

GLASS FIBER FILTERS

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 ¹ [µm]	Weight [g/m ²]	Thickness [mm]	Filtration speed ² [sec.]	Application examples
GA	1.6	52	0.26	60	Air analysis. Suspended solids in waste water according to EN872:2005
GB	1.0	143	0.70	200	Thick filter with good retention of difficult-to-filter suspensions
GC	1.2	52	0.26	100	Suspended solids in waste water according to EN872:2005. Cell harvesting
GD	2.7	120	0.53	30	Ideal as pre-filter for membranes
GF	0.7	75	0.45	310	Collection of fine proteins and algae
GH	1.5	65	0.28	60	Suspended solids in waste water

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

2) According to Herzberg

Ordering information

Dia- meter/ [mm]	GA		GB		GC		GD		GF		GH	
	Packing	Cat. No.	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	100	GH.025
37	100	GA.037	50	GB.037	100	GC.037	50	GD.037	100	GF.037	100	GH.037
47	100	GA.047	50	GB.047	100	GC.047	50	GD.047	100	GF.047	100	GH.047
55	100	GA.055	50	GB.055	100	GC.055	50	GD.055	100	GF.055	100	GH.055
70	100	GA.070	50	GB.070	100	GC.070	50	GD.070	100	GF.070	100	GH.070
90	100	GA.090	50	GB.090	100	GC.090	50	GD.090	50	GF.090	100	GH.090
110	100	GA.110	25	GB.110	100	GC.110	25	GD.110	50	GF.110	100	GH.110
125	100	GA.125	25	GB.125	100	GC.125	25	GD.125	50	GF.125	100	GH.125
150	100	GA.150	25	GB.150	100	GC.150	25	GD.150	50	GF.150	100	GH.150

Glass Fiber and Quartz Fiber filters are perhaps the most highly engineered fibrous filtration media available for research and industrial applications.

Glass microfibers, the starting raw material, are entirely man-made. Since the ultimate retention characteristics of the filter paper are determined by the microfiber diameter, rigid manufacturing controls are imposed to produce consistent, controlled diameter fibers. Typical diameters range from 0.5 to 1.0 μm .

Once compacted, these fibers form a dense, random fiber matrix. When used in aqueous filtration, high flow rates and high loading capacities are observed as particles are entrapped within the filter matrix.

Chemical resistance, pH resistance and biological inertness are maximized since the fibers are borosilicate glass. Thermal resistance can be increased from 500°C to 1000°C by reinforcing the fiber within alumina binder.

Glass fiber filters with binder are recommended for long duration filtrations under pressure.

Glass fiber filters without binder are recommended for analytical and gravimetric determinations.



Glass Fiber Filters



Quartz Fiber Filters

Glass Fiber Filters

Characteristics

- **Dense**
- **Highly resistant** to chemical attack, biologically inert
- **Easily sterilized:** Can be baked or autoclaved
- **Store indefinitely:** Unaffected by humidity

Applications

- Use as a prefilter to extend membrane life
- Water and air pollution analysis
- Liquid clarification
- Cell harvesting



Specifications

Type	Applications/ Characteristics	Weight [g/m ²]	Thick- ness [mm]	Nominal Rating [μm]	Water Flow Time ¹ [sec.]	Gas Collection Efficiency [%; 0.3 μm DOP]	Pressure Drop at 5 cm/sec [kPa]	Binder	Max. Temp. [°C]
GA-55	General purpose paper Air pollution monitoring	55	0.21	0.6	23	99.9	0.33	None	500
GA-100	General purpose paper Filtration of precipitated proteins or cells Air pollution monitoring	110	0.44	1.0	11	96	0.20	None	500
GA-200	Thick filter recommended for filtering viscous fluids as liquid sugars and gels	175	0.74	0.8	15	99.9	0.35	None	500
GB-100R	High and low volume aerosols for airborne dust and metal contaminants Low trace metal content of As, Pb, and Cd DNA/RNA and protein precipitates	95	0.38	0.6	15	99.99	0.30	None	500
GB-140	Compared to GB-100R: Thicker, greater wet strength, slower filtration speed Industrial waste analysis Low absorption, limited wet strength and loading capacity	140	0.56	0.4	58	99.99	1.11	None	500
GC-50	Prefilter for membrane filters (0.45 μm or smaller) Scintillation counting Suspended solids analysis of industrial waters and wastewater	48	0.19	0.5	28	99.99	0.52	None	500
GC-90	High wet strength Clinical screening	100	0.30	0.5	20	99.99	0.42	Organic	120
GD-120	Prefilter for 0.45 μm – 1.2 μm membranes High wet strength, very high loading capacity	123	0.51	0.9	14	97	0.17	None	500
GF-75	Most retentive grade offered Collection of IgC or other very fine protein precipitates Clarifying chemically aggressive solutions TCLP (EPA method 1311) – use with KST 142	75	0.35	0.3	84	99.999	1.67	None	500
GS-25	Limited dirt holding capacity High wet strength Prefilter for 0.65 μm or smaller mem- branes	70	0.21	0.6	15	99.9	0.32	Organic	120
DP-70	High wet strength Very high loading capacity Dust measurement	170	0.52	0.6	20	-	0.52	Organic	120

1. Flow time is the time in seconds to filter 100 ml of distilled water at 20°C under pressure supplied by a 10 cm water column through a 10 cm² section of filter.

Comparison Table and Metal Content Table, see page 31

Glass Fiber Filters

Ordering Information

Grade GA-55

Diameter [mm]	Packing	Cat. No.
25	100	GA055.025
37	100	GA055.037
45	100	GA055.045
47	100	GA055.047
50	100	GA055.050
55	100	GA055.055
70	100	GA055.070
90	100	GA055.090
110	100	GA055.110
125	100	GA055.125
150	100	GA055.150
Sheets, size		
203 x 254	100	GA055.810

Grade GA-100

Diameter [mm]	Packing	Cat. No.
25	100	GA100.025
35	100	GA100.035
37	100	GA100.037
45	100	GA100.045
47	100	GA100.047
55	100	GA100.055
70	100	GA100.070
90	100	GA100.090
110	100	GA100.110
125	100	GA100.125
150	100	GA100.150
Sheets, size		
203 x 254	50	GA100.810

Grade GA-200

Diameter [mm]	Packing	Cat. No.
25	50	GA200.025
37	50	GA200.037
45	50	GA200.045
47	50	GA200.047
55	50	GA200.055
70	50	GA200.070
90	50	GA200.090
110	50	GA200.110
125	50	GA200.125
150	50	GA200.150
Sheets, size		
203 x 254	50	GA200.810

Grade GB-100R

Diameter [mm]	Packing	Cat. No.
25	100	GB100R.025
37	100	GB100R.037
45	100	GB100R.045
47	100	GB100R.047
55	100	GB100R.055
70	100	GB100R.070
90	100	GB100R.090
110	100	GB100R.110
125	100	GB100R.125
150	100	GB100R.150
Sheets, size		
203 x 254	50	GB100R.810

Glass Fiber Filters

Ordering Information

Grade GB-140

Diameter [mm]	Packing	Cat. No.
25	100	GB140.025
37	100	GB140.037
45	100	GB140.045
47	100	GB140.047
55	100	GB140.055
70	100	GB140.070
90	100	GB140.090
110	100	GB140.110
125	100	GB140.125
150	100	GB140.150
Sheets, size		
203 x 254	50	GB140.810

Grade GC-50

Diameter [mm]	Packing	Cat. No.
25	100	GC050.025
37	100	GC050.037
45	100	GC050.045
47	100	GC050.047
55	100	GC050.055
70	100	GC050.070
90	100	GC050.090
110	100	GC050.110
125	100	GC050.125
150	100	GC050.150
Sheets, size		
203 x 254	100	GC050.810

Grade GC-90

Diameter [mm]	Packing	Cat. No.
25	100	GC090.025
37	100	GC090.037
45	100	GC090.045
47	100	GC090.047
55	100	GC090.055
70	100	GC090.070
90	100	GC090.090
110	100	GC090.110
125	100	GC090.125
150	100	GC090.150
Sheets, size		
203 x 254	50	GC090.810

Grade GD-120

Diameter [mm]	Packing	Cat. No.
25	50	GD120.025
37	50	GD120.037
45	50	GD120.045
47	50	GD120.047
55	50	GD120.055
70	50	GD120.070
90	50	GD120.090
110	50	GD120.110
125	50	GD120.125
150	50	GD120.150
Sheets, size		
203 x 254	50	GD120.810

Glass Fiber Filters

Ordering Information

Grade GF-75

Diameter [mm]	Packing	Cat. No.
25	100	GF075.025
37	100	GF075.037
45	100	GF075.045
47	100	GF075.047
55	100	GF075.055
70	100	GF075.070
90	100	GF075.090
110	100	GF075.110
125	100	GF075.125
150	100	GF075.150
Sheets, size		
203 x 254	50	GF075.810

Grade GS-25

Diameter [mm]	Packing	Cat. No.
25	100	GS025.025
37	100	GS025.037
45	100	GS025.045
47	100	GS025.047
55	100	GS025.055
70	100	GS025.070
90	100	GS025.090
110	100	GS025.110
125	100	GS025.125
150	100	GS025.150
Sheets, size		
203 x 254	100	GS025.810

Grade DP-70

Diameter [mm]	Packing	Cat. No.
35	50	DP070.035
37	50	DP070.037
45	50	DP070.045
47	50	DP070.047
55	50	DP070.055
70	50	DP070.070
90	50	DP070.090
110	50	DP070.110
125	50	DP070.125
150	50	DP070.150
Sheets, size		
203 x 254	25	DP070.810

Glass Fiber & Quartz Fiber Filters

Comparison Table

Binder Free Glass Fiber Filters

Advantec	Whatman	Millipore	Munktell	Macherey-Nagel	ALBET-Hahnemuehle
GA-55	GF/A	APFA	MGA	GF-1	FPGF 50
GB-140	GF/B	APFB	MGB	GF-2	FPGF 51
GC-50	GF/C	APFC	MGC	GF-3	FPGF 52
GD-120	GF/D	APFD	MGD	GF-4	FPGF 53
GF-75	GF/F	APFF	MGF	GF-5	FPGF 55

Quartz Fiber Filters

QR-100	QM-A	AQFA	MK 360	QF-10	FQT
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Note:

This table should be considered as alternatives rather than equivalents. When comparing depth filters like glass fiber filters it is impossible to obtain an exact equivalent. The comparison is based on filters made of the same type of raw material giving similar filtration properties. Filtration speed can differ between types with the same retention efficiency because of the thickness of the filter. Thin filters filter faster than thick filters.

Metal Content Table

Glass Fiber Filters [µg/g]

Grade	Pb	Cd	Mn	Zn	Cu	Ni	Cr	Fe
GA-55	1	<0.5	3.8	14000	<1	<1	3	100
GA-100	<1	<0.5	<0.5	<1	<1	<1	<1	10
GA-200	<1	<0.5	<0.5	<1	<1	<1	<1	8
GB-100R	3	<0.5	<0.5	<1	<1	<1	<1	10
GB-140	<1	<0.5	1.6	8700	<1	<1	1	57
GC-50	<1	<0.5	2.6	7600	<1	<1	7	73
GC-90	<1	<0.5	<0.5	<1	<1	<1	<1	9
GD-120	<1	<0.5	<0.5	1200	<1	<1	<1	10
GF-75	2	<0.5	4	1800	<1	<1	6	180
GS-25	<1	<0.5	<0.5	<1	<1	<1	<1	11
DP-70	<1	<0.5	1.4	4200	<1	<1	2	37

Analysis Method: Flame atomic absorption spectrophotometry

- Pre-treatment:
1. Extracting by heated HCl-HNO₃ mixed acid
 2. Condensing the extracted solution
 3. Re-extracting by heated H-Cl-HNO₃ mixed acid
 4. Analyzing the re-extracted solution

Quartz Fiber Filters [µg/g]

Grade	Pb	Cd	Mn	Zn	Cu	Ni	Cr	Fe
QR-100	<1	<0.5	<0.5	<1	<1	<1	1	8
QR-200	<1	<0.5	<0.5	<1	<1	1	3	45

Analysis Method except for Zn: Electric heating atomic absorption spectrophotometry

Analysis Method for Zn: Flame atomic absorption spectrophotometry

- Pre-treatment:
1. Extracting to dryness
 2. Evaporating to dryness
 3. Dissolving by HNO₃(conc.)
 4. Filtrating by Filter paper No. 5C
 5. Analyzing