

# Uniflo™ Syringe Filters

Consistent performance. Maximum value.





# Filter samples economically with Uniflo™ syringe filters

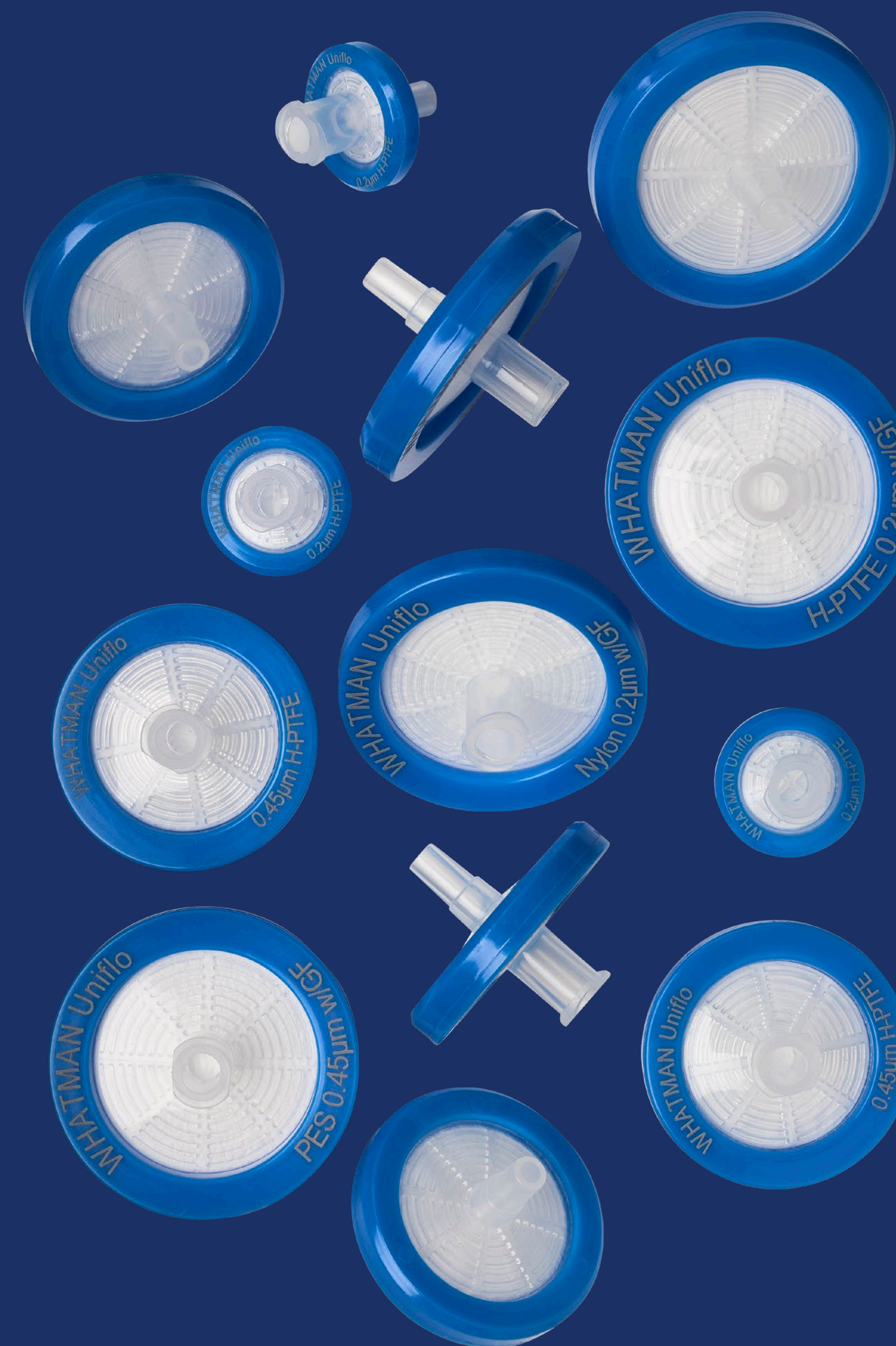
The Whatman™ lab filtration portfolio includes Uniflo™ syringe filters which give reliable, consistent test results for labs that routinely prepare analytical samples. Reduce the number of devices needed to process samples and decrease plastic waste.

Uniflo™ Syringe Filters are disposable filters designed to provide clean filtrate from small volumes up to 100 mL. They are available in a variety of membrane choices with a polypropylene overmold housing.

Available with:

- 13 mm, 25 mm or 30 mm diameters
- 0.2 µm or 0.45 µm pore sizes
- Sterile or non-sterile options
- 30 mm syringe filters contain a glass fiber prefilter for dirty samples
- Laser etched printing on the filter for easy identification

Filter media	Typical application
<b>Nylon</b>	Aqueous and/or organic samples; hydrophilic
<b>PES</b>	Aqueous samples
<b>PTFE</b>	Organic based samples, hydrophobic membrane
<b>PVDF</b>	Aqueous and/or organic based samples; low protein binding membrane
<b>H-PTFE</b>	Hydrophilic aqueous and/or aggressive organic solvents; hydrophilic, low protein binding





## Nylon membrane

Nylon membrane is hydrophilic and is a good choice for aqueous and/or aqueous-organic samples. The membrane offers good chemical resistance to most common HPLC solvents, however it has limited resistance to acids, bases, halogenated hydrocarbons, aldehydes and strong oxidising agents. The most common application is HPLC sample filtration.

## Polyethersulfone (PES) membrane

Polyethersulfone membrane provides durability, high temperature resistance, good chemical compatibility and low protein adsorption. It is particularly suitable for filtration of serum, plasma and tissue culture solutions as well as other protein containing solutions where minimal adsorption protein loss is desired.

## Polytetrafluoroethylene (PTFE) membrane

Polytetrafluoroethylene membrane is hydrophobic and will not allow water to pass without high pressures. Aqueous solutions may be filtered if the membrane is initially "wetted" with alcohol or another appropriate solvent. Polytetrafluoroethylene membrane will stop aqueous aerosols in gas streams.

## Polyvinylidene difluoride (PVDF) membrane

Polyvinylidene fluoride membrane is a suitable choice for most HPLC sample preparation applications. The membrane is hydrophilic with low water breakthrough values. It offers good chemical resistance to all common HPLC solvents.

## Hydrophilic polytetrafluoroethylene (H-PTFE) membrane

Hydrophilic PTFE membrane can be used for both aqueous and aggressive organic solvents. This membrane is suitable for uHPLC/HPLC sample preparation as well as many other applications in a busy, high volume lab as its dual capability handles most solvents.

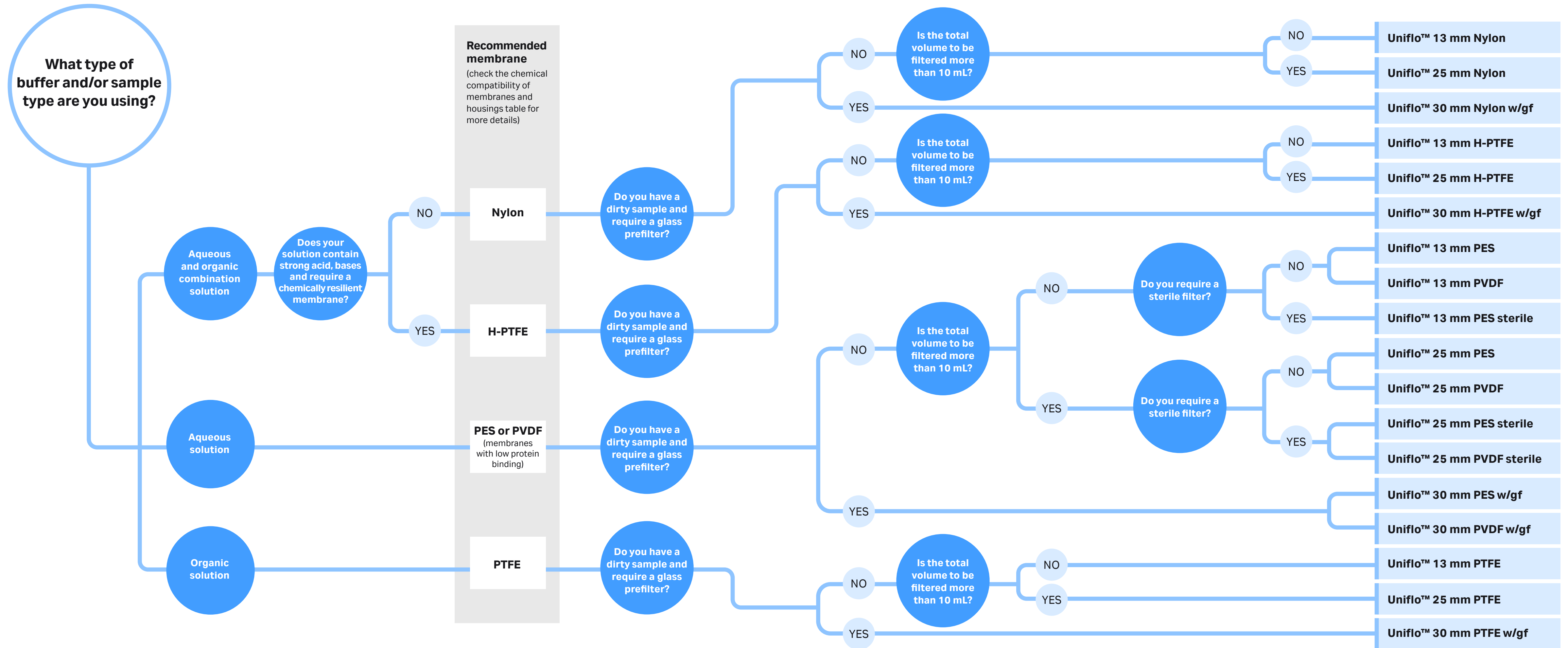
## Integrity test data

Description	Pore size microns (µm)	Minimum bubble point (psi)
Nylon	0.2	29.0
Nylon	0.45	20.0
Polyethersulfone (PES)	0.2	40.0
Polyethersulfone (PES)	0.45	33.0
Polytetrafluoroethylene (PTFE)*	0.2	10.0
Polytetrafluoroethylene (PTFE)*	0.45	6.0
Polyvinylidene difluoride (PVDF)	0.2	39.0
Polyvinylidene difluoride (PVDF)	0.45	17.5
Hydrophilic polytetrafluoroethylene (H-PTFE)	0.45	28.0
Hydrophilic polytetrafluoroethylene (H-PTFE)	0.2	49.0

\* Bubble point determined with 95% IPA (v/v). All others determined with water.



# Uniflo™ syringe filter decision chart



**Recommended membrane**  
 (check the chemical compatibility of membranes and housings table for more details)

- Nylon**
- H-PTFE**
- PES or PVDF**  
(membranes with low protein binding)
- PTFE**

- Uniflo™ 13 mm Nylon
- Uniflo™ 25 mm Nylon
- Uniflo™ 30 mm Nylon w/gf
- Uniflo™ 13 mm H-PTFE
- Uniflo™ 25 mm H-PTFE
- Uniflo™ 30 mm H-PTFE w/gf
- Uniflo™ 13 mm PES
- Uniflo™ 13 mm PES sterile
- Uniflo™ 25 mm PES
- Uniflo™ 25 mm PVDF
- Uniflo™ 25 mm PES sterile
- Uniflo™ 25 mm PVDF sterile
- Uniflo™ 30 mm PES w/gf
- Uniflo™ 30 mm PVDF w/gf
- Uniflo™ 13 mm PTFE
- Uniflo™ 25 mm PTFE
- Uniflo™ 30 mm PTFE w/gf

# Technical data

## Uniflo™ 13 mm syringe filters

<i>Dimensions:</i>	19.6 mm × 16.9 mm
<i>Filtration area:</i>	0.88 cm <sup>2</sup>
<i>Maximum operating pressure:</i>	67.5 psi
<i>Housing:</i>	Polypropylene
<i>Volume "hold-up":</i>	≤ 50 µL after air purge
<i>Flow direction:</i>	Flow should enter from inlet
<i>Connectors:</i>	Inlet: female luer lock (FLL) Outlet: male luer lock (ML)
<i>Sterilization*:</i>	Autoclave at 121°C at 15 psi for 20 minutes
<i>Biosafe:</i>	Polymer grade and membrane types meet the USP test requirements (for class VI plastics)
<i>Filter media:</i>	See chart on last page

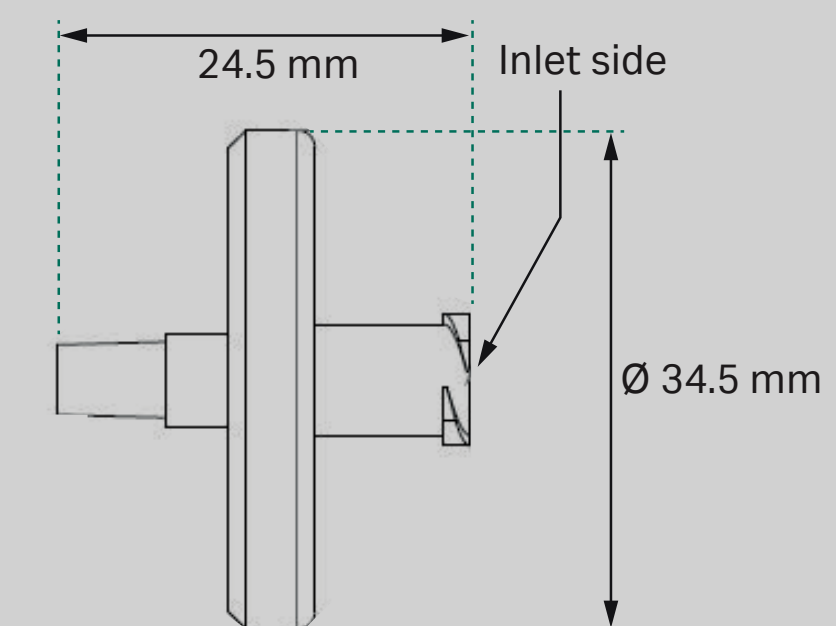
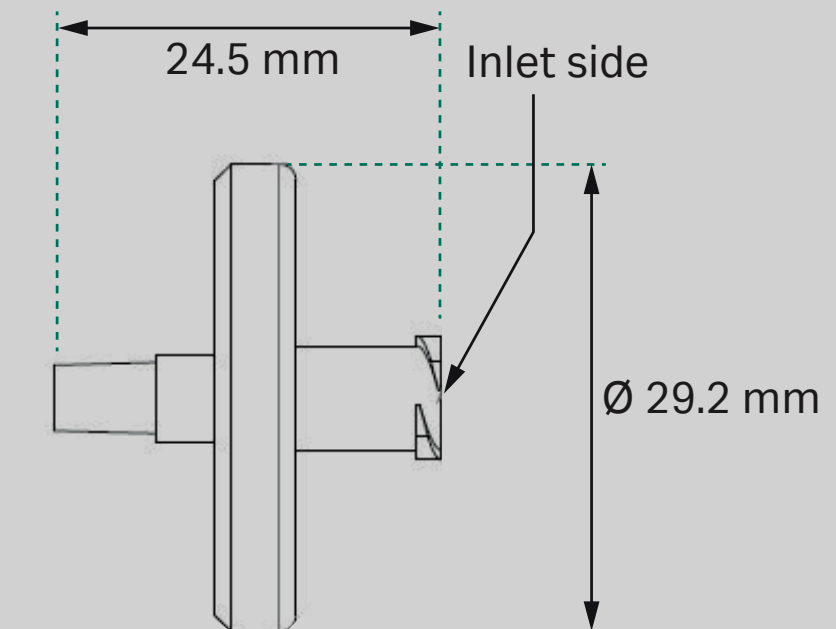
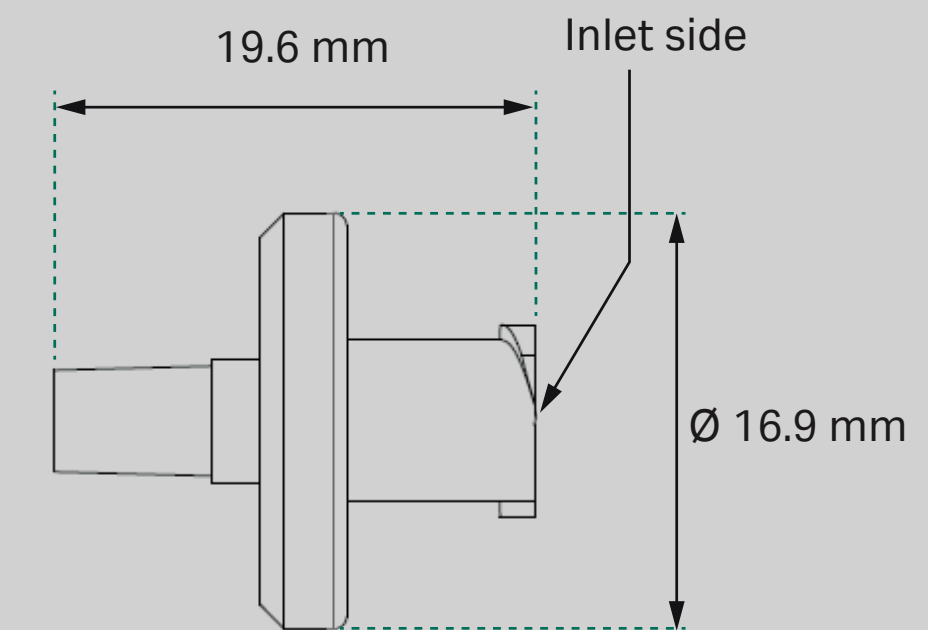
## Uniflo™ 25 mm syringe filters

<i>Dimensions:</i>	24.5 mm × 29.2 mm
<i>Filtration area:</i>	3.45 cm <sup>2</sup>
<i>Maximum operating pressure:</i>	67.5 psi
<i>Housing:</i>	Polypropylene
<i>Volume "hold-up":</i>	≤ 100 µL after air purge
<i>Flow direction:</i>	Flow should enter from inlet
<i>Connectors:</i>	Inlet: female luer lock (FLL) Outlet: male luer lock (ML)
<i>Sterilization*:</i>	Autoclave at 121°C at 15 psi for 20 minutes
<i>Biosafe:</i>	Polymer grade and membrane types meet the USP test requirements (for class VI plastics)
<i>Filter media:</i>	See chart on last page

## Uniflo™ 30mm w/GF prefilter syringe filter

<i>Dimensions:</i>	24.5 mm × 34.5 mm
<i>Filtration area:</i>	4.98 cm <sup>2</sup>
<i>Maximum operating pressure:</i>	67.5 psi
<i>Housing:</i>	Polypropylene
<i>Volume "hold-up":</i>	≤ 200 µL after air purge
<i>Flow direction:</i>	Flow should enter from inlet
<i>Prefiltration Media:</i>	100% borosilicate glass
<i>Connectors:</i>	Inlet: female luer lock (FLL) Outlet: male luer lock (ML)
<i>Sterilization*:</i>	Autoclave at 121°C at 15 psi for 20 minutes
<i>Biosafe:</i>	Polymer grade and membrane types meet the USP test requirements (for class VI plastics)
<i>Filter media:</i>	See chart on last page

\* Non-sterile versions only



# Chemical compatibility of membranes and housings

Solvent	NYL	PES	PTFE†	PVDF	H-PTFE
Acetic acid, 5%	R	R	R	R	R
Acetic acid, glacial	LR	R	R	R	R
Acetone	R	NR	R	NR	R
Acetonitrile	R	NR	R	R	R
Ammonia, 6N	R	R	R	LR	NR
Amyl acetate	R	LR	R	LR	R
Amyl alcohol	R	NR	R	R	R
Benzene*	LR	R	R	R	R
Benzyl alcohol*	LR	NR	R	R	R
Boric acid	LR		R	R	
Butyl alcohol	R	R	R	R	R
Butyl chloride*	NR		R	R	
Carbon tetrachloride*	LR	NR	R	R	R
Chloroform*	NR	NR	R	R	R
Chlorobenzene*	NR	NR	R	R	
Citric acid	LR	R	R	R	
Cresol*	NR	NR	R	NR	
Cyclohexanone	NR	NR	R	R	
Cyclohexane*	NR	NR	R	R	R
Diethyl acetamide	R		R	NR	
Dimethyl formamide	R	NR	R	NR	R
Dioxane	R	LR	R	LR	
DMSO	R	NR	R	LR	R
Ethanol	R	R	R	R	
Ethers*	R	R	R	LR	R
Ethyl acetate	R	NR	R	NR	R
Ethylene glycol	R	R	R	R	R

Solvent	NYL	PES	PTFE†	PVDF	H-PTFE
Formaldehyde	R	R	R	R	R
Freon TF*	NR	R	R	R	
Formic acid	NR	R	R	R	
Hexane	R	R	R	R	R
Hydrochloric acid, conc*	NR	R	R	R	NR
Hydrofluoric acid*	NR		R	R	
Isobutyl alcohol	R		R	R	R
Isopropyl alcohol	R		R	R	R
Methanol	R	R	R	R	R
Methyl ethyl ketone	R	NR	R	NR	R
Methylene chloride*	NR	NR	R	R	R
Nitric acid, conc*	NR	NR	R	R	R
Nitric acid, 6N*	NR	LR	R	R	NR
Nitrobenzene*	LR	NR	R	R	
Pentane*	R	R	R	R	
Perchloro ethylene*	LR	NR	R	R	R
Phenol 0.5%	NR	NR	R	R	
Pyridine	LR	NR	R	NR	R
Sodium hydroxide, 6N	LR	R	R	NR	R
Sulfuric acid, conc*	NR	NR	R	NR	R
Tetrahydrofuran*	R	NR	R	R	R
Toluene*	LR	NR	R	R	R
Trichloroethane*	LR	NR	R	R	R
Trichloroethylene*	NR	NR	R	R	R
Water	R	R	R	R	R
Xylene*	LR	LR	R	R	R

R = Resistant; LR = Limited resistance; NR = Not recommended

\* Short-term resistance of housing.

The above data is to be used as a guide only. Testing prior to application is recommended.

† Membrane may need pre-wetting with isopropanol/methanol if filtering a polar liquid.



# Ordering information

Diameter (mm)	Sterility	Pore size (µm)	Membrane	Catalog number	Quantity/pack
13	Nonsterile	0.2	PVDF	9909-1302	500
13	Nonsterile	0.45	PVDF	9909-1304	500
13	Nonsterile	0.2	Nylon	9910-1302	500
13	Nonsterile	0.45	Nylon	9910-1304	500
13	Nonsterile	0.2	PTFE	9911-1302	500
13	Nonsterile	0.45	PTFE	9911-1304	500
13	Nonsterile	0.2	H-PTFE	9920-1302	100
13	Nonsterile	0.2	H-PTFE	9921-1302	500
13	Nonsterile	0.45	H-PTFE	9920-1304	100
13	Nonsterile	0.45	H-PTFE	9921-1304	500
13	Nonsterile	0.2	PES	9912-1302	500
13	Nonsterile	0.45	PES	9912-1304	500
25	Nonsterile	0.2	PVDF	9909-2502	500
25	Nonsterile	0.45	PVDF	9917-2504	100
25	Nonsterile	0.45	PVDF	9909-2504	500
25	Nonsterile	0.2	Nylon	9910-2502	500
25	Nonsterile	0.45	Nylon	9918-2504	100
25	Nonsterile	0.45	Nylon	9910-2504	500
25	Nonsterile	0.2	PTFE	9911-2502	500
25	Nonsterile	0.45	PTFE	9911-2504	500
25	Nonsterile	0.2	H-PTFE	9920-2502	100
25	Nonsterile	0.2	H-PTFE	9921-2502	500
25	Nonsterile	0.45	H-PTFE	9920-2504	100
25	Nonsterile	0.45	H-PTFE	9921-2504	500
25	Nonsterile	0.2	PES	9912-2502	500
25	Nonsterile	0.45	PES	9912-2504	500
13	Sterile	0.2	PES	9916-1302	100
13	Sterile	0.45	PES	9916-1304	100
25	Sterile	0.2	PVDF	9913-2502	45
25	Sterile	0.45	PVDF	9913-2504	45
25	Sterile	0.2	PES	9914-2502	45
25	Sterile	0.45	PES	9914-2504	45
25	Sterile	0.2	PES	9915-2502	200
25	Sterile	0.45	PES	9915-2504	200

Diameter (mm)	Sterility	Pore size (µm)	Membrane	Catalog number	Quantity/pack
30 mm with GF prefilter	Non-sterile	0.2	PES	9923-3002	100
30 mm with GF prefilter	Non-sterile	0.45	PES	9923-3004	100
30 mm with GF prefilter	Non-sterile	0.2	PES	9924-3002	500
30 mm with GF prefilter	Non-sterile	0.45	PES	9924-3004	500
30 mm with GF prefilter	Non-sterile	0.2	PVDF	9925-3002	100
30 mm with GF prefilter	Non-sterile	0.45	PVDF	9925-3004	100
30 mm with GF prefilter	Non-sterile	0.2	PVDF	9926-3002	500
30 mm with GF prefilter	Non-sterile	0.45	PVDF	9926-3004	500
30 mm with GF prefilter	Non-sterile	0.2	PTFE	9927-3002	100
30 mm with GF prefilter	Non-sterile	0.45	PTFE	9927-3004	100
30 mm with GF prefilter	Non-sterile	0.2	PTFE	9928-3002	500
30 mm with GF prefilter	Non-sterile	0.45	PTFE	9928-3004	500
30 mm with GF prefilter	Non-sterile	0.2	Nylon	9929-3002	100
30 mm with GF prefilter	Non-sterile	0.45	Nylon	9929-3004	100
30 mm with GF prefilter	Non-sterile	0.2	Nylon	9930-3002	500
30 mm with GF prefilter	Non-sterile	0.45	Nylon	9930-3004	500
30 mm with GF prefilter	Non-sterile	0.2	H-PTFE	9931-3002	100
30 mm with GF prefilter	Non-sterile	0.45	H-PTFE	9931-3004	100
30 mm with GF prefilter	Non-sterile	0.2	H-PTFE	9932-3002	500
30 mm with GF prefilter	Non-sterile	0.45	H-PTFE	9932-3004	500

*PTFE—Polytetrafluoroethylene*

*PVDF—Polyvinylidene difluoride*

*PES—Polyethersulfone*

*H-PTFE – Hydrophilic polytetrafluoroethylene*

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