Whatman®

Whatman Syringe Filter Collection

Unprecedented
Performance and Choice

TECHNICAL TIP:

Never re-use a syringe filter, even if it looks perfectly clean. Whatman products filter out extremely fine particulate that may not be visible to the naked eye.

Ensure the consistency of your results by discarding filters after a single use.

Quality. Speed. Comfort. Whatman Syringe Filters.

Whatman sets a new standard in syringe filtration with an array of filters suitable for every laboratory application. Proprietary materials and quality manufacturing can boost your productivity and profitability.

WHATMAN SYRINGE FILTERS ARE SUITABLE FOR:

Pharmaceutical
Food and Beverage
Environmental
General Laboratory

CHOOSE THE WHATMAN FILTER THAT SUITS YOUR APPLICATIONS AND GOALS:

- GD/X syringe filters process three to seven times more sample volume, which decreases hand pressure and increases efficiency. The unique pre-filtration stack is ideal for hard-to-filter samples.
- Puradisc syringe filters provide quick, efficient filtration of samples up to 100 mL volume. Available with a wide range of membranes, enabling the user to match a filter to their application needs. Offering quality and economy.

Whatman products are the gold standard in separations technology, and our Syringe Filter Collection is no exception. Every filter is manufactured to exacting specifications that ensure reliable results and uncompromised performance.

HOW CAN FILTRATION HELP YOU?

Syringe filters are a cost-effective way to improve the quality of HPLC analysis, improve consistency, extend column life and reduce maintenance. By removing particulates before the sample enters the column, Whatman syringe filters allow unimpeded flow. Without particulates to create obstructions, your column will work more efficiently and last longer.

In addition to HPLC, syringe filters have a multitude of other applications. A syringe filter adds a few minutes and a minimal expense to your testing process, but you will see a big return on your investment.

SAFETY

Syringe use can result in high pressure. The smaller the syringe, the higher the pressure that can be generated. As a general guide, the following pressures can be obtained by hand with the syringes indicated:

- **20 mL–30 psi (2 bar)**
- **10 mL–50 psi (3.4 bar)**
- **5 mL–75 psi (5.2 bar)**
- **3 mL–100 psi (6.9 bar)**
- **1 mL–150 psi (10.3 bar)**

Individual users should determine the pressure they generate by hand with a specific size syringe and take appropriate safety precautions not to exceed the recommended rating for the device used. If the limitations are exceeded, the device may burst.

Table of Contents

PRODUCT	PAGE
Quick Application Guide	[4]
GD/X® Syringe Filters	[5]
Ordering Information: 6 and 7	
GD/XP™ Syringe Filters	[8]
Ordering Information: 8	
Puradisc™ Syringe Filters	[9]
Ordering Information: 10, 11, and 12	
SPARTAN® Syringe Filters	[13]
Ordering Information: 14	
ReZist® Syringe Filters	[15]
Ordering Information: 15	
Anotop® Syringe Filters	[16]
Ordering Information: 18	
Roby™ Syringe Filters	[19]
Ordering Information: 19 and 20	
Technical Data	[21]
Product Selection	[22/23]
Membrane Information	[23]
Take Another Look at How You Work	[24/25]

QUICK APPLICATION GUIDE

GD/XP™
6 7 9 10 11 13 16 17 18
(PAGE 8)

GD/X®
2* 6 7 9 11 13 15 18
*Notes:
2: PTFE, GMF, GF/A, GF/B, GF/C, GF/D, GF/F
(PAGE 5)

Puradisc™
2* 5* 6 9 11 12* 13 15 16* 17* 18
*Notes:
2: PTFE
5: CA, PES, PVDF
12: CA, PES, PVDF
16: PES
17: PES
(PAGE 9)

Puradisc™ FP
5* 6 11 12* 13 15 18
*Notes:
5: CA
12: CA
(PAGE 9)

Puradisc™ Aqua 30
16 17
(PAGE 9)

SPARTAN®
6 9 12 13 18
(PAGE 13)

Application Guide

1. Absolute Pore Size Filter Removal of Mycoplasma/Virus (Use Sterile Filter)
2. Aggressive Solvents
3. Air Venting
4. Automated Filtration of Samples/Tablet Dissolution Testing
5. Biological Sample Preparation
6. Capillary Electrophoresis
7. Difficult to Filter Samples (High Solid Content Samples)
8. Filtration of Colloidal Material
9. HPLC Sample Preparation
10. Ion-Chromatography
11. Polarimetry
12. Protein Analysis
13. Refractometry
14. Nano Particle Filtration
15. Sterile Filtration (Use Sterile Filter and Membrane with Pore Size 0.2 µm)
16. COD/TOC/DOC
17. Trace Metal Analysis (ICP/AAS/ICP-MS)
18. UV/Vis Analysis

Note: For guidance only. Only a selection of applications shown above.

ReZist®
2 3 6 9 18
(PAGE 15)

Anotop®
1* 2 5 6 8 9 10 11 12 13 14* 15 18
*Notes:
1: 0.02 µm
14: 0.02 µm
(PAGE 16)

Anotop® Plus
1* 2 6 7 9 11 13 14*
*Notes:
1: 0.02 µm
14: 0.02 µm
(PAGE 16)

Roby™
4
(PAGE 19)

ZC 13
4
(PAGE 20)

GD/X® SYRINGE FILTERS

The GD/X range is specifically designed for high particulate loaded samples. Constructed of a pigment-free polypropylene housing with a prefiltration stack of Whatman GMF 150 (graded density) and GF/F glass microfiber media, these filters eliminate sample contamination and allow you to filter even the most difficult samples with less hand pressure. GD/X syringe filters can process three to seven times more sample volume than unprotected membranes.

GMF 150 and GF/F are produced from 100% borosilicate glass microfiber. The unique, graded density GMF 150 medium has a coarse top layer meshed with a fine bottom layer that retains particles to 1.0 µm. A GF/F filter then retains particles down to 0.7 µm. The prefilter stack ends with a final membrane.

GD/X filter construction facilitates exceptional loading capacity with fast flow rates. This prevents the build up of back pressure typically caused by the blocking of an unprotected membrane.

Features

- 13 mm and 25 mm diameter syringe filters
- 13 mm devices for samples up to 10 mL and 25 mm devices for samples greater than 10 mL (however, the volume of sample that can be filtered through each filter depends on the characteristics of the sample)
- Sterile options
- Pigment-free polypropylene housing
- Unique prefiltration stack of Whatman GMF 150 (graded density) and GF/F glass microfiber media

Benefits

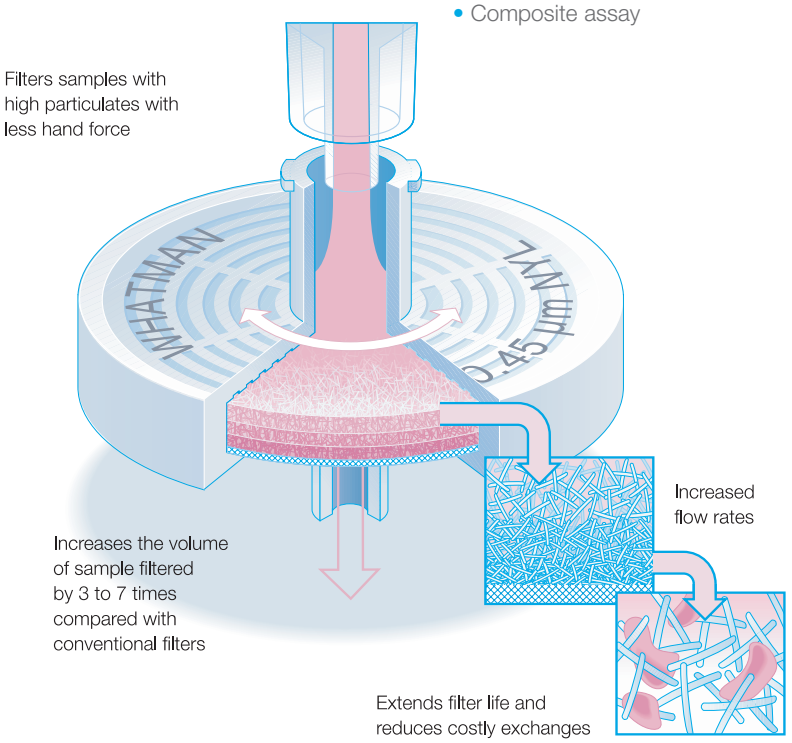
- Eliminates sample contamination
- Requires less hand pressure, even with the most difficult samples
- Processes three to seven times more sample volume

Applications

GD/X syringe filters are ideal for heavily particulate-laden samples found in:

- Dissolution testing
- Content uniformity
- Concentration analysis
- Routine sample preparation
- Food analysis
- Environmental samples
- Composite assay

PLEASE TURN TO PAGES 6 and 7 FOR ORDERING INFORMATION



25 mm GD/X

Typical Data – GD/X Syringe Filters

	GD/X 13 mm	GD/X 25 mm
Housing	Polypropylene (pigment-free)	Polypropylene (pigment-free)
Filtration Area	1.3 cm^2	4.6 cm^2
Maximum Pressure	100 psi (6.9 bar)	75 psi (5.2 bar)
Volume 'Hold-Up' Full Housing with Air Purge	0.5 mL 50 µL (approx)	1.4 mL 250 µL (approx)
Dimensions	21.6 mm x 29.8 mm	20.8 mm x 29.8 mm
Weight	3 g (approx)	3 g (approx)
Flow Direction	Flow should enter from the inlet	Flow should enter from the inlet
Inlet Connection	Female luer lock	Female luer lock
Outlet Connection	Male luer	Male luer
Sterilization	Autoclave at 121° C (131° C max) at 15 psi for 20 minutes	Autoclave at 121° C (131° C max) at 15 psi for 20 minutes
Biosafe	All materials pass USP Class VI	All materials pass USP Class VI
Glass Microfiber Prefiltration Media	100% borosilicate GMF 150 10 µm: 1 µm GF/F 0.7 µm	100% borosilicate GMF 150 10 µm: 1 µm GF/F 0.7 µm

Ordering Information – GD/X Syringe Filters

Catalog Number	Membrane	Pore Size (µm)	Quantity/Pack
13 mm GD/X – Non-Sterile			
6870-1302	Nylon	0.2	150
6871-1302	Nylon	0.2	1500
6870-1304	Nylon	0.45	150
6871-1304	Nylon	0.45	1500
6872-1302	PVDF	0.2	150
6872-1304	PVDF	0.45	150
6873-1304	PVDF	0.45	1500
6874-1302	PTFE	0.2	150
6875-1302	PTFE	0.2	1500
6874-1304	PTFE	0.45	150
6875-1304	PTFE	0.45	1500
6876-1302	PES	0.2	150
6876-1304	PES	0.45	150
6878-1302	PP	0.20	150
6880-1302	CA	0.2	150
6882-1316	GF/A	1.6*	150
6884-1310	GF/B	1.0*	150
6886-1312	GF/C	1.2*	150
6888-1327	GF/D[1]	2.7*	150
6890-1307	GF/F[1]	0.7*	150
6894-1304	GMF[1]	0.45*	150

CONTINUED ON PAGE 7

CONTINUED FROM PAGE 6

Ordering Information – GD/X Syringe Filters

Catalog Number	Membrane	Pore Size (µm)	Quantity/Pack
25 mm GD/X – Non-Sterile			
6869-2502	Nylon High Charge (positive)	0.2	150
6869-2504	Nylon High Charge (positive)	0.45	150
6870-2502	Nylon	0.2	150
6871-2502	Nylon	0.2	1500
6871-2504	Nylon	0.45	1500
6870-2504	Nylon	0.45	150
6870-2550	Nylon	5.0	150
6871-2550	Nylon	5.0	1500
6872-2502	PVDF	0.2	150
6873-2502	PVDF	0.2	1500
6872-2504	PVDF	0.45	150
6873-2504	PVDF	0.45	1500
6874-2502	PTFE	0.2	150
6875-2502	PTFE	0.2	1500
6874-2504	PTFE	0.45	150
6875-2504	PTFE	0.45	1500
6876-2502	PES	0.2	150
6905-2502	PES	0.2	1500
6876-2504	PES	0.45	150
6905-2504	PES	0.45	1500
6878-2502	PP	0.2	150
6880-2502	CA	0.2	150
6881-2502	CA	0.2	1500
6880-2504	CA	0.45	150
6881-2504	CA	0.45	1500
6882-2516	GF/A[1]	1.6*	150
6883-2516	GF/A[1]	1.6*	1500
6884-2510	GF/B[1]	1.0*	150
6886-2512	GF/C[1]	1.2*	150
6888-2527	GF/D[1]	2.7*	150
6890-2507	GF/F[1]	0.7*	150
6891-2507	GF/F[1]	0.7*	1500
6892-2515	934-AH[1]	1.5*	150
6894-2504	GMF[1]	0.45*	150
6895-2504	GMF[1]	0.45*	1500
25 mm GD/X – Sterile			
6900-2502	PVDF	0.2	50
6900-2504	PVDF	0.45	50
6896-2502	PES	0.2	50
6897-2502	PES	0.2	500
6896-2504	PES	0.45	50
6897-2504	PES	0.45	500
6901-2502	CA	0.2	50
6901-2504	CA	0.45	50
6902-2504	GMF[1]	0.45*	50

PP – Polypropylene
PES – Polyethersulfone
PVDF – Polyvinylidene difluoride
PTFE – Polytetrafluoroethylene

CA – Cellulose acetate
GF – Glass fiber
GMF – Glass microfiber

* Glass microfiber particle retention rating
[1] Contains GMF 150 without the GF/F prefilter

GD/XP™ SYRINGE FILTERS

Whatman GD/XP disposable syringe filters are ideal for use with samples that require inorganic ion analysis, as levels of ion extractables are minimized. They are also an alternative choice for users requiring a filter that exhibits extremely low protein binding characteristics.

GD/XP syringe filters contain a two layer prefilter stack comprised of 20 µm and 5 µm polypropylene filters. The last stage of filtration is a choice of membrane, which is positioned below the prefilter stack.

Applications

- HPLC sample preparation
- Trace metal analysis

FOR ORDERING INFORMATION SEE BELOW

GD/XP Syringe Filters

Typical Data – GD/XP Syringe Filters

	GD/XP 25 mm
Housing	Polypropylene (pigment-free)
Filtration Area	4.6 cm^2
Maximum Pressure	75 psi (5.2 bar)
Volume 'Hold-Up' Full Housing	1.4 mL with air purge 250 µL (approx)
Dimensions	20.8 mm x 30.0 mm
Weight	3 g (approx)
Flow Direction	Flow should enter from the inlet
Inlet Connection	Female luer lock
Outlet Connection	Male luer
Sterilization	Autoclave at 121° C (131° C max) at 15 psi for 20 minutes
Biosafe	All materials pass USP Class VI
Prefiltration Media	PP 20 µm: 5 µm

Ordering Information – GD/XP Syringe Filters

Catalog Number	Membrane	Pore Size (µm)	Diameter (mm)	Hydrophilic	Solvent Resistance	Quantity/ Pack
6970-2504	Nylon	0.45	25	Yes	Good	150
6971-2504	Nylon	0.45	25	Yes	Good	1500
6972-2504	PVDF	0.45	25	Yes	Good	150
6973-2504	PVDF	0.45	25	Yes	Good	1500
6974-2504	PTFE	0.45	25	No	Very Good	150
6978-2504	PP	0.45	25	No	Good	150
6993-2504	DpPP	0.45	25	No	Good	1500
6994-2504	PES	0.45	25	Yes	Poor	150
6995-2504	PES	0.45	25	Yes	Poor	1500

PP – Polypropylene
PES – Polyethersulfone
PVDF – Polyvinylidene difluoride
PTFE – Polytetrafluoroethylene
DpPP – Polypropylene depth filter

Puradisc™ SYRINGE FILTERS

Puradisc syringe filters combine premium quality and economy. They are ideal for the quick, efficient filtration of samples up to 100 mL volume.

Puradisc filters are produced from pigment-free polypropylene or polycarbonate with standard inlet (female luer lock) and outlet (male luer) connections (unless otherwise stated). Options include a sterile, medical-grade blister pack for critical applications and a special tube tip outlet that allows the sample to be accurately dispensed into a micro-vial, eliminating air lock.

Features

- Pigment-free polypropylene (polycarbonate for Puradisc FP and Aqua 30)
- Standard inlet and outlet luer connectors
- Optional sterile, medical-grade blister pack
- Tube-tip format (optional)
- Choice of membrane or glass microfiber filter media
- Choice of filter sizes (4 mm to 30 mm)
- Sterile option for critical applications

Benefits

- Tube tip outlet for accurate dispensing into a micro-vial
- Wide sample compatibility
- Adhesive-free seals eliminate potential sample contamination

Puradisc 4

Features

- 4 mm diameter syringe filter
- Sample volume up to 2 mL
- Low hold-up volume <10 µL ensures maximum sample recovery
- Tube-tip format (optional)

Puradisc 4 may be used for:

- HPLC samples containing low solid content—filtration will improve column life
- CE (Capillary Electrophoresis) samples—filtration will eliminate spurious peaks
- Sterile filtration of low volume samples
- UV/Vis samples—filter directly into cuvette using tube tip
- Refractometry—filter samples to prevent damage to instrument optics and improve accuracy of results
- Minimize non-specific binding to membrane (due to small membrane size)

Puradisc 13

Features

- 13 mm diameter syringe filter
- Sample volume up to 10 mL
- Low hold-up volume <25 µL ensures maximum sample recovery
- Optional glass microfiber
- Tube-tip format (optional)

Puradisc 13 may be used for:

- Biological sample preparation
- HPLC sample preparation

Puradisc 25

Features

- 25 mm diameter syringe filter
- Sample volume up to 100 mL
- Low hold-up volumes for maximum sample recovery
- Optional glass microfiber

Puradisc 25 may be used for:

- HPLC aqueous sample preparation
- Biological sample preparation
- Buffer solutions
- Salt solutions
- Tissue culture media
- Irrigation solutions
- Sterile isolation

Puradisc FP 30

Features

- 30 mm diameter
- Larger filtration area (44% greater in comparison with 25 mm)
- Designed for aqueous samples

Puradisc FP 30 may be used for:

- Filtration of protein-containing solutions with minimal protein loss (CA membrane)
- Removal of cellular constituents from solution

Puradisc Aqua 30

Specifically designed for filtration in trace analysis. This aqueous syringe filter has low background values for the determination of COD, TOC and DOC.

PLEASE TURN TO PAGES 10, 11 AND 12 FOR ORDERING INFORMATION

Puradisc 25 Syringe Filters

Typical Data – Puradisc Syringe Filters

	Puradisc 4	Puradisc 13	Puradisc 25	Puradisc FP/Aqua 30
Housing	Polypropylene	Polypropylene	Polypropylene	Polycarbonate
Filtration Area	0.2 cm^2	1.3 cm^2	4.2 cm^2	5.7 cm^2
Maximum Pressure	75 psi (5.2 bar)	75 psi (5.2 bar)	75 psi (5.2 bar)	100 psi (6.9 bar)
Volume 'Hold Up' with Air Purge	<10 µL	<25 µL	<100 µL	≤50 µL
Dimensions	10.1 x 23.5 mm	16.3 x 19.8 mm	22.9 x 28.4 mm	26 X 34 mm
Weight (approx)	0.55 g	0.95 g	2.7 g	4.7 g
Volume Throughput	up to 2 mL	up to 10 mL	up to 100 mL	up to 100 mL
Inlet Connection	Female luer lock	Female luer lock	Female luer lock	Female luer lock
Outlet Connection	Male luer/tube tip	Male luer/tube tip	Male luer	Male luer/luer lock
Sterilization	Autoclave at 121° C (131° C max)	Autoclave at 121° C (131° C max)	Autoclave at 121° C (131° C max)	Autoclaving not recommended

Ordering Information – Puradisc 4 mm Syringe Filters

	Non-sterile Without Tube Tip			Non-sterile With Tube Tip	Sterile Without Tube Tip		
	Membrane			Membrane	Membrane		
Pore Size (µm)	Nylon	PVDF	PTFE	PVDF	Nylon	PVDF	Quantity/ Pack
0.2	—	—	—	6777-0402	6786-0402	6791-0402	50
0.45	—	—	—	6777-0404	—	—	50
0.2	6789-0402	6779-0402	6784-0402	—	—	—	100
0.45	6789-0404	6779-0404	6784-0404	—	—	—	100
0.2	6790-0402	6792-0402	6783-0402	—	—	—	500
0.45	6790-0404	6792-0404	6783-0404	—	—	—	500

PES – Polyethersulfone PTFE – Polytetrafluoroethylene PVDF – Polyvinylidene difluoride

Ordering Information – Puradisc 13 mm Syringe Filters (Non-sterile)

	Without Tube Tip							With Tube Tip		
	Membrane							Membrane		
Pore Size (µm)	Nylon	PVDF	PTFE	PES	PP	GMF	CA	PVDF	PTFE	Quantity/ Pack
0.2	—	—	—	—	—	—	—	6777-1302	6775-1302	50
0.45	—	—	—	—	—	—	—	6777-1304	6775-1304	50
0.1	6789-1301	—	6784-1301	—	—	—	—	—	—	100
0.2	6789-1302	6779-1302	6784-1302	6782-1302	6788-1302	—	—	—	—	100
0.45	6789-1304	6779-1304	6784-1304	6782-1304	6788-1304	—	6771-1304	6796-1304	—	100
1.0	—	—	6784-1310	—	—	—	—	—	—	100
5.0	—	—	6784-1350	—	—	—	—	—	—	100
GF/A 1.6*	—	—	—	—	—	6820-1316	—	—	—	100
GF/B 1.0*	—	—	—	—	—	6821-1310	—	—	—	100
GF/C 1.2*	—	—	—	—	—	6822-1312	—	—	—	100
GF/D 2.7*	—	—	—	—	—	6823-1327	—	—	—	100

CONTINUED ON PAGE 11

CONTINUED FROM PAGE 10

Ordering Information – Puradisc 13 mm Syringe Filters (Non-sterile)

	Without Tube Tip							With Tube Tip		
	Membrane							Membrane		
Pore Size (µm)	Nylon	PVDF	PTFE	PES	PP	GMF	CA	PVDF	PTFE	Quantity/Pack
GF/F 0.7*	—	—	—	—	—	6825-1307	—	—	—	100
934-AH 1.5*	—	—	—	—	—	6827-1315	—	—	—	100
0.2	6790-1302	6792-1302	6783-1302	—	6785-1302	—	—	6760-1302	6761-1302	500
0.45	6790-1304	6792-1304	6783-1304	6781-1304	6785-1304	6818-1304	—	6760-1304	6761-1304	500
GF/A 1.6*	—	—	—	—	—	6806-1316	—	—	—	500
0.2	6768-1302	6765-1302	6766-1302	—	—	—	—	—	—	2000
0.45	6768-1304	6765-1304	6766-1304	—	—	—	6763-1304	—	—	2000
934-AH 1.5*	—	—	—	—	—	6816-1315	—	—	—	2000

* Particle Retention Rating

CA – Cellulose acetate
GMF – Glass microfiber filter
PES – Polyethersulfone
PP – Polypropylene
PTFE – Polytetrafluoroethylene
PVDF – Polyvinylidene difluoride

Ordering Information – Puradisc 13 mm Syringe Filters (Sterile)

	Without Tube Tip			With Tube Tip	
	Membrane			Membrane	
Pore Size (µm)	Nylon	PVDF	PES	PVDF	Quantity/Pack
0.1	6786-1301	—	—	—	50
0.2	6786-1302	6791-1302	6780-1302	6778-1302	50
0.45	—	6791-1304	6780-1304	—	50

PES – Polyethersulfone
PVDF – Polyvinylidene difluoride

Ordering Information – 25 mm Puradisc Syringe Filter

	Without Tube Tip						Sterile	
	Membrane						Membrane	
Pore Size (µm)	Nylon	PVDF	PTFE	PP	PES	GMF	PES	Quantity/Pack
0.1	—	—	6784-2501	—	—	—	—	50
0.2	6750-2502	6746-2502	6784-2502	6786-2502	—	—	6780-2502	50
0.45	6750-2504	6746-2504	6784-2504	6786-2504+	—	—	6780-2504	50
1.0	6750-2510	—	6784-2510	—	—	—	6780-2510	50
0.7 GF/F*	—	—	—	—	—	6825-2517	—	50
1.0 GD 1*	—	—	—	—	—	6783-2510	—	100
2.0 GD 2*	—	—	—	—	—	6783-2520	—	100
0.2	6751-2502	6747-2502	6785-2502	6788-2502	6781-2502	—	—	200
0.45	6751-2504	6747-2504	6785-2504	6788-2504+	6781-2504	—	—	200
1.0	6751-2510	—	—	—	6781-2510	—	—	200
0.7 GF/F*	—	—	—	—	—	6825-2527	—	200

CONTINUED ON PAGE 12

CONTINUED FROM PAGE 11

Ordering Information – 25 mm Puradisc Syringe Filters

	Without Tube Tip						Sterile	
	Membrane						Membrane	
Pore Size (µm)	Nylon	PVDF	PTFE	PP	PES	GMF	PES	Quantity/Pack
0.2	—	—	—	—	6759-2502	—	—	300
0.45	—	—	—	—	6759-2504	—	—	300
0.45	6752-2504	—	—	—	—	—	—	500
0.1	—	—	6798-2501	—	—	—	—	1000
0.2	6753-2502	—	6798-2502	6790-2502	6794-2502	—	6794-2512	1000
0.45	6753-2504	6749-2504	6798-2504	6790-2504+	6794-2504	—	6794-2514	1000
0.7 GF/F*	—	—	—	—	—	6787-2520	—	1000
1.0	6753-2510	—	6798-2510	—	6794-2510	—	—	1000
1.0 GD 1*	—	—	—	—	—	6792-2510	—	1000

* Particle Retention Rating
+ DpPP – Polypropylene Depth Filter
GD – Graded Density
PES – Polyethersulfone
PP – Polypropylene
PTFE – Polytetrafluoroethylene
PVDF – Polyvinylidene difluoride

Ordering Information – Puradisc FP 30 and Aqua 30 Syringe Filters

Description	Diameter (mm)	Pore Size (µm)	Membrane/Housing	Connection In/Out	Color Code	Quantity/Pack	Catalog Number
Individually Sterile Packed							
FP 30 CA-S*	30	0.2	CA/PC	FLL/ML	red	50	10 462 200
FP 30 CA-S*	30	0.2	CA/PC	FLL/MLL	red	50	10 462 205
FP 30 CA-S*	30	0.45	CA/PC	FLL/ML	white	50	10 462 100
FP 30 CA-S	30	0.8	CA/PC	FLL/ML	green	50	10 462 240
FP 30 CA-S	30	1.2	CA/PC	FLL/ML	orange	50	10 462 260
FP 30 CN-S	30	5.0	CN/PC	FLL/ML	black	50	10 462 000
Non-sterile							
FP 30 CA	30	0.2	CA/PC	FLL/ML	red	50	10 462 701
FP 30 CA	30	0.2	CA/PC	FLL/ML	red	100	10 462 710
FP 30 CA	30	0.2	CA/PC	FLL/ML	red	500	10 462 700
FP 30 CA	30	0.2	CA/PC	FLL/MLL	red	500	10 462 206
FP 30 CA	30	0.45	CA/PC	FLL/ML	white	50	10 462 601
FP 30 CA	30	0.45	CA/PC	FLL/ML	white	100	10 462 610
FP 30 CA	30	0.45	CA/PC	FLL/ML	white	500	10 462 600
FP 30 CA	30	0.8	CA/PC	FLL/ML	green	50	10 462 241
FP 30 CA	30	0.8	CA/PC	FLL/ML	green	500	10 462 243
FP 30 CA	30	1.2	CA/PC	FLL/ML	orange	50	10 462 261
FP 30 CA	30	1.2	CA/PC	FLL/ML	orange	500	10 462 263
FP 30 CN	30	5.0	CN/PC	FLL/ML	black	50	10 462 520
FP 30 CN	30	5.0	CN/PC	FLL/ML	black	100	10 462 510
FP 30 CN	30	5.0	CN/PC	FLL/ML	black	500	10 462 500
Aqua 30							
Aqua 30 CA	30	0.45	CA/PC	FLL/ML	white	50	10 462 656
Aqua 30 CA	30	0.45	CA/PC	FLL/ML	white	100	10 462 655
Aqua 30 CA	30	0.45	CA/PC	FLL/ML	white	500	10 462 650

CA – Cellulose acetate
CN – Cellulose nitrate
PC – Polycarbonate
FLL – Female luer lock
ML – Male luer
MLL – Male luer lock
* Endotoxin-free according to LAL test (USPXXIII), sensitivity: 0.25 EU/mL

SPARTAN® SYRINGE FILTERS

SPARTAN syringe filters ensure reproducible results from the filtration of organic and aqueous solutions in HPLC. For batch-to-batch consistency, the SPARTAN range of filters are tested and certified for the absence of UV-absorbing substances at wavelengths of 210 and 254 nm with water, methanol and acetonitrile.

TECHNICAL TIP:

Download your SPARTAN 13 and 30 batch certificate from the internet to document the unequalled purity of each batch.

To download, visit www.whatman.com/support/customercertificates and enter the lot number, and you will receive documentation of the appropriate batch chromatogram and test conditions.

Features

- Hydrophilic, low protein-binding membrane made of regenerated cellulose
- Excellent chemical resistance against the standard aqueous and organic HPLC solvents
- SPARTAN syringe filters are tested and certified for the absence of UV-absorbing substances at wavelengths of 210 and 254 nm with water, methanol and acetonitrile
- 13 mm diameter with Mini-Tip
- 13 mm diameter with extremely low dead volume <10 µL

Benefits

- Versatile: Use for any application requiring a chemically resistant, hydrophilic, low protein-binding membrane
- Documented batch-to-batch quality and consistency ensure reproducible results
- 13 mm diameter with Mini-Tip outlet is ideal for filtration into very small sample bottles

CERTIFIED:

SPARTAN filters are HPLC certified

Applications

- Filtration of organic and aqueous solutions in HPLC with reproducible results
- Purification of aqueous and organic solutions
- Filtration of protein solutions

PLEASE TURN TO PAGE 14 FOR ORDERING INFORMATION

SPARTAN 13

SPARTAN 30

Ordering Information – SPARTAN Syringe Filters

Catalog Number	Diameter (mm)	Pore Size (µm)	Membrane/Housing	Connection In/Out	Color Code	Quantity/Pack
10 463 040	13	0.2	RC/PP	FLL/Mini-Tip	dark brown	100
10 463 042	13	0.2	RC/PP	FLL/Mini-Tip	dark brown	500
10 463 100	13	0.2	RC/PP	FLL/ML	dark brown	100
10 463 102	13	0.2	RC/PP	FLL/ML	dark brown	500
10 463 030	13	0.45	RC/PP	FLL/Mini-Tip	light brown	100
10 463 032	13	0.45	RC/PP	FLL/Mini-Tip	light brown	500
10 463 110	13	0.45	RC/PP	FLL/ML	light brown	100
10 463 112	13	0.45	RC/PP	FLL/ML	light brown	500
10 463 060	30	0.2	RC/PP	FLL/ML	dark brown	100
10 463 062	30	0.2	RC/PP	FLL/ML	dark brown	500
10 463 053	30	0.45	RC/PP	FLL/ML	light brown	50
10 463 050	30	0.45	RC/PP	FLL/ML	light brown	100
10 463 052	30	0.45	RC/PP	FLL/ML	light brown	500

PP – Polypropylene
FLL – Female luer lock
ML – Male luer
RC – Regenerated cellulose

ReZist® SYRINGE FILTERS

The Whatman ReZist range of syringe filters has been specifically designed to be resistant to organic solvents. These filters are ideal for the clarification of aggressive organic solvents.

ReZist 30 mm filters can also be used as a venting filter for small vessels.

ReZist for HPLC Sample Preparation

Features

- Hydrophobic PTFE membrane is laminated with polypropylene
- 13 mm diameter with Mini-Tip
- 13 mm diameter with extremely low dead volume <10 µL

Benefits

- Excellent chemical resistance against standard organic HPLC solvents
- 13 mm diameter with Mini-Tip outlet is ideal for filtration into very small sample bottles
- Permits optimal utilization of small sample volumes

ReZist for Air Venting

Features

- Integral, permanently hydrophobic PTFE membranes
- Polypropylene support

Benefits

- Extremely high chemical resistance

FOR ORDERING INFORMATION SEE BELOW

Typical Applications – ReZist	
Filtration of organic solutions in HPLC	ReZist 13 and 30
Filtration of aggressive solutions	ReZist 13 and 30
1 µm membrane for prefiltration of high solid content solutions	ReZist 13 and 30
Moisture barrier when venting	ReZist 30
Air sterilization for tubing systems	ReZist 30
Aerosol separation for protecting vacuum pumps	ReZist 30
Sterile venting of small volumes	ReZist 30
Prefiltration of difficult-to-filter aqueous or organic solutions containing particles	ReZist 30/GF92

Ordering information – ReZist

Catalog Number	Diameter (mm)	Pore Size (µm)	Membrane/Housing	Connection In/Out	Color Code	Quantity/Pack
10 463 703	13	0.2	PTFE/PP	FLL/Mini-Tip	white	100
10 463 713	13	0.45	PTFE/PP	FLL/Mini-Tip	green	100
10 463 503	30	0.2	PTFE/PP	FLL/ML	white	100
10 463 505	30	0.2	PTFE/PP	FLL/ML	white	500
10 463 513	30	0.45	PTFE/PP	FLL/ML	green	100
10 463 515	30	0.45	PTFE/PP	FLL/ML	green	500
10 463 523	30	1.0	PTFE/PP	FLL/ML	yellow	100
10 463 525	30	1.0	PTFE/PP	FLL/ML	yellow	500
10 463 533	30	5.0	PTFE/PP	FLL/ML	grey	100
10 463 535	30	5.0	PTFE/PP	FLL/ML	grey	500
10 463 500*	30	0.2	PTFE/PP	FLL/ML	white	50
10 463 510*	30	0.45	PTFE/PP	FLL/ML	green	50
10 463 543	30	> 1	GF92/PP	FLL/MLL	natural	100
10 463 545	30	> 1	GF92/PP	FLL/MLL	natural	500

*Sterile
GF – Glass fiber
PP – Polypropylene
PTFE – Polytetrafluoroethylene

FLL – Female luer lock
ML – Male luer
MLL – Male luer lock

Anotop® SYRINGE FILTERS

Anotop syringe filters are a universal solution for numerous filtration applications. Anotop filters can be used with most organic solvents and aqueous materials, and they are suitable for sample volumes up to 100 mL. The distinctive hexagonal housing is manufactured from pigment-free polypropylene to eliminate sample contamination. No wetting agents or adhesives are used in the manufacturing process.

Anotop syringe filters contain the unique alumina based Anopore® membrane and are supplied in three pore sizes. Glass microfiber prefilter versions are available for difficult-to-filter samples.

Anotop 10

Features

- 10 mm diameter syringe filter
- Inorganic membrane
- Capillary pore structure

Benefits

- Low protein binding
- Filters sample volume up to 10 mL
- Low hold-up volume <20 µL ensures maximum sample recovery
- Sterile formats are available for critical applications

Anotop 10 Plus

The Anotop 10 Plus syringe filter offers the added benefit of an integral glass microfiber prefilter. This unit is designed to enable difficult and hard-to-filter solutions to be filtered without adversely affecting the filtration efficiency of the final membrane. This can eliminate the need for sample clean-up or expensive and time-consuming sequential filtration.

Applications

- Filtration of heavily particulate loaded samples prior to HPLC
- Removal of solids prior to UV/Vis analysis

Anotop 25

Features

- 25 mm diameter syringe filter
- Filters sample volume up to 100 mL

Applications

- Cold sterilization of growth media
- Phage and virus filtration
- Removal of high molecular weight proteins or polymers
- Liposome extrusion
- Filtration of solvents for spectroanalysis and analytical sample preparation

Anotop 25 Plus

The Anotop 25 Plus syringe filter offers the added benefit of an integral glass microfiber prefilter. This unit is designed to enable difficult and hard-to-filter solutions to be filtered without adversely affecting the filtration efficiency of the final membrane. This can eliminate the need for sample clean-up or expensive and time-consuming sequential filtration.

Applications

- Filtration of tissue culture media
- Clean-up of difficult samples
- Filtration of colloidal material
- Removal of mycoplasma
- HPLC sample preparation
- Biological sample preparation

Anotop IC

Whatman Anotop IC syringe filters are specifically designed for the preparation of samples for subsequent ion chromatography and HPLC analysis. These devices ensure very low levels of anion leaching for ion chromatography testing.

Features

- 10 mm diameter syringe filters
- 25 mm diameter syringe filters
- Each batch certified for IC

Benefits

- Enhanced consistency of analytical results
- Extended column life
- Certified and guaranteed low levels of anion leaching for improved results

Applications

- Ion chromatography sample preparation
- HPLC sample preparation

PLEASE TURN TO PAGE 18 FOR ORDERING INFORMATION

Anotop 10

Typical Data – Anotop Syringe Filters

	Anotop 10	Anotop 10 Plus	Anotop 25	Anotop 25 Plus
Housing	Polypropylene	Polypropylene	Polypropylene	Polypropylene
Filtration Area	0.78 cm^2	0.78 cm^2	4.78 cm^2	4.78 cm^2
Maximum Pressure	100 psi (6.9 bar)	100 psi (6.9 bar)	100 psi (6.9 bar)	100 psi (6.9 bar)
Volume 'Hold-Up'	<20 µL	<30 µL	<150 µL	<200 µL
Prefilter Type	N/A	Glass microfiber (binderless)	N/A	Glass microfiber (binderless)
Membrane Diameter	10 mm	10 mm	25 mm	25 mm
Membrane Type	Anopore	Anopore	Anopore	Anopore
Average Membrane Thickness	60 µm	60 µm	60 µm	60 µm
Device Width	15.4 mm	15.4 mm	36.8 mm	36.8 mm
Device Length	18.5 mm	18.5 mm	26.3 mm	26.3 mm
Device Shape	Hexagonal	Hexagonal	Hexagonal	Hexagonal
Construction Process	Thermal weld	Thermal weld	Thermal weld	Thermal weld
Inlet Connection	Female luer lock	Female luer lock	Female luer lock	Female luer lock
Outlet Connection	Male luer	Male luer	Male luer	Male luer
Protein Adsorption	Low	Medium/high	Low	Medium/high
Extractable Materials	Low	Low	Low	Low
Cytotoxicity	Non-cytotoxic	Non-cytotoxic	Non-cytotoxic	Non-cytotoxic

Typical Data – Anotop Syringe Filters

	Anotop 10 IC	Anotop 25 IC
Housing	Polypropylene	Polypropylene
Filtration Area	0.78 cm^2	4.78 cm^2
Maximum Pressure	100 psi (6.9 bar)	100 psi (6.9 bar)
Volume 'Hold-Up' with Air Purge	<20 µL	<150 µL
Membrane Diameter	10 mm	25 mm
Construction Process	Thermal weld	Thermal weld
Extractable Materials	Negligible	Negligible
Average Membrane Thickness	60 µm	60 µm
Device Width	15.4 mm	36.8 mm
Device Length	18.5 mm	26.3 mm
Inlet Connection	Female luer lock	Female luer lock
Outlet Connection	Male luer	Male luer
Membrane Type	Anopore	Anopore

Typical Data – Anotop IC Syringe Filters

Anion	Level (ppb)
Fluoride	<10
Chloride	<15
Bromide	<20
Sulfate	<30
Phosphate	<75
Nitrite	<30
Nitrate	<30

Typical average anion leaching levels in 18 M /cm (Meg Ohm/cm) water at 20° C.

Ordering Information – Anotop Syringe Filters

Catalog Number	Membrane	Pore Size (µm)	Hydrophilic	Protein Binding	Solvent Resistance	Quantity/Pack
Anotop 10						
6809-1002	Anopore	0.02	Yes	Low	Very Good	50
6809-1012	Anopore	0.1	Yes	Low	Very Good	50
6809-1022	Anopore	0.2	Yes	Low	Very Good	50
6809-1102	Anopore Sterile	0.02	Yes	Low	Very Good	50
6809-1112	Anopore Sterile	0.1	Yes	Low	Very Good	50
6809-1122	Anopore Sterile	0.2	Yes	Low	Very Good	50
Anotop 10 Plus						
6809-3002	Anopore with Prefilter	0.02	Yes	Medium	Very Good	50
6809-3012	Anopore with Prefilter	0.1	Yes	Medium	Very Good	50
6809-3022	Anopore with Prefilter	0.2	Yes	Medium	Very Good	50
6809-3102	Anopore with Prefilter Sterile	0.02	Yes	Medium	Very Good	50
6809-3112	Anopore with Prefilter Sterile	0.1	Yes	Medium	Very Good	50
6809-3122	Anopore with Prefilter Sterile	0.2	Yes	Medium	Very Good	50
Anotop 25						
6809-2002	Anopore	0.02	Yes	Low	Very Good	50
6809-2012	Anopore	0.1	Yes	Low	Very Good	50
6809-2022	Anopore	0.2	Yes	Low	Very Good	50
6809-2024	Anopore	0.2	Yes	Low	Very Good	200
6809-2102	Anopore Sterile	0.02	Yes	Low	Very Good	50
6809-2112	Anopore Sterile	0.1	Yes	Low	Very Good	50
6809-2122	Anopore Sterile	0.2	Yes	Low	Very Good	50
Anotop 25 Plus						
6809-4002	Anopore with Prefilter	0.02	Yes	Medium	Very Good	50
6809-4012	Anopore with Prefilter	0.1	Yes	Medium	Very Good	50
6809-4022	Anopore with Prefilter	0.2	Yes	Medium	Very Good	50
6809-4024	Anopore with Prefilter	0.2	Yes	Medium	Very Good	200
6809-4102	Anopore with Prefilter Sterile	0.02	Yes	Medium	Very Good	50
6809-4112	Anopore with Prefilter Sterile	0.1	Yes	Medium	Very Good	50
6809-4122	Anopore with Prefilter Sterile	0.2	Yes	Medium	Very Good	50
Anotop 10 IC						
6809-9233	Anopore	0.2	Yes	Low	Very Good	100
6809-9234	Anopore	0.2	Yes	Low	Very Good	200
Anotop 10 IC Blister						
6809-9232	Anopore	0.2	Yes	Low	Very Good	50
6809-9235	Anopore	0.2	Yes	Low	Very Good	250
Anotop 25 IC						
6809-9244	Anopore	0.2	Yes	Low	Very Good	200

Roby™ SYRINGE FILTERS

Roby 25 Filter for Automation

Roby 25 filter for robot systems was developed specifically for automated sample filtration systems. Whatman offers Roby filters with various membranes. For difficult-to-filter samples, Roby offers membranes with integral glass fiber prefilters.

The filter housing is made from mechanically stable polypropylene. The external geometry of the filter housing ensures simple and smooth filter transport from the storage turntable to the filtration site and easy filter changing.

Features

- Optimized for SOTAX®, Caliper® (Zymark®) and Varian® tablet testers
- Mechanically stable polypropylene

Benefits

- Easy filter changing
- Ensures simple and smooth filter transport

Applications

- Fine filtration of samples in the automatic tablet dissolution test
- Method development with the Roby 25 Filter Validation Kit

Roby 25 Filter Validation Kit

The Roby 25 Filter Validation Kit includes step-by-step instructions for essential selection tests. Instructions include all important properties in an at-a-glance format.

Features

- Six types of filters: six tubes each with 25 filters
- Filter validation protocol with filter selection aid

FOR ORDERING INFORMATION SEE BELOW

Ordering Information – Roby 25 Syringe Filters

Catalog Number	Description	Diameter (mm)	Pore Size (µm)	Membrane/ Housing	Connection In/Out	Color Code	Quantity/ Pack
10 463 803	Roby 25 NL	25	0.45	NYL/PP	FLL/ML	translucent yellow	200**
10 463 802	Roby 25 NL	25	0.45	NYL/PP	FLL/ML	translucent yellow	1000
10 463 805	Roby 25 NL-GF92	25	0.45	NYL-GF/PP	FLL/ML	yellow	200**
10 463 804	Roby 25 NL-GF92	25	0.45	NYL-GF/PP	FLL/ML	yellow	1000
10 463 807	Roby 25 RC	25	0.45	RC/PP	FLL/ML	translucent brown	200**
10 463 806	Roby 25 RC	25	0.45	RC/PP	FLL/ML	translucent brown	1000
10 463 809	Roby 25 RC-GF92	25	0.45	RC-GF/PP	FLL/ML	brown	200**
10 463 808	Roby 25 RC-GF92	25	0.45	RC-GF/PP	FLL/ML	brown	1000
10 463 813	Roby 25 CA-GF92	25	0.45	CA-GF/PP	FLL/ML	green	200**
10 463 812	Roby 25 CA-GF92	25	0.45	CA-GF/PP	FLL/ML	green	1000
10 463 814	Roby 25/GF55	25	0.7	GF/PP	FLL/ML	natural	200**
10 463 815	Roby 25/GF55	25	0.7	GF/PP	FLL/ML	natural	1000
10 463 801	Roby 25/GF92	25	> 1	GF/PP	FLL/ML	natural	200**
10 463 800	Roby 25/GF92	25	> 1	GF/PP	FLL/ML	natural	1000
10 463 898	Filter Validation Kit[1]	25	–	–	FLL/ML	–	150

[1]Filter Validation Kit includes: Roby 25/GF92; Roby 25/GF55; Roby 25/RC; Roby 25/RC-GF92; Roby 25 NL; Roby 25 NL-GF92. (6 tubes of 25 pieces each)

GF – Glass fiber
PP – Polypropylene
NYL – Nylon
RC – Regenerated cellulose
FLL – Female luer lock
ML – Male luer

** 8 tubes with 25 pieces each

ZC 13 mm Filters for Automation

These devices offer an effective alternative to single layer devices and prevent premature membrane clogging.

Features

- 13 mm diameter syringe filters
- For sample volumes up to 10 mL
- High loading capacity for difficult samples
- Choice of membranes and pore sizes available for wide sample compatibility
- Suitable for manual and automated processes

Applications

- Automated sample filtration
- Tablet dissolution tests

Typical Data – ZC 13 mm Syringe Filters

Housing	Polypropylene
Dimensions	21.7 mm x 29.7 mm
Weight	3 g (approx)
Filtration Area	1.3 cm^2
Glass Microfiber	100% borosilicate
Maximum Pressure	100 psi (6.9 bar)
Hold-Up Volume	Full Housing 0.5 mL with Air Purge 50 µL (approx)
Inlet Connection	Female slip luer
Outlet Connection	Male luer
Prefiltration Media	GMF 150 10 µm: 1 µm and GF/F 0.7 µm
Sterilization	Autoclave at 121° C (max 131° C) at 15 psi for 20 minutes
Biosafe	All materials pass USP Class VI

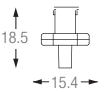
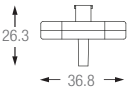
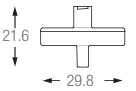
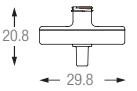
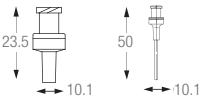
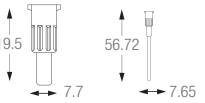
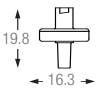
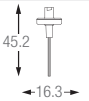
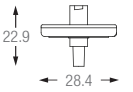
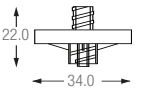
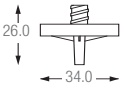
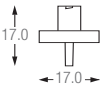
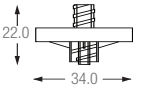
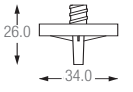
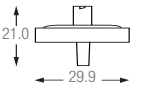
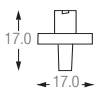
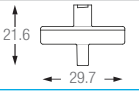
Ordering Information – ZC 13 mm Syringe Filters

Catalog Number	Membrane	Pore Size (µm)	Hydrophilic	Protein Binding	Solvent Resistance	Quantity/Pack
6840-1304	Nylon with Prefilter	0.45	Yes	High	Good	200
6841-1302	Nylon with Prefilter	0.2	Yes	High	Good	1000
6842-1304	PVDF with Prefilter	0.45	Yes	Low	Good	200
6843-1304	PVDF with Prefilter	0.45	Yes	Low	Good	1000
6844-1302	PTFE with Prefilter	0.2	No	Low	Excellent	200
6844-1304	PTFE with Prefilter	0.45	No	Low	Excellent	200

PTFE – Polytetrafluoroethylene
PVDF – Polyvinylidene difluoride

TECHNICAL DATA

FLL – Female luer lock
ML – Male luer
MLL – Male luer lock

Name	Dia. (mm)	Housing Material	Max. Operating Pressure (psi/bar)	Effective Filter Area (cm^2)	Hold-up Volume After Air Purging (μL)	Inlet	Outlet	Dimensions (mm)
Anotop 10, Anotop 10 Plus, Anotop 10 IC	10	PP	100/6.9	0.78	Anotop 10 & 1C: <20 Anotop 10 Plus: <30	FLL	ML	
Anotop 25, Anotop 25 Plus, Anotop 25 IC	25	PP	100/6.9	4.78	Anotop 25 & 1C: <150 Anotop 25 Plus: <200	FLL	ML	
GD/X 13	13	PP	100/6.9	1.3	50 (approx)	FLL	ML	
GD/X 25, GD/XP	25	PP	75/5.2	4.6	250 (approx)	FLL	ML	
Puradisc 4 with and without tip (all membranes apart from PVDF)	4	PP	75/5.2	0.2	< 10	FLL	ML	
Puradisc 4 with and without tip (PVDF membrane only)	4	PP	75/5.2	0.2	< 10	FLL	ML Tube Tip	
Puradisc 13	13	PP	75/5.2	1.3	< 25	FLL	ML	
Puradisc 13 with Tube Tip	13	PP	75/5.2	1.3	< 25	FLL	Tube Tip	
Puradisc 25	25	PP	75/5.2	4.2	< 100	FLL	ML	
Puradisc FP	30	PC	100/6.9	5.7	≤ 50	FLL	MLL	
Puradisc FP, Aqua 30	30	PC	100/6.9	5.7	≤ 50	FLL	ML	
ReZist 13, SPARTAN 13 with Mini-Tip	13	PP	100/6.9	0.75	≤ 10	FLL	Mini-Tip	
ReZist 30	30	PP	100/6.9	5.7	≤ 50	FLL	MLL	
ReZist 30, SPARTAN 30	30	PP	100/6.9	5.7	≤ 50	FLL	ML	
Roby 25	25	PP	100/6.9	4.2	≤ 50	FLL	ML	
SPARTAN 13	13	PP	100/6.9	0.75	≤ 10	FLL	ML	
ZC 13	13	PP	100/6.9	1.3	≤ 50	FLL	ML	

PRODUCT SELECTION

Chemical Compatibility of Membranes and Housings

Solvent	ANP	CA	CN	PC	PE	GMF	NYL	PP	DpPP	PES	PTFE	PVDF	RC
Acetic Acid, 5%	R	LR	R	R		R	R	R	R	R	R	R	R
Acetic Acid, Glacial	R	NR	NR			R	LR	R	R	R	R	R	NR
Acetone	R	NR	NR	NR	R	R	R	R	R	NR	R	NR	R
Acetonitrile	R	NR	NR			R	R	R	R	NR	R	R	R
Ammonia, 6N	NR		NR	NR	LR	LR	R	R	R	R	R	LR	LR
Amyl Acetate	LR	NR	NR	R	R	R	R	R	R	LR	R	LR	R
Amyl Alcohol	R	R	R			R	R	R	R	NR	R	R	R
Benzene*	R	R	R	LR	R	R	LR	LR	LR	R	R	R	R
Benzyl Alcohol*	R	LR	LR	LR	R	R	LR	R	R	NR	R	R	R
Boric Acid	R	R	R	R	R	R	LR	R	R		R	R	R
Butyl Alcohol	R	R	R	R	R	R	R	R	R	R	R	R	R
Butyl Chloride*						R	NR	NR	NR		R	R	
Carbon Tetrachloride*	R	NR	R	LR	R	R	LR	LR	LR	NR	R	R	R
Chloroform*	R	NR	R	NR	R	R	NR	LR	LR	NR	R	R	R
Chlorobenzene*	R		R	NR		R	NR	LR		NR	R	R	R
Citric Acid						R	LR	R		R	R	R	R
Cresol		NR	R			R	NR	R	R	NR	R	NR	R
Cyclohexanone	R	NR	NR			R	NR	R	R	NR	R	R	R
Cyclohexane	R	R	R	R	R	R	R	R	R	R	R	R	R
Diethyl Acetamide		NR	NR			R	R	R	R		R	NR	R
Dimethyl Formamide	LR	NR	NR			R	R	R	R	NR	R	NR	LR
Dioxane	R	NR	NR	NR	R	R	R	R	R	LR	R	LR	R
DMSO	LR	NR	NR	NR	R	R	R	R	R	NR	R	LR	LR
Ethanol	R	R	NR	R	R	R	R	R	R	R	R	R	R
Ethers	R	LR	LR	R	R	R	R	R	R	R	R	LR	R
Ethyl Acetate	R	NR	NR	LR	R	R	R	R	R	NR	R	LR	R
Ethylene Glycol	R	R	LR	R	R	R	R	R	R	R	R	R	R
Formaldehyde	LR	LR	R	R	R	R	R	R	R	R	R	R	R
Freon TF	R	R	R	R	R	R	R	R	R	R	R	R	
Formic Acid		LR	LR			R	NR	R	R	R	R	R	LR
Hexane	R	R	R	R	R	R	R	R	R	R	R	R	R
Hydrochloric Acid, Conc	NR	NR	NR	R	NR	R	NR	LR	LR	R	R	R	NR
Hydrofluoric Acid		NR	NR			NR	NR	LR	LR		R	R	NR
Isobutyl Alcohol	R	R	LR	R	R	R	R	R	R		R	R	R
Isopropyl Alcohol	R	R	LR			R	R	R	R		R	R	R
Methanol	R	R	NR	R	R	R	R	R	R	R	R	R	R
Methyl Ethyl Ketone	R	LR	NR	LR	R	R	R	R	R	NR	R	NR	R
Methylene Chloride*	R	NR	LR			R	NR	LR	LR	NR	R	R	R
Nitric Acid, Conc		NR	NR	R	NR	R	NR	NR	NR	NR	R	R	NR
Nitric Acid, 6N		LR	LR			R	NR	LR	LR	LR	R	R	LR
Nitrobenzene*	LR	NR	NR	NR	R	R	LR	R	R	NR	R	R	R
Pentane	R	R	R	R	R	R	R	R	LR	R	R	R	R
Perchloro Ethylene	R	R	R			R	R	R	LR	NR	R	R	R
Phenol 0.5%	LR	LR	R			R	R	R	R	NR	R	R	R
Pyridine	R	NR	NR	NR	R	R	LR	R	R	NR	R	R	R

CONTINUED ON PAGE 23

CONTINUED FROM PAGE 22

Chemical Compatibility of Membranes and Housings

Solvent	ANP	CA	CN	PC	PE	GMF	NYL	PP	dpPP	PES	PTFE	PVDF	RC
Sodium Hydroxide, 6N	NR	NR	NR	NR	NR	NR	LR	R	R	R	R	R	NR
Sulfuric Acid, Conc	NR	NR	NR	NR	NR	R	NR	NR	R	NR	R	R	NR
Tetrahydrofuran	R	NR	NR			R	R	LR	LR	NR	R	R	R
Toluene*	R	LR	R	LR	R	R	LR	LR	LR	NR	R	R	R
Trichloroethane*	R	NR	LR	NR	R	R	LR	R	R	NR	R	R	R
Trichloroethylene*	R		R			R	NR	R	R	NR	R	R	R
Water	R	R	R	R	R	R	R	R	R	R	R	R	R
Xylene*	R	R	R			R	LR	LR	LR	LR	R	R	R

R = Resistant; LR = Limited Resistance; NR = Not Recommended; * = Short Term Resistance of Housing
The above data is to be used as a guide only. Testing prior to application is recommended.

Material Abbreviations:

ANP – Anopore
CA – Cellulose acetate
CN – Cellulose nitrate
DpPP – Polypropylene depth filter
GMF – Glass microfiber
NYL – Nylon
PC – Polycarbonate
PE – Polyester
PES – Polyethersulfone
PP – Polypropylene
PTFE – Polytetrafluoroethylene
PVDF – Polyvinylidene difluoride
RC – Regenerated cellulose

MEMBRANE INFORMATION

Polytetrafluoroethylene (PTFE)/Teflon®:
Hydrophobic membrane. Resistant to organic solvents as well as strong acids and bases. Low protein binding. Low in extractables. Main applications are the filtration of non-aqueous samples. Prior to filtering of aqueous samples the membrane must be pre-wetted with a water-miscible organic solvent.

Polyvinylidene Difluoride (PVDF):
Hydrophilic membrane. Resistant to a broad range of organic solvents. Low protein binding.

Polypropylene (PP):
Hydrophobic membrane. Resistant to a wide range of organic solvents.

Polyethersulfone (PES):
Hydrophilic membrane. Broad solvent compatibility. Suitable for filtration of aqueous and compatible organic solvents. Higher liquid flow than either PTFE or PVDF. Low in extractables. Low protein binding.

Nylon/Polyamide (NYL):
Hydrophilic membrane. Resistant to a range of organic solvents. Suitable for use with high pH samples. Binds proteins hence not suitable for protein recovery applications.

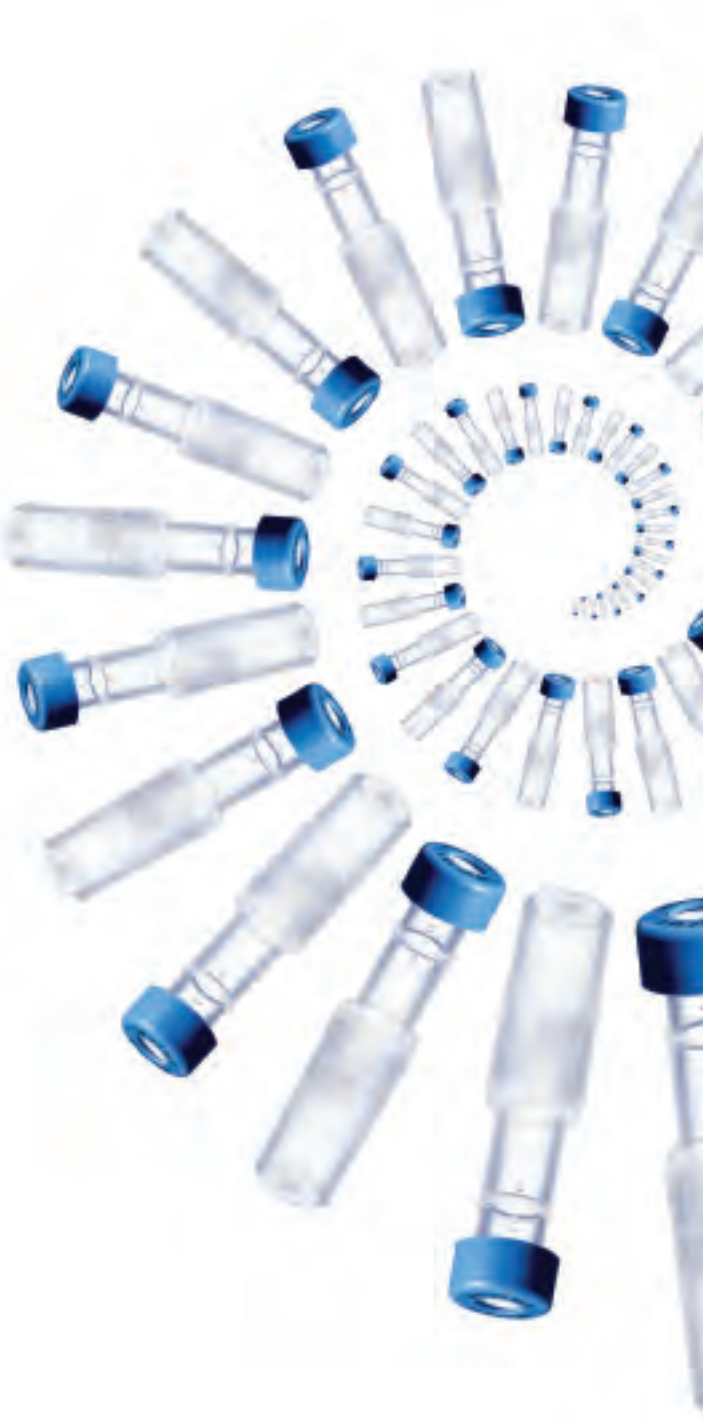
Cellulose Acetate (CA):
Hydrophilic membrane. Limited solvent resistance. Very low protein binding capacity and hence excellent for protein recovery applications.

Cellulose Nitrate (CN):
Hydrophilic membrane. Limited resistance to organic solvents. High liquid flow rate. High protein binding capacity and hence not suitable for protein recovery applications.

Regenerated Cellulose (RC):
Hydrophilic membrane. Resistant to a very wide range of solvents. Suitable for use with either aqueous solutions or organic solvents. Compatible with HPLC solvents. Very low protein binding capacity and hence excellent for protein recovery applications.

Anopore (ANP):
(membrane used in Anotop filters):
A membrane unique to Whatman. Anopore is a hydrophilic membrane with excellent organic solvent compatibility. Suitable for use with both aqueous and organic samples. The membrane has very tight pore-size distribution. Not suitable for use with very acidic or very basic samples.

Glass Microfiber/Glass Fiber (GMF/GF):
Hydrophilic material. Excellent compatibility with organic solvents and strong acids (apart from hydrofluoric acid) and bases. Either used as a prefilter or as a final filter.



Take Another Look at How You Work

Looking for a new way to address a familiar task? Whatman offers a wide range of product options so you have the flexibility to explore methods that maximize efficiency, performance and reliability.

NEW APPROACHES

Whatman Mini-UniPrep™ Syringeless Filters provide a faster, easier way to remove particulates from samples being prepared for High Performance Liquid Chromatography (HPLC) analysis using autosamplers. Process samples in one-third the time, lower costs by up to 40 percent and choose from among three design options to find the perfect syringeless filter for your needs.

Mini-UniPrep HPLC

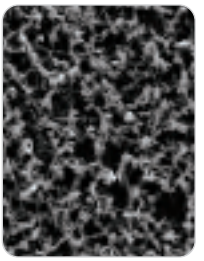
SCALE UP

Whether you conduct research or are moving from pilot manufacturing to full-scale production, explore how **Whatman capsule filters** can increase efficiency and value. Your choice of pore sizes and adhesive-free materials. Typically used with aqueous solutions, clean air/gas, odor removal, pharmaceuticals, smoke evacuation, vacuum protection and venting. **Whatman disk filters** are of equally high quality and value and can be trusted for critical healthcare applications involving aqueous solutions, blood and blood products, clean air/gas, pharmaceuticals, smoke evacuation, vacuum protection, syringe filtering and venting.

Capsule Filter

WE ALSO RECOMMEND

Regenerated Cellulose Membrane: For use in holders and funnels, this membrane has excellent chemical resistance to organic solvents. For use when purifying aqueous and organic solutions.



Regenerated Cellulose

VectaSpin™ Centrifuge Filters: Ideal for quick, easy preparation of laboratory samples. Pigment-free polypropylene eliminates sample contamination.

VectaSpin Micro

CENTREX® Centrifuge Filters: Your choice of filtration and separation media, both sterile and non-sterile.

CENTREX Centrifuge

Autovial™ Syringeless Filters: Replace your old syringe-coupled filtration device with a single, disposable unit. Whatman membranes are compatible with almost any sample.

Autovial Syringeless

ZapCap®: The ideal approach for filtering medium volumes, cell culture media and HPLC solutions with high and very high flow rates.

ZapCap

Whatman Quality

Whatman is a global leader in separations technology and is known in the scientific community for providing Innovative Life Science products and solutions. Our instinct for simplification accelerates the rate of discovery, reduces costs and saves time. For more information, visit **www.whatman.com**

North America
Whatman Inc.
200 Park Avenue, Suite 210
Florham Park, NJ 07932 USA
Tel: 1-800-WHATMAN (US and Canada)
Fax: 1-973-245-8329
Email: info@whatman.com

Europe
Whatman International Ltd.
Springfield Mill, James Whatman Way
Maidstone
Kent ME14 2LE UK
Tel: +44 (0)1622 676670
Fax: +44 (0)1622 677011
Email: information@whatman.com

Whatman GmbH
Hahnestrasse 3
D-37586 Dassel
Germany
Tel: +49 (0) 5564 204 100
Fax: +49 (0) 5564 204 533
Email: information@whatman.com

Japan
Whatman Japan KK
JPR Ichigaya Building 6F
4-7-15 Kudan-Minami,
Chiyoda-ku, Tokyo 102-0074 Japan
Tel: +81 (0)3 5215 1240
Fax: +81 (0)3 5215 1245
Email: japaninfo@whatman.com

Asia Pacific
Whatman Asia Pacific Pte Ltd.
1 Kim Seng Promenade #15-12
Great World City, West Tower
Singapore 237994
Tel: +65 6534 0138
Fax: +65 6534 2166
E-mail: wap@whatman.com

Whatman®

51706 (US) S9036-833 (EU) 3/07