Self control valve

Pressure reducing type V182, V82

Relief type V185

Pressure Retaining type V186

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".

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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.

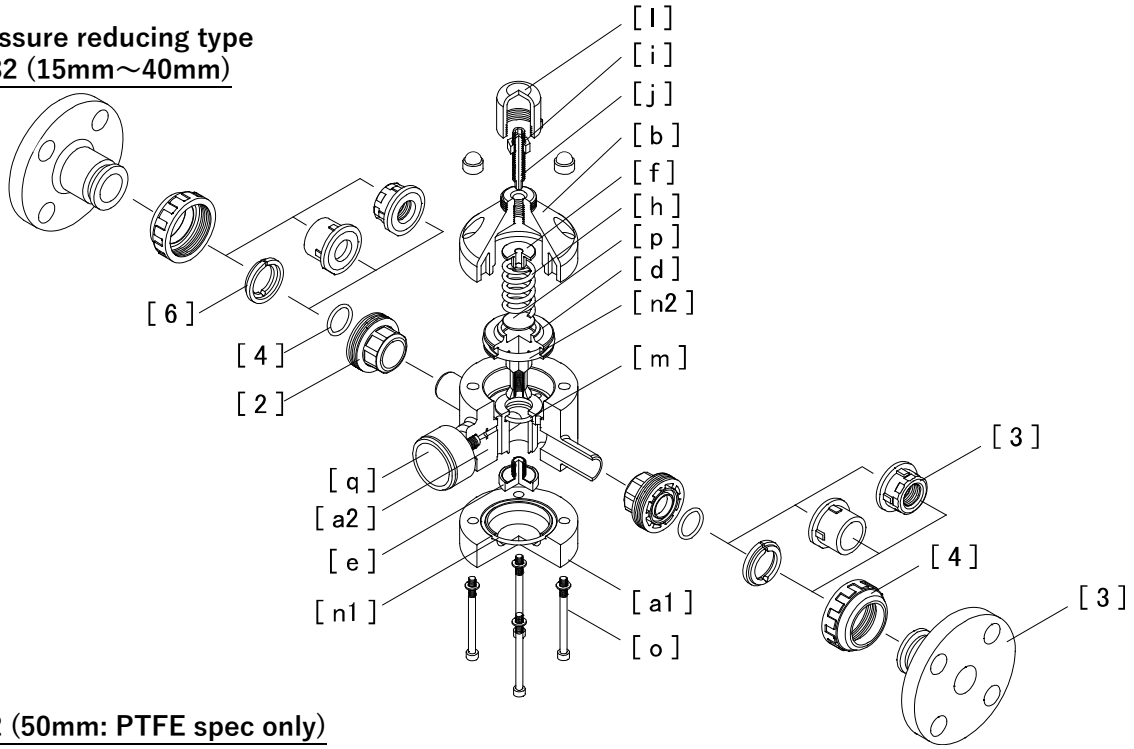
Product Handling

⚠ Warning	
Forcing	**The valve can be damaged or seriously injured.** ▶ 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.

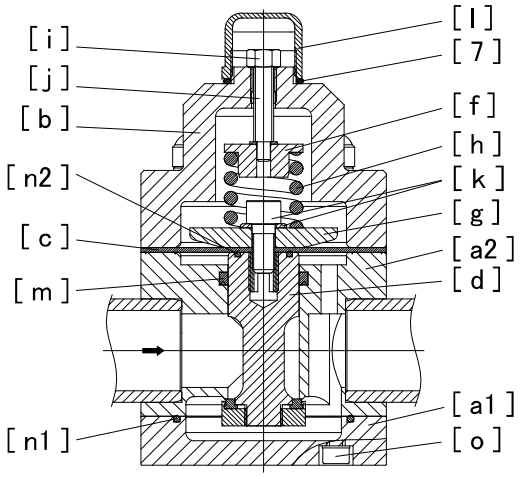
⚠Caution	
Prohibition	**The valve can be damaged, or leak.** ▶ Do not step on the valve or place heavy objects on it. ▶ Keep away from fire and hot objects. ▶ Do not subject the valve to large vibrations. ▶ Do not use instruments or tools to assist manual operation.
Forcing	**There is a danger of injury.** ▶ Secure sufficient space for maintenance and inspection when piping. **The valve can be damaged, or leak.** ▶ 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. ▶「9. Perform maintenance on a regular basis referring to "Inspection items." Pay particular attention to temperature changes and aging during long-term storage or shutdown or use. ▶ 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. ▶ 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.

3. Name of each part

Pressure reducing type
V182 (15mm～40mm)



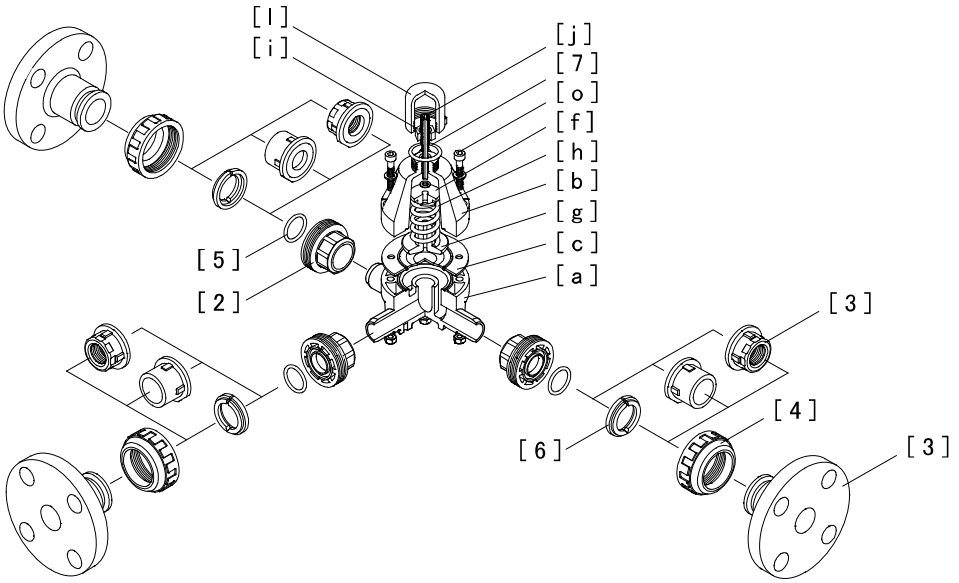
V82 (50mm: PTFE spec only)



[a1]	Body (bottom)	[g]	Compressor ※1	[n1]	O-ring (A)	[4]	Union nut
[a2]	Body (Top)	[h]	Compression spring	[n2]	O-ring (B)	[5]	O-ring (C)
[b]	Housing	[i]	Lock nut	[o]	Bolt	[6]	Stop ring ※4
[c]	Diaphragm ※1	[j]	Adjustment screw	[p]	Spring support plate ※2	[7]	O-ring (D)
[d]	Piston	[k]	Bolt/Washer ※1	[q]	Pressure gauge		
[e]	Piston-based ※2	[l]	Cap	[2]	PJ body ※3		
[f]	Spring plate	[m]	Ring seal	[3]	End connector		

(Note) *1; Used for V82 *2; Used for V182 *3; Only for self-powered valve *4; Used for flanged type

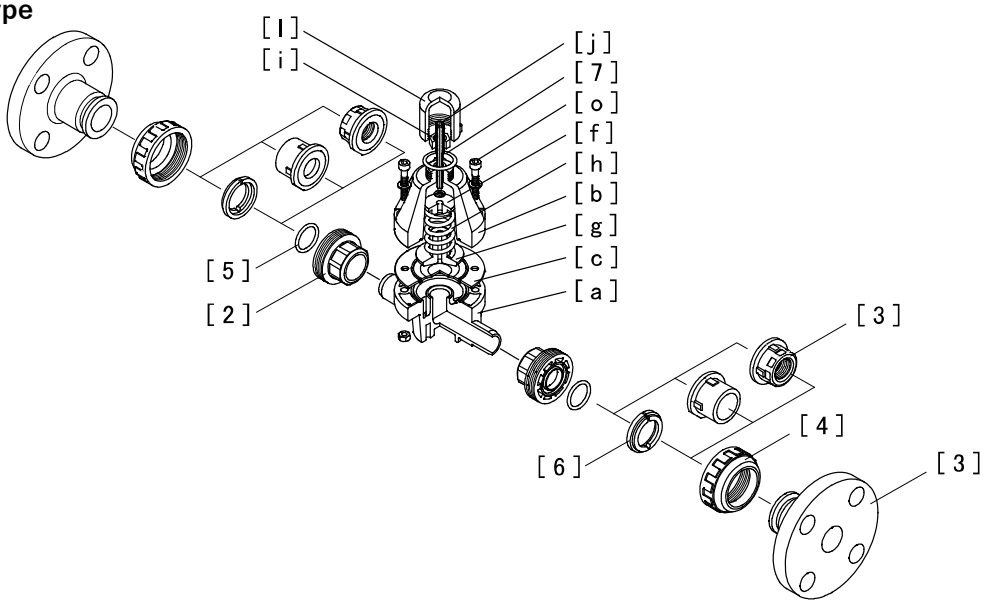
Relief type
V185 (15mm～50mm)



[a]	Body	[g]	Compressor	[l]	Cap	[4]	Union nut
[b]	Housing	[h]	Compression spring	[o]	Bolts, Washers and Nuts	[5]	O-ring (C)
[c]	Diaphragm	[i]	Lock nut	[2]	PJ body ※1	[6]	Stop ring ※2
[f]	Spring plate	[j]	Adjustment screw	[3]	End connector	[7]	O-ring (D)

(Note) *1: Only for self-propelled valves　　※2;Used for flanged end

○Pressure Retaining type
V186 (15mm～50mm)



[a]	Body	[g]	Compressor	[l]	Cap	[4]	Union nut
[b]	Housing	[h]	Compression spring	[o]	Bolts, Washers and Nuts	[5]	O-ring (C)
[c]	Diaphragm	[i]	Lock nut	[2]	PJ body ※1	[6]	Stop ring ※2
[f]	Spring plate	[j]	Adjustment screw	[3]	End connector	[7]	O-ring (D)

(Note) *1: Only for self-propelled valves　　※2;Used for flanged end

4. Product Specifications

Model number table

ACTUATION	TYPE	OPERATING SYSTEM	BODY MATERIAL	SEAL MATERIAL	CONNECTION	STANDARD	SIZE	HIGH PURITY SERIES
V	P R	2 T	U	*	*	*	* * *	2

V MANUAL VALVE	PR SELF CONTROL VALVE	2T Pressre Reducing Type	U PVC	E EPDM V FKM Z FKM (PTFE coted)	S SOCKET N THREADED F FLANGED	J JIS 1 JIS 10K D DIN A ANSI	015 10mm 020 20mm 025 25mm 032 32mm 040 40mm 050 50mm	2 WETTED PART L/F

ACTUATION	TYPE	OPERATING SYSTEM	BODY MATERIAL	SEAL MATERIAL	CONNECTION	STANDARD	SIZE	HIGH PURITY SERIES
V	P R	5 T	U	*	*	*	* * *	2

V MANUAL VALVE	PR SELF CONTROL VALVE	5T Pressre Relief Type	U PVC	E EPDM Z FKM (PTFE coted)	S SOCKET N THREADED F FLANGED	J JIS 1 JIS 10K D DIN A ANSI	015 10mm 020 20mm 025 25mm 032 32mm 040 40mm 050 50mm	2 WETTED PART L/F

ACTUATION	TYPE	OPERATING SYSTEM	BODY MATERIAL	SEAL MATERIAL	CONNECTION	STANDARD	SIZE	HIGH PURITY SERIES
V	P R	6 T	U	*	*	*	* * *	2

V MANUAL VALVE	PR SELF CONTROL VALVE	6T Pressre Retaining Type	U PVC	E EPDM Z FKM (PTFE coted)	S SOCKET N THREADED F FLANGED	J JIS 1 JIS 10K D DIN A ANSI	015 10mm 020 20mm 025 25mm 032 32mm 040 40mm 050 50mm	2 WETTED PART L/F

Product functions and specifications

Function

○Pressure Reducing (V182/V82) maintains the pressure on the secondary side constant even when the pressure variation on the primary side occurs. Works by using only fluid pressure without using auxiliary power, and the fluid pushes up the piston or diaphragm
To maintain balance against the force, press down the piston with the force of the compression spring.

○The relief type (V185) is used for plumbing lines and equipment that must be prevented from overpressure. The valve is a "T" with fluid flowing in three directions. It has a discharge port on the side (right-angled direction) in addition to the inlet and outlet on the right and left straight lines (horizontal direction). When the horizontal pressure exceeds the set pressure, the valve opens and fluid is discharged from the discharge port in the right-angle direction. This pressure distribution and closing action keeps the horizontal pressure constant and suppresses peak pressure.

○The Pressure Retaining (V186) maintains a constant primary pressure. The valve opens when the primary pressure exceeds the set pressure, and closes when the pressure falls below the set pressure. By using the pressure of the fluid without using auxiliary power, and the fluid flows through the diaphragm
Balance the force to be pushed up by pressing down the diaphragm with the force of the compression spring.

Specifications

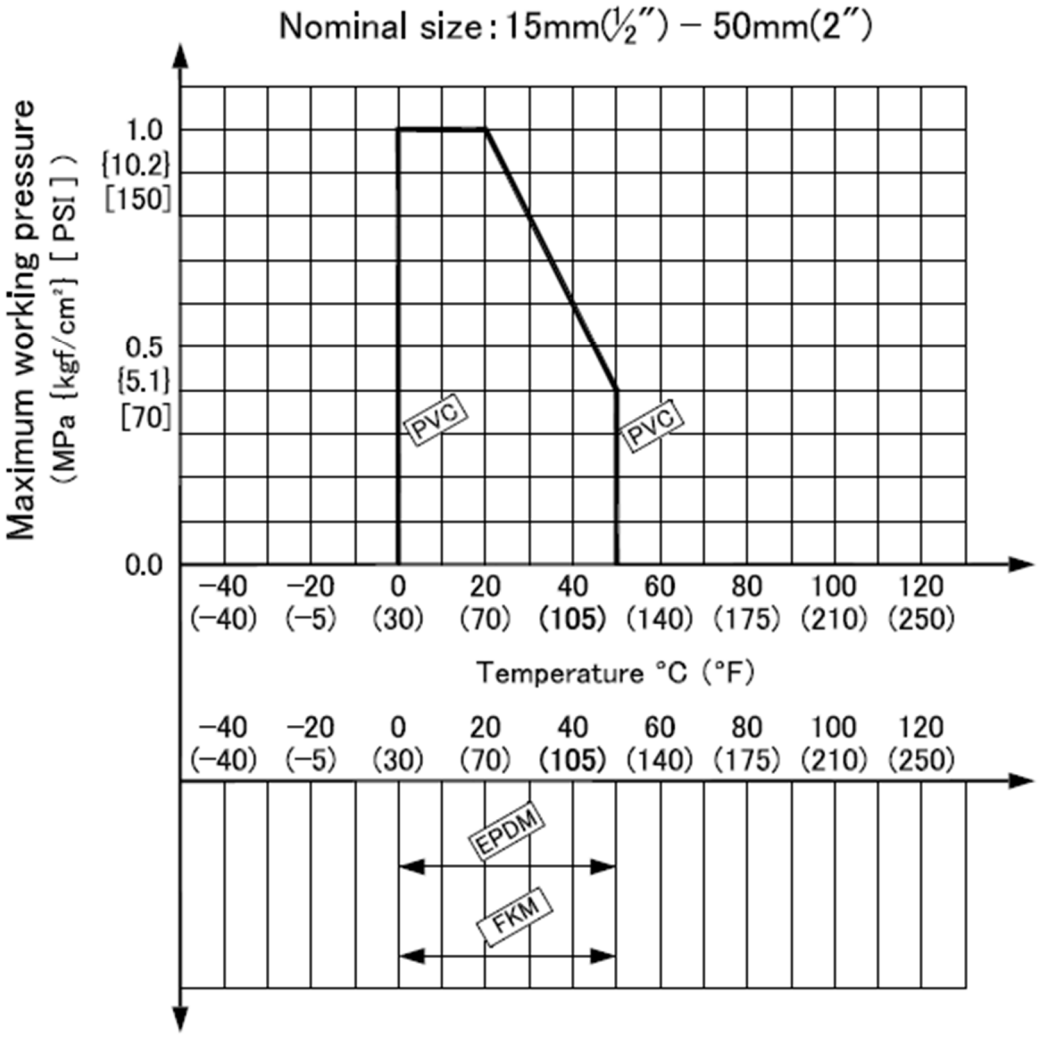
	Pressure Reducing type		Relief type	Pressure Retaining type
Model	V182	V82	V185	V186
Size	15～40mm	50mm	15～50mm	15～50mm
Rubber material	EPDM、FKM	PTFE Coated FKM※2	EPDM, PTFE coated FKM※2	
Body material	PVC			
Connection standard-method	JIS10K flange, JIS sockets, Rc screws			
Max. permissible pressure (at 20° C) ※1	1.0MPa			
Operating temperature range	0～50°C			
Pressure adjustment range	0.05～0.9MPa			

※1; For the allowable pressure by temperature, refer to the "Relationship between maximum allowable pressure and temperature".

※2; For PTFE coated FKM, use FKM for the O-ring material.

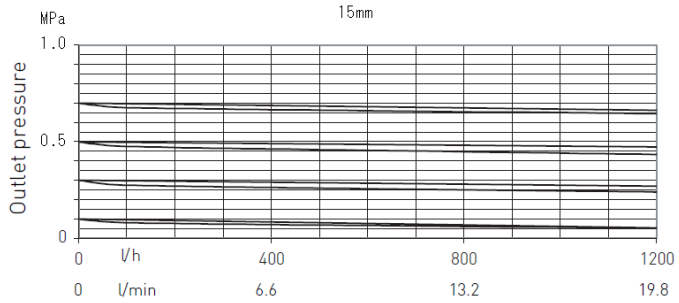
Relationship between maximum allowable pressure and temperature

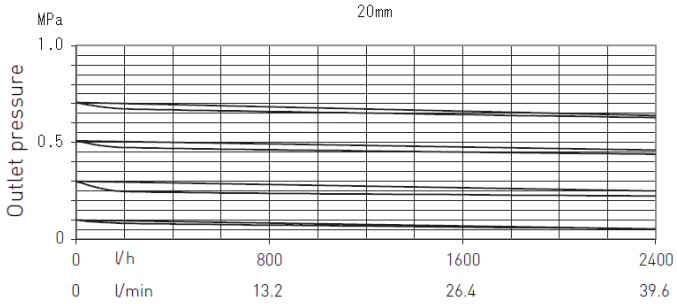
Pressure reducing type, Relief type, Pressure retaining type

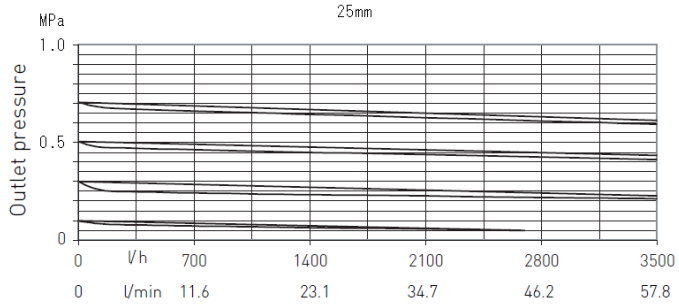


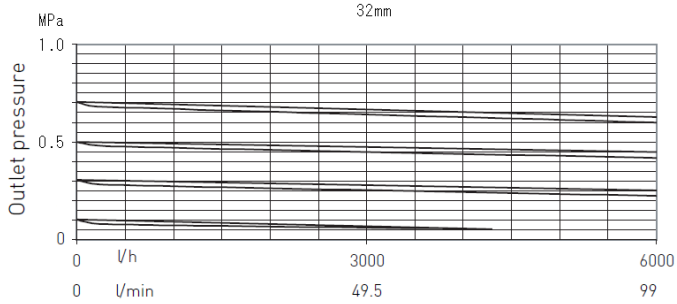
Operating characteristics

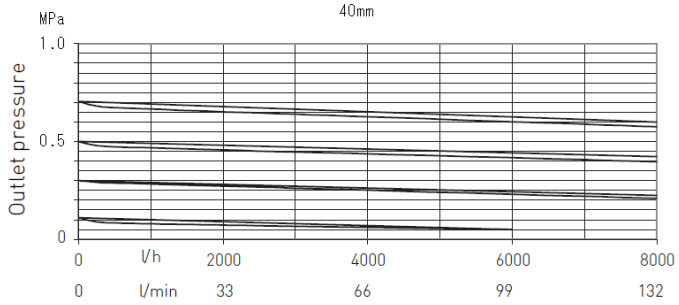
Pressure reducing type (V182)

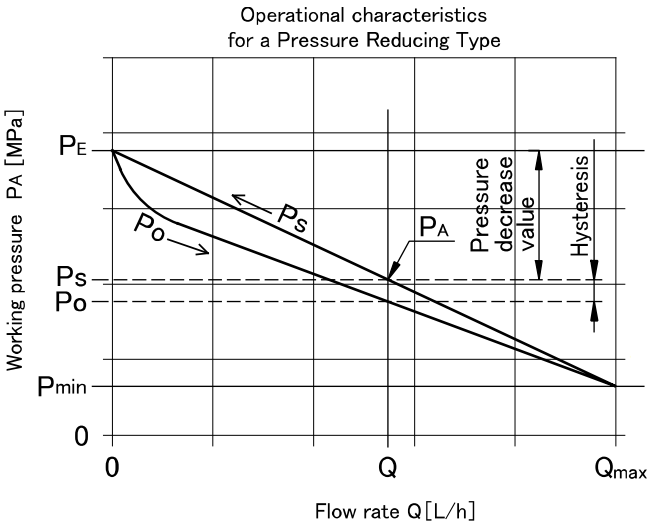








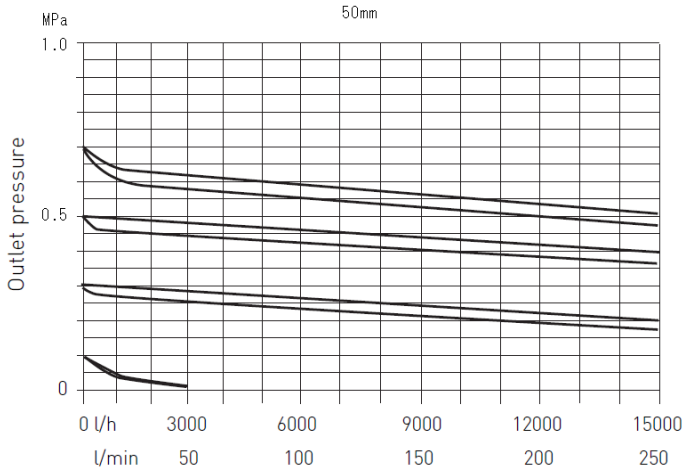




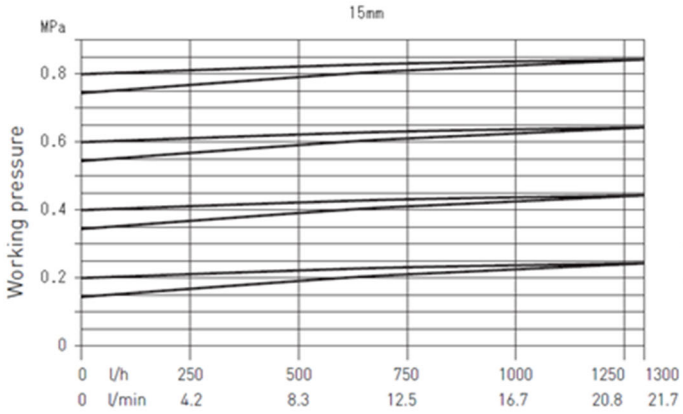
- The friction coefficient increases with the flow rate and the outlet pressure decreases.

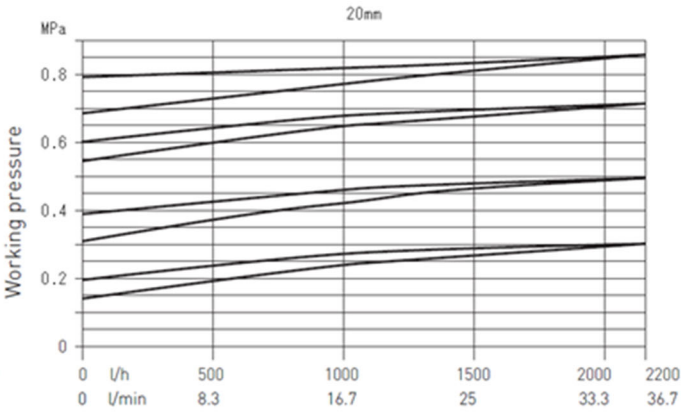
P_E : Set pressure (at a flow rate of 0 L/h)
P_E-P_{min} : Max. pressure reduction value
・The set pressure is set at PE. If the flow rate is increased to Q, the outlet pressure will decrease to Po.
P_O line : Opening pressure characteristic. (Flow rate increasing)
P_S line : Closing pressure characteristic. (Flow rate decreasing)
Hysteresis : The flow rate is affected by the influence of the spring, piston and diaphragm in the valve. The working pressure is also a function of these parts, and will change depending on whether the flow rate is increasing or decreasing.

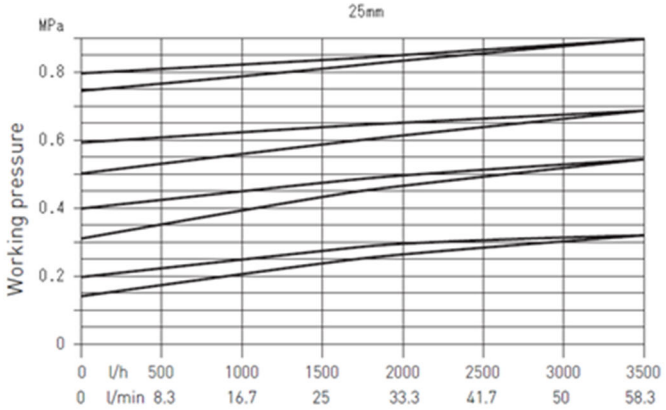
Pressure reducing type (V82)

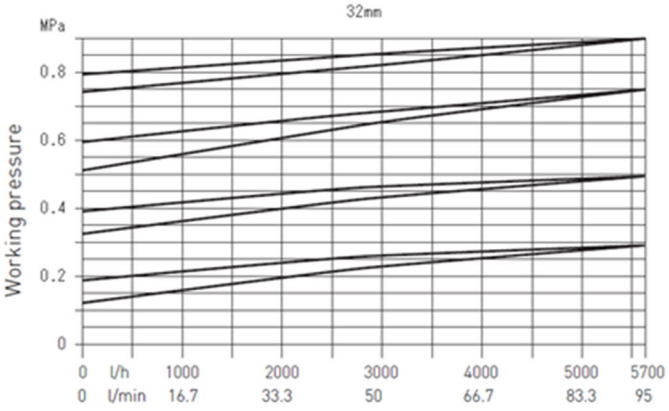


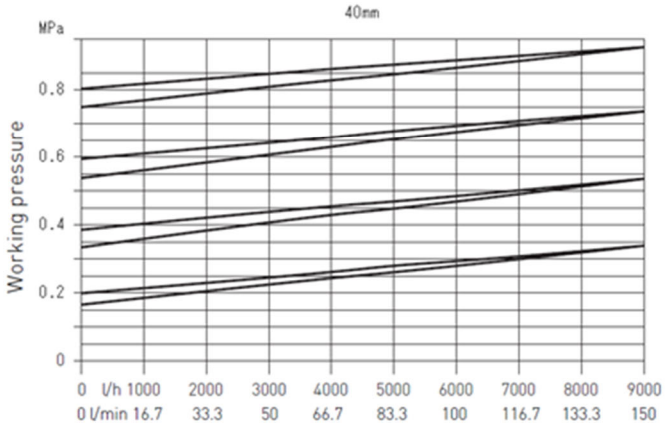
○Relief type/Pressure Retaining type

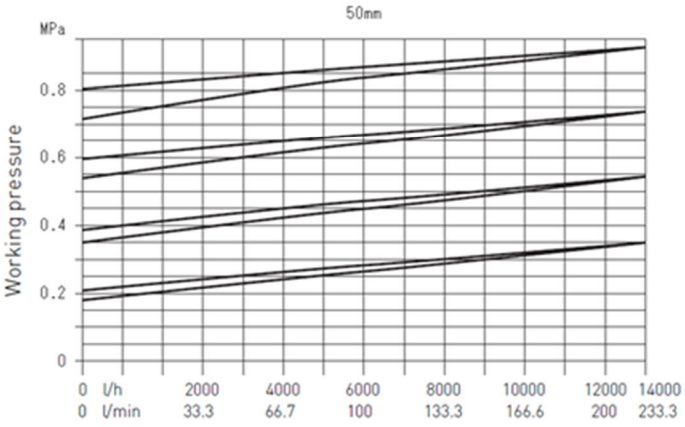


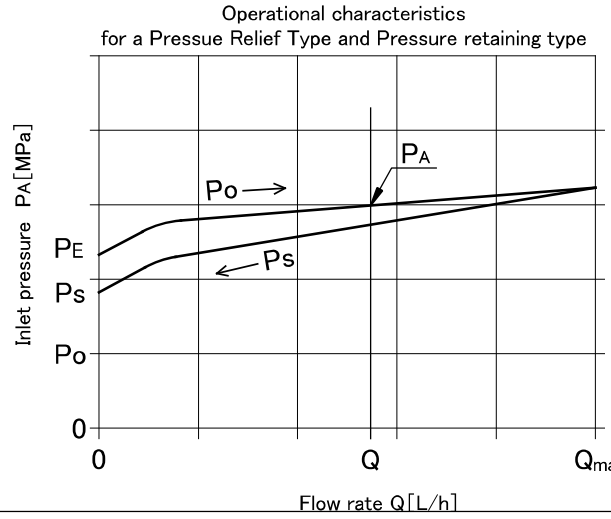












- The friction coefficient and inlet pressure increase with the flow rate.

P_E : Set pressure (at a flow rate of 0 L/h)
P_A : Working pressure
P_S : Closing pressure. (At a flow rate of 0 L/h)

・ The set pressure is adjusted to PE at a flow rate of 0 l/h. If the flow rate is increased to Q, the outlet pressure will increase to PA.

P_O line : The change of inlet pressure (Flow rate increasing)
P_S line : The change of inlet pressure (Flow rate decreasing)

・ The outlet pressure is increased and decreased from PO to PS by increasing and decreasing the flow rate.

5. Piping method

Flanged 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 Union nut. ▶ Do not use a pipe wrench to tighten the Union nut. ▶ Do not tighten the bolts and nuts for piping to the specified torque values in Table 5-2.
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 End connector during piping work or disassembly and reassembly. ▶ When attaching the valve to the end of the pipe, be sure to attach the Union nut and End connector 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 a sealing gasket (AV Gasket) between the flanges and tighten the pipe bolts/nuts to the specified torque values in Table 5-2 "Flange tightening torque." (When other than AV Gasket, the tightening torque value will change.) ▶ Keep the axis misalignment and parallelism of the flange surface below the values shown in Table 5-1 "Axis misalignment and parallelism." ▶ Tighten the bolts and nuts for piping diagonally with the specified torque values in Table 5-2.

[**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

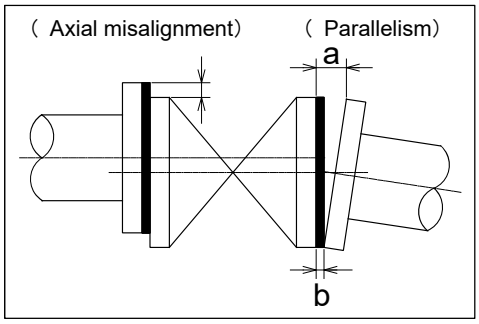
Forcing

The valve can be damaged, or leak.

▶ Keep the parallelism of the flange surface and the dimension of the shaft misalignment below the values shown below.

Table 5-1 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 with a torque wrench.
4) Tighten clockwise at least two turns at the specified torque value.

⚠Caution

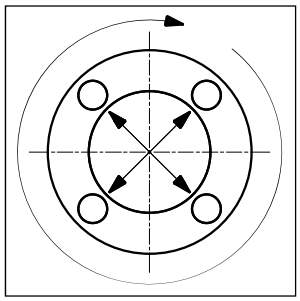
Prohibition

The valve can be damaged, or leak.

▶ Do not tighten more than the specified torque value.

Table5-2 Flange Tightening Specified Torque **Units: N•m {kgf・cm}**

Size (mm)	15	20	25	32	40	50
PTFE coating PVDF coating	17.5 {179}	17.5 {179}	20.0 {204}	20.0 {204}	20.0 {204}	22.5 {250}
Rubber	8.0 {82}	8.0 {82}	20.0 {204}	20.0 {204}	20.0 {204}	22.5 {250}



※If the Union nut has been loosened or removed, attach it using the following method.

5) Check that the O-ring (C) [5] is fitted correctly.
6) Bring the End connector [3] and the Union nut [4] into contact with the body side so that the O-rings (C) [5] do not come off.
7) Tighten the Union nut [4] by hand until it is tight.
8) Screw the Union nut [4] by 1/4 to 1/2 turn with a belt wrench to avoid damage.

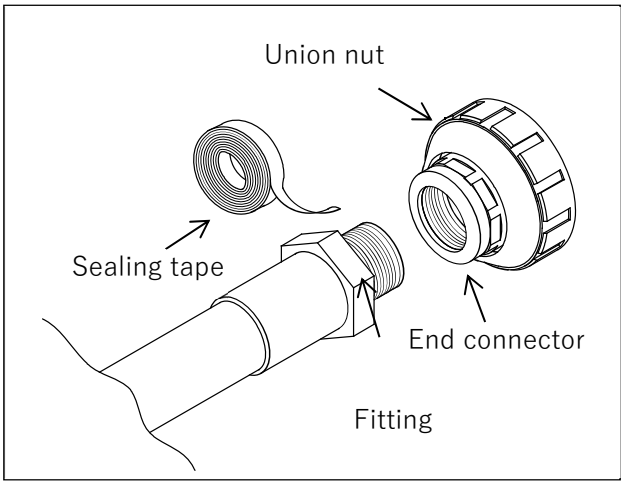
Threaded end

⚠ 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 Union nut. ▶ Do not use a pipe wrench to tighten the Union 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 Union nut of this product is lightly tightened to make it easier to loosen. Be sure to remove the End connector 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 End connector during piping work or disassembly and reassembly. ▶ When attaching the valve to the end of the pipe, be sure to attach the Union nut and End connector 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 Union nut [4] with a belt wrench.
3) Remove Union nut [4] End connector [3].
4) Tighten the male thread of the fitting and the End connector [3] until tight by hand.
5) Screw on the End connector [3] with a wrench 1/2 to 1 turn to prevent scratching.
6) Check that the O-ring (C) [5] is installed correctly.
7) Bring the End connector [3] and the Union nut [4] into contact with the body side so that the O-rings (C) [5] do not come off.
8) Tighten the Union nut [4] by hand until it is tight.
9) Screw the Union nut [4] by 1/4 to 1/2 turn with a belt wrench to avoid damage.

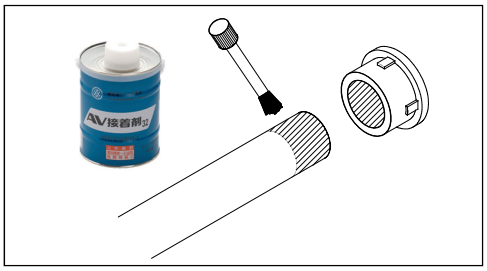
Socket end (adhesive)

⚠ 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 End connector. ▶ Do not overtighten the Union nut. ▶ Do not use a pipe wrench to tighten the Union 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 Union nut of this product is lightly tightened to make it easier to loosen. Be sure to remove the End connector 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 End connector during piping work or disassembly and reassembly. ▶ When attaching the valve to the end of the pipe, be sure to attach the Union nut and End connector 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 "ASAHI AV Cement" depending on the material. ▶ Perform the water flow test after 24 hours or more have elapsed after completion of bonding.

Preparations ▶ ASAHI AV Cement ▶ Belt Wrench

[Procedure]



1) Loosen the Union nut [4] with a belt wrench.
2) Remove Union nut [4] and End connector [3].
3) Pass the Union nut [4] to the pipe side.
4) Wipe off the socket part of the End connector [3] with a waste cloth.
5) End connector [3] Apply adhesive evenly to the socket and pipe insert.

⚠Caution	
Forcing	**The valve can be damaged, or leak.** ▶ 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)

NOMINAL 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 End connector [3] and hold for at least 60 seconds.
7) Wipe off any excess adhesive.
8) Check that the O-ring (C) [5] is fitted correctly.
9) Bring the End connector [3] and the Union nut [4] into contact with the body side so that the O-rings (C) [5] do not come off.
10) Tighten the Union nut [4] by hand until it is tight.
11) Screw the Union nut [4] by 1/4 to 1/2 turn with a belt wrench to avoid damage.

6. 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.

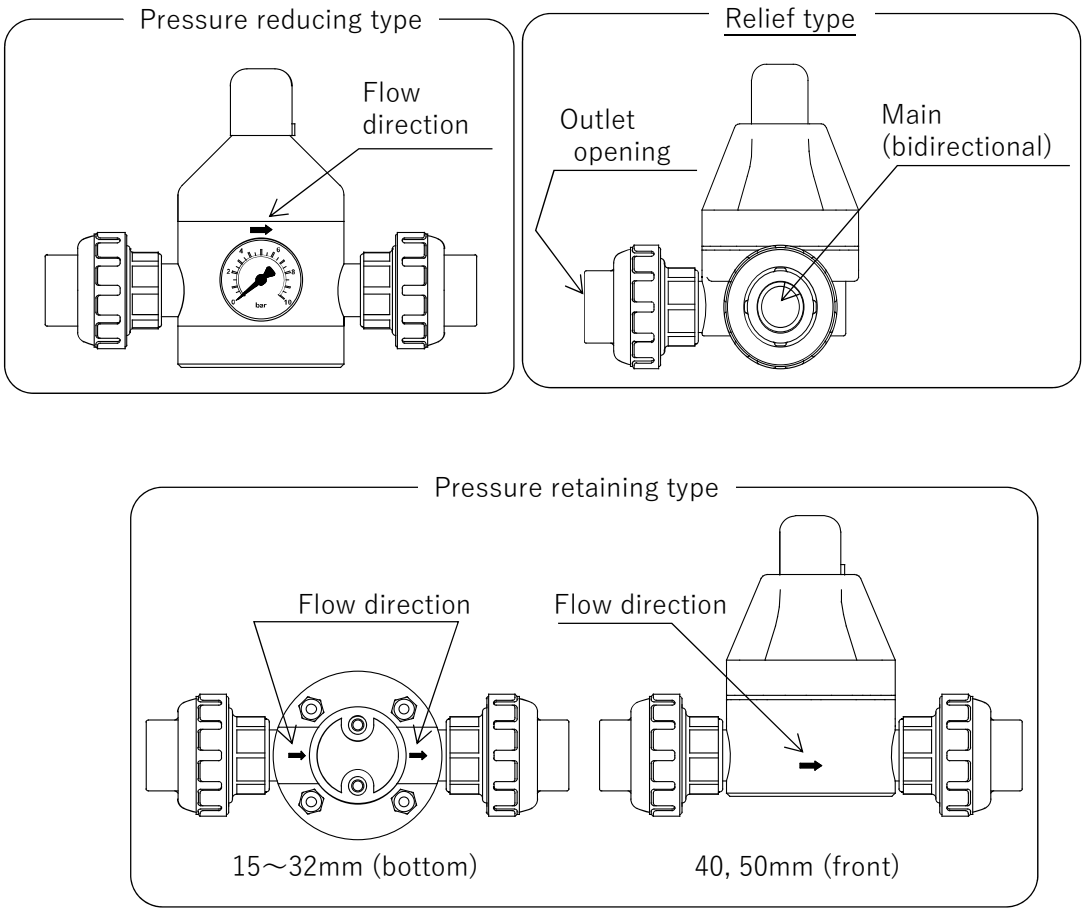
▶ Wear appropriate protective equipment according to the type of work being performed.

The valve can be damaged, or leak.

▶ Do not over-tighten when supporting piping with a U-band, etc.

Align the flow direction with the arrow on the display label.

▶ Pay attention to the flow direction when piping.



▶ If there is foreign matter in the fluid, provide a strainer in front of this valve.

7. How to adjust the operating pressure

⚠Caution	
Forcing	**Doing so may loosen the adjustment screw.** ▶ Tighten the lock nut securely. (If the tightening torque of the lock nut is insufficient, the adjustment screw may be loosened.) ▶ Continue turning the adjustment screw counterclockwise. The screw will come off. Operate the adjustment screw within a range where it does not come off.

Preparations	▶ Wrench	▶ Hex Wrench

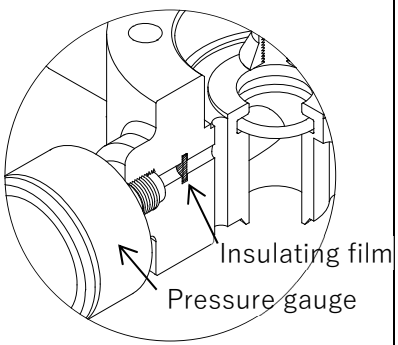
[Procedure]

1) Remove the cap [l] attached to the top of the housing [b] by turning it counterclockwise.
2) Loosen the lock nut [i] with a wrench.
3) Adjust the pressure by rotating the adjustment screw [j] with an Allen wrench. Note that the pressure gauge is attached to the depressurization type (V182, V82), so it can be adjusted while checking with the gauge.
▶ Clockwise ···Operational pressure rises.
▶ Counterclockwise: The operating pressure drops.
4) After adjusting the operating pressure, fix the adjusting screw [j] with an Allen wrench and tighten the lock nut [i] with a wrench.
5) Put the cap [l] back in place.
Tighten the cap [l] 1/4 turn after touching the O-ring (D) [7].

8. How to disassemble/assemble parts for replacement

Warning	
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	**The valve can be damaged, or leak.** ▶ When replacing the valve or replacing parts, completely drain the fluid from the piping to reduce the fluid pressure to zero. ▶ Do not overtighten the Union nut. ▶ Do not use a pipe wrench to tighten the Union nut.
Forcing	**The valve can be damaged, or leak.** ▶ Fix the End connector during piping installation or disassembly and reassembly. ▶ Be sure to confirm that the Union nut is fully tightened before the water flow test. ▶ Tighten the Union 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.

Caution	
Prohibition	**The valve can be damaged, or leak.** ▶ Do not remove the pressure gauge of the decompression type. The pressure-transmitting liquid sealed between the insulation film and the pressure gauge leaks outside, and the pressure gauge cannot be used. ▶ A special jig (sold separately) is required for the socket wrench to disassemble the body part depending on the model and size. Contact us for details. 
Forcing	**There is a danger of injury.** ▶ To completely loosen the compression of the spring in the valve, the adjustment screw must be sufficiently loosened.

Preparations	▶ Protective goggles ▶ Protective gloves ▶ wrench ▶ hex key ▶ Socket wrench ▶ Dedicated jig (special socket wrench; optional)

Pressure Reducing (V182)

[Disassembly procedure]

1) Remove the cap [l] on the top of the housing [b].
2) Loosen the lock nut [i] with a wrench and loosen the adjustment screw [j] sufficiently with a hex wrench.
3) Loosen the screws [o] with a hex key and a socket wrench. Remove the body (top) [a2] and (bottom) [a1].
4) Remove compression spring [h] and spring plate [f].
5) Turn the piston base [e] counterclockwise to remove it.
6) Push up the piston [d] from the bottom of the Body (Top) [a2] and remove the piston [d].

[Assembly Procedure]

1) Assemble in the reverse order of the disassembly procedure. (Apply silicone grease to the O-rings before assembly)
2) After assembly, adjust the operating pressure according to "7. How to adjust the operating pressure".

Pressure Reducing (V82)

[Disassembly procedure]

1) Remove the cap [l] on the top of the housing [b].
2) Loosen the lock nut [i] with a wrench and loosen the adjustment screw [j] sufficiently with a hex wrench.
3) Loosen the screws [o] with a hex key and a socket wrench. Remove the body (top) [a2] and (bottom) [a1].
4) Remove compression spring [h] and spring plate [f].
5) Loosen the bolt [k] with an Allen wrench and remove the compressor [g] and diaphragm [c].
6) Pull out the piston [d] from the bottom of the Body (Top) [a2] and remove it.

[Assembly Procedure]

1) Assemble in the reverse order of the disassembly procedure. (Apply silicone grease to the O-rings before assembly)
2) After assembly, adjust the operating pressure according to "7. How to adjust the operating pressure".

Tightening torque value of body and housing — Units;N•m {kgf•cm}

Size	15mm	20、25 mm	32、40 mm	50mm
Torque value	9 {92}	12 {122}	15 {153}	29 {296}

Relief type (V185), Pressure Retaining type (V186)

[Disassembly procedure]

1) Remove the cap [l] on the top of the housing [b].
2) Loosen the lock nut [i] with a wrench and loosen the adjustment screw [j] sufficiently with a hex wrench.
3) Remove the protective cap (15mm～32mm) of the bolt and loosen the bolt [o] with a hex wrench and a socket wrench, etc. to remove it.
4) When the bolt [o] is removed, it is disassembled. Remove the compression spring [h] and the spring plate [f] and the compressor [g].
5) Remove the diaphragm [c] from the body [a].

[Assembly Procedure]

1) Assemble in the reverse order of the disassembly procedure. (Apply silicone grease to the O-rings before assembly)
2) After assembly, adjust the operating pressure according to "7. How to adjust the operating pressure".

Tightening torque value of body and housing Units; N•m {kgf･cm}

Size	15、20 mm	25、32 mm	40、50 mm
Torque value	9 {92}	12 {122}	20 {204}

9. Inspection item

⚠Caution	
Forcing	**The valve can be damaged, or leak.** ▶ 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. ▶ 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 "**10. Cause of malfunction and remedy**."

Daily inspection

Inspection items and inspection methods	Guideline of judgment	Check point	Treatment method
External leakage (visual inspection)	No leakage	[Flanged 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: 5. Piping method [Flanged end])
		[Socket end] Adhesive construction section	Remove the valve from the piping and retry the bonding process. (Ref: 5. Piping method [Socket end])
		[Threaded end] Threaded connection	Remove the valve from the piping and screw the valve in again. (Ref: 5. Piping method [Threaded end])
		Union nut portion of the valve	① Retighten the Union nut ② Remove the valve from the piping, check the O-ring and sealing surface, and replace the defective part. (Ref: 5. Piping method)
		Surface of the entire valve	Remove the valve from the pipe and replace the valve. (Ref: 8. How to disassemble/assemble for parts replacement)
		Adjusting screw	Remove the valve from the pipe and replace the defective part. (Ref: 8. How to disassemble/assemble for parts replacement)

Inspection items and inspection methods	Guideline of judgment	Check point	Treatment method
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: 8. How to disassemble/assemble for parts replacement)
		Measured values of flowmeters, pressure gauges, etc.	Remove the valve from the piping and replace the valve or defective part. (Ref: 8. How to disassemble/assemble for parts replacement)
Abnormal noise (hearing)	No abnormal noise	Valve	Remove the valve from the pipe and replace the valve. (Ref: 8. How to disassemble/assemble for parts replacement)
		Piping around the valve	Reconfirm the conditions of use (Ref: 2. Safety Instructions [Product Handling])

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	Valve	Recheck the operating conditions and remove the source of vibration. (Ref: 2. Safety Instructions [Product Handling])
		Piping around the valve	Recheck the operating conditions and remove the source of vibration. (Ref: 2. Safety Instructions [Product Handling])

Periodic inspection

●Guideline of the inspection cycle: 6 months

Inspection items and inspection methods	Guideline of judgment	Check point	Remedy for malfunctions
Looseness of bolts (visual and palpation)	No Loose	[Flanged end] For flange piping	Retighten the pipe bolts to the specified torque. (Ref: 5. Piping method [Flanged end])
Corrosive ※1) (visual inspection)	No corrosion or rust	Appearance of the product	Remove the valve from the pipe and replace the valve. (Ref: 8. How to disassemble/assemble for parts replacement)
Product damage	No scratches, cracks, or deformation	Appearance of the product	Remove the valve from the pipe and replace the valve. (Ref: 8. Disassembly method for replacing parts)

10. Cause of malfunction and remedy

Caution	
Forcing	**There is a danger of injury.** ▶ 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.

Failure phenomenon	Possible cause	Measures and measures
Fluid leaks from valve (external leak)	Union nut is loose	Retighten the Union nut (Ref: 5. 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: 8. How to disassemble/assemble 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: 8. How to disassemble/assemble for parts replacement)
	Valve is cracked or broken	Stop using the product immediately, remove the valve from the piping, and replace the valve. (Ref: 8. How to disassemble/assemble 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: 8. How to disassemble/assemble for parts replacement)

● To ensure stable performance, we recommend that you replace the consumables periodically.
A list of consumable parts is shown below. Please contact us when you need them.

Variety		Set name	Part name
Pressure Reducing type	V182	Adjustment kit	・Adjustment screw [j] ・Spring plate [f] ・Compression spring [h] ・Spring support plate [p] ・Piston [d] + Piston base [e]
	V82		・Adjustment screw [j] ・Spring plate [f] ・Compression spring [h] ・Piston [d] + O-ring (B) [n2]
	V182	Sealing kit	・O-ring (A) [n1] ・O-ring (B) [n2] ・Ring seal [m]
	V82		・Diaphragm [c] ・O-ring (A) [n1] ・Ring seal [m]
Relief Type/Pressure Retaining Type ※1		SPARE PARTS	・Adjustment screw [j] ・Diaphragm [c] ・Compression spring [h]
Shared ※2		O-ring	・O-ring (C)[5]
		End connector/nut	・End connector [3] ・Union nut [4] ・Stop ring [6] (Flanged end only)

※1. The relief type and Pressure Retaining type use the same parts.
※2. The parts are common to the pressure reducing, relief, and Pressure Retaining types.

11. 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]

Self control valve

Pressure reducing type/Relief type/Pressure retaining type

(15mm～50mm)

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

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