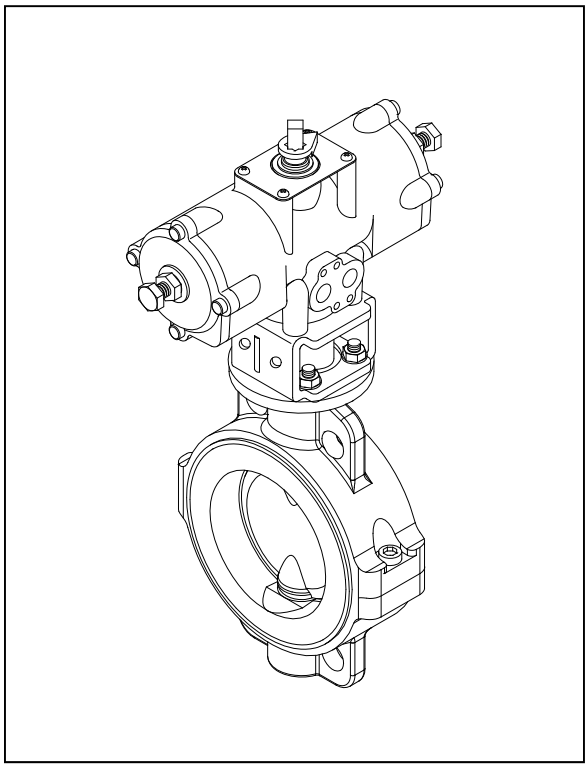
Serial No.	H-A020-E-14

Butterfly Valve Type 55・Type 55IS
Pneumatic Actuated Type TA

Type 55 50-250mm (2”-8”)

Type 55IS 50-400mm (2”-16”)

User’s Manual



Contents

ASAHI YUKIZAI CORPORATION

This user's guide contains information important to the proper installation, maintenance and safe use of an ASAHI AV Product. Please store this manual in an easily accessible location.

<Warning & Caution Signs>

 Warning	This symbol reminds the user to take caution due to the potential for serious injury or death.
 Caution	This symbol reminds the user to take caution due to the potential for damage to the valve if used in such a manner.

<Prohibited & Mandatory Action Signs>

	Prohibited: When operating the valve, this symbol indicates an action that should not be taken.
	Mandatory action: When operating the valve, this symbol indicates mandatory actions that must be adhered to.

(1)Be sure to read the following warranty clauses of our product

- Always observe the specifications of and the precautions and instructions on using our product.
- We always strive to improve product quality and reliability, but cannot guarantee perfection. Therefore, should you intend to use this product with any equipment or machinery that may pose the risk of serious or even fatal injury, or property damage, ensure an appropriate safety design or take other measures with sufficient consideration given to possible problems. We shall assume no responsibility for any inconvenience stemming from any action on your part without our written consent in the form of specifications or other documented approval.
- The related technical documents, operation manuals, and other documentation prescribe precautions on selecting, constructing, installing, operating, maintaining, and servicing our products. For details, consult with our nearest distributor or agent.
- Our product warranty extends for one and a half years after the product is shipped from our factory or one year after the product is installed, whichever comes first. Any product abnormality that occurs during the warranty period or which is reported to us will be investigated immediately to identify its cause. Should our product be deemed defective, we shall assume the responsibility to repair or replace it free of charge.
- Any repair or replacement needed after the warranty period ends shall be charged to the customer.
- The warranty does not cover the following cases:
  (1) Using our product under any condition not covered by our defined scope of warranty.
  (2) Failure to observe our defined precautions or instructions regarding the construction, installation, handling, maintenance, or servicing of our product.
  (3) Any inconvenience caused by any product other than ours.
  (4) Remodeling or otherwise modifying our product by anyone other than us.
  (5) Using any part of our product for anything other than the intended use of the product.
  (6) Any abnormality that occurs due to a natural disaster, accident, or other incident not stemming from something inside our product.

(2) General operating instructions

- Never attempt to disassemble an actuator.
  (If disassembled forcible, internal parts may jump out and this is very dangerous.)
- Using a positive-pressure gas with our plastic piping may pose a dangerous condition due to the repellent force particular to compressible fluids even when the gas is under similar pressures used for liquids. Therefore, be sure to take the necessary safety precautions such as covering the piping with protective material. For inquiries, please contact us. For conducting a leak test on newly installed piping, be sure to check for leaks under water pressure. If absolutely necessary to use a gas in testing, please consult your nearest service station beforehand.
- When installing a valve, the AV gasket is basically unnecessary. But using a gasket gives more stable sealing ability in case of using a plastic flange, where easy occurrence of dent, mark or distortion can be expected.

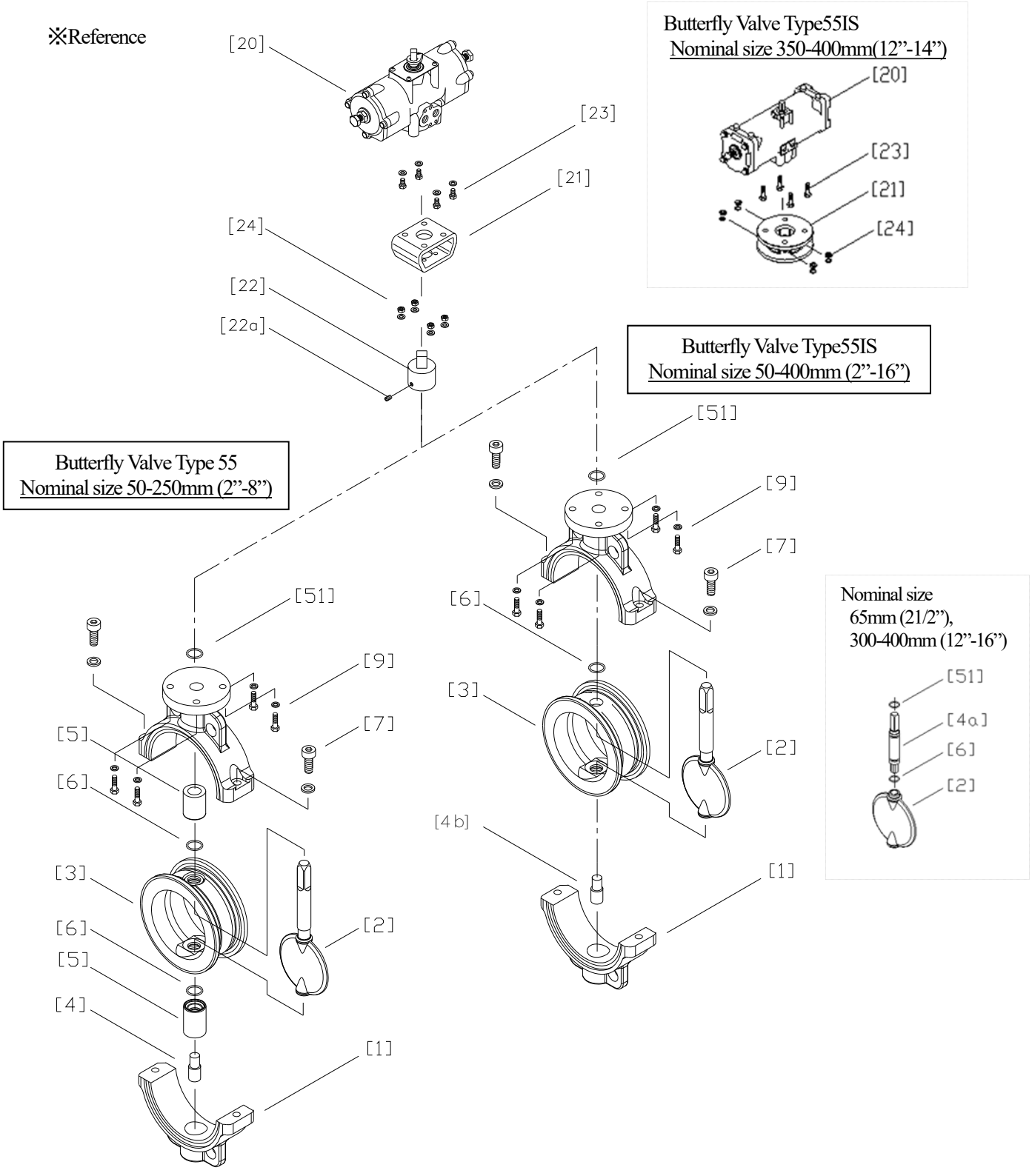
- Do not step on or apply excessive weight on valve. (It can be damaged.)
- Do not use AV valves in a place where they may become submerged in water.
- Do not use the valve in conditions where the fluid may have crystallized.
  (The valve will not operate properly.)
- Keep the valve away from excessive heat or fire. (It can be damaged, or destroyed.)
- Always operate the valve within the pressure vs. temperature range.
  (The valve can be damaged or deformed by operating beyond the allowable range.)
- Allow sufficient space for maintenance and inspection.
- Select a valve material that is compatible with the media. For chemical resistance information, refer to “CHEMICAL RESISTANCE ON ASAHI AV VALVE”.
  (Some chemicals may damage incompatible valve materials.)
- Keep the valve out of direct sunlight, water and dust. Use cover to shield the valve.
  (The valve will not operate properly.)
- Perform periodic maintenance. (Leakage may develop due to temperature changes or periods of prolonged storage, rest, or operation.)
- Set valve support on the valve.
- The AV valves must be used within the specifications specifically applicable to the Product.
- If the actuator is used in an environment below 5℃ temperature, its operating fluid must be free from the water and moisture contained in it because of possible problems due to the freeze.
- The operating fluid must be clean air filtered through a pertinent air filter.

(3) General instructions for transportation, unpacking and storage

- When suspending and supporting a valve, take care and do not stand under a suspended valve.
- This valve is not designed to handle impacts of any kind. Avoid throwing or dropping the valve.
- Avoid scratching the valve with any sharp object.
- Do not over-stack cardboard shipping boxes. Excessively stacked packages may collapse.
- Avoid contact with any coal tar creosote, insecticides, vermicides or paint.
  (These chemicals may cause damage to the valve.)
- When transporting a valve, do not carry it by the handle.
- Store products in their corrugated cardboard boxes. Avoid exposing products to direct sunlight, and store them indoors (at room temperature). Also avoid storing products in areas with excessive temperatures. (Corrugated cardboard packages become weaker as they become wet with water or other liquid. Take care in storage and handling.)
- After unpacking the products, check that they are defect-free and meet the specifications.

(4) Name of parts

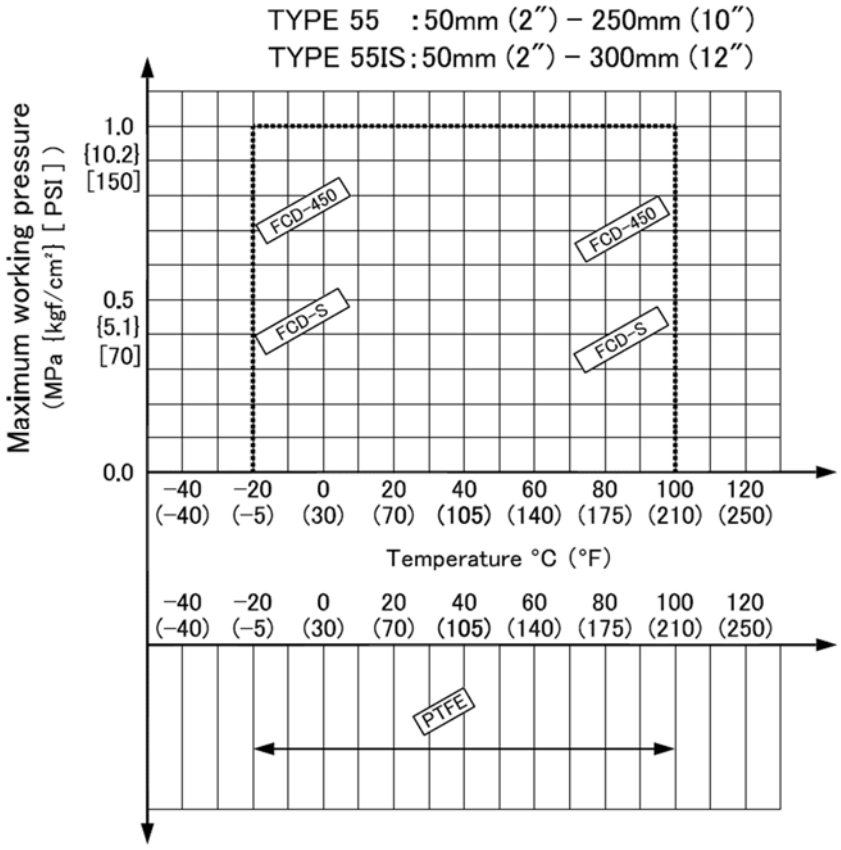
※Reference

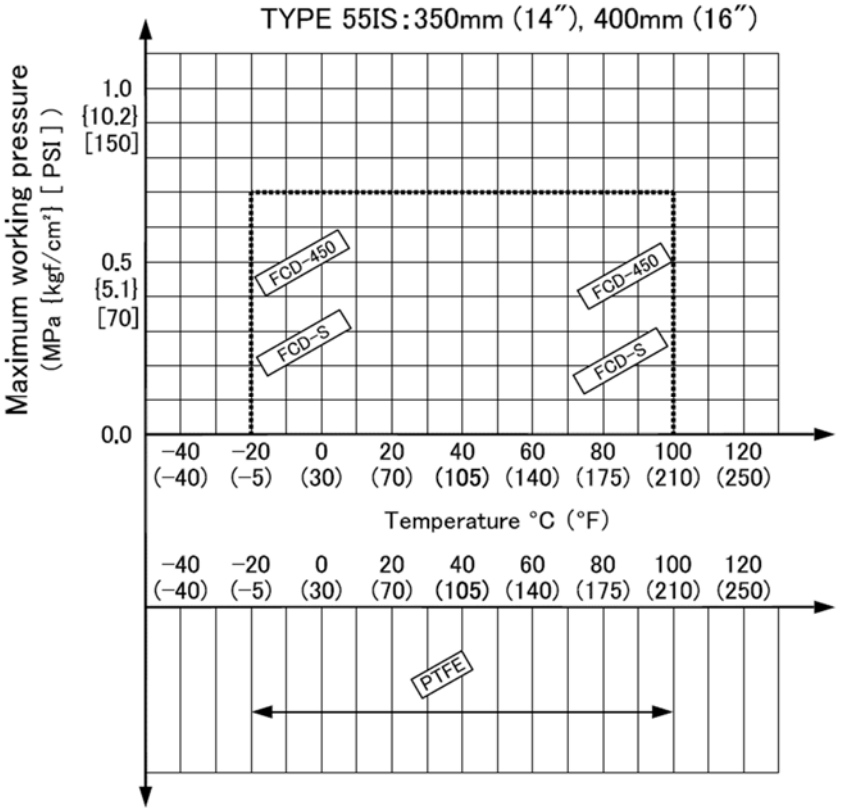


[1]	Body	[5]	Bush	[22]	Joint
[2]	Disc	[6]	O ring (A)	[22a]	Screw (B)
[3]	Seat	[7]	Bolt (A)	[23]	Bolt (D)
[4a]	Stem (A)	[20]	Actuator	[24]	Bolt-nut
[4b]	Stem (B)	[21]	Stand	[51]	O ring (B)

50-150mm (2"-6") : Stand [21] is PPG. 200,250mm (8", 10") : stand [21] is SUS304.

(5) Maximum working pressure vs. temperature





(6) Specification of actuator

Type55

Actuation	Nominal Size	Actuator name	Angle adjustment range	Standard operating pressure MPa {kgf/cm²}	Air consumption N *l* per 1 open and close (at 0.4MPa)	Air supply bore
Double Action Type	50mm (2”)	TA2A-050D	±5°	0.4 {4.1}	0.9	Rc 1/4
	65mm (2 1/2”) 80mm (3”)	TA2A-063D	±5°	0.4 {4.1}	1.7	Rc 1/4
	100mm (4”) 125mm (5”)	TA2A-080D	±5°	0.4 {4.1}	3.2	Rc 1/4
	150mm (6”)	TA2A-100D	±5°	0.4 {4.1}	6.6	Rc 1/4
	200mm (8”)	TA2A-125D	±5°	0.4 {4.1}	13.3	Rc 1/4
	250mm (10”)	TA2A-160D	±5°	0.4 {4.1}	27.1	Rc 1/4
Single Action Type	50mm (2”)	TA2A-050R	±5°	0.4 {4.1}	1.7	Rc 1/4
	65mm (2 1/2”) 80mm (3”)	TA2A-063R	±5°	0.4 {4.1}	3.3	Rc 1/4
	100mm (4”) 125mm (5”)	TA2A-080R	±5°	0.4 {4.1}	6.1	Rc 1/4
	150mm (6”)	TA2A-100R	±5°	0.4 {4.1}	12.8	Rc 1/4
	200mm (8”)	TA2A-125R	±5°	0.4 {4.1}	21.6	Rc 1/4
	250mm (10”)	TA2A-160R	±5°	0.4 {4.1}	42.7	Rc 1/4

Type55IS

Actuation	Nominal Size	Actuator name	Angle adjustment range	Standard operating pressure MPa {kgf/cm²}	Air consumption N l per 1 open and close (at 0.4MPa)	Air supply bore
Double Action Type	50mm (2”)	TA2A-050D	±5°	0.4～0.7 {4.1～7.1}	0.9	Rc 1/4
	65mm (2 1/2”) 80mm (3”)	TA2A-063D	±5°	0.4～0.7 {4.1～7.1}	1.7	Rc 1/4
	100mm (4”)	TA2A-080D	±5°	0.4～0.7 {4.1～7.1}	3.2	Rc 1/4
	125mm (5”) 150mm (6”)	TA2A-100D	±5°	0.4～0.7 {4.1～7.1}	6.6	Rc 1/4
	200mm (8”)	TA2A-125D	±5°	0.4～0.7 {4.1～7.1}	13.3	Rc 1/4
	250mm (10”) 300mm (12”)	TA2A-160D	±5°	0.4～0.7 {4.1～7.1}	27.1	Rc 1/4
	350mm (14”) 400mm (16”)	TA-200D	±5°	0.4～0.7 {4.1～7.1}	56.8	Rc 3/8
Single Action Type	50mm (2”)	TA2A-050R	±5°	0.4～0.7 {4.1～7.1}	1.7	Rc 1/4
	65mm (2 1/2”) 80mm (3”)	TA2A-063R	±5°	0.4～0.7 {4.1～7.1}	3.3	Rc 1/4
	100mm (4”)	TA2A-080R	±5°	0.4～0.7 {4.1～7.1}	6.1	Rc 1/4
	125mm (5”) 150mm (6”)	TA2A-100R	±5°	0.4～0.7 {4.1～7.1}	12.8	Rc 1/4
	200mm (8”)	TA2A-125R2	±5°	0.4～0.7 {4.1～7.1}	21.6	Rc 1/4
	250mm (10”) 300mm (12”)	TA2A-160R2	±5°	0.4～0.7 {4.1～7.1}	42.7	Rc 1/4
	350mm (14”) 400mm (16”)	TA-200R	±5°	0.4～0.7 {4.1～7.1}	68.4	Rc 3/8

(7) Specification of solenoid valve (option)

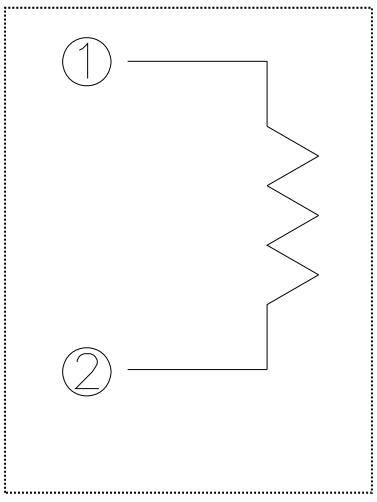
Actuation	Nom. size	Type sign	Pipe bore	Effective cross section area	Power consumption	Additional function
Double actuation Type Air to open Air to close	50-250mm (2”-10”) Type 55,55IS	4N3S102K-W□-G31193	Rc 1/4	10mm^2 or more	AC ; 6VA DC ; 5.5W	○Silencer with needle valve attached (to be used as speed controller) ○Bypass valve built – in
Double actuation Type Air to open Air to close	300-400mm (12”-16”) Type 55IS	453S403C-W □ -G30800	Rc 1/4	40mm^2 or more	AC ; 6VA DC ; 5W	

50mm-250mm (2”-10”) 4N3S102K-W□-G31193
300mm-400mm (12”-16”) 453S403C-W□-G30800

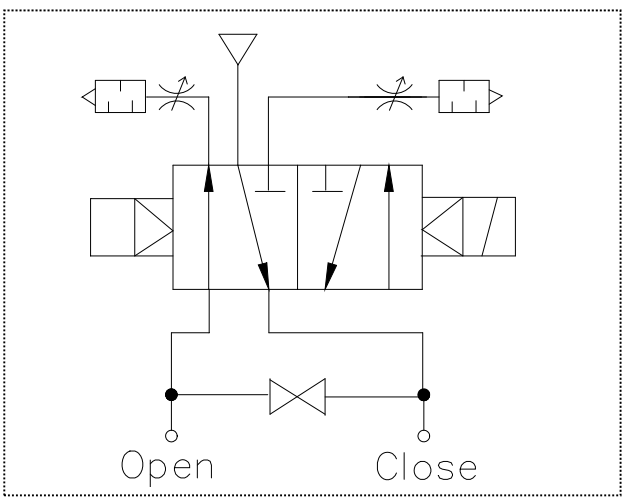
Specification	sign
AC100V 50/60Hz	1
AC110V 50/60Hz	(2)
AC200V 50/60Hz	3
AC220V 50/60Hz	(4)
DC24V	5
DC48V	(6)
DC100V	(7)
DC125V	(8)
DC110V	(9)

※ ( ) is special order。

connection diagram



JIS sign



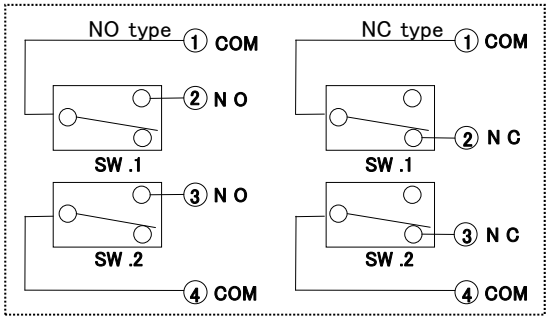
(8) Specification of limit switch (option)

Actuation	Nom. size	Type sign	Protection grade	Type of limit switch
Double actuation Type Air to open Air to close	50-80mm (2”-3”)	SB2-11	IP65	V-112-1C24 (OMRON)
	100-150mm (4”-6”)	SB2-16		
	200-300mm (8”-12”)	SB2-22		
	350-400mm (14”-16”)	TA-200-SB	IP 55	

Limit switch rating

Rate voltage (V)	resistive load (A)	Inductive load (A)
AC125	11	7
AC250	11	7
DC115	0.5	0.1
DC250	0.25	0.04

connection diagram (At intermediate opening)



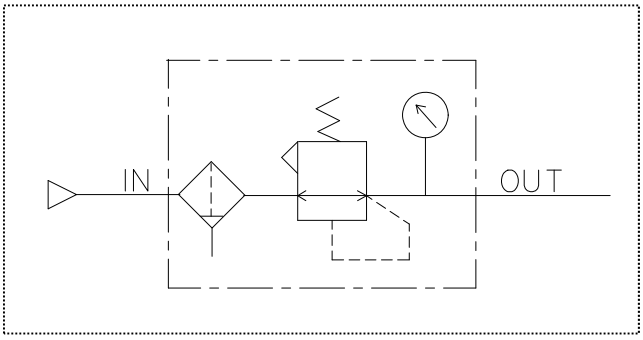
SW.1: Contact closes when valve is closed (double acting/air to open)
Contact closes when valve is opened (air to shut)

SW2: Contact closes when valve is opened (double acting/air to open)
The contact closes when the valve is closed (air to shut)

(9) Specification of pressure reducing valve with filter (option)

Actuation	Nominal size	Type sign	Pipe bore	Element degree Of filtration
Double actuation Type Air to open Type Air to close Type	50-300mm (2”-12”) 55,55IS	ARU2-02-8A-G	Rc 1/4	5 μm
	350,400mm (14”,16”) 55IS	ARU3A-03-10A	Rc 3/8	40 μm

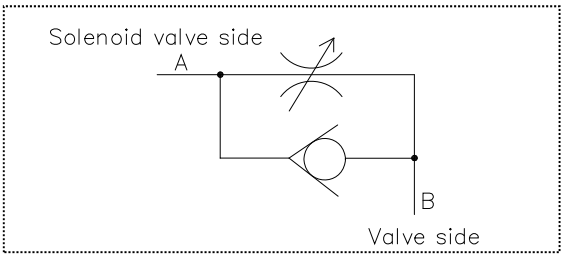
JIS sign



(10) Specification of speed controller (option)

Actuation	Nom. size	Type sign	Pipe bore	Effective cross section area (mm^2)		Needle No. of revolution
				Free flow	Control flow	
Double actuation / Air to open / Air to close Type	50-300mm (2”-12”) 55,55IS	SC7-08A	Rc 1/4	11	8.3	8 turns
	350mm,400m (14”,16”) 55IS	SC7-10A	Rc 3/8	16	14	

JIS sign



(11) Installation procedure

Warning

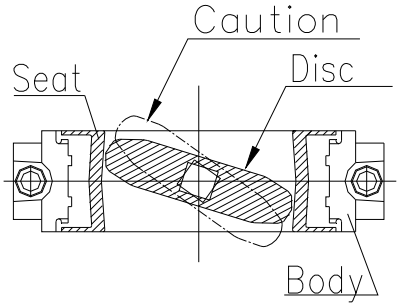
- When suspending and supporting a valve, take care and do not stand under a suspended valve.

- Be sure to conduct a safety check on all hand and power tools to be used before beginning work.
- Wear protective gloves and safety goggles as fluid remain in the valve even if the pipeline is empty. (You may be injured.)
- When installing a valve, the AV gasket is basically unnecessary. But using a gasket gives more stable sealing ability in case of using a plastic flange, where easy occurrence of dent, mark or distortion can be expected.

Caution

- When installing a pipe support by means of a U-band or something similar, take care not to over-tighten. (Excessive force may damage the pipe.)
- Do not install the valve with the disc fully closed. (The disc may pinch into the seat, resulting in a high operating torque and preventing the valve from operating properly.)

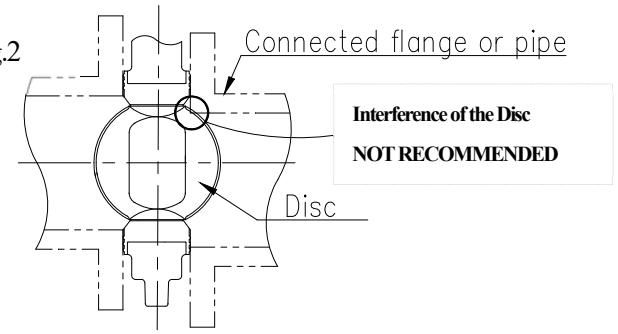
- When installing pipes and valves, ensure that they are not subjected to tension, compression, bending, impact, or other excessive stress.
- Use flat faced flanges for connection to AV Valves.
- Ensure that the mating flanges are of the same standards.



Caution

- Care must be used during piping installation to ensure that the pipes or flanges are properly aligned so that the valve disc does not contact them in any setting. Misalignment as in Figure below will result in damage to the valve.

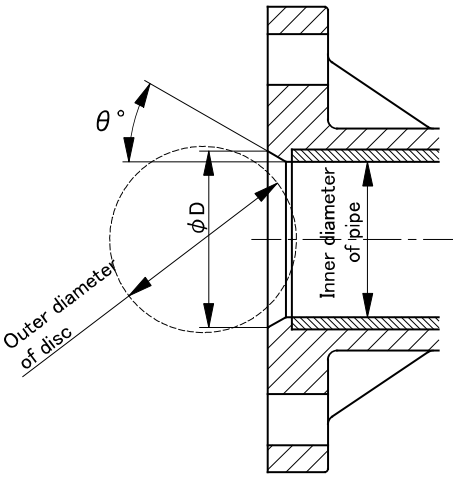
Fig.2



In case of the thick of the connection part (flange and pipe) is too thick shave the flange or the pipe inside order to avoid the contact of pipe and disk. If inside diameter of the connection part is larger than size D, shaving is not necessity.

Unit: mm (inch)

Nominal size	Diameter D		Chamfer angle θ
	Type55	Type55IS	Type55 & 55IS
50 (2")	47 (1.85")	42 (1.65")	40
65 (2 1/2")	- -	54 (2.13")	40
80 (3")	71 (2.80")	74 (2.91")	30
100 (4")	92 (3.62")	94 (3.70")	30
125 (5")	119 (4.69")	121 (4.76")	25
150 (6")	143 (5.63")	149 (5.87")	25
200 (8")	182 (7.17")	186 (7.32")	15
250 (10")	237 (9.33")	241 (9.49")	15
300 (12")	- -	293 (11.54")	15
350 (14")	- -	322 (12.68")	15
400 (16")	- -	372 (14.65")	15

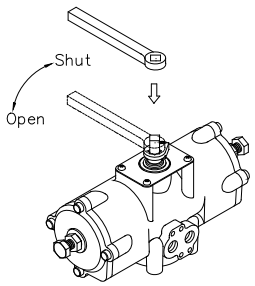


Necessary items

- Torque wrench
- Bolt, Nut, Washer (For many flanges specification)
- Spanner wrench or lever handle for Type TA (option)
- AV gasket (If necessary)

Procedure

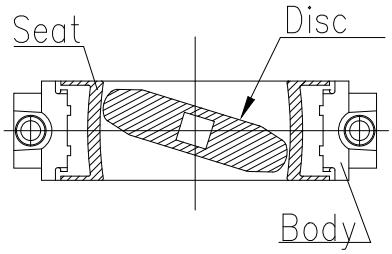
1) Leave the valve slightly opened by spanner wrench or lever handle (Option).
   ※ Don't turn the disc beyond the seat.
   (Otherwise, the disc may be damaged.)



2) Set the valve between the coupled flange.

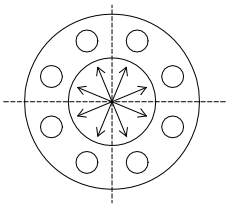
3) Insert washers and bolts from the pipe side, insert washers and nuts from the valve side, then temporarily tighten them by hand.

4) Using a torque wrench, tighten the bolts and nuts gradually to the specified torque in a diagonal manner (Refer to fig.1.)

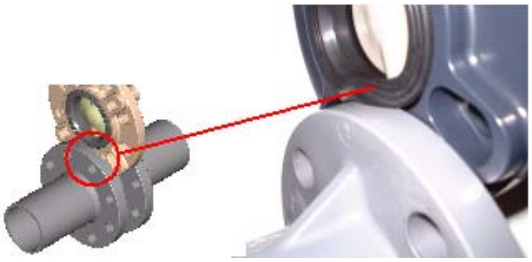


Caution - Tighten the bolts and nuts gradually with a torque wrench to the specified torque level in a diagonal manner.

Fig. 1



Caution - When you insert a valve between flanges, please insert after extending the fields of flanges fully. (If you insert a valve by force without fully extending fields of flanges, a liner may be turned over and suffer a crack.)



Recommended torque value Unit: N·m{kgf·cm}[lb·inch]

Nom. Size	50, 65mm (2", 2 1/2")	80, 100mm (3", 4")	125, 150mm (5", 6")	200, 250mm (8", 10")
Torque value Type55	22.5 {230} [200]	30.0 {306} [266]	40.0 {408} [355]	55.0 {561} [488]

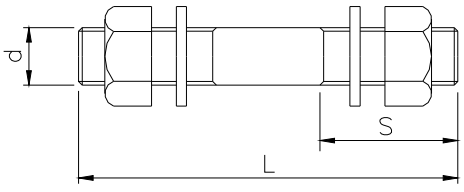
Nom. Size	50-100mm (2"- 4")	125, 150mm (5", 6")	200, 250mm (8", 10")	300,350mm (12",14")	400mm (16")
Torque value Type55IS	30.0 {306} [266]	40.0 {408} [355]	55.0 {561} [488]	60.0 {612} [532]	80.0 {816} [710]

<JIS 10K Standard>

Dimension of bolt length

Nom. Size		Bolt (Minimum)					Pieces	
		d	Type 55		Type 55IS			
mm	inch		L	S	L(mm)	S(mm)	Bolt	Nut & Washer
50	2"	M16	130mm (5.11")	35mm (1.38")	130mm (5.11")	35mm (1.38")	4	8
65	2 1/2"		—		135mm (5.31")			
80	3"		140mm (5.51")				8	16
100	4"		145mm (5.71")		140mm (5.51")			
125	5"	M20	165mm (6.50")	40mm (1.57")	160mm (6.30")	40mm (1.57")		
150	6"		180mm (7.18")					
200	8"		195mm (7.68")		165mm (6.50")		12	24
250	10"	M22	215mm (8.46")		180mm (7.10")	45mm (1.77")		
300	12"		—	—	190mm (7.50")		16	24
350	14"		—	—	210mm (8.25")			
400	16"	M24	—	—	230mm (9.10")	50mm (2.00")		

* Flange thickness are according to JIS B2220.
* When installing AV gasket, add 5 mm(0.2").

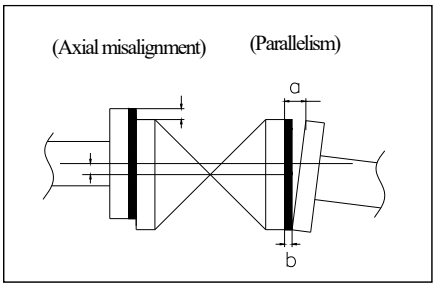


Caution

- 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)
50-80mm (2"-3")	1.0mm (0.04")	0.8mm (0.03")
100-150mm (4"-6")	1.0mm (0.04")	1.0mm (0.04")
200-400mm (8"-16")	1.5mm (0.06")	1.0mm (0.04")



(12) Support Setting Procedure

Caution

- Set valve support on the valve.

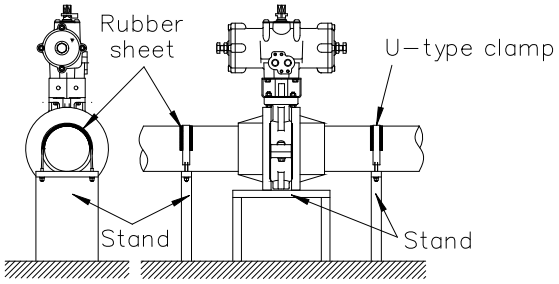
Necessary items

- Spanner wrench
- U-type clamp (with bolt)
- Rubber sheet

Level installation

Set the stand under the valve.

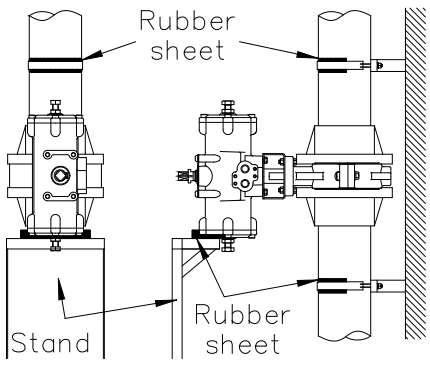
Spread the rubber sheet on the pipe and secure pipe with U-type clamp.



Perpendicular installation

Spread the rubber sheet under the actuator and connection part of body and actuator.

Spread the rubber sheet on the pipe and secure pipe with U-type clamp.



(13) Air Piping procedure

<1>For a standard type and an attached speed controller type

Caution

- Do not remove a dust-proof cap provided to piping port before piping work starts.
- Avoid excessive tightening. (The threaded area of a pipe can be damaged.)
- Check the connection locations, air pipe sizes, and screw types with the approved drawings and other documents for the product. Then lay the air piping.
- The operating fluid must be clean air filtered through a pertinent air filter.
- If the actuator is used in an environment below 5℃ temperature, its operating fluid must be free from the water and moisture contained in it because of possible problems due to the freeze.
- Steel pipes must always be of the plated.
- Before installing an actuator in pipeline, flash the inside of pipeline completely.
- Do not apply a sealant excessively lest it fall off in the pipeline when an actuator is piped.
- Threaded area of a pipe must be free from the sharp edges and burr.

Necessary items

- Spanner wrench
- Steel pipe or tube for piping
- Seal tape (If seal tape isn't used, leakage may be caused)
- Joint for steel pipe or tube

Procedure

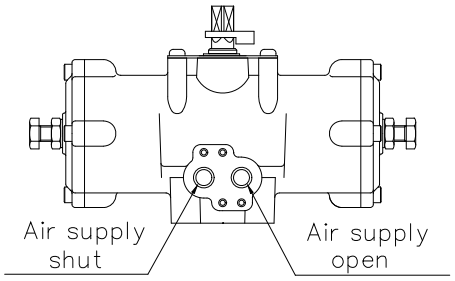
1) Wind a seal tape onto the male screw of the joint with a blank about 3mm (about 2 threads) left at the end.

2) Screw the joint in the piping female screw of the actuator by hand to the full.

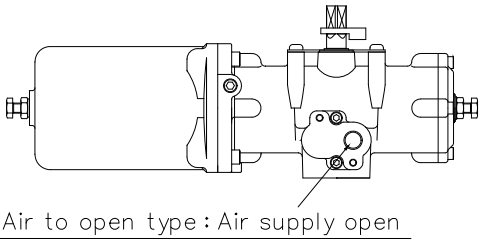
3) Screw the joint one turn with a spanner wrench.
※Avoid excessive tightening. (The valve can be damaged.)

4) Mount a steel pipe or a tube.

*The diagrams at left are without speed controllers, however, air piping procedure is the same way as above.



Single action type



Air to open type : Air supply open
Air to close type : Air supply shut

<2> For a pressure reducing valve with a solenoid valve and a pressure reducing valve with a filter.

Caution

- Do not remove a dust-proof cap provided to piping port before piping work starts.
- Avoid excessive tightening. (The threaded area of a pipe can be damaged.)
- The operating fluid must be clean air filtered through a pertinent air filter.
- If the actuator is used in an environment below 5℃ temperature, its operating fluid must be free from the water and moisture contained in it because of possible problems due to the freeze.
- Steel pipes must always be of the plated.
- Before installing an actuator in pipeline, flash the inside of pipeline completely.
- Do not apply a sealant excessively lest it fall off in the pipeline when an actuator is piped.
- Threaded area of a pipe must be free from the sharp edges and burr.

Necessary items

- Spanner wrench
- Steel pipe or tube for piping
- Seal tape (If seal tape isn't used, leakage may be caused)
- Joint for steel pipe or tube

Procedure

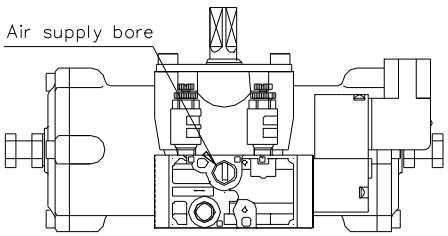
1) Wind a seal tape onto the male screw of the joint with a blank about 3mm (about 2 threads) left at the end.

2) Screw the joint in the piping female screw of the actuator by hand to the full. (Refer to fig.1, 2)

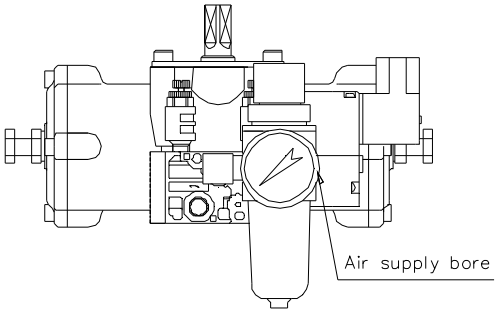
3) Screw the joint one turn with a spanner wrench.
※Avoid excessive tightening.
(The valve can be damaged.)

4) Mount a steel pipe or a tube.

(Fig.1) Solenoid valve



(Fig.2) Solenoid valve, Pressure reducing valve with filter



(14) Connection of limit switch procedure

Warning - Shut down the power on the equipment before connecting wires. There are risks of electrical shock depending on the level of operating voltage.

Caution - Be sure that the cover are put on during the operation.

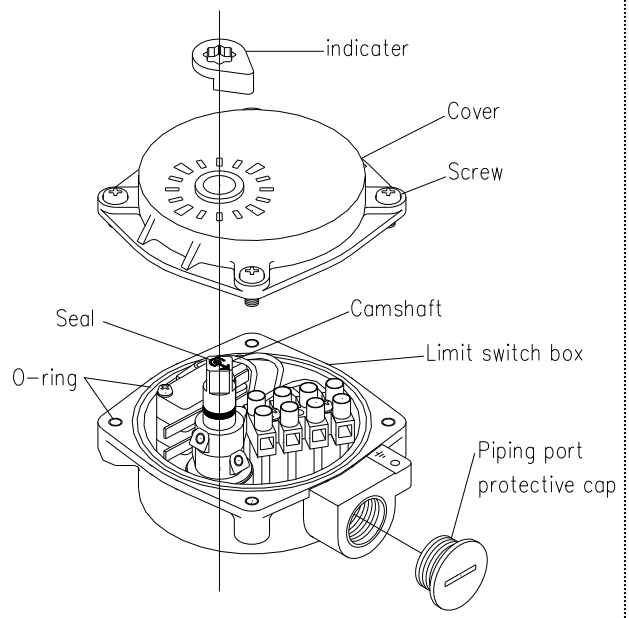
- Connect the cables by using insulated sheathed crimping terminals in such a way as not to contact the cover or housing. (Contact of a crimping terminal with the cover may disable the cover from being closed or may cause a ground fault.)
- If you use the limit switch at 1mA-100mA or 5-30V, consult near Asahi dealer.
- Be sure that the terminal cover and body cover are put on during the operation.

Necessary items

- Screw driver (+)
- Screw driver (-)
- connector (G1/2)
- Wire stripper

Procedure

1) Remove the indicator.
2) Remove the fixed screws from casing using screw driver (+).
   ※Don't be missing the o-ring of case end.
3) Turn to counter clockwise and remove the piping port protective cap.
4) Draw the cable through the connector.
5) Strip the cable with wire stripper.
6) Connect the cable to terminal board with a screw driver (-) in accordance page 8.
   ※Tighten up the screws.
   (Short circuit or shocks may occur.)
7) Tighten the connector to fix the cable.
8) The screws must be tightened in turn after set the casing with screws driver (+)
   ※Be sure to set a o-ring when the casing is re-set.
   (Short circuit or shocks may occur.)
9) Inset the indicator to the upper camshaft which must be set same direction of the seal's arrow.



(15) Connection of solenoid valve procedure

Warning - Go after you surely interrupt a power supply when you do the installation of the terminal base line is combined.

- Solenoid valve- A speed controller adjusts and fasten a lock nut by open ended spanners.

Necessary items

- Terminal crimping tool
- Connector (G1/2)
- Screw driver (+)
- Wire stripper

Procedure

1) Loosen the hexagon socket head cap screws, and remove the cover.
※Don't loose O ring.
(If not, electric leaks or shocks may occur.)

2) Remove the Faston terminal inserted into coil side and the insulating sleeve.
※Insulating sleeve isn't attached in Faston terminal.

3) Draw the cable through the connector to the cover.

4) Strip the cable with wire stripper.

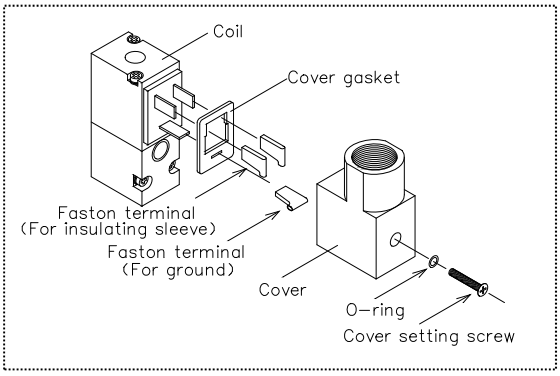
5) Draw the lead wire through the cover.

6) Install the Faston terminal on the lead wire with a terminal-crimping tool.

7) Insert the Faston terminal into the coil side. And fit the cover.

8) Tighten the cover setting screws to fix it.
(The cover can be set with the wire extraction opening turned upward or downward. (fig.1))

9) Tighten the cable by connector.



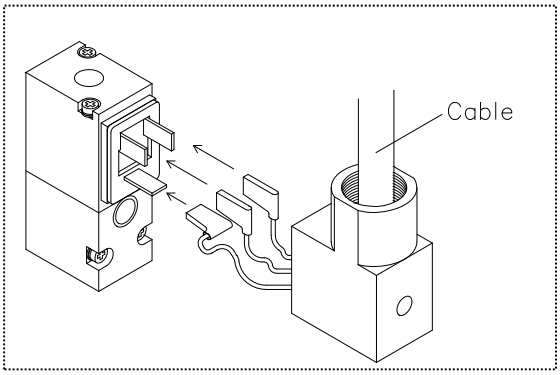
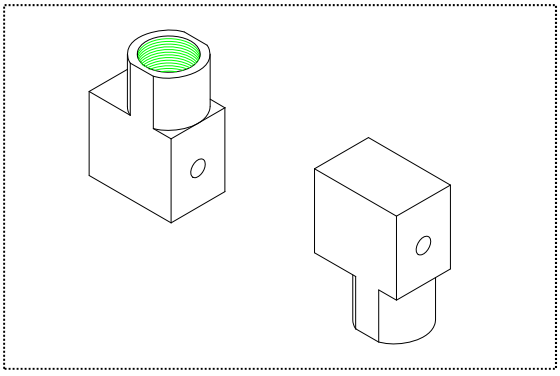


Fig.1



(16) Operating procedure

Manual Operating Procedure

Warning
- Don't supply air during manual operation.
  (When air is supplied during the manual operation, you may be injured.)
- In case of solenoid valve mounted, open the bypass valve to make atmospheric pressure in the actuator.
  (It can't do Manual operation.)

○Double action type

Necessary items
- Spanner wrench or lever handle (option).

Procedure

* In case of solenoid valve mounted, open the bypass valve to make pressure in the actuator atmospheric.
  (It allows to operating manually.)

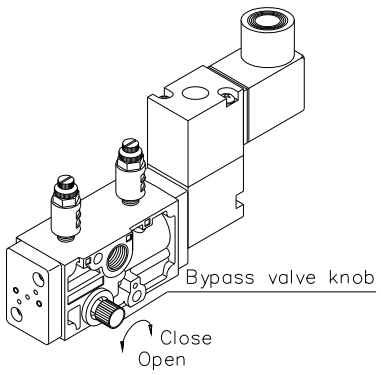
1) Attach the lever handle (Option) or the spanner wrench to the output shaft in the upper part of the actuator, and turn the handle 1-2 times between full open and full shut.
   When the limit switch is attached, remove the cap, and use the shaft for the operation.

   Right turn (clock･wise) → Shut direction

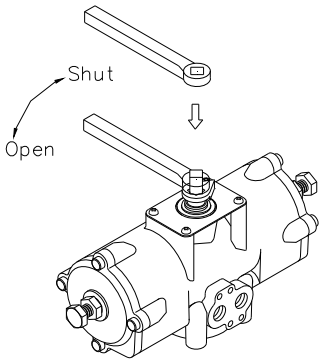
   Left turn (counterclock･wise) → Open direction

   * Do not turn the lever handle or the spanner wrench forcibly when the actuator is at the fully open or shut positions. (Otherwise the valve may be damaged.)

For solenoid valve



2) Remove the lever handle (Option) or the spanner wrench from the output shaft in the upper part of the actuator.
   * In case of solenoid valve mounted, shut the bypass valve. (Otherwise the air may leak.)



Manual Operating Procedure

○Single action type

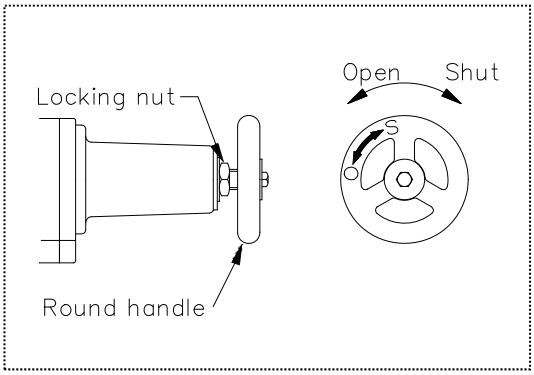
Caution - Only for the actuator which is the manual operation with groove.

Necessary items
- Spanner wrench

Procedure

1) Loosen the locking nut with spanner wrench.
2) Turn the round handle for manual operation 1-2 times between full open and full close.

Rotational direction of round handle	Air to open type	Air to close type
Clockwise	Shut	Open
C-Clockwise	Open	Shut



Manual operation unit

Nominal size	50mm (2")	65, 80mm (2 1/2"~3")	100, 125mm (4"~5")	150mm (6")	200mm (8")	250,300mm (10",12")	350,400mm (14",16")
Manual operation unit	About 24	About 25	About 28	About 28	About 36	About 38	About 40

3) Turn right the round handle to the full open or full close.
※Do not turn the handle forcibly at full operating positions.
(If not, a trouble will develop.)

4) Tighten the locking nut with a spanner wrench.

Automatic (Air) Operating Procedure

Warning
- Make sure that the manual handle (Option) or spanner wrench is not attached to the output shaft in the upper part of the actuator securely.
(Otherwise the manual handle (Option) or spanner wrench will be flung off by the rotation of the output shaft and the manual handle (Option) or spanner may injure you.)

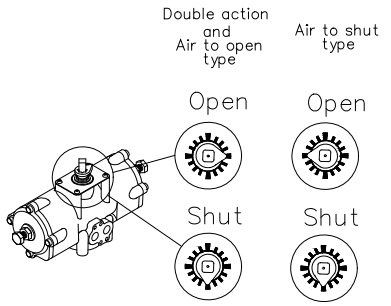
Caution
- Keep air supply pressure from a compressor at least 0.4 MPa (4.1kgf/cm^2).
(Actuator may not work normally.)
- The AV valves must be used within the specifications specifically applicable to the product.

Procedure

1) Supply the air to the air supply opening.
2) Check that the valve indicating direction and the operating direction accord with each other.
3) Stop supplying air.

TA 型

(Standard)

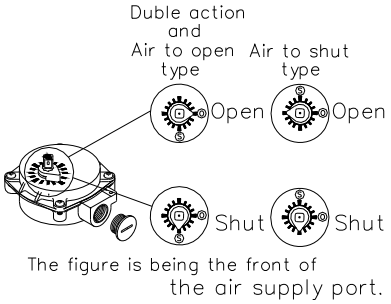


<For the solenoid valve>

Procedure

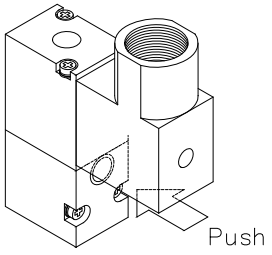
1) Supply the air to the solenoid valve.
2) Push the button (fig.3) with a finger, and confirm the action mode shown in the following table.
3) Apply regular rated voltage to the solenoid valve, and confirm the action mode shown in the following table.
4) Turn off the solenoid valve.

(With a limit switch)



Push button	Current	Double action	Single action	
			Air to open	Air to shut
Pushed	On	Open		Shut
Not pushed	Off	Shut		Open

Fig.3



Adjustment of opening / closing speed procedure

○Double action type

Caution - Solenoid valve-A speed controller adjusts and fasten a lock nut by open ended spanners.

Necessary items
- Spanner Wrench

Procedure

1) Release the adjustment knob of the solenoid valve by turning the locking nut left with a spanner, holding the two adjustment knobs (open side and close side) of the speed controller with fingers.

2) Turn right the adjustment knob of the solenoid valve fully. Avoid excessive tightening.
※(The speed controller can be damaged.)

3) Supply the air to the solenoid valve
.

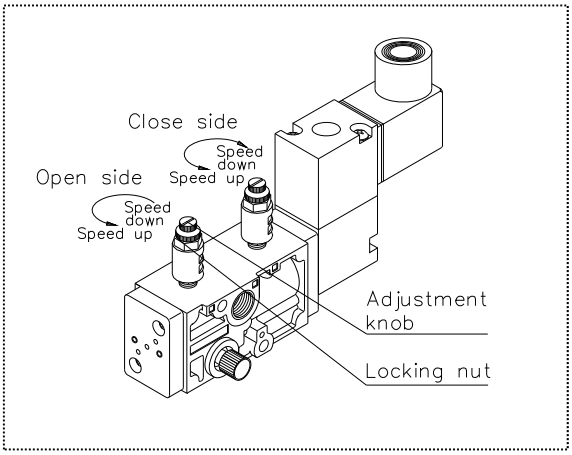
4) Apply regular rated voltage to solenoid valve, and turn the open side adjustment knob of the speed controller left little by little.

5) Turn off the solenoid valve, and turn left the close side adjustment knob little by little.

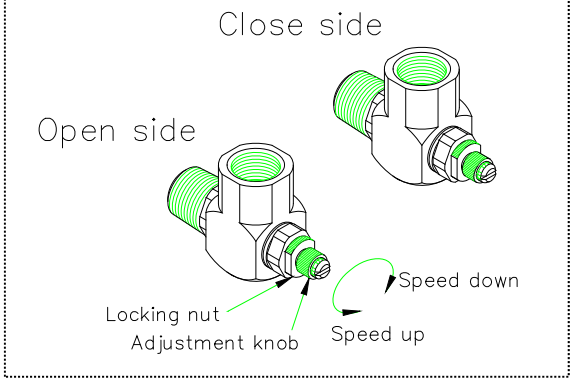
6) Repeat item 4), 5) to adjust the opening / closing speed required.

7) When the adjustment is finished, fix the adjustment knob by turning locking nuts right with a spanner, holding the adjustment knobs with fingers.
※Avoid excessive tightening.
(The locking nut can be damaged.)

For Double action type with solenoid valve



For Double action type with speed controller



○Single action type

Caution - Solenoid valve-A speed controller adjusts and fasten a lock nut by open ended spanners.

Necessary items
- Spanner wrench

Single action	Opening speed	Closing speed
Air to open type	Not adjustable	Adjustable
Air to shut type	Adjustable	Not adjustable

Procedure

1) Release the adjustment knob of the solenoid valve by turning the locking nut left with a spanner, holding the right adjustment knob of the speed controller with a finger.

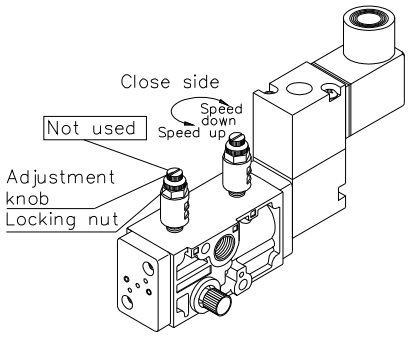
2) Turn right the adjustment knob of the solenoid valve fully.
※Avoid excessive tightening.
(The speed controller can be damaged.)

3) Supply the air to the solenoid valve.

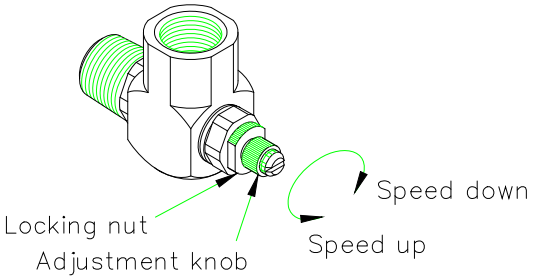
4) After applying regular rated voltage to solenoid valve, turn off the solenoid valve, and turn left the close side adjustment knob little by little.

5) When the adjustment is finished, fix the adjustment knob by turning locking nuts right with a spanner, holding the adjustment knob with fingers.
※Avoid excessive tightening.
(The locking nut can be damaged.)

For Single action type with solenoid valve



For Single action type with speed controller



(17) Disassembly and assembly procedure

Warning
- Wear protective gloves and safety goggles as fluid remain in the valve even if the pipeline is empty. (You may be injured.)
- When installing a valve, the AV gasket is basically unnecessary. But using a gasket gives more stable sealing ability in case of using a plastic flange, where easy occurrence of dent, mark or distortion can be expected.

Caution
- When installing pipes and valves, ensure that they are not subjected to tension, compression, bending, impact, or other excessive stress.
- Do not change or replace valve parts under line pressure.

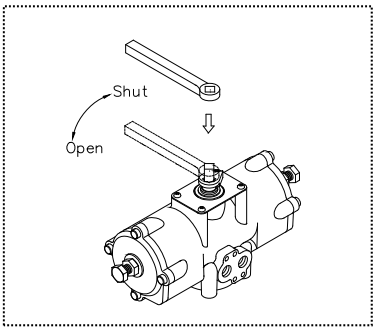
Necessary items

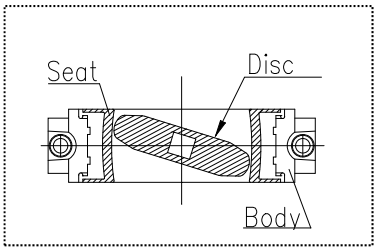
- Spanner wrench
- Screwdriver (-)
- Spanner or lever handle for TA type (option)
- Allen wrench
- Protective gloves
- Plastic hammer
- Safety goggles
- AV gasket (If necessary)

Disassembly>

Procedure

1) Completely discharge fluid from pipes.
2) Fully close the valve by the motor-driven operation or manual operation.
3) Shut the main air valve, and open the bypass valve to exhaust the air in actuator.
4) Leave the valve slightly opened with a spanner or a lever handle (option).
5) Loosen and remove the connection bolt-nut.
6) Remove the valve from the pipe.
7) Loosen the screw [22b].
8) Loosen the bolt-nut [24] and remove the body [1], the actuator [20], and the stand [21].
※The stand [21] is fixed to the actuator [20].

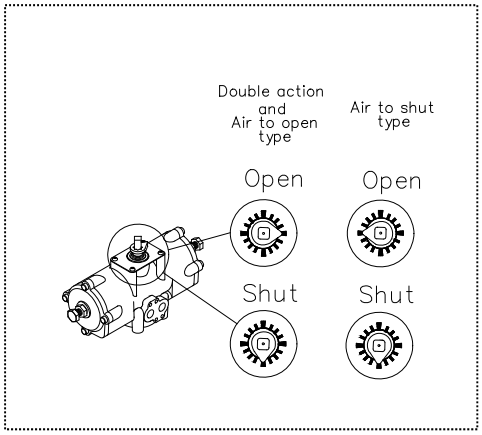




<Assembly>

Procedure

1) The procedure of the assembly is the almost reverse of its disassembly.
2) Check to ensure that travel indicator shows correct position of fully open or close.
3) Fully open or close the valve by air operation.
(Refer to page19)
※In case that the travel indicator shows incorrect position of fully open or close, adjust it according to page 23.



(18) Stopper adjustment procedure

Caution
- Don't supply air during manual operation.
(When air is supplied during the manual operation, you may be injured.)

Necessary items
- Spanner wrench

Procedure

1) Stop the air supply, and open the bypass valve to exhaust the air in actuator.

2) Attach the spanner or the hexagon wrench to stopper, and loosen the rocking nut with the spanner slowly.
※Don't damage the seal washer.
(Otherwise, the air may leak.)

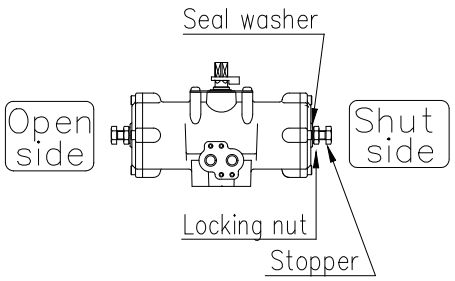
3) Turn the stopper with the spanner or the hexagon wrench to adjusting direction.

Direction	Clock wise	Counter clock wise
Open side	Smaller	Larger
Close side	Larger	Smaller

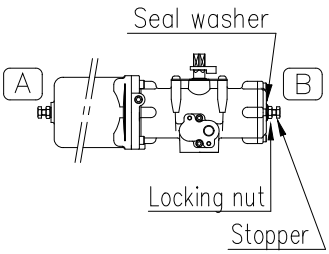
※Avoid excessive tightening.
(Otherwise, the air may leak.)

4) Close the bypass valve, and supply the air to the actuator. Operate the valve with air to make sure that opening degree is adjusted correctly. If not, repeat the item 1)-4).

Double action type



Single action type



position	Air to open	Air to shut
A	Open side	Shut side
B	Shut side	Open side

(19) Inspection items

Caution - Perform periodic maintenance. (Leakage may develop due to temperature changes or over periods of prolonged storage, rest or operation.)

○Periodically inspect and maintain the AV valve in accordance with the decided schedule.

Portion to be inspected	Inspection item
Actuator	①Existence of rust, peeling of paint, and corrosion around the actuator. ②Tightening condition of respective threaded portions. (Loose or not) ③Existence of abnormality in opening and closing operating sounds. ④Smooth operation of manual handle. * It is unnecessary to supply oil to this actuator.
Valve	①Existence of scratches, cracks, deformation, and discoloring. ②Existence of leakage from the valve to the outside. ③Existence of leakage when the valve is closed fully.

(20) Troubleshooting

Problem	Cause	Treatment
The handle is not (can't be) turned when the valve is operated manually.	The valve has already been opened fully.	Turn the handle in the reverse direction. (Refer to page 17)
	The air is supplied to actuator.	Shut the main air valve, and open the bypass valve.
	Foreign matter is in the valve.	Remove the valve to remove foreign matter. (Refer to page 9)
	The torque of the valve is increased by the piping stress.	Remove the piping stress. (Refer to page 10)
	The torque is increased by the influence (temperature, components, pressure) of fluid on the valve.	Check service condition. (Refer to page 5)
The valve does not operate by air operations	The power source of the solenoid valve is turned off.	Turn on the power source.
	The solenoid valve is disconnected.	Check the connection again. (Refer to page 16)
	The air is not supplied to actuator.	Supply the air.
	The supply voltage to the solenoid valve is wrong.	Check the voltage with a tester and set specified voltage.
	The voltage to the solenoid valve is low.	
	The bypass valve is opened.	Turn the knob of the bypass valve right to close. (Refer to page 17)

Problem	Cause	Treatment
The valve is not operated by air operations	Adjustment knob of speed controller is turned right fully.	Turn the adjuster knob left. (Refer to page 17)
	Foreign matter is in the valve.	Disassemble the valve to remove foreign matter. (Refer to page 9)
	The torque of the valve is increased by the piping stress.	Disassemble the valve to remove the piping stress. (Refer to page 9)
	The torque is increased by the influence (temperature, components, pressure) of fluid on the valve.	Check service condition. (Refer to page 5)
Fluid leaks from the valve even when the valve is closed fully.	The seat is worn.	Replace the valve with a new one. (Refer to page 22)
	The seat and disc are scratched.	Replace the valve with a new one. (Refer to page 22)
	Foreign matter is in the valve.	Discharge the foreign matter from the valve by opening and closing the valve several times. (Refer to page 17)
	The connecting bolts are not tightened in proper torque or evenly.	Adjust and retighten. (Refer to page 9)
Fluid leaks from the valve.	The O ring is scratched or worm.	Replace the valve with a new one. (Refer to page 22)
	The O ring is projected from the groove.	
	The sliding face or the fixed face of the O ring is scratched or worm.	Replace the valve with a new one. (Refer to page 22)
The actuator operates, but the valve is not opened or close.	The stem or the joint is broken.	Replace the valve with a new one. (Refer to page 22)
	The engagement between the stem and the ball is broken.	Replace the valve with a new one. (Refer to page 22)

(21) Handling of residual and waste materials

Warning

- Make sure to consult a waste treatment dealer for recommendations on the proper disposal of plastic valves. (Poisonous gas is generated when the valve is burned improperly.)

Butterfly Valve Type 55 ・ Type 55IS

Pneumatic Actuated Type TA

[Automatic Valve]

ASAHI YUKIZAI CORPORATION

Distributor

http://www.asahi-yukizai.co.jp/en/

Information in this manual is subject to change without notice.

February 2020