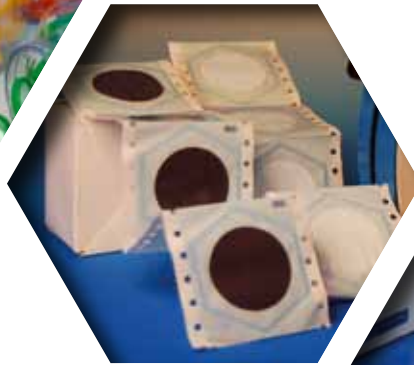




# FRISENETTE ApS



## Laboratory Filtration Products

2nd issue



## Introduction

We are proud to present this second issue of our catalogue with Frisenette products.

Frisenette ApS was founded in 1931 and is a leading manufacturer and distributor of filters, filtration equipment and consumables for laboratory use. Together with our suppliers we strive to assure customer access to the latest developments in laboratory filtration and consumables. This is reflected in our large and diversified product range which meets the requirements in any modern laboratory.

Our products are widely used in the pharmaceutical industry, public health, life science, chemical industry, food and beverage industry, environmental laboratories and the electronics industry. It is our aim to offer our customers highly competitive products and the best service.



*Frisenette ApS is located in Knebel, Denmark*

Beside our own brands, AGF® Filter- and Test papers, Q-Max® Syringe filters and MontaMil® Membrane filters, we are promoting products from ADVANTEC Toyo Kaisha, Ltd., GE Healthcare (Whatman), GE Water & Process Technologies (Osmonics), Macherey-Nagel GmbH & Co. KG, Munktell Filter AB, Gosselin, Deltalab S.A., Kima s.a.s. and Guangzhou Jet Bio-Filtration.

This catalogue includes our own range of laboratory filtration products: Q-Max® Syringe filters, MontaMil® Membrane filters, Glass- and Quartz fiber filters, Qualitative and Quantitative filter papers, pH papers, filter holders, pH strips and other paper based products.

In the catalogue you will find basic technical information for each product type. If you need any further information please do not hesitate to contact us or your local supplier of our products.

## **FRISENETTE ApS**



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## Q-Max® RR Syringe Filters

### Q-Max® RR Syringe Filters

- This second generation of **Q-Max®** syringe filters, **Q-Max® RR**, consists of 13 mm and 25 mm filters with a choice of seven different built-in filtration media.
- Choose between six membrane types and two types of glass micro fibers (GF).
- Each filtration media type\*, has its own colour code. Pore size (nominal retention for GF) is printed on each filter.
- **Q-Max® RR** syringe filters are supplied in boxes with 100 pcs. and in bulk packed boxes with 500 pcs.
- All **Q-Max® RR** syringe filters undergoes HPLC extractable tests.
- **Q-Max® RR** syringe filters are manufactured in accordance to ISO 9001.

\* Both types of PTFE, hydrophobic and hydrophilic, have the same colour.



### Specifications

	Q-Max® RR 13	Q-Max® RR 25
Housing material	Polypropylene	Polypropylene
Filtration area [cm <sup>2</sup> ]	0.92	2.98
Hold-up volume [µl]	<10	<30
Max. operating temp [°C]	50	50
Max. operating pressure [bar]	6	6
Recommended sample volume [ml]	<10	<50
Connections [inlet/outlet]	Female luer lock/male luer	Female luer lock/male luer

## Q-Max® RR NY

Nylon – naturally hydrophilic and mechanically strong membrane type with a low level of extractables. Suitable for filtration of aqueous and solvent based samples which makes this type ideal and a good choice for filtration of HPLC samples.



Size [mm]	Pore size [µm]	Packing [pcs.]	Cat. No.
13	0.22	100	13NY022-100
13	0.22	500	13NY022-500
13	0.45	100	13NY045-100
13	0.45	500	13NY045-500

Size [mm]	Pore size [µm]	Packing [pcs.]	Cat. No.
25	0.22	100	25NY022-100
25	0.22	500	25NY022-500
25	0.45	100	25NY045-100
25	0.45	500	25NY045-500

## Q-Max® RR CA

Cellulose Acetate membrane – ideal for filtration of aqueous based liquids, most alcohols and liquids containing proteins. CA membranes are considered as being the lowest protein binding membrane type available.



Size [mm]	Pore size [µm]	Packing [pcs.]	Cat. No.
13	0.22	100	13CA022-100
13	0.22	500	13CA022-500
13	0.45	100	13CA045-100
13	0.45	500	13CA045-500

Size [mm]	Pore size [µm]	Packing [pcs.]	Cat. No.
25	0.22	100	25CA022-100
25	0.22	500	25CA022-500
25	0.45	100	25CA045-100
25	0.45	500	25CA045-500

## Q-Max® RR PES

PES – Polyethersulphone membrane is a naturally hydrophilic membrane type and is among the most porous types available. Furthermore, this type is asymmetrical, which means that the pores are larger on the inlet side which gives a high throughput. It is ideal for filtration of aqueous based samples and has a low protein binding. PES is also recommended for ion chromatography.



Size [mm]	Pore size [µm]	Packing [pcs.]	Cat. No.
13	0.22	100	13PE022-100
13	0.22	500	13PE022-500
13	0.45	100	13PE045-100
13	0.45	500	13PE045-500

Size [mm]	Pore size [µm]	Packing [pcs.]	Cat. No.
25	0.22	100	25PE022-100
25	0.22	500	25PE022-500
25	0.45	100	25PE045-100
25	0.45	500	25PE045-500

## Q-Max® RR Syringe Filters

### Q-Max® RR PVDF

Polyvinylidene Difluoride membrane – slightly hydrophobic. Good solvent and acid resistance makes this type suitable for filtration of HPLC samples. Not recommended for filtration of aqueous based samples.



Size [mm]	Pore size [µm]	Packing [pcs.]	Cat. No.
13	0.22	100	13PV022-100
13	0.22	500	13PV022-500
13	0.45	100	13PV045-100
13	0.45	500	13PV045-500

Size [mm]	Pore size [µm]	Packing [pcs.]	Cat. No.
25	0.22	100	25PV022-100
25	0.22	500	25PV022-500
25	0.45	100	25PV045-100
25	0.45	500	25PV045-500

### Q-Max® RR GF

Glass micro fibers. The choice for final filtration of samples with a large number of particles or as a pre-filter for syringe filters with built-in membranes.



Size [mm]	Nominal Pore size [µm]	Packing [pcs.]	Cat. No.
13	0.7	100	13GF070-100
13	0.7	500	13GF070-500
13	1.0	100	13GF100-100
13	1.0	500	13GF100-500

Size [mm]	Nominal Pore size [µm]	Packing [pcs.]	Cat. No.
25	0.7	100	25GF070-100
25	0.7	500	25GF070-500
25	1.0	100	25GF100-100
25	1.0	500	25GF100-500



## Q-Max® RR Syringe Filters



### › Q-Max® RR PTFE

Polytetrafluoroethylene membrane – naturally **hydrophobic** with excellent resistance against solvents, bases and acids.

Size [mm]	Pore size [µm]	Packing [pcs.]	Cat. No.
13	0.22	100	13PT022-100
13	0.22	500	13PT022-500
13	0.45	100	13PT045-100
13	0.45	500	13PT045-500

Size [mm]	Pore size [µm]	Packing [pcs.]	Cat. No.
25	0.22	100	25PT022-100
25	0.22	500	25PT022-500
25	0.45	100	25PT045-100
25	0.45	500	25PT045-500

### › Q-Max® RR PTFE/L

**Hydrophilic** PTFE membrane with solvent, base and acid resistance like the hydrophobic type, but also suitable for filtration of aqueous samples which makes this type extremely versatile.

Size [mm]	Pore size [µm]	Packing [pcs.]	Cat. No.
13	0.22	100	13PL022-100
13	0.22	500	13PL022-500
13	0.45	100	13PL045-100
13	0.45	500	13PL045-500

Size [mm]	Pore size [µm]	Packing [pcs.]	Cat. No.
25	0.22	100	25PL022-100
25	0.22	500	25PL022-500
25	0.45	100	25PL045-100
25	0.45	500	25PL045-500

## Q-Max® GPF Syringe Filters

### Q-Max® GPF Syringe Filters

- **Q-Max® GPF** 25 mm syringe filters with built-in glass fiber pre-filters are specially designed to filter samples with many particles.
- Available with Cellulose Acetate membranes for aqueous based liquids and Nylon membranes for solvents and/or aqueous based liquids.
- Pore sizes 0.22 µm and 0.45 µm.
- Available in boxes of 100 pcs. or bulk packed in boxes of 500 pcs.



### Specifications

	Q-Max® GPF
Housing material	Polypropylene
Filtration area [cm <sup>2</sup> ]	4.08
Hold-up volume [µl]	<30
Max. operating temp [°C]	50
Max. operating pressure [bar]	6
Recommended sample volume [ml]	<100
Connections [inlet/outlet]	Female luer lock/male luer

### Q-Max® GPF with Cellulose Acetate membranes

Pore size [µm]	Packing [pcs.]	Cat. No.
0.22	100	25CAGF022-100
0.22	500	25CAGF022-500
0.45	100	25CAGF045-100
0.45	500	25CAGF045-500

### Q-Max® GPF with Nylon membranes

Pore size [µm]	Packing [pcs.]	Cat. No.
0.22	100	25NYGF022-100
0.22	500	25NYGF022-500
0.45	100	25NYGF045-100
0.45	500	25NYGF045-500

## Q-Max® CA-LS Sterile Syringe Filters

### Q-Max® CA-LS Sterile Syringe Filters

- Sterile 25 mm syringe filters with low protein binding Cellulose Acetate membranes.
- Main application is sterile filtration of aqueous solutions in volumes up to approx. 50 ml.
- Available pore sizes are 0.22 µm and 0.45 µm.
- **Q-Max® CA-LS** syringe filters are sterilized by radiation and are manufactured in accordance to ISO 9001.



### Specifications

	Q-Max® CA-LS
Housing material	Polypropylene
Filtration area [cm <sup>2</sup> ]	4.08
Hold-up volume [µl]	<30
Max. operating temp [°C]	50
Max. operating pressure [bar]	6
Recommended sample volume [ml]	<50
Connections [inlet/outlet]	Female luer lock/male luer

### Ordering information

Pore size [µm]	Packing [pcs.]	Cat. No.
0.22	100	CALS2502100S
0.45	100	CALS2504100S

## Q-Max® CA-Plus Sterile Syringe Filters

### Q-Max® CA-Plus Sterile Syringe Filters

- Sterile 25 mm syringe filters with low protein binding Cellulose Acetate membranes and built-in glass fiber pre-filter.
- Main application is sterile filtration of aqueous solutions in volumes up to approx. 100 ml.
- Available pore sizes are 0.22 µm and 0.45 µm.
- **Q-Max® CA-Plus** syringe filters are sterilized by radiation and are manufactured in accordance to ISO 9001.



### Specifications

Q-Max® CA-Plus	
Housing material	Polypropylene
Filtration area [cm <sup>2</sup> ]	4.08
Hold-up volume [µl]	<30
Max. operating temp [°C]	50
Max. operating pressure [bar]	6
Recommended sample volume [ml]	<100
Connections [inlet/outlet]	Female luer lock/male luer

### Ordering information

Pore size [µm]	Packing [pcs.]	Cat. No.
0.22	100	CAPS2502100S
0.45	100	CAPS2504100S

## Q-Max<sup>®</sup> Sterile Syringe Filters

### Q-Max<sup>®</sup> CA-S

Sterile 25 mm syringe filters with low protein binding Cellulose Acetate membranes.

- Main application is sterile filtration of aqueous solutions in volumes up to approx. 50 ml.
- Available pore sizes are 0.20 µm (blue) and 0.45 µm (yellow).
- **Q-Max<sup>®</sup> CA-S** syringe filters are sterilized by radiation and are manufactured in accordance to ISO 9001 and ISO 13485:2003.



#### Specifications

	Q-Max <sup>®</sup> CA-S
Housing material	Cyrolite <sup>®</sup>
Filtration area [cm <sup>2</sup> ]	4.15
Hold-up volume [µl]	70
Max. operating temp [°C]	50
Max. operating pressure [bar]	5
Sample volume [ml]	<50
Connections [inlet/outlet]	Female luer lock/male luer lock

#### Ordering information

Pore size [µm]	Cat. No.
0.20	CA250250S
0.45	CA250450S

50 pcs. per box

## Q-Max® Sterile Syringe Filters

### Q-Max® PES

Q-Max® PES sterile 25 mm syringe filters with low protein binding Polyethersulfone (PES) membranes.

- Main application is sterile filtration of aqueous solutions in volumes up to approx. 50 ml.
- Available pore sizes are 0.22 µm and 0.45 µm.
- Q-Max® PES syringe filters are sterilized by radiation and are manufactured in accordance to ISO 9001.



### Specifications

	Q-Max® PES
Housing material	Polypropylene
Filtration area [cm <sup>2</sup> ]	4.08
Hold-up volume [µl]	<30
Max. operating temp [°C]	90
Max. operating pressure [bar]	6.5
Sample volume [ml]	<50
Connections [inlet/outlet]	Female luer lock/male luer

### Ordering information

Pore size [µm]	Cat. No.
0.22	PES2502100S
0.45	PES2504100S

100 pcs. per box

## MontaMil® CA Membrane Filters

- MontaMil® Cellulose Acetate (CA) membrane filters are made from pure cellulose acetate modified to be the lowest binding filter available.
- The extremely low binding characteristics provide the highest throughput when filtering solutions containing proteins.
- CA is considered as the lowest protein binding membrane type available.
- CA membrane filters are relative strong and contain only a small amount of aqueous extractables.
- Standard diameters are 25 mm and 47 mm. Two pore sizes available.
- Autoclavable.



### Features

- Lowest binding material available
- High throughput
- Strong and dimension stable
- Uniform pores

### Applications

- Filtration and sterilization of protein and enzyme solutions
- Tissue culture media sterilization
- General filtration of aqueous solutions
- Filtration of most alcohols

## Specifications

Pore Size [μm]	Bubble Point [bar]	Water Flow Rate [ml/min/cm <sup>2</sup> ]	Air Flow Rate [L/min./cm <sup>2</sup> ]
0.22	4.0	18.5	2
0.45	3.1	40	4

## Ordering information

Pore size [μm]	Diameter [mm]	Packing [pcs.]	Cat. No.
0.22	25	100	CA025022
0.22	47	100	CA047022
0.45	25	100	CA025045
0.45	47	100	CA047045

## MontaMil® MCE Membrane Filters

- Mixed Cellulose Ester (MCE) is a mixture of Cellulose Nitrate and Cellulose Acetate.
- By adding Cellulose Acetate the surface of the membrane becomes smoother and more uniform than membranes made of pure Cellulose Nitrate.
- MCE membrane filters are one of the most porous membrane types available.
- Available as plain white.
- Standard diameters are 25 mm and 47 mm. Eight pore sizes available.
- Autoclavable.



### Features

- High porosity
- High purity
- Biological inert

### Applications

- Clarification and sterilization of aqueous liquids
- Particle analysis
- Air analysis

### Specifications

Pore Size [µm]	Bubble Point [bar]	Water Flow Rate [ml/min./cm <sup>2</sup> ]	Air Flow Rate [L/min./cm <sup>2</sup> ]
0.22	3.62	19	2
0.45	2.23	60	5
0.65	1.18	135	9
0.8	0.95	180	15
1.2	0.77	270	20
3	0.69	320	28
5	0.56	560	30
8	0.40	600	63

### Ordering information

Pore size [µm]	Diameter [mm]	Packing [pcs.]	Cat. No.	Pore size [µm]	Diameter [mm]	Packing [pcs.]	Cat. No.
0.22	25	100	MCE025022	1.2	25	100	MCE025120
0.22	47	100	MCE047022	1.2	47	100	MCE047120
0.45	25	100	MCE025045	3	25	100	MCE025300
0.45	47	100	MCE047045	3	47	100	MCE047300
0.65	25	100	MCE025065	5	25	100	MCE025500
0.65	47	100	MCE047065	5	47	100	MCE047500
0.8	25	100	MCE025080	8	25	100	MCE025800
0.8	47	100	MCE047080	8	47	100	MCE047800



## MontaMil® Nylon Membrane Filters

- MontaMil® Nylon membranes are naturally hydrophilic and will only release a negligible amount of extractables.
- Versatile – can be used for filtration of both aqueous liquids and most common solvents.
- MontaMil® Nylon membranes are plain white.
- Standard diameter 25 and 47 mm.  
Two pore sizes available.
- Autoclavable.



### Features

- Naturally hydrophilic
- Very strong
- Low level of extractables

### Applications

- HPLC solvent filtration and degassing
- General filtration of solvents

### Specifications

Pore Size [µm]	Bubble Point [bar]	Water Flow Rate [ml/min./cm <sup>2</sup> ]	Air Flow Rate [L/min./cm <sup>2</sup> ]
0.22	3.4	9.9	1.7
0.45	2.0	26.9	3.2

### Ordering information

Pore size [µm]	Diameter [mm]	Packing [pcs.]	Cat. No.
0.22	25	100	NY025022
0.22	47	100	NY047022
0.45	25	100	NY025045
0.45	47	100	NY047045

## MontaMil® PVDF Membrane Filters

- This type of MontaMil® PVDF is slightly hydrophobic. This means that the liquid to be filtered must contain approx. 30% organic solvent to ensure a proper filtration.
- Resistant to common solvents and several acids.
- It is not recommended to filter aqueous liquids with this type.
- Standard diameter 47 mm. Two pores sizes available.
- Autoclavable.



### Features

- Strong
- Low level of extractables
- Good solvent and acid resistance

### Applications

- Filtration and degassing HPLC mobile phases
- General solvent filtration

### Specifications

Pore Size [μm]	Thickness [μm]	Bubble Point [bar]	Air Flow Rate [ml/min/cm <sup>2</sup> ]	Porosity [%]
0.22	95	0.7 – 1.5	0.18	75 – 80
0.45	95	0.4 – 0.7	0.2	75 – 80

### Ordering information

Pore size [μm]	Diameter [mm]	Packing [pcs.]	Cat. No.
0.22	47	100	PV047022
0.45	47	100	PV047045

## MontaMil® PVDF-M Membrane Filters

- Hydrophilic PVDF membrane type.
- MontaMil® PVDF-M is a low protein binding membrane.
- Versatile – can be used for filtration of aqueous liquids and most organic solvents. Also resistant to several acids.
- Standard diameter 47 mm. Two pore sizes available.
- Autoclavable.



### Features

- Low protein binding
- Broad chemical resistance
- Strong

### Applications

- Filtration and degassing HPLC mobile phases
- Filtration of liquids containing proteins
- General filtration of solvents

### Specifications

Pore Size [µm]	Thickness [µm]	Bubble Point [bar]	Water Flow Rate [ml/min/cm²]	Air Flow Rate [ml/min/cm²]
0.22	125	≥3.45	6.7	2
0.45	125	≥1.55	29	4

### Ordering information

Pore size [µm]	Diameter [mm]	Packing [pcs.]	Cat. No.
0.22	47	100	PVM047022
0.45	47	100	PVM047045

## MontaMil® Polycarbonate Membrane Filters

- Made from a thin film with precise cylindrical pores.
- Higher pore density compared with traditional polycarbonate membrane filters.
- Narrow pore size distribution
- Very smooth – all particles will be retained on the surface.
- Ideal for microscopy applications.
- Autoclavable.
- Available as translucent and black\*.



\*) Black membranes do not resist all types of immersion oils. It is advised to test before use. E.g. Cargille immersion oil TYPE-A will work.

### Features

- Surface retention
- Precise pore sizes
- Biologically inert
- Non-staining
- Non-hygroscopic

### Applications

- Microbiology
- Microscopy
- Air analysis

## Specifications

Pore Size [µm]	Thickness [µm]	Pore Density [mio./cm²]	Water Flow Rate* [ml/min/cm²]	Air Flow Rate* [l/min/cm²]
0.2	25	500	10	3.5
0.4	25	150	45	8.5
0.8	24	40	90	16.0

\* at 10 PSI

## Ordering information

Pore Size [µm]	Diameter [mm]	Colour	Packing	Cat. No.
0.2	25	Black	100	PCB025020
0.2	25	White/Translucent	100	PCC025020
0.2	47	White/Translucent	100	PCC047020
0.4	25	White/Translucent	100	PCC025040
0.4	47	White/Translucent	100	PCC047040
0.8	25	White/Translucent	100	PCC025080

## MontaMil®

### MCE Membrane Filters – Sterile

- Mixed Cellulose Ester (MCE) is a mixture of Cellulose Nitrate and Cellulose Acetate. By adding Cellulose Acetate the surface of the membrane becomes smoother and more uniform than pure Cellulose Nitrate.
- White membranes with black grids.
- Standard diameters 47 mm and 50 mm.
- Pore sizes 0.22 µm and 0.45 µm.



#### Features

- High porosity
- High purity – Triton-free
- Biological inert

#### Applications

- Microbiological control of water, beverages, pharmaceuticals

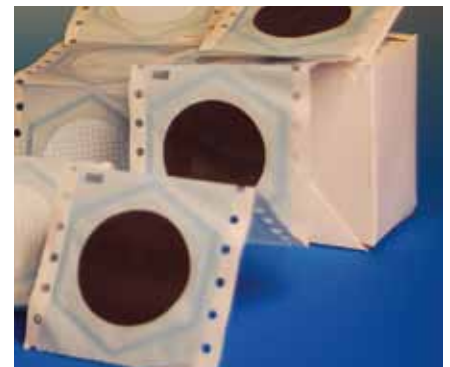
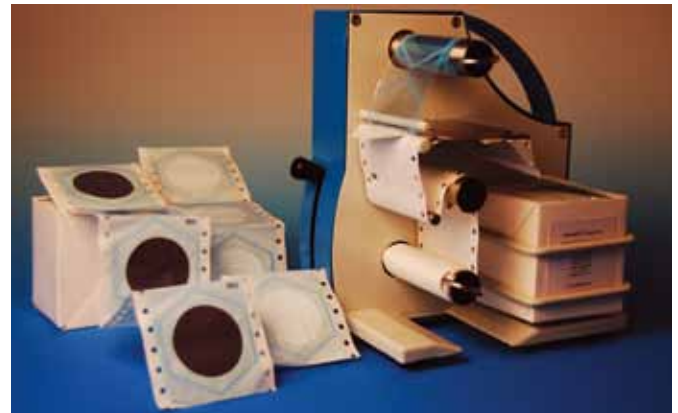
#### Ordering information – Sterile MCE white gridded

Pore size [µm]	Diameter [mm]	Packing [pcs.]	Cat. No.
0.22	47	200	MCEWGS047022
0.22	50	200	MCEWGS050022
0.45	47	200	MCEWGS047045
0.45	50	200	MCEWGS050045

## MontaMil® EasyPick

### Sterile Membrane Filters & Dispenser

- Mixed Cellulose Ester (MCE) is a mixture of Cellulose Nitrate and Cellulose Acetate. By adding Cellulose Acetate the surface of the membrane becomes smoother and more uniform than membranes made of pure Cellulose Nitrate.
- White and black gridded membrane filters
- Standard diameters 47 mm and 50 mm
- Pore size 0.45 µm
- Membranes are manufactured in accordance to ISO 9001 and comply with ISO 7704.
- Mechanical dispenser. MontaMil® EasyPick membranes can also be used with other dispensers.



#### Ordering information

Colour	Pore Size [µm]	Diameter [mm]	Packing	Cat. No.
White with grids	0.45	47	150	MCEWGSZ047045
White with grids	0.45	50	150	MCEWGSZ050045
Black with grids	0.45	47	150	MCEBGSZ047045
Black with grids	0.45	50	150	MCEBGSZ050045

#### ► Dispenser

#### Ordering information

	Cat. No.
Membrane dispenser	MM-DISP



## Glass Fiber Filters

- Glass fiber filters are made of 100% borosilicate glass without binder.
- Resist temperatures up to 500°C, have a good chemical resistance and are biological inert.
- Compared with filter papers glass fiber filters offer a high loading capacity, faster filtration speed and a more efficient filtration.
- Glass fiber filters should be used flat.



### Specifications and application examples

Grade	Retention <sup>1</sup> [µm]	Weight [g/m <sup>2</sup> ]	Thickness [mm]	Filtration speed <sup>2</sup> [sec.]	Application examples
<b>GA</b>	1.6	52	0.26	60	Air analysis. Suspended solids in waste water according to EN872:2005.
<b>GB</b>	1.0	143	0.70	200	Thick filter with good retention of difficult-to-filter suspensions.
<b>GC</b>	1.2	52	0.26	100	Suspended solids in waste water according to EN872:2005. Cell harvesting.
<b>GD</b>	2.7	120	0.53	30	Ideal as pre-filter for membranes.
<b>GF</b>	0.7	75	0.45	310	Collection of fine proteins and algae.

1) Approx. 98% of particles with the stated size will be retained by the filter

2) According to Herzberg

### Ordering information

Diameter/ Size [mm]	GA		GB		GC		GD		GF	
	Packing	Cat. No.	Packing	Cat. No.	Packing	Cat. No.	Packing	Cat. No.	Packing	Cat. No.
25	100	GA.025	50	GB.025	100	GC.025	50	GD.025	100	GF.025
37	100	GA.037	50	GB.037	100	GC.037	50	GD.037	100	GF.037
42.5	100	GA.042	50	GB.042	100	GC.042	50	GD.042	100	GF.042
47	100	GA.047	50	GB.047	100	GC.047	50	GD.047	100	GF.047
55	100	GA.055	50	GB.055	100	GC.055	50	GD.055	100	GF.055
70	100	GA.070	50	GB.070	100	GC.070	50	GD.070	100	GF.070
90	100	GA.090	50	GB.090	100	GC.090	50	GD.090	50	GF.090
110	100	GA.110	25	GB.110	100	GC.110	25	GD.110	50	GF.110
125	100	GA.125	25	GB.125	100	GC.125	25	GD.125	50	GF.125
150	100	GA.150	25	GB.150	100	GC.150	25	GD.150	50	GF.150
185	50	GA.185	25	GB.185	50	GC.185	25	GD.185	50	GF.185
240	50	GA.240	25	GB.240	50	GC.240	25	GD.240	50	GF.240
203 x 254	100	GA.203254	25	GB.203254	100	GC.203254	25	GD.203254	50	GF.203254
460 x 570	25	GA.460570	25	GB.460570	25	GC.460570	25	GD.460570	25	GF.460570

## Quartz Fiber Filters

- Quartz Fiber Filters are made of 100% pure quartz and are binder-free.
- Quartz has an excellent temperature resistance, up to 900°C, and has low content of trace elements.



### Applications

- Emission control
- Exhaust gas control
- Air pollution analysis

### Specifications

Type	Weight [g/m <sup>2</sup> ]	Retention efficiency [%] 0,3 µm DOP
QF	85	99.998

### Trace Elements, typical values [ppm]

Al	As	Ba	Ca	Cd	Co	Cr	Cu	Fe	Mg	Mn	Na	Ni	Pb	Sr	Ti	V	Zn
300	<0.1	10	250	0.002	<0.5	2	2	50	25	2	100	2	<1	3	<1	<5	6

### Ordering information, grade QF

Diameter / size [mm]	Packing	Cat. No.
25	50	QF.025
37	50	QF.037
45	50	QF.045
47	50	QF.047
55	50	QF.055
70	50	QF.070
80	50	QF.080
85	50	QF.085
90	50	QF.090
110	50	QF.110
118	50	QF.118
150	50	QF.150
203 x 254	25	QF.203254



## Qualitative Filter Papers





- Extremely pure filter paper made from almost 100% alpha cotton cellulose.
- Ash content approx. 0.06%.
- Four types with different filtration speed and retention characteristics available.
- Available as plain circles and pre-pleated ready to use.
- Boxes are clearly labeled with colour code, type, grade, filtration characteristics and retention efficiency.



### Applications





- Clarify and remove precipitates
- Preparation for qualitative analysis

### Specifications

Grade	Retention [ $\mu\text{m}$ ]	Weight [ $\text{g}/\text{m}^2$ ]	Thickness [mm]	Filtration speed [sec.]*
 <b>204</b>	12-15	80	0.16	10 (fast)
 <b>201</b>	8-12	80	0.16	20 (medium/fast)
 <b>202</b>	5-8	87	0.16	50 (medium)
 <b>205</b>	2-3	80	0.14	180 (slow)





\*According to DIN 53137

### Ordering information, plain circles

 <b>Grade 204</b>		 <b>Grade 201</b>		 <b>Grade 202</b>		 <b>Grade 205</b>	
Diam. [mm]	Cat. No.	Diam. [mm]	Cat. No.	Diam. [mm]	Cat. No.	Diam. [mm]	Cat. No.
55	204.055	55	201.055	55	202.055	55	205.055
70	204.070	70	201.070	70	202.070	70	205.070
90	204.090	90	201.090	90	202.090	90	205.090
110	204.110	110	201.110	110	202.110	110	205.110
125	204.125	125	201.125	125	202.125	125	205.125
150	204.150	150	201.150	150	202.150	150	205.150
185	204.185	185	201.185	185	202.185	185	205.185
240	204.240	240	201.240	240	202.240	240	205.240
270	204.270	270	201.270	270	202.270	270	205.270

Packing: 100 pcs. pr. box

### Ordering information, pleated

 <b>Grade 204F</b>		 <b>Grade 201F</b>		 <b>Grade 202F</b>		 <b>Grade 205F</b>	
Diam. [mm]	Cat. No.	Diam. [mm]	Cat. No.	Diam. [mm]	Cat. No.	Diam. [mm]	Cat. No.
110	204F.110	110	201F.110	110	202F.110	110	205F.110
125	204F.125	125	201F.125	125	202F.125	125	205F.125
150	204F.150	150	201F.150	150	202F.150	150	205F.150
185	204F.185	185	201F.185	185	202F.185	185	205F.185
240	204F.240	240	201F.240	240	202F.240	240	205F.240
320	204F.320	320	201F.320	320	202F.320	320	205F.320

Packing: 100 pcs. pr. box

## Quantitative Filter Papers

- Quantitative (ashless) filter papers are made from 100% cotton linters and are free from impurities since the paper is acid washed and cleaned with ultra pure water.
- The ash content is 0.007%.
- Four types with different filtration speed and retention characteristics.
- Available as plain circles and pre-pleated ready to use.
- Boxes are clearly labeled with colour code, type, grade, filtration characteristics and retention efficiency.



### Applications

- Environmental analysis
- Gravimetric analysis

### Specifications

Grade	Retention [µm]	Weight [g/m <sup>2</sup> ]	Thickness [mm]	Filtration speed [sec.]*
441	12-15	84	0.18	10 (fast)
442	8-12	84	0.17	20 (medium/fast)
440	5-8	84	0.16	50 (medium)
444	2-3	84	0.14	180 (slow)

\*According to DIN 53137

### Ordering information, plain circles

Grade 441		Grade 442		Grade 440		Grade 444	
Diam. [mm]	Cat. No.	Diam. [mm]	Cat. No.	Diam. [mm]	Cat. No.	Diam. [mm]	Cat. No.
55	441.055	55	442.055	55	440.055	55	444.055
70	441.070	70	442.070	70	440.070	70	444.070
90	441.090	90	442.090	90	440.090	90	444.090
110	441.110	110	442.110	110	440.110	110	444.110
125	441.125	125	442.125	125	440.125	125	444.125
150	441.150	150	442.150	150	440.150	150	444.150
185	441.185	185	442.185	185	440.185	185	444.185
240	441.240	240	442.240	240	440.240	240	444.240
270	441.270	270	442.270	270	440.270	270	444.270

Packing: 100 pcs. pr. box

### Ordering information, pleated

Grade 441F		Grade 442F		Grade 440F		Grade 444F	
Diam. [mm]	Cat. No.	Diam. [mm]	Cat. No.	Diam. [mm]	Cat. No.	Diam. [mm]	Cat. No.
110	441F.110	110	442F.110	110	440F.110	110	444F.110
125	441F.125	125	442F.125	125	440F.125	125	444F.125
150	441F.150	150	442F.150	150	440F.150	150	444F.150
185	441F.185	185	442F.185	185	440F.185	185	444F.185
240	441F.240	240	442F.240	240	440F.240	240	444F.240
320	441F.320	320	442F.320	320	440F.320	320	444F.320

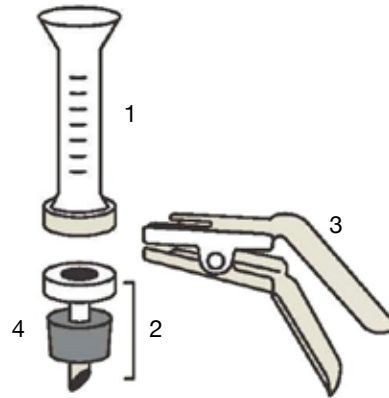
Packing: 100 pcs. pr. box

## Glass Filter Holders – 25 mm

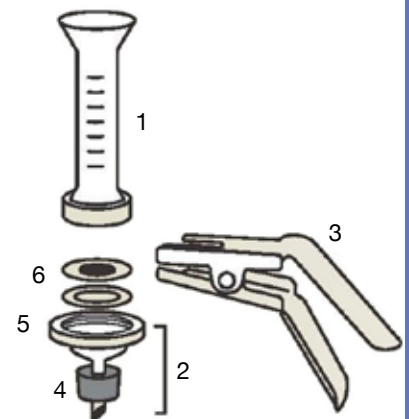
- For 25 mm filters. Made of borosilicate glass.
- Choose between sintered glass support and stainless steel support.
- **Sintered glass support** for microbiological and particle analysis. Model 25-SG.
- **Stainless steel support** for producing a clean filtrate and for filtration of solutions containing proteins. Model 25-SS.
- Funnel capacity is 22 ml. Graduated to 15 ml.
- Holders are supplied complete with funnel, base, clamp and silicone stopper.



**25-SG**



**25-SS**



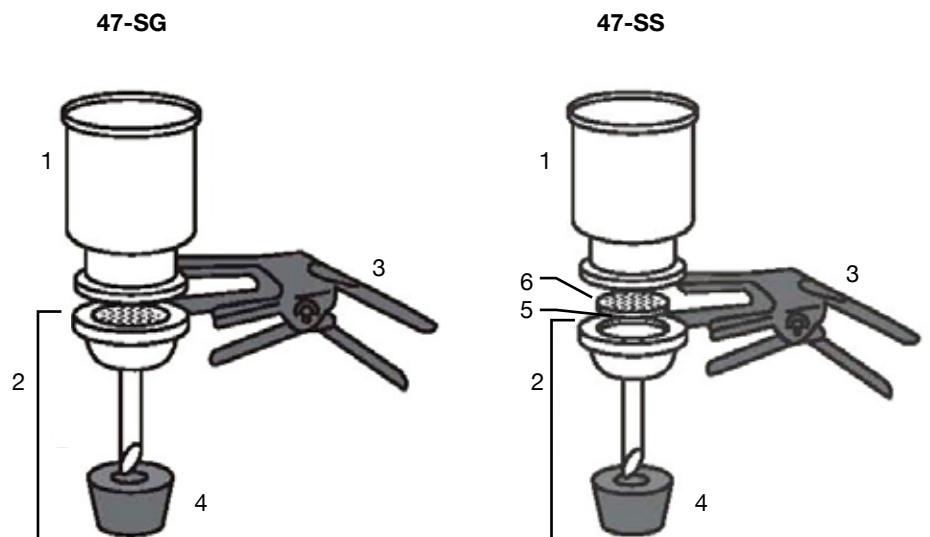
### Ordering information

Model	25-SG	25-SS
Cat. No.	258100	259100

Spare Parts	25-SG	25-SS
1 Funnel	257101	257101
2 Base incl. stopper	257102	257103
3 Clamp	257104	257104
4 Stopper No. 5	257105	257105
5 PTFE gasket	-	257106
6 Stainless steel screen	-	257107

## Glass Filter Holders – 47 mm

- For 47 mm filters. Made of borosilicate glass.
- Choose between sintered glass support and stainless steel support.
- **Sintered glass support** for microbiological and particle analysis. Model 47-SG.
- **Stainless steel support** for producing a clean filtrate and for filtration of solutions containing proteins. Model 47-SS.
- Funnel capacity is 300 ml. Graduated to 250 ml.
- Holders are supplied complete with funnel, base, clamp and silicone stopper.



### Ordering information

Model	47-SG	47-SS
Cat. No.	478100	479100

Spare Parts	47-SG	47-SS
1 Funnel	477101	477101
2 Base incl. stopper	477102	477103
3 Clamp	477104	477104
4 Stopper No. 8	477105	477105
5 PTFE gasket	-	477106
6 Stainless steel screen	-	477107

## Adapter for bottles with GL 45 thread

- Filter directly to receiver bottle.
- No need to transfer the filtrate from a suction flask.
- Ideal for use with Filter Holder 47-SS (see page 28) for filtration and degassing of HPLC mobile phases.
- Solid polypropylene construction with silicone stopper and o-ring.

*Note: only use with pressure tested glass bottles.*



### ► Description

	Cat. No.
Complete adapter with stopper and o-ring	445.709
Spare stopper	445.711
Spare o-ring	445.715

### Example of set-up

- Pressure tested glass bottle (not available from Frisenette)
- Adapter
- Model 47-SS filter holder with stainless steel filter support



## Extraction Thimbles

- Cellulose extraction thimbles made of pure cotton linters completely free from impurities and are fat free.
- Thimbles hold solid material from which certain substances are eluted e.g. fat from foodstuffs.
- Dimensions are inside diameter x length.
- Standard wall thickness is approx. 1.5 mm.



### Applications

- Soxhlet extractions
- Dust sampling

### Ordering information

Size [mm]	Packing	Cat. No.
19 x 90	25	610.199
22 x 80	25	610.228
25 x 80	25	610.258
25 x 100	25	610.250
26 x 60	25	610.266
28 x 80	25	610.288
28 x 100	25	610.280
30 x 80	25	610.308
30 x 100	25	610.300
33 x 80	25	610.338
33 x 94	25	610.339
33 x 100	25	610.331
33 x 118	25	610.318
35 x 150	25	610.351
41 x 123	25	610.412

## Seed Testing Papers

- For germination tests.
- Available as circles, circles with a slit for wick and sheets.
- The paper has a thickness of approx. 0.30 mm. and a weight of approx. 140 g/m<sup>2</sup>.
- Standard sizes for circles are 75 mm and 85 mm.
- Standard size for wicks is 18 x 310 mm.
- Standard sizes for sheets are 48 x 48 cm and 62 x 62 cm.
- Special cuts available on request.



### Ordering information

#### Circles

Diameter [mm]	Packing	Cat. No.
75	5.000	127.075
85	5.000	127.085

#### Circles – with slit for wick

Diameter [mm]	Packing	Cat. No.
75	5.000	127.175
85	5.000	127.185

#### Wicks

Size [mm]	Packing	Cat. No.
18 x 310	2.500	127.018310

#### Sheets

Size [mm]	Packing	Cat. No.
480 x 480	500	124.948
620 x 620	500	124.962

# Table Protection Paper

## LAB-SORB Plus™

- Absorbent filter paper with a non permeable plastic backing for laboratory bench protection.
- Absorption capacity approx. 200 ml/m<sup>2</sup>.
- Available as sheets and rolls.



### Ordering information, sheets

Size	Packing	Cat. No.
46 x 57 cm	100	KM20P.4657

### Ordering information, rolls

Size	Packing	Cat. No.
50 cm x 50 m	1	KM20P.5050
60 cm x 50 m	1	KM20P.6050

## Creped Paper, AGF 132

- Strong paper for protection of tables, shelves, drawers etc.
- Available as sheets.



### Ordering information, sheets

Size	Packing	Cat. No.
48 x 59 cm	500	150.959



## pH Test Paper and Test Strips

### pH Test Paper

- Fast and easy measurements of pH value in liquids.
- Available as universal types which cover a large area of the pH range and types which give a more precise measurement of the pH value.
- Dip a piece of suitable length of the indicator paper in the liquid for a few seconds and compare with the colour scale.
- pH Test Papers are available as rolls with a length of 5 m in a plastic dispenser. Colour scale included.



### Specifications

pH range	pH graduations												Cat. No.
1 – 14	1	2	3	4	5	6	7	8	9	10	12	14	91135
0 – 10	0	1	2	3	4	5	6	7	8	9	10	91134	
1 – 11	1	2	3	4	5	6	7	8	9	10	11	91124	
0.5 – 5	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	91130		
4 – 7	4	4.5	5	5.5	6	6.5	7	91125					
5 – 9	5	5.5	6	6.5	7	7.5	8	8.5	9	91131			
6.5 – 10	6.5	7	7.5	8	8.5	9	9.5	10	91132				
9 – 13	9	9.5	10	10.5	11	11.5	12	12.5	13	91133			
3.8 – 5.8	3.8	4.1	4.3	4.5	4.7	4.9	5.2	5.5	5.8	91137			
4 – 7	4	4.3	4.6	4.9	5.2	5.5	5.8	6.1	6.4	6.7	7	91138	
6.4 – 8	6.4	6.7	7	7.2	7.4	7.7	8	91140					
7.2 – 9.7	7.2	7.5	8	8.5	8.8	9.2	9.7	91139					
8 – 10	8	8.2	8.4	8.7	9	9.2	9.6	10	91141				
12 – 14	12	12.5	13	13.5	14	91136							

### pH Test Strips

- Fast and easy measurements of pH value in liquids.
- Available as a universal type which covers the full pH range and types which give a more precise measurement of the pH value.
- Dip the indicator strip in the liquid for a few seconds and compare with the colour scale.
- Plastic box with 100 strips and colour scale.



### Specifications

pH range	pH graduations												Cat. No.			
0 – 14	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	101021
0.5 – 5	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	101023					
5.5 – 9	5.5	6	6.5	7	7.5	8	8.5	9	101024							
9.5 – 13	9.5	10	10.5	11	11.5	12	12.5	13	101025							





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