MAHLE

Automatic Filter

with pressurised segment cleaning and integrated cyclone effect

AF 113 G

Cast version

for liquids

Connection sizes: G2, flange DN 50 and DN 65

1. Principle of operation

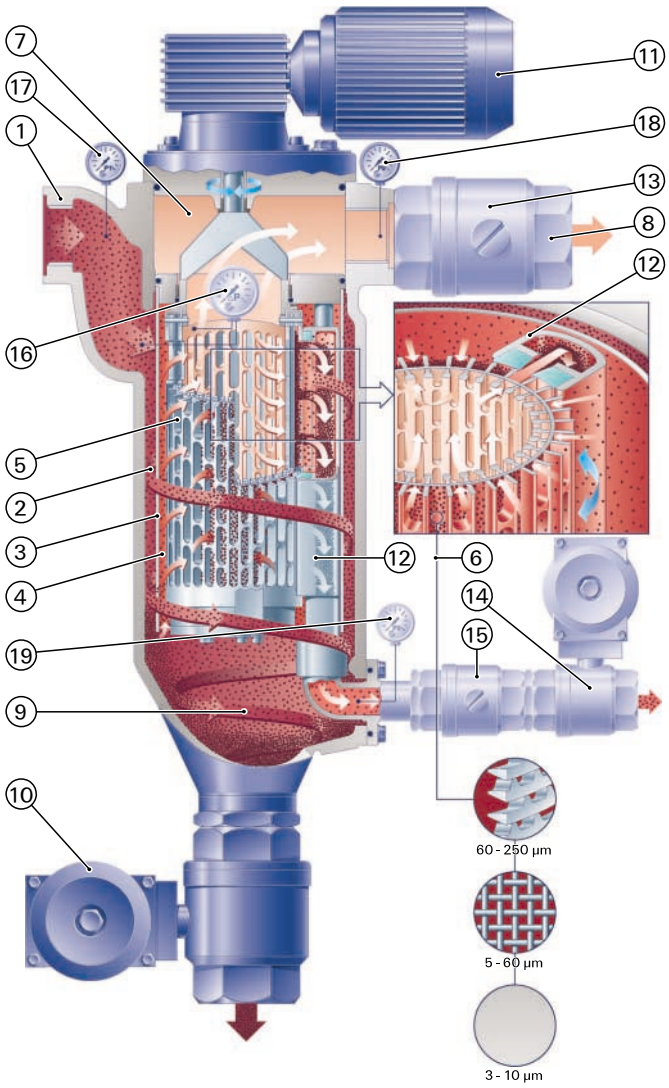
The compact **MAHLE automatic filter system** with integrated cyclone effect is used for the extra-fine and fine filtration of low-viscosity liquids. This in-line pressure filter, which can be cleaned in-process with a low filtrate flow, requires no waste disposal measures such as used filter material.

The integrated cyclone effect facilitates pre-separation of heavy particles, which gather in the collection cone.

The liquid then flows inward through the **MAHLE filter element**. The required separation of the remaining particles takes place on the **MAHLE filter element**. The filtrate then flows out of the filter at the top, opposite the inlet connection.

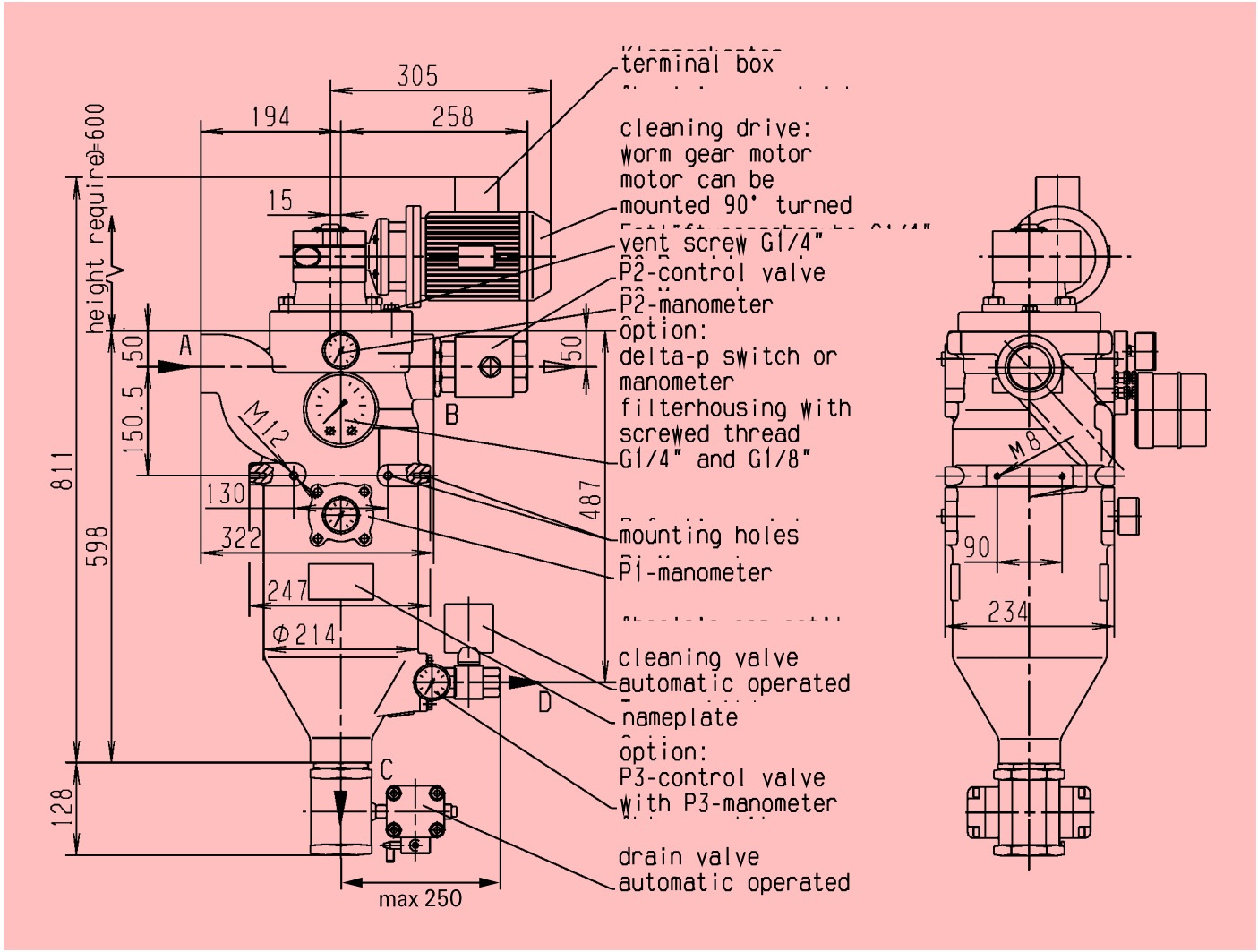
Once the differential pressure limit or a set time interval has been reached, the segmented element is turned and the cleaning valve is opened at the same time. The segments pass over the cleaning channel in consecutively. The difference between the outlet pressure and the cleaning channel pressure causes an inherent reverse flow cleaning and discharge of the particles via the cleaning channel. This **reverse flow cleaning** principle requires a P_1 pressure of at least 2 bar upstream of the filter so as to enable a cleaning pressure of at least 1 bar to be created at the filtrate end by means of a P_2 regulating valve. It only takes a one rotation to clean all the segments. The residue deposited in the collection cone can then be emptied through the drain valve while the system is switched off or while it is in operation.

An automatic filter variable series, based on this filter and protected by various patents allows great flexibility in responding to a wide range of different filtration requirements, with this device's various cleaning systems and filter materials.



1. Inlet connection
2. Outer inlet chamber
3. Immersion pipe
4. Inner inlet chamber
5. MAHLE segmented element
6. MAHLE filter materials
7. Filtrate chamber
8. Filtrate discharge point
9. Residue collection cone
10. Drain valve
11. Drive motor
12. Cleaning channel
13. P2 regulating valve
14. Cleaning valve
15. P3 regulating valve (required under certain conditions)
16. Differential pressure gauge
17. P1 pressure gauge
18. P2 pressure gauge
19. P3 pressure gauge (required under certain conditions)

2. Dimensions and data



Motor data

Worm gear motor
MB winding

V	Hz	kW	rpm	A
△ 230 ± 10 %	50	0,18	9,3	0,7
⅄ 400 ± 10 %	50	0,18	9,3	0,4
△ 266 ± 10 %	60	0,22	11,2	0,7
⅄ 460 ± 10 %	60	0,22	11,2	0,4

Degree of protection: IP 55 insulation class F; output torque: 97 Nm

Worm gear motor with explosion protection
EExe II T4; output torque: 97 Nm

V	Hz	kW	rpm	A
△ 230 ± 10 %	50	0,18	9,3	0,7
⅄ 400 ± 10 %	50	0,18	9,3	0,4

Dimensions / Type	Contents (l)	Weight (kg)	Cleaning
AF1133-...-...	12	85	Gear motor
AF1134-...-...	12	85	Gear motor (expl.-prot.)

Other finishes available on request
Subject to technical modifications!

Filter data

Permissible operating pressure: 16, 25 bar
Permissible operating temperature: 100 °C

Perm. differential pressure	for
10 bar	segment element with top-mesh or high-grade steel fleece
25 bar	segment element with V-profiled spacer winding

		Possible on request		
	Series	with a reducing adapter	With a screw-in flange	
A-B / Inlet / outlet connection:	G 2	G 1	DN 50	DN 65
C / Drain connection:	G 2	G 1	G 2	G 2
D / Cleaning connection:	G 1	G 1	G 1	G 1

All screw-in holes conform to DIN 3852, X-type
Flanges conform to DIN 2527

Standard materials: Housing and cover NCI 40
Option: Certificate according EN 10204 - 3.1B
Installed parts st. 1.4301, NCI 40, PU
Bearing bushes PTFE-based
FPM (Viton) seals

Cover lock: 4 x hexagon head screws, M20

Drive shaft seal: Stuffing box packing rings made from PTFE yarn with disc spring pre-tensioning

Outer paintwork: Artificial resin primer, blue conforming to RAL 5007

3. Type designation

Type designation for filter housings
Specimen selection:

AF 1136 3 – 13 2 1 – 4 1 2 2 0 / G 1

Size, quantity, Ø and length of the element in mm	Cleaning drive	Inlet / outlet connections	Permissible operating pressure [bar] Housing / cover	Standard material with FPM seal + PTFE bearing	Differential pressure display / switch	P_2 regulating valve P_3 regulating valve	Drain valve 1)	Cleaning valve 2)		End no. for	Design variants	Type	
1 x Ø 110 x 265	3 Standard gear motor 230/400 V/50 Hz 266/460 V/60 Hz 10 rpm	12 G 1	2 PN 16	1 Housing, cover, nodular cast iron 40, internal parts ch. steel or similar	1 PIS-3076/ 1,2 bar stat. 63 bar Al/FPM	1 P_2 regulating valve	2 Automatic ball valve el.-pneum. 24 V / double-action	2 Automatic ball valve el.-pneum. 24 V / double-action	Free	none Standard filter	Standard filter	G Cast iron finish	Serial design number
	4 Standard gear motor 230/400 V/50 Hz EExe II T4 10 rpm	13 G 2	3 PN 25	3 Housing, cover, NCI 40, internal parts high-grade steel 1.4301	2 PIS 3076/ 0,7 bar/ stat. 63 bar Al/FPM	6 Same as 1 except with an additional P_3 regulating valve	3 Automatic ball valve el.-pneum. 230 V / double-action	3 Automatic ball valve el.-pneum. 230 V / double-action		3001 Standard filter insert, complete without housing and motor			
	Others available on request	14 Screw-in flange DN 50 for a casted version	Others available on request	5 Housing, cover, NCI 40, chemical nickel-plated internal parts, high-grade steel 1.4301	4 delta-p contact-making pressure gauge 0 – 1,6 bar		4 Automatic ball valve el. 24 V	4 Automatic ball valve el. 24 V		3002 Standard filter insert, complete without housing and motor			
		15 Screw-in flange DN 65 for a casted version		6 Housing, cover, NCI 40 with Ormecon-coating, internal parts high-grade steel 1.4301			5 Automatic ball valve el. 230 V	5 Automatic ball valve el. 230 V		3700 PTFE seals			
		Others available on request		Others available on request			Others available on request	Others available on request		Others available on request		S Welded finish available on request	
	0 Different design, see end no.	0 Different design, see end no.	0 Different design, see end no.	0 Different design, see end no.	0 Without or different design, see end no.	0 Without or different design, see end no.	0 Without or different design, see end no.	0 Without or different design, see end no.					

Unless otherwise specified, accessories are made from the same or similar materials and are subject to at least the permissible filter operating pressure.

The complete filter insert is built as standard at the highest pressure level. If the cleaning motor is used in explosion-protected design, the drain valve is also designed to be explosion-protected. The filter is equipped as standard with a pressure control gauge for P_1, P_2 or P_3.

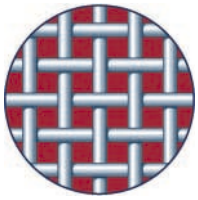
Inlet / outlet connection	G1	G2 / DN 50	DN 65
1) Drain valve	G1	G2	G2
2) Cleaning valve	G1	G1	G1

Type designation for segmented elements
Specimen selection:

AF 100 17 6 – 002 / E0

AF	Series	Profile support material		Top-mesh, high-grade steel fleece or V-profiled spacer winding	Supporting ring material	Ø x length in mm		Filter gauge / gap in µm		
100	Segment element with top-mesh 5 - 60 µm	17	Al	1.4571	St	6	Ø 110 x 265	0003	3	Serial design number
120	Segment element with a V-profiled spacer winding 60 - 250 µm	20	Al-hard coadet	1.4571	1.4571			0005	5	
150	Segment element with a high-grade steel fleece 3 - 10 µm							001	10	
								002	20	
								003	30	
								004	40	
								006	60	
								008	80	
								010	100	
								016	160	
								025	250	
		Others available on request							Others available on request	

4. Filter materials

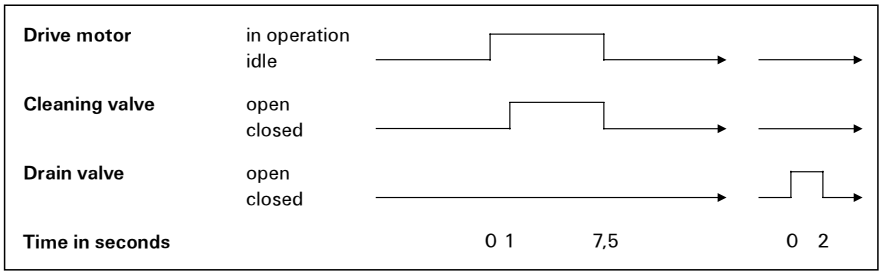
Filter material	 V-profiled spacer winding		 Top-mesh		 Reinforced high-grade steel fleece	
Nominal filter gauge / gap width in µm	Open filter surface		Open filter surface		Porosity	
		cm²	%	cm²	%	–
3 µm	–	–	–	–	–	–
5 µm	–	–	–	25	4	–
10 µm	–	–	–	38	6	–
20 µm	–	–	–	201	32	–
30 µm	–	–	–	244	39	–
40 µm	–	–	–	251	40	–
60 µm	88	14	251	40	–	–
80 µm	119	19	–	–	–	–
100 µm	138	22	–	–	–	–
160 µm	156	25	–	–	–	–
250 µm	194	31	–	–	–	–
Filtration effect	■■■■■		■■■■■		■■■■■■	
Cleaning behaviour	■■■■■■		■■■■■		■■■■	
Differential-pressure strength	■■■■■■		■■■■		■■■■	

Evaluation scale: ■■■■■■ very good
■ bad

Other finishes available on request

The permissible volumetric flow and the filtration and cleaning behaviour of the fluids are evaluated depending on the viscosity and properties, as well as the size, condition and concentration of the solid matter or particulates in the fluid stream.

5. Standard cleaning control



The cleaning process can be started by means of a differential pressure contact set to a limit, via time intervals or by counted machine cycles.

Our consultants will be happy to assist you. If you do not have reliable evaluation criteria to hand, tests can also be performed.

Subject to technical modifications!

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