

KNOLL

Installation and Operating Instructions

Magnetic band conveyer

GB

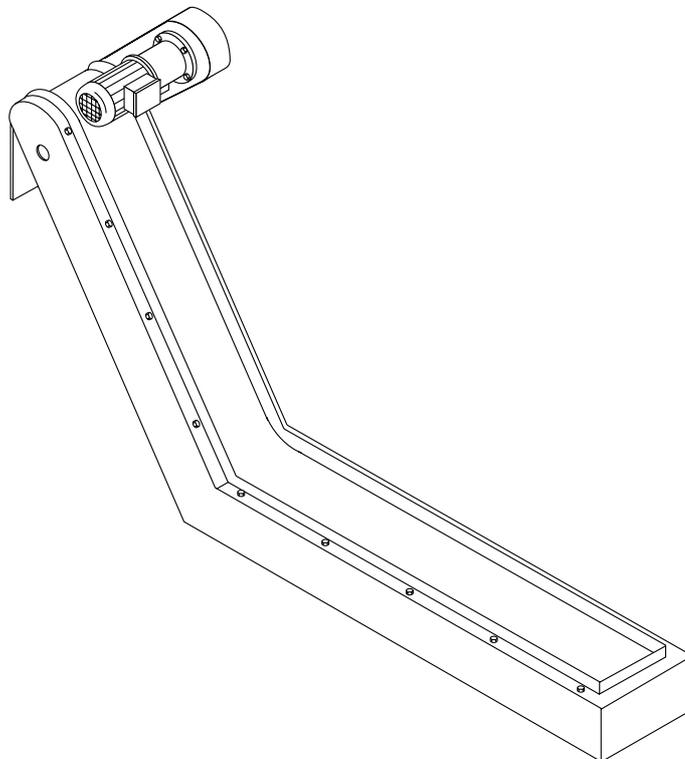


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1 Description of product and function

Scope

- Removal of ferromagnetic metal shavings and small particles
- Preliminary purification of cooling lubricant (for wet processing)

Range of application

- Decentralized for single and interlinked machine tools
- Centralized for machine groups and entire production areas
- Suitable for
 - short steel or cast-iron chips coated with oil or emulsion (e.g. in milling and machining)
 - punchings
- Not suitable for
 - non-magnetic steels
 - non-ferrous metals
 - snarl chips and long chips (danger of bridging with chips over approx. 150 mm in length)

Mode of operation

- Loose material falls onto the feed section of the magnetic band conveyor
- The loose material is continuously conveyed on the chute to the discharge opening
- Loose material is dumped into containers or onto other conveyors for removal



- **Do not use the plant for other than the intended purposes.**
- **Note the Regulation for the Prevention of Accidents VBG 10 when operating the plant.**
- **The discharge station must be visible during machine controlled operation.**

Noise level: < 70 dB

Optional equipment

- Coolant tank
- Coolant purification systems (e.g. magnetic separator, centrifugal separator, band filter, superfine strainer)
- Low lift and jetting pumps for purification elements and machines
- Sustainer
- Chip carriage
- Sieve drum
- Piping with aggregates, valves, etc.

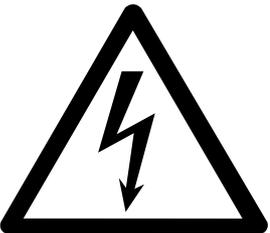
Since nearly every plant is constructed for the special needs of the customer, deviations from the form and position of the parts and structural components described in this documentation may occur. In this case the operating instructions should be applied analogously.

2 Safety instructions

2.1 General instructions



- Always observe all specifications and instructions given in the supplied operating instructions!
- Unqualified personnel is not authorized to work with the equipment!
- When components are mounted by the customer, ensure correct fastening!
- The powerful attraction of the magnets may cause injury to limbs!
- Strong magnetic fields may impair or destroy electronic or mechanical components. This also applies for pacemakers. The necessary precautionary distances stipulated in the manuals of these units must be observed under all circumstances!



- Work on electrical equipment must be carried out by qualified electricians only!
- Observe the relevant VDE regulations and connecting requirements of the responsible Electricity Board!

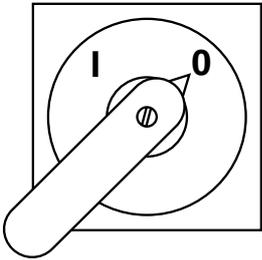


- Magnets may generate sparks!
- Do not operate magnetic band conveyors in hazardous locations or near flammable liquids!

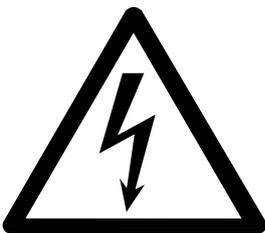


- Do not stand on the chute of the conveyor!

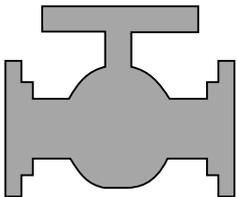
2.2 Instructions for repair and maintenance work and for malfunctions



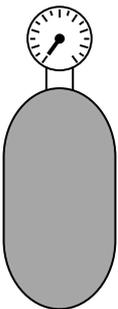
- Switch off the main switch.
- Secure the plant against being started accidentally.



- Ensure that the plant is dead.



- Close pipe valves.
- Remove all noxious materials.
- Coolants must not enter the environment.



- Depressurize the plant.



- When handling chips, wear protective clothing, safety boots and protective gloves.

3 Unpacking and handling

3.1 Unpacking



Hardware (screws, seals, etc.) is delivered loose with the container of the magnetic band conveyor, or supplied separately packaged

Avoid impact to or jarring of the chute of the magnetic band conveyor, as the magnets mounted under the surface may be damaged

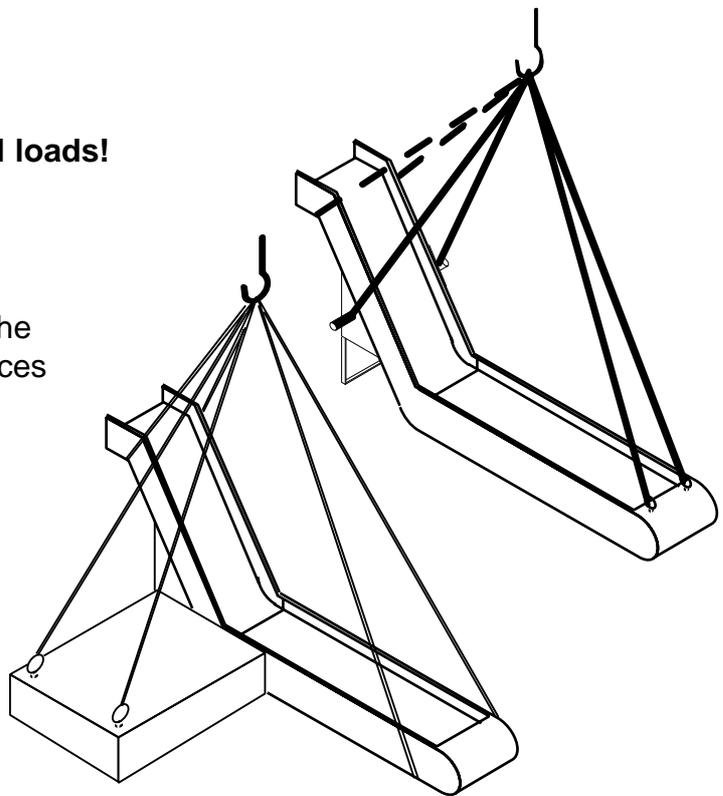
3.2 Handling



- **Do not stop beneath suspended loads!**

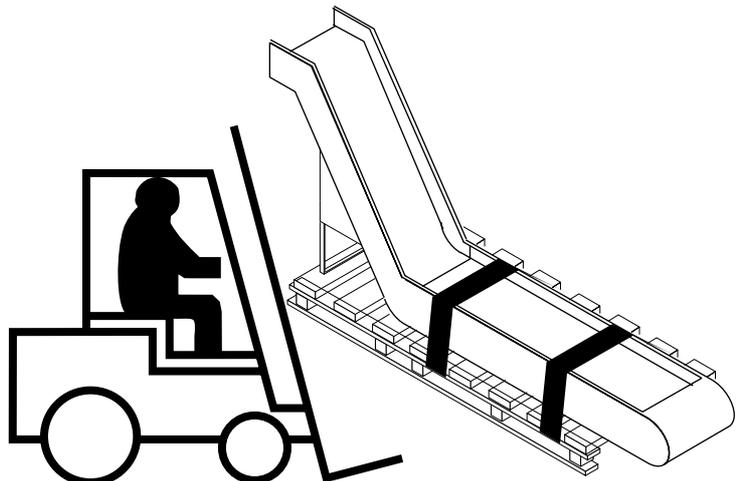
- **By crane:**

Always transport by crane if no longer in the original packing. Use the suspension devices provided (e.g. eye hooks, lifting screws)



- **By stacker truck:**

Only in the original packing and with the greatest of care.



4 Start-up and operation

4.1 Prior to initial operation

- Ensure secure and stable installation
- Electric components must be connected by a qualified electrician (ensure correct voltage, frequency, strength of current and phase-sequence)
- Check lines carrying liquids for leaks (transport damage)
- Set all switches to "0" or "OFF"
- Fill required liquids (coolants, lubricants, oils, etc.) if necessary
- The entire plant must be cleared of larger, loose parts (tools, etc.)

4.2 Switching on



- Ensure that the danger area of the magnetic band conveyor is cleared!

Switch units on in the following order:

- Lifting pump(s)*
- Low lift pump(s)*
- Magnetic band conveyor
- Additional aggregates (swarf mill, sieve drum, magnetic drum, etc.)*
- Jetting pump(s)*

4.3 Switching off



Switch off magnetic band conveyor with coolant purification plant approximately 5 minutes after processing machine has been switched off (coolant purification)

Switch units off in the following order:

- Jetting pump(s)*
- Low lift pump(s)*
- Lifting pump(s)*
- Additional aggregates (swarf mill, sieve drum, magnetic drum, etc.)*
- Magnetic band conveyor

* = if included in this version

5 Maintenance

5.1 Lubrication chart

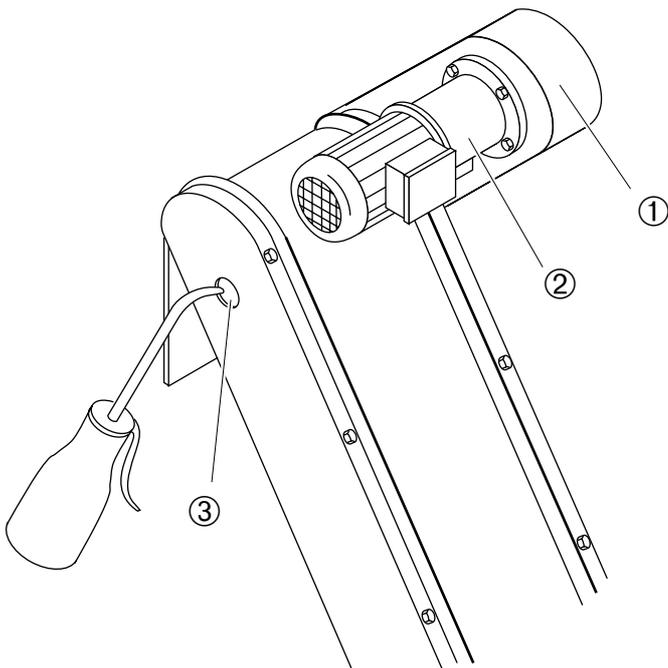


Lubricating point (1) does not apply in versions with a slip-on gear mechanism motor

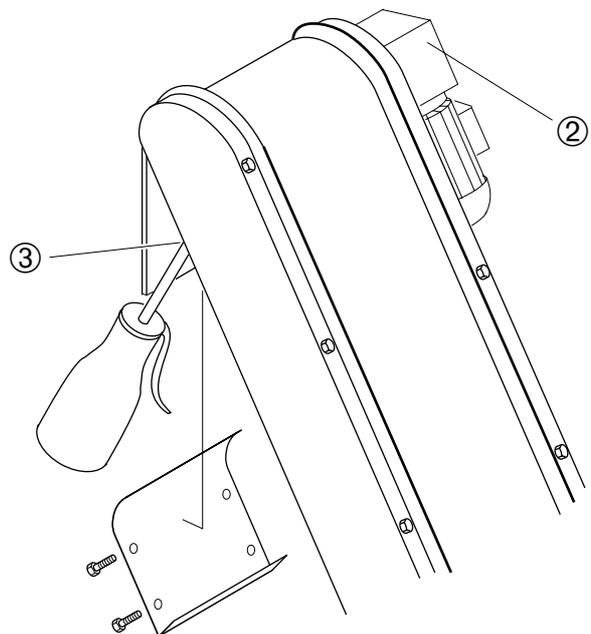
Lubricating point	Interval	Lubricant	Remarks
①	3 months	ESSO SPARTAN EP 320 (or commercially available chain lubricant)	Switch off equipment! Loosen fastening screws of protective covering and remove cover plate Saturate entire drive chain with oil
②	---	---	See maintenance instructions provided by the manufacturer
③	3 months	ESSO SPARTAN EP 320 (or commercially available chain lubricant)	Lubricate with oil on both sides during operation. It is sufficient when the conveying chain is saturated with oil Caution: revolving chain - do not insert fingers into the lubricating opening!

The bearings of the guide sprocket wheel and the drive shaft are maintenance-free

Version with lubrication boring



Version with maintenance cover



5.2 Tightening the drive chain

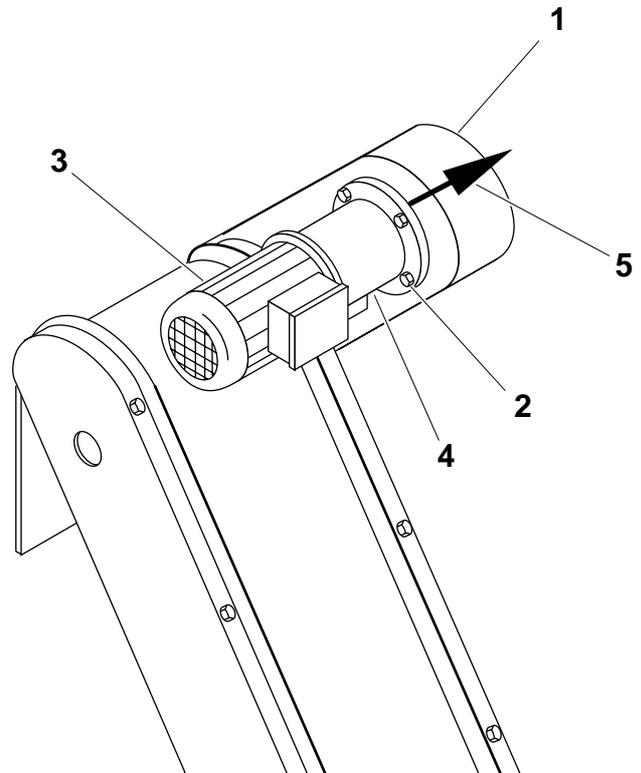
- Switch off equipment and secure against accidental start-up
- Remove protective covering (1)
- Loosen the hexagon head cap screws (2) but do not remove
- Press drive motor (3) manually or by means of the clamping bolt (4) against the closed drive chain (5)



Clamping bolts are provided with large drive motors only

The force of pressure of the drive motor against the closed drive chain should be approx. 20 N.

- Tighten hexagon head cap screws (2)
- Mount protective covering (1)



5.3 Checking drive chain tension

- Switch off equipment and secure against accidental start-up
- Remove protective covering (1) from the drive motor
- Check drive chain tension between the two chain wheels by pressing lightly against the drive chain



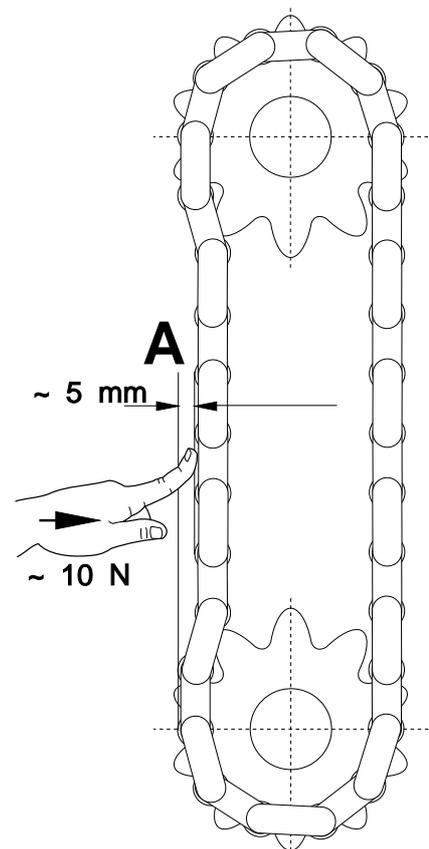
Pressure on the drive chain should be approx. 10 N

If the dimension "A" is greater than 5 mm: tighten the drive chain as described in

Section 5.2.

If chain cannot be tightened further, exchange drive chain

- Mount protective covering



6 Information on coolants / tanks

- Circulate coolants continuously (weekend circulation recommended).
- Do not feed any organic matter.
- Avoid foreign oil charge.
- Temperature should be below 25°C for emulsion, if possible.
- pH-value should be within neutral range
- Hardness of the initial water should not exceed 15° dH
- Hardness due to upgrading must not exceed 20° dH.

Cleaning the coolant tanks

- Cleaning intervals greatly depend upon the kind of processing, material, coolant and working hours; no general interval can therefore be specified.
A cleaning interval between four and eight weeks is recommended as standard value.

7 Maintenance table

Subassembly/ component	Interval	Procedure	Safety instructions/ remarks
Drive chain (does not apply for version with slip-on gear mechanism motor)	3 months	Check tension and tighten drive chain if necessary, lubricate	Check drive chain tension; see Section 5.3 Tighten drive chain; see Section 5.2
Magnetic band	3 months	Lubricate side chains	See Section 5.1
Container	6 months	Check for leaks, corrosion and damage	Under no circumstances should environmentally hazardous substances escape the system
	6 months	Ensure container stands firmly	The container must be fastened firmly
Pumps	---	See operating instructions provided by the manufacturer	
Electrical equipment - motors	---	See manufacturers operating instructions	
- lines	3 months	Check for breakage and damage	Replace defective lines
- level switch	3 months	Check for proper function	Exceed both switch points in manual mode
- protective gear	3 months	Check for proper function	

Subassembly/ component	Interval	Procedure	Safety instructions/ remarks
Piping	1 year	Disassemble, clean and check (wear) flap traps/shutting flaps and valves. Clean pipeline dirt pan with strainer basket.	Switch plant off Release pressure in piping Drain cooling lubricant from piping, actuate the shut-off valve, if necessary. Replace defective parts.
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. Coolant tanks are special accessories and are therefore not installed in every plant.

KNOLL Coolant cleaning systems
Swarf conveying systems
Low lift and jetting pumps

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