

AstroPore Fujifilm Micro Filter

FL Cartridge

(with polytetrafluoroethylene (PTFE) membrane)



Ideal for the removal of fine particles from gases and chemicals, as well as for disinfecting filtration, increasingly important in such areas as electronics, pharmaceuticals, and food industries.

Excellent performance with a rich variety of pore sizes, lengths, and shapes for the effective removal of microorganisms and fine particles from nonaqueous systems and gases

The high-performance PTFE membrane filter cartridges are designed for purifying chemicals, air, and gases. Excellent chemical resistance makes these cartridges ideal for removing fine particles or sterilizing microorganisms from acids, alkalis, photoresists, and solvents. The fully hydrophobic membranes are also suitable for sterilization and filtration of gases, including air for fermentation or ventilation in containers. In addition to their filtration performance and safety, the wide variety of the product design allows the best selections for diverse fields, including electronics, pharmaceuticals, and biotechnology, where stringent quality control is required.

Specific Features

1. Wide range of applications

The highly chemical-resistant, hydrophobic nature of the PTFE membranes permits applications to the sterilization, clarification, and filtration of various chemicals and gases.

2. Perfect capture of microorganisms and fine particles

The sharp pore size distribution and optimal cartridge design ensure effective trapping of contaminants without the risk of release of the trapped objects during operation.

3. Inert and safe materials

All of the materials used in the product are inert and show a very low leachability. The products comply with Japan Pharmacopoeia, USP, and ASTM standards ensuring biological safety.

4. High quality by stringent quality control

The products undergo integrity tests with demonstrated correlation with sterilization performance, with respect to the reference microorganisms used in validation in and outside Japan.

5. Abundance of variants

Three pore sizes: 0.1/0.2/0.45 µm, three cartridge lengths: one-stage (type S)/two-stage (type D)/three-stage (type T), and three shapes: types G/M/P can be flexibly combined to adapt the assembly to a variety of applications.

Major Applications

The PTFE membrane filter cartridges are to be employed in electronics, pharmaceutical and cosmetic products industry, chemical industry, foodstuffs industry, and many additional fields for the filtration of non-aqueous liquids and gases. Examples include:

1. Sterilizing filtration of air for fermentation
2. Sterilizing filtration of air for venting
3. Sterilizing filtration of air for pneumatic transport
4. Sterilizing filtration of air for charging
5. Particle removal and sterilizing filtration of acids and alkalis
6. Particle removal from gases
7. Particle removal from photoresists and solvents

Sterilization Process

The membrane filters allow repeated sterilization/disinfection processes, such as:

1. In-line sterilization with high-pressure steam for 20 min at 134°C* (except for type G)
2. Sterilization with high-pressure steam for 30 min at 121°C*
3. Sterilization with ethylene oxide

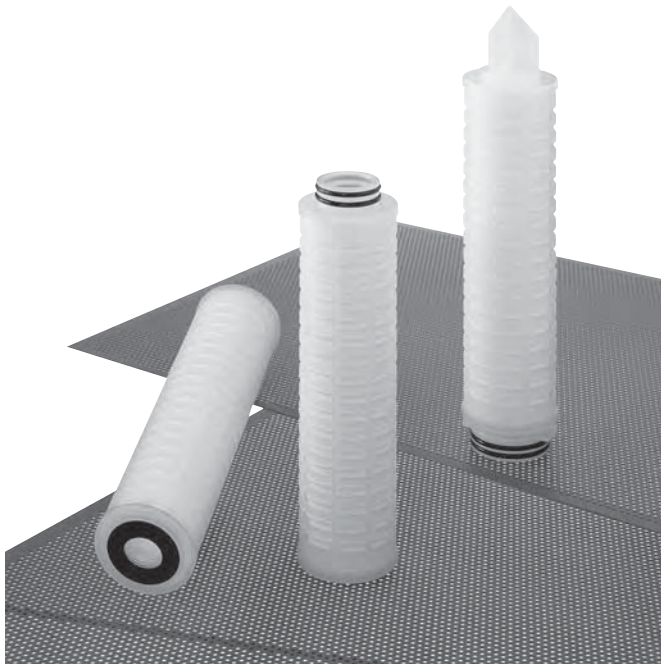
* Abrupt temperature changes should be avoided.

Table of Performance Characteristics

Item	Unit	Performance			Remarks
		FLCG-10 FLCM-10 FLCP-10	FLCG-20 FLCM-20 FLCP-20	FLCG-45 FLCM-45 FLCP-45	
Pore size	µm	0.1	0.2	0.45	absolute
Size	Length	~~~~~			(Note 1)
	Outer Diameter	FLC	71		
Max. differential pressure	20°C	0.50			
	80°C	0.20			
	134°C	0.10			
Max. heat resistance	°C	134 (20 min.)			
Biological Stability		Good			(Note 2)
Leachability		Good			(Note 2)

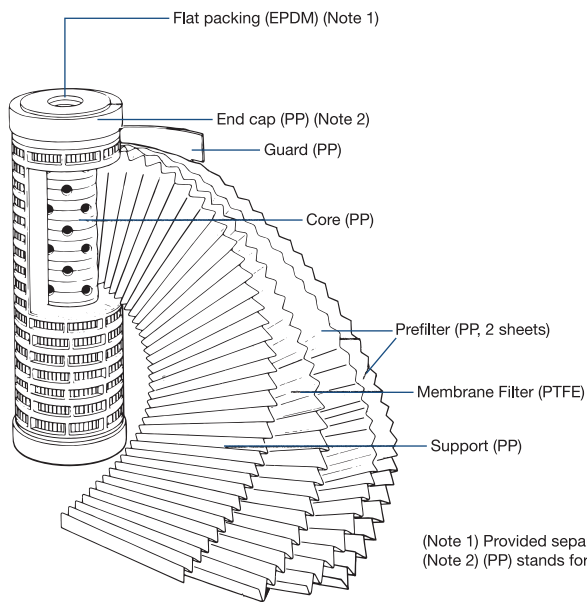
(Note 1) See "cartridge sizes" table.

(Note 2) According to the tests on plastic containers such as USPXXI (Class V) specified in Japan Pharmacopoeia, 12th Amendment, and to Standards on water for injections, and ASTM (E-1).



Construction and Materials

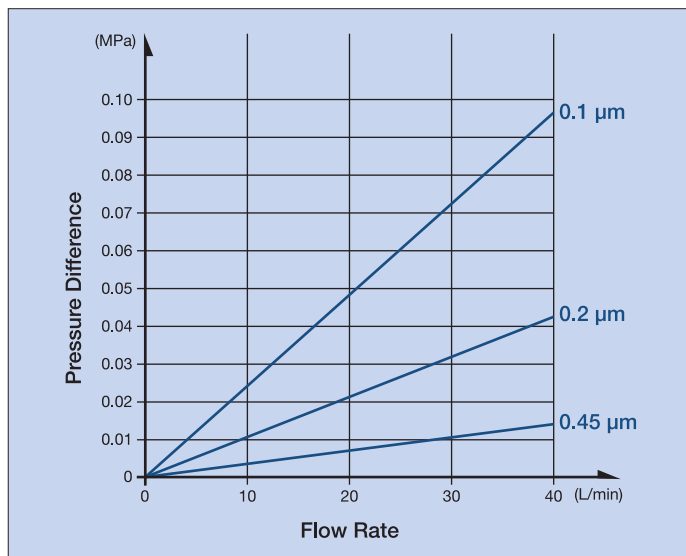
The high-strength PTFE membrane is thermally bonded and molded to equally pleated sheets of prefilters and support.



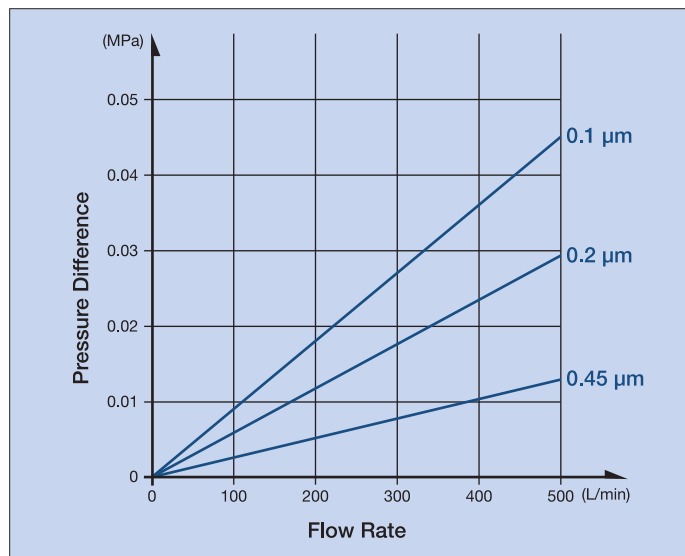
(Note 1) Provided separately; also silicone or Viton is available
 (Note 2) (PP) stands for polypropylene.

Flow Rate Characteristics

Flow characteristics of water



Flow characteristics of air



Chemical Resistance

The product was immersed in the indicated media for 24 hours at room temperature to test the filtration performance. We recommend that you test your cartridge under your operation conditions.

Classification	Chemicals	Main Body	Sealing material		
			EPDM	Silicone	Viton
Hydrocarbons	Benzene	○	×	×	△
	Cyclohexane	○	△	×	×
	Gasoline	○	×	×	○
	n-Hexane	○	×	×	○
	Toluene	○	×	×	△
	Xylene	○	×	×	△
Halogenated Hydrocarbons	Methylene chloride	○	×	×	△
	Perchloroethylene	○	×	×	○
	Trichloroethane	○	×	×	○
	Trichloroethylene	×	×	×	○
Alcohol	Butanol	○	△	△	○
	Ethanol 98%	○	○	○	△
	Isopropanol	○	○	○	○
	Methanol 98%	○	○	○	△
	Methyl acetate	○	△	×	×
Ketones	Acetone	○	○	×	×
	Methylethylketone	○	○	×	×
Esters	Butyl acetate	○	○	×	×
	Ethyl acetate	○	△	×	×
Acids	Acetic acid 25%	○	○	○	○
	Acetic acid 99.8%	○	△	△	×
	Silicon hexafluoride 50%	△	△	×	○
	Hydrochloric acid 50%	○	△	×	○
	Hydrochloric acid 37%	○	×	×	○
	Hydrofluoric acid 25%	○	△	×	○
	Hydrofluoric acid 50%	○	×	△	○
	Nitric acid 25%	○	○	△	○
	Nitric acid 70%	△	×	×	○
	Perchloric acid 25%	○	○	△	○
	Phosphoric acid 25%	○	○	○	○
	Phosphoric acid 85%	○	○	○	○
	Sulfuric acid 25%	△	×	×	○
Sulfuric acid 98%	△	×	×	○	
Alkalis	Ammonium hydroxide 30%	○	○	○	△
Aqueous Solutions	Hydrogen peroxide 30%	○	△	○	○
	Sodium hypochlorite	○	○	○	△
Others	Ethyl cellsolve	○	○	×	△

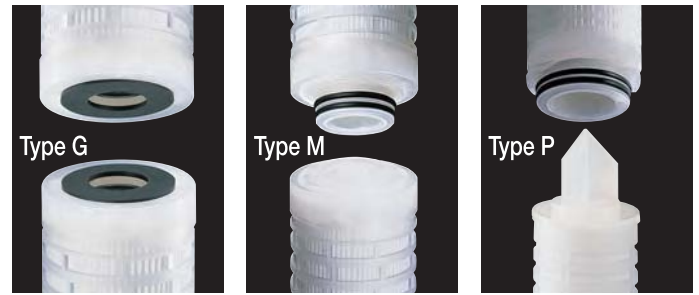
○ — Compatible
 △ — Check compatibility before use, as swelling, etc., may be resulted.
 × — Incompatible

Cartridge Sizes (mm)

Grade	Type	Length
FLCG Without packing	S (Single)	250
	D (Double)	498
	T (Triple)	745
FLCP	S (Single)	315
	D (Double)	562
	T (Triple)	808
FLCM	S (Single)	273
	D (Double)	532
	T (Triple)	791

Types

1. Geometry: Types G, M, and P provided for different seal geometries



2. Pore diameters: 0.1, 0.2, or 0.45 μm

Handling Instructions

- Take care not to damage the O-ring or flat packing when setting in the housing.
- The PTFE membrane is hydrophobic. To make it wettable, bring the membrane in contact with an appropriate solvent, such as isopropanol, before using to filter aqueous solutions.
- Wet the membrane thoroughly with an appropriate solvent (e.g., isopropanol 60%) before conducting an integrity test.
- Conduct flush cleaning on the cartridge before use, although it is washed in a clean room and placed in an air-tight package before delivery.

Product Codes

Length \ Pore Diameter	0.1		0.2		0.45		
	Type	G	G	M	P	G	M
S (Single)	FLCG -10S	FLCG -20S	FLCM -20S	FLCP -20S	FLCG -45S	FLCM -45S	
D (Double)	—	—	FLCM -20D	FLCP -20D	—	—	
T (Triple)	—	—	FLCM -20T	—	—	—	