MARIO ROBELLO- ASAHI VALVE

ATTACHMENT B
Sample Lesson Plan Outline Contents

Class Title: PLASTIC VALVES P2-89
Concept / Topic To Teach: OPERATION OF THE VALVES
Standards Addressed: MANUFACTURERS STANDARDS

Target audience (e.g.: operators, mechanical maintainers, electrical maintainers, instrument techs, collections personnel) OPERATORS- ELECTRICAL/MECHANICAL

General Goal(s): IDENTIFY THE PRODUCTS

Specific Objectives: OPERATION AND MAINTENANCE

Required Materials: IOM MANUAL

Schedule (with times) 1 HOURS

Lead-In (start time): TBT

Step-By-Step Outline of Presentation (with start times/durations): MANUAL

Plan For Hands-on Training/Exercises (with start times/durations): PRODUCT SAMPLE

Wrap-up (Reflect Lead-in) (start time): HOUR 1

Connections To Other Training Sessions/Topics:

Assessment Form (Based On Specific Objectives): Q & A AND REVIEW BY

* * * * * *

SSI #19 2/20/2013 SPECIFICATION SUBMITTAL INFORMATION

THE FOLLOWING INFORMATION IS CORRECT AS NOTED BY THE FOLLOWING INFORMATION FROM THE LISTED DATA SOURCES.

SUBMITTED BY
MISCO SOUTHWEST
27101 BURBANK STE B
FOOTHILL RANCH, CA 92610
PHONE 949-458-5555
RICK BARTON

REFERENCE
ORANGE COUNTY SANITATION DISTRICT
SOLIDS AND THICKENING UPGRADE
W. M. Lyles JOB T1098 MISCO JOB 0199VB
TONY MUELLER 951-757-4686
PROJECT P2-89
22212 BROOKHURST STREET
HUNTINGTON BEACH, CA

SCOPE
SUPPLY OF ELECTRIC OPERATED BALL VALVES

TYPE
ECCENTRIC

REFERENCE
SPECIFICATION 15106 BALL VALVES
SPECIFICATION 15101ACTUATORS

VALVE MANUFACTURER
ASAHI AMERICA
35 GREEN STREET
MALDEN. MASS
781-321-5409

MODEL 21-CPVC-VITON

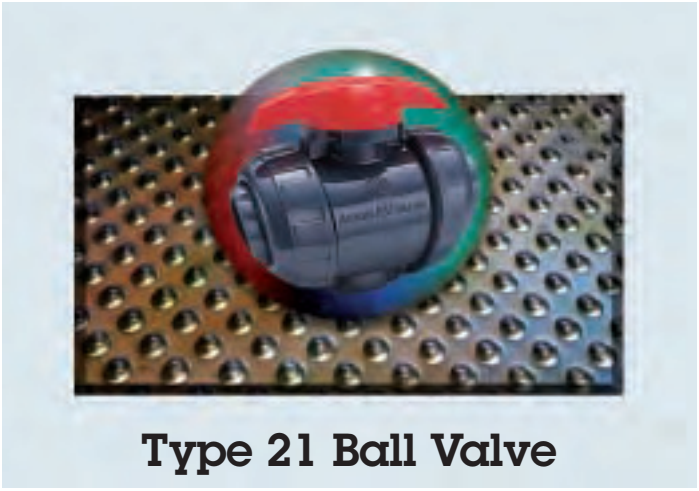
SPEC	COMPARISON		
15106		SPECIFICATION MATERIALS OF CONSTRUCTION CONFORMATION	
15106.2.2.A.1	CONFORMS	MATERIAL	CPVC BODY TO MATCH PIPING
15106.2.2.A.2	ENDS	ENDS	TRU-UNION ENDS
15106.2.2.B.1	CONFORMS	ENDS	TRU-UNION ENDS
15106.2.2.B.2	CONFORMS	RATING	150 PSI @ 73 F
15106.2.2.B.3	CONFORMS	PORT	FULL PORT TEFLON SEATS
15106.2.2.B.4	CONFORMS	SEALS	VITON
15106.2.2.B.5	NA	NA	MOV
15106.2.2.C.1	CONFORMS	MFR	ASAHI

SIZE	VALVE TAG #	PID LOCATION	DESCRIPTION AND OPERATOR
3"	22I-NP-FV 339	22I-NP-181	TRU-UNION Valve with O/C Motor Operator with DISCONNECT
3"	22I-NP-FV-344	22I-NP-182	TRU-UNION Valve with O/C Motor Operator with DISCONNECT
3"	22I-NP-FV-369	22I-NP-191	TRU-UNION Valve with O/C Motor Operator with DISCONNECT
3"	22I-NP-FV-374	22I-NP-192	TRU-UNION Valve with O/C Motor Operator with DISCONNECT

ACTUATOR MANUFACTURER FLOWSERVE FLOW CONTROL
LIMITORQUE CORPORATION
5114 Woodall Road
Lynchburg, VA 24506-1318
Phone: 434-528-4400

DISCONNECT TAG#'S
22I-SWI-339
22I-SWI-344
22I-SWI-369
22I-SWI-374

	ACTUATOR MODEL	LIMITORQUE QX2-WP-FA10-210000-10000 120 4S OC 120 VOLT CONTROL WITH HANDWHEEL OVERRIDE AND INTEGRAL LOCAL CONTROL STATION AND DISCONNECT
	CONTROL	AT THE ACTUATOR - LOCAL CONTROL PANEL ON THE ACTUATOR IN "LOCAL" AT THE REMOTE HAND STATION IN "LOCAL" AT THE ACTUATOR - MANUAL OVERRIDE WITH THE ACTUATOR IN "OFF" OR NO POWER DISCRETE CONTROL FROM THE PLC IN "REMOTE"
VALVE	TORQUE REQUIRED	29.5 FTLBS AT 150 PSI
ACTUATOR	RATED TORQUE	250 FTLBS
	SAFETY FACTOR	>1.5
	SPEED	RANGE 8-30 SECONDS SET AT 8 SECONDS
	TURNS FOR FULL CYCLE	90 DEGREES
	VOLTAGE	480/3/60
	FAIL ON LOSS OF POWER	LAST POSITION
	WIRING DIAGRAMS	LIMITORQUE QX2-210000-10000 120 4S OC 120 VOLT CONTROL
	ENCLOSURE RATING	WP NEMA 4X
	DISCONNECT	~~NONE~~ YES
	REMOTE HAND STAION	NONE
	DOCUMENENT SUPPLIED	VALVE CATALOG ACTUATOR CATALOG VALVE SHOP DRAWINGS ACTUATOR SHOP DRAWING INSTRUCTION MANUAL ACTUATOR INSTRUCTION MANUAL VALVE VALVE PARTS LIST ACTUATOR (NO PARTS LIST INCLUDED) MAINTENANCE INSTRUCTIONS
	WARRANTY	TWO YEARS FROM DATE OF DATE OF THE FINAL ACCEPTANCE BY THE AGENCY
	ASSEMBLY:	FACTORY INSTALLED
	CYCLE TESTING:	MISCOWATER, 27101 BURBANK STE B, FOOTHILL RANCH, CA 92610
	FIELD START-UP	PERFORMED BY MISCO AS REQUIRED
	VALVE IDENTIFICATION	STAINLESS STEEL NAMEPLATES ATTACHED TO THE VALVE PER 17075 316 SS TWO HOLE NAMEPLATE WITH SS WIRE TAG NUMBER SIZE TYPE OF VALVE PID DRAWING



Type 21 Ball Valve

Specifications

Sizes:	1/2" – 6"
Models:	PVC & CPVC: Socket, Threaded and Flanged (ANSI) PP & PVDF: IPS and Metric (DIN) Socket, Threaded, Butt and Flanged (ANSI)
Bodies:	PVC, CPVC, PP and PVDF
Seats:	PTFE backed with EPDM or FKM
Seals:	EPDM or FKM or AFLAS®‡

Sizes 1/2" - 4" PVC/EPDM/FKM Models available with NSF-61 Certification

‡ Trademark of Asahi Glass Co., Ltd.

Standard Features (Sizes 1/2" – 6")

- Pressure rated up to 230 psi (PVC, CPVC, PVDF)
- Double O-ring seals on stem for an added protection.
- Full bore, sizes 1/2" – 2"
- Full vacuum rated, all sizes
- Blocks in two directions, upstream and downstream, leaving full pressure on the opposite end of the valve
- Integrally molded ISO mounting pad for both manual and actuated operations
- Integrally molded base pad to mount valves securely or panel mounting
- PTFE seats with elastomeric backing cushions ensure bubble-tight shut-off and a low fixed torque, while at the same time compensating for wear
- True Union design for easier installation or repairs without expanding the pipe system
- Built-in spanner wrench on the handle for valve disassembly and assembly
- Two sets of end connectors (socket and threaded) included with all PVC and CPVC valves in sizes 1/2"– 2"
- CPVC threaded end connectors on sizes 1/2" – 1" come with stainless steel reinforcing rings

Options

- Pneumatic and electric actuators & accessories
- Stem extensions
- 2" square operating nut or "T" nut
- Locking and/or spring return handles
- Limit switches
- Vented Ball

Parts List (Sizes 1/2" – 2")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, CPVC, PP, PVDF
2	Ball	1	PVC, CPVC, PP, PVDF
3	Carrier	1	PVC, CPVC, PP, PVDF
4	End Connector	2	PVC, CPVC, PP, PVDF
5	Union Nut	2	PVC, CPVC, PP, PVDF
6	Stem	1	PVC, CPVC, PP, PVDF
7	Seat	2	PTFE
8	O-Ring (A)	2	EPDM, FKM, Others
9	O-Ring (B)	1	EPDM, FKM, Others
10	O-Ring (C)	2	EPDM, FKM, Others
11	O-Ring (D)	1	EPDM, FKM, Others
12	O-Ring (E)	1	EPDM, FKM, Others
13	Stop Ring*	2	PVDF
14	Handle	1	~~ABS~~
4a	Ring**	2	304 Stainless Steel

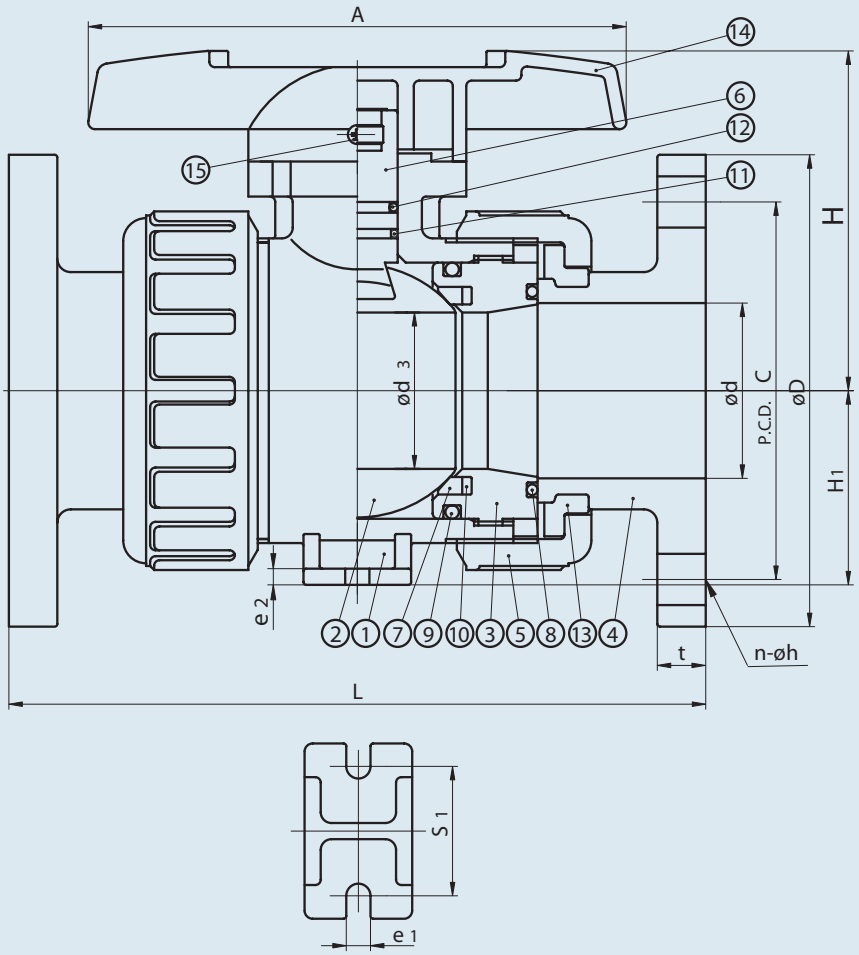
* Used for flanged end
**Used for CPVC body, threaded end, 1/2"–1"

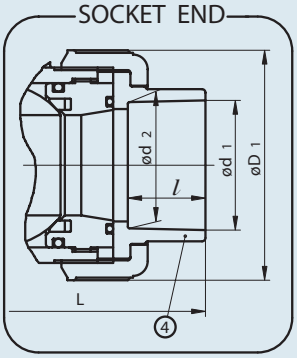
Type 21 Ball Valves

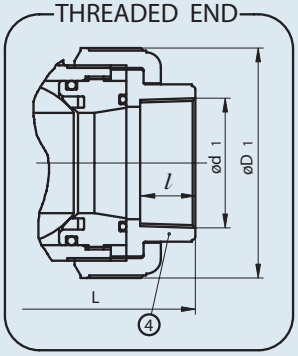
PARTS (DIFFERENT NUMBERS FROM 1/2" – 2")			
NO.	DESCRIPTION	PCS.	MATERIAL
10	Cushion	2	EPDM, FKM, Others
15	Screw	1	304 Stainless Steel

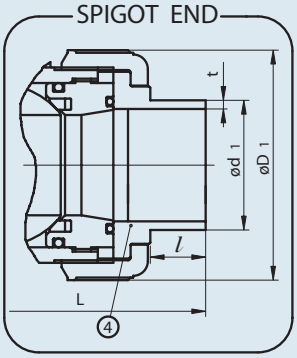
FLANGED END

NOTE: Quantity on Nos. 3 and 9 (see p. 6) is 2.









Dimensions (Sizes 2 1/2" – 4") FOR 6" SIZE CONSULT FACTORY

NOMINAL SIZE			FLANGED						SOCKET										
			ANSI CLASS 150						PVC, CPVC				PP, PVDF (DIN)				PP, PVDF (IPS)		
									ASTM SCH 80				DIN 16962						
INCHES	mm	d	D	C	n	h	L	t	d1	d2	l	L	d1	d2	l	L	d1	l	L
2 1/2	65	2.56	7	5.5	4	0.75	10.2	0.71	2.889	2.868	1.75	9.45	2.923	2.911	1.22	8.15	2.88	1.752	9.45
3	80	3.07	7.5	6	4	0.75	11.97	0.71	3.516	3.492	1.875	11.1	3.512	3.498	1.4	9.88	3.48	1.874	11.1
4	100	3.94	9	7.5	8	0.75	14.65	0.71	4.518	4.491	2	13.9	4.293	4.278	1.63	12.2	4.48	2.252	14.37

NOMINAL SIZE		THREADED								SPIGOT (BUTT END)							
										PP,PVDF							
										DIN 3442		PP	PVDF				
INCHES	mm	d1	l	L	d3	D1	H	H1	A	d1	l	t	t	L	e1	e2	S1
2 1/2	65	2 1/2 - 8NPT	1.26	8.46	2.28	5.24	4.96	2.83	7.87	2.953	1.496	0.272	0.142	9.72	0.35	0.24	1.89
3	80	3 - 8NPT	1.38	10.39	2.70	5.98	5.51	3.35	9.45	3.543	1.496	0.323	0.169	11.61	0.43	0.28	2.17
4	100	4 - 8NPT	1.77	14.17	3.54	8.27	7.01	4.33	11.81	4.331	1.752	0.394	0.209	12.72	0.43	0.31	2.56

Type 21 Ball Valves

Pressure vs. Temperature (PSI, WATER, NON-SHOCK)

NOMINAL SIZE		PVC				CPVC						PP				PVDF				
		30° F	71° F	106° F	121° F	30° F	71° F	106° F	121° F	141° F	176° F	-5° F	86° F	121° F	141° F	-5° F	71° F	106° F	141° F	176° F
INCHES	mm	70° F	105° F	120° F	140° F	70° F	105° F	120° F	140° F	175° F	195° F	85° F	120° F	140° F	175° F	70° F	105° F	140° F	175° F	210° F
1/2-2	15-50	230	170	150	30	230	170	150	120	75	55	150	110	90	55	230	185	150	115	85
2 1/2	65	230	170	150	NA	230	170	150	120	75	55	150	95	70	40	230	185	150	115	85
3	80	230	170	150	NA	230	170	150	85	55	40	150	95	70	40	230	185	150	100	70
4-6	100-150	150	150	150	NA	150	150	150	85	55	40	150	95	70	40	150	150	150	100	70

Sample Specification

All TYPE 21 Ball Valves, sizes 1/2" to 4", shall be of true union design with two-way blocking capability. All O-rings shall be EPDM or FKM with PTFE seats. PTFE seats shall have elastomeric backing cushion of the same material as the valve seals. Stem shall have double O-rings and be of blowout-proof design. The valve handle shall double as carrier removal and/or tightening tool. ISO mounting pad shall be integrally molded to valve body for actuation. PVC conforming to ASTM D1784 Cell Classification 12454-A, CPVC conforming to ASTM D1784 Cell Classification 23567-A, PP Conforming to ASTM D4101 Cell Classification PP0210B67272 and PVDF conforming to ASTM D3222 Cell Classification Type II. The ball valves, except PP, shall have a pressure rating of 230 psi for sizes"1/2" to 3" and 150 psi for 4" (150 psi for PP, all sizes) at 70 ° F. Type 21 Ball Valves must carry a two-year guarantee, as manufactured by Asahi/America, Inc.

Cv Values

NOMINAL SIZE		Cv
INCHES	mm	
1/2	15	14
3/4	20	29
1	25	47
1 1/4	32	72
1 1/2	40	155
2	50	190
2 1/2	65	365
3	80	410
4	100	680

Weight (POUNDS)

NOMINAL SIZE		SOCKET THREADED	FLANGED
INCHES	mm		
1/2	15	0.44	1.10
3/4	20	0.66	1.54
1	25	1.10	2.70
1 1/4	32	1.54	3.30
1 1/2	40	2.64	4.40
2	50	4.40	8.15
2 1/2	65	6.17	8.80
3	80	9.70	13.00
4	100	24.00	26.67

Caution

- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.
- Watch out for trapped fluid in valve. It is safe to close valve before removing it from the pipeline.

Caution

- Do not use ball valves where media has suspended particles. Use the following valves: *Butterfly Valves* – PVDF disc is most abrasion resistant and make sure of chemical compatibility. *Diaphragm Valves* – Elastomeric diaphragm is designed for handling suspended particles.
- Volatile fluids such as sodium hypochlorite (NaClO) and hydrogen peroxide (H_2O_2) could be trapped and gasified within the valve. We can provide you with a Type 21 ball valve with a *vented ball* to relieve pressure build-up inside the valve.

Troubleshooting

What if the fluid still flows when valve is closed?

1. Carrier is not properly tightened. Tighten it.
2. PTFE seat is damaged or worn. Replace seat.
3. Foreign material is caught between ball and PTFE seat. Remove material and clean.
4. Ball is damaged or worn. Change ball.

What if fluid leaks outside of valve?

1. Union nut not properly tightened. Retighten.
2. Carrier is not properly tightened. Thread it in firmly.
3. Carrier or face O-ring is damaged, worn, or missing. Replace O-ring.

What if handle does not rotate smoothly?

1. Foreign material has formed on the ball or seat. Clean both.
2. Internal part(s) chemically attacked or swollen. Refer to Asahi/America Chemical Resistance Chart for compatibility. Replace part(s) as required.
3. Carrier over-tightened. Retighten properly.

What if handle rotates too freely?

1. Stem is damaged. Replace stem.
2. Handle is not engaged with stem. Disassemble and reengage. Inspect.
3. Engaging part of stem and/or ball is damaged. Change stem and/or ball.

③ BUTTERFLY VALVE

Nominal size mm(inch)	Gear type						Lever type					
	Operating torque N·m{kgf·cm}			Radius of handle mm			Operating torque N·m{kgf·cm}			Length of lever mm		
	Type 56·75	Type 55	Type84	Type 56·75	Type55	Type84	Type56	Type55	Type84	Type56	Type55	Type84
40(1 1/2")	0.8 {8.2}	—	—	80	—	80	5.9 {60}	—	—	220	—	200
50(2")	1.4 {14}	1.6 {16}	1.4 {14}		80		11 {110}	14 {140}	12 {120}		220	
65(2 1/2")	1.8 {18}	—	1.7 {17}		—		14 {140}	—	15 {150}		—	
80(3")	2.5 {23}	2.1 {21}	2.3 {23}		80		20 {200}	18 {180}	20 {200}	250	250	250
100(4")	4.0 {41}	3.1 {32}	2.5 {26}				30 {310}	27 {280}	22 {220}			
125(5")	6.0 {61}	7.3 {74}	4.6 {47}		80		48 {490}	63 {640}	39 {400}	320	320	300
150(6")	8.0 {82}	11 {110}	8.0 {82}				65 {660}	—	69 {700}		—	
200(8")	28 {290}	17 {170}	13 {130}				220{2200}	—	110{1100}	420	—	400
250(10")	40 {410}	12 {120}	—	100	100	—	—	—	—	—	—	—
300(12")	43 {440}	—	—	125	—	—	—	—	—	—	—	—
350(14")	71 {720}	—	—		—	—	—	—	—	—	—	—
400(16")	75 {770}	—	—		—	—	—	—	—	—	—	—
450(18")	41 {420}	—	—	150	—	—	—	—	—	—	—	—
500(20")	60 {610}	—	—		—	—	—	—	—	—	—	—
600(24")	90 {920}	—	—		—	—	—	—	—	—	—	—

④ STOP VALVE

Nominal size mm(inch)	Operating torque(O→S) N·m{kgf·cm}	Radius of handle mm
15(1/2")	3.0 {31}	33
20(3/4")		
25(1")	8.0 {82}	46
30(1 1/4")	10 {100}	
40(1 1/2")	12 {120}	68
50(2")	14 {140}	
65(2 1/2")	18 {180}	93
80(3")	24 {140}	
100(4")	36 {370}	

⑤ BALL VALVE TYPE21

Nominal size mm(inch)	Operating torque(O→S) N·m{kgf·cm}	Length of lever mm	Union nut tightening torque N·m{kgf·cm}
15(1/2")	2.0 {20}	92	5.0～8.0 {51～82}
20(3/4")	2.5 {26}	100	7.0～10 {71～100}
25(1")	3.2 {33}	110	7.0～15 {71～150}
32(1 1/4")	5.6 {57}	121	
40(1 1/2")	8.0 {82}	131	
50(2")	10 {100}	159	
65(2 1/2")	22 {220}	200	
80(3")	40 {410}	240	10～20 {100～200}
100(4")	80 {820}	300	10～25 {100～260}

29.5 FTLB

Serial No.	H – V027 E – 4

Ball Valve Type 21

User's Manual

Contents

ASAHI *AV* VALVES

(1) General operating instructions

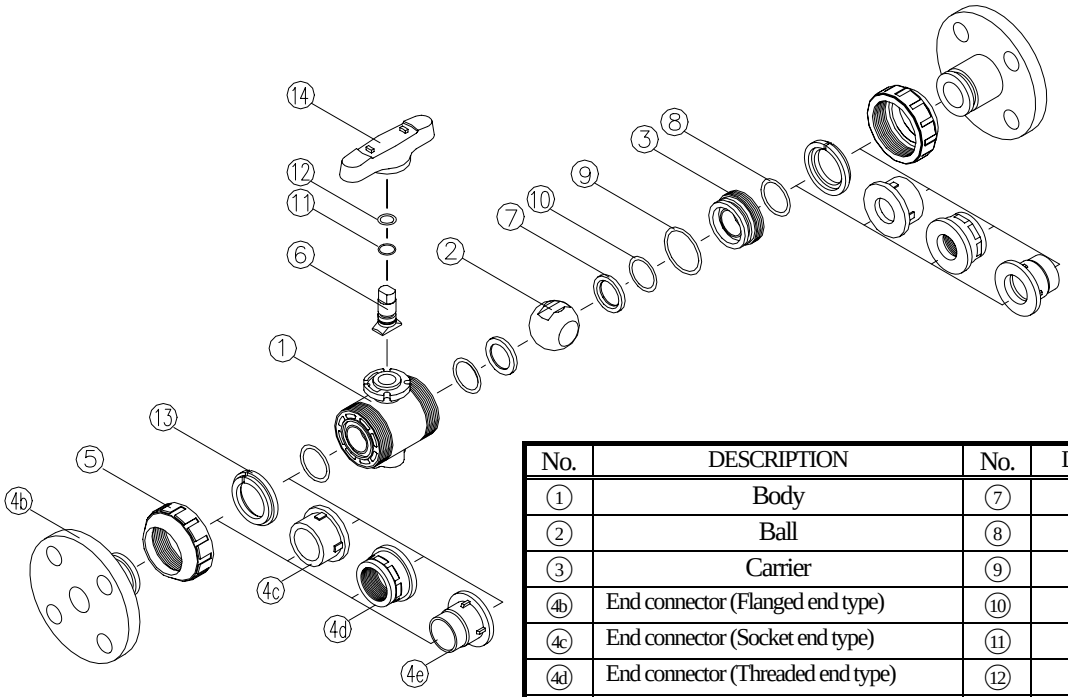
- Operate the valve within the pressure Vs temperature range.
  （The valve can be damaged by operating beyond the allowable range.）
- Select a valve material that is compatible with the media, refer to “CHEMICAL RESISTANCE ON ASAHI AV VALVE”.
  （Some chemicals may damage incompatible valve materials.）
- Do not use the valve to fluid containing slurry. (The valve will not operate properly.)
- Do not use the valve on condition that fluid has crystallized.
  (The valve will not operate properly.)
- Do not step on the valve or apply excessive weight on valve. (It can be damaged.)
- Do not exert excessive force in closing the valve.
- Make sure to consult a waste treatment dealer to dispose of the valves.
  (Poisonous gas is generated when the valve is burned improperly.)
- Allow sufficient space for maintenance and inspection.
- Keep the valve away from excessive heat or fire. (It can be deformed, or destroyed.)
- The valve is not designed to bear any kind of external load. Never stand on or place anything heavy on the valve at anytime.
- Certain liquid such as H2O2, NaClO, etc may be prone to vaporization which may cause irregular pressure increases, which may destroy the valve.

(2) General instructions for transportation, unpacking and storage

- Keep the valve packed in the carton or box as delivered until installation.
- Keep the valve away from any coal tar, creosote (antiseptic for wood), termite insecticide, vermicides, and paint.
  （This could cause swelling damage the valve.）
- Do not impact or drop the valve. (It can be damaged.)
- Avoid scratching the valve with any sharp object.

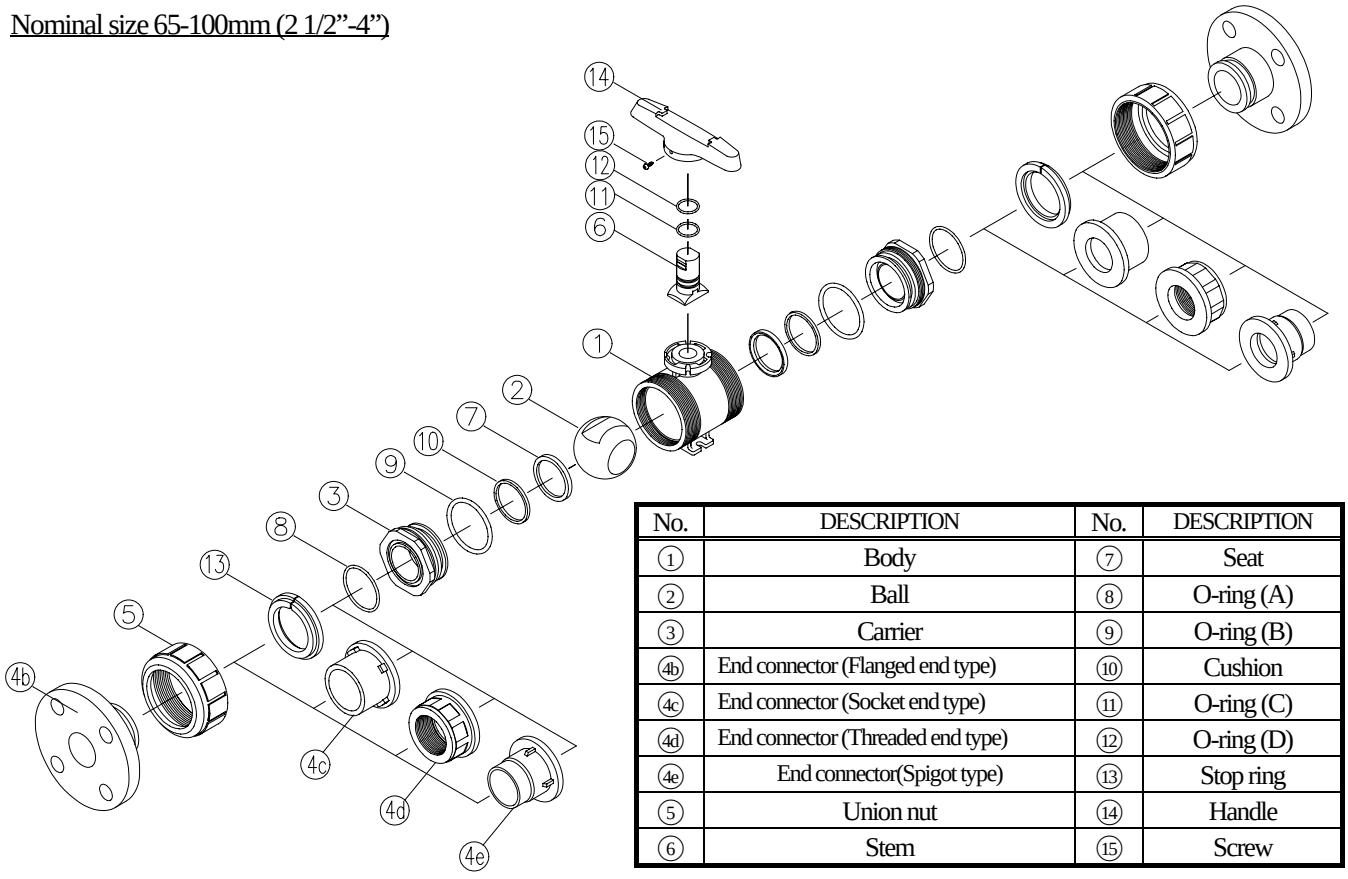
(3) Name of parts

Nominal size 15-50mm (1/2”-2”)



No.	DESCRIPTION	No.	DESCRIPTION
①	Body	⑦	Seat
②	Ball	⑧	O-ring (A)
③	Carrier	⑨	O-ring (B)
④b	End connector (Flanged end type)	⑩	O-ring (C)
④c	End connector (Socket end type)	⑪	O-ring (D)
④d	End connector (Threaded end type)	⑫	O-ring (E)
④e	End connector(Spigot type)	⑬	Stop ring
⑤	Union nut	⑭	Handle
⑥	Stem		

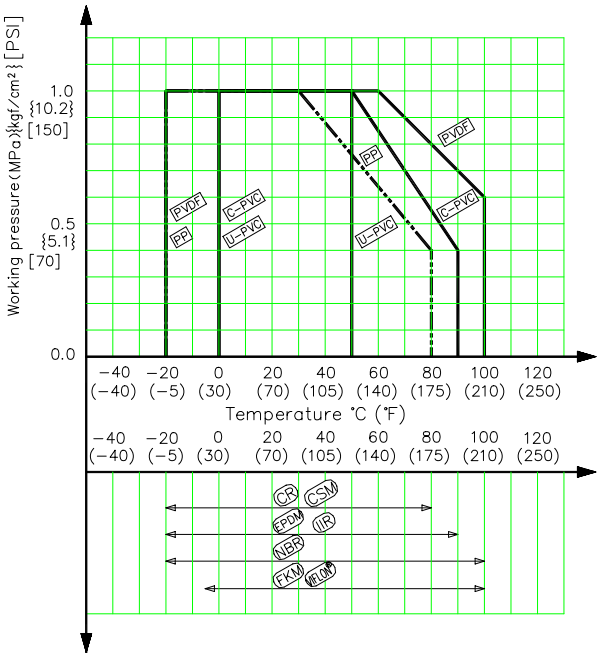
Nominal size 65-100mm (2 1/2”-4”)



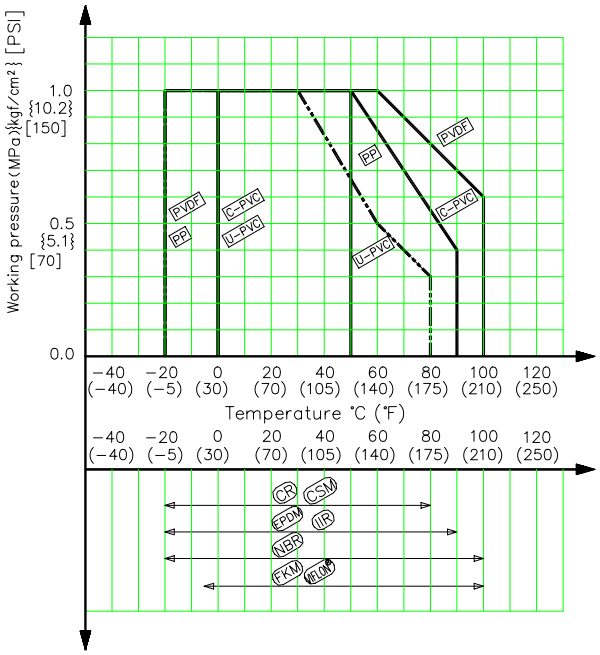
No.	DESCRIPTION	No.	DESCRIPTION
①	Body	⑦	Seat
②	Ball	⑧	O-ring (A)
③	Carrier	⑨	O-ring (B)
④b	End connector (Flanged end type)	⑩	Cushion
④c	End connector (Socket end type)	⑪	O-ring (C)
④d	End connector (Threaded end type)	⑫	O-ring (D)
④e	End connector(Spigot type)	⑬	Stop ring
⑤	Union nut	⑭	Handle
⑥	Stem	⑮	Screw

(4) Comparison between working temperature and pressure

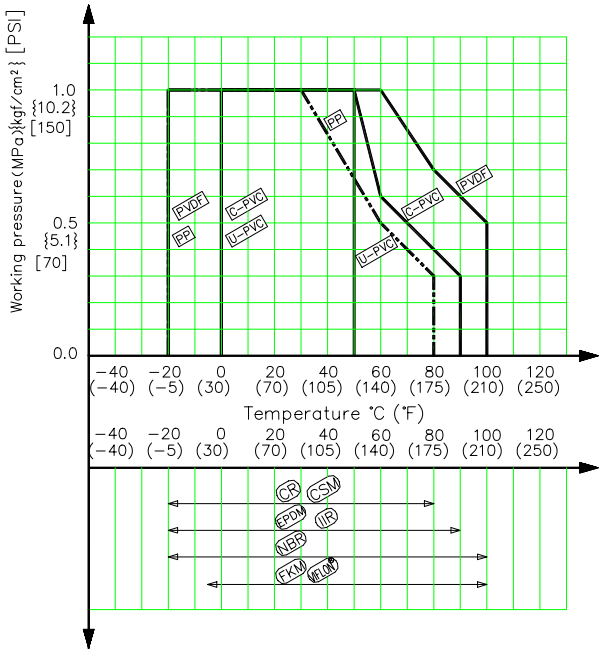
Nominal size: 15mm-50mm (1/2”-2”)



Nominal size: 65mm (2 1/2”)



Nominal size: 80mm, 100mm (3”, 4”)



Caution

Do not operate the valve beyond the range of working temperature and pressure.
(The valve can be damaged.)

(5) Installation procedure

Flanged type (Material: PVC,C-PVC,PP,PVDF)

Necessary items

- Torque wrench
- Spanner wrench
- AV gasket
- Bolt, Nut, Washer (For many flanges specification)

（When a non-AV gasket is used, a different tightening torque specification should be followed.)

Procedure

1) When the union nut ⑤ flange assembly set was removed or loosen from body ①, O-ring (A) ⑧ should be installed into carrier and body groove. (In either horizontal or vertical installation, if necessary apply a small amount of lubricant to O-ring to hold in place.) Align union nut and end connector with the body. Insure end connector mates with body and O-ring. Make certain union nut threads onto body smoothly. Tighten union nuts on each side valve until hand tight. Then using a strap wrench tighten union nuts uniformly on each side approx 90° -180° turns, 1/4 to 1/2 turns.

2) Set the AV gasket between the flanges.

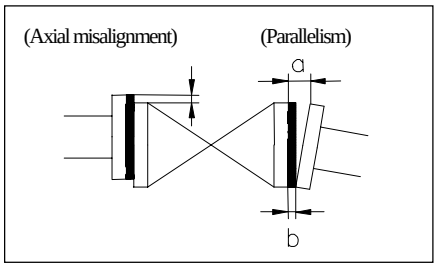
3) Insert washers and bolts from the pipe side, insert washers and nuts from the valve side, then temporarily tighten them by hand.

⚠ Caution

The parallelism and axial misalignment of the flange surface should be under the values shown in the following table to prevent damage the valve.
（A failure to observe them can cause destruction due to stress application to the pipe）

Unit : mm (inch)

Nom. Size	Axial Misalignment	Parallelism (a-b)
15-32mm (1/2”-1 1/4”)	1.0mm (0.04”)	0.5mm (0.02”)
40-80mm (1 1/2”-3”)	1.0mm (0.04”)	0.8mm (0.03”)
100mm (4”)	1.0mm (0.04”)	1.0mm (0.04”)



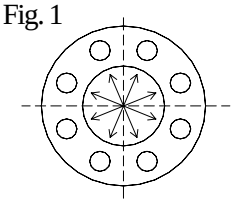
4) Tighten the bolts and nuts gradually with a torque wrench to the specified torque level in a diagonal manner. (Refer to fig.1.)

Recommended torque value

Unit: N-m{kgf-cm}[lb-inch]

Nom. Size	15-20mm (1/2”-3/4”)	25-40mm (1”-1 1/2”)	50, 65 mm (2”, 2 1/2”)	80, 100 mm (3”, 4”)
Torque value	17.5 {179} [155]	20.0 {204} [177]	22.5 {230} [230]	30.0 {306} [266]

Fig. 1



⚠ Caution

Avoid excessive tightening. (The valve can be damaged.)

Threaded type (Material : PVC,C-PVC,PP,PVDF)

Necessary items

- Sealing tape（A non-sealing tape can cause leakage.）
- Strap wrench（Do not use Pipe wrench.）
- Spanner wrench

⚠ Caution

Make sure that the threaded connections are plastic x plastic.
（Metallic thread can cause damage.）

Procedure

1) Wind a sealing tape around the external thread of joint, leaving the end (about 3mm) free.

2) Loosen the union nut ⑤ with a strap wrench..

3) Remove the union nut ⑤ and the end connector ④d.

4) Lead the union nut ⑤ through the pipe.

5) Tighten the external thread of the joint and the end connector ④d hardly with hand.

6) Using a spanner wrench, screw in the end connector ④d by turning 180° -360° carefully without damaging it.

⚠ Caution

Avoid excessive tightening. (The valve can be damaged.)

7) Make sure that the O-ring (A) ⑧ is mounted.

8) Set the end connector ④d and union nut ⑤ directly on the body without allowing the O-ring (A) ⑧ to come off.

9) Tighten union nuts ⑤ on each valve until hand tight.

10) Using a strap wrench tighten union nuts uniformly on each on each side approx 90° -180° turns, 1/4 to 1/2 turns.

⚠ Caution

Avoid excessive tightening.（The valve can be damaged.）

Socket type (Material : PVC, C-PVC)

Necessary items

- Adhesive for hard vinyl chloride pipes
- Strap wrench (Do not use the pipe wrench)

⚠ Caution

Do not install a socket type valve where the atmospheric temperature is 5℃ or lower.
（The valve can be damaged.）

Procedure

1) Loosen the union nut ⑤ with a strap wrench.

2) Remove the union nut ⑤ and end connector ④c .

3) Lead the union nut through the pipe.

4) Clean the hub part of the end connector ④c by wiping the waste cloth.

5) Apply adhesive evenly to the hub part of the end connector ④c and the pipe spigot.

⚠ Caution

Do not apply more adhesives than necessary.
（The valve can be damaged due to solvent cracking.）

Adhesive quantity（guideline）

Nom. Size	15mm (1/2")	20mm (3/4")	25mm (1")	32mm (1 1/4")	40mm (1 1/2")	50mm (2")	65mm (2 1/2")	80mm (3")	100mm (4")
Quantity（g）	1.0	1.3	2.0	2.4	3.5	4.8	6.9	9.0	13.0

6) After applying adhesive, insert the pipe quickly to the end connector ④c and leave it alone for at least 60 seconds.

7) Wipe away overflowing adhesive.

8) Make sure that O-ring(A) ⑧ is mounted

9) Set the end connector ④c and union nut ⑤ directly on the body without allowing the O-ring (A) ⑧ to come off.

10) Tighten union nut ⑤ hardly with hand.

11) Using a strap wrench tighten union nuts uniformly on each side approx 90° -180° turns, 1/4 to 1/2 turns.

⚠ Caution

Avoid excessive tightening. (The valve can be damaged.)

Socket type (Material : PP, PVDF)

Necessary items

- Strap wrench（Do not use the pipe wrench.）
- Sleeve welder or automatic welding machine
- User's manual for sleeve welder or automatic welding machine

Procedure

1) Loosen the union nut with a strap wrench.
2) Remove the union nut ⑤ and the end connector.
3) Lead the union nut ⑤ through the pipe.
4) For the next step, refer to the user's manual for the sleeve welder or the automatic welding machine.
5) After welding, make sure that the O-ring (A) ⑧ is mounted.
6) Set the end connector ④c and the union nut ⑤ directly without allowing the O-ring (A) ⑧ to come off.
7) Tighten union nut ⑤ hardly with hand.
8) Using a strap wrench tighten union nuts uniformly on each side approx 90° -180° turns, 1/4 to 1/2 turns.

⚠ Caution

Avoid excessive tightening. (The valve can be damaged.)

Spigot type (Material : PVDF)

Necessary items

- Strap wrench（Do not use the pipe wrench.）
- Automatic welding machine
- User's manual for automatic welding machine

Procedure

1) Loosen the union nut with a strap wrench.
2) Remove the union nut ⑤ and the end connector.
3) Lead the union nut ⑤ through the pipe.
4) For the next step, refer to the user's manual for the sleeve welder or the automatic welding machine.
5) After welding, make sure that the O-ring (A) ⑧ is mounted.
6) Set the end connector ④e and the union nut ⑤ directly without allowing the O-ring (A) ⑧ to come off.
7) Tighten union nut ⑤ hardly with hand.
8) Using a strap wrench tighten union nuts uniformly on each side approx 90° -180° turns, 1/4 to 1/2 turns.

⚠ Caution

Avoid excessive tightening. (The valve can be damaged.)

Caution

{15mm-50mm(1/2”-2”)}

It is recommended to install the valve with the threaded carrier to the upstream side of the system.

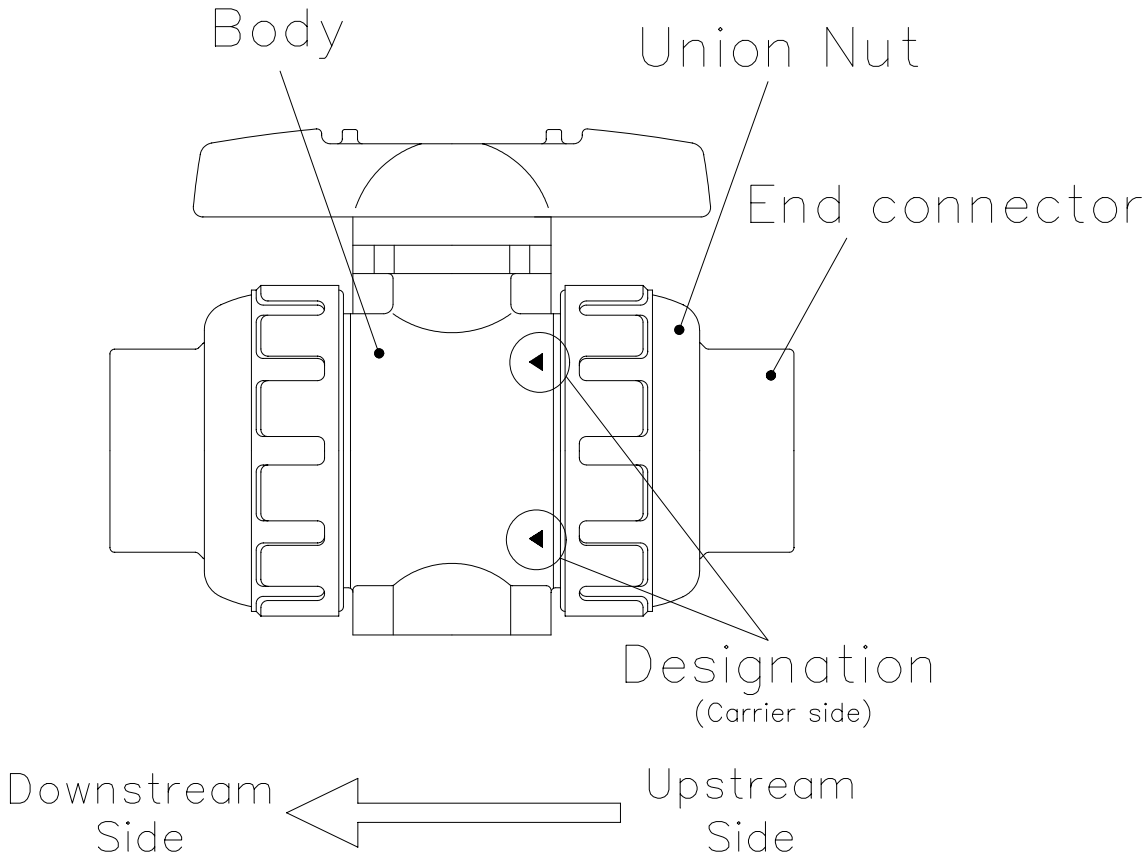
This allows for an increase safety factor and eliminating a threaded connection when used as a blocking valve.

This also allows the down stream union nut and end connector to be removed safely under pressure.

It increases the safety where there is no chance of thread leakage or accidentally removing the carrier.

The designation of the up stream side (non threaded carrier is marked as shown) on the body.

Nominal size 15mm - 50mm (1/2” – 2”)



(6) Operating Procedure

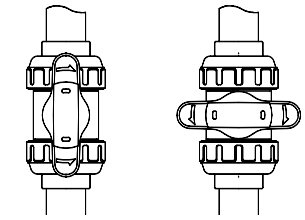
⚠ Caution

Avoid excessive tightening. (The valve can be damaged.)

○ Turn the handle gently to open or close.
(Turn the handle clockwise to close and counter clockwise to open.)

Fully closed ····· The position of the handle should be perpendicular to the pipe.

Fully opened ····· The position of the handle should be parallel to the pipe.



Fully opened Fully closed

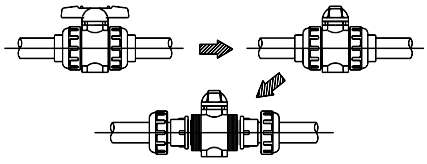
(7) Method of Adjusting Face Pressure between Ball and Seat

Necessary items

- Strap wrench
- Protective gloves
- Safety goggles
- Screwdriver (+) (only with nominal size 65～100mm)

Procedure

1) Completely discharge fluid from pipes.
2) Turn the handle to full close.
3) Loosen the right union nut and the left one ⑤ with a strap wrench.
4) Remove the body part from piping system.



⚠ Caution

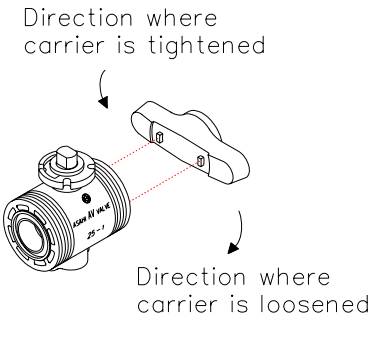
Wear protective gloves and safety goggles as some fluid remains in the valve. (You may be injured.)

5) Pull the handle off the body part.

⚠ Caution

As for nominal size 65-100mm (2 1/2”-4”), loosen the screw ⑮ properly with a screwdriver before pulling it off..

6) Engage the upper convex part of the handle with the concave part of the union ③.



⚠ Caution

As for nominal size 15-50mm
Only the union ③ on the right side when viewed from the trademark (AV mark) can be adjusted.
As for nominal size 65-100mm
adjust the unions on both sides.

7) Make an adjustment by turning the union clockwise (to tighten it) or counter clockwise (to loosen it).
8) Make sure that the handle can be operated smoothly.
9) Assemble the valve by following the above procedure in the reverse order, starting at 6)

(8) Disassembling Method for Replacing Parts

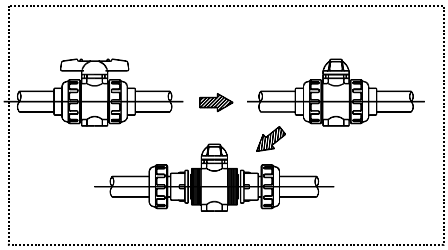
Necessary items

- Strap wrench
- Safety goggles
- Protective gloves

Caution

Wear protective gloves and safety goggles as some fluid remains in the valve.
(You may be injured.)

<Disassembly>

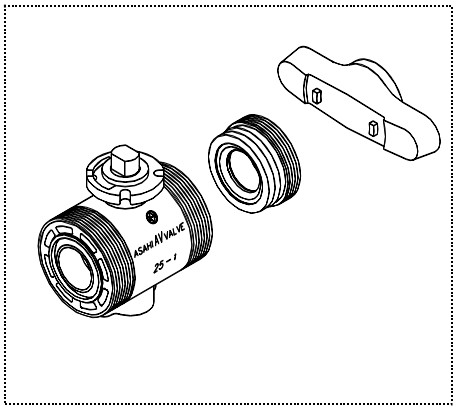


Procedure

1) Completely discharge fluid from pipes.
2) Turn the handle to full close.
3) Loosen the right union nut and the left one ⑤ with a strap wrench.
4) Remove the body part from piping system.
5) Pull the handle off the body part.

Caution

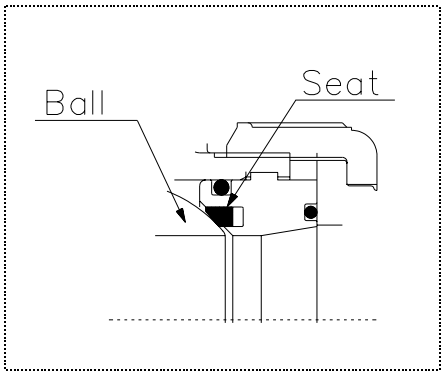
As for nominal size 65-100mm (2 1/2”-4”), loosen the screw ⑮ properly with a screwdriver before pulling it off..



6) Engage the upper convex part of the handle with the concave part of the union.

Caution

As for nominal size 15-50mm
Only the union ③ on the right side when viewed
from the trademark (AV mark) can be adjusted.
As for nominal size 65-100mm, adjust the unions on both sides.



7) In the engaged state, turn the handle ⑭ counter clockwise to loosen it and remove the union ③.
8) Remove the seat ⑦ carefully by hand without damaging it.
9) Push out the ball ② by hand.
10) Push out the stem ⑥ from the top flange side to the body side.

<Assembly>

Procedure

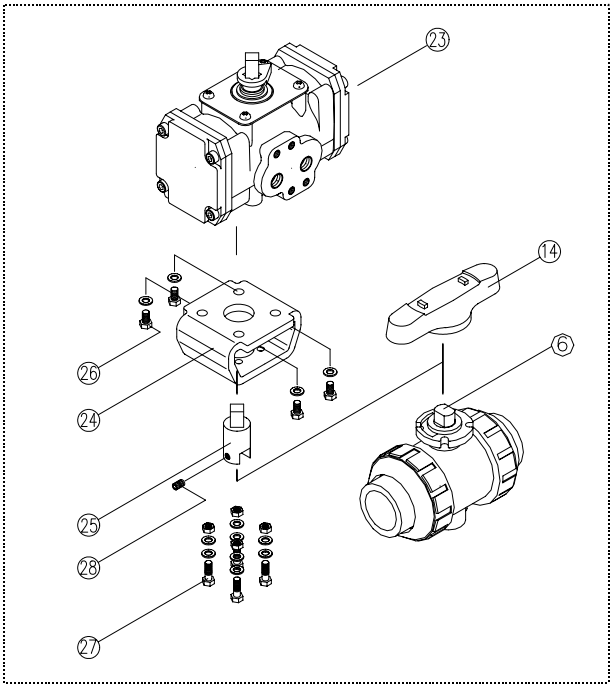
Carry out the assembly work in the reverse procedure from item 10)

Caution

With regard to item 8), before installing seat ⑦ on the valve, check the seat for its face and back.

(9) Mounting actuator, Ensat and base (panel)

○ Attach actuator to the top flange



Procedure

1) Remove the handle ⑭.

> ⚠ Caution
> As for nominal 65mm-100mm, tighten the screw ⑮ properly before removing it.

2) Fix the stand ㉔ to actuator ㉓ with bolt (A).

3) Fix the stem ⑥ to the joint ㉕ with screw (B) ㉘.

4) Engage the joint ㉕ with actuator ㉓.

5) Fix the stand ㉔ to the top flange with bolt-nut (B) ㉗.

6) Make sure that the valve works smoothly, by operating actuator ㉓ by hand.

○ Attach Inserted metal to the bottom stand.

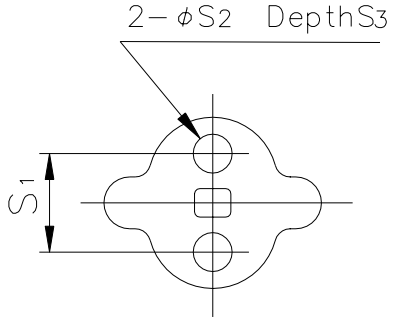
Procedure

Refer to the user's manual for the Inserted metal (Commercially available.)

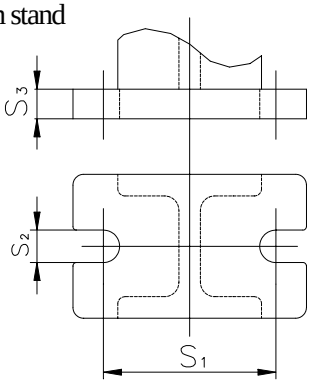
Bottom stand dimension Unit; mm

Nom.Size	S1	S2	S3
15mm (1/2")	19	7.3	11
20mm (3/4")	19	7.3	11
25mm (1")	19	7.3	11
32mm (1 1/4")	30	9	15
40mm (1 1/2")	30	9	15
50mm (2")	30	9	15
65mm (2 1/2")	48	9	6
80mm (3")	55	11	7
100mm (4")	65	11	8

Nominal 15-50mm(1/2"-2")
Bottom stand



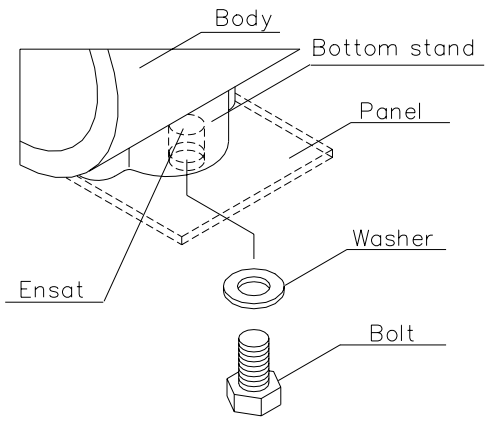
Nominal 65-100mm (2 1/2"- 4")
Bottom stand



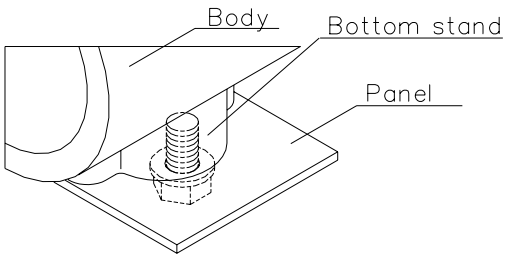
○Fixation of bottom stand with panel

Nominal size: 15mm-50mm (1/2”-2”)

Before the fixation

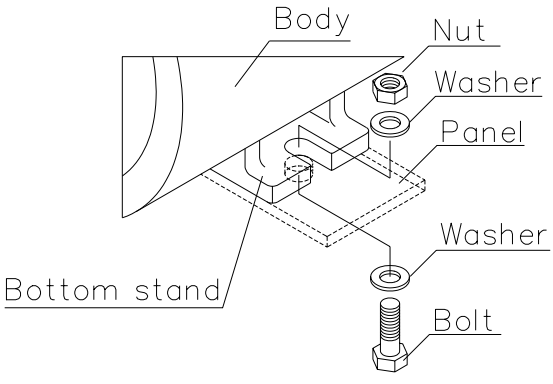


After the fixation

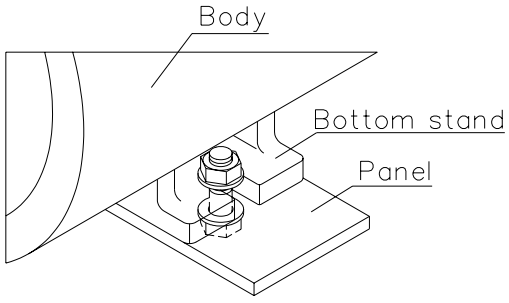


Nominal size: 65mm-100mm (2 1/2”-4”)

Before the fixation



After the fixation



(10) Inspection items

○Inspect the following items.

(1)	Existence of scratches, cracks, deformation, and discoloring.
(2)	Existence of leakage from the valve to the outside.
(3)	Existence of leakage when the valve is opened fully at right or left.

(11) Troubleshooting

Problem	Cause	Treatment
Fluid leaks from the valve even when the valve is closed fully.	The carrier is loosened.	Adjust the face pressure between the ball and the seat. (Refer to page 9)
	The seat is scratched or worn.	Replace the seat with a new one.
	Foreign matter is in the valve.	Clean up.
	The ball is scratched or worn.	Replace the scratched ball with a new one.
Fluid leaks from the valve.	The union nut is loosened.	Tighten up the union nut.
	The carrier is loosened.	Adjust the face pressure between the ball and the seat. (Refer to page 9)
	The O-ring is scratched or worn.	Replace the O-ring with a new one.
The handle can not be turned smoothly.	Foreign matter is in the valve.	Clean up.
	Deformation. (By heat etc.)	Replace the parts.
The handle fails to engage.	The stem is broken.	Replace the stem with a new one.
	The engagement between the stem and the ball is broken.	Replace the stem and ball with new ones.

(12) Handling of residual and waste materials

⚠ Caution

In discarding remaining or waste materials, be sure to ask waste service company.
（Poisonous gas is generated.）