



# Industrial Filters Precautions 1

Be sure to read this before handling products.

For detailed precautions on each series, refer to the main text.

## Model Selection/Range of Operating Conditions

Do not select a model exceeding specification ranges and carefully consider the purpose of use, required specifications, and operating conditions, such as fluid, pressure, flow rate, temperature, and environment. Mishandling may lead to an unexpected accident.

### ⚠ Warning

#### 1. Operating pressure

Do not use the product beyond the operating pressure range. Do not use in locations where peak pressure exceeds the operating pressure range due to water hammer, surge pressure, etc.

#### 2. Operating temperature

Do not use the product beyond the operating temperature range. Do not use at temperatures at or above the boiling point of the fluid.

#### 3. Fluid

- Do not use fluids which cause the corrosion or swelling of the material used for each part of the filter.
- There are models which cannot be used for gases depending on the construction of the filter container. Be sure to confirm the compatibility by referring to the catalog and operation manual.

Also, be sure to confirm when using with gases because it may not be possible to use the standard product, as depending on the internal capacity and operating pressure of the filter container, the laws and regulations of class-2 pressure vessels may apply.

- Do not use the product for corrosive fluids.
- Do not use any fluid which will cause the seal, O-ring, or element to swell or deteriorate. The fluid may deteriorate these parts, causing leakage.
- When using with liquids that contain flammable ingredients, implement safety measures, such as fire prevention and leakage detection sensors, and measures against static.
- Do not use the industrial filter outdoors.

#### 4. Operating environment

- Do not use in operating conditions or environments where changes in color or deterioration of material due to corrosion may occur.
- Do not use this product in a place where shock or vibrations occur.

### ⚠ Caution

#### 1. Pressure drop ( $\Delta P$ )

- Use the product with a flow which has an initial pressure drop of 20 kPa or less.

## Design and Installation

### ⚠ Caution

#### [Design]

1. Design the system with operating conditions, including operating pressure, operating temperature, operating fluid, and operating environment appropriate for safe operation.
2. Use the product with a circuit that has minimal fluctuations to the filter caused by pressure or flow. (Ex.: circulating circuit, etc.)
3. Prevent back pressure and backflow from occurring. The element may be damaged by back pressure or backflow.
4. Prevent the propagation of an excess moment load and vibration from the piping side.
5. Provide adequate space for maintenance and inspection before installing and piping the product.
6. When using outside of Japan, the laws and regulations concerning the pressure vessel and fluid established by each country and region may be applied. Confirm in advance to determine whether the product can be used.

#### [Mounting]

1. For free standing type filters, firmly secure the bottom to the ground using foundation bolts.
2. For piping support type filters, secure to a panel using a bracket.
3. It is recommended that the filter is attached vertically to the upper cover portion and lower portion of the case for maintainability purposes, such as air releasing and element replacement.

#### [Piping]

1. Connect the valves or fittings suited to the operating conditions by checking the size of each connection port.

During connection work, make sure that powder from the piping screws or seal material does not get into the interior of the piping. Prior to operating, flush the piping line and check for abnormalities, such as fluid leakage.

2. Firmly secure the piping to the mounting frame using a saddle, etc., to avoid vibration or force caused by weight.

3. During element replacement, it is necessary to release fluid from the vessel.

Be sure to connect the pipes so that fluid can be released without issue.

4. Make sure that air releasing is conducted.

If the pump is located in a high position, idling sometimes occurs during re-start. Take measures such as releasing the air from a high position, etc.



# Industrial Filters Precautions 2

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## Operation

### Warning

1. Never loosen the tightened parts (V-band, tension bolt) under pressurized conditions.

### Caution

#### 1. Releasing the air

When applying pressure for starting a pump, be sure to release the air by opening the air release valve (air vent) on the top.

#### 2. When operating

When applying pressure for starting a pump, confirm that each of the connecting parts are completely sealed. If any abnormality is found, such as fluid leakage, stop the product immediately and locate the possible cause of the failure.

Resume operation after taking appropriate measures to stop the fluid leakage by replacing the O-rings or seals, or retightening the fittings.

## Maintenance

### Warning

1. Failure to follow proper procedures will likely cause fluid leakage or the removal of the cover, which may lead to an unexpected accident. Follow the procedure indicated in the operation manual.
2. Make sure that the line is stopped and the pressure is atmospheric pressure (gauge pressure: zero) before starting maintenance and inspection.
3. Depending on the fluid, there may be effects on the human body. Check the SDS of the fluid, and take all necessary precautions.

### Caution

#### 1. Timing of element replacement

- When the time has come to replace the element, replace it with a new element immediately.  
“Timing of element replacement”
- When the pressure drop has reached 0.1 MPa

#### 2. Element replacement

- Carry out element replacement based on the procedure indicated in the operation manual. Mishandling could lead to malfunction or damage the machinery and equipment.
- Before replacing the elements, be sure to wear protective gloves and safety glasses.  
There is a possibility of being injured by the captured foreign matter. There is also a possibility of being injured by hand slippage caused by the adhesion of fluid.
- After the elements are replaced, correctly perform the attachment and assembly of each part of the filter in the predetermined positions according to the operation manual.

#### 3. Cleaning each component

During element replacement, in order for firm sealing to take place, clean the sealing surface of the O-ring and seal, and/or remove the paint which is left on the tightened parts or the thread parts.

#### 4. Replacing O-rings and seals

Replace any deteriorated or expanded O-rings and seals. Also, replace the seal after it has been used for one year or when fluid leakage occurs.

#### 5. Temperature

When operating at high temperatures (40°C to 80°C), there is a danger of burns.

Confirm that the surface temperature of the filter and other operating parts are 40°C or less, to eliminate the risk of burns.