

Translation of the original operating instructions with assembly instructions

Automatic backwash filter with self-pressure cleaning
AF 122 G1

Material-no. of the operating instructions
72501418



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2 General safety instructions

2.1 Safety instructions for assembly and operating personnel

The operating instructions contain basic safety instructions that must be observed during installation, normal operation and maintenance.

Non-observance can result in a hazard to persons as well as to the environment and machine/system:

- ⇒ Failure of important functions of the machine/system/system parts.
- ⇒ Danger to persons from electrical, mechanical and chemical influences.
- ⇒ Danger to the environment due to leakage of hazardous substances.

Before installation/commissioning:

- read the instruction manual.
- Sufficiently train installation and operating personnel.
- Make sure that the content of the operating instructions dated responsible personnel is fully understood.
- Regulate areas of responsibility and responsibility.
- Create maintenance plan.

When operating the system:

- Keep the operating manual available at the place of use.
- Observe safety instructions. Operate the machine/system only in accordance with the performance data.

In case of ambiguity:




- Ask the manufacturer.

2.2 Structure of warning notices








As far as possible, warnings are structured according to the following scheme:

Signal word	
Partly with symbol	Nature and source of the hazard ⇒ Possible consequences of non-observance. • Measures to avoid the hazard.

2.3 Warnings used

 DANGER!
Imminent danger! ⇒ Failure to do so will result in serious injury or death.
 WARNING!
Possibly dangerous situation! ⇒ Failure to do so could result in serious injury or death.
 ATTENTION!
Possibly dangerous situation! ⇒ Failure to do so may result in medium to light injuries.
ATTENTION! (without icon)
Possibly dangerous situation! ⇒ Failure to do so may result in property damage.

2.4 Symbols used

	Danger from electrical voltage
	Danger notices for explosion protection
	Notes on environmental protection
	Wear protective clothing!
	Wear safety glasses!
	Wear respiratory protection!
	Notice sign: describes general information and recommendations
•	Bullet point: describes the order activities to be carried out
⇒	Reaction sign: describes reaction(s) to activities

3 Definitions

Cleaning:

Cleaning the segment element. The backwash channel is rotated. The filtrate or the inherent pressure medium flows from the outside to the inside through the segment element and cleans it segment by segment.

Aerosol:

Distribution of the finest liquid droplets (or solids) in a gas.

Agglomerate:

Structures made up of several smaller particles that have agglomerated due to physical forces.

Initial differential pressure:

Differential pressure at the start of filtration (with a "clean" segment element).

Differential pressure (Δp):

Pressure difference between dirty side and clean side.

Filter cake:

Growing layer of solids retained on the surface of the segmental element.

Filtrate:

Filtered fabric.

Filtration operation:

The automatic filter is in normal operation with the valves closed.

Homogenization:

Unification of a material system.

Concentrate:

Amount of residue enriched with solids. Periodically emptied from the filter. Depending on the application, further post-treatment is required.

KSS:

Cooling lubricant according to DIN 51385.

Segment element:

Cylindrical body made of two concentric profile bodies. The actual filter medium lies between the profile bodies. The suspension to be filtered flows from the inside to the outside. Solids are retained on the inner surface of the segmented element.

Siphon:

Pipe routing in the form of a "U". A siphon cannot be emptied without a valve.

Suspension (raw suspension):

Material system to be filtered. Usually consisting of solids in a liquid.

Pre-control:

5/2-way solenoid valves controlled by the controller that switch pneumatic valves.

4 General Information

4.1 Manufacturer

Filtration Group Ltd
Schleifbachweg 45
74613 Öhringen
Phone +49 7941 6466-0
Telefax +49 7941 6466-429
industrial.sales@filtrationgroup.com
industrial.filtrationgroup.com
shopindustrial.filtrationgroup.com

4.2 Information on the operating instructions

FG Mat. No.: 72501418
Date: 02.11.22
Revision:00

4.3 Equipment marking ATEX



II	2	G	c	T3
1.	2.	3.	4.	5.
1.	II	Applies to surface use		
2.	Use in:	Zone 1 2	zone 2 3	
3.	the atmosphere G = gas D = Dust	G	G	
4.	degrees of protection c = structural safety			
5.	T3 = The max. Surface temperature on the filter device is 200 °C			

(Field for type plate according to ATEX)

The explosion protection class only applies in connection with the declaration of conformity.

5 Intended area of use

⚠ DANGER!

NOT PERMITTED:

- Any other use - without consulting the manufacturer.
- Use in EX zones that are not confirmed in the contract documentation.
- Use with smoldering, burning or sticky particles.
- Use with highly explosive dusts (e.g. aluminum dust, explosives, etc.).

⚠ ATTENTION!

This FG automatic filter may only be used in accordance with the operating conditions specified in the contractual documentation and operating instructions. Any other use or use that goes beyond this is deemed to be improper. The manufacturer is not liable for any resulting damage.

ATTENTION!

Conditionally permitted:

- Use of solvents after consultation with the manufacturer.

The FG automatic filter is suitable for solid filtration of low-viscosity liquids.

Main areas of application:

- Cooling lubricant filtration

6 Functional description

6.1 Main components AF 122 G1

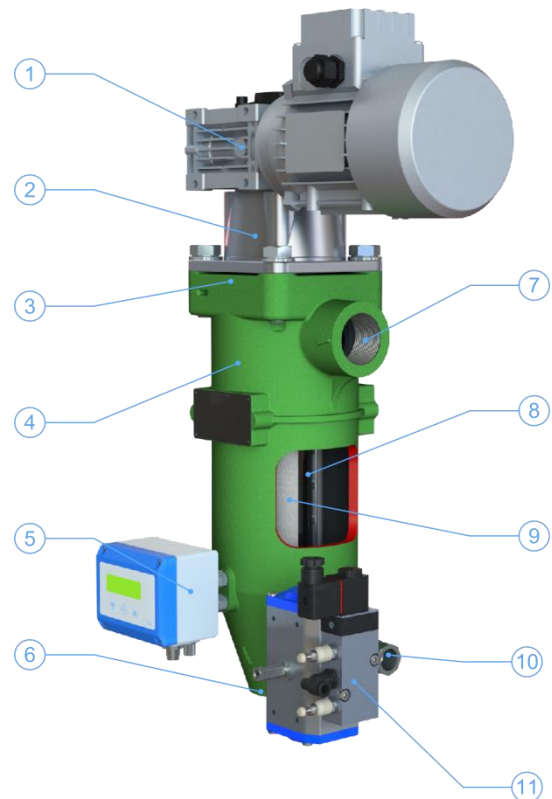


fig 1: Designation of the main components 1

1	Main drive
2	Engine mount
3	Filter cover
4	Filter housing
5	Differential pressure indicator/switch (option)
6	Inlet connection
7	Drain connection
8	Back wash nozzle
9	Filter element
10	Back wash connection
11	EL/PN actuator

6.2 Process and functional principle AF 122 G1

To ensure trouble-free use of the AF 122 G1, a pre-filtration of 100 µm is specified.

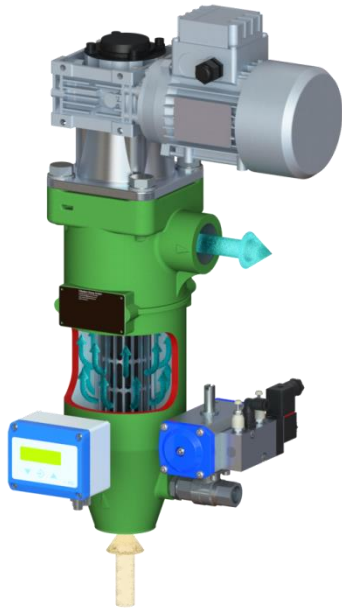


fig 2: Functional principle - filtration²

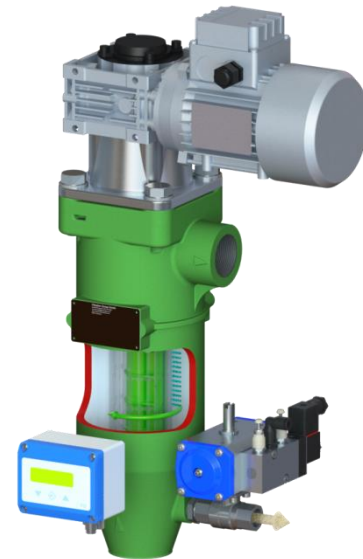


fig 4: Functional principle - cleaning⁴

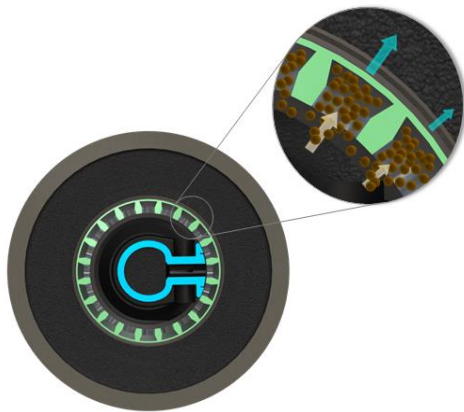


fig 3: Direction of filtration on the filter element³

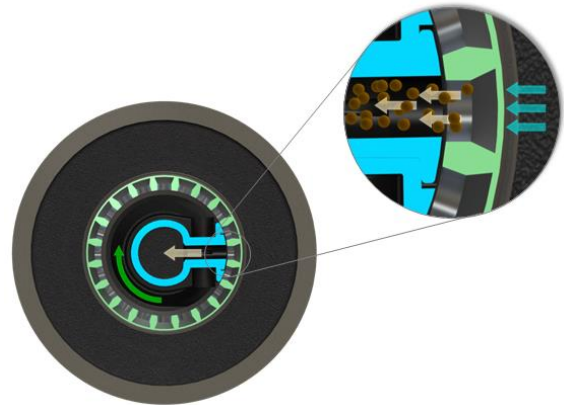


fig 5: cleaning process⁵

The suspension flows through the segment element via the inlet connection.

When flowing through the segment element from the inside to the outside, the particles contained in the suspension are deposited on the filter medium and generate a differential pressure there.

When the preset differential pressure is reached or after a time interval has elapsed, the cleaning of the segment element is triggered.

1

The suspension flows through the segment element via the inlet connection.

The particles contained in the suspension are deposited on the inside of the segment element.

2

The filtrate enters the clean room and leaves the filter.

The backwash channel is turned past the segment element by the main drive. The backwash valve opens. The particles are removed segment by segment from the filter medium by the inherent pressure cleaning and routed out of the filter through the backwash channel.

3

Cleaning is triggered when a maximum differential pressure is reached (when using an optional differential pressure indicator/switch) or a preset time.

4

The backwash channel is rotated by the main drive. The backwash valve opens. The particles are removed segment by segment from the filter medium by the inherent pressure cleaning and routed out of the filter through the backwash channel. The cleaning effect can be adjusted using a control throttle (option). The filtrate pressure the filtrate volume flow decreases during cleaning. The filtration operation is not interrupted.


7 Technical specifications

7.1 General data AF 112 G2 (without options)

Electrical energy requirement*: 230 V/400 V
short-term noise emission: < 70 dB(A)
Dimensions: see data sheet
At least Removal height above filter: 400 mm
Total empty weight: 18.5 kg
Max. Operating temperature: 100 °C
Max. perm. operating pressure: up to 100 °C: 16 bar
Max. perm. differential pressure: 10 bar

*see also main drive type plate

7.2 Order-related data


	If the segment element or the filter insert is modified, the validity of the type plate expires. <ul style="list-style-type: none">Request a new type plate from the manufacturer.
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Data are order-related and can be transferred from the type plate.

7.2.1 Type plate for filters with explosion protection

		Filtration Group GmbH Schleibachweg 45 D-74613 Öhringen industrial.sales@filtrationgroup.com www.industrial.filtrationgroup.com Made in Germany		MAT. NR. ID NO.	
TYP TYPE					
FILTERELEMENT FILTER ELEMENT					
MAX. ZUL. BETRIEBSDRUCK MAX. ALLOWABLE PRESSURE		PS		bar	AUFTRAGSNUMMER JOB NO.
PRÜFDRUCK TEST PRESSURE		PT		bar	BAUJAHR YEAR
BETRIEBSTEMP. OPERATING TEMP.		TS		°C	MM/YYYY
INHALT CAPACITY		L			PRÜFDATUM TEST DATE
					MM/YYYY
					HERSTELLERCODE MANUFACTURE CODE
					HERSTELLER BEHÄLTER NR. MANUFACTURE VESSEL NO.

7.2.2 Type plate for filters without explosion protection

		Filtration Group GmbH Schleibachweg 45 D-74613 Öhringen industrial.sales@filtrationgroup.com www.industrial.filtrationgroup.com Made in Germany		MAT. NR. ID NO.	
TYP TYPE					
FILTERELEMENT FILTER ELEMENT					
MAX. ZUL. BETRIEBSDRUCK MAX. ALLOWABLE PRESSURE		PS		bar	AUFTRAGSNUMMER JOB NO.
PRÜFDRUCK TEST PRESSURE		PT		bar	BAUJAHR YEAR
BETRIEBSTEMP. OPERATING TEMP.		TS		°C	MM/YYYY
INHALT CAPACITY		L			PRÜFDATUM TEST DATE
					MM/YYYY
					HERSTELLERCODE MANUFACTURE CODE
					HERSTELLER BEHÄLTER NR. MANUFACTURE VESSEL NO.

8 Transport and Storage


Transport

- only lying in the original packaging
- Avoid shocks



Storage

- only lying in the original packaging
- only in dry, frost-free rooms







	Seaworthy packaging as an option is specified in the contract documentation.
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9 Assembly Instructions

⚠ DANGER!	
	Danger of explosion! ⇒ Personal injury and property damage <ul style="list-style-type: none">Installation and operation of the FG automatic filter only in the category specified in the contract documentation (offer/order confirmation).If there is no information: Do not operate the FG automatic filter in Ex zones!The zoning is done by the operator.The operator alone is responsible for selecting the required explosion protection measures!Possibly. Consultation with competent authorities.
	⚠ DANGER!
	Danger of explosion! ⇒ Personal injury and property damage <ul style="list-style-type: none">Installation, acceptance and testing may only be carried out by a qualified person (99/98/EG).
	⚠ WARNING!
Unauthorized installation of the system! ⇒ risk of injury ⇒ void the warranty <ul style="list-style-type: none">The system may only be installed by qualified personnel!	

9.1 Lineup

 DANGER!	
	Danger of explosion! ⇒ Personal injury and property damage <ul style="list-style-type: none">• Check conductivity between all components!• Maximum permissible resistance value Note $R < 10 \Omega$• Ensure on-site grounding.
	Filter internal parts must be able to be removed for maintenance work.
 ATTENTION!	
High pressure at the cleaning valve! ⇒ personal injury or property damage <ul style="list-style-type: none">• Depressurize before assembly and disassembly.	

- Prepare a suitable filter holder
Mounting holes on the back
(see dimensional drawing page X.)
- Take the expansion height into account (see dimensional drawing page X).
- Lift the automatic filter out of the packaging using a suitable lifting tool.

 DANGER!	
	Submersive Filter! ⇒ Personal injury and property damage <ul style="list-style-type: none">• Securely fix the filter holder.

- Connect the automatic filter to the prepared filter holder.
- Remove protective caps from connections.
- Connect pipes.

Overpressure protection

- Structurally avoid impermissible overpressures on the dirty side.
- Possibly. Install overpressure protection.

9.2 Pipeline installation and pump selection


- Only install the filter on the pump pressure side.
- Check the characteristic curve of the pump.
- Position the pump suction port securely below the liquid level.
- Filtrate pressure if necessary adjust with control throttle.
- To minimize the cleaning quantity, Install control throttle in cleaning line.
- Minutes Ensure an inlet pressure of 2.0 – 3.0 bar.

9.3 Back wash


The maximum permissible static pressure for the AF 122 G1 is pressure level PN 16.

The usual operating pressure for backwash filters with self-pressure cleaning is between 2 and 6 bar. At higher operating pressures, safe operation can be ensured by taking suitable measures, e.g. B. Secure throttles, pressure reducers or locks. At higher operating pressures, the backwash volume increases.

9.4 Mechanical installation

 ATTENTION!
High pressure at the cleaning valve! ⇒ personal injury or property damage <ul style="list-style-type: none">• Depressurize before assembly and disassembly.

9.5 Electropneumatic connection

⚠ DANGER!	
	Danger of electric shock! ⇒ Death or severe injuries from touching electrical components. • Electrical installations only by qualified electricians!

9.5.1 Connection to on-site control

Gear motor

- Connection data on the type plate or from the contract documentation (see also terminal box wiring diagram).
- Provide suitable motor protection.
- Connect gear motor.

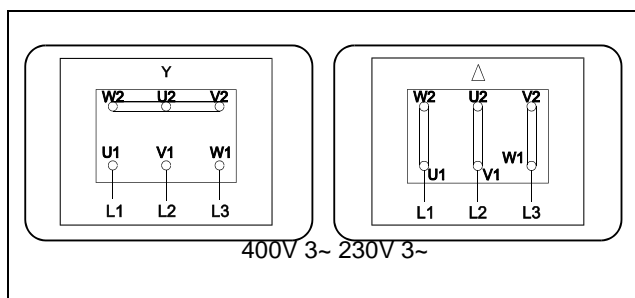



Abb. 1: Connection standard gear motor

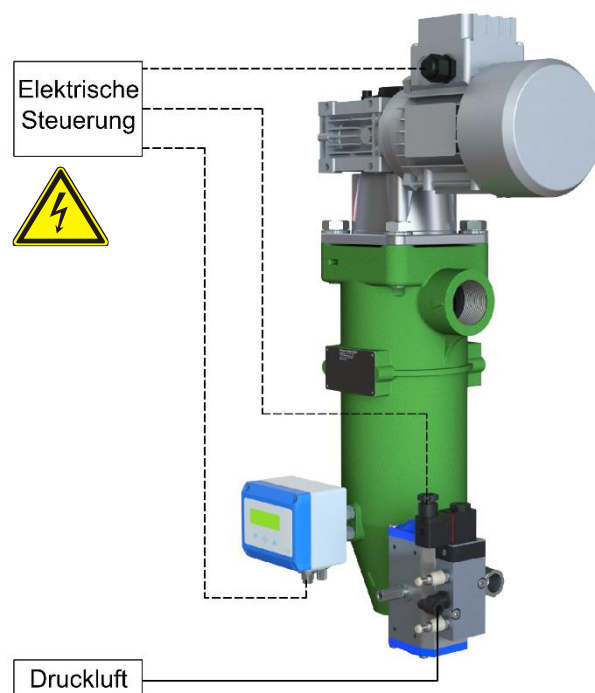
Differential pressure indicator/switch (option)

- For connection, see the supplied manufacturer documentation.


Automatic valves (option)

- Connect the pilot valve (5/2-way solenoid valve) to the compressed air supply (approx. 6 bar).
- Connect the solenoid coil to the power supply.

	For special designs see contract documentation.
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Druckluft

	Provide on the control box: • manual release cleaning
---	--

9.5.2 Connection to FG control (option)

- Connect the feed, geared motor, external pressure valve, differential pressure indicator/switch (option) and pilot valve (option) according to the circuit diagram supplied.

9.6 Control variants AF 122 G1

The cleaning control depends on the respective application. The specified control variants are examples and should only serve as a guide.

9.6.1 Control variant 1

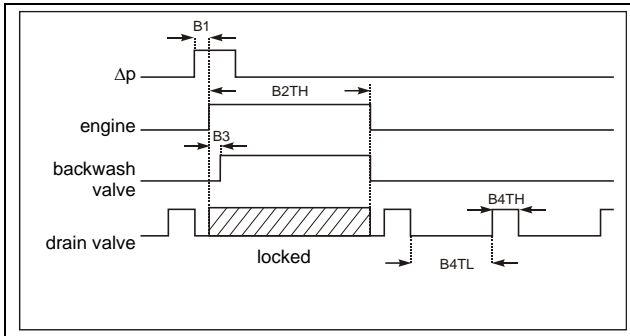


Abb. 2: Control variant 1

Parameter	Description	Recommended value
B1	Differential pressure peak suppression	1 s
B2TH	engine running time	7 s
B3	Switch-on delay for external pressure valve	0.5 s
B4TH	Pulse time drain valve	2 s
B4TL	Pause time drain valve	1 hour

9.6.2 Control variant 2

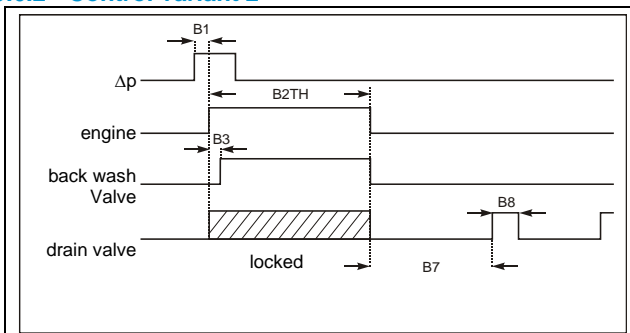


Abb. 3: Control variant 2

parameter	description	Recommended value
B1	Differential pressure peak suppression	1 s
B2TH	engine running time	7 s
B3	Switch-on delay for external pressure valve	0.5 s
B7	Delayed start dump valve	5 s
B8	Pulse time drain valve	2 s

⇒ If the Δp signal is still present after cleaning, cleaning is repeated.

⇒ Cleaning is only possible when the pump is running.

9.6.3 Other control variants

Other control variants, such as "continuous rinsing" or controls that are adapted to the process flow, can be implemented.

10 Installation

⚠ DANGER!

The commissioning of this FG automatic filter is only permitted when it has been determined that the machine/system in which it is to be installed corresponds to the provisions of the EC directives, the harmonized standards, European standards or the corresponding national standards.

⚠ DANGER!



Danger of explosion!

⇒ Personal injury and property damage

- In the case of media that can develop explosive gases, completely vent the FG automatic filter before putting it into operation.
- FG automatic filter must be completely filled with liquid.
- Exclude air pockets.

⚠ DANGER!

Danger from high pressure in the filter!

⇒ personal injury or property damage

- Do not spray the concentrate outdoors!

Making sure:

- Protective caps on connections are removed.
- Foreign objects in the filter have been removed.
- pipe connections are tightened.
- screws are tightened.
- Pipes and filters have been flushed.

10.1 Functional test

Check the direction of rotation of the geared motor

- Direction of rotation not relevant for backwash filters

Check differential pressure gauge/switch (option)

- See supplied manufacturer documentation.

Check function of backwash valve (option)

- Supply compressed air to the pilot valve.
- Actuate the manual release of the pilot valve.
- ⇒ Back wash valve opens.
- Bring the manual release of the pilot valve into its initial position.
- ⇒ Backwash valve closes.
- See supplied manufacturer documentation.

10.2 Make operational settings

- Switch on control.
- Open the inlet slowly.
- Possibly. Note the initial differential pressure.
- Set the pressure of the external medium to the desired value using a suitable throttle valve.

Setting for time-controlled cleaning

- Set times according to the operating conditions and adjust if necessary. correct.

Setting for differential pressure controlled cleaning with differential pressure indicator/switch


- Observe the manufacturer's documentation for the differential pressure indicator.
- Set differential pressure setting to target value (see contract documentation).

initial differential pressure

The initial differential pressure depends on the respective application.

General guideline:

Pressure-side installation: $\Delta p \leq 0.1 \text{ bar}$

	After cleaning, the differential pressure must return almost to the original initial differential pressure. Otherwise the cleaning is not correct (consult the manufacturer if necessary).
---	---

10.3 Normal operation

DANGER!

Danger from high pressure in the automatic filter!

- ⇒ personal injury or property damage
- Do not spray the concentrate outdoors!



Only dispose of the concentrate in an environmentally friendly manner!
Suitable disposal options, if applicable clarify with the relevant authorities.

Monitor daily during normal operation:

- differential pressure
- function of the controller

10.4 Rinse cleaning line

ATTENTION!

Danger of clogging with a high proportion of fine dirt and long pipelines!

- ⇒ personal injury or property damage
- Flush the cleaning line daily/weekly depending on the application.

- Slowly close the control throttle completely.
- Backwash valve for approx. Open manually for 10 - 15 s.
⇒ Pipeline is flushed.
- Bring the control throttle back into its initial position.

11 Shut down the automatic filter

11.1 Shut down for a short time

On the installed controller of the automatic filter:

- Main switch OFF.

11.2 Long-term shutdown (>48 h)

- Trigger cleaning manually.
- Remove the filter insert (chapter 15.2).
- Clean the filter insert (chapter 15.4.1).
- Reinstall the filter insert.
- Fill the automatic filter completely with liquid.
- Main switch OFF.

11.3 Shut down in an emergency

- Main switch OFF.
- ⇒ Power supply is interrupted.

12 Hints about Cooling lubricant filtration


- Do not filter magnetized chips. Be careful when grinding GG or steel.
- Provide suitable pre-separation (800-1,000 µm).
- Maintain cooling lubricant properly. Avoid bacterial or fungal contamination.
- Prepare the cooling lubricant from the cleaning separately. When returned to the cooling lubricant circuit, fine dirt accumulation can occur.
- For pressures of 4-16 bar on the filtrate side, provide a pressure control valve in the drain line. If the pressure difference is too high during cleaning, the rinsing effect is reduced.

13 Disturbances

Disturbance	Possible cause	fix
Gear motor does not turn	engine protection triggered	RESET motor protection Check gear motor
	to be filtered solidified	clean filter
Valves don't open	Compressed air not sufficient	increase pressure
	Pilot valve defective	Check pilot valve
	Pilot valve incorrectly connected	electric and pneumatic Check connections
initial differential pressure is no longer reached	too high concentration of solids	use suitable pre-filtration
	Cleaning time too short	increase cleaning time (gear motor min. 1-2 revolutions)
	too high concentration of solids	use suitable pre-filtration
	Cleaning time too short	increase cleaning time
	Backwash valve dirty/defective	Clean/replace backwash valve
	Segment element defective	Check segment element, replace if necessary renew
Increased accumulation of dirt on the clean side	seals brittle	Check seals, replace if necessary renew
	Shaft seal defective	Replace shaft seal
too high Leakage at the shaft seal	incorrect installation of the shaft seal	Check the seat of the shaft seal

14 Maintenance

⚠ DANGER!



Danger of explosion!

⇒ Personal injury and property damage

- Work in potentially explosive areas is only permitted if the protective measures are observed.
- Protective measures are to be provided by the operator.

⚠ WARNING!

Unauthorized maintenance of the system

⇒ risk of injury

⇒ void the warranty

- Only have the system serviced by qualified personnel!

For maintenance activities:



- Shut down the automatic filter (Chapter 12).
- Secure the machine/system against unauthorized switching on.



- Put on protective equipment appropriate to the risk potential of the medium (e.g. eye protection, respiratory protection, protective clothing, etc.).
- carry out maintenance activities.
- Put the automatic filter back into operation (Chapter 10).

14.1 Inspection and maintenance plan

- see also contract documentation

interval	component	task
Week	automatic filter	Check for leakage Check differential pressure
	pipng	To clean
Month	segment element	Check wear and replace if necessary to clean
	automatic filter	Check conductivity between all components. Maximum permissible resistance value Note $R < 10.\Omega$
 year or at Cool-lubricatin g metabolism m	warehouse	check game
	valves	Check function
	segment element	To clean
	automatic filter	To clean
	gasket kit	Check for leakage
	check valve	Check function, if necessary to clean
	The necessary maintenance and repair requirements depend on the application. Possibly. coordinate with manufacturer.	

14.2 Filter disassembly

⚠ DANGER!

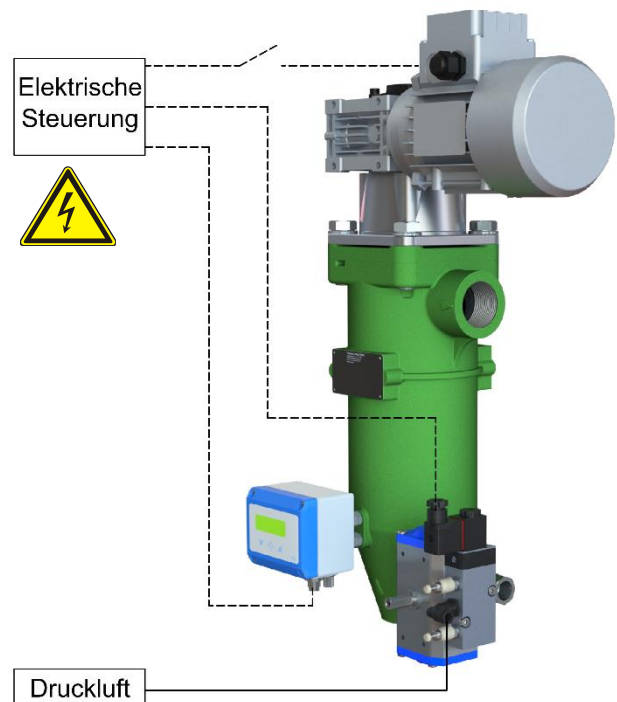
Automatic filter is under pressure!

- ⇒ personal injury or property damage
- Ensure that the pipeline is depressurized before opening the automatic filter.



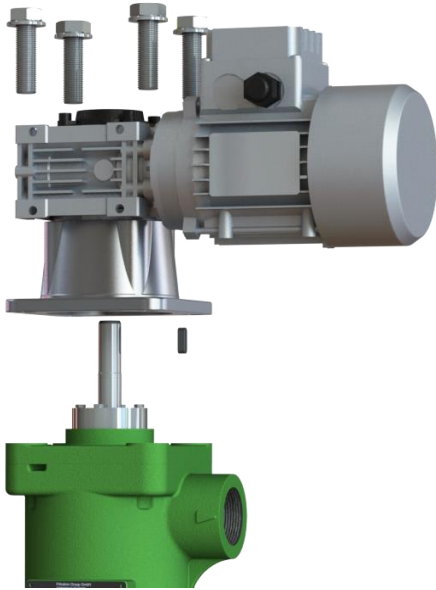
The item numbers given correspond to the item numbers in the spare parts drawing.

- 1
 - Ensure that the pipeline is depressurized before opening the automatic filter.
 - Close filter inlet and outlet.
- 3
 - Close compressed air supply.
- 4
 - Main switch OFF.
 - Disconnect the gear motor



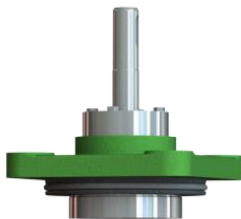
5

- Loosen the hexagon head screws (item 4) on the motor mount (item 1.2) and remove with the washers (item 3).
- Pull the geared motor (item 1.1) including the motor mount upwards off the drive shaft (item 1.3).
- Remove the feather key (item 1.4) from the drive shaft.



6

- Place a large screwdriver in the notch on the housing-cover connection.
- Loosen the filter cover.
- Lift off the filter cover including the drive shaft and sealing attachment (item 5).



14.3 Change filter element

⚠ WARNING!

Unauthorized maintenance of the system!

- ⇒ risk of injury
- ⇒ void the warranty
- Only have the system serviced by qualified personnel!

14.3.1 Remove filter element

	The item numbers given correspond to the item numbers in the spare parts drawing.
	The back wash nozzle is not connected to the filter element!

1

- Pull the filter element out of the housing together with the internal backwash nozzle (item 8).
- Ensure that none of the two element seals (O-rings item 10.3) have remained in the housing.



fig 1: Removal from the housing1

2

- Pull the back wash nozzle (item 8) out of the filter element.




fig 2: Location of element seals (O-rings)2

3

- Clean all disassembled parts.
- Change element seals (O-rings).

14.3.2 Install filter element

	<p>The item numbers given correspond to the item numbers in the spare parts drawing.</p>
---	--

- 1
 - Attach an element seal (O-ring item 10.3) to each of the end plates of the filter element
- 2
 - Insert the backwash nozzle (item 8) into the filter element.
- 3
 - Insert the filter element into the housing together with the internal backwash nozzle.
 - Align the slot of the filter element end plate with the anti-rotation device cast in the housing.
 - Insert the backwash nozzle into the housing seat.
 - Insert the filter element into the element guide provided.

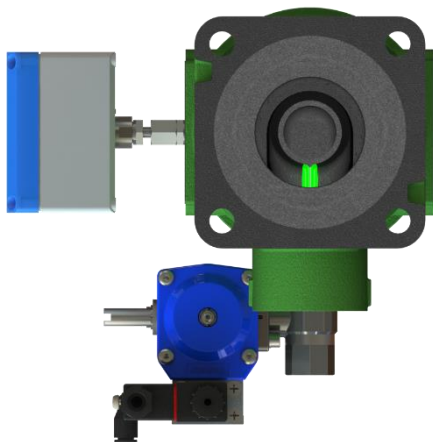


fig 3: Anti-rotation device (neon green) - top view3

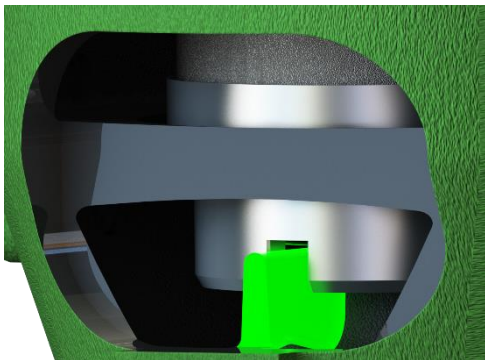



fig 4: Anti-rotation device (neon green) - installation - cut4

14.4 Assemble filters

<p style="text-align: center;">⚠ WARNING!</p> <p>Unauthorized maintenance of the system!</p> <ul style="list-style-type: none"> ⇒ risk of injury ⇒ void the warranty • Only have the system serviced by qualified personnel! 	
---	--

	<p>The item numbers given correspond to the item numbers in the spare parts drawing.</p>
---	--

- 1
 - Press the drive shaft (item 1.3) without the feather key out of the sealing attachment item 5).
- 2
 - Attach the drive shaft to the backwash nozzle (item 8) in such a way that the stud bolts (item 7) can be inserted into the holes provided.
- 3
 - Loosen the four hexagonal screws (item 6) of the sealing attachment in order to be able to ensure centering during installation.
 - Slide the cover unit carefully over the drive shaft until the cover rests on the housing.



fig 5: Cover assembly5

- 4
 - Hand-tighten the four hexagonal screws (item 6) of the sealing attachment crosswise.
- 5
 - Insert the key (item 1.4) into the keyway of the drive shaft.
 - Fit the motor mount (item 1.2) including the main drive aligned with the feather key.
 - Use the four hexagonal screws (item 4) for mounting the cover, each including a washer (item 3), to connect the motor mount, cover and housing components to one another.

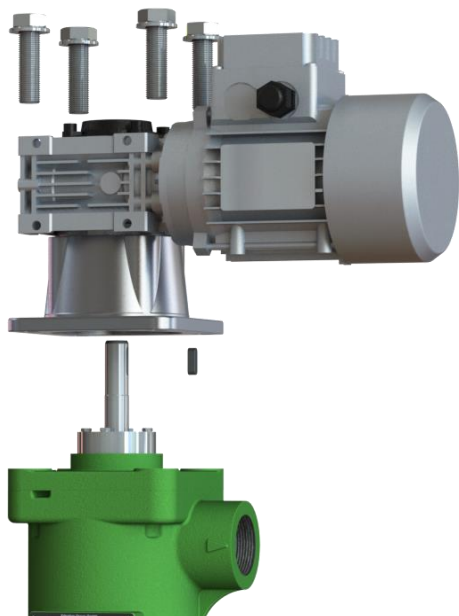


fig 6: Assembly of the main drive6

14.5 Clean filter

14.5.1 Clean filter element

⚠ WARNING!

aerosol formation!

- Only work in rooms with suitable extraction!



- Put on protective equipment appropriate to the risk potential of the medium (e.g. eye protection, respiratory protection, protective clothing, etc.).
- Remove coarse contamination mechanically.
- Wash the filter element in a suitable cleaning agent.
- Carefully blow off the filter element with a jet of steam or compressed air.
- Clean the seals (replace if necessary) and oil them.

14.5.2 Clean filter housing



- Put on protective equipment appropriate to the risk potential of the medium (e.g. eye protection, respiratory protection, protective clothing, etc.).
- Remove coarse contamination mechanically.
- Wash out the filter housing with a suitable cleaning agent.

14.6 Change element seals

⚠ WARNING!

Unauthorized maintenance of the system!

- ⇒ risk of injury
- ⇒ void the warranty
- Only have the system serviced by qualified personnel!



The item numbers given correspond to the item numbers in the spare parts drawing.

- Remove filter element (chapter 15.2 & 15.3.1).
- Clean filter (chapter 15.5).
- Change O-rings

14.7 Change shaft seal and shaft guide



WARNING!

Unauthorized maintenance of the system!

- ⇒ risk of injury
- ⇒ void the warranty
- Only have the system serviced by qualified personnel!



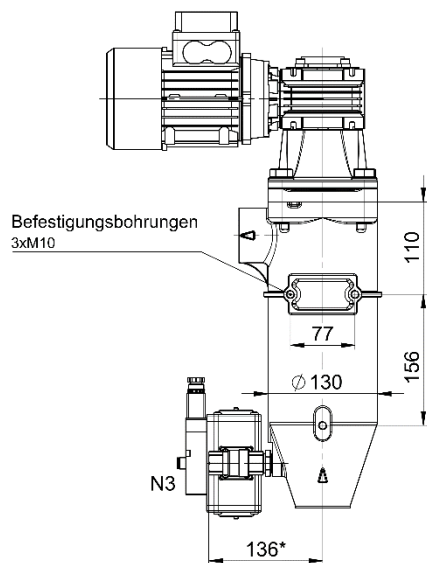
The item numbers given correspond to the item numbers in the spare parts drawing.

- Remove filter element (chapter 15.2 & 15.3.1).
- Clean filter (chapter 15.5).
- Press the drive shaft (item 1.3) without the feather key (item 1.4) out of the sealing attachment (item 5).
- Remove the sealing attachment from the cover by loosening the four hexagonal screws (item 6).
- Remove cover bushing (item 9).
- Clean the sealing attachment, cover and drive shaft.
- Lightly oil and install new seals and cover bushing.
- Install in reverse order.



Observe Chapter 15.4 for assembling the main components.

15 Dimensional drawing

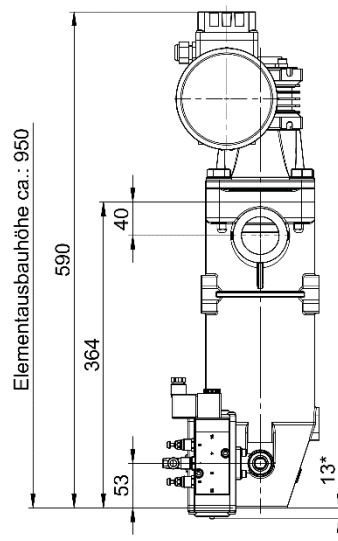


Automatik-Rückspülfilter mit Eigendruckabreinigung

AF122/G1
Gussausführung

Befestigungs- und Anzeigerbohrungen
auch spiegelbildlich möglich

*Maße sind Lieferantenabhängig



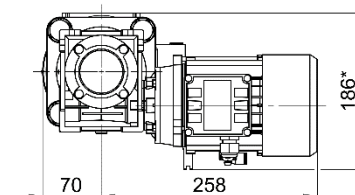
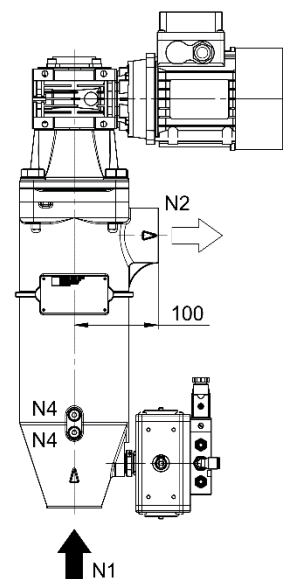
Anschlüsse und Nennweiten

N1 - Zulauf G1 1/2"
N2 - Ablauf G1 1/2"
N3 - Rückspülleitung G1/2"
N4 - Anzeiger G1/8" (2x)

Alle Einschraublöcher nach DIN 3852

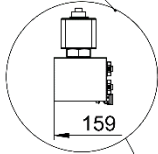
Antriebswellenabdichtung: O-Ring

Deckelverschluss: 4 Stück 6kt.-Schrauben M16
Leergewicht: 18,5Kg
Volumen: 2,8L

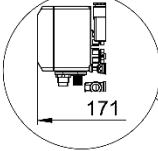


16 Optional configuration options

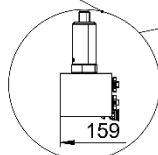
PIS3154
optischer
Differenzdruckanzeiger
Anschluss M20x1,5



PIS3170
Differenzdruck-
Anzeiger / Schalter

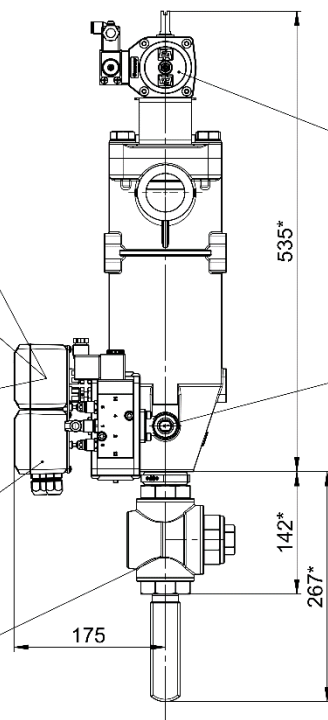


PIS3310
Differenzdruckmesser
mit IO-Link



PIS3170 MFC
Differenzdruckmesser
inkl. MFC Steuerung

Separater Ablass
3-Wege Kugelhahn
G1 1/2"



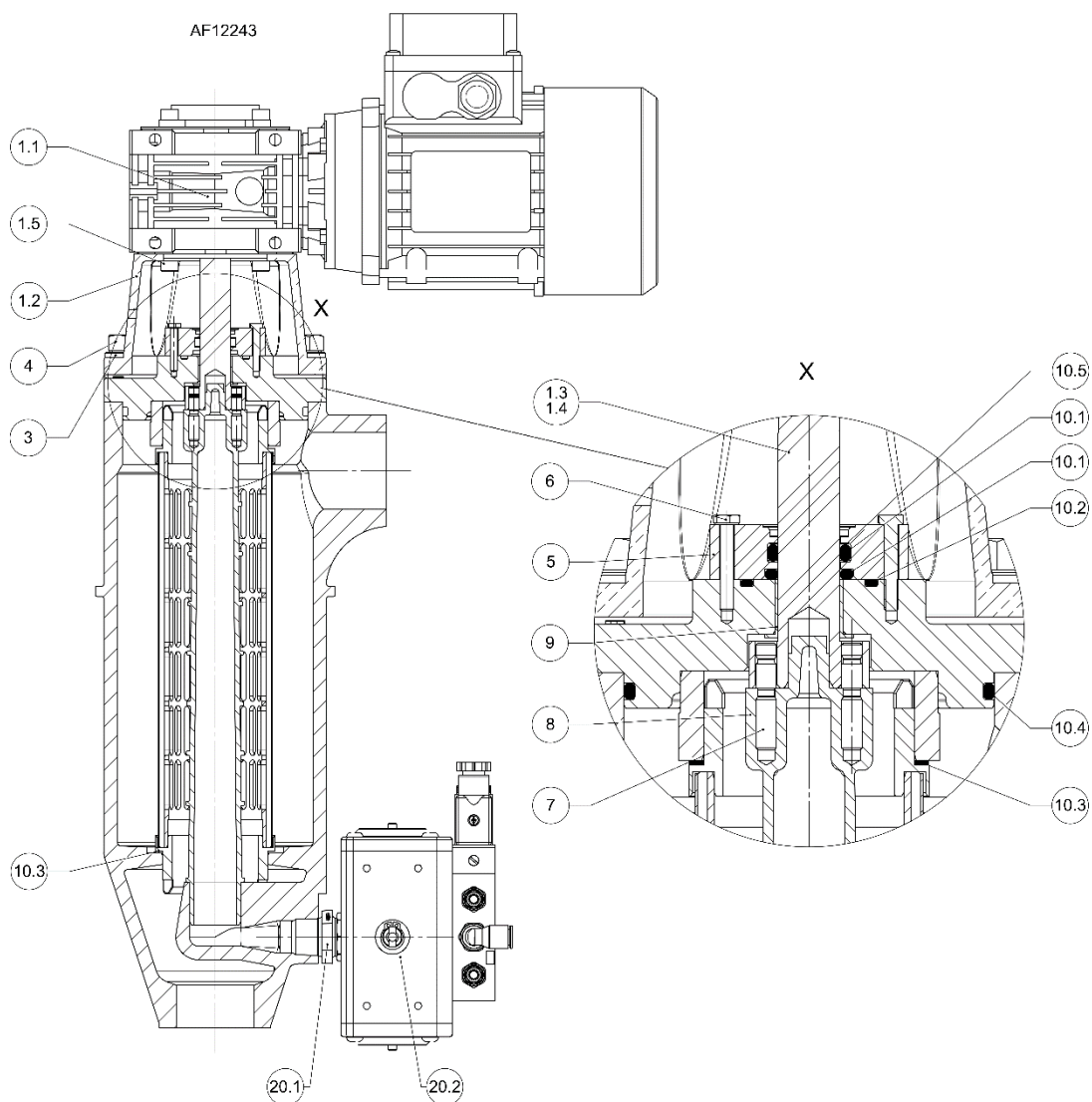
Elektropneumatischer
Schwenkantrieb
Doppelkolben Schwenkantrieb
pneumatisch angetrieben, doppelwirkend
Steuermedien / Druck: min. 5bar
(Staub-, Wasser-, Ölfrei)
Drehmoment: ca. 10Nm
5/2-Wege-Magnetventil 24V DC ($\pm 10\%$)

Rückspülventil
Hand- oder
Automatikbetrieb

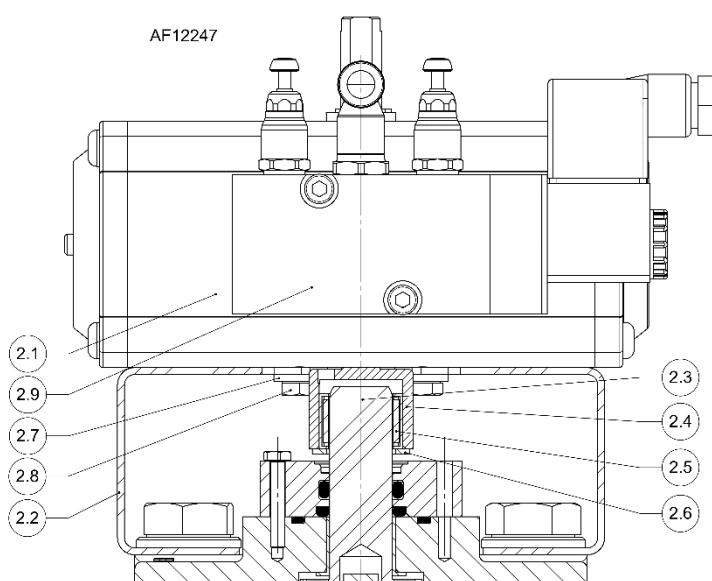
*Maße sind Lieferantenabhängig

17 Single part drawing

17.1 Version with gear motor



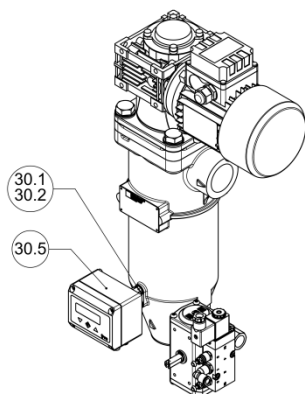
17.2 Version with swivel drive



17.3 Configuration examples

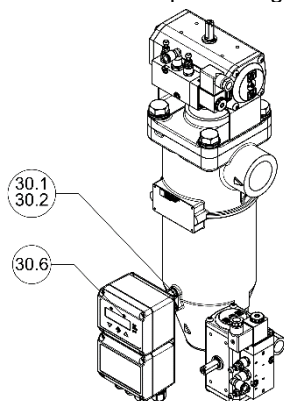
Standard configuration AF12243-

- exit right
- gear motor
- Backwash valve with electropneumatic ball valve
- PiS 3170 differential pressure indicator/switch



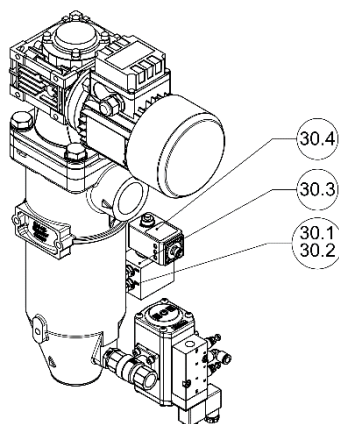
Example configuration AF12247-

- exit right
- slewing drive
- Backwash valve with electropneumatic ball valve
- Differential pressure gauge including MFC control MFC 3170



Example configuration AF12243-



- Exit left (mounting and indicator position mirrored)
- gear motor
- Backwash valve with electropneumatic ball valve
- Optical differential pressure indicator PiS 3154





18 Parts list

Pos.	Designation	AF12243 Gear Motor Number	AF12247 Slewing drive number
1.1	Gear motor	1	
1.2	Engine mount	1	
1.3	Drive shaft AF12243	1	
1.4	Key DIN6885 - A - 6x6x20	1	
1.5	Cylinder screw ISO4762 M6x12	4	
2.1	Pneumatic swivel drive	-	1
2.2	Motor mount AF12247	-	1
2.3	Drive shaft AF12247	-	1
2.4	Freewheel mount HF1816	-	1
2.5	Sleeve Freewheel HF1816	-	1
2.6	Thrust washer 28x20x1.5	-	1
2.7	Spring washer DIN127 – A6	-	4
2.8	Hex head screw ISO4017 M6x12	-	4
2.9	Solenoid valve 5/2 way 24V	-	1
3	Disc ISO7090 – 16	4	4
4	Hex head screw ISO4017 - M16x55	4	-
4	Hex head screw ISO4017 - M16x45	-	4
5	Sealing attachment	1	1
6	Hex head screw ISO4014 - M4x25	4	4
7	Stud DIN938 - M6x25	2	2
8	Backwash nozzle distributor N AF122	1	1
9	Jack 1820-17	1	1
10.1	O-ring 18.64x3.53	2	2
10.2	O ring 32.99x2.62	1	1
10.3	O-ring 59.92x3.53	2	2
10.4	O ring 79.00x4.00	1	1
10.5	Support ring 17.9x24x0.7	1	1
20.1	Double nipple G1/2"	1	1
20.2	Ball valve EL/PN G1/2"	1	1
30.1	Ermeto GE 6-PLR-ED	2	2
30.2	Ermeto EVGE 6-PLR-EED	2	2
30.3	Mounting block PIS 3192 G1/8"	optional	optional
30.4	PiS 3154	optional	optional
30.5	PiS 3170	1	1
30.6	MFC 3170	optional	optional

19 Spare Parts

Pos.	Designation	Order number	
1.3	Drive shaft AF12243 (version with geared motor)	72485915	
2.3	Drive shaft AF12247 (version with part-turn actuator)	72485989	
8	Backwash nozzle distributor N AF122	72498139	
9	Jack 1820-17	79331752	
10	Seal kit AF122 FKM PTFE VP (positions 10.1 – 10.5)	72494754	
	filter element	On demand*	

	*Have the type plate or complete filter number (Mat.-No.-Order number) ready.
	For special versions, request a separate spare parts drawing with a spare parts list.

20 Declaration of Conformity

EU – Konformitätserklärung
EU declaration of conformity
Déclaration de conformité UE



Der Hersteller
The manufacturer
Le producteur

Filtration Group GmbH
Schleifbachweg 45
74613 Öhringen
Telefon 07941 6466-0
Telefax 07941 6466-429

erklärt hiermit, dass das folgende Produkt
hereby declares that the following product
déclare par la présente que le produit suivant

Produktbezeichnung:
Product designation:
Désignation du produit :
Typenbezeichnung:
Type designation:
Désignation du type :

Automatik-Kantenspaltfilter
Automatic metal edge filter
Filtres automatiques à fentes

AF 132 G, AF 152 G, AF 172 G, AF 112 G

Funktionsbeschreibung:
Machine description:
Description du fonctionnement :

Filtration von Feststoffen
Filtration of solids
Filtration de solides

allen einschlägigen Bestimmungen der Druckgeräterichtlinie 2014/68/EU, Anhang 1 entspricht.
conforms to all relevant provisions of the pressure equipment directive 2014/68/EU, annex I.
répond à toutes les dispositions applicables de la directive équipements sous pression 2014/68/UE , annexe I .

Angewendete harmonisierte Normen, insbesondere
Applied harmonized standards in particular
Normes harmonisées utilisées, notamment

AD 2000

Angewendete nationale Normen und technische Spezifikationen, insbesondere
Applied national norms and techn. specifications, especially
Normes et spécifications nationales utilisées, notamment

HP0, TRD/TRB

Und allen wesentlichen Schutzanforderungen der Ex-Richtlinie 2014/34/EU entspricht.
Conforms to all the basic requirements of the Ex-directive 2014/34/EU.
Répond à toutes les exigences essentielles de la Ex-directive 2014/34/UE .

Folgende harmonisierten Normen wurden angewandt:
The following harmonised standards have been used:
Les normes harmonisées ci-dessous ont été appliquées :

EN 1127-1 und EN 13463-1

Unterzeichner:
Signatory:
Signataire :

Wolfram Zuck
Dipl.-Ing. (FH) Industrial Engineering
Managing Director, Plant Manager Öhringen

Öhringen,

17.7.17
Datum/Date/Date

Unterschrift/Signature/Signataire



- The enclosed declaration of conformity applies to pressure housings with CE marking from category I - IV or for complete filters according to the Ex directive, category 3G/2G.
- The standard version is designed for group 2 liquids as defined in the EC Pressure Equipment Directive 97/23/EC Article 9.

21 Declaration of incorporation

In terms of the EC Machinery Directive.

EU – Einbauerklärung
EU Declaration of incorporation
Déclaration relative au montage UE



Der Hersteller
The manufacturer
Le producteur

Filtration Group GmbH
Schleifbachweg 45
74613 Öhringen
Telefon 07941 6466-0
Telefax 07941 6466-429

erklärt hiermit, dass das folgende Produkt
hereby declares that the following product
déclare par la présente que le produit suivant

Produktbezeichnung:
Product designation:
Désignation du produit :
Typenbezeichnung:
Type designation:
Désignation du type :
Funktionsbeschreibung:
Machine description:
Description du fonctionnement :

Automatik-Kantenspaltfilter
Automatic metal edge filter
Filtres automatiques à fentes

AF 132 G, AF 152 G, AF 172 G, AF 112 G

Filtration von Feststoffen
Filtration of solids
Filtration de solides

den in der Anlage dargestellten grundlegenden Anforderungen der Richtlinie 2006/42/EU entspricht.
conforms to the essential requirements of the Machinery Directive 2006/42/EU pursuant to the Annex.
répond aux exigences fondamentales de la directive 2006/42/UE, décrites en annexe.

Die unvollständige Maschine darf erst dann in Betrieb genommen werden, wenn festgestellt wurde, dass die Maschine, in die die unvollständige Maschine eingebaut werden soll, den Bestimmungen der Richtlinie 2006/42/EU über Maschinen entspricht.
The partly completed machinery must not be put into service until the relevant machinery into which this partly completed machinery is to be incorporated has been declared in conformity with the Machinery Directive 2006/42/EU.
La machine incomplète ne doit être mise en service qu'après avoir déterminé que la machine, dans laquelle la machine incomplète doit être montée, correspond aux dispositions de la directive machines 2006/42/UE.

Folgende harmonisierten Normen wurden angewandt:

The following harmonised standards have been used:

DIN EN ISO 12100:2011-03, DIN EN ISO 4414:2011-04

Les normes harmonisées ci-dessous ont été appliquées :

Der Hersteller verpflichtet sich, die speziellen Unterlagen zur unvollständigen Maschine, einzelstaatlichen Stellen auf Verlangen schriftlich zu übermitteln. Die zur Maschine gehörenden speziellen technischen Unterlagen nach Anhang VII Teil B wurden erstellt.
The manufacturer undertakes to transmit any specific documentation on the partly completed machinery to the appropriate national authorities in writing on request. All specific technical documentation belonging to the machinery has been compiled pursuant to Annex VII Section B.

Le fabricant s'engage à transmettre les documents spécifiques à la machine incomplète par écrit aux administrations nationales respectives sur leur demande. Les documents techniques spécifiques selon Annexe VII partie B faisant partie de la machine ont été établis.

Dokumentationsverantwortlicher/Abteilung:
Responsible for documentation/department:
Responsable de la documentation/Service :

Filtration Group GmbH
Schleifbachweg 45
74613 Öhringen

Unterzeichner:
Signatory:
Signataire :

Wolfram Zuck
Dipl.-Ing. (FH) Industrial Engineering
Managing Director, Plant Manager Öhringen

Öhringen,

17.7.17
Datum/Date/Date

Unterschrift/Signature/Signature

Anlage/Annex/Annexe

3 Seiten/pages/pages



The filter may only be started up if the entire system is put into operation!

Anlage zur Einbauerklärung gemäß Richtlinie
2006/42/EU für Automatik-Kantenspaltfilter
Annex to the Declaration of Incorporation pursuant to
the Machinery Directive 2006/42/EU for automatic metal
edge filter



Annexe à la déclaration de montage selon la directive
2006/42/UE pour filtres automatiques à fentes
Beschreibung der grundlegenden Sicherheits- und Gesundheits-
schutzanforderungen (soweit zutreffend) gemäß 2006/42/EU, An-
hang 1, die zur Anwendung kommen und eingehalten wurden.
List of the essential health and safety requirements (where applicable)
pursuant to 2006/42/EU, Annex 1, applied and fulfilled.
Description des exigences fondamentales relatives à la sécurité et à
la protection de la santé (si applicables) selon 2006/42/UE, annexe 1,
appliquées et respectées.

Grundlegende Anforderung Essential requirements Exigence fondamentale	Erfüllt Fulfilled Remplie
Grundsätze für die Integration der Sicherheit Principles of safety integration Principes d'intégration de la sécurité	ja yes oui
Materialien und Produkte Materials and products Matériaux et produits	ja yes oui
Konstruktion der Maschine im Hinblick auf die Handhabung Design of machinery to facilitate its handling Construction de la machine au regard de sa manipulation	ja yes oui
Steuerungen und Befehlseinrichtungen Control systems Commandes et dispositifs de commande	nein no non
Risiko des Verlusts der Standsicherheit Risk of loss of stability Risque de perte de la stabilité statique	ja yes oui
Bruchrisiko beim Betrieb Risk of break-up during operation Risque de rupture en fonctionnement	ja yes oui
Risiken durch herabfallende oder herausgeschleuderte Gegenstände Risks due to falling or ejected objects Risques dus à la chute ou à l'éjection d'objets	ja yes oui
Risiken durch Oberflächen, Kanten und Ecken Risks due to surfaces, edges or angles Risques dus aux surfaces, arêtes et angles	ja yes oui
Risiken durch Änderung der Verwendungsbedingungen Risks related to variations in operating conditions Risques dus à la modification des conditions d'utilisation	ja yes oui
Risiken durch bewegliche Teile Risks related to moving parts Risques dus à des parties mobiles	ja yes oui
Wahl der Schutzeinrichtung gegen Risiken durch bewegliche Teile Choice of protection against risks arising from moving parts Choix du dispositif de protection contre les risques dus à des parties mobiles	ja yes oui
Risiko unkontrollierter Bewegungen Risks of uncontrolled movements Risque de mouvements incontrôlés	ja yes oui
Anforderungen an Schutzeinrichtungen Required characteristics of guards and protective devices Exigences relatives aux dispositifs de protection	nein no non
Elektrische Energieversorgung Electricity supply Alimentation électrique	ja yes oui
Statische Elektrizität Static electricity Electricité statique	ja yes oui

Nichtelektrische Energieversorgung Energy supply other than electricity Alimentation en énergie non-électrique	ja yes oui
Montagefehler Errors of fitting Erreurs de montage	ja yes oui
Extreme Temperaturen Extreme temperatures Températures extrêmes	ja yes oui
Brand Fire Incendie	ja yes oui
Explosion Explosion Explosion	ja yes oui
Lärm Noise Bruit	ja yes oui
Vibrationen Vibrations Vibrations	ja yes oui
Strahlung Radiation Rayonnement	ja yes oui
Strahlung von außen External radiation Rayonnement depuis l'extérieur	ja yes oui
Emission gefährlicher Werkstoffe und Substanzen Emissions of hazardous materials and substances Emission de substances et matériaux dangereux	ja yes oui
Risiko, in eine Maschine eingeschlossen zu werden Risk of being trapped in a machine Risque de se faire enfermer dans une machine	nein no non
Ausrutsch-, Stolper- und Sturzrisiko Risk of slipping, tripping or falling Risque de dérapage, de trébuchement et de chute	nein no non
Blitzschlag Lightning Foudre	nein no non
Wartung der Maschine Machinery maintenance Entretien de la machine	nein no non
Zugang zu den Bedienungsständen und den Eingriffspunkten für die Instandhaltung Access to operating positions and servicing points Accès aux postes de commande et aux points d'intervention pour la maintenance	nein no non
Trennung von den Energiequellen Isolation of energy sources Séparation des sources d'énergie	nein no non
Eingriffe des Bedienungspersonals Operator intervention Interventions des opérateurs	ja yes oui
Reinigung innen liegender Maschinenteile Cleaning of internal parts Nettoyage de parties internes de la machine	nein no non
Informationen und Warnhinweise an der Maschine Information and warnings on the machinery Informations et avertissements sur la machine	ja yes oui
Warnung vor Restrisiken Warning of residual risks Avertissement quant aux risques résiduels	ja yes oui
Kennzeichnung der Maschinen Marking of machinery Marquage des machines	nein no non

Betriebsanleitung Instructions Mode d'emploi	ja yes oui
Nahrungsmittelmaschinen und Maschinen für kosmetische oder pharmazeutische Erzeugnisse Foodstuffs machinery and machinery for cosmetics or pharmaceutical products Machines pour denrées alimentaires et machines pour produits cosmétiques ou pharmaceutiques	nein no non
Handgehaltene und/oder handgeführte tragbare Maschinen Portable hand-held and/or hand-guided machinery Machines tenues à la main et/ou portables guidées à la main	ja yes oui

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Filtration Group Ltd
Schleifbachweg 45
74613 Öhringen
Phone +49 7941 6466-0
Telefax +49 7941 6466-429
industrial.sales@filtrationgroup.com
industrial.filtrationgroup.com
shopindustrial.filtrationgroup.com
72501418.100.04/2023