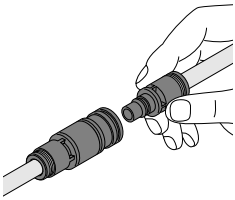
Push-In Fitting Type Coupling

Light Coupling Series

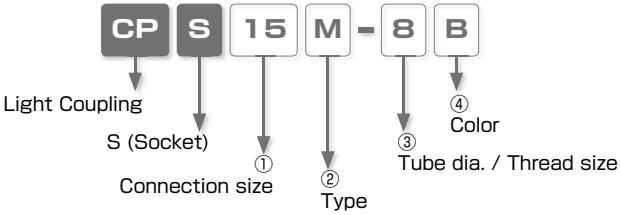
- *Coupling with Push-In Fitting.*
- *Easy Coupling and Uncoupling with One-Hand Operation.*



- *Suitable for Frequent Desorption like Filling Machine. (E3/E7 series)*
- *Light and Compact Design by All Resin Body. (15/20 series)*
- *Connectable Coupling Module. Connectable with Main Block Series.*

Model Designation (Example)

Model Designation of Socket



① Connection size

Code	20	15	E7	E3
Effective area	20mm²	15mm²	7mm²	3mm²

※ Light couplings with different effective area can not be connected.

② Type

Code	Type	Code	Type	Code	Type
No code	Straight	M	Bulkhead type (E3, E7 and 15 series only)	H	Banjo type (E3 and E7 only)

③ Tube dia. / Thread size

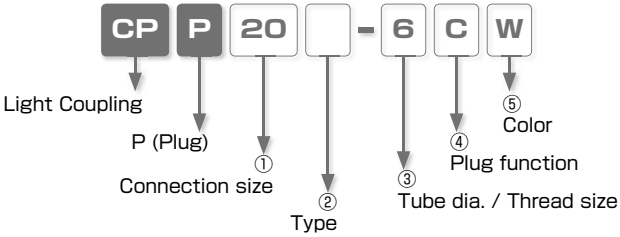
	Tube size					Thread size				
Code	4	6	8	10	12	M5	01	02	03	04
Size	ø4mm	ø6mm	ø8mm	ø10mm	ø12mm	M5 × 0.8	R1/8	R1/4	R3/8	R1/2
E3 series	●					●	●			
E7 series		●				●	●			
15 series		●	●	●			●	●	●	
20 series		●	●	●	●			●	●	●

④ Color (15 and 20 series only)

W : Light-gray

B : Black

● Model Designation of Plug



① Connection size

Code	20	15	E7	E3
Effective area	20mm²	15mm²	7mm²	3mm²

※ Light couplings with different effective area can not be connected.

② Type

Code	Type	Code	Type	Code	Type
No code	Straight	L	Elbow	H	Banjo type (E3 and E7 only)

③ Tube dia. / Thread size

	Tube size					Thread size				
Code	4	6	8	10	12	M5	01	02	03	04
Size	ø4mm	ø6mm	ø8mm	ø10mm	ø12mm	M5 × 0.8	R1/8	R1/4	R3/8	R1/2
E3 series	●					●	●			
E7 series		●				●	●			
15 series		●	●	●			●	●	●	
20 series		●	●	●	●			●	●	●

④ Plug function (20 series straight type only)

No code : Without silencer, check valve
S : With Silencer
C : With Check valve

⑤ Color (15 and 20 series only)

W : Light-gray
B : Black

※ No color option for straight thread type, made of brass and nickel-plated brass.

Specifications

Series	E3 / E7 series	15 / 20 series
Fluid medium	Air / Water (※ 1), Air	Air
Max. operating pressure	0.9MPa	
Max. vacuum	-100kPa (※ 2)	
Operating temp. range	0-60℃ (No freezing)	

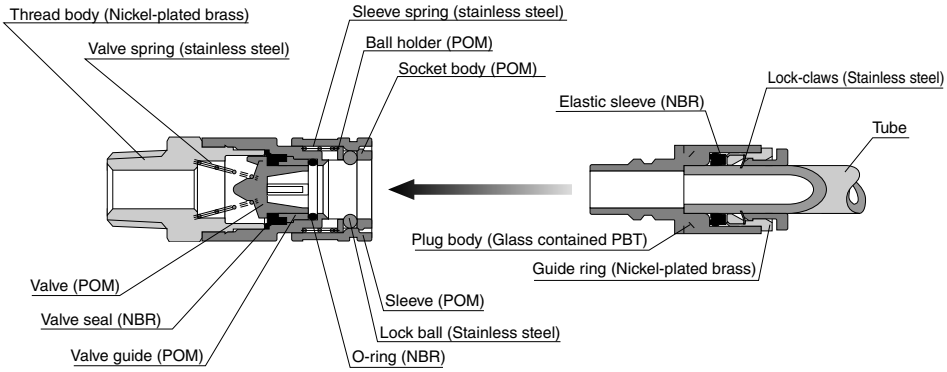
⚠ Warning

※ 1. Make sure to follow the instructions below when the fluid medium is water.
1. Surge pressure must be controlled lower than max. operating pressure when using water as a fluid medium.
2. Tap water can be used. Consult us for using other kind of water.
3. Be sure to place Insert Ring into the tube edge when using water as a fluid medium.

※ 2. 15 series socket itself does not have vacuum retention function.

Construction (15 series straight thread type socket & plug with Push-In Fitting)

Symbol
Symbol for All sockets and check valve built-in type plug only



※ The above figure is the construction of 15 series. E3 and E7 of 20 series have different construction and materials from 15 series.

⚠ 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

1. Before uncoupling a plug except check valve built-in type and silencer type, make sure that there is no air pressure in the tube and water temperature is low. In case the pressure still remains in the tube or water temperature is high, it may cause personal injury or a burn.
2. Do not touch the sleeve on the socket side during the compressed air is supplied. The air can be released by physical contact.
3. Do not use E3 and E7 series with water as a fluid medium, unless the operating environment meets all the described specifications in the catalog. Otherwise, it may cause damage to the products, the escape of tubes and a fluid leakage.
4. Use Bracket when connecting many coupling modules or bending load is applied. A main block or coupling modules can be damaged without Bracket.

Caution

1. To lock the coupling, push the plug into the socket until it stops. It may cause the disconnection of the plug if it is installed incompletely. After locking, pull the plug toward oneself moderately to make sure it fixes properly.
2. When uncoupling the plug with a check valve or a silencer, be careful that the plug may jump out due to internal pressure.
3. Use a spanner when assembling and disassembling Light Coupling Modules and Main Block. It may cause a difficulty to assemble or a deformation of the coupling modules without using the spanner.

Standard Size List

E3 / E7 series Socket

Type	Page	Tube O.D. (mm) 4	6
CPSE3 Straight Tube Socket	P.349	●	
CPSE7 Straight Tube Socket	P.349		●
CPSE3 Bulkhead Tube Socket	P.350	●	
CPSE7 Bulkhead Tube Socket	P.350		●

Type	Page	ネジサイズ M5 × 0.8	R1/8
CPSE3 Straight Screw Socket	P.349	●	●
CPSE7 Straight Screw Socket	P.349	●	●
CPSE3 Banjo Socket	P.349	●	
CPSE7 Banjo Socket	P.349	●	

E3 / E7 series Plug

Type	Page	Tube O.D. (mm) 4	6
CPPE3 Straight Tube Plug	P.350	●	
CPPE7 Straight Tube Plug	P.350		●
CPPE3 Elbow Tube Plug	P.350	●	
CPPE7 Elbow Tube Plug	P.350		●

Type	Page	Thread size M5 × 0.8	R1/8
CPPE3 Straight Screw Plug	P.351	●	●
CPPE7 Straight Screw Plug	P.351	●	●
CPPE3 Banjo Plug	P.351	●	
CPPE7 Banjo Plug	P.351	●	

15 series Socket

Type	Page	Tube O.D. (mm) 6	8	10
CPS15 Straight Tube Socket	P.352	●	●	●
CPS15 Bulkhead Tube Socket	P.352		●	

Type	Page	Thread size R1/8	R1/4	R3/8
CPS15 Straight Screw Socket	P.352	●	●	●

15 series Plug

Type	Page	Tube O.D. (mm) 6	8	10
CPP15 Straight Tube Plug	P.353	●	●	●
CPP15 Elbow Tube Plug	P.353	●	●	●

Type	Page	Thread size R1/8	R1/4	R3/8
CPP15 Screw Plug	P.353	●	●	●

20 series Socket

Type	Page	Tube O.D. (mm) 6	8	10	12
CPS20 Straight Tube Socket	P.354	●	●	●	●

Type	Page	Thread size R1/4	R3/8	R1/2
CPS20 Straight Screw Socket	P.354	●	●	●

20 series Plug

Type	Page	Tube O.D. (mm) 6	8	10	12
CPP20 Straight Tube Plug	P.355	●	●	●	●
CPP20 Elbow Tube Plug	P.355	●	●	●	●

Type	Page	Thread size R1/4	R3/8
CPP20 Screw Plug	P.356	●	●

Applicable Tube and Related Products

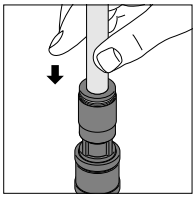
Polyurethane Tube·····P.596
Nylon Tube·····P.608
Main Block·····P.310

How to insert and disconnect

1. How to insert and disconnect tubes

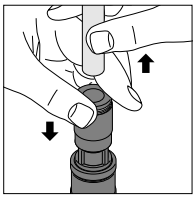
① Tube insertion

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.



2. How to tighten thread

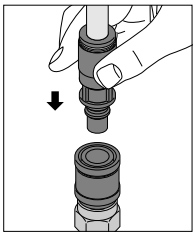
① Tightening thread

Use a spanner to tighten a hexagonal-column. Refer to "Table 2: Recommended tightening torque / Sealock color / Gasket materials" under "4. Instructions for Installing a fitting" in "Common Safety Instructions for Fittings".

3. How to couple and uncouple a plug and a socket

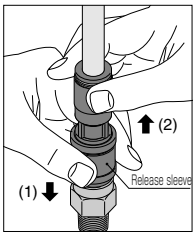
① Coupling

To couple, push the plug into the socket. No need to push down plug sleeve.
Refer to "Detailed Safety Instructions".



② Uncoupling

To uncouple, push down the release sleeve to release Lock ball.
Refer to "Detailed Safety Instructions".

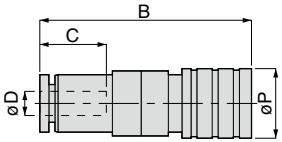


E3 / E7 series Socket

CPSE Straight Tube Socket

CAD

RoHS compliant



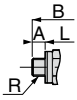
Unit : mm

Model code	Tube O.D. øD	B	øP	Tube end C	Weight (g)	Effective area (mm²)	CAD file name
CPSE3-4	4	29.7	9.5	10.9	9	3.3	TFLC-001
CPSE7-6	6	32.2	11.5	11.7	13	7.7	

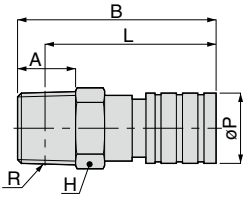
CPSE Straight Screw Socket

CAD

RoHS compliant



Metric thread type



Unit : mm

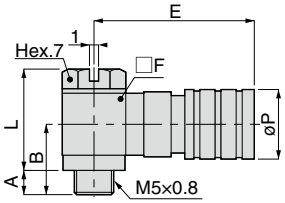
Model code	R	A	B	L	øP	Hex. H	Weight (g)	Effective area (mm²)	CAD file name
CPSE3-M5	M5 × 0.8	2.9	22.3	19.4	9.5	9	7	3.2	TFLC-001
CPSE3-01	R1/8	8	27.8	23.8		10	11	3.8	
CPSE7-M5	M5 × 0.8	2.9	25	22.1	11.5	10	10	4	
CPSE7-01	R1/8	8	29.8	25.8			13	8.3	

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

CPSE Banjo Socket

CAD

RoHS compliant



Unit : mm

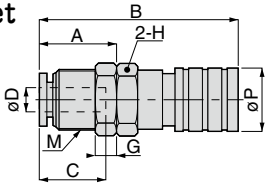
Model code	A	B	L	øP	E	□F	Weight (g)	Effective area (mm²)	CAD file name
CPSE3H-M5	3.2	9.2	12.8	9.5	21.8	8	11	2	TFLC-001
CPSE7H-M5	3.2	10.8	14.8	11.5	23.5	10	17	2.6	

CAD CAD data is available at PISCO website.

CPSE Bulkhead Tube Socket

CAD

RoHS compliant



Unit : mm

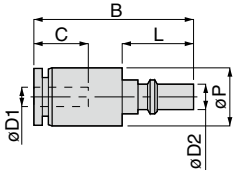
Model code	Tube O.D. øD	M	A	B	øP	Tube end C	Hex. H	G	Weight (g)	Effective area (mm^2)	CAD file name
CPSE3M-4	4	M9×0.5	10.9	29.7	9.5	10.9	10	3	10	3.3	TFLC-001
CPSE7M-6	6	M12×1	12.4	32.2	11.5	11.7	14	4	18	7.7	

■ E3 / E7 series Plug

CPPE Straight Tube Plug

CAD

RoHS compliant



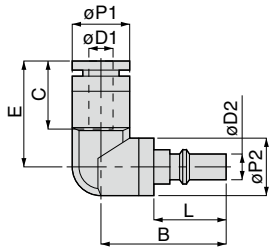
Unit : mm

Model code	Tube O.D. øD1	øD2	B	L	øP	Tube end C	Weight (g)	Effective area (mm^2)	CAD file name
CPPE3-4	4	3.5	21.1	9.2	8	10.9	4	4.2	TFLC-002
CPPE7-6	6	5.4	22.6	9.9	10	11.7	5	11.4	

CPPE Elbow Tube Plug

CAD

RoHS compliant



Unit : mm

Model code	Tube O.D. øD1	øD2	B	L	øP1	øP2	Tube end C	E	Weight (g)	Effective area (mm^2)	CAD file name
CPPE3L-4	4	3.5	16.2	9.2	8	8	11	15	4	3.5	TFLC-002
CPPE7L-6	6	5.4	19.1	9.9	10.5	10	11.6	16.4	6	8.8	

CAD CAD data is available at PISCO website.

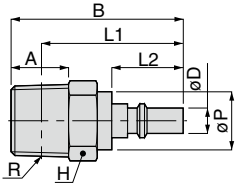
E3 / E7 series Plug

CPPE Straight Screw Plug

CAD

RoHS compliant

Metric thread type



Unit：mm

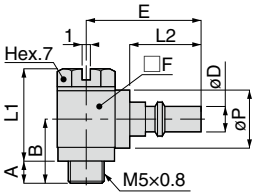
Model code	R	øD	A	B	L1	L2	øP	Hex. H	Weight (g)	Effective area (mm^2)	CAD file name
CPPE3-M5	M5×0.8	3.5	2.9	15.7	12.8	9.2	–	7	2	4	TFLC-002
CPPE3-01	R1/8		8	23.2	19.2		8	10	9	4.3	
CPPE7-M5	M5×0.8	5.4	2.9	16.4	13.5	9.9	–	9	4	4.1	
CPPE7-01	R1/8		8	23.9	19.9		10	10	9	12.1	

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

CPPE Banjo Plug

CAD

RoHS compliant



Unit：mm

Model code	øD	A	B	L1	L2	øP	E	□F	Weight (g)	Effective area (mm^2)	CAD file name
CPPE3H-M5	3.5	3.2	9.2	12.8	9.2	8	15.2	8	7	1.8	TFLC-002
CPPE7H-M5	5.4	3.8	10.8	14.8	9.9	10	16.9	10	11	2.6	

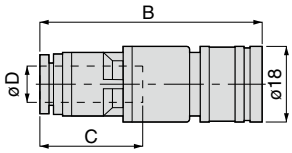
CAD CAD data is available at PISCO website.

15 series Socket

CPS15 Straight Tube Socket

CAD

RoHS compliant



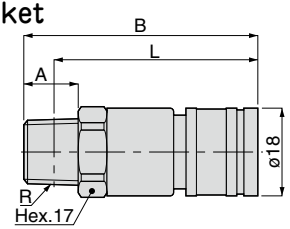
Unit：mm

Model code	Tube O.D. øD	B	Tube end C	Weight (g)	Effective area (mm^2)	CAD file name
CPS15-6□	6	49.8	16.8	13	11	TFLC-003
CPS15-8□	8	50.7	18.1	14	18	
CPS15-10□	10	54	20.2	17	18	

CPS15 Straight Screw Socket

CAD

RoHS compliant



Unit：mm

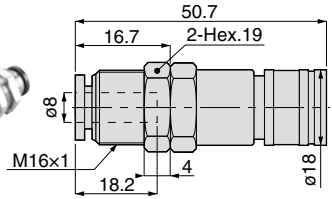
Model code	R	A	B	L	Weight (g)	Effective area (mm^2)	CAD file name
CPS15-01□	R1/8	8	44	40	26	18	TFLC-003
CPS15-02□	R1/4	11	47	41	30		
CPS15-03□	R3/8	12	48	41.7	38		

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

CPS15 Bulkhead Tube Socket

CAD

RoHS compliant



Model code	Weight (g)	Effective area (mm^2)	CAD file name
CPS15M-8□	36	18	TFLC-003

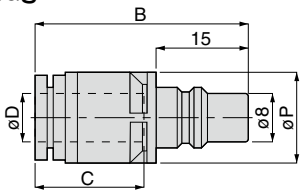
CAD CAD data is available at PISCO website.

15 series Plug

CPP15 Straight Tube Plug

CAD

RoHS compliant



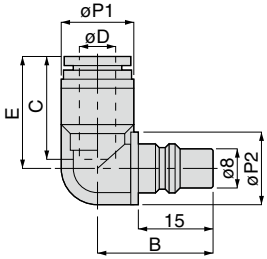
Unit：mm

Model code	Tube O.D. øD	B	øP	Tube end C	Weight (g)	Effective area (mm²)	CAD file name
CPP15-6□	6	32.8	15	17	5	11	TFLC-003
CPP15-8□	8	34.7	15	18.1	6	24	
CPP15-10□	10	38.5	18	20.2	10	23	

CPP15 Elbow Tube Plug

CAD

RoHS compliant



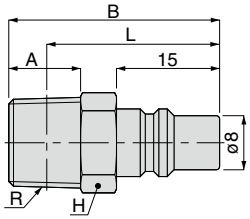
Unit：mm

Model code	Tube O.D. øD	B	øP1	øP2	Tube end C	E	Weight (g)	Effective area (mm²)	CAD file name
CPP15L-6□	6	22.5	13	15	17	21.3	6	10	TFLC-003
CPP15L-8□	8	23.5	15	15	18.1	23.2	7	18	
CPP15L-10□	10	25	18	18	20.2	27	11	18	

CPP15 Screw Plug

CAD

RoHS compliant



Unit：mm

Model code	R	A	B	L	Hex. H	Weight (g)	有効断面積 (mm²)	CAD file name
CPP15-01	R1/8	8	29	25	14	14	23	TFLC-003
CPP15-02	R1/4	11	32	26	14	20	25	
CPP15-03	R3/8	12	33	26.7	17	33	23	

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

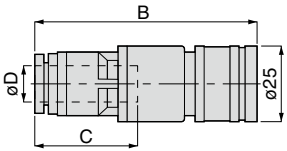
CAD CAD data is available at PISCO website.

20 series Socket

CPS20 Straight Tube Socket

CAD

RoHS compliant



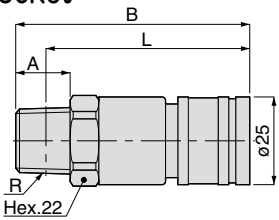
Unit：mm

Model code	Tube O.D. øD	B	Tube end C	Weight (g)	Effective area (mm^2)	CAD file name
CPS20-6□	6	54.8	17	23	11.5	TFLC-004
CPS20-8□	8	54.7	18.1	24	19.8	
CPS20-10□	10	59.8	20.2	28	22.6	
CPS20-12□	12	60	23.4	30	23	

CPS20 Straight Screw Socket

CAD

RoHS compliant



Unit：mm

Model code	R	A	B	L	Weight (g)	Effective area (mm^2)	CAD file name
CPS20-02□	R1/4	11	50	44	41	22.9	TFLC-004
CPS20-03□	R3/8	12	51	44.7	44	24.1	
CPS20-04□	R1/2	15	54	45.8	54	24.2	

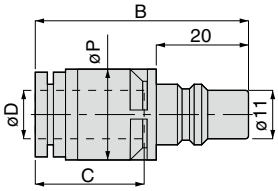
※ . "L" is a reference value for height dimension after tightening thread.

20 series Plug

CPP20 Straight Tube Plug

CAD

RoHS compliant



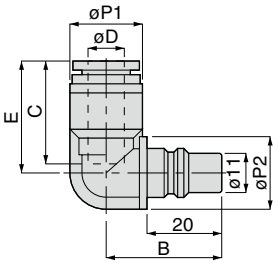
Unit : mm

Model code	Tube O.D. øD	B	øP	Tube end C	Weight (g)	Effective area (mm²)	CAD file name
CPP20-6□	6	38.8	16	17	7	12.5	TFLC-005
CPP20-8□	8	38.7		18.1		23.3	
CPP20-10□	10	45.2	20	20.2	13	33.8	
CPP20-12□	12	45.4		23.4	14	33.1	
CPP20-6S□	6	45.5	16	17.6	9	10.1	
CPP20-8S□	8	45.4		18.7		18	
CPP20-10S□	10	55.2	21	20.8	18	26	
CPP20-12S□	12	55.4		24	21	26.4	
CPP20-6C□	6	45.5	16	17.6	9	10.1	
CPP20-8C□	8	45.4		18.7		18	
CPP20-10C□	10	55.2	21	20.8	18	26	
CPP20-12C□	12	55.4		24	21	26.4	

CPP20 Elbow Tube Plug

CAD

RoHS compliant



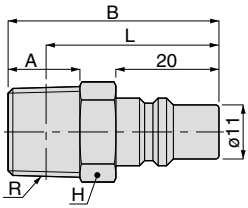
Unit : mm

Model code	Tube O.D. øD	B	øP1	øP2	Tube end C	E	Weight (g)	Effective area (mm²)	CAD file name
CPP20L-6□	6	28	14.5	16	17	23.8	8	10.7	TFLC-004
CPP20L-8□	8	28	14.5	16	18.1	23.7	8	17.5	
CPP20L-10□	10	31	21	18	20.2	29.7	15	26.3	
CPP20L-12□	12	31	21	18	23.4	29.9	16	29	

CPP20 Screw Plug

CAD

RoHS compliant



Unit：mm

Model code	R	A	B	L	Hex. H	Weight (g)	Effective area (mm^2)	CAD file name
CPP20-02	R1/4	11	37	31	14	25	39.6	TFLC-004
CPP20-03	R3/8	12	38	31.7	17	38	39.7	

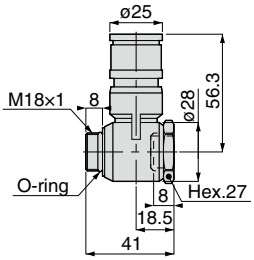
※ . "L" is a reference value for height dimension after tightening thread.

For Module

QMC Coupling Module

CAD

RoHS compliant



Model code	Weight (g)	CAD file name
QMC20	84	TFLC-004

Coupling module can be connected with Main Block (assembling thread size: M18x1), as well as with other coupling modules.

CAD CAD data is available at PISCO website.

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

⚠ Warning

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
   ① 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.
   ① 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.

※. This safety instructions are subject to change without notice.

Disclaimer

1. 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.

2. 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.

4. 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.

⚠ 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.
   ① 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℃ (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 Anti-spatter 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.
    ① 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

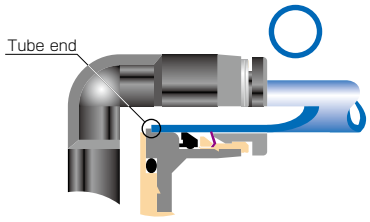
1. Remove dusts or drain before piping. They may get into the peripheral machine / facilities and cause malfunction.
2. When inserting an ultra-soft tube into push-in fitting, make sure to place an Insert Ring into the tube edge. There is a risk of causing the escape of tube and a fluid leakage without 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.

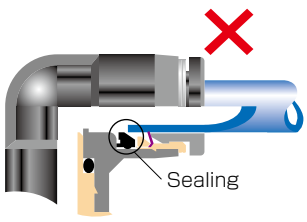
● Table 1. Tube O.D. Tolerance

mm size	Nylon tube	Polyurethane tube
ø1.8mm	—	±0.05mm
ø3mm	—	±0.15mm
ø4mm	±0.1mm	±0.15mm
ø6mm	±0.1mm	±0.15mm
ø8mm	±0.1mm	±0.15mm
ø10mm	±0.1mm	±0.15mm
ø12mm	±0.1mm	±0.15mm
ø16mm	±0.1mm	±0.15mm

inch size	Nylon tube	Polyurethane tube
ø1/8	±0.1mm	±0.15mm
ø5/32	±0.1mm	±0.15mm
ø3/16	±0.1mm	±0.15mm
ø1/4	±0.1mm	±0.15mm
ø5/16	±0.1mm	±0.15mm
ø3/8	±0.1mm	±0.15mm
ø1/2	±0.1mm	±0.15mm
ø5/8	±0.1mm	±0.15mm

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 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.

※. 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
②The problem of tube diameter (usually small)
Therefore, follow the above instructions from ① to ③, 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 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.
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
Metric thread	M3 × 0.5	0.7N·m	—	SUS304 NBR
	M5 × 0.8	1.0 ~ 1.5N·m		
	M6 × 1	2 ~ 2.7N·m		
	M3 × 0.5	0.5 ~ 0.6N·m		POM
	M5 × 0.8	1 ~ 1.5N·m		
	M6 × 0.75	0.8 ~ 1N·m		
	M8 × 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·m	—	SUS304、NBR
National pipe thread taper	1/16-27NPT	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·m		

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

9. Instructions for removing a fitting
   ① 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℃ (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.

●Table 1. Tube O.D. Tolerance

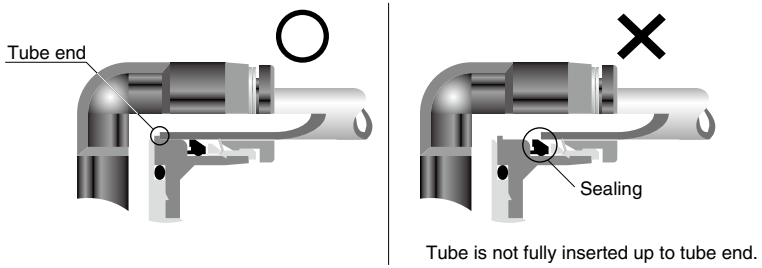
mm size	Nylon tube	Urethane tube
ø1.8mm	—	±0.05mm
ø3mm	—	±0.15mm
ø4mm	±0.1mm	±0.15mm
ø6mm	±0.1mm	±0.15mm
ø8mm	±0.1mm	±0.15mm
ø10mm	±0.1mm	±0.15mm
ø12mm	±0.1mm	±0.15mm
ø16mm	±0.1mm	±0.15mm

inch size	Nylon tube	Urethane tube
ø1/8	±0.1mm	±0.15mm
ø5/32	±0.1mm	±0.15mm
ø3/16	±0.1mm	±0.15mm
ø1/4	±0.1mm	±0.15mm
ø5/16	±0.1mm	±0.15mm
ø3/8	±0.1mm	±0.15mm
ø1/2	±0.1mm	±0.15mm
ø5/8	±0.1mm	±0.15mm

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.



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.

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 × 0.5	0.7N·m	—	SUS304 NBR
	M5 × 0.8	1.0 ~ 1.5N·m		
	M6 × 1	2 ~ 2.7N·m		
	M3 × 0.5	0.5 ~0.6N·m		POM
	M5 × 0.8	1 ~1.5N·m		
	M6 × 0.75	0.8 ~ 1N·m		
	M8 × 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·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·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.