Diaphragm valve Type 14
True Union Diaphragm valve Type 14
Pneumatic Actuated Type AN
15～50mm

User's Manual

Thank you for choosing our product.
This User's manual contains important information for safe use of our product, so please be sure to read it before handling the product.
After reading this manual, please be sure to keep it in a place where the user can see it at any time.

ASAHI YUKIZAI CORPORATION

-SAFETY PRECAUTIONS-

This User's manual is written on the assumption that the person who handles our products has a basic knowledge of our products, electrical equipment, machinery, control, etc., and it contains technical terms depending on the handling contents.
Please read this manual carefully and fully understand the contents and observe the safety precautions for proper use.

In this manual, the warning, caution, prohibition, and enforcement are categorized together with the symbol to inform the situation and scale of human injury or property damage.
Failure to observe this precaution may result in unexpected failure or damage. Be sure to observe this precaution.

<WARNING/CAUTION indications>

Warning	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
Caution	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or property damage.

<Prohibited/Forced display>

Prohibition	In the handling of the product, it is prohibited to do it in "Do not do it".
Forcing	In the handling of the product, it is forced by "contents to be carried out without fail".

Table of Contents

1. Our product warranty coverage

Unless otherwise stated in the Contract or Specifications, etc., the warranty for the piping material products (hereinafter referred to as "applicable products") such as valves manufactured or sold by us is as follows.

Applicable to

This warranty applies only when the product is used in Japan. If you intend to use the product overseas, please contact us.

Warranty Period

The warranty period is one year after delivery.

Guaranteed range

In the event of failure or malfunction due to our responsibility during the above warranty period, we will replace or repair the product with a substitute free of charge.
Provided, however, that even within the warranty period, the warranty shall not apply to any of the following cases (charged service).

- ▶ When the storage, operating conditions, precautions, etc. described in the specifications, User's manual, etc. are not adhered to in the construction, installation, handling, maintenance, etc.
- ▶ Defects, such as the design of the customer's equipment or software, caused by other than the target product.
- ▶ The fault is due to modification or secondary processing of the product by something other than us.
- ▶ In the case of a failure which can be deemed to have been avoided if the periodic inspection described in the User's manual, etc. or the maintenance or replacement of consumable parts has been performed normally.
- ▶ The component is used for purposes other than the product's intended use.
- ▶ Failure or malfunction due to causes that could not be foreseen by our level of science and technology at the time of shipment.
- ▶ The fault is due to an external factor that is not our responsibility, such as natural disaster or disaster.

Disclaimer

- ▶ The warranty will not cover secondary damage (damage to equipment, loss of opportunity, loss of profit, etc.) or any other damage caused by the failure of our product.
- ▶ Although we strive to improve the quality and reliability of our products, we do not guarantee their integrity. Especially when using this product for equipment that may infringe human life, body or property, take appropriate safety design measures, etc., with full consideration of problems that may normally occur. We assume no responsibility for such use if we have not obtained our consent in advance in writing of specifications, etc.
- ▶ Please observe the product specifications and precautions when using our products. We shall not assume any responsibility for any damage to the customer caused by the customer's negligence. However, this does not apply to damage caused by a defect in our product.

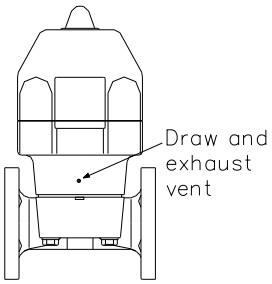
2. Safety Instructions

Unpacking, Transportation and Storage

Warning	
Prohibition	**Serious injury can result.** ▶ When hanging or slinging a valve, pay sufficient attention to safety, and do not enter under the load.

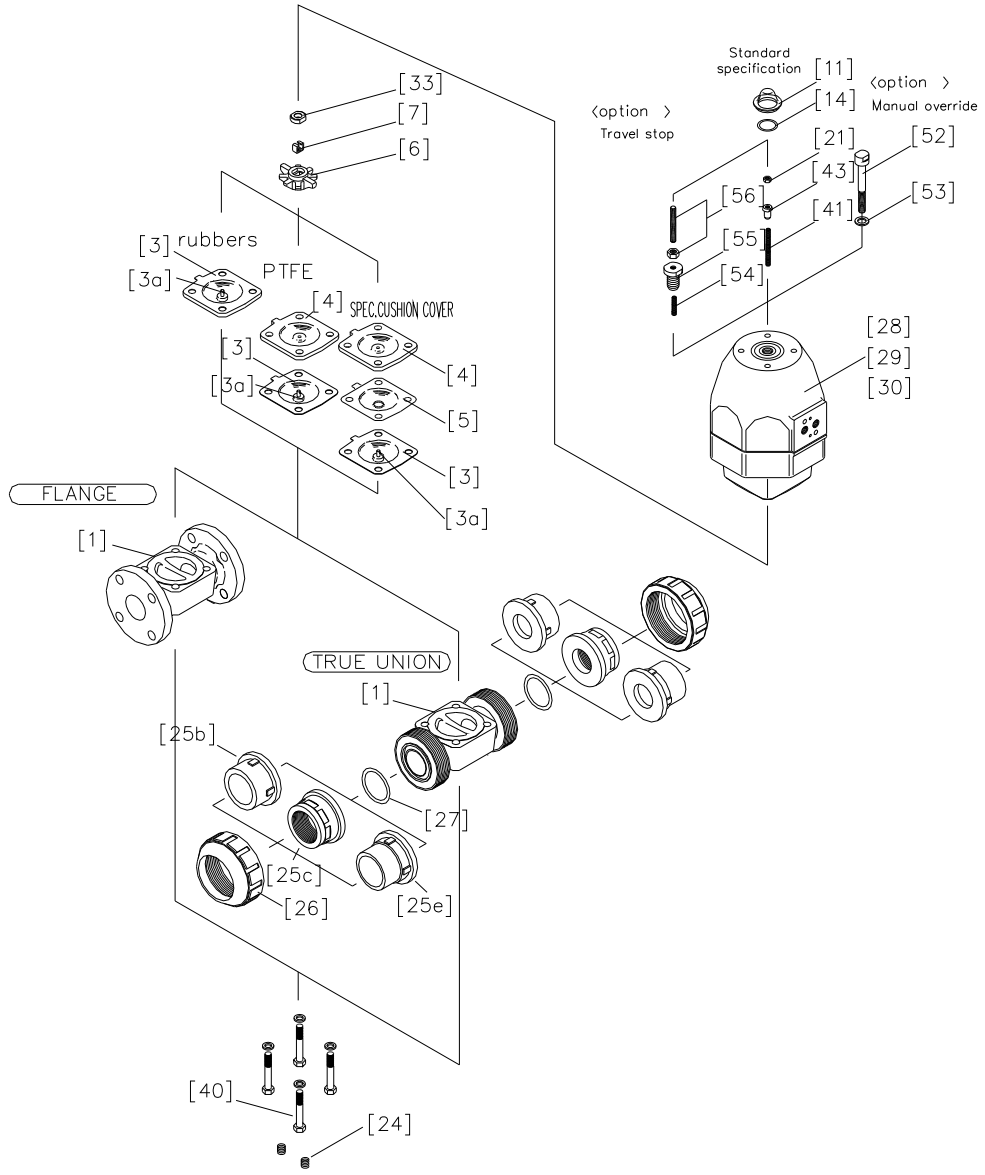
Caution	
Prohibition	**The valve can be damaged, or leak.** ▶ Do not subject the product to impact by throwing, dropping or hitting. ▶ Do not scratch or pierce the product with a sharp object such as a knife or hand hook. ▶ Do not pile up cardboard boxes forcefully to prevent the load from collapsing. ▶ Avoid contact with coal tar, creosote (a wood preservative), white pesticides, insecticides, paints, etc.
Forcing	**The valve can be damaged, or leak.** ▶ Keep in cardboard until just before piping, and store indoors (at room temperature) away from direct sunlight. Also, avoid storing the product in places of high temperature. (The strength of cardboard packaging decreases when it gets wet. Be very careful when storing and handling it.) ▶ After unpacking, make sure that the product is correct and that it meets the specifications.

Product Handling

Warning	
Prohibition	**Serious injury can result.** ▶ Do not disassemble the actuator. ▶ Do not touch moving parts during operation with hands, feet or tools.
Forcing	**There is a danger of injury.** ▶ If positive pressure gas is used for our resin piping material, a dangerous condition may occur due to the repulsive force peculiar to compressible fluids even if the pressure is the same as the water pressure. Therefore, be sure to take safety measures for the surrounding area, such as covering the piping with protective materials. If you have any questions, please contact us separately. ▶ When conducting a pipe leak test after completion of piping construction, be sure to check with water pressure. Contact us in advance if you are unavoidable to test with a gas. ▶ Actuators for diaphragm valves are provided with holes (intake and exhaust holes) through which excess air is sucked and exhausted in order to enable vertical operation of the diaphragm. (Rear part of the product) If the diaphragm is damaged by operating conditions, working fluid may spout out of the intake and exhaust holes. Be careful. 

⚠Caution	
Prohibition	**The valve can be damaged, or leak.** ▶ Do not step on the valve or place heavy objects on it. ▶ Keep away from fire and hot objects. ▶ Do not subject the valve to large vibrations. ▶ Do not use instruments or tools to assist manual operation.
Forcing	**There is a danger of injury.** ▶ Secure sufficient space for maintenance and inspection when piping. **The valve can be damaged, or leak.** ▶ Use the supplied handle or a tool specified by the manufacturer for manual operation. ▶ When performing manual operation, make sure that the actuator is not operated by the motor. ▶ Secure sufficient space for maintenance and inspection when piping. ▶ Check the voltage on the power supply and nameplate before use. ▶ Pay attention to the atmosphere where the valve is installed. Avoid locations where the product is exposed to sea breezes, corrosive gases, chemical liquids, sea water, steam, etc. ▶ Keep the pressure and temperature of the fluid within the allowable range. (The maximum allowable pressure includes water hammer pressure.) ▶ Use a valve of suitable material for the operating conditions. (Depending on the type of chemical liquid, the parts may be damaged. Contact us in advance for details.) ▶ Use fluids containing crystalline material under conditions that do not recrystallize. ▶ Avoid any place where the valve is constantly exposed to splashes of water and dust, or direct sunlight, or protect the valve with a cover or the like to cover the entire area. ▶Perform maintenance on a regular basis referring to "**12. Inspection items**." Pay particular attention to temperature changes and aging during long-term storage or shutdown or use. ▶ If internal leakage occurs when the valve is fully closed, adjust the stopper. ▶ When installing a valve, provide an appropriate valve support so that excessive force is not applied to the valve and piping. ▶ Always use the product within the indicated product specifications. ▶ If you notice an unusual odor, heat, or smoke, immediately turn off the power supply. If any abnormality is found, be sure to consult your dealer or us for inspection. ▶ Keep the ambient temperature of the installation location within-10 to 50°C. ▶ Avoid locations with volatile gases or poor atmospheres. Provide a cover, etc., to cover the entire area. ▶ Use clean, dehumidified and dedusted operating air. However, please consult with us in advance when using high dry air with a dew point of-40°C or less.

3. Name of each part



[1]	Body	[24]	Ensat (insert metal)	[40]	Bolt (B)
[3]	Diaphragm	[25b]	End connector (socket end)	[41]	Indicative rod
[3a]	Inserted metal of diaphragm	[25c]	End connector (Threaded end)	[43]	Stopper
[4]	Cushion	[25e]	End connector (spigot type)	[52]	Manual operation axis
[4a]	Cushion cover	[26]	Union nut	[53]	Thrust ring
[6]	Compressor	[27]	O-ring (C)	[54]	Rod for travel stop
[7]	Joint	[28]	Actuator (Double acting)	[55]	Fitting for travel stop
[11]	Gauge cover	[29]	Actuator (air to shut)	[56]	bolt/nut
[14]	O-ring (A)	[30]	Actuator (air to open)		
[21]	Screw	[33]	Compressor pushing plate		

4. Product Specifications

Model number table

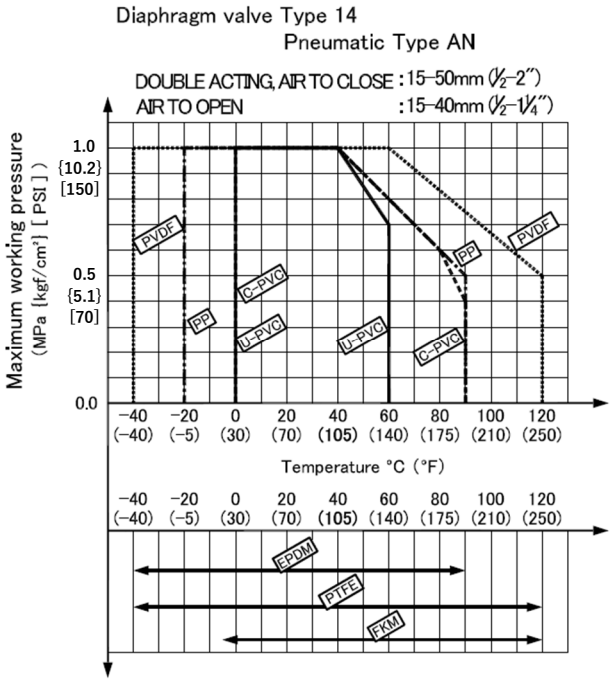
ACTUATION	TYPE	ACTUAOR TYPE	ACTION	BODY MATERIAL	SEAL MATERIAL	Connection	Standard	Size	HIGH PURITY SERIES
A	14	N	*	*	*	*	*	* * *	*
A AUTOMATIC	14 TYPE 14	N TYPE AN	F DOUBLE ACTING	U U-PVC	E EPDM	F FLANGED	J JIS	015 15mm	1 LIBRICANT FREE
			G AIR TO OPEN	C C-PVC	V FKM		D DIN	020 20mm	
			S AIR TO CLOSE	P PP			A ANSI	025 25mm	
				F PVDF				032 32mm	
								040 40mm	
								050 50mm	
								065 65mm	
								080 80mm	
								100 100mm	

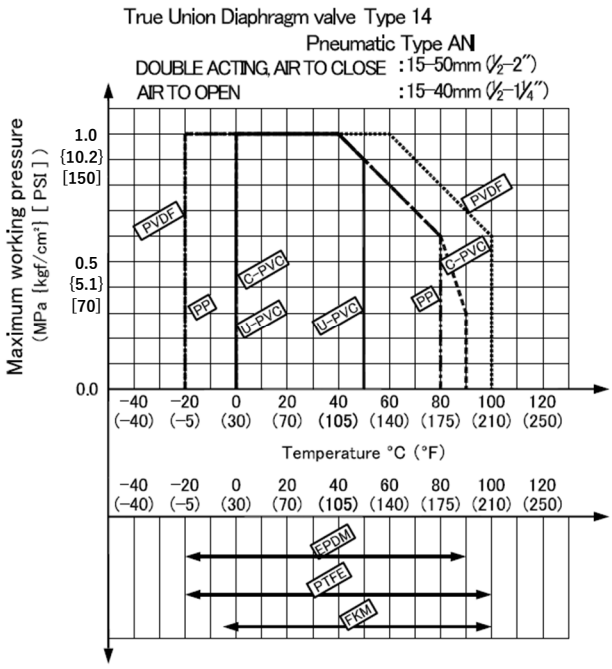
ACTUATION	TYPE	ACTUAOR TYPE	ACTION	BODY MATERIAL	SEAL MATERIAL	Connection	Standard	Size	HIGH PURITY SERIES
A	T1	N	*	*	*	*	*	* * *	*
A AUTOMATIC	T1 TRUE UNION	N TYPE AN	F DOUBLE ACTING	U U-PVC	E EPDM	S FLANGED	J JIS	015 15mm	1 LIBRICANT FREE
			G AIR TO OPEN	C C-PVC	1 PTFE+EPDM	N THREADED	D DIN	020 20mm	
			S AIR TO CLOSE	P PP	2 PTFE+FKM	P SPIGOT	A ANSI	025 25mm	
				F PVDF				032 32mm	
								040 40mm	
								050 50mm	

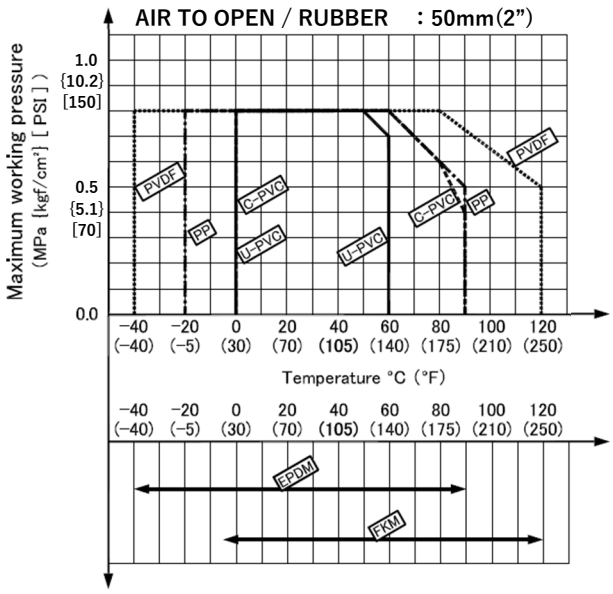
NOTE

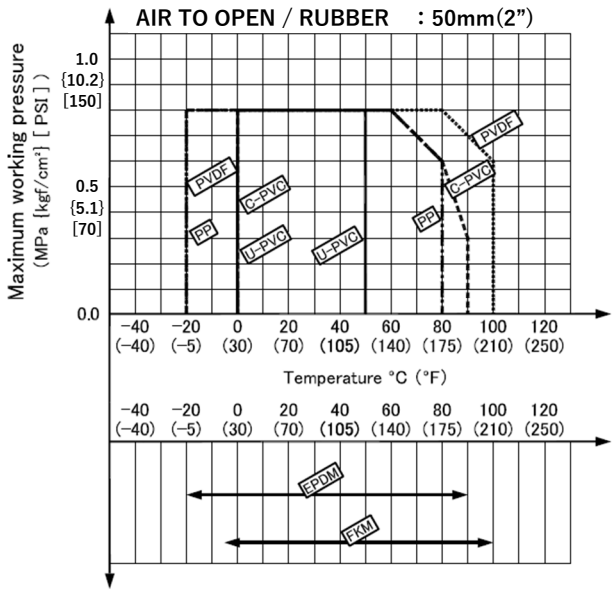
- JIS standard Socket end of the body material PVDF is not manufactured.
- JIS standard Socket end 32mm with PP body material is not manufactured.
- Connecting method Spigot type is only DIN standard and body material C-PVC is not manufactured.

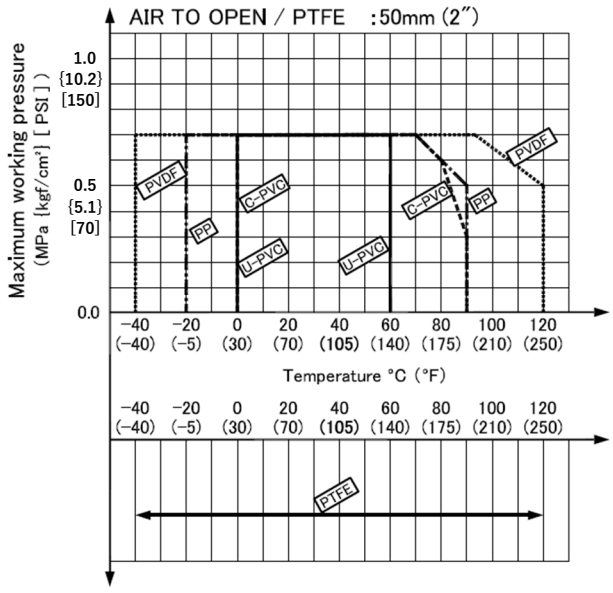
Relationship between maximum allowable pressure and temperature

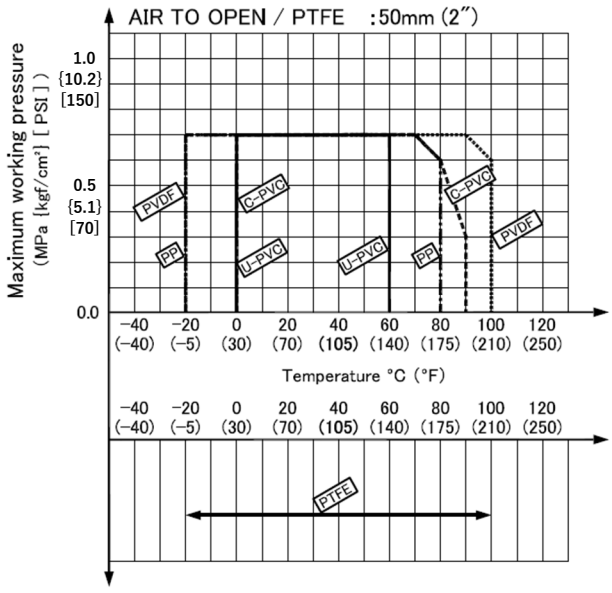






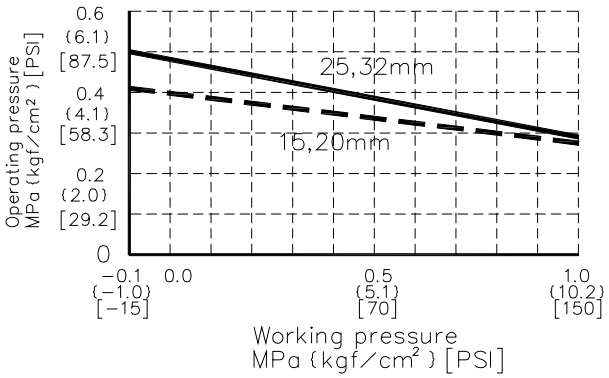


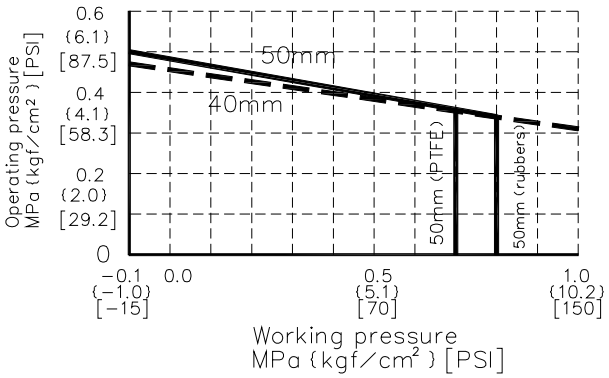




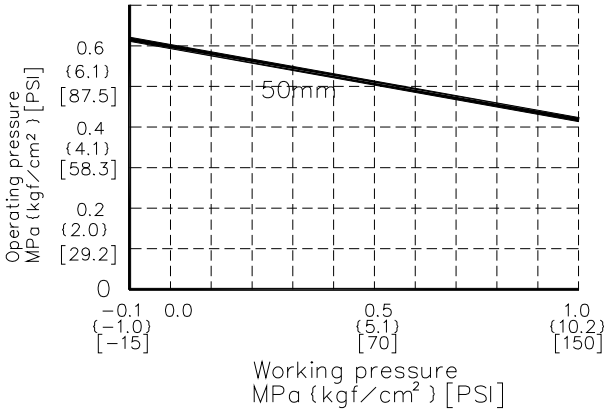
Relationship between operating pressure and operating pressure and opening

Working pressure—Operating pressure (air to open)

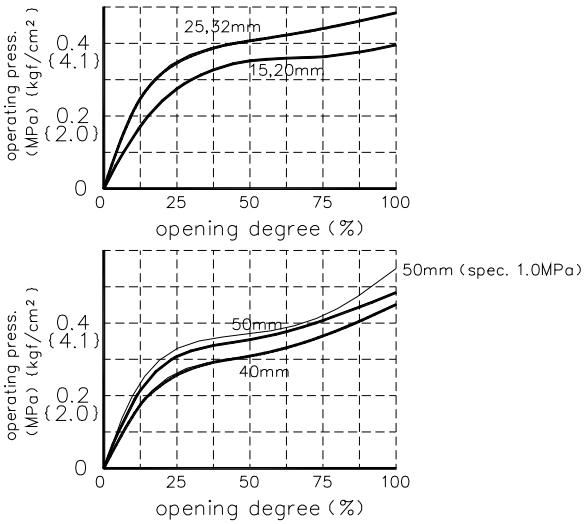




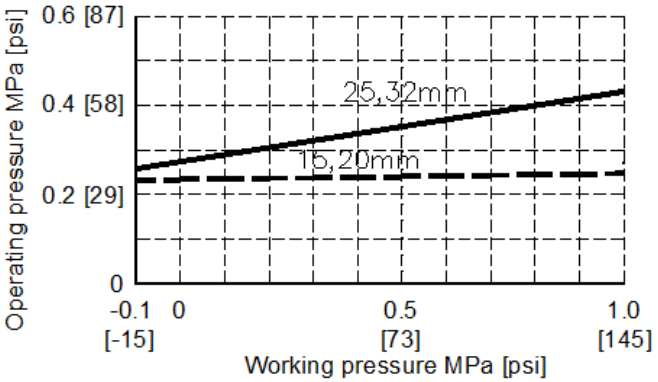
(spec.max.working pressure1.0MPa)

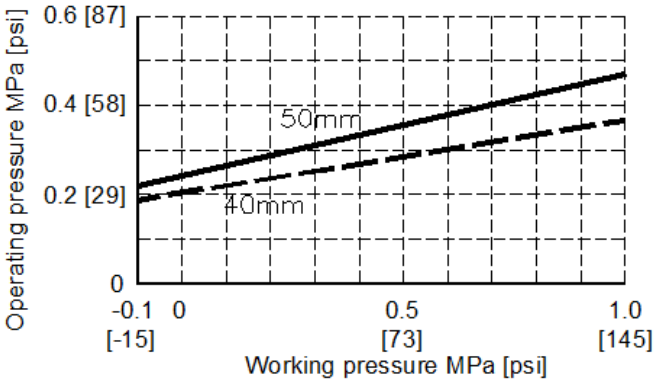


opening degree—operating press.
(working press.0)

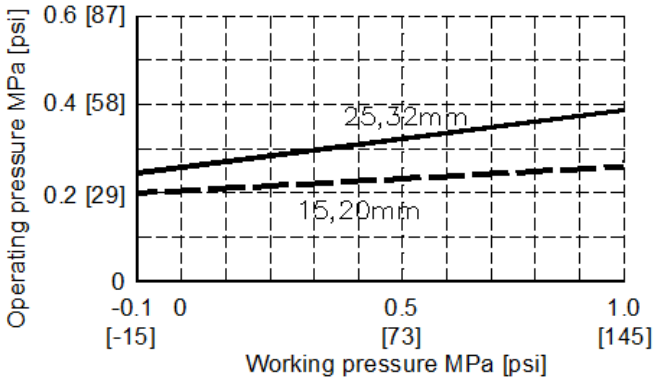


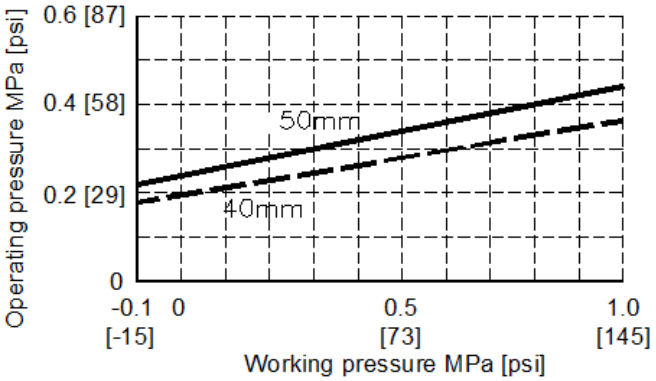
Working pressure-operating pressure (air to close)





Working pressure-operating pressure (double acting)





Actuator

Size (mm)		15、20	25、32	40	50
Operating pressure MPa {kgf/cm^2}	Double action, Air to open, Air to close	0.4～0.6 {4.1～6.1}			
Air consumption NL/ open/close (at 0.4MPa)	Double action	2.6	2.7	9.6	9.8
	Air to open	0.8	0.8	3.4	3.4
	Air to close	1.8	1.9	6.1	6.3
Air supply port size	Double action, Air to open, Air to close	Rc 1/4			

5. Optional specifications

Solenoid valve

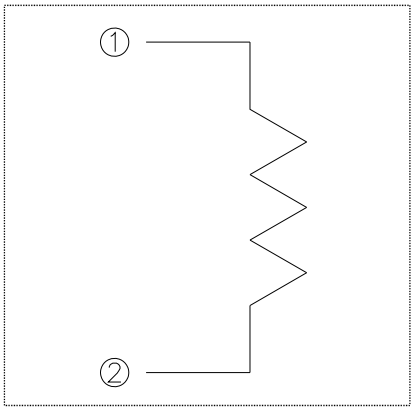
Operation	Size	Model code	Piping port size	Effective area	Power consumption	Additional functions
Double action Air to open Air to close	15～ 50mm	4N3S102K- W□-G31193	Rc 1/4	10mm^2 or higher	AC:6VA DC:5.5W	○Built-in bypass valve ○Installation of silencer with throttle valve (used as speed controller)

4N3S102K-W□-G31193

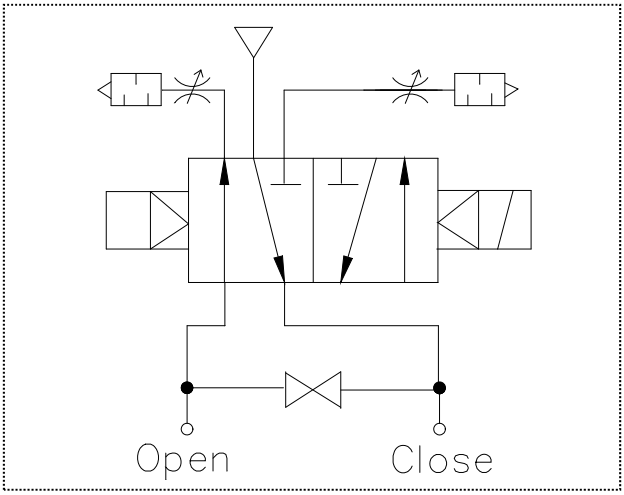
Rated current	Text entry
AC100V 50/60Hz	1
AC110V 50/60Hz	(2)
AC200V 50/60Hz	3
AC220V 50/60Hz	(4)
DC 24V	5

※ () Appended text is a special item.

Wiring diagram



JIS symbol



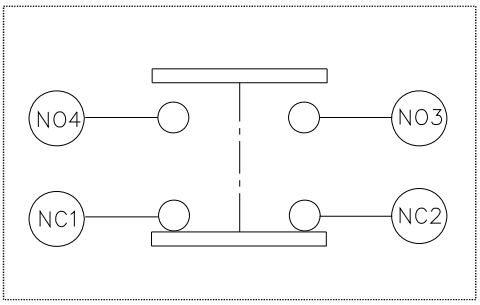
Limit switch

Operation	Size	Model code	Protection grade
Double action, Air to open, Air to close	15～50mm	1LS19-J	IP67(IEC529)

Limit switch rating

Rated current (V)	Resistance load (A)	Induction load (A)
AC125	10	6
AC250	10	6
DC115	0.8	0.2
DC230	0.4	0.1

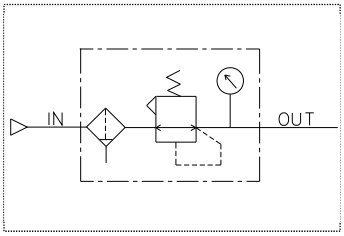
Internal circuit



Filter-regulator

Operation	Size	Model code	Piping port size	Element filtration rate
Double action Air to open Air to close	15～ 50mm	ARU2-02- 8A-G	Rc 1/4	5μm

JIS symbol

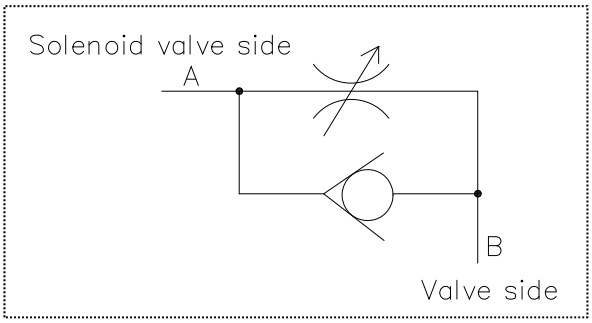


Speed controller

Operation	Size	Model code	Piping port size
Double action Air to open Air to close	15～ 50mm	SC7-08A	Rc 1/4

Operation	Effective area(mm^2)		Needle Revolution speed
	Free flow	Control flow	
Double action Air to open Air to close	11.0	8.3	8 rotations

JIS symbol



6. Piping method

Flange end

Warning	
Prohibition	**Serious injury can result.** ▶ When hanging or slinging a valve, pay sufficient attention to safety, and do not enter under the load.

Caution	
Prohibition	**The valve can be damaged, or leak.** ▶ Do not overtighten the cap nut. ▶ Do not use a pipe wrench to tighten the cap nut. ▶ Do not tighten the bolts and nuts for piping to the specified torque values in Table 6-2.
Forcing	**There is a danger of injury.** ▶ Be sure to perform safety inspections of the machine tool and power tool beforehand. ▶ Wear appropriate protective equipment according to the type of work being performed. **The valve can be damaged, or leak.** ▶ Install the product so that excessive stress such as tension, compression, bending or impact is not applied to the piping or valve. ▶ Fix the body cap during piping work or disassembly and reassembly. ▶ When attaching the valve to the end of the pipe, be sure to attach the cap nut and body cap on the secondary side (downstream side). ▶ When connecting to metal piping, do not apply piping stress to the valve. ▶ Use a connection flange with a full-face seat. ▶ Check that there is no difference in mutual flange standards. ▶ Be sure to use sealing gaskets (AV Gasket) between the flanges, and tighten the pipe bolts/nuts to the specified torque values in Table 6-2 "Flange tightening torque values." (When other than AV Gasket, the tightening torque value will change.) ▶ The misalignment and parallelism of the flange surface should be less than the values given in "Table 6-1 Axis misalignment and parallelism". ▶ Tighten the bolts and nuts for piping diagonally to the specified torque values in Table 6-2.

Preparations ▶ Torque Wrench ▶ AV Gasket

[Procedure]

1) Set packing between flanges.
2) Insert the washer and bolt from the connecting flange side. Insert the washer and nut from the valve side and tighten temporarily by hand.

⚠Caution

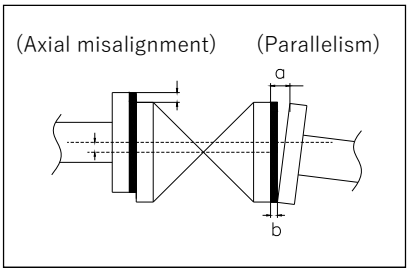
Forcing

Damage may occur.

▶ Keep the parallelism of the flange surface and the dimension of shaft misalignment below the values shown in the table below.
(The piping may be damaged due to stress applied to it.)

Table 6-1 Axis misalignment and parallelism

Size (mm)	Shaft misalignment	Parallelism (a-b)
15～32	1.0mm	0.5mm
40、50	1.0mm	0.8mm



3) Gradually tighten to the specified torque value diagonally (see Fig. 1) with a torque wrench.

⚠Caution

Prohibition

The valve can be damaged, or leak.

▶ Tighten the bolts and nuts of the connection flange diagonally to the specified torque.

Fig.1

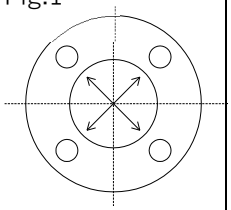


Table6-2 Flange Tightening Specified Torque Units: N-m {kgf･cm}

Size	15、20 mm	25～40mm	50mm
PTFE・PVDF (coated)	17.5{179}	20.0{204}	22.5{230}
Rubber	8.0{82}	20.0{204}	22.5{230}

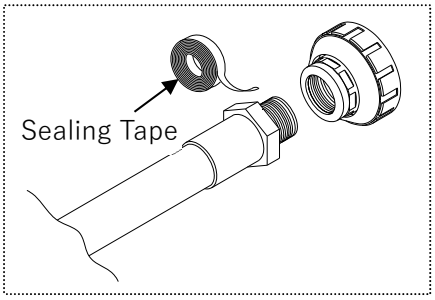
Threaded end

⚠Warning	
Prohibition	**Serious injury can result.** ▶ When hanging or slinging a valve, pay sufficient attention to safety, and do not enter under the load.

⚠Caution	
Prohibition	**The valve can be damaged, or leak.** ▶ Do not overtighten the screws at the joints. ▶ Do not overtighten the cap nut. ▶ Do not use a pipe wrench to tighten the cap nut.
Forcing	**There is a danger of injury.** ▶ Be sure to perform safety inspections of the machine tool and power tool beforehand. ▶ Wear appropriate protective equipment according to the type of work being performed. **The valve can be damaged, or leak.** ▶ The cap nut of this product is lightly tightened to make it easier to loosen. Be sure to remove the body cap before installation. ▶ Install the product so that excessive stress such as tension, compression, bending or impact is not applied to the piping or valve. ▶ Fix the body cap during piping work or disassembly and reassembly. ▶ When attaching the valve to the end of the pipe, be sure to attach the cap nut and body cap on the secondary side (downstream side). ▶ When connecting to metal piping, do not apply piping stress to the valve. ▶ Make sure that the screws at the joints are made of resin. ▶ Use sealing tape for the sealing material of the screw-in part. If liquid sealant or liquid gasket is used, stress cracking (environmental stress cracking) may occur.

Preparations ▶ Sealing tape ▶ Belt wrench ▶ wrench

[Procedure]



1) Wrap sealing tape around the male thread of the fitting, leaving approximately 3mm at the end.
2) Loosen the cap nut [26] with a belt wrench.
3) Remove cap nut [26] and body cap [25].
4) Tighten the male thread of the fitting and the body cap [25] until tight by hand.
5) Screw on the body cap [25] by 1/2 to 1 turn with a wrench to prevent scratching.
6) Check that the O-ring (C) [27] is installed correctly.
7) Contact the body cap [25] and the cap nut [26] with the O-ring (C) [27] so that they do not come off.
8) Tighten the cap nut [26] by hand until it is tight.
9) Screw the cap nut [26] 1/4 to 1/2 turn with a belt wrench to avoid damage.

Socket end (adhesive)

⚠ Warning	
Prohibition	**Serious injury can result.** ▶ When hanging or slinging a valve, pay sufficient attention to safety, and do not enter under the load. **Fire or an explosion can result.** ▶ Ensure adequate ventilation when using adhesives and do not use open flames in the surroundings.

⚠ Caution	
Prohibition	**There is a danger of injury.** ▶ The adhesive contains volatile solvents, so do not inhale odors directly. **The valve can be damaged, or leak.** ▶ Do not apply too much adhesive. Excessive adhesive will flow into the valve. ▶ Do not strike the pipe when inserting it into the body cap. ▶ Do not overtighten the cap nut. ▶ Do not use a pipe wrench to tighten the cap nut.
Forcing	**There is a danger of injury.** ▶ Be sure to perform safety inspections of the machine tool and power tool beforehand. ▶ Wear appropriate protective equipment according to the type of work being performed. ▶ If the adhesive adheres to the skin, remove it immediately. ▶ If you feel worse or feel unusual when using the adhesive, promptly seek a doctor's diagnosis and take appropriate action. **The valve can be damaged, or leak.** ▶ The cap nut of this product is lightly tightened to make it easier to loosen. Be sure to remove the body cap before installation. ▶ Install the product so that excessive stress such as tension, compression, bending or impact is not applied to the piping or valve. ▶ Fix the body cap during piping work or disassembly and reassembly. ▶ When attaching the valve to the end of the pipe, be sure to attach the cap nut and body cap on the secondary side (downstream side). ▶ Be careful when constructing under low temperature, as solvent vapor is less likely to evaporate and tends to remain. ▶ After piping, open both ends of the pipe and use a blower (low-pressure type) to ventilate to remove the solvent vapor. ▶ Use "AV Cement" depending on the material. ▶ Perform the water flow test after 24 hours or more have elapsed after completion of bonding.

[Procedure]

1) Loosen the cap nut [26] with a belt wrench.
2) Remove cap nut [26] and body cap [25].
3) Thread the cap nut [26] to the pipe side.
4) Wipe off the socket part of the body cap [25] with a waste cloth.
5) Apply adhesive evenly to the body cap socket and pipe socket.

⚠Caution	
Forcing	**Damage or leakage may occur.** ▶ Be careful not to apply too much adhesive. (If adhesive enters the valve, it may cause malfunction or internal leakage, or it may cause a solvent crack or damage.)

Amount of adhesive used (reference)

Size (mm)	15	20	25	32	40	50
Amount used (g)	1.0	1.3	2.0	2.4	3.5	4.8

6) After applying the adhesive, quickly insert the pipe into the body cap [25] and hold for at least 60 seconds.

⚠Caution	
Prohibition	**Doing so may damage the tube.** ▶ Never insert by tapping the connector.

7) Wipe off any excess adhesive.
8) Check that the O-ring (C) [27] is fitted correctly.
9) Bring the body cap [25] and the cap nut [26] into contact with the body so that the O-ring (C) [27] does not come off.
10) Tighten the cap nut [26] by hand until it is tight.
11) Screw the cap nut [26] 1/4 to 1/2 turn with a belt wrench to avoid damage.

Socket end, spigot end (fusing)

Warning	
Prohibition	**Serious injury can result.** ▶ When hanging or slinging a valve, pay sufficient attention to safety, and do not enter under the load.

Caution	
Prohibition	**The valve can be damaged, or leak.** ▶ Do not overtighten the cap nut. ▶ Do not use a pipe wrench to tighten the cap nut.
Forcing	**There is a danger of injury.** ▶ Be sure to perform safety inspections of the machine tool and power tool beforehand. ▶ Wear appropriate protective equipment according to the type of work being performed. **The valve can be damaged, or leak.** ▶ The cap nut of this product is lightly tightened to make it easier to loosen. Be sure to remove the body cap before installation. ▶ Install the product so that excessive stress such as tension, compression, bending or impact is not applied to the piping or valve. ▶ Fix the body cap during piping work or disassembly and reassembly. ▶ When attaching the valve to the end of the pipe, be sure to attach the cap nut and body cap on the secondary side (downstream side).

Preparations ▶ Belt Wrench ▶ Welding Machine ▶ Welding Machine Operation Manual

[Procedure]

1) Loosen the cap nut [26] with a belt wrench.
2) Remove cap nut [26] and body cap [25].
3) Thread the cap nut [26] to the pipe side.
4) From here, please refer to the manual of the welding machine.
5) After completing the welding, check that the O-ring (C) [27] is installed.
6) Contact the body cap [25] and the cap nut [26] with the O-ring (C) [27] so that they do not come off.
7) Tighten the cap nut [26] by hand until it is tight.
8) Screw the cap nut [26] 1/4 to 1/2 turn with a belt wrench to avoid damage.

Support of the product

The mounting (panel) and the piping method

⚠Caution	
Prohibition	**The valve can be damaged, or leak.** ▶ Do not over-tighten when supporting piping with a U-band, etc. ▶ When installing a valve in the piping around the pump, do not cause large vibrations in the valve.
Forcing	**There is a danger of injury.** ▶ Be sure to perform safety inspections of the machine tool and power tool beforehand. ▶ Wear appropriate protective equipment according to the type of work being performed. **The valve can be damaged, or leak.** ▶ Do not over-tighten when supporting piping with a U-band, etc. ▶ Install the product so that excessive stress such as tension, compression, bending or impact is not applied to the piping or valve. ▶ The cap nut of this product is lightly tightened to make it easier to loosen. Be sure to remove the body cap before installation. ▶ Fix the body cap during piping work or disassembly and reassembly. ▶ When attaching the valve to the end of the pipe, be sure to attach the cap nut and body cap on the secondary side (downstream side). ▶ When connecting a resin valve to metal piping, make sure that no piping stress is applied to the resin valve. ▶ Make sure that the screws at the joints are made of resin. ▶ Use sealing tape for the thread joints of our resin piping materials. ▶ Install it vertically when screwing in the Ensat. ▶ For detailed handling of the special tool for installation of the entertainment, refer to the User's manual of the entertainment manufacturer separately.

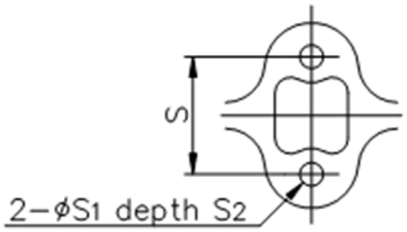
<When attaching the embosser (commercially available) to the bottom stand>

[Procedure]

Refer to the User's manual of the entertainment (commercially available).

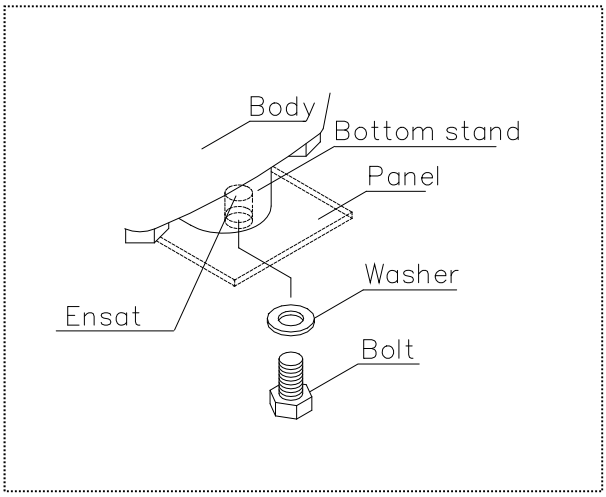
Bottom stand dimensions

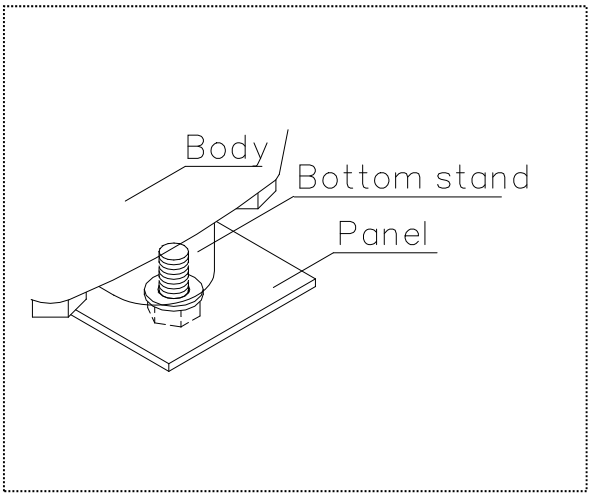
Size (mm)	S	S_1	S_2
15	25	7	13
20	25	7	13
25	25	7	13
32	25	7	13
40	45	9	15
50	45	9	15



<When fixing the bottom stand and frame (panel)>

Steps





How to install support

⚠Caution	
Prohibition	**The valve can be damaged, or leak.** ▶ Do not over-tighten when supporting piping with a U-band, etc. ▶ When installing a valve in the piping around the pump, do not cause large vibrations in the valve.
Forcing	**There is a danger of injury.** ▶ Be sure to perform safety inspections of the machine tool and power tool beforehand. ▶ Wear appropriate protective equipment according to the type of work being performed. **The valve can be damaged, or leak.** ▶ Install the product so that excessive stress such as tension, compression, bending or impact is not applied to the piping or valve. ▶ When attaching the valve to the end of the pipe, be sure to attach the cap nut and body cap on the secondary side (downstream side). ▶ When connecting a resin valve to metal piping, make sure that no piping stress is applied to the resin valve.

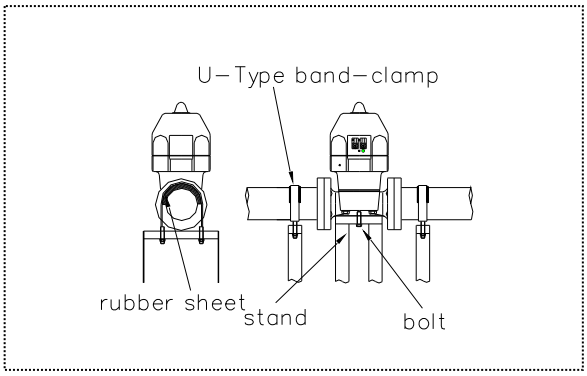
Preparations ▶ Spanner ▶ U-band (with bolt) ▶ Rubber seat

Horizontal piping

When using an entertainment and installing supports

▶ Secure the entertainment section and the frame provided at the bottom of the valve with bolts.

▶ Lay a rubber sheet on the top of the pipe section and secure it with the U-band.

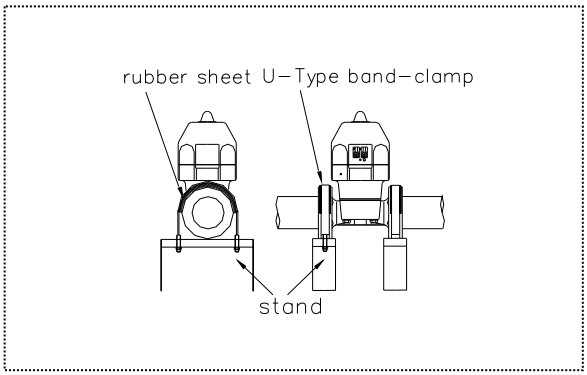


Bolt size

Size	15～32 mm	40～50 mm
Nominal	M5	M6

If you do not use an Ensat and install a support (with a flange-shaped body cap)

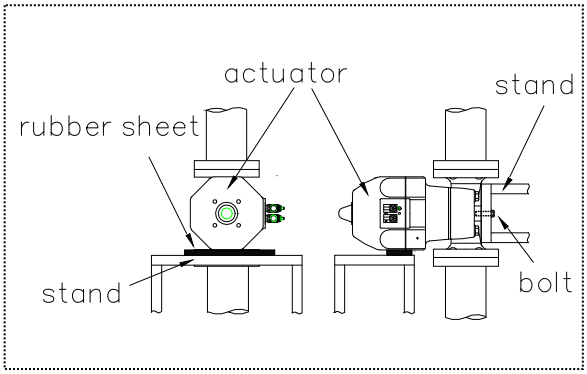
▶ Lay a rubber sheet on the flange part of the valve and secure it with the U-band.



Vertical piping

▶ Secure the Ensat section and the frame provided at the bottom of the valve with bolts.

▶ Lay a rubber sheet on the actuator part and support it with the frame.



7. Air piping method

<1> Without option or with speed controller

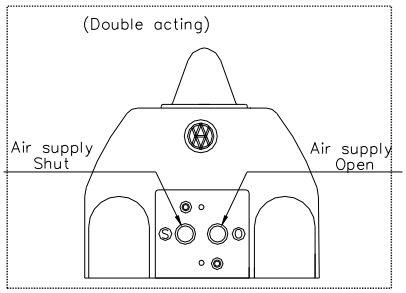
Warning	
Prohibition	**There is a danger of injury.** ▶ Do not remove the protective plug until just before connecting the air piping.

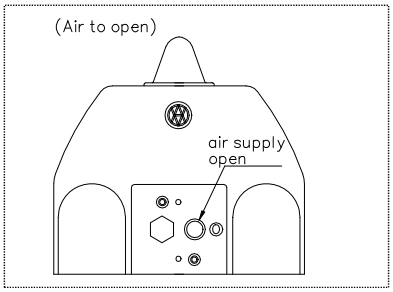
Caution	
Prohibition	**Damage may occur.** ▶ Do not over-tighten the fitting for air piping.
Forcing	**There is a danger of injury.** ▶ Wear appropriate protective equipment according to the type of work being performed. **Otherwise damage or malfunction can result.** ▶ Confirm the connection location, air piping size, and screw type from the approval delivery drawing etc. of the product, and then connect the air piping. ▶ Use clean, dehumidified and dust-free air. Consult with CKD when using high dry air with a dew point of-40° C or less. ▶ When using at an ambient temperature of 5° C or less, remove moisture from the operation air to prevent freezing. ▶ When using copper piping for air piping, use one with rust-proof treatment on the inner surface of the pipe. ▶ Flush the inside of the air piping thoroughly before connecting the air piping. ▶ When connecting the air piping, be careful that foreign matter, such as sealant, does not enter the piping. ▶ Be sure to remove burrs from the pipe fittings/threads. (This may cause gargle or air leakage.)

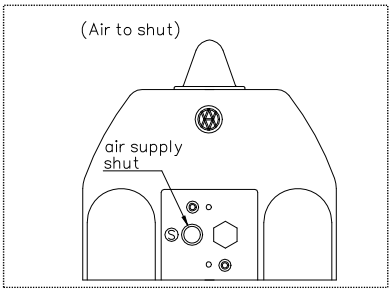
Preparations	▶ Copper or tube for air piping ▶ Copper or tube fittings ▶ Sealing tape	▶ Wrench

[Procedure]

1) Wrap sealing tape around the male thread of the fitting leaving the end 3mm.
2) Tighten the fitting to the piping port of the actuator.
3) Screw the fitting in one turn with a wrench.
4) Install copper or tube for air piping.







※Although the picture shows no speed controller, the piping procedure is the same.

<2> **With solenoid valve and filter regulator**

Warning	
Prohibition	**There is a danger of injury.** ▶ Do not remove the protective plug until just before connecting the air piping.

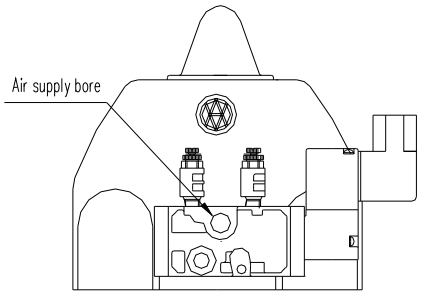
Caution	
Prohibition	**Damage may occur.** ▶ Do not over-tighten the fitting for air piping.
Forcing	**There is a danger of injury.** ▶ Wear appropriate protective equipment according to the type of work being performed. **Otherwise damage or malfunction can result.** ▶ When using copper piping for air piping, use one with rust-proof treatment on the inner surface of the pipe. ▶ Flush the inside of the air piping thoroughly before connecting the air piping. ▶ When connecting the air piping, be careful that foreign matter, such as sealant, does not enter the piping. ▶ Be sure to remove burrs from the pipe fittings/threads. (Scoring or air leakage occurs) ▶ Do not over-tighten the fitting for air piping. ▶ Be sure to lock the adjustment knob of the solenoid valve after adjustment. ▶ Regularly drain the drain from the pressure regulator with filter. ▶ Set the secondary pressure of the regulator with filter to a setting that meets the equipment specifications. (Otherwise, malfunction or failure may result.)

Preparations	▶ Copper or tube for air piping ▶ Copper or tube fittings ▶ Sealing tape	▶ Wrench

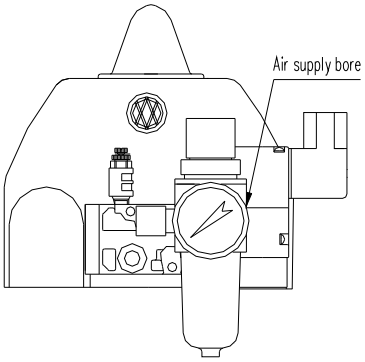
[Procedure]

1) Wrap sealing tape around the male thread of the fitting leaving the end 3mm.
2) Tighten the fitting to the air piping port (see Fig. 1 and Fig. 2) with a fitting.
3) Screw the fitting in one turn with a wrench.
4) Install copper or tube tubes for air piping.

(Fig. 1) With solenoid



(Fig. 2) With solenoid valve and pressure regulator with filter



8. Wiring method

Limit switch

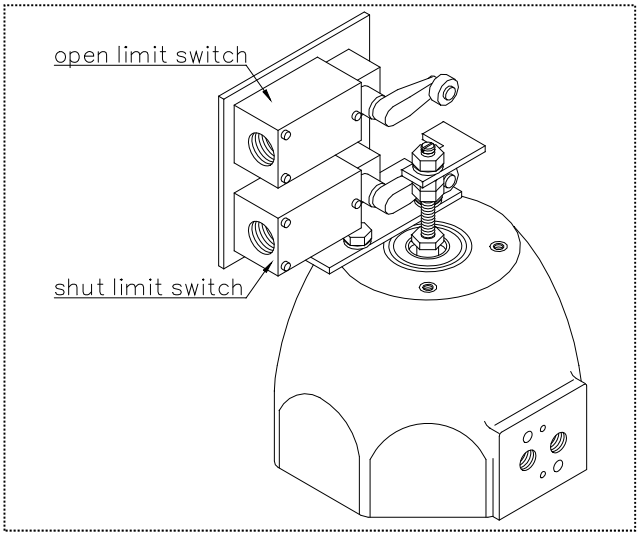
Warning	
Prohibition	**There is a risk of electric shock.** ▶ Do not perform wiring while the power is on.

Caution	
Prohibition	**Otherwise failure or malfunction of the machine can result.** ▶ If the product is installed outdoors or in a location where there is a possibility of rainwater or moisture intrusion, make sure that rainwater, etc. does not enter through the wiring port.
Forcing	**There is a danger of injury.** ▶ Be sure to perform safety inspections of the machine tool and power tool beforehand. ▶ Wear appropriate protective equipment according to the type of work being performed. **Otherwise failure or malfunction of the machine can result.** ▶ Connect the wires using solderless terminals with insulation covering so that they do not come into contact with the cover or housing. (If the crimp terminal comes into contact with the cover, the cover may not close and may cause a ground fault.) ▶ Contact CKD when using a limit switch in a 1mA～100mA, 5～30VDC.

Preparations	▶ Phillips screwdriver ▶ connector (G1/2) ▶ Compressed Terminal ▶ Wire Stripper ▶ Terminal crimping tool

[Procedure]

1) Loosen the three screws holding the limit switch cover with a Phillips screwdriver and remove the cover.
(The screws are structured so that they do not come off the cover.)



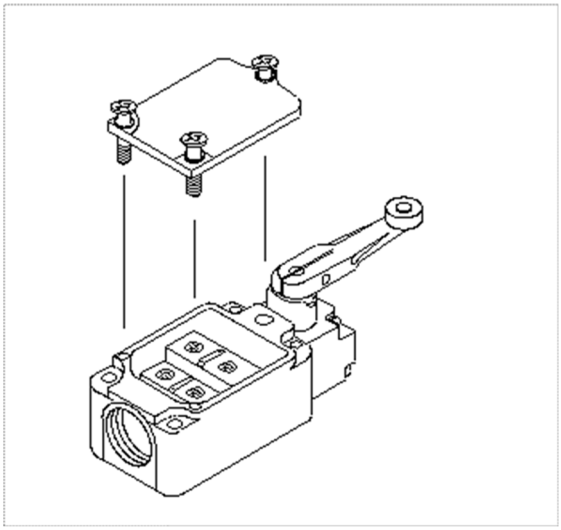
2) Pull off the resin protective cap.

3) Pass the cable through the connector.

4) Peel off the outer skin of the cable with a wire stripper.

5) Use a terminal crimping tool to attach the crimping terminal to the lead wire.

6) Wire the terminal screws with a Phillips screwdriver according to the internal circuit diagram on"**5. Optional specifications**".
*Tighten the screws securely.



7) Tighten the three screws holding the limit switch cover with a Phillips screwdriver to attach the cover.

8) Tighten the cable with the connector.

Solenoid valve

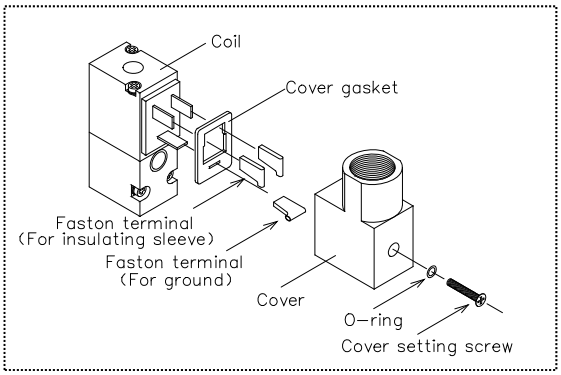
⚠Warning	
Prohibition	**There is a risk of electric shock.** ▶ Do not connect or separate lines to the solenoid valves while the power is on. ▶ Do not perform any work with wet hands or tools.

⚠Caution	
Forcing	**There is a danger of injury.** ▶ Be sure to perform safety inspections of the machine tool and power tool beforehand. ▶ Wear appropriate protective equipment according to the type of work being performed. **Otherwise, the machine may malfunction.** ▶ Be sure to lock the adjustment knob of the solenoid valve after adjustment.

Preparations	▶ Phillips screwdriver	▶ Terminal crimping tool
	▶ Connector (G1/2)	▶ Wire stripper

[Procedure]

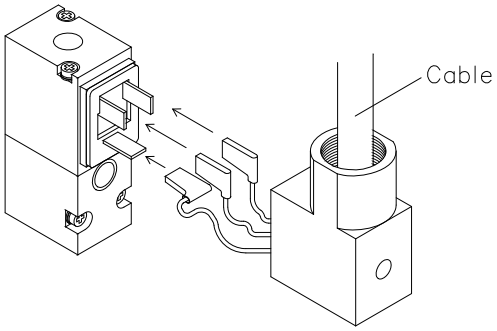
1) Loosen the cover set screw with a Phillips screwdriver and remove the cover.
*Do not lose the O-ring.
(There is a risk of electric leakage or electric shock.)



2) Pull out the Faston terminal and insulation cover that are inserted to the coil side terminal.
*The grounding terminal is not provided with an insulating sleeve.

3) Pass the cables in the order of the connector and cover.

4) Peel off the outer skin of the cable with a wire stripper.



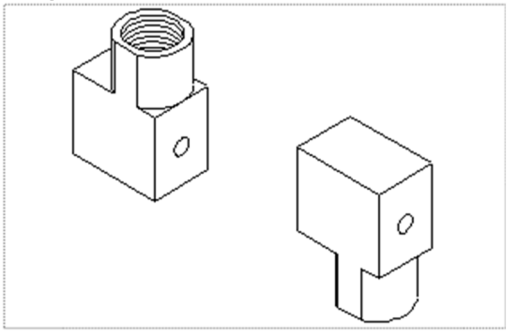
5) Pass the lead wire through the insulation cover.

6) Use a terminal crimping tool to attach the Faston terminal to the lead wire.

7) Insert the Faston terminal into the coil side terminal and put the insulation cover on.

8) Attach the cover with the cover set screw.
[The cover can be mounted either with the wiring outlet at the top or bottom.(Fig. 1)]

(Fig 1)



9) Tighten the cable with the connector.

9. Commissioning method

Air Operation

⚠Warning	
Prohibition	**Serious injury can result.** ▶ Do not supply air during manual operation.

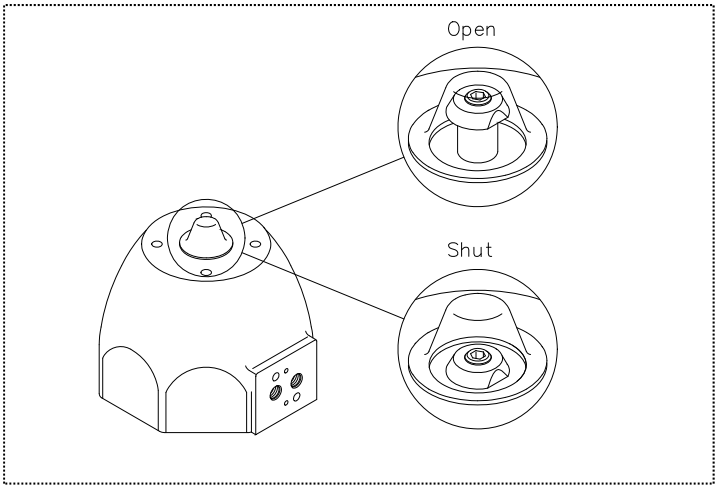
⚠Caution	
Prohibition	**You may be electrocuted or injured.** ▶ For models with solenoid valves, do not leave the solenoid valve terminal cover removed. ▶ Keep hands free of moisture and oil during operation.
Forcing	**Doing so may cause operation to fail.** ▶ Ensure that the supplied air pressure is at least 0.4MPa{4.1kgf/cm2.

[**Procedure**]

1) Supplies air to the air supply port.

2) Check that the air supply side is aligned with the stopper [43] position.
*With full opening adjustment mechanism (option), there is no stopper [43]. Check opening and closing with fluid flow.

3) Stop the air supply.



<**For models with solenoid valve**>
[**Procedure**]

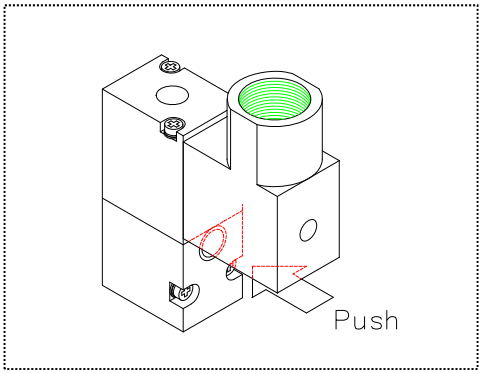
1) Supplies air to the solenoid valve.

2) Check that the operation shown in the table below is achieved by pressing the push button (Fig. 1) next to the solenoid valve terminal cover with your finger.

3) Confirm that the solenoid valve is operated as shown in the table below by energizing or de-energizing.

4) Turn off the power to the solenoid valve.

(Fig1)



Push button	Power supply	Recovery/Air to open	Air to close
Press	Energizing	Valve fully open	Valve fully closed
Do not press	De-energizing	Valve fully closed	Valve fully open

Adjusting the Opening/Closing Speed <Double action>

⚠Caution	
Prohibition	**Otherwise damage to the solenoid valve or malfunction can result.** ▶ Be sure to lock the adjustment knob of the solenoid valve after adjustment. (Do not tighten the lock nut with excessive force.)

Preparations ▶ Wrench

[Procedure]

1) Turn the adjustment knobs of both open and close speed controllers clockwise until they do not turn.
*Do not turn it too forcibly.
(risk of damage)

2) Supplies air to the solenoid valve.

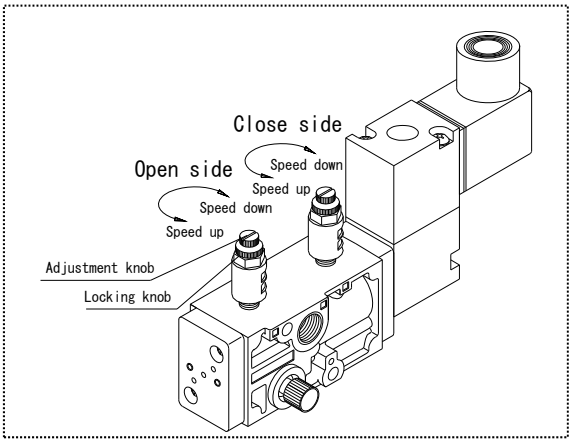
3) Energize the solenoid valve side and turn the adjusting knob of the open-side speed controller counterclockwise little by little.

4) Turn off the solenoid valve side and turn the adjusting knob of the closed side speed controller counterclockwise little by little.

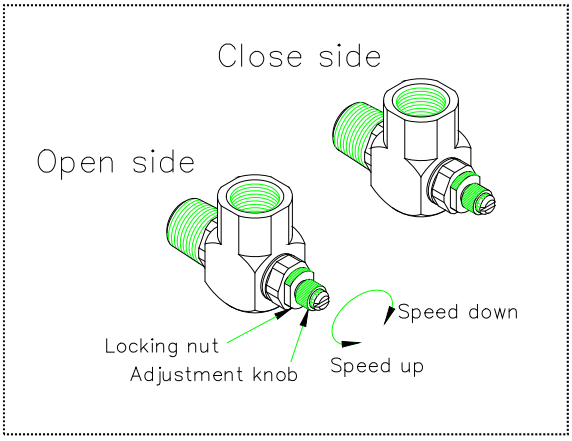
5) 3), Repeat 4) to set the desired opening/closing speed.

6) When the desired speed is achieved, hold the adjustment knob with your finger and rotate the lock nut clockwise with the spanner to secure the adjustment knob.
*Do not tighten the lock nut with excessive force.
(risk of damage)

With a solenoid valve



For models with speed controller



Opening/Closing Speed Adjustment Method <Single Action (Air to open/Air to close)>

⚠Caution	
Prohibition	**Otherwise damage to the solenoid valve or malfunction can result.** ▶ Be sure to lock the adjustment knob of the solenoid valve after adjustment. (Do not tighten the lock nut with excessive force.)

Preparations ▶ Wrench

The direction in which the speed can be adjusted differs depending on the operating model.

Actuation type	Speed at which it opened	Speed at which it closes
Air to open	Cannot adjust	Can be adjusted
Air to close	Can be adjusted	Cannot adjust

[Procedure]

1) Turn the speed controller adjustment knob clockwise until it does not turn.
Do not turn it too forcibly.
(risk of damage)

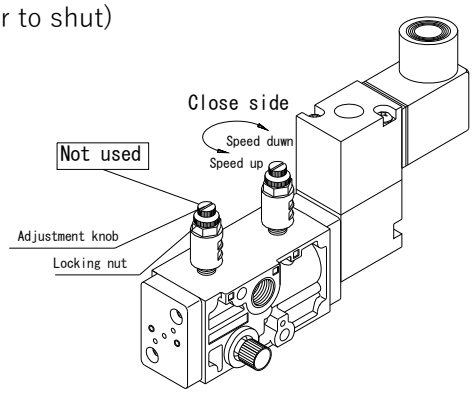
2) Supplies solenoid valve air.

3) After energizing the solenoid valve, turn off the power, and turn the speed controller adjustment knob counterclockwise little by little to set the desired opening/closing speed.

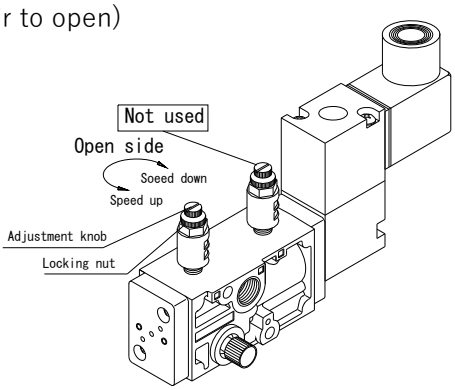
4) When the desired speed is achieved, hold the adjustment knob with your finger and rotate the lock nut clockwise with the spanner to secure the adjustment knob.
*Do not tighten the lock nut with excessive force.
(risk of damage)

With a solenoid valve

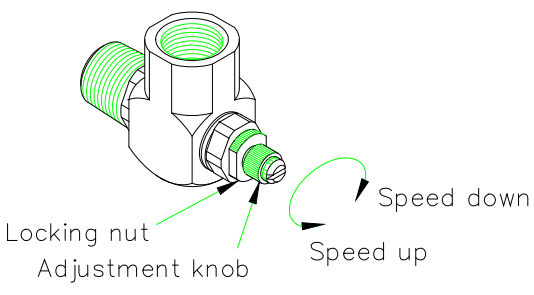
(Air to shut)



(Air to open)



For models with speed controller



10. How to adjust and operate stoppers

Warning	
Prohibition	**Serious injury can result.** ▶ When operating the actuator with air, never touch the drive section.

Caution	
Forcing	**The valve can be damaged, or leak.** ▶ If the stopper is loose or internal leakage occurs when the valve is fully closed, the stopper may not be functioning. Adjust the stopper. ▶ Tighten the stoppers securely. (If the tightening torque of the stoppers is insufficient, the stoppers may become loose.)

<How to adjust the stopper>

Preparations	▶ Wrench	▶ Flat-blade screwdriver

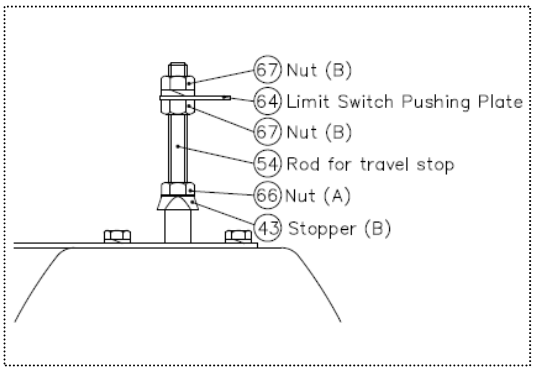
[Procedure]

1) Remove gauge cover [11] using a flathead screwdriver.
※Do not damage O-ring[14].
2) Fully open the valve by air operation.
3) Loosen the nut [21] with the wrench while holding the stopper [43] with the wrench.
4) Remove stopper [43] from indicator rod [41].
5) Fully close the valve with air.
6) Fit stopper [43] on indicator rod [41] and tighten until it cannot be turned by hand.
7) Rotate stopper [43] clockwise with a spanner until the fluid starts to leak slightly.
8) Turn stopper [43] counterclockwise 1/4 to 1/2 turn from the position of step 7.
9) Secure stopper [43] with wrench and tighten nut [21] with wrench.
10) Repeat fully opening ⇔ closing the valve by air operation to check for fluid leakage.
※If there is fluid leakage, stop [43] counter-clockwise with wrench after steps 2 and 3 until there is no leakage turn 1/4 turn and return to step 9.
11) Install gauge cover [11].

▶ With limit switch

Preparations ▶ Wrench

[Procedure]



1) Fully open the valve by air operation.
2) Loosen the upper part of the nut (B) [67] with a wrench while holding the lower part of the nut (B) [67] with a wrench.
3) Remove the nut (B) [67], limit switch retainer [64] and spring washer from the opening adjusting rod [54].
4) Loosen the nut (A) [66] with the wrench while holding the stopper [43] with the wrench.
5) Remove the stopper [43] from the opening adjusting rod [54].
6) Fully close the valve with air.
7) Attach the stopper [43] to the opening adjusting rod [54] and tighten until it cannot be turned by hand.
8) Rotate stopper [43] clockwise with a spanner until the fluid starts to leak slightly.
9) Turn stopper [43] counterclockwise 1/4 to 1/2 turn from the position of step 8.
10) Secure stopper [43] with wrench and tighten nut (A) [66] with wrench.
11) Repeat fully opening ⇔ closing the valve by air operation to check for fluid leakage.
※If there is fluid leakage, turn stopper [43] counterclockwise with wrench after step 4 until there is no leakage 1/4 turn to return to step 10.
12) Mount the nut (B) [67], limit switch retainer [64], spring washer, and nut (B) [67] on the opening adjusting rod [54] by hand in the order of the upper.
13) Adjust the direction and vertical position of the limit switch retainer [64].
14) Fix the lower side of the nut (B) [67] with a wrench and tighten the upper side of the nut (B) [67] with a wrench.
15) Repeat the full open ⇔ full close operation of the valve with air, and check whether the limit switch operates normally.
※If the limit switch does not operate normally, return to step 13 and perform the adjustment again.

<Full opening adjustment method (full opening adjustment mechanism is optional)>

Preparations	▶ Wrench	▶ Hex Wrench	▶ Flat-blade screwdriver

[Procedure]

1) Remove gauge cover [11] using a flathead screwdriver.
   ※Do not damage the O-ring (A) [14].
2) Fully close the valve with air.
3) Fix the opening adjustment bolt [56] with a hex wrench, and loosen the opening adjustment nut [56] with a wrench.
4) Adjust the opening adjustment bolt [56] until the opening to be adjusted this time is reached.
5) Fix the opening adjustment bolt [56] with a hex wrench and tighten the opening adjustment nut [56] with a wrench.
6) Fully open the valve with air and check the opening.
   ※To adjust the opening again, return to step 2.
7) Install gauge cover [11].

<Manual operation method (manual operation mechanism is an option for air to open only)>

Preparations	▶ Wrench	▶ Hex Wrench	▶ Flat-blade screwdriver

[Procedure]

1) Remove gauge cover [11] using a flathead screwdriver.
   ※Do not damage the O-ring (A) [14].
2) Fully open the valve by air operation.
3) Secure stopper [43] with wrench and loosen nut [21] with wrench.
4) Remove stopper [43] from indicator rod [41].
5) Loosen the indicator rod [41] completely with an Allen wrench and remove.
6) Exhaust air from the actuator to the fully closed position.
7) Pass the thrust ring for manual operation [53] through the manual operation shaft [52].
8) Mount the manual override shaft [52] in the same position as the indicator rod [41].
9) Operate the manual operation shaft [52] with a wrench.
   ▶ Valve open direction: Manual override shaft rotates clockwise
   ▶ Valve closing direction: Manual override shaft rotates counterclockwise
10) After manual operation is complete, remove the manual operation shaft [52] and the thrust ring for manual operation [53].
11) Refit the indicator rod [41].
12) Adjust the stopper.
    ※Follow the procedure from step 2 in How to adjust the stopper on page 42.

11. How to disassemble/assemble for parts replacement

If internal leakage (seat leakage) or external leakage occurs when the valve is fully closed, the leakage may be improved by replacing the parts.
If the leak does not improve after replacing the parts, remove and replace the valve according to this item.

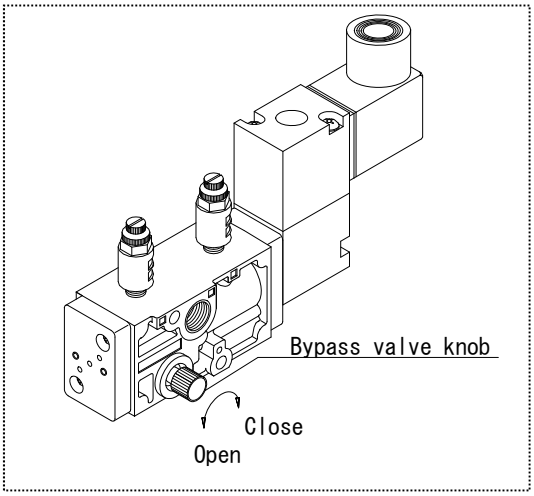
Warning	
Prohibition	**There is a danger of injury.** ▶ Do not disassemble the actuator. ▶ When operating the actuator with air, never touch the drive section.
Forcing	**There is a danger of injury.** ▶ Be sure to perform safety inspections of the machine tool and power tool beforehand. ▶ When installing piping, be sure to wear the appropriate protective equipment according to the operation details.

Caution	
Prohibition	**Damage may occur.** ▶ When replacing the valve or replacing parts, completely drain the fluid from the piping to reduce the fluid pressure to zero. ▶ Do not over tighten the cap nut. ▶ Do not use a pipe wrench when tightening the cap nut.
Forcing	**Damage may occur.** ▶ Fix the body cap during piping installation or disassembly and reassembly. ▶ Be sure to confirm that the cap nut is fully tightened before the water flow test. ▶ Tighten the cap nut paying attention to the shaft center misalignment and face-to-face dimension. ▶ When connecting a resin valve to metal piping, be careful not to apply piping stress to the resin valve.

Preparations	▶ Wrench	▶ Protective gloves	▶ Protective goggles

<**Disassembly**>
[**Procedure**]

1) Completely drain the fluid in the piping.
2) Close the main valve of the air. If the valve is equipped with a solenoid valve, open the bypass valve to exhaust air from the actuator.
3) Disconnect air piping. (Do not remove the air piping for reverse operation)
4) Completely loosen the bolts (B) [40] between the body and the actuator. (For reverse operation, if air is put in the actuator and disassembled, the operation can be smoothly performed.)
5) Remove actuator parts [28], [29] and [30].
6) Remove the diaphragm [3] by turning it 90° .
7) Remove the compressor [6].
8) Remove the joint fittings [7].
9) Remove the compressor retainer [33].



<**Assembly**>
[**Procedure**]

1) Follow the procedure from 9) in reverse. (Refer to Table 1 for the body tightening torque.)

(Table 1) Bonnet tightening torque value Units: N•m{kgf・cm}

Size / Diaphragm	15 mm、20 mm	25 mm、32 mm	40mm	50mm
Rubber	3.0 {31}	5.0 {51}	12.0 {122}	15.0 {153}
PTFE	5.0 {51}	8.0 {82}	15.0 {153}	20.0 {204}

How to install the full-opening adjustment mechanism

Preparations ▶ Wrench ▶ Hex Wrench ▶ Flat-blade screwdriver

[Procedure]

1) Remove gauge cover [11] using a flathead screwdriver.
※Do not damage the O-ring (A) [14].
2) Fully open the valve by air operation.
3) Secure stopper [43] with wrench and loosen nut [21] with wrench.
4) Remove stopper [43] from indicator rod [41].
5) Completely loosen the indicator rod [41] with an Allen wrench and remove it from the actuator.
6) Mount the opening adjusting rod [54] at the same position as the indicator rod [41] and tighten it securely with an Allen wrench.
7) Attach the opening adjustment base [55] to the top of the actuator and tighten it securely with a wrench.
8) Attach the opening adjustment bolt [56] to the opening adjustment base [55].
9) Adjust the opening adjustment bolt [56] until the opening to be adjusted this time is reached.
10) Install opening adjustment nut [56] to opening adjustment bolt [56].
11) Fix the opening adjustment bolt [56] with a hex wrench, and tighten the opening adjustment nut [56] firmly with a wrench.
12) Fully open the valve with air and check the opening.
※To perform re-opening adjustment, loosen the opening adjustment nut [56] and return to Step 9.
13) Install gauge cover [11].

12. Inspection item

⚠Caution	
Forcing	**Fluid may leak from the valve or the actuator may fail.** ▶ Maintenance should be performed every 3 to 6 months as a guide in order to keep the watch in normal condition and use it for a long time. Pay particular attention to temperature changes and aging during long-term storage or shutdown or use. **You may be electrocuted or injured.** ▶ Turn off the power before removing the actuator cover. ▶ When removing the valve from the piping when replacing the valve or parts, completely remove the fluid from the piping before starting work. ▶ If any trouble is found, take the appropriate action referring to "13. Cause of trouble and remedy".

Daily inspection

Inspection items and inspection methods	Guideline of judgment	Check point	Treatment method
External leakage (visual inspection)	No leakage	[Flange end] Pipe flange connection	① Retighten the pipe bolts to the specified torque. ② Remove the valve from the pipe and re-tighten the pipe bolts. (Ref: 6. Piping method [Flange end])
		[Socket end] Adhesive construction section	Remove the valve from the piping and retry the bonding process. (Ref: 6. Piping method [Socket end])
		[Threaded end] Threaded connection	Remove the valve from the piping and screw the valve in again. (Ref: 6. Piping method [Threaded end])
		Top flange of the valve	Remove the valve from the piping and replace the valve or defective part. (Ref: 11. How to disassemble for parts replacement)
		Cap nut portion of the valve	① Retighten the cap nut ② Remove the valve from the piping, check the O-ring and sealing surface, and replace the defective part. (Ref: 6. Piping method)
		Surface of the entire valve	Remove the valve from the pipe and replace the valve. (Ref: 11. How to disassemble for parts replacement)
Internal leakage (visual and measurement)	No leakage	Leakage to secondary side when valve is fully closed	Remove the valve from the piping and replace the valve or defective part. (Ref: 11. How to disassemble for parts replacement)
		Measured values of flowmeters, pressure gauges, etc.	Remove the valve from the piping and replace the valve or defective part. (Ref: 11. How to disassemble for parts replacement)

Operation position shift (visual inspection)	No misalignment	Actuator opening display	Remove the actuator cover and adjust the limit switch operating position.
Abnormal noise (hearing)	Of abnormal noise No	Valves and actuators	Remove the valve from the pipe and replace the valve or actuator. (Ref: 11. How to disassemble for parts replacement)
		Piping around the valve	Reconfirm the conditions of use (Ref: 2. Handling Precautions)

Periodic inspection

●Guideline for the inspection cycle: 3 months

Inspection items and inspection methods	Guideline of judgment	Check point	Remedy for malfunctions
Vibration (palpation)	No difference from other parts	Valves and actuators	Recheck the operating conditions and remove the source of vibration. (Ref: 2. Handling Precautions)
			Remove the valve from the pipe and replace the valve or actuator. (Ref: 11. How to disassemble for parts replacement)
		Piping around the valve	Recheck the operating conditions and remove the source of vibration. (Ref: 2. Handling Precautions)

Periodic inspection

●Guideline of the inspection cycle: 6 months

Inspection items and inspection methods	Guideline of judgment	Check point	Remedy for malfunctions
Operability of manual handle (touch)	Rotates smoothly	Manual operation unit	Remove the valve from the pipe and replace the valve or actuator. (Ref: 11. How to disassemble for parts replacement)
Looseness of bolts (visual and palpation)	No Loose	Retighten the mounting bolts.	Retighten the mounting bolts. (Ref: 11. How to disassemble for parts replacement)
		[Flange end] For flange piping	Retighten the pipe bolts to the specified torque. (Ref: 6. Piping method [Flange end])
Water-intrusion (visual inspection)	No intrusion	Inside the actuator	Replace the actuator (Ref: 11. How to disassemble for parts replacement)
Intrusion of foreign objects (visual inspection)	No intrusion	Inside the actuator	Replace the actuator (Ref: 11. How to disassemble for parts replacement)
Corrosion Or rust (visual inspection)	No corrosion or rust	Appearance of the product and in the actuator	Remove the valve from the pipe and replace the valve or actuator. (Ref: 11. How to disassemble for parts replacement)
Product damage	No scratches, cracks, or deformation	Appearance of the product	Remove the valve from the pipe and replace the valve or actuator. (Refer to P47_11. Disassembly method for replacing parts)

13. Cause of malfunction and remedy

⚠Caution	
Forcing	**You may be electrocuted or injured.** ▶ If any malfunction is found, immediately stop using the product and take appropriate action. ▶ When removing the valve from the piping when replacing the valve or parts, completely remove the fluid from the piping before starting work. ▶ Turn off the power before removing the actuator cover.

Failure phenomenon	Possible cause	Measures and measures
Do not open or close by air operation.	Air is not supplied	Supply air.
	The solenoid valve voltage is different.	Check the voltage with a tester to obtain the correct voltage. (Ref: 4. Product Specifications)
	Solenoid valve voltage is low	Replace the cable or the actuator. (Ref: 11. How to disassemble for parts replacement)
	The bypass valve is open.	Close the bypass valve by turning the knob clockwise.
	The speed controller adjustment knob is turned all the way to the right.	Turn the knob to the left (Ref: 9. Test Run Method)
	Foreign matter caught in valve	Remove the valve from the piping, disassemble it, and remove any foreign matter. (Ref: 11. How to disassemble for parts replacement)
	Valve torque is increasing due to piping stress.	Remove the piping stress. (Ref: 4. Product Specifications)
	The torque of the valve increases due to the effect of the fluid (temperature, component, pressure).	Check the operating conditions again.

CAUSE OF FAILURE AND HOW TO REMEDY (continued)

Failure phenomenon	Possible cause	Measures and measures
Do not open or close by air operation.	Piping stress is applied to the valve.	Remove the piping stress
	The torque of the valve has increased due to the effects of the fluid (temperature, components, pressure, etc.)	Reconfirm the conditions of use (Refer to P6_2. Handling Precautions)
Fluid leaks even when fully closed (internal leak)	High fluid pressure	Use below the maximum allowable pressure (Ref: 11. How to disassemble for parts replacement)
	The diaphragm or body is worn or scratched.	Remove the valve from the piping, replace the relevant part, or replace the valve. (Ref: 11. How to disassemble for parts replacement)
	Missing parts	Remove the valve from the piping and attach the relevant part or replace the valve. (Ref: 11. How to disassemble for parts replacement)
	Foreign matter caught in valve	Remove the valve from the piping, disassemble it, and remove foreign matter. (Ref: 11. How to disassemble for parts replacement)
	Piping stress is applied to the valve.	Remove the piping stress

CAUSE OF FAILURE AND HOW TO REMEDY (continued)

Failure phenomenon	Possible cause	Measures and measures
Fluid leaks from valve (external leak)	Cap nut is loose	Retighten the cap nut (Ref: 6. Piping method)
	O-ring is scratched, worn, melted, or altered	Stop using the product immediately, remove the valve from the piping, replace the relevant part, or replace the valve. (Ref: 11. How to disassemble for parts replacement)
	Scratches or wear are found on the sliding or fixing surfaces of the O-ring.	Stop using the product immediately, remove the valve from the piping, replace the relevant part, or replace the valve. (Ref: 11.How to disassemble for part replacement)
	Valve is cracked or broken	Stop using the product immediately, remove the valve from the piping, and replace the valve. (Ref: 11. How to disassemble for parts replacement)
Actuator is operating but valve is not open or closed	Damaged stem, diaphragm, or fitting	Stop using the product immediately, remove the valve from the piping, replace the relevant part, or replace the valve. (Ref: 11. How to disassemble for parts replacement)
Actuator is corroded	The watch is exposed to water, chemical liquids, or other liquids.	Stop using the product immediately, remove the valve from the piping, and replace the actuator. (Ref: 11. How to disassemble for parts replacement)
Valve is corroded or deformed	The watch is exposed to water, chemical liquids, or other liquids.	Stop using the product immediately, remove the valve from the piping, and replace the valve. (Ref: 11. How to disassemble for parts replacement)

14. Disposal method of residual materials and waste materials

⚠Warning	
Forcing	**When burnt, toxic gas is generated.** ▶ When disposing of the product or parts, please dispose of them according to the guidelines of each local authority by a professional disposal company.

Inquiries

Contact the nearest dealer, our sales office, or our web website for inquiries about this product.

[User's Manual]

Diaphragm valve type 14
True Union Diaphragm valve type 14
Pneumatic Actuated Type AN
15～50mm

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

Please note that the content of this manual is subject to change without notice. **August 2024**