

POLIFLO PTFE PTFE MEMBRANE CARTRIDGE FILTERS

Leaflet E-32-01



FLUXA

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POLIFLO PTFE

Membrane Cartridge Filters

Introduction

Fluxa POLIFLO PTFE cartridges are based on a polymer membrane of uniform thickness and high pore volume, with a homogeneous structure and controlled pore sizes. The inherent structural stability of the membrane eliminates any risk of media migration and minimises the release of particles smaller than the removal rating even under impulse conditions.

Manufactured using a highly hydrophobic PTFE membrane, POLIFLO PTFE cartridges combine an exceptional resistance to chemical attack with high thermal stability. Suitable for the most demanding microfiltration applications, the cartridges can be used for the filtration of aggressive chemical solutions including acids, alkalis, solvents and etchants. POLIFLO PTFE cartridges can also be used for a wide range of sterile venting and gas filtration applications, including the filtration of moist gases.

Cartridge Construction

Cartridge construction is based on a multi-layer combination of filter medium, support and irrigation mesh, carefully pleated and thermally seam-bonded to optimise the filtration area and efficient flow throughout the cartridge. By combining a low clean pressure drop with an effective media area of 0.73m² per 250mm (10") module, high dirt holding characteristics are assured.

Overall cartridge integrity is assured by the thermal fusion bonding of all components, guaranteeing the absence of bonding agents such as resins and polyurethanes. With all cartridges manufactured from only two materials (virgin polypropylene and PTFE membrane) and the absence of medium wetting surfactants, total extractables are kept at minimum levels.

Material Conformity and Validation

The bio-safety of all materials used in the manufacture of POLIFLO PTFE cartridges is guaranteed by complying with FDA requirements and USP Class VI for plastics, having passed the Systemic Injection, Type B intracutaneous and Physico Chemical tests. Furthermore, cell culture tests using the MEM Elution method confirms materials to be non-cytotoxic. POLIFLO PTFE 0.2 micron membrane cartridges have been validated by bacterial challenge (in line with HIMA guidelines) and are suitable for cold sterilising applications.

Quality Assurance

POLIFLO PTFE membrane cartridges are manufactured under clean environmental conditions, to high standards of quality control which meet the requirements of ISO 9001. All cartridges are integrity tested prior to despatch and are available in either a clean condition, or ultra-clean rinsed by pulse flushing with pure water to give rapid resistivity recovery rates. The attention to cleanliness is reflected in a low attributable Total Oxidisable Carbon (TOC) count for pure water filtrate, which is close to a target level of 50ppb. As a further safeguard, all POLIFLO PTFE cartridges are individually and batch identified allowing customers to maintain their own process records.

Steam Sterilisation

Users of POLIFLO PTFE cartridges may steam sterilise in-line or autoclave repeatedly at temperatures up to 136°C (277°F). Following steam sterilisation cartridges may be integrity tested in-situ by the Diffusion Flow or Pressure Hold Test. Details of Integrity Test Procedures and Certification of Conformity are available upon request.

Range

POLIFLO PTFE membrane cartridges are available in single or multiple module units of 5, 10, 20, 30 and 40 inches, in a range of four microbial removal ratings: 0.02, 0.10, 0.20 and 0.45 micron. Designed for both Fluxa Filtri hardware and as direct replacements for existing cartridges, PTFE membrane cartridges are available from Fluxa Filtri with a comprehensive range of end fittings to suit most hardware installations without modification. Each cartridge is supplied fitted with all necessary seals or O-rings, to a specification compatible with the fluid being filtered.

Manufacturing and Process Applications

Fluxa POLIFLO PTFE PTFE membrane cartridges meet the demanding filtration requirements of semiconductor, pharmaceutical and fine chemical manufacturers. They are designed for the fine filtration of aggressive chemical solutions including acids, alkalis, solvents and etchants. They are also suitable for a wide range of sterile venting and gas filtration applications, including the dry filtration of moist gases.

- **Fine Chemicals** - The microfiltration of process chemical solutions, to provide users of fine chemicals with a contaminant free supply.
- **Photoresists and Developers** - The microfiltration of photoresists and developer solvents, liable to contamination and precipitation during manufacture, storage and processing.
- **Pure Water Supply Systems** - For use in de-mineralised and de-ionised water systems, for the supply of ultra-pure water.
- **Process Gases** - The supply of process gases free of water and particulate matter.
- **Sterile Vents** - The sterile venting of pharmaceutical and fermentation processes.

POLIFLO W-PP

Polypropylene Cartridges

The range of polypropylene media cartridges are designed to give a highly stable cartridge with excellent depth filtration characteristics. Ideal for use as pre-filters to protect membrane cartridges downstream, POLIFLO W-PP cartridges are available with absolute ratings between 0.5 and 90 microns.

For a full product specification refer to the 'Product Profile' POLIFLO W-PP Polypropylene Cartridge Filters.

Chemical Compatibility

Care must be taken to ensure that the cartridge and seals selected are chemically compatible with the application. Susceptibility to chemical attack varies considerably between solutions and is greatest at the extremes of the pH scale. It also varies according to the duration of exposure and operating temperature.

All data provided for POLIFLO PTFE cartridges is based on 48 hours exposure at 25°C (77°F).

Since operating conditions vary considerably between applications, verification by users for particular processes is recommended.



Industrial Grade Housing



Sanitary Grade Housing



Polypropylene Housing

Specifications

Materials of Manufacture

Filter Medium	Polytetrafluoroethene (PTFE)
Medium Support	Polypropylene
Irrigation Mesh	Polypropylene
Inner Core	Polypropylene
Outer Support	Polypropylene
End Fittings	Polypropylene
Sealing	Fusion Bonding

Cartridge Dimensions (Nominal)

Diameter:	70mm	(2.8")
Length: 1 Module (short)	125mm	(5")
1 Module	250mm	(10")
2 Modules	510mm	(20")
3 Modules	860mm	(30")
4 Modules	1020mm	(40")

Effective Filtration Area

Absolute	EFA
Microbial Rating	(Each 250mm Module)
0.02 micron	0.67m ² (7.2 ft ²)
0.10 micron	0.80m ² (8.6 ft ²)
0.20 micron	0.73m ² (7.8 ft ²)
0.45 micron	0.73m ² (7.8 ft ²)

Cartridge Treatment

Standard	Cleaned and flushed, without further treatment
Rinsed	Ultra-clean, pulse flushed to give a system resistivity of 18M..cm

Gaskets and O-rings

Ethylene Propylene, Silicone, Viton Nitrile, or PTFE Encapsulated

Maximum Differential Pressure

Normal Flow Direction at:

20°C (68°F)	6.0 bar (87lb/in ²)
80°C (176°F)	4.0 bar (57lb/in ²)
100°C (212°F)	3.0 bar (43lb/in ²)
120°C (248°F)	2.0 bar (29lb/in ²)
125°C (257°F)	1.5 bar (22lb/in ²)

Reverse Flow Direction at:

20°C (68°F)	2.1 bar (30lb/in ²)
80°C (176°F)	1.0 bar (15lb/in ²)
100°C (212°F)	0.5 bar (7lb/in ²)

Maximum Temperature

80°C (176°F) in continuous operation

Sterilisation

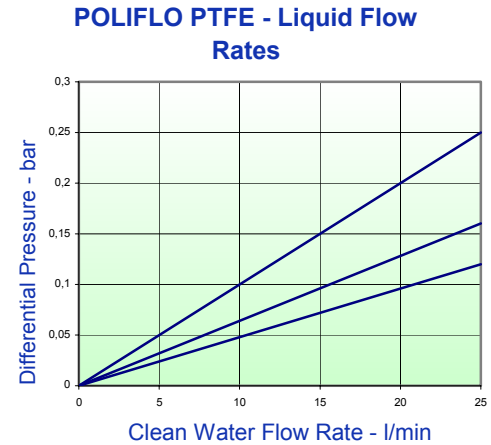
Autoclave, Chemical, In-line Steam
(up to 136°C (277°F), 200hrs)

Extractables

Minimal total extractables

Integrity Testing

All cartridges are integrity tested prior to despatch.



POLIFLO PTFE – Gas Flow Rates

POLIFLO PTFE 0.2µm - Gas Flow Rate
/250mm (10") Cartridge

