

Application / Selection Guide

Selecting a Filter

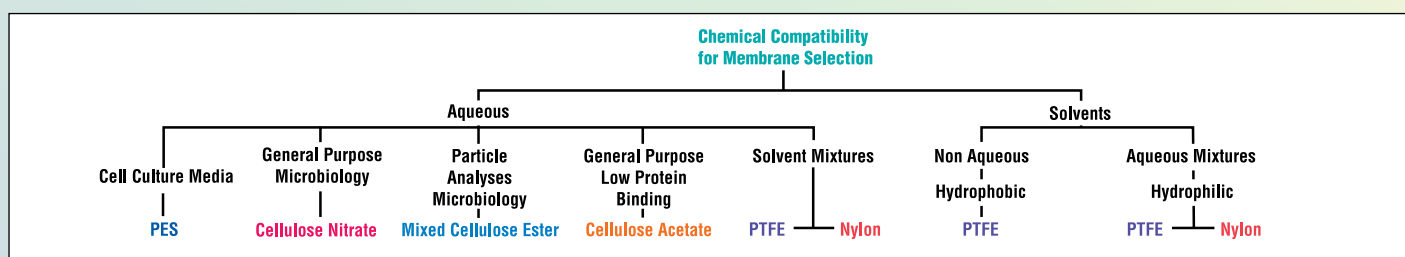
- Determine the particle size to be retained or filtered. Membranes will retain all particles equal to, and larger than their designated pore size.
- Assess the chemical compatibility of the membrane filter with the liquid or gas to be filtered. Consider the chemical resistance properties of all the parts that will contact the filtrate.
- Depending on the procedure performed, the membrane color or surface pattern may be important.
- Also consider hydrophilic or hydrophobic membranes, temperature, flow rate, throughput, and sterilization needs.

Filtration Guide

Use this general guide to determine the optimal type of filtration for your particle sizes. Each type of filtration is designed to separate differing ranges of microparticles and particles:

Ultrafiltration is best with particles of roughly 10,000 to 1,000,000 MW. **Microfiltration** is best with particle sizes of roughly 0.1 to 10 μm . **Macrofiltration** is best with particle sizes greater than 50 μm .

Type of filtration	Ultrafiltration	Microfiltration	Macrofiltration
Units	Dalton (MW)	Microns (μm)	50 μm or greater, visible to the human eye
Particle examples and sizes	Trypsin (24,000) Serum albumin (67,000) Gamma globulin (169,000) Viruses (600,000 to 30,000) Endotoxins (500,000 to 12,000)	Mycoplasma (0.08 to 0.4) Proteins (0.0005 to 0.5) Fungi (0.7 to 3) Yeasts (0.6 to 4) Human red blood cells (3.5 to 8) Bacteria (0.3 to 12)	Spores Pollen Human hair Sands



Membrane Materials

Cellulose Nitrate (CN) membrane is the most popular membrane used in analytical and laboratory filtration. CN membrane has excellent wetting properties and gives fastest flow rates with aqueous solutions.

Cellulose Acetate membrane is a mixture of cellulose triacetate and diacetate that creates a strong membrane in both lateral and longitudinal directions. In addition, the membrane has a low static charge, a very low aqueous extractability, and good solvent resistance to low molecular weight alcohols.

Mixed Cellulose Ester membrane provides a more uniform and smoother surface compared to pure nitrocellulose membrane. This membrane is typically used to count or analyze particles contained in liquids or captured from aerosols.

Nylon membrane is strong, inherently hydrophilic, and compatible with a broad range of aqueous solutions including alcohols and solvents used in HPLC work.

Polyethersulfone (PES) membrane is hydrophilic and low protein binding. No external wetting agents are required, resulting in low extractables. PES membrane generally offers fast flow rate and better chemical resistance than cellulose acetate membranes.

PTFE membrane is strong, highly porous, and inert to most chemically aggressive solvents, strong acids, and bases. Chemical and thermal limitations are imposed by the backing material.

Table of Contents

Filter Papers	466–468
Glass and Quartz Fiber Filter Papers	467–468
Membranes / Screens	469–473
Filter Holders	474–475
Stirred Cells	475
Centrifugal and Syringeless Filters	476
Syringe Filters	476–479
Capsule and In-Line Filters	480–484
Hollow-Fiber Filters	484–485
Bottletop / Filter Units	486–488
Vacuum Filtration Manifolds and Holders	489–491
Pressure Filtration	492
Extraction Thimbles	473
Screens	473

Terms

Bubble Point: the amount of air pressure that is required to force liquid from the largest wetted pore of the membrane.

Hydrophilic: or “water-loving”, refers to a filter’s ability to naturally absorb water.

Hydrophobic: or “water-hating”, refers to a filter’s ability to naturally repel water.

Molecular Weight Cut Off (MWCO): lowest molecular weight solute that is 90% retained by the membrane. For rapid filtration where some sample loss is acceptable, a membrane with MWCO the same as the molecular weight of the solute can be used. When loss of material of interest is undesirable, the membrane MWCO should be less than the molecular weight of the compound.

Pore Size (absolute): the point at which a particle of defined size will be retained with 100% efficiency under specified conditions.

Prewet: membranes that are inherently hydrophobic need to be specially wetted before use with aqueous filtrations. This can be done by using approximately 5 mL of chromatography-grade methanol, acetone, or compatible fluid with low viscosity (>0.6 cp) and rinsing with approximately 25 mL of water.

Throughput: refers to dirt handling capacity before membrane clogs.

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Laboratory Filter Papers

Manufactured to exacting standards for uniform performance

■ A wide choice of grades and sizes

A Quantitative Filter Papers

Ideal for gravimetric analysis and environmental monitoring. These papers are made of the highest quality alpha cotton cellulose with low ash content. Papers are double acid washed in hydrochloric acid followed by hydrofluoric acid (No. 3, 5A, 5B, 5C, 6), then rinsed with ultrapure water to neutralize. Paper No. 4A is further treated with nitric acid before washing. Sold in **packs of 100**.

B Qualitative Filter Papers

Ideal for clarifying and removing precipitates, and preparation for qualitative analysis. These papers are made of 100% alpha cotton cellulose, with 0 to 12 pH tolerance. Maximum temperature is 248°F (120°C). Sold in **packs of 100**.

Specifications

Grade	Nominal rating (µm)	Thickness (mm)	Weight (g/m ²)	Flow time [†] (sec)	Absorption speed [‡] (cm)	Wet strength ^{††} (cm H ₂ O)
Quantitative filter papers						
No. 3	Medium (5)	0.23	113	130	7.5	20
No. 4A	Very fine (1)	0.12	96	915	4.0	90
No. 5A	Coarse / gelatinous (7)	0.22	97	60	9.5	15
No. 5B	Medium (4)	0.21	108	195	7.0	20
No. 5C	Fine (1)	0.22	118	570	6.0	25
No. 6	Medium-fine (3)	0.2	103	300	6.0	15
No. 7	Medium (4)	0.18	87	200	7.0	12
Qualitative filter papers						
No. 1	Coarse (6)	0.2	90	45	9.0	15
No. 2	Medium (5)	0.26	125	80	8.0	18
No. 231	Medium	0.18	95	130	7.5	—
No. 232	Medium / medium-fine	0.18	90	250	5.0	—
No. 235	Very fine	0.17	95	1200	4.0	—
No. 131	Medium-fine (3)	0.25	140	240	6.0	20
No. 101	Coarse / gelatinous	0.21	80	50	8.0	15



A Quantitative filter papers

[†]Flow time is the time in seconds required to filter 100 mL of distilled water at 68°F (20°C) under pressure supplied by a 10-cm water column through a 10 cm² section of filter paper.

[‡]Absorption speed is the distance in cm that water will travel in an upright strip of filter paper in ten minutes at 68°F (20°C).

^{††}Wet strength is the height in cm of a water column that will rupture a 10 cm² section of filter paper.

A Quantitative Filter Papers

Grade	Applications	5.5 cm	7.0 cm	9.0 cm	11.0 cm	12.5 cm	15.0 cm	18.5 cm
No. 3 Ashless	Medium retention (5 to 10 µm), fast flow rate analysis of soils, fertilizers, cement, and minerals	TW-81050-56 /pk	TW-81050-58 /pk	TW-81050-60 /pk	TW-81050-62 /pk	TW-81050-64 /pk	TW-81050-66 /pk	TW-81050-68 /pk
No. 4A Hardened ashless	High wet strength, suitable for use under high pressure, high chemical and pH resistance, retains fine crystalline precipitates (<5 µm), slow flow	TW-81051-90 /pk	TW-81051-92 /pk	TW-81051-94 /pk	TW-81051-96 /pk	TW-81051-98 /pk	TW-81052-00 /pk	TW-81052-02 /pk
No. 5A Ashless	Fast flow rate, retains coarse particulates and gelatinous precipitates (>10 µm); filter hydroxides and metallic aerosols, environmental monitoring, silica in steel	TW-81050-80 /pk	TW-81050-82 /pk	TW-81050-86 /pk	TW-81050-88 /pk	TW-81050-90 /pk	TW-81050-92 /pk	TW-81051-10 /pk
No. 5B Ashless	Retains medium particles (5 to 10 µm) such as CaCO ₃ , PbSO ₄ , CaCO ₄ , MnCO ₃ , ZnCO ₃ , ZnS, AgCl	TW-81051-12 /pk	TW-81051-14 /pk	TW-81051-16 /pk	TW-81051-18 /pk	TW-81051-20 /pk	TW-81051-22 /pk	TW-81051-24 /pk
No. 5C Ashless	Collect fine precipitates (<5 µm) such as SrSO ₄ , BaSO ₄ , HgCrO ₄ , and colloidal dispersions; gravimetric analysis	TW-81051-42 /pk	TW-81051-44 /pk	TW-81051-46 /pk	TW-81051-48 /pk	TW-81051-50 /pk	TW-81051-52 /pk	TW-81051-54 /pk
No. 6 Ashless	Retains medium-fine particulates (2 to 10 µm), trace and precious metals	TW-81051-56 /pk	TW-81051-58 /pk	TW-81051-60 /pk	TW-81051-62 /pk	TW-81051-70 /pk	TW-81051-72 /pk	TW-81051-74 /pk
No. 7 Ashless	Highest purity for retaining medium particles (5 to 10 µm), precise gravimetric analysis	TW-81051-76 /pk	TW-81051-78 /pk	TW-81051-80 /pk	TW-81051-82 /pk	TW-81051-84 /pk	TW-81051-86 /pk	TW-81051-88 /pk

B Qualitative Filter Papers

Grade	Applications	5.5 cm	7.0 cm	9.0 cm	11.0 cm	12.5 cm	15.0 cm	18.5 cm
No. 1	Coarse retention; retains large crystalline particles and gelatinous precipitates. Fast flow rate, smooth surface, normal hardness	TW-81048-04 /pk	TW-81048-06 /pk	TW-81048-08 /pk	TW-81048-10 /pk	TW-81048-12 /pk	TW-81048-14 /pk	TW-81048-16 /pk
No. 2	Medium retention; retains medium crystalline precipitates, fast flow rate, smooth surface, normal hardness	TW-81048-34 /pk	TW-81048-36 /pk	TW-81048-38 /pk	TW-81048-40 /pk	TW-81048-42 /pk	TW-81048-46 /pk	TW-81048-48 /pk
No. 231	Medium retention; retains crystalline precipitates, moderate flow rate, smooth surface, normal hardness	TW-81048-64 /pk	TW-81048-66 /pk	TW-81048-68 /pk	TW-81048-70 /pk	TW-81048-72 /pk	TW-81048-74 /pk	TW-81048-80 /pk
No. 232	Retains medium to medium-fine particulates, slow flow rate, smooth, normal hardness	TW-81048-84 /pk	TW-81048-86 /pk	TW-81048-88 /pk	TW-81048-90 /pk	TW-81048-92 /pk	TW-81048-94 /pk	TW-81049-90 /pk
No. 235	Highest retention efficiency, retains very fine particulates, very slow flow rate, smooth	—	TW-81050-22 /pk	TW-81050-24 /pk	TW-81050-26 /pk	TW-81050-28 /pk	TW-81050-30 /pk	TW-81050-32 /pk
No. 131	High retention efficiency for medium-fine crystalline precipitates like barium sulfate, slow flow rate, smooth surface, normal hardness	TW-81050-04 /pk	TW-81050-10 /pk	TW-81050-12 /pk	TW-81050-14 /pk	TW-81050-16 /pk	TW-81050-18 /pk	TW-81050-20 /pk
No. 101	Coarse retention; seed germination, retains large particles	TW-81050-36 /pk	TW-81050-38 /pk	TW-81050-40 /pk	TW-81050-42 /pk	TW-81050-50 /pk	TW-81050-52 /pk	TW-81050-54 /pk



Glass and Quartz Fiber Filters

For analytical or gravimetric studies

Borosilicate Glass Fiber Filters create a biologically inert filter matrix that is resistant to both chemicals and pH extremes. Use as prefilters to extend membrane life, for water/air pollution analysis, or liquid clarification. Filters without binder withstand up to 932°F (500°C); filters with binder withstand up to 250°F (120°C). Grades GC90, GS25, and DP70 with binder offer higher wet strength and lower fiber release.

Quartz Fiber Filters have very low trace metal content and can withstand temperatures up to 1832°F (1000°C). Use to sample acidic gases at high temperatures or for air pollution analysis.



Grade	Characteristics/applications
Borosilicate glass fiber filters	
GA55	General purpose; air pollution monitoring
GB140	Low absorption; slower filtration speed for industrial waste analysis
GC50	Membrane prefilter (<0.45 µm), for industrial and wastewater analysis and scintillation counting
GD120	Membrane prefilter (<1.2 µm), high wet strength and high loading capacity
GF75	Highest retention; filtering very fine protein precipitates and clarifying chemically aggressive solutions
GA100	General purpose; filtering cells and precipitated proteins; air pollution monitoring
GA200	Thick filter; filtering viscous fluids such as liquid sugars and gels
GB100R	Low trace metal content; sampling high and low volume aerosols for airborne dust and metal contaminants
GC90	High wet strength; clinical screening
GS25	Membrane prefilter (<0.65 µm), high wet strength
DP70	High wet strength and very high loading capacity; dust and fine particulate sampling
Quartz fiber filters	
QR200	Low adsorption; high-temperature filtration and monitoring airborne particulates
QR100	Superior chemical resistance, will not absorb acidic gases



Filter 06646-35 shown with stainless steel filtration holder 29900-05 (holder sold separately on page 492)

Grade	Retention	Thickness	Water flow rate†	Binder	25-mm dia	47-mm dia	90-mm dia	125-mm dia	142-mm dia	293-mm dia
					Cat. no. / Price	Cat. no. / Price	Cat. no. / Price	Cat. no. / Price	Cat. no. / Price	Cat. no. / Price
Borosilicate glass fiber filters										
GA55	0.6 µm	0.21 mm	23	None	TW-06657-00 /bx of 100	TW-06646-02 /bx of 100	TW-06646-04 /bx of 100	TW-06646-05 /bx of 100	TW-06657-07 /bx of 100	—
GB140	0.4 µm	0.56 mm	58	None	TW-06646-84 /bx of 100	TW-06646-12 /bx of 100	TW-06646-14 /bx of 100	TW-06646-15 /bx of 100	TW-06657-17 /bx of 100	TW-06657-18 /bx of 50
GC50	0.5 µm	0.19 mm	28	None	TW-06647-95 /bx of 100	TW-06646-22 /bx of 100	TW-06646-24 /bx of 100	TW-06646-25 /bx of 100	TW-06657-27 /bx of 100	TW-06657-28 /bx of 50
GD120	0.9 µm	0.51 mm	14	None	TW-06657-30 /bx of 50	TW-06646-32 /bx of 50	TW-06646-34 /bx of 50	TW-06646-35 /bx of 50	TW-06657-37 /bx of 50	TW-06656-13 /bx of 50
GF75	0.3 µm	0.35 mm	84	None	TW-06656-24 /bx of 100	TW-06646-42 /bx of 100	TW-06646-44 /bx of 100	TW-06646-45 /bx of 100	TW-06656-23 /bx of 100	TW-06656-25 /bx of 50
GA100	1.0 µm	0.44 mm	11	None	TW-06657-50 /bx of 100	TW-06646-54 /bx of 100	TW-06657-54 /bx of 100	TW-06657-56 /bx of 100	TW-06657-57 /bx of 100	TW-06657-58 /bx of 50
GA200	0.8 µm	0.74 mm	15	None	TW-06646-63 /bx of 50	TW-06657-62 /bx of 50	TW-06657-64 /bx of 50	TW-06657-66 /bx of 50	TW-06657-67 /bx of 50	TW-06657-68 /bx of 50
GB100R	0.6 µm	0.40 mm	15	None	TW-06657-70 /bx of 100	TW-06646-75 /bx of 100	TW-06646-83 /bx of 100	TW-06657-76 /bx of 100	TW-06657-77 /bx of 100	TW-06657-78 /bx of 50
GC90	0.5 µm	0.30 mm	20	Organic	TW-06657-80 /bx of 100	TW-06657-82 /bx of 100	TW-06656-12 /bx of 100	TW-06657-86 /bx of 100	TW-06657-87 /bx of 100	TW-06656-05 /bx of 50
GS25	0.6 µm	0.21 mm	15	Organic	TW-06657-90 /bx of 100	TW-06657-92 /bx of 100	TW-06657-94 /bx of 100	TW-06657-96 /bx of 100	TW-06657-97 /bx of 100	TW-06656-33 /bx of 50
DP70	0.6 µm	0.52 mm	20	Organic	TW-06658-00 /bx of 50	TW-06646-53 /bx of 50	TW-06658-04 /bx of 50	TW-06658-06 /bx of 50	TW-06658-07 /bx of 50	TW-06658-08 /bx of 50
Quartz fiber filters										
QR200	—	1.0 mm	—	Inorganic	TW-06658-10 /bx of 100	TW-06658-12 /bx of 50	TW-06658-14 /bx of 50	TW-06658-16 /bx of 50	—	—
QR100	—	0.38 mm	—	None	TW-06658-20 /bx of 100	TW-06649-52 /bx of 100	TW-06658-24 /bx of 100	TW-06658-26 /bx of 100	—	—

†Time (in seconds) required to filter one liter of deionized water at 68°F (20°C) through 9.6 cm² using a 300 mm Hg vacuum.

PTFE Depth Filters

Ideal for aggressive chemicals and air filtration applications

- High temperature and strong chemical resistance
- Excellent air permeability with minimal pressure drop
- High loading capacity

Pure PTFE fibers are sintered to improve handling characteristics and minimize fiber slough-off and downstream contamination. Recommended for filtering hot oils, strong solvents, and for applications where media contamination must be at a critically low level. Use these hydrophobic filters to separate aqueous and non-aqueous phases of mixtures as well as for air/gas filtration or venting. Temperature range is -184 to 436°F (-120 to 260°C).



Retentive pore liquid (µm)	Porosity %	Collection efficiency (% 0.3 µm DOP)	Weight (g/m²)	Thickness (mm)	25-mm discs			47-mm discs			55-mm discs			8" x 10" (20 x 25 cm) sheets		
					Catalog number	Qty/pk	Price/pk	Catalog number	Qty/pk	Price/pk	Catalog number	Qty/pk	Price/pk	Catalog number	Qty/pk	Price/pk
10	77	70	500	1.00	TW-36240-18	20		TW-36240-08	20		TW-36240-28	20		TW-36240-38	5	
6	75	75	240	0.50	TW-36240-19	20		TW-36240-09	20		TW-36240-29	20		TW-36240-39	5	
5	73	85	210	0.36	TW-36240-16	20		TW-36240-06	20		TW-36240-26	20		TW-36240-36	5	
4	75	95	500	0.95	TW-36240-14	10		TW-36240-04	10		TW-36240-24	10		TW-36240-34	5	
2	54	99.9	500	0.54	TW-36240-12	10		TW-36240-02	10		TW-36240-22	10		TW-36240-32	5	

Air Sampling Filters

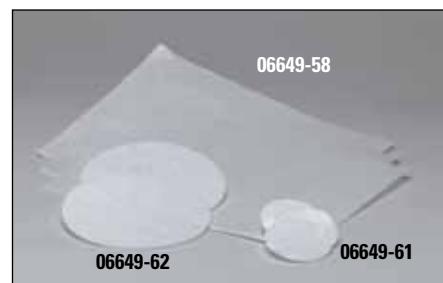
Glass, quartz, and composite filters are ideal for sampling airborne particulates

Glass Fiber Filters are binder-free and have a low trace metals content. Glass fibers are unaffected by humidity, highly resistant to chemical attack, and biologically inert. Used for high-volume sampling of aerosols, particulates, and metal contaminants.

Quartz Fiber Filters are used for air sampling of acidic gases at high temperatures. Quartz fibers are unaffected by humidity, highly resistant to chemical attack, and biologically inert. Filters are pre-fired at 1832°F (1000°C) for two hours to reduce organic contamination. Show very low trace metals content and do not absorb nitrous and sulfur dioxides.

Composite Filters are specially developed for the measurement of dusts and particulate matter in the air. These PTFE-coated filters are naturally hydrophobic and unaffected by humidity. Thermostable to 500°F (260°C).

Catalog number	Size	Qty/pk	Price/pk
Glass fiber filters (Grade GB-100R)			
TW-06646-75	47-mm dia disc	100	
TW-06646-82	8" x 10" (20 x 25 cm) sheet	50	
Quartz fiber filters (Grade QR-100)			
TW-06649-52	47-mm dia disc	100	
TW-06649-58	8" x 10" (20 x 25 cm) sheet	50	
Composite filters (Grade PG-60)			
TW-06649-60	25-mm dia disc	100	
TW-06649-61	47-mm dia disc	100	
TW-06649-62	110-mm dia disc	50	



37-mm Monitors for Air Analysis

Ideal for aerosols and airborne particulates

Preassembled three-piece units contain a mixed cellulose ester (MCE) membrane filter and a cellulose support pad. Monitors are suitable for open- or closed-face sampling. Samples collected on the press-fit membrane can be removed for further analysis. Nonsterile.

Specifications

Materials

Housing: styrene acrylonitrile
Membrane: mixed cellulose ester (nitrocellulose)
Support pad: pure cotton cellulose

Filtration area: 9.0 cm²
Max temperature: 113°F (45°C)
Connections: female luer slip

Catalog number	Analysis type	Membrane				Qty/pk	Price/pk
		Dia	Pore size	Color	Surface		
TW-02935-00	Air analysis	37 mm	0.45 µm	White	Plain	50	
TW-02935-06			0.80 µm	White			
TW-02935-10			0.80 µm	White	Gridded		
TW-02935-12			0.80 µm	Black			



37-mm monitor for air analysis.



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Milk Sediment Discs

Smaller retention offers better results than lintine paper

Use these refined cellulose fiber filters for determining the amount of sediment or insoluble material in raw milk and other dairy products. Available in white or black color; the black disc allows easier identification of white particulates.

Catalog number	Color	Diameter	Weight (g/33 mm)	Thickness (mm)	Qty/pk	Price/pk
TW-06645-97	White	33 mm	0.2	1.2	50	
TW-06646-98	Black					

Technical Assistance?

Contact our expert Application Specialists to assist you. Call 1-847-549-7600 or go online to e-mail or chat live.



Sterile Mixed Cellulose Ester Filter Membranes

Presterilized membranes in convenient single-, multi- or continuous feed packs

Mixed cellulose ester membranes are suitable for microbiological analysis of water, wastewater, pharmaceuticals, or beverages. Offered with or without grid lines; grid lines facilitate counting colonies on the membrane surface. Grid squares measure 3.1 mm and represent 1/100 of the area of a 47-mm membrane. Black membranes maximize contrast between colonies and the filter; green membrane enables viewing of black, white, and colorless colonies on a single filter.

Presterilized by EtO, these 47-mm diameter filters are available in envelopes of 10, individually packaged or now individually wrapped continuous feed. Order membranes with absorbent pad for use with broth media.



Catalog number	Pore size	Surface	Absorbent pad	Qty/pk	Price/pk
White membranes, packaged 10 per envelope					
TW-06644-08	0.45 µm	Gridded	Included	100	
TW-06644-10			Not included	200	
TW-06644-06	0.65 µm	Gridded	Included	100	
White membranes, individually packaged					
TW-06644-21	0.20 µm	Plain	Not included	100	
TW-06644-19	0.20 µm	Gridded	Included	100	
TW-06644-23			Not included	100	
TW-06644-27	0.45 µm	Plain	Not included	100	
TW-06644-28†			Included	100	
TW-06644-16	0.45 µm	Gridded	Included	100	
TW-06644-25			Not included	1000	
TW-06644-14	0.45 µm	Gridded	Not included	100	
TW-06644-29†			Included	100	
TW-06644-33			Not included	200	
TW-06644-31			Included	1000	
TW-06644-38	0.65 µm	Plain	Not included	100	
TW-06644-43	0.65 µm	Gridded	Included	100	
TW-06644-12			Not included	100	
TW-06644-47	0.80 µm	Plain	Not included	100	
TW-06644-45	0.80 µm	Gridded	Included	100	
TW-06644-49			Not included	100	
TW-06644-52			Not included	1000	
Black membranes, individually packaged					
TW-06644-37	0.45 µm	Gridded	Included	100	
TW-06644-39			Not included	100	
TW-06644-44			Not included	1000	
TW-06644-51	0.80 µm	Gridded	Included	100	
TW-06644-53			Not included	100	
Green membranes, individually packaged					
TW-06644-54	0.45 µm	Gridded	Not included	100	
NEW White membranes, individually packaged-continuous feed					
TW-16644-14	0.45 µm	Gridded	Not included	100	
TW-16644-45	0.08 µm		Included	100	
NEW Black membranes, individually packaged-continuous feed					
TW-16644-39	0.45 µm	Gridded	Not included	100	
TW-16644-53	0.08 µm		Included	100	

†With hydrophobic edge

06644-08

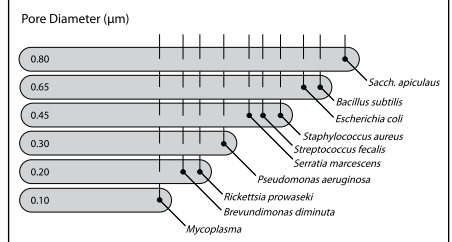


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Relationship of Pore Size and Microbe Retention to Membrane Filters



Membranes

A Cellulose Acetate Membranes

Cellulose acetate (CA) membranes have lower binding affinities for charged macromolecules than cellulose nitrate. Retention is primarily based on precipitate size—use to separate bound and unbound proteins. Membranes also have low-swelling properties making them ideal for use with alcohol-based solutions. Membranes withstand temperatures to 356°F (180°C).



Pore size (µm)	Bubble point (psi)	Flow (L/min/cm ²)		13 mm (100/pk)		25 mm (100/pk)		47 mm (100/pk)		90 mm (25/pk)		142 mm (25/pk)		293 mm (25/pk)	
		H ₂ O	Air	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price
0.20	>37.1	0.016	2.0	TW-06645-00		TW-06645-02		TW-06645-04		TW-06645-06		TW-06645-08		TW-36230-34	
0.45	>25.9	0.035	4.0	TW-06645-10		TW-06645-12		TW-06645-14		TW-06645-16		TW-06645-18		TW-36230-66	
0.80	>10.0	0.160	14.0	TW-06645-20		TW-06645-22		TW-06645-24		TW-06645-26		TW-06645-28		TW-36230-68	
3.00	>5.0	0.500	54.0	TW-36230-70		TW-36230-72		TW-36230-74		TW-36230-76		TW-36230-78		TW-36230-80	

[†]Using water prefiltered to 0.1 µm at 10 psi.

B Mixed Cellulose Ester Membranes

Mixed cellulose ester (MCE) membranes are made from over 90% cellulose nitrate for strength and thermostability. These membranes can be exposed to temperatures up to 266°F (130°C). Can be used for many laboratory applications including filter sterilizing biological fluids, microbiology, contamination analysis, and air monitoring.

Pore size (µm)	Bubble point (psi)	Flow (L/min/cm ²)		13 mm (100/pk)		25 mm (100/pk)		47 mm (100/pk)		90 mm (25/pk)		142 mm (25/pk)		293 mm (25/pk)	
		H ₂ O [†]	Air	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price
0.10	35.3	0.027	0.67	TW-06639-25		TW-06639-28		TW-06639-31		TW-06639-34		TW-06639-41		TW-36230-81	
0.20	54.5	0.018	2.4	TW-06639-01		TW-06639-05		TW-06639-13		TW-06639-35		TW-06639-17		TW-36230-82	
0.45	35.0	0.045	3.7	TW-06639-02		TW-06639-06		TW-06639-14		TW-06639-36		TW-06639-18		TW-36230-83	
0.80	16.4	0.165	15.0	TW-06645-30		TW-06645-32		TW-06645-34		TW-06645-36		TW-06645-38		TW-36230-84	
1.00	13.9	0.220	20.4	TW-06639-47		TW-06639-49		TW-06639-51		TW-06639-55		TW-06639-53		TW-36230-85	
3.00	10.2	0.300	28.3	TW-06639-26		TW-06639-29		TW-06639-32		TW-06639-39		TW-06639-42		TW-36230-86	
5.00	8.5	0.400	40.9	TW-06639-27		TW-06639-30		TW-06639-33		TW-06639-40		TW-06639-43		TW-36230-87	

[†]Using water prefiltered to 0.1 µm at 10 psi.

C Hydrophilic PTFE Membranes

Hydrophilic PTFE membranes offer maximum chemical and pH resistance with minimal aqueous extractables (<0.3 wt%). Since the filter is optically clear when wet, it is ideally suited for culture and microscopic examination of cells/particles captured without requiring a separate step. Maximum operating temperature is 212°F (100°C). Autoclaving and allowing filter to dry will render it hydrophobic.

Pore size (µm)	Bubble point (psi)	Flow (L/min/cm ²)		13 mm (100/pk)		25 mm (100/pk)		47 mm (100/pk)		90 mm (25/pk)		142 mm (25/pk)		293 mm (10/pk)	
		H ₂ O [†]	Air	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price
0.10	55.1	0.014	1.6	TW-36229-50		TW-36229-52		TW-36229-54		TW-36229-56		TW-36329-47		TW-36329-51	
0.20	34.8	0.021	2.1	TW-36329-40		TW-36329-42		TW-36329-44		TW-36329-46		TW-36329-48		TW-36329-52	
0.50	20.3	0.039	2.9	TW-36229-58		TW-36229-60		TW-36229-62		TW-36229-64		TW-36329-49		TW-36329-53	
1.00	12.0	0.073	5.7	TW-36229-66		TW-36229-68		TW-36229-70		TW-36229-72		TW-36329-50		TW-36329-54	

[†]Using water prefiltered to 0.1 µm at 10 psi.

D Hydrophobic PTFE Membranes

This thin, highly porous PTFE membrane is inert to most chemically aggressive solvents, strong acids, and bases that may be incompatible with supported PTFE filters. Ideal for sterilizing gases because it will trap aqueous aerosols on the surface. Operating temperature range is -184 to 500°F (-120 to 260°C).

Pore size (µm)	Bubble point (psi)	Flow (L/min/cm ²)		13 mm (100/pk)		25 mm (100/pk)		47 mm (100/pk)		90 mm (25/pk)		142 mm (25/pk)		293 mm (10/pk)	
		Acetone	Air	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price
0.10	17.4	0.027	—	TW-36229-74		TW-36229-76		TW-36229-78		TW-36229-80		TW-36229-82		TW-36329-33	
0.20	13.2	0.055	—	TW-36329-04		TW-36329-06		TW-36329-08		TW-36329-10		TW-36329-12		TW-36329-34	
0.50	9.1	0.100	—	TW-36329-14		TW-36329-16		TW-36329-18		TW-36329-20		TW-36329-22		TW-36329-35	
0.80	5.7	0.200	—	TW-36229-84		TW-36229-86		TW-36229-88		TW-36229-90		TW-36229-92		TW-36329-36	
1.00	4.5	0.300	—	TW-36329-24		TW-36329-26		TW-36329-28		TW-36329-30		TW-36329-32		TW-36329-37	
3.00	1.9	0.750	—	TW-36229-94		TW-36229-96		TW-36229-98		TW-36329-00		TW-36329-02		TW-36329-38	

E Hydrophobic PTFE Membranes with Support

A laminated polypropylene support offers improved handling characteristics to this PTFE membrane filter. Use to sterilize and clarify strong acids, bases, and aggressive solvents. Ideal for air and gas venting. Protects vacuum pumps and critical samples by blocking aqueous liquids. Operating temperature range is -31 to 266°F (-35 to 130°C).

Pore size (µm)	Bubble point (psi)	Flow (L/min/cm ²)		13 mm (100/pk)		25 mm (100/pk)		47 mm (100/pk)		90 mm (25/pk)		142 mm (25/pk)		293 mm (10/pk)	
		Acetone	Air	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price
0.10	20.3	0.0391	2.5	TW-36329-60		TW-36329-62		TW-36329-64		TW-36329-66		TW-36230-40		TW-36329-70	
0.20	14.1	0.0614	4.5	TW-02916-50		TW-02916-52		TW-02916-54		TW-02916-56		TW-02916-58		TW-36329-71	
0.50	8.5	0.110	7.5	TW-02916-60		TW-02916-62		TW-02916-64		TW-02916-66		TW-02916-68		TW-36329-72	
1.00	4.3	0.445	17.0	TW-02916-70		TW-02916-72		TW-02916-74		TW-02916-76		TW-02916-78		TW-36329-73	



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Membranes



A 36229-02



B 36229-34



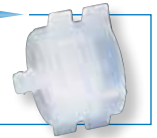
C 36230-00

A Cole-Parmer Nylon (Polyamide) Membranes

High protein binding membranes are ideal for filtering or sterilizing nonprotein-containing biological solutions. Inherently hydrophilic membranes do not require prewetting—filter aqueous solutions and organic solvents. Withstand repeated steam sterilization.

Find MORE!

For membrane filter holders, see pages 474–475.



Pore size (µm)	Bubble point (psi)	Flow (L/min/sq cm)	13 mm (100/pk)		25 mm (100/pk)		47 mm (100/pk)		90 mm (25/pk)		142 mm (25/pk)	
			Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price
0.2	49	12	TW-36229-00		TW-36229-02		TW-36229-04		TW-36229-06		TW-36229-08	
0.45	33	26	TW-36229-10		TW-36229-12		TW-36229-14		TW-36229-16		TW-36229-18	

B Cole-Parmer PTFE Membranes

Durable-laminated PTFE membranes are unaffected by even the most corrosive compounds, including concentrated acids, alkalies, and propellants. Membranes withstand temperatures from –100 to 130°C (–148 to 266°F). Use these hydrophobic membranes for sterile venting and filtration of gas, air streams, and organic solvents. Prewet with acetone or methanol for aqueous solutions.

Pore size (µm)	Bubble point (psi)	Flow (L/min/sq cm)	13 mm (100/pk)		25 mm (100/pk)		47 mm (100/pk)		90 mm (25/pk)		142 mm (25/pk)	
			Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price
0.2	20	0.2	TW-36229-20		TW-36229-22		TW-36229-24		TW-36229-26		TW-36229-28	
0.45	13	0.3	TW-36229-30		TW-36229-32		TW-36229-34		TW-36229-36		TW-36229-38	
1.2	4	1.6	TW-36229-40		TW-36229-42		TW-36229-44		TW-36229-46		TW-36229-48	

C Polycarbonate Membranes

A thin, translucent and microporous polycarbonate (PCTE) film with a smooth, flat surface. A two-step process produces precise cylindrical pore sizes. Can be safely exposed to temperatures of 140°C (284°F). Ideally suited for use in blood assays, and high-purity and general filtration. The 0.4 µm pore size is typically used for air sampling.

Pore size (µm)	Bubble point (psi)	Flow (L/min/sq cm)	13 mm (100/pk)		25 mm (100/pk)		47 mm (100/pk)	
			Catalog number	Price	Catalog number	Price	Catalog number	Price
0.2	20	0.2	TW-36230-00		TW-36230-02		TW-36230-04	
0.4	12	0.3	TW-36230-06		TW-36230-08		TW-36230-10	
5.0	1.2	1.6	TW-36230-12		TW-36230-14		TW-36230-16	

Ultrafiltration Disc Membranes

Ideal for stirred cells and micropartition system

These high-recovery hydrophilic membranes are made of regenerated cellulose. The tight microstructure ensures the highest possible retention with the lowest possible adsorption of protein, DNA, or other macromolecules. Use when concentrating or desalting extremely dilute solutions or whenever your sample is hydrophobic.



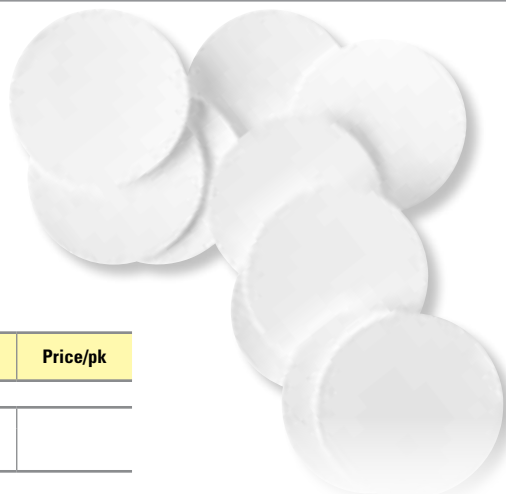
NMWL†	25 mm		44.5 mm		63.5 mm		76 mm		150 mm	
	Cat. no.	Price/10 pk	Cat. no.	Price/10 pk	Cat. no.	Price/10 pk	Cat. no.	Price/10 pk	Cat. no.	Price/5 pk
1000	TW-29949-00		TW-29949-02		TW-29949-04		TW-29949-06		TW-29949-08	
3000	TW-29949-10		TW-29949-12		TW-29949-14		TW-29949-16		—	—
10,000	TW-29949-16		TW-29949-18		TW-29949-20		TW-29949-22		TW-29949-40	
30,000	TW-29949-24		TW-29949-26		TW-29949-28		TW-29949-30		TW-29949-32	
100,000	TW-29949-34		TW-29949-36		—	—	—	—	—	—

†Nominal molecular weight limit.

Membranes

The laboratory standard for pressure or vacuum-driven filtration

- Express PES® (polyethersulfone) is the fastest filtration; specifically designed for HTP
- Durapore® PVDF (polyvinylidene fluoride) provides the lowest protein binding (99% recovery)
- MF-Millipore® (mixed cellulose esters) is the most widely used membrane for sterilization
- PTFE (polytetrafluoroethylene) is ideal for filtration of nonaqueous solutions



Four different membrane types to match your application.

Catalog number	Material	Diameter	Pore size	Flow (mL/min/cm ²)	Bubble point (bar ²)	Qty/pk	Price/pk
Express ; 125 µm thickness							
TW-29960-20	PES	47 mm	0.22 µm	40	—	100	
TW-29960-22		90 mm				50	
TW-29960-24		142 mm				50	
Durapore ; 125 µm thickness; operating temperature 185°F (85°C) max							
TW-29960-00	PVDF	47 mm	0.22 µm	6.9	3.40	100	
TW-29960-10		90 mm				50	
TW-29960-02	PVDF	47 mm	0.45 µm	29	1.55	100	
TW-29960-12		90 mm				50	
MF Millipore ; 150 µm thickness; operating temperature 167°F (75°C) max							
TW-29959-00	Mixed cellulose ester	47 mm	0.22 µm	18	3.52	100	
TW-29959-10		90 mm				50	
TW-29959-02	Mixed cellulose ester	47 mm	0.45 µm	60	2.20	100	
TW-29959-12		90 mm				50	
Fluoropore ; 150 µm thickness							
TW-29958-00	PTFE	47 mm	0.22 µm	24	1.00	100	
TW-29958-10		90 mm				50	
TW-29958-02	PTFE	47 mm	0.50 µm	60	0.63	100	
TW-29958-12		90 mm				50	
TW-29958-06	PTFE	47 mm	1.00 µm	110	0.50	100	
TW-29958-16		90 mm				50	

Filter Forceps

Solid 304 stainless steel forceps have flat tips to handle filter membrane without damaging them.

[LZ-02902-50](#) Filter forceps, 4½" (11.4 cm) long



Silver Membrane Filters

Chemically resistant with exceptionally high flow rates

- Excellent chemical and thermal properties
- Intrinsically bacteriostatic due to the nature of silver

Silver metal membranes have the chemical inertness of pure silver. They resist alcohol, fuels, all organic solvents, and other hydrocarbons including halogenated hydrocarbons. Membranes can be repeatedly autoclaved, steam or hot air sterilized without losing their effectiveness. Adsorption and absorption is virtually nonexistent due to the chemical and biological inertness of pure silver, and the smooth regular shape of the silver media.

Silver membranes are fiber-free and feature virtually no media migration because they are strong, uniform, porous monolithic structures consisting of metallic crystals. The high porosity (60% open area) provides exceptionally high flow rates. The intrinsic properties of silver create an antimicrobial effect that inhibits the growth of bacteria and other microorganisms on the surface of the membrane. Typical applications include X-ray diffraction scanning electron microscopy, high-temperature venting, clarification of liquids, HPLC media preparation, high-purity fluids, and bacterial sampling.



06741-10

Specifications

Coefficient of thermal expansion: 18.8 x 10⁻⁶ per °C

Resistivity: 1.59 µS at 68°F (20°C)

Nominal thickness: 50 µm (0.002")

Specific heat: 0.448 calories/gram at 68°F (20°C)

Pore size (µm) [†]	Bubble point (psi) [‡]	Flow (L/sq cm) ^{† †}		Max temperature	13 mm (100/pk)		25 mm (50/pk)		47 mm (25/pk)	
		H ₂ O	Air		Catalog number	Price	Catalog number	Price	Catalog number	Price
0.2	13	17	350	400°F (204°C)	TW-06741-10		TW-06741-12		TW-06741-14	
0.45	9	40	670	400°F (204°C)	TW-06741-16		TW-06741-18		TW-06741-20	
0.8	7	340	1400	400°F (204°C)	TW-06741-22		TW-06741-24		TW-06741-26	
1.2	5	460	2000	400°F (204°C)	TW-06741-28		TW-06741-30		TW-06741-32	
5	2	870	5200	800°F (427°C)	TW-06741-34		TW-06741-36		TW-06741-38	

[†]Verified by bubble point pressure. [‡]Bubble point values are for methanol. ^{††}Using pre-filtered water at a pressure differential of 10 psid (0.7 bar) with methanol pre-wetting.

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Filtration
 Laboratory, Thimbles / Screens



Extraction Thimbles

Seamless, high-purity filters for extraction and air monitoring

Thimble filters are used in soxhlet apparatus for dust sampling, and for extracting soluble components using organic solvents. Thimbles are made of cellulose, glass fiber, or silica fiber. Typical applications include analysis of fats, oils, grease, organics, pesticides, pollutants, and additives in plastic/rubber materials.

Cellulose Thimbles are suitable for extraction of organic compounds and dust sampling. Lipid content is <0.1% by weight; thickness is 1.5 mm.

Glass Fiber Thimbles of borosilicate glass are acid washed for minimum trace metal content. They are acid resistant (except hydrofluoric) and ideal for high-temperature extractions up to 932°F (500°C). Thickness is 1.6 mm.

Quartz Fiber Thimbles are tapered for ease in loading into stack samplers. Heat resistant up to 1832°F (1000°C). Thickness is 2.2 mm.

Catalog number	dia x H	Qty/pk	Price/pk
Cellulose thimbles (Grade No. 84)			
TW-29821-44	19 x 90 mm	25	
TW-29821-08	22 x 65 mm		
TW-29821-00	22 x 80 mm		
TW-29821-02	25 x 60 mm		
TW-29821-46	25 x 80 mm	25	
TW-29821-10	25 x 90 mm		
TW-29821-48	25 x 100 mm		
TW-29821-50	28 x 100 mm		
TW-29821-14	30 x 80 mm	25	
TW-29821-12	30 x 100 mm		
TW-29821-04	33 x 80 mm		
TW-29821-52	33 x 100 mm		
TW-29821-06	43 x 123 mm		
Glass fiber thimbles (Grade No. 86R)			
TW-29821-16	19 x 90 mm	25	
TW-29821-20	25 x 90 mm		
TW-29821-18	25 x 100 mm		
TW-29821-24	30 x 80 mm	25	
TW-29821-22	30 x 100 mm		
TW-29821-26	33 x 80 mm		
TW-29821-28	43 x 123 mm		
Quartz fiber thimbles (Grade No. 88R)			
TW-29821-30	19 x 90 mm	25	
TW-29821-32	25 x 100 mm		
TW-29821-36	30 x 80 mm		
TW-29821-34	30 x 100 mm		



29821-12

Used in soxhlet apparatus for sampling and extraction applications

Screen Discs and Sheets

Four materials ensure chemical and application compatibility

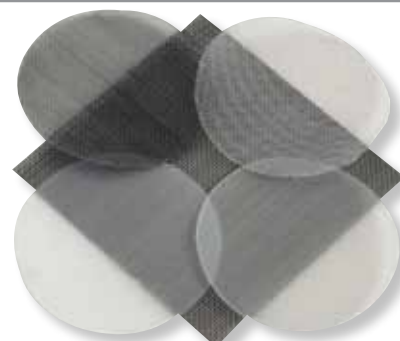
■ Cut the 30 x 30-cm sheets to desired dimensions to fit your needs

Nylon mesh filters out particles down to 8 µm. Sterilize with gamma irradiation. Maximum temperature is 239°F (115°C) for dry heat, 356°F (180°C) for wet heat.

Polypropylene (PP) mesh offers strength and stability; resists most acids, alkalis, and alcohols. Sterilize by autoclave. Maximum temperature is 266°F (130°C) for both dry and wet heat.

PEEK mesh holds its shape and features superior chemical resistance. Sterilize by autoclave. Maximum temperature is 482°F (250°C) for both dry and wet heat.

304 Stainless Steel woven discs or sheets are ideal for high differential pressures. Sterilize by autoclave or gamma irradiation. Maximum temperature is 536°F (280°C) for both dry and wet heat.



Mesh opening (µm)	Open area	Thickness (µm)	47-mm discs			55-mm discs			90-mm discs			30 x 30-cm sheets		
			Catalog number	Qty/pk	Price/pk	Catalog number	Qty/pk	Price/pk	Catalog number	Qty/pk	Price/pk	Catalog number	Qty/pk	Price/pk
Nylon. For finer macrofiltration needs, use with all aqueous solutions.														
5	1%	100	TW-06631-00	10		TW-06631-30	10		TW-06631-50	10		TW-06631-70	3	
8	1%	75	TW-06631-01	10		TW-06635-88	10		TW-06635-38	10		TW-06631-71	3	
10	2%	45	TW-06631-02	10		TW-06635-87	10		TW-06635-37	10		TW-06630-92	3	
20	14%	55	TW-06631-03	10		TW-06635-86	10		TW-06635-36	10		TW-06630-90	3	
30	21%	64	TW-06631-04	10		TW-06635-85	10		TW-06635-35	10		TW-06630-88	3	
41	33%	60	TW-06631-05	10		TW-06635-84	10		TW-06635-34	10		TW-06630-86	3	
53	36%	60	TW-06631-06	10		TW-06635-83	10		TW-06635-33	10		TW-06630-84	3	
60	45%	55	TW-06631-07	10		TW-06635-82	10		TW-06635-32	10		TW-06630-82	3	
70	36%	70	TW-06631-08	10		TW-06635-81	10		TW-06635-31	10		TW-06630-80	3	
100	47%	78	TW-06631-09	10		TW-06635-80	10		TW-06635-30	10		TW-06630-75	3	
200	55%	125	TW-06631-14	10		TW-06631-31	10		TW-06631-51	10		TW-06631-72	3	
300	50%	200	TW-06631-15	10		TW-06631-32	10		TW-06631-52	10		TW-06631-73	3	
Polypropylene. Strength and stability, resists most acids and alkalis, autoclavable.														
105	26%	212	TW-06631-16	10		TW-06631-33	10		TW-06631-53	10		TW-06631-74	3	
149	34%	193	TW-06631-17	10		TW-06635-67	10		TW-06635-17	10		TW-06630-50	3	
210	34%	308	TW-06631-18	10		TW-06631-34	10		TW-06631-54	10		TW-06630-48	3	
350	34%	525	TW-06631-19	10		TW-06635-64	10		TW-06635-14	10		TW-06630-45	3	
500	39%	610	TW-06631-20	10		TW-06635-63	10		TW-06635-13	10		TW-06630-44	3	
1000	45%	1020	TW-06631-21	10		TW-06631-35	10		TW-06631-55	10		TW-06631-75	3	
PEEK. For general filtration, resistant to acidic and alkaline solutions, temperature stability up to 250°C.														
35	22%	71	TW-06631-22	10		TW-06631-36	10		TW-06631-56	10		TW-06631-76	3	
115 x145	56%	50	TW-06631-23	10		TW-06631-37	10		TW-06631-57	10		TW-06631-77	3	
220	56%	128	TW-06631-24	10		TW-06631-38	10		TW-06631-58	10		TW-06631-78	3	
300	36%	370	TW-06631-25	10		TW-06631-39	10		TW-06631-59	10		TW-06631-79	3	
Stainless steel. Extra strength, good chemical resistance.														
30	30%	50	—	—	—	TW-06631-40	5		TW-06631-60	5		TW-06631-80	2	
51	42%	56	—	—	—	TW-06635-94	5		TW-06635-44	5		TW-06630-99	2	
104	45.20%	102	—	—	—	TW-06635-93	5		TW-06635-43	5		TW-06630-97	2	
213	49.80%	178	—	—	—	TW-06635-92	5		TW-06635-42	5		TW-06630-96	2	

In-Line and Syringe Filter Holders

Polypropylene Holders

Use these polypropylene (PP) holders for ultracleaning and sterilizing liquids under pressure, or for aseptic sampling of liquids and gases. Maximum operating temperature (liquids) is 176°F (80°C); maximum operating pressure is 42 psi (2.9 bar) for the 25-mm holder and 71 psi (4.8 bar) for the 47-mm holder.

Holders feature PP dual support screens and silicone O-rings. Dual support screens allow for flow in both directions. Assemble holders quickly and efficiently without membrane tears with the specially designed inlet cap and exterior lock.

The 25-mm holder features a female luer-lock on the inlet and a male luer-slip on the outlet. The 47-mm holder features a ¼" NPT(M) thread on the inlet and a ¼" NPT(M)-female luer-slip on the outlet. Both are autoclavable.



06623-22



06623-32

Catalog number	Type of holder	Diameter	Qty/pk	Price/pk
TW-06623-32	Syringe	25 mm	6	
TW-06623-22	In-line	47 mm	1	

[TW-02930-95](#) Support screen, 25 mm. Pack of 8

[TW-06645-90](#) Support screen, 47 mm. Pack of 4

PFA Filter Holders

Use the PFA holders with chemically aggressive liquids. Dual support screens allow for flow in either direction. Exterior locking ring lets you quickly assemble without tearing the membrane. They are ideal for sterilizing and filtering ultra clean liquids under positive pressure and filtering small volumes of high-purity acids, alkalis or organic solvents. Body and support screens of the filters are made of PFA; the O-ring is made of perfluoroelastomer.

The 25-mm holder features a female luer lock on the inlet and male luer slip on the outlet. The 47-mm holder has an air/bleed vent and features combination ¼" NPT(M) and ¼" OD tubing adapter connections. Maximum operating temperature is 250°F (121°C). Autoclavable.



06644-62

06644-60

Catalog number	Type of holder	Membrane diameter		Filtration area	Price/ea
		Filter	Prefilter		
TW-06644-60	Syringe	25 mm	21 mm	3.5 cm ²	
TW-06644-62	In-line	47 mm	42 mm	13.5 cm ²	

Polysulfone Holder

Use this polysulfone holder with silicone O-ring for in-line removal of particles or microbial contaminants from liquids or gases, as in clarification or cold sterilization. Holds 25-mm membrane. Removable tubing connectors on both ends fit ⅜" ID tubing. Max temperature is 250°F (121°C), max pressure is 100 psi. Included luer-lock fitting permits use with syringe. Use holder as an aseptic bell. Autoclavable.



29822-00

Catalog number	Type of holder	Diameter	Price/ea
TW-29822-02	In-line/syringe	25 mm	

Sanitary Stainless Steel In-Line Filter Holders

These sanitary stainless steel (SS) holders are for liquid and gas applications. Use for point-of-use filtration on sterile filling machines, and for lab or pilot-scale sterile filtration applications. The sanitary inlet and outlet connections are nonthreaded and easily disassembled for thorough cleaning.

The 47-mm holder features a vent for air release on the upstream side of the membrane at any time. Body and support screen are 304 SS with PTFE gasket and silicone O-ring. Max pressure at inlet is 71 psi (4.9 bar).



06643-51



06643-53

Catalog number	Type of holder	Diameter	Filtration area	Price/ea
TW-06643-51	Sanitary in-line	25 mm	3.8 cm ²	
TW-06643-53		47 mm	12.5 cm ²	

Stainless Steel Filter Holders

These filter holders have bodies and perforated support screens of 304 SS with PTFE gaskets and silicone O-rings. Autoclave with membrane in place.

Syringe holders have luer fittings. Maximum pressure for 13- and 25-mm syringe holders is 99 psi inlet, 42 psi differential. Maximum pressure for 25- and 47-mm in-line holders is 71 psi inlet, 29 psi differential.

In-line holders have ¼" NPT(F) and ¼" NPT(M) ports and are supplied with ⅜" hose barb connectors. All holders include two perforated 304 SS support screens. Open holders without disconnecting lines.



02928-20



02929-10

Catalog number	Type of holder	Diameter	Price/ea
TW-02928-10	Syringe	13 mm	
TW-02928-20	Syringe	25 mm	
TW-02929-10	In-line	25 mm	
TW-02929-20	In-line	47 mm	

Polycarbonate Filter Holders

These reusable holders are designed for the filtration of aqueous solutions. Made of clear, autoclavable polycarbonate with silicone gasket or O-rings. The bell-shaped base protects the filtrate from repeated contamination while flowing into the receiver. Maximum operating pressure is 101 psi.

Model 29550-44 has hose nipples which can be replaced by luer connectors to use it as a large-area syringe filter holder.



29550-44



29550-40

Catalog number	Dia	Filtration area	Connection	Qty/pk	Price/pk
TW-29550-40	13 mm	0.5 cm ²	Female luer lock inlet, luer slip outlet	12	
TW-29550-42	25 mm	3 cm ²		12	
TW-29550-44	50 mm [†]	12.5 cm ²	M 12 x 1 female thread	5	

[†]Prefilter is 40 mm.



High-Pressure Stainless Steel Holder

Operates at pressures up to 100 kg/cm² (1400 psi)!

This filter holder is constructed of type 304 stainless steel and has FPM O-rings, making it compatible with many aggressive liquids and gases. Back pressure support screen prevents membrane rupture and deflects flow at very high pressures. Holder has 1/4" NPT(F) inlet and outlet. Membrane prefilter size is 38 mm. Upstream dead volume is 3 mL and downstream volume is 6.5 mL.



06644-50

Catalog number	Filter diameter	Filtration area	Price/ea
TW-06644-50	47 mm	11.2 cm ²	

PFA In-Line Filter Holders

Nonwetting and nonsticking filter holder is suitable for organic solvents, acids, alkalies, or high-purity filtration. Temperature range is -320 to 500°F (-196 to 260°C). With stand up to 65 psi.

Change filter without disconnecting tubing with Tefzel® ETFE clamp nut. Prefiltering reservoir creates fluid turbulence to slow membrane clogging. PFA support grid snaps out easily for cleaning. Ferruled nuts accept 1/4" OD PTFE or PFA tubing. Order wrench set 06103-23 for holder assembly/disassembly and filter membranes separately below.



06103-14

Catalog number	Type of holder	Diameter	Price/ea
TW-06103-13	In-line	47 mm	
TW-06103-14		50 mm	

TW-06103-23 Wrench set. Set of two wrenches for assembly/disassembly of PFA filter holders

PTFE Membranes for filter holder 06103-14 above. Fibrous, porous structure with 50-mm diameter for screen- and depth- type filtration.

Catalog number	Porosity	Thickness	Price/pk of 10
TW-06621-10	20 to 30 µm	4.8 mil	
TW-06621-20	5 to 6 µm	5.6 mil	
TW-06621-30	1 to 2 µm	10 mil	

Stirred Cells with Safety Relief Valve

Increase membrane life and speed sample processing

Use stirred cells for dewatering and concentrating proteins and other biological samples with ultrafiltration membranes. They are also recommended for cellulose membrane filtration of fluids with a heavy particle burden. Pressurized air from an external source (70 psi/4.8 bar max) filters sample through the membrane. Magnetic stir rod/bar is mounted to cell top cap and is preset to clear membrane surface.

Cells include a preset safety relief valve for pressure buildup, a 1/2" NPT(M) cell cap connection, adapters, and pressure tubing. Top cap can be removed on the 25-, 43-, and 62-mm models to load sample; the 76-, 90-, and 150-mm models have a 1/2" NPT(M) port for sample loading. All cells have polyacetal end caps and stir rod, PTFE stir bar, polypropylene support screen, and silicone O-ring.



Stirred cell 02910-40 shown with stirrer (stirrer not included)

Catalog number	Reservoir material	Membrane diameter	Filtration area	Cell capacity	Minimum recoverable volume	Downstream holdup volume	Height x bottom diameter	Price
TW-02910-40	Clear polycarbonate	25 mm	3.5 cm ²	10 mL	0.5 mL	1.3 mL	5 1/2" x 2 3/8" (13.8 x 6.0 cm)	
TW-02910-41		43 mm	11.5 cm ²	70 mL	2.5 mL	4.6 mL	6 3/8" x 2 5/8" (16.1 x 6.8 cm)	
TW-02910-82		62 mm	27.0 cm ²	200 mL	4.5 mL	9.1 mL	7 1/2" x 3 1/4" (19.0 x 8.2 cm)	
TW-02910-42		76 mm	38.5 cm ²	450 mL	10 mL	13 mL	8 1/4" x 4 5/8" (21.1 x 11.7 cm)	
TW-02910-43	Acrylic	90 mm	54.5 cm ²	600 mL	15 mL	20 mL	9" x 5 3/8" (23.0 x 13.5 cm)	
TW-02910-88		150 mm	162 cm ²	2000 mL	60 mL	41 mL	10 3/8" x 7 3/4" (26.9 x 19.8 cm)	

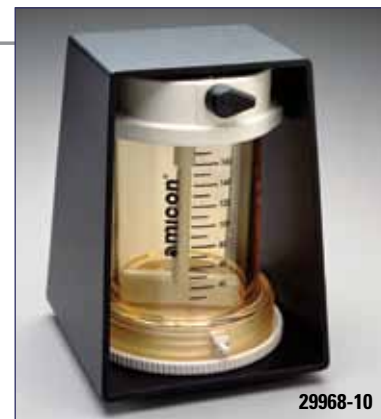
Stirred Cells

Five different sizes handle volumes from 3 to 400 mL

Use these stirred cells to concentrate, diafilter, and exchange buffers for macromolecule solutions including proteins, enzymes, antibodies and viruses. They feature high flow rates with solutions up to 10% macrosolute concentration at room temperature and 55 psi. Maximum operating pressure is 75 psi; recommended operating pressure is 55 psi (<10 psi when using a 100K MWCO membrane or greater). Autoclavable at 121°C for 30 minutes.

What's included: 4 feet of 1/4" pressure tubing and 4" (10.2 cm) of permeate tubing.

Catalog number	Membrane diameter	Process volume		Effective membrane area	Hold-up volume	Price
		Maximum	Minimum			
TW-29968-10	25 mm	3 mL	75 µL	0.9 cm ²	70 µL	
TW-29968-12	25 mm	10 mL	1.0 mL	4.1 cm ²	0.2 mL	
TW-29968-14	44.5 mm	50 mL	2.5 mL	13.4 cm ²	0.5 mL	
TW-29968-16	63.5 mm	200 mL	5.0 mL	28.7 cm ²	1.2 mL	
TW-29968-18	76 mm	400 mL	10 mL	41.8 cm ²	1.5 mL	



29968-10

Disposable Ultrafiltration Units

Concentrate, separate, and purify your biological samples without a centrifuge

- Three molecular weight cutoffs
- 40 times maximum concentration

These disposable ultrafiltration units are designed for ease in concentrating, separating or otherwise purifying small volumes (<2 mL) of liquid samples, on the basis of molecular weight cutoff using positive pressure. The unit is constructed of polypropylene cap, acrylic retentive cell, and filtrate cell. Filter media is polysulfone. To use, simply dispense sample into the retentive cell by pipette, place cap on retentive cell, and inject 10 mL of air with a syringe. Remove cap to stop filtration.

What's included: 24 retentive cells, 24 filtrate cells, and 4 reusable caps.

Specifications

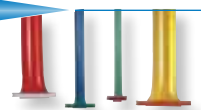
Min graduated volume: 0.5 mL **Max temperature:** 122°F (50°C) **Max pressure:** 43 psi (2.9 bar)
Min recovery volume: 0.5 mL **Sterilization:** 25% ethanol,
Max concentration: x 40 5% formalin

Catalog number	MWCO (Dalton)	Filtration area	Cell capacity	Price
TW-02910-50	10,000	2.0 cm ²	2.0 mL	
TW-02910-52	50,000			
TW-02910-54	200,000			



Find MORE!

For a complete line of dialysis products, see **pages 391–394**.



Cole-Parmer HPLC Syringe Filters

High quality, economical price

These nonsterile syringe filters are tested for physical properties and UV-detectable extractables. Each unit features secure, enhanced female Luer-Lok™ inlet and male luer slip outlet, and solvent-resistant low-extractable polypropylene housing. Select membranes with 1.0 µm binder-free glass prefilter for your high-solids sample. All syringe filters are autoclavable.

Membrane dia	Max temperature	Max pressure	Retention volume
4 mm	212°F (100°C)	75 psi	<15 µL
17 mm		115 psi	<29 µL
30 mm		90 psi	<137 µL

Catalog number	Pore size	Membrane diameter	Qty/pk	Price/pk
Nylon membranes				
TW-32815-00	0.2 µm	4 mm	100	
TW-32815-02	0.45 µm			
TW-32816-02	0.2 µm	17 mm	100	
TW-32816-00	0.45 µm			
TW-32816-08	0.2 µm	30 mm	100	
TW-32816-10[‡]	0.2 µm			
TW-32816-04	0.45 µm			
TW-32816-06[‡]	0.45 µm			
TW-32816-12	1.5 µm			
TW-32816-14	5.0 µm			
PTFE membranes				
TW-32816-22	0.2 µm	4 mm	100	
TW-32816-20	0.45 µm			
TW-32816-26	0.2 µm	17 mm	100	
TW-32816-24	0.45 µm			
TW-32816-32	0.2 µm	30 mm	100	
TW-32816-28	0.45 µm			
TW-32816-30[‡]	0.45 µm			
TW-32816-34	1.0 µm			
PVDF membranes				
TW-32816-46	0.2 µm	17 mm	100	
TW-32816-44	0.45 µm			
TW-32816-50	0.2 µm	30 mm	100	
TW-32816-48	0.45 µm			

[‡]With prefilter.



Syringe filters come with plastic jar for convenient storage.

Catalog number	Pore size	Membrane diameter	Qty/pk	Price/pk
Regenerated cellulose membranes				
TW-32816-66	0.2 µm	17 mm	100	
TW-32816-64	0.45 µm			
TW-32816-70	0.2 µm	30 mm	100	
TW-32816-68	0.45 µm			
Polyethersulfone (PES) membranes				
TW-32816-82	0.2 µm	17 mm	100	
TW-32816-80	0.45 µm			
TW-32816-86	0.2 µm	30 mm	100	
TW-32816-84	0.45 µm			
Polypropylene membranes				
TW-32816-96	0.2 µm	17 mm	100	
TW-32816-94	0.45 µm			
TW-32817-02	0.2 µm	30 mm	100	
TW-32816-98	0.45 µm			
TW-32817-00^{††}	0.45 µm			
Cellulose acetate membranes				
TW-32817-16	0.2 µm	17 mm	100	
TW-32817-14	0.45 µm			
TW-32817-20	0.2 µm	30 mm	100	
TW-32817-18	0.45 µm			
Glass microfiber membranes				
TW-32817-30	0.7 µm	30 mm	100	
TW-32817-32	1.2 µm			
TW-32817-34	3.1 µm			

^{††}With prefilter.



Cole-Parmer® Syringe Filters

Choose from a wide assortment of membrane types to suit your application. All filters are Triton-free and have a bidirectional membrane support and luer lock inlet/outlet for a secure fit to the syringe. For 50-mm membrane filters only, the inlet/outlet connections are stepped hose barbs that taper to fit ¼" to ½" ID tubing. Membrane type and pore size are printed on each filter for easy identification. All Cole-Parmer syringe filters are 100% integrity tested and manufactured in accordance with ISO 9002 standards. Sterile filters are sterilized by gamma radiation. They are certified nonpyrogenic, noncytotoxic, and are blister packed.



Syringe filter 02915-92
(syringe not included, order on pages 1641–1646)



Built-in prefilter 02915-92

Membrane Specifications

Membrane dia	Housing type	Sample volume	Retention volume [†]	Pressure limit at 25°C	Max temp	Effective filtration area
15 mm	PP	≤5 mL	10 µL	87 psi	127°C	1.7 cm ²
25 mm	PP	≤100 mL	0.1 mL	87 psi	127°C	4.8 cm ²
26 mm	Acrylic	≤100 mL	0.1 mL	87 psi	50°C	5.3 cm ²
50 mm	PP	≤2 L	0.5 mL	60 psi	134°C	20 cm ²

[†]Varies for glass prefilters; see glass prefilter table below.

Built-In Glass Prefilters with Final Filter

Borosilicate glass fiber prefilters combined with cellulose acetate membranes extend the life of the final filter when using viscous, proteinaceous, or particulate-laden samples. Use these filters to eliminate prefiltration step, reduce retention volume and sample loss, and achieve faster flow rates.



02915-40

Catalog number	Membrane		Pore size	Housing	Retention volume	Qty/ bx	Price/ bx
	Type	Dia					
Nonsterile filters							
TW-02915-90	Cellulose acetate	26 mm	0.20 µm	Acrylic	0.23 mL	100	100
TW-02915-92			0.45 µm				
TW-02915-94			0.80 µm				
Sterile filters							
TW-02915-40	Cellulose acetate	26 mm	0.20 µm	Acrylic	0.23 mL	50	

Cellulose Acetate Filters

02915-62

Cellulose acetate membranes exhibit low protein binding—ideal for filtering biological solutions.



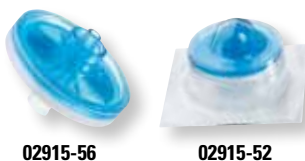
02915-60

02915-10

Catalog number	Pore size	Membrane dia	Housing	Color	Qty/bx	Price/bx
Nonsterile filters						
TW-02915-60	0.22 µm	26 mm	Acrylic	Blue	100	100
TW-02915-58	0.45 µm			Clear		
TW-02915-62	0.80 µm			Green		
Sterile filters						
TW-02915-12	0.22 µm	26 mm	Acrylic	Blue	50	50
TW-02915-00	0.45 µm			Clear		
TW-02915-10	0.80 µm			Green		

Nitrocellulose Filters

Nitrocellulose (CN) filters exhibit the highest protein retention of all membranes—good binding matrix for macromolecules. Provide fast flow rates with aqueous solutions.



02915-56

02915-52

Catalog number	Pore size	Membrane dia	Housing	Color	Qty/bx	Price/bx
Nonsterile filter						
TW-02915-56	0.20 µm	26 mm	Acrylic	Blue	100	
Sterile filters						
TW-02915-52	0.20 µm	26 mm	Acrylic	Blue	50	50
TW-02915-53	0.45 µm					

TECHNICAL info!

Typical Filter Applications

Membrane type	Applications
Glass prefilter	One-step prefiltration and filtration. Choose the final membrane to meet your application needs. High particle loading capacity.
Cellulose acetate	Sterilization and clarification of aqueous solutions. Low protein binding.
Nylon	Filtration of organic and aqueous solutions. Low extractables.
PTFE	Sterilization of gases and alcohols; cleaning acids, alkalis, and organic solvents; venting purposes. For aggressive chemicals.
Nitrocellulose	High protein retention; microbiological analysis, waste water treatment; sterilization of aqueous solutions.

Nylon Filters

Hydrophilic nylon membranes have extremely low levels of extractables and contain no wetting agents. They offer good chemical resistance and are ideal for aqueous and most organic samples.



02915-04

02915-16

Catalog number	Pore size	Membrane dia	Housing	Color	Qty/bx	Price/bx
Nonsterile filters						
TW-02915-16	0.22 µm	25 mm	PP	Natural	100	100
TW-02915-14	0.45 µm					
Sterile filters						
TW-02915-04	0.20 µm	25 mm	PP	Red	50	50
TW-02915-02	0.45 µm			Natural		

PTFE Filters

Polytetrafluoroethylene (PTFE) membranes are unaffected by most organic solvents, concentrated acids and bases, propellant, and cryogenic fluids. Can be used for gas/air filtration.



29550-08

02915-20

02915-28

Catalog number	Pore size	Membrane dia	Housing	Color	Qty/bx	Price/bx
Nonsterile filters						
TW-29550-08	0.20 µm	15 mm	PP	Natural	100	100
TW-29550-10	0.45 µm					
TW-02915-20	0.20 µm	25 mm	PP	Natural	100	100
TW-02915-22	0.45 µm					
TW-02915-28	0.20 µm	50 mm	PP	Natural	20	20
TW-02915-30	0.45 µm					
Sterile filters						
TW-02915-08	0.20 µm	25 mm	PP	Natural	50	50
TW-02915-06	0.50 µm					



Filtration

Laboratory, Syringe Filters

Syringe Filters

Designed for maximum sample recovery

These syringe filters are available in a variety of membrane and housing materials to meet your application needs. All syringe filters have a female luer-lock inlet and a male luer slip connector. Sterile, general-purpose filters and ion chromatography filters are individually packaged.

Express PES (polyethersulfone) offers the fastest filtration. It is specifically designed for HTP and provides low protein binding sterile filtration.

Durapore® PVDF (polyvinylidene fluoride) provides the lowest protein binding (99% recovery); ideal for filtration of high value biomolecules (e.g. monoclonal antibodies).

MCE (mixed cellulose esters) is the most widely used membrane for sterilization of aqueous solutions and removal of trace protein contamination.

LCR PTFE (polytetrafluoroethylene) is made of unsupported hydrophilic PTFE, compatible with all commonly used HPLC solvents. It can be used for filter aqueous fluids without prior wetting.

Nylon is hydrophilic and compatible with a broad range of solvents.

Fluoropore PTFE is a hydrophobic PTFE membrane bonded to a high-density polyethylene support; ideal for clarification of organic solvents. Sterile, individually packed, pyrogen free.

Specialty Filter Types

HPLC sample preparation filters are nonsterile. The 4-mm filter units feature a stepped outlet. All products have been tested for UV-absorbing extractables. Certificate included.

Ion chromatography filters are tested for low binding and low extractables—certificate is included. They are used for removing particulates from aqueous and mild organic solvents for cleaner IC spectra. Each unit is individually packaged to minimize the risk of extraneous ionic contamination.



HPLC sample preparation filters

Catalog number	Membrane material	Membrane dia	Pore size	Housing material	Sterile	Qty/pk	Price/pk
General-purpose filters							
TW-81053-00	Glass fiber prefilter	25 mm	—	PVC	No	50	
TW-81053-02	Express PES	33 mm	0.22 µm	Modified acrylic	Yes	50	
TW-81053-04	Durapore PVDF	4 mm	0.22 µm	HDPE	Yes	100	
TW-81053-06			0.45 µm				
TW-81053-08		25 mm	5 µm	PVC	Yes	50	
TW-81053-10		33 mm	0.1 µm	Modified acrylic	Yes	50	
TW-81053-12	0.45 µm						
TW-81053-14	MCE	33 mm	0.22 µm	Modified acrylic	Yes	50	
TW-81053-16			0.45 µm				
TW-81053-18			0.8 µm				
TW-29950-30	LCR PTFE	13 mm	0.22 µm	HDPE	Yes	100	
TW-29950-32		25 mm	0.22 µm	PVC	Yes	50	
HPLC sample preparation filters							
TW-81053-20	Durapore PVDF	4 mm	0.22 µm	HDPE	No	100	
TW-81053-22		0.45 µm					
TW-29950-64		13 mm	0.45 µm				
TW-81053-24	Nylon	13 mm	0.45 µm	HDPE	No	50	
TW-81053-30			0.22 µm				
TW-81053-32		0.45 µm					
TW-81053-34		25 mm	0.22 µm				
TW-81053-36	LCR PTFE	4 mm	0.45 µm	HDPE	No	100	
TW-81053-38			0.22 µm				
TW-81053-40			0.45 µm				
TW-81053-42	Fluoropore PTFE	13 mm	0.45 µm	HDPE	No	100	
TW-81053-44			0.45 µm				
TW-81053-46	Fluoropore PTFE	4 mm	0.22 µm	HDPE	No	100	
TW-81053-48			0.45 µm				
TW-29950-70		13 mm	0.22 µm				
TW-81053-50		0.45 µm					
TW-29950-72	Fluoropore PTFE	25 mm	0.22 µm	HDPE	No	100	
TW-29950-74			0.45 µm				
Ion chromatography filters							
TW-29950-40	PTFE	13 mm	0.22 µm	HDPE	No	100	
TW-81053-52			0.45 µm				
TW-29950-42		25 mm	0.22 µm				
TW-81053-54			0.45 µm				

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Disposable Syringe Filters

Housings are specifically designed to minimize sample holdup and maximize recovery

- Nonpigmented acrylic or polypropylene (PP) housings feature integral filter sealing to avoid the risk of contamination from pigments and adhesives
- Each filter is clearly marked with membrane pore size
- Housings have standard luer connectors, except for 50-mm filters which have 7 to 13.5 mm hose barb connectors

Mixed Cellulose Ester Filters are hydrophilic with high porosity and fast flow rate. Ideal for general-purpose filtration of aqueous solutions. Offer higher protein binding than cellulose acetate.

Cellulose Acetate Filters feature hydrophilic membranes with low protein binding; suitable for aqueous protein solutions. The filters are nitrate-free, making them suitable for groundwater filtration.

Nylon Filters are strong hydrophilic filters compatible with aqueous and alcoholic solutions and most HPLC solvents. They offer minimal extractables and high binding capacity for proteins, DNA, and RNA.

PTFE Hydrophilic Filters are versatile filters characterized by very good chemical resistance. They are compatible with many aqueous and organic solvent mixtures used in HPLC, including acetonitrile/water.

PTFE Hydrophobic Filters with a laminated polypropylene support can be used to sterilize and clarify strong acids and solvents. Also typically used in gas filtration or venting applications.

PES Polyethersulfone (PES) Filters are hydrophilic and low protein-binding; ideal for pharmaceutical and biological applications where sample recovery and low extractables are essential. Also used for filtration of high-contaminant or viscous liquids.



Membrane Specifications

Diameter	Housing	Filtration area	Sample volume	Holdup volume	Max temp	Max pressure psi (bar)
3 mm	PP	0.06 cm ²	<2 mL	<0.01 mL	140°F (60°C)	74 (5.1)
13 mm	PP	0.9 cm ²	<10 mL	<0.03 mL	140°F (60°C)	74 (5.1) [†]
25 mm	PP	4.0 cm ²	<100 mL	<0.1 mL	140°F (60°C)	74 (5.1) [†]
25 mm	Acrylic	4.0 cm ²	<100 mL	<0.1 mL	113°F (45°C)	74 (5.1)
30 mm	PP	4.8 cm ²	<120 mL	<0.1 mL	356°F (180°C)	127 (8.8)
50 mm	PP	19.6 cm ²	>100 mL	<3.0 mL	140°F (60°C)	49 (3.4)

[†]Max pressure for PTFE hydrophilic is 56 psi (3.9 bar).

Catalog number	Pore size	Membrane dia	Housing	Sterile	Qty/pk	Price/pk
Mixed cellulose ester membrane filters						
TW-81054-24	0.20 µm	25 mm	Acrylic	No	50	
TW-81054-26				Yes		
TW-81054-28	0.45 µm	25 mm	Acrylic	No	50	
TW-81054-72				Yes		
Cellulose acetate membrane filters						
TW-81054-00	0.20 µm	3 mm	PP	Yes	100	
TW-81054-06	0.20 µm	13 mm	PP	No	100	
TW-81054-08				Yes		
TW-81054-74	0.45 µm	13 mm	PP	No	100	
TW-81054-76				Yes		
TW-81054-30	0.20 µm	25 mm	Acrylic	No	50	
TW-81054-32				Yes		
TW-81054-34	0.45 µm	25 mm	Acrylic	No	50	
TW-81054-36				Yes		
TW-81054-38	0.80 µm	25 mm	Acrylic	No	50	
TW-81054-40				Yes		
TW-81054-60	0.20 µm	50 mm	PP	No	10	
TW-81054-62				Yes		
TW-81054-64	0.45 µm	50 mm	PP	No	10	
TW-81054-66				Yes		

Catalog number	Pore size	Membrane dia	Housing	Sterile	Qty/pk	Price/pk
Nylon membrane filters						
TW-81054-20	0.22 µm	13 mm	PP	No	100	
TW-81054-22	0.45 µm					
NEW TW-81054-80	0.22 µm	25 mm	PP	No	100	
NEW TW-81054-82	0.45 µm					
TW-81054-52	0.22 µm	30 mm	PP	No	100	
TW-81054-54	0.45 µm					
PTFE hydrophilic membrane filters						
TW-81054-12	0.20 µm	13 mm	PP	No	100	
TW-81054-14	0.50 µm					
TW-81054-42	0.20 µm	25 mm	PP	No	100	
TW-81054-44	0.50 µm					
PTFE hydrophobic membrane filters						
TW-81054-02	0.50 µm	3 mm	PP	No	100	
TW-81054-16	0.20 µm	13 mm	PP	No	100	
TW-81054-18	0.50 µm					
TW-81054-46	0.20 µm	25 mm	PP	No	50	
TW-81054-48	0.50 µm					
TW-81054-68	0.20 µm	50 mm	PP	No	10	
TW-81054-70				Yes		
TW-81054-78	0.50 µm	50 mm	PP	No	10	
PES membrane filters						
NEW TW-81054-92	0.20 µm	25 mm	Acrylic	Yes	50	
NEW TW-81054-94	0.45 µm					

Centrifuge Tube Filters

Membrane-containing filter unit within a centrifuge tube

- Ideal for HPLC sample preparation
- Remove bacteria, cells, and particles from liquids
- Remove DNA from agarose or acrylamide gels

Catalog number	Membrane material	Working volume	Pore size	Tube size	Sterile	Qty/cs	Price/cs
TW-01937-30	Cellulose acetate	500 µL	0.22 µm	2.0 mL	Yes	96	
TW-01937-32					No		
TW-01937-34	Cellulose acetate	500 µL	0.45 µm	2.0 mL	Yes	96	
TW-01937-36					No		
TW-01937-38	Nylon	500 µL	0.22 µm	2.0 mL	No	200	
TW-01937-40							



Disposable In-Line Gas/Liquid Filters

Choose opaque PVDF for the best chemical compatibility or transparent nylon for lower cost

Filter gases or liquids with these microfiber filters. All models have a borosilicate glass filter membrane. See table below for applications and efficiency ratings. Liquid efficiency ratings are 98% retention of particles of noted size; gas efficiency ratings are percentage retention of 0.01 µm particles.

Nylon and PVDF filters with ¼" OD and ½" OD ports accept flexible tubing for low-pressure applications; use compression fittings for higher-pressure applications. Models 02909-15, -35, and -55 have a stepped barb connector for secure connection of ¼" and ⅜" ID flexible tubing.

Max pressure for filters with ¼" OD ports is 125 psi (8.5 bar); max pressure for filters with ½" OD ports is 50 psi (3.4 bar). Max differential pressure for all filters is 40 psi (60 psi for 0.01 µm units).



Nylon filter shown with tubing attached

Nylon filter with stepped barb connections

PVDF filter

Application	Catalog number	Material	Gas efficiency	Liquid efficiency	Air flow at 2 psi drop at indicated pressure (scfm)			Water flow at indicated pressure drop (GPH)		Max temp (at 0 psi)	Ports	Qty/pk	Price/pk
					2 psi	60 psi	100 psi	1 psi	5 psi				
High-purity compressed gas; absolute filtration to 0.01 µm	TW-02917-60	Nylon	100% at 0.01 µm	—	0.3	1.7	2	—	—	230°F (110°C)	¼" OD	5	
	TW-02909-10	Nylon	93%	25 µm	1.2	5.4	8.3	12	30	230°F (110°C)	¼" OD	5	
Gas/air filtration—general-purpose use. Liquid filtration—remove most visible particles.	TW-02909-15	Nylon	93%	25 µm	1.2	5.4	8.3	12	30	230°F (110°C)	¼" and ⅜" barb	10	
	TW-02909-17	Nylon	93%	25 µm	—	—	—	54	129	150°F (66°C)	½" OD	1	
	TW-02909-20	Nylon	98%	8 µm	1.0	125	6.9	10	25	230°F (110°C)	¼" OD	5	
	TW-02908-40	PVDF	93%	25 µm	1.2	5.4	8.3	12	30	275°F (135°C)	¼" OD	5	
	TW-02908-50	PVDF	98%	8 µm	1.0	125	6.9	10	25	275°F (135°C)	¼" OD	5	
Gas/air filtration—complete oil and water droplet removal. Liquid filtration—remove all visible particles and most colloidal haze.	TW-02909-30	Nylon	99.99%	2 µm	0.8	3.6	5.4	3	15	230°F (110°C)	¼" OD	5	
	TW-02909-35	Nylon		2 µm	0.8	3.6	5.4	3	15	230°F (110°C)	¼" and ⅜" barb	10	
	TW-02909-37	Nylon		2 µm	—	—	—	13	56	150°F (66°C)	½" OD	1	
	TW-02909-40*	Nylon		2 µm	0.8	3.6	5.4	—	—	230°F (110°C)	¼" OD	5	
Gas/air filtration—with carbon granules for removal of trace oil vapors	TW-02908-62	Nylon	99%	—	0.5	2.6	4.0	—	—	180°F (82°C)	¼" OD	10	
	TW-02908-64*	Nylon	99%	—	0.5	2.6	4.0	—	—	180°F (82°C)	¼" OD	10	
Gas/air filtration—with mixed sodium and calcium hydroxides for removal of acidic gases	TW-02908-66	Nylon	99%	—	0.5	2.6	4.0	—	—	180°F (82°C)	¼" OD	10	
Gas/air sterilizing. Liquid filtration—remove most bacteria.	TW-02909-50	Nylon	99.9999+%	0.9 µm	0.4	1.8	2.7	1.5	7.3	230°F (110°C)	¼" OD	5	
	TW-02909-55	Nylon	99.9999+%	0.9 µm	0.4	1.8	2.7	1.5	7.3	230°F (110°C)	¼" and ⅜" barb	10	
	TW-02909-60	Nylon	99.9999+%	0.3 µm	0.1	0.45	0.68	0.4	1.9	230°F (110°C)	¼" OD	5	
	TW-02908-80	PVDF	99.9999+%	0.9 µm	0.4	1.8	2.7	1.5	7.3	275°F (135°C)	¼" OD	5	
	TW-02908-90	PVDF	99.9999+%	0.3 µm	0.1	0.45	0.68	0.4	1.9	275°F (135°C)	¼" OD	5	

*Turns red when saturated.

Disposable High-Area Capsule Filters

High filtration area of 5110 cm²

- Designed for removal of particles or bacteria from aqueous solutions and gas streams

These disposable capsules eliminate the need to disassemble, clean, then reassemble a housing—housing and filter come in one single unit. Capsules contain no glue or surfactants. Each unit is individually tested and flushed with 18 M water to reduce extractables. Units include two upstream vents to facilitate venting in any position.

Capsules are available in three membrane materials: PTFE, polypropylene (PP), and nylon. PTFE and PP membrane capsules have PP housing; nylon membrane capsules have polyester housing. Capsules measure 10½"L x 3¼" dia (26.7 x 8.3 cm). Maximum operating pressure at 69°F (21°C) is 80 psi for liquid and 55 psi for gas. Maximum operating temperature is 104°F (40°C). Connections are ¼" NPT(M); order fittings separately from the "Fittings" section on pages 509–575.



29818-06

Housing and filter come in a convenient single unit.

Catalog number	Pore size	Price
PTFE membrane capsules		
TW-29819-00	0.1 µm	
TW-29819-02	0.22 µm	
TW-29819-04	0.45 µm	
Polypropylene membrane capsules		
TW-29818-00	0.22 µm	
TW-29818-02	0.45 µm	
TW-29818-04	5.0 µm	
TW-29818-06	10.0 µm	
Nylon membrane capsules		
TW-29817-00	0.1 µm	
TW-29817-02	0.22 µm	
TW-29817-04	0.45 µm	



Disposable Capsule Filters

Polypropylene housing available with PTFE or PES membrane, or polypropylene depth media

- All-polypropylene housing is thermally fused and offers broad chemical compatibility; diameter is a standard 78 mm
- Capsules are sterilizable by autoclave or ethylene oxide (EtO); model 29702-05 is presterilized
- Maximum operating pressure is 57 psi (3.9 bar); maximum operating temperature is 140°F (60°C)
- Capsules are vented at both ends for bleeding trapped air and for draining

Polypropylene Depth-Media Capsules offer high dirt-holding capacity with superior retention. PP fibers are thermally welded to prevent slough-off and to minimize changes in pore size. Use these filters for high-purity water and prefiltration applications.

PTFE Membrane Capsules are ideal for photoresists and also uniquely suitable for corrosive fluids and gases. The hydrophobic nature of the membrane and chemical resistance make PTFE capsules ideal for solvent filtration.

PES Membrane Capsules are used to filter high-purity water, ground water, compatible chemicals, pharmaceuticals, and tissue culture media. Ideal for removal of bacteria and other submicron particles.



Polypropylene Depth-Media Capsule Filters

Catalog number	Particle retention		Effective filtration area	Connections	Price/ea
	Particle size	(%)			
TW-29702-11	1.0 µm	>99	500 cm ²	3/8" hose barb	
TW-29702-13	1.0 µm	>99	1000 cm ²	3/8" hose barb	
TW-29702-12	2 to 5 µm	>94	500 cm ²	3/8" hose barb	
TW-29702-14	2 to 5 µm	>94	1000 cm ²	3/8" hose barb	
TW-29702-15	5 to 10 µm	98	600 cm ²	3/8" hose barb	
TW-29702-16	5 to 10 µm	98	1200 cm ²	3/8" hose barb	

PTFE and PES Membrane Capsule Filters

Catalog number	Pore size	Effective filtration area	Connections	Price/ea
PTFE (hydrophobic) membrane				
TW-29702-23	0.1 µm	1150 cm ²	3/8" hose barb	
TW-29702-21	0.2 µm	570 cm ²	3/8" hose barb	
TW-29702-24	0.2 µm	1150 cm ²	3/8" hose barb	
TW-29702-25	0.5 µm	1150 cm ²	3/8" hose barb	
TW-29702-22	1.0 µm	570 cm ²	3/8" hose barb	
TW-29702-26	1.0 µm	1150 cm ²	3/8" hose barb	
PES membrane				
TW-29702-01	0.2 µm	450 cm ²	1/4" NPT(M)	
TW-29702-03	0.2 µm	900 cm ²	1/4" NPT(M)	
TW-29702-05¹	0.2 µm	900 cm ²	3/8" hose barb	
TW-29702-02	0.45 µm	450 cm ²	1/4" NPT(M)	
TW-29702-04	0.45 µm	900 cm ²	1/4" NPT(M)	

¹Presterilized

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Disposable Capsule Filters

These capsule filters are highly retentive and come in an all-polypropylene housing for excellent chemical compatibility and flow. Since no adhesives, binders, or surfactants are used in manufacturing, these capsules offer low filter extractables. Choose from PTFE or nylon membranes. The PTFE filter capsules are hydrophobic and ideal for use in critical applications or with aggressive chemicals such as acids, bases, and solvents. The sterile nylon filter capsules are naturally hydrophilic and are specifically designed for liquid applications; no prewetting necessary.

NEW



49700-00

Catalog number	Pore size	Effective filter area	Sterile	Hose connections	Price
PTFE membrane, autoclavable					
TW-49700-00	0.2 µm	500 cm ²	No	1/4" to 3/8" stepped barb	
TW-49700-02	1.0 µm		No		
TW-49700-10	0.1 µm		No		
TW-49700-12	0.2 µm	1250 cm ²	No	1/4" to 3/8" stepped barb	
TW-49700-14	0.45 µm		No		
TW-49700-16	1.0 µm	1250 cm ²	No	1/2" stepped barb	
Nylon membrane					
TW-49700-40	0.2 µm	400 cm ²	Yes	1/4" to 3/8" stepped barb	
TW-49700-42	1.0 µm		Yes		
TW-49700-50	0.2 µm	690 cm ²	Yes	1/4" to 3/8" stepped barb	
TW-49700-52	0.45 µm		Yes		
TW-49700-54	1.0 µm	690 cm ²	Yes	1/2" stepped barb	

NEW



49700-90

HEPA Capsule and Venting Filters

Ideal for pharmaceutical, biotechnology, and food and beverage applications

■ 99.97% efficiency at 0.3 µm

Designed to provide bacteria-, algae-, fungal-free air for sterile applications, such as fermentors or incubators. The media allows for high flow rates and low pressure drop. Designed for high retention and particle holding capacity for air and gas. Housing is made of durable polypropylene.

Catalog number	Description	Filtration area	Connections	Qty/pk	Price/pk
TW-49700-90	50-mm HEPA disc filter	15.9 cm ²	¼" to ½" hose barb	10	
TW-49700-92	1.5" HEPA capsule filter	600 cm ²	¼" to ½" hose barb	1	
TW-49700-94	2.5" HEPA capsule filter	1200 cm ²	⅜" hose barb	1	

NEW



49700-70

50-mm In-Line Filters

■ Simple, quick, and efficient filtration of liquids and gases

Available in a large variety of membrane materials and pore sizes for filtration of liquids and gases. The compact design of the filter capsules reduces hold-up volume and exposure to hazardous chemicals. Use these filter devices in-line or connected to a syringe. Housing is made of polypropylene for excellent chemical compatibility. No adhesives, binders, or surfactants are used in the manufacturing process.

Catalog number	Membrane	Pore size	Sterile	Qty/pk	Price/pk
TW-49700-70	PTFE	0.1 µm	No	10	
TW-49700-72		0.2 µm	No		
TW-49700-74		0.45 µm	No		
TW-49700-76		1.0 µm	No		
TW-49700-78	PES	0.2 µm	Yes	10	
TW-49700-80		0.45 µm	Yes		
TW-49700-82	Nylon	1.0 µm	Yes		
TW-49700-86	PP	5.0 µm	No	10	
TW-49700-88		10.0 µm	No		

NEW



49700-60

Venting Filters

Manufactured under strict cleanroom conditions and totally biosafe

Filters feature a polypropylene housing and a 0.2 µm PTFE membrane allowing easy scale-up within the range based on vessel capacity and flow rate required. These filters are ideal for venting and isolation applications to protect vessel contents from external contaminants in biotechnology, pharmaceutical, and food and beverage industries. Filters are also used to protect the environment from contaminants within the vessel.

Catalog number	Housing type	Pore size	Filtration area	Diameter	Connections	Qty/pk	Price/pk
TW-49700-60	Disc	0.2 µm	4.6 cm ²	25	Female luer lock, male slip luer	50	
TW-49700-62			15.9 cm ²	50	¼" to ⅜" hose barb	10	
TW-49700-64			500 cm ²	—	¼" to ⅜" hose barb	1	
TW-49700-66	Capsule	0.2 µm	1250 cm ²	—	⅜" hose barb	1	

Chemical Compatibility



See if it fits your application—
use our reference pages,
web site, or smartphone App!

Delivering Solutions You Trust



Groundwater Filter Capsules

Filter groundwater samples for dissolved metal analysis

Groundwater filter capsules are designed to make the process of collecting groundwater samples for analysis quick, easy, and convenient. Capsules contain no glues, adhesives, or other surfactants. All housing components are thermally fused. Capsules provide at least 720 cm² of effective filtration area. Connections are ¼ to ⅜" (6 to 9 mm) stepped barb.

Catalog number	Filter media	Pore size	Price/ea
TW-49705-92	PES membrane	0.45 µm	
TW-49705-94	Polypropylene filter	1.0 µm	
TW-49705-96	Polypropylene filter	5.0 µm	

NEW



49705-92

In-Line Carbon Filter Capsules

Disposable filter capsule contains high-purity activated carbon and glass microfiber HEPA filter

Large surface area of activated carbon for maximum flow and contaminant removal

These in-line filters are ideal for applications involving compressed air lines, vacuum pumps, and instrument exhaust emissions. The capsule contains a high-purity granular activated carbon and has a pleated glass microfiber HEPA filter at the base of the unit which retains 99.97% of all particles greater than 0.3 µm. Device features a high-purity polypropylene housing.

Typical applications include water, chemical and reagent purification, odor control, vacuum pump outlets, decolorizing, and oil clarification. Maximum operating pressure is 60 psi (4.1 bar).

Catalog number	Dimensions (mm)	Inlet connection	Outlet connection	Price/ea
TW-49708-10	155 x 70	½" hose barb	⅜" hose barb	
TW-49708-12	210 x 70			

NEW



49708-10

Presterilized PES Filter Capsules

Improved wettability for critical processes

The capsule contains two layers of polyethersulfone (PES) membrane, which is inherently hydrophilic, low in extractables, and has excellent flow rates. The membrane also exhibits low protein binding characteristics making it ideal for use with biologically sensitive solutions. The device is supplied presterilized and has a vent to evacuate any air to allow fast filtration. Polypropylene housing. Some capsules available with filling bell for cleanliness assurance during filling.

STERILE

Catalog number	Pore size	Filtration area	Connections	Sterile	Filling bell	Price/ea
TW-49701-44	0.2/0.2 µm	400 cm ²	¼" to ½" stepped barb	Yes	No	
TW-49701-48					Yes	
TW-49701-54		1380 cm ²	¼" to ½" stepped barb	Yes	No	
TW-49701-58					Yes	
TW-49701-64					⅜" barb	Yes
TW-49701-68	2600 cm ²	⅜" barb	Yes	Yes		
TW-49701-46	0.65/0.45 µm	400 cm ²	¼" to ½" stepped barb	Yes	No	
TW-49701-52					Yes	
TW-49701-50	0.8/0.2 µm	300 cm ²	¼" to ½" stepped barb	Yes	Yes	
TW-49701-60		720 cm ²	¼" to ½" stepped barb	Yes	Yes	
TW-49701-66		2600 cm ²	⅜" barb	Yes	No	
TW-49701-70		1380 cm ²	⅜" barb	Yes	Yes	

NEW



49701-44

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Filtration

Laboratory, Capsule & In-Line Filters / Hollow-Fiber Filters

Hollow Fiber Media Filters

Sterilize and clarify cell culture media and aqueous solutions quickly and efficiently

- Filters may be used as pressure filters with peristaltic pumps, pressure vessels, or repeating syringes

Hollow Fiber Media Filter

provides biocompatibility, low extractables, and high flow rates for serum-free media and aqueous solutions. Polypropylene autovent prevents air locking. Naturally hydrophilic, 0.2 µm microporous membrane. PVC filling bell maintains sterility downstream.

Deleuxe Hollow Fiber Media Filter

offers rapid filtration of serum-bearing media. PVC filling bell maintains sterility downstream.



Specifications

Maximum temperature: 182°F (83°C) Maximum pressure: 50 psi (3.4 bar)

Catalog number	Water flow rate at 10 psi	Throughput	Connections (inlet/outlet)	Filling bell	Qty/ bx	Price/ bx
Hollow fiber media filters, sterile						
TW-29510-20	400 mL/min	0.2 to 2 L [†]	Female luer/male luer	Yes	12	
TW-29510-00	400 mL/min	0.2 to 2 L [†]	Female luer/male luer	No	18	
TW-29510-22	750 mL/min	2 to 5 L [†]	Female luer/male luer	Yes	12	
TW-29510-02	750 mL/min	2 to 5 L [†]	Female luer/male luer	No	18	
TW-29510-14	1000 mL/min	5 to 10 L [†]	¼" hose barbs	Yes	12	
TW-29510-06	1400 mL/min	10 to 25 L [†]	¼" to ¾" hose barbs	Yes	6	
TW-29510-08	2000 mL/min	25 to 50 L [†]	¼" to ¾" hose barbs	Yes	3	
Deleuxe hollow fiber media filters, sterile						
TW-29510-10	400 mL/min	0.2 to 2 L [‡]	Female luer/male luer	Yes	12	
TW-29510-24	400 mL/min	0.2 to 2 L [‡]	Female luer/male luer	No	18	
TW-29510-12	750 mL/min	2 to 5 L [‡]	Female luer/male luer	Yes	12	
TW-29510-26	750 mL/min	2 to 5 L [‡]	Female luer/male luer	No	18	
TW-29510-28	1000 mL/min	5 to 10 L [‡]	¼" hose barbs	Yes	12	
TW-29510-16	1400 mL/min	10 to 25 L [‡]	¼" to ¾" hose barbs	Yes	6	
TW-29510-30	2000 mL/min	25 to 50 L [‡]	¼" to ¾" hose barbs	Yes	3	

[†]Serum-free DMEM [‡]DMEM with serum



29510-06

CultureGard Hollow Fiber Filter

Reduce the risk of contamination to continuous perfusion cultures

Ideal for bioprocessing, fermentation, and cell culture applications. Naturally hydrophilic cellulose hollow fiber membrane exhibits low extractables and high biocompatibility. Use two filters in series to form a sterile barrier when feeding media to the bioreactor. Easily change the first filter if it becomes plugged while the second continues to maintain culture sterility.

Fiber filter is made of polysulfone housing and end caps, and features polypropylene autovent to prevent air locking—operate filter in any position. Includes ¼" hose adapters and clamps. Nonsterile and autoclavable.

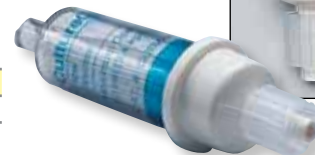
Specifications

Maximum temperature: 113°F (45°C) Maximum pressure: 30 psig Housing/end caps polysulfone

Catalog number	Pore size	Connections (inlet/outlet)	Qty/bx	Price/bx
TW-29510-50	0.2 µm	Female luer lock/male luer lock	12	



29510-50



Hollow Fiber Filter Capsules

Provide high flow rates with low pressure drop

- Steam sterilize capsules in-line or autoclave off-line
- Polysulfone membrane offers low protein binding

These hollow fiber filters offer superior performance in a compact size. Filters have up to six times more surface area compared to other pleated membrane filters, providing greater capacity and longer filter life. The unique membrane structure helps remove bacteria, high-level endotoxins, spores, and pyrogens—ideal for a variety of water purification applications. Maximum differential pressure is 30 psi (2 bar). Capsules have a polycarbonate case and end caps and polyurethane end seals. Capsules are provided nonsterile. See page 634 for hollow-fiber cartridge filters in 10" and 20" single-open-end format.

[†]Only 0.05 and 0.1 µm pore size membrane filters remove pyrogens.



29880-08



29880-30

Catalog number	Pore size (absolute)	Effective filtration area	Connections	Qty/ cs	Price/cs
Medium flow: 0.5 to 2.5 LPM					
TW-29880-06	0.05 µm	1858 cm ²	¾" hose barb	6	
TW-29880-12			¼" NPT(M)		
TW-29880-14	0.1 µm	1858 cm ²	¾" hose barb	6	
TW-29880-08			¼" NPT(M)		
TW-29880-10	0.2 µm	1858 cm ²	¾" hose barb	6	
TW-29880-22			¼" NPT(M)		
High flow: 1 to 5.7 LPM					
TW-29880-28	0.05 µm	5575 cm ²	¼" NPT(M)	6	
TW-29880-30			¾" NPT(M)		
TW-29880-32	0.1 µm	5575 cm ²	¼" NPT(M)	6	
TW-29880-34			¾" NPT(M)		
TW-29880-36	0.2 µm	5575 cm ²	¼" NPT(M)	6	
TW-29880-38			¾" NPT(M)		

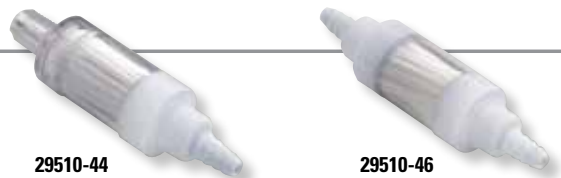


Laboratory, Hollow-Fiber Filters / Sampling Bottle Assemblies

Hollow Fiber Microfiltration Filters

Ideal for point-of-use liquid and gas filtration

These filters feature a hydrophilic mixed cellulose ester hollow fiber membrane in a clear polysulfone housing. The result is greater surface area in less space, giving you higher flow rate and reduced hold-up volume. A hydrophobic vent eliminates the need to manually vent the housing. Polycarbonate end caps include several connection options. Filters are available sterile or nonsterile as noted in ordering table.



Catalog number	Pore size	Effective filtration area	Throughput	Connections (inlet/outlet)	Sterile	Qty/pk	Price/pk
TW-29510-40	0.2 µm	225 cm ²	50 to 100 L	Female luer / male luer	Yes	6	
TW-29510-42				¼" NPT(M) / ¼" NPT(M)	No		
TW-29510-44		¼" NPT(M) / ¼" to ⅜" hose barb		Yes			
TW-29510-46		¼" to ⅜" hose barb / ¼" to ⅜" hose barb		Yes			
TW-29510-48	500 cm ²	100 to 200 L	¼" to ⅜" hose barb / ¼" to ⅜" hose barb	Yes			

DynaGard® Hollow Fiber Syringe Filters

Purify and sterilize solutions with an easy-to-use syringe tip filter

The narrow housing of these filters minimizes hold-up volume and enables use with ampules, test tubes, and other small vessels. Filters are available with either 0.2 µm hydrophilic mixed cellulose ester (MCE) fibers for use with aqueous solutions, or 0.2 µm hydrophobic polypropylene (PP) fibers for use with organic solvents and alcohols. Ideal for cold sterilization, clarification, gas or air filtration, and preparation of protein solutions for electrophoresis.



Catalog number	Pore size	Effective filtration area	Throughput	Connections (inlet/outlet)	Sterile	Qty/pk	Price/pk
Filters for aqueous solutions; polycarbonate housing, MCE membrane							
TW-29510-70	0.2 µm	2.5 cm ²	< 5 mL	Female luer / male luer	Yes	50	
TW-29510-72		3.4 cm ²	1 to 10 mL	Female luer / male luer lock	No	200	
TW-29510-74		5.5 cm ²	5 to 20 mL	Female luer / male luer	Yes	50	
TW-29510-76					Yes	50	
TW-29510-78					No	100	
Filters for organic solutions; polypropylene housing, polypropylene membrane							
TW-29510-80	0.2 µm	0.8 cm ²	< 5 mL	Female luer / male luer	No	200	
TW-29510-82		3.9 cm ²	5 to 20 mL	Female luer / male luer	No	100	

Sterilized Sampling Bottle Assemblies

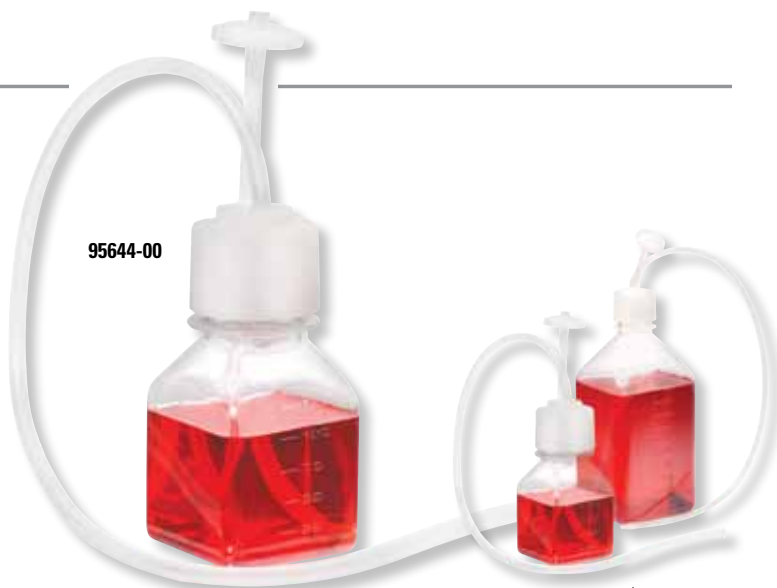
Safely transfer, sample, and store biopharmaceutical products and reagents in applications from research to process

- Secure, single-piece cap/tubing assembly eliminates contamination and product loss due to loose connections
- Pre-sterilized by gamma irradiation—eliminates labor and validation costs associated with assembly and cleaning
- Manufactured in an FDA-registered facility from pharmaceutical-grade resins and tubing

Cap assembly includes a seamless liner with premolded C-FLEX® fill and vent tubes to create an unobstructed fluid path. The 18" (45.7 cm) fill tube is plugged at the terminal end to maintain assembly sterility until use. Vent tube includes a 0.2-micron Pall® Acrodisc PTFE vent filter to prevent infiltration by contaminants. Vent filter is hydrophobic to guard against loss of costly product or media during filling or emptying. The one-piece liner eliminates the risk of bacterial entrapment and contamination and forms an elastomeric seal between cap and bottle rim.

C-FLEX tubing is manufactured according to cGMP and meets USP Class VI and USDA requirements. Tubing can withstand temperatures from -100 to 275°F (-73 to 135°C). Offers exceptional tensile and tear strength, extremely low extractables, and excellent biocompatibility. The smooth inner surface reduces absorption and protein binding.

What's included: Thermo Scientific Nalgene clear PETG bottle, 38-mm cap, C-FLEX tube/liner assembly with ⅛" ID x ¼" OD tubing, and 0.2-micron vent filter.



Catalog number	Bottle volume	Price
TW-95644-00	125 mL	
TW-95644-02	250 mL	
TW-95644-04	500 mL	
TW-95644-06	1000 mL	
TW-95644-08	2000 mL	



Disposable Filterware

A variety of membrane materials and pore sizes are available to best suit your applications

Filter Units provide a complete vacuum filtration system designed for the filtration of cell culture media, biological fluids, and other aqueous solutions. Each filter unit consists of polystyrene housing with a welded filter membrane mounted to a support plate in the upper structure. Side arms with quick-disconnect tubing adapters simplify vacuum line attachment. The upper structures are easily separated from their receivers and a sterile, leakproof closure is included for filtrate storage.

Bottletop Filters are polystyrene funnels with integrally welded filter membranes designed for direct filtration into sterile glass media bottles. They thread securely onto bottles with 45-mm neck. Side arms with quick-disconnect tubing adapters simplify vacuum line attachment.

Cellulose Nitrate (CN) Filter Units

- Provide fast flow rates for buffers, salts, and other aqueous solutions
- Triton-free CN membranes have excellent wetting properties—ideal for filtering and clarifying solutions when protein binding is not a concern



Catalog number	Capacity	Pore size	Membrane dia	Qty/pk	Price/pk
TW-06730-22	115 mL	0.20 µm	50 mm	12	
TW-06730-40	115 mL [†]	0.45 µm	50 mm	12	
TW-06730-46	150 mL	0.20 µm	50 mm	12	
TW-06730-45	150 mL [†]	0.45 µm	50 mm	12	
TW-06730-80	500 mL	0.20 µm	75 mm	12	
TW-06730-90	500 mL [†]	0.45 µm	75 mm	12	
TW-06730-92	1000 mL [†]	0.20 µm	90 mm	12	
TW-06730-94	1000 mL	0.45 µm	90 mm	12	

[†]Gridded membrane.

Polyethersulfone (PES) Filter Units and Bottletop Filters

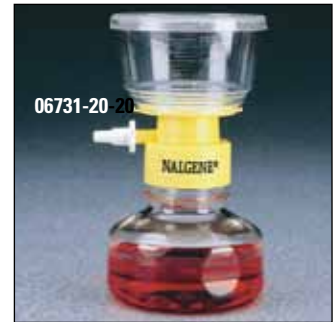
- Supor® MachV aPES membrane provides outstanding throughput
- Low protein binding—excellent for filtering solutions for cell culture applications



Catalog number	Capacity	Pore size	Membrane dia	Qty/pk	Price/pk
Filter units					
TW-06730-25	115 mL	0.20 µm	50 mm	72	
TW-06730-34	115 mL	0.45 µm	50 mm	12	
TW-06730-31	150 mL	0.20 µm	50 mm	12	
TW-06730-32	150 mL	0.45 µm	50 mm	12	
TW-06730-43	500 mL	0.20 µm	75 mm	12	
TW-06730-54	500 mL	0.45 µm	75 mm	12	
TW-06730-56	1000 mL	0.20 µm	90 mm	12	
TW-06730-58	1000 mL	0.45 µm	90 mm	12	
Bottletop filters (fit 45-mm bottle neck size)					
TW-06731-11	150 mL	0.20 µm	50 mm	12	
TW-06731-15	500 mL	0.20 µm	75 mm	12	
TW-06731-16	500 mL	0.45 µm	75 mm	12	
TW-06731-18	1000 mL	0.20 µm	90 mm	12	

Surfactant-Free Cellulose Acetate (SFCA) Filter Units and Bottletop Filters

- Contain no wetting agents that can affect sensitive cells
- Exhibit low protein binding and excellent flow rates



Catalog number	Capacity	Pore size	Membrane dia	Qty/pk	Price/pk
Filter units					
TW-06731-20	150 mL	0.20 µm	50 mm	12	
TW-06731-22	150 mL	0.45 µm	50 mm	12	
TW-06731-24	500 mL	0.20 µm	75 mm	12	
TW-06731-26	500 mL	0.45 µm	75 mm	12	
TW-06731-27	1000 mL	0.20 µm	90 mm	12	
TW-06731-28	1000 mL	0.45 µm	90 mm	12	
Bottletop filters (fit 45-mm bottle neck size)					
TW-06731-34	150 mL	0.20 µm	50 mm	12	
TW-06731-30	500 mL	0.20 µm	75 mm	12	
TW-06731-32	500 mL	0.45 µm	75 mm	12	
TW-06731-33	1000 mL	0.20 µm	90 mm	12	

Filter Unit Receivers

Use these radiation-sterilized receivers to store filtrate. Receivers feature tapered sides and “grip dimples” for easy handling and a 1½-turn threaded screw closure that provides a leakproof seal that prevents pH shift. Both bottles have 45-mm neck. Noncytotoxic. Nonpyrogenic.



Catalog number	Capacity	Qty/pk	Price/pk
TW-06731-40	150 mL	24	
TW-06731-41	250 mL	24	
TW-06731-42	500 mL	12	
TW-06731-44	1000 mL	12	

MORE info!

Common features...

- Color-coded filter collars for easy identification of membrane type
- 90-mm diameter membranes provide fastest flow rates
- Product specifications, lot number, and expiration date are printed on units with 50, 75 and 90 mm diameter filters
- Convenient easy-to-read graduations on uppers and receivers
- Ergonomic receiver design improves handling
- The 150-mL and larger filterware pass strict performance tests and are “Nalgene certified” nonpyrogenic and noncytotoxic
- Five-year sterile shelf life



Disposable Vacuum Filtration Systems

Ideal for filtering cell culture media, biological fluids, and aqueous solutions

- Large membrane diameters (50, 70, and 90 mm) and included glass prefilters increase flow rates
- Provided sterile and certified nonpyrogenic

Vacuum Filtration Systems

Complete filter/storage system includes a polystyrene (PS) filter funnel joined by a color-coded polyethylene adapter to a removable PS storage bottle. The adjustable, angled hose connector simplifies vacuum-line attachment and ensures stability. Membrane material and pore size are printed on every unit for easy identification. Glass fiber prefilters are included.

Sterile caps for the easy-grip storage bottles are individually wrapped and designed to ensure a secure seal.



Vacuum filtration system

Catalog number	Capacity	Membrane			Adapter color	Qty/ cs	Price/ cs
		Dia	Type [†]	Pore			
TW-29530-60 TW-29530-62	150 mL	50 mm	PES CA	0.22 µm 0.22 µm	Yellow Orange	12	
TW-29530-02 TW-29530-04 TW-29530-06 TW-29530-08	250 mL	50 mm	PES CA CN NYL	0.22 µm 0.22 µm 0.20 µm 0.20 µm	Yellow Orange Blue Red	12	
TW-29530-12 TW-29530-14 TW-29530-18	500 mL	70 mm	PES CA NYL	0.22 µm 0.22 µm 0.20 µm	Yellow Orange Red	12	
TW-29530-22 TW-29530-24 TW-29530-26 TW-29530-28	1000 mL	90 mm	PES CA CN NYL	0.22 µm 0.22 µm 0.20 µm 0.20 µm	Yellow Orange Blue Red	12	

[†]PES—polyethersulfone, CA—cellulose acetate, CN—cellulose nitrate, NYL—nylon

Bottletop Filters

Polystyrene funnel with polyethylene neck adapter for use with wide-mouth (45 mm) polystyrene or glass storage bottles. Color-coded and printed with the membrane type and pore size for easy identification. Includes glass fiber prefilter.



Bottletop filter
29530-42

Catalog number	Capacity	Membrane			Adapter color	Qty/ cs	Price/ cs
		Dia	Type [†]	Pore			
TW-29530-32 TW-29530-34 TW-01937-12	150 mL	50 mm	PES CA CA	0.22 µm 0.22 µm 0.45 µm	Yellow Orange Orange	48	
TW-29530-42 TW-29530-44 TW-01937-14 TW-29530-47 TW-29530-48	500 mL	70 mm	PES CA CA CN NYL	0.22 µm 0.22 µm 0.45 µm 0.22 µm 0.20 µm	Yellow Orange Orange Blue Red	12	
TW-29530-52 TW-29530-54	1000 mL	90 mm	PES CA	0.22 µm 0.22 µm	Yellow Orange	12	

[†]PES—polyethersulfone, CA—cellulose acetate, CN—cellulose nitrate, NYL—nylon

Storage Bottles

Store media, buffers, and other aqueous solutions in these disposable polystyrene bottles. The low-profile design with easy-grip handles facilitates handling. Plug-seal cap provides airtight seal and helps minimize the risk of contamination.



Catalog number	Capacity	Neck size	Qty/ pk	Price/ pk
TW-29531-02	150 mL	45 mm	24	
TW-29531-04	250 mL			
TW-29531-06	500 mL			
TW-29531-08	1000 mL			

Disposable Vacuum-Driven Filter Devices

For vacuum filtering solutions in 50-mL centrifuge tubes

Filter devices feature high-quality membranes. Express® (PES) membranes are ideal for low protein binding and exhibit faster flow rates with viscous solutions. Durapore® PVDF membranes offer the lowest protein binding available and are ideal for scale-up applications. Nylon mesh membranes are best for large particle removal.

To filter, attach the unit directly to the 50-mL centrifuge tube containing your sample, flip it, and apply a vacuum. The filtrate collects directly in the attached 50-mL tube eliminating sample transfers between tubes. Disposable devices are sterile and have a 50-mL process volume.



Catalog number	Membrane		Capacity	Qty/pk	Price/pk
	Pore size	Material			
TW-29969-20	0.22 µm	Express (PES)	50 mL	25	
TW-29969-24 TW-29969-26	0.22 µm 0.45 µm	Durapore (PVDF)	50 mL	25	
TW-29969-28	100 µm	Nylon mesh	50 mL	25	



29969-20



Filtration

Laboratory, Bottletop / Filter Units



06730-04

Disposable Analytical Filter Units

Cellulose nitrate (CN) membrane provides for the superior growth of microorganisms and is Triton free

- Upper unit twists off easily for access to 47-mm dia membrane

These filter units and funnels are designed for microbiological analysis testing of water, food and beverage, raw materials, and finished products. Units with 0.45 µm membranes meet requirements for APHA Standard Methods and US EPA water quality testing. All units come presterilized.

Filter units comprise polypropylene upper and high-impact polystyrene lower. Units include a ¼" to ⅜" ID quick-disconnect tubing adapter for vacuum connection.



Catalog number	Capacity	Pore size	Membrane dia	Membrane color, grid	Qty/pk	Price/pk
TW-06730-02	150 mL	0.20 µm	47 mm	White, none	12	
TW-06730-04		0.45 µm		White, gray		

[TW-06413-20](#) Tygon® vacuum tubing. ¼" ID x ⅝" OD. Pack of 10 ft (3.0 m)

[TW-06413-30](#) Tygon vacuum tubing. ⅜" ID x ⅞" OD. Pack of 10 ft (3.0 m)

Reusable Polysulfone Filter Holders with Receiver and Funnel

Versatile system with interchangeable components

Polysulfone (PSF) filter holders have an upper chamber with either a receiver or funnel. Choose from 250- or 500-mL upper chamber and either 250-, 500-, or 1000-mL receivers (all are graduated in 50-mL increments). Holders accept 47- and 50-mm diameter membranes.

Filter holders are supplied with two types of membrane supports. Use the sterilization membrane support for fast flow through; use the analytical support to keep the membrane perfectly flat for the analysis of trapped particles.

Transparent polysulfone is autoclavable, break-resistant, and nontoxic. PSF exhibits low protein binding and contains low levels of trace metals and organic leachables.

Use holders for vacuum or pressure filtration up to 10 psig. All ports accept ¼" to ⅝" ID pressure tubing. Funnel models have vacuum gaskets to fit filtering flasks.

Catalog number	Description	Upper chamber capacity	Receiver capacity	Price
TW-06730-50	Filter holder with receiver	250 mL	250 mL	
TW-06730-52		500 mL	500 mL	
TW-06730-53		500 mL	1000 mL	
TW-06730-55	Filter holder with funnel	250 mL	—	
TW-06730-57		500 mL	—	



06730-50

06730-55

Reusable Polysulfone Bottletop Filter Holders

Removable membrane support plate is designed to provide maximum flow rate and throughput

These polysulfone (PSF) bottletop filters screw directly onto glass media bottles with 33- or 45-mm neck size. Deep threads hold the filter onto bottles. Use with 47-mm diameter membranes. Nominal filter area is 13.3 cm² with sterilization support plate.

PSF bottletop filters feature a vacuum port, molded-in graduations, and silicone O-ring. For a sterile venting plug, put cotton in the polypropylene tubing adapter. Filters accept ¼" to ⅝" (6- to 8-mm) ID vacuum tubing. Autoclavable and noncytotoxic.

Catalog number	Description	Upper chamber capacity	Price
TW-30408-10	33-mm neck bottletop filters	500 mL	
TW-30408-02	45-mm neck bottletop filters	250 mL	
TW-30408-12		500 mL	



Media bottle not included, order separately on pages 157–181.

Distributed by: Fiedler Scientific Instruments, s.r.o.
info@lab-eu.com info@pristroje.cz



Vacuum Filtration Manifolds

Significantly reduce process time compared to gravity methods

- Connect three or six filter holders to one vacuum source
- Two- and three-way valves for independent control

Stainless Steel Manifolds have two- or three-way PTFE valves for each branch to provide individual control of vacuum and air venting. Branches accept no. 8 stoppers. Hose barb accepts 3/8" ID vacuum tubing. Autoclavable.

Sterility Test Manifolds feature an extra flushing manifold for sterile buffer. Specifications are the same as SS models described above except each branch has a 1/4" hose barb connection to flushing manifold. Use with sterility test filter holder 06645-98 on page 490. Autoclavable.

PVC Manifolds have branches with two-way PTFE valves for independent control of vacuum. Hose barb accepts 1/4" ID tubing. Branches accept no. 8 stoppers. Sanitize with ethanol or formaldehyde; do not autoclave. Maximum temperature is 140°F (60°C).



Sterility test manifold 02924-00

PVC manifold 02924-40 shown with filter holder



Stainless steel manifold 02924-20 shown with filter holder

Catalog number	Type	Valves	No. of branches	Dimensions (L x W x H)		Price
				in.	cm	
TW-02924-20	Stainless steel	2-way	3	18 x 4 3/4 x 7	45.7 x 12.1 x 17.8	
TW-02924-30			6	28 1/2 x 4 3/4 x 7	72.4 x 12.1 x 17.8	
TW-02924-85	Stainless steel	3-way	3	18 x 4 3/4 x 7	45.7 x 12.1 x 17.8	
TW-02924-95			6	28 1/2 x 4 3/4 x 7	72.4 x 12.1 x 17.8	
TW-02924-00	Sterility test	3-way	3	18 x 4 3/4 x 7	45.7 x 12.1 x 17.8	
TW-02924-10			6	28 1/2 x 4 3/4 x 7	72.4 x 12.1 x 17.8	
TW-02924-40	PVC	2-way	3	17 3/4 x 4 3/4 x 7	45.1 x 12.1 x 17.8	
TW-02924-50			6	34 1/2 x 4 3/4 x 7	87.6 x 12.1 x 17.8	

[TW-02924-02](#) Perforated silicone rubber stopper, no. 8B

[TW-02923-50](#) Replacement rubber stopper, no. 8

Air Cadet® Vacuum/Pressure Pumps

Unique cavity configuration minimizes dead space and air entrapment

A Single-Head Pump

Single-head pumps are economically priced and can handle many tough vacuum/pressure applications. Choose from two models to accommodate your electrical requirements.

B Dual-Head Pump

Dual-head pump gives you increased capacity over the single-head Air Cadet pumps. Use the two pump heads independently or connect them in series with 3/8" ID Tygon® vacuum tubing for up to 23" Hg vacuum.



07531-40

What's included: thread tape made of PTFE resin, polyethylene 3/8" NPT(M) x 3/8" hose barb adapters, and a 6-ft (1.8-m), three-wire cord; 115 VAC models include a plug. **Note:** Do not use metal fittings with any Air Cadet pump.

Specifications

Wetted parts:

Noryl® pump head, Dacron-reinforced Viton® diaphragm, valves of PTFE resin, and polyethylene (PE) adapters

ISO 9001:2008
CERTIFIED SUPPLIER

UL US
115 VAC
model only

CE

RUNS DRY

Catalog number	Free-air capacity cfm (L/min)	Max vacuum	Max pressure	Max temp	Motor type		Noise rating	Port size	Power	Amps	Dimensions (L x W x H)		Price
					Type	hp					in.	cm	
A Single-head pumps													
LZ-07531-40	0.54 (15.5)	23" Hg	23 psi	95°F (35°C)	TEFC	1/45	72 dB(A)	3/8" hose barb	115 VAC, 60 Hz 230 VAC, 50 Hz	1.2 0.8	8" x 4" x 5 1/2"	20.3 x 10.2 x 14.0	
LZ-07531-45	0.45 (13)												
B Dual-head pumps													
LZ-07531-60	1.1 (31) [‡]	23" Hg	23 psi	95°F (35°C)	TEFC	1/25	76 dB(A)	3/8" hose barb	115 VAC, 60 Hz 230 VAC, 50 Hz	1.7 0.6	11 3/4" x 4" x 5 1/2" 7 1/2" x 8" x 8 3/4"	29.8 x 10.2 x 14.0 19.1 x 20.3 x 22.2	
LZ-07531-65^{††}	0.91 (26) [‡]												

[‡] Total free-air capacity. Single-channel capacity is half this value. ^{††}Power switch not available on model 07530-65.



Sintered glass filter holder 06644-84



Glass sterility test filter holder 06645-98



All-stainless-steel filter holder 06644-80



06645-19

Glass and Stainless Steel Microanalysis Filter Holders

Ideal for small to medium volumes of liquid

- Standard size for microbiology and particulate analysis
- Available with sintered glass, stainless steel, or PTFE support

The glass filter holders feature borosilicate glass funnel and base, silicone rubber stopper, and anodized aluminum clamp. The 90-mm holders are ideal for large-volume viscous samples or those with a heavy particle or bioburden that would clog a 47-mm filter.

Model 06645-98 is for sterility testing of antibiotics and pharmaceuticals; it features a silicone funnel cover and tubing, glass stopcock, stainless steel injector needle, and 13-mm holder. Use with sterility test manifold on page 489.

Model 06644-80 features an unbreakable 304 stainless steel funnel/base/support and a PTFE gasket—the entire holder can be flame sterilized to sanitize between samplings. Set pins and a locking nut on the funnel prevent twisting and tearing of the membrane.

Catalog number	Membrane size	Support	Filtration area	Funnel size	Stopper size	Price
Standard glass filter holders						
TW-06644-81 TW-06644-82 TW-06644-83 TW-06644-84†	13 mm	Sintered glass	1.2 cm ²	100 mL 500 mL 1000 mL 13/100 mL†	No. 5	
TW-06645-13 TW-06645-23 TW-06645-25	25 mm	Sintered glass	2.1 cm ²	15 mL 150 mL 300 mL	No. 5	
TW-06645-95 TW-06645-96 TW-06645-31	25 mm	Stainless steel	2.1 cm ²	15 mL 150 mL 300 mL	No. 5	
TW-06644-88 TW-06644-85 TW-06644-91 TW-06644-94	47 mm	Sintered glass	9.6 cm ²	100 mL 300 mL 500 mL 1000 mL	No. 8	
TW-06644-89 TW-06644-86 TW-06644-92 TW-06644-95	47 mm	Stainless steel	9.6 cm ²	100 mL 300 mL 500 mL 1000 mL	No. 8	
TW-06644-90 TW-06644-87 TW-06644-93 TW-06644-96	47 mm	PTFE	9.6 cm ²	100 mL 300 mL 500 mL 1000 mL	No. 8	
TW-06644-97 TW-06644-98	90 mm	Sintered glass Stainless steel	43 cm ² 43 cm ²	1000 mL 1000 mL	No. 8 No. 8	
Glass sterility test filter holder for use with sterility test manifold						
TW-06645-98	47 mm	Sintered glass	9.6 cm ²	300 mL	No. 8	
All-stainless-steel filter holder with SS funnel and base						
TW-06644-80	47 mm	Stainless steel	9.3 cm ²	500 mL	No. 8	

†Model 06644-84 has a two-part funnel connected by a ground-glass joint.

All-Glass Filtration Assemblies

Ideal for high-purity and aggressive chemical applications

All-glass assemblies are ideal for aggressive solvents and applications where you need to minimize the materials that contact sample or filtrate. Standard 25- and 47-mm holders mount on filtration flask using a ground glass joint. Outlet of support base drip tube is positioned below the side arm connection to prevent sample aspiration into vacuum line.

What's included: funnel, support base, receiving flask, and clamp.

Catalog number	Membrane size	Support	Filtration area	Funnel size	Flask size	Price
TW-06645-19 TW-06645-39	25 mm	Glass frit Stainless steel	2.1 cm ²	15 mL	250 mL	
TW-06645-65 TW-06645-41	47 mm	Glass frit Stainless steel PTFE	9.6 cm ²	300 mL	1000 mL	

[TW-06645-51](#) Replacement receiver flask, 1000 mL



Filtration Assemblies

Filtration assemblies are designed for HPLC, particulate, and microbiological contamination filtrations. Sintered glass support provides even, flat support structure for membrane filters.

What's included: a coarse fritted glass support base, a graduated glass funnel with 300- or 1000-mL capacity, an anodized aluminum clamp, and a No. 8 silicone stopper with 3/16" hole. Order filtering flasks separately below.

Catalog number	Diameter	Capacity	Price
TW-34509-00	47 mm	300 mL	
TW-34509-10	90 mm	1000 mL	

[TW-34509-38](#) Replacement funnel; 47-mm diameter, 300-mL capacity

[TW-34509-40](#) Replacement funnel; 90-mm diameter, 1000-mL capacity

Labglass Filtering Flasks

Attach a 3/8" ID vacuum hose to the sidearm of the flask via the no. 2 hose connector. Insert a funnel into the neck of the flask through a no. 8 rubber stopper joint.

Catalog number	Dimensions	Capacity	Price
TW-34509-32	135 mm OD x 225 mm H	1000 mL	
TW-34509-34	168 mm OD x 292 mm H	2000 mL	
TW-34509-36	208 mm OD x 370 mm H	4000 mL	



Filtration assembly 34509-00 shown with filtering flask 34509-32 (sold separately at left)

Vacuum Filtration Holders

- Model 02923-20 meets EPA specifications for Hazardous Waste Toxicity Test
- Autoclavable
- Supplied with an aluminum clamp and a silicone rubber stopper

No. 5 stoppers fit standard 125-mL flasks; no. 8 stoppers fit 1-L flasks. Order no. 8B stopper 02924-02 separately below to fit filter holders 02920-00 and 02921-00 to manifolds on page 489.



02920-00 02921-00

Filter holder 02923-10 is ideal for sterility testing of antibiotics and pharmaceuticals by bacteria retentive method described in USP XXI. This model includes silicone funnel cover, borosilicate stopcock, silicone tubing for connection to sterile buffer, and SS vent needle with 13-mm SS filter holder. Model 02923-20 with sintered-glass membrane support meets EPA specifications for use in the Hazardous Waste Toxicity Test. Holder 02923-00, with stainless steel (SS) membrane support, provides ultraclean filtrate—screen does not shed particles.

Filter holder 02923-10 shown with stainless steel manifold 02924-20 (sold separately on page 489)



Catalog number	Membrane size	Filtration area	Membrane support	Includes stopper	Funnel size	Price
TW-02920-00	25 mm ¹	1.1 cm ²	Sintered glass	No. 5	100 mL	
TW-02921-10	25 mm	2.1 cm ²	Sintered glass	No. 5	15 mL	
TW-02923-10	47 mm ¹	9.6 cm ²	Sintered glass	No. 8	300 mL	
TW-02923-20	47 mm ^{1†}	9.6 cm ²	Sintered glass	No. 8	300 mL	
TW-02923-30	90 mm	38.5 cm ²	Sintered glass	No. 8	1000 mL	
TW-02923-00	47 mm	9.6 cm ²	SS	No. 8	300 mL	

¹Concentrates filtration area to 13 mm². [†]Sterility test holder with funnel assembly for specialized testing. ^{††}Meets EPA specifications for Hazardous Waste Toxicity Test.

[TW-02924-02](#) Perforated silicone rubber stopper, no. 8B

[TW-02923-50](#) Replacement rubber stopper, no. 8

Polysulfone Filter Holders

Available models can be vented aseptically

These 47-mm filter holders feature recessed filter support that provides sufficient clearance so that the membrane will not twist or tear when the funnel is secured. Each unit includes a graduated funnel (either 300-mL standard or 500-mL wide-mouth), silicone rubber stopper and O-ring, and a base. The #8B stopper adapts to standard 1-L flasks. Models 06644-72 and -76 have a funnel cover that can be vented aseptically using a disposable syringe filter (included). Model 06644-76 has a 300-mL receiver interchangeable with all other models.

Specifications

Materials

Support: polypropylene
Funnel, base, and receiver: polysulfone
Stopper, O-ring, and caps: silicone rubber
Vacuum adapter: polypropylene

Filter diameter: 47 mm
Prefilter diameter: 41 mm
Filtration area: 13.5 cm²
Connection (funnel cover port): luer slip

Catalog number	Description	Main components	Capacity	Price
TW-06644-70	Polysulfone filter holder	Funnel, base	300 mL	
TW-06644-72	Polysulfone aseptic filter unit	Funnel, base, cover	300 mL	
TW-06644-74	Wide-mouth polysulfone filter holder	Funnel, base	500 mL	
TW-06644-76	Polysulfone aseptic filter system	Funnel, base, cover, receiver	300 mL	



Polysulfone filter holders shown with filter manifold 02924-20 (sold separately on page 489)



Filtration

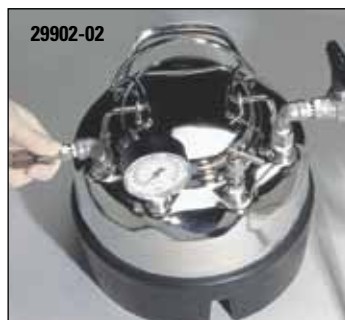
Laboratory, Pressure Filtration



Sanitary holders feature connections that completely disassemble for easy cleaning.



90-mm pressure holder with reservoir 02926-54



Pressure Filtration Holders

Stainless steel type 304 or 316 minimizes resistance and maximizes flow rate

Model 02933-00 meets EPA specifications for EPA Hazardous Waste Toxicity Test

Pressure filtration holders maximize flow rates by applying positive pressure to the fluid over a broad membrane surface. Holders are autoclavable with one filter membrane that is sealed with removable wing nuts. All holders vent to release pressure.

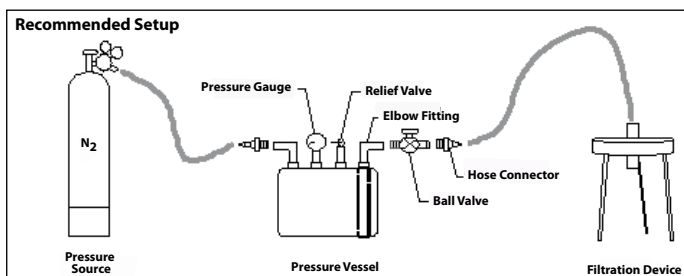
Holders have PTFE gaskets, silicone O-rings, and PTFE-coated photoetched stainless steel support screens† to prevent nitrocellulose membranes from sticking. Holders process samples from an in-line system or pressure vessel. Available in stainless steel, stainless steel with a reservoir, and sanitary stainless steel.

Stainless Steel Holders are available in the following sizes: 90, 142, and 293 mm.

Stainless Steel Holders with Reservoir let you filter samples without a separate pressure-dispensing vessel. The 47-mm holder has a 200-mL capacity, the 90-mm holder has a 750-mL capacity, and the 142-mm holders have a 1500-mL capacity.

Sanitary Stainless Steel Holders

are best used in-line to filter-sterilize liquids or gases. Sanitary inlet and outlet connections can be completely disassembled for thorough cleaning. Filter from 20 to 100 liters with our model 29900-00 pressure holder. Top plate has knobs for easy positioning over membrane.



Catalog number	Holder material	Filter diameter	Prefilter diameter	Filtration area	Max pressure psi (bar)	Adapter size (included)	Dimensions (H x dia)	Price
Stainless steel holders								
TW-02926-50†	304 SS	90 mm	75 mm	45.3 cm ²	100 (7)	¾" NPT†† to 11 mm ID	13½" x 5¼" (34.3 x 13.3 cm)	
TW-29902-06	316 SS	90 mm	75 mm	45.3 cm ²	100 (7)	¾" NPT†† to 11 mm ID	13½" x 5¼" (34.3 x 13.3 cm)	
TW-02927-50	304 SS	142 mm	124 mm	113.0 cm ²	100 (7)	¾" NPT†† to 11 mm ID	16¾" x 7¼" (42.5 x 18.4 cm)	
TW-29900-02	316 SS	142 mm	124 mm	113.0 cm ²	100 (7)	¾" NPT†† to 11 mm ID	16¾" x 7¼" (42.5 x 18.4 cm)	
TW-29900-04	304 SS	293 mm	257 mm	530.0 cm ²	100 (7)	¾" NPT†† to 16 mm ID	16" x 14" (40.6 x 35.6 cm)	
TW-02930-00	316 SS	293 mm	257 mm	530.0 cm ²	100 (7)	¾" NPT†† to 16 mm ID	16" x 14" (40.6 x 35.6 cm)	
Stainless steel holders with reservoir								
TW-02926-32	304 SS	47 mm	35 mm	12.5 cm ²	71 (4.9)	¼" NPT(F) to 10 mm ID	14¼" x 2¾" (36.2 x 7 cm)	
TW-02926-54	304 SS	90 mm	75 mm	45.0 cm ²	71 (4.9)	Inlet: ¼" NPT(F) to 7-13 mm ID Outlet: ¾" NPT(F) to 11 mm ID	17¾" x 5¼" (44 x 13.3 cm)	
TW-29902-68	316 SS	90 mm	75 mm	45.0 cm ²	71 (4.9)	Inlet: ¼" NPT(F) to 7-13 mm ID Outlet: ¾" NPT(F) to 11 mm ID	17¾" x 5¼" (44 x 13.3 cm)	
TW-02927-00‡	304 SS	142 mm	124 mm	113.0 cm ²	71 (4.9)	Inlet: ¼" NPT(F) to 7-13 mm ID Outlet: ¾" NPT(F) to 11 mm ID	23" x 7¼" (58.4 x 18.4 cm)	
TW-02933-00‡	316 SS	142 mm	124 mm	113.0 cm ²	71 (4.9)	Inlet: ¼" NPT(F) to 7-13 mm ID Outlet: ¾" NPT(F) to 11 mm ID	23" x 7¼" (58.4 x 18.4 cm)	
Sanitary stainless steel holders								
TW-29900-00	316 SS	90 mm	75 mm	45.0 cm ²	100 (7)	1½" sanitary to 11 mm ID	14" x 5¼" (35.6 x 13.3 cm)	
TW-29900-06	304 SS	142 mm	124 mm	113.0 cm ²	100 (7)	1½" sanitary to 11 mm ID	16¾" x 7¼" (42.5 x 18.4 cm)	
TW-29900-05	316 SS	142 mm	124 mm	113.0 cm ²	100 (7)	1½" sanitary to 11 mm ID	16¾" x 7¼" (42.5 x 18.4 cm)	
TW-29900-08	304 SS	293 mm	257 mm	530.0 cm ²	100 (7)	1½" sanitary to 11 mm ID	16" x 14" (40.6 x 35.6 cm)	
TW-29900-10	316 SS	293 mm	257 mm	530.0 cm ²	100 (7)	1½" sanitary to 11 mm ID	16" x 14" (40.6 x 35.6 cm)	

†Model 02926-50 has a 304 SS support screen. ‡Meets specifications for EPA Hazardous Waste Toxicity Test.
††Includes one NPT(M) adapter and one NPT(F) adapter.

Pressure Vessels

Use these electropolished stainless steel pressure vessels to propel filtration fluids through pressure holders by applying external pressure from compressed gases. Increasing pressure increases the efficiency of the EPR (ethylene propylene rubber) O-ring seal.

Vessels feature 5⅞" x 4⅞" (14.9 x 12.3 cm) wide-mouth opening for easy cleaning, SS dip tube, and molded neoprene rubber base for stability. Intake for the dip tube, located at the deepest point in the vessel, minimizes fluid loss to 6.0 mL. Sterilize vessels at 250°F (121°C) for 30 minutes. Make connections to four ¼" NPT(F) ports. Pressure vessels are ASME certified.

Catalog number	TW-29902-00	TW-29902-90	TW-29902-02	TW-29902-92	TW-29902-04	TW-29902-94	TW-29902-96	TW-29902-98
Material	304 SS	316 SS	304 SS	316 SS	304 SS	316 SS	304 SS	316 SS
Capacity	1 gal. (3.78 L)		3 gal. (11.3 L)		5 gal. (18.9 L)		8 gal. (30.2 L)	
Height	8½" (21.6 cm)		15½" (39.4 cm)		22½" (57.2 cm)		21⅞" (53.5 cm)	
Inside diameter	9" (22.9 cm)		9" (22.9 cm)		9" (22.9 cm)		12" (30.5 cm)	
Max temperature	300°F (149°C)		300°F (149°C)		300°F (149°C)		300°F (149°C)	
Max pressure	125 psi (8.5 bar)		125 psi (8.5 bar)		125 psi (8.5 bar)		110 psi (7.5 bar)	
Price								

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