



# PF-PT

## ePTFE Membrane Cartridge Filters



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## PF-PT:

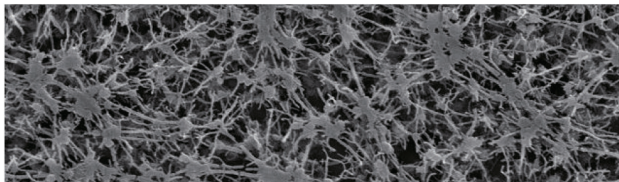
PF-PT Serie cartridges are manufactured using a highly hydrophobic ePTFE membrane. The enhanced ePTFE membrane offers exceptionally high gas flow rates at low pressure differentials (see graph). PF-PT Serie cartridges are recommended for sterile gas filtration and venting applications. The hydrophobic characteristics of the ePTFE membrane makes the PFPT Serie filter cartridge particularly suitable for wet gas sterilising applications, such as fermenter air feed.

For solvent and aggressive chemical filtration applications, PF-PT Serie cartridges offer a wide range of chemical compatibility 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.

## TECHNICAL DATA:

### MATERIALS OF CONSTRUCTION

Filter Medium	Hydrophobic PTFE
Cage   Support	Polypropylene
Core   Endcaps	Reinforced Polypropylene



## APPLICATIONS:

Demanding filtration requirements of pharmaceutical, semiconductor and fine chemical manufacturers. They are suitable for a wide range of sterile venting and gas filtration applications, including the filtration of wet gases. They can also be used for the fine filtration of aggressive chemical solutions including acids, alkalis, solvents and etchants.

### ● STERILE PROCESS GASES

The supply of sterile gas for critical applications in the pharmaceutical, biotechnology, food and beverage markets.

### ● STERILE VENTS

The safe sterile venting of processing vessels in pharmaceutical, fermentation, and food and beverage processes.

### ● FINE CHEMICALS AND SOLVENTS

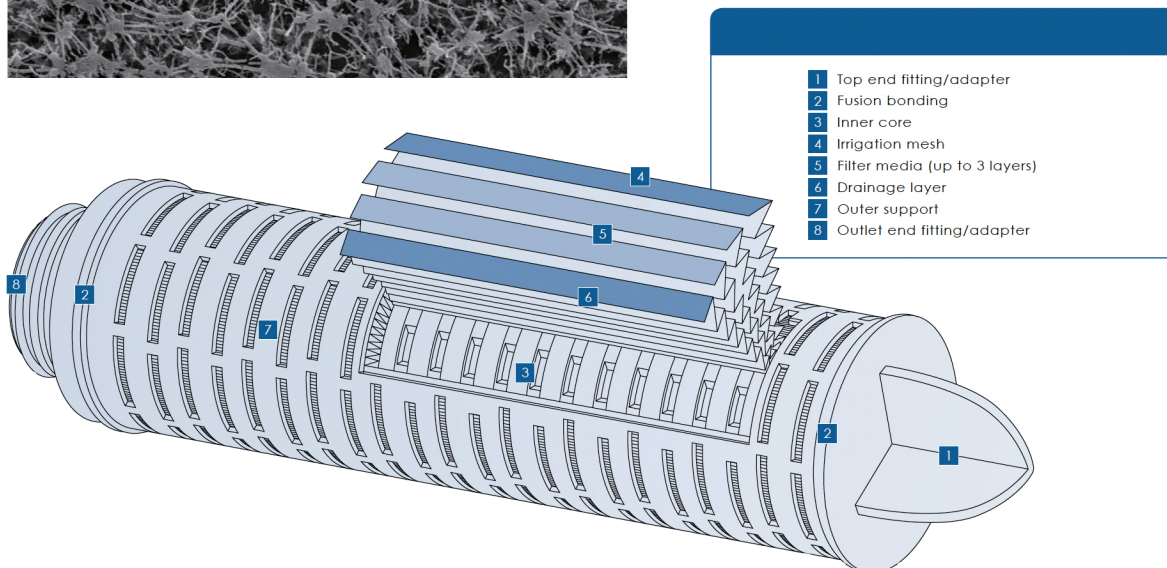
The removal of submicronic particles from processing chemicals and solvents.

### ● PHOTORESISTS AND DEVELOPERS

The microfiltration of photoresists and developer solvents, susceptible 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, for example in the semiconductor industry.



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## FEATURES AND BENEFITS:

### ● PF-PT SERIE CARTRIDGES

The ePTFE membrane is recognised as the world leading gas sterilising hydrophobic membrane. It is the membrane of choice in all Ultrafilter PF-PT Serie filter cartridges.

### ● GUARANTEED MICROBIAL RATINGS IN A LIQUID CHALLENGE

PF-PT Serie cartridges are validated for bacterial removal in liquids in accordance with PDA, HIMA guidelines and ASTM F838-05, with a log reduction value >7. This test is stringent in comparison to an airborne particulate challenge test.

### ● BACTERIAL SPORES AND VIRUSES

The retention of bacterial spores and viruses carried in aerosols over extended time periods has been independently validated in tests carried out by the UK

### ● HEALTH PROTECTION AGENCY.

The unique characteristics of the ePTFE membrane, combined with the construction of the PF-PT Serie filter cartridge, results in exceptionally high gas flow rates at low pressure differentials. These features result in lower energy consumption and fewer filter cartridges per system.

### ● STEAM STERILISATION

PF-PT Serie cartridges have been designed and validated to be repeatedly steam sterilised in-situ at temperatures of up to 135°C (275°F) for 100 cycles at 20 minutes per cycle. Steam sterilisation in the reverse direction for in excess of 70 cycles in a venting application, without loss of integrity, has been independently validated by customers.

### ● CARTRIDGE INTEGRITY AND LOW TOC LEVELS

All PF-PT Serie cartridges are integrity tested and supplied clean, having been flushed with pure water. cm pyrogen-free ultra-clean water.

### ● SOLVENTS AND AGGRESSIVE CHEMICALS

The exceptional chemical resistance of ePTFE allows PF-PT Serie filter cartridges to be compatible with aggressive chemical solutions, including strong acids, alkalis, solvents and etchants.

### ● FULL TRACEABILITY

All PF-PT Serie cartridges are individually and batch identified with a unique serial number. Each PF-PT Serie cartridge is supplied with a Certificate of Quality and an operating instruction leaflet.

### ● CONTROLLED MANUFACTURING ENVIRONMENT

PF-PT Serie cartridges are manufactured in an ISO Cleanroom environment by fully gowned staff, minimising the risk of contamination.

## CARTRIDGE CONSTRUCTION:

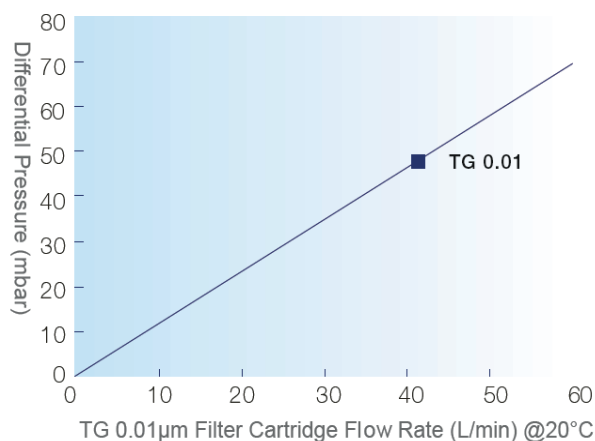
PF-PT Serie cartridges are manufactured from a multilayer combination of irrigation mesh, filter membrane, membrane support and drainage material. PF-PT Serie cartridges have optimal pleat geometry to maximise the available filtration area and to ensure an efficient flow through the cartridges.

An all thermal fusion bonded assembly process eliminates the use of resins and binders.

Manufactured as standard with injection moulded polypropylene inner and outer supports, PF-PT Serie cartridges are designed with the strength necessary to withstand thermal stresses encountered during steam sterilisation and subsequent cooling. They can be steam sterilised and will retain total integrity following steaming at 135°C (275°F).

All components used in the construction of PF-PT Serie cartridges are FDA approved to 21CFR and meet or exceed the latest EC Directives for Food Contact.

## Flow Rate Characteristics



Air Flow Rate(m³/h)	Differential Pressure (mbar)
	TG 0.01
10	9.5
20	19.8
30	30.9
40	42.8
50	55.5
60	69.0

Test Criteria: Single length (254mm) Cartridge, air @20°C.



Kronsbein ultrafilter®

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## OPERATING CONDITIONS

Maximum Operating Pressure	6.9 bar (100 psi) at 25 °C 4.0 bar (58 psi) at 60 °C 2.4 bar (35 psi) at 80 °C
Max. Differential Pressure	Forward 6.9 bar (100 psi) at 25 °C 4.0 bar (58 psi) at 60 °C 2.4 bar (35 psi) at 80 °C Reverse 3.0 bar (44 psi) at 25 °C 1.0 bar (15 psi) at 80 °C
Bubble Point	≥ 0.11 MPa, 60% IPA 40% water wetted test/air
Diffusion Flow	≤ 16 ml/min @ 0.08 MPa, 60%/40% IPA/ Water at 20 °C
Water Flow Test	≤ 0.38 ml/min @ 0.25 MPa at 20 °C
Sterilization	Inline Steam Sterilization: 100 cycles for 30 min at 145 °C forward (Differential pressure < 30 kPa) + 50 cycles reverse (Differential pressure < 10 kPa) Autoclave: 400 cycles for 30 min at 130 °C Hot Water Sterilization: 150 cycles for 30 min at 121 °C
Effective Filtration Area	0.85m <sup>2</sup> / 68-10 inch

## ORDERING INFORMATION

### PF-PT-F

	REMOVAL	NOMINAL LENGTH	END CAP	SEAL MATERIAL
[68]	01= 0.01 µm	05 = 5"	2 = Code 2	A = EPDM
	1= 0.1 µm	10 = 10"	3 = Code 3	B = Silicone
	2= 0.2 µm	20 = 20"	7 = Code 7	C = Viton
	4= 0.45 µm	30 = 30"	8 = Code 8	D= Nitrile
		40 = 40"	MF = DOE	E = FEP Viton
			UF = UF	F = FEP Silicone

Technical Alternations reserved



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