**Bag Filter**

**FGF Series**

**Optimum for the large flow filtration**

The bag-stated element (made of non-woven cloth) makes it possible to filtrate the large flow with lower pressure drop. [FGF□1 Series (one element included): Up to 400 L/min]

**Easy maintenance**

Replacement operations are easy thanks to a built-in basket mechanism allowing element replacement outside the vessel.

**Main operating fluids**

- Coolant (oil-based, water-soluble)
- Weak alkali-based cleaning fluid
- Cutting fluid
- Industrial water

For other kinds of fluids, please contact SMC.

**With safety mechanism**

Employs proprietary SMC latch mechanism and band lock mechanism. Safe even in the event of erroneous operation.

**Latch mechanism**

**With band-lock mechanism**

**Improved functionality and operability**

Renewed for easier use!

[FGF□1 Series (one element included)]

- Leg format changed to removable type, improved piping workability on bottom side.
- Easier handling thanks to lightweight band and hinge mechanism.
- Basket features hole for fluid release. Release of foreign matter to the outlet side is prevented.

- Weight: 13 kg (Current model: 19 kg)
  - 32% lighter than the current model

- Applies to FGF□1A

**Variations**

<table>
<thead>
<tr>
<th>Series</th>
<th>Number of elements</th>
<th>Element size</th>
<th>Port size</th>
<th>Maximum flow (Water, at Δp = 7 kPa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FGF□1</td>
<td>1</td>
<td>ø190 x L440</td>
<td>Rc2</td>
<td>Approx. 400 L/min</td>
</tr>
<tr>
<td>FGF□3</td>
<td>3</td>
<td>ø190 x L770</td>
<td>4°JIS10°FF</td>
<td>Approx. 1200 L/min</td>
</tr>
<tr>
<td>FGF□5</td>
<td>5</td>
<td></td>
<td>6°JIS10°FF</td>
<td>Approx. 2000 L/min</td>
</tr>
</tbody>
</table>

**Bag-stated element**

With a bag configuration, the aperture is wide and foreign matter is captured inside the element for easy removal. Furthermore, foreign matter captured inside the element will not spill over into the case interior or the surrounding area.

**Select from a wide range of filtration accuracy.**

Nominal filtration accuracy

5, 10, 25, 50, 100 µm
Bag filter offers excellent safety performance and ease of maintenance.

- **With safety mechanism**
  - Employs SMC proprietary latch mechanism – Prevents cover blowout in cases of erroneous operation.

- **Element can be replaced outside the vessel.**
  - Use of a built-in basket mechanism makes it possible to replace the element outside the vessel.

- **Band system**
  - Makes the work of tightening easy.
  - Compared to a bolt tightening system with many places (between 4 and 6) that need to be tightened, this system is easy to use with only one place to tighten.
  - Improved, easier handling thanks to lightweight band
  - Easier handling with more lightweight band (Band weight: 1 kg)
  - With lock mechanism <Patent pending>
  - Safe lock mechanism prevents band from coming off even in cases of erroneous operation under internal pressure.

- **No-fluid-buildup structure**
  - Basket features hole for fluid release. Release of foreign matter to the outlet side during element replacement is prevented.
  - Since there is no leftover fluid, there is no need to perform drainage operations.
  - (The drain port of the current model has been eliminated.)

- **Lightweight**
  - 32% lighter than the current model
  - Weight: 13 kg (Current model: 19 kg)
  - Applies to FGF□1A

- **Piping operations are a breeze.**
  - With a removable leg system, carrying out piping operations at the fluid release port is easier.

<table>
<thead>
<tr>
<th>Example</th>
<th>When removing legs from the main unit before attaching piping</th>
</tr>
</thead>
<tbody>
<tr>
<td>① Remove legs from the main unit.</td>
<td>② Attach piping to fluid release port.</td>
</tr>
</tbody>
</table>

- Fluid release port
- OUT port
Variations of Bag Filters

Available combination between an element and a vessel

<table>
<thead>
<tr>
<th>Element</th>
<th>Standard products</th>
</tr>
</thead>
<tbody>
<tr>
<td>FGF1</td>
<td>Vessel with one element 0.5 MPa type</td>
</tr>
<tr>
<td>FGF3 Note 2</td>
<td>Vessel with three elements 0.5 MPa type</td>
</tr>
<tr>
<td>FGF5 Note 2</td>
<td>Vessel with five elements 0.5 MPa type</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standard elements</th>
<th>P.47</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-element + Standard element</td>
<td>P.55</td>
</tr>
<tr>
<td>Sub-element</td>
<td></td>
</tr>
<tr>
<td>HEPO element</td>
<td>P.56</td>
</tr>
<tr>
<td>Long service life element</td>
<td>P.57</td>
</tr>
<tr>
<td>Branch type element</td>
<td></td>
</tr>
<tr>
<td>PP (Polypropylene) bag element</td>
<td>P.58</td>
</tr>
<tr>
<td>Filter paper element</td>
<td></td>
</tr>
</tbody>
</table>

Note 1) Combinations between standard or made-to-order elements and standard or made-to-order vessels are marked (●) as above.
Note 2) Please contact SMC for delivery time as the FGF3 and FGF5 are produced upon receipt of order.

Types of Element

<table>
<thead>
<tr>
<th>Bag element</th>
<th>Sub-element + Standard element</th>
<th>X46</th>
</tr>
</thead>
<tbody>
<tr>
<td>P.47</td>
<td>Effective for extending the service life of a standard element</td>
<td></td>
</tr>
<tr>
<td>(For coarse filtration)</td>
<td>(For coarse filtration)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Made-to-Order elements</th>
<th>Sub-element</th>
<th>X81</th>
<th>HEPO element</th>
<th>X49</th>
</tr>
</thead>
<tbody>
<tr>
<td>X46</td>
<td>Eliminates large foreign matter.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(For coarse filtration)</td>
<td>(For coarse filtration)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HEPO element</td>
<td>P.56</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(For precision filtration)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Made-to-Order elements</th>
<th>Sub-element</th>
<th>X72</th>
<th>HEPO element</th>
<th>X49</th>
</tr>
</thead>
<tbody>
<tr>
<td>X292</td>
<td>More compact vessel is possible. (Longevity for L440 is same as L770.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(For coarse filtration)</td>
<td>(For coarse filtration)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Made-to-Order elements</th>
<th>Sub-element</th>
<th>X142</th>
<th>HEPO element</th>
<th>X49</th>
</tr>
</thead>
<tbody>
<tr>
<td>X82</td>
<td>Long service life (Four to five times the filtration area compared with the standard elements)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(For coarse filtration)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Made-to-Order elements</th>
<th>Sub-element</th>
<th>X142</th>
<th>HEPO element</th>
<th>X49</th>
</tr>
</thead>
<tbody>
<tr>
<td>X292</td>
<td>More compact vessel is possible. (Longevity for L440 is same as L770.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(For coarse filtration)</td>
<td>(For coarse filtration)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Made-to-Order elements</th>
<th>Sub-element</th>
<th>X142</th>
<th>HEPO element</th>
<th>X49</th>
</tr>
</thead>
<tbody>
<tr>
<td>X82</td>
<td>Long service life (Four to five times the filtration area compared with the standard elements)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(For coarse filtration)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Made-to-Order elements</th>
<th>Sub-element</th>
<th>X142</th>
<th>HEPO element</th>
<th>X49</th>
</tr>
</thead>
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<tr>
<td>X292</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(For coarse filtration)</td>
<td>(For coarse filtration)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Made-to-Order elements</th>
<th>Sub-element</th>
<th>X142</th>
<th>HEPO element</th>
<th>X49</th>
</tr>
</thead>
<tbody>
<tr>
<td>X82</td>
<td>Long service life (Four to five times the filtration area compared with the standard elements)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(For coarse filtration)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note) Refer to pages 55 to 58 for details on Made-to-Order elements and vessels.
Stable quality and reuse of fluid is possible thanks to filtration!

**Contributes to…**

- **Stable product quality** (Fewer defects, etc.)
- **Prevention of problems in the line** (Prevention of nozzle blockage, etc.)
- **Less waste fluid**

**Application example**

**Washing line**

[Filtration of cleaning fluid]
The filter performs filtration of used cleaning fluid so it can be reused many times. (Thanks to cyclical filtration, the volume of waste fluid is reduced.)

[Application example]

Stable product quality
(Fewer defects, etc.)

Contributes to…

Prevention of problems in the line
(Prevention of nozzle blockage, etc.)

Less waste fluid

Two units used side by side
[Reduction in length of time line is stopped for element replacement]

Installing two bag filters means that one filter can always be used while the other is undergoing element replacement, meaning that the line does not have to be stopped for long periods of time for replacement of elements.

**Processing line**

[Filtration of cleaning fluid]
The filter is used to maintain a constant level of cleaning fluid.

**Filtration of industrial water**

[Filtration of industrial water]
The filter removes foreign matter from raw water so it can be used for manufacturing.
Bag Filter  
**FGF Series**

**How to Order**

**Pressure gauge**
- Symbol: E
- Option: Nil, G
- Pressure gauge: 1 (MPa: Brass for wetted parts)
- With pressure gauge
- Without pressure gauge (with plug)

**Nominal filtration accuracy**
- Symbol: F
- Option: Nil
- F: Companion flange
- L: Foundation bolt (3 pcs)
- Nil: None

**Part number of element for replacement**
- Symbol: EJ
- 501S - 005

**Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>FGF-1A-20</th>
<th>FGF-1B-20</th>
<th>FGF-3A-40</th>
<th>FGF-3B-40</th>
<th>FGF-3A-60</th>
<th>FGF-3B-60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating pressure</td>
<td>Max. 0.5 MPa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>Max. 80°C (For with pressure gauge: 60°C or less)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum flow rate</td>
<td>Approx. 400 L/min</td>
<td>Approx. 1200 L/min</td>
<td>Approx. 2000 L/min</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applicable fluid</td>
<td>Water-soluble coolant, Weak alkali-based cleaning fluid, Industrial water (Vessel material: Stainless steel)</td>
<td>Oil-based coolant, Cutting oil (Vessel material: Carbon steel)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Material</td>
<td>Cover: Stainless steel 304</td>
<td>Case: Stainless steel 304</td>
<td>Legs: Carbon steel</td>
<td>Seal: NBR or FKM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note 2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vessel</td>
<td>Internal volume</td>
<td>23 L</td>
<td>35 L</td>
<td>104 L</td>
<td>156 L</td>
<td>214 L</td>
</tr>
<tr>
<td>Weight</td>
<td>13 kg</td>
<td>16 kg</td>
<td>170 kg</td>
<td>190 kg</td>
<td>270 kg</td>
<td>315 kg</td>
</tr>
<tr>
<td>Accessories</td>
<td>Pressure gauge</td>
<td>1 MPa: Brass for wetted parts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air release valve</td>
<td>1/4&quot; Ball valve (Brass)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Davit for picking elements</td>
<td>Basket integrated</td>
<td>Part No.: AK-1S</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Made to Order</td>
<td>(For details, refer to pages 1174 to 1178.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Element</td>
<td>Nominal filtration accuracy</td>
<td>5, 10, 25, 50, 100 µm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Element replacement</td>
<td>Differential pressure</td>
<td>0.1 MPa</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>ø190 x L440</td>
<td>ø190 x L770</td>
<td>ø190 x L440</td>
<td>ø190 x L770</td>
<td>ø190 x L440</td>
<td>ø190 x L770</td>
</tr>
<tr>
<td>Filtration area</td>
<td>1800 cm²</td>
<td>3400 cm²</td>
<td>5400 cm²</td>
<td>10200 cm²</td>
<td>9000 cm²</td>
<td>17000 cm²</td>
</tr>
</tbody>
</table>

**Note 1)** Conditions: Fluid = Water, Pressure drop 7 kPa, Nominal filtration accuracy 100 µm
**Note 2)** Confirm the conformity of the fluid to be used.
**Note 3)** Surface treatment No. 20 applies to the external surface of the vessel. (Scratches, scrapes, blisters and uneven color may be present as long as they do not interfere with function or performance.)
**Note 4)** For the FGF-1 series, this indicates cases where the "with pressure gauge" option has been selected.
**Note 5)** Control the element replacement so that the differential pressure does not exceed 0.1 MPa.
**Note 6)** Parts other than the wetted parts are made of carbon steel and painted (silver).
**Note 7)** Please contact SMC for delivery time as the FGF3 and FGF5 are produced upon receipt of order.
**FGF Series**

**Model Selection**

---

**Step 1 Checking operating conditions**

- Fluid
- Pressure
- Temperature
- Flow rate
- Filtration accuracy

Confirm that the specifications are within the appropriate range.

- Check the compatibility of fluid with element material [polyester].
  
  To check the compatibility with main fluids, refer to "Selection by Main Application" on page 50.

- Check the compatibility of fluid with vessel material [stainless steel 304/carbon steel].
  
  To check the compatibility with main fluids, refer to "Selection by Main Application" on page 50.

- Check the compatibility of fluid with seal material [NBR] or [FKM].
  
  To check the compatibility with main fluids, refer to "Selection by Main Application" on page 50.

- Confirm that the temperature is 80°C or less.

- Confirm that the pressure is 0.5 MPa or less.

---

**Step 2 Selecting a vessel**

**Step 3 Selecting the filter model**

**Step 4 Determining the model and number of units**

---

**Selection method**

**Selection flow chart**

**Selection example**

---

**Operating conditions**

- Fluid: Coolant (water-soluble) [Viscosity equivalent to water: 1 mm²/sec]
- Pressure: 0.3 MPa
- Temperature: 50°C
- Flow rate: 700 L/min
- Filtration accuracy: 50 µm

Confirm that the specifications are within the appropriate range.

- Coolant (water-soluble)
  → Compatibility with polyester: OK
  → Compatibility with stainless steel 304: OK
  → Compatibility with NBR (FKM): OK
- 50°C
  → 80°C or less: OK
- 0.3 MPa
  → 0.5 MPa or less: OK

Consider Made-to-Order products.

Consider special products.

Possible range of pressure specifications up to 1.0 MPa
**Selection method**

**Step 2 Selecting a vessel**

1. **Calculating the number of elements**
   - Use the flow rate to calculate the number of elements.
   - **Required flow rate** ÷ **Recommended flow rate** = Number of elements.
   
   - [Recommended flow rate per one element]
     - 400 L/min (Pressure drop 7 kPa to 8 kPa)
     - When viscosity rate is equivalent to water.
   
   - [Number of elements]
     - Round up: 1.75 elements ≈ 2 elements
     - When flow rate = 50 L/min or less, the compact filters [FGD] [FQ] series are recommended.

2. **Vessel type and number of units**
   - Choose a vessel that satisfies the number of elements obtained in step 1.
   - 2 elements → FGF 1-20 ··· 2 units

**Step 3 Selecting the filter model**

1. **Selecting vessel material and seal material**
   - Select and seal materials from among those compatible with the fluid used.

2. **Selecting element size**
   - Select the element size when there is a large amount of contamination or frequent replacements.
   - Flow rate does not change depending on element size.

3. **Selecting filtration accuracy**
   - Select the required filtration accuracy depending on conditions.
   - Filtration accuracy = Nominal filtration accuracy

**Step 4 Determining the model and number of units**

Determine the filter model and number of units based on the results of Step 2 and Step 3.

- Select pressure gauge or other options as needed.
Selection by Main Application

Flow Rate Characteristics (Initial Value)

- Test fluid: Water  Liquid temperature: 17°C to 20°C (Room temperature)
- Test method: Per SMC test method

- Flow rate conversion based on viscosity conversion (with viscosity other than that equivalent to water)
  Example) Fluid: Coolant (oil-based)  Kinematic viscosity: 20 mm²/sec  Flow rate: 285 L/min

  1) Calculation of flow coefficient
     - Obtain the flow coefficient from the viscosity conversion table.  Kinematic viscosity: 20 mm²/sec → Flow coefficient: 95%

  2) Flow rate conversion
     - Convert the flow rate when viscosity is equivalent to water using the flow coefficient obtained in step 1).
     285 L/min × flow coefficient 95% = 300 L/min
     300 L/min flow rate is necessary when viscosity is equivalent to water.
     - After this, make a selection using the selection method.

- Note 1) Please contact SMC for delivery time as the FGF3 and FGF5 are produced upon receipt of order.

Viscosity Conversion Table

<table>
<thead>
<tr>
<th>Kinematic viscosity (mm²/sec)</th>
<th>400</th>
<th>200</th>
<th>100</th>
<th>50</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid indicator</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equivalent to honey</td>
<td>—</td>
<td>—</td>
<td>Paint</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coolant (oil-based)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cleaning fluid Water</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- These relationships between fluids and kinematic viscosity are for guideline purposes only. Check the actual kinematic viscosity of fluid before using. Fluid viscosities shown are at room temperature (17°C to 20°C).
- Flow coefficient: When 100% of water flows at 1 mm²/sec, the flow coefficient indicates that 85% flows at a kinematic viscosity of 100 mm²/sec.
Bag Filter  
**FGF Series**

**Construction**

**FGF-1**

![Diagram of FGF-1]

**Component Parts/Replacement Parts**

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Part No.</th>
<th>Material</th>
<th>Qty.</th>
<th>Applicable model Note 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cover</td>
<td>—</td>
<td>Stainless steel</td>
<td>1</td>
<td>FGF-1/3</td>
</tr>
<tr>
<td>2</td>
<td>Case</td>
<td>—</td>
<td>Stainless steel</td>
<td>1</td>
<td>FGF-1/3</td>
</tr>
<tr>
<td>3</td>
<td>Basket</td>
<td>FGF-BT01</td>
<td>Stainless steel</td>
<td>1</td>
<td>FGF-1A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FGF-BT02</td>
<td>Stainless steel</td>
<td>1</td>
<td>FGF-1B</td>
</tr>
<tr>
<td>4</td>
<td>Element</td>
<td>EJ501S-□</td>
<td>Polyester</td>
<td>1</td>
<td>FGF-1A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EJ601S-□</td>
<td>Stainless steel</td>
<td>1</td>
<td>FGF-1B</td>
</tr>
<tr>
<td>5</td>
<td>V-band Note 2)</td>
<td>FGF-BA01</td>
<td>Stainless steel</td>
<td>1</td>
<td>FGF-11</td>
</tr>
<tr>
<td>6</td>
<td>Legs (with bolt, nut, flat washer)</td>
<td>FGF-OP01 (Set)</td>
<td>Carbon steel</td>
<td>1</td>
<td>FGF-11</td>
</tr>
<tr>
<td>7</td>
<td>O-ring</td>
<td>FGF-KT01</td>
<td>NBR</td>
<td>1</td>
<td>FGF-11</td>
</tr>
<tr>
<td>8</td>
<td>Holder (with O-ring)</td>
<td>FGF-KT03 (Set)</td>
<td>Polypropylene/ NBR</td>
<td>1</td>
<td>FGF-11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FGF-KT04 (Set)</td>
<td>Polypropylene/ NBR</td>
<td>1</td>
<td>FGF-11</td>
</tr>
</tbody>
</table>

**FGF-3□-40**

![Diagram of FGF-3□-40]

**Component Parts and Seal List**

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Part No.</th>
<th>Material</th>
<th>Qty.</th>
<th>Applicable model Note 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cover</td>
<td>—</td>
<td>Stainless steel</td>
<td>1</td>
<td>FGF/L</td>
</tr>
<tr>
<td></td>
<td></td>
<td>—</td>
<td>Carbon steel</td>
<td>1</td>
<td>FGF/L</td>
</tr>
<tr>
<td>2</td>
<td>Case Note 2)</td>
<td>—</td>
<td>Stainless steel</td>
<td>1</td>
<td>FGF/L</td>
</tr>
<tr>
<td></td>
<td></td>
<td>—</td>
<td>Carbon steel</td>
<td>1</td>
<td>FGF/L</td>
</tr>
<tr>
<td>3</td>
<td>Basket</td>
<td>BT-3S</td>
<td>Stainless steel</td>
<td>3</td>
<td>FGF/L3-40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BT-4S</td>
<td>Stainless steel</td>
<td>5</td>
<td>FGF/L5-60</td>
</tr>
<tr>
<td>4</td>
<td>Element</td>
<td>Refer to “How to Order” on page 47.</td>
<td>Polyester</td>
<td>3</td>
<td>FGF/L3-40</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Carbon steel</td>
<td>5</td>
<td>FGF/L5-60</td>
</tr>
<tr>
<td>5</td>
<td>Hinge bolt</td>
<td>—</td>
<td>Carbon steel</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>6</td>
<td>Eyenut</td>
<td>—</td>
<td>Carbon steel</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>7</td>
<td>Washer</td>
<td>—</td>
<td>Carbon steel</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>8</td>
<td>Parallel pin</td>
<td>—</td>
<td>Carbon steel</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>9</td>
<td>Lifter</td>
<td>—</td>
<td>Carbon steel</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>10</td>
<td>Handle</td>
<td>—</td>
<td>Carbon steel</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>11</td>
<td>O-ring</td>
<td>AL-26S</td>
<td>NBR</td>
<td>1</td>
<td>FGF/L3-40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AL-27S</td>
<td>NBR</td>
<td>1</td>
<td>FGF/L3-40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AL-23S</td>
<td>FKM</td>
<td>1</td>
<td>FGF/L3-40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AL-24S</td>
<td>FKM</td>
<td>1</td>
<td>FGF/L3-40</td>
</tr>
<tr>
<td>12</td>
<td>Gasket</td>
<td>AL-20S</td>
<td>NBR</td>
<td>3</td>
<td>FGF/L3-40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AL-21S</td>
<td>FKM</td>
<td>3</td>
<td>FGF/L3-40</td>
</tr>
</tbody>
</table>

Note 1) Refer to “How to Order” on page 47 for the □ part of the model number.
Note 2) When replacing the V-band, also replace the O-ring at the same time.

![Components and Seal List Table]

Note 1) Refer to “How to Order” on page 47 for the □ part of the model number.
Note 2) The leg parts are made of carbon steel.
Options

Companion flange

Flange

Gasket

Hexagon bolt and nut

Part No. | Applicable model | Flange dimension | Material | A | B | C | D | T1 |
---|---|---|---|---|---|---|---|---|
F-86S | FGFC3□-40 | 10(4P) | Carbon steel | 210 | 175 | 115.4 | 19 | 18 |
F-87S | FGFC3□-40 | 150(6P) | Carbon steel | 280 | 240 | 166.5 | 23 | 22 |
F-88S | FGFS3□-60 | | Stainless steel | |
F-89S | FGFS3□-60 | | Stainless steel | |

Part No. | Applicable model | Material | E | F | T2 |
---|---|---|---|---|---|
AL-79S | FGFC3□-40 | V6500 | 159 | 115 | 3 |
AL-80S | FGFC3□-40 | | 220 | 187 | 3 |

Part No. | Applicable model | Flange | Gasket | Hexagon bolt |
---|---|---|---|---|
F-90S | FGFC3□-40 | F-86S | AL-79S | |
F-91S | FGFS3□-60 | F-87S | AL-80S | |
F-92S | FGFS5□-60 | F-88S | |
F-93S | FGFS5□-60 | F-89S | AL-81S | |

Foundation bolt

Part No. | Applicable model | Nominal thread size | d1 | S | L1 | R | L |
---|---|---|---|---|---|---|---|
FGF-OP05 | FGFC1□-20 | M16 | 16 | 40 | 71 | 31.5 | 400 |
AI-3S | FGFR3□-40 | M20 | 20 | 50 | 90 | 40 | 500 |

Note) 2 pieces are required per filter unit. JIS10FF is used for this flange.

Note) 2 pieces are required per filter unit.

Note) 3 foundation bolts are required per filter unit. If ordering only foundation bolts, order 3 bolts using the above part number.
## Made to Order  **FGF Series**

### Elements

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>X46</td>
<td>Sub-element + Standard element</td>
<td><img src="image1.png" alt="Image" /></td>
</tr>
<tr>
<td>X81</td>
<td>Sub-element</td>
<td><img src="image2.png" alt="Image" /></td>
</tr>
<tr>
<td>X49</td>
<td>HEPO element</td>
<td><img src="image3.png" alt="Image" /></td>
</tr>
<tr>
<td>X82</td>
<td>Long service life element</td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
<tr>
<td>X292</td>
<td>Branch type element</td>
<td><img src="image5.png" alt="Image" /></td>
</tr>
<tr>
<td>X72</td>
<td>PP (Polypropylene) bag element</td>
<td><img src="image6.png" alt="Image" /></td>
</tr>
<tr>
<td>X142</td>
<td>Filter paper element</td>
<td><img src="image7.png" alt="Image" /></td>
</tr>
</tbody>
</table>

**Leg Material: Stainless Steel**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>X47</td>
<td></td>
<td><img src="image8.png" alt="Image" /></td>
</tr>
</tbody>
</table>
**FGF Series**

**Made to Order**

Please consult with SMC for details.

---

### X46

- **Effective for extending the service life of a standard element**
- **Sub-elements eliminate large foreign matter.**

(For coarse filtration)

It has a structure such that the spongiform filtration material, which is made of Polyvinylidene Chlorides, is in the form of a bag. It is then fixed by a ring inside the standard element.

---

### How to Order

- Refer to “How to Order” on page 47 for standard specifications.

**1 element included**

| Sub-element/Ring Part No. | FGF∥1∥ 1∥-∥20∥-∥E∥∥B∥∥-∥∥*∥∥X46

**3/5 elements included**

(Produced upon receipt of order.)

| Sub-element/Ring Part No. | FGF∥1∥ 1∥-∥20∥-∥E∥∥B∥∥-∥∥*∥∥X46

---

**Sub-element/Ring Part No.** (Note 2)

<table>
<thead>
<tr>
<th>Element size</th>
<th>Sub-element (single part)</th>
<th>Sub-element with ring (single part)</th>
<th>Ring (single part)</th>
<th>Standard element (single part)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L440</td>
<td>EZS340S</td>
<td>EZS320S</td>
<td>FZS310S</td>
<td>EJ501S</td>
</tr>
<tr>
<td>L770</td>
<td>EZS330S</td>
<td>EZS310S</td>
<td></td>
<td>EJ601S</td>
</tr>
</tbody>
</table>

---

**Specifications**

<table>
<thead>
<tr>
<th>Applicable model</th>
<th>FGF∥A∥</th>
<th>FGF∥B∥</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main applicable fluid</td>
<td>Solvent oil-based, water-soluble. Weak alkali-based cleaning fluid, Industrial water.</td>
<td>Solvent oil-based, water-soluble. Weak alkali-based cleaning fluid, Industrial water.</td>
</tr>
<tr>
<td>Nominal filtration accuracy</td>
<td>5, 10, 25, 50, 100 µm (standard element), 500 to 1000 µm (sub-element)</td>
<td>5, 10, 25, 50, 100 µm (standard element), 500 to 1000 µm (sub-element)</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>Max. 80°C</td>
<td>Max. 80°C</td>
</tr>
<tr>
<td>Maximum flow rate</td>
<td>Max. 400 L/min</td>
<td>Max. 400 L/min</td>
</tr>
<tr>
<td>Element replacement differential pressure</td>
<td>Differential pressure 0.1 MPa</td>
<td>Differential pressure 0.1 MPa</td>
</tr>
<tr>
<td>Filtration material</td>
<td>Polyester (standard element), Vinylidene chloride (sub-element)</td>
<td>Polyester (standard element), Vinylidene chloride (sub-element)</td>
</tr>
<tr>
<td>Element size</td>
<td>ø190 x L440</td>
<td>ø190 x L770</td>
</tr>
<tr>
<td>Filtration area</td>
<td>1800 cm²</td>
<td>3400 cm²</td>
</tr>
</tbody>
</table>

---

### X81

- **Eliminates large foreign matter (500 µm or larger).**

(For coarse filtration)

---

### How to Order

- Refer to “How to Order” on page 47 for standard specifications.

**1 element included**

| Sub-element/Ring Part No. | FGF∥1∥ 1∥-∥20∥-∥B∥∥-∥∥*∥∥X81

**3/5 elements included**

(Produced upon receipt of order.)

| Sub-element/Ring Part No. | FGF∥1∥ 1∥-∥20∥-∥B∥∥-∥∥*∥∥X81

---

**Sub-element/Ring Part No.** (Note 2)

<table>
<thead>
<tr>
<th>Element size</th>
<th>Sub-element (single part)</th>
<th>Sub-element with ring (single part)</th>
<th>Ring (single part)</th>
<th>Standard element (single part)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L440</td>
<td>EZS340S</td>
<td>EZS320S</td>
<td>FZS310S</td>
<td>EJ501S</td>
</tr>
<tr>
<td>L770</td>
<td>EZS330S</td>
<td>EZS310S</td>
<td></td>
<td>EJ601S</td>
</tr>
</tbody>
</table>

---

**Specifications**

<table>
<thead>
<tr>
<th>Applicable model</th>
<th>FGF∥A∥</th>
<th>FGF∥B∥</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main applicable fluid</td>
<td>Solvent oil-based, water-soluble. Weak alkali-based cleaning fluid, Industrial water.</td>
<td>Solvent oil-based, water-soluble. Weak alkali-based cleaning fluid, Industrial water.</td>
</tr>
<tr>
<td>Nominal filtration accuracy</td>
<td>500 to 1000 µm</td>
<td>500 to 1000 µm</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>Max. 80°C</td>
<td>Max. 80°C</td>
</tr>
<tr>
<td>Maximum flow rate</td>
<td>Max. 400 L/min</td>
<td>Max. 400 L/min</td>
</tr>
<tr>
<td>Element replacement differential pressure</td>
<td>Differential pressure 0.1 MPa</td>
<td>Differential pressure 0.1 MPa</td>
</tr>
<tr>
<td>Filtration material</td>
<td>Vinlyidene chloride</td>
<td>Vinlyidene chloride</td>
</tr>
<tr>
<td>Element size</td>
<td>ø190 x L440</td>
<td>ø190 x L770</td>
</tr>
<tr>
<td>Filtration area</td>
<td>1800 cm²</td>
<td>3400 cm²</td>
</tr>
</tbody>
</table>

---

Note 1) When changing from a standard product to one with X46 specifications, order a sub-element with a ring. Since the model number will change when replacement is conducted, we ask that the customer manage the model number.

When replacing only the element, order a sub-element (single part) and a standard element and attach the ring before use. Enter the symbol for nominal filtration accuracy in the part for the standard element. (Refer to page 47.)
**FGF Series**

---

### X49 / HEPO element equipped

- High-performance filtration
- Optimum for filtration of precision machine fluids, precision cleaning fluids, etc.
- Effective for the grinding powders

A cylindrical element in which the filter material made of P.G.P. (Polyester + Glass fiber) is sandwiched by a stainless steel mesh and pleated.

Note 4) Fluids that cause corrosion, deterioration or expansion of the material used in the elements cannot be used.

Note 5) Specialized for precision filtration. The filtration accuracy indicates 98% of filtered particle size.

Note 6) Conditions: Fluid = Water. For other fluids, maximum flow rate changes based on viscosity, etc. Maximum flow rate is per one element. When there are three elements or five elements, multiply by 3 or 5.

#### Specifications

<table>
<thead>
<tr>
<th>Applicable model</th>
<th>FGF-A</th>
<th>FGF-B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main applicable fluid</td>
<td>Coolant (oil-based, water-soluble), Weak alkali-based cleaning fluid, Industrial water</td>
<td></td>
</tr>
<tr>
<td>Nominal filtration accuracy</td>
<td>3 μm</td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>Max. 80°C</td>
<td></td>
</tr>
<tr>
<td>Maximum flow rate</td>
<td>Max. 100 L/min</td>
<td>Max. 200 L/min</td>
</tr>
<tr>
<td>Element replacement differential pressure</td>
<td>Differential pressure 0.1 MPa</td>
<td></td>
</tr>
<tr>
<td>Filtration material</td>
<td>Polyester/Glass fiber</td>
<td></td>
</tr>
<tr>
<td>Element size</td>
<td>φ186 x L312</td>
<td>φ186 x L642</td>
</tr>
<tr>
<td>Filtration area</td>
<td>16500 cm²</td>
<td>31600 cm²</td>
</tr>
</tbody>
</table>

---

### X82 / Long service life element equipped

- Four to five times the filtration area (compared with the standard elements)
- Reduction in number of element replacements

A cylindrical element in which the non-woven material made of PP (Polypropylene) is sandwiched by a PET (Polyester) mesh and pleated.

Note 4) Fluids that cause corrosion, deterioration or expansion of the material used in the elements cannot be used.

Note 5) The filtration accuracy is based on SMC criteria, and differs from the absolute filtration accuracy (filtration efficiency of 97% or more).

Note 6) Conditions: Fluid = Water. For other fluids, maximum flow rate changes based on viscosity, etc. Maximum flow rate is per one element. When there are three elements or five elements, multiply by 3 or 5.

#### Specifications

<table>
<thead>
<tr>
<th>Applicable model</th>
<th>FGF-A</th>
<th>FGF-B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main applicable fluid</td>
<td>Coolant (oil-based, water-soluble), Weak alkali-based cleaning fluid, Industrial water</td>
<td></td>
</tr>
<tr>
<td>Nominal filtration accuracy</td>
<td>50 μm</td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>Max. 80°C</td>
<td></td>
</tr>
<tr>
<td>Maximum flow rate</td>
<td>Max. 100 L/min</td>
<td>Max. 200 L/min</td>
</tr>
<tr>
<td>Element replacement differential pressure</td>
<td>Differential pressure 0.1 MPa</td>
<td></td>
</tr>
<tr>
<td>Filtration material</td>
<td>Polypropylene/Polyester</td>
<td></td>
</tr>
<tr>
<td>Element size</td>
<td>φ186 x L312</td>
<td>φ186 x L642</td>
</tr>
<tr>
<td>Filtration area</td>
<td>9400 cm²</td>
<td>12400 cm²</td>
</tr>
</tbody>
</table>
X292  Branch type element equipped

- 1.8 times the filtration area (compared with the standard element)
- Filtration area is the same for short size elements (L440) and long size (L770). More compact vessels are possible.

(For coarse filtration)

Two-bag construction made of polyester non-woven material.

How to Order

+ Refer to “How to Order” on page 47 for standard specifications.

**FGF** 1 A - 20 - E  B -  X292

Note 2) When changing from a standard product to one with X292 specifications, additionally order a branch type element (single part) and a basket component. Since the model number will change when replacement is conducted, we ask that the customer manage the model number.

When replacing only the element, order a branch type element (single part).

Note 3) Enter the symbol for nominal filtration accuracy in the □ part. (Refer to page 47.)

<table>
<thead>
<tr>
<th>Element Part No. (Note 2)</th>
<th>Element size</th>
<th>Branch type element (single part)</th>
<th>Basket</th>
</tr>
</thead>
<tbody>
<tr>
<td>L440</td>
<td>EJ11IS</td>
<td>FGF-BT03</td>
<td></td>
</tr>
</tbody>
</table>

Specifications

- Main applicable fluid: Coolant (oil-based, water-soluble), Weak alkali-based cleaning fluid, Industrial water
- Nominal filtration accuracy: 1, 3, 5 µm
- Operating temperature: Max. 80°C
- Maximum flow rate: Max. 400 L/min
- Element replacement differential pressure: Differential pressure 0.1 MPa
- Filtration material: Polyester
- Element size: ø190 x L440
- Filtration area: 3300 cm²

Note 4) Fluids that cause corrosion, deterioration or expansion of the material used in the elements cannot be used.

Note 5) Depends on the filtration accuracy (nominal filtration accuracy) of the element.

Note 6) Conditions: Fluid = Water, Initial differential pressure 7 kPa, Nominal filtration accuracy 100 µm (standard element)

X72  PP (Polypropylene) bag element equipped

- Polypropylene filter material can be used with a wide variety of fluids.
- Applicable for strong alkali-based cleaning fluid

(For coarse filtration)

How to Order

+ Refer to “How to Order” on page 47 for standard specifications.

**FGF** 1 - 20 - E  B -  X72

Note 1) Without pressure gauge/Without option:

Example) FGF51A-20-E005B-X292

3/5 elements included

**FGF** 1 - 20 - E  B -  X72

Note 1) Without pressure gauge/Without option:

Example) FGF51A-20-E005B-X292

Note 3) Enter the symbol for nominal filtration accuracy in the □ part.

<table>
<thead>
<tr>
<th>Element Part No. (Note 2)</th>
<th>Element size</th>
<th>Element size</th>
<th>Nominal filtration accuracy (µm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L440</td>
<td>EJ501S</td>
<td>FGF-B103</td>
<td>1, 3, 5</td>
</tr>
<tr>
<td>L770</td>
<td>EJ601S</td>
<td>FGF-B103</td>
<td>1, 3, 5</td>
</tr>
</tbody>
</table>

Specifications

- Main applicable fluid: Coolant (oil-based, water-soluble), Weak alkali-based cleaning fluid, Industrial water
- Nominal filtration accuracy: 1, 3, 5 µm
- Operating temperature: Max. 80°C
- Maximum flow rate: Max. 400 L/min
- Element replacement differential pressure: Differential pressure 0.1 MPa
- Filtration material: Polyester
- Element size: ø190 x L440
- Filtration area: 3300 cm²

Note 4) Fluids that cause corrosion, deterioration or expansion of the material used in the elements cannot be used.

Note 5) Depends on the filtration accuracy (nominal filtration accuracy) of the element.

Note 6) Conditions: Fluid = Water, Initial differential pressure 7 kPa, Nominal filtration accuracy 5 µm (standard element)

Maximum flow rate is per one element. When there are three elements or five elements, multiply by 3 or 5.
X142 Filter paper element equipped

- Optimum for filtration of cutting or grinding oil
- Large filtration area makes it suitable for filtrating fluids containing highly dense contaminants.

(For coarse filtration)

A cylindrical element with a cotton-made filter inside and a pleated material on the outside for reinforcement.

Note 4) Fluids that cause corrosion, deterioration or expansion of the material used in this filter and elements cannot be used.

Note 5) Depends on the filtration accuracy (nominal filtration accuracy) of the element.

Note 6) Conditions: When fluid has a kinematic viscosity of 36 mm²/sec (equivalent to turbine oil VG36). For other fluids, maximum flow rate changes based on viscosity, etc.

Example) FGFS1A-20-Z010B-X47, FGFS3B-40-Z010X412

How to Order
- Refer to “How to Order” on page 47 for standard specifications.

<table>
<thead>
<tr>
<th>1 element included</th>
<th>FGF</th>
<th>1</th>
<th>20</th>
<th>Z</th>
<th>010</th>
<th>B</th>
<th>—</th>
<th>—</th>
<th>—</th>
<th>X142</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/5 elements included</td>
<td>FGF</td>
<td>1</td>
<td>20</td>
<td>Z</td>
<td>010</td>
<td>B</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>X142</td>
</tr>
</tbody>
</table>

Note 1) Without pressure gauge/Without option: “—” is not required to enter. Example) FGFS1A-20-Z010B-X142, FGFS3B-40-Z010X412

Element/Element-Fixing Component Part No. (Produced upon receipt of order.)

Note 2) When changing from a standard product to one with X142 specifications, additionally order a filter paper element (single part) and an element-fixing component. Since the model number will change when replacement is conducted, we ask that the customer manage the model number.

Note 3) 1 set is required per element.

Note 4) Fluids that cause corrosion, deterioration or expansion of the material used in this filter and elements cannot be used.

Note 5) Depends on the filtration accuracy (nominal filtration accuracy) of the element.

Note 6) Conditions: When fluid has a kinematic viscosity of 36 mm²/sec (equivalent to turbine oil VG36). For other fluids, maximum flow rate changes based on viscosity, etc.

Maximum flow rate is per one element. When there are three elements or five elements, multiply by 3 or 5.

Specifications

<table>
<thead>
<tr>
<th>Applicable model</th>
<th>FGF 1A</th>
<th>FGF 1B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main applicable fluid</td>
<td>Coolant (oil-based), Lubricating oil</td>
<td></td>
</tr>
<tr>
<td>Nominal filtration accuracy</td>
<td>10 µm</td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>Max. 80°C</td>
<td></td>
</tr>
<tr>
<td>Maximum flow rate</td>
<td>Max. 100 L/min</td>
<td>Max. 200 L/min</td>
</tr>
<tr>
<td>Element size</td>
<td>ø186 x L312</td>
<td>ø186 x L642</td>
</tr>
<tr>
<td>Filtration area</td>
<td>8900 cm²</td>
<td>18500 cm²</td>
</tr>
</tbody>
</table>

X47 Leg material: Stainless steel

- Legs made of stainless steel can be used.

Legs Part No.

<table>
<thead>
<tr>
<th>Part No. Note 2</th>
<th>Material</th>
<th>Included parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>FGF-OP02</td>
<td>Stainless steel</td>
<td>Mounting bolt/Nut/Flat washer</td>
</tr>
</tbody>
</table>

Note 2) When changing from a standard product to one with X47 specifications, order the part numbers above and replace only the legs. Since the model number will change when replacement is conducted, we ask that the customer manage the model number.

How to Order
- Refer to “How to Order” on page 47 for standard specifications.

<table>
<thead>
<tr>
<th>1 element included</th>
<th>FGF</th>
<th>1</th>
<th>20</th>
<th>E</th>
<th>—</th>
<th>—</th>
<th>—</th>
<th>B</th>
<th>—</th>
<th>—</th>
<th>—</th>
<th>X47</th>
</tr>
</thead>
</table>

Note 1) Without pressure gauge/Without option: “—” is not required to enter. Example) FGFS1A-20-E005B-X47

Specifications

<table>
<thead>
<tr>
<th>Applicable model</th>
<th>FGF 1A</th>
<th>FGF 1B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating pressure</td>
<td>Max. 0.5 MPa</td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>Max. 80°C</td>
<td></td>
</tr>
<tr>
<td>Maximum flow rate</td>
<td>Max. 400 L/min</td>
<td></td>
</tr>
<tr>
<td>Main applicable fluid</td>
<td>Coolant (oil-based, water-soluble), Weak alkali-based cleaning fluid, Industrial water</td>
<td></td>
</tr>
<tr>
<td>Vessel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Material</td>
<td>Cover</td>
<td>Case</td>
</tr>
<tr>
<td>Stainless steel 304</td>
<td>Stainless steel 304</td>
<td>Stainless steel 304</td>
</tr>
<tr>
<td>Port size</td>
<td>Rc2</td>
<td></td>
</tr>
<tr>
<td>Internal volume</td>
<td>23 L</td>
<td>35 L</td>
</tr>
<tr>
<td>Weight</td>
<td>13 kg</td>
<td>16 kg</td>
</tr>
<tr>
<td>Element</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Filtration material</td>
<td>Polyester</td>
<td></td>
</tr>
<tr>
<td>Nominal filtration accuracy</td>
<td>5, 10, 25, 50, 100 µm</td>
<td></td>
</tr>
<tr>
<td>Element size</td>
<td>ø190 x L440</td>
<td>ø190 x L770</td>
</tr>
</tbody>
</table>

Note 3) Conditions: Fluid = Water, Initial differential pressure 7 kPa, Nominal filtration accuracy 100 µm (standard element) (For other conditions, refer to “Flow Rate Characteristics” on page 50. Equivalent to standard product.)

Note 4) Fluids that cause corrosion, deterioration or expansion of the material used in this filter and elements cannot be used.

Note 5) Depends on the filtration accuracy (nominal filtration accuracy) of the element.
FGF Series

Specific Product Precautions

Be sure to read this before handling the products.
Refer to back page 50 for Safety Instructions and the Operation Manual for details.
Please download the Operation Manual via SMC website, http://www.smcworld.com

Model Selection/Design

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.

Caution

1. Use the product with a circuit having lesser fluctuation to the filter caused by pressure or flow. (Refer to Fig. 1.)

Fig. 1 Example of cyclical filtration circuit

2. Use the product in a circuit where no backflow occurs in the filter. If any backflow occurs, take appropriate measures, such as installation of a non-return valve. The riser piping at the outlet of the filter may also cause backflow. So, take appropriate measures shown above.

3. Firmly fix the bottom to the ground using foundation bolts, etc.

4. 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.

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

Check the compatibility with fluid in use.

Installation and Piping

Caution

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 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
- Use the product for filtering coolant (oil-based or water-soluble), weak alkali-based cleaning fluid or industrial water.
- Never use the product with gases.
- Do not use the product with corrosive fluids.
- Do not use the product with fluids which will likely cause the expansion and deterioration of seals, O-rings or the element. Some fluids can deteriorate a seal or an O-ring, and have an affect on the filter function, causing leakage.
- The wetted parts of the pressure gauge is made of brass. Check the compatibility with fluid in use.

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

Caution

1. Pressure drop (△P)
- Use the product with a flow which has an initial pressure drop which will become 10 kPa or less.
- The pressure drop fluctuates depending on operating conditions. Since the pressure drop is one of the factors indicating filter characteristics, use the filter by setting a controlling standard.

2. Installation space
Arrange the necessary space for inspection, before installing and piping the product.

3. Fluid
- Use the product for filtering coolant (oil-based or water-soluble), weak alkali-based cleaning fluid or industrial water.
- Never use the product with gases.
- Do not use the product with corrosive fluids.
- Do not use the product with fluids which will likely cause the expansion and deterioration of seals, O-rings or the element. Some fluids can deteriorate a seal or an O-ring, and have an affect on the filter function, causing leakage.
- The wetted parts of the pressure gauge is made of brass. Check the compatibility with fluid in use.

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- The wetted parts of the pressure gauge is made of brass. Check the compatibility with fluid in use.

Caution

1. Never loosen the V-band under pressurized conditions.

Maintenance

Caution

1. Timing of element replacement
When the time has come to replace the element, replace it with a new element immediately.

Caution

1. Releasing the air
When applying pressure for starting a pump, etc., be sure to release the air by opening the air release valve on the top. (Refer to Fig. 3.)

2. When operating
When applying pressure for starting a pump, etc., confirm that each 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 additionally tightening the fittings, etc.

Operation

Warning

1. Use the product with a circuit having lesser fluctuation to the filter caused by pressure or flow. (Refer to Fig. 1.)

Fig. 1 Example of cyclical filtration circuit

2. Use the product in a circuit where no backflow occurs in the filter. If any backflow occurs, take appropriate measures, such as installation of a non-return valve. The riser piping at the outlet of the filter may also cause backflow. So, take appropriate measures shown above.

3. Firmly fix the bottom to the ground using foundation bolts, etc.

4. 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.

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

6. During element replacement, it is necessary to release fluid from the vessel. Be sure to connect the pipe to the fluid release port so that fluid releasing work can be absolutely performed.

7. Pipe so that air releasing work can be absolutely performed.

The air releasing work can be done firmly if you make the piping in order to flow a small flow constantly into a tank by resin tubing, etc. from the air release valve. (Refer to Fig. 2.) However, because the pump is in a high position, idling sometimes occurs during re-start. Take measures such as releasing the air in a high position, etc.

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