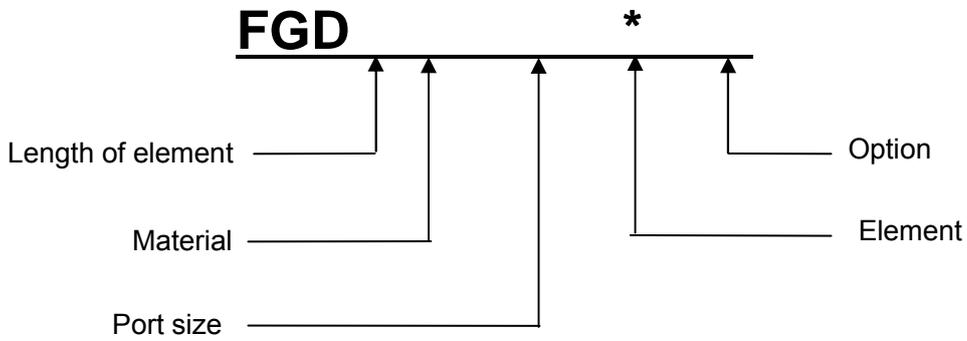


Operation Manual

SMC Filter (Series FGD)



- This operation manual is used for the above mentioned models.
Check the filter model number that you use.
Be sure to read and understand this operation manual carefully before mounting and using this filter.
Especially for the safety description, thorough reading and understanding is needed.
Be sure to keep this operation manual wherever available.
Please understand that this operation manual will be revised without any announcement.

INDEX

Safety precautions	P.2
Parts descriptions and functions	P.3
Product specifications	P.3
Cautions on installation	P.3
How to replace the element	P.4



FGD Series/Safety Precautions

Be sure to read before using this product.

Instructions described here are intended to safely and properly use the filter and to prevent hazard or ham to the operators and other people. Since all contents are related to the safety, be sure to follow these cautions.

Selection

The product should be selected within the product specifications. Check the operating purpose and conditions and the required specifications carefully in advance.

Consult SMC in advance of the usage if the product is to be used in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverages or any equipment that specially requires safety.

Operating conditions/range

Warning

Operating pressure

Do not use it out of the operating pressure range.

Operating temperature

Do not use it out of the operating temperature range.

Fluid

- Do not use it for corrosive fluids.
- Do not use it for the fluids that may cause swelling or detection or packing and element.

Operating environment

- Do not use it in the atmosphere that may cause corrosion.
- Do not use it in the place where vibration or impact can be applied.

Cautions on design or installation

Warning

Pressure drop (P)

Use at flow rate to keep not larger than 0.02MPa initial pressure drop.

Installation space

Secure the space required for maintenance service when installation and piping.

Flushing

Flush the piping line before initial use.

Install an air releasing circuit if required.

Take measures to prevent “burning” in case of usage at a high temperature.

Install a drain releasing circuit if required.

The circuit that is used for this filter should have less fluctuating load of pressure and flow to it.

Cautions on operation

Warning

Never loosen the bolt under the pressurized condition.

Replace a defective packing that is deteriorated or swelled.

Do not use a bolt that has failure such as deformation or screw galling.

Piping and operation

Warning

Lay the piping after confirming IN and OUT.

Confirm the size of the ports to select appropriate valves and tube fittings that is suitable to the operating conditions. Flush the piping lines before operation and check that no fluid leaks or any other malfunction is found.

Be sure to release air by opening the upper air releasing port under the pressurized condition such as when starting the pump.

Maintenance service

Warning

Discharge the accumulated residue from the drain port.

Replace the element with a new one right away when it reaches its life.

- Criteria of the element's life -

- When the pressure drop reaches 0.1MPa.

Follow the procedures shown in this operation manual for the replacement of the elements. It may cause damage or malfunction to the equipment or device if wrong procedure is taken.

1. Parts Descriptions and Functions

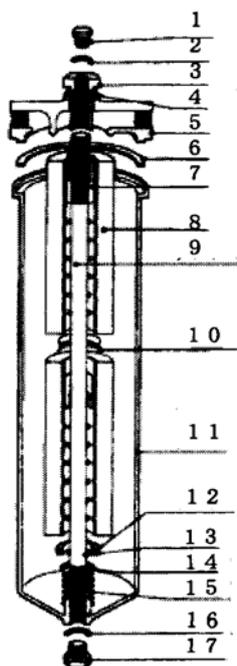


Table 1 Parts descriptions and functions

No.	Part	Material	Function
1	Hexagon head bolt	Stainless steel or iron	To release the air
2	④ Packing	Resin	
3	Nut	Stainless steel or iron	To tighten the cover
4	③ Packing	Resin	
5	Cover	Stainless steel or aluminum	Rid of the vessel
6	② Gasket	Resin or rubber	
7	Guide	Stainless steel	To seal between the elements
8	Element	Various materials	To filter the objects
9	Tension bolt	Stainless steel or iron	To joint the casing and the cover
10	Joint	Stainless steel	To seal between the elements
11	Casing	Stainless steel or iron	The vessel
12	Holder	Stainless steel	To seal the element
13	① Packing	Resin or rubber	
14	Washer	Stainless steel	
15	Spring	Stainless steel	To make the element stable
16	⑤ Packing	Resin	
17	Plug	Stainless steel or iron	To release the drain
18	Bracket	Iron	To fix the filter

2. Product Specifications

Table 2 Product specifications

Model		FGDCA /FGDEA	FGDCB /FGDEB	FGDTA /FGDFA	FGDTB /FGDFB
Port size Rc		3/8, 1/2, 3/4			
Max. operating pressure MPa		0.7 (0.5) ^{Note 1)}			
Max. operating temp. °C		80			
No. of elements		1	2 ^{Note 2)}	1	2 ^{Note 2)}
Size of the element		φ65xL250	φ65xL500	φ65xL250	φ65xL500
Main material	Cover	Aluminum		SCS14	
	Casing	SPCD		SUS316L	
	Gasket	NBR		Fluoro resin	
	Packings	Nylon (Fluoro resin)		Fluoro resin	
Weight kg		1.3	2.2	2.3	3.8

Note 1) The value in () is the maximum operating pressure when gas is used for the fluid.

Note 2) The number of the element is one (φ65 x L500) when the element is made of sintered metal or paper.

3. Cautions on Installation

Connect the piping after confirming IN and OUT.

Use clean pipes for piping.

The seal tapes should not come off.

Hold the filter cover with a spanner when connecting the tubes for piping to the filter.

Never hold the filter casing when piping.

Secure the space (not less than 50mm) under the filter so that the element can be taken out.

4. How to Replace the Element

4-1. How to remove the element

- (1) Stop the fluid from flowing into the filter.
- (2) Loosen the hexagon head bolt (air ventilation) to release the internal pressure of the filter completely.
- (3) Remove the plug to discharge the drainage from the filter.
- (4) Loosen the nut to remove the casing.

The casing can be removed by lowering it for approximately 50mm.

- (5) Remove the element from the casing.

* For the filter that uses 2 elements (L250), be careful not to loose the guide used for sealing between the elements because it is re-used.

- (6) Wash and clean inside the casing, the gasket, the packing and the plug with clean fluid or solvent.

* Do not take the tension bolt away from the casing.

4-2. Hot to install the element

- (1) Check that the gasket and the packing have no defect such as damage. Replace the defective gasket and packing with new ones if there any of them are defective.

- (2) Put the tension bolt through the hole of the element, and insert the element into the casing.

* For the filter that uses 2 elements, insert the guide between the elements.

- (3) Align the tension bolt to the center hole of the cover, and insert the casing that has the element inside into the cover.

- (4) Press the casing from the bottom, and tighten the nut from the top of the cover.

- (5) Confirm that it has no fluid leakage after the test operation before starting the actual operation.

Table 3 Part numbers for seal kits

Part No.	Applicable mode	Content
KT-FGDC	FGDC□	Table 4 List of spare packings A set of packings and gaskets for 10pcs. respectively from No. ① to ⑤
KT-FGDE	FGDE□	
KT-FGDT	FGDT□	
KT-FGDF	FGDF□	

Table 4 Spare seals

No.	Part	Material	Part No.		Size
			FGDC/FGDE	FGDT/FGDF	
①	Packings	NBR	AL-47S	-	-
		Fluoro resin	-	AL-59S	-
②	Gasket	NBR	AL-16S	-	φ101xφ86xt2
		Fluoro resin	-	AL-18S	-
③	Packings	Nylon	AL-50S	-	φ23xφ16.5xt1
		Fluoro resin	-	AL-45S	
		Fluoro resin (Specification of electrification prevention)	AL-46S	AL-46S	
④	Packings	Nylon	AL-48S	-	φ10xφ6.5xt1
		Fluoro resin	-	AL-43S	
⑤	Packings	Nylon	AL-54S	-	φ20xφ14xt1
		Fluoro resin	-	AL-53S	

Note) One filter requires one piece of packing and gasket respectively.