Filtration Group®
Industrial

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Automatic metal-edge filters
AF 72 G

with radial scraper cleaning
Connection size G1 1/2, flange DN 40

1. Short description

FGC automatic metal-edge filters are suitable for all applications where low or high-viscosity liquids or pastes have to be filtered and homogenised.

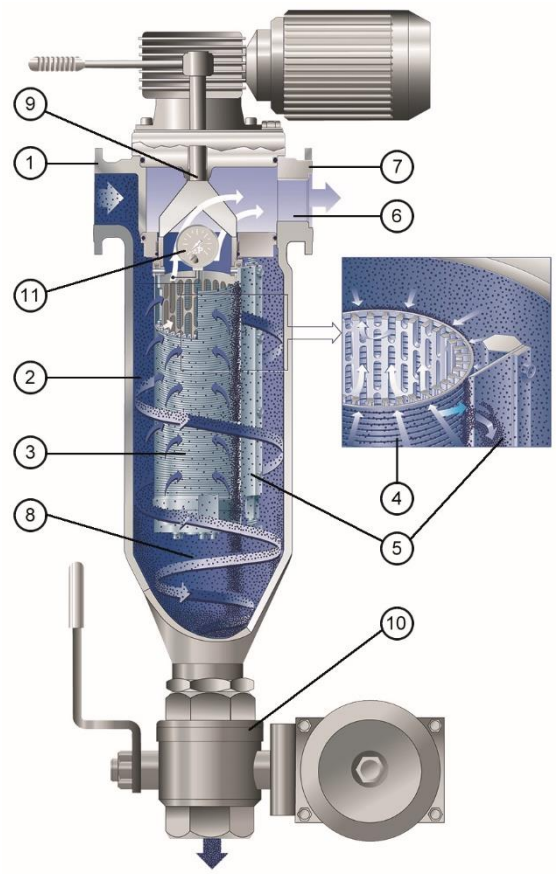
These compact inline filter systems can be designed for semi or fully automatic cleaning. The system is cleaned by rotating the cartridge against a spring actuated scraper.

Advantages:

- Extended filter service life due to the use of a cleanable element
- Cleaning is possible without interrupting filtration
- Precise separation quality in accordance with the metal-edge principle
- Sturdy 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
- FGC modular vario system for optimum filter selection
- Material variants open up a wide range of applications
- Gastight shaft seals available optional
- Application in Ex zone 1 and 2 optional
- Easy maintenance
- Worldwide sales

2. Operating principles

The FGC AF 72 G metal-edge filter belongs to the small Vario series. The FGC metal-edge filter system is used to filter and homogenise a wide range of liquids and pastes.
The compact inline filter consumes no filter material. This eliminates the need for subsequent disposal. Cleaning can be carried out automatically or semi-automatically without interrupting operation. A pneumatic swivel drive is optionally available as an alternative to the three-phase geared motor. The advantage lies in the interaction with the digital differential pressure measuring and indicating instrument with integrated control function PiS 3170 MFC. This makes it possible to combine self-sufficient automatic filters that do not require any additional electrical control with a power section for the three-phase motor. Only 24 V DC field voltage and compressed air are required as auxiliary energy. To discharge the concentrated solids, the system is simply opened briefly.
The medium to be cleaned is led into the filter housing under pressure or through suction operation. The flow through the Filtration Group filter element is from the outside to the inside. The solids are separated on the surface of the triangular profiles of the filter element. The filtrate leaves the filter housing at the top opposite the inlet connection.
Cleaning can take place either when a preset differential pressure limit value is reached or after a cycle time has elapsed. The Filtration Group filter element is turned against a spring-loaded scraper. Due to the special gap geometry of the filter element, effective cleaning is achieved.
The particles or agglomerates are lifted off the surface and sink into the collection cone. The patented bearing of the filter elements (AKF system) prevents high axial forces and thus ensures an easy cleaning process.
The residue deposited in the collection cone can be emptied through the drain valve during standstill phases or during operation.

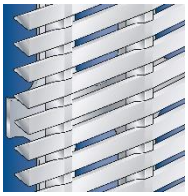


1 Inlet connection
2 Inlet plenum
3 Filtration Group cartridge
4 Triangular wire winding
5 Scraper
6 Plenum for filtered fluid
7 Outlet connection
8 Particle collection cone
9 Cleaning drive with gear motor or hand ratchet
10 Drain valve, automatic or manual
11 Differential pressure indicator/switch

FGC filter cartridges used in the AF 72 G metal-edge filter:

FGC Coiled cartridge (standard):

- Optimum cleaning by means of 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

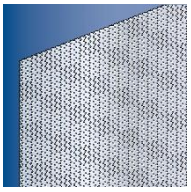


FGC Welded cartridge:

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

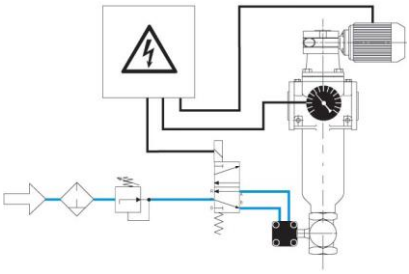
FGC Edge perforation foil:

- 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 emptying



Fully automatic operation:

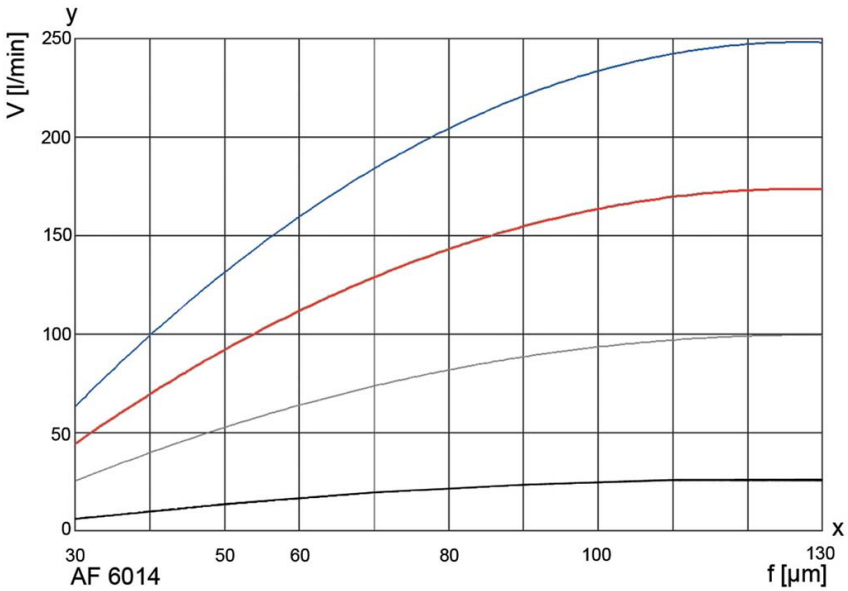
Filtration usually takes place under pressure. The filter is cleaned after a programmed time or a preset number of cycles or according to the differential pressure. We recommend cleaning the system at approximately 4 times the initial differential pressure. The cleaning motor is operated for around 10 seconds (about three turns of the cartridge). This is sufficient to clean the filter thoroughly. The motor may need to run continuously in exceptional cases. The drive shaft is always turned clockwise. The drain valve is opened in order to empty the filter. Depending on the residue concentration, this can either take place synchronously with cleaning or be time or cycle controlled. The opening time of the drain valve can be set between 2 and 6 seconds. The filter can be emptied in suction mode using a buffer or by interrupting the filtration process.

Semi-automatic and manual operation is also possible.

Refer to the Instruction Manual for further information.

Please contact us for detailed technical information, any open questions about options, accessories and for general expert advice. Completion of the relevant questionnaire would facilitate in the coordination of all important parameters.
Comprehensive documentation on our filter range, filter elements and accessories can be provided. About installation and operation, please refer to the Instruction Manual.

4. Performance curves



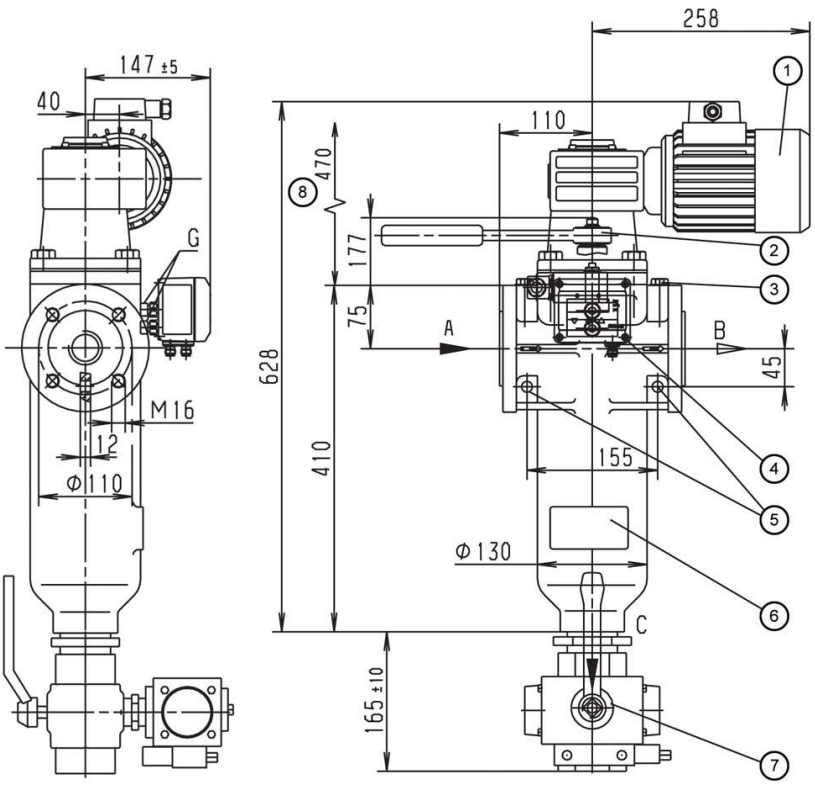
The curves indicate the volume flow through the complete filter system (filter housing including cartridge) and are referred to a differential pressure of 0.3 bar. Specific process information is essential to guarantee reliable operation of an automatic filter.

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



1 Cleaning drive, worm gear motor can be mounted at each 90° position
2 Ratchet optional
3 Vent screw G¼
4 Differential pressure indicator/switch optional
5 Mounting holes Ø13
6 Name-plate
7 Drain valve, manual or automatic mode optional
8 Clearance required = 470 mm

The pneumatic part-turn actuator is not shown in this drawing!

Filter data

Max. operating pressure:	- 16, 40, 63 bar
Max. operating temperature:	- up to 63 bar max. 100 °C
Materials:	- Housing and cover: Nodular cast iron
	- Internals: nodular cast iron, steel, optional stainless
	- Optional interior coat
	- Bearing bushes: PTFE-based
	- Seals: FPM (Viton)
	- Coiled cartridge: Al, 1.4571
	- Welded cartridge: 1.4571
	- Edge perforation foil: 1.4571
Cover lock:	- 4x M16 hexagon screws
Connect./nominal diam.:	- A-inlet, B-outlet: G1½ threaded holes DIN 3852 Form Z in flange DN 40
	- C- drain: G2 DIN 3852 Form Z
	- G-Δp- connection: $G^1/_8$ DIN 3852 Form X
Drive shaft seal:	- Gland packing rings made of
	- PTFE- fibre with disc spring pretension
	- optional lip seal with O-ring

Motor data

Worm gear motor
Multi-range winding

V	Hz	KW	U/min	A
Δ 230 ± 10 %	50	0.18	17	1.2
⅄ 400 ± 10 %	50	0.18	17	0.7
Δ 266 ± 10 %	60	0.22	21	1.2
⅄ 460 ± 10 %	60	0.22	21	0.7

Protection class: IP55; insulation class F; output torque: 52 Nm

Optional:
- Ex protection acc. to ATEX 2014/34/EU
- Electrical design in Ex II 2G T3
- Mechanical design in Ex II 2G c T3
- Pneumatic part-turn actuator

Weight: 27 kg (with ratchet), 36 kg (with motor)
34 kg (with pneumatic part-turn actuator)

Volume: 4 l

Other types available on request!
Technical data is subject to change without notice!

6. Cartridges

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 6014-XXX 437 cm²	Core element Al, wire stainless 1.4571/ ø65x231 mm, wire width 0.5 mm	**-003**	**-**	**-005**	**-006**	**-008**	**-010**	**-013**	**-016**		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
AF 6034-XXX 437 cm²	Core element stainless, wire stainless 1.4571/ ø65x231 mm, wire width 0.5 mm	**-003**	**-**	**-005**	**-**	**-008**	**-010**	**-013**	**-016**	**-020**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

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 25 bar (Al) or 40 bar (stainless steel)

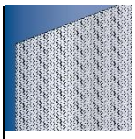
Application
- Very low to high viscosity liquids
- e.g. emulsions, dispersions, lubricating oils and lubricants
- For high solids loads
- Recommended for filtration from 30 to 160 µm

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 6064-XXX 415 cm²	Core element stainless, wire stainless 1.4571/ ø65x231 mm, wire width 1.8 mm	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-050**	**-100**	**-150**	**-200**	**-**	**-**	**-**
AF 6074-XXX 415 cm²	Core element stainless, wire stainless 1.4571/ ø65x231 mm, wire width 1.0 mm	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-020**	**-025**	**-036**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
AF 6084-XXX 415 cm²	Core element stainless, wire stainless 1.4571/ ø65x231 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**	**80**	**100**	**130**	**160**	**200**	**250**	**360**	**500**	**1000**	**1500**	**2000**	**3000**	**4000**	**5000**
AF 50134-XXX/E1 415 cm²	Core element stainless, foil stainless 1.4571/ ø65x231 mm	**-**	**-**	**-**	**-**	**-**	**-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 7243-221-40200/G4										
Size										
AF 724	1x 65x231									
	Cleaning drive									
	2	Ratchet								
	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	DN 40 with G1$^{1}/_{2}$							
			Permissible operating pressure in bar (housing/cover)							
			2	PN 16						
			4	PN 40						
			5	PN 63						
				Material	Seal FPM, bearing PTFE					
				1	Housing and cover nodular cast iron, steel					
				3	Housing and cover steel, grey cast iron or nodular cast iron, internals stainless steel 1.4301/1.4571					
				4	Housing and cover steel, grey cast iron or nodular cast iron, aluminium-free					
				6	Housing and cover nodular cast iron with delta seal coating, internals stainless steel 1.4301					
					Differential pressure indicator and switch					
					1	PiS 3076, switching level at 1.2 bar, static 63 bar, aluminium/FPM				
					2	PiS 3076, switching level at 0.7 bar, static 63 bar, aluminium/FPM				
					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				
					8	PiS 3076, switching level at 2.2 bar, static 63 bar, aluminium/FPM				
						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	
									c	
									0	Without/special version
									1	Bypass valve 20 bar
									2	Bypass valve 40 bar
AF 724	**3**	**- 2**	**2**	**1**	**-4**	**0**	**2**	**0**	**0**	**-XXXX (end number for special version)/G4***

* Supplement end number:
G4 Cast design, Version 4

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. Spare parts

No.	Designation	Order number	
		FPM/C steel	PTFE/VA
1	Bush kit		79725557
2	Set of seals (complete)	79331786	79718511
3	Scraper		79718503
4	Cartridge	See name-plate	

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