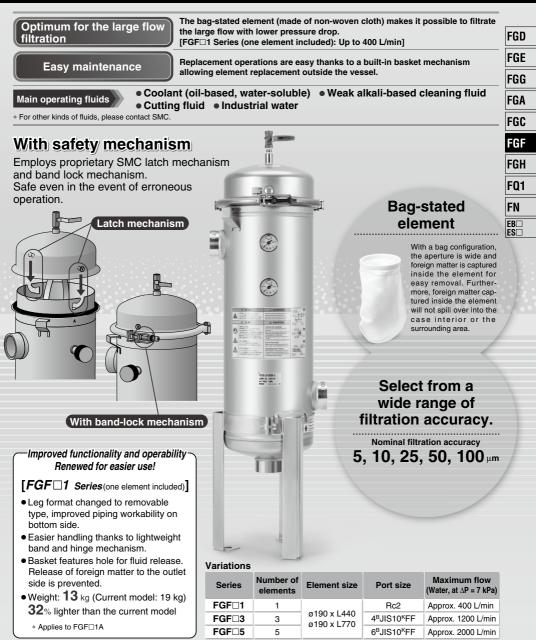
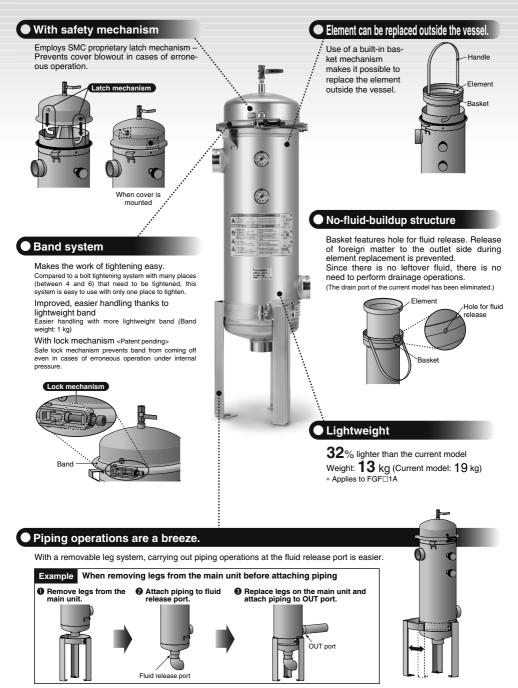
# Bag Filter FGF Series





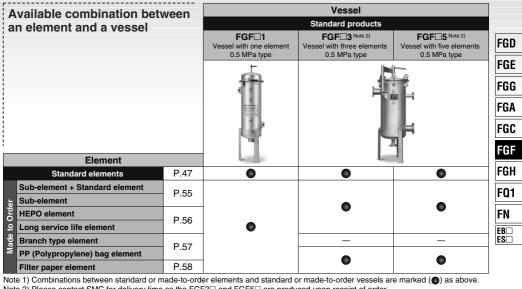


## Bag filter offers excellent safety performance and ease of maintenance.



**SMC** 

## Variations of Bag Filters







SMC

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!

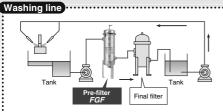
Contributes to...

### Stable product quality (Fewer defects, etc.)

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

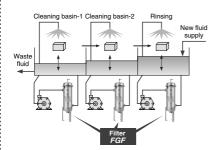
Less waste fluid

### Application example



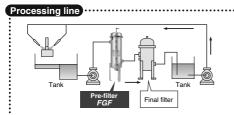
#### [Filtration of cleaning fluid]

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.)



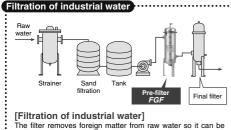
#### [Filtration of cleaning fluid]

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



#### [Filtration of coolant]

The filter performs filtration of used coolant so it can be reused many times.

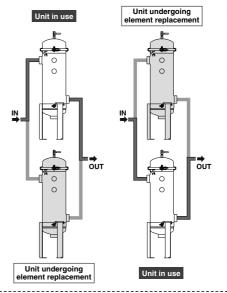


### Maintenance example

### Two units used side by side

[Reduction in length of time line is stopped for element replacement]

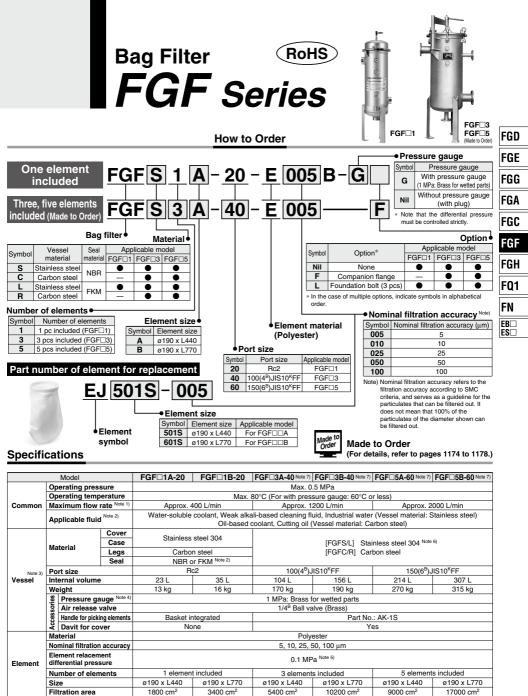
Installing two bag filters means that one filter can always be used while the other is undergoing element replacement, meaning that the line does not have to be stopped for long periods of time for replacement of elements.





used for manufacturing.





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. 2D\* applies to the external surface of the vessel. (Scratches, scrapes, blotches and uneven color may be present as long as they do not interfere with function or performance.)

\* The symbol refers to surface finishing of JIS G 4305 cold rolled stainless steel sheet.

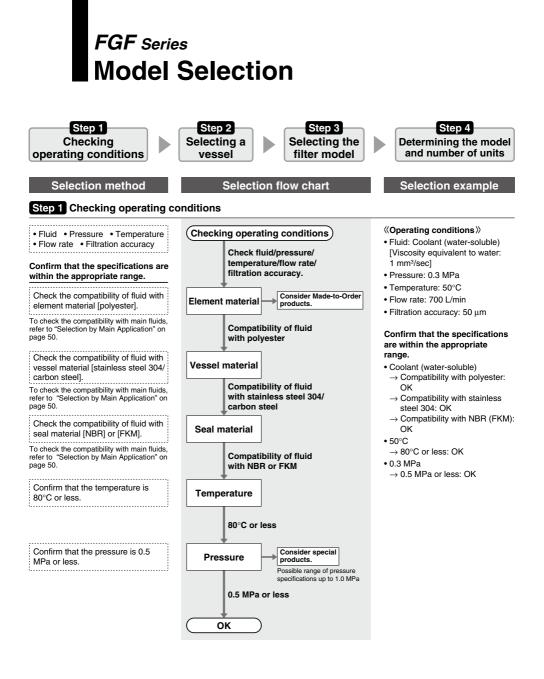
Note 4) For the FGF⊡1 series, this indicates cases where the "with pressure gauge" option has been selected. Note 5) Control the element replacement so that the differential pressure does not exceed 0.1 MPa

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 upor

receipt of order.

SMC



## Model Selection FGF Series

### Selection method

### Selection flow chart

[Flow rate] (When viscosity rate is

1200 L/min

or less

FGF□1□-20

or

FGF[]3]-40 ... 1 unit

··· 3 units

equivalent to water)

or less

2 elements 8 3 elements

FGF□1□-20

··· 2 units

800 L/min

(Selecting a vessel

400 L/min

or less

1 element

FGF□1□-20

... 1 unit

### Selection example

Calculate the number of elements. Required flow rate + Recommended	FGD
flow rate 700 L/min ÷ 400 L/min	FGE
= 1.75 ≈ <b>2 elements</b>	FGG
	FGA
	FGC
	FGF
Choose the vessel type and number of units.	FGH
2 elements $\rightarrow$ FGF $\Box$ 1 $\Box$ -20 ··· 2 units	FQ1
	FN
	EB

ES

### Step 2 Selecting a vessel

#### 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. For other viscosities, perform viscosity conversion.

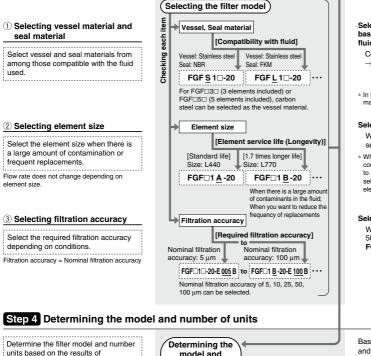
#### [Number of elements]

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.

### Step 3 Selecting the filter model



#### Select vessel and seal materials based on compatibility with the fluid.

Coolant (water-soluble)

→ Stainless steel / NBR: OK The model selected is the FGF S 1□-20.

\* In this case, the FGFL1□ with FKM seal material can also be selected

#### Select the element size.

With standard life, the model selected is the FGFS1 A -20.

\* When there is a large volume of contaminants in the fluid or when you want to reduce the frequency of replacements. select the EGES1B with the L770 size element with 1.7 times longer life.

#### Select the filtration accuracy.

With a nominal filtration accuracy of 50 µm, the model selected is the FGFS1A-20-E 050 B.

\* Select pressure gauge or other options as needed

Step 2 and Step 3

number of units

∕∂SMC

model and

Based on the results of Step 2 and Step 3 , 2 units of the FGFS1A-20-E050B are selected.

## FGF Series

### Selection by Main Application

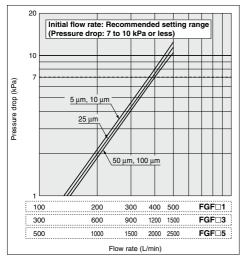
		Fleme	Element Vessel							
		Lienk				Compact filter	FGF□1	FGF□3	FGFD5	
						[Other series]	1 element included	3 elements included		
Field	Fluid	Fluid Material		Material		Ê.		Į.	Note 1)	
-			accuracy	Vessel	Seal	ŲŲ				
						Up to 50 L/min	Up to 400 L/min	Up to 1200 L/min	Up to 2000 L/min	
Machine tools	Coolant (water-soluble)	Polvester	10 to 50 um	Stainless steel	NBR	Compact filter	FGFS1D -	FGFS3□	FGFS5□	
Mac	Coolant (oil-based)	Folyester	το το 50 μπ	Stainless steel or Carbon steel	NBR	(FGD, FQ)		FGFC3□	FGFC5□	
	Water-based cleaning fluid				Stainless steel NBR					
nent	Weak alkali-based cleaning fluid			Stainless steel			FGFS1D	FGFS3□	FGFS5D	
quip	Alcohol-based cleaning fluid	Polyester				Compact filter				
Washing equipment	Oil-based cleaning fluid		5 to 25 μm			(FGD, FQ)				
Wash	Chlorine- / Fluorine- based cleaning fluid		Stain	Stainless steel	FKM	1	FGFL1	FGFL3	FGFL5□	
	Strong alkali-based cleaning fluid	Polypropylene (See "Made to Order" on P.57.)		Stainless steel	FKM	1	FGFL1⊡… X72	FGFL3⊡… X72	FGFL5⊡… X72	
Others	Industrial water Cooling water	Polyester	10 to 100 µm	Stainless steel	NBR	Compact filter (FGD, FQ)	FGFS1D	FGFS3D	FGFS5D	

Select the element size 
(A: ø190 x L440; B: ø190 x L770) based on the amount of contaminants.

The above is for guideline purpose only. Check the compatibility of fluid with product, seal and element material before operation. The flow rate is the appropriate flow rate at a viscosity equivalent to water. Note 1) Please contact SMC for delivery time as the FGF32 and FGF55 are produced upon receipt of order.

### 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 mm<sup>2</sup>/sec Flow rate: 285 L/min

- 1) Calculation of flow coefficient
  - · Obtain the flow coefficient from the viscosity conversion table. Kinematic viscosity: 20 mm<sup>2</sup>/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.
  - \* When making a selection, designate the flow rate as 300 L/min when viscosity is equivalent to water.

Reference) The recommended flow rate for one coolant (oil-based) element at a kinematic viscosity of 20 mm<sup>2</sup>/sec is the recommended flow rate when viscosity is equivalent to water (400 L/min) x flow coefficient (95%) = recommended flow rate 380 L/min at a kinematic viscosity of 20 mm2/sec.

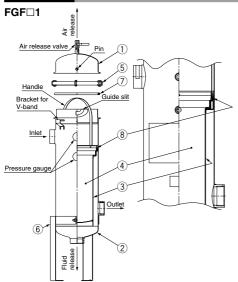
#### Viscosity Conversion Table

Kinematic (mm <sup>2</sup> /sec) viscosity (cSt)	400 High	200	100	50	20	1 Low
	riigii				-	LOW
Fluid indicator	Equivalent to honey	Ι	_	Paint	Coolant (oil-based)	Water, Coolant (water-soluble), Cleaning fluid
Flow coefficient (%)	35	58	85	90	95	100

\* 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 mm<sup>2</sup>/sec, the flow coefficient indicates that 85% flows at a kinematic viscosity of 100 mm<sup>2</sup>/sec.

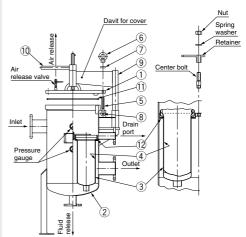
### Construction



#### **Component Parts/Replacement Parts**

No.	Description	Part No.	Material	Qty.	Applicable model Note 1)
1	Cover	-	Stainless steel	1	FGF□1□
2	Case	_	Stainless steel	1	FGF□1□
3	Dealast	FGF-BT01	Stainless steel	1	FGF□1A
3	Basket	FGF-BT02	Stainless steel	1	FGF□1B
_	Flowert	EJ501S-□	Dahuaatan	1	FGF□1A
4 Element	Element	EJ601S-□	Polyester	1	FGF□1B
5	V-band Note 2)	FGF-BA01	Stainless steel	1	FGF□1□
6	Legs (with bolt, nut, flat washer)	FGF-OP01 (Set)	Carbon steel	1	FGF□1□
7	O ring	FGF-KT01	NBR	1	FGFS1□
'	O-ring	FGF-KT02	FKM	1	FGFL1□
8	Holder (with O-ring)	FGF-KT03 (Set)	Polypropylene/ NBR	1	FGFS1□
8		FGF-KT04 (Set)	Polypropylene/ FKM	1	FGFL1□

Note 1) Refer to "How to Order" on page 47 for the □ part of the model number. Note 2) When replacing the ⑤ V-band, also replace the ⑦ O-ring at the same time.



## FGD FGE FGG FGA FGC FGF FQ1 FN ES

#### **Component Parts and Seal List**

FGF□3□-40

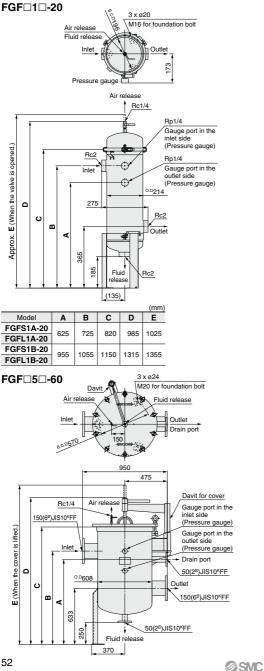
FGF 5 -60

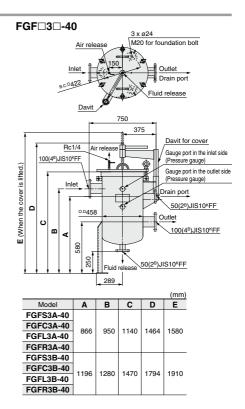
	Component Parts and Seal List						
No.	Description	Part No.	Material	Qty.	Applicable model Note 1)		
1	Cover		Stainless steel	1	FGFS/LDD		
			Carbon steel	1	FGFC/R□□		
2	Case Note 2)		Stainless steel	1	FGFS/LDD		
2 Case Note 2)		_	Carbon steel	1	FGFC/R□□		
		BT-3S	Stainless steel	3	FGF□3A-40		
3 Basket		Otaniess steel	5	FGF□5A-60			
3	Dasket	BT-4S	Stainless steel	3	FGF□3B-40		
		51 40	Otaniess steel	5	FGF□5B-60		
4	Element	Refer to "How to	Polyester	3	FGF□3□-40		
-	Licincia	Order" on page 47.	roiyester	5	FGF□5□-60		
5	Hinge bolt	_	Carbon steel	—			
6	Eyenut	_	Carbon steel	-			
7	Washer	_	Carbon steel	-			
8	Parallel pin	_	Carbon steel	_			
9	Lifter	_	Carbon steel	—			
10	Handle	_	Carbon steel	—			
		AL-26S	NBR	1	FGFS3□-40		
					FGFC3□-40		
		AL-27S	NBIT	1	FGFS5□-60		
11	O-ring				FGFC5□-60		
	•	AL-23S		1	FGFL3□-40		
		AL 200	FKM		FGFR3□-40		
		AL-24S	1100	1	FGFL5□-60		
		7.2 240			FGFR5□-60		
				3	FGFS3□-40		
		AL-20S	NBR		FGFC3□-40		
		1.2.200		5	FGFS5□-60		
12	Gasket				FGFC5□-60		
12	Gusher			3	FGFL3D-40		
		AL-21S	FKM	0	FGFR3□-40		
		1 1213	, rew	5	FGFL5□-60		
				5	FGFR5□-60		

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.

## FGF Series

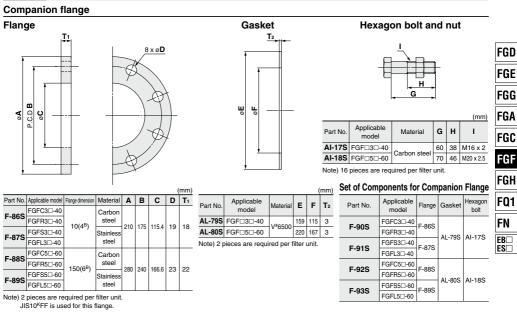
### Dimensions



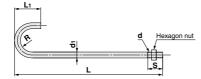


					(mm)
Model	Α	в	С	D	E
FGFS5A-60					
FGFC5A-60	956		1320 1650	1649 1979	1790 2120
FGFL5A-60					
FGFR5A-60					
FGFS5B-60					
FGFC5B-60	1286				
FGFL5B-60	1286	1300			
FGFR5B-60					

### Options



### Foundation bolt



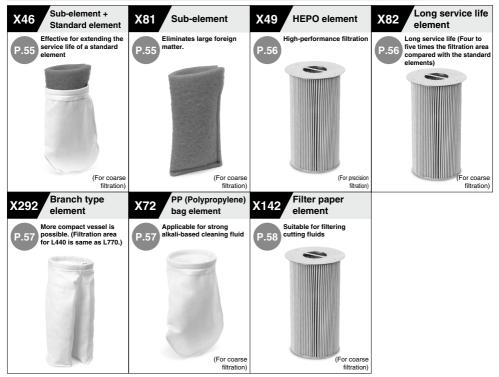
							(mm)				
Part No.	Applicable model	Nominal thread size d	dı	s	L1 (Approx.)	<b>R</b> (Approx.)	L				
FGF-OP05	FGF□1□-20	M16	16	40	71	31.5	400				
AI-3S	FGF□3□-40				1400	M20 20	20	20 50	90	40	500
AI-35	FGF□5□-60	IVI20	M20 20	50	90	40	500				

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



## Leg Material: Stainless Steel



Please consult with SMC for details.

Made to Order

FGF Series



RoHS

Coarse filtration

**Coarse filtration** 

RoHS

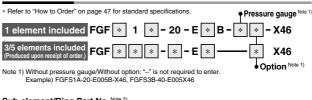
### X46 "Sub-element and Standard element" equipped

#### 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



#### Sub-element/Ring Part No. Note 2)

Element	Sub-element	Sub-element	Ring	Standard element
size	(single part)	with ring	(single part)	(single part)
L440	EZS340S	EZS320S	FZS310S	EJ501S-
L770	EZS330S	EZS310S	FZ53105	EJ601S-

Note 2) When changing from a standard product to one with X46 specifications, order a sub-element with 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.)

#### Specifications

Applicable model	FGF□□A	FGF□□B		
Main applicable fluid Note 3)	Coolant (oil-based, water-soluble), Weak alkali-based cleaning fluid, Industrial w			
Nominal filtration accuracy Note 4)	5, 10, 25, 50, 100 µm (standard elen	nent), 500 to 1000 µm (sub-element)		
Operating temperature	Max.	80°C		
Maximum flow rate Note 5)	Max. 40	00 L/min		
Element replacement differential pressure	Differential pre	ssure 0.1 MPa		
Filtration material	Polyester (standard element), V	inylidene chloride (sub-element)		
Element size	ø190 x L440	ø190 x L770		
Filtration area	n area 1800 cm <sup>2</sup> 3400 cm <sup>2</sup>			

Note 3) Fluids that cause corrosion, deterioration or expansion of the material used in the elements cannot be used. Note 4) Depends on the filtration accuracy (nominal filtration accuracy) of the element.

Since sub-elements are specialized for coarse filtration, the nominal filtration accuracy is 500 µm or more. Note 5) 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 element)

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

### X81 Sub-element equipped

 Eliminates large foreign matter (500 μm or larger).

(For coarse filtration)



#### - ----

#### Sub-element/Ring Part No. Note 2)

	Sub-element		
size	(single part)	with ring	(single part)
L440 EZS340S			
L440	EZS340S	EZS320S	FZS310S

Note 2) When changing from a standard product to one with X81 specifications, order a sub-element with nig. 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 attach the ring before use.

#### How to Order



3/5 elements included (Produced upon receipt of order.) FGF \* \* \* - \* \_ \* X81 • Option Note 1)

Note 1) Without pressure gauge/Without option: "--" is not required to enter. Example) FGFS1A-20-B-X81, FGFS3B-40X81

#### Specifications

opeeniealiene							
Applicable model	FGFOOA FGFOOB						
Main applicable fluid Note 3)	3) Coolant (oil-based, water-soluble), Weak alkali-based cleaning fluid, Industr						
Nominal filtration accuracy Note 4)	500 to 1	000 μm					
Operating temperature	Max.	80°C					
Maximum flow rate Note 5)	Max. 40	00 L/min					
Element replacement differential pressure	Differential pre	ssure 0.1 MPa					
Filtration material	Vinylidene chloride						
Element size	nt size ø190 x L440 ø190 x L7						
Filtration area	1800 cm <sup>2</sup>	3400 cm <sup>2</sup>					

Note 3) Fluids that cause corrosion, deterioration or expansion of the material used in the elements cannot be used. Note 4) Specialized for coarse filtration, the nominal filtration accuracy is 500 μm or more.

Note 5) Conditions: Fluid = Water, Initial differential pressure 7 kPa

(For other conditions, refer to "Flow Rate Characteristics" on page 50. Equivalent to standard element) Maximum flow rate is per one element. When there are three elements or five elements, multiply by 3 or 5.





FGD

FGE

FGG

#### **HEPO** element equipped X49

#### High-performance filtration

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

(For precision filtration)



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 can-

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

not be used

by 3 or 5

### **High-performance filtration**

RoHS

### How to Order

#### Refer to "How to Order" on page 47 for standard specifications. Pressure gauge Note 1) 1 element included FGF - 20 - Z 003 B -\* 1 \* \* - X49 \* 3/5 elements included FGF - Z 003 · \* \* \* \* \* X49 ed upon receipt of order. Option Note 1)

Note 1) Without pressure gauge/Without option: "-" is not required to enter. Example) FGFS1A-20-Z003B-X49, FGFS3B-40-Z003X49

#### Element/Element-Fixing Component Part No. Note 2)

Element	HEPO element	Element-fixing component		
size	(single part)	1 included	3/5 included Note 3)	
L440	EZFN20AS	FGF-OP03	FGF-OP013	
L770	EZFN30AS	FGF-OF03	FGF-OP013	

Note 2) When changing from a standard product to one with X49 specifications, additionally order a HEPO 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. When replacing only the element, order a HEPO element (single part).

Note 3) 1 set is required per element.

Ex.) When using 3 elements, order 3 sets

\* Refer to "How to Order" on page 47 for standard specifications.

FGF \*

Note 1) Without pressure gauge/Without option: "--" is not required to enter. Example) FGFS1A-20-Z050B-X82, FGFS3B-40-Z050X82 Element/Element-Fixing Component Part No. Note 2)

### Specifications

peemeatione				
Applicable model	FGF□□A FGF□□B			
Main applicable fluid Note 4)	Coolant (oil-based, water-soluble), Weak alkali-based cleaning fluid, Industrial water			
Nominal filtration accuracy Note 5)	3 μm			
Operating temperature	Max. 80°C			
Maximum flow rate Note 6)	Max. 100 L/min	Max. 200 L/min		
Element replacement differential pressure	Differential pressure 0.1 MPa			
Filtration material	Polyester/Glass fiber			
Element size	ø186 x L312	ø186 x L642		
Filtration area	16500 cm <sup>2</sup>	31600 cm <sup>2</sup>		

#### Long service life element equipped X82

### How to Order

1 element included

3/5 elements included

ed upon receipt of order.

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

(For coarse filtration)



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

FGF-OP03 FGF-OP013 EZF730AS-050 Note 2) When changing from a standard product to one with X82 specifications, additionally order a long service life 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.

1 included

\* \*

When replacing only the element, order a long service life element (single part).

Element-fixing component

3/5 included Note 3)

Note 3) 1 set is required per element.

Ex.) When using 3 elements, order 3 sets

Long service life element (single part)

EZD810AS-050

#### Specifications

Element

size

1440

opeenieunene			
Applicable model	FGF□□A	FGF□□B	
Main applicable fluid Note 4)	Coolant (oil-based, water-soluble), Weak alkali-based cleaning fluid, Industrial water		
Nominal filtration accuracy Note 5)			
Operating temperature			
Maximum flow rate Note 6)	Max. 100L/min	Max. 200L/min	
Element replacement differential pressure	IN Differential pressure 0.1 MPa		
Filtration material	Polypropylene/Polyester		
Element size	ø186 x L312	ø186 x L642	
Filtration area	9400 cm <sup>2</sup>	12400 cm <sup>2</sup>	
	Main applicable fluid Note 4) Nominal filtration accuracy Note 5) Operating temperature Maximum flow rate Note 6) Element replacement differential pressue Filtration material Element size	Main applicable fluid Note 4)         Coolant (oil-based, water-soluble), Weak a Sol Operating temperature         Sol           Maximum flow rate Note 6)         Max.         Max.           Benet rejocent flow rate Note 6)         Max. 100L/min           Benet rejocent flow rate Note 6)         Differential pressure           Filtration material         Polypropyles           Element size         0186 x L312	

- 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.

### Large filtration area

\* X82

20 - Z 050 B- \*

Z 050

#### RoHS

Pressure gauge Note 1)

X82 \*

Option Note 1)

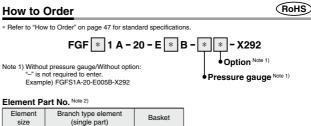
#### X292 Branch type element equipped Large filtration area 1.8 times the filtration area How to Order (compared with the standard element)

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 polyester of non-woven material.



L440	EJ111S- Note 3)	FGF-BT03	

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.)

#### Specifications

Specifications		
Applicable model	FGF□□A	
Main applicable fluid Note 4)	Coolant (oil-based, water-soluble), Weak alkali-based cleaning fluid, Industrial water	
Nominal filtration accuracy Note 5)	5, 10, 25, 50, 100 μm	
Operating temperature	Max. 80°C	
Maximum flow rate Note 6)	6) Max. 400 L/min	
Element replacement differential pressure	Differential pressure 0.1 MPa	
Filtration material	Polyester	
Element size	ø190 x L440	
Filtration area	3300 cm <sup>2</sup>	

Polypropylene

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RoHS

FGD

FGE

FGG

FGA

FGC

FGF

FGH

F01

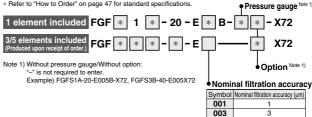
FN EB ES

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) (For other conditions, refer to "Flow Rate Characteristics" on page 50. Equivalent to standard element) Maximum flow rate is per one element. When there are three elements or five elements, multiply by 3 or 5.

### X72 PP (Polypropylene) bag element equipped

\* Refer to "How to Order" on page 47 for standard specifications.



#### Element Part No. Note 2)

cleaning fluid

(For coarse filtration)

Elem	ent	PP (Polypropylene)	
size	e ba	g element (single part)	
L44	0 E	LJ501S- X30 Note 3)	
L77	0 E	EJ601S- X30 Note 3)	

Polypropylene filter material can be

used with a wide variety of fluids.

Applicable for strong alkali-based

Note 2) When changing from a standard product to one with X72 specifications, order a PP (Polypropylene) bag element. 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 PP (Polypropylene) bag element (single part).

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

#### Specifications

How to Order

op of mountainer in a second			
Applicable model	FGF□□A	FGF□□B	
Main applicable fluid Note 4)	Strong alkali-based cleaning fluid, Coolant (oil-based, water-soluble), Weak alkali-based cleaning fluid, Industrial water		
Nominal filtration accuracy Note 5)	1, 3, 5 µm		
Operating temperature	Max. 80°C		
Maximum flow rate Note 6)	Max. 400 L/min		
Element replacement differential pressure	Differential pressure 0.1 MPa		
Filtration material	Polypropylene		
Element size	ø190 x L440	ø190 x L770	
Filtration area	1800 cm <sup>2</sup>	3400 cm <sup>2</sup>	

005

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 8 kPa, Nominal filtration accuracy 5 µm (standard element) (For other conditions, refer to "Flow Rate Characteristics" on page 50. Equivalent to standard element) Maximum flow rate is per one element. When there are three elements or five elements, multiply by 3 or 5.



## FGF Series

#### X142 Filter paper element equipped

#### Optimum for filtration of cutting or arindina oil

Large filtration area makes it suitable for filtrating fluids containing highly dense contaminants.



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 S of the material used in the elements cannot be used. Only oil-based fluids can 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 mm<sup>2</sup>/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.

### How to Order

#### Refer to "How to Order" on page 47 for standard specifications. Pressure gauge Note 1) 1 element included FGF \* 1 \* - 20 - Z 010 B-\* \* - X142 3/5 elements included FGF \* \* - \* -Z010-\* \* X142 ed upon receipt of or Option Note 1) Note 1) Without pressure gauge/Without option: "-" is not required to enter.

Example) FGFS1A-20-Z010B-X142, FGFS3B-40-Z010X142

#### Element/Element-Fixing Component Part No. Note 2)

Element	Filter paper element	Element-fixing component	
size	(single part)	1 included	3/5 included Note 3)
L440	EJ501S-010X6	FGF-OP03	FGF-OP013
L770	EJ601S-010X6	FGF-OP03	FGF-OPUI3

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. When replacing only the element, order a filter paper element (single part).

Note 3) 1 set is required per element.

Ex.) When using 3 elements, order 3 sets

#### -----

FGF□□A	FGF□□B	
Coolant (oil-based), Lubricating oil		
10 µm		
Max. 80°C		
Max. 100 L/min	Max. 200 L/min	
Differential pressure 0.1 MPa		
Cotton		
ø186 x L312	ø186 x L642	
8900 cm <sup>2</sup> 18500 cm <sup>2</sup>		
	Coolant (oil-base 10 Max. Max. 100 L/min Differential pre Cot ø186 x L312	

#### X47 Leg material: Stainless steel

Legs made of stainless steel can be used.



#### Legs Part No.

Part no. Note 2)	Material	Included parts
FGF-OP02	Stainless steel	Mounting bolt/Nut/Flat washer

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.

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

Note 1)

Pressure gauge Note 1)

For cutting/grinding oil

RoHS

#### Specifications

Applicable model		FGF□1A	FGF□1B		
Operating pressure		Max. 0.5 MPa			
Common	Operating ten	nperature	Max. 80°C		
Common	Maximum flow rate Note 3)		Max. 400 L/min		
	Main applicable flu		Coolant (oil-based, water-soluble), Weak alkali-based cleaning fluid, Industrial wate		
		Cover	Ctainless	ataal 201	
	Material	Case	Stainless steel 304		
Vessel		Legs	Stainless	Stainless steel 304	
VC33C1	Port size		Rc2		
	Internal volume		23 L	35 L	
	Weight		13 kg	16 kg	
	Filtration ma	terial	Polyester		
	Nominal filtration accuracy Note 5)		5, 10, 25, 50, 100 μm		
Element	Element replacement differential pressure		Differential pressure 0.1 MPa		
Liement	Number of elements			1	
	Element size		ø190 x L440	ø190 x L770	
	Filtration area		1800 cm <sup>2</sup>	3400 cm <sup>2</sup>	

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 ele-

ments cannot be used.

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

RoHS



## 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.

## A 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 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 (oilbased or water-soluble), weak alkalibased 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 dete-
- rioration 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.

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#### 1. Pressure drop (AP)

- . 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. [Maintenance work space]

- · Above vessel (for removal of basket during element replacement) ... At least 450 mm of space above vessel
- · Around band (for removal of band during element replacement) ... At least 50 mm of space around band
  - \* Applies to FGF□1□

Installation and Piping

### Caution

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

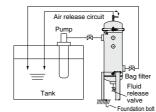


Fig. 1 Example of cyclical filtration circuit

- 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.
- 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.



Fig. 2 Air release circuit

#### Operation

\land Warning 1. Never loosen the V-band under pressurized conditions.

Operation

Δir

release

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### ▲ 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.) Fig. 3 Releasing the air

#### 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.

FGD FGE FGG FGA FGC FGF FGH FQ1 FN EB

ES

Maintenance

### 🗥 Warning

- 1. Failure to observe the procedure will likely cause fluid leakage or removal of a cover, which may lead to an unexpected accident. (Follow the procedure in the operation manual.)
- 2. Confirm that the line has stopped and pressure has been reduced to zero before performing maintenance work.

## A 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 pressure drop has reached to 0.1 MPa.

#### 2. Element replacement work

- · Carry out element replacement work based on the procedure in the operation manual. Mishandling could lead to malfunction or damage the machinery and equipment.
- · Replace the elements only after confirming that the pressure is zero.
- The parts used for tightening the cover (V-band, etc.) must be properly positioned after replacing elements.

#### 3. Cleaning each component

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

#### 4. Replacing seals

Replace the deteriorated or expanded O-ring, gasket holder assembly or other seals. Also, replace the seal after it has been used for one year or when fluid leakage occurs.

#### 5. Parts used for tightening the cover

If a part used for tightening the cover (V-band, etc.) is deformed or the threads are galled, it must be replaced.

#### 6. Temperature

When operating at high temperatures (40°C to 80°C), there is danger of burns, etc. Confirm that the surface temperature of the filter or the parts for operation (V-band, element, etc.) are 40°C or less, to prevent a burn from occurring.

