

Safety Instructions

- This Safety Instructions aim to prevent injuries to human bodies and damage to properties by requiring proper use of PISCO devices. Also the relevant requirements of ISO 4414 and JIS B8370 must be observed.

ISO 4414: Pneumatic fluid power ... Recommendations for the application of equipment to transmission and control systems.

JIS B 8370: General standards for pneumatic systems

Safety instructions are classified into "Danger", "Warning" and "Caution", depending on the degree of danger or damage involved when the safety instructions are not complied with in handling the equipment.

△ Danger : Failure to heed the warning of apparent danger may result in death or serious injuries.

△ Warning : Failure to heed the warning of conditionally dangerous situations may result in death or serious injuries.

△ Caution : Failure to heed the warning of conditionally dangerous situations may result in minor or not too serious injuries or damage to properties.

*Safety Instructions are subject to change without advance notice.

⚠ Common Safety Instructions for Products Listed in This Manual

□ PISCO products are designed and manufactured for use with general industrial machinery and equipment. Therefore be sure to observe the following safety instructions:

⚠ Danger : 1. Do not use PISCO devices with the following equipment:

- (1) Equipment used for the sustenance or control of people's health or lives
- (2) Equipment used for the movement or transport of people
- (3) Equipment used specifically to ensure safety

⚠ Warning : 1. Avoid the following uses for PISCO devices:

- (1) Use under conditions not specified for the device
- (2) Use in any outdoor environment
- (3) Use in locations where the device is exposed to excessive vibration or shocks
- (4) Use in locations where the device is exposed to any corrosive gas, inflammable gas, chemicals, seawater, or vapor.

* Certain PISCO devices, however, can be used in environments as described above. Therefore check on the specifications for the use of individual devices.

2. Do not disassemble or remodel the PISCO devices in such a way as may affect the basic structure, performance or function of them.
3. Carry out maintenance and checks of the PISCO devices only after turning power off, shutting air off and making certain that the pressure in the piping has dropped to zero.
4. Never touch the release ring of the Quick-Fitting Joint when there is pressure working on it. Touching may release the ring, which in turn may cause the tube to fall out.
5. Avoid too frequent switching of air pressure. Otherwise the device body may heat up to cause burns on you.
6. Do not allow tension, twist or bending forces to act on the joints. Undue forces may damage the joint body.
7. For applications in which the threaded side or the tube connection side is subject to vibration, use Rotary Joints, High Rotary Joints or Multi-Circuit Rotary Blocks only. Swinging or rotation may damage the joint body.
8. For applications with hot water of 60°C (140°F) or above or thermal oil, use no other joints than Die Temperature Control Fitting. Heat or hydrolysis may damage the joint body.
9. For applications in which the scattering of static electricity or charging must be prevented, use no other joints than EG Joints. Static electricity may cause system malfunction or trouble.
10. Never use joint other than Spatter Joint or Brass Joint where they are exposed to spatter. Otherwise can cause fire.

⚠ Caution : 1. In installing the piping, be sure to remove dust or drainage from within the piping. Dust or drainage left unremoved may enter other equipment, thus causing troubles.

2. When using an ultrasoft tube to connect to a Quick-Fitting Joint, be sure to use an insert ring in the bore of the tube. Otherwise the tube may fall out to cause leakage.
3. When you use tubes of brands other than ours, be sure to confirm that the outside diameter of the tubes satisfies the tolerance specified Table 1.

Table 1. Tube O.D. Tolerance

mm size	Nylon tube	Urethane tube	inch size	Nylon tube	Urethane tube
ø3mm	—	±0.15mm	ø1/8	±0.0039in.	±0.0059in.
ø4mm	±0.1mm	±0.15mm	ø5/32	+0.0039in.	+0.0059in.
ø6mm	±0.1mm	±0.15mm		-0.002in.	-0.0039in.
ø8mm	±0.1mm	±0.15mm	ø3/16	±0.0039in.	±0.0059in.
ø10mm	±0.1mm	±0.15mm	ø1/4	±0.0039in.	±0.0059in.
ø12mm	±0.1mm	±0.15mm	ø5/16	+0.0059in.	±0.15in.
ø16mm	±0.1mm	±0.15mm		0	-0.002in.
			ø3/8	±0.0039in.	±0.0059in.
			ø1/2	±0.0039in.	±0.0059in.
			ø5/8	±0.1in.	+0.0079in.
				0	-0.002in.

4. Cautions on the fitting of tube

- (1) Make certain that the end of the tube is cut at right angles, the tube surface is free from flaws, and the tube is not deformed into an ellipse.
- (2) When fitting a tube, refer to the dimensional specification of Table 2. To prevent leaks, insert the tube to end (C) completely.

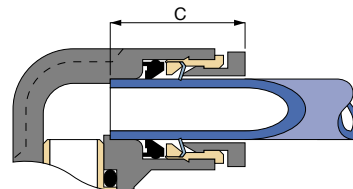
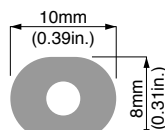
Table 2

• Standard type

Tube dia.	ø4	ø6	ø8	ø10	ø12	ø16
	ø5/32	ø3/16, ø1/4	ø5/16	ø3/8	ø1/2	ø5/8
C	mm 15mm	17mm	18.5mm	20.5mm	23.5mm	24.5mm
	inch 0.59in.	0.67in.	0.73in.	0.81in.	0.92in.	0.96in.

• Mini-type

Tube dia.	ø3	ø4	ø6
	(*)	ø1/8, ø5/32	
C	mm 9.5mm	11mm	12mm
	inch 0.37in.	0.43in.	0.47in.



(*) Even with the tube of 3mm diameter, C=11mm (0.43inch). for the release ring of the dimensions shown right.

- (3) On completion of fitting, make certain that the tube does not come out at your pulling.

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5. Cautions on the release of tube

- (1) Before releasing the tube, make certain that the pressure inside the tube is zero.
- (2) Push the release ring fully inside and pull out the tube. Unless you push it completely in, the tube may not come out and scrapings of tube may be left inside the joint.

6. Cautions on the installation of joint body

- (1) When installing the joint body, tighten it with a proper tool, using the outside or inside hexagon.
- (2) In tightening the screw, use the tightening torque recommended in Table 3.
 - Use of a torque higher than the recommended level may damage thread or deform gasket, thus causing leaks.
 - Use of a torque lower than the recommended level may cause loose screw and leakage.
- (3) With the joint whose piping direction will not change after tightening, make adjustment within the recommended range of tightening torques.

Table 3. Tightening Torque, Sealock Color and Gasket Material

Thread type	Thread size	Tightening torque	Sealock color	Gasket material
Metric thread	M3×0.5	0.7N·m (0.52lbf·ft)	—	SUS304, NBR
	M5×0.8	1.0 ~ 1.5N·m (0.74 ~ 1.11lbf·ft)		
	M6×1.0	1.8 ~ 2.3N·m (1.33 ~ 1.70lbf·ft)		
	M6×0.75	0.8 ~ 1.0N·m (0.59 ~ 0.74lbf·ft)		POM (Polyacetal)
	M8×0.75	1.0 ~ 2.0N·m (0.74 ~ 1.48lbf·ft)		
	M5×0.8	1.0 ~ 1.5N·m (0.74 ~ 1.11lbf·ft)		
Taper pipe thread	R1/8	7 ~ 9N·m (5.16 ~ 6.64lbf·ft)	White	—
	R1/4	12 ~ 14N·m (8.85 ~ 10.33lbf·ft)		
	R3/8	22 ~ 24N·m (16.23 ~ 17.70lbf·ft)		
	R1/2	28 ~ 30N·m (20.65 ~ 22.13lbf·ft)		
Unified thread	No. 10-32UNF	1.0 ~ 1.5N·m (0.74 ~ 1.11lbf·ft)	—	SUS304, NBR
Pipe thread General purpose (inch)	1/16-28NPT	7 ~ 9N·m (5.16 ~ 6.64lbf·ft)	Gray	—
	1/8-27NPT	7 ~ 9N·m (5.16 ~ 6.64lbf·ft)		
	1/4-18NPT	12 ~ 14N·m (8.85 ~ 10.33lbf·ft)		
	3/8-18NPT	22 ~ 24N·m (16.23 ~ 17.70lbf·ft)		
	1/2-14NPT	28 ~ 30N·m (20.65 ~ 22.13lbf·ft)		

7. Cautions on the removal of joint body

- (1) When removing the joint body, loosen it with a proper tool, using the outside or inside hexagon.
- (2) Remove sealant sticking to the thread on the mating equipment. The sealant left sticking may enter the peripheral equipment and cause trouble.