Millipore®
Preparation, Separation,
Filtration & Monitoring Products

Data Sheet

Polygard® CR Filters

Versatile depth filters for the clarification and prefiltration of process fluids

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.

Benefits

- 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

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Quality Management Systems

Polygard® CR filters are designed, developed, and manufactured in accordance with a Quality Management System approved by an accredited registering body to an ISO® 9001 Quality Systems Standard and are shipped with a Certificate of Quality. For quality assurance, each Opticap® XL capsule and cartridge filter is supported by a Validation Guide with data demonstrating consistent and accurate results.

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 media (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

Opticap® XL Disposable Capsule 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.

The Right Size

A wide range of filter sizes is available to fit all of your application needs for 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.

Opticap® XL Filters

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.

Small scale filter capsules are available for use as a selection tool when evaluating several media configurations for use to clarify process fluid. These devices have been developed to minimize hold-up volume when evaluating these multiple media configurations.

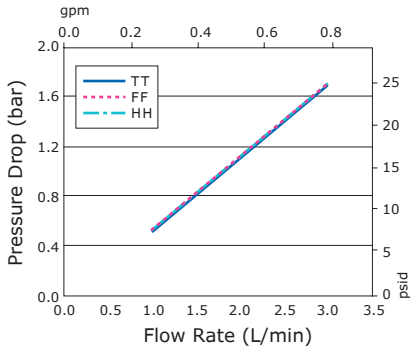
Cartridge Filters and Capsule

Specifications

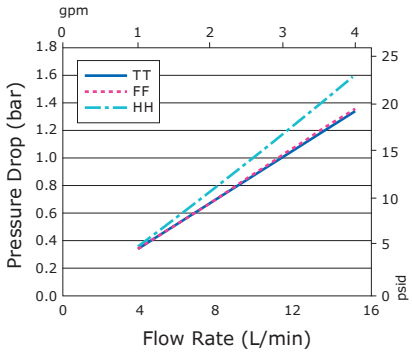
				Small-Scale Filter Capsules	Cartridge Filters	
	Opticap® XL 1	**Opticap® XL 5**	**Opticap® XL 10**	**1-inch**	**2-inch**	**Per 10-inch**
Nominal dimensions						
Maximum length	21.6 cm (8.5 in.)	21.6 cm (8.5 in.)	33.5 cm (13.2 in.)	118.0 mm (4.6 in.)	—	—
Diameter	10.7 cm (4.2 in.)	10.7 cm (4.2 in.)	10.7 cm (4.2 in.)	88 mm (3.5 in.) O.D.	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.)	25 mm (1 in.)	—	—
Materials of construction						
Filter media	Polypropylene			Polypropylene	Polypropylene	
Supports	Polypropylene			—	Polypropylene	
Structural components	Polypropylene			Polypropylene	Polypropylene	
Vent o-rings	Silicone			—	—	
O-rings	—			—	Silicone	
Cartridge code F gaskets	—			—	Polypropylene	
Vent/Drain	1/4 in. hose barb with double o-ring seal			1/4 in. hose barb	—	
Maximum inlet pressure	5.5 bar (80 psi) at 25 °C			—	—	
	2.8 bar (40 psi) at 60 °C			—	—	
	1.0 bar (15 psi) at 80 °C			—	—	
Maximum operating temperature	—			60 °C	80 °C continuous	
Maximum differential pressure						
Forward	4.8 bar (70 psid) at ambient room temperature			—	4.8 bar (70 psid) at 20 °C	
NVR gravimetric extractables	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
Bacterial endotoxin	Aqueous extraction contains < 0.5 EU/mL as determined by the Limulus Amebocyte Lysate (LAL) Test (except Small Scale Filter Capsules), according to USP <85>, Ph. Eur. 2.6.14, and JP 4.01.					
Oxidizable substances	Capsules meet the requirements of the USP Oxidizable Substances Test after a water flush of:					
	≤ 1000 mL	≤ 2500 mL	≤ 5000 mL	—	—	5000 mL
Sterilization by autoclave	May be autoclaved for 3 cycles of 30 minutes at 126 °C. (Cannot be steam sterilized in-line.)			Not autoclavable	May be steam sterilized for 10 cycles for 30 minutes at 126°C or hot water sanitized at 80°C for a maximum of 30 minutes.	
Component material toxicity	Component materials meet the criteria of the USP <88> Biological Reactivity Test for Class VI Plastics.					
Indirect food additive	All component materials meet the FDA Indirect Food Additive Requirements cited in 21 CFR 177–182 (except Small Scale Filter Capsules).					
European pressure						
Equipment directive	This product complies with the European Pressure Equipment Directive, 2014/68/EU of 15 May 2014. This product has been classified under article 4 § 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 4 § 3 of the Directive, 2014/68/EU, this product does not bear the CE mark.			—	—	—

Typical Clean Water Flow Rates

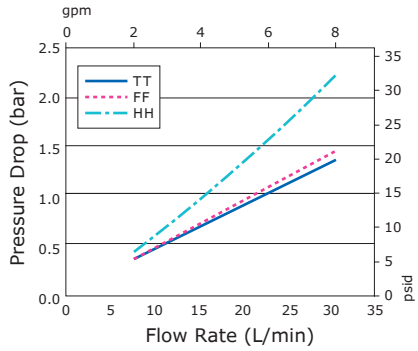
Opticap® XL 1 Capsule with Polygard® CR Media — 0.1 µm Nominal (KRK1)



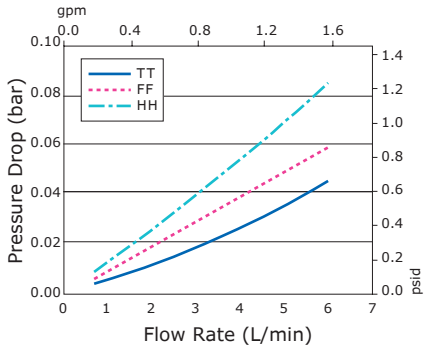
Opticap® XL 5 Capsule with Polygard® CR Media — 0.1 µm Nominal (KRK1)



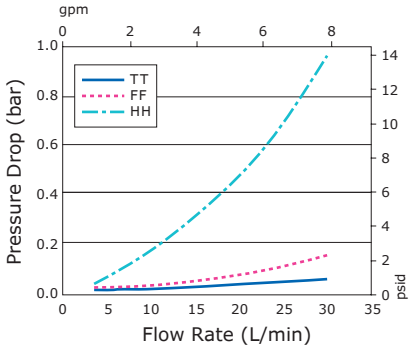
Opticap® XL 10 Capsule with Polygard® CR Media — 0.1 µm Nominal (KRK1)



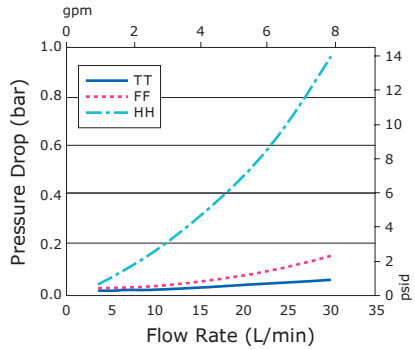
Opticap® XL 1 Capsule with Polygard® CR Media — 5.0 µm Nominal (KR05)



Opticap® XL 5 Capsule with Polygard® CR Media — 5.0 µm



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



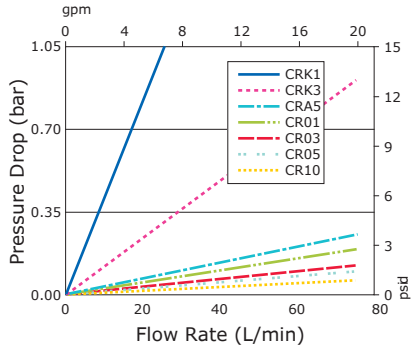
Opticap® XL Legends Refer to Connection Type

TT = 38 mm (1 1/2 in.) Sanitary Flange Inlet and Outlet

FF = 19 mm (3/4 in.) Sanitary Flange Inlet and Outlet

HH = 14 mm (9/16 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

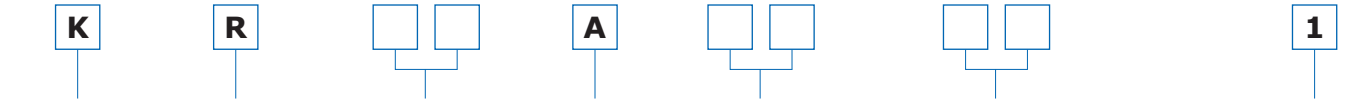
CR03 = 3.0 µm

CR05 = 5.0 µm

CR10 = 10.0 µm

Ordering Information

Opticap® XL Capsule Filters



K — **Opticap® XL Capsule Filter**

R — **Media Type**

R = Polygard® CR

□□ — **Pore Size (nominal)**

K1 = 0.1 µm
K3 = 0.3 µm
A5 = 0.5 µm
01 = 1.0 µm
03 = 3.0 µm
05 = 5.0 µm
10 = 10.0 µm
25 = 25.0 µm
50 = 50.0 µm
75 = 75.0 µm
99 = 100.0 µm

A — **May be Autoclaved**

□□ — **Capsule Length**

51 = Opticap® XL 1*
05 = Opticap® XL 5
10 = Opticap® XL 10

□□ — **Connection Type**

TT = 38 mm ($1\frac{1}{2}$ in.) Sanitary Flange Inlet & Outlet
FF = 19 mm ($\frac{3}{4}$ in.) Sanitary Flange Inlet & Outlet
HH = 14 mm ($\frac{9}{16}$ in.) Hose Barb Inlet & Outlet

1 — **Quantity per Package**

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

Ordering Information

Cartridge Filters

C R	□ □	□	□	□	□ □
Media Type	**Pore Size (nominal)**	**Cartridge Code**	**Cartridge Length**	**O-ring Material**	**Quantity per Package**
CR = Polygard® CR	K1 = 0.1 µm K3 = 0.3 µm A5 = 0.5 µm 01 = 1.0 µm 03 = 3.0 µm 05 = 5.0 µm 10 = 10.0 µm 25 = 25.0 µm 50 = 50.0 µm 75 = 75.0 µm 99 = 100.0 µm	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)	1 = 10 inch 2 = 20 inch 3 = 30 inch 4 = 40 inch 0 = 2 inch (Cartridge Code M only)	0 = Silicone (std) E = EP gasket V = Fluoroelastomers T = PTFE encapsulated 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)	03 = 3 per package (2 in. only) 06 = 6 per package (10, 20, 30 and 40 in.)

*Not all configurations are available.

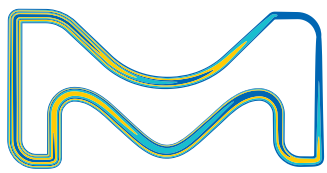
Small-Scale Filter Capsules

C R	□ □	N	1	1	H H	1
CR = Polygard® CR	**Pore Size (nominal)** K1 = 0.1 µm K3 = 0.3 µm A5 = 0.5 µm 01 = 1.0 µm 03 = 3.0 µm 05 = 5.0 µm 10 = 10.0 µm 25 = 25.0 µm 50 = 50.0 µm 75 = 75.0 µm 99 = 100.0 µm	**Not Autoclavable**	**Capsule Length** 1 = 1 inch	**Filter Length** 1 = 1 inch	**Connection Type** HH = Hose Barb	**Quantity per Package** 1 = 1/pk

MilliporeSigma
400 Summit Drive
Burlington, MA 01803

For additional information, please visit

SigmaAldrich.com



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