Filtration Group®
Filtering The World

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Automatic filter
AF 173 G

with external pressure cleaning and integrated cyclone effect
Connection sizes: G2, screw-in flange DN 50 and DN6 5, cast design

1. Short description

Filtration Group automatic backflush filters are suitable for 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 cartridge and backflushing with external or internal pressure media.

Advantages:

- Low lifecycle costs because no filter material is consumed
- Cleaning without interrupting filtration
- Precise separation quality in accordance with the surface filter principle
- Top-quality, asymmetric filter medium made of multiple-sintered stainless steel fleece on a rugged core element
- Efficient filter cleaning assures maximum process stability
- Solid construction and high-quality materials for a long service life
- Minimal liquid loss during cleaning
- Filter cleaned one segment at a time with a high backflush pulse
- Actual filter rating and nominal separation are indicated
- Integrated preseparation tanks to tangential inflow and preseparator tube
- Material variants 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

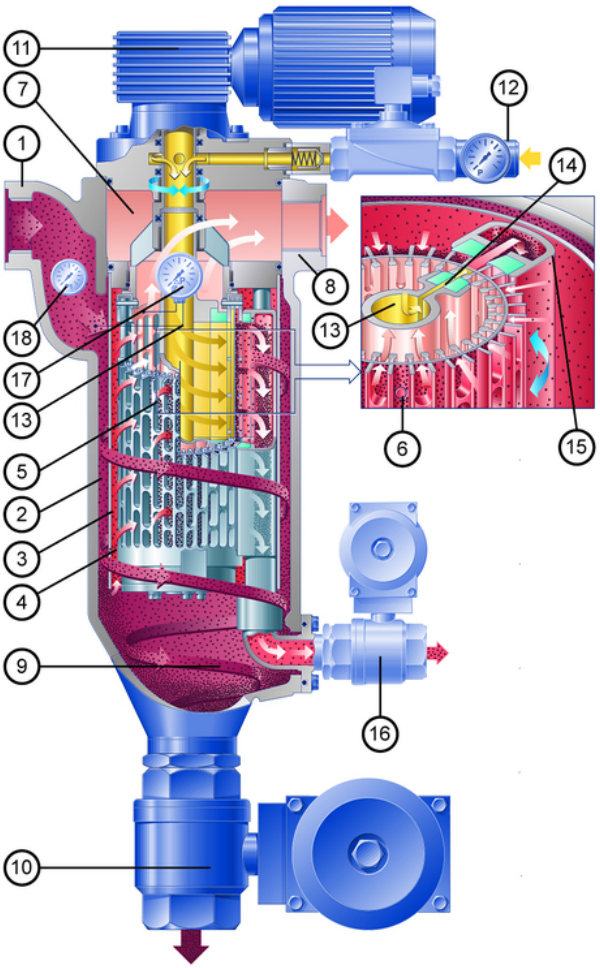
2. Operating principle

The Filtration Group AF 173 G backflush filter belongs to the Vario series. The compact Filtration Group automatic filter system is used for fine and micro-filtration of a variety of low-viscosity liquids.

This inline pressure filter consumes no filter material, which means there is also no need for subsequent disposal. The filter is cleaned without interrupting operation. The concentrated solids are drained off simply by opening the system for a short time.

The medium to be cleaned is guided into the filter housing under pressure and flows inward through the Filtration Group segmented element. Particles settle on the surface of the filter medium. The filtered fluid exits the filter housing at the top opposite the inlet connection.

The integrated preseperator relieves the load on the segmented element, particularly from coarse and heavy particles. This is achieved by a tangential flow around the preseparator tube and the deflection edges.

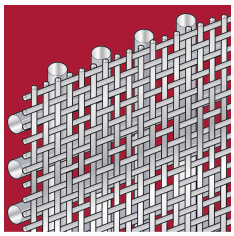


The filter is cleaned when a preset differential pressure limit, a set interval or a defined filtered fluid quantity is reached.

The segmented element is turned as the cleaning and external pressure valves are opened. The segments are then guided one at a time past the pressure channel housing on the inside and the flushing channel on the outside, causing 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. As a result of this pulse cleaning principle, the particles are catapulted out, collected in the flushing channel and discharged almost entirely with external medium. One turn suffices to clean all segments.
The residue that has settled in the collection cone can be emptied via the drain valve either when the machine is at a stillstand or during filtration.
All filters of the Filtration Group Vario series are protected by various patents.

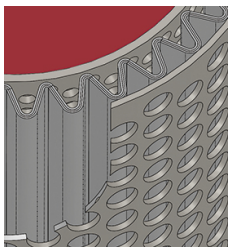
Used Filtration Group filter cartridges in the AF 173 G backflush filter:

Filtration Group Topmesh element (standard):



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

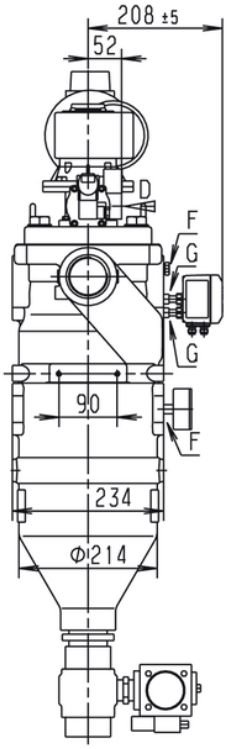
Filtration Group Wave element:

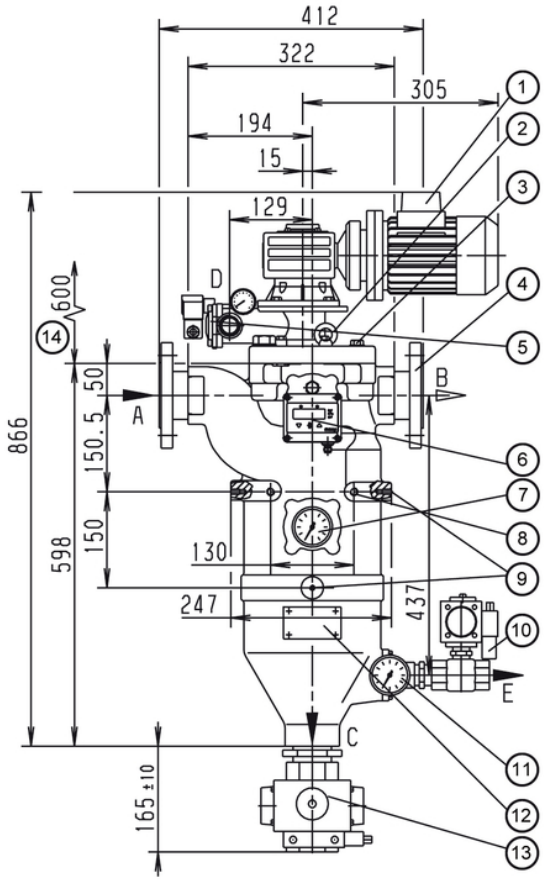


- Higher contamination levels because of pleated filter area
- Complete stainless steel
- Higher flow rate compared to standard elements
- Specially for filter fineness < 60 µm
- Filter media (wire mesh) made of 1.4401

1 Inlet connection
2 Outer inlet plenum
3 Preseparator tube
4 Inner inlet plenum
5 Filtration Group segmented element
6 Filtration GroupE filter material
7 Plenum for filtered fluid
8 Outlet connection for filtered fluid
9 Residue collection cone
10 Drain valve
11 Drive motor
12 External pressure connection, external pressure and backflush valves and gauge P_f
13 External pressure accumulator
14 External pressure nozzle
15 Flushing channel (outside)
16 Cleaning valve (P3 control throttle)
17 Differential pressure contact gauge
18 P1 gauge

3. Technical data





1 Cleaning drive: can be mounted turned 90°, 180° or 270°
2 Lifting eyebolts
3 Vent screw G1/4
4 If DN65 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 Optional: Automatic backflush valve
11 Optional: P3 control throttle with P3 gauge
12 Name-plate
13 Optional: Automatic drain valve
14 Clearance = 600 mm

Filter data

Max. operat. pressure:	16 bar
Max. operat. temperature:	100 °C
Materials:	Housing and cover: GGG Internals: GGG, St Bearing bushes: PTFE based Seals: FPM (Viton) Segmented element: 1.4571 or 1.4571/ Al (Δp max. 10 bar) Wave element: 1.4401
Cover lock:	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 (air: must be reduced to G1/2 by the customer) E-backflush: G1 threaded holes DIN 3852 form Z F-gauge: G1/4 G-indicator: G1/8 Optional: A/B/C G2½ screw-in flanges DN50 or DN65 acc. to EN 1092-1/05A
Drive shaft seal:	Lip seal with O-ring
External finish:	Synthetic resin primer, blue acc. to RAL 5007

Motor data

Worm gear motor
Multi-range winding

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

Protection class: IP 55; insulation class F; output torque: 97 Nm

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
- Ex II 2G T3, output torque: 97 Nm

Weight: 92 kg
Volume: 12 l

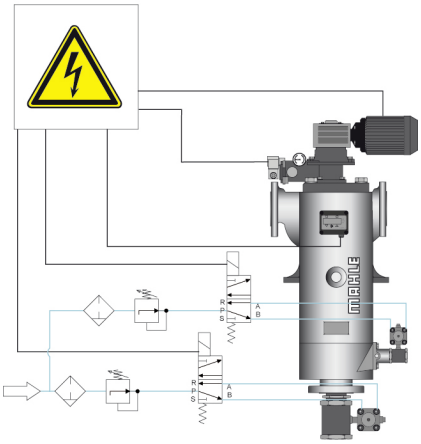
Other versions available on request.
Technical data is subject to change without notice.

4. Design and application

Cartridge type (see section 6)	Total surface in cm²	filter rating in µm / effective filter surface in cm²							
		10	20	30	40	60	80	100	200
AF 100XX6	763	637	637	637	637	637	637	637	637
AF 105216	1750	1620	1620	1620	1620	1620	1620	1620	

recommended design

Possible cleaning and discharge modes



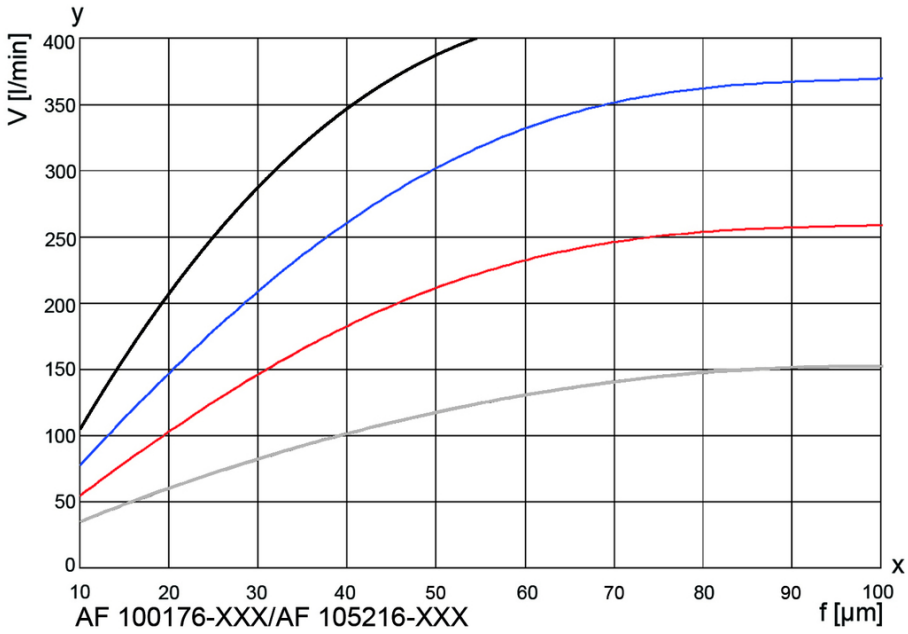
Fully automatic operation:
Filtration usually takes place under pressure. The filter is cleaned after a programmed time or a preset number of cycles or according to the differential pressure. We recommend cleaning the system at a differential pressure of approx. 0.5 - 0.7 bar. The cleaning motor is operated for around 7 s (about one turn of the cartridge). The external pressure and cleaning valves remain open for this period. This suffices to clean the filter thoroughly.

The drain valves is opened in order to discharge the filter. Depending on the residue concentration, this can either take place directly after cleaning or be time or cycle controlled. The opening time of the drain valve is 2-3 s.

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. Performance curves



The curves indicate the volume flow through the complete filter system (filter housingh 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

- 1 mm²/s AF105 DN65/G2 ½
- 1 mm²/s AF100 DN50/G2
- 33 mm²/s "
- 100 mm²/s "

y = Volum flow V [l/min]
x = Filter rating f [µm]

6. Type number key

Type number key with selection example for AF 17363-1321-43220/G3										
Size										
AF 1736	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
						8				Like 3, but with P3 control throttle and P3 gauge
						9				Like 4 but with P3 control throttle and P3 gauge
							Drain valve			
							2			Ball valve, electropneumatic 24 V DC
							3			Ball valve, electropneumatic 230 V AC
							4			Ball valve, electric 24 V DC
							5			Ball valve, electric 230 V AC
								Cleaning valve		
								2		Ball valve, electropneumatic 24 V DC
								3		Ball valve, electropneumatic 230 V AC
								4		Ball valve, electric 24 V DC
								5		Ball valve, electric 230 VAC
									Optional features	
									0	Without/special version
AF 1736	**3**	**- 13**	**2**	**1**	**-4**	**3**	**2**	**2**	**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 filter insert (complete), without housing or drive
3002	Standard filter insert (complete), without housing, with drive
3700	PTFE seals
Other numbers	On request

Type number key with selection example for AF 100 cartridges									
Series									
AF 100	Segmented element with topmesh								
AF 105	Wave element AF 105216								
	Material		**Core element**		**Filter medium**		**Clamp rings**		
	Segmented element								
	17		Al		1.4571		St		
	20		AL/hc		1.4571		1.4571		
	21		1.4571		1.4571 (1.4401)*		1.4571		
		Overall length Diameter x lenght in mm							
		6	110 x 265						
			Gap width/rating in µm (see 4. Design and application)						
			001	10 µm	**004**	40 µm	**010**	100 µm	
			002	20 µm	**006**	60 µm	**013**	130 µm	
			003	30 µm	**008**	80 µm	**020**	200 µm	
				Other filter ratings on request					
AF 100	**17**	**6**	**-006**						

*AF 105 Filter medium 1.4401

7. Spare parts

No.	Designation	Material no.	
		FPM/C steel	PTFE/VA
1	Bush kit		70311579
2	Set of seals (complete)	70316231	70316233
3	Backflush channel moulding	79744004	70312375
4	Backflush channel moulding for wave element*		70597327
5	Distributer	70511099	
6	Cartridge	See name-plate	

*When replacing standard filter element by wave element request wave element kit.

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.

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