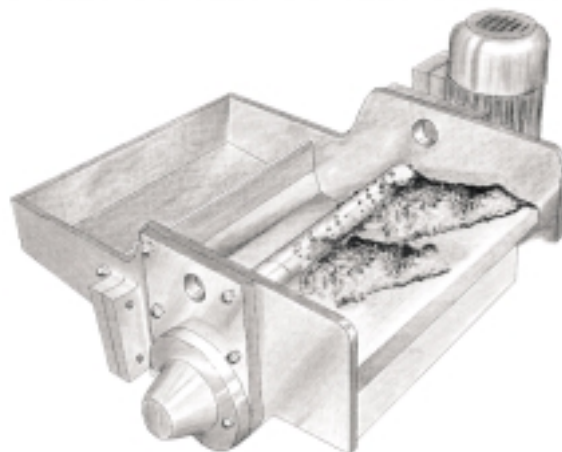


**KNOLL**

# Installation and Operating Instructions

## Permanent magnetic coolant-filter

GB





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### **Annex**

Operating Instructions (Flender)



## 1 Description of Product and Functions

### Objective

- cleaning of cooling lubricants (oils, emulsions) and scouring solutions containing ferromagnetic particles

### Uses

- use as a single plant for single machine tools

### Method of Functioning

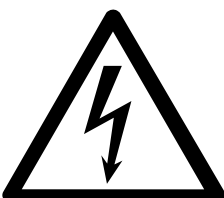
- continuous rotation of the magnetic roller in the axial direction
- input of the fluid into the magnetic filter roller via a feeder
- The fluid passes a permanent magnet roller
- Magnetitic particles adhere to the roller, are conducted and stripped off at the discharge station by means of a stripping plate

## 2 Warning and Safety Messages



- **Always observe all instructions in the included operating manuals.**
- **When installing components as customer, make sure that the parts are fastened properly.**
- **The strong adhesive forces of the magnets may lead to contusions!**
- **Strong magnetic fields may interfere with or destroy electronic or mechanical devices.**

**This holds good also for pacemakers. The necessary safety distances can be found in the manuals for these devices and must be observed under all circumstances.**



- **Work on the electrical plant may only be carried through by skilled electricians.**
- **Pay attention to the relevant VDE (Association of German electrical engineers) regulations and to the connection regulations of the EVU (electricity supply company) in question!**

## 3 Erection and Installation

- Erect the magnetic filter roller horizontally and level. On the lower side of the plant, there are threaded holes by means of which it can be attached, for instance, to containers
- Connect the supply and return lines



Do not erect the plant within the range of electromagnetic fields (direct current drives), since this may lead to a decrease in performance of the magnetic systems.

The outflow opening on the lower side can be used for free draining of the working fluids. If the plant is placed, for instance, on a container, only the container's cover must be left out.

Supplementary connected lines for fluids must be checked for tightness.

- Install the deposit container or chip box, respectively
- Connect the power supply for the drive motor



- **Work on the electrical plant may only be carried out by skilled electricians.**
- **Pay attention to the relevant VDE (Association of German electrical engineers) regulations and to the connection regulations of the EVU (electricity supply company) in question!**



Observe the correct direction of rotation (towards the stripping plate)

The supplied fluid should be distributed over the entire width of the magnetic filter roller (exploitation of the filter surface)

## 4 Activation and Operation

### 4.1 Mounting and Initiation

- After having installed resp. erected the permanent magnetic coolant filtering device the following points must be observed:

#### **Erection**

- Do not erect in the direct reach of electric field (D.C: drives) as this might result in a decrease of performance of the magnetic systems.
- The installations are delivered with threaded holes on the bottom side for fixing e.g. on the coolant tank.

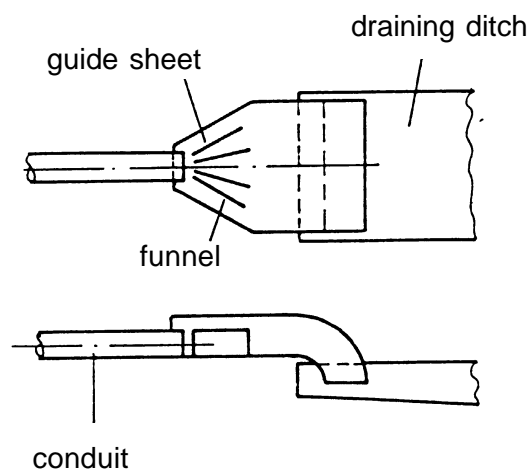
#### **Draining of the cleaned cooling liquid**

- The outlet opening on the bottom side can be used for free draining of the working liquid. If the installation is mounted e.g. on a recipient, only its covering has to be spared accordingly.

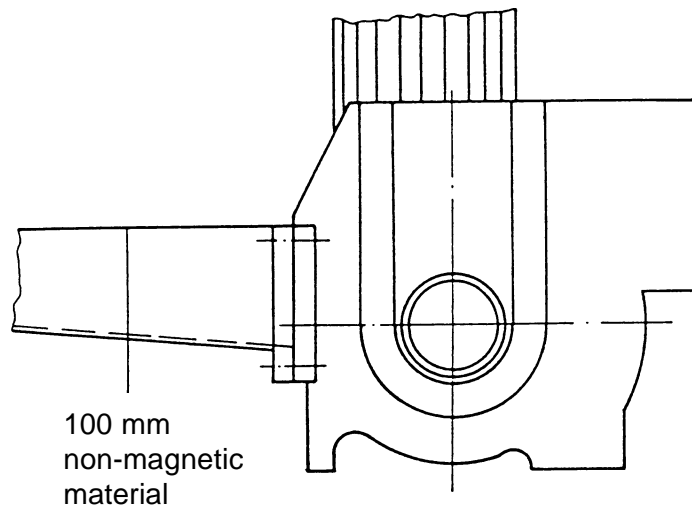
The outlet opening may also be equipped with a launder or a conduit, and in doing so the area on the outlet has to be machined and provided with threaded holes.

#### **Inlet of the soiled cooling liquid**

- The inlet of the cooling liquid to the installation should be distributed on the whole inlet width before entering the draining ditch.



- If the inlet can not be realized from the top into the draining ditch, a launder is to be flanged directly on the installation housing
- This launder should be made of non-magnetic material with a size of about 100 mm measured from the housing flange. Furthermore it should be paid attention to a steady and constant distribution of the cooling liquid



## 4.2 Operating Instructions

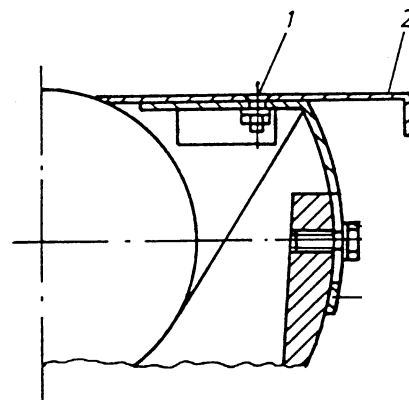
- Connection to the electric network only with protective motor switch. Supply voltage to be compared with motor voltage (type plate)

- Direction of transport

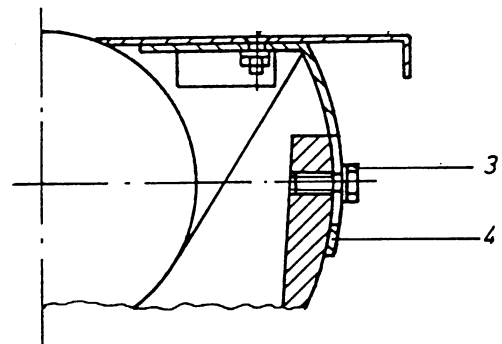
After switching on the drive motor the sense of rotation (against the stripping-off plate) is to be checked.

- Positioning of the stripping-off plate towards the roller
  - loosen the countersunk screw pos.1
  - push the stripping-off plate pos.2 up to the roller
  - tighten again countersunk screw pos.1

- Please pay attention to that the stripping-off plate is not pressed too heavily on the roller, in order to avoid an overload of the drive motor and an increased wear of the stripping-off plate



- Commissioning of the filtering device, on this occasion please check the power draw of the gear motor.
- Adjustment of the stripping-off angle (also possible to be made during operation)
  - loosen hexagon head cap screw pos.3
  - press adjusting plate pos. 4 up resp. down
  - tighten again hexagon head cap screw pos.3



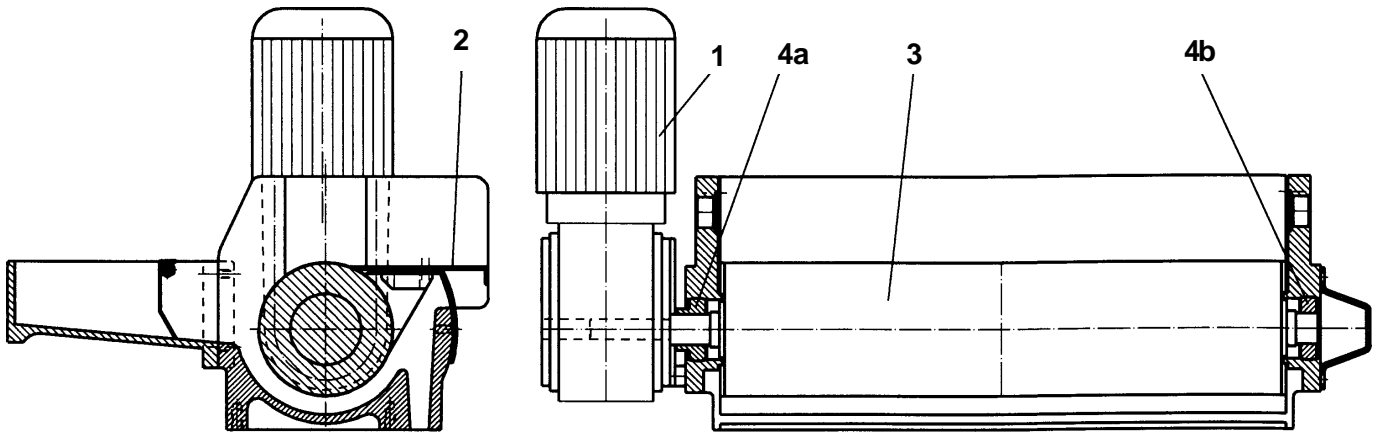
## - **Cleaning**

- In order to avoid an incrusting of the drag-out the installation has to be cleaned from time to time. The periods depend on the hardening time of the drag-out. When being out of operation for a longer time the installation should be checked when running and then be cleaned

## - **Stripping-off plate**

- The stripping-off plate is to be checked from time to time. If a wear is found out, the stripping-off plate has to be adjusted

## 5 Disassembling the Slitter Roller



- pos. 1 After releasing the torque support, draw off the worm gear motor
- pos. 2 Disassemble the stripping plates (see chapter 4.2)
- pos. 3 Disassemble the slitting roller
  - release the fastening screws on the bearing flangesThe entire unit (slitting roller with bearing flange) can now be removed upwards
- pos. 4 After the disassembly of the slitting roller, the deep groove ball bearings must be drawn off and, if necessary, replaced in twos



The slitting roller and the deep groove ball bearings must be placed on antimagnetic material.

- Assembly takes place in the reverse order

## **6 List of Replacement Parts**

### **6.1 Type 60 (Emulsion) / 35 (Oil)**

| <b>pos.</b> | <b>pieces</b> | <b>designation</b>       | <b>purchase order number</b> |
|-------------|---------------|--------------------------|------------------------------|
| 1           | 1             | worm gear motor          | 230.0                        |
| 2           | 1             | stripping plate          | 230.0001.25.013.4            |
| 3           | 1             | slitting roller          | 230.0001.39.020.4            |
| 4a          | 1             | deep groove ball bearing | AS 206                       |
| 4b          | 1             | deep groove ball bearing | CS 206 LLU                   |

### **6.2 Type 120 (Emulsion) / 75 (Oil)**

| <b>pos.</b> | <b>pieces</b> | <b>designation</b>       | <b>purchase order number</b> |
|-------------|---------------|--------------------------|------------------------------|
| 1           | 1             | worm gear motor          | 230.1                        |
| 2           | 1             | stripping plate          | 230.0001.26.013.4            |
| 3           | 1             | slitting roller          | 230.0001.40.020.3            |
| 4a          | 1             | deep groove ball bearing | AS 206                       |
| 4b          | 1             | deep groove ball bearing | CS 206 LLU                   |

### **6.3 Type 180 (Emulsion) / 110 (Oil)**

| <b>pos.</b> | <b>pieces</b> | <b>designation</b>       | <b>purchase order number</b> |
|-------------|---------------|--------------------------|------------------------------|
| 1           | 1             | worm gear motor          | 230.2                        |
| 2           | 1             | stripping plate          | 230.0001.27.013.4            |
| 3           | 1             | slitting roller          | 230.0001.41.020.3            |
| 4a          | 1             | deep groove ball bearing | AS 206                       |
| 4b          | 1             | deep groove ball bearing | CS 206 LLU                   |

When ordering, please give the purchase order and machine numbers.

**6.4 Type 235 (Emulsion) / 140(Oil)**

| <b>pos.</b> | <b>pieces</b> | <b>designation</b>       | <b>purchase order number</b> |
|-------------|---------------|--------------------------|------------------------------|
| 1           | 1             | worm gear motor          | 230.3                        |
| 2           | 1             | stripping plate          | 230.0001.28.013.4            |
| 3           | 1             | slitting roller          | 230.0001.42.020.3            |
| 4a          | 1             | deep groove ball bearing | AS 206                       |
| 4b          | 1             | deep groove ball bearing | CS 206 LLU                   |

**6.5 Type 355 (Emulsion) / 215 (Oil)**

| <b>pos.</b> | <b>pieces</b> | <b>designation</b>       | <b>purchase order number</b> |
|-------------|---------------|--------------------------|------------------------------|
| 1           | 1             | worm gear motor          | 230.4                        |
| 2           | 1             | stripping plate          | 230.0001.29.013.4            |
| 3           | 1             | slitting roller          | 230.0001.43.020.3            |
| 4a          | 1             | deep groove ball bearing | AS 206                       |
| 4b          | 1             | deep groove ball bearing | CS 206 LLU                   |

**6.6 Type 415(Emulsion) / 250 (Oil)**

| <b>pos.</b> | <b>pieces</b> | <b>designation</b>       | <b>purchase order number</b> |
|-------------|---------------|--------------------------|------------------------------|
| 1           | 1             | worm gear motor          | 230.5                        |
| 2           | 1             | stripping plate          | 230.0001.30.013.4            |
| 3           | 1             | slitting roller          | 230.0001.44.020.3            |
| 4a          | 1             | deep groove ball bearing | AS 206                       |
| 4b          | 1             | deep groove ball bearing | CS 206 LLU                   |

When ordering, please give the purchase order and machine numbers.

**6.7 Type 475 (Emulsion) / 285 (Oil)**

| <b>pos.</b> | <b>pieces</b> | <b>designation</b>       | <b>purchase order number</b> |
|-------------|---------------|--------------------------|------------------------------|
| 1           | 1             | worm gear motor          | 230.6                        |
| 2           | 1             | stripping plate          | 230.0001.31.013.4            |
| 3           | 1             | slitting roller          | 230.0001.45.020.3            |
| 4a          | 1             | deep groove ball bearing | AS 206                       |
| 4b          | 1             | deep groove ball bearing | CS 206 LLU                   |

**6.8 Type 590 (Emulsion) / 355 (Oil)**

| <b>pos.</b> | <b>pieces</b> | <b>designation</b>       | <b>purchase order number</b> |
|-------------|---------------|--------------------------|------------------------------|
| 1           | 1             | worm gear motor          | 230.7                        |
| 2           | 1             | stripping plate          | 230.0001.32.013.4            |
| 3           | 1             | slitting roller          | 230.0001.46.020.3            |
| 4a          | 1             | deep groove ball bearing | AS 210                       |
| 4b          | 1             | deep groove ball bearing | CS 210 LLU                   |

**6.9 Type 735(Emulsion) / 440 (Oil)**

| <b>pos.</b> | <b>pieces</b> | <b>designation</b>       | <b>purchase order number</b> |
|-------------|---------------|--------------------------|------------------------------|
| 1           | 1             | worm gear motor          | 230.8                        |
| 2           | 1             | stripping plate          | 230.0001.33.013.4            |
| 3           | 1             | slitting roller          | 230.0001.47.020.3            |
| 4a          | 1             | deep groove ball bearing | AS 210                       |
| 4b          | 1             | deep groove ball bearing | CS 210 LLU                   |

When ordering, please give the purchase order and machine numbers.

**6.10 Type 885 (Emulsion) / 530 (Oil)**

| <b>pos.</b> | <b>pieces</b> | <b>designation</b>       | <b>purchase order number</b> |
|-------------|---------------|--------------------------|------------------------------|
| 1           | 1             | worm gear motor          | 230.9                        |
| 2           | 1             | stripping plate          | 230.0001.34.013.4            |
| 3           | 1             | slitting roller          | 230.0001.48.020.3            |
| 4a          | 1             | deep groove ball bearing | AS 210                       |
| 4b          | 1             | deep groove ball bearing | CS 210 LLU                   |

**6.11 Type 1030 (Emulsion) / 620 (Oil)**

| <b>pos.</b> | <b>pieces</b> | <b>designation</b>       | <b>purchase order number</b> |
|-------------|---------------|--------------------------|------------------------------|
| 1           | 1             | worm gear motor          | 230.10                       |
| 2           | 1             | stripping plate          | 230.0001.35.013.4            |
| 3           | 1             | slitting roller          | 230.0001.49.020.3            |
| 4a          | 1             | deep groove ball bearing | AS 210                       |
| 4b          | 1             | deep groove ball bearing | CS 210 LLU                   |

When ordering, please give the purchase order and machine numbers.

## 7 Maintenance Table

| <b>subassembly/<br/>component</b> | <b>interval</b>   | <b>type of work</b>   | <b>safety instructions /<br/>remarks</b>   |
|-----------------------------------|-------------------|---|--|
| stripping plate                   | 1 week            | cleaning  | The interval can be prolonged or shortened, depending on the composition of the discharge  |
|                                   | 3 months          | Check for wear and damage; adjust.                              | In case of strong wear or damage, replace. Adjustment (see chapter 4.2.3)  |
| driving chain                     | 3 months          | Check the tension and, if necessary, tighten; oil.              | only for version with driving chain  |
| containers and hose assemblies    | 6 months          | Check for tightness, corrosion and damage.                      | Substances harmful to the environment may not penetrate under any circumstances  |
| geared motor                      | ---               | See the manufacturer's operating instructions.                  |  |
| antifriction bearing              | ---               | maintenance-free  |  |
| Coolant tanks                     | 500 working hours | Check for contamination (sludge deposits) and clean, if need be | Depending on the tooling method, the interval may be greatly shortened.<br><br>Coolant tanks are special accessories and are therefore not installed in every plant. |

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