

Automatic metal-edge filters AF 42 SH1

Stainless steel version with heating jacket,
with radial scraper and clean side outlet downwards
connection size G1½, optional flange DN 40

1. Short description

Filtration Group automatic metal-edge filters offer universal application options for the filtration and homogenization of minimal and high viscosity liquids and pastes. The compact inline filter systems are equipped with automatic cleaning. The cleaning process is carried out by rotating the filter element against a resilient wiper. The positioning of the filtrate outlet and retentate outlet nozzle allows the filter contents (dirt and clean side) to be emptied by gravity or by means of compressed gas support.

Advantages:

- Minimal life cycle costs, since no filter material is used
- Cleaning possible without interrupting the filtration
- Precise separation quality based on the edge gap principle
- Stable filter element made of triangular stainless steel wire on a robust support body
- Process reliability through efficient filter cleaning
- Long service life due to solid construction and high quality materials
- Long service life due to solid construction and high quality materials
- Modular system Filtration Group Vario for optimal filter selection
- Worldwide sales



2. Operating principles

The Filtration Group Edge Filters AF 42 SH1 is a special version as a supplement to the Filtration Group Vario series 2.

The Filtration Group edge gap filter system is used for filtering and homogenizing a wide variety of liquids and pastes.

The compact inline filter does not use any filter material. Subsequent disposal is therefore unnecessary. The cleaning can be carried out automatically or semi-automatically without interrupting operations. To drain the concentrated solids, the system is simply opened briefly.

The medium to be cleaned is fed into the filter housing under pressure or by suction. The Filtration Group filter element is flowed through from the outside in. The solids are separated on the surface of the triangular profiles of the filter element. The filtrate leaves the filter housing via the one arranged on the underside of the housing

Filtrate outlet.

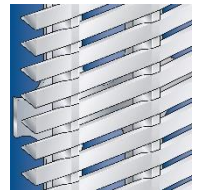
Cleaning takes place either when a preset differential pressure limit is reached or after a cycle time has elapsed. The Filtration Group filter element is turned against a spring-mounted scraper. Effective cleaning is achieved through the special gap geometry of the filter element. The particles or agglomerates are lifted from the surface and collected in the dirt room.

The patented bearing of the filter elements (AKF system) prevents high axial forces and thus ensures an easy cleaning process. The residue collected in the dirt chamber can be emptied through the drain valve during standstill phases or during operation. The positioning of the filtrate outlet and retentate outlet nozzle allows the filter contents (dirt and clean side) to be emptied by gravity or by means of compressed gas support.

FGC filter cartridges used in the AF 42 SH1 metal-edge filter:

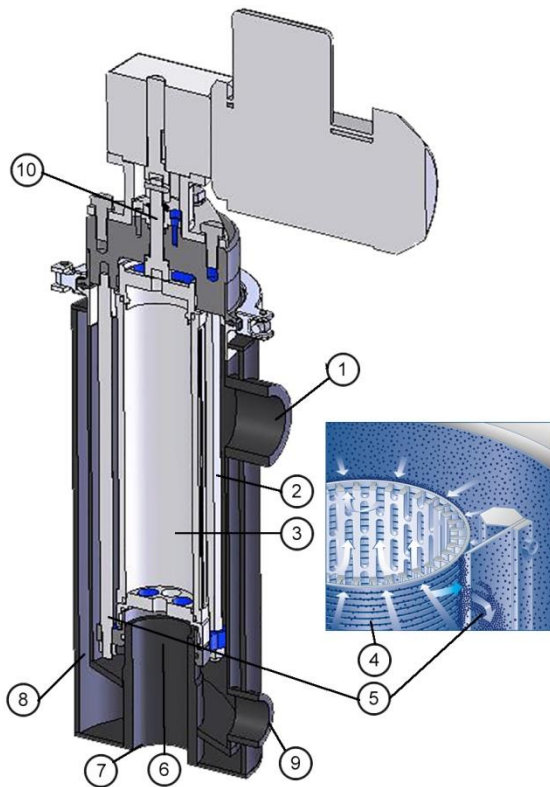
FGC Coiled cartridge (standard):

- 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



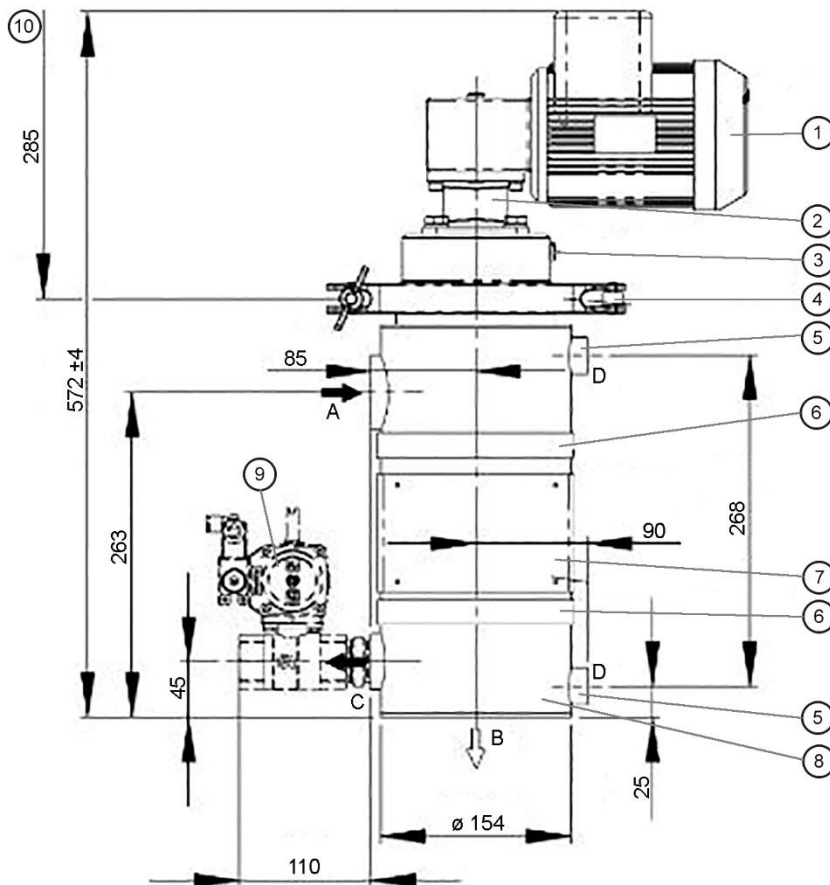
FGC Welded cartridge:

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



- 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 Heating jacket
- 9 Drain connection
- 10 Cleaning drive

3. Technical data



- 1 Cleaning drive, worm gear motor can be mounted at each 90° position
- 2 Ratchet optional
- 3 Bleed screw G1 / 8
- 4 Housing tension ring m. Quick release
- 5 Inlet / outlet heating jacket D
- 6 Adjustable clamp
- 7 type label
- 8 Optional heating jacket
- 9 Drain valve optional
- 10 Removal height = 285 mm

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

Filter data

Max. Operating pressure: - Worm gear motor
- Multi-range winding

Max. Operating temperatur: - 100 ° C

Materials:

- Housing and cover: stainless steel 1.4301, 1.4571
- Inner parts: stainless steel 1.4301, 1.4571
- Bearing bushes: PTFE base
- Seals: FPM (Viton)
- Coil: Al, 1.4571 (Δp max. 40 bar)
- Canned tube: 1.4571 (Δp max. 10 bar)

Lid lock: - Triclamp clamping ring closure

Connections and Nominal sizes:

- A inlet, B outlet: G1½
- C drain: G1
- D heating jacket: G½
- All screw holes after DIN 3852 form Z
- Optional: flanges DN 40 PN 40 EN1092-1/11B1/PN 40

Drive shaft seal: O-ring, quad-round

Motor data

Worm gear motor
Multi-range winding

V	Hz	KW	RPM	A
$\Delta 266 \pm 10 \%$	50	0.18	17	1.2
$\Delta 400 \pm 10 \%$	50	0.18	17	0.7
$\Delta 266 \pm 10 \%$	60	0.22	21	1.2
$\Delta 460 \pm 10 \%$	60	0.22	21	0.7

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

Optional:

- Electrical equipment in Ex II 2G T3
- Mechanical equipment in Ex II 2G c T3
- Ex II 2G T3 worm geared motor
- Pneumatic rotary actuator


Weight: 32 kg (with ratchet), 42 kg (with motor). With pneumatic part-turn actuator.

Volume: 4 l

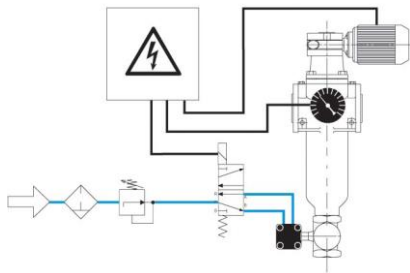
Further versions on request!
Technical changes reserved!

4. Design and application

Element type (see chapt. 6)	Total part in cm ²	Gap width in μm/effective gap part in cm ²														
		30th	40	50	60	80	100	130	160	200	250	360	500	1000	1500	2000
AF 6014	437	26	34	42	49	63	76	94	111	131	152	191	229	305		
AF 6024	437	17th		27	32	42	51	64	76	91	109	142	176	254	298	327
AF 6034	419	25th	33	40	47	61	73	91	106	135	157	197				
AF 6044	419			26		40	49	61	73	88	105	136	169	244	256	314
AF 6064	415												95	156	198	229
AF 6074	415									73	87	115				
AF 6084	415			27	32	42	51	64	77							

 design recommended

Cleaning and emptying



Applications in the chocolate industry:

In the chocolate mass and chocolate end product manufacturing process, there are products (e.g. cocoa butter) and additives (e.g. glucose syrup) with a wide variety of rheological properties. Our customers' viscosity data range from 390 mm² / s to 28,000 mm² / s.

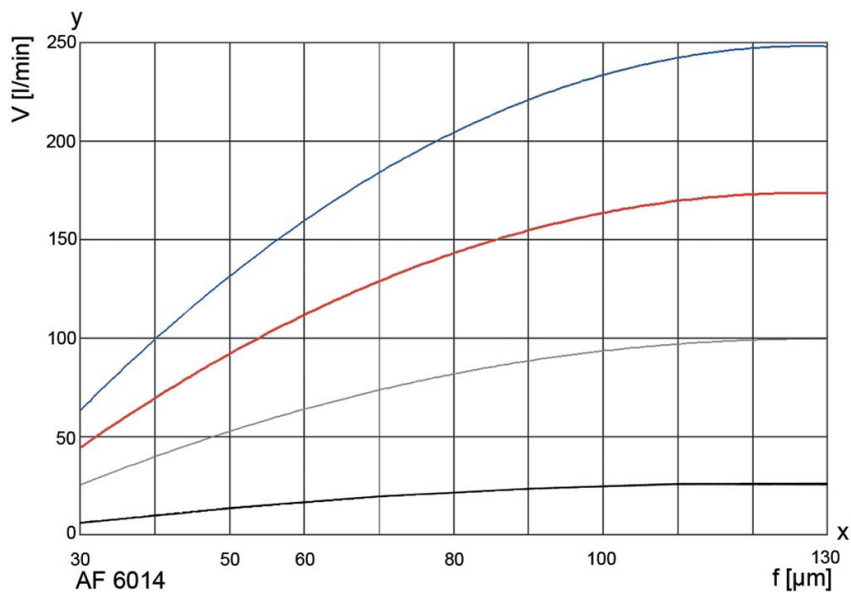
There is usually no information on the type and amount of solids. The homogenization of agglomerates in the chocolate mass is often the task.

In chocolate molding machines, nozzles must be protected against clogging.

When covering pastries and chocolates, biscuit breakage, nut pieces or the like must be removed from the pumped-over chocolate coating.


Our filters are often also used as security and / or police filters, for example at loading / receiving stations for chocolate masses, components or additives such as sugar syrup.

5. Performance curves



The curves indicate the volume flow through the complete filter system (filter housing including filter element) and relate to a differential pressure of 0.3 bar. Specific information about the process data is required for the reliable use of Automatic Filters.

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]

6. Type number key

Type number key with selection example for AF 4243-212-00100

Size										
AF 424	1x 65x230	Number of levels x diameter x length [mm]								
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									
Connection inlet and outlet										
2	DN 40 with G1½									
Permissible operating pressure in bar housing / cover										
1	PN 10									
Material										
2	Standard stainless steel 1.4301/1.4571									
Differential pressure indicator and manometer										
0	Direct attachment of differential pressure measuring device not provided									
Valves and 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									
Special equipment										
0	without/special version									
AF 424	3	- 2	1	2	-0	0	1	0	0	-XXXX (end number for special version)/SH1*

* Supplement end number::
SH1 welded version 1

Final 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	On request

Type number key with selection example for coiled or welded cartridges for AF 60

Series

AF 60 Coiled or welded cartridge with triangular profile winding											
Material		Supporting body		Filter medium		Retaining rings		Wire width in mm			
Coiled											
1		Al		1.4571		1.4571		0.5			
2		Al		1.4571		1.4571		0.8			
3		1.4581		1.4571		-		0.5			
4		1.4581		1.4571		-		0.8			
Welded											
6		-		1.4571		1.4571		1.8			
7		-		1.4571		1.4571		1			
8		-		1.4571		1.4571		0.75			
Overall length 4		Diameter x length in mm									
		65x230									
		Gap width/rating in µm									
003		30 µm		010		100 µm		036		360 µm	
004		40 µm		013		130 µm		050		500 µm	
005		50 µm		016		160 µm		100		1000 µm	
006		60 µm		020		200 µm		150		1500 µm	
008		80 µm		025		250 µm		200		2000 µm	
		further details on request									
AF 60		1		4		- 010					

7. Spare Parts

No.	Designation	Order number	
		FPM/FDA	PTFE/FDA
1	Bush kit	70526743	
2	Seal kit (complete)	70526740	
3	Scraper	710665224	

Filtration Group GmbH
 Schleifbachweg 45
 D-74613 Öhringen
 Phone +49 7941 6466-0
 Fax +49 7941 6466-429
 industrial.sales@filtrationgroup.com
 industrial.filtrationgroup.com
 shopindustrial.filtrationgroup.com
 05/2022