



**Kleenpak™ Capsules with HDC® II Membrane for Gas Applications**

### Description

Pall Kleenpak assemblies with HDC II media are compact, self-contained filters with a rugged all-polypropylene construction. They provide up to HEPA-quality air and gas filtration with a hydrophobic polypropylene graded-density depth medium which, with superior flow rates, lower pressure drops, higher capacity and longer filter life, outperforms other membrane filters.

### Features and Benefits

- Hydrophobic polypropylene media
- High efficiency in air and gases
- HEPA filtration with J012 grade
- No housing required
- Absolute particle-rated for reliability
- Low pressure loss
- Melt-sealed construction
- Repeatedly autoclavable
- Manufactured for use in conformity with cGMP
- FDA-listed materials per 21 CFR
- ISO 9000 Certified Quality System
- Pharmaceutical P optimized
- Certificate of Test provided

### Quality and Bio-Safety

#### Biological Tests

- Meets USP Biological Reactivity Test, in vivo for Class VI-121 °C Plastics

#### Effluent Quality Tests\*

- Meets Cleanliness per USP Particulates in Injectables
- Non-Fiber-Releasing
- Non-Pyrogenic per USP Bacterial Endotoxins (< 0.25 EU/mL)
- Meets Oxidizables and pH per USP Sterile Purified Water

*\* Per lot sample soak or rinse-up flush aliquots.*

### Specifications

## Materials of Construction

Medium	Polypropylene
Support, Drainage, Core, Cage, End Caps and Shell	Polypropylene
Vent and Drain Valve O-ring	Ethylene Propylene (EPDM)

## Removal Ratings

Grade	In Air <sup>(1)</sup>	In Liquids <sup>(2)</sup>
J100	93% at 0.3 µm	10 µm
J060	99% at 0.3 µm	6 µm
J045	99.75% at 0.3 µm	4.5 µm
J025	99.95% at 0.3 µm	2.5 µm
J012	99.99% at 0.3 µm	1.2 µm

<sup>1</sup> % removal 0.3 µm DOP droplet aerosol.

Due to the enhanced particle removal efficiencies in gases, the approximate ratings for gas service can be calculated by dividing the liquid rating in µm by between 5 and 10.

<sup>2</sup> > 99.98% by mod. OSU-F2 beta test.

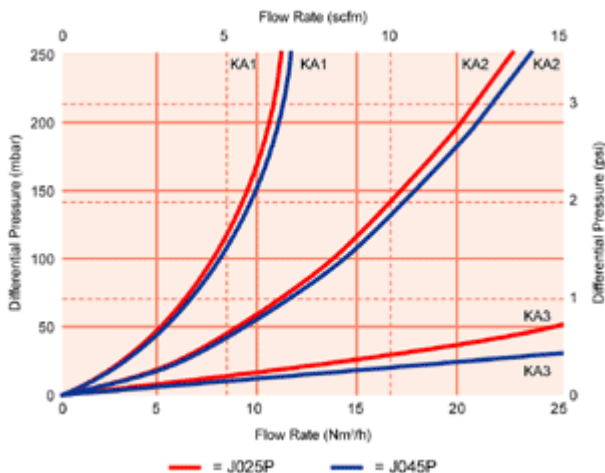
## Nominal Filter Areas

Effective Filter Area	KA1	KA2	KA3
J012, J025	0.06 m <sup>2</sup> (0.6 ft <sup>2</sup> )	0.1 m <sup>2</sup> (1.0 ft <sup>2</sup> )	0.2 m <sup>2</sup> (2.0 ft <sup>2</sup> )
J045	0.06 m <sup>2</sup> (0.6 ft <sup>2</sup> )	0.11 m <sup>2</sup> (1.2 ft <sup>2</sup> )	0.22 m <sup>2</sup> (2.3 ft <sup>2</sup> )
J060	0.03 m <sup>2</sup> (0.3 ft <sup>2</sup> )	0.05 m <sup>2</sup> (0.5 ft <sup>2</sup> )	0.10 m <sup>2</sup> (1.0 ft <sup>2</sup> )
J100	0.03 m <sup>2</sup> (0.3 ft <sup>2</sup> )	0.07 m <sup>2</sup> (0.7 ft <sup>2</sup> )	0.13 m <sup>2</sup> (1.4 ft <sup>2</sup> )

## Nominal Dimensions

Size Code	KA1	KA2	KA3
Maximum Diameter of Bowl (Including Valves)	94 mm (3.7 in.)	94 mm (3.7 in.)	109 mm (4.2 in.)
Nominal Length (Including 1 in. Tri-Clover Connection)	117 mm (4.6 in.)	158 mm (6.2 in.)	174 mm (6.8 in.)
Nominal Length (Including Stepped Hose Barb Connection)	158 mm (6.2 in.)	199 mm (7.8 in.)	-
Nominal Length (Including Hose Barb Connection)	-	-	210 mm (8.2 in.)

## Typical Air Flow Rates (at 2 barg [30 psig] Inlet Pressure)<sup>3</sup>



<sup>3</sup> Typical initial clean  $\Delta P$ , air at 20 °C. Values shown are for 38 mm (1½ in.) sanitary flange connections. Values with other connections are available on request. For gases other than air or nitrogen, contact your local Pall representative.

## Connections (Inlet and Outlet)

KA1 and KA2 Styles

38 mm (1½ in.) sanitary flange  
6 – 13 mm (¼ – ½ in.) hose barb

KA3 Style

38 mm (1½ in.) sanitary flange  
14 mm (9/16 in.) hose barb

## Operating Conditions (Gases) <sup>4</sup>

Maximum Operating Pressure and Temperature  
Maximum Differential Pressure and Temperature

3.5 barg (50 psig) to 40 °C  
3.5 barg (50 psid) at 40 °C

<sup>4</sup> In air/N<sub>2</sub> service or other compatible gases.

## Steam Autoclaving

Cumulative Autoclave Time <sup>5</sup>

50 hours (1-hour cycles) at 140 °C

<sup>5</sup> Laboratory tests to establish multi-cycle resistance. Filters should be qualified in process conditions. Contact Pall for recommended procedures.

**Warning:** Kleenpak filters must not be steam sterilized *in situ* by passing steam through under pressure.

## Ordering Information

## Ordering Information

Code	Nominal Length	Code	Removal Rating in Liquids*	Code	Filter Grade	Code	Connection Type
1	See above dimensions Table	012	1.2 µm	P	Pharmaceutical**	1	38 mm (1½ in.) sanitary flange
2		025	2.5 µm	Omit	General Use	2	6 – 13 mm (¼ – ½ in.) stepped hose barb
3		045	4.5 µm			6	14 mm (½ in.) hose barb
		060	6.0 µm				
		100	10 µm				

\* Due to the enhanced particle removal efficiencies in gases, the approximate ratings for gas service can be calculated by dividing the liquid rating in µm by between 5 and 10.

\*\* Pall pharmaceutical-grade filters are designed for use in conformance with CGMP in Manufacturing, Processing, Packing or Holding of Drugs (21CFR210) and CGMP for finished Pharmaceuticals (21CFR211.72) including batch release certificate and full traceability.

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

## Contact Information

© Copyright Pall Corporation

Visit us on the Web at [www.pall.com](http://www.pall.com)