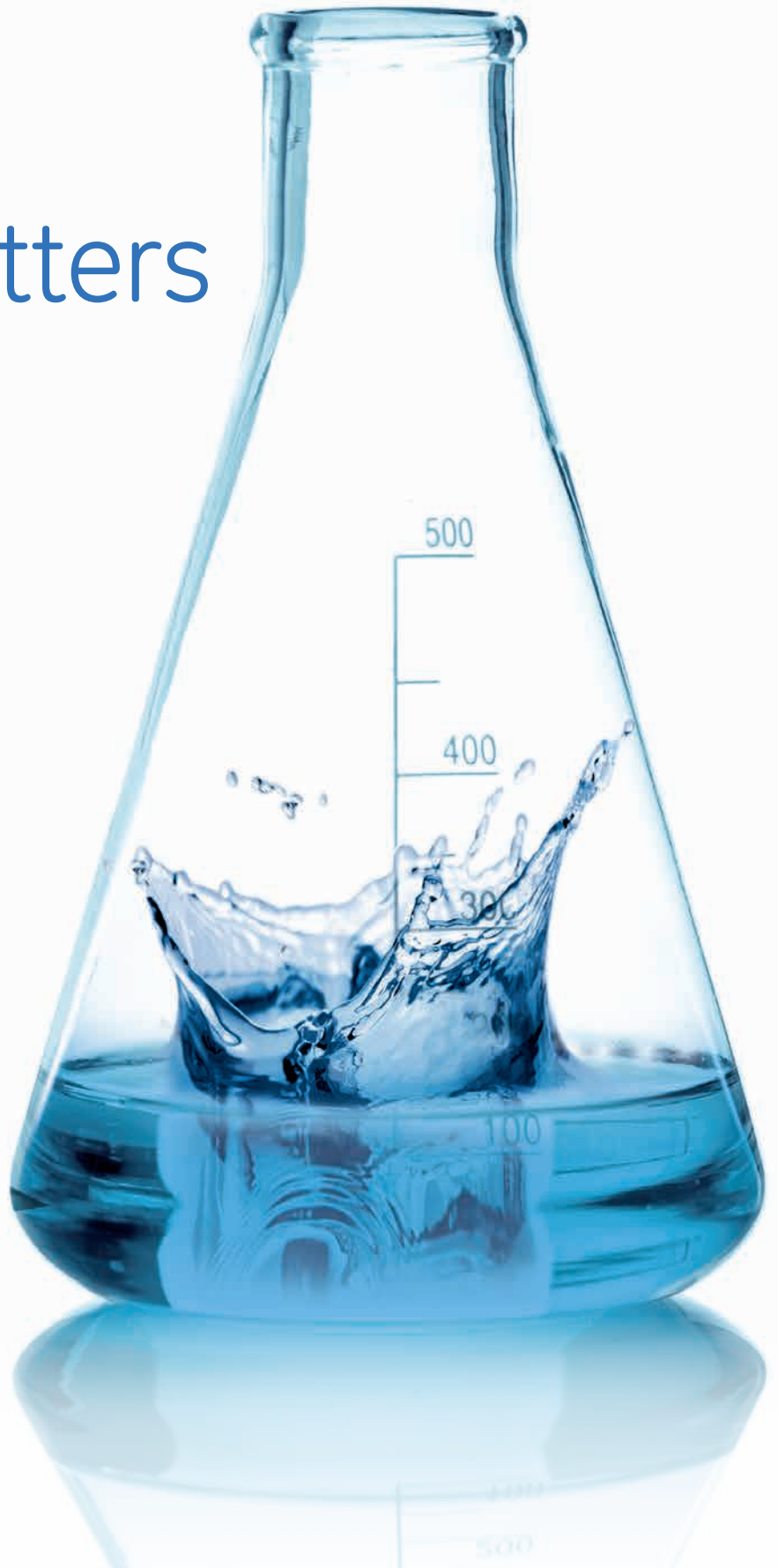


Quality matters

Whatman™ filters
for water monitoring



Quality matters

Why does quality matter to you?

Quality matters, because you need to focus on delivering accurate results on the quality of the water sample, without worrying about the quality of the consumables you use on a daily basis.

This is why GE Healthcare Life Sciences is committed to supporting you with high-quality Whatman filters that are:

- Manufactured in ISO certified facilities
- Reproducible, supporting consistent performance
- Qualified for specific water monitoring applications (e.g., determination of suspended solids in water)

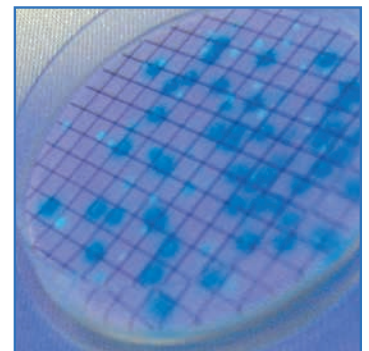
This brochure highlights the filtration solutions offered under the Whatman brand for the applications shown to the right.



Suspended solids determination



Sample preparation before chemical analysis



Membrane filtration for microbiological testing

Use our selection chart on page 3, select your application and we will guide you to the most suitable product.

What are you testing*?

What are the conditions?

We recommend

Suspended solids Page 4	Method EN 872	<ul style="list-style-type: none"> GF/C™ glass fiber filter 
	Method 2540D	<ul style="list-style-type: none"> 934-AH™ glass fiber filter 934-AH™ RTU* glass fiber filter 
Dissolved heavy metals Page 5	Filtration in the lab	<ul style="list-style-type: none"> GD/XP syringe filter 
	Filtration in the field (e.g., ground water analysis)	<ul style="list-style-type: none"> Polydisc GW disc Polycap GW capsule 
Dissolved ions (Ion Chromatography) Page 6		<ul style="list-style-type: none"> Anotop™ IC syringe filter 
Dissolved organic carbons (DOC) Page 6		<ul style="list-style-type: none"> Puradisc Aqua syringe filter 
Tests using HPLC, GC, and other analytical techniques Page 7	Hard-to-filter samples (e.g., high solid content)	<ul style="list-style-type: none"> Whatman GD/X™ syringe filter 
	Low solid content samples	<ul style="list-style-type: none"> Puradisc and SPARTAN™ syringe filters 
	HPLC/GC autosampler	<ul style="list-style-type: none"> Mini-UniPrep™ syringe filter range 
Bacterial count and/or detection Page 10	Membrane-based microbiology	<ul style="list-style-type: none"> Membrane filters Filtration manifold AS220 Membrane dispenser 

This list of applications is not exhaustive. Please contact your Fisher Scientific representative for more information

* RTU = Ready To Use

Determination of suspended solids

One of the most common parameters of water quality in raw water, waste water, and effluents is suspended solids. Most standard methods for the determination of suspended solids are based on glass microfiber media.

GF/C and 934-AH glass fiber filters

These filters are widely used in applications involving suspended solids in water.

Features and benefits:

- Conform to requirements of standard methodologies:
GF/C for EN 872;
934-AH for Standard Method 2540D
- High loading capacity enabling filtration of very turbid samples
- Retention of very fine particles
- Fast flow rates



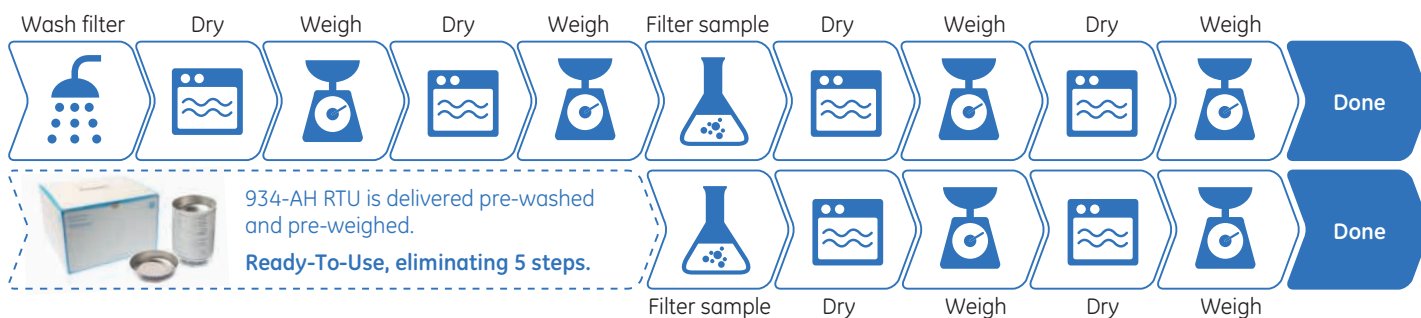
Fig 1. GF/C glass fiber filters meet the requirements of EN 872.

934-AH RTU: Ready-to-use format for time and cost savings

Features and benefits:

- Prewashed, preweighed according to 2540D
- Each pretreated filter comes in an aluminum pan, with the filter weight clearly noted
- Each pan has its own unique barcode

Method 2540D: 934-AH RTU vs traditional glass fiber filters



Ordering information -- Glass fiber filters, 100/pack

Diameter (mm)	Code no.	Code no.	Code no.
Grades	GF/C	934-AH	934-AH RTU preweighed, prewashed*
Typical particle retention (µm)**	1.2 µm	1.5 µm	1.5 µm
42.5	0987434	09873D	09924450
47	0987435	09873DD	09924451
55	0987436	09873E	09924452
70	0987438	09873F	-
90	0987439	09873G	09926301

* Each filter is supplied in an individual aluminum pan

** Particle retention rating at 98% efficiency

Analysis of dissolved heavy metals

Filtration of the water sample prior to dissolved heavy metals analysis is performed in the field at the point of sample collection, in the laboratory prior to analysis, or at both locations.

GD/XP syringe filters

GD/XP syringe filters can be used with samples that require inorganic ion analysis (e.g., trace metal analysis using ICP-MS).

Features and benefits:

- Prefilter made of polypropylene for minimization of ion extractables
- Integrated prefiltration with a dual-layer prefilter stack and one final 0.45 µm membrane
- Easy filtration of hard-to-filter samples

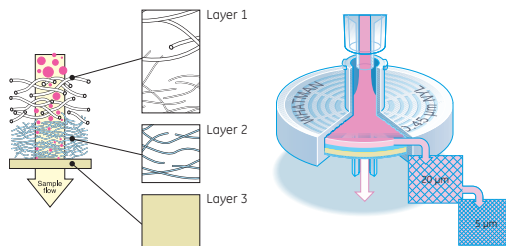


Fig 2. GD/XP syringe filters contain three filtration layers, which reduce blockage and increase volume throughput.

Ordering information -- GD/XP syringe filters

Pore size	Code no.	Code no.	Code no.	Code no.	Quantity
Membrane type	Nylon	PVDF	PP	PES	
0.45 µm	0993020	0993022	-	0993030	150/pack
0.45 µm	0993021	0993023	993029*	0993031	1500/pack

*Polypropylene depth filter

Polydisc GW and Polycap GW in-line filters

Polydisc GW and Polycap GW have been developed for the preparation of larger volumes of groundwater samples for the analysis of dissolved heavy metals.



Fig 3. Polydisc GW (left) and Polycap GW (right).

Ordering information -- In-line filters

Product	Code no.	Code no.	Code no.	Code no.
Quantity	1/pack	100/pack	20/pack	50/pack
Polydisc GW Filter 50 mm, nylon with quartz fiber prefilter, 0.45 µm	-	-	09927578	09927846
Polycap GW 75, 0.45 µm, PES membrane	05714036	05714037	-	-

Analysis of dissolved ions

Filters for sample preparation prior to ion chromatography testing should feature very low levels of anion leaching.

Anotop IC syringe filters

Whatman Anotop IC filters are suitable for the preparation of samples for subsequent Ion Chromatography.

These filters contain a proprietary alumina-based Anopore™ membrane that exhibits very low levels of anion leaching (e.g., fluoride, sulfide, nitrate, nitrite) during IC testing.

Features and benefits:

- Low levels of anion leaching
- Pigment-free PP housing to eliminate sample contamination



Fig 4. Anotop IC syringe filter.

Ordering information -- Anotop IC syringe filters

Membrane/pore size	Diameter	Quantity	Code no.
Aluminum oxide – 0.2 µm	10 mm	100/pack	09302122
Aluminum oxide – 0.2 µm	10 mm	200/pack	09302123
Aluminum oxide – 0.2 µm	25 mm	200/pack	09302125

Analysis of dissolved organic carbons

Typically, organic matter content can be measured as dissolved organic carbon (DOC), which is an important component of the carbon cycle. DOC is defined as the organic matter that is able to pass through a filter, typically one with a 0.45 µm pore size.

Puradisc Aqua 30 syringe filters

These filters are specifically designed for filtration of environmental samples prior to DOC analysis.

Features and benefits:

- The membranes used in these syringe filters are prewashed prior to assembly to reduce the organic carbon level
- Designed for aqueous samples



Fig 5. Puradisc Aqua 30 syringe filter.

Ordering information -- Puradisc Aqua syringe filters

Membrane/pore size	Diameter	Quantity	Code no.
Cellulose acetate – 0.45 µm	30 mm	50/pack	09302175
Cellulose acetate – 0.45 µm	30 mm	100/pack	09302176
Cellulose acetate – 0.45 µm	30 mm	500/pack	09302177

Chemical tests using HPLC, UHPLC, and other analytical techniques

We offer a complete range of filters for sample preparation for commonly used analytical techniques in water monitoring such as:

- HPLC or UHPLC
- Continuous flow analysis
- Gas chromatography (GC)

Discover regenerated cellulose!

Suitable for filtration of both aqueous and organic samples



Use the table below in order to identify the most suitable product for your analytical technique

Type	For low solid content samples		For hard to filter samples		HPLC/GC autosamplers	
Product	Puradisc	SPARTAN	Whatman GD/X	GD/XP	Mini-UniPrep	Mini-UniPrep G2
						
Main feature	<ul style="list-style-type: none"> • Wide range of membranes, pore sizes and diameters 	<ul style="list-style-type: none"> • Regenerated cellulose membrane • HPLC certified 	<ul style="list-style-type: none"> • For hard to filter samples 	<ul style="list-style-type: none"> • For hard to filter samples where analytes of interest are inorganic ions 	<ul style="list-style-type: none"> • All-in one filter and PLASTIC autosampler vial 	<ul style="list-style-type: none"> • All-in one filter and GLASS autosampler vial
Pre-Filter	No	No	Multilayer glass fiber prefilter GMF150 10-1 µm GF/F 0,7 µm	Multilayer polypropylene prefilter (20-5 µm)	No	No
Diameter	4, 13, 25, or 30 mm	13 or 30 mm	13 or 25 mm	25 mm	Once compressed equivalent to 12 mm x 32 mm vial	
Available pore sizes	0.1, 0.2, 0.45, 0.8, 1.0, 1.2, 5 µm	0.2 or 0.45 µm	0.2, 0.45, 0.7, 1.0, 1.2, 1.5, 2.7, 5.0 µm	0.45 µm	0.2 or 0.45 µm	0.2 or 0.45 µm
Membrane materials available	Cellulose acetate, Nylon, PES, PVDF, PP, PTFE	Regenerated cellulose	Cellulose acetate, Nylon, PES, PVDF, PP, PTFE, RC	Nylon, PES, PVDF, PP, PTFE	PTFE, RC, Nylon, PVDF, PES, PP, GMF	PTFE, Nylon, PVDF, PP

Ordering information -- Syringe filters and filter vials

Mini-UniPrep with polypropylene housing



Pore size	Housing	Cap	Code no.	Code no.	Code no.	Code no.	Code no.	Code no.	Quantity
Membrane type			PTFE	PVDF	Nylon	PP	RC	PES	
0.2 µm	Translucent	Standard	9923102	09923100	09923101	09923104	09924401	09927651	100/pack
0.45 µm	Translucent	Standard	0992328	0992325	0992329	0992331	09924400	0992330	100/pack
0.2 µm	Amber	Standard	09923250	09923248	09927815	09923252	-	09927632	100/pack
0.45 µm	Amber	Standard	09923256	09923253	09923255	09923258	-	09927816	100/pack
0.2 µm	Translucent	Slit septum	09923112	09923110	09923111	09923114	-	09923113	100/pack
0.45 µm	Translucent	Slit septum	09923119	09923115	09923118	09923121	-	-	100/pack

Mini-UniPrep G2 with inner glass storage vial (hand or multicompressor required for use)



Pore size	Housing	Cap	Code no.	Code no.	Code no.	Code no.	Quantity
Membrane type			PTFE	PVDF	Nylon	PP	
0.2 µm	Translucent	Standard	09924456	09924460	09924463	09924465	100 + 1 HC
0.2 µm	Translucent	Standard	09924455	09924459	-	09924464	100/pack
0.45 µm	Translucent	Standard	09924458	09924462	-	-	100 + 1 HC
0.45 µm	Translucent	Standard	09924457	09924461	-	-	100/pack
0.2 µm	Amber	Standard	09924466	09924467	-	-	100 + 1 HC
0.2 µm	Translucent	Slit septum	09924468	-	-	-	100 + 1 HC
0.45 µm	Translucent	Slit septum	09924469	-	-	-	100 + 1 HC

HC = Hand Compressor

Compressors for Mini-UniPrep

Compressor suitable for	Description	Code no.	Quantity
Mini-UniPrep G2 (glass vial)	Hand compressor - 1 position	09924470	1/pack
	Multi Compressor - 8 positions (includes 1 tray)	09924491	1/pack
Mini-UniPrep (plastic vial)	Multi Compressor - 6 positions	0992713	1/pack

SPARTAN syringe filters



Membrane	Pore size	Code no.	Code no.	Code no.	Quantity
Diameter		13 mm	13 mm with mini-tip	30 mm	
Regenerated cellulose	0.2 µm	09302144	09302142	09302150	100/pack
Regenerated cellulose	0.2 µm	09302145	09302143	09302151	500/pack
Regenerated cellulose	0.45 µm	09302148	09302146	09302153	100/pack
Regenerated cellulose	0.45 µm	09302149	09302147	09302154	500/pack

Puradisc syringe filters



*100 /pack;
** 500/pack

Pore size	Code no.	Code no.	Code no.	Code no.	Code no.	Code no.	Quantity
Membrane type/diameter	Nylon 25 mm	PVDF 25 mm	PTFE 25 mm	PP 25 mm	PES 25 mm	CA 30 mm	
0.2 µm	057101A	09302117	05713399	05713403	05713389	09302162*	200/pack
0.2 µm	057103A	-	22022733	05713404C	0991027	09-302-163**	1000/pack
0.45 µm	057101B	09302118	05713400	05713404*	05713390	09302166*	200/pack
0.45 µm	057103B	09806107	05713392	05713404A*	05713384	09-302-167**	1000/pack

GD/X syringe filters (glass fiber prefilter), 25 mm diameter



Pore size	Code no.	Code no.	Code no.	Code no.	Code no.	Code no.	Code no.	Quantity
Membrane type	Nylon	PVDF	PTFE	PP	PES	CA	RC	
0.2 µm	0992726C	0992728C	0992730C	0992733C	0992732C	0992734C	05713931	150/pack
0.2 µm	0992727C	0992729C	0992731C	-	09302104	-	-	1500/pack
0.45 µm	0992726D	0992728D	0992730D	0992733D	0992732D	0992734D	05713929	150/pack
0.45 µm	0992727D	0992729D	0992731D	09925145*	09302211	09302105	05713930	1500/pack

GD/XP syringe filters (polypropylene prefilter), 25 mm diameter



Pore size	Code no.	Code no.	Code no.	Code no.	Code no.	Quantity
Membrane type	Nylon	PVDF	PTFE	PP	PES	
0.45 µm	0993020	0993022	0993024	0993026	0993030	150/pack
0.45 µm	0993021	0993023	-	0993029*	0993031	1500/pack

Membrane filters for water filtration & mobile phase filtration applications

GE Healthcare offers a broad range of membrane materials for water filtration applications. A selection of our products for these applications are presented in the table below. Sterile membranes for microbiology are listed on page 10.



Fig 6. Whatman regenerated cellulose membranes.

Regenerated cellulose membranes - a good choice for filtration of aqueous and organic mobile phases

These membranes are compatible with most common HPLC solvents.

Ordering information -- Membranes filters circles

Membrane	Compatibility*	Pore size	Code no.	Code no.	Quantity
Diameter			47 mm	50 mm	
Regenerated cellulose	Aqueous and organic solutions	0.2 µm	09927571	09927574	100/pack
		0.45 µm	09927550	09927551	100/pack
Nylon	Aqueous and organic solutions (between pH 3 and 10)	0.2 µm	09927629	09927636	100/pack
		0.45 µm	09927669	09927672	100/pack
PTFE	Organic solutions	0.2 µm	09874619	09874620	50/pack
		0.45 µm	09301099	09874618	50/pack
Cellulose mixed ester	Aqueous solutions	0.2 µm	09927205	09927715	100/pack
		0.45 µm	09927611	09927612	100/pack
Cellulose acetate	Aqueous solutions	0.45 µm	09927380	09927382	100/pack
		0.8 µm	09927375	-	100/pack
Aluminum oxide (Anodisc™)	Aqueous and organic solutions	0.02 µm	0992637	-	50/pack
		0.1 µm	0992636	-	50/pack
		0.2 µm	09926300	-	50/pack
Polycarbonate (Nuclepore™)	Aqueous solutions	0.2 µm	0930069	09926310	100/pack
		0.4 µm	0930071	50371735	100/pack

Other pore sizes and diameters are available - Please contact your Fisher Scientific representative for more information

*Data to be used as a guide only. We recommend performing suitability testing before using a specific membrane in your application

Whatman GV050/2 vacuum filtration unit

Whatman GV050/2 vacuum filtration unit consists of a 250 ml glass filtration funnel and 1000 ml flask, funnel base, top, and clamp. It is a good choice for use with Whatman filtration membranes.



Fig 7. GV050/2 vacuum filtration unit.

Ordering information

Product	Quantity	Code no.
GV050/2 vacuum filter holder	1 per pack	09927396

Microbiological monitoring of water

Membrane filters

See the table below for a listing of membrane filters that meet the requirements of your local regulations and standards.

Membrane dispenser

With each turn a membrane filter is ejected and can be removed easily with a pair of tweezers.

- Cross contamination risks are minimized
- Membrane is dispensed rapidly



Fig 8. Membrane Butler (left) and AS220 filtration manifold mounted with 350 ml polypropylene funnel (right).

AS220 two place filtration manifold*

- Two filtration funnel volumes: 100 ml or 350 ml
- Both are usable with 47 mm or 50 mm diameter membranes
- Autoclavable polypropylene funnels (up to 50 times) for cost savings

STL format:

Some of our membranes are designed for use with most commercially available membrane dispensers, including GE Healthcare's Membrane Butler.



Ordering information -- Membrane filters

Membrane material	Membrane type	Pore size	Color	Sterile	STL format	Code no.	Code no.	Quantity
						47 mm	50 mm	
Cellulose mixed ester	ME type	0.2 µm	white	yes	no	09806212	09806213	100/pack
		0.2 µm	white	yes	yes	09806214	09806215	400/pack
		0.45 µm	white	yes	no	09806216	09927794	100/pack
		0.45 µm	white	yes	yes	12007320	09927366	400/pack
Cellulose nitrate	Microplus	0.45 µm	white	yes	no	09806209	08806210	100/pack
		0.45 µm	white	yes	yes	09927465	09927468	400/pack
		0.45 µm	black	yes	no	-	09806211	100/pack
		0.45 µm	black	yes	yes	09927469	-	400/pack
Polycarbonate	Nuclepore	0.2 µm	white	no	no	0930069	09926310	100/pack
		0.4 µm	white	no	no	0930071	50371735	100/pack
Nylon (Polyamide)	NL	0.4 µm	white	no	no	09927669	09927672	100/pack

Ordering information -- Membrane dispenser

Description	Code no.	Quantity
Membrane Butler - Manual version	09927267	1

* Please contact your Fisher Scientific representative for more information about this system

General laboratory accessories

In addition to the filtration consumable range, we provide a comprehensive range of accessories for routine work in your laboratory. The table below shows a selection of the products we offer.



1PS phase separator



Grade 105 lens cleaning tissue



Benchkote™ protection paper



pH paper



Vacu-Guard Pump protection filter

Description	Product name	Dimension	Code no.	Quantity
Phase separation paper <ul style="list-style-type: none"> • Separatory funnel replacement: Automatic cut-off • Ease of use: No special training required 	1PS Phase separator paper	Diam. 125 mm	0987454	100/pack
		Diam. 150 mm	0987456	100/pack
Optical lens cleaning tissue <ul style="list-style-type: none"> • Soft tissue for removing surface moisture and grease from lenses and other optical surfaces 	Grade 105	100 × 150 mm	08777100	25 wallets of 25 sheets
		200 × 300 mm	NC0129325	100/pack
Benchkote bench protection papers <ul style="list-style-type: none"> • High-quality, smooth, absorbent Whatman paper • Quickly absorbs liquid spills and protect the working surface • Benchkote Plus is thicker and more absorbent 	Benchkote	460 × 570 mm	12007180	50/pack
		460 mm × 50 m	12007182A	1/pack
	Benchkote Plus	500 × 600 mm	12007183A	50/pack
		600 mm × 50 m	12007183B	1/pack
pH Indicator Paper <ul style="list-style-type: none"> • Range of pH indicator and test papers for the rapid determination of pH values in many applications 	Color Bonded, 0.0 to 14.0 range	6 × 80 mm	0987617	100 strips, 1/pack
	Standard Full Range, Reel, 1.0 to 14.0 range	7 mm × 5 m	0987570	1/pack
	Standard Narrow Range, Reel, 4.0 to 7.0 range	7 mm × 5 m	0987572	1/pack
Pump protection filters <ul style="list-style-type: none"> • Protects vacuum pump systems from aqueous aerosols. Hydrophobic PTFE membranes retain 99,99% of airborne particles > 0.1 µm 	Vacu-Guard	50 mm	0974475	10/pack

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