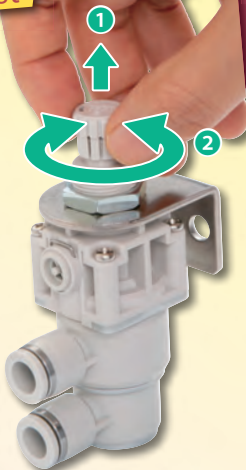


Vacuum Regulator Push-Lock type



Pull to Adjust



Push to Lock



"Click" to lock securely!

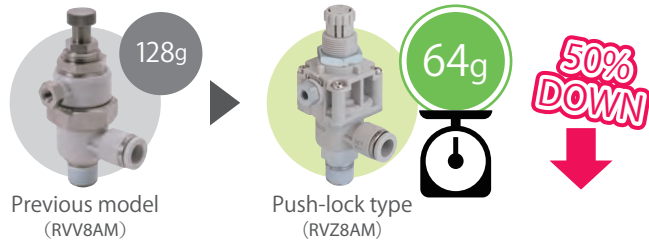
Easy handling

Turn the knob
Push down to lock 

☑ Push-Lock type now makes it easier to set/adjust

☑ Max. 50% weight reduction

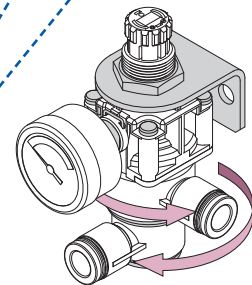
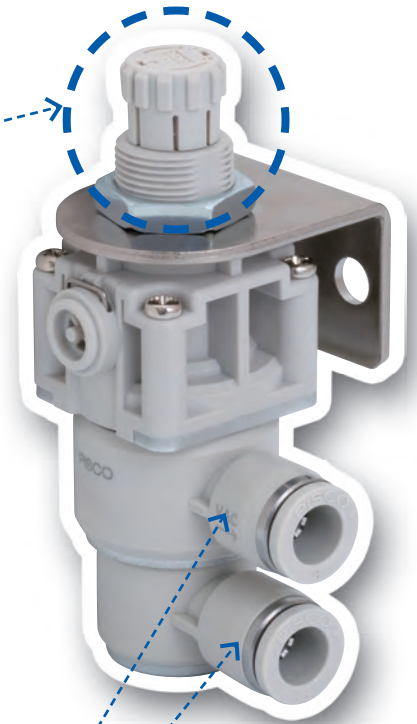
Metal parts has been reduced and lighter by using aluminum



☑ Copper alloy free specification *) Except pressure gauge/switch

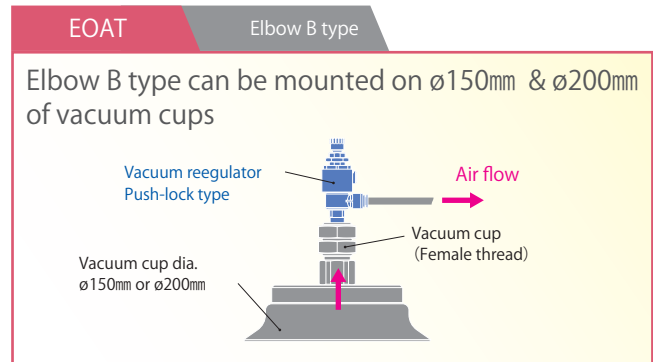
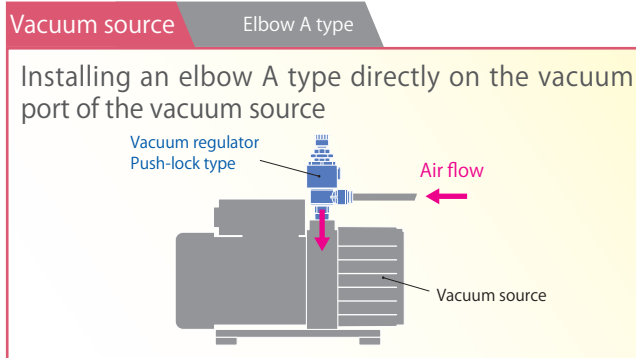
- ▶ No copper alloy is used
- ▶ HNBR rubber is used (ozone countermeasure)

☑ Each port swivels independently
Flexibility in piping

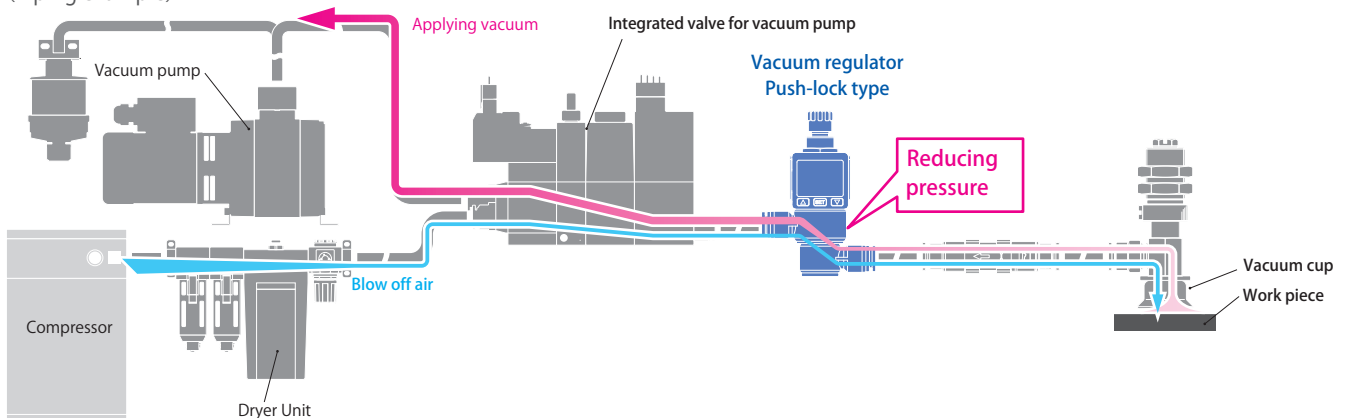


☑ Optimal for controlling the pressure of vacuum source

Also, suitable for controlling the pressure of EOAT



(Piping example)



Model Designation (Example)

RVZ 6 A M B

④. Bracket (Only for Elbow type)

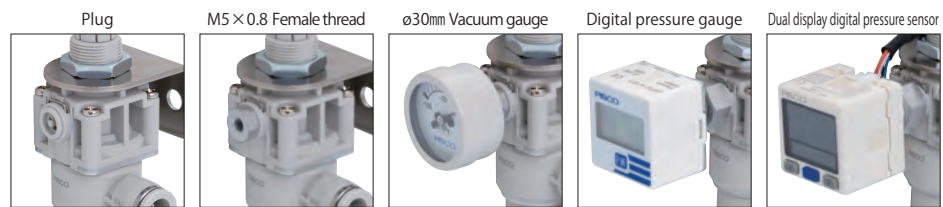
Code	No entry	B
Bracket	Nil	Equipped

*) Union type comes with a bracket as standard

Vacuum regulator Push-lock type

③. Pressure indicator

Code	Indicator		
No entry	No pressure display (port plugged)		
M	No pressure display (M5 × 0.8 female thread port open)		
G	ø30mm negative pressure gauge		
D	Digital pressure gauge (Square 30*30 negative display)		
V4	Dual display digital pressure sensor (Connector type with 2m cable)	2 switch outputs, Analog output	NPN output
V4P			PNP output
V5		2 switch outputs, Copy function	NPN output
V5P			PNP output



②. Type (Flow direction)

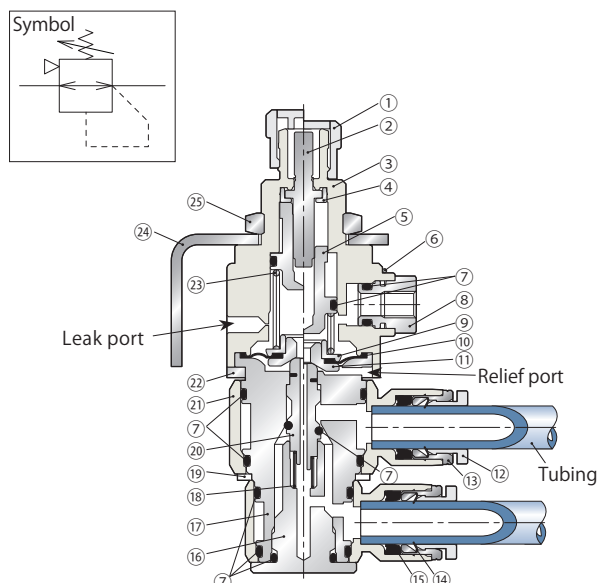
Code	A	B	U
Type	Elbow A type (Tubing → Thread)	Elbow B type (Thread → Tubing)	Union type (Tubing → Tubing)
Flow direction			

①. Tubing size

Code	6	8
Tubing O.D. (mm)	ø6	ø8

※) Thread size of elbow type is R1/4 no matter what the tubing size is

Structure



No.	Parts	Material (treatment)
①	Pressure adjusting knob	POM
②	Pressure adjusting screw	SWCH (Electroless nickel-plated)
③	Upper body	PBT
④	Guide push	Aluminum (Anodized)
⑤	Bush	Aluminum (Anodized)
⑥	Retention pin	Stainless steel
⑦	O-ring	HNBR
⑧	Cartridge	Aluminum (Anodized)
⑨	Center disc A	Aluminum (Anodized)
⑩	Diaphragm	HNBR
⑪	Center disc B	Aluminum (Anodized)
⑫	Release ring	POM
⑬	Guide ring	Special stainless steel (Austenitic or Ferritic)
⑭	Lock claws	Special stainless steel (Austenitic or Ferritic)
⑮	Elastic sleeve	HNBR
⑯	Plug	Aluminum (Anodized)
⑰	Metal body	Aluminum (Anodized)
⑱	Valve spring	Stainless steel
⑲	Plate	Aluminum (Anodized)
⑳	Valve	Aluminum (Anodized)
㉑	Resin body	PBT
㉒	Main body plate	Aluminum (Anodized)
㉓	Pressure adjusting spring	Stainless steel
㉔	Bracket	SPCC (Electroless nickel-plated)
㉕	M16 × 1 Hex. nut	SWCH (Zinc-plated)

Specification

Regulator

Display code	M, No entry	V4(P), V5(P)	D	G
Fluid medium	Air			
Operating pressure range	-100 ~ 100 kPa		-100 ~ 0 kPa	
Pressure setting range	-100 ~ -1.3 kPa (※)			
Max. suction flow	30 ℓ /min [ANR]			
Operating temp. range	0 ~ 50°C (No freezing)		0 ~ 40°C (No freezing)	

※) The value may change depending on the pressure rate of vacuum source

ø30mm vacuum gauge

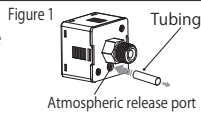
Fluid medium	Air
Pressure display range	-100 ~ 0 kPa
Display accuracy	± 5%F.S. (at Ta=25°C)

Digital pressure gauge

Rated pressure range	-101 ~ 0kPa
Pressure display range	-101 ~ 10kPa (※1)
Pressure proof	300kPa
Fluid medium	Air, Non-corrosive/non-flammable gas
Battery life	Aprox. 3years (Display turn on 5 times a day)
Low-battery indicator	Equipped
Battery replacement	Possible
Display duration	60 seconds
Display frequency	2Hz (2 times/sec.)
Repeatability	≤ ± 1% F.S. ± 1 digit
LCD indication	7 segment, 3.5 digit
Display accuracy	± 2% F.S. ± 1 digit max. (ambient temp. : 25 ± 3°C)
Protection rating	IP65 (※2)
Ambient temp. range	In operation: 0 ~ 50°C, In storage: -10 ~ 60°C (No condensation nor freezing)
Ambient humidity range	In operation and storage: 35 ~ 85%RH (No condensation)
Vibration resistance	Total amplitude 1.5mm or 100m/s ² , 10 ~ 55 ~ 10Hz scan for 1 minute, 2 hours each direction of X, Y and Z
Shock resistance	100m/s ² , 3 times each in direction of X, Y and Z
Temperature effects	± 2% F.S. of detected pressure (temp. at 25°C)

※1) Display accuracy between 0~10kPa is out of guarantee.

※2) To maintain the rating IP65, please connect a tubing to the atmospheric release port (figure 1).



Dual display digital pressure sensor

	V4	V5	V4P	V5P
Model	VUS-32R-NV (Compound pressure)	VUS-32R-N2 (Compound pressure)	VUS-32R-PV (Compound pressure)	VUS-32R-P2 (Compound pressure)
Rated pressure range	-100.0~100.0kPa			
Pressure proof	300kPa			
Fluid medium	Air, Non corrosive/non flammable gas			
Power supply voltage	DC12 ~ 24V (Ripple ±10% max.)			
Current consumption	40mA max. (with no load)			
Switch output	Output	NPN open collector output		PNP open collector output
	Max. load current	125mA		
	Max. supply voltage	DC30V	DC24V	
	Internal voltage drop	1.5V max.		
Repeatability	±0.2% F.S. ± 1 digit or less			
Hysteresis	One point setting mode	Adjustable (※)		
	Hysteresis mode			
	Window comparator mode			
Response time	2.5ms max. (Chattering-proof function: 25, 100, 250, 500, 1000, 1500ms selectable)			
Output short circuit protection	Equipped			
Digital display	3 colors (red, green, orange) display (Display frequency: 5 times/sec.)			
Display accuracy	± 2% F.S. ± 1 digit or less (Ambient temperature: 25 ± 3°C)			
Operation indicator lamp	Orange color 1&2 indicator lamp			
Analog output (Voltage output)	Output voltage: 1 ~ 5V ± 2.5% F.S. max. (in the rated volatage range) Linearity : ± 1%F.S. max., Output resistance 1kΩ			
Environment	Protection rating	IP40		
	Ambient temp. range	In operation: 0 ~ 50°C, In storage: -10 ~ 60°C (No condensation nor freezing)		
	Ambient humidity range	In operation and storage: 35 ~ 85%RH (No condensation)		
	Voltage proof	AC1000V in 1 minute (Between housing and lead-wire)		
	Insulation resistance	50MΩ min. (DC500V) (Between housing and lead-wire)		
	Vibration resistance	Total amplitude 1.5mm or 100m/s ² , 10~150~10Hz scan for 1 minute, 2 hours each direction of X, Y and Z		
Shock resistance	100m/s ² , 3 times each in direction of X, Y and Z			
Temperature effects	± 2% F.S. max. (25°C at temp., range 0 ~ +50°C)			
Lead wire	Oil-resistance cable (0.15mm ²)			

※) Hysteresis value is adjustable within 1~8 digits for one point setting mode and window comparator mode.

△ Detailed Safety Instruction

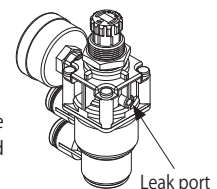
- △ Warning
- 1) Never use a ø30mm vacuum gauge nor a Digital pressure gauge in any application using positive pressure. For the application using both positive and negative pressure, use a Dual display digital pressure sensor within the rated pressure specified. Excessive positive pressure may cause damage to the product.
 - 2) Before using the product, thoroughly read user's manual of the vacuum source and the vacuum regulator, and carry out trial operations.

- △ Caution
- 1) Set the pressure turning the knob in the direction of vacuum level increasing (clockwise). Accurate setting is impossible by turning the knob in the direction of vacuum level decreasing (counter-clockwise).
 - 2) Avoid an excessive load/impact on display, sensor and gauge port. Otherwise, there is a possibility of damaging the product or degrading the indication accuracy.
 - 3) When installing a gauge or a pipe to the gauge port, tighten the mounting screw by using flats of gauge port (10mm flat). Tightening torque to M5×0.8 gauge port is as follows. Tightening with improper torque may cause product damages and degradation of indication accuracy.

■ Tightening torque chart

Thread size	Tightening torque
M5 × 0.8	1.0 ~ 1.5N·m

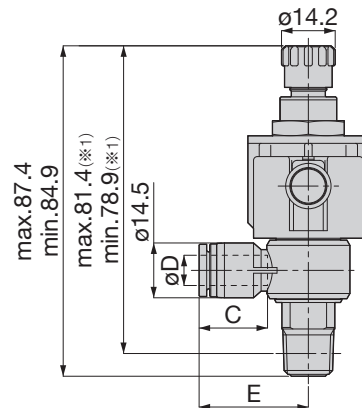
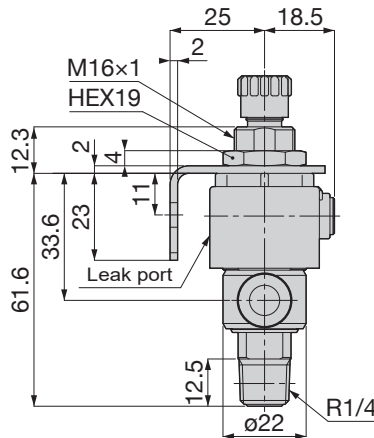
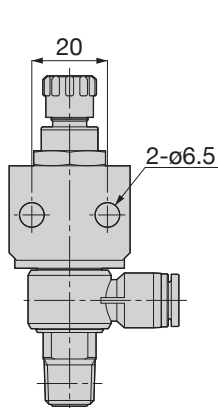
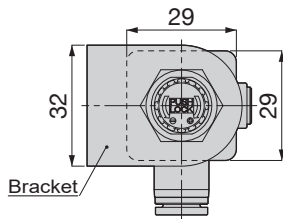
- 4) If there is a possibility of sucking dusts or dirt, place a filter on adjusted pressure side (work-piece side) of the Vacuum regulator. Sucking foreign substances may cause malfunctions.
- 5) Do not block the leak port to stabilize the secondary pressure.
- 6) When applying a positive pressure, a small amount of air comes out from the leak port. Be careful when it is used in clean-room.
- 7) When applying a blow-off air, take the amount of air release from the leak port into consideration.
- 8) When the adjusting screw is in the fully-open position, do not rotate the adjusting knob counter-clockwise; also, when the screw is in the fully-closed position, do not rotate the knob clockwise. Doing so may/will damage the adjusting knob and the main body (It is in the fully-closed position at the time of shipment)
- 9) Push the adjusting knob to lock and pull to release. Make sure to push the knob after the pressure set. Otherwise the knob can turn and the setting pressure may change.
- 10) When pushing down on the adjusting knob, it could sit in the middle position between 'locked' and 'released'. In this situation, the valve is not locked completely. Please make sure the adjusting knob is fully pushed in the 'lock' position.
- 11) Do not turn the adjusting knob when it is in the pushed position. Otherwise it may cause a damage on the locking mechanism.
- 12) A ø30mm vacuum gauge should not be used where there is a substantial pressure fluctuation (High cycle fluctuation)
- 13) Read the detailed safety instructions and common safety instructions in the products catalog for Dual display digital pressure sensor.
- 14) When installing the product, thoroughly read the instruction manual attached and tighten the parts with the specified torques. Otherwise, it may result in malfunction of the product.
- 15) Once Elbow type is installed, the parts of the body other than the adjusting knob and the banjo fitting do not rotate. Therefore, do not rotate the fixed part such as a pressure gauge to avoid any damage.



Dimensions

RVZ Elbow type with no display (plugged)

Unit : mm

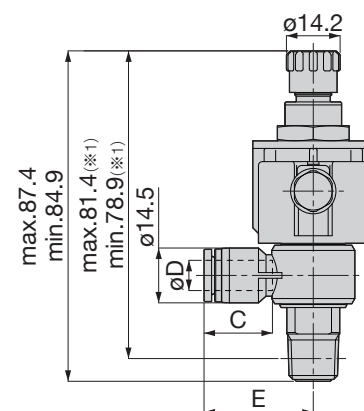
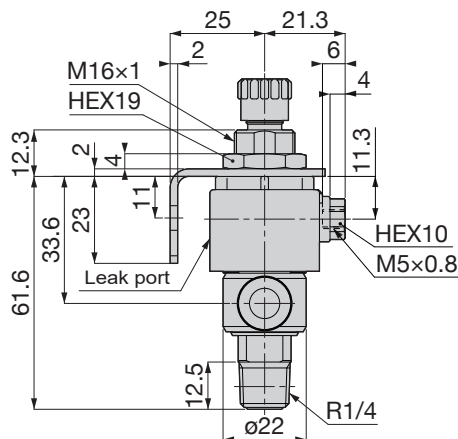
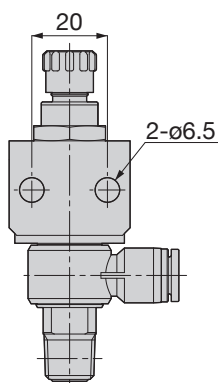
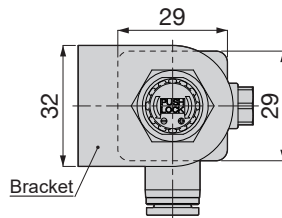


Model	Tubing O.D. øD	Tube End C	E	Weight (g)	Price (\$)
RVZ6 2	6	17	29	63	74.55
RVZ6 2 B				87	78.91
RVZ8 2	8	18.1	28.9	63	75.45
RVZ8 2 B				88	79.81

- ※1) Just reference height after installation
- ※2) Fill in the flow direction in **2** referring to model designation example
- ※3) The dimensions are of the model with a mounting bracket

RVZ Elbow type with no display (M5×0.8 female thread)

Unit : mm

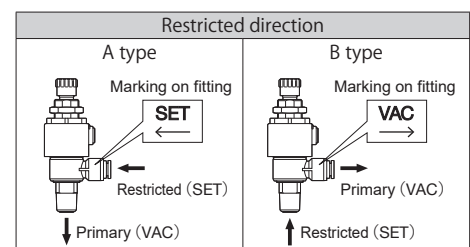


Model	Tubing O.D. øD	Tube End C	E	Weight (g)	Price (\$)
RVZ6 2 M	6	17	29	64	74.55
RVZ6 2 MB				88	78.91
RVZ8 2 M	8	18.1	28.9	64	75.45
RVZ8 2 MB				89	79.81

- ※1) Just reference height after installation
- ※2) Fill in the flow direction in **2** referring to model designation example
- ※3) The dimensions are of the model with a mounting bracket

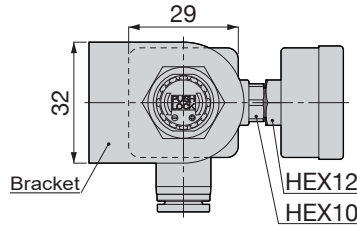
Restricted flow direction of Elbow type

There is A type and B type for elbow type of regulator depending on the restricted flow direction, which is identified by the marking on the body.



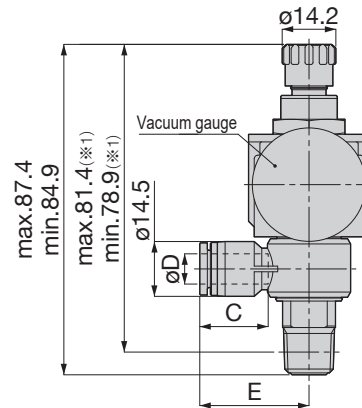
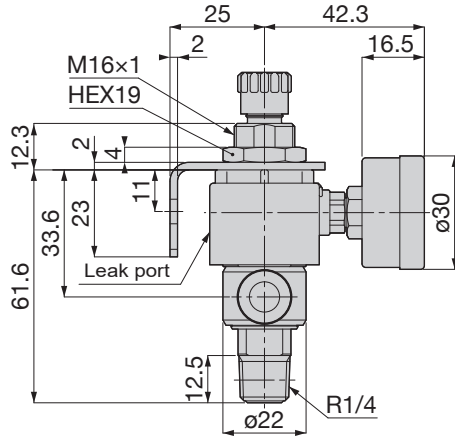
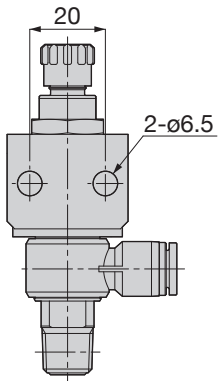
RVZ Elbow type with $\phi 30\text{mm}$ vacuum gauge

Unit : mm



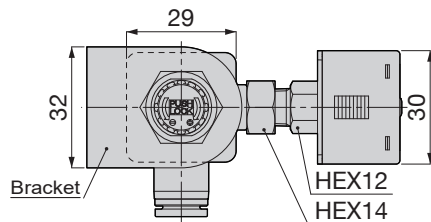
Model	Tubing O.D. ϕD	Tube End C	E	Weight (g)	Price (\$)
RVZ6 2 G	6	17	29	92	131.82
RVZ6 2 GB				116	136.18
RVZ8 2 G	8	18.1	28.9	92	132.73
RVZ8 2 GB				117	137.09

※1) Just referenced length after installation
 ※2) Fill in the flow direction in **2** referring to model designation example
 ※3) The dimensions are of the model with a mounting bracket



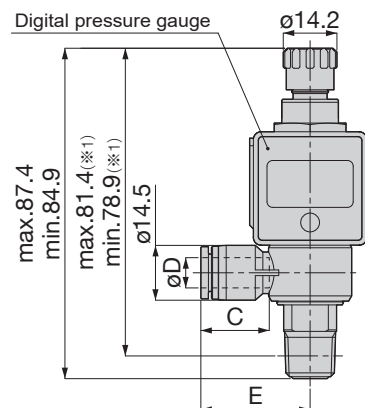
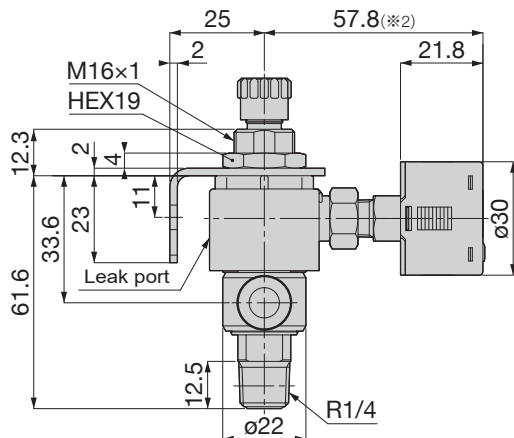
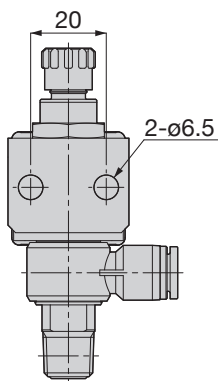
RVZ Elbow type with digital pressure gauge

Unit : mm



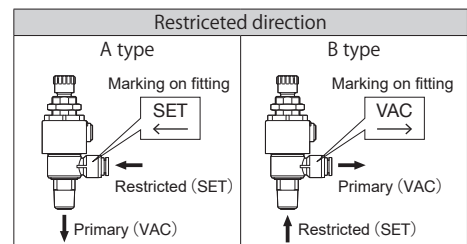
Model	Tubing O.D. ϕD	Tube End C	E	Weight (g)	Price (\$)
RVZ6 2 D	6	17	29	120	100.00
RVZ6 2 DB				145	104.36
RVZ8 2 D	8	18.1	28.9	120	100.91
RVZ8 2 DB				145	105.27

※1) Just reference height after installation
 ※2) Reference only
 ※3) Fill in the flow direction in **2** referring to
 ※4) The dimensions are of the model with a mounting bracket



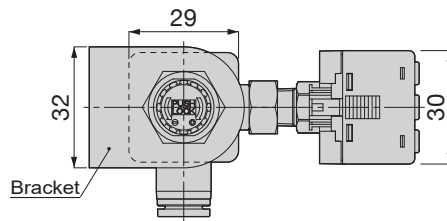
Restricted flow direction of elbow type

There is A type and B type for elbow type of regulator depending on the restricted flow direction, which is identified by the marking on the body.



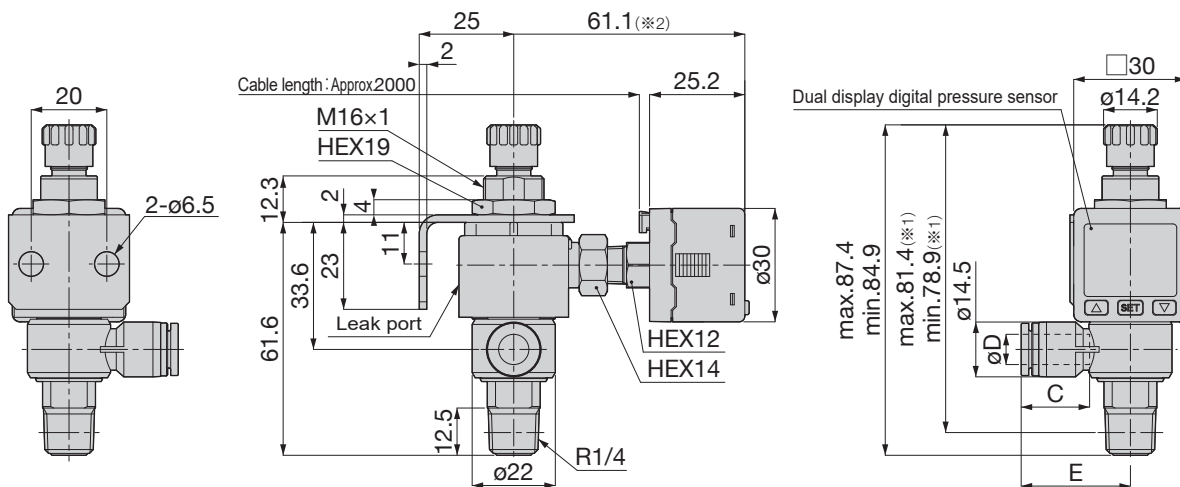
RVZ Elbow type with dual-display digital pressure sensor

Unit : mm



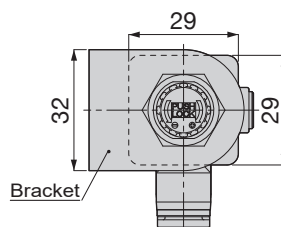
Model	Tubing O.D. ϕD	Tube End C	E	Weight (g)	Price (\$)
RVZ6 2 V \square	6	17	29	146	145.45
RVZ6 2 V \square B				170	149.82
RVZ8 2 V \square	8	18.1	28.9	146	146.36
RVZ8 2 V \square B				170	150.73

- ※ 1) Just reference height after installation
- ※ 2) Dimensions are for reference only
- ※ 3) Fill in the flow direction in **2** referring to model designation example
- ※ 4) The dimensions are of the model with a mounting bracket
- ※ 5) Fill in the sensor type in \square referring to model designation example

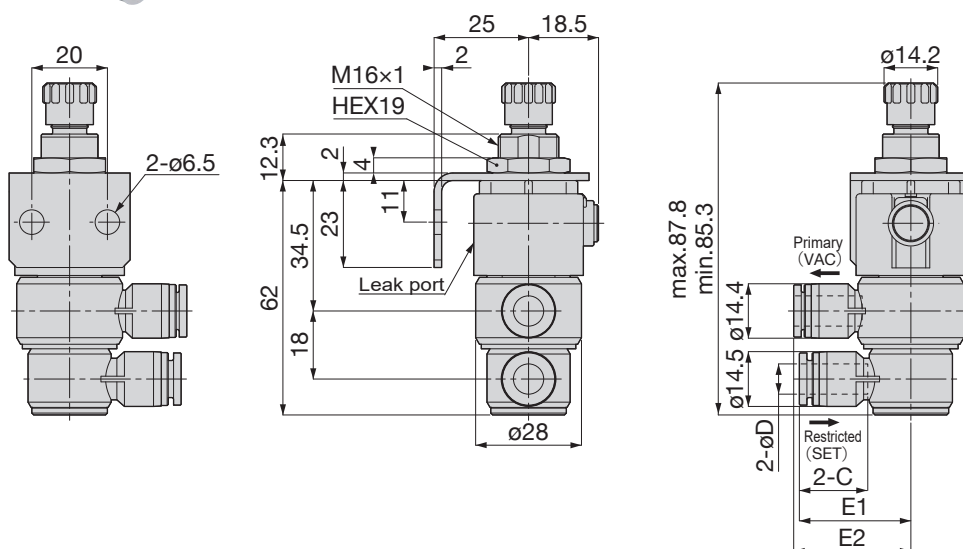


RVZ Union type with no display (plugged)

Unit : mm

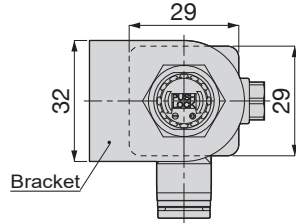


Model	Tubing O.D. ϕD	Tube End C	E1	E2	Weight (g)	Price (\$)
RVZ6U	6	17	29	31.1	108	80.00
RVZ8U	8	18.1	29.5	31	109	81.82

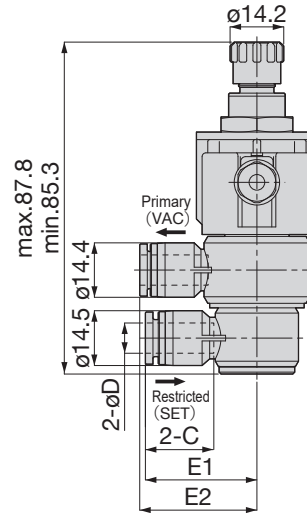
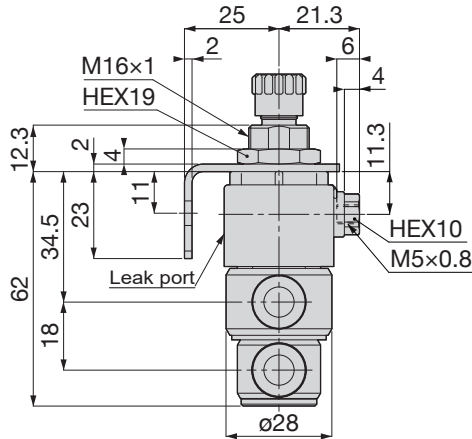
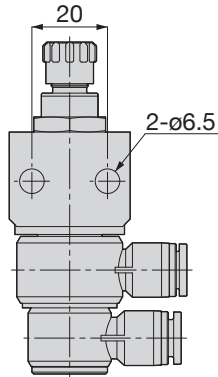


RVZ Union type with no pressure display (M5×0.8 female thread)

Unit : mm

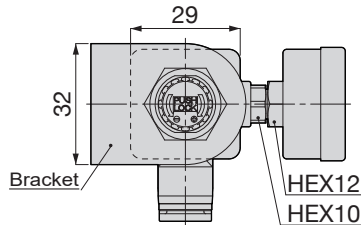


Model	Tubing O.D. ϕ D	Tube End C	E1	E2	Weight (g)	Price (\$)
RVZ6UM	6	17	29	31.1	109	80.00
RVZ8UM	8	18.1	29.5	31	110	81.82

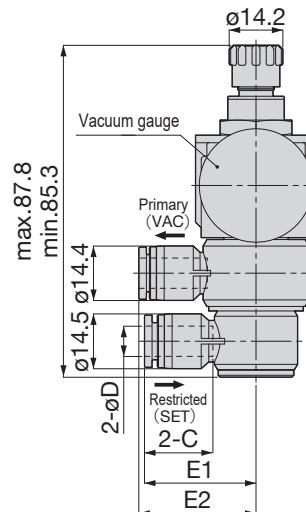
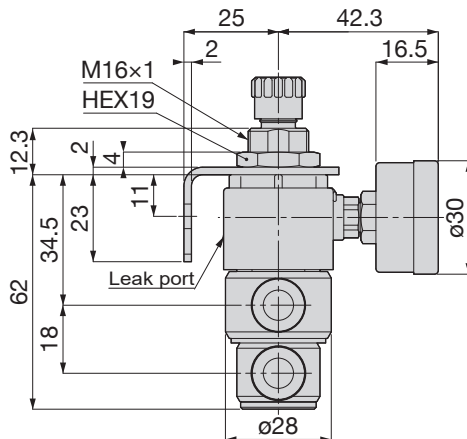
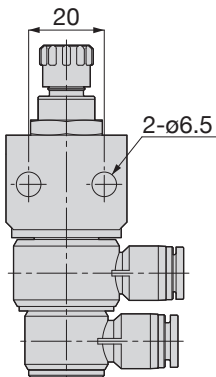


RVZ Union type with ϕ 30mm vacuum gauge

Unit : mm

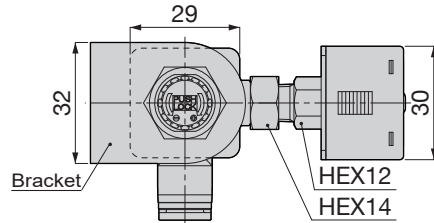


Model	Tubing O.D. ϕ D	Tube End C	E1	E2	Weight (g)	Price (\$)
RVZ6UG	6	17	29	31.1	137	137.27
RVZ8UG	8	18.1	29.5	31	138	139.09



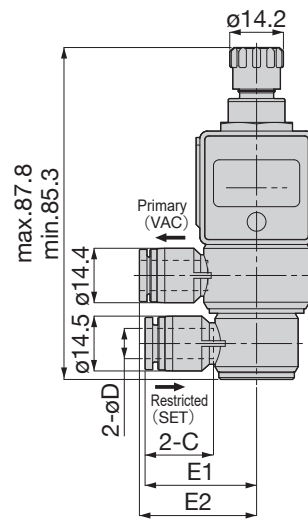
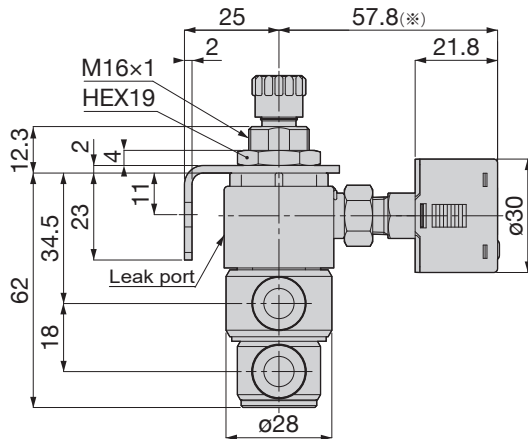
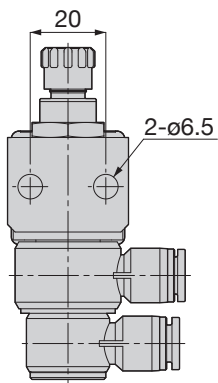
RVZ Union type with digital pressure gauge

Unit : mm



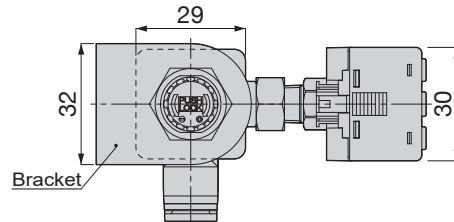
Model	Tubing O.D. ϕ D	Tube End C	E1	E2	Weight (g)	Price (\$)
RVZ6UD	6	17	29	31.1	165	105.45
RVZ8UD	8	18.1	29.5	31	166	107.27

※) Reference only



RVZ Union type with dual-display digital pressure sensor

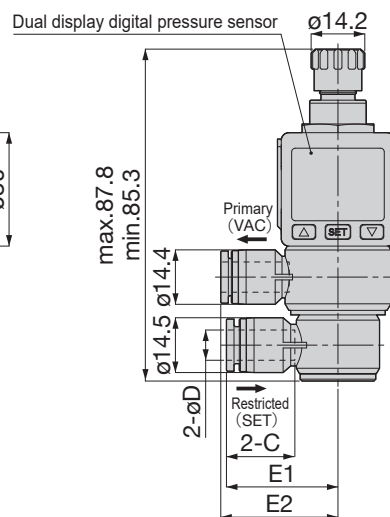
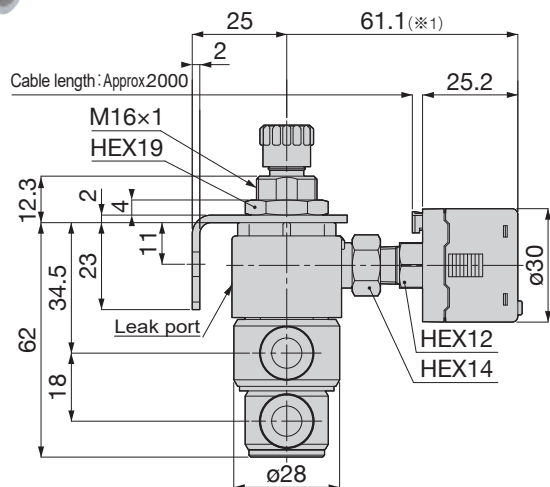
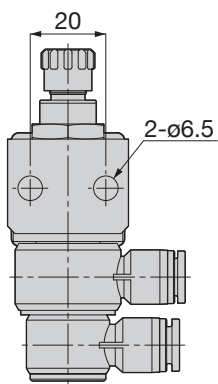
Unit : mm



Model	Tubing O.D. ϕ D	Tube End C	E1	E2	Weight (g)	Price (\$)
RVZ6UV□	6	17	29	31.1	190	150.91
RVZ8UV□	8	18.1	29.5	31	191	152.73

※1) Reference only

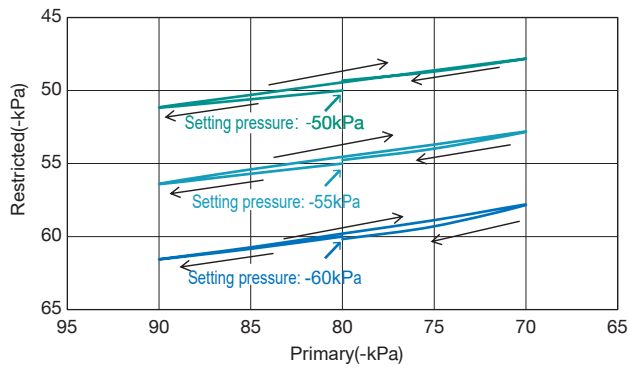
※2) Fill in the sensor type in □ referring to model designation example



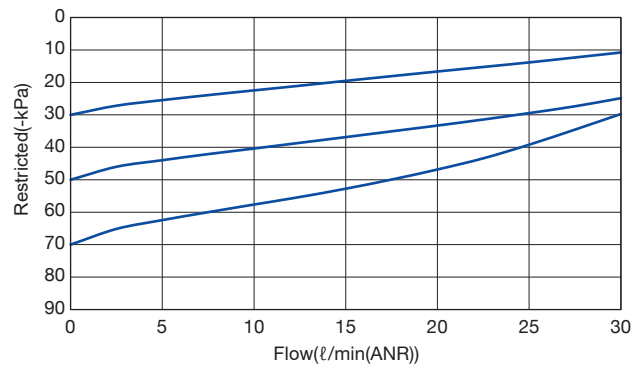
Characteristics

■ Elbow A type

Pressure characteristics

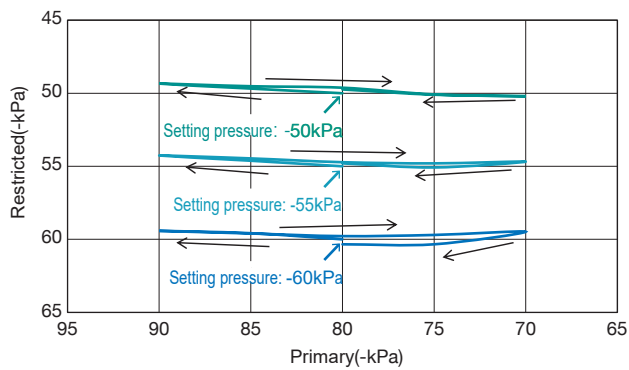


Flow characteristics

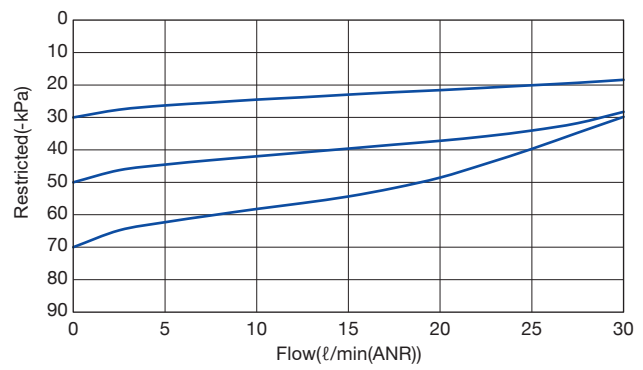


■ Elbow B type

Pressure characteristics

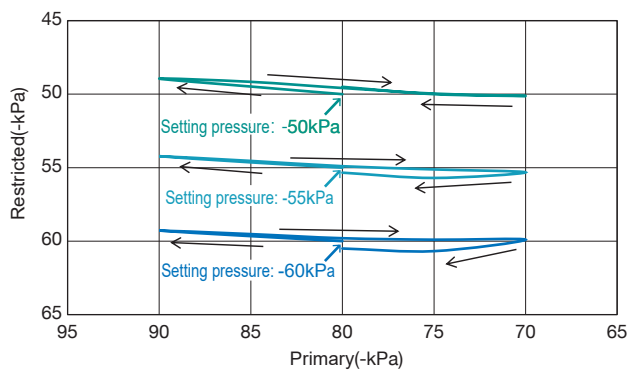


Flow characteristics

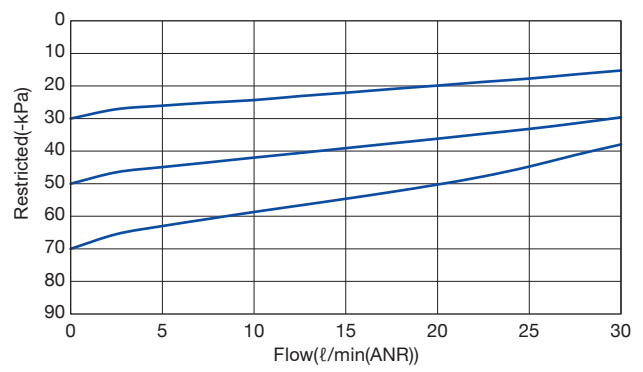


■ Union type

Pressure characteristics



Flow characteristics

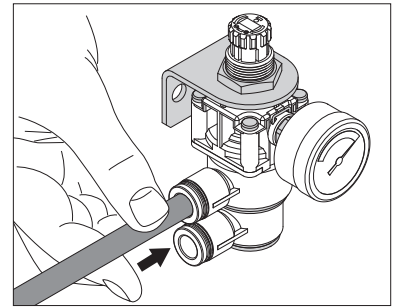


Installation

1) How to connect/disconnect a tubing to Push-in Fitting

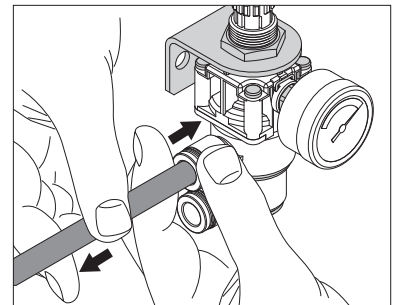
① Connecting tubings

Insert a tubing into Push-In fitting up to the tube end. Lock-claws bite and hold the tubing spontaneously. The Elastic Sleeve seals the tubing at the same time. Refer to "8-1. Instructions for Tube Insertion" under "Common Safety Instructions for Fittings" in the general catalog of PISCO.



② Tubing disconnection

The tubing is disconnected by pushing down the Release-ring to unlock the Lock claws. Make sure to shut-off the air supply when disconnecting the tubing.

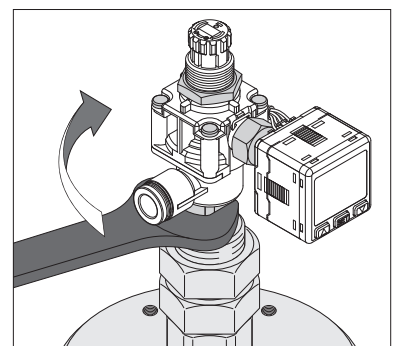


2) Installation

① How to install Elbow type

The elbow type is installed applying a wrench onto the wrench flats (flats: 14mm) and tightening it with a tightening torque of 12 ~ 14N·m

There must be sufficient space for the tool to be rotated. For models with a gauge and a sensor, there must be sufficient space to allow rotation with the gauge and sensor.

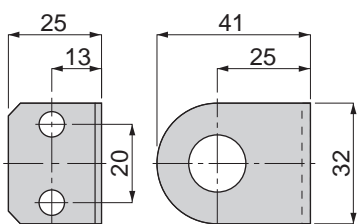


② How to install with a bracket

● Bracket installation

First, install the bracket for union type or elbow type with M6 screws (should be provided by customer) using the screw mounting holes.

Bracket dimensions

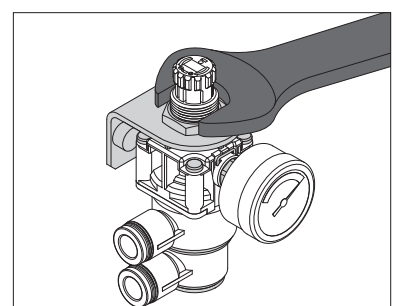
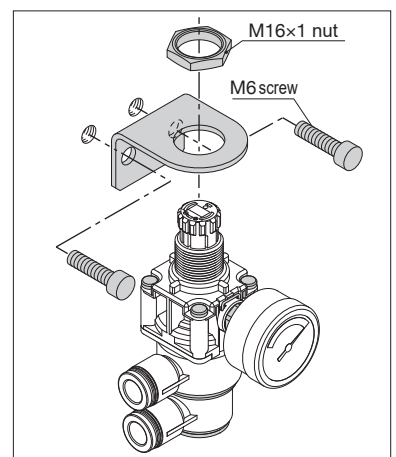


Unit : mm

● Main body installation

Then, install the main body, elbow type or union type. Tighten the panel-mount nut M16×1 with a tightening torque of 3 ~ 4N·m using a proper tool.

There must be sufficient space for the tool to be rotated.



Vacuum Regulator Push-Lock type

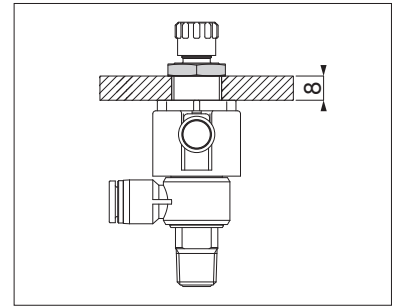
③ Install onto a panel-mounting hole

Put the threaded portion into the panel-mounting hole and tighten the M16×1 nut with a tightening torque of 3 ~ 4N·m using a proper tool.
There must be sufficient space for the tool to be rotated.

〈Recommended mounting hole dimensions〉

Inside diameter : 16.5mm~ 17mm

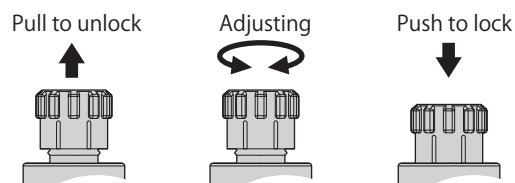
Thickness of panel : 8mm or thinner



How to adjust the pressure

1) Vacuum level adjustment

Pull the adjusting knob to unlock and rotate it for adjusting the pressure. Do not apply excessive force on the knob. Damages may occur.
(The adjusting knob is in the fully-closed position at the time of shipment)



2) Increasing vacuum level

Turn the adjusting knob clockwise from the fully open
When it comes to the desired vacuum level, push the knob to lock up the pressure.

3) Reducing vacuum level

When turning the knob too much (the vacuum level rises higher), turn the knob counter-clockwise to lower the vacuum level.
Then, take a same method of "2) Increasing vacuum level" mentioned above to set the vacuum level.
Make sure pushing down the knob to prevent the vacuum level from changing.

