



TETPOR PLUS Filters

- liquid filters
- polytetrafluoroethylene

TETPOR PLUS filters are manufactured entirely from fluoropolymers making them extremely resistant to a wide range of aggressive chemicals.

TETPOR PLUS filter cartridges have been specifically designed for the filtration of liquids and gases in the bulk pharmaceutical, chemical and biopharmaceutical industry where particulate removal, bioburden reduction and guaranteed sterility is required.

The increasing use of ozonation for the treatment of WFI systems has highlighted compatibility issues with vent filters based on standard polypropylene components. The introduction of a fully validated 0.2 micron sterilizing grade TETPOR PLUS filter cartridge provides guaranteed long term performance in these applications with the additional benefit that the filters integrity can be validated by the water intrusion test method.

The high voids volume single layer PTFE membrane ensures an excellent combination of flow rate and retention.

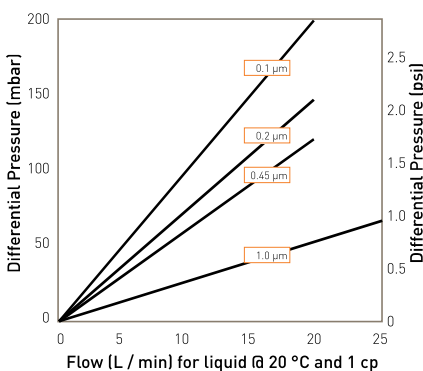
Features and Benefits

- Sterile filtration of oxygen / oxygen enriched feeds in cell culture
- Exceptional resistance to solvents and oxidative environments
- Ideal for sterile venting on ozonated water systems
- Fully validated to ASTM F838 for sterilizing grade filters
- PTFE membrane
- Available in a wide range of micron ratings to suit all applications

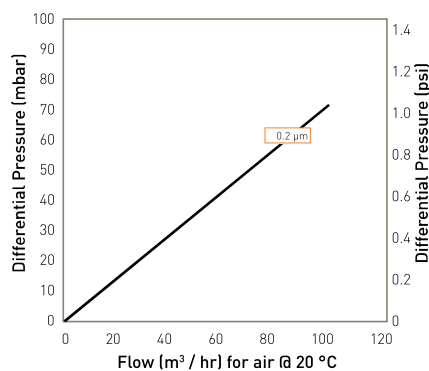


Note: TETPOR is a registered trademark of Parker Hannifin Corporation.

Performance Characteristics



10" Size (250 mm) Cartridge



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Specifications

Materials of Construction

- Filtration Membrane: Polytetrafluoroethylene
- Upstream Support: Polytetrafluoroethylene
- Downstream Support: Polytetrafluoroethylene
- Inner Support Core: PFA
- Outer Protection Cage: PFA
- End Caps: PFA

Biological Safety

Materials conform to the relevant requirements of current USP Plastics Class VI - 121 °C and ISO10993 equivalents.

Recommended Operating Conditions

Up to 125 °C (257 °F) continuous operating temperature and higher short-term temperatures during CIP to the following limits:

Temperature		Max. Forward dP	
°C	°F	(bar)	(psil)
20	68	5.5	80.0
75	167	3.8	55.0
125	257	2.0	30.0

Effective Filtration Area (EFA)

10" (250 mm) Up to 0.63 m² (6.78 ft²)
 K Size (125 mm) Up to 0.32 m² (3.44 ft²)

Cleaning and Sterilization

TETPOR PLUS cartridges can be repeatedly steam sterilized in situ or autoclaved at up to 142 °C (287.6 °F) for a maximum of 30 cycles.

Retention Characteristics

TETPOR PLUS filter cartridges are validated by bacterial challenge testing with *Brevundimonas diminuta* to current ASTM F838 methodology (10⁷ organisms / cm² EFA minimum) with typical in-house challenge levels being 10¹¹ organisms per 10" (250 mm) module.

Integrity Test Data

The following is the integrity test information for the micron ratings available within the TETPOR PLUS product range. Diffusional flow and bubble point values are given for cartridges wetted in 60:40 v/v IPA:Water solution.

Micron Rating		0.1	0.2	0.45	1.0
Diffusional Flow	(barg)	1.45	0.8	0.45	3.0
Test Pressure	(psig)	19.0	11.6	0.5	0.2
Max. Diffusional Flow (10 ⁻¹)		35.0	16.5	50.0	-
(ml / min)	(K)	16.3	7.7	23.3	-
Min. Bubble Point	(barg)	1.45	1.0	0.48	3.0
	(psig)	19.0	15.0	0.5	0.2
Water Intrusion	(barg)	-	2.5	-	-
Test Pressure	(psig)	-	36.3	-	-
Max. Water Intrusion (10 ⁻¹)		-	13.5	-	-
(ml / 10 min)	(K)	-	6.4	-	-

Pharmaceutical Validation

0.2µm sterilizing grade version is supported by a full validation guide, available upon request from Laboratory Services Group (LSG).

Ordering Information

ZCTP [] - [] - [] - [] - [] - []

Code Length (Nominal)	Code Micron	Code Endcap (10 ⁻¹)	Code Insert Option	Code Variant	Code O-rings
K 5" (125 mm)	010 0.1 µm	CF Flat Top / 226	N* No Insert	P Pharmaceutical	P FEP Encapsulated Viton
1 10" (250 mm)	020 0.2 µm	C BF / 226 Bayonet	*Omit if 316L stainless steel insert required		K Kalrez
2 20" (500 mm)	045 0.45 µm	E Flat Top / 222			C Chemraz
3 30" (750 mm)	100 1.0 µm	D Fin / 222			S Silicone
4 40" (1000 mm)					