Translation of the original instructions with installation instructions
Automatic backflush filter with external pressure cleaning and integrated cyclone effect
AF 173

Mat. No. of original instructions
70311538

1 Contents

2 General safety instructions

2.1 Safety instructions for installation and operating personnel

This translation of the original instructions contains important safety information which must be heeded at all times during installation, normal operation and maintenance.

Non-observance can result in the following risks to persons and the environment as well as in damage to the machine or plant:

⇨ Failure of critical functions of the machine or plant or of its component parts.
⇨ Danger to persons from electrical or mechanical effects as well as from chemical reactions.
⇨ Danger to the environment owing to the leakage of hazardous substances.

Before installation / start-up:

- Read this translation of the original instructions carefully.
- Make sure that installation and operating personnel are adequately trained.
- Make sure the contents of the original instructions are fully understood by the responsible persons.
- Define areas of responsibility and competence.
- Prepare a maintenance schedule.

During operation of the plant:

- Keep this translation of the original instructions handy at the place of use.
- Heed the safety instructions. Always operate the machine or plant in accordance with its ratings.

If in doubt:

- Consult the manufacturer.

2.2 Warning structure

Where possible, warnings are structured according to the following system:

Signal word	
Possibly with symbol	**Nature and source of the danger** ⇨ Potential consequences of non-observance • Action to avert the danger.

2.3 Warning symbols used

⚠ DANGER!
Immediate danger! ⇨ Non-observance will result in serious or fatal injury.

⚠ WARNING!
Potentially dangerous situation! ⇨ Non-observance can result in serious or fatal injury.

⚠ CAUTION!
Potentially dangerous situation! ⇨ Non-observance can result in minor or moderate injuries.

CAUTION! (without a symbol)
Potentially dangerous situation! ⇨ Non-observance can result in property damage.

2.4 Other symbols used

	Danger: High voltage!
	Danger information about explosion protection
	Information about environmental protection
	Protective clothing must be worn!
	Eye protection must be worn!
	Respirator must be worn!
	Hand symbol: Indicates general information and recommendations
•	Bullet: Indicates the order in which actions are to be carried out
⇨	Arrow: Indicates responses to actions

3 Glossary

Draining:
The drain valve opens. The solid particles that have settled in the residue collection cone are discharged.

Cleaning:
The segmented element is cleaned. It is rotated for this purpose. The filtered fluid or external pressure medium flows through the segmented element from the inside to the outside and cleans the segments one at a time.

Aerosol:
Distribution of tiny liquid droplets (or solid particles) in a gas.

Agglomerate:
Structure made up of several small particles which have formed a ball (agglomerated) as a result of physical forces.

Initial differential pressure:
Differential pressure at the start of the filtration process (when the segmented element is "clean").

Differential pressure (Δp):
Pressure difference between the dirty side and the clean side.

Filter cake:
Layer that is built up by the solids retained on the surface of the segmented element.

Filtrate:
Fluid that is filtered.

Filtration mode:
The automatic filter operates normally and the valves are closed.

Homogenisation:
A system of substances is given a uniform composition.

Concentrate:
Quantity of residues enriched with solids that is periodically discharged from the filter. Further treatment may be necessary, depending on the application.

Cooling lubricant:
Cooling lubricant according to DIN 51385.

Segmented element:
Cylindrical structure consisting of two concentric, profiled inner cores. The actual filter medium is located between these cores. The suspension to be filtered flows from the outside to the inside. Solids are retained on the outer surface of the segmented element.

Siphon:
U-shaped pipe. A siphon cannot be drained without a valve.

Suspension (dirty suspension):
System of substances to be filtered, generally consisting of solids in a liquid.

Pilot control:
5/2-way magnetic valves operated by the controller that switch pneumatic valves.

4 General information

4.1 Manufacturer

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Fax +49 7941 6466-429
fm.de.sales@filtrationgroup.com
www.filtrationgroup.com

4.2 Information about the original instructions

FG Mat. No.: 70311538
Date: 13.01.18
Version: 06

4.3 ATEX model code

II	2	G	T3
1.	2.	3.	4.

1.	**II**	Valid for use above ground	
2.	Use in:	Zone 1 **2**	
3.	Atmosphere **G** = Gas	 **G**	
4.	**T3** = The maximum surface temperature on the filtration device is 200°C.		

(Space for ATEX name-plate)

The Ex type of protection is only valid in conjunction with the declaration of conformity.

5 Intended use

⚠ DANGER!

PROHIBITED:

- Use for other purposes without prior consultation with the manufacturer.
- Use in hazardous areas unless explicitly mentioned in the contract documentation.
- Use with smouldering, burning or sticky particles.
- Use with highly explosive dusts (e.g. aluminium dust, explosives, etc.).

⚠ CAUTION!

This FG automatic filter is only allowed to be used in accordance with the operating conditions specified in the contract documentation and in the original instructions. All forms of use which deviate from or exceed the limits of use described above are considered to be contrary to the intended purpose. The manufacturer is not liable for any damage resulting from such use.

CAUTION!

Conditionally allowed:

- Use of solvents in consultation with the manufacturer.
- Continuous operation of the cleaning line (leads to increased wear with abrasive media).
- Cleaning cycles shorter than 5 minutes (leads to increased wear).
- Pressure surges greater than 4 bar.
- Particle concentrations greater than 1000 mg/l (contact the manufacturer if necessary).
- Particle sizes greater than 2 mm (use a prefilter).

This FG automatic filter is designed for filtering solids out of low-viscosity fluids.

Main applications:

- Cooling lubricant filtration (section 13)
- Product filtration
- Preseparation in a filter cascade
- Protective filtration before or after certain process steps
- Process filtration
- Destruction of unwanted agglomerates

6 Functional description

6.1 Principle of the AF 173 G3 process

The tangential inflow between a preseparator tube and the filter housing causes coarse and heavy particles in the suspension to be sedimented into the residue collection cone. This relieves the load on the segmented element.

When the fluid flows through the segmented element from the outside to the inside, the particles contained in the suspension settle on the filter medium and produce a differential pressure.
The segmented element is cleaned when the preset differential pressure is reached or after a programmed time.

The segmented element is guided past the pressure channel housing and the backflush channel by the gear motor. The external pressure valve and the backflush valve open. The particles are removed from the filter medium one segment at a time as a result of the pulse cleaning principle and discharged from the filter via the backflush channel.

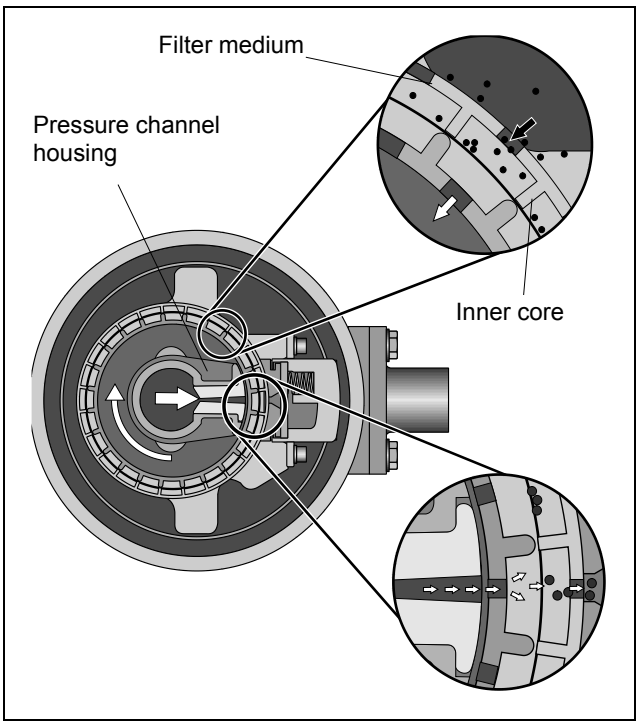


Fig. 1: Separation and cleaning principle on the segmented element

To start a cleaning cycle
A cleaning cycle can be started in the following ways:

- Manually
- By means of a differential pressure switch
- By means of a time switch
- By means of a higher-level controller

6.2 Main components of the AF 173 G3

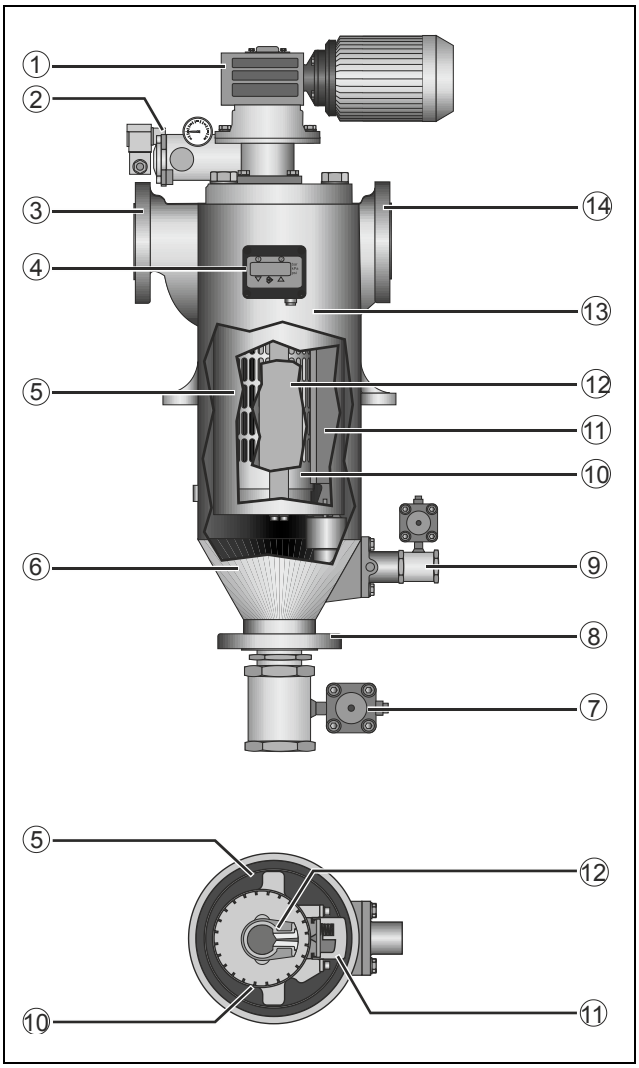


Fig. 2: Diagram of the main components

1	Electric cleaning drive
2	Backflush adapter: inlet for external pressure medium with external pressure and check valves
3	Inlet connection
4	Differential pressure indicator / switch (optional)
5	Preseparator tube
6	Residue collection cone
7	Electropneumatic drain valve (optional)
8	Drain opening
9	Electropneumatic backflush valve (optional)
10	Segmented element
11	Backflush channel
12	Pressure channel housing
13	Filter housing
14	Outlet connection

6.3 Operating principle of the AF 173 G3

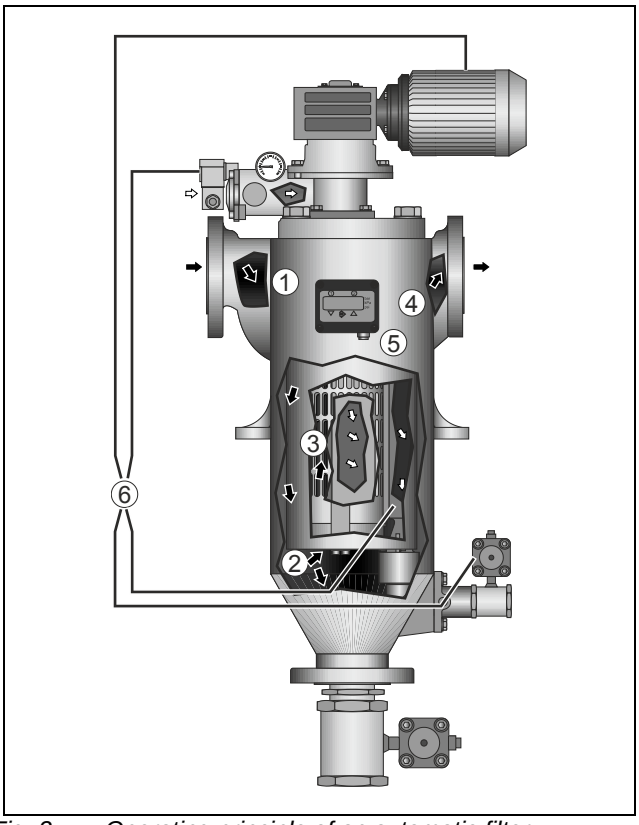


Fig. 3: Operating principle of an automatic filter

1
The suspension flows tangentially into the plenum between the filter housing and the preseparator tube.

2
The suspension is deflected 180°.
This deflection and the cyclone effect cause coarse solids to be sedimented into the residue collection cone before the actual filtration process starts.

3
The suspension flows through the segmented element. The particles contained in the suspension settle on the outside of the element.

4
The filtered fluid reaches the clean side and exits the filter.

5
A cleaning cycle is started when the maximum differential pressure is reached (if an optional differential pressure indicator / switch is used) or after a programmed time.

6
The segmented element is rotated by the gear motor. The backflush valve and the external pressure valve open. The particles are removed from the filter medium or the external pressure medium one segment at a time as a result of the pulse cleaning principle and discharged from the filter via the backflush channel. The filtration process does not need to be interrupted.

7
The enriched particles in the residue collection cone can be periodically discharged.

7 Technical data

7.1 General data of the AF 173 G3 (excluding optional equipment)

☞	The information indicated on the name-plate is binding.

Electrical power consumption*:	230 V / 400 V
Noise emission (peaks):	< 70 dB(A)
Dimensions:	See data sheet
Min. dismantling clearance above filter:	515 mm
Total dry weight:	92 kg
Max. operating temperature:	180°C
Max. permissible operating pressure up to 100°C:	16 bar
Max. permissible differential pressure:	10 bar

*See also name-plate on gear motor

External pressure cleaning

CAUTION!
Sedimented medium can result in clogging! ⇨ The external pressure valve may not work correctly. Use clean or filtered external pressure medium.

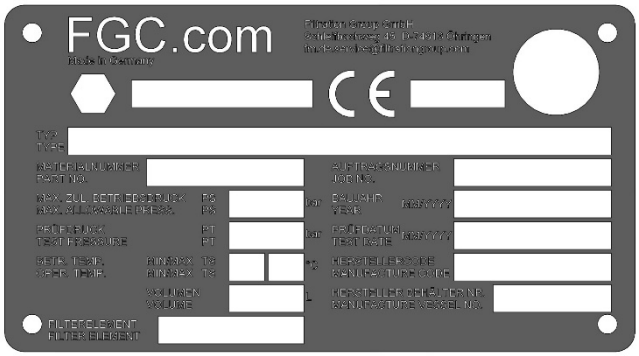
Operating pressure	External medium	Connection
< 6 bar	Compressed air	1/2"
	Liquid	1"
6 to 16 bar	Liquid	1"

7.2 Order-specific data

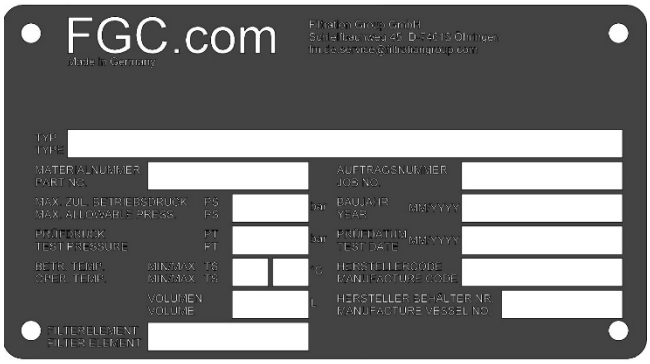
☞	The name-plate is rendered invalid if the segmented element or the inner assembly is modified. • Please request a new name-plate from the manufacturer.

The order-specific data can be taken from the name-plate.

7.2.1 Name-plate for filter with Ex protection



7.2.2 Name-plate for filter without Ex protection



8 Transport and storage

Transport

- Always transport horizontally in the original packaging.
- Avoid vibration.

Storage

- Always store horizontally in the original packaging.
- Always store in a dry, frost-free room.

☞	Seaworthy packaging is specified in the contract documentation as an option.

9 Installation

⚠ DANGER!	
EX	**Danger of explosion!** ⇨ Risk of injury to persons or damage to property. • This FG automatic filter is only allowed to be installed and operated in the category specified in the contract documentation (offer / order confirmation). • If no zone is specified: Do not operate the FG automatic filter in hazardous areas! • The owner is responsible for zone classification. • The owner is solely responsible for implementing the necessary explosion protection measures! • If in doubt, please consult the responsible authorities.

⚠ DANGER!	
EX	**Danger of explosion!** ⇨ Risk of injury to persons or damage to property. • The unit is only allowed to be installed, accepted and tested by a suitably trained person (99/98/EC).

⚠ WARNING!
If the unit is installed by unauthorised persons: ⇨ Risk of injury. ⇨ All warranty claims are rendered invalid. • The unit must be installed by a suitably trained person!

9.1 Installation

⚠ DANGER!	
	**Danger of explosion!** ⇨ Risk of injury to persons or damage to property. • Check the conductivity between all components! • Note the maximum permissible resistance: R < 10 Ω. • Make sure earthing is provided on the site.

	It must be possible to remove the inner assembly in order to carry out maintenance work.

- Prepare a suitable seat on which to mount the filter (e.g. feet, see data sheet).
- Be sure to allow the required clearances for dismantling and discharging (see data sheet).
- Pick up the automatic filter by the eyebolts using suitable hoisting gear and remove it from the packaging.

⚠ DANGER!	
	**If the filter topples over** ⇨ Risk of injury to persons or damage to property. • Secure the filter seat so that it cannot fall over.

- Bolt the automatic filter to the prepared seat.
- Remove the protection caps from the connections.
- Connect the pipes.

Pressure relief

- Design measures must be incorporated to prevent inadmissible excess pressure on the dirty side.
- Install a pressure relief valve if necessary.

9.2 Installation of the pipes and selection of the pump

- Check the pump efficiency curve.
- Make sure the pump suction opening is positioned well below the liquid level.
- Ensure a minimum inlet pressure of 1.0 bar.

9.3 Mechanical installation

⚠ CAUTION!
High pressure at the drain valve! ⇨ Risk of injury to persons or damage to property. Depressurise prior to installation or removal.

⚠ CAUTION!
High pressure at the external pressure valve! ⇨ Risk of injury to persons or damage to property. Depressurise prior to installation or removal.

Installation of the external pressure and drain lines

	**Cleaning with compressed air:** • Ensure sufficient pressure for cleaning and for operating the drain valve (provide separate compressed air connections if necessary).

- Make sure the drain line is securely fastened.
- Provide splash protection if necessary.
- Lay the pipes without a siphon if possible to prevent any risk of clogging due to sedimented concentrate.

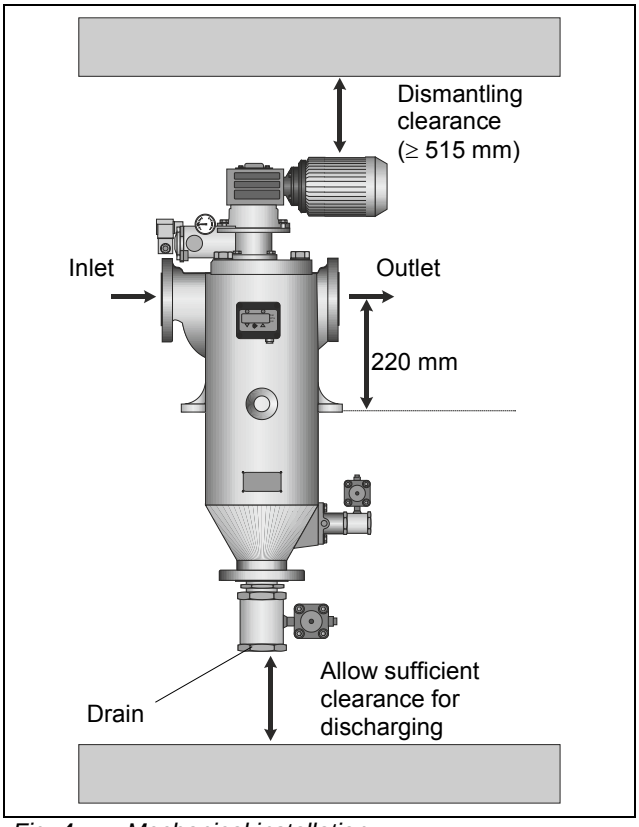


Fig. 4: Mechanical installation (cast stainless steel version)

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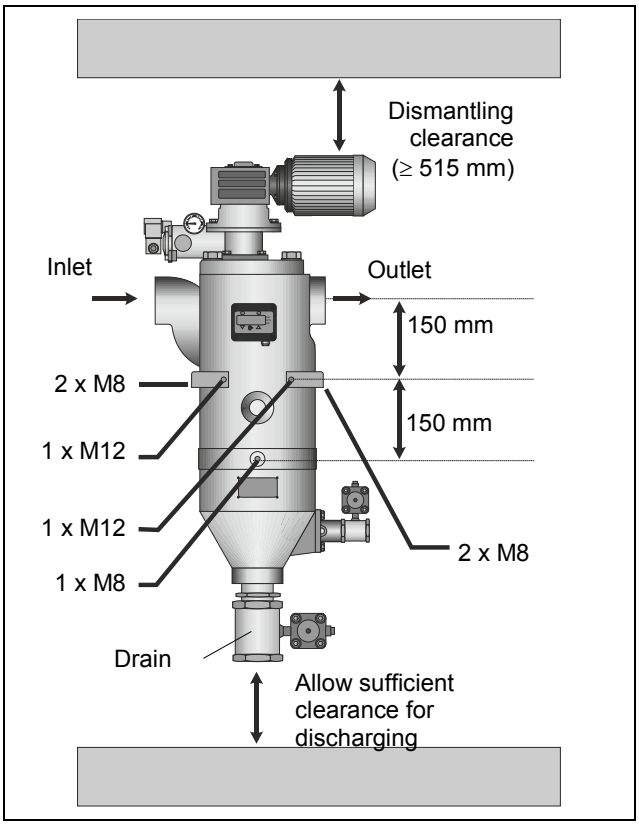

Fig. 5: Mechanical installation (nodular cast iron version)

9.4 Electropneumatic connections

⚠ DANGER!

Danger of electric shock!

⇨ Risk of serious or fatal injury in case of contact with electrical components.

All electrical installation work must be carried out by a qualified electrician!

9.4.1 Connection to the customer's controller

Gear motor

- Refer to the name-plate and / or the contract documentation for details of the ratings (see also terminal diagram).
- Install a suitable motor circuit-breaker.
- Connect the gear motor.

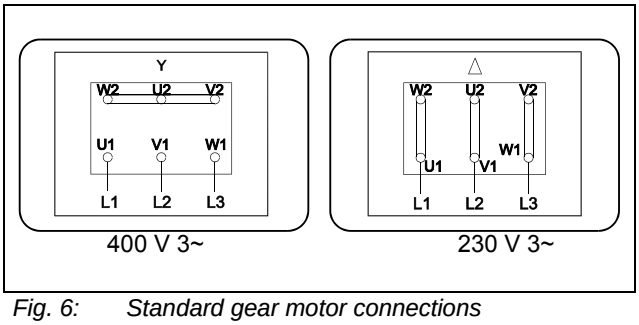

Fig. 6: Standard gear motor connections

Differential pressure indicator / switch (optional)

- Refer to the manufacturer's documentation supplied with the unit for details of the connections.

Automatic valves (optional)

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

External pressure valve

- Connect the solenoid to the power supply.

☞	Refer to the contract documentation for special designs.

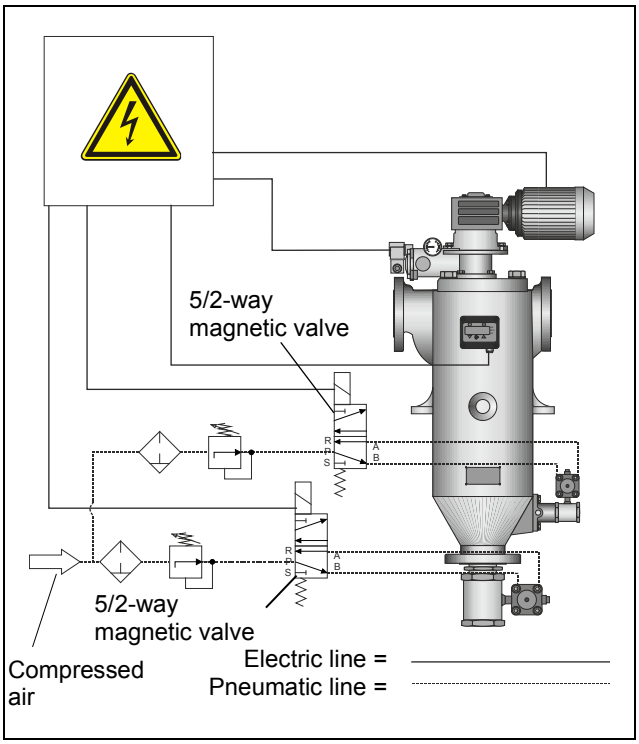

Fig. 7: Electropneumatic connections

☞	Required on the switch box: • Hand release for cleaning

9.4.2 Connection to a FG controller (optional)

- Connect the power connector, gear motor, external pressure valve, differential pressure indicator / switch (optional) and pilot valve (optional) in accordance with the enclosed circuit diagram.

9.5 Control options for the AF 173 G3

☞	If a delta p signal is still present after cleaning, the cleaning cycle is repeated.
☞	The drain valve must remain closed for the duration of the cleaning cycle.

Control of the cleaning process differs according to the application. The control options described here are examples and are simply intended to serve as a guide.

9.5.1 Control option 1

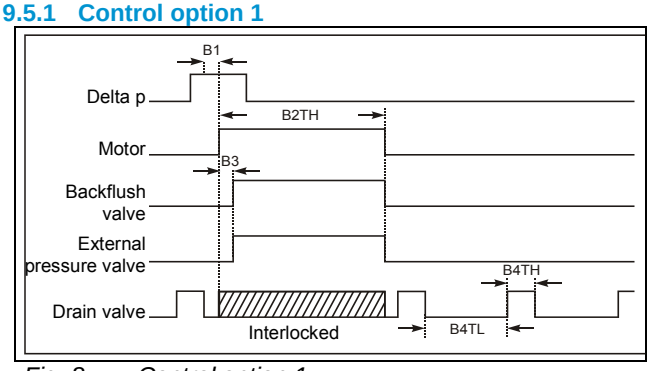

Fig. 8: Control option 1

Parameter	Description	Recommended value
B1	Suppress differential pressure peaks	1 s
B2TH	Motor running time	7 s
B3	ON delay of external pressure valve	0.5 s
B4TH	Drain valve pulse time	2 s
B4TL	Drain valve interval time	1 h

9.5.2 Control option 2

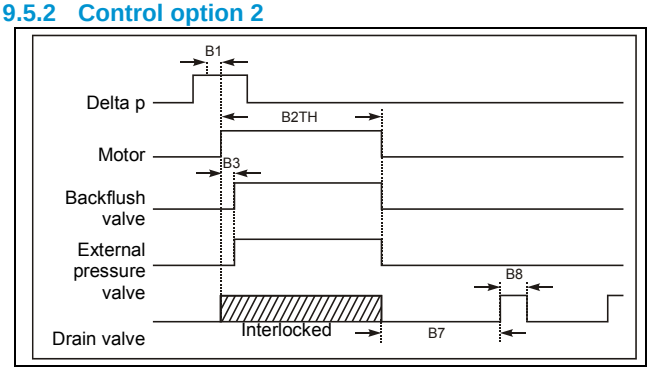

Fig. 9: Control option 2

Parameter	Description	Recommended value
B1	Suppress differential pressure peaks	1 s
B2TH	Motor running time	7 s
B3	ON delay of external pressure valve	0.5 s
B7	Drain valve delayed start	5 s
B8	Drain valve pulse time	2 s

10 Start-up

⚠ DANGER!

This FG automatic filter is not allowed to be put into operation until the relevant machinery into which it is to be incorporated has been declared in conformity with the applicable EC directives, harmonised standards, European standards or equivalent national standards.

⚠ DANGER!

Danger of explosion!

⇨ Risk of injury to persons or damage to property.

- The FG automatic filter must be completely vented prior to start-up if it is to be used with media that are capable of forming explosive mixtures.
- The FG automatic filter must be completely filled with fluid.
- Take steps to prevent air pockets.

⚠ DANGER!

Danger due to high pressure in the filter!

⇨ Risk of injury to persons or damage to property.

- Do not allow concentrate to spatter into the atmosphere!

Make sure that:

- The protection caps have been removed from the connections.
- All foreign particles have been removed from the filter.
- All pipe connections are tightened securely.
- All screws are tight.
- All pipes and the filter have been flushed.

10.1 Functional test

To check the direction of rotation of the gear motor

- Unscrew the cover of the gear motor.
- Remove the cover of the gear motor.
- Start up the gear motor briefly (< 1 s).
- Compare the direction of rotation of the shaft with that shown by the arrow (clockwise).
- Reverse the terminal connections of the gear motor if necessary.
- Screw the cover of the gear motor back on again.

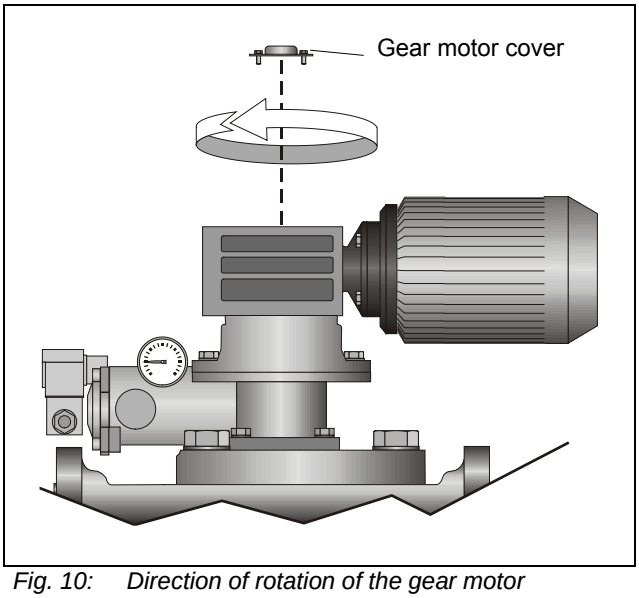

Fig. 10: Direction of rotation of the gear motor

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To check the differential gauge / switch (optional)
- Refer to the manufacturer's documentation supplied with the unit.

To test the function of the drain valve (optional)
- Connect compressed air to the pilot valve.
- Operate the hand release for the pilot valve.

⇨ The drain valve opens.
- Set the hand release for the pilot valve to the OFF position.

⇨ The drain valve closes.
- Refer to the manufacturer's documentation supplied with the unit.

To test the function of the backflush valve (optional)
- Connect compressed air to the pilot valve.
- Operate the hand release for the pilot valve.

⇨ The backflush valve opens.
- Set the hand release for the pilot valve to the OFF position.

⇨ The backflush valve closes.
- Refer to the manufacturer's documentation supplied with the unit.

10.2 Operating settings

- Switch on the controller.
- Slowly open the inlet.
- Make a note of the initial differential pressure (optional).
- Using a suitable throttle valve, set the pressure of the external medium to the required value.

Settings for time-controlled cleaning
- Programme the times according to the operating conditions and correct them if necessary.

Settings for differential pressure-controlled cleaning with a differential pressure indicator / switch
- Refer to the manufacturer's documentation.
- Adjust the set differential pressure to the setpoint (refer to the contract documentation).

Initial differential pressure
The initial differential pressure varies according to the application.
General guide:
Installation on discharge side: $\Delta p \leq 0.1$ bar

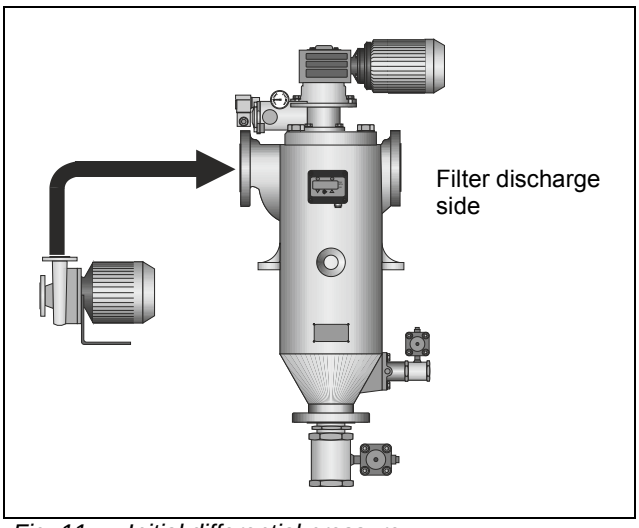

Fig. 11: Initial differential pressure

☞	At the end of a cleaning cycle, the differential pressure should return almost to the original initial differential pressure. If not, the cleaning function is faulty (in this case, please consult the manufacturer).

11 Normal operation

⚠ DANGER!

Danger due to high pressure in the automatic filter!
⇨ Risk of injury to persons or damage to property.
Do not allow concentrate to spatter into the atmosphere!

Dispose of concentrate in a manner which does not pollute the environment!
Consult the responsible authorities before deciding upon the most suitable disposal method.

The following parameters must be checked daily during normal operation:
- Differential pressure
- Controller functions

To flush the drain line

⚠ CAUTION!

A high proportion of fine dirt particles in a long pipe can lead to clogging!
⇨ Risk of injury to persons or damage to property.
Flush the drain line daily / weekly, depending on the application.

- Open the drain valve manually for approx. 10 to 15 s.

⇨ The drain line is flushed.

12 Shutting down the automatic filter

12.1 Temporary shut-down

On the installed automatic filter controller:
- Switch OFF the main switch.

12.2 Prolonged shut-down (>48 h)

- Start a manual cleaning cycle.
- Remove the inner assembly (section 15.6).
- Clean the inner assembly (section 15.7.1).
- Reinstall the inner assembly.
- Fill the automatic filter completely with fluid.
- Switch OFF the main switch.

12.3 Emergency shut-down

- Switch OFF the main switch.

⇨ The power supply is interrupted.

13 Information about cooling lubricant filtration

- Precipitation of constituents and microbiological contamination of the cooling lubricant should be avoided.
- Do not attempt to filter magnetic chips. Be careful when grinding grey cast iron or steel.
- Provide a suitable preseparator (800 to 1000 µm).
- Treat the cooling lubricant with care. Take steps to prevent excessive bacterial or fungal attack.
- Cooling lubricant that has been used for cleaning must be treated separately. There is a risk of enrichment with fine particles if it is returned to the cooling lubricant cycle.
- Provide a constant-pressure valve in the drain line if the pressure on the filtered fluid side is between 4 and 16 bar. The flushing effect is impaired if the pressure difference is too high during cleaning.

14 Troubleshooting

Fault	Possible cause	Remedy
Gear motor does not turn	Motor circuit breaker tripped	Reset the motor circuit breaker
		Test the gear motor
	Substance to be filtered has solidified	Clean the filter
Valves do not open	Not enough compressed air	Increase the pressure
	Pilot valve defective	Test the pilot valve
	Pilot valve incorrectly connected	Check the electrical and pneumatic connections
	Same compressed air line used for external pressure and valves	Provide a separate compressed air line for the valves
Initial differential pressure no longer reached	Solids concentration too high	Use a suitable prefilter
	Cleaning time too short	Increase the cleaning time (the gear motor should be turned at least 1 or 2 turns)
	Solids concentration too high	Use a suitable prefilter
	External pressure too high / low	Reduce / increase the external pressure
	Cleaning time too short	Increase the cleaning time
	External pressure valve dirty / defective	Clean / replace the external pressure valve
	Backflush valve dirty / defective	Clean / replace the backflush valve
Increased concentration of dirt on clean side	Segmented element defective	Check the segmented element and if necessary replace
	Seals brittle	Check the seals and if necessary replace
Excessive leakage at shaft seal	Shaft seal defective	Replace the shaft seal
	Shaft seal incorrectly fitted	Check the seat of the shaft seal
Filtered fluid in compressed air line	External pressure valve dirty / defective	Clean / replace the external pressure valve
	Check valve dirty / defective	Clean / replace the check valve

15 Maintenance

⚠ DANGER!

Danger of explosion!
⇨ Risk of injury to persons or damage to property.
Work is only allowed to be carried out in hazardous areas if appropriate safety precautions are implemented.
Safety precautions must be implemented by the owner.

⚠ WARNING!

If the unit is maintained by unauthorised persons:
⇨ Risk of injury.
⇨ All warranty claims are rendered invalid.
The unit must be maintained by a suitably trained person!

Before all maintenance work:

- Shut down the automatic filter (section 12).
- Take steps to prevent the unit from being switched on again by unauthorised persons.

- Wear protective clothing and equipment appropriate to the hazard potential of the medium (e.g. eye protection, respirator, protective clothing, etc.).
- Carry out the maintenance work.
- Start up the automatic filter again (section 10).

15.1 Inspection and maintenance schedule

- Refer also to the contract documentation.

Interval	Component	Activity
Weekly	Automatic filer	Check for leakage Check the differential pressure
	Pipes	Clean
Monthly	Segmented element	Inspect for wear and if necessary clean
	Automatic filer	Check the conductivity between all components Note the maximum permissible resistance: R < 10 Ω.
Yearly or when cooling lubricant replaced	Bearings	Check the clearance
	Valves	Test the functions
	Segmented element	Clean
	Automatic filer	Clean
	Seal kit	Check for leakage
	External pressure valve	Test the function and if necessary clean
	Check valve	Test the function and if necessary clean

☞	The necessary inspection and maintenance work is dependent on the particular application. Please consult the manufacturer if necessary.

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15.2 Preliminary maintenance steps

⚠ DANGER!

The automatic filter is pressurised!

⇨ Risk of injury to persons or damage to property.

Make sure the pipe is depressurised prior to opening the automatic filter.

☞	The numbers indicated in parentheses correspond to those used in the spare parts drawing.

1

- Make sure the pipe is depressurised prior to opening the automatic filter.
- Close the filter inlet and outlet.

2

- Open the drain valve.
- Open the vent screw.

⇨ The automatic filter is discharged.

3

- Turn off the compressed air supply.

4

- Switch OFF the main switch.

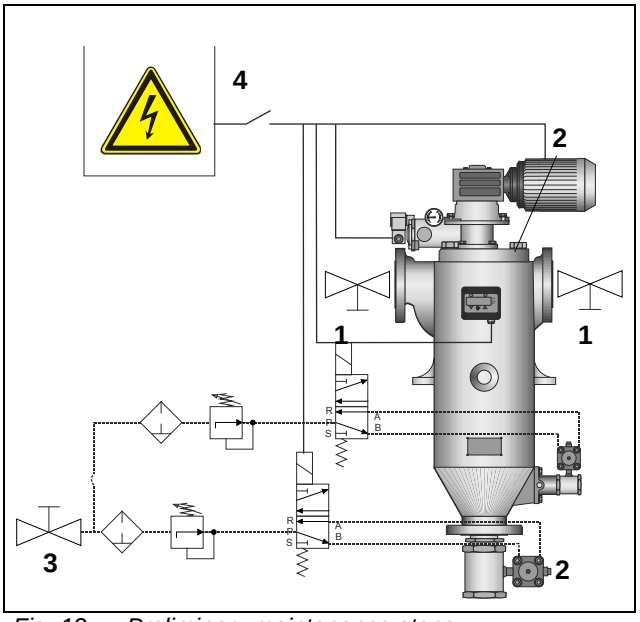

Fig. 12: Preliminary maintenance steps

15.3 Removing the gear motor

⚠ DANGER!

The automatic filter is pressurised!

⇨ Risk of injury to persons or damage to property.

Make sure the pipe is depressurised prior to opening the automatic filter.

☞	The numbers indicated in parentheses correspond to those used in the spare parts drawing.

1

- Carry out the preliminary maintenance steps (section 15.2).
- Disconnect the gear motor.

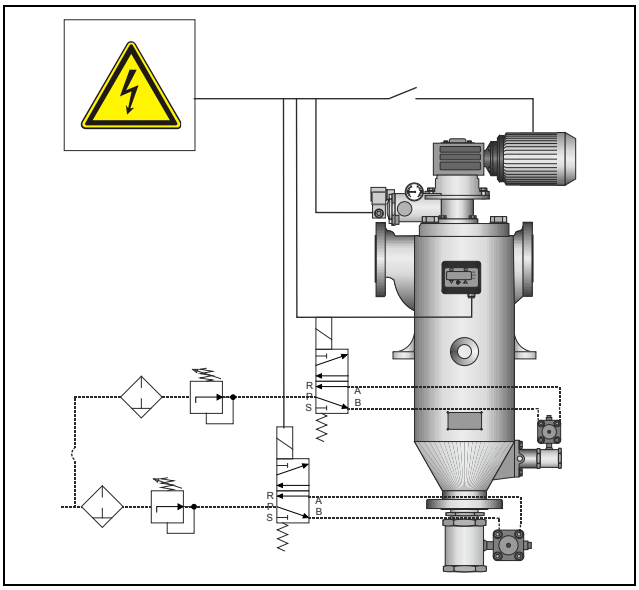

Fig. 13: Disconnecting the gear motor

2

- Loosen and remove the hexagon screws (3.3) and the spring washers (3.4) on the bell housing of the gear motor.
- Pull the gear motor (1) up and remove it from the shaft.

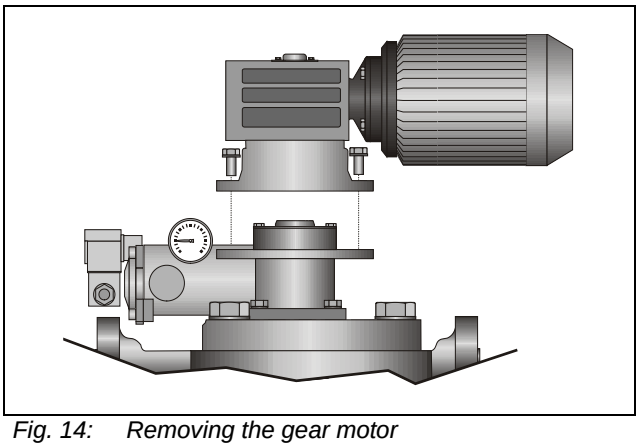

Fig. 14: Removing the gear motor

3

- Install in reverse order.
- Connect the gear motor (section 9.4.1).

15.4 Replacing the motor shaft z

☞	The numbers indicated in parentheses correspond to those used in the spare parts drawing.

- Carry out the preliminary maintenance steps (section 15.2).
- Remove the gear motor (section 15.3).

1

- Unscrew the cover of the gear motor.
- Remove the cover of the gear motor.
- Remove the snap ring (2.1) and the axial bearing disc (2.2).
- Withdraw the motor shaft (2.3) and the feather key from the gear motor (flange side).

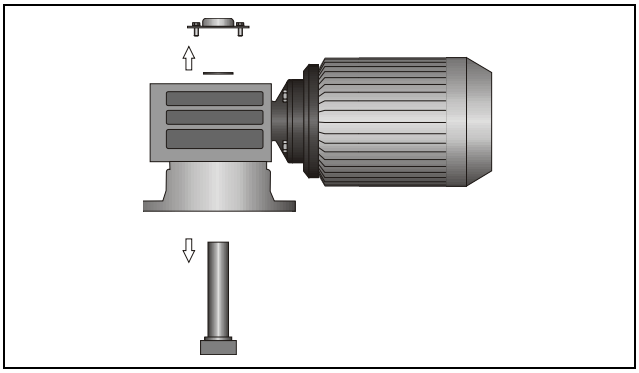

Fig. 15: Replacing the motor shaft z

2

- Install in reverse order.

15.5 Maintaining the backflush adapter

⚠ DANGER!

The automatic filter is pressurised!

⇨ Risk of injury to persons or damage to property.

Make sure the pipe is depressurised prior to opening the automatic filter.

☞	The numbers indicated in parentheses correspond to those used in the spare parts drawing.

15.5.1 Replacing the solenoid

- Carry out the preliminary maintenance steps (section 15.2).

1

- Unplug the connector from the solenoid (30.3).

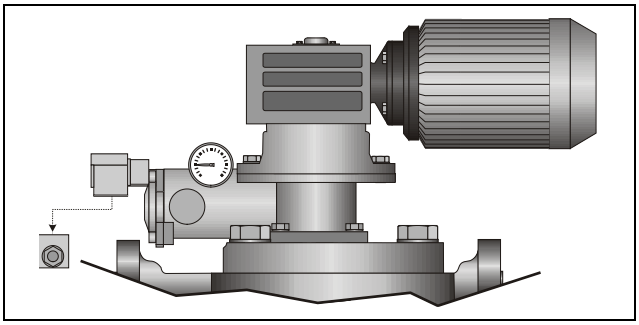

Fig. 16: Unplugging the connector

2

- Remove the solenoid (30.3).

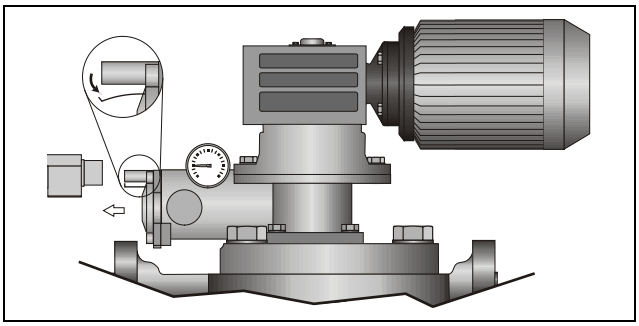

Fig. 17: Removing the solenoid

3

- Install in reverse order.

Translation of the original instructions with installation instructions AF 173 G3, Filtration Group GmbH, 13.01.18, Mat. No. 70311538, Version 06

15.5.2 Maintaining the magnetic valve

☞	The numbers indicated in parentheses correspond to those used in the spare parts drawing.

- Carry out the preliminary maintenance steps (section 15.2).
- Remove the solenoid (30.3) (section 15.5.1, steps 1 to 2).

1

- Remove the cylinder head screws (30.5).

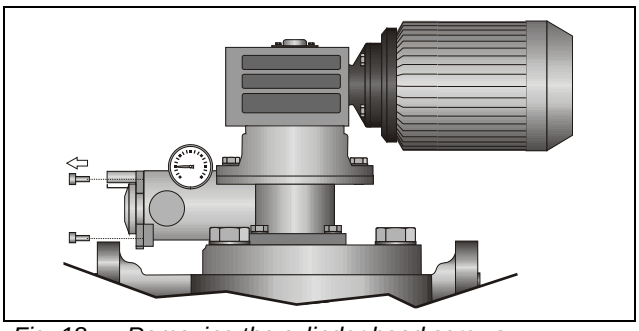

Fig. 18: Removing the cylinder head screws

2

- Carefully loosen and remove the magnetic valve (30.4).

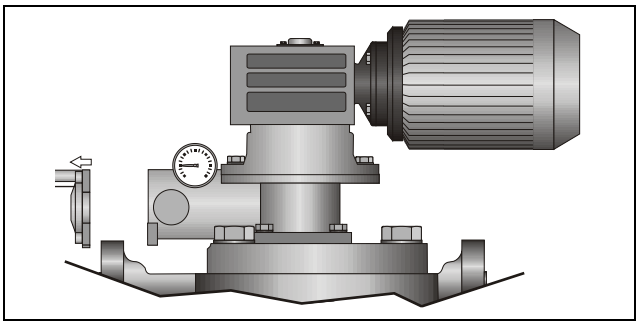

Fig. 19: Removing the magnetic valve

3

- Clean the sealing faces.
- Clean or replace the magnetic valve.
- Install in reverse order.

15.5.3 Maintaining the valve seat

⚠ CAUTION!

Pressure spring loaded!
⇨ Risk of injury to persons.
Remove the snap ring carefully.

☞	The numbers indicated in parentheses correspond to those used in the spare parts drawing.

- Carry out the preliminary maintenance steps (section 15.2).
- Remove the solenoid (30.3) (section 15.5.1, steps 1 to 2).
- Remove the magnetic valve (30.4) (section 15.5.2, steps 1 to 2).

1

- Remove the snap ring (30.6) using a suitable tool.
- Carefully remove the valve seat (30.6).

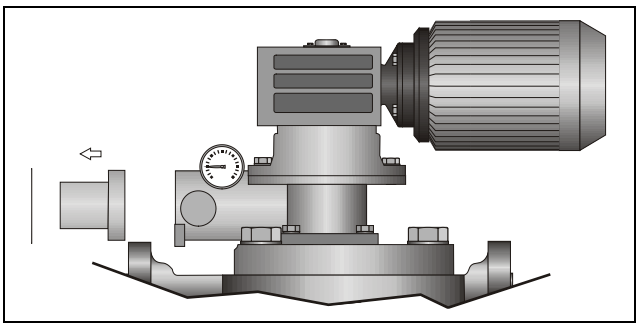

Fig. 20: Replacing the valve seat

2

- Clean the interior of the backflush adapter.
- Clean or replace the valve seat.
- Install in reverse order.

15.5.4 Maintaining the check valve

⚠ CAUTION!

Pressure spring loaded!
⇨ Risk of injury to persons.
Remove the snap ring carefully.

☞	The numbers indicated in parentheses correspond to those used in the spare parts drawing.

- Carry out the preliminary maintenance steps (section 15.2).
- Remove the solenoid (30.3) (section 15.5.1, steps 1 to 2).
- Remove the magnetic valve (30.4) (section 15.5.2, steps 1 to 2).
- Remove the valve seat (30.6) (section 15.5.3, step 1).

1

- Remove the snap ring (30.7) using a suitable tool.
- Carefully remove the check valve (30.7).

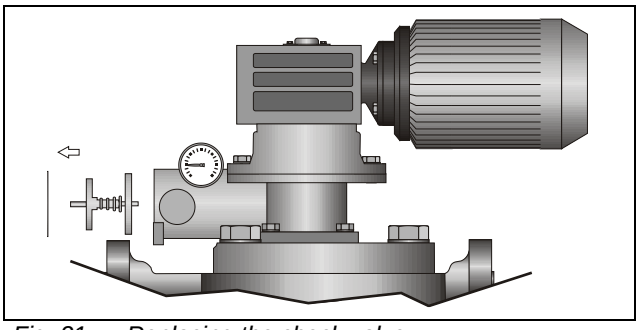

Fig. 21: Replacing the check valve

2

- Clean the interior of the backflush adapter.
- Clean or replace the check valve.
- Install in reverse order.

15.6 Removing the inner assembly

⚠ DANGER!

The automatic filter is pressurised!
⇨ Risk of injury to persons or damage to property.
Make sure the pipe is depressurised prior to opening the automatic filter.

☞	• The numbers indicated in parentheses correspond to those used in the spare parts drawing.

- Carry out the preliminary maintenance steps (section 15.2).
- Remove the gear motor (section 15.3).
- Remove the solenoid (30.3) (section 15.5.1, steps 1 to 2).

1

- Loosen and remove the hexagon screws (5) and the washer (6) on the filter cover.

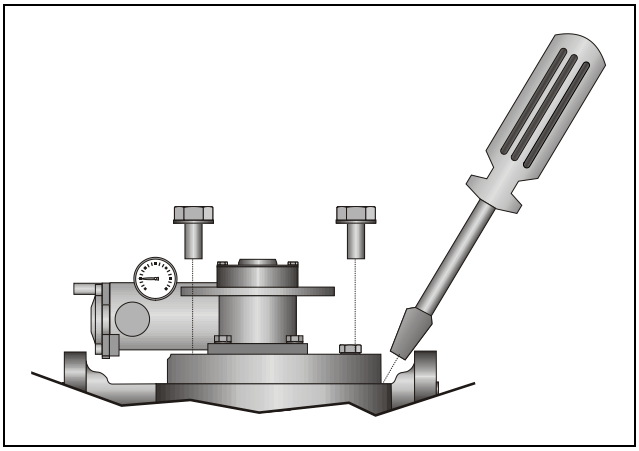

Fig. 22: Loosening the hexagon screws on the filter cover

2

- Apply a large screwdriver to the notch.
- Lever off the filter cover.

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3

- Pick up the inner assembly by the eyebolts and withdraw it vertically.

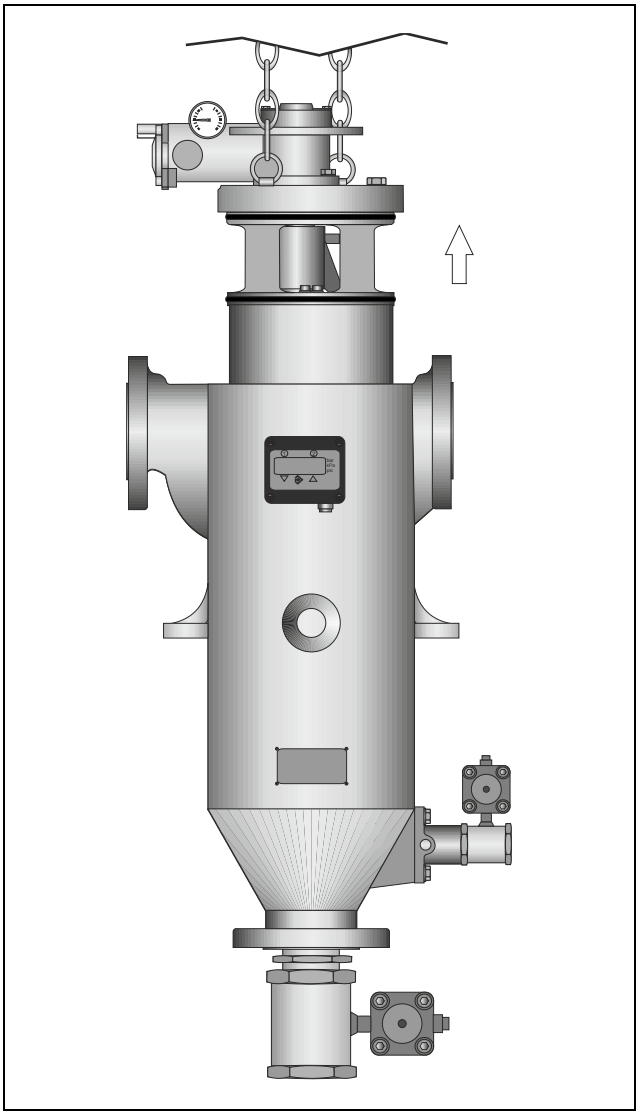

Fig. 23: Withdrawing the inner assembly

- Lay the inner assembly down carefully on a level surface, taking care not to damage the segmented element or the backflush adapter.

⇨ The inner assembly can now be maintained.

- Install in reverse order.
- The inner assembly must be inserted straight.

15.7 Cleaning the filter

- Remove the inner assembly (section 15.6).

15.7.1 Cleaning the inner assembly

⚠ WARNING!

Danger of aerosol formation!
All work must be carried out in a room with a suitable extraction system!

- Wear protective clothing and equipment appropriate to the hazard potential of the medium (e.g. eye protection, respirator, protective clothing, etc.).
- Remove any coarse impurities by mechanical means.
- Wash out the inner assembly in a suitable cleaning solution.
- Carefully blow out the inner assembly with a steam jet or compressed air.
- Clean (or if necessary replace) and oil the seals.

15.7.2 Cleaning the filter housing

- Wear protective clothing and equipment appropriate to the hazard potential of the medium (e.g. eye protection, respirator, protective clothing, etc.).
- Remove any coarse impurities by mechanical means.
- Wash out the filter housing in a suitable cleaning solution.

15.8 Replacing the segmented element

⚠ WARNING!
If the unit is maintained by unauthorised persons: ⇨ Risk of injury. ⇨ All warranty claims are rendered invalid. The unit must be maintained by a suitably trained person!

15.8.1 Removing the segmented element

☞	The numbers indicated in parentheses correspond to those used in the spare parts drawing.

☞	The segmented element can be removed and installed again more easily if it is stood upright on the cover (segmented element on top).

- Remove the inner assembly (section 15.6).
- Clean the filter (section 15.7).

1

- Loosen the countersunk screws (18).
- Remove the preseparator tube (19).

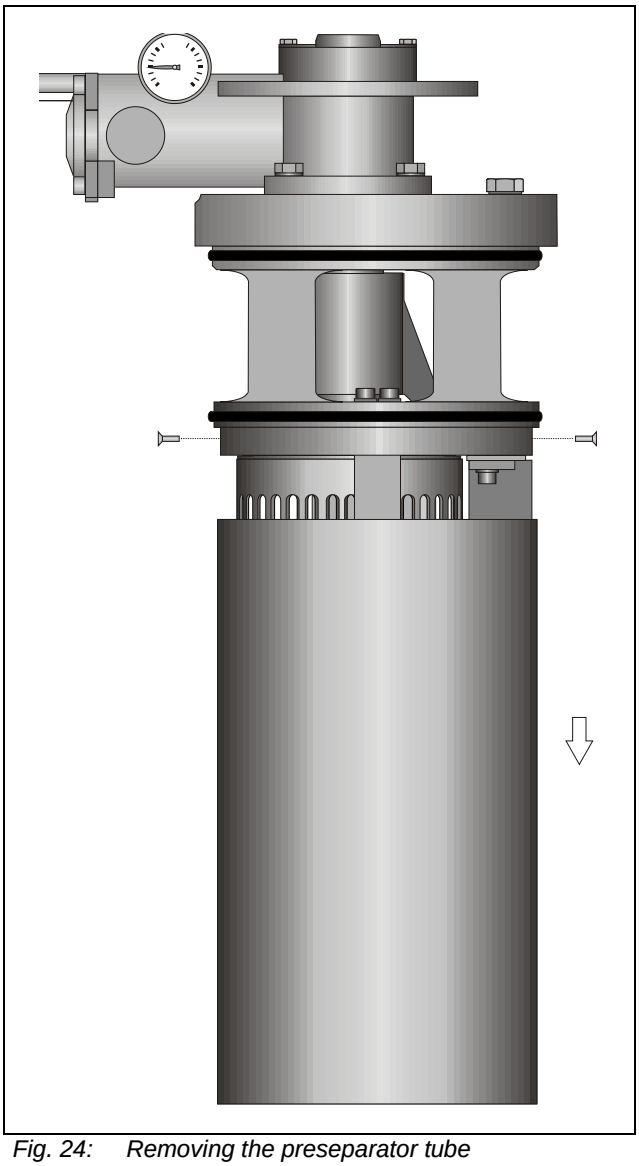

Fig. 24: Removing the preseparator tube

2

- Loosen the cylinder head screws (45.5) and remove them together with the spring washers (45.4).
- Remove the backflush channel (45) and the channel seal (85.1).

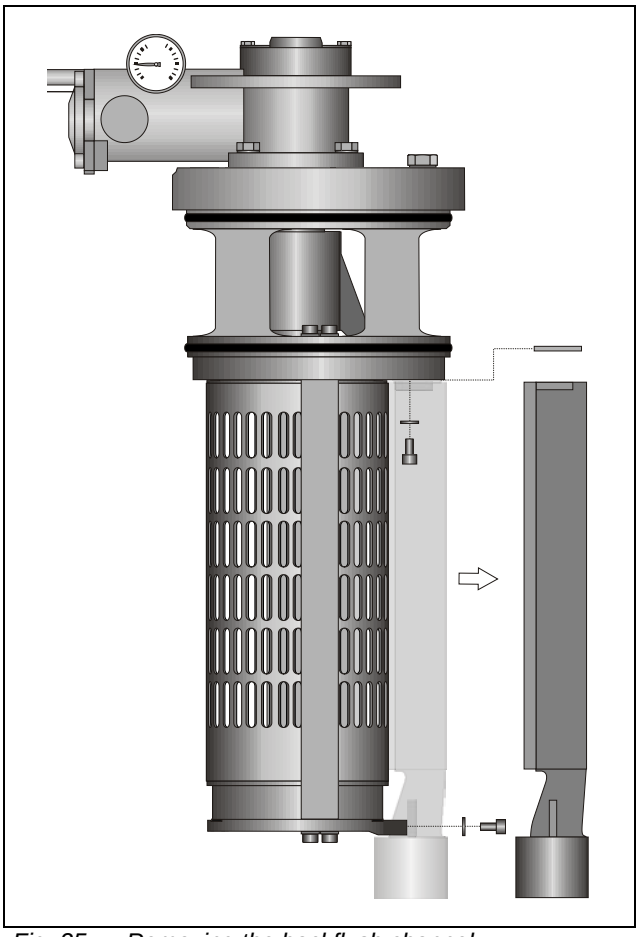

Fig. 25: Removing the backflush channel

Translation of the original instructions with installation instructions AF 173 G3, Filtration Group GmbH, 13.01.18, Mat. No. 70311538, Version 06

3

- Loosen the cylinder head screws (29) and remove them together with the spring washers (9).

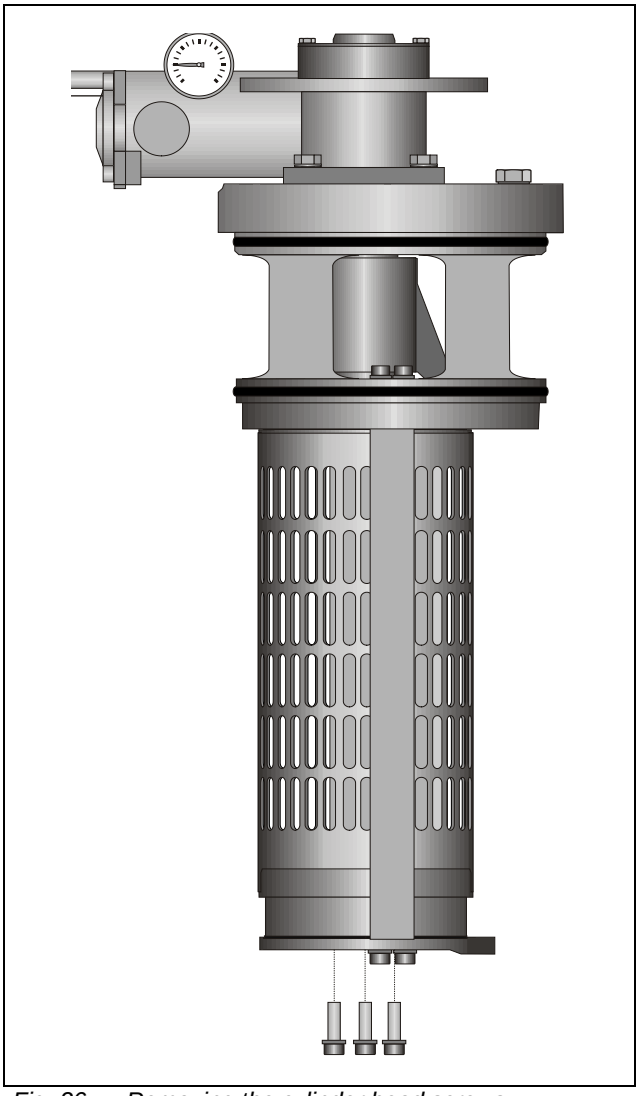

Fig. 26: Removing the cylinder head screws

4

- Loosen the cylinder head screws (10) and remove them together with the spring washers (9).

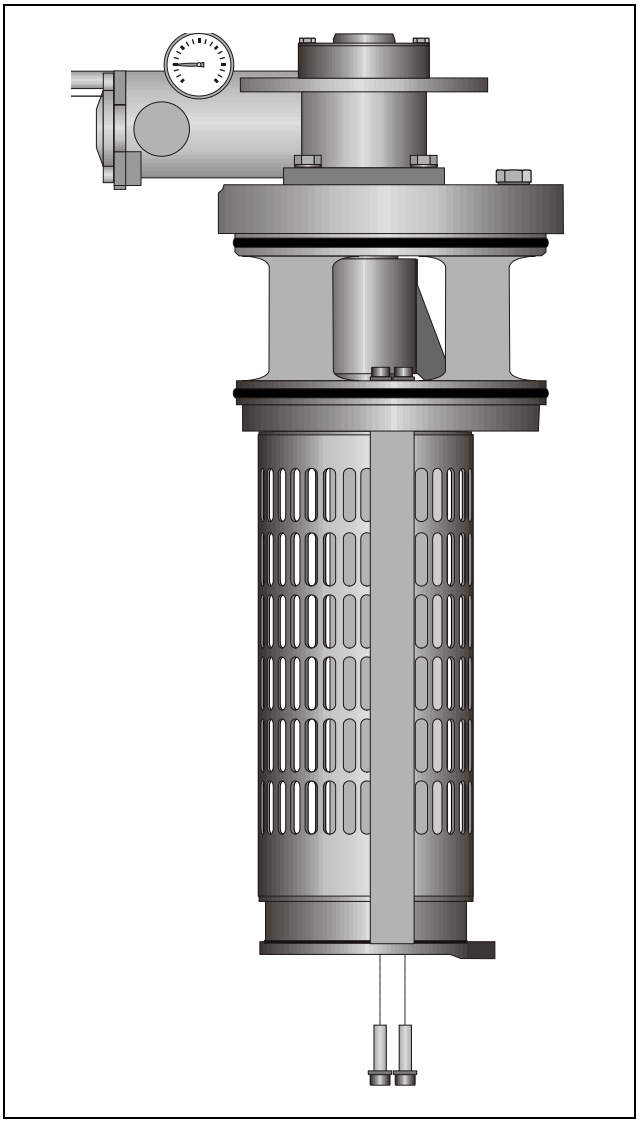

Fig. 27: Removing the cylinder head screws and the spring washers

5

- Remove the centre flange (22).

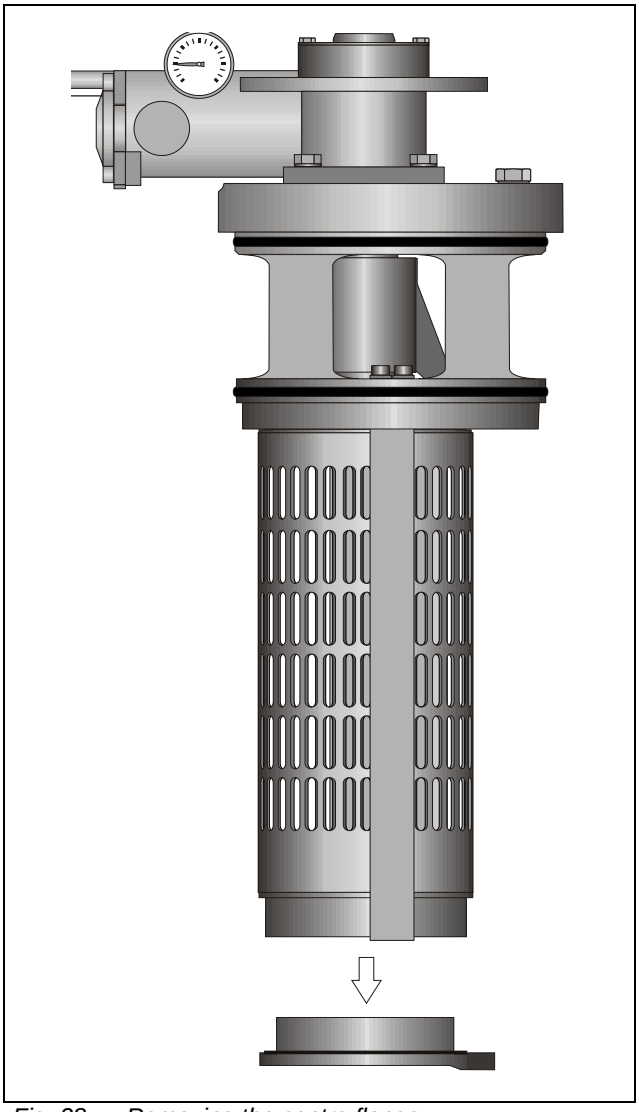

Fig. 28: Removing the centre flange

6

- Carefully withdraw the segmented element from the cover (7) together with the pressure channel (28).

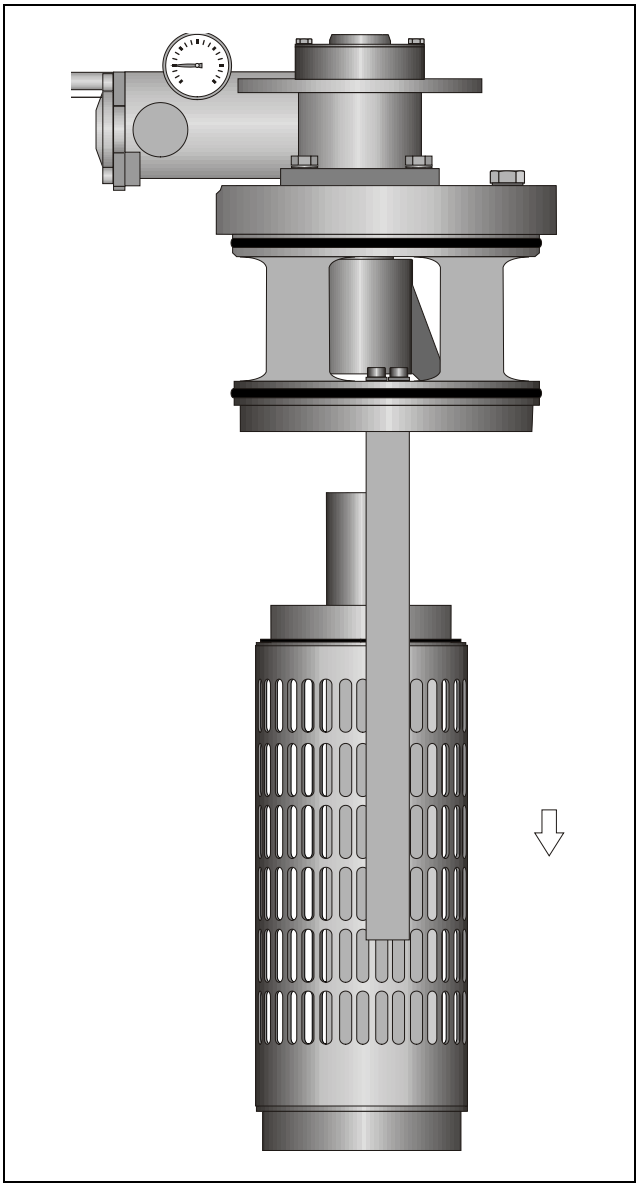

Fig. 29: Withdrawing the segmented element and the pressure channel

7

- Remove the pressure channel (28) from the segmented element.

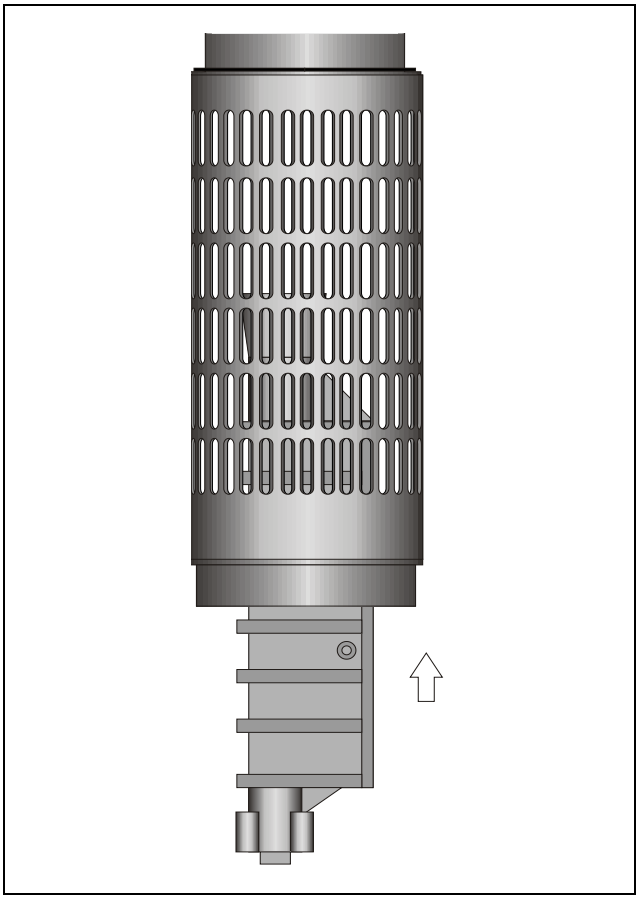

Fig. 30: Removing the pressure channel

8

- Clean all parts removed.
- Replace the element seals and guides (section 15.9).

15.8.2 Installing the segmented element

☞	The numbers indicated in parentheses correspond to those used in the spare parts drawing.

- Check the seals to make sure they are complete.

1

- Insert the pressure channel (28) into the segmented element.

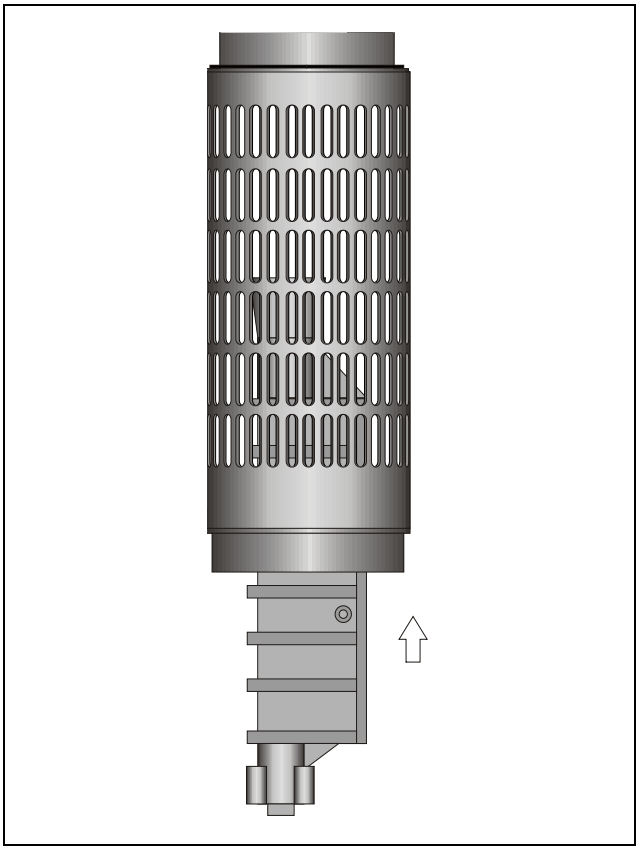

Fig. 31: Inserting the pressure channel

2

- Preassemble the pressure channel (28), the segmented element and the centre flange (22) with the cylinder head screws (29) and the spring washers (9).

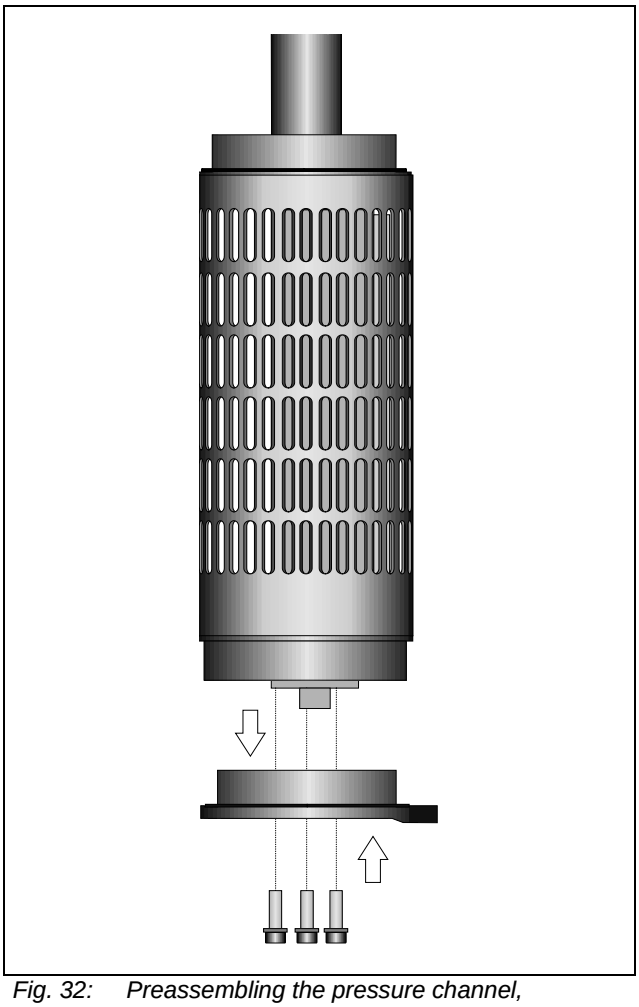

Fig. 32: Preassembling the pressure channel, segmented element and centre flange

3

- Carefully install the preassembled unit (pressure channel, segmented element and centre flange) in the drive shaft (17).
- Screw the cylinder head screws (10) and the spring washers (9) tight.

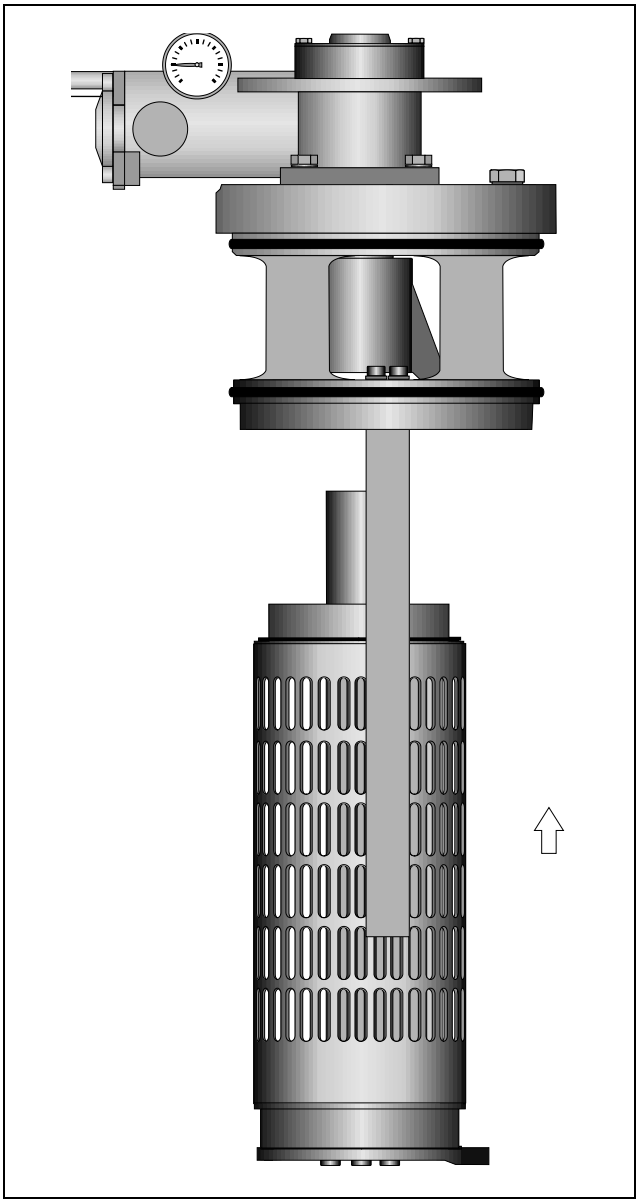

Fig. 33: Installing the preassembled unit in the drive shaft

4

- Attach the backflush channel.

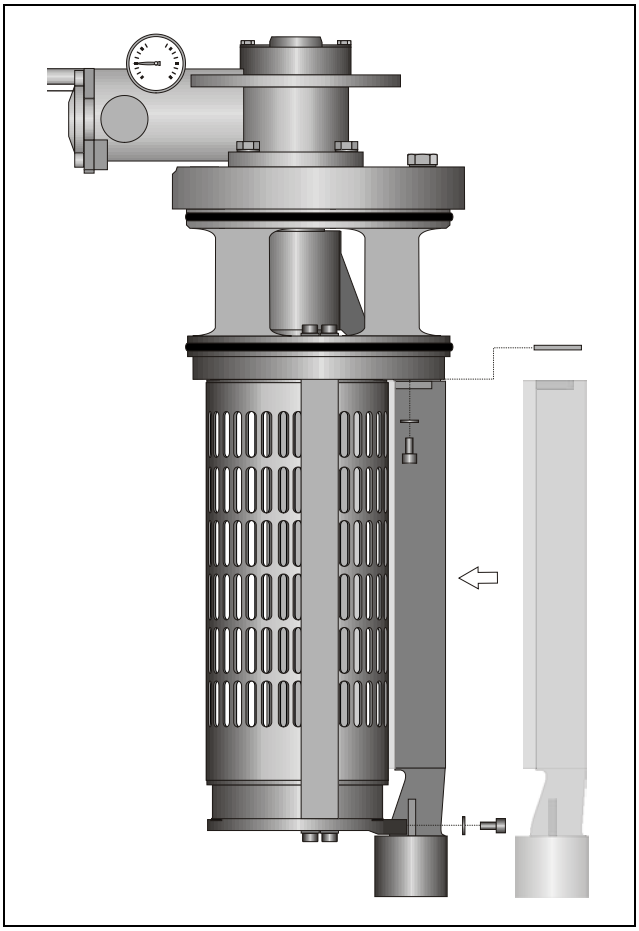

Fig. 34: Attaching the backflush channel

15.9 Replacing the element seals and guides

⚠ WARNING!

If the unit is maintained by unauthorised persons:

⇨ Risk of injury.

⇨ All warranty claims are rendered invalid.

The unit must be maintained by a suitably trained person!

☞	The numbers indicated in parentheses correspond to those used in the spare parts drawing.

- Remove the inner assembly (section 15.6).
- Clean the filter (section 15.7).
- Remove the segmented element (section 15.8.1).

⇨ The seals can now be replaced.

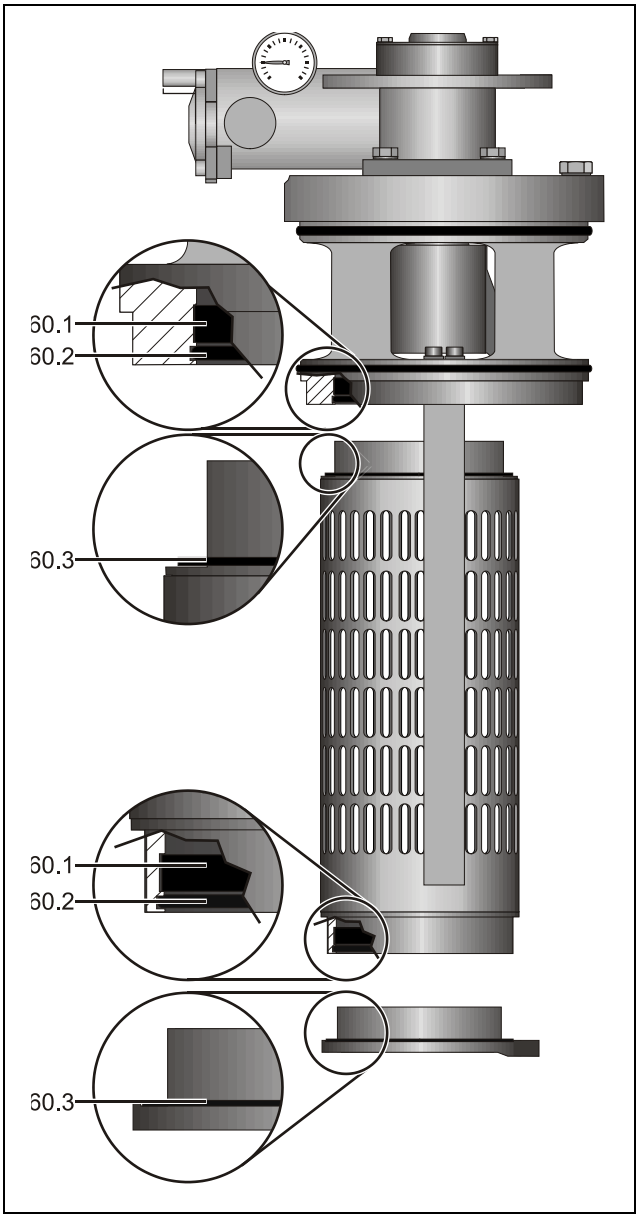

Fig. 35: Replacing the element seals and guides

15.10 Replacing the backflush channel moulding z

⚠ DANGER!

The automatic filter is pressurised!

⇨ Risk of injury to persons or damage to property!

Make sure the pipe is depressurised prior to opening the automatic filter.

⚠ WARNING!

If the unit is maintained by unauthorised persons:

⇨ Risk of injury.

⇨ All warranty claims are rendered invalid.

The unit must be maintained by a suitably trained person!

☞ The numbers indicated in parentheses correspond to those used in the spare parts drawing.

- Remove the inner assembly (section 15.6).
- Clean the filter (section 15.7).
- Remove the preseparator tube (section 15.8.1, step 1).

1

⚠ CAUTION!

Pressure springs loaded!

⇨ Risk of injury to persons.

Carefully remove the backflush channel moulding z.

- Withdraw the backflush channel moulding z (45.3) from the backflush channel housing (45.1).
- Clean the backflush channel housing.
- Insert the new backflush channel moulding (45.3) into the backflush channel housing (45.1) while pressing in the pressure springs (45.2) one at a time.

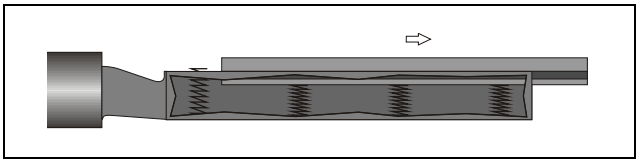

Fig. 36: Removing the backflush channel

- Install in reverse order.

When reassembling:

- Check all screws and tighten them if necessary.

15.11 Replacing the shaft seals and guide

⚠ WARNING!

If the unit is maintained by unauthorised persons:

⇨ Risk of injury.

⇨ All warranty claims are rendered invalid.

The unit must be maintained by a suitably trained person!

☞ The numbers indicated in parentheses correspond to those used in the spare parts drawing.

- Carry out the preliminary maintenance steps (section 15.2).
- Remove the gear motor (section 15.3).
- Remove the solenoid (30.3) (section 15.5.1, steps 1 to 2).
- Remove the inner assembly (section 15.6).
- Clean the filter (section 15.7).
- Remove the segmented element (section 15.8.1).

1

- Carefully withdraw the drive shaft (17) and the axial bearing disc (55.2) from the cover (7).
- Remove the O-ring (75.8), back-up rings (75.7) and bearing bush (55.3) from the drive shaft.

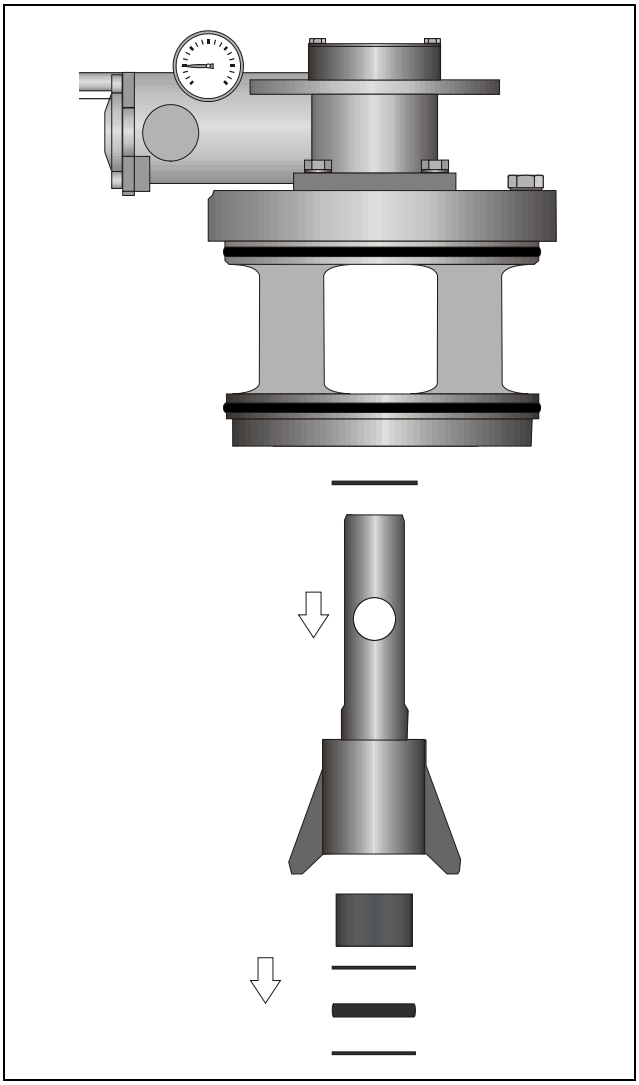

Fig. 37: Removing the drive shaft, seals and bearing bush

2

- Loosen and remove the hexagon screws (25).

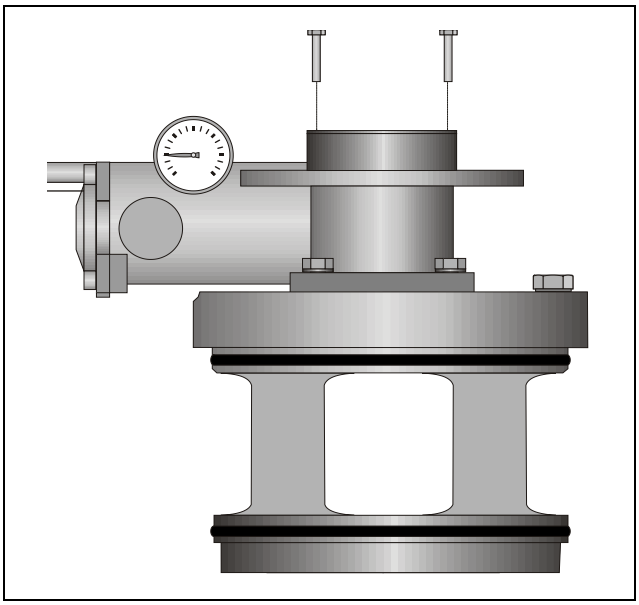

Fig. 38: Loosening and removing the hexagon screws

3

- Remove the sealing disc (31) and the shaft seal attachment (32).

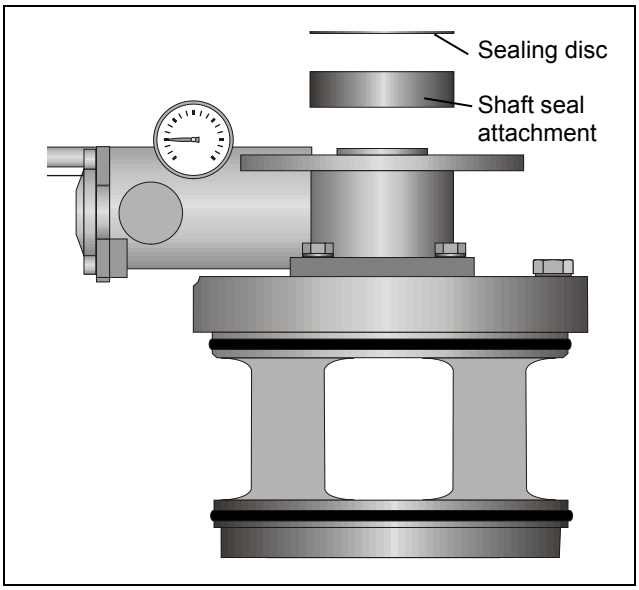

Fig. 39: Removing the sealing disc and the shaft seal attachment

4

- Remove the lip seal (75.1), back-up ring (75.2) and O-ring (75.3) from the shaft seal attachment.

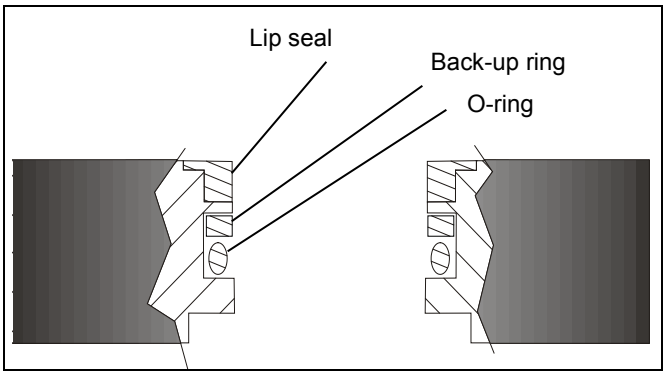

Fig. 40: Removing the seals

5

- Remove the O-ring (75.4).

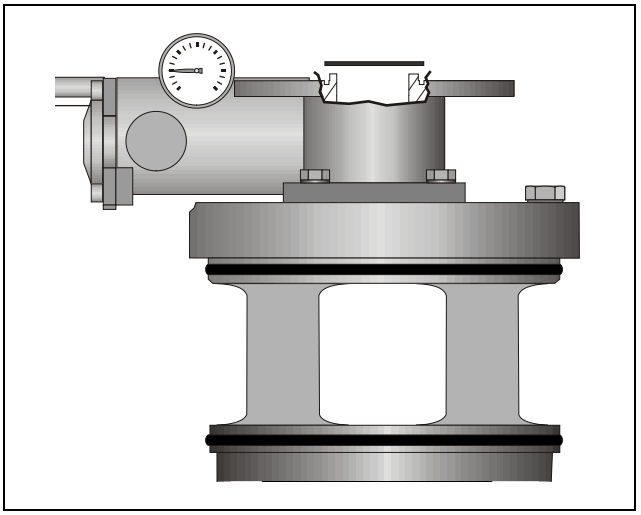

Fig. 41: Removing the O-ring

6

- Loosen the hexagon screws (12) and remove them together with the spring washers (13).
- Remove the backflush adapter housing (30.1) from the cover (7).

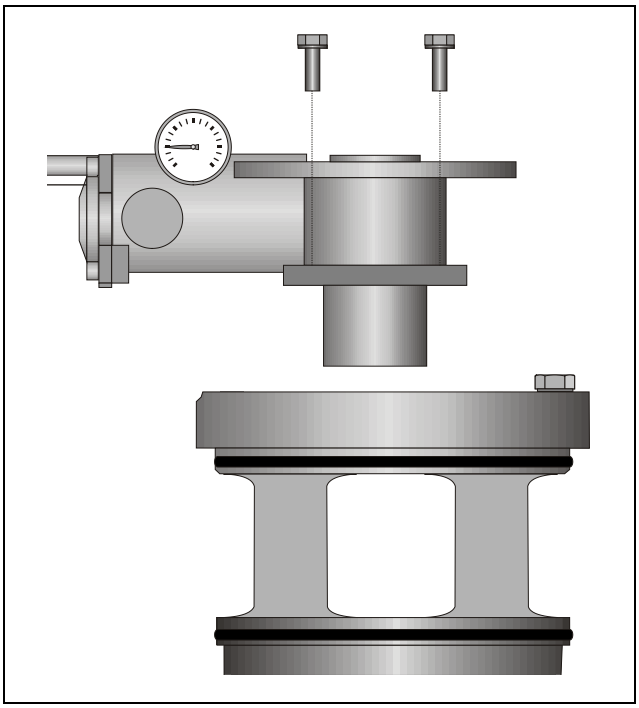

Fig. 42: Removing the backflush adapter housing

7

- Remove the O-ring (75.5).

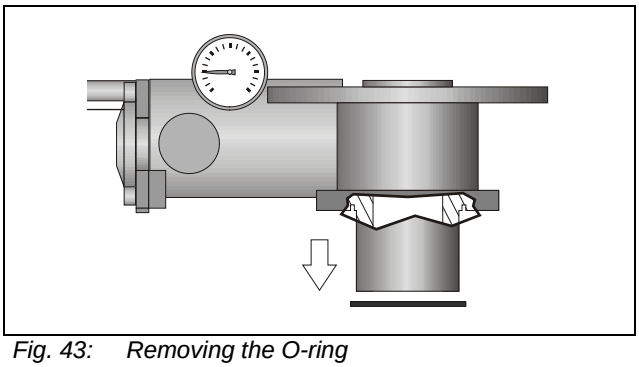

Fig. 43: Removing the O-ring

8

- Remove the bearing bushes (55.1).

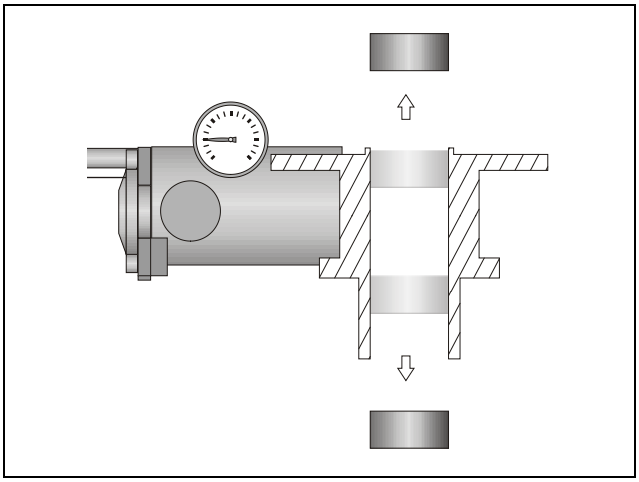

Fig. 44: Removing the bearing bushes

9

- Clean the shaft seal attachment, drive shaft and backflush adapter.
- Oil the new sealing and guide elements lightly and install them.
- Install in reverse order.

When reassembling:

- Screw in the hexagon screws (25) hand-tight.
- Turn the drive shaft (17) slightly and pull it up.
- Tighten the hexagon screws (25).

16 Exploded view

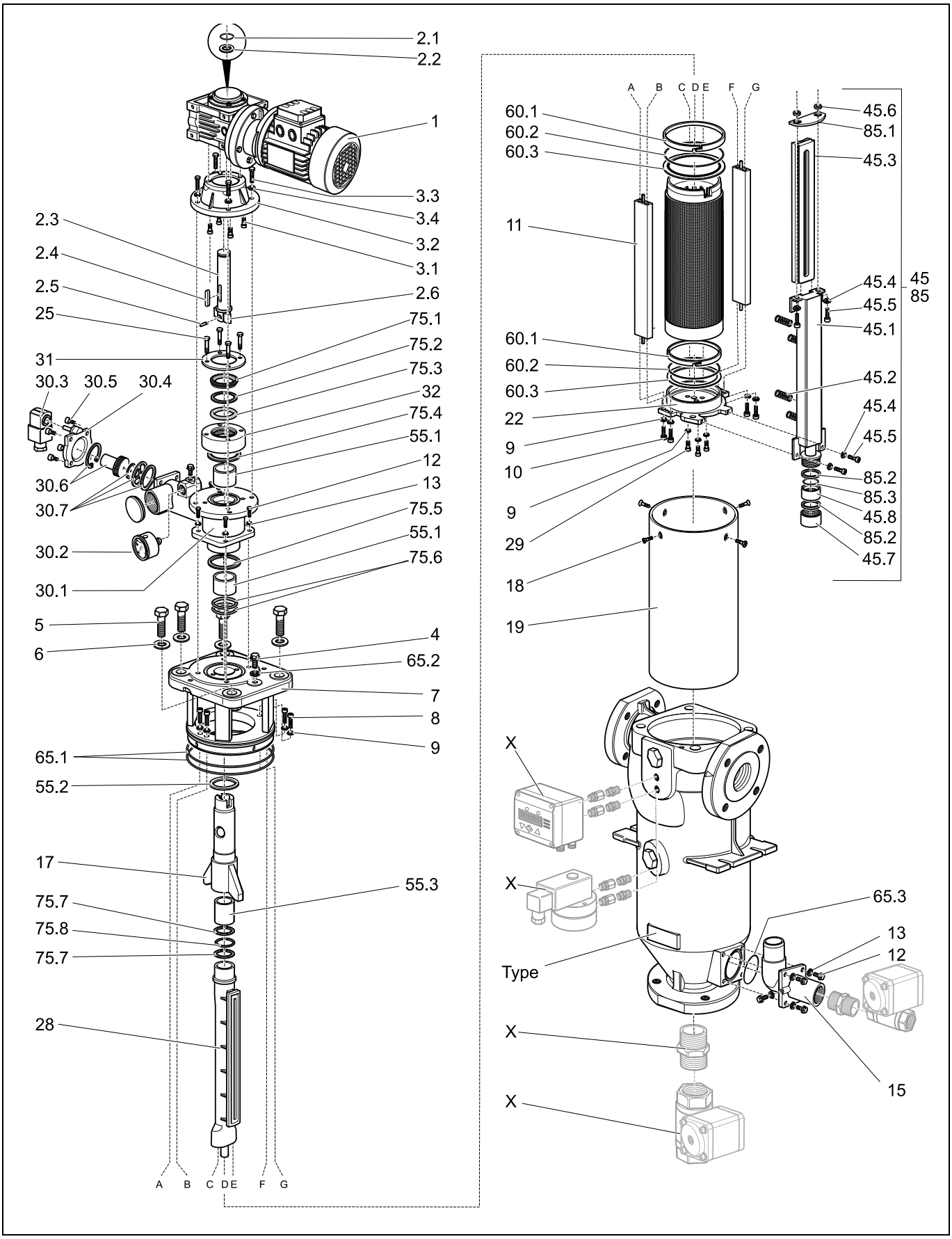

Fig. 45: Exploded view

17 List of parts

No.	Benennung/DIN Bezeichnung	Qty.	Part name/DIN designation
1	Getriebemotor	1	Gear motor
2	**Motorwelle Z AF133-173**	**1**	**Motor shaft z AF133-173**
2.1	Sicherungsring 18 x 1,2 DIN 471	1	Snap ring
2.2	Anlaufscheibe 25 x 19 x 2	1	Axial bearing disc
2.3	Motorwelle	1	Motor shaft
2.4	Passfeder 6 x 6 x 30 DIN 6885	1	Feather key
2.5	Spannstift 4 x 18 ISO 8752	1	Clamping pin
2.6	Mitnehmer	1	Coupling fork
3	**Motoraufnahme Z AF Vario/G3**	**1**	**Bell housing with screws AF Vario/G3**
3.1	Zylinderschraube M6 x 18 ISO 4762	4	Cylinder head screw
3.2	Motorbock	1	Bell housing
3.3	6kt-Schraube M8 x 20 ISO 4017	4	Hexagon screw
3.4	Federring A8 DIN 128	4	Spring washer
4	Entlüftungsschraube G ¼	1	Vent screw
5	6kt-Schraube M20 x 65 ISO 4014	4	Hexagon screw
6	Scheibe B21 ISO 7090	4	Washer
7	Deckel AF Vario/G3	1	Cover AF Vario/G3
8	Zylinderschraube M6 x 40 ISO 4762	4	Cylinder head screw
9	Federring A6 DIN127	11	Spring washer
10	Zylinderschraube M6 x 20 ISO 4762	4	Cylinder head screw
11	Träger	2	Support
12	6kt-Schraube M8 x 20 ISO 4017	4	Hexagon screw
13	Federring A8 DIN 128	4	Spring washer
15	Anschlussflansch	1	Connecting flange
17	Antriebswelle AF133-173/G3	1	Drive shaft AF133-173/G3
18	Senkschraube M5 x 8 ISO 10642	4	Countersunk screw
19	Schutzzylinder	1	Preseparator tube
22	Zentrierflansch AF133-173/G3	1	Centre flange AF133-173/G3
25	6kt-Schraube M4 x 25 ISO 4017	4	Hexagon screw
28	**Verteiler Z PPS**	**1**	**Pressure channel z PPS**
29	Zylinderschraube M6 x 16 ISO 4762	3	Cylinder head screw
30	**RSA AF133-173/G3**	**1**	**Backflush adapter AF133-173/G3**
30.1	Gehäuse RSA	1	Backflush adapter housing
30.2	Manometer RSA	1	Backflush adapter gauge
30.3	Magnetspule RSA	1	Backflush adapter solenoid
30.4	Magnetventil RSA	1	Backflush adapter magnetic valve
30.5	Zylinderschraube M6 x 12 ISO 4762	4	Cylinder head screw
30.6	Ventilsitz RSA	1	Backflush adapter valve seat
30.7	Rückschlagventil RSA	1	Backflush adapter check valve
31	Dichtscheibe AF133-173/G3	1	Sealing disc AF133-173/G3
32	Dichtaufsatz AF133-173/G3	1	Shaft seal attachment AF133-173/G3
45	**RSK Z AF113/173**	**1**	**Backflush channel z AF113/173**
45.1	RS-Kanal Gehäuse	1	Backflush channel housing
45.2	Druckfeder	4	Pressure spring
45.3	Abstreiferleiste Z AF113/173	1	Backflush channel moulding z AF113/173
45.4	Federring A6 DIN127	4	Spring washer
45.5	Zylinderschraube M6 x 16 ISO 4762	4	Cylinder head screw
45.6	Distanzbuchse AF113/173	2	Distance bush AF113/173
45.7	Überwurfmutter AF113/173	1	Coupling nut AF113/173
45.8	Zentrierkörper AF113/173	1	Centre ring AF113/173
55	**Buchsensatz AF133-173/G3**	**1**	**Bearing bush kit AF133-173/G3**
55.1	Buchse XSM-3539-19	2	Bearing bush
55.2	Anlaufscheibe 39 x 50 x 2	1	Axial bearing disc
55.3	Buchse XSM-4044-30	1	Bearing bush

No.	Benennung/DIN Bezeichnung	Qty.	Part name/DIN designation
60	**Dichtsatz Element AF Vario/G3**	**1**	**Seal kit element AF Vario/G3**
60.1	Führungsring 101,3	2	Radial bearing ring
60.2	O-Ring 101,2 x 2,62	2	O-ring
60.3	Anlaufscheibe 115 x 101,4 x 1,5	2	Axial bearing disc
65	**Dichtsatz Gehäuse AF Vario/G3**	**1**	**Seal kit housing AF Vario/G3**
65.1	O-Ring 168 x 4	2	O-ring
65.2	Dichtring 14 x 18 x 1,5 DIN 7603	1	Sealing ring
65.3	O-Ring 56,74 x 3,53	1	O-ring
75	**Dichtsatz Welle AF133-173/G3**	**1**	**Seal kit shaft AF133-173/G3**
75.1	Lippendichtung D35	1	Lip seal
75.2	Stützring 35 x 44,4 x 1,7	1	Back-up ring
75.3	O-Ring 34,29 x 5,33	1	O-ring
75.4	O-Ring 44,04 x 3,53	1	O-ring
75.5	O-Ring 53,57 x 3,53	1	O-ring
75.6	O-Ring 38,70 x 2,65	2	O-ring
75.7	Stützring 40 x 49,6 x 1,7	2	Back-up ring
75.8	O-Ring 40,64 x 5,33	1	O-ring
85	**Dichtsatz RS-Kanal AF113/173/G3**	**1**	**Seal kit backflush channel AF113/173/G3**
85.1	Kanaldichtung	1	Channel seal
85.2	Dichtring 33 x 39 x 3	2	Sealing ring
85.3	O-Ring 28,2 x 3,5	1	O-ring

18 Spare parts

No.	Benennung	Material no.	Designation
2	Motorwelle Z AF133-173 VP (C-Stahl)	76382345	Motor shaft z AF133-173 VP (carbon steel)
2	Motorwelle Z AF133-173 VP (Edelstahl)	70311633	Motor shaft z AF133-173 VP (stainless steel)
17	Antriebswelle AF133-173/G3 (C-Stahl)	70311738	Drive shaft AF133-173/G3 (carbon steel)
17	Antriebswelle AF133-173/G3 (Edelstahl)	70311738	Drive shaft AF133-173/G3 (stainless steel)
28	Verteiler Z AF133-173 KS PPS VP	70510313	Pressure channel z AF133-173 KS PPS VP
30.2	Manometer RSA 10bar	70315553	Backflush adapter gauge 10 bar
30.3	Magnetspule RSA 24V	70310121	Backflush adapter solenoid 24 V
30.3	Magnetspule RSA 24V Ex	70316092	Backflush adapter solenoid 24 V Ex
30.3	Magnetspule RSA 24V M12x1	70316510	Backflush adapter solenoid 24 V M12x1
30.3	Magnetspule RSA 230V	70310122	Backflush adapter solenoid 230 V
30.4	Magnetventil RSA	70315625	Backflush adapter magnetic valve
30.6	Ventilsitz RSA	70313863	Backflush adapter valve seat
30.7	Rückschlagventil RSA	70311822	Backflush adapter check valve
55	Buchsensatz AF133-173/G3 VP (PTFE)	70311579	Bearing bush kit AF133-173/G3 VP (PTFE)
60	Dichtsatz Element AF Vario/G3 VP (FPM)	70308045	Seal kit element AF Vario/G3 VP (FPM)
60	Dichtsatz Element AF Vario/G3 VP (PTFE)	70308343	Seal kit element AF Vario/G3 VP (PTFE)
65	Dichtsatz Gehäuse AF Vario/G3 VP (FPM)	70311595	Seal kit housing AF Vario/G3 VP (FPM)
65	Dichtsatz Gehäuse AF Vario/G3 VP (PTFE)	70311599	Seal kit housing AF Vario/G3 VP (PTFE)
75	Dichtsatz Welle AF133-173/G3 VP (FPM)	70311574	Seal kit shaft AF133-173/G3 VP (FPM)
75	Dichtsatz Welle AF133-173/G3 VP (PTFE)	70311577	Seal kit shaft AF133-173/G3 VP (PTFE)
60 + 65 + 75	Dichtsatz Komplett AF133/153/G3 01/2010 VP (FPM)	70389880	Seal kit complete AF133/153/G3 01/2010 VP (FPM)
60 + 65 + 75	Dichtsatz Komplett AF133/153/G3 01/2010 VP (PTFE)	70389887	Seal kit complete AF133/153/G3 01/2010 VP (PTFE)
Segmentelement → siehe Typenschild			Segmented element → see name-plate

☞	Please request a separate spare parts drawing and list of spare parts for special designs.

19 Declaration of incorporation

As defined by 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 :**	**Automatik-Kantenspaltfilter** **Automatic metal edge filter** **Filtres automatiques à fentes**
Typenbezeichnung: **Type designation:** **Désignation du type :**	**AF 133 G, AF 153 G, AF 173 G, AF 113 G**
Funktionsbeschreibung: **Machine description:** **Description du fonctionnement :**	**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 must not be put into service until the complete unit is put into service!

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 Gesundheitsschutzanforderungen (soweit zutreffend) gemäß 2006/42/EU, Anhang 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

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 :**	**Automatik-Kantenspaltfilter** **Automatic metal edge filter** **Filtres automatiques à fentes**
Typenbezeichung: **Type designation:** **Désignation du type :**	**AF 133 G/AF 153 G/AF 173 G/AF 113 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 harmonise utilisées, notamment AD 2000

Angewendete nationale Normen und technische Spezifikationen, insbesondere
Applied national norms and techn. specifications, especially
Normes et specifications nationals 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 only applies to discharge casings with a CE mark for categories I to IV or to complete filters in accordance with the Ex directive for categories 3G / 2G. • The standard version is designed for Group 2 liquids as defined by the EC Pressure Equipment Directive 97/23/EC Article 9.

21 Index

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