Automatic metal edge filter
AF71/GX2 stainless steel

with radial scraper cleaning
Connection size G1 ½

1. Features

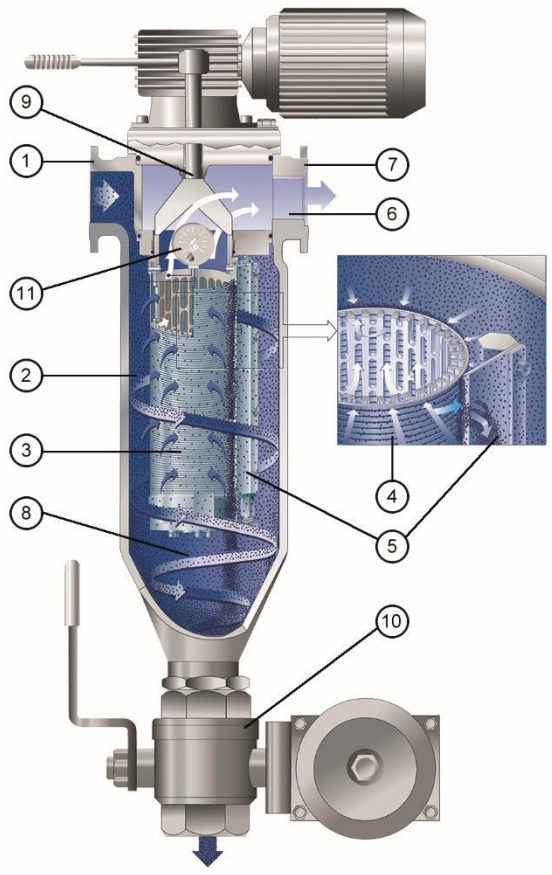
Filtration Group automatic metal edge filters are universally applicable for the filtration and homogenization of low and high viscosity liquids and pastes.
The compact inline filter systems can be equipped with semi- or fully automatic cleaning. The cleaning process is performed by rotating the filter element against a spring-loaded scraper.

Advantages:

- Extended filter service life due to the use of a cleanable element
- Double-protected shaft feed-through with barrier fluid adapter
- Cleaning is possible without interrupting filtration
- Precise separation quality in accordance with the metal-edge principle
- Sturdy filter cartridge made of triangular stainless steel wire on a rugged core element
- Efficient filter cleaning assures maximum process stability
- Solid construction and high-quality materials for a long service Life
- Modular Filtration Group Vario system for optimum filter selection
- Material variants open up a wide range of applications
- Application in Ex zone 1 and 2 optional
- Easy maintenance
- Worldwide distribution

2. Operting principle

The Filtration Group AF 71 GX2 metal-edge filter belongs to the small Vario series. The Filtration Group metal-edge filter system is used to filter and homogenise a wide range of liquids and pastes. This compact, inline filter system consumes no filter material, which means there is also no need for subsequent disposal. The filter is cleaned either automatically or semi-automatically without interrupting operation. Optional a pneumatical rotary drive is also available. Its advance is given by use with the differential pressure measure and display unit with integrated control function PiC 3170 MFC. Autarcic automatic filters can be combined without need of a power station for a 3-phase motor. 24 V DC field voltage and compressed air as auxilliary energy are sufficient.
The concentrated solids are drained off simply by opening the system for a short time.

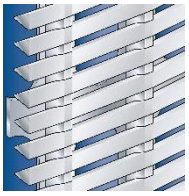


1 Inlet connection
2 Inlet
3 Filtration Group filter element
4 Triangular profile winding
5 Scraper
6 Filtrate chamber
7 Drain connection
8 Particle collecting cone
9 Cleaning drive with gear motor or star grip
10 Automatic or manually operated drain valve
11 Differential pressure indicator/switch

The medium to be cleaned is guided into the filter housing under pressure or in suction mode. It flows inward through the Filtration Group filter cartridge. The solids are separated on the surface of the triangular filter cartridge wires. The filtered fluid exits the filter housing at the top opposite the inlet connection.
The filter is cleaned either when a preset differential pressure limit is reached or after a specified cycle time elapses. The Filtration Group filter cartridge is rotated against a spring actuated scraper for this purpose. The special gap geometry of the filter cartridge guarantees efficient cleaning.
The particles or agglomerates are skimmed from the surface and settle in the collection cone. The patented filter cartridge bearing (AKF system) prevents high axial forces and facilitates the cleaning process.
The residue that has settled in the collection cone can be emptied via the drain valve either when the machine is at a standstill or during filtration.

FGC filter cartridges used in the AF 71 GX2 metal-edge filter:

FGC Coiled cartridge (standard):

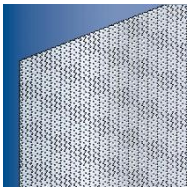


- Optimum cleaning by means or sharp-edged triangular wire
- High throughput thanks to large open filter area
- Small, precise gap widths
- High differential pressure stability and torsional strength
- Several material combinations possible

FGC Welded cartridge:

- High wear resistance to abrasive media
- Sturdy trapezoidal wire for high-viscosity media
- Welded design
- Manufactured in stainless steel

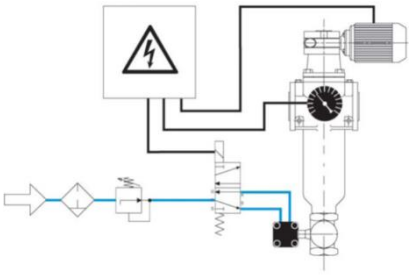
FGC Edge perforation foil:



- Precise hole diameter
- Sharp-edged, conical filter openings - no jamming of particles
- Suitable for fibres
- Manufactured in stainless steel

3. Design and application

Cleaning and draining



Fully automatic operation:

Filtration usually takes place in pressure mode. The filter can be cleaned under time, cycle or differential pressure control. Cleaning at around 4 times the initial differential pressure is recommended. The cleaning motor is operated for approx. 7 s (approx. 2 revolutions of the filter element). This is sufficient for good cleaning. In rare cases, a permanent motor run is required. The drive shaft is always turned clockwise. The filter is emptied by opening the drain valve. Depending on the residue concentration, this process can be carried out synchronously with cleaning, time-controlled or cycle-controlled. The opening time of the drain valve is approx. 2-3 s. In suction mode, draining is possible by means of an intermediate buffer or with interrupted filtration.

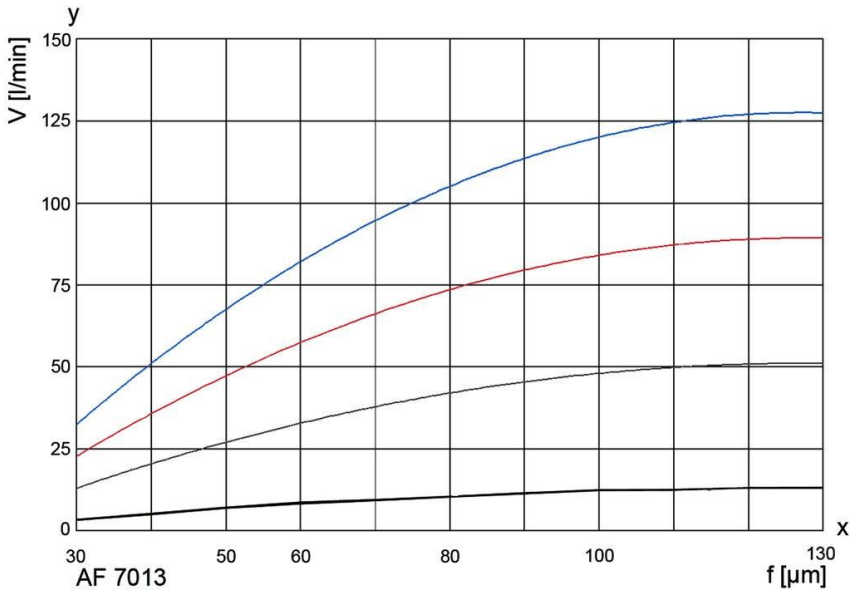
Semi-automatic or manual operation is also possible.

Further operating instructions can be found in the operating instructions.

For detailed technical information and queries about options, accessories or a safe design, please contact us. A corresponding questionnaire facilitates the compilation of all important parameters.

Extensive documentation is available on the filter range, filter elements and accessories. For information on installation and operation, please refer to the operating instructions.

4. Performance curves



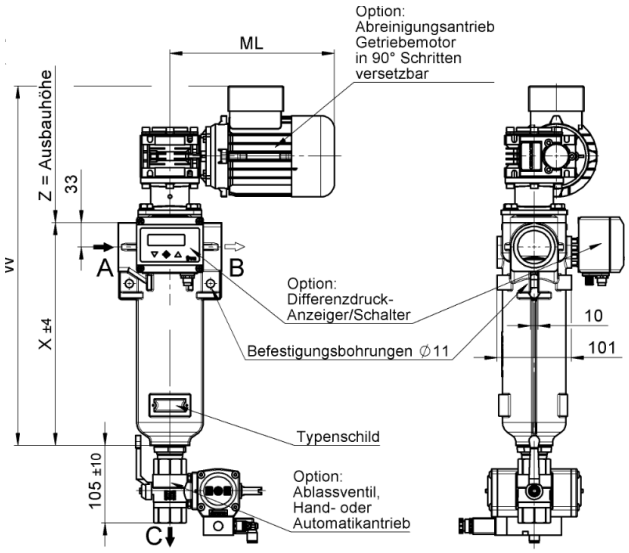
The curves indicate the volume flow through the the complete filter system (filter housing incl. filter ^ element) and refer to a differential pressure of 0.3 bar. Specific information about the process data is required for the reliable use of automatic filters process data is required.

Viscosity in mm²/s (cst)

1 mm²/s
33 mm²/s
100 mm²/s
500 mm²/s

y = volume flow V [l/min]
x = gap width f [µm]

5. Technical data



The cleaning drive with star grip and the pneumatic swivel drive are not shown in this dimensional drawing!

Masse / Typ	W (mm)	X (mm)	Z (mm)	Inhalt (l)	Gewicht (kg)	Abreinigungsantrieb
AF7131.-...-	371	302	260	1,0	6	Sterngriff
AF713.-...-	490	302	260	1,0	11	Getr.-Motor

Filter data

Max. operating pressure: - 40 bar, 63 bar

Max. operating temperature: - up to 63 bar max. 200 °C

Materials:
- Housing and cover: 1.4581
- Internals: stainless steel
- Bearing bushes: PTFE-based
- Seals: FKM (Viton)
- Coiled cartridge: 1.4404
- welded cartridge: 1.4571
- Edge perforation foil: 1.4404

Cover lock: - 4x M10 hexagon screws

Connection/ nominal diam.: - A-inlet, B-outlet: G1½
C-drain: G1

Threaded holes DIN 3852

Drive shaft seal: - O-ring with sealing flange for sealing liquid

Motor data

Worm gear motor

Multi range winding

V +- 10%	Hz	kW	U/min	A
230	50	0,060	18	0,60
400	50	0,060	18	0,35
266	60	0,072	21	0,60
460	60	0,072	21	0,35

Protection class: IP55, insulation class F; output torque: 14 Nm

Optional:

- Explosion protection according tor ATEX 2014/34/EU
- Electrical equipment in Ex II 2G T3
- Mechanical equipment in Ex II 2G c T3
- Pneumatic rotary actuator

Other versions on request!
Subject to technical changes!

6. Filter elements

FG Coiled cartridge		Gap width [µm]/Type end number																	
Type/surface [cm²]	**Materials/ dimensions**	**30**	**40**	**50**	**60**	**80**	**100**	**130**	**160**	**200**	**250**	**360**	**500**	**1000**	**1500**	**2000**	**3000**	**4000**	**5000**
AF 7033-XXX f. AF713... 230 cm²	Core element stainless, wire stainless 1.4571/ ø42x194 mm, wire width 0.5 mm	**-003**	-	**-005**	**-006**	**-008**	**-010**	**-013**	**-016**	-	-	-	-	-	-	-	-	-	-

Technique
- Sharp-edged rolled stainless steel triangular wire wound in thread on base body
- Precise gap width due to precise thread
- Wire cross section equilateral triangle results in large opening angle of 60°
- Large open filter area
- Core element made of aluminium or stainless steel
- Differential pressure stable up to 40 bar

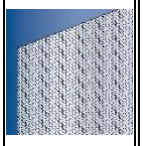
Application
- Very low to high viscosity liquids
- e.g. emulsions, dispersions, lubricating oils and lubricants
- For high solids loads
- Recommended for filtration from 30 to 160 µm

FG Welded cartridge		Gap width [µm]/Type end number																	
Type/surface [cm²]	**Materials/ dimensions**	**30**	**40**	**50**	**60**	**80**	**100**	**130**	**160**	**200**	**250**	**360**	**500**	**1000**	**1500**	**2000**	**3000**	**4000**	**5000**
AF 7073-XXX f. AF713... 230 cm²	Core element stainless, wire stainless 1.4571/ ø42x194 mm, wire width 1.0 mm	-	-	-	-	-	-	-	-	**-020**	**-025**	**-036**	**-050**	**-100**	**-150**	**-200**	-	-	-
AF 7083-XXX f. AF713... 230 cm²	Core element stainless, wire stainless 1.4571/ ø42x194 mm, wire width 0.75 mm	-	-	-	**-006**	**-008**	**-010**	**-013**	**-016**	-	-	-	-	-	-	-	-	-	-

Technique
- Welded, solid trapezoidal profile
- Mechanically stable welded construction
- Opening angle of 30°
- Completely made of stainless steel 1.4571
- Differential pressure stable up to 10 bar

Application
- Very low to high viscosity liquids
- e.g. pastes, sealants and resins
- High temperatures even above 180 °C
- Recommended for filtration from 60 to 2000 µm

FG Edge perforation foil		Gap width [µm]/Type end number																	
Type/surface [cm²]	**Materials/ dimensions**	**30**	**40**	**50**	**60**	**70**	**100**	**130**	**160**	**200**	**250**	**360**	**500**	**1000**	**1500**	**2000**	**3000**	**4000**	**5000**
AF 50133-XXX/E1 f. AF713… 230 cm²	Core element stainless, foil stainless 1.4571/ ø42x194 mm	-	-	-	-	**-007**	**-010**	-	-	**-020**	-	-	**-050**	-	-	-	-	-	-



Technique
- Particularly stable edge perforation foil made of stainless steel 1.4571 welded to core element with end rings
- Electron beam drilled conical filter openings
- Opening angle of 45°
- Core element made of stainless steel
- Differential pressure stable up to 10 bar

Application
- Very low to high viscosity liquids
- e.g. adhesives and greases
- For gel-like or fibrous impurities
- Recommended for filtration from 100, 200 and ‘ 500 µm

7. Type number key

Type number key with selection example for AF AF 7131-242-10200/GX2										
Size										
AF 713	1x 42x190									
	Cleaning drive									
	1	Star handle								
	3	Gear motor 230/400 V, 50 Hz or 266/460 V, 60 Hz								
	4	Gear motor 230/400 V, 50 Hz Ex II 2G T3								
	7	Pneumatic part-turn actuator								
		Inlet and outlet connections								
		2	$G1^1/_2$ (only for AF 713)							
			Permissible operating pressure in bar (housing/cover)							
			4	PN 40						
			5	PN 63						
				Material	Seal FPM, bearing PTFE					
				2	Housing and cover 1.4581, internals stainless steel 1.4408/1.4571					
					Differential pressure indicator and switch					
					1	PiS 3076, switching level at 1.2 bar, static 63 bar, aluminium/FKM				
					2	PiS 3076, switching level at 0.7 bar, static 63 bar, aluminium/FKM				
					3	PiS 3170 MFC, digital Δp gauge with control function in combination with pneumatic part-turn actuator				
					4	PiS 3170, digital Δp gauge, 2 switching levels settable from 0 to 16 bar				
						Valves and control throttles				
						0	Without/special version			
							Drain valve			
							1	Ball valve, manual		
							2	Ball valve, electro pneumatic 24 V		
							3	Ball valve, electro pneumatic 230 V		
							4	Ball valve, electric 24 V		
							5	Ball valve, electric 230 V		
								Cleaning valve		
								0	Without/special version	
									Cleaning valve	
									0	Without/special version
									1	Bypass valve 20 bar
AF 713	**1**	**- 2**	**4**	**2**	**-1**	**0**	**2**	**0**	**0**	**-XXXX (end number for special version)/***

* Supplement end number:
GX2 Cast design with 1½ " in- and outlet, Version 2

End number	Special version
3001	Standard filter insert (complete), without housing or drive
3002	Standard filter insert (complete), without housing, with drive
3700	PTFE seals
Other numbers	On request

8. Ersatzteile

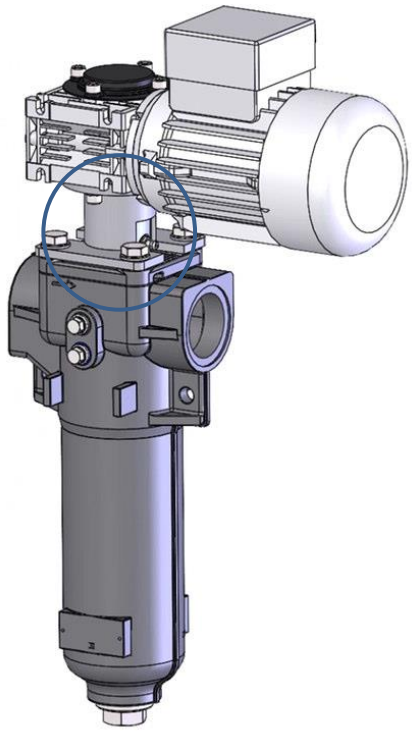
		Bezeichnung	Bestellnummer
	1	Bush kit	70558417
	2	Seal kit (complete)	70569067
	3	Scraper AF 713	70553240
	4	Cartridge	See name plate
	5	Flat spring	79745365

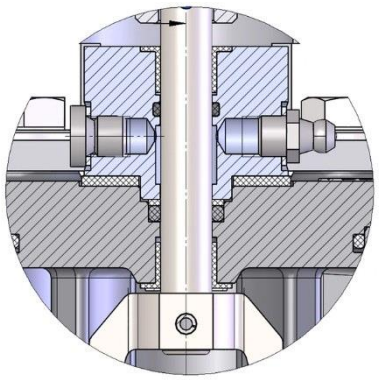
9. Additional information Shaft sealing via sealing liquid adapter

Filtration Group edge filters AF71/GX2 are equipped with a shaft seal via a “sealing liquid adapter” as standard.

This design offers advantages for products that react with air and humidity, e.g. isocyanates, or other special requirements for hermetic shaft seals.

The sealing liquid chamber is filled with anhydrous Vaseline at the factory and sealed with screw plugs. The chamber can be supplied with sealing liquid from the outside via two connections with M8x1 threads.





Filtration Group GmbH
Schleifbachweg 45
74613 Öhringen
Phone 07941 6466-0
industrial.sales@filtrationgroup.com
industrial.filtrationgroup.com
shopindustrial.filtrationgroup.com
76122519.05/2024