

## There's an Opticap Capsule That's Right for You

Available in a range of configurations, Opticap XL and XLT disposable capsules will meet your specific application requirements, enabling you to speed time to market and improve process economics.

### Screening Was Never So Easy

Use our OptiScale™ capsules to size, screen and select the right Opticap capsule for your application.



## Discover Optimal Choice with New Opticap XL and XLT Capsules

For more information, visit [www.millipore.com/opticap](http://www.millipore.com/opticap) or call your nearest Millipore office.

In the U.S. and Canada, call toll-free, 1-800-MILLIPORE (1-800-645-5476).

In the U.S., Canada and Puerto Rico, fax orders to 1-800-MILLIFX (1-800-645-5439).

Outside North America, contact your local office.

For a directory of offices, visit [www.millipore.com/offices](http://www.millipore.com/offices)

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the optimal choice for  
every application

# Opticap™ XL and XLT Capsules Configurations for Every Application

Opticap XL and XLT disposable capsule filters help lower costs and speed your time to market. Available in a wide range of capsule sizes, filter media, pore sizes and inlet/outlet connections, there are Opticap XL and XLT capsules to match your every application, from clarification to final filtration.

## The Right Fit

Now available in a range of sizes, Opticap XL and XLT capsules are linearly scalable, allowing you to easily expand your filtration system. There's little risk of oversizing, so you achieve better optimization and improve cost per liter, and each capsule is scalable to larger systems.

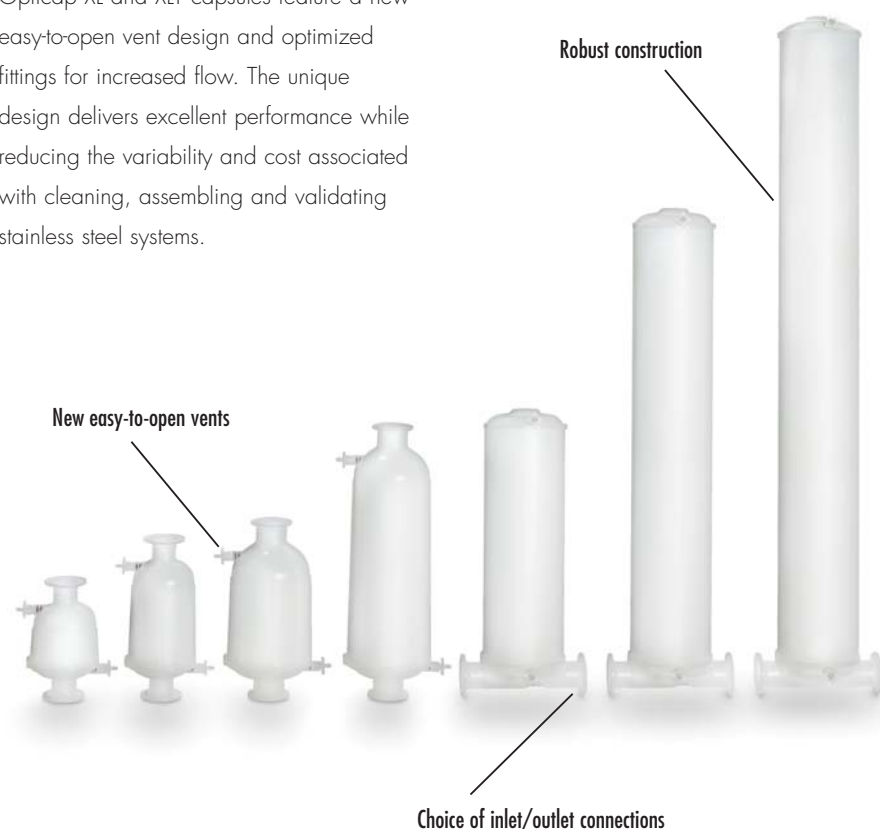
## Designed for Optimum Performance and Convenience

Opticap XL and XLT capsules feature a new easy-to-open vent design and optimized fittings for increased flow. The unique design delivers excellent performance while reducing the variability and cost associated with cleaning, assembling and validating stainless steel systems.

## Opticap Delivers More

For more scalability and performance, choose Opticap XL and XLT capsules. Only from Millipore, the name synonymous with filtration for 50 years. As a leader in pharmaceutical and biotechnology processing, we have the resources to support your needs, from process development and application specialists to a complete range of validation services. For innovative products and services that optimize your process,

**Discover the More in Millipore.™**



Applications	Formats
Sterilizing-grade performance for low-surface-tension liquids, oil-based solutions, cleaning agents and alcohol. Designed for use with vents, sparge and for facilities' air applications.	XL 5, 10
These filters are designed for high retention efficiency and throughput by combining a large prefilter media selection with a sterilizing grade membrane in one filtration step. Ideally suited to the removal of particles and the sterile filtration of liquid solutions, including parenterals, tissue culture media, serum, vaccines, diagnostics, biologicals, ophthalmic solutions, orals, topicals and reagents.	XL 10
Multilayer Durapore filters minimize extractables, maximize yields and maintain the highest levels of product purity and sterility assurance. Hydrophilic Multilayer Durapore filters are recommended for applications requiring sterilizing-grade performance with high throughput, high thermal resistance, high product purity and high yields. Typical applications include: the filtration of therapeutics, vaccines, antibiotics, blood fractionations, intermediate bulk pharmaceutical and downstream biotechnology processing solutions where protein binding must be minimized.	XL 10
Upstream process fluids such as media and buffers. Downstream process fluids such as chromatography effluents. Product Bulk API for shipping. Smaller volume final product transfer.	XL 4, 5 XLT 10, 20, 30
Removes particles and microorganisms from gases and liquids. In gases, this filter will remove contamination down to 0.01 µm. Sterile tank venting, fermentor sterile air inlet and outlet, sterile filtration of gas lines, WFI tank venting.	XL 4, 5
Millipore Express SHF filter is a fast-flowing, sterilizing-grade filter developed for the filtration of buffers, sanitizing solutions and other water-like intermediate pharmaceutical and biotech process solutions. Millipore Express SHF filters are recommended for applications requiring fast and efficient sterilization of buffers, cleaning solutions, pH adjusters, diluents, reagents, alcohol-purified chromatography eluents and other clean biological solutions.	XL 10 XLT 10, 20, 30
These filters are designed for log removal of small viruses from highly purified proteins or from essential media and fed streams consisting of dilute peptides. The primary mechanism of removal is size exclusion.	XL 10

**Opticap XL and XLT capsules are available in your choice of inlet/outlet connections.**

Filter Media/ Pore Sizes (µm)	Description	Features
<b>FINAL FILTRATION continued</b>		
Hydrophobic Durapore 0.22	Hydrophobic PVDF	High thermal and hydraulic stress resistance, Broad chemical compatibility, Consistently high flow rates/throughput, Low extractables, Economic gas filtration, 100% integrity tested
Multimedia Durapore 0.2/0.22, 0.5/0.22, 1.2/0.22, 0.5/0.2/0.22, 1.2/0.5/0.22, 1.2/0.2/0.22	Prefilter: Mixed cellulose ester Final Filter: Hydrophilic PVDF	High throughput, Economical one-step performance, High retention efficiency, Durapore membrane + Milligard prefilter, 100% integrity tested
Multilayer Durapore 0.45/0.22	Prefilter: 0.45 µm Hydrophilic PVDF Final Filter: Sterilizing-grade 0.22 µm Hydrophilic PVDF	Low protein binding, Low extractables, Maximum product purity and yield, Highest sterility assurance
Gamma Hydrophilic Durapore 0.1, 0.22	Hydrophilic PVDF	Improves process efficiency and cost-effectiveness, High flow rates and throughput, Low extractables and particle shedding, Broad chemical compatibility
Gamma Hydrophobic Durapore 0.22	Hydrophobic PVDF	Broad solvent compatibility, High thermal and hydraulic stress resistance
Millipore Express® SHF 0.2	Hydrophilic PES	NaOH compatible, Superior flow rates, Broad chemical compatibility, pH 1-14, Validated sterilizing-grade performance, 100% integrity tested
<b>VIRAL CLEARANCE</b>		
Viresolve NFP 0.22	Hydrophilic PVDF	High flow processing, Alcohol-free integrity test, >4 log removal parvovirus, >98% recovery, 100% integrity tested

**Opticap XL**



Sanitary flange 38 mm (1 1/2 in.) inlet/outlet



Sanitary flange 19 mm (3/4 in.) inlet/outlet



Hose barb 14 mm (9/16 in.) inlet/outlet



Sanitary flange 38 mm (1 1/2 in.) inlet and hose barb 14 mm (9/16 in.) outlet\*



Sanitary flange 19 mm (3/4 in.) inlet and hose barb 14 mm (9/16 in.) outlet\*

**Opticap XLT**



Sanitary flange 38 mm (1 1/2 in.) inlet/outlet



Hose barb 25 mm (1 in.) inlet/outlet



Sanitary flange 38 mm (1 1/2 in.) inlet and hose barb 16 mm (5/8 in.) outlet



Hose barb 16 mm (5/8 in.) inlet/outlet



Opticap XLT full view

\* Not available in all formats

## Introducing the Next Generation of Opticap Capsules. More Choices in Media Types, Pore Sizes and Capsule Sizes.

Filter Media/ Pore Sizes (µm)	Description	Features	Applications	Formats
<b>CLARIFICATION</b>				
Clarigard® 0.2, 0.3, 0.5, 1.0, 3.0	All-polypropylene graded-density depth filter	99.99% retention rating, High capacity media, Low extractables levels, Broad chemical compatibility, Non-fiber releasing	The ideal filter for the protection of downstream process steps such as membrane filters and chromatography columns. Clarigard 0.2 and 0.3 will easily extend the capacity of sterilizing filters.	XL 1, 5, 10
Polygard®-CR 0.1, 0.3, 0.5, 1.0, 3.0, 5.0, 10.0, 25.0, 50.0, 75.0, 100.0	All-polypropylene graded-density depth filter	High dirt-holding capacity, High flow rates, Long service life, Nominally rated filter, Low extractables levels, Broad chemical compatibility	A dependable solution with an extremely broad range of micron ratings, this filter is suited to a wide variety of particle-removal applications in liquids and gases.	XL 1, 5, 10
Polygard-CN 0.3, 0.6, 1.2, 2.5, 5.0, 10.0, 30.0	All-polypropylene pleated filter	Low pressure drop, Nominally rated filter, Low extractables levels, Broad chemical compatibility	Designed for particle removal applications in liquids and gases, Polygard-CN filters minimize pressure differentials during the filtration process.	XL 5, 10
<b>PREFILTRATION</b>				
Polysep™ II 1.0/0.2, 1.0/0.5, 1.0/1.2, 2.0/1.2	A depth filter consisting of a borosilicate glass layer and a layer of mixed esters of cellulose membrane	High particle-loading capacity, High retention, High flow rates, Non-fiber releasing	Designed for critical prefiltration steps, it is ideally suited to a broad range of aqueous-based applications.	XL 2, 4, 5, 10 XLT 10, 20, 30
0.1 µm NOM	A depth filter consisting of a borosilicate glass layer and two layers of mixed esters of cellulose membrane	Designed for protection of 0.1 µm membrane, High particle-loading capacity, High retention, High flow rates, Non-fiber releasing	The 0.1 µm NOM is ideally suited for bioreactor feed media filtration. Media is ultimately filtered through a 0.1 µm membrane filter to protect reactor from mycoplasma contamination.	XL 10 XLT 10, 20, 30
Milligard® 0.2, 0.5, 1.2, 0.5/0.2, 1.2/0.5	A membrane filter of mixed esters of cellulose medium	High dirt-holding capacity, High retention efficiency, High reproducibility and efficacy, Non-fiber releasing	Available in single- or double-layer formats, this superior filter is designed for use in critical prefiltration applications protecting more expensive downstream filtration devices from premature plugging.	XL 2, 4, 5, 10 XLT 10, 20, 30
Milligard LPB 0.2, 0.5, 1.2, 0.5/0.2, 1.2/0.5	A membrane filter of mixed esters of cellulose medium	Maximum protein recovery, High dirt-holding capacity, High retention efficiency, High reproducibility and efficacy, Non-fiber releasing	Specifically developed for the removal of particles and microorganisms in applications where maximizing protein recovery is critical.	XL 2, 4, 5, 10
Lifegard™ 1.0, 2.0	A depth filter of borosilicate glass microfiber medium	High contaminant-holding capacity, High adsorptive removal properties, Excellent wet strength	Ideally suited in plasma and protein serum as well as emerging gene therapy applications, this early-stage filter will remove colloids, aggregated and non-product proteins, lipids and other particles before downstream purification.	XL 5, 10
Hydrophilic Durapore® 0.45	A PVDF membrane with optional mixed esters of cellulose prefilter layer	Superior flow rates and throughput, Low extractables levels, Lowest protein binding, Broad chemical compatibility, Low particle shedding	Designed for aqueous-based applications that require high flow rates and minimum protein binding. The filter can be used for bioburden reduction and large volume parenteral (LVP) applications prior to terminal sterilization, redundantly and difficult-to-filter situations or as prefilter to a sterilizing-grade filter. The optional prefilter layer provides superior throughput with solutions containing hard or colloidal particles, such as dextrose.	XL 2, 4, 5, 10
<b>VENT, AIR AND GAS FILTRATION</b>				
Aervent® 0.2	PTFE	Hydrophobic low area	Vent, gas and liquid applications.	XL 2, 4, 5, 10
<b>FINAL FILTRATION</b>				
Hydrophilic Durapore 0.22	Hydrophilic PVDF	Superior flow rates and throughput, Low extractables, Lowest protein binding, Validated sterilizing-grade performance, 100% integrity tested	The 0.1 filter removes particles, microorganisms and mycoplasma from aqueous streams, tissue culture media, blood fractionations, serum and bioprocessed pharmaceuticals. The 0.22 filter is ideal for removing particles and sterile filtration of liquid solutions, including SVPs, tissue culture media, serum filtration, virus vaccines, diagnostics, bioprocessed pharmaceuticals, aqueous antibiotics and radiodiagnostic injectables.	XL 2, 4, 5, 10 XLT 10, 20, 30
0.1				XL 2, 4, 5, 10 XLT 10, 20, 30