

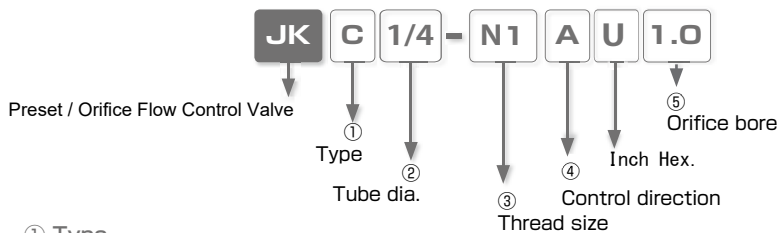


Tamper-Proof Family

Push-In Fitting Type Flow Control Valve for Constant Flow Rate
Preset / Orifice Flow Control Valve

- *Preset Actuator Speed*
- *Factory Preset Flow Rate by an orifice restrictor*
No-adjustable constant flow
- *Selectable from 20 types of Orifice Bore*
(If the selection is difficult, contact us for support.)
- *Ask us for 10-32UNF thread models*
like JKL1/4-U10U or JKC1/4-U10U

Model Designation (Example)



① Type

Code	Type	Code	Type
C	Straight	L	Elbow

② Tube dia.

Tube dia.	inch size		mm size		
Code	5/32	1/4	4	6	8
Size (mm)	ø3.97	ø6.35	ø4	ø6	ø8
O.D.(Inch)	ø5/32"	ø1/4"			

③ Thread size

Thread size	Taper pipe thread				Straight thread (Special-Made)	
Code	N1	N2	O1	O2	U10U	M5
Size	1/8NPT	1/4NPT	R1/8	R1/4	10-32UNF	M5 × 0.8

※ The unit of wrench size is inch (the code suffix is "U").

❖ 10-32UNF and M5 thread are not standard for the series. Please ask us for available models.

❖ R thread is same as BSPT

④ Control direction

Code	A	B
Control direction	Meter-out (Exhaust)	Meter-in (Supply)
	<p>■ Air from thread side is controlled. Air from tube side is not controlled and flows out from thread side.</p>	<p>■ Air from tube side is controlled. Air from thread side is not controlled and flows out from tube side.</p>

⑤ Orifice bore (※ Diameter of orifice bore is marked on metallic body)

Code (bore (mm))	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Code (bore (inch))	.0039	.0079	.0118	.0157	.0197	.0236	.0276	.0315	.0354	.0394
Thread size(1/8)	●	●	●	●	●	●	●	●	●	●
Thread size(1/4)	—	—	●	●	●	●	●	●	●	●
Code (bore (mm))	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
Code (bore (inch))	.0433	.0433	.0512	.0551	.0591	.063	.0669	.0709	.0748	.0787
Thread size(1/8)	●	●	●	●	●	—	—	—	—	—
Thread size(1/4)	●	●	●	●	●	●	●	●	●	●

※ Orifice size 0.1mm and 0.2mm is available only for tubing O.D. ø5/32" and ø4mm

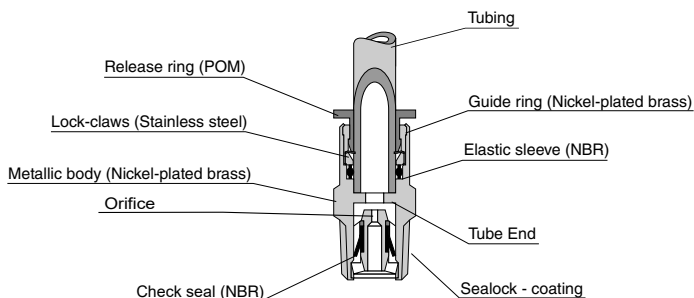
Specifications

Fluid medium	Air
Operating pressure range	-14.5~130psi (-0.1 ~ 0.9 MPa)
Check valve cracking pressure	7.25psi (0.05MPa)
Operating temp. range	32 ~ 140°F (0 ~ 60°C) (no freezing)

Construction (Straight: JKC)



Symbol



Standard Size List

Connection: Thread ⇄ Tube

Type	Thread size	Tube O.D.				Type	Thread size	Tube O.D.			
		5/32"	1/4"	4	6			8	5/32"	1/4"	4
JKC Straight	1/8NPT	●	●			JKL Elbow	1/8NPT	●			
	1/4NPT		●				1/4NPT		●		
	R1/8			●	●		R1/8			●	●
	R1/4				●		●	R1/4			●

❖ 10-32UNF thread and M5 thread are not as standard. Please ask us for availabilities.

△ Detailed Safety Instructions

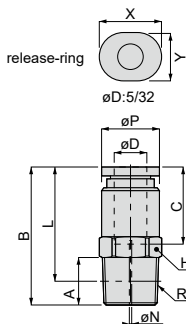
Before using PISCO products, be sure to read "Safety Instructions" and "Safety Instruction Manual" and "Common Safety Instructions for Controllers"

Caution

1. Before using the product, be sure to check the orifice bore marked on the hexagonal-column. The use of the product with wrong orifice bore will change the speed of actuator.
2. In case an accuracy of flow rate is required, select the best fit Orifice Flow Controller by actual measurements because the flow rate may vary according to the kind of cylinder, piping, the tolerance of the orifice bore by piece-to-piece, etc.
3. Orifice bore of 0.1mm and 0.2mm do not have inner nickel-plating treatment.

JKC Straight

RoHS compliant



Unit: mm

Code JKCøD-R□øN	Tubing O.D. øD	R	A	B	L	øP	Tube End C	H	X	Y	free flow eff. area (mm ²)	w.t. (g)
JKC5/32-N1 ④ U-⑤	5/32"	1/8 NPT	8.5	23.7	19.6	9.8	10.9	7/16	9.8	7.8	3.1 ~ 3.5	11
JKC1/4-N1 ④ U-⑤	1/4"	1/8 NPT	8.5	29.9	25.7	12	17	1/2	-	-	3.9 ~ 4.6	16
JKC1/4-N2 ④ U-⑤		1/4 NPT	11.5	33	27.2		17	9/16	-	-	6.7 ~ 7.3	22

※ Specify "A" for Meter-out (Exhaust) control or "B" for Meter-in (Supply) control in ④ and orifice diameter from the following table in ⑤

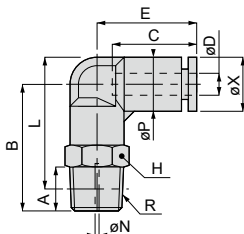
※ Orifice size 0.1mm and 0.2mm is available only for tubing O.D. 5/32" and 4mm

❖ "L" is reference values for height dimensions after tightening the thread

❖ Ask us availability for JKC5/32-U10 - 10-32UNF thread model

JKL Elbow

RoHS compliant



Unit: mm

Code JKCøD-R□øN	Tubing O.D. øD	R	A	B	L	øP	Tube End C	E	H	free flow eff. area (mm ²)	w.t. (g)
JKL5/32-N1 ④ U-⑤	5/32"	1/8 NPT	8.5	24.8	25.7	10	14.9	18	7/16	3.1 ~ 3.5	12
JKL1/4-N1 ④ U-⑤	1/4"	1/8 NPT	8.5	25.5	27.6	12.5	16.8	19.8	1/2	3.9 ~ 4.6	16
JKL1/4-N2 ④ U-⑤		1/4 NPT	11.5	28.5	29				9/16	6.7 ~ 7.3	21

※ Specify "A" for Meter-out (Exhaust) control or "B" for Meter-in (Supply) control in ④ and orifice diameter from the following table in ⑤

※ Orifice size 0.1mm and 0.2mm is available only for tubing O.D. 5/32" and 4mm

❖ "L" is reference values for height dimensions after tightening the thread

❖ Ask us availability for JKL5/32-U10 - 10-32UNF thread model

Orifice and Effective Area

Orifice dia. øN (mm)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
Orifice dia. øN (inch)	.0039	.0079	.0118	.0157	.0197	.0236	.0276	.0315	.0354	.0394	.0433	.0472	.0512	.0551	.0591	.063	.0669	.0709	.0748	.0787
Dia. tolerance (mm)	+0.05 0										+0.025 0									
Control flow eff. area (mm ²)	0.0006	0.002	0.006	0.011	0.016	0.2	0.3	0.4	0.5	0.65	0.8	0.9	1.1	1.25	1.5	1.8	2.0	2.3	2.55	2.8
Cv factor	.00033	.00108	.00325	.00614	.00867	.01084	.01626	.02168	.0271	.03523	.04336	.04878	.05982	.06775	.0813	.09756	.1084	.12466	.13821	.15176

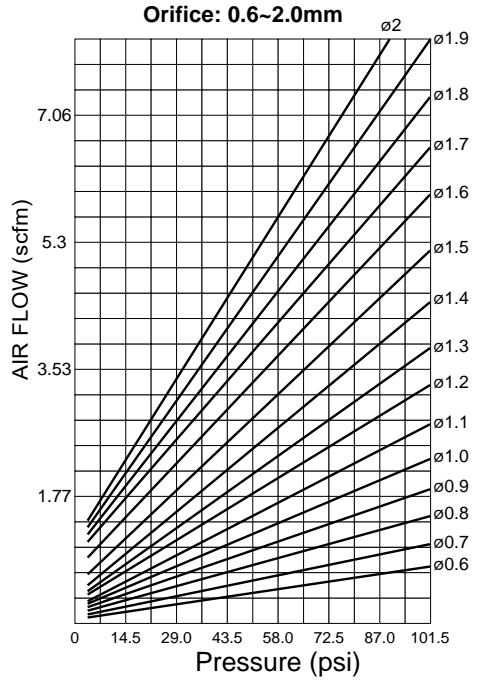
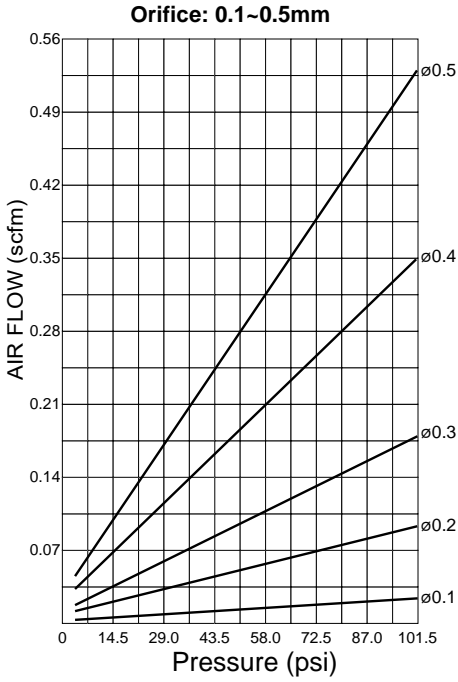
※ The above effective area is reference only.

※ Cv factor is a reference value converted by multiplying effective cross-sectional area (mm²) by 0.0542

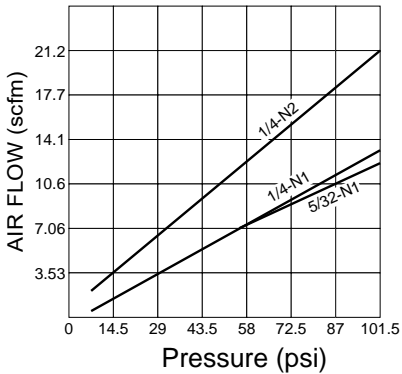
※ Please figure out what you need from the orifice bore size but not Cv factor.

Flow Characteristics (reference only)

[Control Flow]

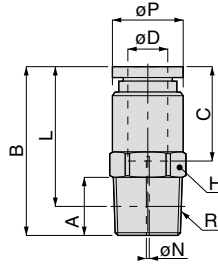


[Free Flow]



JKC Straight

RoHS compliant



Unit : mm

Model code	Tube O.D. øD	R	A	B	L	øP	Tube end C	Hex. H	Free flow effective area (mm ²)	Weight (g)	CAD file name
JKC4-01 □□	4	R1/8	8.5	23.7	19.2	10	10.9	10	3.1~3.5	9.7	JKC4-01_
JKC6-01 □□	6	R1/8	8.5	24	19.5	10	11.7	10	3.9~4.6	8.3	JKC6-01_
JKC6-02 □□		R1/4	11.5	27.7	21.2	11		14	6.7~7.3	18	JKC6-02_
JKC8-01 □□	8	R1/8	8.5	30.2	25.7	14	18.2	14	3.4~4.5	17	JKC8-01_
JKC8-02 □□		R1/4	11.5	33.2	26.7				6.4~7	21	JKC8-02_

※ 1. "L" is a reference value for height dimension after tightening taper thread.

※ 2. Left □ in Model code / Replaced with "A" for Meter-out (Exhaust), "B" for Meter-in (Supply).

Right □ in Model code / Replaced with orifice bore size selected from the following table.

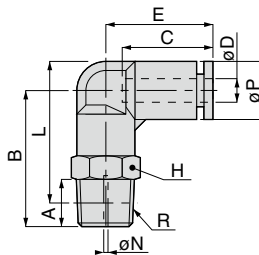
Orifice dia. φN (mm)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	
Dia. tolerance (mm)	+0.05 0																			+0.025 0	
Control flow effe. area (mm ²)	0.006	0.02	0.06	0.11	0.16	0.2	0.3	0.4	0.5	0.65	0.8	0.9	1.1	1.25	1.5	1.8	2.0	2.3	2.55	2.8	

※. Orifice dia. 0.1mm and 0.2mm is available only for tubing O.D. φ4mm

❖ Ask us availability for JKC4-M5

JKL Elbow

RoHS compliant



Unit : mm

Model code	Tube O.D. øD	R	A	B	L	øP	Tube end C	E	Hex. H	Free flow effective area (mm ²)	Weight (g)	CAD file name
JKL4-01 □□	4	R1/8	8.5	24.8	25.3	10	14.9	18	10	3.1~3.5	11	JKL4-01_
JKL6-01 □□	6	R1/8	8.5	25.5	27.3	12.5	16.8	19.8	12	3.9~4.6	15	JKL6-01_
JKL6-02 □□		R1/4	11.5	28.5	28.3				14	6.7~7.3	20	JKL6-02_
JKL8-01 □□	8	R1/8	8.5	28.5	31.3	14.5	18.2	22.7	14	3.4~4.5	22	JKL8-01_
JKL8-02 □□		R1/4	11.5	31.5	32.3					6.4~7	25	JKL8-02_

※ 1. "L" is a reference value for height dimension after tightening taper thread.

※ 2. Left □ in Model code / Replaced with "A" for Meter-out (Exhaust), "B" for Meter-in (Supply).

Right □ in Model code / Replaced with orifice bore size selected from the following table.

Orifice dia. φN (mm)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	
Dia. tolerance (mm)	+0.05 0																			+0.025 0	
Control flow effe. area (mm ²)	0.006	0.02	0.06	0.11	0.16	0.2	0.3	0.4	0.5	0.65	0.8	0.9	1.1	1.25	1.5	1.8	2.0	2.3	2.55	2.8	

※. Orifice dia. 0.1mm and 0.2mm is available only for tubing O.D. φ4mm

❖ Ask us availability for JKL4-M5

How to select orifice bore

■ Select orifice bore by the following method, when controlling cylinder speed with Speed Controller Constant Flow.

① Use the following calculation formula and find an necessary air flow rate in order to control cylinder at desired speed.

(Calculation to find air flow rate)

$$Q = 4.7 \times 10^5 \times \frac{D^2 \times L}{t} \times \frac{P + 0.1013}{0.1013}$$

Q = Air flow rate (l/min(ANR))

D = Cylinder tube I.D.(mm)

L = Cylinder stroke (mm)

t = One-way stroke time (sec)

P = Operating pressure (MPa)

② Use the chart of Flow Characteristic. Select 2 or 3 orifice bores which are closer to the intersection between Flow rate and Pressure, then select the product with best orifice bore by actual measurements.

(Example 1)

D (I.D.) = 25mm

L (Stroke) = 60mm

t (Time) = 0.1sec

P (Pressure) = 0.5MPa ㉔

Use the calculation formula to find an necessary

air flow rate (①)

Q = 100l/min(ANR) ㉕

Use Chart 1 to get orifice bore

Orifice bore I.D. = ø1.45mm ㉖

Target of selection is ø1.6mm ~ ø1.4mm

※ Loading on cylinder and air consumption rate in pipes are not included in the calculation formula ①.

Calculated formula ① is reflected in the Chart 2. This chart helps you to check the air flow rate easily. Check the cylinder speed in advance.

(Calculation formula to find the cylinder speed)

$$V = \frac{L}{t}$$

V = Cylinder speed (mm/sec)

L = Cylinder stroke (mm)

t = One-way stroke time (sec)

(Example 2)

Usage example of chart 2.

Cylinder tube I.D. = 25mm ㉗

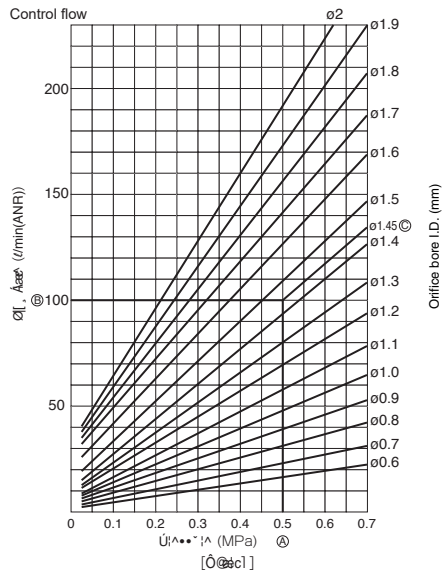
Cylinder stroke = 60mm

One-way stroke time = 0.1sec (Cylinder speed 600mm/sec) ㉘

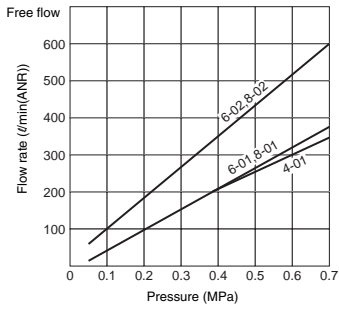
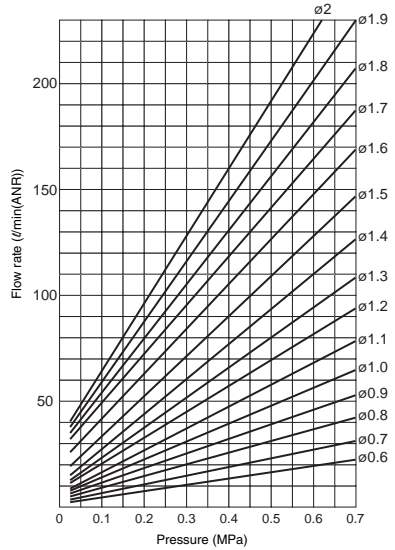
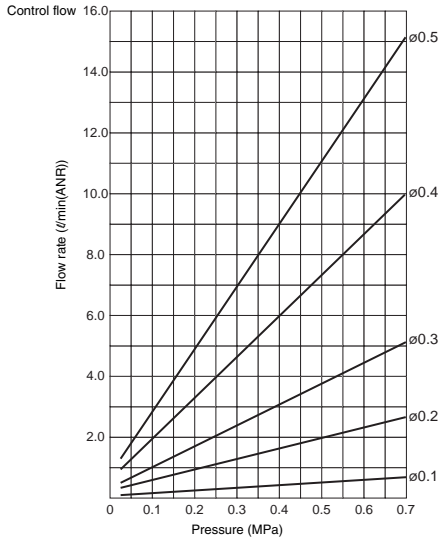
Operating pressure = 0.5MPa ㉙

Air flow rate = 100 l/min(ANR) ㉚

Orifice bore of Speed Controller Constant Flow can be selected by air flow rate.

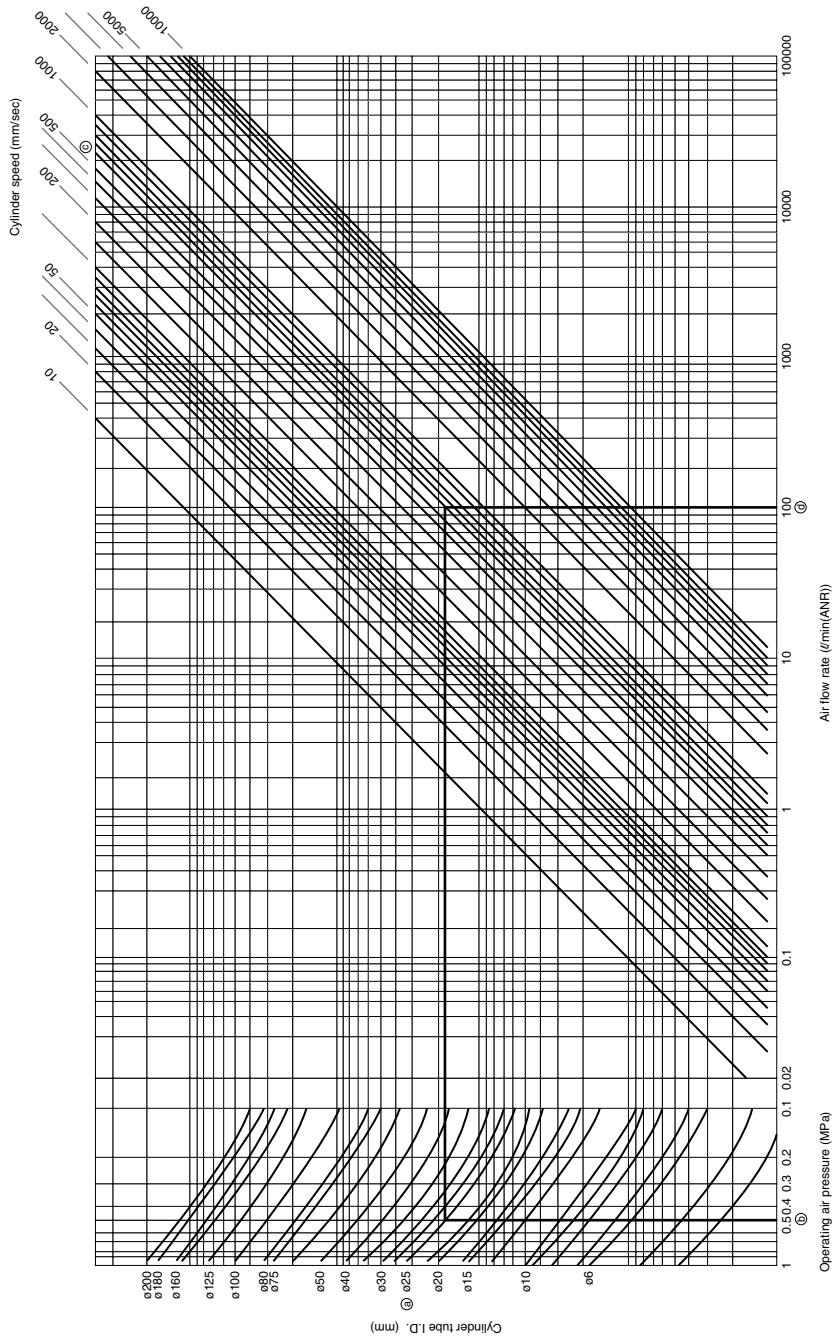


Flow Characteristic





[Chart 2.] Chart for obtaining air flow rate of air cylinder



Common Safety Instructions for Controllers

Before selecting or using PISCO products, read the following instructions. Read the detailed instructions for individual series as well as the instructions below.

Warning

1. Some products have an air direction to control. Make sure to distinguish the direction by marking on the products. Installing the product with the wrong direction may cause personal injury or property damage.
2. Avoid any load on PISCO products such as a tensile strength, twisting, bending, dropping and excessive impacts. These may cause damage to the products.
3. Locknut needs to be tightened by hand. Do not use any tool. Using tools to tighten the locknut may cause damage to the products. Also, inadequate tightening may loosen the locknut and the initial setting can be changed.
4. Use clean air to supply. Dusts and sludge may result in the change of the initial setting.

How to insert and disconnect

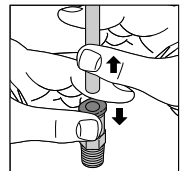
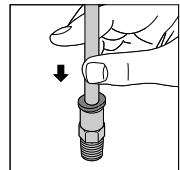
1. How to insert and disconnect tubing

① Tubing insertion

Insert a tubing into Push-In Fitting up to the tube end. Lock-claws bite the tubing and grab it automatically, then the elastic sleeve seals around the tubing. Refer to "2. Instructions for Tubing Insertion" under "Common Safety Instructions for Fittings" .

② Tubing disconnection

The tubing is disconnected by pushing release-ring to release Lock-claws. Make sure to stop air supply before the tubing disconnection.



2. How to tighten thread

① Tightening thread

Use a wrench to tighten a hexagonal-column.

Refer to "Table: Recommended tightening torque" under "2. Instructions for Installing Controllers" in "Common Safety Instructions for Controllers".

