

## Polygard®-CR Filters

**Versatile depth filters for the clarification and prefiltration of process fluids**



- ▶ *Broad range of micron ratings to match a wide array of particle removal applications*
- ▶ *Nominal particle retention rating*
- ▶ *Low extractables levels*
- ▶ *High capacity media*
- ▶ *Designed for rigorous process conditions and broad chemical compatibility*
- ▶ *Ideal for designing scalable solutions from bench top to full-scale manufacturing*

Polygard-CR products are nominally rated filters designed for particle removal applications in liquids and gases. The graded-density depth structure of Polygard-CR filter media provides maximum filtration capacity, and the all-polypropylene construction offers low extractables levels and broad chemical compatibility.

### Regulatory Compliance

Polygard-CR filters are designed, developed, and manufactured in accordance with a Quality Management System approved by an accredited registering body to an ISO® 9000 Quality Systems Standard and are shipped with a Certificate of Quality. Each Opticap™ XL capsule and cartridge filter is supported by a Validation Guide for compliance with regulatory requirements.

For traceability and easy identification, each filter is marked with identifying characteristics.

### Multiple Formats Available

Polygard-CR filters are available in two formats, eleven pore sizes, and multiple configurations that vary by filter sizes and the type of inlet and outlet connection.

#### Media Types

Polygard-CR (nominal)

- 0.1 µm
- 0.3 µm
- 0.5 µm
- 1.0 µm
- 3.0 µm
- 5.0 µm
- 10.0 µm
- 25.0 µm
- 50.0 µm
- 75.0 µm
- 100.0 µm

#### Filter Formats

- Opticap XL disposable capsule filters
- Cartridge filters

**From process development to full-scale production, Millipore has the right solution for you!**

## Opticap XL Disposable Capsule Filters



Opticap XL Filters

Opticap XL disposable capsule filters with Polygard-CR media are available in multiple filtration sizes, providing an optimal choice for every application.

The patented Opticap XL capsule design allows unparalleled thermal and hydraulic stress resistance in a disposable filter, resulting in reliability, high confidence in the sterility process and improved cleanliness. The unique capsule design with Polygard-CR media minimizes hold-up volume and reduces production losses.

### Convenient and Easy to Use

Opticap XL capsule filters eliminate the time and the expense associated with assembling, cleaning, and validating stainless steel housings. Adjustable, easy-to-turn, upstream vents and drain



valves with o-ring seals and hose barb connections allow for easy process control. Other ease-of-use features

include flow directional arrows and ribbed edges for easy gripping even with gloved hands.

### The Right Size

A wide range of filter sizes is available to fit all of your application needs, and to allow easy scale-up of your small volume filtration steps to larger, full-scale filtration processes.

### The Right Connections

Self-contained and disposable, Opticap XL capsule filters are supplied with a choice of inlet and outlet connections to optimize your filtration process, including sanitary flanges which provide a higher flow rate, fractional sanitary flanges, and hose barbs.

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## Cartridge Filters

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*Cartridge Filters*

Polygard-CR cartridge filters provide high throughput and minimal differential pressure. Cartridges are robust, strong, resilient and are designed to withstand multiple steam-in-place cycles.

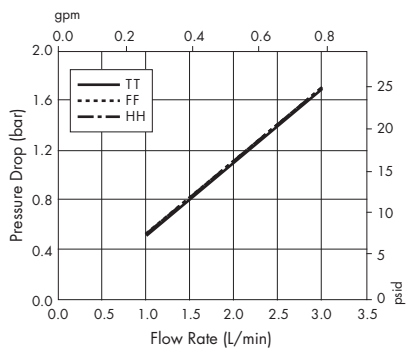
A full range of filter sizes is available to suit application requirements. A variety of connection options are offered for easy adaptation to existing housings.

## Specifications

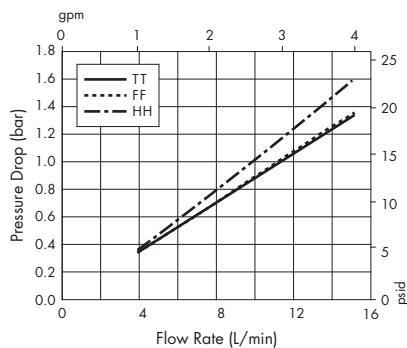
	Opticap XL 1	Opticap XL 5	Opticap XL 10	Cartridge Filters 2-inch	Per 10-inch
<b>Nominal Dimensions</b>					
Maximum length:	21.6 cm (8.5 in.)	21.6 cm (8.5 in.)	33.5 cm (13.2 in.)	—	—
Diameter:	10.7 cm (4.2 in.)	10.7 cm (4.2 in.)	10.7 cm (4.2 in.)	7.0 cm (2.8 in.)	7.0 cm (2.8 in.)
Filter element length:	2.5 cm (1 in.)	12.7 cm (5 in.)	25.4 cm (10 in.)	—	—
<b>Materials of Construction</b>					
Filter media:	Polypropylene			Polypropylene	
Supports:	Polypropylene			Polypropylene	
Structural components:	Polypropylene			Polypropylene	
Vent o-rings:	Silicone			—	
O-rings:	—			Silicone	
Cartridge code F gaskets:	—			Polyethylene	
<b>Vent/Drain</b>	¼ in. hose barb with double o-ring seal			—	
<b>Maximum Inlet Pressure</b>	5.5 bar (80 psi) at 25 °C 2.8 bar (40 psi) at 60 °C 1.0 bar (15 psi) at 80 °C			— — —	
<b>Maximum Operating Temperature</b>	—			80 °C continuous	
<b>Maximum Differential Pressure</b>					
Forward:	4.8 bar (70 psid) at ambient room temperature			4.8 bar (70 psid) at 20 °C	
<b>NVR Gravimetric Extractables</b>	After autoclaving and a 24 hour soak in ASTM® Type 1 reagent grade water at controlled room temperature:				
	≤ 10 mg	≤ 30 mg	≤ 55 mg	—	50 mg
<b>Bacterial Endotoxin</b>	Aqueous extraction contains < 0.5 EU/mL as determined by the Limulus Amebocyte Lysate (LAL) Test.				
<b>Oxidizable Substances</b>	Capsules meet the requirements of the USP Oxidizable Substances Test after a water flush of:				
	≤ 1000 mL	≤ 2500 mL	≤ 5000 mL	—	5000 mL
<b>Sterilization by Autoclave</b>	May be autoclaved for 3 cycles of 30 minutes at 126 °C. (Cannot be steam sterilized in-line.)			May be autoclaved for 10 cycles of 30 minutes at 126 °C or steam sterilized for 10 cycles for 30 minutes at 126 °C or hot water sanitized at 80 °C maximum for 30 minutes.	
<b>Component Material Toxicity</b>	Component materials were tested and meet the criteria of the USP <88> Reactivity Test for Class VI Plastics. Polygard-CR filters meet the requirements of the USP <88> Safety Test utilizing a 0.9% sodium chloride extraction.				
<b>Indirect Food Additive</b>	All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177-182.				
<b>European Pressure Equipment Directive</b>	Millipore Corporation certifies that this product complies with the European Pressure Equipment Directive, 97/23/EC of 29 May 1997. This product has been classified under Article 3 § 3 of the Pressure Vessel Directive. It has been designed and manufactured in accordance with sound engineering practice to ensure safe use. In compliance with Article 3 § 3 of this Pressure Equipment Directive, this product does not bear the CE mark.			—	

## Typical Clean Water Flow Rates

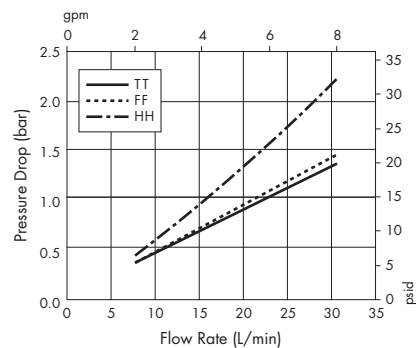
Opticap XL 1 Capsule with Polygard-CR Media — 0.1 µm Nominal (KRK1)



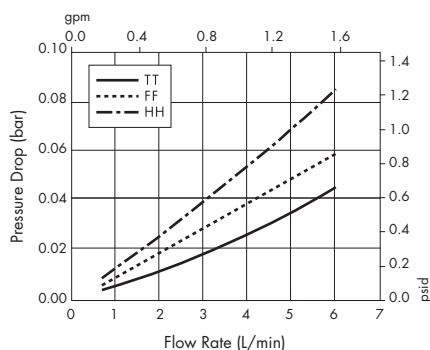
Opticap XL 5 Capsule with Polygard-CR Media — 0.1 µm Nominal (KRK1)



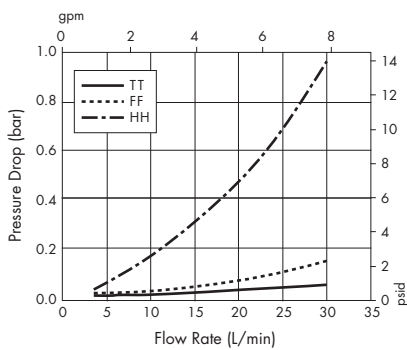
Opticap XL 10 Capsule with Polygard-CR Media — 0.1 µm Nominal (KRK1)



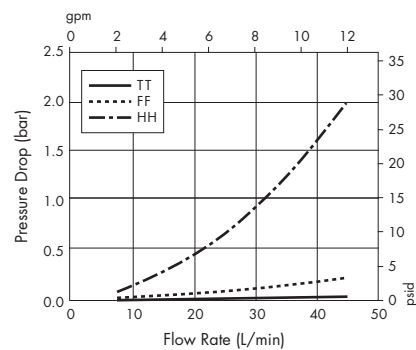
Opticap XL 1 Capsule with Polygard-CR Media — 5.0 µm Nominal (KR05)



Opticap XL 5 Capsule with Polygard-CR Media — 5.0 µm Nominal (KR05)



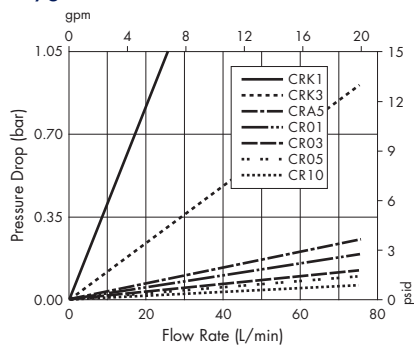
Opticap XL 10 Capsule with Polygard-CR Media — 5.0 µm Nominal (KR05)



### Opticap XL Legends Refer to Connection Type

- TT = 38 mm (1½ in.) Sanitary Flange Inlet and Outlet
- FF = 19 mm (¾ in.) Sanitary Flange Inlet and Outlet
- HH = 14 mm (½ in.) Hose Barb Inlet and Outlet

### 10-inch Cartridge Filters with Polygard-CR Media

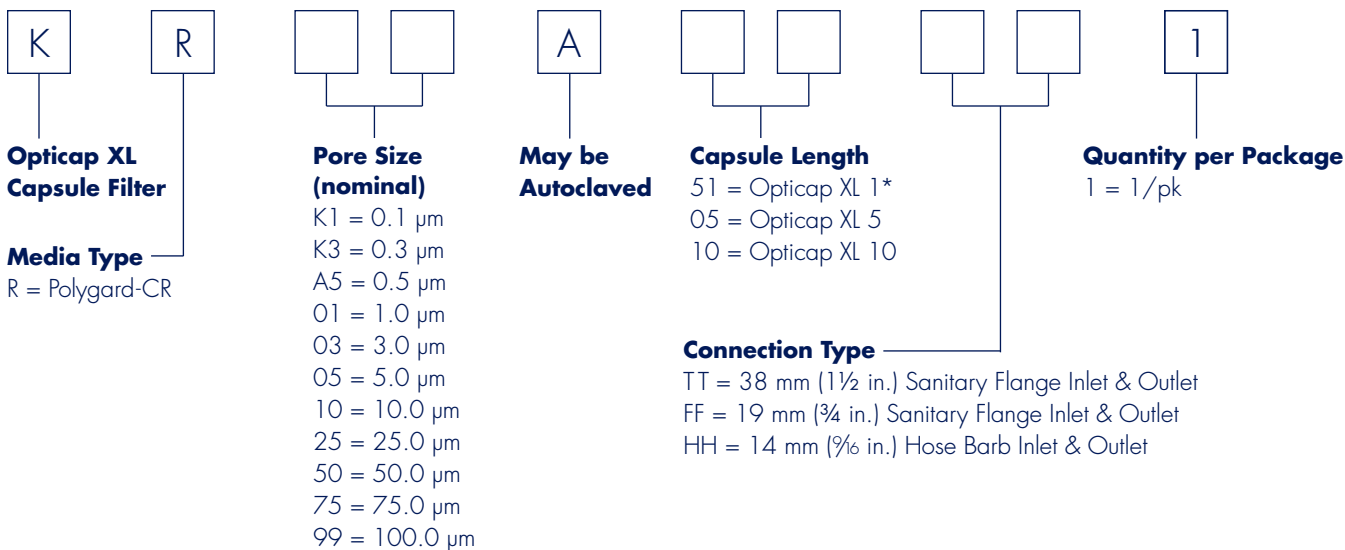


### Cartridge Legend Refers to Pore Size

- CRK1 = 0.1 µm
- CRK3 = 0.3 µm
- CRA5 = 0.5 µm
- CR01 = 1.0 µm
- CR03 = 3.0 µm
- CR05 = 5.0 µm
- CR10 = 10.0 µm

## Ordering Information

### Opticap XL Capsule Filters



\* 1-inch filter element in a 5-inch capsule housing.

## Ordering Information

### Cartridge Filters

C

**Cartridge Filter**

**Media Type**

R = Polygard-CR

R

**Pore Size (nominal)**

K1 = 0.1  $\mu\text{m}$   
 K3 = 0.3  $\mu\text{m}$   
 A5 = 0.5  $\mu\text{m}$   
 01 = 1.0  $\mu\text{m}$   
 03 = 3.0  $\mu\text{m}$   
 05 = 5.0  $\mu\text{m}$   
 10 = 10.0  $\mu\text{m}$   
 25 = 25.0  $\mu\text{m}$   
 50 = 50.0  $\mu\text{m}$   
 75 = 75.0  $\mu\text{m}$   
 99 = 100.0  $\mu\text{m}$

**Cartridge Code**

O = (2-222) O-ring  
 5 = (2-222) O-ring w/spear  
 7 = (2-226) O-ring w/locking tab and spear  
 F = Double open end flat gasket  
 M = (2-118) O-ring (2 in. cartridge only)

**O-ring Material**

O = Silicone (std)  
 E = EP gasket  
 V = Viton® fluoroelastomers  
 T = Teflon encapsulated Viton fluoroelastomers  
 P = Extended length version with polypropylene end caps and cage, silicone gaskets (Cartridge Code F only)  
 C = Short length version with polypropylene end caps and cage, silicone gaskets (code F only)  
 2 = Silicone (Cartridge Code M only)

**Cartridge Length**

1 = 10 inch  
 2 = 20 inch  
 3 = 30 inch  
 4 = 40 inch  
 0 = 2 inch (Cartridge Code M only)

**Quantity per Package**

03 = 3 per package (2 in. only)  
 06 = 6 per package (10, 20, 30 and 40 in.)

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Lit. No. DS1838EN00 Rev. A 11/04 Printed in U.S.A. 04-351

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