

# Industrial Filter

# FGD Series

## How to Order

FGD **C** **A** - **03** - **B** **002** **N**  

### Element length

| Symbol   | Element length  |
|----------|-----------------|
| <b>A</b> | L250            |
| <b>B</b> | L500 (L250 x 2) |

### Port size

| Symbol    | Port size Rc |
|-----------|--------------|
| <b>03</b> | 3/8          |
| <b>04</b> | 1/2          |
| <b>06</b> | 3/4          |

### Accessory

| Symbol     | Accessory |
|------------|-----------|
| <b>Nil</b> | None      |
| <b>-B</b>  | Bracket   |

### Element category

| Symbol   | Element type      | Material                  |
|----------|-------------------|---------------------------|
| <b>B</b> | Sintered metal    | Bronze                    |
|          |                   | Stainless steel           |
| <b>T</b> | Fiber (Honeycomb) | Polypropylene             |
| <b>G</b> |                   | Glass fiber               |
| <b>H</b> |                   | Cotton                    |
| <b>P</b> |                   | Cotton                    |
| <b>M</b> | Micromesh         | Stainless steel 304/Epoxy |
| <b>L</b> |                   | Stainless steel 316       |
| <b>J</b> | HEPO II           | Polyester/Polypropylene   |

### Element seal material <sup>Note)</sup>

| Symbol   | Element seal material |
|----------|-----------------------|
| <b>A</b> | Non-asbestos          |
| <b>T</b> | Fluororesin           |
| <b>N</b> | NBR                   |
| <b>V</b> | FKM                   |

Note) Refer to the below table for the element seal material types by the element category.

### Material

| Symbol   | Cover    | Case                | Gasket/O-ring | Seal                                          |
|----------|----------|---------------------|---------------|-----------------------------------------------|
| <b>C</b> | Aluminum | SPCD                | NBR           | Nylon                                         |
| <b>E</b> | Aluminum | SPCD                | NBR           | Nylon/Fluororesin (Antistatic specifications) |
| <b>T</b> | SCS14    | Stainless steel 316 | Fluororesin   | Fluororesin                                   |
| <b>F</b> | SCS14    | Stainless steel 316 | Fluororesin   | Fluororesin (Antistatic specifications)       |

Note) If there is a static charge, select a product with an antistatic specification.

### Nominal filtration accuracy ( $\mu\text{m}$ ) <sup>Note)</sup>

| Symbol     | Nominal filtration accuracy ( $\mu\text{m}$ ) |
|------------|-----------------------------------------------|
| <b>X50</b> | 0.5                                           |
| <b>001</b> | 1                                             |
| <b>002</b> | 2                                             |
| <b>005</b> | 5                                             |
| <b>010</b> | 10                                            |
| <b>020</b> | 20                                            |
| <b>040</b> | 40                                            |
| <b>050</b> | 50                                            |
| <b>070</b> | 70                                            |
| <b>074</b> | 74                                            |
| <b>075</b> | 75                                            |
| <b>100</b> | 100                                           |
| <b>105</b> | 105                                           |
| <b>120</b> | 120                                           |

Note) For a comparison with the nominal filtration accuracy according to the element category, refer to pages 41 and 42.

### Element/Element Seal Material Combinations

| Element material                   | Element seal material |              | PTFE | NBR | FKM |
|------------------------------------|-----------------------|--------------|------|-----|-----|
|                                    | Nil (Without seal)    | Non-asbestos |      |     |     |
|                                    | A                     | T            | N    | V   |     |
| <b>B</b> Bronze                    |                       | ○            | ○    | ○   | ○   |
| <b>S</b> Stainless steel           |                       | ○            | ○    | ○   | ○   |
| <b>T</b> Polypropylene             | ○                     |              |      |     |     |
| <b>G</b> Glass fiber               | ○                     |              |      |     |     |
| <b>H</b> Cotton (Fiber)            | ○                     |              |      |     |     |
| <b>P</b> Cotton (Paper)            |                       |              |      | ○   | ○   |
| <b>M</b> Stainless steel 304/Epoxy |                       |              |      | ○   | ○   |
| <b>L</b> Stainless steel 316       |                       | ○            | ○    | ○   | ○   |
| <b>J</b> Polyester/PP              |                       |              | ○    | ○   | ○   |

Note 1) The industrial filter described in this catalog are products in which an element is incorporated into a vessel.

Note 2) To order only an element (replacement part), refer to "How to Order" on pages 41 and 42.

Note 3) When ordering only a vessel (replacement part), delete each symbol for "Element category", "Nominal filtration accuracy ( $\mu\text{m}$ )" and "Element seal material" from the above "How to Order."

Note 4) Please use industrial filters in combination with parts made by SMC (vessels, elements etc.)

FGDT, F



FGDC, E



- Suitable for low flow rate, low pressure "filtration."
- Can be used with a wide range of fluids.
- Antistatic specifications (FGDE, FGDF)

## Specifications

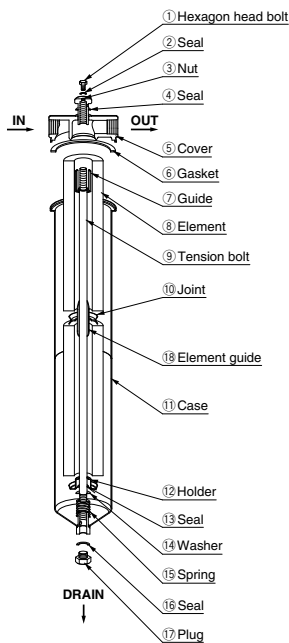
| Model                                            | FGDCA            | FGDCB                       | FGDEA            | FGDEB                       | FGDTA               | FGDTB                       | FGDFA            | FGDFB                       |
|--------------------------------------------------|------------------|-----------------------------|------------------|-----------------------------|---------------------|-----------------------------|------------------|-----------------------------|
| Port size (Rc)                                   |                  |                             |                  |                             | 3/8, 1/2, 3/4       |                             |                  |                             |
| Max. operating pressure (MPa) <sup>Note 1)</sup> | 0.7              |                             |                  |                             | 1                   |                             |                  |                             |
| Operating temperature (°C)                       | 0 to 80          |                             |                  |                             |                     |                             |                  |                             |
| Number of elements                               | 1                | 2 <sup>Note 2)</sup>        | 1                | 2 <sup>Note 2)</sup>        | 1                   | 2 <sup>Note 2)</sup>        | 1                | 2 <sup>Note 2)</sup>        |
| Element size                                     | ø65 to 70 x L250 | ø65 to 70 x L500 (L250 x 2) | ø65 to 70 x L250 | ø65 to 70 x L500 (L250 x 2) | ø65 to 70 x L250    | ø65 to 70 x L500 (L250 x 2) | ø65 to 70 x L250 | ø65 to 70 x L500 (L250 x 2) |
| Main materials <sup>Note 3)</sup>                | Cover            | Aluminum                    |                  |                             | SCS14               |                             |                  |                             |
|                                                  | Case             | SPCE                        |                  |                             | Stainless steel 316 |                             |                  |                             |
|                                                  | Gasket/O-ring    | NBR                         |                  |                             | Fluororesin         |                             |                  |                             |
|                                                  | Seal             | Nylon                       |                  | Nylon/Fluororesin           |                     | Fluororesin                 |                  |                             |
| Weight (kg)                                      | 1.3              | 2.2                         | 1.3              | 2.2                         | 2.3                 | 3.8                         | 2.3              | 3.8                         |
| Internal capacity (L)                            | 1.7              | 3.4                         | 1.7              | 3.4                         | 1.7                 | 3.4                         | 1.7              | 3.4                         |

Note 1) For gases, 0.5 MPa.

Note 2) 1 element (ø65 x L500) in the case of a sintered metal element or paper element.

Note 3) The sealing performance of nylon and fluororesin seals may decrease over time. Periodically check the tightening torque specified in the operation manual.

## Replacement Parts and Seal List



### Parts descriptions and functions

(Figure shows the product with two FGD□B elements.)

Note) There is no compatibility between the FGDT/F and FGDC/E as the seal structure on the gasket portion is different. Use the cover and case of the same model.

### Parts Descriptions and Functions

| No. | Description       | Material                     | Function                                                            |
|-----|-------------------|------------------------------|---------------------------------------------------------------------|
| 1   | Hexagon head bolt | Stainless steel or iron      | Plug to release air in the housing                                  |
| 2   | Seal              | Resin                        |                                                                     |
| 3   | Nut               | Stainless steel or iron      | Tightens the cover.                                                 |
| 4   | Seal              | Resin                        |                                                                     |
| 5   | Cover             | Stainless steel or Aluminum  | The lid of the filter body                                          |
| 6   | Gasket            | Resin or rubber              |                                                                     |
| 7   | Guide             | Stainless steel              | Seals the gap between the element and tension bolt.                 |
| 8   | Element           | Depends on the element type. | The mounted element collects residue.                               |
| 9   | Tension bolt      | Stainless steel or iron      | Connects the case and cover.                                        |
| 10  | Joint             | Stainless steel              | Seals the area between elements. (when two FGD□B elements are used) |
| 11  | Case              | Stainless steel or iron      | Filter body                                                         |
| 12  | Holder            | Stainless steel              | Seals the elements.                                                 |
| 13  | Seal              | Resin or rubber              |                                                                     |
| 14  | Washer            | Stainless steel              |                                                                     |
| 15  | Spring            | Stainless steel              | Stabilizes the element.                                             |
| 16  | Seal              | Resin                        |                                                                     |
| 17  | Plug              | Stainless steel or iron      | Drainage discharging plug                                           |
| 18  | Element guide     | Stainless steel or iron      |                                                                     |

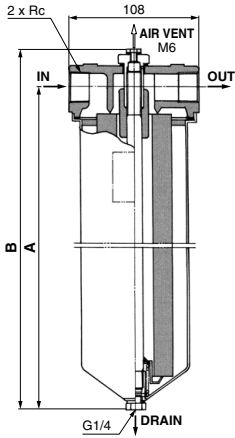
### Replacement Parts

| Description               | Part no.                                                 | Applicable model | Part no. (Kit contents)                                                                                           |
|---------------------------|----------------------------------------------------------|------------------|-------------------------------------------------------------------------------------------------------------------|
| Nut kit                   | FGD-KT001                                                | FGDC             | ①, ②, ③, ④: 1 pc. each                                                                                            |
|                           | FGD-KT002                                                | FGDE             |                                                                                                                   |
|                           | FGD-KT003                                                | FGDT             |                                                                                                                   |
|                           | FGD-KT004                                                | FGDF             |                                                                                                                   |
| Replacement cover         | FGD-CV005- <sup>03</sup> / <sub>04</sub> / <sub>06</sub> | FGDT/F           | ⑤                                                                                                                 |
|                           | FGD-CV006- <sup>03</sup> / <sub>04</sub> / <sub>06</sub> | FGDC/E           |                                                                                                                   |
| Joint                     | FGD-OP001                                                | FGDI             | ⑩                                                                                                                 |
| Seal kit                  | KT-FGDC                                                  | FGDC             | ②, ④, ⑥, ⑬, ⑯: 1 pc. each                                                                                         |
|                           | KT-FGDE                                                  | FGDE             |                                                                                                                   |
|                           | KT-FGDT                                                  | FGDT             |                                                                                                                   |
|                           | KT-FGDF                                                  | FGDF             |                                                                                                                   |
| Replacement case assembly | FGD-CA002                                                | FGDT/F(L250)     | ⑦, ⑨, ⑪, ⑫, ⑬, ⑭, ⑮, ⑯, ⑰ : 1 pc. each<br>Note) Only the FGD-CA003 and CA005 includes ⑱ element guide in the set. |
|                           | FGD-CA003                                                | FGDT/F(L500)     |                                                                                                                   |
|                           | FGD-CA004                                                | FGDC/E(L250)     |                                                                                                                   |
|                           | FGD-CA005                                                | FGDC/E(L500)     |                                                                                                                   |

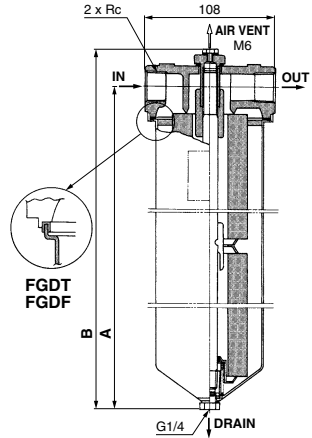
# FGD Series

## Dimensions

### FGD□A (1 element)



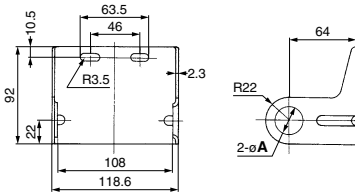
### FGD□B (2 elements)



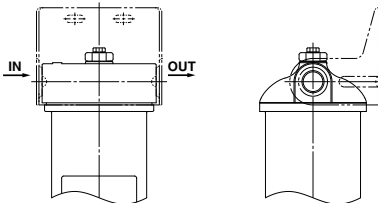
\* Element removal dimension: 50 mm

| Model | Element length | A   | B   | Port size Rc  |
|-------|----------------|-----|-----|---------------|
| FGDC  | A (L250)       | 314 | 346 | 3/8, 1/2, 3/4 |
| FGDE  | B (L500)       | 574 | 606 |               |
| FGDT  | A (L250)       | 314 | 349 |               |
| FGDF  | B (L500)       | 574 | 608 |               |

## Accessory/Bracket



| Part no. | φA   | Port size Rc | Material | Surface treatment |
|----------|------|--------------|----------|-------------------|
| BP-1S    | 17.5 | 3/8          | SPCC     | Zinc chromated    |
| BP-2S    | 22   | 1/2          |          |                   |
| BP-3S    | 27.5 | 3/4          |          |                   |



Mounting position

Note) Secure the filter with steel piping.  
Use this bracket for piping support.  
(Flexible piping cannot be used to secure the filter.)

# FGD Series Made to Order

Consult with SMC for details.



Symbol

## 1 With Differential Pressure Indicator (X77), With Differential Pressure Indication Switch (X78) -X77, -X78

The replacement period due to clogging of the element can be checked visually (X77), and a built-in contact enables the output of an electrical signal (X78).

### Applicable models

- FGDC, FGDE
- FGDT, FGDF

Note 1) A magnet is used on the wetted parts.

Note 2) For the FGDT and the FGDE, the material of the filter body and that of the O-ring differ.

Note 3) Be sure to check whether the fluid to be used is compatible with the product in advance.

### How to Order

Standard model no.\*

● Made to Order

| Symbol | Description                                  |
|--------|----------------------------------------------|
| Nil    | None                                         |
| X77    | With differential pressure indicator         |
| X78    | With differential pressure indication switch |

\* Refer to How to Order of the standard specifications for the applicable models

FGD

FGE

FGG

FGA

FGC

FGF

FGH

FQ1

FN

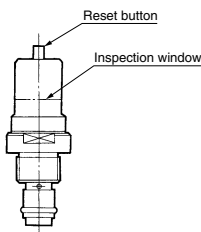
EB

ES

### Differential Pressure Indication

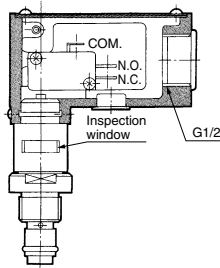
#### ■ Differential pressure indicator

- Operation pressure—0.1±0.02 MPa
- Once a value is displayed, it will continue to be displayed until reset, even if the pump is stopped. (Reset type)
- Perform element replacement when the red ring floats up and covers the entire inspection window.



#### ■ Differential pressure indication switch

- Operating pressure—0.1±0.02 MPa
- When a value has been displayed, it will be automatically reset when the pump is stopped. (Non-reset type)
- This is a visual dual-purpose. Perform element replacement when the switch has actuated (when the red ring floats up and covers the entire inspection window).
- N.C. and N.O. common



#### Differential Pressure Indicator/Switch Part No.

| Applicable model | Part no.                        |                                         |
|------------------|---------------------------------|-----------------------------------------|
|                  | Differential pressure indicator | Differential pressure indication switch |
| FGDC, E          | CB-62H                          | CB-63H                                  |
| FGDT, F          | CB-60H                          | CB-61H                                  |

#### Microswitch Ratings

| Rated voltage (V) | Noninductive load (A) |            |                 |               | Inductive load (A) |               |                 |               |
|-------------------|-----------------------|------------|-----------------|---------------|--------------------|---------------|-----------------|---------------|
|                   | Resistance load       | Light load | Normally closed | Normally open | Normally closed    | Normally open | Normally closed | Normally open |
| AC125             | 5                     | 1.5        | 0.7             | 4             | 2.5                | 1.3           |                 |               |
| AC250             | 5                     | 1          | 0.5             | 4             | 1.5                | 0.8           |                 |               |
| DC8               | 5                     | 3          |                 | 5             | 4                  | 3             |                 |               |
| DC14              | 5                     | 3          |                 | 4             |                    | 3             |                 |               |
| DC30              | 5                     | 3          |                 | 4             |                    | 3             |                 |               |
| DC125             | 0.4                   | 0.1        |                 | 0.4           |                    | 0.1           |                 |               |
| DC250             | 0.3                   | 0.05       |                 | 0.3           |                    | 0.05          |                 |               |

#### Precautions

1. The figures in the above table indicate stationary current.
2. An inductive load has a power factor (AC) of 0.75 or more, and a time constant (DC) of 7 msec or less.
3. A light load has an inrush current 10 times greater.
4. Lead wires are connected using a soldering terminal.
5. The electrical entry is equipped with a conduit (G1/2) and grommet.
6. Please wire freely to the microswitch indication symbol 1(COM.), 2(N.C.) and 3(N.O.).
7. If a holding mechanism is necessary for the non-reset type, provide it using electric circuits.

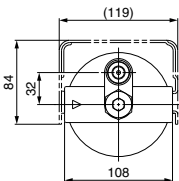
## Specifications

| Model                                                                                                                  |      | FGDCA/FGDEA (X77, X78) | FGDCB/FGDEB (X77, X78) | FGDTA/FGDFA (X77, X78) | FGDTB/FGDFB (X77, X78) |
|------------------------------------------------------------------------------------------------------------------------|------|------------------------|------------------------|------------------------|------------------------|
| Max. operating pressure (MPa)                                                                                          |      | 0.7                    |                        |                        | 1.0                    |
| Operating temperature (°C)                                                                                             |      | 0 to 80                |                        |                        |                        |
| Differential pressure indicator operating pressure<br>Differential pressure indication switch operating pressure (MPa) |      | 0.1±0.02               |                        |                        |                        |
| Port size                                                                                                              |      | Rc3/8, 1/2, 3/4        |                        |                        |                        |
| Differential pressure indicator/<br>Differential pressure indication switch<br>Material                                | Body | Aluminum               |                        | Stainless steel 303    |                        |
|                                                                                                                        | Seal | NBR                    |                        | FKM                    |                        |
| Weight (kg)                                                                                                            | X77  | 1.3                    | 2.2                    | 2.3                    | 3.8                    |
|                                                                                                                        | X78  | 1.5                    | 2.4                    | 2.5                    | 4.0                    |
| Internal volume (L)                                                                                                    |      | 1.7                    | 3.4                    | 1.7                    | 3.4                    |

(Note) Refer to "Specifications" on page 25 for details on the materials of the cover, case, etc.

## Dimensions

### With differential pressure indicator (X77)



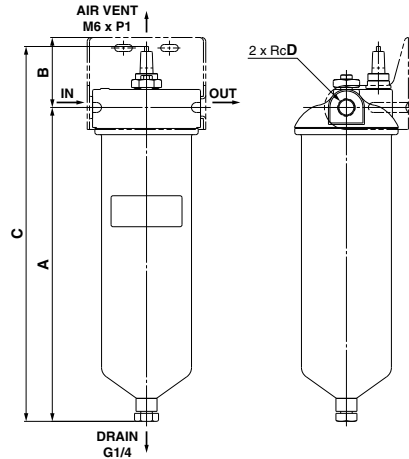
#### Replacement Cover Assembly (X77)

One set each of cover and differential pressure indicator

| Part no.                                                 | Applicable model |
|----------------------------------------------------------|------------------|
| FGD-CV002- <sup>03</sup> / <sub>04</sub> / <sub>06</sub> | FGDT/F           |
| FGD-CV003- <sup>03</sup> / <sub>04</sub> / <sub>06</sub> | FGDC/E           |

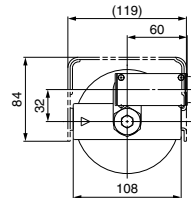
Note 1) Same as standard product except for cover assembly

Note 2) 03, 04, and 06 indicate the relevant port sizes (Rc3/8, 1/2, 3/4).



| Model | Element length | A   | B  | C   | D             |
|-------|----------------|-----|----|-----|---------------|
| FGDC  | A (L250)       | 314 | 70 | 374 | 3/8, 1/2, 3/4 |
|       | B (L500)       | 574 | 70 | 634 |               |
| FGDT  | A (L250)       | 315 | 70 | 375 |               |
|       | B (L500)       | 574 | 70 | 636 |               |

### With differential pressure indication switch (X78)



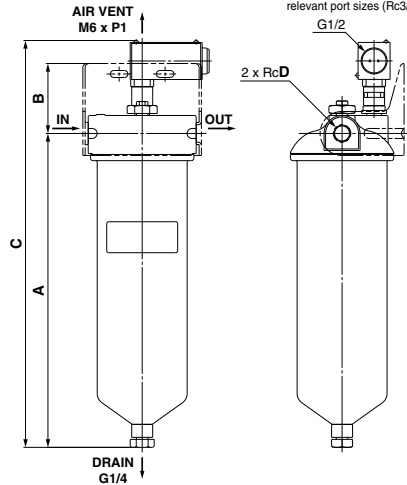
#### Replacement Cover Assembly (X78)

One set each of cover and differential pressure indicator

| Part no.                                                 | Applicable model |
|----------------------------------------------------------|------------------|
| FGD-CV004- <sup>03</sup> / <sub>04</sub> / <sub>06</sub> | FGDT/F           |
| FGD-CV001- <sup>03</sup> / <sub>04</sub> / <sub>06</sub> | FGDC/E           |

Note 1) Same as standard product except for cover assembly

Note 2) 03, 04, and 06 indicate the relevant port sizes (Rc3/8, 1/2, 3/4).



| Model | Element length | A   | B  | C   | D             |
|-------|----------------|-----|----|-----|---------------|
| FGDC  | A (L250)       | 314 | 70 | 407 | 3/8, 1/2, 3/4 |
|       | B (L500)       | 574 | 70 | 665 |               |
| FGDT  | A (L250)       | 315 | 70 | 408 |               |
|       | B (L500)       | 574 | 70 | 665 |               |