

Automatic filter AF 133 G

with external pressure cleaning

Connection sizes: G2, screw-in flange DN 50 and DN 65, cast design

1. Features

Filtration Group automatic backflush filters are suitable for all applications where low-viscosity liquids have to be filtered.

These compact, inline filter systems are designed for automatic cleaning. The system is cleaned by rotating the filter cartridge and backflushing with external or internal pressure media.

Advantages:

- Low lifecycle costs because no filter material is consumed
- Precise separation quality in accordance with the surface filter principle
- Top-quality, asymmetric filter medium made of multiple-sintered stainless steel fleece on a robust inner core
- Efficient filter cleaning assures maximum process stability
- Solid construction and high-quality materials for a long service life
- Filter cleaned one segment at a time with a high backflush pulse
- Actual filter rating and nominal separation are indicated
- Integrated preseparation thanks to tangential inflow
- Material options open up a wide range of applications
- Modular Filtration Group Vario system for optimum filter selection
- Optional: Gas-tight shaft seals available
- Optional: Application in Ex zone 1 and 2
- Easy maintenance
- Worldwide distribution



2. Operating principle

The Filtration Group AF 133 G backflush filter belongs to the Vario series. The compact Filtration Group automatic filter system is used for fine filtration of a variety of lowviscosity liquids.

This inline pressure filter consumes no filter material, which means there is also no need for subsequent disposal. The filter can only be cleaned after switching off the system.

The medium to be cleaned is guided into the filter housing under pressure. It flows inward through the Filtration Group segmented element. Particles settle on the surface of the filter medium. Due to the unique design also coarse particles can be backflushed. The filtered fluid exits the filter housing at the top opposite the inlet connection.

The filter is cleaned when a preset differential pressure limit, a set interval or a defined filtered fluid quantity is reached.

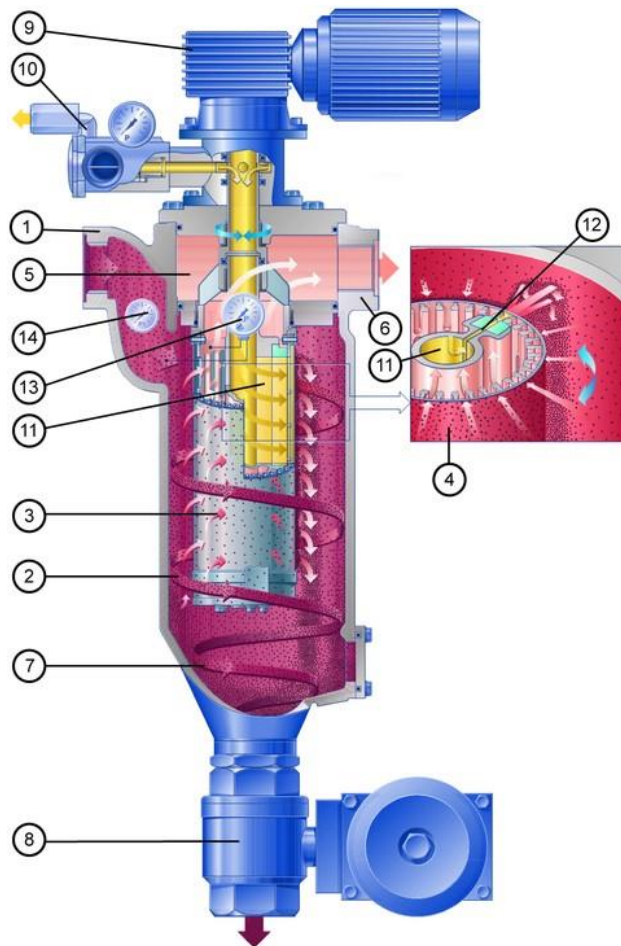
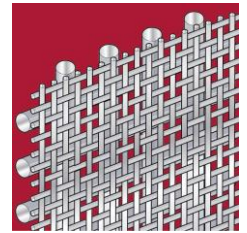
The segmented element is turned as the drain and external pressure valves are opened. The segments are then guided one at a time past the pressure channel housing on the inside. This causes them to open and close alternately. The integrated external pressure accumulator is pretensioned during closing, so that when one segment opens, an outward surge cleans the separated particles from the filter material. The particles are catapulted out as a result of this pulse cleaning principle and discharged via the drain valve. One turn suffices to clean all segments.

All filters in the Filtration Group Vario series are protected by various patents.

Used Filtration Group filter cartridges in the AF 133 G backflush filter:

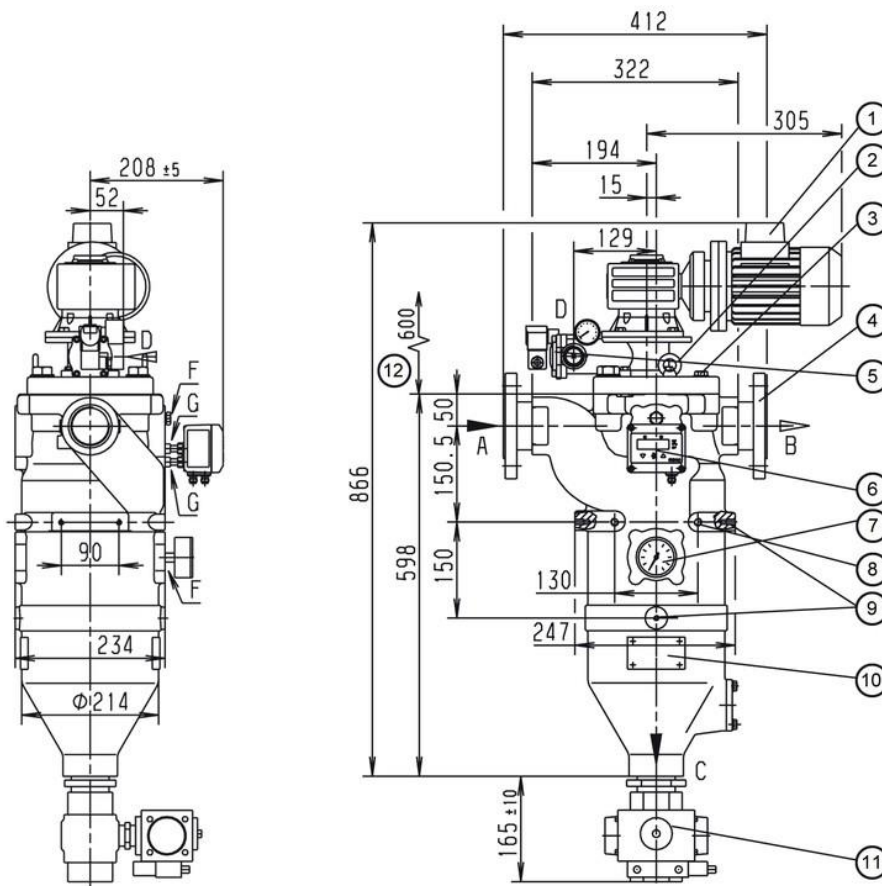
Filtration Group Topmesh (Standard):

- Good cleanability due to asymmetric design
- Large effective filter surface
- Defined particle retention
- Several material combinations possible



- 1 Tangential inlet connection
- 2 Inlet plenum
- 3 Filtration Group segmented element
- 4 Filtration Group filter material
- 5 Plenum for filtered fluid
- 6 Outlet connection for filtered fluid
- 7 Residue collection cone
- 8 Drain valve
- 9 Drive motor
- 10 External pressure connection, external pressure and check valves and gauge P_1
- 11 External pressure accumulator
- 12 External pressure nozzle
- 13 Differential pressure contact gauge
- 14 P_1 gauge

3. Technische Daten



- 1 Cleaning drive: can be mounted turned 90°, 180° or 270°
- 2 Lifting eyebolts
- 3 Vent screw G1/4
- 4 If DN 65 screw-in flanges are used, the motor is mounted turned 90°
- 5 External pressure valve
- 6 Optional: Differential pressure indicator/switch
- 7 Optional: P1 gauge
- 8 Mounting holes M12
- 9 Mounting holes M8
- 10 Name-plate
- 11 Optional: Automatic drain valve
- 12 Clearance required = 600 mm

Filter data

- Max. operating pressure: 16 bar
 Max. operating temperature: 100 °C
- Materials:
- Housing and cover: Nodular cast iron
 - Internals: Nodular cast iron, steel
 - Bearing bushes: PTFE based
 - Seals: FPM (Viton)
 - Segmented element: 1.4571 or 1.4571/Al (Δp max. 10 bar)
- Cover fastening: 4 x M20 hexagon screws
- Connections and nominal diameters:
- A-inlet, B-outlet, C-drain: G2 threaded holes DIN 3852 form X
 - D-external pressure: G1 threaded holes DIN 3852 form Z (air: must be reduced to G1/2 by the customer)
 - F-gauge: G1/4
 - G-indicator: G1/8
 - Optional: A/B/C screw-in flanges DN 50 or DN 65 acc. to EN 1092-1/05A
- Drive shaft seal: Lip seal with O-ring
- Outside coating: Synthetic resin primer, blue acc. to RAL 5007

Motor data

Worm gear motor
 Multi-range winding

V	Hz	kW	rpm	A
Δ 230 \pm 10%	50	0.18	9.3	1.2
λ 400 \pm 10%	50	0.18	9.3	0.7
Δ 266 \pm 10%	60	0.22	11.2	1.1
λ 460 \pm 10%	60	0.22	11.2	0.7

Protection class: IP55; insulation class F; output torque: 97Nm

Optional:

- Ex protection acc. to ATEX 2014/34/EU
- Electrical components in Ex II 2G T3
- Mechanical design in Ex II 2G c T3
- Worm gear motor Ex; output torque: 97 Nm

Weight: 92 kg

Volume: 12 l

Differential pressure stability

Segmented elements with topmesh: 10 bar

Other types available on request!

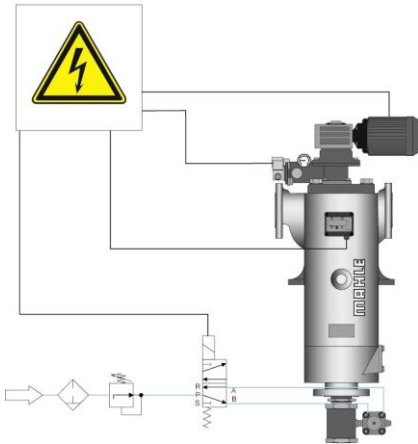
Technical data is subject to change without notice

4. Design and application

Cartridge type (see section 6)	Total surface in in cm ²	Filter rating in μm / effective filter surface in cm ²						
		20	30	40	60	80	100	200
AF 170XX6	763	637	637	637	637	637	637	637

Recommended design

Possible cleaning and emptying modes



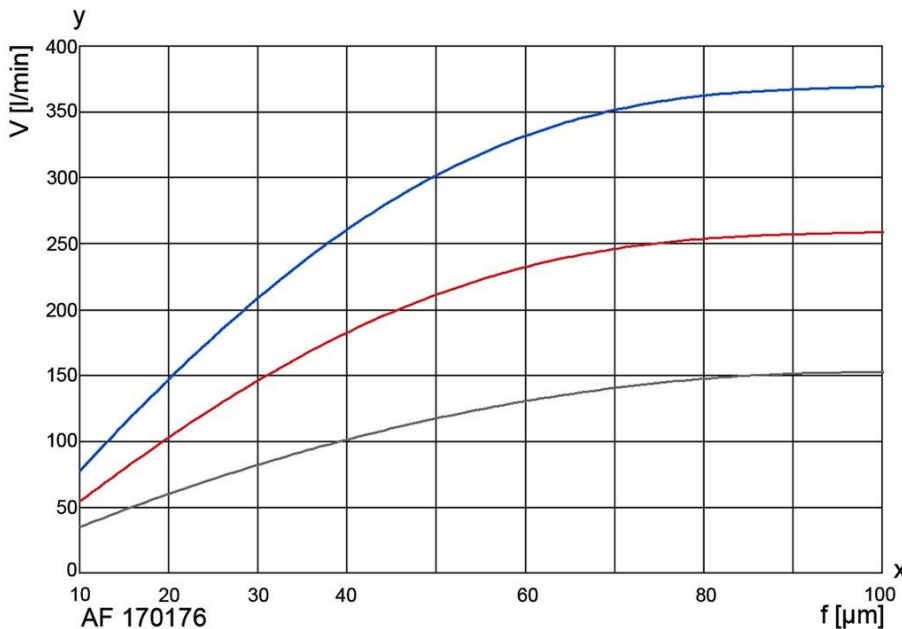
Fully automatic operation:

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 a differential pressure of approximately 0.5 to 0.7 bar. The cleaning motor is operated for around 7 s (about one turn of the filter cartridge). The external pressure and cleaning valves remain open for this period. This suffices to clean the filter thoroughly.

Refer to the Instruction Manual for further information.

Filtration Group's team of specialists will be pleased to assist in any way. Tests can be carried out in the absence of reliable evaluation criteria.

5. Efficiency 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

- 1 mm²/s
- 33 mm²/s
- 100 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 13363-1321-43200/G3												
Size												
AF 1336	1	x	110x265	No. of steps x diameter x length [mm]								
Cleaning drive												
	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										
Inlet and outlet connections												
	13	G2										
	14	Screw-in flange DN 50 for cast design										
	15	Screw-in flange DN 65 for cast design										
	18	G2 1/2										
Permissible operating pressure in bar (housing/cover)												
	2	PN 16										
Material Seal FPM, bearing PTFE												
	1	Housing and cover nodular cast iron, internals steel, aluminium										
	3	Housing and cover nodular cast iron, internals stainless steel 1.4301/1.4571										
Differential pressure indicator and gauge												
	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										
	4	PiS 3170, digital Δp gauge, 2 switching levels settable from 0 to 16 bar										
	5	PiS 3175, digital Δp gauge, 2 pressure transmitters settable from 0 to 16 bar										
Valves and control throttles												
	3	External pressure valve G1 for liquid, 24 V										
	4	External pressure valve G1 for liquid, 230 V										
Drain valve												
	2	Ball valve, electropneumatic 24 V										
	3	Ball valve, electropneumatic 230 V										
	4	Ball valve, electric 24 V										
	5	Ball valve, electric 230 V										
Cleaning valve												
	0	Without/special version										
Optional features												
	0	Without/special version										
AF 1336	3	-	13	2	1	-	4	3	2	0	0	-XXXX (end number for special version)/G3*

*end number completion:

G1 cast iron, Version 1

G3 cast iron, Version 3

End number	Special version
3001	Standard complete inner assembly, without housing or drive
3002	Standard complete inner assembly, without housing, with drive
3700	PTFE seals
Other numbers	On request

Type number key with selection example for coiled or welded cartridges for AF 170

Series

AF 170 Segmented element with topmesh

Material	Inner core	Filter medium	Clamp rings
Segmented element			
17	Al	1.4571	St
20	Al/hc	1.4571	1.4571
21	1.4571	1.4571	1.4571

Overall length Diameter x length in mm

6 110 x 265

Gap width/rating in µm (see 4. Design and application)

002	20 µm	006	60 µm	020	200 µm
003	30 µm	008	80 µm		
004	40 µm	010	100 µm		

Other filter ratings on request

AF 170 17 6 -006

7. Spare parts

No.	Designation	Material no.	
		FPM/C steel	PTFE/VA
1	Bush kit		70311579
2	Seal kit (complete)	70316111	70316118
3	Distributor		70511099
4	Filter cartridge	See name-plate	

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.