



## Data Sheet

# Sterilizing-grade Aervent® Filters

## Superior filters for the sterile filtration of gases

The 0.2 µm hydrophobic Aervent polytetrafluoroethylene (PTFE) membrane provides sterility assurance high flow rates and throughput. The Aervent membrane contributes to clean processes due its non-fiber releasing properties.

### Benefits

- Ideal membrane for removing particles and microorganisms from gases
- Unparalleled thermal and hydraulic stress resistance
- Validated to withstand multiple sterilization cycles



Membrane Types	Filter Formats
Aervent 0.2 µm hydrophobic	<ul style="list-style-type: none"><li>○ Aervent-50 cartridge filters</li><li>○ Opticap® XL 2 disposable capsule filters</li></ul>

## Typical Applications

The Aervent hydrophobic filter will remove particles and microorganisms greater than 0.2 µm from gases and liquids. Aervent filters will sterilize air or gas streams in:

### Venting

- Bioreactor inlet and outlet filtration
- Filling vessels
- Carboys
- Autoclaves
- Transfer vessels

### Gas Filtration

- Filling Machines
- Utilities
- Fermentation
- Moisture-free gas supply lines
- Particulate removal

## REGULATORY COMPLIANCE

Filters with hydrophobic Aervent membrane 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. Each filter is shipped with a Certificate of Quality. Each Opticap XL 2 is integrity tested during manufacturing and is supported with a comprehensive Validation Guide for compliance with regulatory requirements.

For traceability and easy identification, each filter is labeled with the product name, lot number and serial number.

## AERVENT-50 CARTRIDGE FILTERS



Aervent-50 filters are sterilizing grade devices manufactured with hydrophobic PTFE membrane and polypropylene hardware. These filters are 100% integrity tested during manufacturing to guarantee filter

integrity and sterility assurance.

## OPTICAP XL 2 DISPOSABLE CAPSULE FILTERS

Opticap XL 2 disposable capsule filters with hydrophobic Aervent membrane are available in multiple filtration areas, providing an optimal choice for every application. Each Opticap XL 2 capsule is integrity tested during the manufacturing process.

The patented Opticap XL 2 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.



### Convenient and Easy to Use

Opticap XL 2 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

The Opticap capsule product family provides a wide range of sizes for scale-up of your small volume filtration steps to larger, full-scale filtration processes.

### The Right Connections

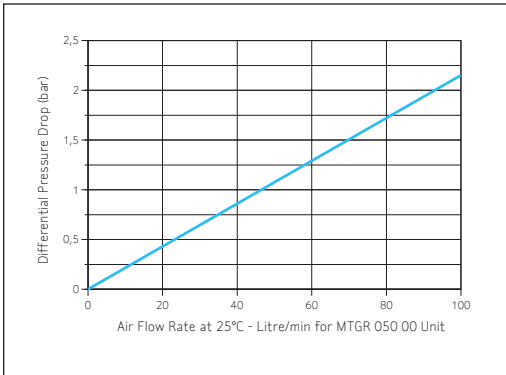
Self-contained and disposable, Opticap XL 2 capsule filters are supplied with a choice of inlet and outlet connections to optimize your filtration process, including fractional sanitary flange, hose barb, and sanitary flanges which provide a higher flow rate.

## SPECIFICATIONS (Aervent-50 and Opticap XL 2 Capsule Filters)

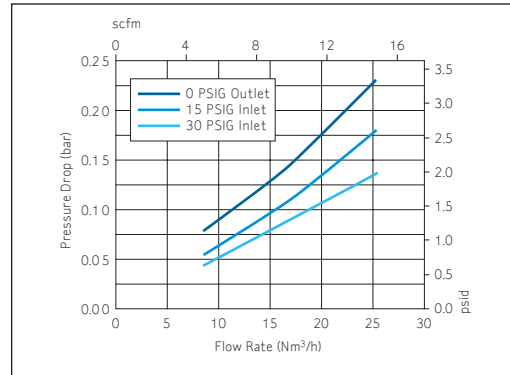
	Aervent-50	Opticap XL 2
<b>Nominal Dimensions</b>		
Maximum length:	—	14.3 cm (5.6 in.)
Body diameter:	—	8.4 cm (3.3 in.)
Vent to vent diameter:	—	12.5 cm (4.9 in.)
<b>Filtration Area</b>	19.6 cm <sup>2</sup>	0.10 m <sup>2</sup> (1.1 ft <sup>2</sup> )
<b>Materials of Construction</b>		
Filter media:	Hydrophobic PTFE	Hydrophobic PTFE
Supports:	Polypropylene	Polypropylene
Structural components:	—	Polypropylene
Vent O-rings:	—	Silicone
<b>Vent/Drain</b>	—	¼ in. hose barb with double O-ring seal
<b>Maximum Inlet Pressure</b>	4.1 bar (60 psi) at 25 °C — —	5.5 bar (80 psi) at 23 °C 2.8 bar (40 psi) at 60 °C 1.0 bar (15 psi) at 80 °C
<b>Maximum Differential Pressure</b>		
Forward:	2 bar (30 psi) at 25 °C	5.5 bar (80 psid) at ambient temperature, 1.0 bar (15 psid) at 80 °C
Reverse:	—	4.1 bar (60 psid) intermittent
<b>Bubble Point at 23 °C</b>	≥ 1100 mbar (16 psig) in 60/40 IPA/water at 25 °C	≥ 1100 mbar (16 psig) in 70/30 IPA/water
<b>HydroCorr™ Test</b>	At 2600 mbar (38 psig): ≤ 0.03 mL/min.	≤ 0.12 mL/min.
<b>Gravimetric Extractables</b>	After autoclaving and a 24 hour soak in 70/30 IPA/water at controlled room temperature: ≤ 1 mg per 10 units	≤ 15 mg
<b>Bacterial Endotoxin</b>	Aqueous extraction contains < 0.5 EU/mL as determined by the Limulus Amebocyte Lysate (LAL) Test.	
<b>Bacterial Retention</b>	Quantitative retention of 10 <sup>7</sup> CFU/cm <sup>2</sup> <i>Brevundimonas diminuta</i> ATCC® 19146 per ASTM® methodology.	
<b>Sterilization</b>	May be autoclaved for 10 cycles of 30 minutes at 130 °C.	May be autoclaved for 30 cycles of 30 minutes at 135 °C.
<b>Good Manufacturing Practices</b>	These products are manufactured in a Millipore facility which adheres to FDA Good Manufacturing Practices.	
<b>Non-Fiber Releasing</b>	Millipore Aervent membrane meets the criteria for a "non-fiber releasing" filter as defined in 21 CFR 210.3 (b) (6).	
<b>Component Material Toxicity</b>	Component materials were tested and meet the criteria of USP <88> Reactivity Tests for Class VI Plastics. Aervent filters are non-toxic per the USP <88> Safety Test.	
<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.	
<b>Viral Retention</b>	—	Rated for aerosol retention of a total challenge of 108–1010 plaque forming units of φx-174 virus particles at 50 SCFM per cartridge.
<b>Bacterial Aerosol Growth</b>	—	Retains <i>B. diminuta</i> liquid aerosol for 21 days at a minimum challenge of 10 <sup>7</sup> CFU/cm <sup>2</sup> .

# AIR FLOW RATE AND PRESSURE DROP

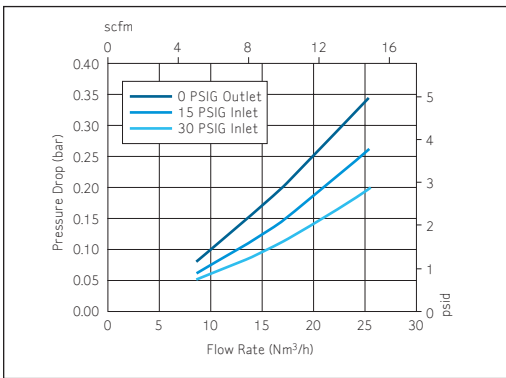
Aervent-50 Cartridge Filter



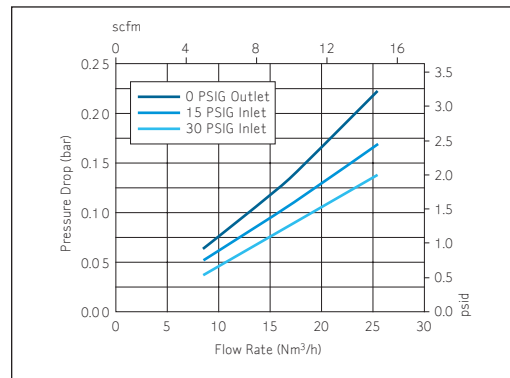
Opticap XL 2 Capsule with 0.2 µm Aervent Membrane — FF Fitting\*



Opticap XL 2 Capsule with 0.2 µm Aervent Membrane — HH Fitting\*



Opticap XL 2 Capsule with 0.2 µm Aervent Membrane — TT Fitting\*



**\*Opticap XL Capsule Connection Types**

TT = 38 mm (1½ in.) Sanitary Flange Inlet & Outlet

FF = 19 mm (¾ in.) Sanitary Flange Inlet & Outlet

HH = 14 mm (½ in.) Hose Barb Inlet & Outlet

## ORDERING INFORMATION

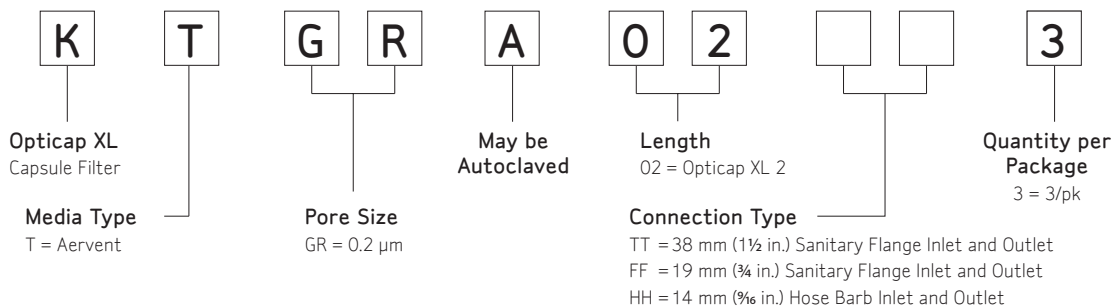
### Aervent-50 0.2 µm filters (100/pack)

Diameter	Length	Connections	Catalogue No.
62 mm	71 mm	Both sides: Hose connection for ¼" - ½" latex tubing and female luer slip	MTGR 050 00
62mm	55 mm	Both sides: ¾" sanitary flange	MTGR 150 00
62 mm	63 mm	One side: ¾" sanitary flange Other side: hose connection	MTGR 250 00
62 mm	65 mm	One side: ⅛" NPTM connection Other side: Hose connection for ¼" - ½" silicone tubing	MTGR 650 00
62 mm	57 mm	Both sides: ⅛" NPTM connection	MTGR 750 00
62 mm	72 mm	Both sides: Hose connection for ¼" - ½" silicone tubing	MTGR 850 00

### Accessories

Description	Qty/pk	Catalogue No.
ClickClamps® Clamps	2	3538200WB

### Opticap XL 2 Capsule Filters





For technical assistance, contact Millipore:  
**1-800-MILLIPORE (1-800-645-5476)**  
E-mail: [tech\\_service@millipore.com](mailto:tech_service@millipore.com)



For customer service, call **1-800-766-7000**.  
To fax an order, use **1-800-926-1166**.  
To order online: [www.fishersci.com](http://www.fishersci.com)

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