



Translation of the original instructions with installation instructions

Rotating wing

Mat. No. of original instructions
76152763



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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 / 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

Differential pressure (Δp):

Pressure difference between the dirty side and the clean side.

Filter plate:

Separator plate between the clean air side and the dirty air side.

Clean air side:

Side with cleaned air.

RLD:

Cylindrical rotating wing

RLK

Conical rotating wing

Dirty air side:

Side with uncleaned air.

Dew point:

Temperature at which a gas is saturated with moisture.
Temperatures below the dew point lead to the formation of fog droplets.

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 Information about the original instructions

FG Mat. No.: 76152763
Date: 23.11.17
Version: 04

4.3 Model code

AE 33 (AE36, AE310):

Cleaning unit for dust cartridges \varnothing 328 mm x length 300 mm (600 mm, 1000 mm).

AE-2E 36:

Cleaning unit for 2 dust cartridges \varnothing 328 mm x length 600 mm (one above the other).

AE-OS xx:

Cleaning unit for dust cartridges without a dam plate.

REINGASS.:

Cartridge installed on the clean air side.

ROHGASS.:

Cartridge installed on the dirty air side.

KL:

Ball bearing version.

Materials: Aluminium, galvanized or painted steel, PTFE (AE-2E 36 only)

GL:

Plain bearing version. Materials: Aluminium, stainless steel, PTFE, PEEK

Example:

AE-OS 36 Rohgass./KL

- 600 mm long rotating wing
- Without dam plate
- Cartridge installed on dirty air side
- Ball bearing version

(Feld für Typenschild)

(Feld für Typenschild nach ATEX)

5 Intended application

⚠ DANGER!

Operation contrary to the intended purpose can be dangerous!

- ⇒ The manufacturer is discharged from all liability and all warranty claims are rendered invalid.
- This rotating wing 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.

⚠ DANGER!

Operation contrary to the intended purpose can be dangerous!

- ⇒ The manufacturer is discharged from all liability and all warranty claims are rendered invalid.



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 fluids or pastes.

⚠ CAUTION!

Conditionally allowed:

- Use in connection with foodstuffs, providing this is explicitly confirmed by the manufacturer in the contract documentation (offer / order confirmation).

FG rotating wings are used to clean dust filter cartridges of various lengths with compressed air.

6 Machine description

6.1 Operating principle

The AE cleaning unit allows dust-laden filter cartridges to be cleaned with compressed air from a pressure vessel. A valve opens periodically depending on the control mode, causing the cartridge to be cleaned in four steps as compressed air flows through it and is distributed by the rotating wing.

A pneumatically operated dam plate interrupts the airflow when the cartridge is cleaned.

The cartridge pleats are blown radially outwards by the rotating wing. A jet of air hits each pleat several times per pulse owing to the wing's rotary movement.

This rotation (approx. 10 s^{-1}) produces a lateral vibratory movement on the pleats.

The dam plate opens again automatically at approximately 0.4 mbar vacuum.

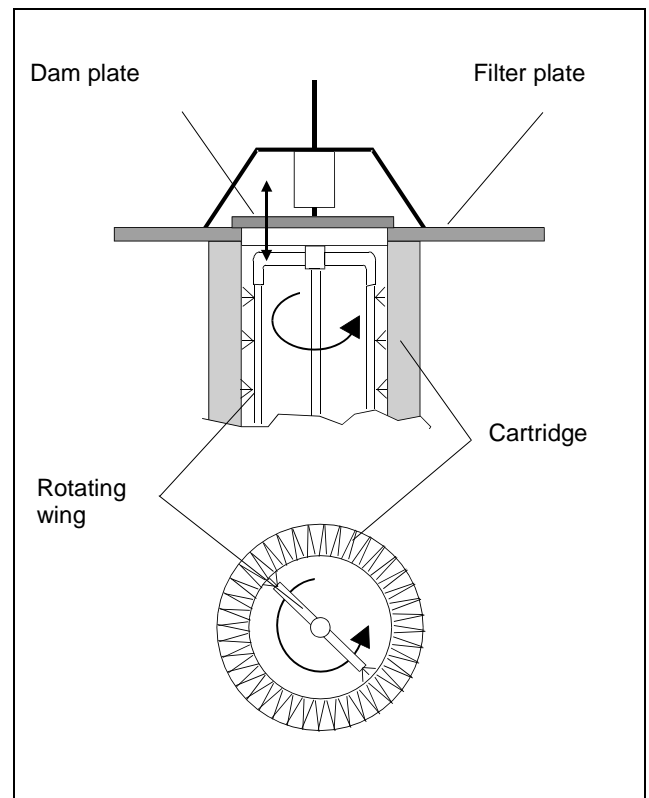


Fig. 1: Principle of the rotating wing

6.2 Design variants

Dirty air version

Rotating wing installed on: Clean air side
Filter cartridges installed on: Dirty air side

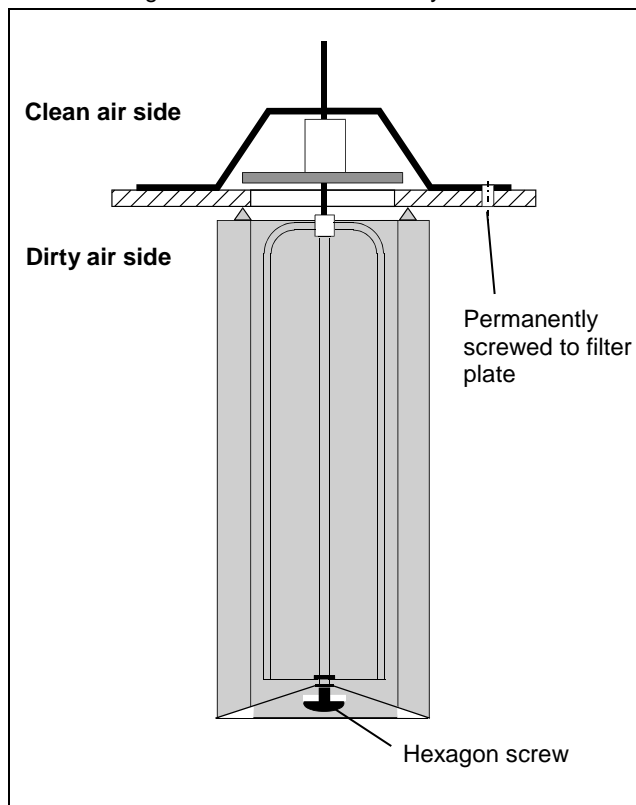


Fig. 2: Diagram of the main components

Clean air version

Rotating wing installed on: Clean air side
Filter cartridges installed on: Clean air side

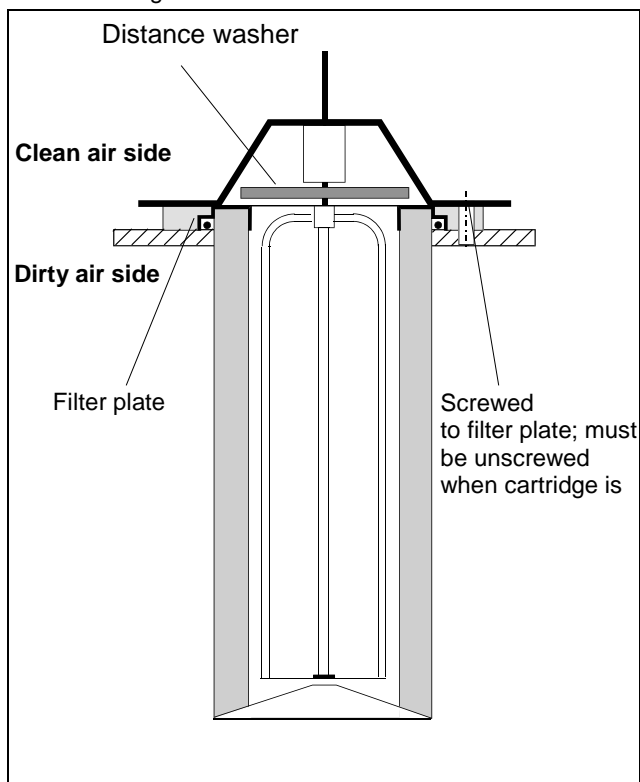


Fig. 3: Rotating wing, clean air version

7 Technical data

7.1 General data, KL model

7.1.1 Materials

| | |
|----------------|-------------------|
| 3-point mount: | Steel, painted |
| Dam plate: | Aluminium |
| Spindle: | Aluminium |
| G 3/4" nut: | Steel, galvanized |
| Washer: | Steel, galvanized |
| Snap rings: | Steel, galvanized |
| Rotating wing: | Aluminium |
| Seals: | Polyester |

7.1.2 Process data

| | |
|-----------------------------|--|
| Max. temperature: | 100°C |
| Compressed air: | 3 to 4 bar |
| Terminal box: | 125 x 125 x 75 mm |
| Valves: | Membrane valve G 3/4"; 24 V DC / 12 W |
| Compressed air consumption: | Approx. 50 l per cleaning pulse (standard) |

7.2 General data, GL model


7.2.1 Materials

| | |
|----------------|-----------------|
| 3-point mount: | Stainless steel |
| Dam plate: | Aluminium |
| Spindle: | Aluminium |
| G 3/4" nut: | Stainless steel |
| Washer: | Stainless steel |
| Snap rings: | Stainless steel |
| Rotating wing: | Aluminium |
| Seals: | Polyester |

7.2.2 Process data

| | |
|-----------------------------|--|
| Max. temperature: | 200°C |
| Compressed air: | 3 to 4 bar |
| Terminal box: | 125 x 125 x 75 mm |
| Valves: | Membrane valve G 3/4"; 24 V DC / 12 W |
| Compressed air consumption: | Approx. 50 l per cleaning pulse (standard) |

7.3 Order-specific data

| | |
|---|---|
|  | The name-plate is rendered invalid if the filter cartridge or the inner assembly is modified. Please request a new name-plate from the manufacturer. |
|---|---|

This data is order-specific and can be taken from the name-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 packaging is specified in the contract documentation as an option. |
|---|--|

9 Installation instructions

| | |
|---|--|
| ⚠ DANGER! | |
|  | Explosion hazard! ⇒ Risk of injury to persons or damage to property. |
| | <ul style="list-style-type: none"> This FG rotating wing is only allowed to be installed and operated in the zone specified in the contract documentation (offer / order confirmation). If no zone is specified: Do not operate the FG rotating wing 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! | |
|  | Danger if work is carried out on the unit by unauthorised persons! ⇒ Risk of injury to persons or damage to property. |
| | <ul style="list-style-type: none"> The unit is only allowed to be installed, accepted and tested in hazardous areas by a suitably trained person (99/98/EC). |



| | |
|---|--|
| ⚠ WARNING! | |
| Danger if work is carried out on the unit by unauthorised persons! ⇒ Risk of injury to persons or damage to property. | |
| <ul style="list-style-type: none"> All installation work must be carried out by a suitably trained person. | |

9.1 Delivery condition of the rotating wing

The rotating wing is shipped partly assembled in two packaging units, namely:


- 3-point mount, dam plate, sleeve
- Spindle, small parts, rotating wing

9.2 Installation of the cylindrical rotating wing

| | |
|---|--|
| ⚠ 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 earthing is provided on the site. |
|  | Allow sufficient clearance to replace the cartridge. |

9.2.1 Dirty air version

To prepare the filter plate:

| | |
|---|---|
|  | Make sure the filter plate is strong enough and dust-tight. |
|---|---|

- Cut out a hole for the cleaning unit ($\varnothing 210$ mm).
- Drill three holes or M8 threads for fixing bolts pitched at 120° in a hole circle ($\varnothing 385$ mm) (for the 3-point mount of the rotating wing).
- Spot-weld the centre ring on the dirty air side (radial offset < 1 mm). Weld in three fixing screws (e.g. M8 x 25) perpendicular to the filter plate so that it is dust-tight.

Required characteristics if the filter plate is manufactured by the customer:

- Flat surface (< 2 mm).
- Dust-tight seal between the dirty and clean air sides.
- Adequate strength.

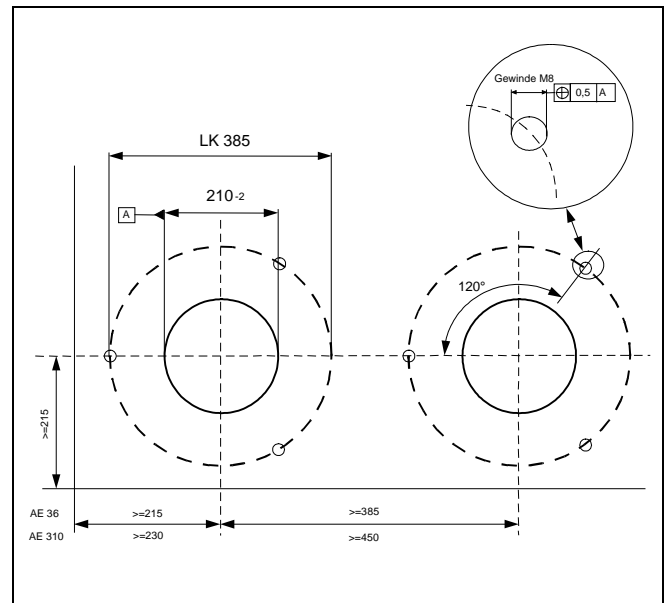


Fig. 4: Filter plate of the AE 36 and AE 310

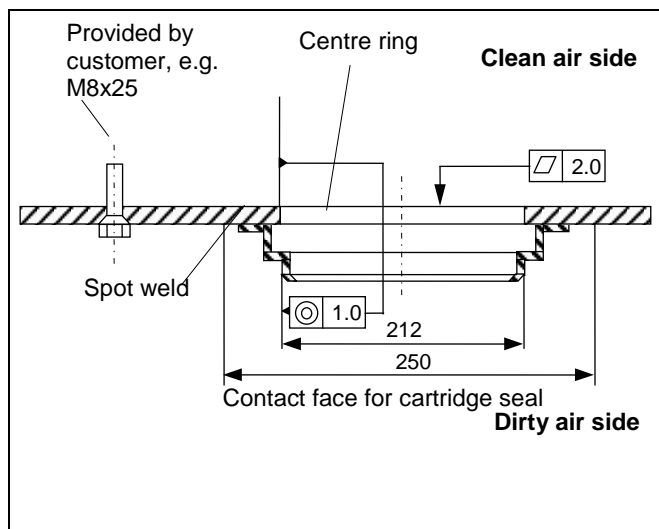


Fig. 5: Centre ring mounted

To assemble the rotating wing:

- Fasten the snap ring (1) to the groove of the spindle (2).
- Pull the dam plate (3) and the sleeve (4) over the spindle (2).
- Push washers (5) onto the spindle (2) between the sleeve (4) and the dam plate (3) as well as between the sleeve (4) and the 3-point mount (6).
- Lock the G 3/4" male thread of the spindle (2) with the hexagon nut (8).
- Using threadlocker, secure the nut on the threaded rod (9) at a distance of 15 mm.
- Screw the threaded rod (9) into the spindle up to the nut.

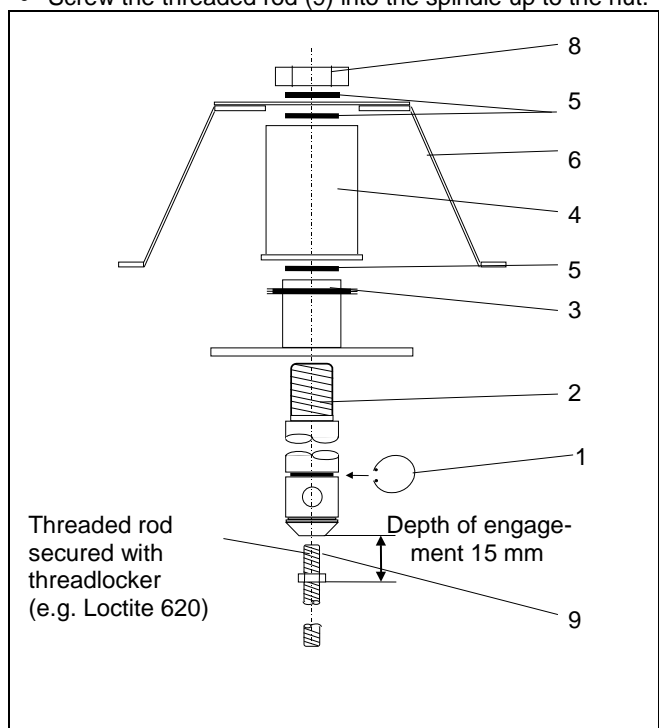


Fig. 6: Mounting the spindle

- Pull the rotating wing (10) over the threaded rod and spindle of the mounted unit (11).
- Fasten the snap ring (1) to the spindle (11) at the marked point.

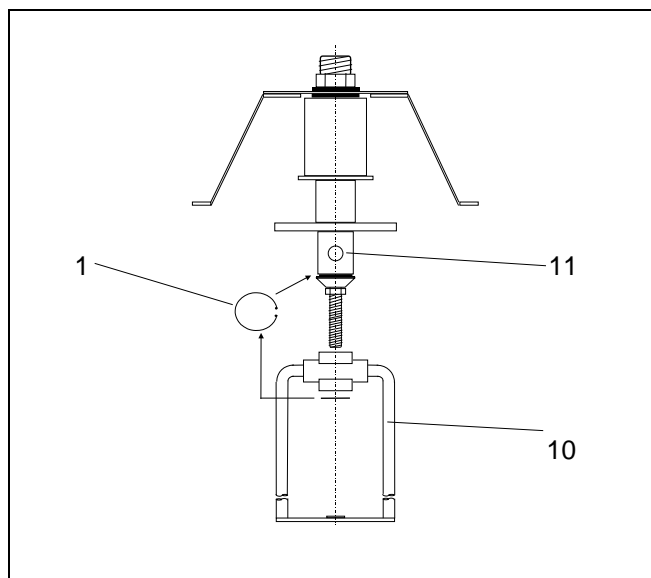


Fig. 7: Mounting the rotating wing

To mount the filter cartridge (AE 33, AE 36, AE 310):

- Glue the seal (12) to the filter plate (13).
- Push the mounted AE (14) through the opening (Ø 210) in the filter plate (13).
- Screw the 3-point mount of the mounted AE (14) to the filter plate (see "To prepare the filter plate").
- Push the cartridge (15) over the rotating wing (14) up to the filter plate and centre ring (17).
- Screw the loose end cap (16) and threaded hex connection (19) onto the threaded rod (20) of the spindle up to the filter plate.



Assembly torque: approx. 15 Nm.
• Use a torque spanner!

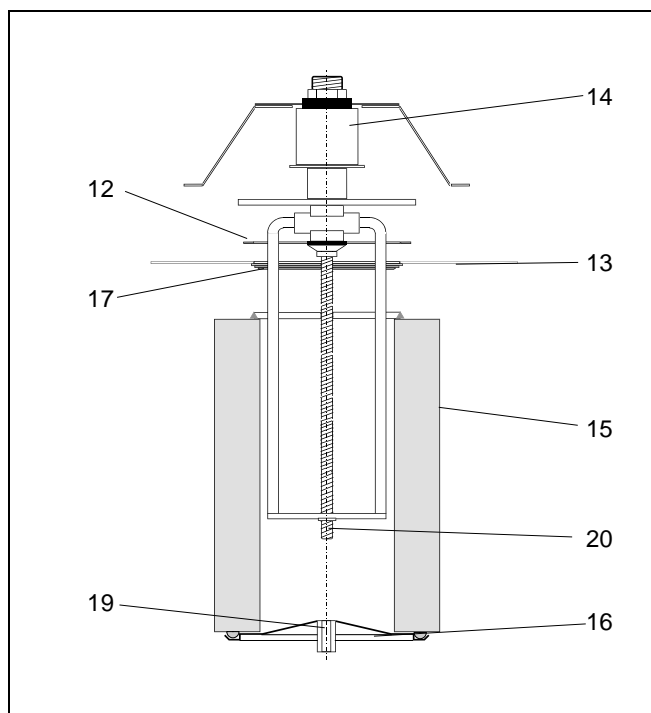



Fig. 8: Mounting the filter cartridge

To mount the filter cartridge (AE-2E):

- Glue the seal (12) to the filter plate (13).
- Push the mounted AE (14) through the filter plate (13).
- Screw the 3-point mount of the mounted AE (14) to the filter plate (13) (see "To prepare the filter plate").
- Push the top cartridge (15) over the rotating wing of the mounted AE (14) up to the filter plate and centre ring (17).
- Turn the cartridge (15) so that the three studs (see Fig. 10) are aligned with the three fixing bolts (21).
- Push the bottom cartridge (15) and double centre ring (18) over the rotating wing of the mounted AE (14) up to the top cartridge.
- Screw the loose end cap (16) and threaded hex connection (19) onto the threaded rod (20) of the spindle up to the filter plate.

| | |
|---|--|
|  | <p>Assembly torque: approx. 15 Nm.</p> <ul style="list-style-type: none"> • Use a torque spanner! |
|---|--|

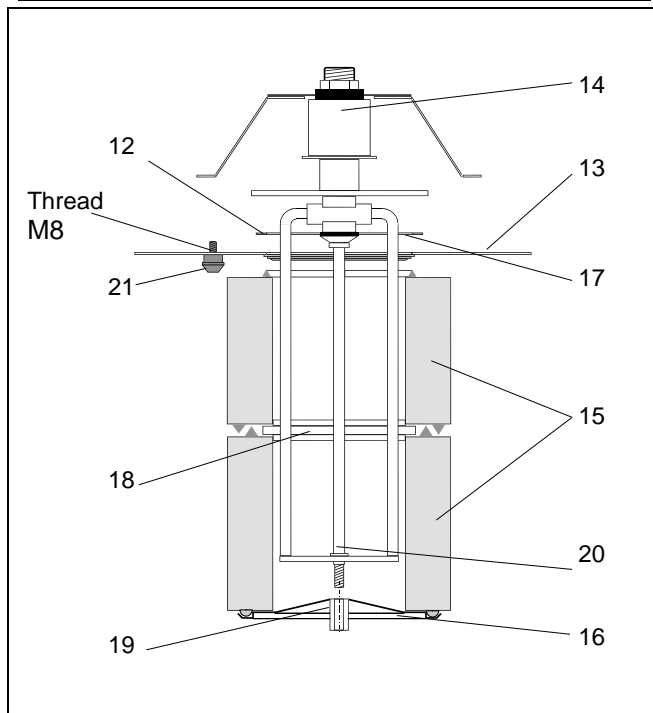


Fig. 9: Mounting the filter cartridge and double centre ring

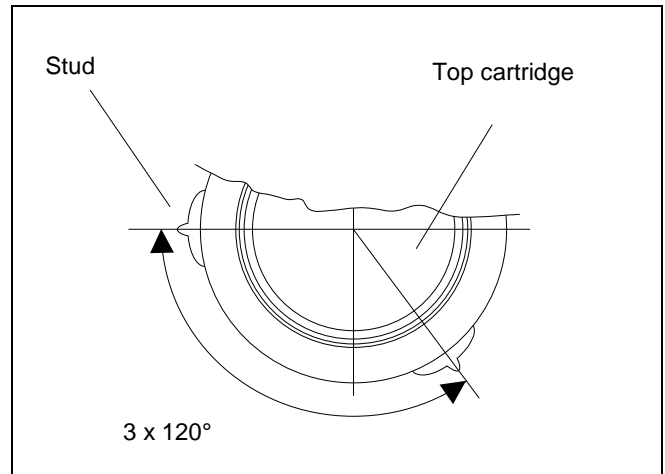



Fig. 10: Top view of the filter cartridge

9.2.2 Clean air version

To prepare the filter plate:

| | |
|---|---|
|  | <ul style="list-style-type: none"> • Make sure the filter plate is strong enough and dust-tight. |
|---|---|

- Cut out a hole for the filter cartridge (Ø 330 mm).
- Drill three holes (Ø 8.2 mm) pitched at 120° in a hole circle (Ø 385 mm) (for the 3-point mount of the rotating wing).
- Weld in three fixing screws (e.g. M8 x 40) perpendicular to the filter plate so that it is dust-tight (see Fig. 11).

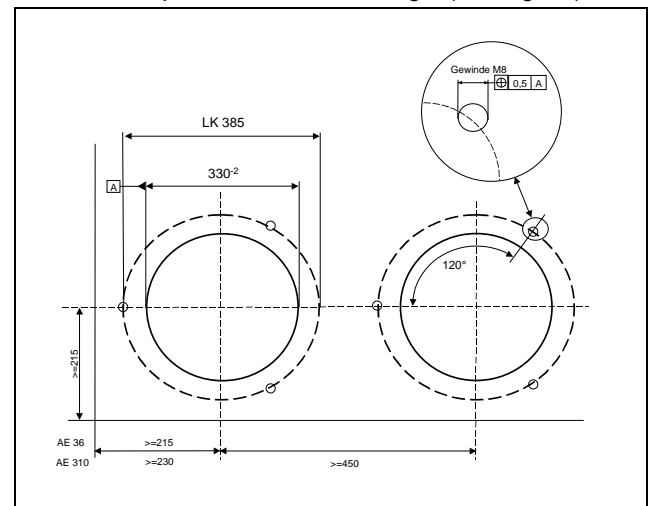


Fig. 11: Filter plate of the AE 36 and AE 310

Required characteristics if the filter plate is manufactured by the customer:

- Flat surface (< 2 mm).
- Dust-tight seal between the dirty and clean air sides.
- Adequate strength.

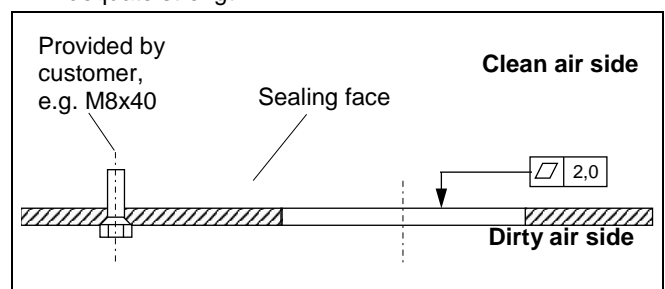


Fig. 12: Filter plate

To assemble the rotating wing (AE 33 / AE 36):

- Fasten the snap ring (1) to the spindle (2) at the marked point.
- Pull the dam plate (3) and the sleeve (4) over the spindle (2).
- Push the small washer (5), 3-point mount (6) and large washer (7) over the spindle (2).
- Lock the G ¾" male thread of the spindle (2) with the pipe nut (8).
- Pull the rotating wing (9) over the spindle of the mounted unit (10).
- Fasten the snap ring (1) to the spindle (10) at the marked point.

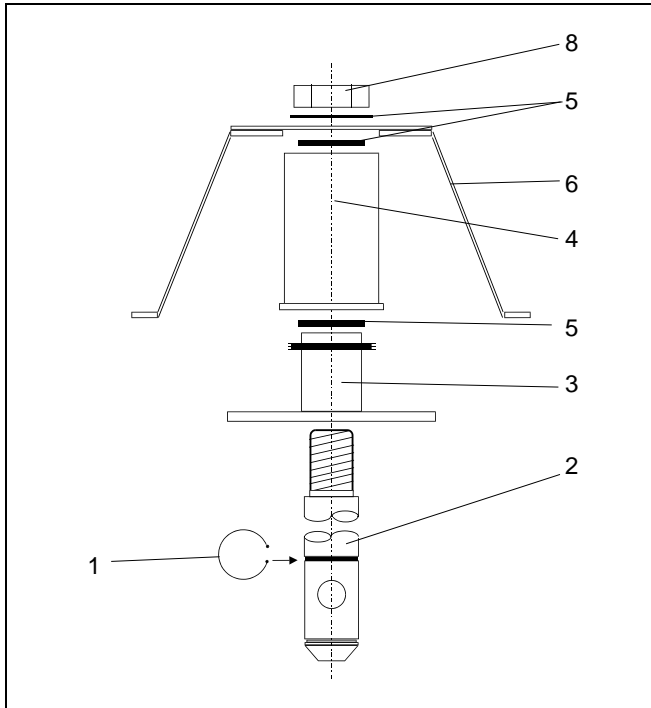


Fig. 13: Mounting the spindle

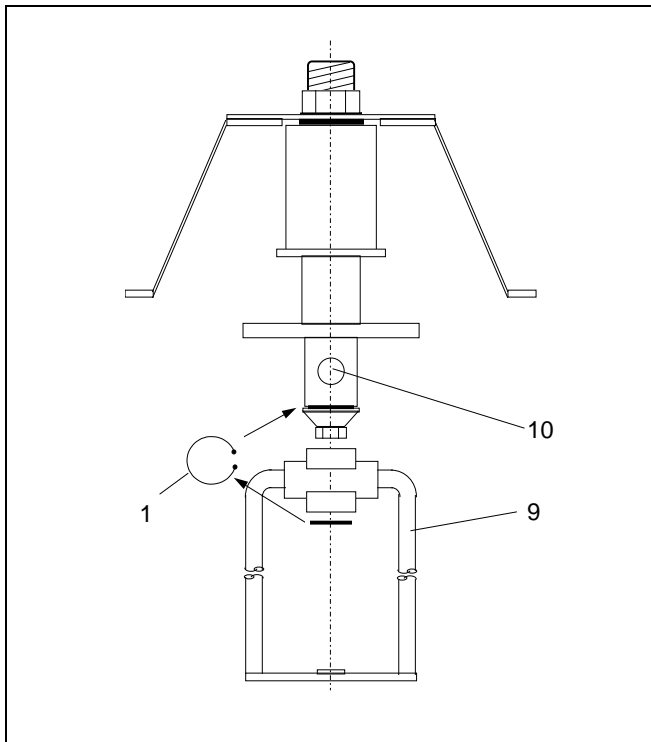


Fig. 14: Mounting the rotating wing

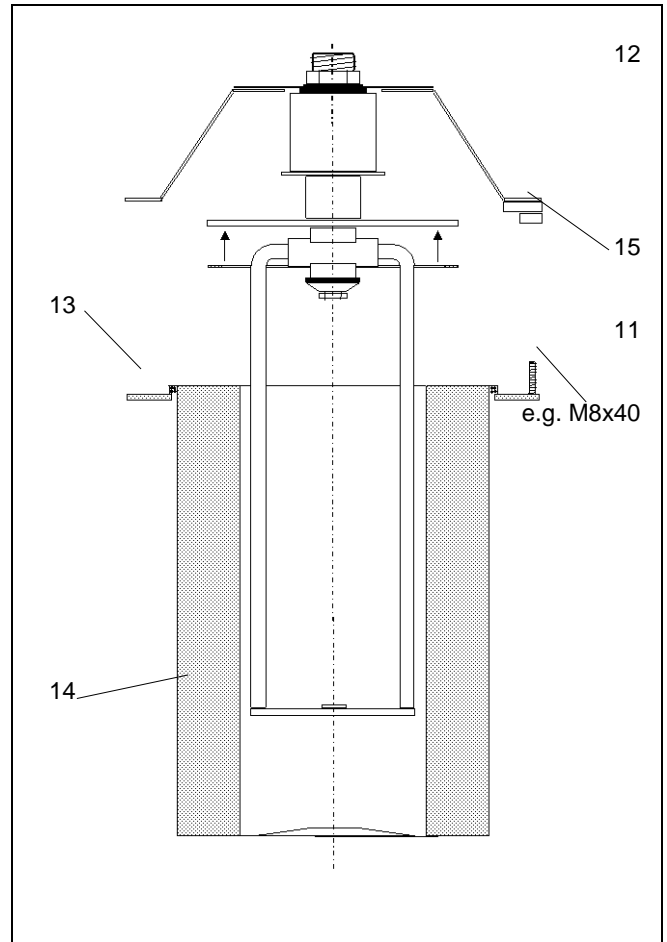


Fig. 15: Mounting the filter cartridge

To mount the filter cartridge:

- Glue the seal (11) to the dam plate of the mounted AE (12).
- Push the clean-side cartridge (14) through the opening (Ø 330) in the filter plate.
- Attach the retainer (15) to the threaded bolts as shown above (3 x 120°).
- Insert the cleaning unit (12) into the cartridge.



Insert the cartridge carefully to avoid damaging the star pleat!

- Screw the 3-point mount of the mounted AE (12) to the filter plate (13) (see "To prepare the filter plate").

9.3 Installation of the conical rotating wing

⚠ DANGER!



Explosion hazard!

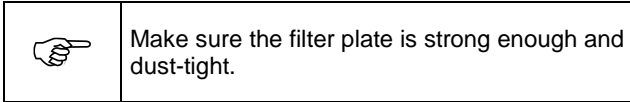
- ⇒ Risk of injury to persons or damage to property.
- Check the conductivity between all components!
- Note the maximum permissible resistance: $R < 10 \Omega$.
- Make sure earthing is provided on the site.



Allow sufficient clearance to replace the cartridge.

9.3.1 Dirty air version

To prepare the filter plate:



- Cut out a hole for the cleaning unit (Ø 250 mm).
- Drill three holes or M8 threads for fixing bolts pitched at 120° in a hole circle (Ø 385 mm) (for the 3-point mount of the rotating wing).
- Weld in three fixing screws (e.g. M8 x 25) perpendicular to the filter plate so that it is dust-tight.

Required characteristics if the filter plate is manufactured by the customer:

- Flat surface (< 2 mm).
- Dust-tight seal between the dirty and clean air sides.
- Adequate strength.

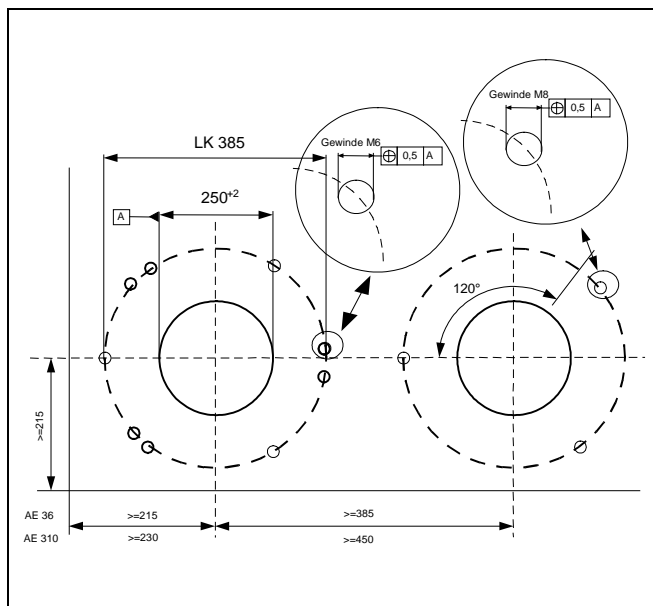


Fig. 16: Filter plate of the AE 36 and AE 310

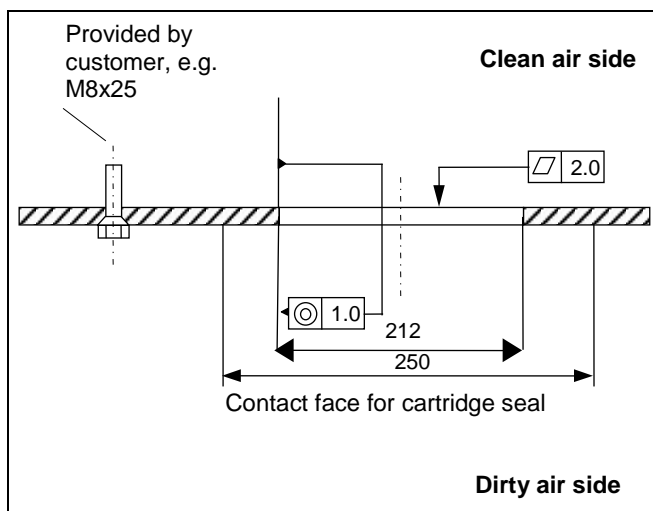


Fig. 17: Mounting the filter plate

To assemble the rotating wing:

- Fasten the snap ring (1) to the spindle (2) at the marked point.
- Pull the dam plate (3) and the sleeve (4) over the spindle (2).
- Push washers (5) onto the spindle (2) between the sleeve (4) and the dam plate (3) as well as between the sleeve (4) and the 3-point mount (6).
- Lock the G 3/4" male thread of the spindle (2) with the hexagon nut (8).
- Using threadlocker, secure the nut on the threaded rod (9).
- Screw the threaded rod (9) into the spindle up to the nut.

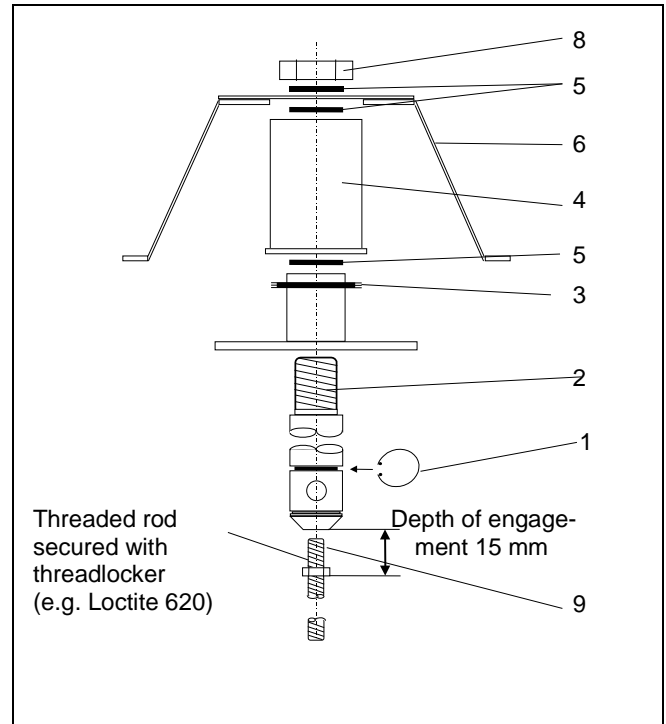


Fig. 18: Mounting the spindle

- Pull the rotating wing (10) over the threaded rod and spindle of the mounted unit (11).
- Fasten the snap ring (1) to the spindle (11) at the marked point.

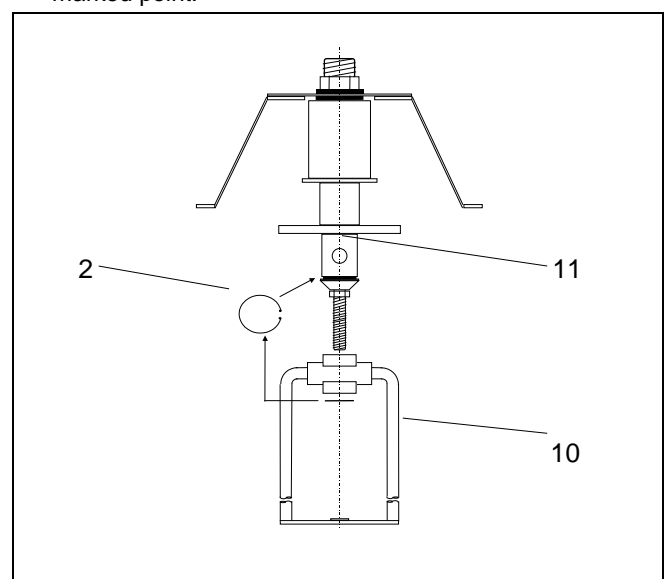
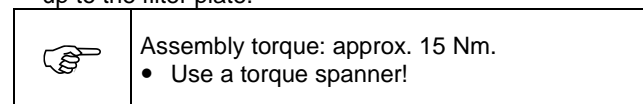


Fig. 19: Mounting the rotating wing

To mount the filter cartridge (AE 33, AE 36, AE 310):

- Glue the seal (12) to the filter plate (13).
- Push the mounted AE (14) through the opening (Ø 210) in the filter plate (13).
- Screw the 3-point mount of the mounted AE (14) to the filter plate (see "To prepare the filter plate").
- Push the cartridge (15) over the rotating wing (14) up to the filter plate and centre ring (17).
- Screw the loose end cap (16) and threaded hex connection (19) onto the threaded rod (20) of the spindle up to the filter plate.



Assembly torque: approx. 15 Nm.
• Use a torque spanner!

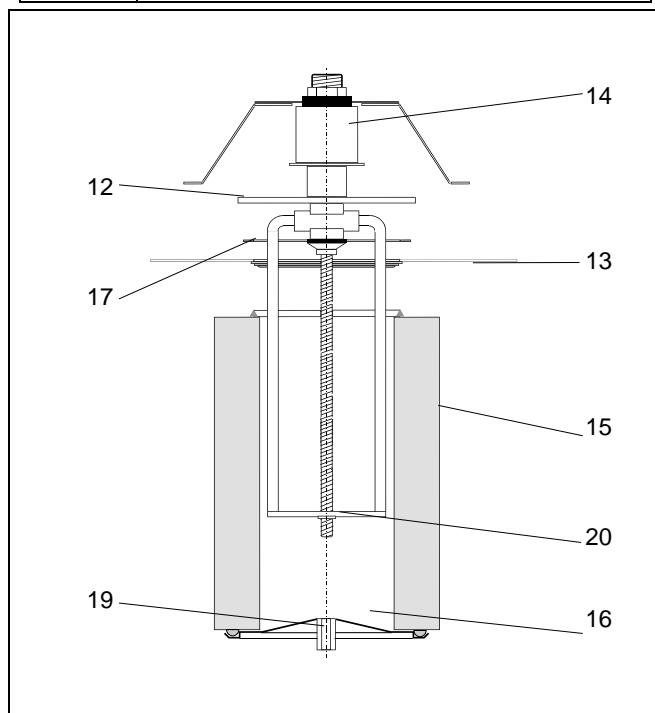


Fig. 20: Mounting the filter cartridge

9.4 Pressure vessel

- Mount the pressure vessel and valves in a readily accessible position.
- Connect the air pressure reducer and maintenance unit upstream in a clearly visible and readily accessible position.
- Set the air pressure reducer to 3-4 bar.
- The dimensions of the compressed air line should be such that the pressure vessel is always full (also during the intervals between cleaning).
- Avoid chafing.
- The tubes to the cleaning unit should be laid in such a way that they cannot be kinked and they must not exceed a maximum length of approx. 1.5 m.

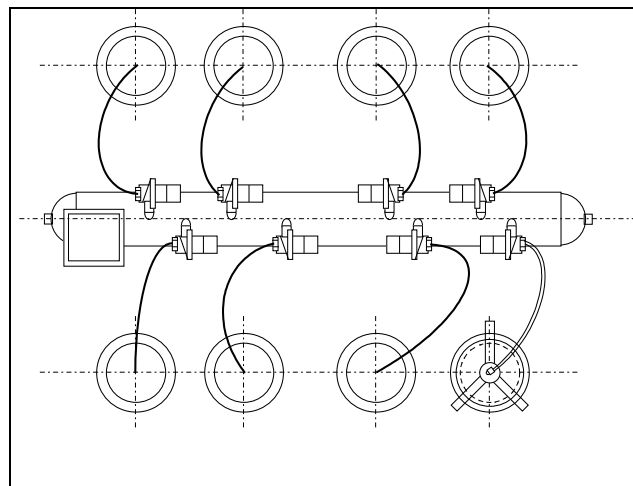


Fig. 21: Connection options on the pressure vessel

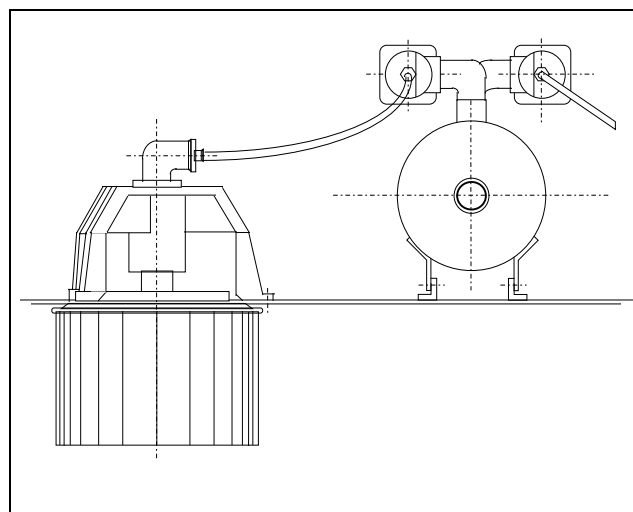


Fig. 22: Cleaning unit and pressure vessel connections

Compressed air quality:

- Oil-free
- Water-free
- Free of debris
- Refer to PNEUROP 6611/1984 for quality grades

| Pressure vessel capacity | | Compressed air consumption per cleaning pulse |
|--------------------------|------|---|
| AE 33 | 10 l | 20-40 l (normal operation) |
| AE 36 | 16 l | 32-64 l (normal operation) |
| AE 310 | 32 l | 64-128 l (normal operation) |
| AE-2E 36 | 32 l | 64-128 l (normal operation) |

9.5 Electric controller

9.5.1 Electrical connection of the magnetic valve

⚠ WARNING!

Danger if work is carried out on the unit by unauthorised persons!

⇒ Risk of injury to persons or damage to property.

- All installation work must be carried out by a suitably trained person.

Electrical connection:

- 24 V DC, 12 VA
- Refer to the name-plate if necessary.

Pneumatic connection:

- A: Rotating wing
- P: Pressure vessel

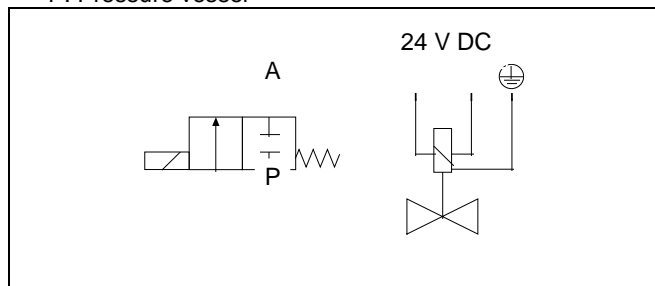


Fig. 23: Magnetic valve connection

9.6 Standard information on cleaning control

Recommendation:

- FG MFS 05 cleaning controller
- FG MFS 09 differential pressure controller

9.6.1 Time-controlled cleaning (standard)

The cartridges are cleaned cyclically and individually. The pulse and interval times vary according to the process. The times indicated below are recommended standard values.

| t_z | Cycling time | Period during which all valves are cleaned once |
|-------|---------------|---|
| t_p | Interval time | Time between two pulses |
| t_i | Pulse time | Valve opening time |

The standard cycling time is approximately 8 minutes and is calculated as follows:

Interval time x no. of valves

(3 valves x 160 s = 480 s = 8 min)

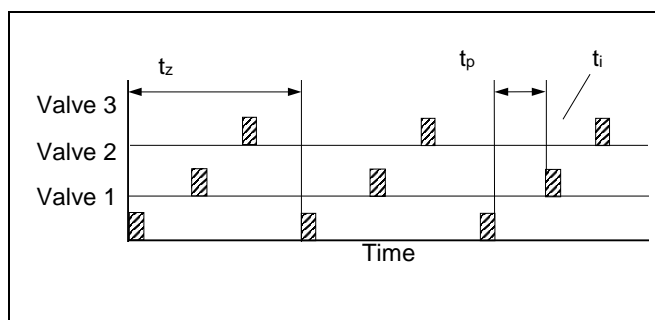


Fig. 24: Cyclic cleaning (example)

| No. of valves | Cycling time t_z [min] | Interval time t_p [s] | Pulse time SFR ¹ t_i [s] |
|---------------|--------------------------|-------------------------|---------------------------------------|
| 2 | 6.7 | 200 | 1.5 |
| 3 | 8.0 | 160 | |
| 4 | | 120 | |
| 5 | | 96 | |
| 6 | | 80 | |
| 7 | | 68 | |
| 8 | | 60 | |
| 9 | | 53 | |
| 10 | | 48 | |

9.6.2 Differential pressure-controlled cleaning

The cartridges are cleaned cyclically and individually when the maximum differential pressure is reached. The pulse and interval times vary according to the process. The times indicated below are recommended standard values.

| t_z | Cycling time | Period during which all valves are cleaned once |
|-------|---------------|--|
| t_p | Interval time | Time between two pulses |
| t_i | Pulse time | Valve opening time |
| t_N | Lag time | Time until the controller stops cleaning after the differential pressure drops below the threshold again |

The standard cycling time is approximately 8 minutes and is calculated as follows:

Interval time x no. of valves

(3 valves x 160 s = 480 s = 8 min)

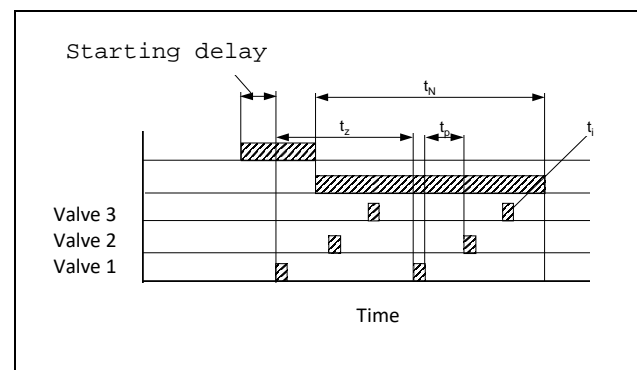



Fig. 25: Cyclic cleaning (example)

| No. of valves | Cycling time t_z [min] | Pulse time t_p [s] | Pulse time SFR2 t_i [s] | Lag time t_N [min] |
|---------------|--------------------------|----------------------|---------------------------|----------------------|
| 2 | 6.7 | 200 | 1.5 | 10 |
| 3 | 8.0 | 160 | | |
| 4 | | 120 | | |
| 5 | | 96 | | |
| 6 | | 80 | | |
| 7 | | 68 | | |
| 8 | | 60 | | |
| 9 | | 53 | | |
| 10 | | 48 | | |

¹ SFR = FG jet pulse filter with rotating wing

² SFR = FG jet pulse filter with rotating wing

10 Start-up

| ⚠ 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 earthing is provided on the site. |

- Inspect all plant components.
- Remove all parts that do not belong to the system (such as tools, installation waste, etc.)
- Check the pipe connections (e.g. secureness of clamps).
- Tighten all screws and bolts.

11 Normal operation


The various component parts should be matched to one another in the following ways to ensure optimal filtration:

- Filter size
- Filter surface
- Design
- Filter material
- Pipes
- Fan


The design should take account of the following parameters:

- Airflow
- Temperature
- Dust / dirty air concentration
- Particle size distribution
- Dust type
- Pollutants
- pH
- Allowable residual dust content
- Service life, etc.

For more information, please consult the manufacturer.

| | |
|---|--|
|  | <ul style="list-style-type: none"> • All the above PARAMETERS should be monitored and if necessary corrected! |
|---|--|

12 Maintenance

| ⚠ DANGER! | |
|--|---|
|  | Explosion hazard! ⇒ Risk of injury to persons or damage to property. <ul style="list-style-type: none"> • The accident prevention regulations (UVV in Germany) on work in hazardous areas must be observed at all times! |
| ⚠ CAUTION! | |
| Danger if work is carried out on the unit by unauthorised persons! ⇒ Risk of injury to persons or damage to property. <ul style="list-style-type: none"> • All maintenance work must be carried out by a suitably trained person. | |

Before all maintenance work:

- Shut down the dust collector / plant.
- Clean the cartridges.
- Switch off the main switch.
- Turn off the compressed air supply.
- Decompress the pressure vessel (e.g. by starting a manual cleaning cycle).
- Take steps to prevent the unit from being switched on again by unauthorised persons.




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



- Carry out the maintenance work.
- Start up the dust collector / plant again.
- Observe the dust collector / plant.
Does it operate normally?

12.1 Inspection and maintenance schedule




| | Cartridge | Activity | Comments |
|---|---------------------------------|--|---------------------|
| Weekly | Compressed-air maintenance unit | Visual inspection, discharge water separator | |
| Monthly | Filter cartridges | Check assembly torques | > 15 Nm |
| | | Visual inspection for cracks | Corrosion |
| | Rotating wings | Check freedom of movement | Corrosion |
|  | Dust collector | Check conductivity between all components | < 10 ⁶ Ω |
| Yearly | Compressed air connections | Check | |



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

12.2 Replacing the filter cartridge – RLD

12.2.1 Filter cartridge – SFR / dirty air side

|  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 earthing is provided on the site. |
| |  Dispose of the filter in a manner which does not pollute the environment! <ul style="list-style-type: none"> Consult the responsible authorities before deciding upon the most suitable disposal method. |

- Interrupt the volume flow.
- Clean each cartridge twice (e.g. start a quick cleaning cycle; refer to the instructions for the controller).
- Take steps to prevent the complete unit from being switched on again by unauthorised persons.
- Wear protective clothing and equipment.
- After approximately 5 minutes (time required for the dust to settle), bang on the access door so that any accumulated dust drops down to the bottom.
- Open the access door.
- Remove any debris with a hand brush.
- Press the cartridge against the filter plate.
- Unscrew the star handle anti-clockwise.
- Pull the cartridge vertically down and remove it.

Dust collector with fixing bolts (optional):

- Press the cartridge against the filter plate.
 - Unscrew the star handle / hex screw.
- Unscrew the cartridge from the fixed position, then pull it vertically down and remove it.
- Check the freedom of movement of the rotating wing.
 - Fit a new, original cartridge and screw it clockwise into the fixed position (30°).
 - Tighten by hand (approx. 15 Nm).

Dust collector with fixing bolts (optional):

- Fit a new, original cartridge and screw it into the fixed position.
- ⇒ The cartridge is loosely held by the fixing bolts.
- Screw on the star handle / hex screw.
 - Tighten (approx. 15 Nm).
- Dispose of the spent cartridge in a manner which does not pollute the environment.

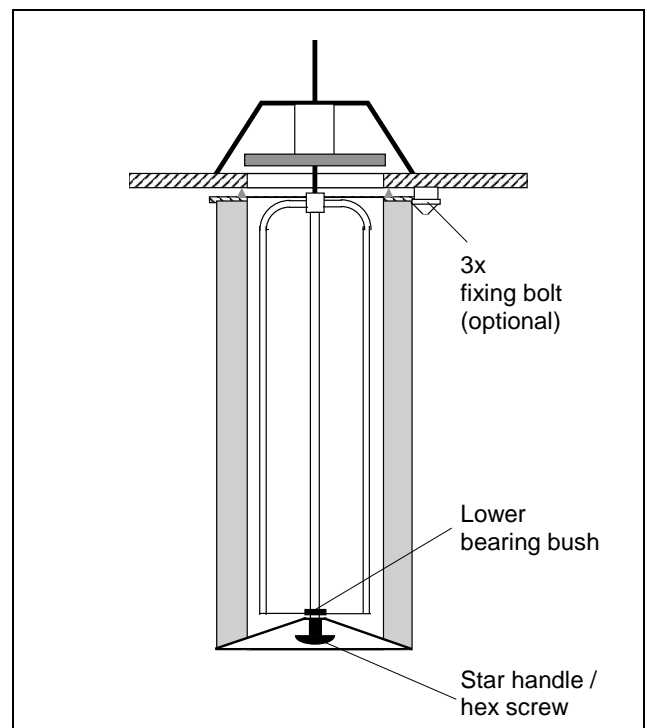




Fig. 26: Replacing the filter cartridge

12.2.2 Filter cartridge – SFR-2E / dirty air side

| ⚠ 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 earthing is provided on the site. |
|  | Dispose of the filter in a manner which does not pollute the environment! <ul style="list-style-type: none"> • Consult the responsible authorities before deciding upon the most suitable disposal method. |

- Interrupt the volume flow.
- Start a quick cleaning cycle (clean each cartridge twice).
- Take steps to prevent the complete unit from being switched on again by unauthorised persons.
- Wear protective clothing and equipment.
- After approximately 5 minutes (time required for the dust to settle), bang on the access door so that any accumulated dust drops down to the bottom.
- Open the access door.
- Remove any debris with a hand brush.
- Press the cartridge against the filter plate.
- Unscrew the star handle anti-clockwise.
- Pull the cartridge vertically down and remove it.

Dust collector with fixing bolts (optional):

- Press the cartridge against the filter plate.
- Unscrew the star handle / hex screw.
- Pull the bottom cartridge and double centre ring vertically down and remove them.
- Unscrew the top cartridge from the fixed position, then pull it vertically down and remove it.
- Check the freedom of movement of the rotating wing.
- Fit new, original cartridges with a double centre ring and screw them clockwise into the fixed position (30°).
- Tighten by hand (approx. 15 Nm).

Dust collector with fixing bolts (optional):

- Fit a new, original cartridge and screw it into the fixed position.
- ⇒ The cartridge is loosely held by the fixing bolts.
- Fit the bottom cartridge and double centre ring.
- Screw on the star handle / hex screw.
- Tighten (approx. 15 Nm).
- Dispose of the spent cartridge in a manner which does not pollute the environment.

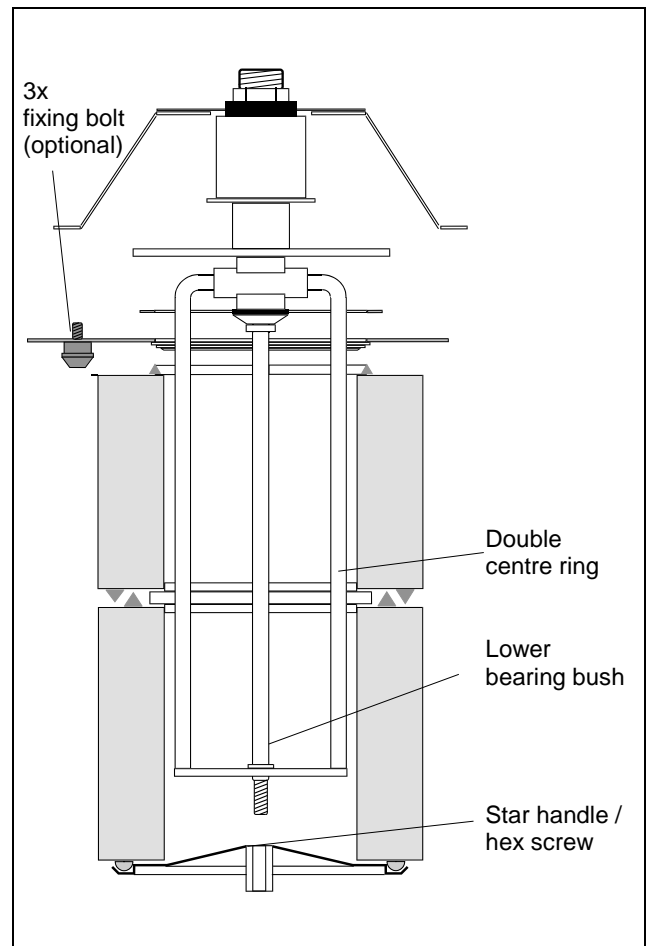




Fig. 27: Replacing the filter cartridge



12.2.3 Filter cartridge – SFR / clean air side

| ⚠ 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 earthing is provided on the site. |
|  | Dispose of the filter in a manner which does not pollute the environment! <ul style="list-style-type: none"> • Consult the responsible authorities before deciding upon the most suitable disposal method. |

- Interrupt the volume flow.
- Start a quick cleaning cycle (clean each cartridge twice).
- Take steps to prevent the complete unit from being switched on again by unauthorised persons.
- Wear protective clothing and equipment.
- After approximately 5 minutes (time required for the dust to settle), bang on the access door so that any accumulated dust drops down to the bottom.
- Open the access door.
- Remove any debris with a hand brush.
- Unscrew the screwed connection to the filter plate.
- Withdraw the cartridge and the complete cleaning unit vertically.
- Check the freedom of movement of the rotating wing.
- Fit a new, original cartridge.
- Push the cartridge and the cleaning unit into the filter plate and screw them tight.

12.3 Replacing the filter cartridge – RLK

12.3.1 Filter cartridge – SFR / dirty air side

| ⚠ 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 earthing is provided on the site. |
|  | Dispose of the filter in a manner which does not pollute the environment! <ul style="list-style-type: none"> • Consult the responsible authorities before deciding upon the most suitable disposal method. |

- Interrupt the volume flow.
- Clean each cartridge twice (e.g. start a quick cleaning cycle; refer to the instructions for the controller).
- Take steps to prevent the complete unit from being switched on again by unauthorised persons.
- Wear protective clothing and equipment.
- After approximately 5 minutes (time required for the dust to settle), bang on the access door so that any accumulated dust drops down to the bottom.
- Remove any debris with a hand brush.
- Release the spring clips from the mount (1).
- Pull the cartridge and the rotating wing vertically down and remove them (2).
- Remove the rotating wing from the cartridge (3).
- Check the freedom of movement of the rotating wing.
- Fit the rotating wing into a new cartridge (4).
- Press the two cartridges together (5).

- The two spring clips must latch audibly one after the other (6).

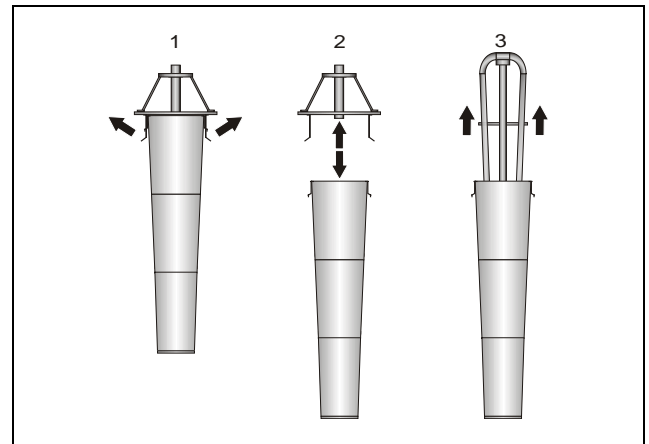


Fig. 28: Removing the filter cartridge

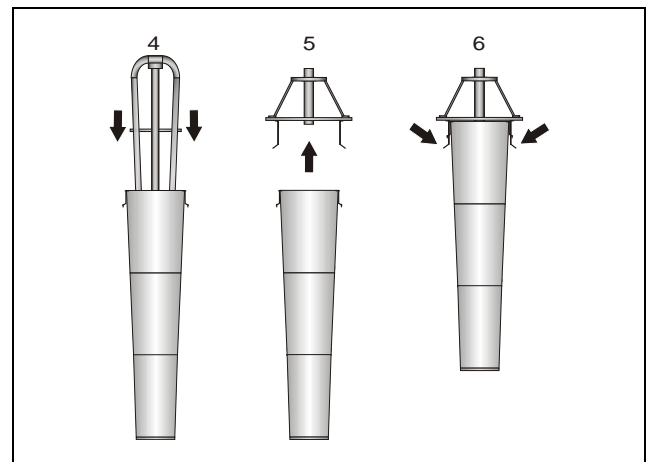


Fig. 29: Installing the filter cartridge

13 Relevant standards and directives

The national and international standards and directives concerned with the operation and maintenance of machinery and plant apply irrespective of the information contained in these original instructions, namely in particular:

| Standard / directive | Title |
|----------------------|--|
| VDI 2263 | Dust fires and dust explosions |
| VDI 2264 | Commissioning, operation and maintenance of separator systems |
| VDI 3673 | Pressure venting of dust explosions |
| UVV | Accident prevention regulations of the employers' liability insurance associations |

14 Appendix: Cartridges used

Enter the order data in the table (refer to the contract documentation: offer / order confirmation).

| No. | Qty. | Designation | FG ID No. | Material |
|-----|------|-------------|-----------|----------|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

Cartridges changed:

| Date: | | | Changed by: | |
|-------|------|-------------|-------------|----------|
| No. | Qty. | Designation | FG ID No. | Material |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

Cartridges changed:

| Date: | | | Changed by: | |
|-------|------|-------------|-------------|----------|
| No. | Qty. | Designation | FG ID No. | Material |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

Cartridges changed:

| Date: | | | Changed by: | |
|-------|------|-------------|-------------|----------|
| No. | Qty. | Designation | FG ID No. | Material |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

15 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 :

Rotationsluftdüse
Rotating wing
Aile rotative d'air

Typenbezeichnung:
Type designation:
Désignation du type :

RLD/RLK

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,

19.06.2017

Datum/Date/Date

U. Zuck

Unterschrift/Signature/Signature

Anlage/Annex/Annexe

3 Seiten/pages/pages

Anlage zur Einbauerklärung gemäß Richtlinie
2006/42/EU für Entstaubungsgeräte
Annex to the Declaration of Incorporation pursuant to
the Machinery Directive 2006/42/EU for dust collectors
Annexe à la déclaration de montage selon la directive
2006/42/UE pour les dépoussiéreurs
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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