Filtration Group®
Industrial

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Automatic backflush filter
AF 122 G1

Cast version with internal pressure segment cleaning
connection size G1 1/2

1. Short description

The Filtration Group automatic backflush filter series AF122 G1 is a filter solution specially designed for use in coolant emulsion and oil areas.

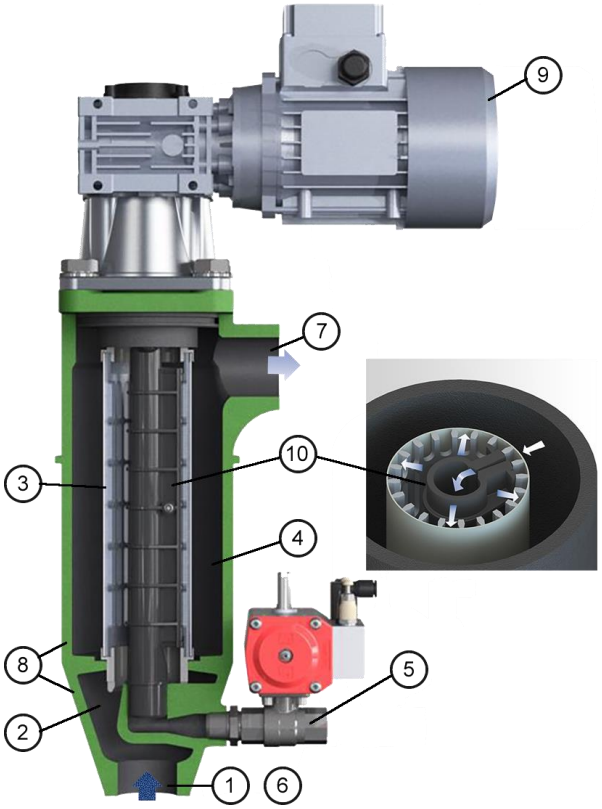
The compact filter system is equipped with an automatic, high equipped with qualitative cleaning. The cleaning process is typically controlled by differential pressure or is initiated by the release, for example by the machine tool. The AF 122 G1 scores with a user-friendly construction and a compact design and can therefore be ideally adapted to the local conditions.

Advantages:

- Series specialized for your application
- Low life cycle costs as no filter material is used
- Cleaning is possible without interrupting filtration
- Precise separation quality in accordance to the surface filter principle
- Process reliability through efficient filter cleaning
- Minimized potential for errors and less time required for maintenance through the consistent use of identical parts
- Less maintenance effort due to the reduced number of components
- Compact design
- Long service life due to solid construction and high-quality materials
- Low liquid loss during the cleaning process
- Can also be used as a continuous flush without valves
- Filter cleaning in segments with a high backwash pulse
- Specification of the actual filter fineness and nominal separation
- Can be used up to a dirt load of 150 mg/l
- Application in Ex zone 1 and 2 optional
- Easy maintenance
- Worldwide sales

2. Principle of operation

The Filtration Group backwash filter AF 122 G1 was specially developed for the machine tool market and requires a pre-separation of at least 100 µm. The compact Filtration Group automatic filter system is used for the fine filtration of emulsions and oils.
This pressure filter uses no filter material. This eliminates subsequent disposal. The cleaning can be carried out without interrupting operation. The degree of contamination of the filter is checked via an optical maintenance indicator. Optionally, the monitoring can also be carried out with a digital differential pressure gauge. Furthermore, an electric-pneumatic swivel drive is available as an alternative to the three-phase geared motor. As a retrofit version, it is also possible to attach a purely pneumatic drive. The advantage lies in the interaction with the digital differential pressure measuring and display device with integrated control function PiS 3170 MFC. This allows self-sufficient automatic filters to be combined that do not require any additional electrical control with a power unit for the three-phase motor. Only 24 V DC field voltage and compressed air are required as auxiliary energy. To empty the cone, the system is opened via the cleaning connection.



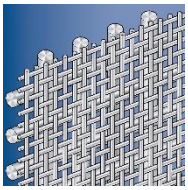
1 Inlet connection
2 Inlet plenum raw side
3 Filtration Group segment element
4 Plenum for filtered fluid
5 Backwash valve with ball valve
6 Optional ball valve as drain
7 Drain connection
8 Connections for differential pressure indicators/switches
9 Cleaning drive with gear motor
10 Backwash channel

The medium to be cleaned is fed into the filter housing under pressure > 2.5 bar. The flow through the segment element is from the inside to the outside. Here, particles are deposited on the surface of the filter medium on the inside of the element. The filtrate leaves the filter housing on the side in the upper area (see point 8).
The particles or agglomerates are lifted off the surface and sink into the collection cone. Cleaning takes place either when a preset differential pressure limit value is reached, a set interval or a filtered amount of liquid. While the cleaning valve at the bottom of the cone is open, the backwash channel rotates on the inside of the element. The segments are picked up and cleaned one after the other by the backwash channel. The segments are alternately opened and sealed. The segments are cleaned by the pressure drop between the system pressure and atmospheric pressure. Pulse cleaning throws particles off the filter surface and discharges them through the flushing channel with little of their own medium.

Filtration Group filter elements used in the edge filter AF 122 G1:

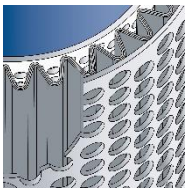
Filtration Group Topmesh (Standard):

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



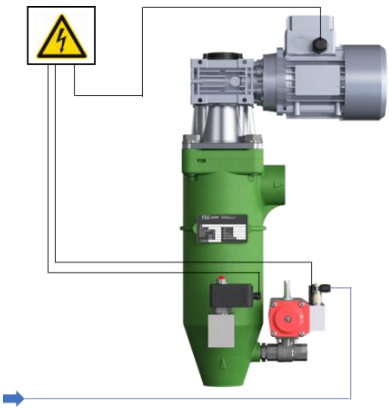
Filtration Group Wave cartridge (Optional):

- Higher concentration of dirt thanks to the pleated filter surface
- Completely made of stainless steel as standard
- Higher throughput compared to standard
- Especially for filter fineness < 60 µm
- Suitable for higher pH values



3. Design and application

Cleaning and discharge modes

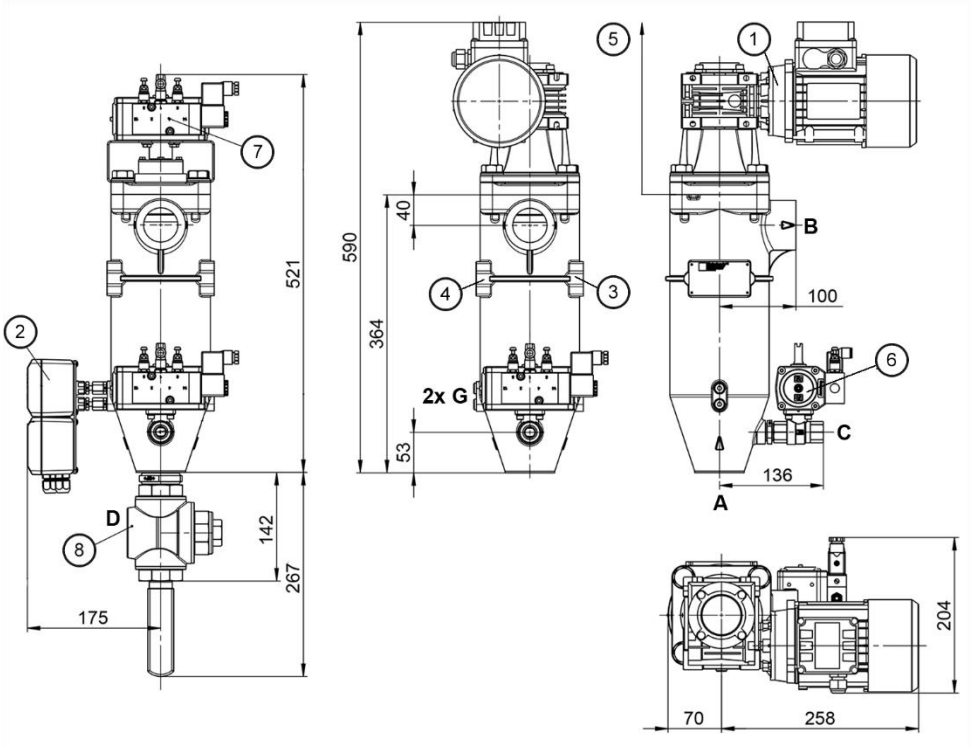


Fully automatic operation:

The filtration usually takes place during pressure operation. The filter can be cleaned time, cycle or differential pressure controlled. We recommend cleaning at a differential pressure of approx. 0.5 bars. The cleaning motor is operated for about 4 s (about one revolution of the channel). At the same time, the cleaning valve is opened, which creates a pressure drop. An inherent pressure of 2-3 bar is sufficient for good cleaning. emptied or Backwashing is only possible by opening the cleaning valve. The opening time of the valve is equivalent to the running time of the engine. There is also the option of emptying the clean side via an additional connection.

For detailed technical information and questions 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. Technical data



1 Cleaning drive: Worm gear motor can be moved at each 90° position
2 Optional differential pressure indicator/switch
3 Mounting holes Ø10
4 Type plate
5 Removal height = 400 mm
6 Backflush valve
7 Optional electro-pneumatic swivel drive
8 Optional drain valve

The optional control throttle at the outlet connection (dynamic pressure) is not shown in this drawing.

Filter data

Max. operating pressure:	- 16 bar
Max. operating temperature:	- Max. 100°C
Materials:	- Housing and cover: 0.7040
	- Internal parts: C-steel, PTFE, PPS
	- Bearing bushes: sliding plastic
	- Seals: FKM
	- Topmesh segment element: Al, 1.4571
	- Wave Element: 1.4401, 1.4571
Lid closure:	- 4 hex screws M16
Connections and nominal diameters:	- A inlet, B outlet: G1½
	- C backwash: G½
	- D drain optional: G½
	- G-Δp connections: G1/8 (2x)
	All threaded holes DIN 3852 form x
Drive shaft seal:	- O ring FKM
Exterior finish:	Synthetic resin primer RAL 6018

Motor data

Worm gear motor
Multi-range winding

V	Hz	week	rpm	A
Δ 230 ± 10 %	50	0.18	17	1.2
⅄ 400 ± 10 %	50	0.18	17	0.7
Δ 265 ± 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

Options:
- Ex protection according to ATEX 2014/34/EU
- Electrical equipment in Ex II 2G T3
- Mechanical design in Ex II 2G c T3
- Pneumatic part-turn actuator drive
- Differential pressure gauge PiS 3310
- PiS 3154 differential pressure indicator
- PiS 3170 differential pressure indicator/switch
- Differential pressure indicator/switch with control PiS 3170 MFC

Weight: 18.5 kg (with motor)
Content: 2.8 l

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

5. Cartridges

FG Top mesh cartridge		Gap width [µm]/Type end number							
Type/surface area [cm²]	**Materials/ dimensions**	**10**	**20**	**30**	**40**	**60**	**80**	**100**	**200**
AF 120174-XXX310 cm²	Support body aluminium, topmesh stainless steel 1.4571/ø65x231 mm	**-001**	**-**	**-003**	**-004**	**-006**	**-**	**-**	**-**

Technology
- Stainless steel mesh with a high percentage of free space
- Filter layer/support layer (solidly sintered)
- Fines Throughput/FE 30 µm to 80 l/min; 60 µm to 120 l/min
- Values for filter elements (FE) Ø65x231 mm apply to emulsions with a pre-separation of min. 100 microns
- The elements can be cleaned, for example, with high-pressure cleaners or ultrasound. Brushing is not recommended.

application
- For low viscosity liquids
- e.g. emulsions, dispersions, lubricating oils and lubricants
- For high solid loads
- Recommended for filtration from 30 to 60 µm

FG Wave cartridge		Gap width [µm]/Type end number							
Type/surface [cm²]	**Materials/ dimensions**	**10**	**20**	**30**	**40**	**60**	**80**	**100**	**200**
AF 125214-XXX1750 cm²	Carrying body aluminum hard coated, Stainless steel 1.4571/ø65x231 mm	**-**	**-**	**-**	**-**	**-006**	**-**	**-**	**-**

Technology
- Stainless steel mesh with a high percentage of free space
- filter layer/support layer (solidly dotted); pleated
- Fines throughput/FE 60 µm to 220 l/min
- Values for filter elements (FE) Ø65x231 mm apply to emulsions with a pre-separation of min. 100 microns
- Cleaning of the elements is possible, e.g. high-pressure cleaner or ultrasound. Brushing is not recommended.

application
- For low viscosity liquids
- e.g. emulsions, dispersions, lubricating oils and lubricants
- For high solid loads
- Recommended for filtration of 60 µm

6. Type number key

Type number key with selection example for AF 12243-2121-B0020/G1										
Size										
AF 1224	1x 65x230									
	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								
	7	Pneumatic part-turn actuator								
		Inlet and outlet connection								
		21	G1 1/2							
			Permissible operating pressure in bar (housing/cover)							
			2	PN 16						
				Material	FPM seal and PTFE bearing					
				1	Housing and cover GGG, inner parts c-steel, aluminium, PPS					
				3	Housing and cover GGG, internal parts stainless steel 1.4301/1.4571, PPS					
					Differential pressure indicators and switches					
					B	PiS 3154, opt./electr. Δp indicator, 2 switching points (0.9/1.2 bar), NO/NC				
					3	PiS 3170 MFC, digital Δp manometer with control function in combination with pneumatic swivel drive				
					4	PiS 3170, digital Δp manometer, 2 switching points 0-16 bar adjustable				
						Valves and control throttles				
						0	Without/special version			
						1	P2 control throttle			
							Drain valve			
							0	Without ball valve		
							1	Ball valve, manual		
							2	Ball valve, electro-pneumatic 24 V		
							4	Electric ball, valve 24 V		
								Cleaning valve		
								0	Without/special version	
								2	Ball valve, electro-pneumatic 24 V	
								4	Ball valve, electric 24 V	
									Special equipment	
									0	Without/special version
AF 1224	**3**	**- 21**	**2**	**1**	**-B**	**0**	**0**	**2**	**0**	**-XXXX (end no. for special version)/G1***

* Supplement end number:
G1 cast design, Version 1

End number	Special version
xxxx	On request
other	On request

7. Spare parts

No.	Designation	Order number	
		FKM/C steel	PTFE/VA
1	Set of seals (complete)	72494754	
2	Backflush channel	72498139	
3	Bush	79331752	
4	Cartridge	see name plate	

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