PALL Food and Beverage

Emflon® PFRW Filter Cartridges
for sterile filtration of gases

Emflon PFRW cartridges are sterilizing grade hydrophobic membrane filters designed for reliable retention of bacteria and high levels of phages in compressed gas and vent applications.

Description

The filter element features Pall's advanced 0.2 micron rated polytetrafluoroethylene (PTFE) double-layer membranes, pleated with very high area into single open-end cartridges. They are built to withstand demanding *in situ* steaming conditions in either the forward or reverse direction.

Even in the presence of high humidity or moisture, often the case in practice, Emflon PFRW cartridges provide sterile effluent and validated performance, ensuring process security. They are the cartridge of choice for critical sterile gas applications.

Features and Benefits

Features	Benefits
Strongly hydrophobic 100 % PTFE membranes	• Prevents wetting out in humid conditions, even after repeated use and steaming cycles, allowing for unimpeded gas throughput
High area pleated, robust double-layer membranes	• High throughputs and low pressure drops, with sizing resulting in compressor energy cost savings • Excellent resistance to mechanical damage
Multi-cycle autoclave and *in situ* steam challenged in forward and reverse direction	• Enhanced steaming resistance
Validated for 0.2 micron bacteria removal in liquid challenge tests, and bacteria and bacteriophage removal in aerosol challenge tests	• Provides sterile effluent even in humid conditions, resulting in optimal protection of product, improved fermentation yields, and increased security in aseptic processes • Provides superior bacteriophage protection of microbial cultures
Sodium chloride aerosol challenged for particle removal to 0.003 micron	• High particle removal efficiency in dry gas
Water Intrusion testable (WIT)	• Enables *in situ* user integrity testing
100 % integrity tested prior to dispatch	• Lot traceable with documented quality

Emflon PFRW Filter Cartridges

Materials of Construction

Component	Description
Filter Medium	Double-layer PTFE
Support / Drainage	Polypropylene
Cage, Core, Fin End and End Cap	Polypropylene
Adaptor	Polypropylene with internal stainless steel reinforcing ring
O-ring Seal	Silicone Elastomer

Quality

- Cartridges produced in a controlled environment
- Manufactured according to ISO 9001:2008 certified Quality Management System

Food Contact Compliance

Please refer to the Pall website http://www.pall.com/foodandbev for a Declaration of Compliance to specific National Legislation and/or Regional Regulatory requirements for food contact use.

Technical Information

Nominal Filter Area: 0.8 m2 (8.6 ft2) per 254 mm (10") module

Operating Characteristics in Compatible Gases[1]

Maximum Differential Pressure	Operating Temperature
5.3 bard (77 psid) (forward)	≤20 °C (68 °F)
4.1 bard (60 psid) (forward)	≤80 °C (176 °F)

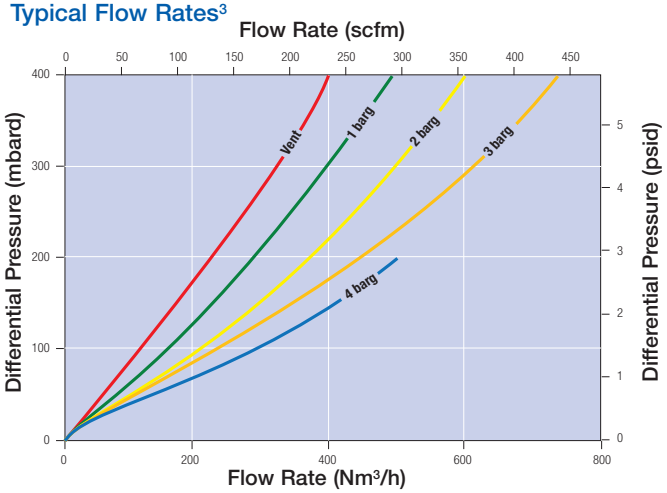
[1] Air, nitrogen, or other compatible gases.

Typical Service Life[2] under continuous operating conditions

Continuous gas service	12 months to 60 °C (140 °F)
Vent service	6 months to 80 °C (176 °F)

[2] For continuous gas flow above 60 °C (140 °F), Emflon CPFR filters are recommended. Emflon PFRW can be operated at higher temperatures for shorter periods.

Typical Flow Rates[3]



[3] Typical clean Δp per 254 mm (10") cartridge, air at 20 °C (68 °F). For gases other than air and for multi-round cartridge installations, please contact Pall for proper sizing.

Autoclave and Steaming

Cumulative Steaming Time	Operating Temperature
165 hours (1-hour cycles, forward)	142 °C (287 °F)
20 hours (1-hour cycles, reverse)	125 °C (257 °F)
Maximum Steaming Conditions	**Steaming Temperature**
1.0 bard (15 psid) (forward)	125 °C (257 °F)
0.3 bard (4.3 psid) (forward)	142 °C (287 °F)
0.5 bard (7.3 psid) (reverse)	125 °C (257 °F)

For applications requiring autoclaving and sterlization, Pall recommends the use of Code 7 adaptors to ensure filter sealing after cooling. Cartridges should be cooled to system operating temperature prior to use.

Removal Ratings

Fluid	Performance
Liquids	0.2 µm, sterile effluent[4]
Gases	0.003 µm particles in dry gas[5], aerosol removal of bacteria[6], bacteria spores, bacteriophage[7]

[4] Liquid challenged with *Brevundimonas diminuta* at >10^7 cfu/cm² effective filtration area per modified ASTM 838-05. Provides sterile effluent according to FDA Guidelines (2004).

[5] By NaCl aerosol CNC particle analysis, particle reduction >10^7. Please contact Pall for details.

[6] Aerosol challenged with *Brevundimonas diminuta* in forward and reverse direction, and under long term challenge conditions in forward direction with humidified air (>90 % relative humidity).

[7] Aerosol challenged at high flow rates and high humidity (90 %) with MS-2 and PP7 phage at ≥10^7 pfu/cm² effective filtration area. Provides titer reduction of ≥10^{11}

Ordering Information

This information is a guide to the part number structure and possible options. For availability of specific options and housing details, please contact Pall.

Part Number: AB ☐ (Table 1) **PFR** ☐ (Table 2) **W H4**

Example Part Number: **AB1PFR7WH4**

See bold reference code in tables

Table 1: Nominal Length

Code	Length
05	127 mm (5")
1	254 mm (10")
2	508 mm (20")
3	762 mm (30")

Table 2: Adaptor

Code	Description
2*	SOE – single open end with flat closed end, 2 locking tabs and external 226 O-rings
7	SOE – single open end with fin end, 2 locking tabs and external 226 O-rings
8	SOE – single open end with fin end and external 222 O-rings

* AB05 configurations only.
For availability of additional adaptor configurations, please contact Pall.

Pall Corporation

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Pall Corporation has offices and plants throughout the world. For Pall representatives in your area, please go to www.lenntech.com/contact

Please contact Pall Corporation to verify that the product conforms to your national legislation and/or regional regulatory requirements for water and food contact use.

Because of technological developments related to the products, systems, and/or services described herein, the data and procedures are subject to change without notice. Please consult your Pall representative or visit www.lenntech.com to verify that this information remains valid.

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