The products listed in this page are ECO-friendly products. Please refer to page 4 for the details of ECO-friendly products.

Cautions:
1. When discharging secondary side air open to atmosphere, sympathetic vibration may be generated by an influence of a flow. Because there is a danger of causing such as the internal damage, please avoid the use such as discharging secondary side air open to atmosphere over a prolonged period of time.

When replacing filter element, please exchange O-ring (P4) to new each time.

Maintenance Parts for Filter & Regulator

Air Filter
Model: FTA300-...D
FRF300-...D
Filter element (5µm)
Model: FE300A
O-ring
Model: P4
- When replacing filter element, please exchange O-ring (P4) to new each time.

Mist Filter
Model: FT3000-...D
Filter element (no holder) (0.5µm)
Model: FE300DN
Mist element (with holder)
Model: FE300DK
O-ring
Model: S38

Micromist Filter
Model: FM3000-...D
Micro-Mist element (no holder) (0.01µm)
Model: FE300MN
Micro-Mist element set (with holder)
Model: FE300MK
O-ring
Model: S38

Regulator
Model: RVF3000-...D
Square pressure type (direct mount type)
Model: G48-B20
Common Safety Instructions for Controllers

Be sure to read the following instructions before selecting and using the PISCO devices. Also read the detailed instructions for individual series.

Warnings:
1. Each device has its control direction, so check it in the manual and by the mark on the device before use. Mistaking the control direction may cause injuries on the operator or damage to the equipment.
2. Do not give tension, twist or bending to the controllers. Also, do not drop or give excessive shocks to them. Such careless handling can inflict damage to them.
3. When the controller has a lock nut on it, tighten it by hand without using a tool. Tightening with a tool may damage the lock nut or the controller body. Also, the incomplete tightening may lead to a loose lock nut, which in turn may render the initial setting useless.
4. Use clean air as the pressure source. Dust or sludge may upset the control setting.

Cautions:
1. The safety instruction of tube fitting part should be referred to "Common Safety Instructions for Quick-Fitting Joint".
2. Notes on installation
   (1) Tighten with a proper tool, using hexagonal or knurled part.
   (2) In tightening the screw, use the tightening torque recommended in the following table. 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.

<table>
<thead>
<tr>
<th>Thread Type</th>
<th>Thread size</th>
<th>Tightening torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metric thread</td>
<td>M3×0.5</td>
<td>0.7N·m (0.52lbf·ft)</td>
</tr>
<tr>
<td></td>
<td>M5×0.8</td>
<td>1.5N·m (1.11lbf·ft)</td>
</tr>
<tr>
<td></td>
<td>M6×1</td>
<td>2.7N·m (1.99lbf·ft)</td>
</tr>
<tr>
<td>Taper pipe thread</td>
<td>R1/8</td>
<td>7N·m (5.16lbf·ft)</td>
</tr>
<tr>
<td></td>
<td>R1/4</td>
<td>10N·m (7.36lbf·ft)</td>
</tr>
<tr>
<td></td>
<td>R3/8</td>
<td>14N·m (10.43lbf·ft)</td>
</tr>
<tr>
<td></td>
<td>R1/2</td>
<td>28N·m (20.65lbf·ft)</td>
</tr>
<tr>
<td>Unified fine thread</td>
<td>No.10 – 32UNF</td>
<td>1.5N·m (1.11lbf·ft)</td>
</tr>
<tr>
<td>National Pipe Thread</td>
<td>1/16 ~ 28NPT</td>
<td>7N·m (5.16lbf·ft)</td>
</tr>
<tr>
<td>(American standard)</td>
<td>1/8 ~ 27NPT</td>
<td>7N·m (5.16lbf·ft)</td>
</tr>
<tr>
<td></td>
<td>1/4 ~ 18NPT</td>
<td>12N·m (8.85lbf·ft)</td>
</tr>
<tr>
<td></td>
<td>3/8 ~ 18NPT</td>
<td>22N·m (16.23lbf·ft)</td>
</tr>
<tr>
<td></td>
<td>1/2 ~ 14NPT</td>
<td>28N·m (20.65lbf·ft)</td>
</tr>
<tr>
<td></td>
<td>G3/8</td>
<td>1/2 ~ 1 turn after hand-tightening</td>
</tr>
<tr>
<td></td>
<td>G1/4</td>
<td>1/2 ~ 1 turn after hand-tightening</td>
</tr>
</tbody>
</table>

3. Notes on removal
   (1) Loosen it with a proper tool, using the hexagonal or knurled part.
   (2) Remove sealant sticking to the thread on the mated equipment. The sealant left sticking may enter the peripheral equipment and cause trouble.
4. The Fixed Orifice Type Joint and Constant Flow Speed Controller, which have an orifice, have variation in a flow characteristic. When you require a strict control of airflow, please consult with PISCO.
5. When the product itself generates heat by adiabatic compression, please control the operating temperature to be within the specification's range including such heat.
Common Safety Instructions for Filter and Regulator Unit

Be sure to read the following instructions before selecting and using the PISCO devices. Also read the detailed instructions for individual series.

⚠️ Warnings: 1. When installing the unit, provide adequate support and fix it securely. Looseness or dripping off of the unit may cause injuries.
2. Do not use the unit with the explosion-proof casing (bowl guard) removed. Should the bowl break, pieces may fly apart to cause injuries.
3. Be sure to set the lock button on the air filter, mist filter or micromist filter to “lock” before use. Otherwise the explosion-proof casing and the bowl may fall off to cause injuries.
4. Before performing maintenance, checks or replacement, be sure to turn off power, shut off air supply, and make certain that the pressure inside the piping has dropped to zero.
5. Do not use the unit in a fluid or atmosphere containing corrosive gas or organic solvent gas. Such use may deteriorate the unit body, thus causing leakage or damage.

⚠️ Cautions: 1. Be sure to install the air filter, mist filter or micromist filter vertically. Improper installation may cause faulty draining.
2. Air-filter, mist-filter, micro-mist-filter, and filter-regulator continue to discharge air and drain until the pressure inside reaches the following pressure even turning the drain knob: the manual drain type model is 0.05MPa, and auto drain type is 0.15MPa. If it requires a long time until supply pressure reaches 0.15MPa, please consult with Pisco.
3. When a manual drain type is selected, please discharge drain from the filter before reaching MAX. DRAIN LEVEL. Otherwise, it becomes the cause that drains flows into a secondary side.
4. Confirm the IN side of air supply by the ▲ mark. Wrong piping may drop the unit performance.
5. Do not apply excessive air pressure (Max. 123.3psi (0.85MPa)) to Regulator, which may cause malfunctions.
6. Please adjust the pressure of the regulator by pulling the handle up and in the direction of increasing pressure, and make sure to lock the handle by pushing it down after adjustment.
7. Please operate the drain knob by fingers.
8. Please use 6mm ID nylon tube when connecting a drain tube to push type manual drain valve. Please do not bend the tube very close to the valve.
9. The manual drain valve can rotate freely, so that it is not necessary to disconnect the tube when discharge the drain manually.
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.

Warning: 1. Make a selection of pneumatic equipment.
   (1) Well knowledgeable and experienced persons such as a pneumatic system designer or who is in charge of deciding specification should select pneumatic equipment.
   (2) The applicable conditions of the products in this catalogue are diverse. Therefore, judge the conformity of systems with required analysis or tests by system designers or persons who is in charge of deciding specifications. The guarantee of initial performance and safety of the system is on responsibility of the person who decides specifications. Hereafter, examine all the specification with updated products catalogues and technical documents in order to avoid malfunctions of equipment, and then develop systems.

2. Handle pneumatic equipment with enough knowledge and experience.
   (1) Mishandling of compressed air is dangerous. Conduct assembly, operation and maintenance of devises with pneumatic equipment by persons with enough knowledge and experience.

3. Do not operate and remove the equipment until safety is confirmed.
   (1) Conduct inspection and maintenance of equipment after confirming fail-proof measures of work pieces or runaway-proof device are properly working.
   (2) When removing equipment, make sure that above safety measures are conducted. Then, stop air supply and electric source of equipment making sure the pressure inside the system is zero before removing equipment.
   (3) When re-activate equipment, make sure safety measures against fly-out are taken and re-activate equipment with care.

* 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. 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.
4. Avoid too frequent switching of air pressure. Otherwise the device body may heat up to cause burns on you.
5. Do not allow tension, twist or bending forces to act on the joints. Undue forces may damage the joint body.
6. 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.
7. For applications with hot water of 60°C (140°F) or above or thermal oil, use no other joints than Die Temperature Control Fitting, Tube Fitting Stainless SUS316, Tube Fitting Stainless SUS316 Compression Fitting, and All Brass Compression Fitting. Heat or hydrolysis may damage the joint body.
8. 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.
9. Never use joint other than Tube Fitting Spatter or Tube Fitting Brass where they are exposed to spatter. Otherwise can cause fire.
10. Carry out maintenance and checks of equipment only after turning power off, shutting fluid off and making certain that the pressure in the piping has dropped to zero. Please conduct maintenance after confirming following points.
   (1) Make sure that maintenance is safe for all the systems involving PISCO products.
   (2) When re-activate equipment after maintenance, make sure safety measures against fly-out are taken and re-activate equipment with care.
   (3) Please secure space for maintenance when the circuit is designed.
11. When the fluid is admitted to the equipment and if there is a possibility to cause damage to it due to leakage, conduct safety measures such as protect cover beforehand.

△ 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>
<thead>
<tr>
<th>Table 1. Tube O.D. Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>mm size</strong></td>
</tr>
<tr>
<td>a1.8mm</td>
</tr>
<tr>
<td>a3mm</td>
</tr>
<tr>
<td>a4mm</td>
</tr>
<tr>
<td>a6mm</td>
</tr>
<tr>
<td>a8mm</td>
</tr>
<tr>
<td>a10mm</td>
</tr>
<tr>
<td>a12mm</td>
</tr>
<tr>
<td>a16mm</td>
</tr>
</tbody>
</table>
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, insert the tube to the tube end completely as drawings shown below to prevent leakage.
   (3) On completion of fitting, make certain that the tube does not come out at your pulling.

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

<table>
<thead>
<tr>
<th>Thread type</th>
<th>Thread size</th>
<th>Tightening torque</th>
<th>Sealock color</th>
<th>Gasket material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metric thread</td>
<td>M5×0.8</td>
<td>0.7N·m (0.52lbf·ft)</td>
<td>n/a</td>
<td>SUS304, NBR</td>
</tr>
<tr>
<td></td>
<td>M6×1.0</td>
<td>2.0N·m (1.48lbf·ft)</td>
<td>n/a</td>
<td>SUS304, NBR</td>
</tr>
<tr>
<td></td>
<td>M8×0.8</td>
<td>0.5N·m (0.37lbf·ft)</td>
<td>POM (Polyacetal)</td>
<td></td>
</tr>
<tr>
<td>Taper pipe thread</td>
<td>R1/8</td>
<td>7N·m (5.16lbf·ft)</td>
<td>White</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>R1/4</td>
<td>12N·m (8.85lbf·ft)</td>
<td>White</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>R3/8</td>
<td>22N·m (16.23lbf·ft)</td>
<td>White</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>R1/2</td>
<td>28N·m (20.65lbf·ft)</td>
<td>White</td>
<td>n/a</td>
</tr>
<tr>
<td>Unified thread</td>
<td>No. 10-32UNF</td>
<td>1.0N·m (0.74lbf·ft)</td>
<td>n/a</td>
<td>SUS304, NBR</td>
</tr>
<tr>
<td>National Pipe Thread Taper</td>
<td>1/16-28NPT</td>
<td>7N·m (5.16lbf·ft)</td>
<td>Gray</td>
<td>n/a</td>
</tr>
<tr>
<td>(American standard)</td>
<td>1/8-27NPT</td>
<td>7N·m (5.16lbf·ft)</td>
<td>Gray</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>1/4-18NPT</td>
<td>12N·m (8.85lbf·ft)</td>
<td>Gray</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>3/8-18NPT</td>
<td>22N·m (16.23lbf·ft)</td>
<td>Gray</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>1/2-14NPT</td>
<td>28N·m (20.65lbf·ft)</td>
<td>Gray</td>
<td>n/a</td>
</tr>
</tbody>
</table>

Recommended tightening torque for silencer

<table>
<thead>
<tr>
<th>Thread Type</th>
<th>Thread Size</th>
<th>Tightening Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metric thread</td>
<td>M5×0.8</td>
<td>1/8 turn after hand-tightening</td>
</tr>
<tr>
<td></td>
<td>M6×1.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>M10×1.0</td>
<td></td>
</tr>
<tr>
<td>Paralle pipe thread</td>
<td>G1/8</td>
<td>1/2 ~ 1 turn after hand-tightening</td>
</tr>
<tr>
<td></td>
<td>G1/4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>G3/8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>G1/2</td>
<td></td>
</tr>
</tbody>
</table>

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.

8. Clean-room package option
   * The product is washed by clean air after assembling in the normal assembly process as same condition as standard specification model. Then, it is packed in ISO class 6 clean-room.