

Clarigard® Filters

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

Clarigard® filters' retention characteristic makes them ideal for protection of downstream process steps in different applications. The graded-density depth structure of Clarigard® filter media provides maximum filtration capacity and is ideal for removal of precipitates, undissolved constituents, carbon and other fine particulates from different process streams. The polypropylene construction offers low extractables and broad chemical compatibility.

Clarigard® 0.2 µm and 0.3 µm filters extend the capacity of sterilizing-grade filters and protect chromatography columns.

Benefits

- 99.99% retention rating
- High capacity media
- Low extractables and broad chemical compatibility
- Reduces premature plugging and extends capacity of membrane filters
- Scalable from bench-top to full-scale manufacturing

Media Type

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

Formats available

- Small-scale capsule filters
- Opticap® XL capsule filters
- Cartridge filters



Quality Management Systems

Clarigard® 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. Each Opticap® XL capsule and cartridge filter is supported by a Validation Guide.

Multiple Formats Available

Clarigard® filters are available in five pore sizes and both capsule and cartridge formats.

Opticap® XL Capsule Filters

Opticap® XL single-use capsule filters are designed for pilot and production scale processing, are available with a range of inlet/outlet connections and can be sterilized by autoclave. These capsules minimize cleaning, assembly and validation requirements which translates to increased flexibility, more rapid turnaround and less downtime than maintaining stainless steel operations.

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 is available to suit your application requirements. A variety of connection options are offered for easy adaptation to existing housings.

Screening Tool

Small-scale capsule filters are available for evaluating several media configurations. These devices have minimal hold-up volume.



Opticap® XL 10 Capsule Filter



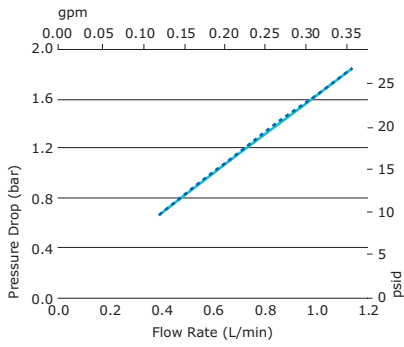
Cartridge Filters and Small-Scale Capsule

Specifications

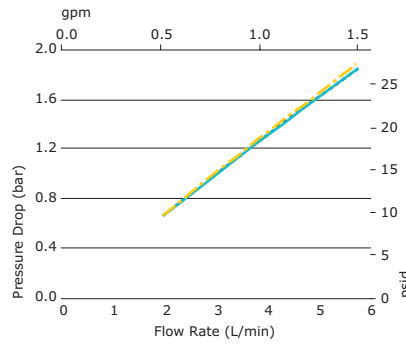
| | Opticap® XL Capsule Filters | | | Small-Scale Capsule Filters | Cartridge Filters | |
|---------------------------------------|---|-------------------|--------------------|-----------------------------|---|------------------|
| | Opticap® XL 1 | Opticap® XL 5 | Opticap® XL 10 | 1 in. | 2 in. | Per 10 in. |
| Nominal dimensions | | | | | | |
| Maximum length | 21.6 cm (8.5 in.) | 21.6 cm (8.5 in.) | 33.5 cm (13.2 in.) | 11.8 cm (4.6 in.) | - | - |
| Diameter | 10.7 cm (4.2 in.) | 10.7 cm (4.2 in.) | 0.7 cm (4.2 in.) | 8.8 cm (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.) | 2.5 cm (1 in.) | - | - |
| Materials of construction | | | | | | |
| Filter media | Polypropylene | Polypropylene | Polypropylene | Polypropylene | Polypropylene | Polypropylene |
| Supports | Polypropylene | Polypropylene | Polypropylene | - | Polypropylene | Polypropylene |
| Structural components | Polypropylene | Polypropylene | Polypropylene | Polypropylene | Polypropylene | Polypropylene |
| Vent O-rings | Polypropylene | Polypropylene | Polypropylene | - | Polypropylene | Polypropylene |
| O-rings | - | - | - | - | Silicone | Silicone |
| 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 23°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 | ≤ 10 mg | ≤ 15 mg | - | - | ≤ 10 mg |
| Bacterial endotoxin | Aqueous extraction contains < 0.25 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 | 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.) | | | Not autoclavable | 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. (except Small-Scale Filter Capsules). | | | | | |
| 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 | EMD Millipore Corporation certifies that 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 Directive 2014/68/EU. 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

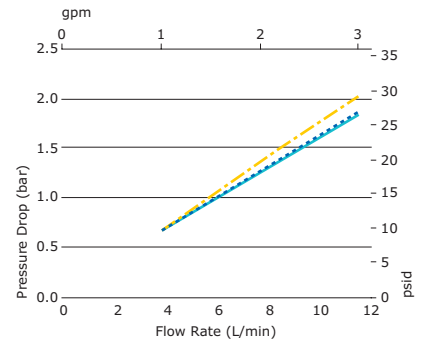
Opticap® XL 1 Capsule with Clarigard® Media – 0.2 µm Nominal (K002)



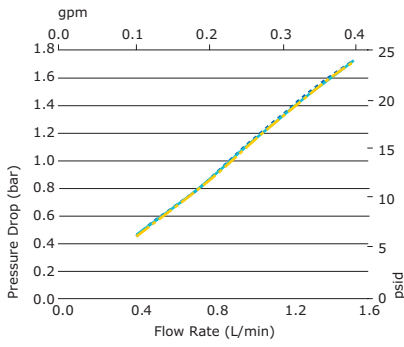
Opticap® XL 5 Capsule with Clarigard® Media – 0.2 µm Nominal (K002)



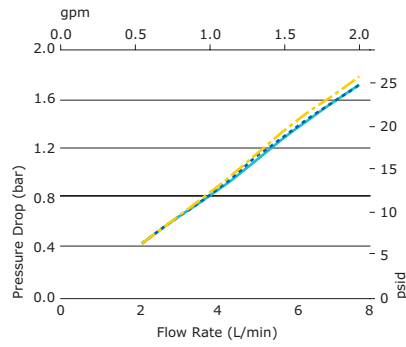
Opticap® XL 10 Capsule with Clarigard® Media – 0.2 µm Nominal (K002)



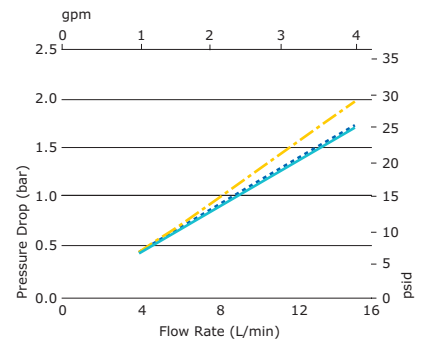
Opticap® XL 1 Capsule with Clarigard® Media – 0.3 and 0.5 µm Nominal (K003, K005)



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)

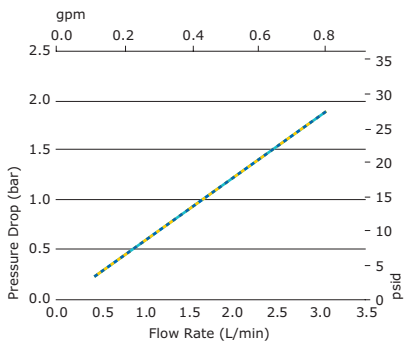


Opticap® XL Connection Types

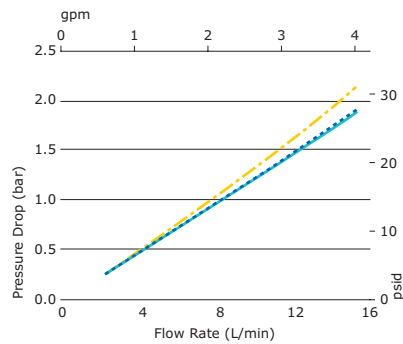
— TT = 38 mm (1 1/2 in.) Sanitary Flange Inlet and Outlet
 - - - FF = 19 mm (3/4 in.) Sanitary Flange Inlet and Outlet
 - - - HH = 14 mm (1/2 in.) Hose Barb Inlet and Outlet

Typical Clean Water Flow Rates (continued)

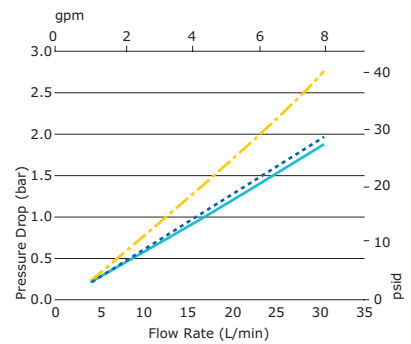
Opticap® XL 1 Capsule with Clarigard® Media — 1.0 µm Nominal (K010)



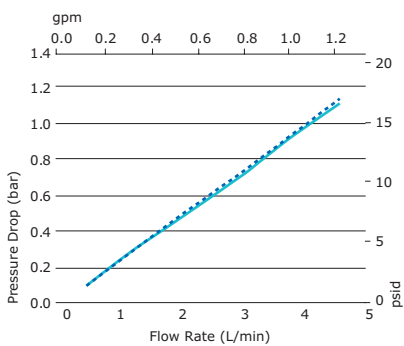
Opticap® XL 5 Capsule with Clarigard® Media — 1.0 µm Nominal (K010)



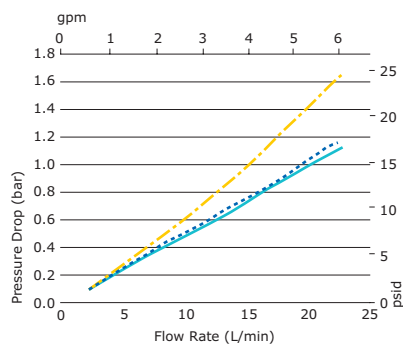
Opticap® XL 10 Capsule with Clarigard® Media — 1.0 µm Nominal (K010)



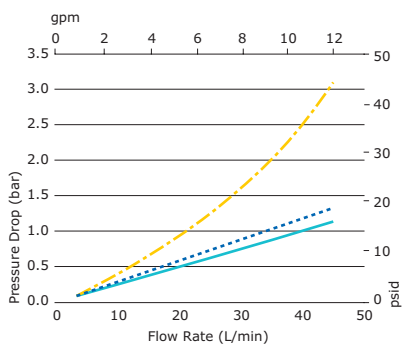
Opticap® XL 1 Capsule with Clarigard® Media — 3.0 µm Nominal (K030)



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



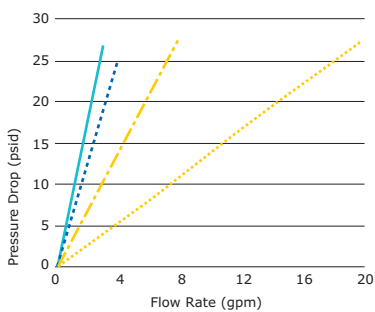
Opticap® XL 10 Capsule with Clarigard® Media — 3.0 µm Nominal (K030)



Opticap® XL Connection Types

— 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 (1/2 in.) Hose Barb Inlet and Outlet

Cartridge Filter with Clarigard® Media — 10-inch


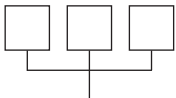

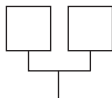
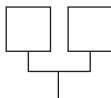



Cartridge Pore Sizes

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


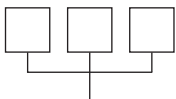



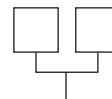
Ordering Information

Opticap® XL Capsule Filters

| | | | | | |
|---|--|---|---|--|---|
|  |  |  |  |  |  |
| Opticap® XL Capsule Filter | Pore Size (nominal) 002 = 0.2 µm 003 = 0.3 µm 005 = 0.5 µm 010 = 1.0 µm 030 = 3.0 µm | May be Autoclaved | Capsule Length 51 = Opticap® XL 1* 05 = Opticap® XL 5 10 = Opticap® XL 10 | Connection Type TT = 38 mm (1 ½ 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 | Quantity per Package 1 = 1/pk |


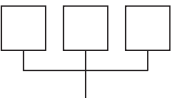



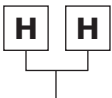

*1-inch filter element in a 5-inch capsule housing.

Cartridge Filters

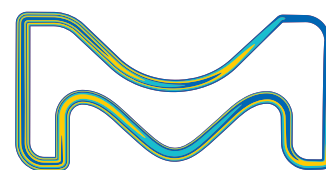
| | | | | | |
|---|--|---|--|--|---|
|  |  |  |  |  |  |
| D = Clarigard® | Pore Size (nominal) 002 = 0.2 µm 003 = 0.3 µm 005 = 0.5 µm 010 = 1.0 µm 030 = 3.0 µm | Cartridge Code O = (2-222) O-ring 5 = (2-222) O-ring w/spear 7 = (2-226) O-ring w/locking tab and spear N = (2-226) O-ring cartridge only F = Double open-end flat gasket P = Double open-end silicone flat gasket | Cartridge Length 1 = 10 in. 2 = 20 in. 3 = 30 in. 4 = 40 in. 0 = 2 in. (Cartridge Code N only) | O-ring Material S = Silicone (std) E = Ethylene propylene V = Fluoroelastomers T = PTFE encapsulated fluoroelastomers P = Polyethylene flat seal (Cartridge code F only) | Quantity per Package 01 = 1/pk 03 = 3/pk (2 in. only) |

Note: Not all configurations are available.

Clarigard® Small Scale Capsule Filter

| | | | | | | |
|---|--|---|---|--|---|---|
|  |  |  |  |  |  |  |
| D = Clarigard® | Pore Size 002 = 0.2 µm 003 = 0.3 µm 005 = 0.5 µm 010 = 1.0 µm 030 = 3.0 µm | Not Autoclavable | Capsule Length 1 = 1 in. | Capsule Length 1 = 1 in. | Connection Type HH = Hose Barb | Quantity per Package 1 = 1/pk |

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For additional information, please visit [SigmaAldrich.com](https://www.SigmaAldrich.com)