

## Data Sheet

# Clarigard® Filters

## High-performance filters for the clarification and prefiltration of process fluids

Clarigard® filters' 99.99% retention characteristic makes them ideal for the protection of critical downstream process steps such as membrane filters or chromatography columns. The graded-density depth structure of Clarigard® filter media provides maximum filtration capacity, and the polypropylene construction offers low extractable levels and broad chemical compatibility.

Clarigard® 0.2 µm and 0.3 µm filters will easily extend the capacity of sterilizing-grade filters. Clarigard® high performance prefilters consistently produce a 1–2 log bioburden reduction.

### Benefits

- 99.99% retention rating
- High capacity media
- Low extractable levels
- Effectively protects expensive membrane filters from premature plugging
- Designed for rigorous process conditions and broad chemical compatibility
- Ideal for designing scalable solutions from bench top to full-scale manufacturing



## Regulatory Compliance

Clarigard® 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.

## Multiple Formats Available

Clarigard® filters are available in two formats, five pore sizes, and multiple configurations that vary by filtration area and the type of inlet/outlet connection.

## Media Types

### Clarigard® Media (99.99% retention)

- 0.2 µm
- 0.3 µm
- 0.5 µm
- 1.0 µm
- 3.0 µm

## Filter Formats

- Opticap® XL disposable capsule filters
- Cartridge filters

## Applications

### Precipitate Removal

- Protein processing
- Plasma fractions

### Undissolved Constituent Removal

- Cell culture media
- Buffers
- Ophthalmics
- LVP/SVP

### Carbon Fine Removal

- Carbon beds in water processing
- Powdered carbon in chemical synthesis

### Gases

- Dust, rust and other solids

## Opticap® XL Disposable Capsule Filters

Opticap® XL disposable capsule filters with Clarigard® media are available in multiple filter 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 Clarigard® 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 bars.



## Cartridge Filters

Clarigard® 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 are available to suit your application requirements.

A variety of connection options are offered for easy adaptation to existing housings.

Opticap® XL Filters



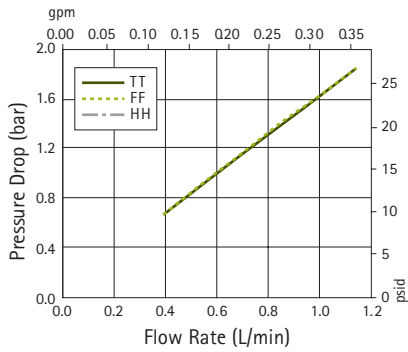
Cartridge Filters

## Specifications

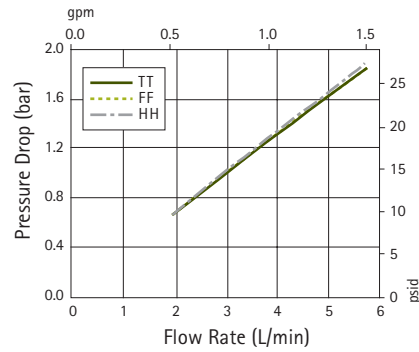
	Opticap® XL 1	Opticap® XL 5	Opticap® XL 10	Cartridge Filters 2-inch	Per 10-inch
Nominal dimensions					
Maximum length	21.6 cm (8.5 in.)	21.6 cm (8.5 in.)	33.5 cm (13.2 in.)	–	–
Diameter	10.7 cm (4.2 in.)	10.7 cm (4.2 in.)	10.7 cm (4.2 in.)	7.0 cm (2.8 in.)	7.0 cm (2.8 in.)
Filter element length	2.5 cm (1 in.)	12.7 cm (5 in.)	25.4 cm (10 in.)	–	–
Materials of construction filter media					
Supports	Polypropylene			Polypropylene	
Structural components	Polypropylene			Polypropylene	
Vent o-rings	Polypropylene			Polypropylene	
O-rings	–			Silicone	
Vent/drain	1/4 in. hose barb with double o-ring seal			–	
Maximum inlet pressure	5.5 bar (80 psi) at 23 °C			–	
	2.8 bar (40 psi) at 60 °C			–	
	1.0 bar (15 psi) at 80 °C			–	
Maximum operating temperature	–			80 °C continuous	
Maximum differential pressure Forward	4.8 bar (70 psid) at ambient room temperature			4.8 bar (70 psid) at 23 °C	
NVR gravimetric extractables	After autoclaving and a 24 hour soak in ASTM® Type 1 reagent grade water at controlled room temperature:				
	≤ 10 mg	≤ 10 mg	≤ 15 mg	–	≤ 10 mg
Bacterial endotoxin	Aqueous extraction contains < 0.25 EU/mL as determined by the Limulus Amebocyte Lysate (LAL) Test.				
Oxidizable substances	Meets the requirements of the USP Oxidizable Substances Test after a water flush of:				
	≤ 1000 mL	≤ 2000 mL	≤ 3000 mL	–	3000 mL
Sterilization by autoclave	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.	
Non-fiber releasing	Clarigard® media meets the criteria for a "non-fiber releasing" filter as defined in 21 CFR 210.3 (b) (6).				
Component material toxicity	Component materials were tested and meet the criteria of the USP <88> Reactivity Test for Class VI Plastics. Clarigard® filters meet the requirements of the USP <88> Safety Test utilizing a 0.9% sodium chloride extraction.				
Indirect food additive	All component materials meet the FDA Indirect Food Additive requirements cited in 21 CFR 177–182.				
European pressure Equipment directive	We certify 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

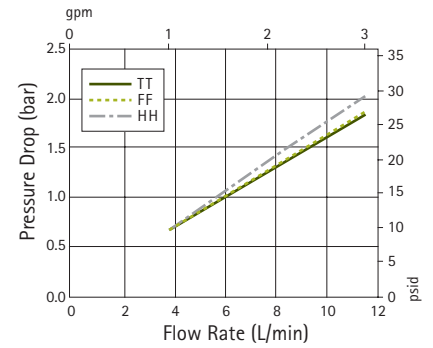
Opticap® XL 1 Capsule with Clarigard® Media – 0.2 µm Nominal (K002)



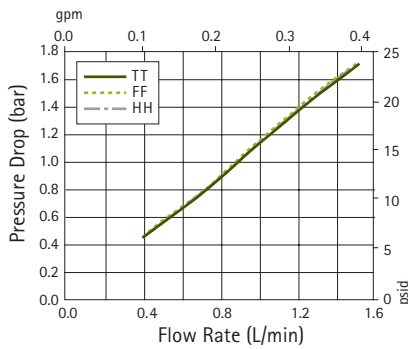
Opticap® XL 5 Capsule with Clarigard® Media – 0.2 µm Nominal (K002)



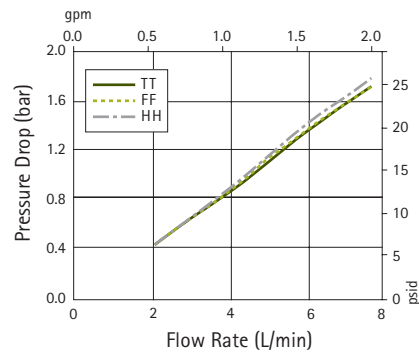
Opticap® XL 10 Capsule with Clarigard® Media – 0.2 µm Nominal (K002)



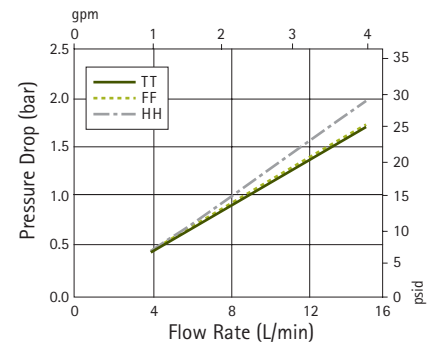
Opticap® XL 1 Capsule with Clarigard® Media – 0.3 and 0.5 µm Nominal (K003, K005)



Opticap® XL 5 Capsule with Clarigard® Media – 0.3 and 0.5 µm Nominal (K003, K005)



Opticap® XL 10 Capsule with Clarigard® Media – 0.3 and 0.5 µm Nominal (K003, K005)



### Opticap® XL Legends Refer to Connection Type

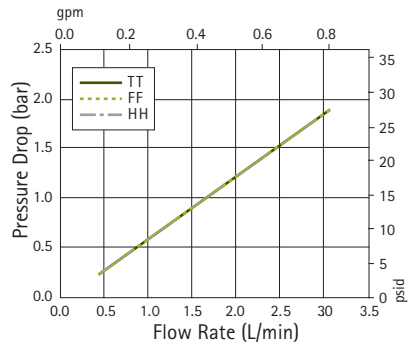
TT = 38 mm (1 1/2 in.) Sanitary Flange Inlet and Outlet

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

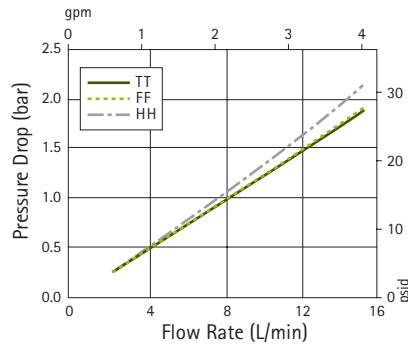
HH = 14 mm (9/16 in.) Hose Barb Inlet and Outlet

# Typical Clean Water Flow Rates

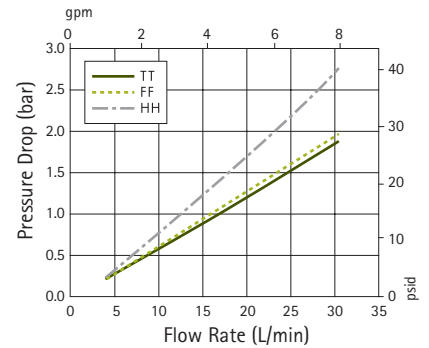
Opticap® XL 1 Capsule with Clarigard® Media – 1.0 µm Nominal (K010)



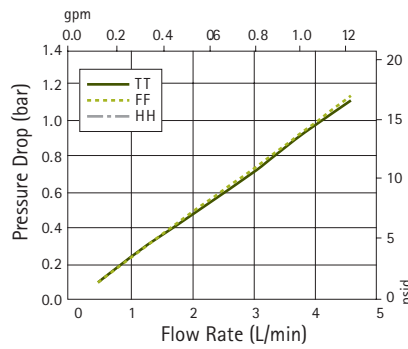
Opticap® XL 5 Capsule with Clarigard® Media – 1.0 µm Nominal (K010)



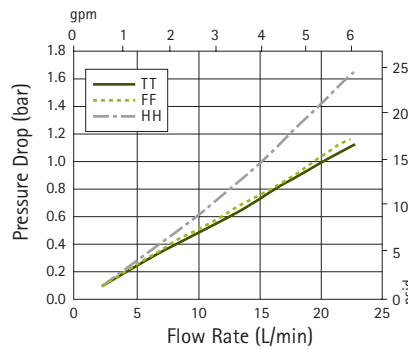
Opticap® XL 10 Capsule with Clarigard® Media – 1.0 µm Nominal (K010)



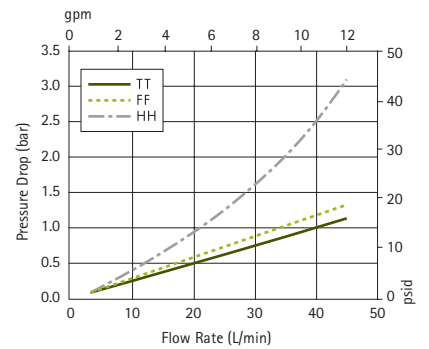
Opticap® XL 1 Capsule with Clarigard® Media – 3.0 µm Nominal (K030)



Opticap® XL 5 Capsule with Clarigard® Media – 3.0 µm Nominal (K030)

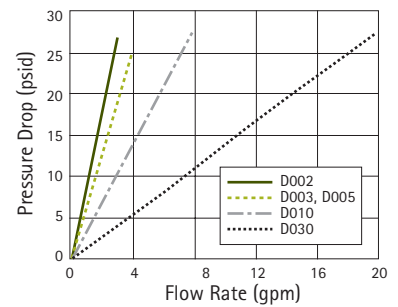


Opticap® XL 10 Capsule with Clarigard® Media – 3.0 µm Nominal (K030)



**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 (9/16 in.) Hose Barb Inlet and Outlet

Cartridge Filter with Clarigard® Media – 10-inch

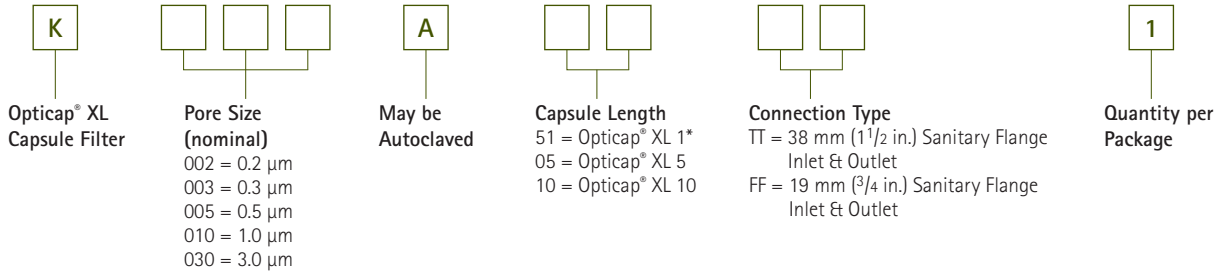


**Cartridge Legend Refers to Pore Size**

- D002 = 0.2 µm
- D003 = 0.3 µm
- D005 = 0.5 µm
- D010 = 1.0 µm
- D030 = 3.0 µm

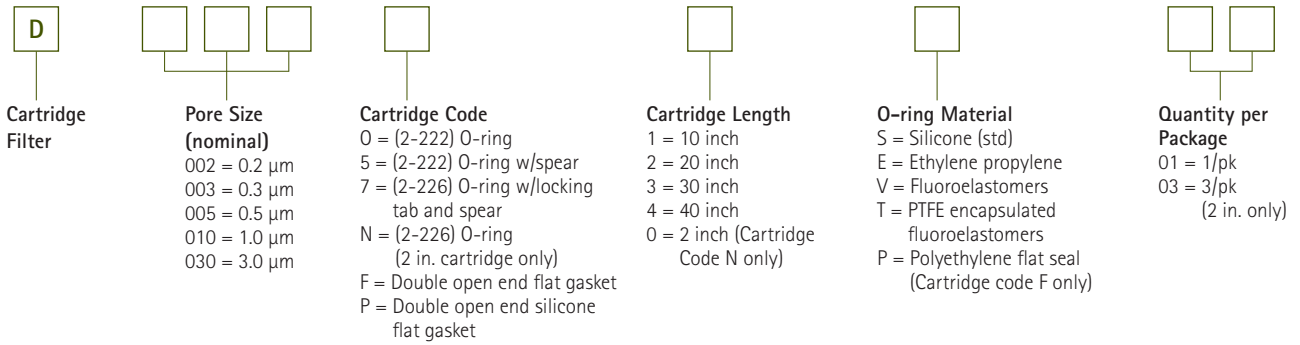
## Ordering Information

### Opticap® XL Capsule Filters



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

### Cartridge Filters



\*Not all configurations are available.



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Lit No. DS2638EN00 Rev. A 01/2012 Job No. DP SBU-11-05461 Printed in the USA.  
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## Optical XL Cartridge Fliter

K002A51TT1	D00201S01	D00301S01	D00501S01	D01001S01	D03001S01	D002F2S01	D003F2S01	D005F2S01	D010F2S01	D030F2S01
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K002A05TT1	D00201V01	D00301V01	D00501V01	D01001V01	D03001V01	D002F2V01	D003F2V01	D005F2V01	D010F2V01	D030F2V01
K002A05FF1	D00201T01	D00301T01	D00501T01	D01001T01	D03001T01	D002F2T01	D003F2T01	D005F2T01	D010F2T01	D030F2T01
K002A10TT1	D00202S01	D00302S01	D00502S01	D01002S01	D03002S01	D002F3S01	D003F3S01	D005F3S01	D010F3S01	D030F3S01
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