PALL Food and Beverage

Emflon® PFRW Kleenpak™ Capsules

For Small Scale Sterile Filtration of Gases

Pall Kleenpak capsules combine Pall's proprietary Emflon PFRW membranes for sterilizing filtration of air and gases with specially designed self-contained assemblies, to achieve filtration security and user convenience in small scale compressed gas and vent applications.

Description

At the heart of every Kleenpak Emflon PFRW capsule are Pall's advanced 0.2 micron rated polytetrafluoroethylene (PTFE) double-layer membranes, which provide high performance sterilization of gases. The robust PTFE membranes are inherently hydrophobic, and designed specifically for reliable removal of bacteria and bacteriophage.

These filters fulfill a microbial liquid bacteria challenge validation according to guidelines for sterilizing grade gas filters, and have a particulate removal rating of 0.003 micron in gases. They provide sterile effluent, ensuring process security.

The Kleenpak capsule uses well-proven proprietary Pall techniques for filter construction and heat sealing, to ensure highest possible security against filter bypass, even under conditions of pulsed flow. It is designed to withstand multiple autoclave cycles over the life of the filter. The capsule configuration includes a 38 mm (1.5 inch) sanitary clamp coupling connection to allow for easy installation into existing pipework.

Features and Benefits

Features	Benefits
Robust self-contained assembly with clamp coupling connections for direct installation into the process	• User convenience • Reliability and process security
High performance Emflon PFRW sterilizing grade membranes	• Excellent removal efficiency
Multi-cycle autoclave robustness	• Economical operation due to long service life
High flow rates and low pressure drop	• Cost-effective sizing and reduced running costs
Absence of any glues, binder resins or surfactants	• High filtrate quality
100% integrity tested prior to dispatch	• Documented manufacturing quality requirements
Individually serialized capsules	• Full traceability to materials and production records

Emflon PFRW Kleenpak Capsules

Materials of Construction

Component	Description
Filter Medium	Double-layer PTFE
Support / Drainage	Polypropylene
Cage, Core and End Cap	Polypropylene
Outer Shell	Polypropylene
O-ring Seal (Vent/Drain Valves)	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.

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.

Operating Characteristics in Compatible Gases[1]

Maximum Supply Pressure	Operating Temperature
3.5 bar (50.8 psig)	≤40 °C (104 °F)

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

Autoclave[2]

Cumulative Autoclave Steaming Time	Operating Temperature
50 hours	140 °C (284 °F)

[2] Kleenpak filters must not be *in situ* steam sterilized by passing steam through under pressure, as this can result in rupture of the assembly. The figures are maximum allowable figures determined by testing under controlled laboratory conditions to the total number of hours indicated. Actual life time in use may vary.

Removal Performance

Emflon Kleenpak PFRW capsules provide sterile effluent[3] when liquid challenged with *Brevundimonas diminuta* (ATCC 19146) microorganisms at ≥ 10^7 cfu/cm^2 effective filtration area.

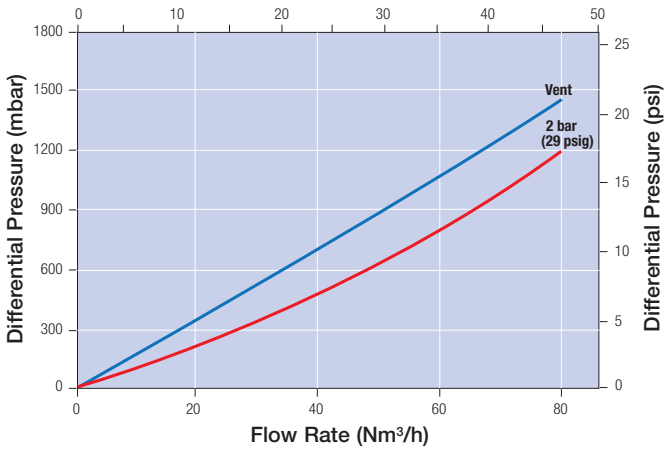
Pall has an excellent history of use of the Emflon PTFE membrane used in the Emflon PFRW filters, see 'Validation Guide for Pall Emflon PFR Filter Cartridges', USTR2114 (2) further demonstrating:

- Particulate removal rating of 0.003 micron in dry gases
- MS-2 and PP7 bacteriophage aerosol challenge

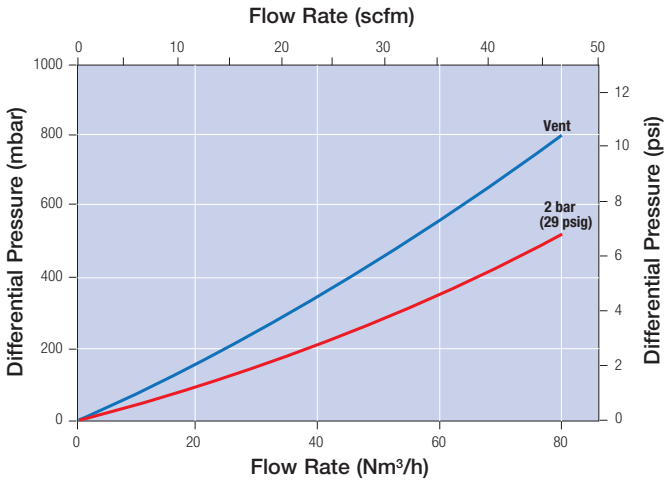
[3] Where 'sterile air' is defined as that filtered using a 0.2 µm liquid rated filter, capable of removing 10^7 of *Brevundimonas diminuta* per cm^2 of effective filtration area, in laboratory tests

Typical Flow Rates[4]

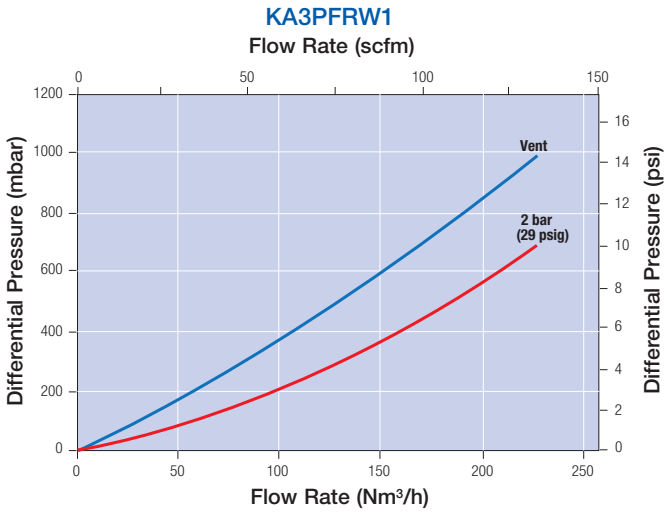
KA1PFRW1



KA2PFRW1



KA3PFRW1



[4] Typical clean differential pressure per capsule, air at 20 °C (68 °F). For gases other than air please contact Pall for proper sizing.

Ordering Information

This information is a guide to the part numbering structure.

Part Number: KA ☐ PFR W 1

Table 1

Example Part Number: **KA2PFRW1**

See bold reference code in tables.

Table 1: Nominal Dimensions

Code	Description			
	Length (mm)[5]	Diameter (mm)[6]	Diameter (mm)[7]	Nominal Filter Area
1	117	61	94	0.04 m^2 (0.45 ft^2)
2	158	61	94	0.08 m^2 (0.95 ft^2)
3	174	76	110	0.23 m^2 (2.48 ft^2)

[5] Length including 38 mm (1.5 inch) sanitary connections

[6] Excluding bleed valves (Figure 1)

[7] Including bleed valves

Accessories

SAN1HA23J – 316 stainless steel 25.4 mm (1 inch) clamp coupling adaptor to hosetail fitting with ethylene propylene rubber seal

Figure 1: Bleed valves at vent/drain connections

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Pall Corporation has offices and plants throughout the world. For Pall representatives in your area, please go to www.pall.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.pall.com to verify that this information remains valid.

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