## Multiple Push-In Fitting Type Connector Series

• Desorption of Several Tubes at One Time.

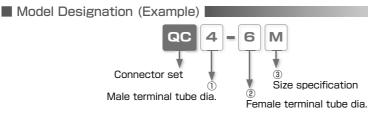
• Combinable Connectors by Connector Band.

• Combinable Tubes with Different Sizes.

LER

UBE

#### **Connector Series**



① Male terminal tube dia.

Code (Straight)	3	4	6	8
Code (Elbow)	3L	4L	6L	8L
Dia.(mm)	ø3	ø4	ø6	ø8

#### (2) Female terminal tube dia.

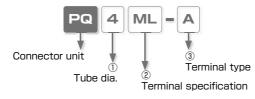
Code	3	4	6	8
Dia.(mm)	ø3	ø4	ø6	ø8

③ Size specification

No code : Standard type (ø6, 8mm only)

M: Mini type (except ø8mm)

#### Model Designation of Male / Female connector unit



#### 1) Tube dia.

Code	3	4	6	8
Dia. (mm)	ø3	ø4	ø6	ø8

#### (2) Terminal specification

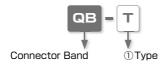
No code : Standard type (ø6, 8mm only)

- L: Standard type elbow (ø6, 8mm male connector only)
- M: Mini type (ø3, 4, 6mm only)
- ML: Mini type elbow (ø3, 4, 6mm male connector only)

#### ③ Terminal type

- A: Male
- B : Female

#### Model Designation of connector band



#### $\textcircled{1} \mathsf{Type}$

T: Vertical connection

H: Horizontal connection

Spe	cifications	
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Fluid medium	Air
Max. operating pressure	0.9MPa
Max. vacuum	-100kPa
Operating temp. range	0-60°C(No freezing)

#### ▲ Detailed Safety Instructions

Before using PISCO products, be sure to read "Safety Instructions" and "Safety Instruction Manual" on page 23 to 27 and "Common Safety Instructions for Fittings" on page 33 to 35.

#### Warning

 Insert male connector fully into female connector until it stops and turn a lock-pin to lock it properly. Improper lock may cause the separation of connectors, personal injury or a fluid leakage.

#### Caution

 Use a flathead screw driver or a hex key to turn a lock-pin. Otherwise, it may cause the separation of connectors, damage of the lock-pin or inseparable connectors. FITTING

CONTROLLER VALVE

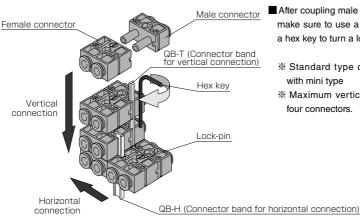
TUBE

How to assemble

#### **Connector Series**



#### Standard Size List Male / Female connector set Page Male terminal tube 0.D. Female terminal tube O.D.(mm) Page Male terminal tube 0.D. Female terminal tube O.D.(mm) Туре Туре (mm) 3 4 6 (mm) 8 3 QC Straight P.339 QC Elbow P.339 3 6 З . 4 . • • 4 • . 6 . . 6 • . 8 . 8 Male connector unit Tube O.D.(mm) Tube O.D.(mm) Page Туре Page Туре 3 8 3 8 4 6 PQ-A Ebow Male Terminal Only P.340 PQ-A Straight Nale Terminal Only P.340 • Female connector unit Tube O.D.(mm) Туре Page 3 4 6 8 EREE Female Terminal Only P.340 . • .



- After coupling male and female connectors, make sure to use a flathead screwdriver or a hex key to turn a lock-pin and fix them.
  - Standard type can not be connected with mini type
  - Maximum vertical connection is up to four connectors.

#### Release-ring dimension

Release-ring shape of mini type is oval as the right figure shows.

Refer to the dimension of release-ring on the right table.

	Tube dia. (mm)	Ø <b>3</b>	ø 4	Ø 6
	X (mm)	7	9.8	11.8
$\bigcirc$	Y (mm)	6	7.8	9.8

FITTING CONTROLLER TUBE

338

#### How to insert and disconnect

#### 1. How to insert and disconnect tubes

#### ① Tube insertion

Insert a tube into Push-In Fitting up to the tube end. Lock-claws bite the tube and fix it automatically, then the elastic sleeve seals around the tube.

Refer to "2. Instructions for Tube Insertion" under "Common Safety Instructions for Fittings" .

#### (2) Tube disconnection

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

#### How to couple and uncouple connectors

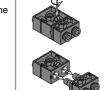
Coupling connectors

After coupling a male connector and a female connector, use a flathead screwdriver or a hex key to turn lock-pin by 90 degrees in the clockwise direction to fix them.

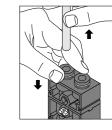
② Uncoupling connectors Use a flathead screwdriver or a hex key to turn lock-pin by 90 degrees in the

counterclockwise direction to uncouple them.

Applicable Tube and Related Products Polyurethane Tube ......P.596 Nylon Tube·····P.608











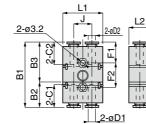
#### **Connector Series**



Male / Female set Straight

RoHS compliant

QC



Unit : mm

CAD

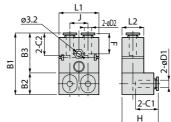
														••••	
Model code	Tube O.D. ØD1	Tube O.D. ØD2	B1	B1	В3		L2	Tube end C1	Tube end C2	F1	F2		Effective area (mm²)	Weight (g)	CAD file name
QC3-3M		3	36.7		22.6				11	11.8					
QC3-4M	3	4	30.7	14.1	22.0	22	12	11	11	11.0	13.8	10	2.6	11	
QC3-6M		6	37.1		23				11.6	12.2					
QC4-3M		3	36.7		22.6				11	11.8			2.6		
QC4-4M	4	4	30.7	14.1	22.0	22	12	11		11.0	13.8	10	4.2	11	TFC-001
QC4-6M	1	6	37.1		23				11.6	12.2		4.3			
QC6-3M		3	37.1		22.6				11	11.8			2.6		
QC6-4M	6	4	37.1	14.5	22.0	22	12	11.6	11	11.0	13.8	10	4.2	11	
QC6-6M		6	37.5		23				11.6	12.2			10.4	1	
QC6-6	6	6	54.1	20.8	33.3	29	17	17	17	17.3	19.5	14	10.9	28	
QC6-8	b	8	8 54	20.0	33.2	29	17	17	18.1	17.2	19.5	14	10.9	29	- TFC-002
QC8-6	8	6	54	20.7	33.3	29	17	18.1	17	17.3	19.5	14	10.9	29	1150-002
QC8-8	8	8	53.9	20.7	33.2	29	17	10.1	18.1	17.2	19.5	14	16.3	31	



Mini Series Chemica Series PP Series EG Series Anti-spetter & Brass Series Die Tenperatu Control Minimal Series Stop Fitting Series Rotary Series Twist-Proo Fitting Block and Connector Coupling







Unit : mm

CAD

Model code	Tube O.D. Ø D 1	Tube O.D. ØD2	B1	B2	B3	L1	L2	Tube end C1	Tube end C2	Н	F	J	Effective area (mm²)	Weight (g)	CAD file name
QC3L-3M		3	34.6		22.6				11		11.8		2.3		
QC3L-4M	3	4	54.0	12	22.0	22	12	11		20.2	11.0	10	2.6	12	
QC3L-6M		6	35		23			11.	11.6		12.2		2.0		
QC4L-3M		3	34.6		22.6				11		11.8		2.6		
QC4L-4M	4	4	54.0	12	22.0	22	12	11	11	20.2	11.0	10	4	12	TFC-003
QC4L-6M		6	35		23				11.6		12.2		4.2		
QC6L-3M		3	34.6		22.6				11		11.8		2.6	12	
QC6L-4M	6	4	54.0	12	22.0	22	12	11.6		20.6	11.0	10	4.2	12	
QC6L-6M		6	35		23				11.6		12.2		8.8	13	
QC6L-6	6	6	50.3	17	33.3	29	17	17	17	30.3	17.3	14	9.5	31	
QC6L-8	Ö	8	50.2		33.2	29	17	17	18.1	30.3	17.2	14	9.9	32	TFC-004
QC8L-6	8	6	50.3	17	33.3	29	17	18.1	17	30.2	17.3	14	10.9	32	1150-004
QC8L-8	0	8	50.2	17	33.2	29	17	10.1	18.1	30.2	17.2	14	13.3	33	



Male /	Male / Female Terminal Alone										
PQ-A S	Straigh	t Male <sup>·</sup>	Termin	al Only	,				CAD	FITTING	
RöffS compliant											
			CONTROLLER								
	0		ц		╞╡╘┿╛	<u>п</u>				ER.	
	-		2	2-øD	L2					VALVE	
					]					-VE	
				L1	<b>_</b> _				Unit ∶ mm		
Model code	Tube O.D. øD			L2	Tube end C			Weight (g)	CAD file name	TUBE	
PQ3M-A	3	14.1	22	12	11	10	11.1	4.9			
PQ4M-A	4	14.1	22	12	11	10	11.1	4.7	TFC-001		
PQ6M-A	6	14.5	22	12	11.6	10	11.5	4.8			
PQ6-A	6	20.8	29	17	17	14	17.3	13	TFC-002		
PQ8-A	8	20.7	29	17	18.1	14	17.2	14	11 C-002	W/	
										NE-TO	
PQ-A E	bow N	lale Te	rminal	Onlv -		ф			CAD	-ORDEF JCTS	
					:{.}:						
RoHS compliant				1	DT ()		ш <b>.</b>				
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		100									
				2-øD		2-C					
				2-øD		2-C H				2	
				<u>2-øD</u>					単位:mm	34	
Model code	Tube O.D.	B		_		H end		Weight	CAD	34	
Model code	øD	В	L	н		H e end C	J	(g)		34	
PQ3ML-A	øD 3	В 12	22	Н	2 1	e end C	10	(g) 5.8	CAD file name	34	
PQ3ML-A PQ4ML-A	øD 3 4	12 12	22 22	H 20.2 20.2	2 1 2 1	e end C 1	10 10	(g) 5.8 5.7	CAD	34	
PQ3ML-A PQ4ML-A PQ6ML-A	øD 3 4 6	В 12 12 12	22 22 22 22	H 20.2 20.6	2 1 2 1 6 11	e end C 1 1.6	10 10 10	(g) 5.8 5.7 6	CAD file name	34	
PQ3ML-A PQ4ML-A PQ6ML-A PQ6L-A	ØD 3 4 6 6	B 12 12 12 12 17	22 22 22 22 29	H 20.2 20.6 30.3	2 1 2 1 5 11 3 1	H e end C 1 1.6 7	10 10 10 10 14	(g) 5.8 5.7 6 15	CAD file name	34	
PQ3ML-A PQ4ML-A PQ6ML-A	øD 3 4 6	В 12 12 12	22 22 22 22	H 20.2 20.6	2 1 2 1 5 11 3 1	e end C 1 1.6	10 10 10	(g) 5.8 5.7 6	CAD file name TFC-003	34	
PQ3ML-A PQ4ML-A PQ6ML-A PQ6L-A PQ8L-A	øD 3 4 6 6 8	В 12 12 12 17 17	22 22 22 29 29	H 20.2 20.2 20.6 30.3 30.2	2 1 2 1 5 11 3 1	H e end C 1 1.6 7	10 10 10 10 14	(g) 5.8 5.7 6 15	CAD file name TFC-003	34	
PQ3ML-A PQ4ML-A PQ6ML-A PQ6L-A PQ8L-A	øD 3 4 6 6 8	B 12 12 12 12 17	22 22 22 29 29	H 20.2 20.2 20.6 30.3 30.2	2 1 2 1 5 11 3 1	H e end C 1 1.6 7	10 10 10 10 14	(g) 5.8 5.7 6 15	CAD file name TFC-003	34	
PQ3ML-A PQ4ML-A PQ6ML-A PQ6L-A PQ8L-A	øD 3 4 6 6 8	В 12 12 12 17 17	22 22 22 29 29	H 20.2 20.2 20.6 30.3 30.2	2 1 2 1 5 11 3 1	H e end C 1 1.6 7	10 10 10 10 14	(g) 5.8 5.7 6 15	CAD file name TFC-003 TFC-004	34	
PQ3ML-A PQ4ML-A PQ6ML-A PQ6L-A PQ8L-A	øD 3 4 6 6 8	В 12 12 12 17 17	22 22 22 29 29	H 20.2 20.2 20.6 30.3 30.2	2 1 2 1 5 11 3 1	e end C 1 1.6 7 3.1	10 10 10 10 14	(g) 5.8 5.7 6 15	CAD file name TFC-003 TFC-004	34	
PQ3ML-A PQ4ML-A PQ6ML-A PQ6L-A PQ8L-A	øD 3 4 6 6 8	В 12 12 12 17 17	22 22 22 29 29	H 20.2 20.2 20.6 30.3 30.2	2 1 2 1 5 11 3 1	e end C 1 1.6 7 3.1	10 10 10 10 14	(g) 5.8 5.7 6 15	CAD file name TFC-003 TFC-004	34	
PQ3ML-A PQ4ML-A PQ6ML-A PQ6L-A PQ8L-A	øD 3 4 6 6 8	В 12 12 12 17 17	22 22 22 29 29	H 20.2 20.2 20.6 30.3 30.2	2 1 2 1 5 11 3 1	e end C 1 1.6 7 3.1	10 10 10 10 14	(g) 5.8 5.7 6 15	CAD file name TFC-003 TFC-004	34	
PQ3ML-A PQ4ML-A PQ6ML-A PQ6L-A PQ8L-A	øD 3 4 6 6 8	В 12 12 12 17 17	22 22 22 29 29	H 20.2 20.2 20.6 30.3 30.2	2 1 2 1 5 11 3 1	e end C 1 1.6 7 3.1	10 10 10 14 14 14	(g) 5.8 5.7 6 15	CAD file name TFC-003 TFC-004	34	
PQ3ML-A PQ4ML-A PQ6ML-A PQ6L-A PQ8L-A	øD 3 4 6 6 8	В 12 12 12 17 17	22 22 22 29 29	H 20.2 20.2 20.6 30.3 30.2	2 1 2 1 5 11 3 1	e end C 1 1.6 7 3.1	10 10 10 14 14 14 14	(g) 5.8 5.7 6 15	CAD file name TFC-003 TFC-004	34	
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PQ3ML-A PQ4ML-A PQ6ML-A PQ6L-A PQ8L-A	øD 3 4 6 6 8	В 12 12 12 17 17	22 22 22 29 29	H 20.2 20.2 20.6 30.3 30.2	2 1 2 1 5 11 3 1	2-øD	10 10 10 14 14 14 14	(g) 5.8 5.7 6 15	CAD file name TFC-003 TFC-004	34	
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PQ3ML-A PQ4ML-A PQ6L-A PQ8L-A PQ8L-A FOFFS compliant	oD 3 4 6 8 emale Cemale	B 12 12 12 12 17 17 17 Termina	22 22 29 29 al Only	H 20.2 20.2 30.3 30.2 9 9 20.6 30.3 30.2	2 1 2 1 3 1 2 18 2 18 2 18 2 18 2 18 2 18 2 18 2	2-0D	10 10 10 14 14 14 14 F	(g) 5.8 5.7 6 15 16 Weight (g)	CAD file name TFC-003 TFC-004 CAD	34	
PQ3ML-A PQ4ML-A PQ6L-A PQ8L-A PQ8L-A FROFFS compliant Model code PQ3M-B	oD 3 4 6 8 <b>emale</b> 7 wbe O.D. øD 3	B 12 12 12 17 17 Termina B 22.6	22 22 29 29 al Only	H 20.2 20.2 30.3 30.2 9 9 20.6 30.3 30.2 7 4 2 2 2 2 0 6 2 2 0 6 2 0 6 2 0 6 2 0.6 2 0.6 2 0.6 2 0.6 2 0.6 2 0.2 2 0.6 0 0.5 2 0.6 2 0.6 2 0.6 2 0.6 2 0.6 2 0.6 2 0.6 2 0.6 2 0.6 2 0.6 2 0.6 2 0.6 2 0.6 2 0 0.5 2 0 0.5 2 0.5 2 0.5 2 0 0.5 2 0 1 0 0.5 2 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0	2 1 2 1 3 1 2 18 4 1 2 18 4 1 2 18 4 1 2 18 4 1 4 1 4 1 4 1 4 1 4 1 4 1 4 1 4 1 4 1	2-øD 2-øD 1.6 7 3.1 2-øD 1.2 1.6 7 2-øD 1 1.2 1 1.0 1 1.0 1.0 1.0 1.0 1.0 1.	10 10 10 14 14 14 14 F F 11.8	(g) 5.8 5.7 6 15 16 Weight (g) 6	CAD file name TFC-003 TFC-004 CAD file name	34	
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PQ3ML-A PQ4ML-A PQ6ML-A PQ6L-A PQ8L-A PQ8L-A FROFIS compliant Model code PQ3M-B PQ4M-B PQ6M-B	oD 3 4 6 8 <b>emale</b> <b>cemale</b> <b>v</b> <b>v</b> <b>v</b> <b>v</b> <b>v</b> <b>v</b> <b>v</b> <b>v</b> <b>v</b> <b>v</b>	B 12 12 12 17 17 Termina B 22.6 22.6 23	22 22 29 29 al Only	н 20.2 20.2 20.6 30.3 30.2 9 30.2 4 9 2 2 2 4 2 2 2 4 2 2 2 4 2 2 2 2 6 2 2 0.6 2 0 0.6 2 0.6 2 0.6 2 0 0.6 2 0 0.6 2 0 0.6 2 0 0.6 2 0 0.6 2 0 0.6 0 0 3 0.5 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 1 2 1 3 1 2 18 4 19 5 19 5 19 5 19 5 19 5 19 5 19 5 19 5	2 end 1 1 1.6 7 3.1 2-∞D 1 1 1 1 1 1 1 1 1 1 1 1 1	10 10 10 14 14 14 14 14 14 14 14 14 14	(g) 5.8 5.7 6 15 16 Weight (g) 6 5.8 6.2	CAD file name TFC-003 TFC-004 CAD file name	34	

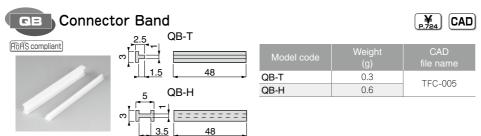
340

Coupling

**Connector Series** 



#### Connector Band







## **▲** SAFETY Instructions

This safety instructions aim to prevent personal injury and damage to properties by requiring proper use of PISCO products.

Be certain to follow ISO 4414 and JIS B 8370

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

JIS B 8370 : General rules and safety requirements for systems and their components.

This safety instructions is classified into "Danger", "Warning" and "Caution" depending on the degree of danger or damages caused by improper use of PISCO products.

Danger Hazardous conditions. It can cause death or serious personal injury.

Warning Hazardous conditions depending on usages. Improper use of PISCO products can cause death or serious personal injury.

A Caution Hazardous conditions depending on usages. Improper use of PISCO products can cause personal injury or damages to properties.

#### \land Warning I

#### 1. Selection of pneumatic products

- ① A user who is a pneumatic system designer or has sufficient experience and technical expertise should select PISCO products.
- ② Due to wide variety of operating conditions and applications for PISCO products, carry out the analysis and evaluation on PISCO products. The pneumatic system designer is solely responsible for assuring that the user's requirements are met and that the application presents no health or safety hazards. All designers are required to fully understand the specifications of PISCO products and constitute all systems based on the latest catalog or information, considering any malfunctions.
- 2. Handle the pneumatic equipment with enough knowledge and experience
  - Improper use of compressed air is dangerous. Assembly, operation and maintenance of machines using pneumatic equipment should be conducted by a person with enough knowledge and experience.
- 3. Do not operate machine / equipment or remove pneumatic equipment until safety is confirmed.
  - Make sure that preventive measures against falling work-pieces or sudden movements of machine are completed before inspection or maintenance of these machine.
  - ② Make sure the above preventive measures are completed. A compressed air supply and the power supply to the machine must be off, and also the compressed air in the systems must be exhausted.
  - ③ Restart the machines with care after ensuring to take all preventive measures against sudden movements.



#### Disclaimer 🔳

- PISCO does not take any responsibility for any incidental or indirect loss, such as production line stop, interruption of business, loss of benefits, personal injury, etc., caused by any failure on use or application of PISCO products.
- PISCO does not take any responsibility for any loss caused by natural disasters, fires not related to PISCO products, acts by third parties, and intentional or accidental damages of PISCO products due to incorrect usage.
- 3. PISCO does not take any responsibility for any loss caused by improper usage of PISCO products such as exceeding the specification limit or not following the usage the published instructions and catalog allow.
- PISCO does not take any responsibility for any loss caused by remodeling of PISCO products, or by combinational use with non-PISCO products and other software systems.
- 5. The damages caused by the defect of Pisco products shall be covered but limited to the full amount of the PISCO products paid by the customer.

# ▲ SAFETY INSTRUCTION MANUAL

PISCO products are designed and manufactured for use in general industrial machines. Be sure to read and follow the instructions below.

#### \land Danger 🗖

- 1. Do not use PISCO products for the following applications.
  - ① Equipment used for maintaining / handling human life and body.
  - 2 Equipment used for moving / transporting human.
  - 3 Equipment specifically used for safety purposes.

#### ▲ Warning |

- 1. Do not use PISCO products under the following conditions.
  - Beyond the specifications or conditions stated in the catalog, or the instructions.
  - ② Under the direct sunlight or outdoors.
  - ③ Excessive vibrations and impacts.
  - ④ Exposure / adhere to corrosive gas, inflammable gas, chemicals, seawater, water and vapor. \*
     \* Some products can be used under the condition above(④), refer to the details of specification and condition of each product.
- 2. Do not disassemble or modify PISCO products, which affect the performance, function, and basic structure of the product.
- 3. Turn off the power supply, stop the air supply to PISCO products, and make sure there is no residual air pressure in the pipes before maintenance and inspection.
- 4. Do not touch the release-ring of push-in fitting when there is a working pressure. The lock may be released by the physical contact, and tube may fly out or slip out.
- 5. Frequent switchover of compressed air may generate heat, and there is a risk of causing burn injury.
- 6. Avoid any load on PISCO products, such as a tensile strength, twisting and bending. Otherwise, there is a risk of causing damage to the products.
- 7. As for applications where threads or tubes swing / rotate, use Rotary Joints, High Rotary Joints or Multi-Circuit Rotary Block only. The other PISCO products can be damaged in these applications.
- 8. Use only Die Temperature Control Fitting Series, Tube Fitting Stainless SUS316 Series, Tube Fitting Stainless SUS316 Compression Fitting Series or Tube Fitting Brass Series under the condition of over 60°C (140° F) water or thermal oil. Other PISCO products can be damaged by heat and hydrolysis under the condition above.
- 9. As for the condition required to dissipate static electricity or provide an antistatic performance, use EG series fitting and antistatic products only, and do not use other PISCO products. There is a risk that static electricity can cause system defects or failures.
- 10. Use only Fittings with a characteristic of spatter-proof such as Antispatter or Brass series in a place where flame and weld spatter is produced. There is a risk of causing fire by sparks.
- 11. Turn off the power supply to PISCO products, and make sure there is no residual air pressure in the pipes and equipment before maintenance. Follow the instructions below in order to ensure safety.
  - Make sure the safety of all systems related to PISCO products before maintenance.
  - ② Restart of operation after maintenance shall be proceeded with care after ensuring safety of the system by preventive measures against unexpected movements of machines and devices where pneumatic equipment is used.
  - ③ Keep enough space for maintenance when designing a circuit.
- 12. Take safety measures such as providing a protection cover if there is a risk of causing damages or fires on machine / facilities by a fluid leakage.



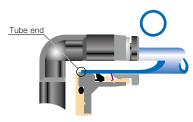
#### ▲ Caution |

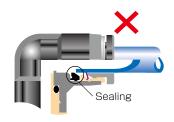
- 1. Remove dusts or drain before piping. They may get into the peripheral machine / facilities and cause malfunction.
- 2. When inserting an ultra-soft tube into push-in fitting, make sure to place an Insert Ring into the tube edge. There is a risk of causing the escape of tube and a fluid leakage without using an Insert Ring.
- 3. The product incorporating NBR as seal rubber material has a risk of malfunction caused by ozone crack. Ozone exists in high concentrations in static elimination air, clean-room, and near the high-voltage motors, etc. As a countermeasure, material change from NBR to HNBR or FKM is necessary. Consult with PISCO for more information.
- 4. Special option "Oil-free" products may cause a very small amount of a fluid leakage. When a fluid medium is liquid or the products are required to be used in harsh environments, contact us for further information.
- 5. In case of using non-PISCO brand tubes, make sure the tolerance of the outer tube diameter is within the limits of Table 1.

Nylon tube	Polyurethane tube	inch size	Nylon tube	Polyurethane tube
—	$\pm$ 0.05mm	Ø1/8	$\pm$ 0.1mm	$\pm$ 0.15mm
—	$\pm$ 0.15mm	Ø5/32	$\pm$ 0.1mm	$\pm$ 0.15mm
$\pm$ 0.1mm	$\pm$ 0.15mm	Ø3/16	$\pm$ 0.1mm	$\pm$ 0.15mm
$\pm$ 0.1mm	$\pm$ 0.15mm	Ø1/4	$\pm$ 0.1mm	± 0.15mm
$\pm$ 0.1mm	$\pm$ 0.15mm	Ø5/16	$\pm$ 0.1mm	$\pm$ 0.15mm
$\pm$ 0.1mm	$\pm$ 0.15mm	Ø3/8	$\pm$ 0.1mm	$\pm$ 0.15mm
$\pm$ 0.1mm	± 0.15mm	Ø1/2	$\pm$ 0.1mm	± 0.15mm
$\pm$ 0.1mm	± 0.15mm	Ø5/8	$\pm$ 0.1mm	± 0.15mm
		$\begin{array}{c c} - & \pm 0.05 \text{mm} \\ \hline & \pm 0.15 \text{mm} \\ \hline \pm 0.1 \text{mm} & \pm 0.15 \text{mm} \\ \hline \pm 0.1 \text{mm} & \pm 0.15 \text{mm} \\ \hline \pm 0.1 \text{mm} & \pm 0.15 \text{mm} \\ \hline \pm 0.1 \text{mm} & \pm 0.15 \text{mm} \\ \hline \pm 0.1 \text{mm} & \pm 0.15 \text{mm} \\ \hline \pm 0.1 \text{mm} & \pm 0.15 \text{mm} \end{array}$	$\begin{array}{c c} - & \pm 0.05 \text{mm} & \varnothing 1/8 \\ \hline & - & \pm 0.15 \text{mm} & \varnothing 5/32 \\ \hline \pm 0.1 \text{mm} & \pm 0.15 \text{mm} & \varnothing 3/16 \\ \hline \pm 0.1 \text{mm} & \pm 0.15 \text{mm} & \varnothing 1/4 \\ \hline \pm 0.1 \text{mm} & \pm 0.15 \text{mm} & \varnothing 5/16 \\ \hline \pm 0.1 \text{mm} & \pm 0.15 \text{mm} & \varnothing 3/8 \\ \hline \pm 0.1 \text{mm} & \pm 0.15 \text{mm} & \varnothing 1/2 \end{array}$	$\begin{array}{c c c c c c c c c c c c c c c c c c c $

• Table 1. Tube O.D. Tolerance

- 6. Instructions for Tube Insertion
  - ① Make sure that the cut end surface of the tube is at right angle without a scratch on the surface and deformations.
  - ② When inserting a tube, the tube needs to be inserted fully into the pushin fitting until the tubing edge touches the tube end of the fitting as shown in the figure below. Otherwise, there is a risk of leakage.





Tube is not fully inserted up to tube end.

- ③ After inserting the tube, make sure it is inserted properly and not to be disconnected by pulling it moderately.
- \*\*. When inserting tubes, Lock-claws may be hardly visible in the hole, observed from the front face of the release-ring. But it does not mean the tube will surely escape. Major causes of the tube escape are the followings;

①Shear drop of the lock-claws edge

② The problem of tube diameter (usually small)

Therefore, follow the above instructions from to , even lock-claws is hardly visible.

- 7. Instructions for Tube Disconnection
  - ① Make sure there is no air pressure inside of the tube, before disconnecting it.
  - ② Push the release-ring of the push-in fitting evenly and deeply enough to pull out the tube toward oneself. By insufficient pushing of the releasering, the tube may not be pulled out or damaged by scratch, and tube shavings may remain inside of the fitting, which may cause the leakage later.
- 8. Instructions for Installing a fitting
  - ① When installing a fitting, use proper tools to tighten a hexagonal-column or an inner hexagonal socket. When inserting a hex key into the inner hexagonal socket of the fitting, be careful so that the tool does not touch lock-claws. The deformation of lock-claws may result in a poor performance of systems or an escape of the tube.
  - ② Refer to Table 2 which shows the recommended tightening torque. Do not exceed these limits to tighten a thread. Excessive tightening may break the thread part or deform the gasket and cause a fluid leakage. Tightening thread with tightening torque lower than these limits may cause a loosened thread or a fluid leakage.
  - ③ Adjust the tube direction while tightening thread within these limits, since some PISCO products are not rotatable after the installation.
  - Table 2: Recommended tightening torque / Sealock color / Gasket materials

Thread type	Thread size	Tightening torque	Sealock color	Gasket materials	
	M3  imes 0.5	0.7N <sup>.</sup> m		0110004	
	M5  imes 0.8	1.0 ~ 1.5N <sup>.</sup> m		SUS304 NBR	
Metric thread	M6  imes 1	2 ~ 2.7N <sup>.</sup> m		NDN	
	M3  imes 0.5	0.5 ~ 0.6N <sup>.</sup> m	—		
	M5  imes 0.8	1 ~ 1.5N∙m		РОМ	
	M6  imes 0.75	0.8 ~ 1N <sup>.</sup> m		FOIVI	
	$M8 \times 0.75$	1 ~ 2N·m			
	R1/8	7 ~ 9N∙m			
Toney pipe thread	R1/4	12 ~ 14N·m	White		
Taper pipe thread	R3/8	22 ~ 24N∙m	white	_	
	R1/2	28 ~ 30N·m			
Unified thread	No.10-32UNF	1.0 ~ 1.5N <sup>.</sup> m	—	SUS304、NBR	
	1/16-27NPT	7 ~ 9N∙m			
National size	1/8-27NPT	7 ~ 9N∙m			
National pipe	1/4-18NPT	12 ~ 14N m	White	—	
thread taper	3/8-18NPT	22 ~ 24N∙m			
	1/2-14NPT	28 ~ 30N·m			

\* These values may differ for some products. Refer to each specification as well.

- 9. Instructions for removing a fitting
  - When removing a fitting, use proper tools to loosen a hexagonal-column or an inner hex bolt.
  - ② Remove the sealant stuck on the mating equipment. The remained sealant may get into the peripheral equipment and cause malfunctions.
- 10. Arrange piping avoiding any load on fittings and tubes such as twist, tensile, moment load, shaking and physical impact. These may cause damages to fittings, tube deformations, bursting and the escape of tubes.

## Common Safety Instructions for Fittings

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. Do not use fittings with fluid medium other than air or water. (Water can be used with some series.) Contact us for using other kind of fluid medium except air and water.
  - 2. Do not use fittings except Anti-spatter, Brass and Brass Compression Fitting series in a place where the flame and weld spatter is produced. There is a risk of causing fire by sparks.
  - 3. As for applications where threads or tubes swing / rotate, use Rotary Joints, High Rotary Joints or Multi-Circuit Rotary Block only. The other PISCO products can be damaged in these applications.
  - 4. Use only Die Temperature Control Fitting Series, Tube Fitting Stainless SUS316 Series, Tube Fitting Stainless SUS316 Compression Fitting Series or Tube Fitting Brass Series under the condition of over 60°C (140° F) water or thermal oil. Other PISCO products can be damaged by heat and hydrolysis under the condition above.
  - 5. As for the condition required to dissipate static electricity or provide an antistatic performance, use EG Series fitting and antistatic products only, and do not use other PISCO products. There is a risk that static electricity can cause system defects or failures.
  - 6. Avoid any load on PISCO products, such as a tensile strength, twisting and bending. Otherwise, there is a risk of causing damage to the products.

### ▲ Caution

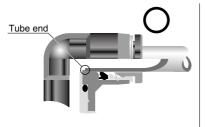
1.In case of using non-PISCO brand tubes, make sure the tolerance of the outer tube diameter is within the following limits of Table 1.

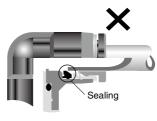
mm size	Nylon tube	Urethane tube	inch size	Nylon tube	Urethane tube
Ø <b>1.8</b> mm	—	$\pm$ 0.05mm	Ø1/8	$\pm$ 0.1mm	$\pm$ 0.15mm
ø3mm	—	$\pm$ 0.15mm	Ø5/32	$\pm$ 0.1mm	$\pm$ 0.15mm
Ø4mm	$\pm$ 0.1mm	$\pm$ 0.15mm	Ø3/16	$\pm$ 0.1mm	$\pm$ 0.15mm
Ø6mm	$\pm$ 0.1mm	$\pm$ 0.15mm	Ø1/4	$\pm$ 0.1mm	$\pm$ 0.15mm
Ø8mm	$\pm$ 0.1mm	$\pm$ 0.15mm	Ø5/16	$\pm$ 0.1mm	$\pm$ 0.15mm
ø10mm	$\pm$ 0.1mm	$\pm$ 0.15mm	Ø <b>3</b> /8	$\pm$ 0.1mm	$\pm$ 0.15mm
ø12mm	$\pm$ 0.1mm	$\pm$ 0.15mm	ø1/2	$\pm$ 0.1mm	$\pm$ 0.15mm
Ø16mm	$\pm$ 0.1mm	$\pm$ 0.15mm	Ø5/8	$\pm$ 0.1mm	± 0.15mm

#### ● Table 1. Tube O.D. Tolerance

#### 2. Instructions for Tube Insertion

- ① Make sure that the cut end surface of the tube is at right angle without a scratch on the tube surface and deformations.
- ② When inserting a tube, the tube needs to be inserted fully into the push-in fitting until the tubing edge touches the tube end of the fitting as shown in the figure below. Otherwise, there is a risk of leakage.





Tube is not fully inserted up to tube end.

- ③ After inserting the tube, make sure it is inserted properly and not to be disconnected by pulling it moderately.
- 3. Instructions for Tube Disconnection
  - ① Make sure there is no air pressure inside of the tube, before disconnecting it.
  - ② Push the release-ring of the push-in fitting evenly and deeply enough to pull out the tube toward oneself. By insufficient pushing of the release-ring, the tube may not be pulled out or damaged by scratch, and tube shavings may remain inside of the fitting, which may cause the leakage later.

PP Series

EG Series

Stop Fittin Series Rotary Series

#### 4. Instructions for Installing a fitting

- ① When installing a fitting, use proper tools to tighten a hexagonal-column or an inner hexagonal socket. When inserting a hex key into the inner hexagonal socket of the fitting, be careful so that the tool does not touch lock-claws. The deformation of lock-claws may result in a poor performance of systems or an escape of the tube.
- ② Refer to Table 2 which shows the recommended tightening torque. Do not exceed these limits to tighten a thread. Excessive tightening may break the thread part or deform the gasket and cause a fluid leakage. Tightening thread with tightening torque lower than these limits may cause a loosened thread or a fluid leakage.
- ③ Adjust the tube direction while tightening thread within these limits, since some PISCO products are not rotatable the installation.
- Table 2: Recommended tightening torque / Sealock color / Gasket materials

Thread type	Thread size	Tightening torque	Sealock color	Gasket materials
Metric thread	M3  imes 0.5	0.7N <sup>.</sup> m		SUS304 NBR
	M5  imes 0.8	1.0 ~ 1.5N∙m		
	M6  imes 1	2 ~ 2.7N m		
	M3 × 0.5	0.5 ~0.6N <sup>.</sup> m		
	M5  imes 0.8	1 ~1.5N m		РОМ
	M6  imes 0.75	0.8 ~ 1N <sup>.</sup> m		
	M8  imes 0.75	1 ~ 2N·m		
Taper pipe thread	R1/8	7 ~ 9N∙m	White	_
	R1/4	12 ~ 14N∙m		
	R3/8	22 ~ 24N∙m		
	R1/2	28 ~ 30N·m		
Unified thread	No.10-32UNF	1.0 ~ 1.5N <sup>.</sup> m	—	SUS304、NBR
National pipe thread taper	1/16-28NPT	7 ~ 9N∙m	White	_
	1/8-27NPT	7 ~ 9N∙m		
	1/4-18NPT	12 ~ 14N∙m		
	3/8-18NPT	22 ~ 24N·m		
	1/2-14NPT	28 ~ 30N <sup>.</sup> m		

\*. These values may differ for some products. Refer to each specification as well

5.Instructions for removng a fitting

- ① When removing a fitting, use proper tools to loosen a hexagonal-column or an inner hexagonal socket.
- ② Remove the sealant stuck on the mating equipment. The remained sealant may get into the peripheral equipment and cause malfunctions.
- 6.Arrange piping avoiding any load on fittings and tubes such as twist, tensile, moment load, shaking and physical impact. These may cause damages to fittings, tube deformations, bursting and the escape of tubes.