



Quick Reference Guide

Millex[®] Syringe Filters

What Do You Need to Filter Today?



Millex Syringe Filters

Filter with confidence

Millipore has a long history of enabling efficient sample preparation within the life science, environmental monitoring, clinical and industrial quality control markets. We constantly strive to advance sample preparation methods and help scientists meet the demands of lower detection limits and increased sample workloads.

An essential component of high quality separation and purification processes, Millex syringe filters can be found in virtually every laboratory. The unsurpassed quality and consistency of results they provide has led to the creation of many sample preparation methods specifying Millex filters. Global availability allows these methods to be easily transferred to any laboratory, anywhere in the world.

Manufactured for Reliable Performance

Manufacturing occurs in a controlled environment using an automated process. Sterile devices are provided with a Certificate of Quality.

Faster Flow Rate

33 mm Millex filters have 20% more filter surface than 25 mm filters for significantly higher flow rate and throughput.

Higher Operating Pressure

With a maximum housing pressure of 150 psig (10 bar) solutions can be filtered faster.

Low Extractables, Low Binding

A variety of membranes and housings ensure chemical compatibility with a range of samples and solvents.

Choose From a Variety of Membranes

- Millex-LCR filter contains a Millipore-exclusive hydrophilic PTFE membrane and are HPLC-certified for low levels of UV-absorbing extractables. They provide the cleanest sample for HPLC analysis.
- Durapore® (PVDF) filters combine fast flow with low protein binding.
- Nylon filters provide broad chemical compatibility for use with aqueous and organic solutions.
- Millipore Express® PLUS (PES) filters have fastest flow rates and higher throughput.
- MF-Millipore™ mixed cellulose ester (MCE) membrane is a widely used, general purpose filter.



Sample Preparation for Chromatography

Non-sterile, low-extractable filters for clarification or fine particulate removal prior to instrument analysis.



Applications

- HPLC, UHPLC, IC, GC, Dissolution testing, general particulate removal.

Membranes

- Millipore LCR (hydrophilic PTFE)
Aqueous or mild organic solutions; low binding and extractables.
- Durapore® (PVDF)
Aqueous or mild organic solutions; low binding and extractables.
- Nylon
Aqueous or organic solutions.
- Millipore Express® (PES)
Fast flow and low protein binding.
- Fluoropore™ (hydrophobic PTFE)
Organic solvents.

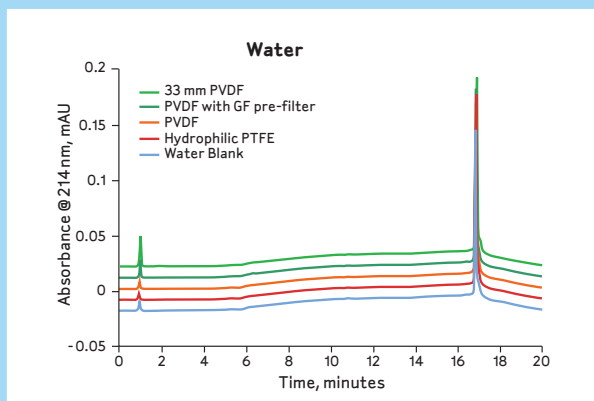
Choosing the appropriate Millex filter size:

Process Volume	Millex Filter Diameter
< 1 mL	4 mm
1 – 10 mL	13 mm
10 – 100 mL	25 mm
10 – 100 mL	33 mm

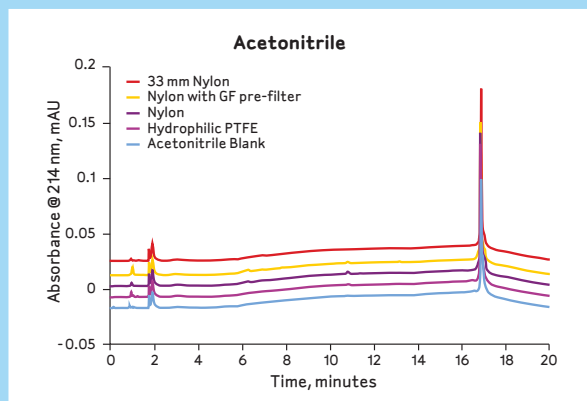
Housings

- High density polyethylene or polypropylene.

EXTRACTABLES



Low water extractables indicate that Millex filters are ideal for dissolution studies and other aqueous-based sample prep protocols.



Low extractables are also observed with organic solvents.

Sample Preparation for Chromatography

	Pore Size (μm)	Type	Process Volume	Hold-up Volume (after air purge)	Outlet Connection	Qty/Pk	Catalogue No.
4 mm Diameter							
Millipore LCR (Hydrophilic PTFE) Membrane							
	0.20	LG	1 mL	<10 μL	Male stepped	100	SLLGR04NL
	0.45	LH	1 mL	<10 μL	Male stepped	100	SLLHR04NL
						1000	SLLHR04NK
Durapore (PVDF) Membrane							
	0.22	GV	1 mL	<10 μL	Male stepped	100	SLGVR04NL
						1000	SLGVR04NK
	0.45	HV	1 mL	<10 μL	Male stepped	100	SLHVR04NL
						1000	SLHVR04NK
Fluoropore (Hydrophobic PTFE) Membrane							
	0.20	FG	1 mL	<10 μL	Male stepped	100	SLFGR04NL
	0.45	FH	1 mL	<10 μL	Male stepped	100	SLFHR04NL
13 mm Diameter							
Millipore LCR (Hydrophilic PTFE) Membrane							
	0.20	LG	10 mL	<25 μL	Male Luer slip	100	SLLGH13NL
						1000	SLLGH13NK
	0.45	LCR	10 mL	<25 μL	Male Luer slip	100	SLCR013NL
					Male Luer slip	1000	SLCR013NK
					Tube outlet	100	SLCRT13NL
Durapore (PVDF) Membrane							
	0.22	GV	10 mL	<25 μL	Male Luer slip	100	SLGVX13NL
					Male Luer slip	1000	SLGVX13NK
					Tube outlet	100	SLGVX13TL
	0.45	HV	10 mL	<25 μL	Male Luer slip	100	SLHVX13NL
					Male Luer slip	1000	SLHVX13NK
					Tube outlet	100	SLHVX13TL
Nylon Membrane							
	0.20	GN	10 mL	<25 μL	Male Luer slip	100	SLGNX13NL
					Male Luer slip	1000	SLGNX13NK
					Tube outlet	100	SLGNX13TL
	0.45	HN	10 mL	<25 μL	Male Luer slip	100	SLHNX13NL
					Male Luer slip	1000	SLHNX13NK
					Tube outlet	100	SLHNX13TL
IC Millex Filters (Hydrophilic PTFE) Membrane							
	0.20	IC Millex-LG	10 mL	<10 μL	Male Luer slip	100	SLLGC13NL
	0.45	IC Millex-LH	10 mL	<10 μL	Male Luer slip	100	SLLHC13NL
Fluoropore (Hydrophobic PTFE) Membrane							
	0.20	FG	10 mL	<25 μL	Male Luer slip	100	SLFGX13NL
					Male Luer slip	1000	SLFGX13NK
					Tube outlet	100	SLFGX13TL
	0.45	FH	10 mL	<25 μL	Male Luer slip	100	SLFHX13NL
					Male Luer slip	1000	SLFHX13NK
					Tube outlet	100	SLFHX13TL



13 mm Millex filters have high density polyethylene or polypropylene housings and a male Luer slip outlet or MLS outlet with extension tube.



	Pore Size (μm)	Type	Process Volume	Hold-up Volume (after air purge)	Outlet Connection	Qty/Pk	Catalogue No.
25 mm Diameter							
Millipore LCR (Hydrophilic PTFE) Membrane							
	0.20	LCR	100 mL	<100 μL	Male Luer slip	50 250 1000	SLLGH25NS SLLGH25NB SLLGH25NK
	0.45	LCR	100 mL	<100 μL	Male Luer slip	50 250 1000	SLCR025NS SLCR025NB SLCR025NK
IC Millex Filters (Hydrophilic PTFE) Membrane							
	0.20	IC Millex-LG	100 mL	<100 μL	Male Luer slip	50	SLLGC25NS
	0.45	IC Millex-LH	100 mL	<100 μL	Male Luer slip	50	SLLHC25NS
Fluoropore (Hydrophobic PTFE) Membrane							
	0.20	FG	100 mL	<100 μL	Male Luer slip	50 250 1000	SLFG025NS SLFG025NB SLFG025NK
	0.45	FH	100 mL	<100 μL	Male Luer slip	50 250 1000	SLFH025NS SLFH025NB SLFH025NK
	5.0	LS	100 mL	<100 μL	Male Luer slip	50	SLLS025NS
33 mm Diameter							
Durapore (PVDF) Membrane							
	0.22	GV	100 μL	$\leq 80 \mu\text{L}$	Male Luer slip	50 250 1000	SLGV033NS SLGV033NB SLGV033NK
	0.45	HV	100 μL	$\leq 80 \mu\text{L}$	Male Luer slip	50 250 1000	SLHV033NS SLHV033NB SLHV033NK
Nylon Membrane							
	0.20	GN	100 mL	$\leq 80 \mu\text{L}$	Male Luer slip	50 250 1000	SLGN033NS SLGN033NB SLGN033NK
	0.45	HN	100 μL	$\leq 80 \mu\text{L}$	Male Luer slip	50 250 1000	SLHN033NS SLHN033NB SLHN033NK
Millipore Express (PES) Membrane							
	0.22	GP	200 mL	$\leq 80 \mu\text{L}$	Male Luer slip	50 250 1000	SLGP033NS SLGP033NB SLGP033NK
	0.45	HP	100 μL	$\leq 80 \mu\text{L}$	Male Luer slip	50 250 1000	SLHP033NS SLHP033NB SLHP033NK



25 mm filters have HDPE housings with a male Luer slip outlet.



33 mm filters have polypropylene housings with a male Luer slip outlet.

Automation-Compatible Filters

Engineered specifically for robotic systems, automation-compatible 25 mm Millex syringe filters deliver trouble-free operation in automated filter changing stations.

- Domed housing ensures reliable delivery of filters.
- Pressure resistant housing resists bursting
- Luer-Lok[®] connection optimized for precise alignment and fit.
- Available in either bulk or delivery tubes for use with automated filter changing system, including Caliper, Varian and Sotax workstations.

Applications

- Dissolution testing.
- HPLC sample preparation.

Membranes

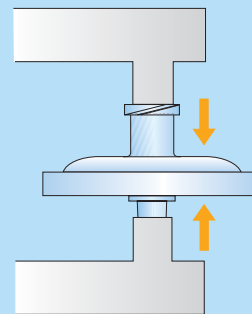
- Glass Fiber
Clarifying aqueous or organic solutions with high particulate levels.
- Millex LCR (hydrophilic PTFE)*
Clarifying aqueous or organic solutions.
- Durapore (PVDF)*
Clarifying aqueous and mild organic solutions; ultra-low protein binding.
- Nylon*
Clarifying aqueous or organic solutions.
- Multi-layer Prefilter configuration
Clarification of high particulate and viscous solutions.

* Also available with glass fiber prefilter for clarifying solutions with high particulate levels.

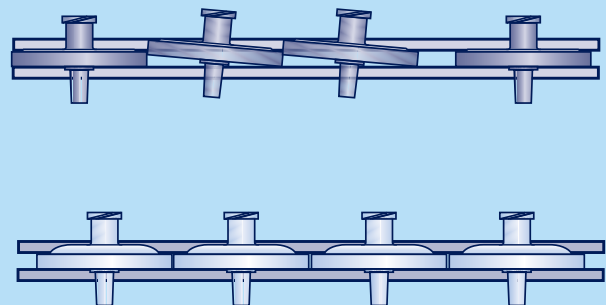
Housings

- Low-extractable, high-density polyethylene.

MILLIPORE ADVANTAGE



A rigid domed housing design helps prevent backpressure, which can cause a workstation shut-down.



The domed housing of automation-compatible 25 mm Millex syringe filters enables smooth, reliable delivery by eliminating shingling between filters in the transport rack.

Standard (1000 packs) for individual use or 200 pack tubes for use on robotic systems.

Membrane	Pore Size (μm)	Process Volume (max)	Qty/Pk	Catalogue No.
25 mm				
Glass Fiber Filter				
	1.0 PB	100 mL	200 (8x25) 1000	SLPBDZ5NZ SLPBDZ5NK
Millipore LCR (Hydrophilic PTFE) Membrane				
	0.20 LG	100 mL	200 (8x25) 1000	SLLGDZ5NZ SLLGDZ5NK
	0.45 LCR	100 mL	200 (8x25) 1000	SLCRDZ5NZ SLCRDZ5NK
Millipore LCR (Hydrophilic PTFE) Membrane with 1.0 μm Glass Fiber Prefilter				
	0.45 /1.0 LCR/PB	100 mL	200 (8x25) 1000	SLCRBZ5NZ SLCRBZ5NK
Durapore (PVDF) Membrane				
	0.45 HV	100 mL	200 (8x25) 1000	SLHVDZ5NZ SLHVDZ5NK
Durapore (PVDF) Membrane with 1.0 μm Glass Fiber Prefilter				
	0.45/1.0 HV/PB	100 mL	200 (8x25) 1000	SLHVBZ5NZ SLHVBZ5NK
Nylon Membrane				
	0.45 HN	100 mL	200 (8x25) 1000	SLHNDZ5NZ SLHNDZ5NK
	0.20 GN	100 mL	200 (8x25) 1000	SLGNDZ5NZ SLGNDZ5NK
Nylon Membrane with 1.0 μm Glass Fiber Pre-filter				
	0.45 /1.0 HN/PB	100 mL	200 (8x25) 1000	SLHNBZ5NZ SLHNBZ5NK



High Particulate/Viscous Filtration

HPF Millex filters include multiple media: a graduated prefilter and a membrane filter for high throughput filtration of viscous or particle-laden solutions.

Applications

- Analytical sample prep.
- Wine analysis.
- General particulate removal.

Membranes

Graduated glass fiber prefilter with a choice of;

- Millipore LCR (hydrophilic) for aqueous or organic solutions.
- Durapore (PVDF) for aqueous and mild organic solutions.
- Nylon for aqueous or organic solutions.

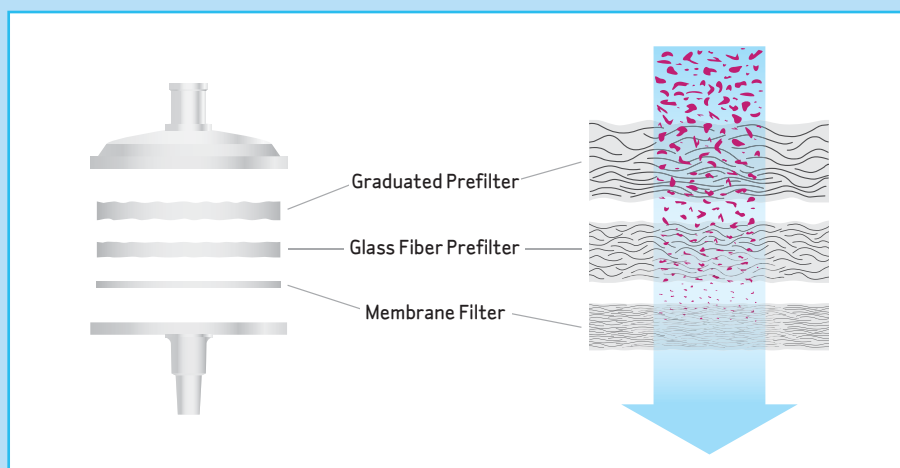
Housings

- High-density polyethylene, which is compatible with the most commonly used solvents.



MILLIPORE ADVANTAGE

A multi-layer filter can improve throughput of high particulate/viscous samples.

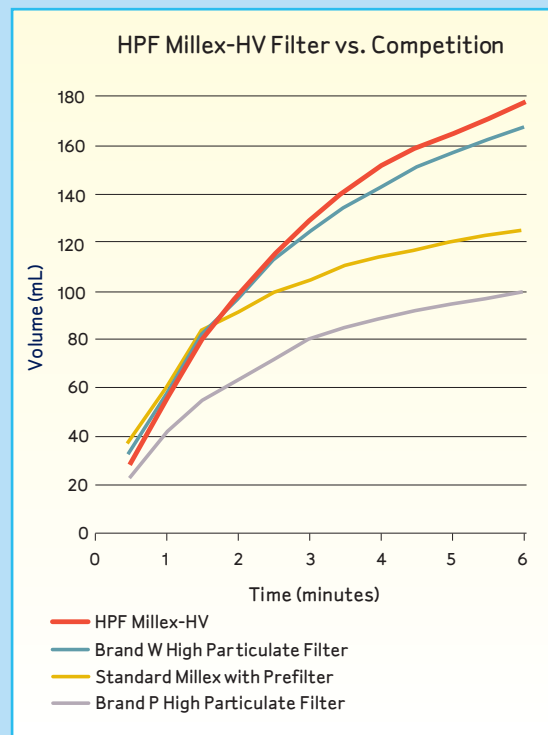
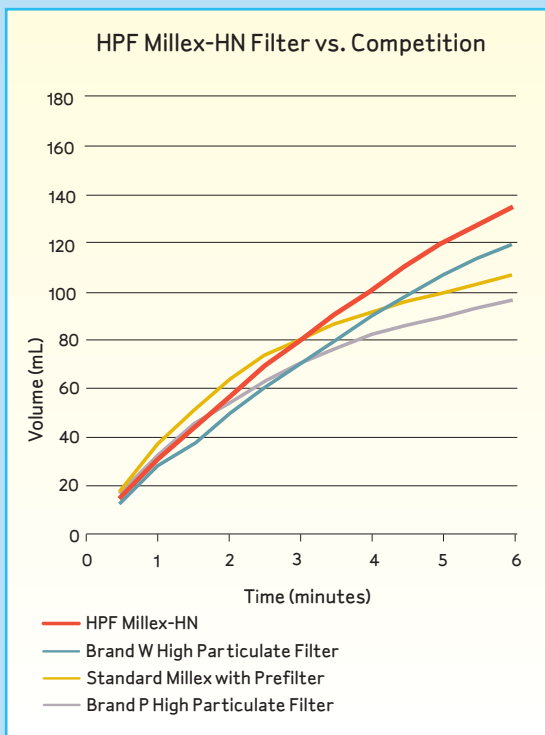


Standard (50 or 1000 packs) for individual use or 200 (8 x 25) pack tubes for use on robotic filter changing workstations.

Membrane	Pore Size (µm)	Process Volume (max)	Qty/Pk	Catalogue No.
25 mm				
Millipore LCR (Hydrophilic PTFE) with Glass Fiber Pre-filter				
	0.45 LCR	100 mL	50 1000	SLCRM25NS SLCRM25NK
	0.20 LG	100 mL	50 1000	SLLGM25NS SLLGM25NK
Durapore (PVDF) Membrane and Glass Fiber Pre-filter				
	0.45 HV	100 mL	50 200 (8 x 25) 1000	SLHVM25NS SLHVM25NZ SLHVM25NK
Nylon Membrane and Glass Fiber Pre-filter				
	0.45 HN	100 mL	50 200 (8 x 25) 1000	SLHNM25NS SLHNM25NZ SLHNM25NK
	0.20 GN	100 mL	50 1000	SLGNM25NS SLGNM25NK

AUTOMATION COMPATIBLE

These filters are specially designed for reliable operation on robotic systems.



[multivitamin tablets dissolved overnight and filtered at 5 psi]

Laboratory Filtration

Non-sterile 25 mm filters with a variety of membranes for prefiltration, clarification, or fine particulate removal (0.22 µm pore size) from aqueous solutions.

Applications

- Clarification and particulate removal.

Membranes

- Glass fiber Prefiltration.
- Durapore (PVDF) Aqueous and mild organic solutions; ultra-low protein binding.
- Mixed cellulose esters (MCE) Aqueous solutions.

Housings

- PVC.

Connections

- Female Luer-Lok inlet / Male Luer slip outlet.



	Pore Size (µm)	Type	Process Volume	Hold-up Volume (after air purge)	Qty/Pk	Catalogue No.
25 mm Diameter						
Glass Fiber Filter						
	Prefilter	AP	100 mL	<100 µL	50	SLAP02550
Durapore (PVDF) Membrane						
	0.22	GV	100 mL	<100 µL	1000	MSPO00842
	5.0	SV	100 mL	<100 µL	250	SLSV025NB
Mixed Cellulose Esters (MCE) Membrane						
	0.22	GS	100 mL	<100 µL	250	SLGS025NB
	0.45	HA	100 mL	<100 µL	250 1000	SLHA025NB SLHA02510
	0.8	AA	100 mL	<100 µL	250 1000	SLAA025NB SLAA025NK

MILLIPORE ADVANTAGE

Wide variety of membranes and pore sizes lets you choose the best filter for your application.

Medical Devices

Sterile filters for hospital pharmacy and direct patient care.

Applications

- For use in medical applications in the U.S. and Japan only.
- See page 13 for CE-marked filters.



	Pore Size (µm)	Type	Process Volume	Hold-up Volume (after air purge)	Sterilization Method*	Qty/Pk	Catalogue No.
25 mm Diameter							
Millipore Express (PES) Membrane							
Medical Millex-GP Filter Unit	0.22	GP	200 mL	< 100 µL	RS	50	SLMP025SS, SLMPL25SS [§]
Mixed Cellulose Esters (MCE) Membrane							
Medical Millex-GS Filter Unit	0.22	GS	100 mL	< 100 µL	EO	50	SLGSV255F [‡]
33 mm Diameter							
Millipore Express PLUS (PES) Membrane							
Medical Millex-HP Filter Unit	0.45	HP	200 mL	< 100 µL	RS	50	SLHPM33RS
Medical Millex-GP Filter Unit	0.22	GP	200 mL	< 100 µL	RS	50	SLGPM33RS
Durapore (PVDF) Membrane							
Medical Millex-VV Filter Unit	0.1	VV	100 mL	< 100 µL	RS	50	SLVVM33RS
Medical Millex-GV Filter Unit	0.22	GV	100 mL	< 100 µL	RS	50	SLGVM33RS
Medical Millex-HV Filter Unit	0.45	HV	100 mL	< 100 µL	RS	50	SLHVM33RS
Mixed Cellulose Esters (MCE) Membrane							
Medical Millex-GS Filter Unit	0.22	GS	100 mL	< 100 µL	EO	50	SLGSM33SS
Medical Millex-HA Filter Unit	0.45	HA	100 mL	< 100 µL	EO	50	SLHAM33SS
Medical Millex-AA Filter Unit	0.8	AA	100 mL	< 100 µL	EO	50	SLAAM33SS

* EO = ethylene oxide; RS = radiosterilized. ‡ vented inlet § Luer-Lok/Luer-Lok

Sterile Filtration

Pre-sterilized filters for sterilizing (0.22 μm pore size or smaller) or clarifying biological solutions.

Applications

- o Tissue culture media/additives.
- o Buffers.
- o Biological solutions.

Membranes

- o Millipore Express[®] PLUS (PES)
Fast flow & low protein binding.
- o Durapore[®] (PVDF)
Ultra-low protein binding.
- o Mixed cellulose esters (MCE)
General purpose; binds trace proteins.
- o Millipore LCR (hydrophilic PTFE)
Broad chemical compatibility.

Housings

- o 4, 13 mm: high density polyethylene.
- o 25 mm: PVC.
- o 33 mm: modified acrylic.
- o Female Luer-Lok[®] inlet/male Luer slip outlet (except MP and OR).

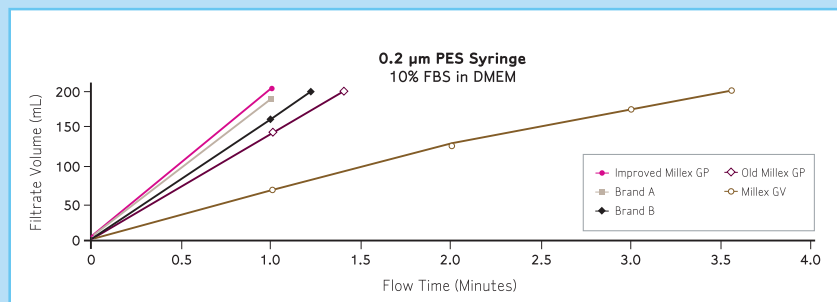
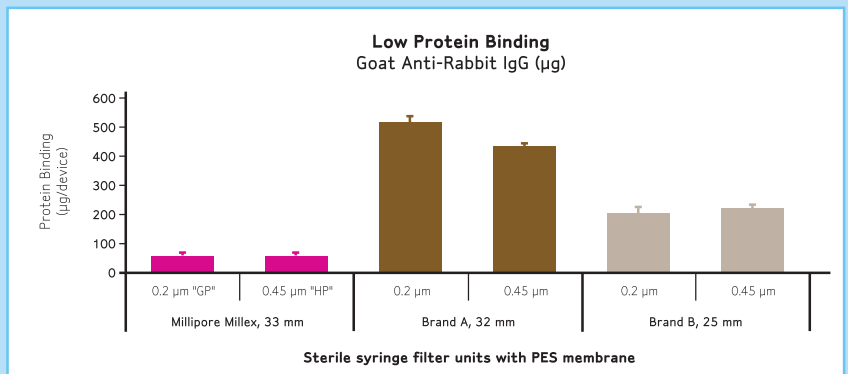


Choosing the appropriate Millex filter size:

Process Volume	Millex Filter Diameter
< 1 mL	4 mm
1 – 10 mL	13 mm
10 – 100 mL	25 mm
10 – 200 mL	33 mm

MILLIPORE ADVANTAGE

Millipore Express membrane provides faster flow (below) and lower protein binding (right) than other polyethersulfone membranes.



Sterilized, individually blister packaged.

	Pore Size (μm)	Type	Process Volume	Hold-up Volume (after air purge)	Sterilization Method*	Qty/Pk	Catalogue No.
4 mm Diameter							
Durapore (PVDF) Membrane							
	0.22	GV	1 mL	< 10 μL	EO	100	SLGV004SL
	0.45	HV	1 mL	< 10 μL	EO	100	SLHV004SL
13 mm Diameter							
Millipore LCR (Hydrophilic PTFE) Membrane							
	0.20	LG	10 mL	< 25 μL	EO	100	SLLG013SL
Durapore (PVDF) Membrane							
	0.22	GV	10 mL	< 25 μL	EO	100	SLGV013SL
	0.45	HV	10 mL	< 25 μL	EO	100	SLHV013SL
25 mm Diameter							
Durapore (PVDF) Membrane							
	5.0	SV	100 mL	< 100 μL	EO	50	SLSV025LS
Mixed Cellulose Esters (MCE) Membrane with male Luer-Lok outlet							
	0.22	OR	100 mL	< 100 μL	EO	50	SLGL025OS
Mixed Cellulose Esters (MCE) Membrane with vented inlet							
	0.22	GS	100 mL	< 100 μL	EO	50	SLGSV255F
Millipore LCR (Hydrophilic PTFE) Membrane							
	0.20	LG	100 mL	< 100 μL	EO	50	SLLG025SS
		AP	100 mL	< 100 μL	NS	50	SLAP02550
Borosilicate Glass Filter A120 for prefiltration							
33 mm Diameter							
Millipore Express PLUS (PES) Membrane							
	0.22	GP	200 mL	< 100 μL	RS	50	SLHP033RS
	0.45	HP	200 mL	< 100 μL	RS	250	SLHP033RB
Durapore (PVDF) Membrane							
	0.1	VV	100 mL	< 100 μL	RS	50	☑☑ SLVV033RS
	0.22	GV	100 mL	< 100 μL	RS	50	☑☑ SLGV033RS
						250	☑☑ SLGV033RB
	0.45	HV	100 mL	< 100 μL	RS	50	☑☑ SLHV033RS
						250	☑☑ SLHV033RB
Mixed Cellulose Esters (MCE) Membrane							
	0.22	GS	100 mL	< 100 μL	EO	50	☑☑ SLGS033SS
						250	☑☑ SLGS033SB
	0.45	HA	100 mL	< 100 μL	EO	50	☑☑ SLHA033SS
						250	☑☑ SLHA033SB
	0.8	AA	100 mL	< 100 μL	EO	50	☑☑ SLAA033SS
						250	☑☑ SLAA033SB
50 mm Diameter							
Millipore Express (PES) Membrane							
	0.22	GP	4000 mL	< 1 mL	RS	10	SLGP05010
	0.22	GP with filling bell			RS	10	SLGPB5010

* EO = ethylene oxide; RS = radiosterilized

Vent/Gas Filters

Fluoropore (hydrophobic PTFE) membrane is an excellent moisture barrier and can be used for sterilizing (0.2 μm pore size) or clarifying gases or organic solutions.

Applications

- Sterile filtering gases.
- Venting sterile containers.
- In-line vacuum pump protection (50 mm filters).

Membranes

- Fluoropore (hydrophobic PTFE).

Housings

- PVC for EO-sterilized filters;
- polypropylene for autoclavable filters.

Pressure

- 25 mm filters 5 bar (75 psi) max.
- 50 mm filters 4 bar (60 psi) max.



MILLIPORE ADVANTAGE

Because Millex filters are bi-directional, you don't have to worry about their orientation when using them in-line.

Pore Size (µm)	Type	Inlet Type	Outlet Type	Sterilization Method	Qty/Pk	Catalogue No.
25 mm Diameter						
0.20	FG	Female Luer-Lok	Male Luer slip	EO	50	SLFG025LS
		Female Luer-Lok	Male Luer-Lok	EO	50	SLFGL25BS
		Female Luer-Lok	Needle	EO	25	SLFGN25VS
		Female Luer-Lok	Male Luer slip	Autoclavable	50	SLFG02550*
50 mm Diameter						
0.20	FG	Stepped hose barb (latex) with female Luer slip interior	Stepped hose barb (latex) with female Luer slip interior	Autoclavable	10	SLFG05010*
					100	SLFG05000*
		Stepped hose barb (silicone) with female Luer slip interior	1/8" NPTM	Autoclavable	10	SLFG55010*
			Stepped hose barb (latex) with female Luer slip interior	1/8" NPTM	Autoclavable	10 100
		1/8" NPTM		1/8" NPTM	Autoclavable	10 100
		Stepped hose barb (silicone) with female Luer slip interior	Stepped hose barb (silicone) with female Luer slip interior	Autoclavable	10	SLFG85010*
					100	SLFG85000*
0.45	FH	Stepped hose barb with female Luer slip interior	Stepped hose barb with female Luer slip interior	Autoclavable	10	SLFH05010*
					100	SLFH05000*
1.0	FA	Stepped hose barb with female Luer slip interior	Stepped hose barb with female Luer slip interior	Autoclavable	10	SLFA05010*
					100	SLFA05000*

* Solvent resistant polyethylene housing.

High Quality Water is Essential for Optimal Results



The quality of water used in the preparation of samples, mobile phases, buffers and standards in large part determines the quality and consistency of HPLC and UV/Vis analyses.

The new Milli-Q® Integral system produces both pressurized pure and ultrapure water directly from tap water, giving you complete control over the quality and volume of water required by your laboratory. In addition, you benefit from low operating costs, thanks to the Elix® technology* inside.

The Milli-Q Integral system provides perfect convenience through separate Points-of-Delivery (PODS), which you can adapt with a final polisher to match your specific applications.

For more information, visit www.millipore.com/integral

* Elix technology features continuous deionization which combines electrodialysis and ion exchange. The process effectively deionizes water while continuously regenerating resins through an electric current.



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