

Emflon HTPFRW 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

Emflon HTPFRW cartridges are specifically designed for critical, high temperature sterile filtration of compressed air and gas and hot fluid tank venting applications. They can also be considered for use in oxygen-enriched air applications.¹ In the food and ingredient industry, high temperature applications include fermentation inlet and exhaust air and aseptic packaging/blow-fill-seal. Oxygen enrichment of air is used in fermenter or bioreactor applications where improved aeration enables higher product yields.

The filters feature Pall's advanced 0.2 micron rated polytetrafluoroethylene (PTFE) double layer membranes, pleated with very high area into single open-end cartridges. The polypropylene hardware is specially formulated with oxidation-resistant materials, and the filters' support and drainage layers are made of polyphenylene sulphide polymer for oxidation protection.

Features	Benefits
Inherently hydrophobic 100% PTFE membranes	<ul style="list-style-type: none"> Prevents wetting out in humid conditions or repeated steaming cycles, ensuring unrestricted gas throughput
High area pleated, robust double-layer membranes	<ul style="list-style-type: none"> Economical installations due to high throughputs and low pressure drops Excellent resistance to mechanical damage
Oxidation-resistant materials of construction	<ul style="list-style-type: none"> Long service life in hot air and vent applications, also suitable for oxygen-enriched air applications¹
Multi-cycle <i>in situ</i> steam challenged in forward and reverse direction	<ul style="list-style-type: none"> Enhanced steaming resistance
Validated for 0.2 micron bacteria removal in liquid and aerosol challenge tests	<ul style="list-style-type: none"> Sterile effluent even in humid conditions, resulting in improved fermentation yields and reliable protection from contamination
Aerosol bacteriophage challenged	<ul style="list-style-type: none"> Superior bacteriophage protection of microbial cultures
Water Intrusion testable (WIT)	<ul style="list-style-type: none"> Enables <i>in situ</i> user integrity testing with water
Part and serial number laser etched and encoded in 2D matrix	<ul style="list-style-type: none"> Filter identifying information can be scanned with a 2D matrix code reader to complement the use of a Palltronic® Flowstar integrity test instrument
100% integrity tested prior to dispatch; individually serialized modules	<ul style="list-style-type: none"> Documented quality; full traceability to materials and production records

Emflon® HTPFRW Filter Cartridges For Sterile Filtration of High Temperature Gases



Emflon HTPFRW Filter Cartridges

Materials of Construction

Component	Description
Filter Medium	Double-layer PTFE
Support / Drainage	Polyphenylene Sulphide
Cage	Polypropylene with Silica / TiO ₂ filler
Core, Fin End, End Cap	Polypropylene
Adaptor	Polypropylene with internal stainless steel reinforcing ring
O-ring Seal	Silicone Elastomer Ethylene Propylene Rubber

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.

¹ Please refer to Application Note USTR2311a for important guidelines regarding use in oxygen and oxygen-enriched air. The user must perform a suitable risk assessment regarding such applications.

Technical Information

The technical information provided is based on controlled laboratory tests done on typical production filters at the conditions described, unless otherwise indicated. Actual operating conditions may affect the filter's performance.

Nominal Filter Area

0.84 m² (9.04 ft²) per 254 mm (10") module

Operating Characteristics in Compatible Gases²

Maximum Differential Pressure	Operating Temperature
3.4 bard (49.3 psid) (forward)	≤ 90 °C (194 °F)
5.4 bard (78.3 psid) (forward)	≤ 40 °C (104 °F)
3 bard (43.5 psid) (reverse)	≤ 40 °C (104 °F)

² Air, nitrogen, or other compatible gases. For differential pressure and temperature limits in applications with oxygen-enriched air please refer to Application Note USTR2311a or contact Pall.

Typical Service Life in Continuous Air Service

Maximum Temperature ^{2,3}	Service Life
100 °C (212 °F)	1 year
110 °C (230 °F)	6 months
120 °C (248 °F)	2 months

³ For continuous gas flow under 60 °C (140 °F) in critical applications, Emflon PFRW filters are recommended.

Autoclave and Steaming⁴

Cumulative Steaming Time	Operating Temperature
100 1-hour cycles (forward) (all sizes)	142 °C (288 °F)
150 ½ hour cycles (forward) (AB1, AB2, AB3 styles)	142 °C (288 °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)

⁴ For applications requiring autoclaving and sterilization, Pall recommends the use of Code 2 or Code 7 adaptors to ensure filter sealing after cooling. Cartridges should be cooled to system operating temperature prior to use. Data shown for forward steam flow also indicates autoclave resistance.

Removal Ratings

Fluid	Performance ⁶
Liquids	0.2 µm, sterile effluent ⁷
Gases	0.003 micron particles in dry gas, aerosol removal of bacteria ⁸ , bacteria spores ⁹ , bacteriophage ⁹ . Also tested in accordance with ISO 8573-4 and test method ISO 12500-3:2009 ¹⁰ .

⁶ For further specific information, please request Pall's Technical Performance Document for this filter.

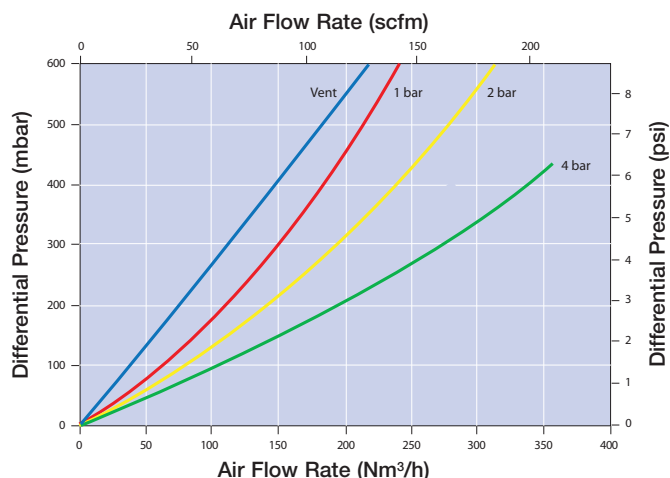
⁷ Liquid challenged with *Brevundimonas diminuta* at >10⁷ cfu/cm² effective filtration area according to ASTM 838-05. Provides sterile effluent according to FDA Guidelines (2004).

⁸ Aerosol challenged with *Brevundimonas diminuta* and *Bacillus subtilis* spores.

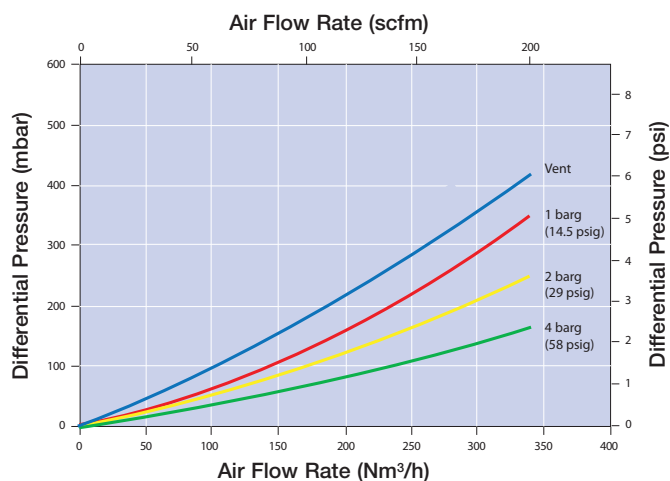
⁹ Aerosol challenged with MS2 bacteriophage.

¹⁰ For further details, please contact Pall.

Typical Flow Rates⁵



Typical clean delta p per 127 mm (5 inch) cartridge, air at 20 °C (68 °F), with housing losses subtracted.



Typical clean delta p per 254 mm (10 inch) cartridge, air at 20 °C (68 °F), with housing losses subtracted.

⁵ For gases other than air and for multi-round cartridge installations, please contact Pall for proper sizing. Note that for sizing in oxygen-enriched applications, recommendations for sizing are described in USTR2311a and should be followed.

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** **HTPFR** **W**
 Table 1 Table 2 Table 3

Example Part Number: **AB1HTPFR7WH4**

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 ¹¹	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

¹¹ AB05 configuration only

Table 3: O-ring Seal Material

Code	Description
H4	Silicone Elastomer
J	Ethylene Propylene Rubber



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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.

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