



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

### Description

#### HDC II Filter Medium

- The HDC II filter medium is comprised of high-performance pleated cartridge with polypropylene filter medium.
- Medium is produced by varying the fiber diameter continuously to provide a pore-size distribution from coarse (upstream) to fine (downstream) while maintaining constant void-volume throughout the depth of the filter medium.
- The varied fiber diameter means extraordinary contaminant-holding capacity, maximum flow rate, and low costs per liter of filtered fluid.
- The fixed pore structure means that contaminants will not unload under variations in flow or pressure differential, and fibers will not migrate or become dislodged to contaminate process fluids.

#### Clean and Robust Design

- The highest possible security against filter bypass is ensured, even under conditions of pulsed flow
- High-strength design allows multiple autoclave cycles for extended use and maximum filter economy.
- Polypropylene outer shell is designed to provide long-term assurance of pressure and temperature ratings.
- Internal hold-up volume and dead space is minimized for maximum product recovery.
- A total absence of glues, binder resins and surfactants results in very low filter extractables and extremely clean filtrate
- All filter materials of construction have met the specifications for USP Class VI biological tests for plastics at 121 °C and meet FDA requirements for food contact use 21 CFR parts 170-199

#### Quality and Bio-Safety Tests

- Meets USP Biological Reactivity, 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 Total Organic Carbon and Water Conductivity per USP Purified Water, pH per USP Sterile Purified Water

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

## Reduced Operator Intervention and Exposure

The self-contained design of each Kleenpak filter means that operator intervention and exposure during filter installation and change-out are minimized.

- Integrally molded inlet and outlet connections
  - Maximum convenience and security
- Vent and drain connections with seal protected threads and precision molded valves
  - Exceptionally simple and reliable operation
- Available in three standard sizes.
  - Flexibility in batch size or flow rate requirements

### Specifications

### Materials of Construction

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

### Nominal Dimensions

Size Code	KA1	KA2	KA3
Maximum Diameter Bowl (including Valves)	94 mm (3.7 in.)	94 mm (3.7 in.)	109 mm (4.2 in.)
Nominal Length (including 1 1/2 in. Sanitary Flange 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.)

### 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> )

### Removal Ratings (Liquids) <sup>1</sup>

J100	J060	J045	J025	J012
10 µm	6 µm	4.5 µm	2.5 µm	1.2 µm

<sup>1</sup> > 99.98% by modified OSU-F2 Beta test.

### Connections (Inlet and Outlet)

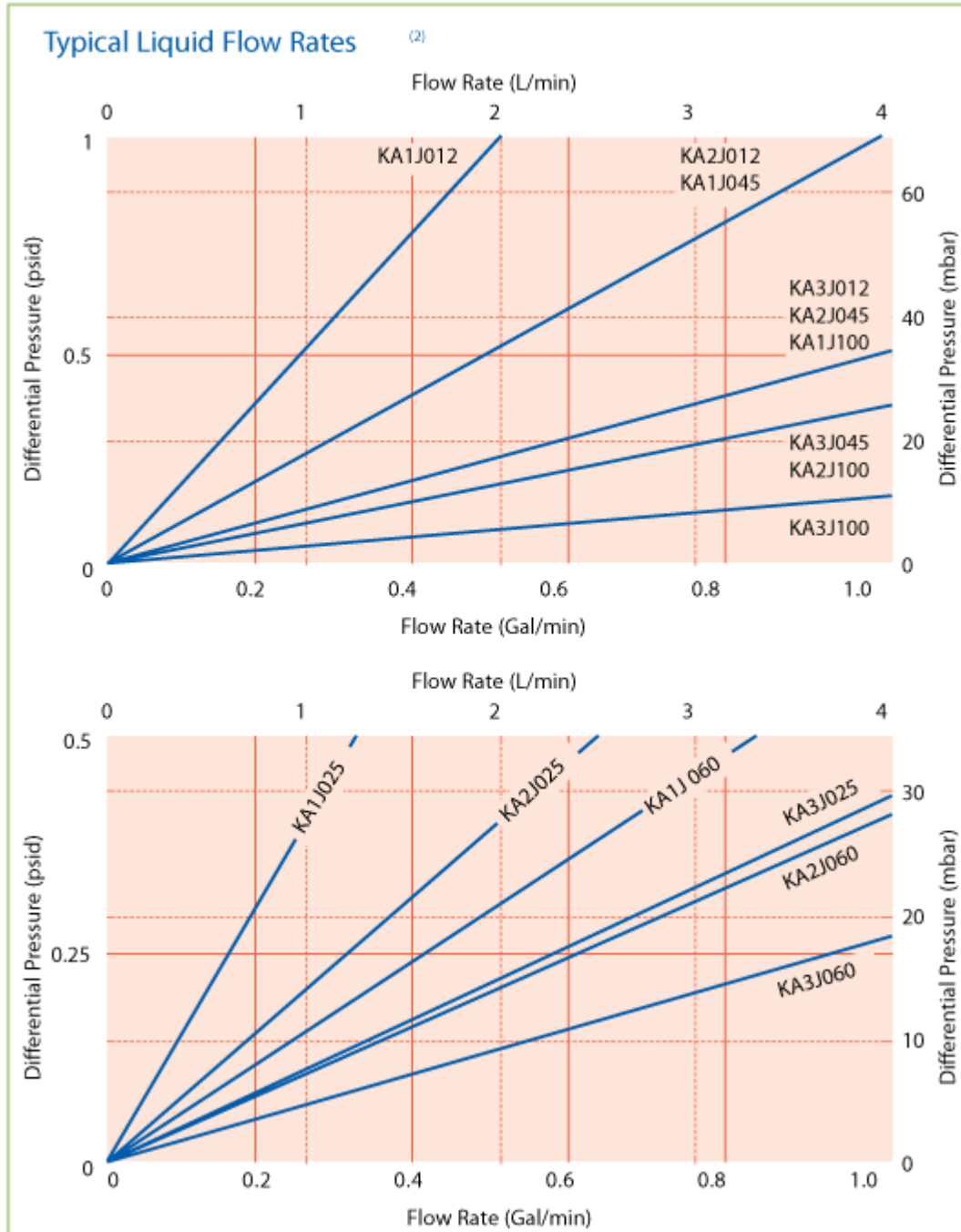
KA1 and KA2 Styles

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

KA3

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

## Typical Flow Rates <sup>2</sup>



<sup>2</sup> Typical initial clean  $\Delta P$ , water at 20 °C. Values shown are for 38 mm (1½ in.) sanitary flange connections. Values with other connections are available on request. For assistance in filter sizing, contact your local Pall representative.

## Operating Conditions <sup>3</sup>

Maximum Operating Pressure and Temperature  
 Maximum Differential Pressure and Temperature

5.2 barg (75 psig) at 40 °C  
 4.1 barg (60 psid) at 40 °C

<sup>3</sup> Using compatible liquids. Maximum 3.5 barg (50 psig) in air and gas service.

## Steam Autoclaving

Cumulative Autoclave Time <sup>4</sup>

50 hours at 140 °C

<sup>4</sup> Laboratory tests (1-hour cycles) establish multi-cycle resistance. Filters should be qualified in actual use.

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

## Ordering Information

Ordering Information							
KA	<input type="checkbox"/>	J	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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

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