

**Kleenpak™ Nova Capsules with Fluorodyne® II DJL Membrane****Description**

These 0.1 micron-rated filters with serial layer (0.2/0.1 micron) membrane construction assure high flow rates compared with other 0.1 micron (and even some 0.2 micron)-rated filters. Fluorodyne II grade DJL filters are validated for removal of *Acholeplasma laidlawii* mycoplasma (ATCC 28206) with a typical  $T_R > 10^{11}$  and retention of *Brevundimonas diminuta* (ATCC 19146) at  $10^7$  CFU/cm<sup>2</sup> effective filter area (EFA). This allows for enhanced sterilization assurance as well as efficient mycoplasma control.

Kleenpak Nova capsules are designed for use in medium-to-large-scale production environments (100 L to > 1000 L), and are often selected by the end user following scaling studies using the smaller Kleenpak capsule formats. Kleenpak Nova capsules can be offered in 'In-line' (NP) or 'T' style (NT) inlet/outlet configurations with sanitary flange or hose barb fittings. With the AB-style filter cartridge at their core, Kleenpak Nova filter capsules can be supplied with the most comprehensive range of filter media among all of Pall's single-use capsules.

**Key Features and Benefits**

- ▶ Encapsulated format for higher flexibility, minimized cleaning and low installation costs
- ▶ Incorporated prefiltration layer
- ▶ Low extractables
- ▶ High protein transmission
- ▶ Rapid preservative recoveries
- ▶ Easy integrity testing
- ▶ Compatible with organic solvents, acids and chemicals<sup>1</sup>
- ▶ Resin and surfactant-free
- ▶ Melt-sealed, non-shedding

<sup>1</sup> Except ketones and amides

**Quality Standards**

- ▶ Manufactured for use in conformance with cGMP
- ▶ 100% integrity tested
- ▶ ISO 9000 Certified Quality System
- ▶ Meets USP Biological Reactivity Test *in vivo* for Class VI-121 °C plastics
- ▶ Every filter tested during manufacture
- ▶ Test correlated to microbial retention
- ▶ Certificate of Test provided includes
  - Fabrication Integrity
  - Bacterial Retention
  - Materials of Construction
  - Effluent quality for cleanliness, TOC and water conductivity, pH and pyrogens

**Specifications****Materials of Construction**

Filter Membrane	Hydrophilic modified PVDF
Support/Drainage	Polypropylene
Core/End Caps	Polypropylene
Cage	Polypropylene with TiO <sub>2</sub> whitener <sup>1</sup>
O-rings	Silicone elastomer
Sealing Technology	Thermal bonding without adhesives
Housing Bowl	Polypropylene
Housing Head	Polypropylene

<sup>1</sup> TiO<sub>2</sub> is an insoluble inorganic mineral filler that does not contribute to organic extractables

**Operating Parameters<sup>2</sup>**

Maximum Temperature	40 °C
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Maximum Operating Pressure	3 bar (44 psi) at 40 °C
Maximum Differential Pressure (Forward Direction)	3 bar (44 psi) at 40 °C

<sup>2</sup> In compatible fluids which do not soften, swell or adversely affect the filter or its materials of construction

### Sterilization<sup>3</sup>

Autoclavable (G option only)	3 x 60 minutes at 125 °C
Gamma Irradiation (G option only)	Maximum of 50 kGy

<sup>3</sup> Pre-sterilized Kleenpak Nova capsules must not be re-sterilized. Kleenpak Nova capsules must not be sterilized *in-situ* by passing steam under pressure

### Typical Extractables in Water at 20 °C\*

G option	< 10 mg per 254 mm (10 in.) capsule
S option	< 20 mg per 254 mm (10 in.) capsule

\* Tested on elements without pre-flushing

### Nominal Dimensions

In-Line	NP5	NP6	NP7	NP8
Maximum diameter including valves	154 mm (6.1 in.)	154 mm (6.1 in.)	154 mm (6.1 in.)	154 mm (6.1 in.)
Length with hose barb inlet/outlet	275 mm (10.8 in.)	397 mm (15.6 in.)	644 mm (25.4 in.)	895 mm (35.2 in.)
Length with sanitary inlet/outlet	213 mm (8.4 in.)	335 mm (13.2 in.)	584 mm (23.0 in.)	834 mm (32.8 in.)
T-style	NT6	NT7	NT8	
Maximum diameter including valves	N/A	240 mm (9.5 in.)	240 mm (9.5 in.)	240 mm (9.5 in.)
Length	N/A	349 mm (13.7 in.)	598 mm (23.5 in.)	848 mm (33.4 in.)

### Nominal Effective Filter Area (EFA)

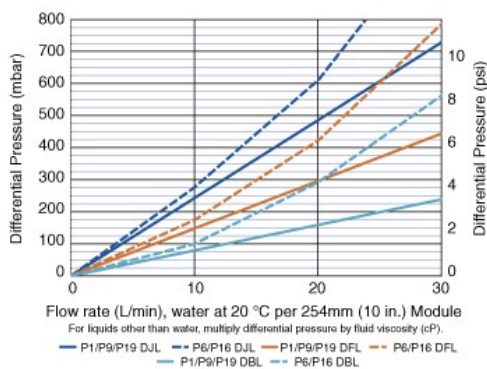
5500 cm<sup>2</sup> per 254 mm capsule (5.9 ft<sup>2</sup> per 10 in. capsule)

### Integrity Test Values (Air test gas, water wet)\*\*

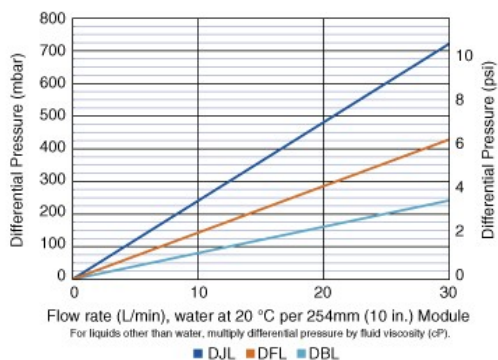
Max. allowable forward flow values for 254 mm (10 in.) capsule at 20°C 29 mL/min at 4475 mbar (65 psi)

\*\* Contact Pall for multi-element integrity test values and recommended test procedures

### Typical Liquid Flow vs. Differential Pressure (NP)



## Typical Liquid Flow vs. Differential Pressure (NT)



## Ordering Information

Pall Part Number:											
N									P		
Code	Style		Code	Filter Size		Code	Filter Media		Code	Shipping Format	
P	In-line		SL <sup>1</sup>	127 mm (5 in.)		DBL	0.45 micron bioburden control		G	Non-sterile gamma irradiatable/ autoclavable	
T	T-style		6	254 mm (10 in.)		DFL	0.2 micron sterilizing grade		S	Pre-sterilized using gamma irradiation	
			7	508 mm (20 in.)		DJL	0.1 micron sterilizing grade and mycoplasma control				
			8	762 mm (30 in.)							
			Code	Connection Options					Code	Vent/Drain	
			1	1 – 1 1/2 in. (25 – 38 mm) sanitary flange inlet and outlet					Blank	Stäubli* vent and stepped hose barb drain	
			9	1 in. (25 mm) single barb hose barb inlet and outlet					A	Stäubli vent and drain	
			19	1 – 1 1/2 in. (25 – 38 mm) sanitary flange inlet and 1 in. (25 mm) single barb hose barb outlet							
			6 <sup>2</sup>	1/2 in. (13 mm) single barb hose barb inlet and outlet							
			16 <sup>2</sup>	1 – 1 1/2 in. (25 – 38 mm) sanitary flange inlet and 1/2 in. (13 mm) single barb hose barb outlet							
			1H <sup>3</sup>	1 – 1 1/2 in. (25 – 38 mm) sanitary flange inlet and outlet, with 1/2 in. sanitary port on inlet							
			1H9 <sup>3</sup>	1 – 1 1/2 in. sanitary flange inlet and 1 in. (25 mm) single barb hose barb outlet with 1/2 in. sanitary port on inlet							

## Contact Information

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