

Fluorofil™ Plus

High Flow Sterile Gas
Filters with ePTFE
Membrane



Fluorofil™ Plus cartridges are manufactured using a highly hydrophobic ePTFE membrane. The enhanced ePTFE membrane offers exceptionally high gas flow rates at low pressure differentials.

Fluorofil™ Plus cartridges are recommended for sterile gas filtration and venting applications. The hydrophobic characteristics of the ePTFE membrane makes the Fluorofil™ Plus filter cartridge particularly suitable for wet gas sterilising applications, such as fermenter air feed.

Ordering Information

Product Code: **1** **2** **3** **4** **5** **6** **7**

| 1: Membrane | | 2: Pore rating | | 3: Version | | 4: Length (Nominal) | | 5: End Fitting | | 6: Seals | | 7: Additional | |
|-------------|------------|----------------|-------|------------|----------|---------------------|--------------|----------------|-----------------------|----------|---------------------|---------------|--------------|
| F | Fluorofil™ | 10 | 0.1µm | S | Standard | 1 | 10" (254mm) | W | F20 +Code 7 (SS Core) | A | Ethylene Propylene | A | N+U |
| | | 20 | 0.2µm | | | 2 | 20" (508mm) | X | F20 +Code 2 (SS Core) | B | Silicone | P | Pharma Grade |
| | | | | | | 3 | 30" (762mm) | Z | F20 +Code Y (SS Core) | C | Viton® | U | Unbranded |
| | | | | | | 4 | 40" (1016mm) | | | D | Nitrile | | |
| | | | | | | 5 | 5" (125mm) | | | E | FEP Encap. Viton® | | |
| | | | | | | | | | | G | FEP Encap. Silicone | | |
| | | | | | | | | | | J | DOE PTFE | | |

The construction of the Fluorofil™ Plus cartridge has design features that allow higher membrane surface area, lower pressure drops and incorporates a stainless steel core for greater mechanical strength when operated at higher temperatures.

Typical Applications

- Sterile process gases
- Sterile vents
- Biotechnology
- Powder handling and tableting

Features and Benefits

- Guaranteed microbial ratings
- Bacterial spores and viruses
- Mechanical strength
- Steam sterilisation
- Cartridge integrity and low TOC levels
- Full traceability
- Controlled manufacturing environment

Specifications

Materials of Manufacture

| | |
|----------------------------|--------------------------|
| Filter membrane: | ePTFE |
| Membrane support: | Polypropylene |
| Irrigation mesh (support): | Polypropylene |
| Drainage layer: | Polypropylene |
| Inner core: | 316/316L stainless steel |
| Outer support: | Polypropylene |
| End fittings: | Polypropylene |
| Sealing: | Fusion bonding |

Cartridge Dimensions (Nominal)

| | | |
|----------------------------|--|--------------|
| Effective Filtration Area: | 0.8m ² (8.6ft ²) per 10" module | |
| Diameter: | 70mm (2.8") | |
| Length: | 1 module: | 127mm (5") |
| | 1 module: | 254mm (10") |
| | 2 modules: | 508mm (20") |
| | 3 modules: | 762mm (30") |
| | 4 modules: | 1016mm (40") |

Cartridge Treatment

Standard: Cleaned and flushed, without further treatment

Gaskets and O-Rings

Ethylene Propylene, FEP encapsulated, Silicone, Viton® or Nitrile

Maximum Differential Pressure

Normal flow direction at:

| | |
|----------------|----------------|
| 20°C (68°F): | 6.0bar (87psi) |
| 80°C (176°F): | 4.0bar (58psi) |
| 100°C (212°F): | 3.0bar (44psi) |
| 120°C (248°F): | 2.0bar (29psi) |
| 125°C (257°F): | 1.5bar (22psi) |

Reverse flow direction at:

| | |
|----------------|----------------|
| 20°C (68°F): | 2.1bar (30psi) |
| 80°C (176°F): | 1.0bar (15psi) |
| 100°C (212°F): | 0.5bar (7psi) |

Operating Temperature

Maximum continuous: 80°C (176°F)

Sterilisation

In situ steam 500 x 30 minute cycles at 135°C (275°F).
In situ steam cycles for 200 hours at 142°C (286°F).

Extractables

Minimum total extractables. Please refer to the Fluorofil™ Plus Validation Guide.

Integrity Testing

Each Fluorofil™ Plus module of every cartridge is individually integrity tested using the Diffusive Flow Test, which correlates to the HIMA and ASTM F838-05 bacterial challenge tests. Non-destructive integrity tests, such as Diffusive Flow, Water Intrusion, Pressure Hold and Bubble Point, can be performed by customers. Please contact us for procedural details.

Gas Flow Rates

- Typical clean air flow rate:
 A 254mm (10") Fluorofil™ Plus single cartridge exhibits the flow- ΔP characteristics indicated below.

