	0.51	2.70	
6. Male thread x Female thread	O4N8	R 1/4	Rc 3/8	13	15	68.5	R 1/4	Rp 3/8	13	15	68.5	1/4-18NPT	3/8-18NPT	0.51	0.59	2.70	
	O2N4	R 1/2	Rc 1/4	15	15	71	R 1/2	Rp 1/4	15	15	71	1/2-14NPT	1/4-18NPT	0.59	0.51	2.80	
	O2N8	R 1/2	Rc 3/8	15	15	71	R 1/2	Rp 3/8	15	15	71	1/2-14NPT	3/8-18NPT	0.59	0.59	2.80	
7. Male thread x Elbow	O2LO1	R 1/2	16	15	32	93	-	-	-	-	-	1/2-14NPT	0.63	0.59	1.26	3.66	

# COMPACT BALL VALVE TYPE 27

- WITH A SMALL NUMBER OF COMPONENTS AND LIGHT WEIGHT, COMPACT DESIGN, SUITABLE FOR INSTALLATION IN A NARROW SPACE AND IDEAL FOR FACILITY PIPING IN PLANTS.
- THE SPHERICAL VALVE ELEMENT ALLOWS FOR A STRAIGHT FLOW PATH AND EXTREMELY SMALL FLUID RESISTANCE. (EXCELLENT WATER CHARACTERISTICS)
- NO RISK OF DIFFICULT HANDLE OPERATION DUE TO THERMAL EXPANSION OR CONTRACTION.
- USING PTFE, THE SEAT IS HIGHLY RESISTANT TO CORROSION, CHEMICALS AND ABRASION.

## BASIC SPECIFICATIONS

**VALVE TYPE** ————— **COMPACT BALL VALVE**  
**SIZE** ————— **13 mm—50 mm (3/8 inch—2 inch)**  
**BODY MATERIAL** ————— **U-PVC C-PVC**  
**SEAL MATERIAL / SEAT** ————— **PTFE**  
**O-RING** ————— **EPDM etc.**  
**CONNECTION / SOCKET** ————— **JIS, DIN, ANSI**  
**THREADED** ————— **Rc, Rp, NPT**

**MANUAL**

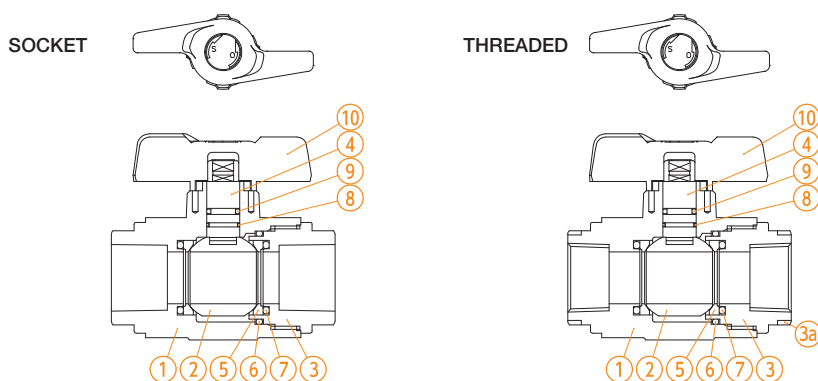


	FLUID TEMPERATURE	MAXIMUM WORKING PRESSURE (NORMAL TEMPERATURE) [MPa(kgf/cm²)]	CONNECTION METHOD	
			SOCKET	THREADED
U-PVC	0°C ~ 50°C	1.0 {10.2}	○	○
C-PVC	0°C ~ 90°C	1.0 {10.2}	○	○

**NOTE** (1) The maximum working pressure is the value including the water hammer pressure. Be careful that the maximum working pressure is not exceeded during use. (2) The ball-type valves have dead spaces for structural reasons. Note that volatile liquids, such as hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) and sodium hypochlorite (NaClO), vaporize in those dead spaces, which may cause abnormal pressure increase in the valve. (When the internal pressure abnormally increases due to vaporization, the gas will be compressive fluid. If the valve breaks in this state, it will be very dangerous, causing explosion and scattering of fragments.)

\* Concerning the allowable pressure for each temperature and material, see the technical documents at the end of this catalog.

## PARTS LIST **MANUAL**



PART NO. / NAME	QTY	MATERIAL
① BODY	1	U-PVC, C-PVC
② BALL	1	U-PVC, C-PVC
③ END CONNECTOR	1	U-PVC, C-PVC
③a RING	2	SUS304 (Used for C-PVC 13 - 25 mm threaded type.)
④ STEM	1	U-PVC, C-PVC
⑤ SEAT	2	PTFE

PART NO. / NAME	QTY	MATERIAL
⑥ O-RING (B)	1	EPDM,etc.
⑦ O-RING (C)	2	EPDM,etc.
⑧ O-RING (D)	1	EPDM,etc.
⑨ O-RING (E)	1	EPDM,etc.
⑩ HANDLE	1	ABS

PRODUCT MODEL  
CODE LIST  
**MANUAL**

ACTUATION	TYPE	OPERATING SYSTEM	BODY MATERIAL	SEAL MATERIAL	CONNECTION	STANDARD	SIZE	HIGH PURITY SERIES
V	7B	LV	*	*	*	*	***	1
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
V MANUAL VALVE	7B TYPE 27	LV LEVER TYPE	U U-PVC C C-PVC	E EPDM V FKM	S SOCKET N THREADED	J JIS D DIN A ANSI	013 13mm 050 50mm	1 LUBRICANT FREE

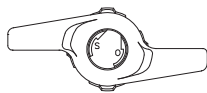
**MANUAL**

## COMPACT BALL VALVE TYPE 27

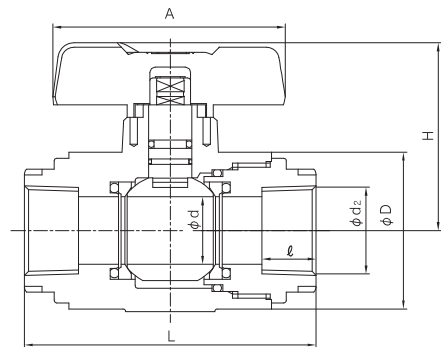
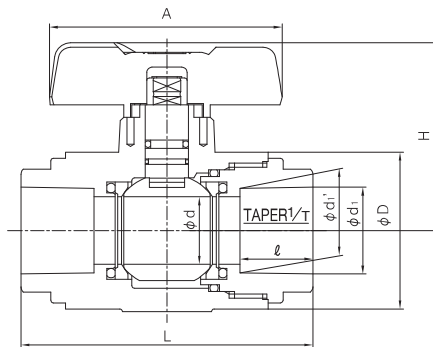
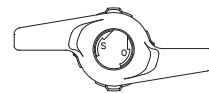
TYPE—V7BLV

CONNECTION / SOCKET, THREADED—JIS, DIN, ANSI

SOCKET



THREADED



■ JIS, DIN (Unit: mm)

mm	inch	d	A	D	H	JIS			DIN									
						SOCKET			THREADED			SOCKET			THREADED			
						d <sub>1</sub>	ℓ	1/T	L	d <sub>2</sub>	ℓ	L	d <sub>1</sub>	ℓ	L	d <sub>2</sub>	ℓ	L
13	3/8	15	75	40	52.5	18.20	17	1/30	69	-	-	-	16	14	69	Rp3/8	15	69
15	1/2	15	75	40	52.5	22.11	20	1/34	79	Rc1/2	15	69	20	16	79	Rp1/2	15	79
20	3/4	20	87	49	62.5	26.13	24	1/34	94	Rc3/4	17	94	25	19	94	Rp3/4	17	94
25	1	25	87	58	69.5	32.16	27	1/34	108	Rc1	20	108	32	22	108	Rp1	20	108
32	1 1/4	31	105	68	81.5	38.19	30	1/34	121	Rc1 1/4	22	121	40	26	121	Rp1 1/4	22	121
40	1 1/2	40	135	82.5	96.0	48.21	37	1/37	146	Rc1 1/2	25	146	50	31	146	Rp1 1/2	25	146
50	2	51	135	104	107.5	60.25	42	1/37	175	Rc2	28	175	63	38	175	Rp2	28	175

■ ANSI (Unit: inch)

inch	mm	d	A	D	H	ANSI			ANSI										
						SOCKET ASTM SCH40			THREADED			ANSI							
						d <sub>1</sub>	d <sub>1</sub> '	ℓ	L	d <sub>2</sub>	ℓ	L	d <sub>2</sub>	ℓ	L	d <sub>2</sub>	ℓ	L	
3/8	13	0.59	2.95	1.57	2.07	0.687	0.671	0.59	2.72	3/8-18NPT	0.59	2.72	0.687	0.671	0.59	2.72	3/8-18NPT	0.59	2.72
1/2	15	0.59	2.95	1.57	2.07	0.848	0.836	0.69	3.11	1/2-14NPT	0.59	3.11	0.848	0.836	0.69	3.11	1/2-14NPT	0.59	3.11
3/4	20	0.79	3.43	1.93	2.46	1.058	1.046	0.72	3.70	3/4-14NPT	0.67	3.70	1.058	1.046	0.72	3.70	3/4-14NPT	0.67	3.70
1	25	0.98	3.43	2.28	2.74	1.325	1.310	0.87	4.25	1-11 1/2NPT	0.79	4.25	1.325	1.310	0.87	4.25	1-11 1/2NPT	0.79	4.25
1 1/4	32	1.22	4.13	2.68	3.21	1.670	1.655	0.94	4.76	1 1/4-11 1/2NPT	0.87	4.76	1.670	1.655	0.94	4.76	1 1/4-11 1/2NPT	0.87	4.76
1 1/2	40	1.57	5.31	3.25	3.78	1.912	1.894	1.09	5.75	1 1/2-11 1/2NPT	0.98	5.75	1.912	1.894	1.09	5.75	1 1/2-11 1/2NPT	0.98	5.75
2	50	2.01	5.31	4.09	4.23	2.387	2.369	1.16	6.86	2-11 1/2NPT	1.10	6.86	2.387	2.369	1.16	6.86	2-11 1/2NPT	1.10	6.86

# ENSAT (METAL INSERT) MOUNTING PROCEDURE

DIAPHRAGM VALVE TYPE 14 15mm - 100mm  
 TRUE UNION DIAPHRAGM VALVE TYPE 14 15mm - 50mm

BALL VALVE TYPE 21, 21α 15mm - 50mm  
 BALL VALVE TYPE 21 65mm - 100mm



At the bottom of the valve body, a "holed bottom stand" is provided which can be easily secured to a rack or panel only by inserting an Ensats.

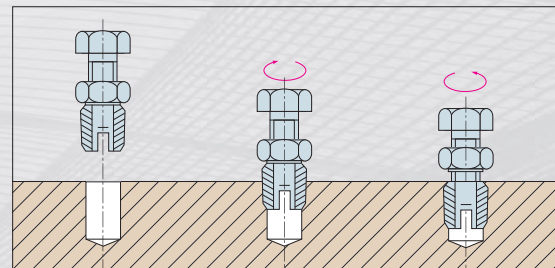
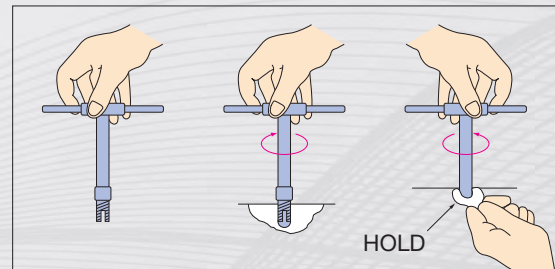
★ Install the metal insert (Ensats) in the procedure below.

## <When using the special tool>

Attach the Ensats at the end of special tool with the splitting groove facing downward.

While ensuring that the center is aligned with the prepared hole from the front, back, right and left, screw the Ensats in to the pre-determined depth.

After the Ensats is screwed in completely, hold the nut with a spanner while turning the upper portion of the tool in the reverse direction. The tool will be freely movable and come out.



## <When using a bolt and nut>

Screw the Ensats in in a double nut fashion. After the Ensats is screwed in, hold the bolt and loosen the nut. The bolt will be freely movable and can be removed.

When the Ensats is manually screwed in, the center alignment between the Ensats and the prepared hole is particularly important. Check that the Ensats is inserted perpendicular to the prepared hole while screwing it in. If it is tilted, do not turn the tool backward, but just put the Ensats in its correct position. Note that, when nearly half of the Ensats is once inserted, its position can no longer be corrected.

**NOTE** For details of how to handle the Ensats mounting special tool, see the instruction manual provided by the Ensats manufacturer. (K.K.V.CORPORATION)

## APPLICABLE ENSAT (REFERENCE)

SPEC.	SCREW SIZE	LENGTH (mm)
①	M5	10
②	M6	14
③	M8	15
④	M12	22

SIZE (mm)	15	20	25
14DV	①	①	①
21BV	①	①	①

SIZE (mm)	32	40	50
14DV	①	②	②
21BV	②	②	②

SIZE (mm)	65	80	100
14DV	③	④	④

## BOTTOM STAND MOUNTING PROCEDURE

