



Translation of original instructions with installation instructions
Automatic Metal-Edge Filter with Radial Scraper Cleaning AF 72 G

Cast Type

Material No. of Instruction Manual
79718354



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2 General safety instructions

2.1 Safety instructions for installation and operating personnel

This Instruction Manual contains important safety instructions 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 system:

- ⇒ Failure of critical functions of the machine or system 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 the Instruction Manual carefully.
- Make sure that installation and operating personnel are adequately trained.
- Make sure that the contents of the Instruction Manual are fully understood by the responsible persons.
- Define areas of responsibility and competence.
- Prepare a maintenance schedule.

During operation of the system:

- Keep the Instruction Manual handy at the place where the system is used.
- Heed the safety instructions. Always operate the machine/system 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 <ul style="list-style-type: none">⇒ 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 from high voltage
	Danger information about explosion protection
	Information about environmental protection
	Wear protective clothing!
	Wear goggles!
	Wear a respirator!
	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

Aerosol:

Distribution of minute liquid droplets (or solid particles) in a gas acting as the outer phase.

Agglomerate:

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

CLM:

Cooling lubricant in accordance with DIN 51385.

Concentrate:

Quantity of residues enriched with solids. Emptied out of the filter periodically. Further treatment may be necessary, depending on the application.

Differential pressure (Δp):

Difference between the pressure on the muddy side and the pressure on the clean side.

Filter cake:

Layer that is built up from the solids retained on the surface of the filter element.

Filter element:

Cylindrical body comprising a profiled support tube with triangular wires wound or welded onto it. The suspension that must be filtered flows inwards. Solids are retained on the outer surface of the filter element.

Filtrate:

Filtered substance.

Filtration mode:

The metal-edge filter operates normally and the drain valve is closed.

Homogenization:

Unification of a system of substances.

Initial differential pressure:

Differential pressure at the start of the filtration process (when the filter element is "clean").

Pilot control:

(5/2-way) valves actuated by the control, which switch pneumatic control valves.

Suspension (raw suspension):

System of substances that must be filtered, generally consisting of solids in a liquid.

Syphon:

U-shaped pipe. A syphon cannot be drained without a control valve.

4 General information

4.1 Manufacturer

Filtration Group GmbH
Schleifbachweg 45
D-74613 Öhringen
Phone +49 7941 6466-0
Fax +49 7941 6466-429
fm.de.sales@filtrationgroup.com
www.filtrationgroup.com

4.2 User information (Instruction Manual)

FG Mat.-Nr.: 79718354
Date: 04.12.17
Version: 09

4.3 Rating plate ATEX



II	2	G	c	T3
1.	2.	3.	4.	5.
1.	II Applies to surface applications			
2.	Use in:	Zone 1+2 2	Zone 2 3	
3.	Atmosphere G = Gas D = Dust	G	G	
4.	Degrees of protection C = Design safety			
5.	T3 = The maximum surface temperature of the filtration device is 200°C			

(Field for rating plate according to ATEX)

Explosion protection is only valid in conjunction with the declaration of conformity.

5 Intended application

DANGER!

PROHIBITED:

- Use for other purposes - without prior consultation with the manufacturer.
- Use in potentially explosive atmospheres unless explicitly mentioned in the contract documentation.
- Use with smouldering, burning or sticky particles.
- Use with highly explosive filtering liquids and pastes.

CAUTION!

This filter is only allowed to be used in accordance with the operating conditions specified in the contract documentation and in the Instruction Manual. 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 shall not be liable for any damage resulting from such use.

CAUTION!

Conditionally allowed:

- Use of solvents (in consultation with the manufacturer!)
- Reverse flow through the filter (pressure < 0.6 bar).

FG metal-edge filters are designed for filtering liquids or pastes with a viscosity of up to 500.000 mPas. They can be cleaned without interrupting operation. The cleaning process can be either manual or automatic.

Types of application:

- CLM filtration
- Product filtration
- Pre-separation within filter cascades
- Protective filtration before or after certain process steps
- Process filtration
- Homogenization of agglomerates

6 Functional description

6.1 Principle of the process

Filtration

A triangular-shaped wire is wound immovably on a threaded, profiled support tube. The thread lead determines the gap width and thus the fineness of the filter. The suspension flows inwards through the filter element. The particles settle on the outside of the element. The triangular geometry results in a significant increase in the cross-section after the narrowest gap. Clogging is thus practically impossible.

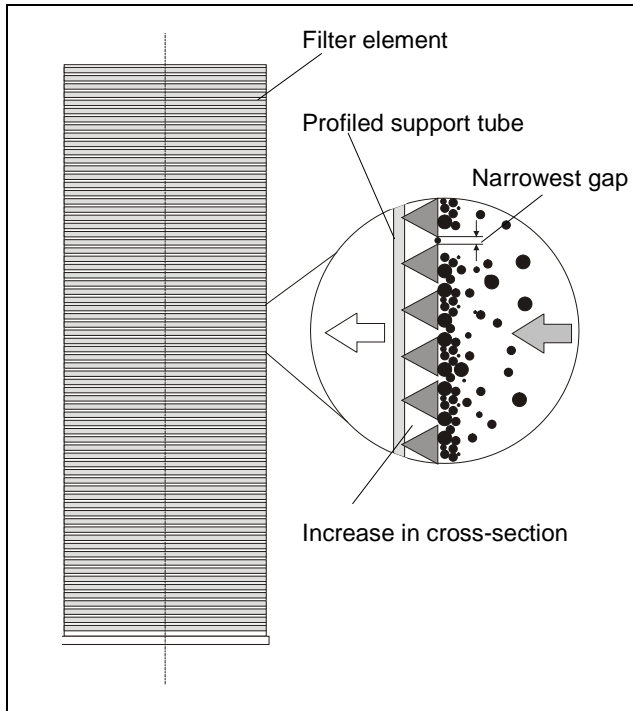


Fig. 1: Principle of separation at the filter element

Cleaning

The particles that settle on the cartridge or on the split tube cause the differential pressure between the muddy side and the clean side of the filter element to increase. If this pressure difference exceeds a (settable) limit value, a cleaning process is started. The filter element begins to rotate. The scraper scrapes the filter cake off of the filter element.

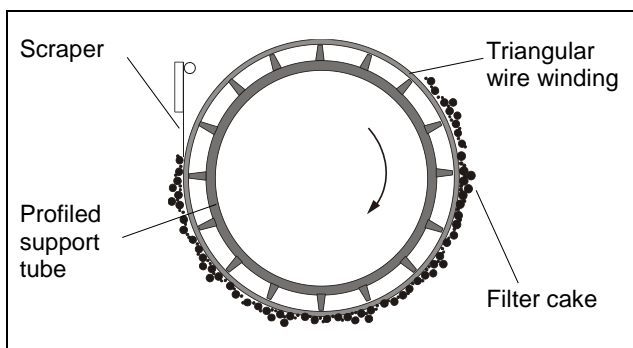


Fig. 2: Cleaning

Start of cleaning process

The cleaning process can be started in the following ways

- manually,
- with the differential pressure switch,
- by means of a time switch,
- by the control of a machine tool.

6.2 Main components of the metal-edge filter

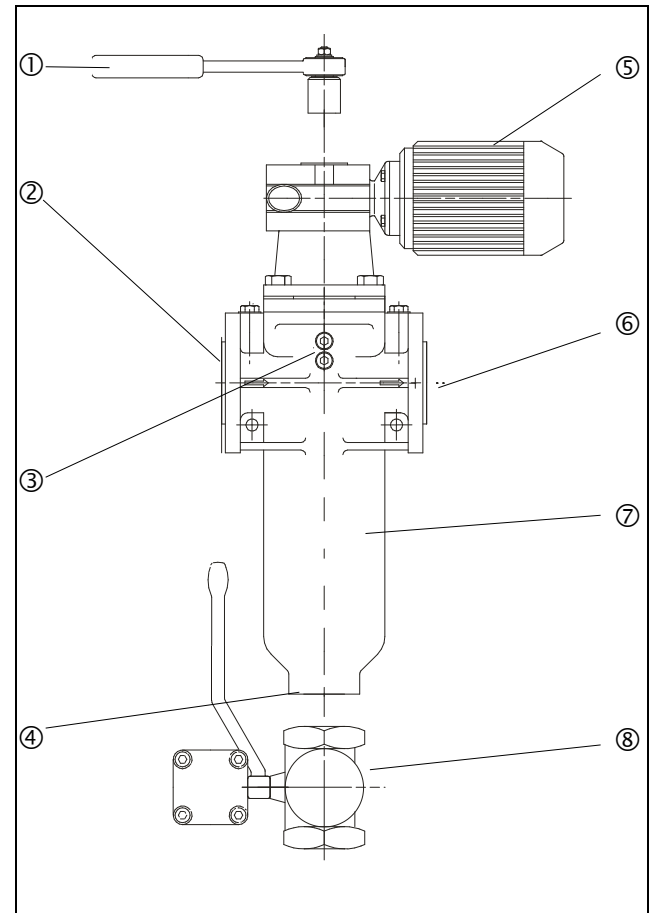


Fig. 3: Diagram of the main components

1	Ratchet for manual operation of the filter element
2	Suspension inlet
3	Connections for measuring differential pressure
4	Drain opening
5	Gear motor for driving the filter element
6	Filtrate outlet
7	Filter casing
8	Pneumatically or manually actuated drain valve

6.3 Functional principle of a metal-edge filter

- 1
The raw suspension flows into the metal-edge filter.
- 2
The suspension flows through the filter element.
The particles settle on this element.
- 3
The filtrate enters the clean room and leaves the filter.

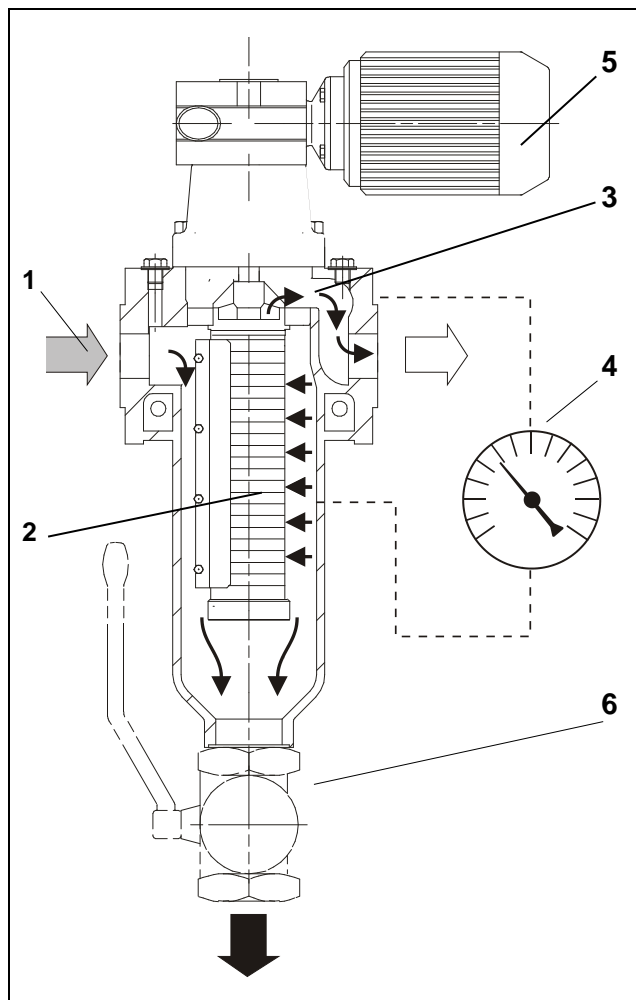


Fig. 4: Functional principle of a metal-edge filter

- 4
The cleaning process is started either when the maximum differential pressure is reached (optional) or after a preset time.
- 5
The filter element is rotated by means of the gear motor or the ratchet. The stationary scraper scrapes off the separated particles.
The filtration process is not interrupted.
- 6
The enriched particles on the raw side can be emptied out periodically.

7 Technical data

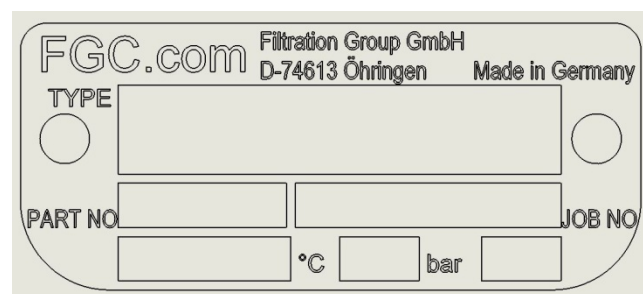
7.1 Order-specific data

Electrical power demand*	250 VAC/400 V 3NPE
	0.075 - 0.37 kW
Noise emission (peaks):	< 70 dB(A)
Dimensions:	See data sheet
Min. height for dismantling above filter:	515 mm
Total dry weight without valves:	30 kg
Max. permissible operating pressure:	< 16 bar
Max. permissible differential pressure in the filter cartridge:	< 30 bar
Max. permissible differential pressure in the split tube:	< 10 bar

*See also rating plate of gear motor

7.2 Order-specific data

This data is order-specific and can be taken from the rating plate.



8 Transport and storage

Transport

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



Storage

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





Seaworthy packing is specified in the contract documentation as an option.

9 Assembly instructions

⚠ DANGER!	
	Explosion hazard! ⇒ Risk of injury to persons or damage to property. <ul style="list-style-type: none"> 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 category is specified: Do not operate the FG automatic filter in a hazardous area! The owner is responsible for zoning. The owner of the plant is solely responsible for implementing the appropriate explosion protection measures! If in doubt, please consult the responsible authorities.
⚠ DANGER!	
	Explosion hazard! ⇒ Risk of injury to persons or damage to property. <ul style="list-style-type: none"> The system is only allowed to be installed, accepted and tested by a suitably qualified person (99/98/EC).
⚠ WARNING!	
If the system is installed by unauthorised persons ⇒ Risk of injury ⇒ All warranty claims are rendered invalid <ul style="list-style-type: none"> The system must be installed by a suitably trained person! 	

9.1 Mechanical installation

⚠ DANGER!	
	Explosion hazard! ⇒ Risk of injury to persons or damage to property. <ul style="list-style-type: none"> Check the conductivity between all components! Note the maximum permissible resistance: $R < 10 \Omega$. Make sure that earthing is provided by the customer.
	It must be possible to remove the filter insert in order to carry out maintenance work.

- Prepare a suitable seat on which to mount the filter (e.g. supports).
- Be sure to allow the required height for dismantling and draining (see data sheet).
- Remove the metal-edge filter from the packaging.
- Bolt the metal-edge filter to the prepared seat (2 x mounting hole $D = 13 \text{ mm}$).
- Bolt the metal-edge filter to the prepared seat.
- Remove the caps from the connections.
- Connect the pipes.

Pressure relief

- Design measures must be incorporated to prevent inadmissible excess pressure on the muddy side.
- Install pressure relief devices if necessary.

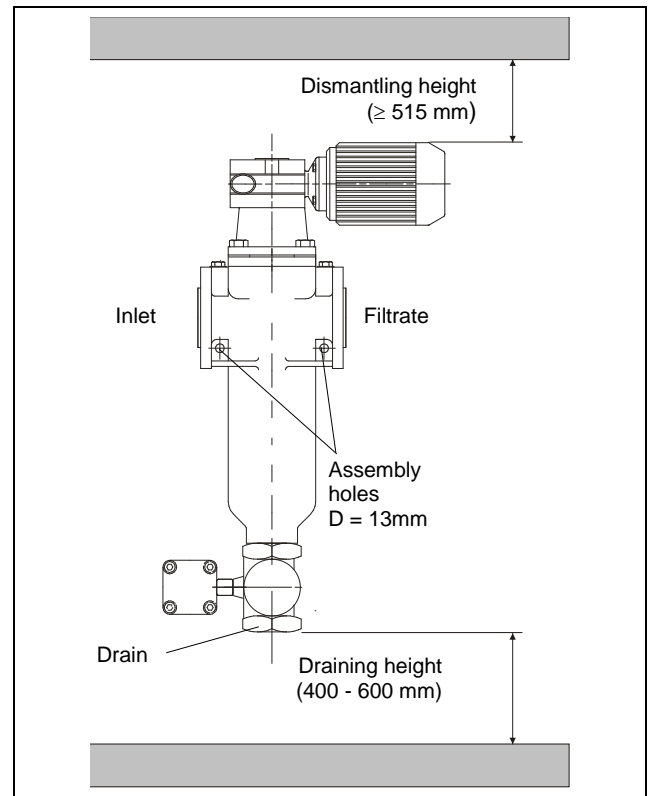



Fig. 5: Mechanical installation

9.2 Special installation instructions for the drain pipe

⚠ CAUTION!	
High pressure at the drain valve! ⇒ Risk of injury to persons or damage to property <ul style="list-style-type: none"> Depressurise prior to mounting and dismantling. 	

- Make sure that the drain pipe is securely fastened.
- Do not drain concentrate into the atmosphere.
- Provide splash protection if necessary.
- Lay the pipes without a syphon if possible. Watch out for clogging as a result of sedimented concentrate!

9.3 Electro-pneumatic connections

⚠ DANGER!	
	Danger of electric shock! ⇒ Risk of serious or fatal injury in case of contact with electrical components. <ul style="list-style-type: none"> All electrical installation work must be carried out by a suitably qualified electrician.

9.3.1 Connection to customer's control

Gear motor

- See the rating plate or the contract documentation for the connection data (please also refer to the connection diagram for the terminal box).
- Connect the gear motor ⑤.
- Provide adequate protection for the motor.

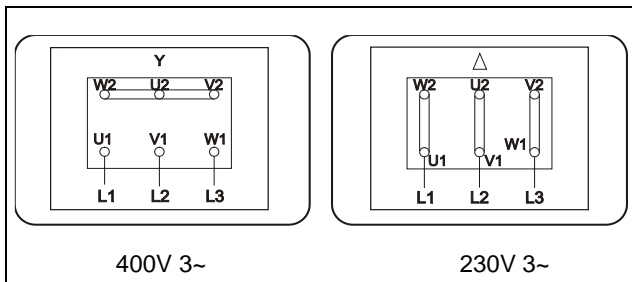


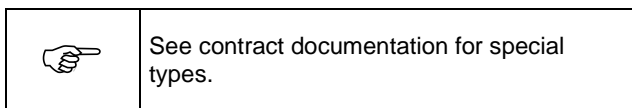
Fig. 6: Connection of the standard gear motor

Differential pressure switch (optional)

- Connect the differential pressure switch ③ as a normally-open or normally-closed contact. See information in Appendix for contact rating.

Automatic drain valve (optional)

- Provide a suitable compressed air supply.
- Provide a suitable 5/2-way valve for pilot control.



See contract documentation for special types.

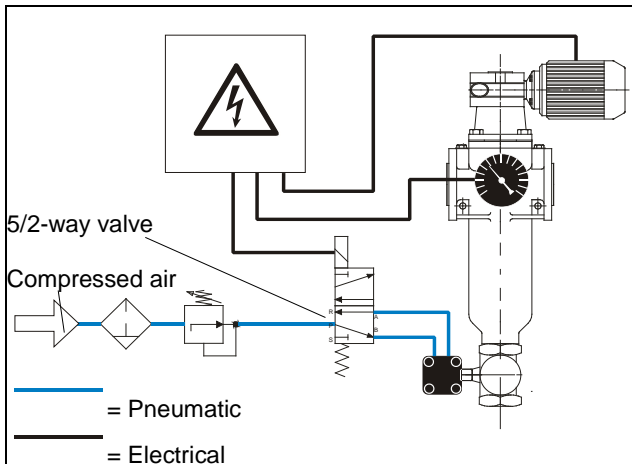
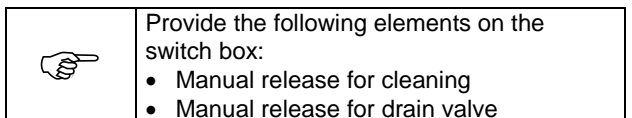


Fig. 7: Electro-pneumatic connections



Provide the following elements on the switch box:

- Manual release for cleaning
- Manual release for drain valve

9.3.2 Connection to FG control (optional)

- Connect the incoming feeder, the gear motor, the differential pressure gauge (optional) and the pilot valves (optional) in accordance with the enclosed circuit diagram.

9.4 Control variants

The cleaning control is dependent on the particular application. The control variants¹ and times specified here are examples and are merely intended to serve as a guide.

9.4.1 Time-controlled cleaning, manual draining

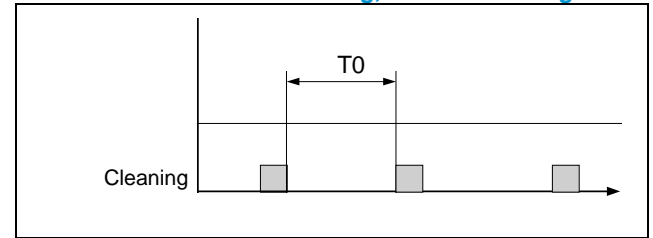


Fig. 8: Time-controlled cleaning

Parameter	Description	Recommended value
T0	Time interval	60 s - 24 h

9.4.2 Time-controlled cleaning and draining

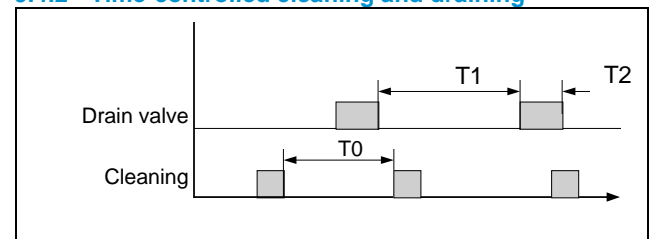


Fig. 9: Time-controlled cleaning/draining

Parameter	Description	Recommended value
T0	Time interval for cleaning	60 s - 24 h
T1	Time interval for drain valve	60 s - 24 h
T2	Opening time of drain valve	2 - 5 s

¹ Mark the required control variant with a cross

9.4.3 Time-controlled cleaning, counter-controlled draining

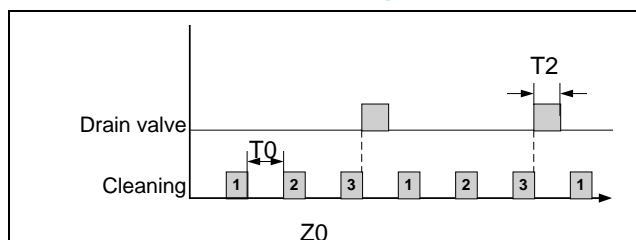


Fig. 10: Time-controlled cleaning, counter-controlled draining

Parameter	Description	Recommended value
T0	Time interval for cleaning	60 s - 24 h
Z0	Cleaning counter	3 - 5
T2	Opening time of drain valve	2 - 5 s

9.4.4 Differential pressure/time-controlled cleaning

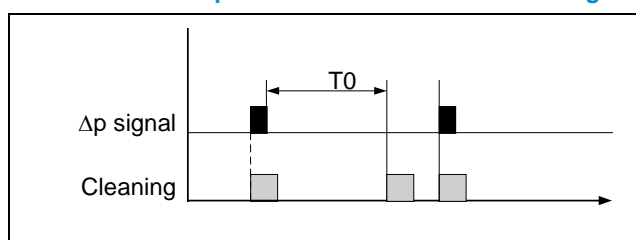


Fig. 11: Differential pressure/time-controlled cleaning

Parameter	Description	Recommended value
T0	Max. time interval	6 - 30 s

10 Start-up

⚠ DANGER!

This part is not allowed to be put into operation until it has been established that the machine in which it is installed complies with the requirements of the applicable EC directives, harmonized standards, European standards or equivalent national standards.

⚠ DANGER!



Explosion hazard!

- ⇒ Risk of injury to persons or damage to property.
- The FG automatic filter must be completely vented prior to start-up for use with all media which are capable of forming explosive gases.
- The FG automatic filter must be completely filled with liquid.
- 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!

- Check that all the caps have been removed from the connections.
- Remove all foreign particles from the filter.
- Check the pipe unions.
- Tighten the bolts.
- Rinse the pipes.

10.1 Functional test

Direction of rotation of the gear motor

- Unscrew the cap of the gear motor ⑤.
- Start up the gear motor briefly (<1 s).
- Compare the direction of rotation of the shaft with that shown by the arrow (clockwise direction).
- Reverse the terminal connections of the gear motor if necessary.
- Screw the cap of the gear motor back on again.

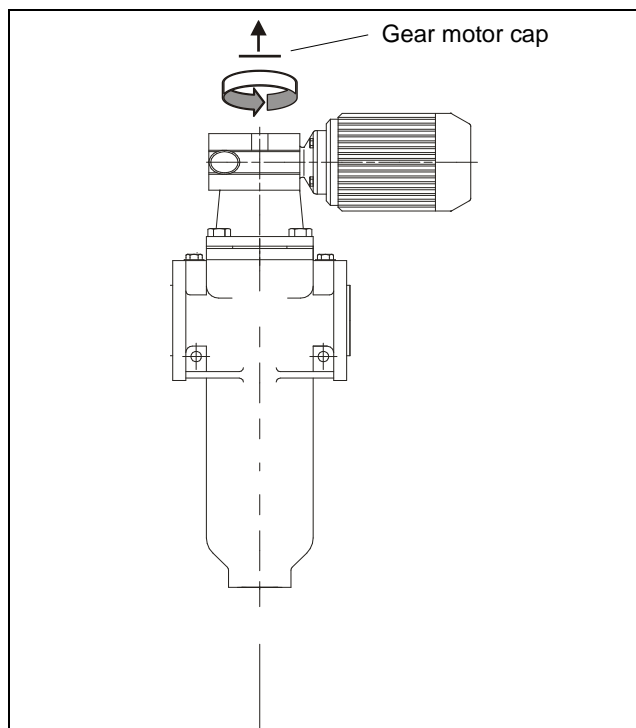


Fig. 12: Direction of rotation of the gear motor

Check the differential pressure contact switch ③ (optional)

- Adjust the contact to a differential pressure of "0".
⇒ The contact switch is switched.
- Turn the contact to the setpoint.
- See also information in Appendix.

Check the function of the drain valve ④ (optional)

- Supply compressed air to the pilot valve.
- Actuate the manual release for the pilot valve.
⇒ The drain valve opens.
- Set the manual release to the OFF position.
⇒ The drain valve closes.

10.2 Programming the operating settings

- Switch on the control.
- Open the inlet.
- Make a note of the initial differential pressure (optional).

⚠ CAUTION!

- ⇒ Dry running can cause bearings to heat up!
- The filter must be completely vented!

Settings for time-controlled cleaning

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

Settings for differential pressure-controlled cleaning with contact pressure gauge

- Adjust the differential pressure to the setpoint (see contract documentation).

Initial differential pressures

The initial differential pressures are dependent on the particular application.

General guide:

Installation on discharge side: $\Delta p \leq 0.3 \text{ bar}$

Installation on suction side: $\Delta p \leq 0.03 - 0.1 \text{ bar}$

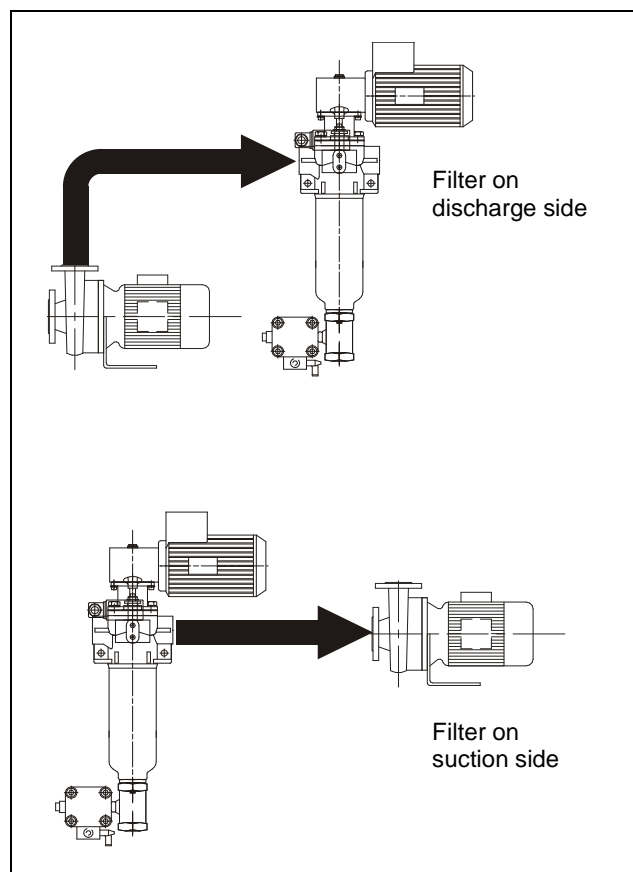




Fig. 13: Initial differential pressures



After a cleaning process, the differential pressure must return more or less to the original initial differential pressure. If it does 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 <ul style="list-style-type: none">Do not allow concentrate to spatter into the atmosphere!	
	Always 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 must be monitored daily during normal operation:

- Differential pressure,
- Concentrate tank level,
- Control functions.

Cleaning the drain pipe

 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 <ul style="list-style-type: none">Rinse the drain line daily / weekly, depending on the application.	

To clean the drain pipe

- Open the drain valve ⑧ manually for approx. 10 - 15 s.
- ⇒ The pipe is rinsed.

12 Shutting down the metal-edge filter

12.1 Temporary shut-down

On the control installed for the metal-edge filter:

- Switch OFF the master switch.

12.2 Prolonged shut-down (> 48 h)

- Start a cleaning process manually.
- Clean the metal-edge filter (see section 14.3 "Cleaning the filter", page 13).
- Fill the metal-edge filter completely with liquid.
- Switch OFF the master switch.




12.3 Emergency shut-down

- Switch OFF the master switch.
- ⇒ The power supply is interrupted.

13 Troubleshooting

Fault	Possible cause	Remedy
Gear motor does not turn	Motor fuse tripped	RESET motor fuse
	Filtrate solidified	Check gear motor Clean filter
Valve does not open	Compressed air pressure too low	Increase pressure
	Pilot valve defective	Check pilot valve
	Pilot valve not connected correctly	Check electrical and pneumatic connections
Initial differential pressure no longer obtained	Solids concentration too high	Improve pre-filtration process
	Gear motor rotating in wrong direction	Check direction of rotation
	Cleaning time too short	Prolong cleaning time (min. gear motor speed: 1-2 revolutions)
Increased concentration of dirt on clean side	Filter element defective	Check filter element and if necessary renew
	Seals brittle	Check seals and if necessary renew
Leakage rate at shaft seal too high		Tighten shaft seal and if necessary renew

14 Maintenance

 DANGER!	
	Explosion hazard! ⇒ Risk of injury to persons or damage to property. <ul style="list-style-type: none">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 system is maintained by unauthorised persons ⇒ Risk of injury ⇒ All warranty claims are rendered invalid <ul style="list-style-type: none">The system must be maintained by a suitably trained person!	

Before all maintenance work:

- Shut down the automatic filter.
- Take steps to prevent the system from being switched on again by unauthorized persons.



- Take any necessary safety precautions (protective clothing, goggles, etc.).



- Carry out the maintenance work.
 - Start up the automatic filter again.
 - Watch the automatic filter.
- ⇒ Does it operate normally?

14.1 Inspection and maintenance schedule

- See also contract documentation

	Assembly	Activity	Comments
Weekly	Metal-edge filter	Visual inspection	Leakage, differential pressure ²
	Pipes	Clean	
Monthly	Filter	Check, clean	Wear
	FG metal-edge filter	Check conductivity between all system components.	< 10 Ω
Yearly or whenever CLM is changed	Bearings	Visual inspection	Clearance
	Valves	Functional test	
	Filter	Clean	
	Seal kit		



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

14.2 Removing the filter insert

⚠ DANGER!

The filter is pressurized!

- First relieve the pressure!
- ⇒ Then open the filter!



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

- 1
 - Close the filter inlet and drain.
 - Relieve the pressure in the pipe if necessary.

- 2
 - Open the vent valve.
 - Open the drain valve.

⇒ The filter is drained.

- 3
 - Close the compressed air supply.

- 4

Disconnect the gear motor.

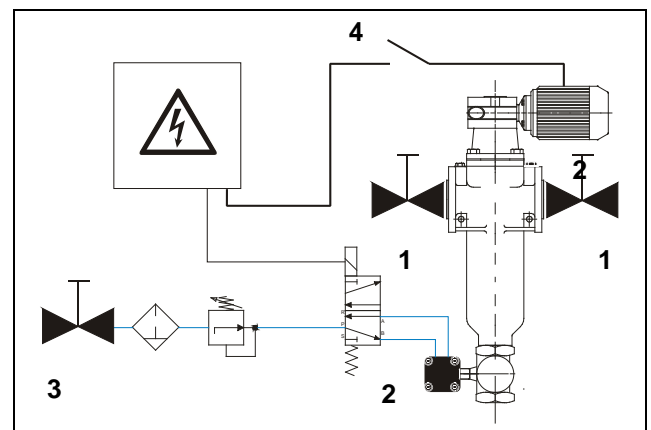


Fig. 14: Disconnecting the filter

- 5
 - Unscrew the bolts in the filter cover.
- 6
 - Detach and remove the gear motor.
- 7
 - Apply a large screwdriver to the notch.
 - Lever off the filter cover.

² Optional

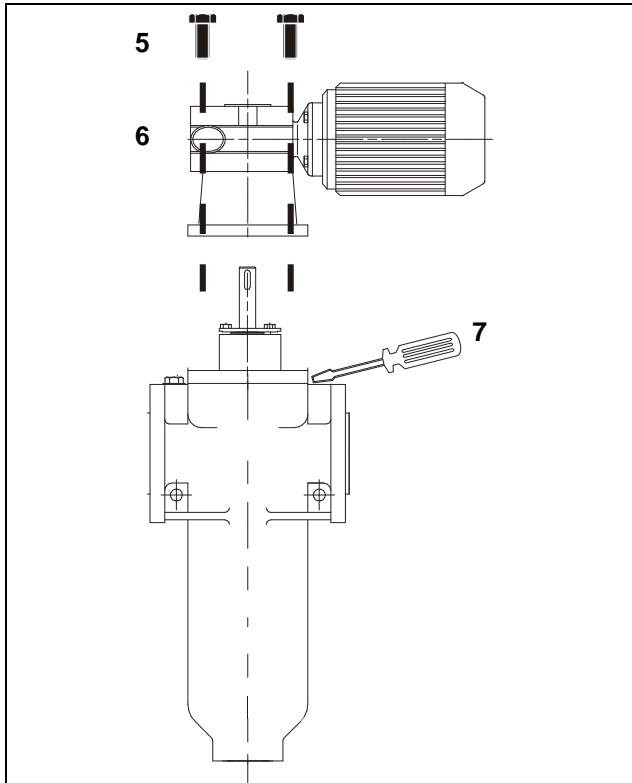


Fig. 15: Detaching the gear motor and levering off the cover

8

- Pull out the filter insert vertically.
- Do not tilt!
- Lay the filter insert down carefully on a level surface, taking care not to damage the filter element.

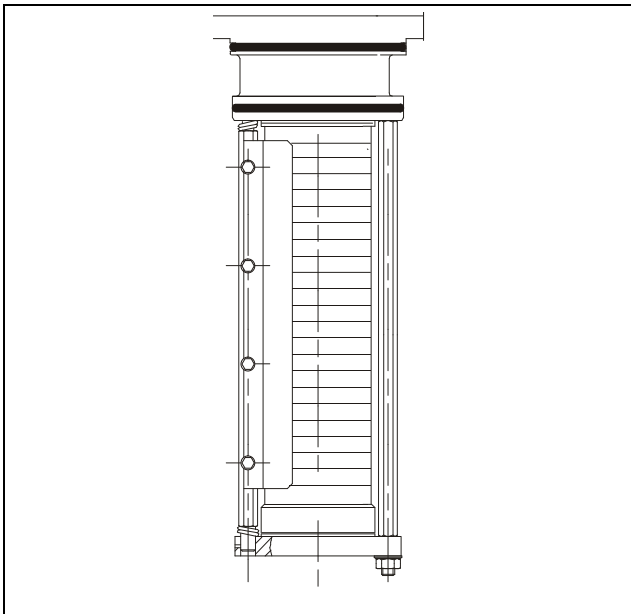


Fig. 16: Filter insert

To install

In reverse order

- Lower the filter insert into position without tilting it.

14.3 Cleaning the filter

14.3.1 Cleaning the filter insert



- Take safety precautions appropriate to the hazard potential of the medium (e.g. goggles, respirator, protective clothing, etc.).
- Remove any coarse impurities by mechanical means.
- Wash out the filter insert with a suitable detergent.
- Carefully blast the filter insert with a steam jet or compressed air.

WARNING!

DANGER OF AEROSOL FORMATION !

- Always work in rooms with a suitable extraction system!

- Clean and oil the seals (and if necessary renew).

14.3.2 Cleaning the filter casing



- Take safety precautions appropriate to the hazard potential of the medium (e.g. goggles, respirator, protective clothing, etc.).
- Remove any coarse impurities by mechanical means.
- Wash out the filter casing with a suitable detergent.

14.4 Replacing the filter element

⚠ DANGER!	
	Danger of electric shock! ⇒ Risk of serious or fatal injury in case of contact with electrical components. <ul style="list-style-type: none"> • All electrical installation work must be carried out by a suitably qualified electrician.
	⚠ WARNING! If the system is maintained by unauthorised persons ⇒ Risk of injury ⇒ All warranty claims are rendered invalid <ul style="list-style-type: none"> • The system must be maintained by a suitably trained person!
	The numbers indicated in parentheses correspond to those used in the spare parts drawing.

To remove the filter element

- Unscrew the hexagon nuts (36) and remove together with the spring washers (35).
- Remove the centre flange (33).
- Unscrew the hexagon nut (40).
- Carefully pull the filter element (68) down and remove it.

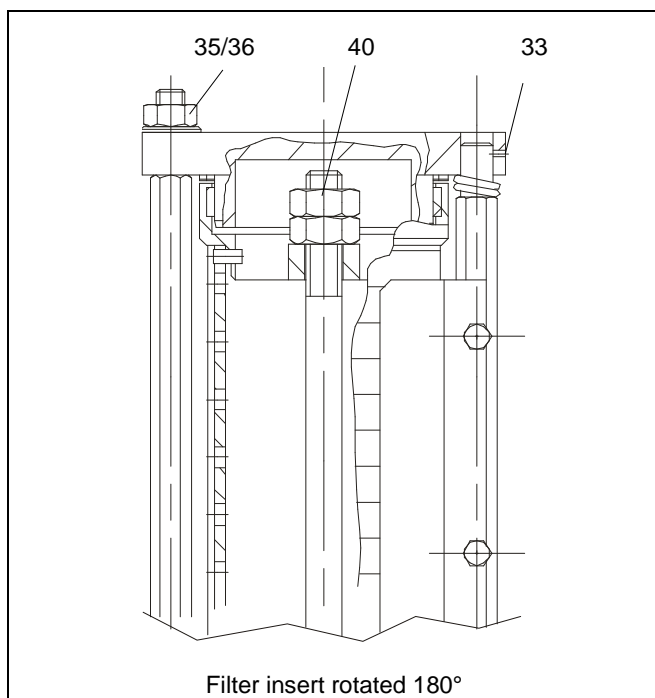


Fig. 17: Removing the filter cartridge

To install the filter element

- Oil the O-rings (17).
- Check and clean the thrust washers (37), and if necessary renew.
- Install in reverse order.

14.5 Replacing the scraper

⚠ DANGER!	
	Danger of electric shock! ⇒ Risk of serious or fatal injury in case of contact with electrical components. <ul style="list-style-type: none"> • All electrical installation work must be carried out by a suitably qualified electrician.
	⚠ WARNING! If the system is maintained by unauthorised persons ⇒ Risk of injury ⇒ All warranty claims are rendered invalid <ul style="list-style-type: none"> • The system must be maintained by a suitably trained person!
	The numbers indicated in parentheses correspond to those used in the spare parts drawing.

- Remove and clean the filter insert (see section 14.4 "Replacing the filter element", page 14).
- Unscrew the hexagon nut (36) and remove together with the spring washer (35).
- Remove the centre flange (33).
- Pull the scraper unit down and remove it.
- Unscrew the locking bolts (28) on the scraper (25).
- Replace the scraper (25).

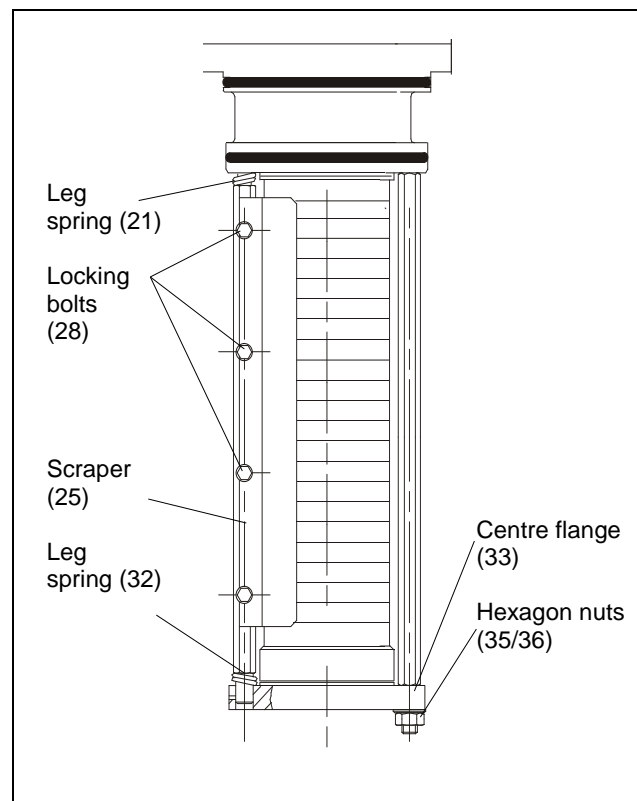


Fig. 18: Replacing the scraper

Important when installing the scraper:

- The leg springs (21/32) must rest in the slots provided.
- The scraper must rest cleanly against the filter element.
- The scraper must not be tilted.
- Check all screws and bolts, and tighten them if necessary.

14.6 Replacing the stuffing box

⚠ 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 suitably qualified electrician.
	⚠ WARNING!
	If the system is maintained by unauthorised persons ⇒ Risk of injury ⇒ All warranty claims are rendered invalid • The system must be maintained by a suitably trained person!
	The numbers indicated in parentheses correspond to those used in the spare parts drawing.
	Always replace the square ring, the supporting ring and the two bushes together.

- De-energize the gear motor and disconnect it.
- Unscrew the hexagon bolts (10) on the motor stator.
- Carefully lift the gear motor up and remove it from the shaft.

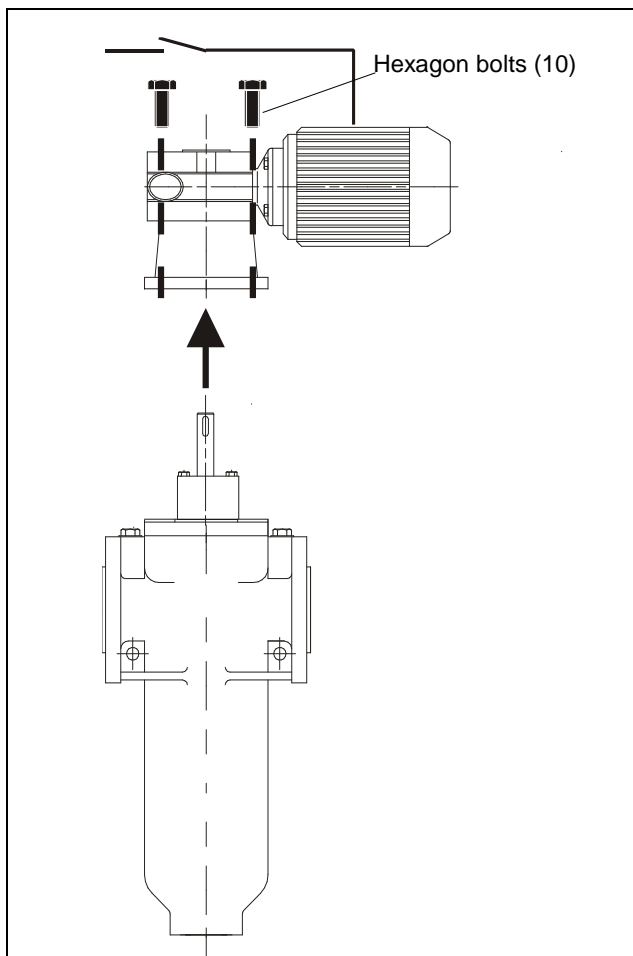


Fig. 19: Removing the gear motor

- Unscrew the hexagon bolts (4).
- Remove the cover (6) and the sleeve (9).

- Remove the Belleville springs (7) and the gland (8).
- The packing rings (14) are now freely accessible and can be replaced.

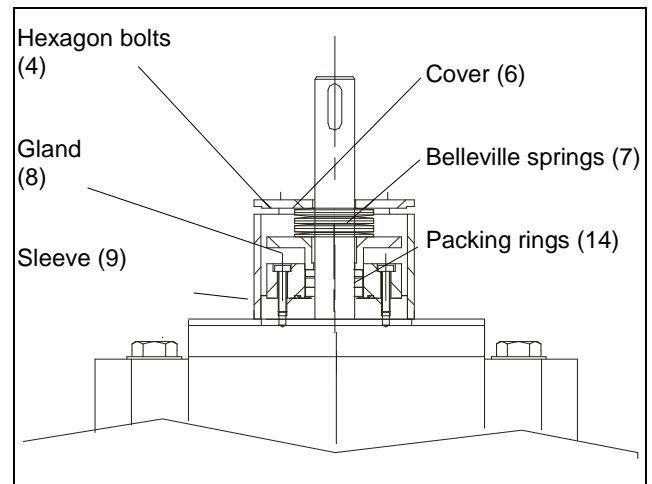


Fig. 20: Stuffing box accessible

To install the stuffing box

- Fit the stuffing box elements one at a time with an offset of 180°.
- Fit the gland (8).
- Fit the cover (6) initially without the Belleville springs and the sleeve, then tighten it carefully (the stuffing box elements are pre-compressed).
- Detach the cover again.
- Fit the Belleville springs (7), the sleeve (9) and the cover (6).
- Tighten the hexagon bolts (4).

The stuffing box requires very little maintenance. Slight leaking is perfectly normal and serves to lubricate the unit.

15 Spare parts drawing

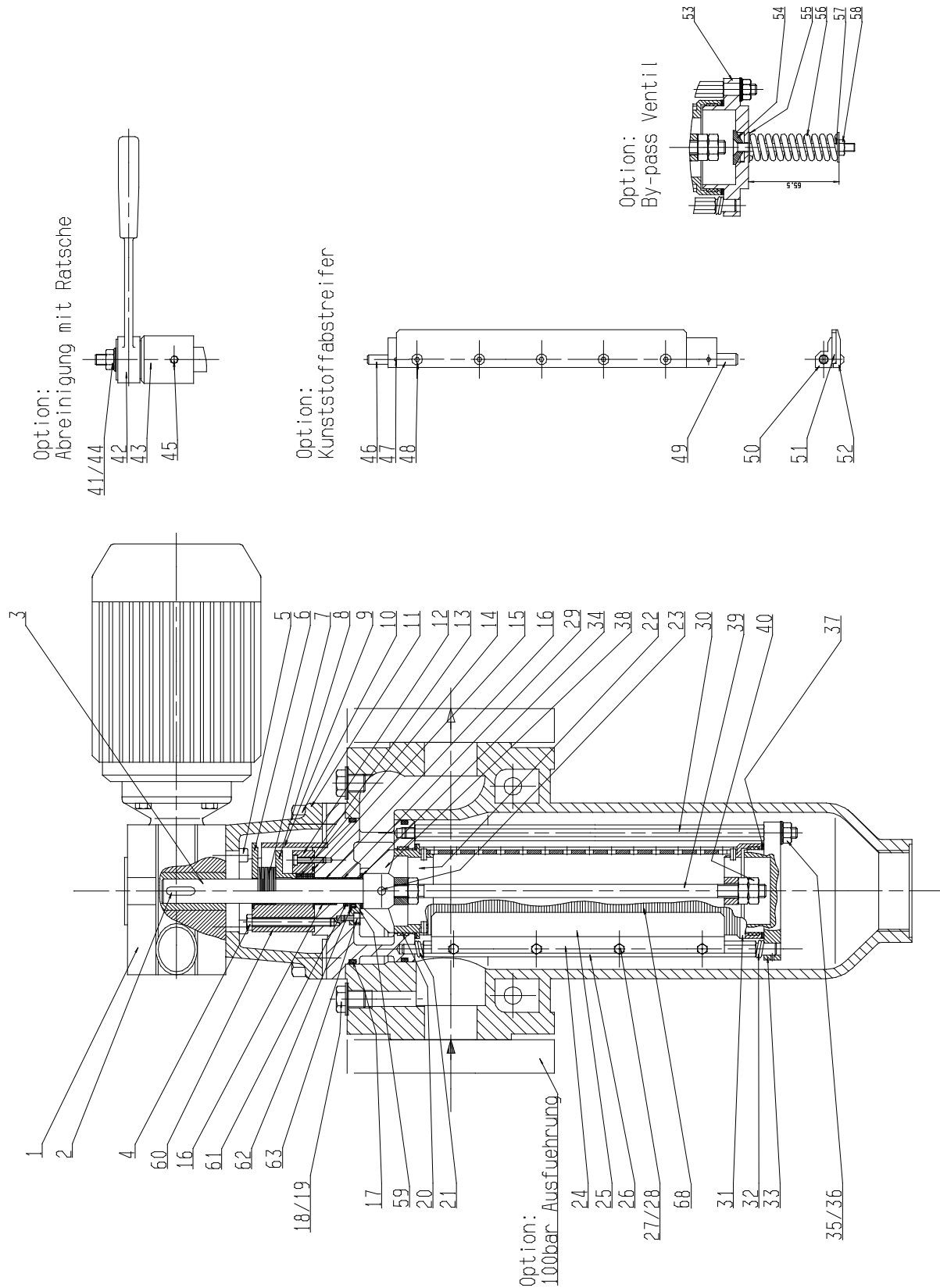


Fig. 21: Spare parts drawing

16 List of parts

Lfd Nr.	Parts name/DIN designation	Qty.	Benennung/DIN Bezeichnung
1	gear motor	1	Getriebemotor
2	feather key 6x6x20 DIN6885	1	Passfeder 6x6x20 DIN6885
3	drive shaft	1	Antriebswelle
4	hexagon screw M6x55 DIN24014	2	6kt-Schraube M6x55 DIN24014
5	cylinder head screw M6x20 DIN912	4	Zylinderschraube M6x20 DIN912
6	sealing disc	1	Dichtscheibe
7	disc spring B35, 5x18, 3x1,25 DIN2093	8	Tellerfeder B35, 5x18, 3x1,25 DIN2093
8	sealing flange	1	Dichtflansch
9	sleeve	1	Hülse
10	hexagon screw M16x45 DIN24017	4	6kt-Schraube M16x45 DIN24017
11	bell housing	1	Motorbock
12	bearing ring	1	Lagerring
13	cylinder head screw M4x20 DIN912	2	Zylinderschraube M4x20 DIN912
14	gland packaging ring 18x24x4 PTFE	3	Packungsring 18x24x4 PTFE
15	o-ring 30x2	1	O-Ring 30x2
16	bearing bush XFM-1820-17	2	Buchse XFM-1820-17
17	o-ring 98,02x3,53	2	O-Ring 98,02x3,53
18	screw plug G1/4 DIN910	2	Verschlussschraube G1/4 DIN910
19	sealing ring 14x18x1,5 DIN7603	2	Dichtring 14x18x1,5 DIN7603
20	radial bearing ring 61,5	2	Führungsring 61,5
21	spring top	1	Schenkelfeder oben
22	cartridge cover	1	Spulendeckel
23	clamping pin 6x30 DIN1481	1	Spannstift 6x30 DIN1481
24	stiffening plate	1	Verstärkungsblech
25	scraper	1	Abstreifer
26	scraper shaft	1	Abstreiferwelle
27	hexagon screw M4x20 DIN24017	4	6kt-Schraube M4x20 DIN24017
28	lock nut M4 DIN980	4	Sicherungsmutter M4 DIN980
29	bearing bush XSM-1820-15	1	Buchse XSM-1820-15
30	distance bolt	3	Distanzbolzen
31	cartridge ring	1	Spulenring
32	spring bottom	1	Schenkelfeder unten
33	centre flange	1	Zentrierflansch
34	axial bearing disc 20x28x1,5	1	Anlaufscheibe 20x28x1,5
35	spring washer A8 DIN128	3	Federring A8 DIN128
36	hexagon nut M8 DIN934	3	6kt.-Mutter M8 DIN934
37	axial bearing ring 70x62x1,5	2	Anlaufscheibe 70x62x1,5
38	coupling fork	1	Mitnehmer
39	rod M10	1	Stange M10
40	hexagon nut M10 DIN934	3	6kt.-Mutter M10 DIN934
41	hexagon nut M8 DIN985	1	6kt.-Mutter M8 DIN985
42	ratchet 1/2"	1	Ratsche 1/2"
43	adapter	1	Adapter
44	washer 8,4 DIN125	1	Scheibe 8,4 DIN125
45	threaded pin DIN914 M6x8	1	Gewindestift DIN914 M6x8
46	bolt Ø7	1	Bolzen Ø7
47	clamping pin 3x14 DIN1481	2	Spannstift 3x14 DIN1481
48	fillister-head screw M4x10 ISO7380	5	Linsenschraube M4x10 ISO7380
49	bolt Ø9	1	Bolzen Ø9
50	scraper holder	1	Abstreifträger
51	scraper (Elastopal)	1	Abstreifer (Elastopal)
52	scraper holder	1	Abstreiferhalter
53	centre flange bypass	1	Zentrierflansch bypass
54	valve disc	1	Ventilteller
55	washer 6,6 DIN440	2	Scheibe 6,6 DIN440
56	pressure spring	1	Druckfeder

Lfd Nr.	Parts name/DIN designation	Qty.	Benennung/DIN Bezeichnung
57	countersunk screw M6x90 DIN7991	1	Senkschraube M6x90 DIN7991
58	hexagon nut M6 DIN934	1	6kt.-Mutter M6 DIN934
59	sealing seat	1	Dichtungssitz
60	bearing ring	1	Lagerring
61	o-ring 17,8x2,4	1	O-Ring 17,8x2,4
62	lip seal D=18	1	Lippendichtung D=18
63	cylinder head screw M4x8 DIN912 1.4301	2	Zylinderschraube M4x8 DIN912 1.4301

17 List of spare parts

No.	Designation	Material No.	Benennung
1	drive shaft (carbon steel) VP	79717976	Antriebswelle (C-Stahl) VP
2	drive shaft (stainless steel) VP	79753617	Antriebswelle (Edelstahl) VP
3	ratchet (carbon steel) VP	79752692	ZR-Knarre (C-Stahl) VP
4	ratchet (stainless steel) VP	70310784	ZR-Knarre (Edelstahl) VP
5	scraper Z (plastic) VP	76193320	Abstreifer Z (Kunststoff) VP
6	scraper Z (stainless steel) VP	70320715	Abstreifer Z (Edelstahl) VP
7	scraper Z (carbon steel) VP	79717828	Abstreifer Z (C-Stahl) VP
8	scraper (stainless steel, carbon steel) VP	71066224	Abstreifer (Edelstahl, C-Stahl) VP
9	scraper (plastic) VP	78351611	Abstreifer (Kunststoff) VP
10	bypass valve (carbon steel) VP	70309496	Bypass Ventil (C-Stahl) VP
11	bypass valve (stainless steel) VP	70315308	Bypass Ventil (Edelstahl) VP
12	centre flange (carbon steel) VP	79717950	Zentrierflansch (C-Stahl) VP
13	centre flange (stainless steel) VP	79717968	Zentrierflansch (Edelstahl) VP
14	flange kit 100 bar VP	70341522	Flanschsatz 100 bar VP
15	spring kit VP	79718529	Schenkelfedersatz VP
16	bearing bush kit lip seal VP	79725565	Buchsensatz Lippendichtung VP
17	bearing bush kit gland packaging ring VP	79725557	Buchsensatz Stopfbuchspackung VP
18	seal kit lip seal (FPM) VP	79778077	Dichtsatz Lippendichtung (FPM) VP
19	seal kit lip seal (PTFE) VP	70341637	Dichtsatz Lippendichtung (PTFE) VP
20	seal kit gland packaging ring (FPM) VP	79331786	Dichtsatz Stopfbuchspackung (FPM) VP
21	seal kit gland packaging ring (PTFE) VP	79718511	Dichtsatz Stopfbuchspackung (PTFE) VP
	filter element → see name-plate		Filterelement → siehe Typenschild



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

18 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 :
Typenbezeichnung:
Type designation:
Désignation du type :
Funktionsbeschreibung:
Machine description:
Description du fonctionnement :

Automatik-Kantenspaltfilter
Automatic metal edge filter
Filtres automatiques à fentes

AF 72 G/AF 72 S

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:
Les normes harmonisées ci-dessous ont été appliquées :

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

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,

26.06.2017

Datum/Date/Date


Unterschrift/Signature/Signature

Anlage/Annex/Annexe

3 Seiten/pages/pages



The filter is only allowed to be started if the complete machine is also started up!

19 Declaration of conformity

EU – Konformitätserklärung
EU declaration of conformity
Déclaration de conformité UE



Der Hersteller
The manufacturer
Le producteur

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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 :
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Type designation:
Désignation du type :
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Machine description:
Description du fonctionnement :

Automatik-Kantenspaltfilter
Automatic metal edge filter
Filtres automatiques à fentes

AF 72 G/AF 72 S

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,

06.06.2017

Datum/Date/Date

Unterschrift/Signature/Signataire



- The enclosed declaration of conformity for the Pressure Equipment Directive only applies to discharge casings with a CE mark for categories I – IV; alternatively, the filter has been assigned to category 2G!
- The standard version is designed for Group 2 liquids as defined by the EC Directive concerning pressure equipment 97/23/EU Article 9.

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 GmbH
Schleifbachweg 45
D-74613 Öhringen
Phone +49 7941 6466-0
Fax +49 7941 6466-429
fm.de.sales@filtrationgroup.com
www.filtrationgroup.com
79718354.109.12/2017