

High Precision Filter for Liquids

FGH Series

Filtration efficiency: 99% or more

HEPO II element

Filtration accuracy: 2, 4, 6 or 13 μm (Filtration efficiency 99%)

Membrane element

Filtration accuracy: 0.2 or 0.4 μm (Filtration efficiency 99.9%)



High Precision Filter for Liquids FGH Series

Filtration efficiency: 99% or more



Prevents particle generation in the housing

Internal particle generation is eliminated by using stainless steel 316 and PTFE for the wetted material and adopting a clamp ring system.

Integrity inspection conducted.

100%-integrity inspection is conducted.

Prevents residual liquid accumulation in the case

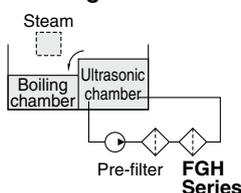
A simple structure prevents the residual liquid from accumulating in the case.

Application examples

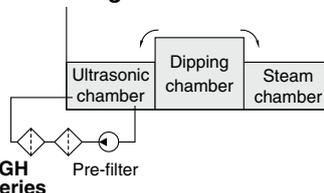
Ultrasonic cleaning machine

- Manufacture of electric and electronic industrial components
- Manufacture of semiconductor-related components

Dual chamber ultrasonic cleaning machine

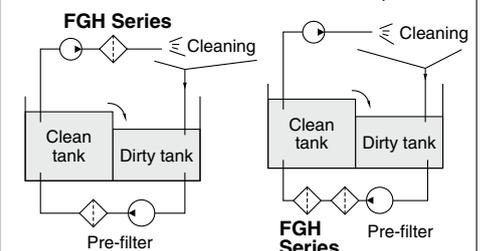


Triple chamber ultrasonic cleaning machine



Jet cleaning machine

- Camera, lens and bearing for manufacture of high-precision processing components
- Nozzle for manufacture of automobile components



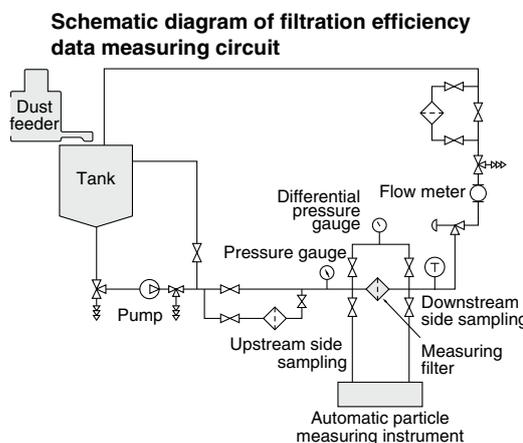
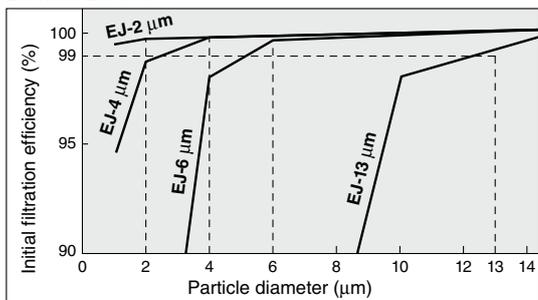
HEPO II Element

Filtration accuracy: 2, 4, 6 or 13 μm (Filtration efficiency 99%)

High precision filtration: 99% or more

High accuracy filtration is achieved by using a HEPO II element with filtration accuracy of 2, 4, 6 or 13 μm (Filtration efficiency 99%).

[Test conditions]
 Fluid: water / Test dust: ACFTD / Flow rate: 35 L/min
 Dust concentration: 10 mg/L / Temperature: 20°C
 Element: EJ801S



No outflow of fibers or elution of components from the filter media

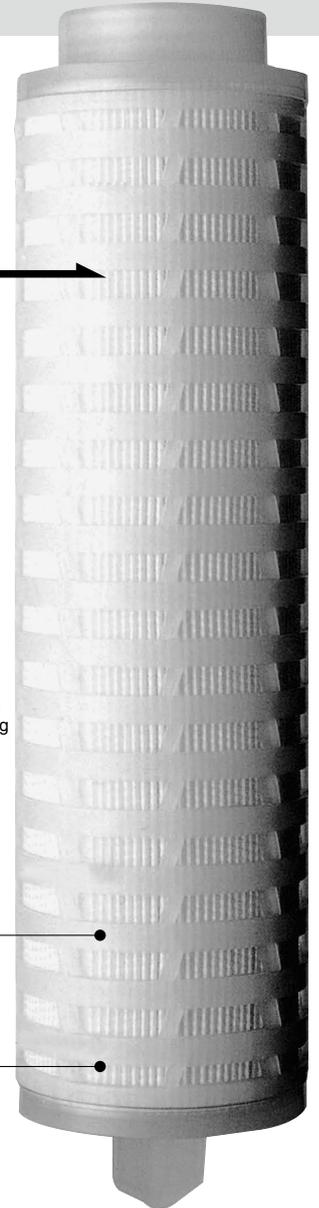
There is almost no outflow of fibers or elution of components from the filter media because it uses ultrafine and long polyester fiber non-woven fabric with no binder.

Applicable for a wide range of liquids

The element is applicable for a wide range of liquids because it adopts PTFE seals.

Applicable fluids

Classification	Description
Water	Industrial water, distilled water, ion-exchange water, DI water (Deionized water), ultrapure water
Alcohol	Isopropyl alcohol (IPA, propanol) Ethyl alcohol (ethanol) Methyl alcohol (methanol) Butyl alcohol (butanol) Ethylene glycol
Hydrocarbon	Petroleum ether, petroleum benzene
Ester	Methyl acetate, ethyl acetate, methyl acrylate
Oil/fuel oil	Hydraulic fluid, lubricating oil, light oil, kerosene, cutting oil, grinding oil
Others	Ammonia (10% solvent), ethyl ether, isopropyl ether



Membrane Element

Filtration accuracy: 0.2 or 0.4 μm (Filtration efficiency 99.9%)

High precision filtration:

► **99.9% or more**

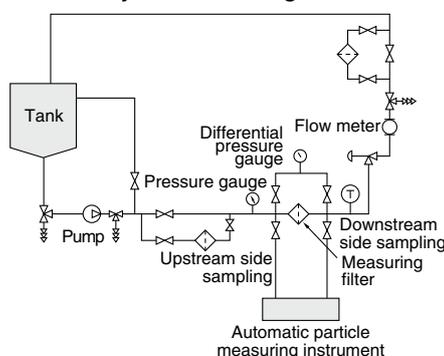
High accuracy filtration is achieved by using a membrane element with filtration accuracy of 0.2 or 0.4 μm (Filtration efficiency 99.9%)

Test conditions

Fluid: DI water (Deionized water)
Contaminant: polystyrene latex particles
Particle measuring method: 0.2 μm automatic particle measuring instrument

Filtration rating (μm)	Particle diameter (μm)	Number of particles (/10 mL)		Filtration efficiency (%)
		Upstream side	Downstream side	
0.2	0.208	146380	1	99.999
	0.41	95019	29.9	99.97
0.4	0.309	103957	2727	97.4
	0.41	95019	29.9	99.97

Schematic diagram of filtration efficiency data measuring circuit



Easy to handle

There is no need of hydrophilic treatment using IPA and the like, because the element uses a hydrophilic filter media.

Long filtration life

The element has a long filtration life because of the high porosity and low pressure drop of the filter media.

The dust retention amount of the 0.2 μm version is 90 g.

Pre-rinsed with ultrapure water

(0.2 μm version only)

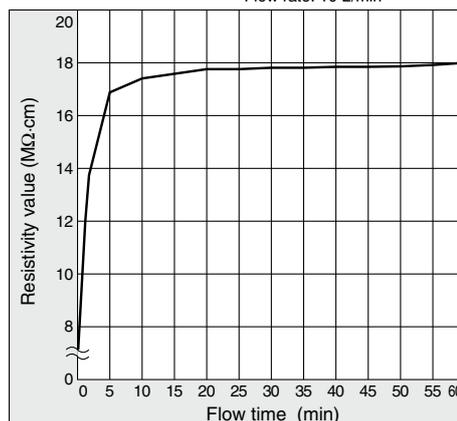
Applicable fluids

Classification	0.2 μm	0.4 μm
Water	DI water (Deionized water), ultrapure water, ion-exchange water, distilled water	
Alkalis	Sodium hydroxide (10%) Potassium hydroxide (10%) Ammonia water (28%)	Ammonia water (28%)*
Aldehyde	Formaldehyde (35%)	Formaldehyde (35%)*
Alcohol	Methyl alcohol, butyl alcohol, ethyl alcohol, propyl alcohol	
Ether	Dioxane* Ethyl ether*	Ethyl ether*
Hydrocarbon	Benzene* Hexane*	Benzene*, toluene*, hexane*, xylene*

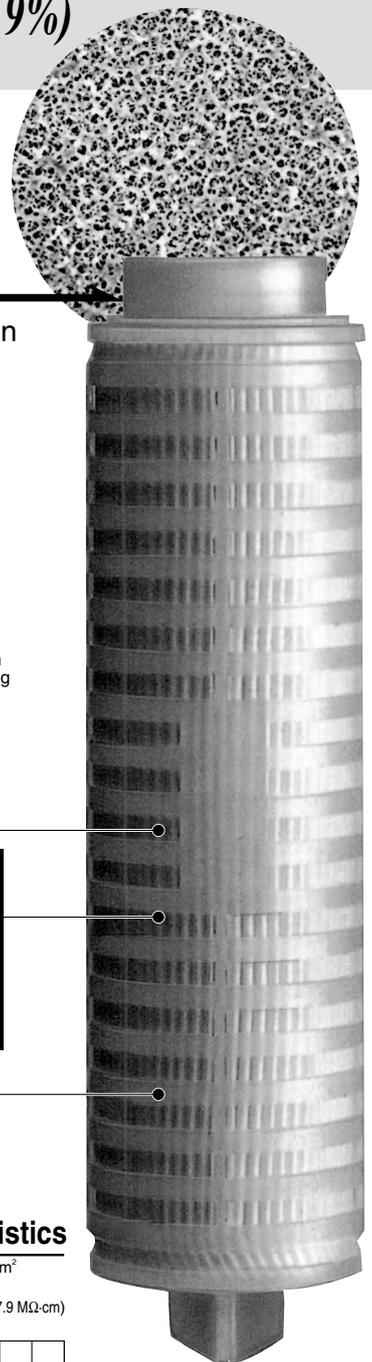
* Can be used depending on temperature conditions (please consult with SMC).

Resistivity recovery characteristics

[Measuring conditions] Filtration area: 4000 cm²
Element used: ED801S-X20 Fluid: Ultrapure water
Element size: ø70 x L247 (resistivity value 17.9 MΩ·cm)
Flow rate: 10 L/min



* Per JISK3834



High Precision Filter for Liquids

FGH Series



How to Order

FGH 100 - 03 - J 002 T

High precision filter for liquids

Body size

Symbol	Element length	Applicable element
100	L117	EJ701S
200	L246	EJ801S, ED801S
300	L496	EJ901S, ED901S

* The membrane element cannot be selected for FGH100.

Element seal

Symbol	Material
T	PTFE

Filtration accuracy

Symbol	Filtration accuracy	Applicable for:	Applicable body
002	2 μm	Filtration efficiency 99%	HEPO II
004	4 μm		
006	6 μm		
013	13 μm		
X20	0.2 μm	Filtration efficiency 99.9%	Membrane
X40	0.4 μm		

Port size

03	Rc3/8
04	Rc1/2
06	Rc3/4
10	Rc1

Element classification Note)

Symbol	Element
J	HEPO II
D	Membrane

Note) Refer to pages 73 to 76 for details about specifications, models, dimensions, etc. regarding the elements.



Specifications

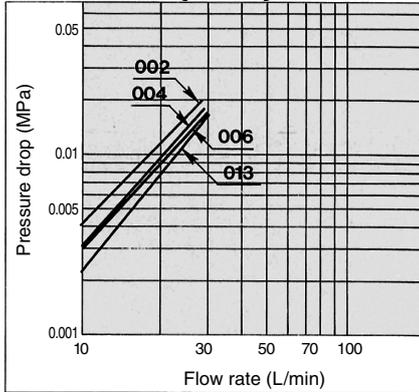
Model		FGH100	FGH200	FGH300
Number of built-in elements (element length) (mm)		1(125)	1(250)	1(500)
Operating pressure		MAX. 1 MPa		
Operating temperature		MAX. 80°C (Not above the boiling point)		
Applicable fluid		Each kind of fluid (See the table of applicable fluids on pages 66 and 67)		
Port size (Rc)		3/8, 1/2, 3/4, 1		
Material	Housing	Stainless steel 316 (Electrolytic polishing)		
	Seals	PTFE		
Weight (kg)		2.6	3.2	4.3
Internal capacity (L)		1.0	1.8	3.3

FGH Series

Flow Rate Characteristics of Built-in HEPO II Elements (Fluid: water, temperature: 20°C) — 002 (2 μm) — 004 (4 μm) — 006 (6 μm) — 013 (13 μm)

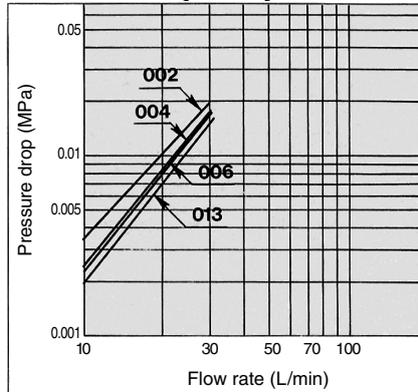
FGH100 Series

FGH100-03 {Rc3/8}



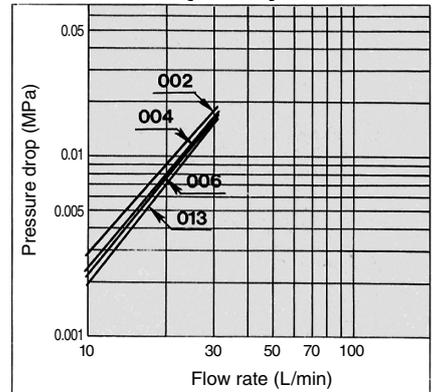
FGH200 Series

FGH200-03 {Rc3/8}

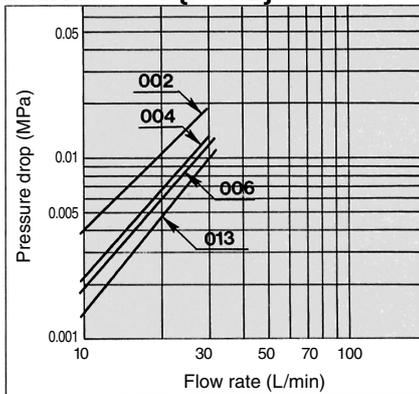


FGH300 Series

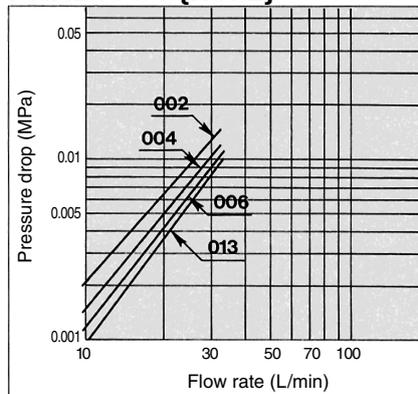
FGH300-03 {Rc3/8}



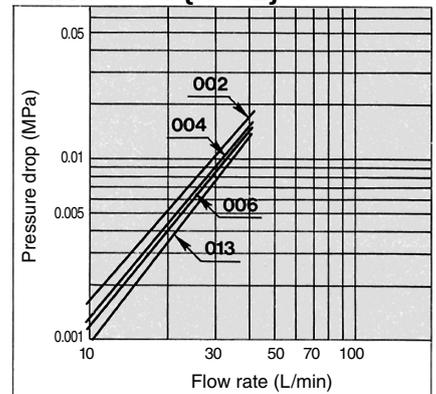
FGH100-04 {Rc1/2}



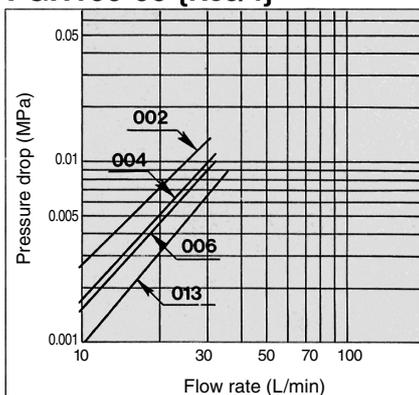
FGH200-04 {Rc1/2}



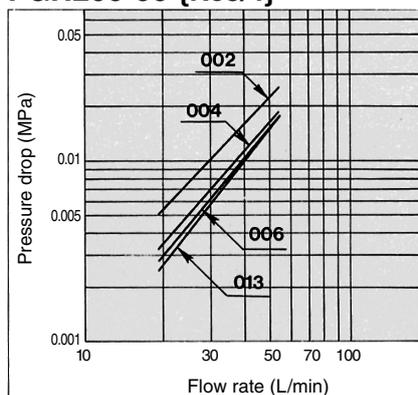
FGH300-04 {Rc1/2}



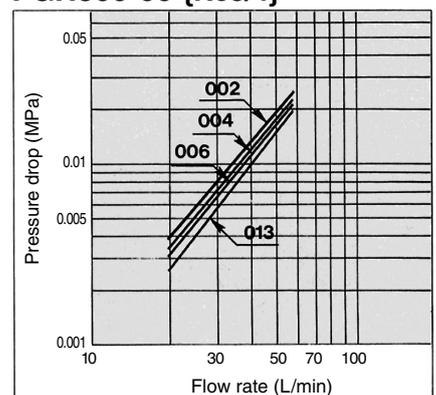
FGH100-06 {Rc3/4}



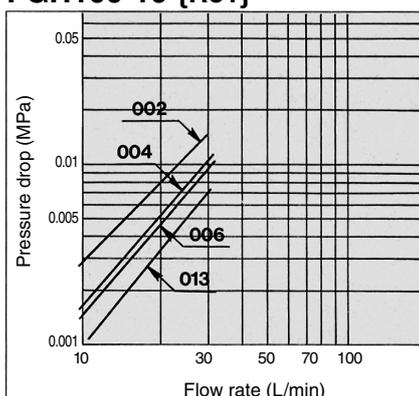
FGH200-06 {Rc3/4}



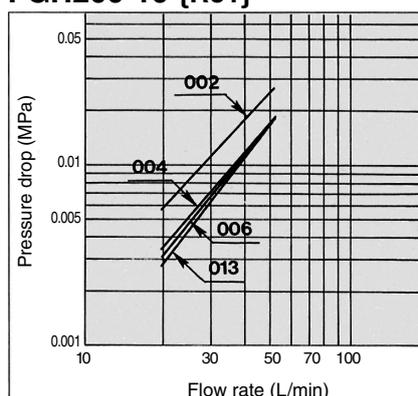
FGH300-06 {Rc3/4}



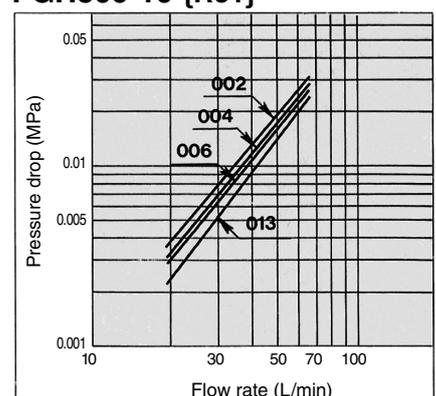
FGH100-10 {Rc1}



FGH200-10 {Rc1}



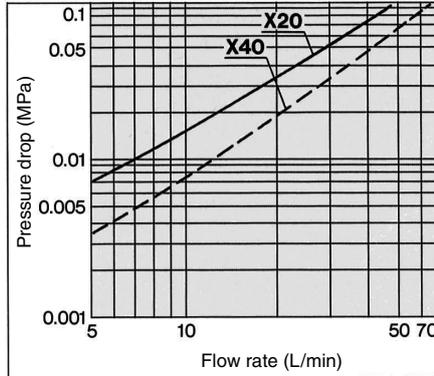
FGH300-10 {Rc1}



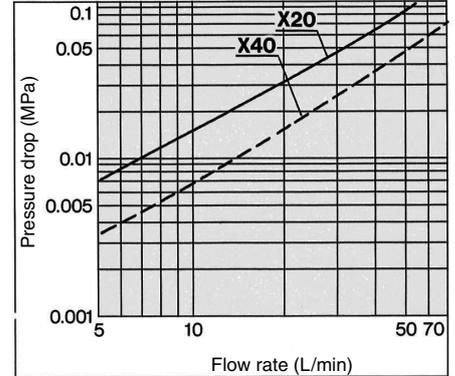
Flow Rate Characteristics of Built-in Membrane Elements (Fluid: water, temperature: 20°C)
FGH200 Series

—— X20 (0.2 μm)
 - - - X40 (0.4 μm)

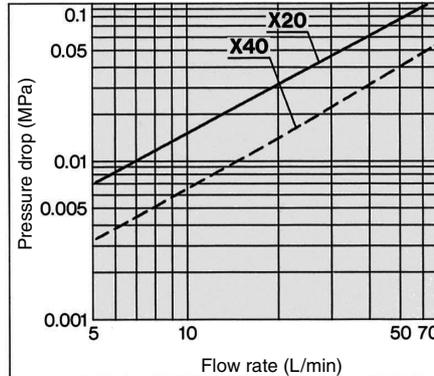
FGH200-03 {Rc3/8}



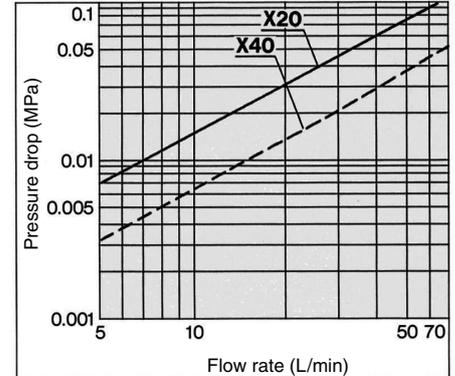
FGH200-04 {Rc1/2}



FGH200-06 {Rc3/4}



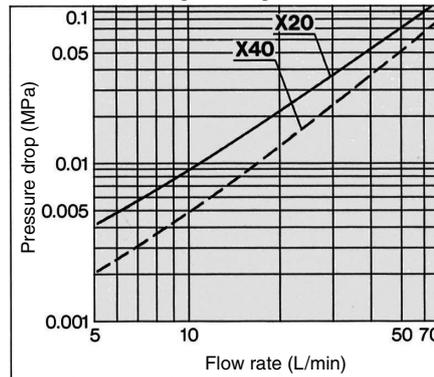
FGH200-10 {Rc1}



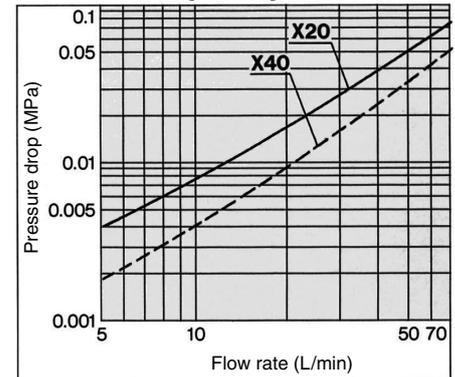
FGH300 Series

—— X20 (0.2 μm)
 - - - X40 (0.4 μm)

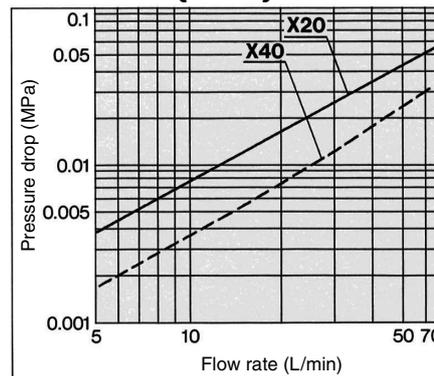
FGH300-03 {Rc3/8}



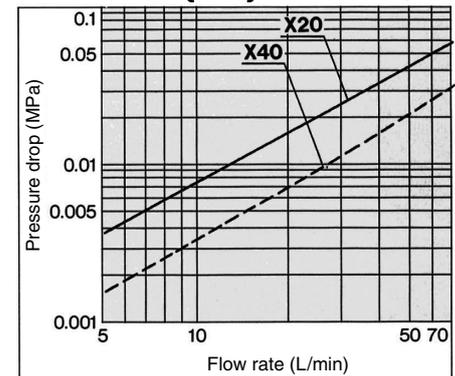
FGH300-04 {Rc1/2}



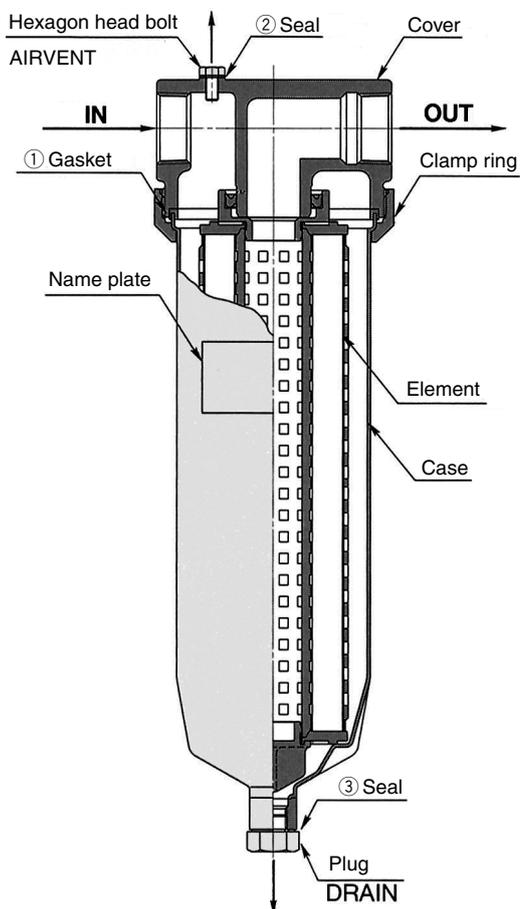
FGH300-06 {Rc3/4}



FGH300-10 {Rc1}



Construction/Spare Parts and Seal List



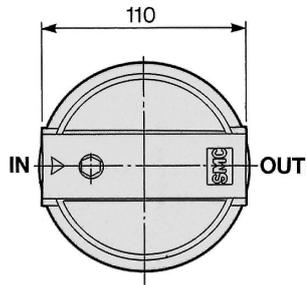
Spare Parts and Seal List

No.	Description	Part number		
		FGH100	FGH200	FGH300
1	Gasket	AL-58S#1		
2	Seal	AL-43S		
3	Seal	AL-53S		

* Use each one of the above parts for each filter unit.

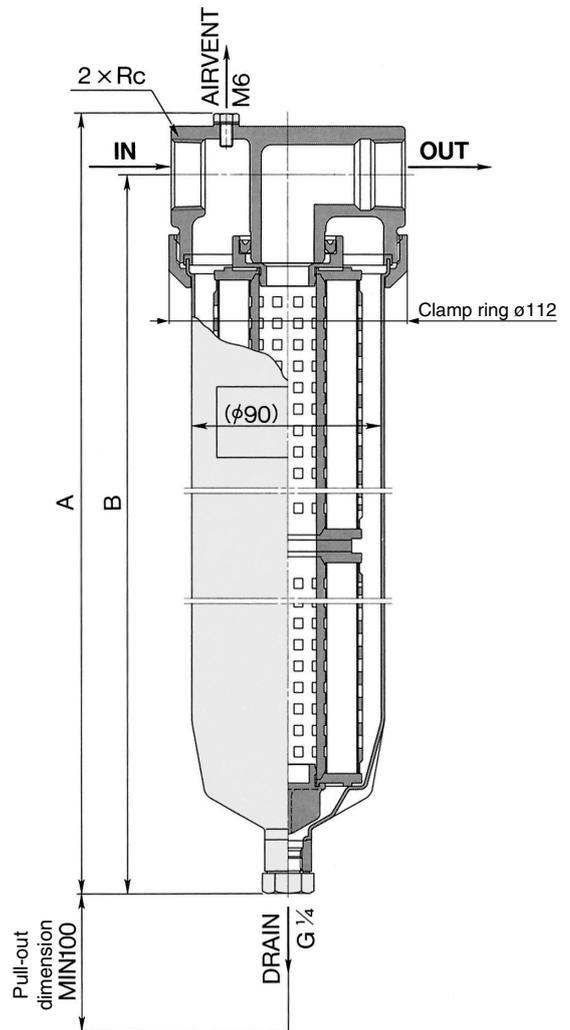
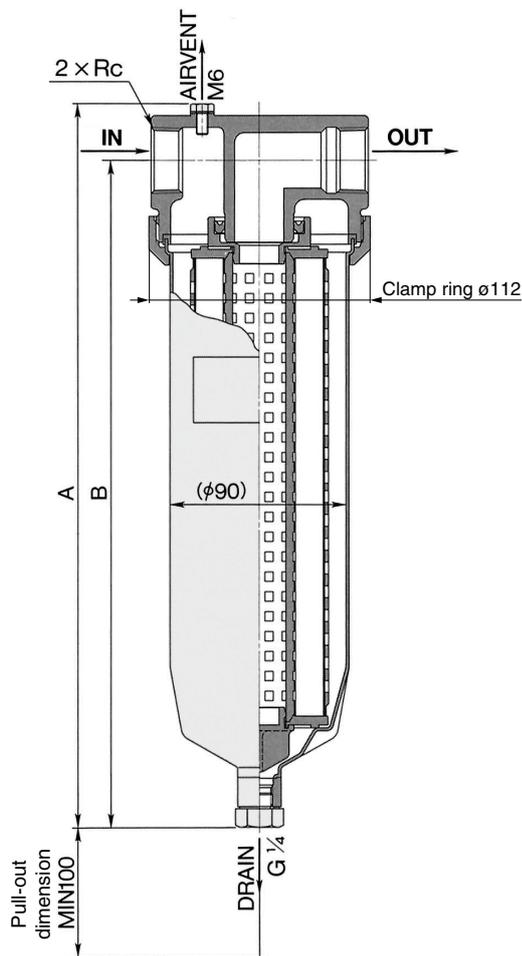
* Use a commercially available belt wrench etc. for mounting and removing clamp rings.

Dimensions



FGH100/200

FGH300



Dimensions

Model	Element length	Port size (Rc)	A	B
FGH100	φ70 x L117	3/8, 1/2	235	211
		3/4, 1	240	
FGH200	φ70 x L246	3/8, 1/2	364	340
		3/4, 1	369	
FGH300	φ70 x L496	3/8, 1/2	615	591
		3/4, 1	620	

HEPO II Element for FGH Series

EJ Series

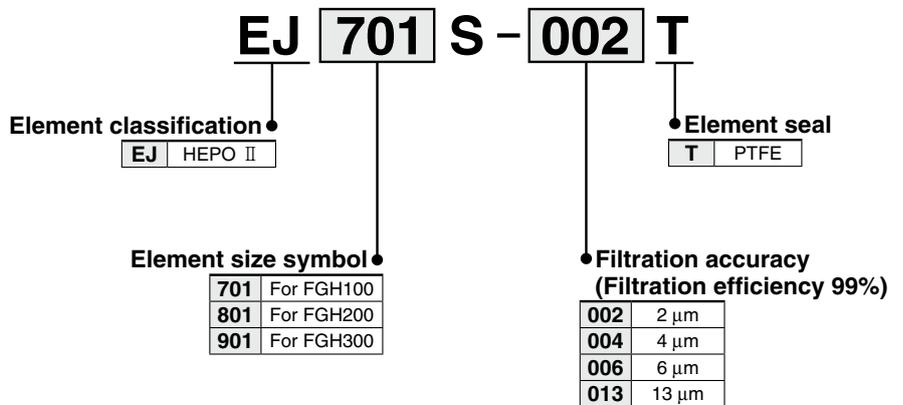


Specifications

Model		EJ□S-002	EJ□S-004	EJ□S-006	EJ□S-013	
Filtration accuracy (Filtration efficiency 99%)		2	4	6	13	
Filtration area (cm ²)	Length	117 mm	1890	2310	2090	2490
		246 mm	4250	5200	4700	5600
		496 mm	8500	10400	9400	11200
Heat resistant temperature (°C)		80				
Material	Filter media	Polyester				
	Reinforcement material	Polypropylene				
	Others	Polypropylene, Stainless steel 316				
Element replacement differential pressure		0.1 MPa				
Differential pressure resistance		0.5 MPa at 20°C, 0.125 MPa at 80°C				

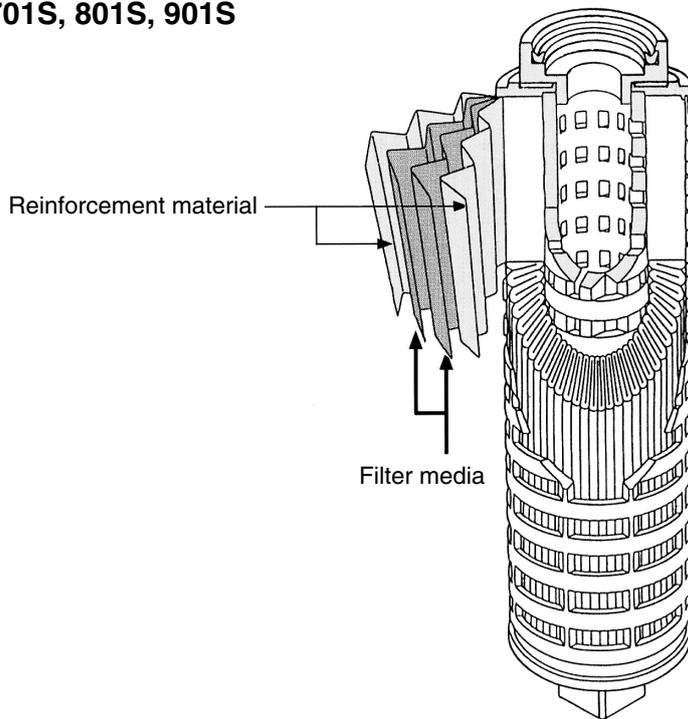
Note) See "How to Order" below for items represented by □.

How to Order Elements

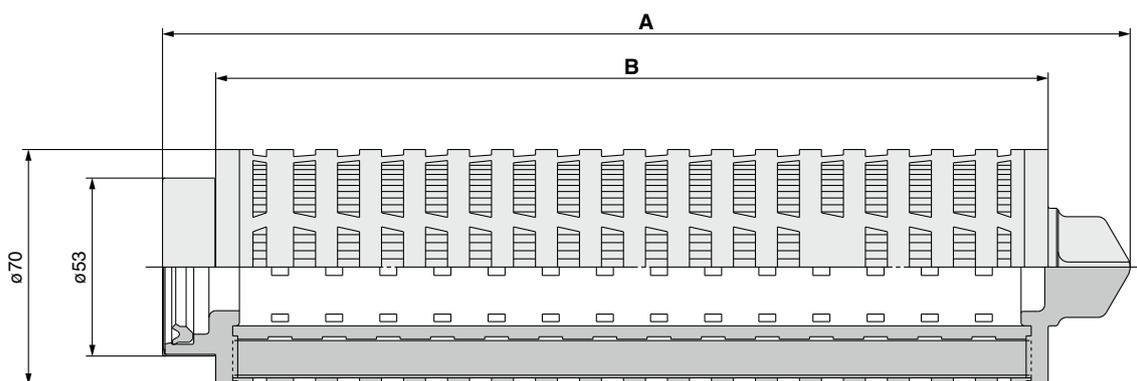


Construction

EJ701S, 801S, 901S



Dimensions



Element Dimensions

Model	A	B	Applicable container
EJ701S-□T	157	117	FGH100
EJ801S-□T	286	246	FGH200
EJ901S-□T	538	498	FGH300

Membrane Element for FGH Series

ED Series



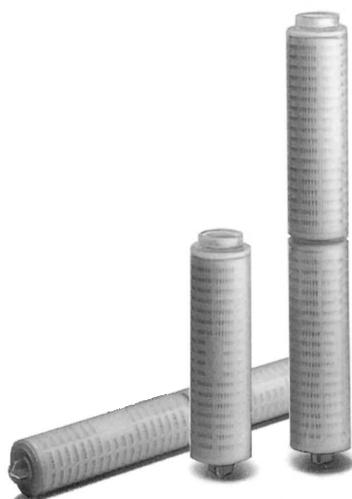
Specifications

Model		ED□S-X20	ED□S-X40
Filtration accuracy (Filtration efficiency 99.9%) <small>Note 1)</small>		0.2	0.4
Filtration area (cm ²)	Length	247 mm	6,200
		495 mm	12,400
Heat resistant temperature (°C)		80	
Material	Filter media	Polyether sulfone	Cellulose acetate & polyester
	Reinforcement material	Polypropylene	
	Others	Polypropylene	
Element replacement differential pressure		0.1 MPa	
Differential pressure resistance		0.5 MPa at 20°C, 0.125 MPa at 80°C	
Resistivity recovery <small>Note 2)</small>		60 min at 10 L/min	—
Others		100 L/4000 cm ² Pure water cleaning	—

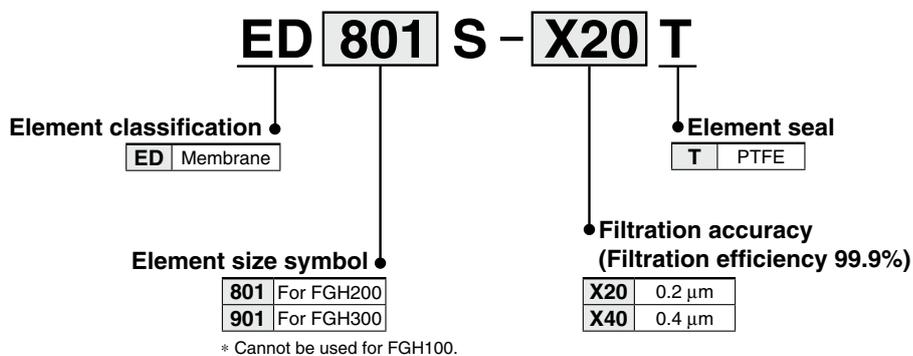
Note 1) Filtration accuracy: tested with ultrapure water, flow rate at ΔP = 0.01 MPa.

Note 2) Resistivity recovery: time taken to recover to 18 MΩ·cm with ultrapure water.

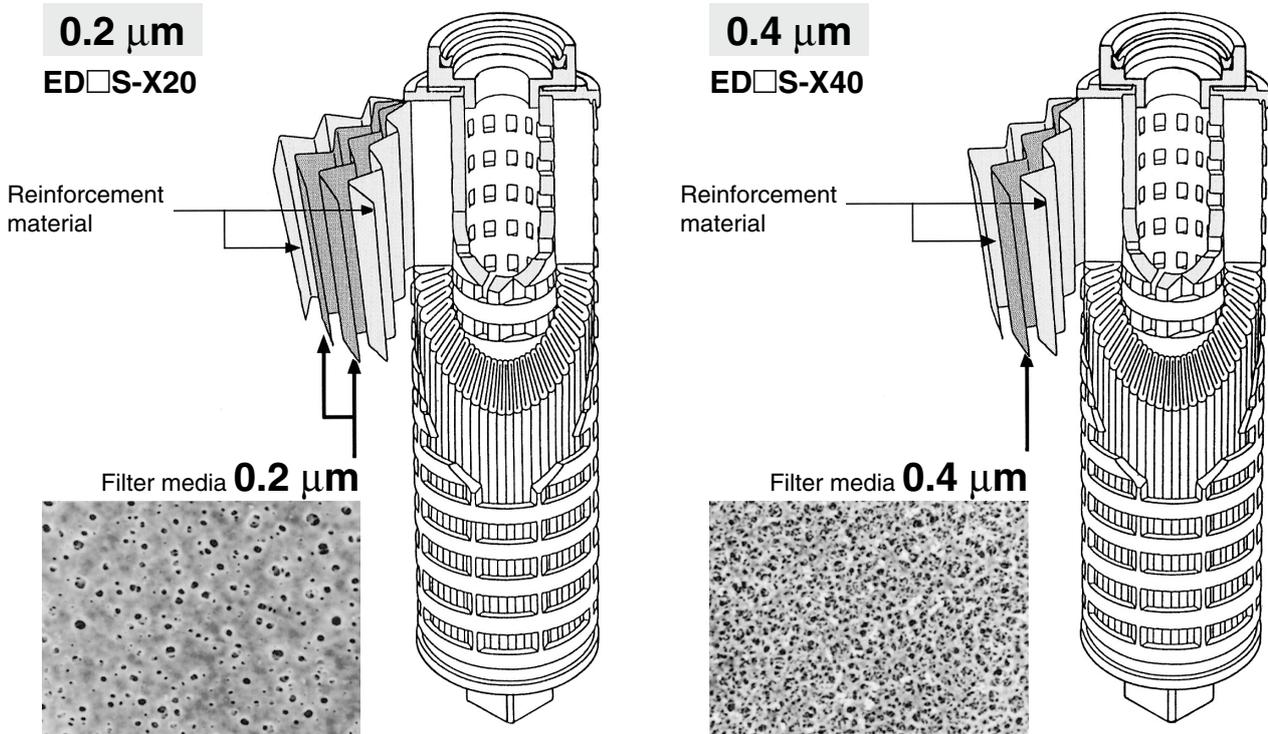
Note 3) See "How to Order" below for items represented by □.



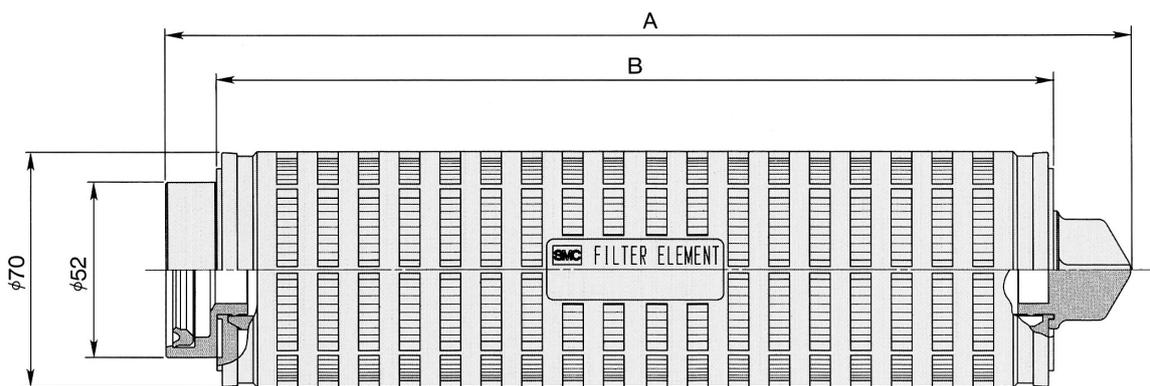
How to Order Elements



Construction



Dimensions



Element Dimensions

Model	A	B	Applicable container
ED801S-X□T	285	247	FGH200
ED901S-X□T	533	495	FGH300