

## Operating Instructions

### E50 RT

Fully Automatic Hand Knife Sharpening Machine



# Operating Instructions

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## E 50 RT Fully Automatic Hand Knife Sharpening Machine

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### Documents for machine operator

Operating Instructions

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# 1. Important notes

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## 1.1 Preface to the operating instructions

These operating instructions are intended to make it easy to learn how to use the fully automatic grinding machine for hand knives, hereafter referred to as the grinding machine, and to properly utilize its features.

These operating instructions contain important notes on how to operate the grinding machine safely, properly and efficiently. Observing these instructions helps to avoid hazards, reduce repair costs and downtimes, and to increase the reliability and service life of the grinding machine.

The operating instructions must be permanently available at the place of use of the grinding machine.

The operating instructions must be read and applied by every person tasked with working with the grinding machine, e.g.:

- transport, installation, commissioning
- operation, including error rectification during operation, as well as
- servicing (maintenance, repair).

Recognized technical standards for safe and professional work must be observed in addition to these operating instructions and the binding accident prevention regulations applicable in the country of use and at the place of use.

## 1.2 Warnings and symbols in the operating instructions

The operating instructions use the following symbols/designations that must be followed:



The hazard triangle with the signal word “CAUTION” serves as a work safety notice for all work for which there is a risk of personal injury or death.

In these cases, work should be done with special attention and care.



“ATTENTION” is written in places where special attention must be paid to prevent damage or destruction of the grinding machine or its surroundings.



“NOTICE” refers to user tips and especially useful informations.

# 1. Important notes

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## 1.3 Warning and mandatory signs and their meaning

### 1.3.1 Warning and mandatory signs on /in the grinding machine

The following warnings and mandatory signs have been affixed on/in the grinding machine:



#### **CAUTION! DANGEROUS ELECTRICAL VOLTAGE!** (warning sign on the control cabinet)

The grinding machine carries life-threatening voltage when it is connected to the power supply.

Voltage-carrying device parts may only be opened by authorized personnel.

The grinding machine must be separated from the mains supply before carrying out servicing, maintenance and repair work on it.

### 1.3.2 General mandatory signs

The following general mandatory signs must be observed:



#### **CAUTION! RISK OF INJURY FROM ABRASIVE PARTICLES!**

Wearing eye protection is mandatory when carrying out general maintenance and cleaning work.



#### **CAUTION! RISK OF INJURY FROM KNIFE!**

Working with the grinding machine involves grinding knives that could cause serious cut injuries due to their sharpness.

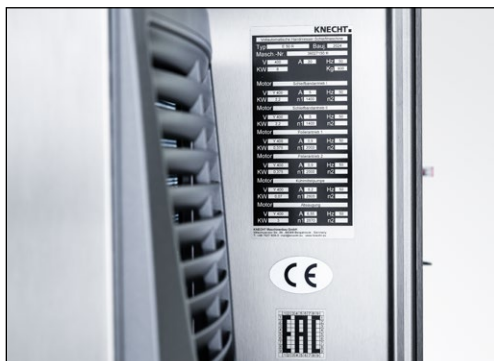
Cut-resistant gloves must be worn when inserting and removing knives.

Caution when transporting knives. Use the protective equipment provided by the knife manufacturer. Cut-resistant gloves and safety shoes must be worn.

# 1. Important notes

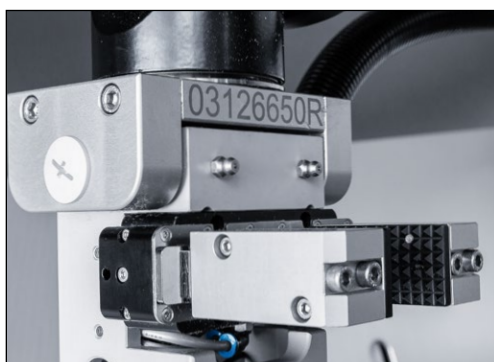
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## 1.4 Rating plate and machine serial number



**Figure 1-1** Rating plate

The rating plate (1-1) is located on the right side of the machine behind the control cabinet.



**Figure 1-2** Machine number

The machine serial number (1-2) is located on the rating plate (1-1) and on the knife gripper.

## 1.5 Figure and position numbers in the operating instructions

If the text makes a reference to a machine component depicted in a figure, the figure and position number will be given in brackets.

Example: (7-22/1) means figure number 7-22, item 1.



**Figure 7-22** Removing the protection hood

*Remove the protection hood (7-22/1) and clean it under running water.*

## 2. Safety

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### 2.1 Basic safety instructions

#### 2.1.1 Observe notes in the operating instructions

The basic prerequisite for the safe handling and uninterrupted operation of this grinding machine is knowledge of the basic safety instructions and regulations.

- These operating instructions contain important notes on how to operate the grinding machine safely.
- All persons carrying out work on the grinding machine must follow these operating instructions, in particular the safety notices.
- In addition, the rules and regulations regarding accident prevention at the place of use are to be observed.

#### 2.1.2 Obligation on the part of the operator

The operator is obliged to allow only those persons to work on the grinding machine, who

- are familiar with the occupational safety and accident prevention regulations and have received instruction in handling the grinding machine,
- have read and understood the operating instructions, in particular the section entitled "Safety" and the warning notes, and have provided signed confirmation of this.

The safety-awareness of the personnel at work will be monitored at regular intervals.

#### 2.1.3 Obligation on the part of the personnel

All personnel working on the grinding machine shall be obliged, before starting work, to

- observe basic occupational safety and accident prevention regulations,
- read the operating instructions, particularly the section entitled "Safety" and the warning notes, and provide signed confirmation that they have understood them.

#### 2.1.4 Hazards involved in handling the grinding machine

The grinding machine has been built to the latest technological standards and the recognized rules of technical safety. Nevertheless, its use may result in danger to life and limb of the user or third parties, or damage to the grinding machine or other property.

The grinding machine may be used only:

- for its intended purpose
- in a safe and secure condition.

Malfunctions that may impair safety are to be eliminated immediately.

## 2. Safety

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### 2.1.5 Malfunctions

If safety-relevant malfunctions occur with the grinding machine, or if the processing behavior indicates that such malfunctions may have occurred, the grinding machine must be stopped immediately and until such time as the malfunction has been found and eliminated.

Allow only authorized trained personnel to eliminate the malfunctions.

### 2.2 Intended use

The grinding machine is only suitable for grinding, deburring and polishing hand knives (70 – 270 mm in length). All knives must be inserted into the intended magazines.

Any other use or use beyond this is not considered as intended. KNECHT Maschinenbau GmbH is not liable for any damage resulting from this. The risk is borne solely by the user.

Intended use also includes observing all instructions in the operating manual.

#### ATTENTION

**Improper use of the grinding machine exists, for example, if:**

- **workpieces other than hand knives are ground**

### 2.3 Warranty and liability

Warranty and liability claims in case of personal injury or property damage are excluded if such damage is attributable to one or more of the following causes:

- improper use of the grinding machine,
- improper transport, commissioning, operation, and maintenance of the grinding machine,
- operating the grinding machine with defective safety devices, or using improperly attached or malfunctioning safety and protective equipment,
- failure to observe the instructions with regard to transportation, commissioning, operation, maintenance and repair of the grinding machine,
- unauthorized structural alterations to the grinding machine,
- unauthorized modification, e.g. of the drive conditions (output and speed),
- failure to monitor machine parts that are subject to wear, and
- use of unapproved replacement and wear parts.

## 2. Safety

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Use only original replacement and wear parts. If externally purchased parts are used, it is not guaranteed that they have been designed and manufactured to meet the requirements in terms of stress and safety.

### 2.4 Safety regulations

#### 2.4.1 Organizational measures

Inspect all available safety devices regularly.

Observe prescribed intervals for recurring maintenance work or as specified in the operating instructions!

#### 2.4.2 Protective equipment

Before every commissioning of the grinding machine, ensure that all protective equipment is properly mounted and in functional condition.

Protective equipment may be removed only after the grinding machine has stopped and has been secured against accidental restart.

When attaching spare parts, the protective equipment must be attached by the operator as stipulated.

#### 2.4.3 Informal safety measures

The operating instructions must be permanently available at the place of use of the grinding machine. In addition to the operating instructions, the generally applicable as well as locally relevant accident prevention regulations must also be made available and observed.

All safety alert symbols and hazard warnings on the grinding machine must be complete and clearly legible.

#### 2.4.4 Selection and qualification of personnel

Only trained and instructed personnel may work on the grinding machine. Observe the legally permitted minimum age!

The responsibilities of personnel with respect to commissioning, operation, maintenance, and repair must be clearly specified.

Personnel still undergoing training or instruction may only work on the grinding machine under the permanent supervision of an experienced person!



## 2. Safety

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### 2.4.5 Machine control system

Under no circumstances make program changes to the software. Parameters that the operator can set himself are excluded from this (e.g. setting the number of cycles).

Only trained and instructed personnel are permitted to switch on and operate the machine.

### 2.4.6 Safety measures in normal operation

Do not operate the machine in any unsafe manner. Only operate the grinding machine if all the safety devices are installed and fully functional.

At least once per shift (or per day), check the grinding machine for externally visible damage and proper functioning of the safety devices.

Immediately report any changes present (including those of the operating behavior) to the responsible office or person. If necessary, immediately shut down the grinding machine and secure it against restart.

Before you switch on the grinding machine, ensure that no one can be injured by the start-up of the machine.

In the event of a malfunction, immediately stop the grinding machine and secure it against restart. Rectify malfunctions immediately.

### 2.4.7 Hazards due to electrical power sources

The control cabinet must always be kept closed. Only authorized personnel must be allowed to access it.

Work on electrical systems or operating materials may only be performed by a qualified electrician, in accordance with electrical regulations.

Defects, such as damaged cables, cable connections, etc. must be immediately rectified by an authorized specialist.



**The yellow power supply cable is electrically live even when the main switch is turned off.**

### 2.4.8 Particular hazard areas

If the knife gripper is being used manually, there is a pinching hazard from the gripper.

## 2. Safety

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### 2.4.9 Servicing (maintenance, repair) and fault rectification

Maintenance work is to be carried out on schedule by trained personnel. Inform operating personnel before beginning repair work. Designate a supervisor responsible for this.

For all service work, the grinding machine is to be disconnected from the current supply and secured against accidental restart. Remove power plug. Secure repair area as necessary.

After completing maintenance work and rectifying any faults, install all safety devices and verify that they are fully functional.

### 2.4.10 Structural alterations to the grinding machine

Do not make any changes, additions or conversions to the grinding machine without the approval of the manufacturer. This also applies to the installation and setup of safety devices.

Any conversion work requires the written permission from KNECHT Maschinenbau GmbH.

Immediately replace machine parts that are not in perfect condition.

Use only original replacement and wear parts. If externally purchased parts are used, it is not guaranteed that they have been designed and manufactured to meet the requirements in terms of stress and safety.

### 2.4.11 Cleaning the grinding machine

Properly handle any cleaning agents and materials used and dispose of them in an environmentally-friendly manner.

Dispose of the wear parts and replacement parts in a safe and environmentally-friendly manner.

### 2.4.12 Lubricants / oils and greases

When using oils and greases, follow the safety regulations applicable to the product. Comply with the special regulations for the food areas.

### 2.4.13 Refrigerants / Fluorinated greenhouse gases

The control unit's cooling device contains fluorinated greenhouse gases (F-gases) in accordance with EU Regulation 2024/573.

The refrigerant R 513A is used with a filling quantity of 0.17 kg, which corresponds to a CO<sub>2</sub> equivalent of 0.11 t and a global warming potential (GWP) of 631.

The applicable regulations for F-gases must be observed during maintenance, repair, or disposal. Work on the refrigerant may only be carried out by qualified personnel.

## 2. Safety

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### 2.4.14 Relocation of the grinding machine

Disconnect the grinding machine from any external power supply, even in the event of a minor change of location. Before restarting the grinding machine, connect it properly to the power supply.

For loading work, use only lifting equipment and load-bearing devices with sufficient lifting capacity. Appoint a qualified instructor for the lifting operation.

No persons other than those designated for this work may be present in the loading and installation area.

Only lift the grinding machine correctly with a suspension device in accordance with the operating instructions (attachment points for load suspension devices, etc.). Only use a suitable transport vehicle with sufficient load-bearing capacity. Secure the load reliably. Use suitable attachment points.

When restarting the machine, proceed only in accordance with the operating instructions.

## 3. Description

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### 3.1 Intended use

The E 50 RT Hand Knife Sharpening Machine sharpens, deburrs and polishes hand knives with a length of 70–270 mm fully automatically. A six-axis robot removes the knife from the rotary magazine, measures the knife shape optically, processes the knife and then returns it to the rotary magazine. Optionally, the sharpness of the knife can be checked.

### 3.2 Technical specifications

Height	approx. 2055 mm
Width	approx. 2690 mm
Depth	approx. 2875 mm
Space requirement (WxDxH)	approx. 4000 x 4000 x 2100 mm
Permitted room temperature	+10–+35 °C
Permitted air humidity	20–80%
Weight	approx. 2300 kg
Power supply*	3x 400 V
Mains frequency*	50/60 Hz
Output*	8 kW
Current consumption*	11 A
Back-up fuse	25 A
Control voltage	24 V DC
Operating noise level (measured A-weighted emission sound pressure level at the workplace LpA)**	approx. 72 dB (A)
Compressed air supply according ISO 8573-1:2010 [1:4:2]	6–6.5 bar
Air consumption	max. 50 l/min
Diameter polishing rings	180 mm
Speed polishing rings*	2200 rpm
Diameter deburring rings	180 mm
Speed deburring rings*	2200 rpm
Speed wet-grinding belt*	1500 rpm

### 3. Description

Maximum knife length \_\_\_\_\_ 270 mm

Suction capacity \_\_\_\_\_ max. 300 m<sup>3</sup>/h

Particle diameter cartridge filter \_\_\_\_\_ 3.2 µm

#### **Control unit cooling device\*\*\***

Refrigerant type \_\_\_\_\_ R-513A

Filling quantity \_\_\_\_\_ 0.17 kg

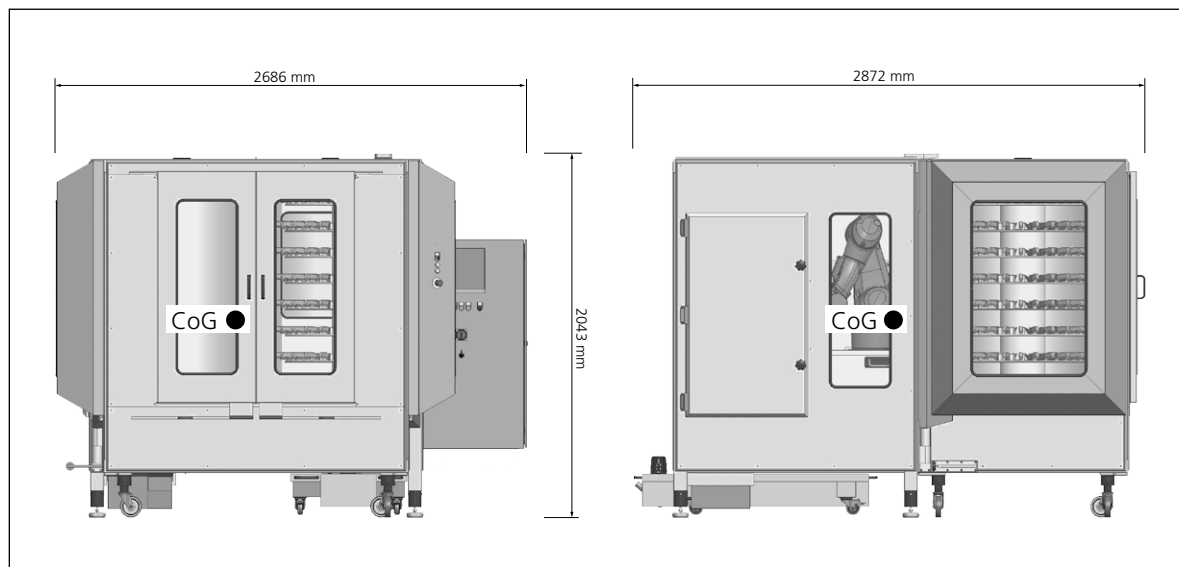
CO<sub>2</sub> equivalent \_\_\_\_\_ 0.11 t

GWP (Global Warming Potential) \_\_\_\_\_ 631

\*) This information may change depending on the electrical power supply.

\*\*) Two-digit noise emission value indication according to EN ISO 4871. Noise emission value indication according to EN ISO 11201, measurement uncertainty KpA: 3 dB(A). A hand knife from Giesser was sharpened.

\*\*\*) The cooling device contains fluorinated greenhouse gases in accordance with EU Regulation 2024/573.



**Figure 3-1** Dimensions in mm and center of gravity (CoG) of the machine

## 3. Description

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### 3.3 Functional description

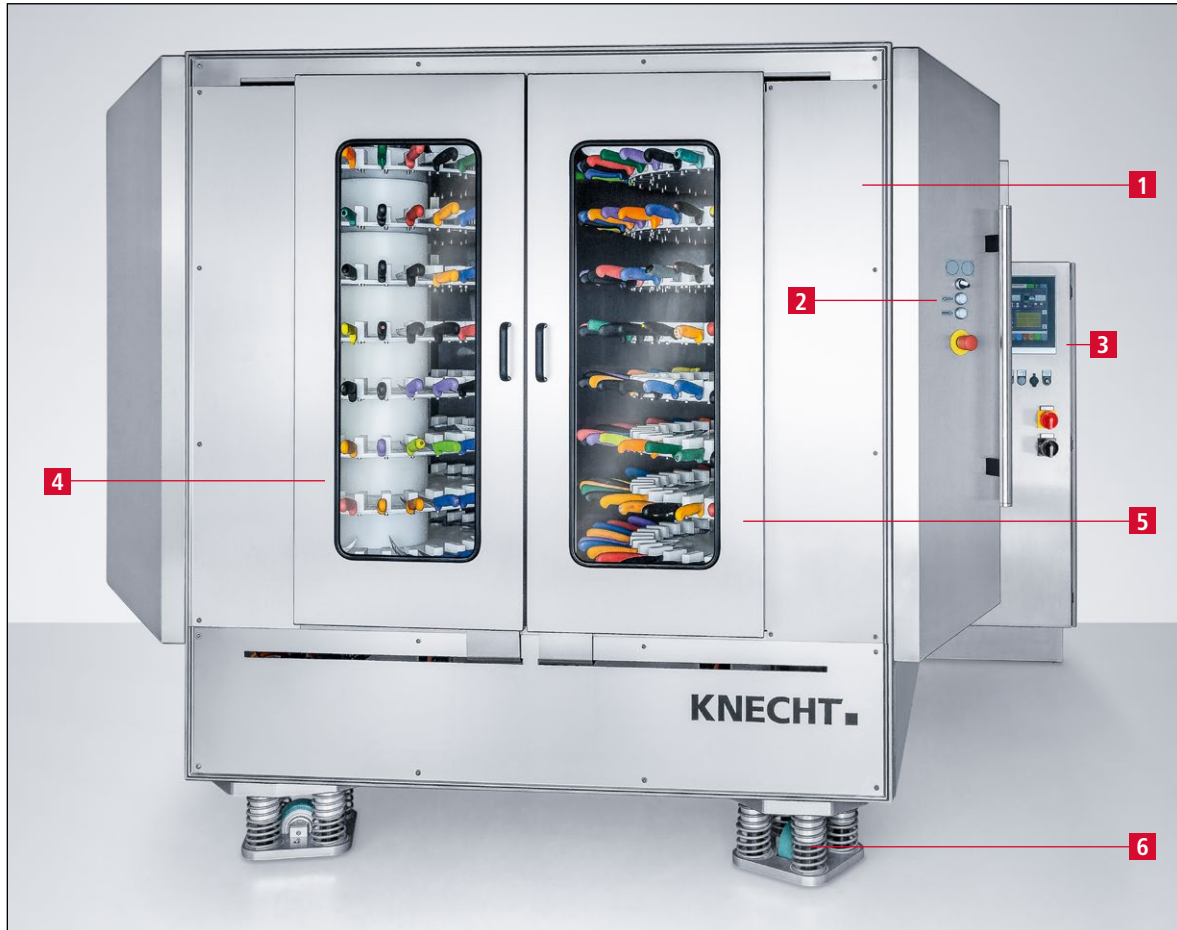
The E 50 RT Hand Knife Sharpening Machine can be used to grind, deburr and polish hand knives fully automatically.

The operator inserts the hand knives into the rotary magazine. After the start, the knife gripper of the six-axis robot removes the first knife, measures it and feeds it to the grinding, deburring and polishing stations. After the grinding process is complete, the finished knife is returned to the rotary magazine before the next knife is processed. Optionally, the sharpness of the knife can be checked.

In the event of an emergency, the hand knife sharpening machine can immediately be stopped by pressing the "Emergency Stop" button.

## 3. Description

### 3.4 Description of the assemblies

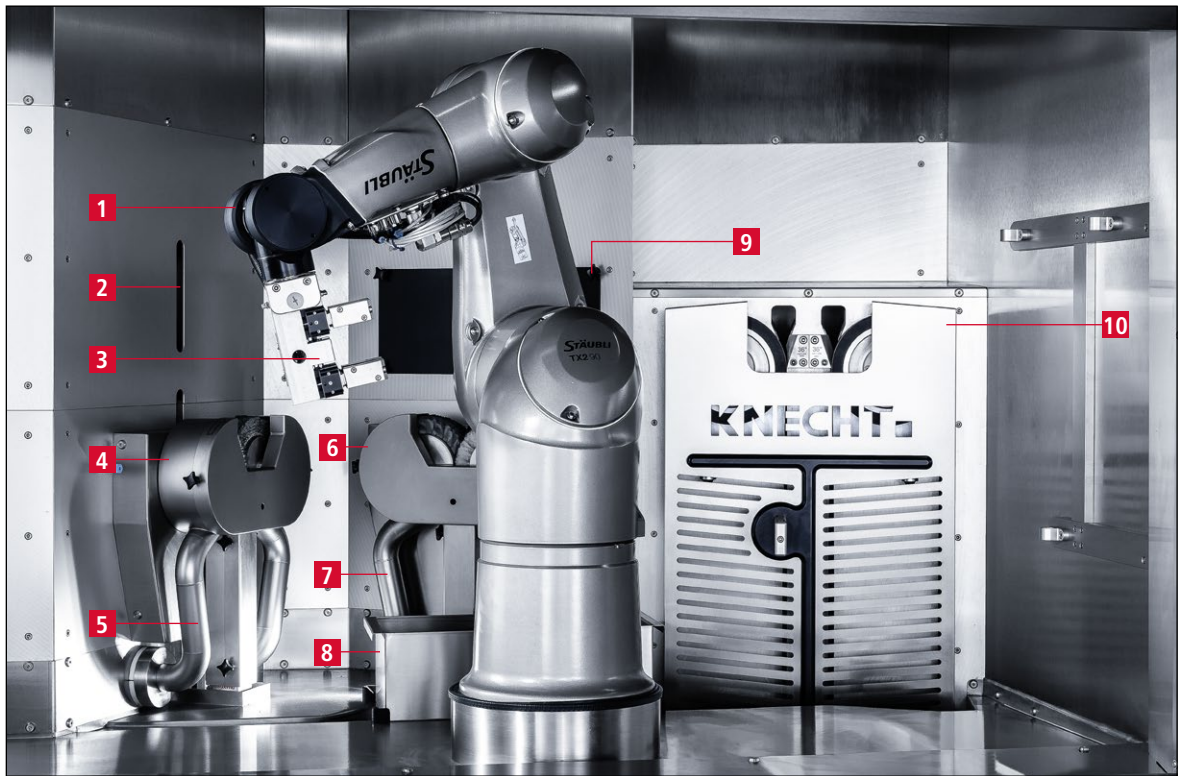


**Figure 3-2** General view of grinding machine

- 1 Rotary magazine
- 2 Control rotary magazine
- 3 Control and control cabinet
- 4 Safety door rotary magazine left
- 5 Safety door rotary magazine right
- 6 Drive unit rotary magazine

### 3. Description

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**Figure 3-3** Interior

- 1 Robot
- 2 Sharpness testing device (optional)
- 3 Knife gripper
- 4 Deburring unit
- 5 Suction unit (deburring unit)
- 6 Polishing unit
- 7 Suction unit (polishing unit)
- 8 Collection container
- 9 Measuring device
- 10 Grinding unit



### 3. Description

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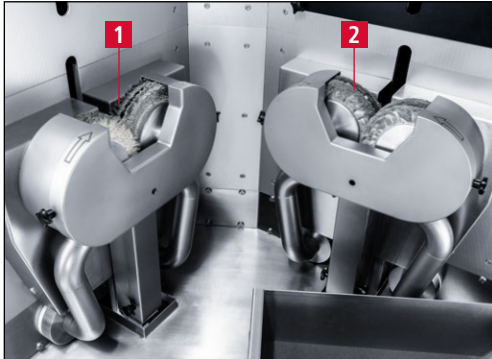
**Figure 3-4** Interior rotary magazine

- 1 Magazine left
- 2 Magazine right
- 3 Inner guard left
- 4 Inner guard right
- 5 Safety door rotary magazine left
- 6 Safety door rotary magazine right

## 3. Description

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### 3.4.1 Deburring and polishing unit



**Figure 3-5** Deburring and polishing unit

- 1 Deburring unit
- 2 Polishing unit

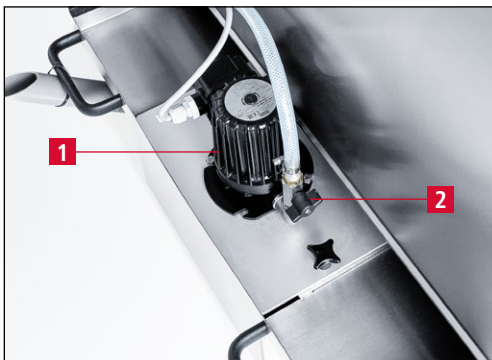
### 3.4.2 Pneumatics



**Figure 3-6** Pneumatics

- 1 Belt tension 4.5 bar
- 2 Sealing air "Measuring device" 2 bar
- 3 Valve block 6.5 bar
- 4 Main pressure 6.5 bar

### 3.4.3 Coolant pump



**Figure 3-7** Coolant pump

- 1 Coolant pump

The coolant flow is regulated using the ball tap (3-7/2).

## 3. Description

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### 3.4.4 Flow monitor



**Figure 3-8** Flow monitor

The flow monitor (3-8/1) controls the coolant flow. If there is insufficient coolant, it sends a signal to shut down the automatic process.

### 3.4.5 Door sharpness testing device



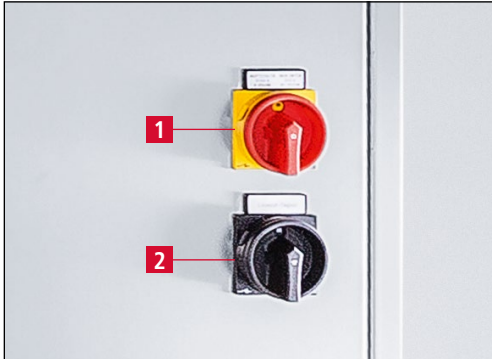
**Figure 3-9** Door sharpness testing device

1 Door sharpness testing device

## 3. Description

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### 3.4.6 Switching the grinding machine on/off



**Figure 3-10** Main switch

The main switch (3-10/1) is located on the control panel.

Turning the main switch to position "1 ON" activates the grinding machine ready for operation.

Turning the main switch to position "0 OFF" disconnects the grinding machine from the power supply.

Lockout-Tagout switch (3-10/2): (only present on machines for the USA)

## 3. Description

### 3.4.7 Control panel



Figure 3-11 Control panel

- 1 Touch panel
- 2 "Emergency stop" button
- 3 "Control ON" button: activate control (when button flashes)
- 4 "Start/Stop" button: start/stop grinding program
- 5 "Coolant pump on/off" button: switch coolant pump on/off (for cleaning)
- 6 USB port
- 7 "Service on/off" key switch: position "1" for setup mode, position "0" for automatic mode.

#### NOTE

When the key-operated switch (3-11/7) is on position "1", the knife gripper (3-3/3) can be activated even when the rotary magazine is open.

## 3. Description

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### 3.4.8 Control panel rotary magazine



**Figure 3-12** Control panel rotary magazine

- 1 "Magazine" selection switch (three options) The inner guard opens and the safety doors of the rotary magazine are unlocked for loading. The magazine cannot be loaded in this setting. Position "L" (left) closes the left inner guard (3-4/3) to the grinding chamber and the safety doors of the rotary magazine are unlocked for loading. Position "R" (right) closes the left inner guard (3-4/4) to the grinding chamber and the safety doors of the rotary magazine are unlocked for loading.
- 2 "Rotate magazine clockwise" button: rotate the selected magazine with the selection switch (3-12/1) clockwise.
- 3 "Rotate magazine counterclockwise" button: rotate the selected magazine with the selection switch (3-12/1) counterclockwise.
- 4 "Emergency stop" button (entire system)

#### NOTE

**To rotate the magazines using the buttons ((3-12/2) and (3-12/3)) the safety doors ((3-2/4) and (3-2/5)) must be closed.**



## 3. Description

### 3.4.9 Layout of user interface (main screen)

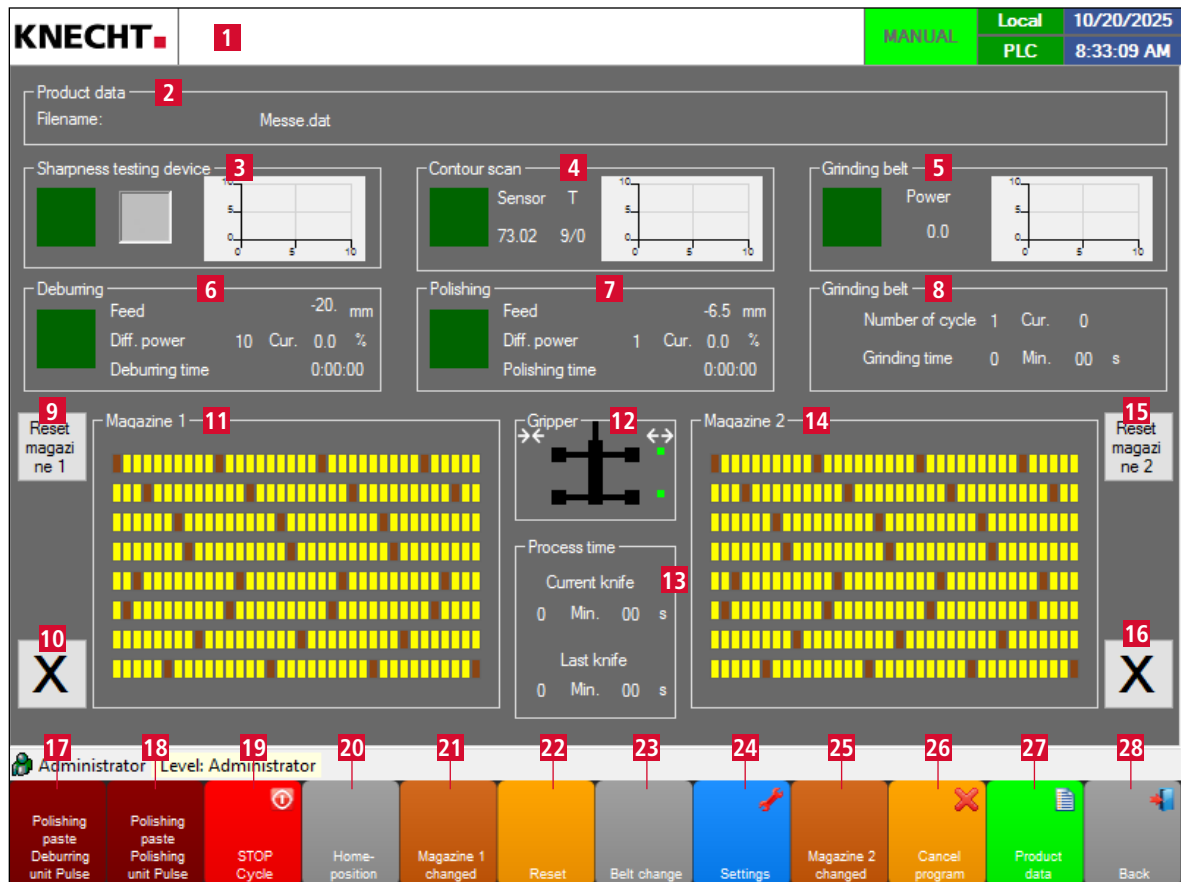


Figure 3-13 Main screen

- 1 Errors and general messages (double-tap to open message texts)
- 2 Product data (loaded product data)
- 3 Sharpness testing device (optional) (activate/deactivate using the green button; tap the diagram to open it)
- 4 Contour capture (tap the diagram to open it)
- 5 Grinding belt (activate the wet-grinding belts using the green button; tap the diagram to open it; performance)
- 6 Deburring (number of cycles and cycles paste, deburring time, activate/deactivate the deburring unit using the green button)
- 7 Polishing (number of cycles and cycles paste, polishing time, activate/deactivate the polishing unit using the green button)
- 8 Grinding belt (number of cycles and grinding time, wet-grinding belt rotated)
- 9 **"Reset magazine 1"**: empty magazine 1
- 10 **"X"**: do not process magazine 1 (activate/deactivate)
- 11 Magazine 1
- 12 **"Gripper "**: tapping the gripper symbol opens/closes knife gripper
- 13 Processing duration (current and last knife)
- 14 Magazine 2

### 3. Description

---

- 15    **"Reset magazine 2"**: empty magazine 2
- 16    **"X"**: do not process magazine 2 (activate/deactivate)
- 17    **"Polishing paste Deburring unit Pulse"**: Feed polishing paste Deburring unit one time
- 18    **"Polishing paste Polishing unit Pulse"**: Feed polishing paste Polishing unit one time
- 19    **"STOP cycle"**: stop processing after the currently active knife
- 20    **"Homeposition"**: run machine to initial position
- 21    **"Magazine 1 changed"**: tap once to add one knife to the magazine; press and hold for 2 sec to refill the magazine
- 22    **"Reset"**: reset control
- 23    **"Belt change"**: clears the "Replace grinding belt" message (press for 5 sec)
- 24    **"Settings"**: switches to the "Settings" display
- 25    **"Magazine 2 changed"**: tap once to add one knife to the magazine; press and hold for 2 sec to refill the magazine
- 26    **"Cancel program"**: cancel current knife program and begin grinding process from beginning
- 27    **"Product data"**: load different grinding programs (for product file loaded, see (3-13/2))
- 28    **"Back"**: switch to the previous display or close user interface

#### NOTE

Touch panel fields **"Polishing paste Deburring unit Pulse"** (3-13/17) and **"Polishing paste Polishing unit Pulse"** (3-13/18) only work in automatic mode while the deburring and polishing units are active.



CAUTION

The key-operated switch may only be operated by specialized trained personnel.

If the key-operated switch (3-11/7) is on position "1", there is a pinching hazard from the knife gripper.



## 4. Transport

---



**When transporting, observe the local applicable safety and accident prevention regulations.**

**Only transport the grinding machine with the machine feet facing downwards.**

### 4.1 Transport aids

For transporting and for setting up of the grinding machine, only use adequately dimensioned transport aids. Remove the water tray before transporting.

When using a forklift or a lifting truck, move the fork under the grinding machine.

Note the machine's center of gravity when transporting. The center of gravity (CoG) is shown in Figure 3-1.

### 4.2 Transport damage

If damage is detected during acceptance of the delivery, immediately inform KNECHT Maschinenbau GmbH and the forwarding agent. If necessary, an independent expert must be called in immediately.

Remove packaging and fastening straps. Remove the shipping straps on the grinding machine. Dispose of packaging in an environment-friendly manner.

### 4.3 Transport to another installation site

For transport to another installation site, ensure that the space requirements are fulfilled (see Chapter 3.2).

A permitted electrical connection, pneumatic connection and network connection must be available at the new installation site. The grinding machine must stand firmly and securely.



**Work on the electrical and pneumatic unit is only to be carried out by an authorized specialist.**

**Observe the locally applicable safety and accident prevention regulations.**

## 5. Installation

---

### 5.1 Selection of qualified personnel



**We recommend having the installation work on the grinding machine carried out by the trained KNECHT personnel.**

**We are not liable for any damage resulting from improper installation.**

### 5.2 Installation site

When determining the installation site, bear in mind the space required for installation as well as maintenance and repair work on the grinding machine (see Chapter 3.2).

The machine may only be stored and operated in dry rooms. The temperature must be between +10°C and +35°C.

### 5.3 Supply connections

The grinding machine is provided ready to connect with the corresponding plug (32 A) for the power supply and a compressed air hose (5 m).

Have the power supply installed on site by a qualified electrician.

The compressed air supply and the network connection must be installed on site by a qualified technician.



**Ensure that the power supply is connected correctly.**

**If the connection to the voltage supply is incorrect, the deburring / polishing rings can rotate in reverse of the prescribed direction. An incorrect direction of rotation can result in serious injuries and damage to the grinding machine.**

**Observe the prescribed rotating direction, see Chapter 6.**

### 5.4 Settings

KNECHT Maschinenbau GmbH will configure the various components as well as the electrical system before delivery.

#### **ATTENTION**

**Unauthorized alterations to the preset values are not permitted and can damage the grinding machine.**

## 5. Installation

---

### 5.5 Initial start-up of the grinding machine

Place the grinding machine at the installation site on a level base.

Compensate uneven floors by turning the machine feet (3-2/6) with an AF 24 mm open-end wrench. Align the machine using a spirit level. To do this, place the spirit level on the frame of the grinding machine.

Have the power supply installed on site by a qualified electrician.

The compressed air supply and the network connection must be installed on site by a qualified technician.

Completely install and inspect the protective equipment before commissioning.

Lift the rotary magazine with a forklift and secure it. Mount the drive units on the rotary magazine. Hook the rotary magazine onto the hinges. Connect the grinding machine and rotary magazine using the electrical connector.



**Have all protective equipment checked for proper functioning by authorized trained personnel before commissioning the machine.**

**All work may only be carried out by authorized specialist personnel.**

**Observe the locally applicable safety and accident prevention regulations.**

**Have all protective equipment (in particular the electrical safety circuits) checked for proper functioning by authorized trained personnel before commissioning the machine.**

**Ensure that the compressed air supply is connected correctly.**

**If connected incorrectly, escaping compressed air and flying parts can cause injuries.**

**The local safety and accident prevention regulations for compressed air must be observed.**

## 6. Commissioning



All work may only be carried out by authorized specialist personnel.

Observe the locally applicable safety and accident prevention regulations.



Figure 6-1 Water tray

Move the water tray (6-1/1) under the machine and fill it with approx. 60 liters of water to 3 cm below the rim.

### ATTENTION

Only fill with cold water! Hot water will cause the flow monitor to malfunction.

### NOTE

The use of a coolant additive is not intended.

Connect the power plug to the socket provided on site (3x 400 V, 32 A).



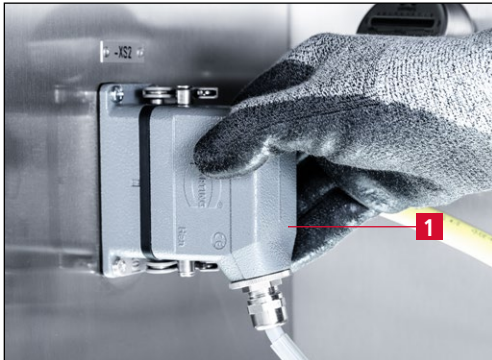
Figure 6-2 Compressed air connection

Plug in the compressed air hose at the compressed air connection (6-2/1).

Use the control knob (6-2/2) to set the pressure to 6.5 bar.

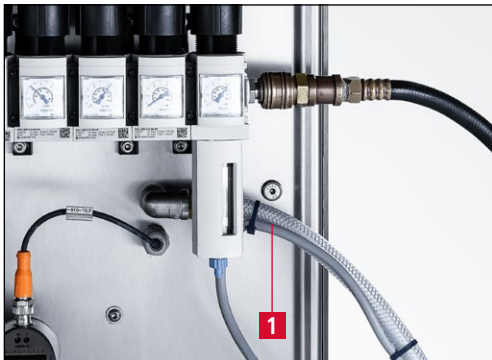
## 6. Commissioning

---



**Figure 6-3** Connecting the coolant pump

Place the coolant pump in the water tray and connect the plug (6-3/1) to the control cabinet.



**Figure 6-4** Plug in the water hose

Connect the water hose (6-4/1) from the coolant pump to the nipple under the compressed air unit and secure it with the hose clamp.

Close the safety doors.



**Figure 6-5** Control panel

Set the main switch (3-10/1) to the "1 ON" position and wait for the controls to initialize.

When the "Control on" button (6-5/1) flashes, switch on the control system by pressing the button.

## 6. Commissioning

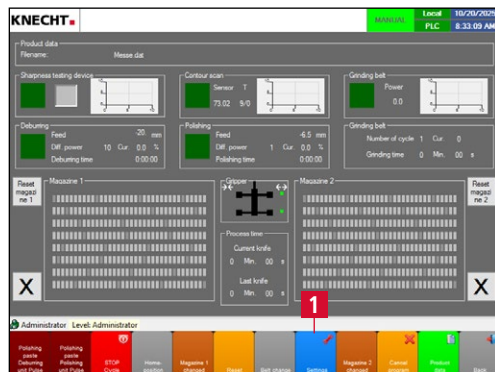


Figure 6-6 Main screen

To switch on the deburring unit, select touch panel field **"Settings"** (6-6/1) on the main screen to access the settings (6-7).

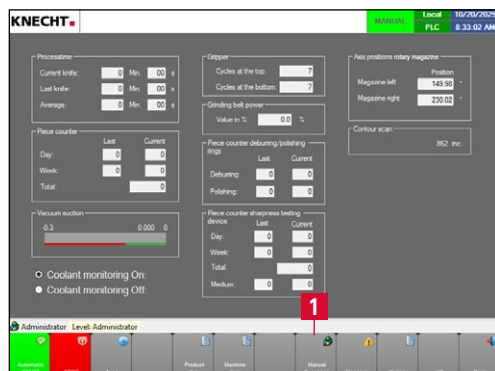


Figure 6-7 Settings

Within the settings, use the touch panel field **"Manual functions"** (6-7/1) to switch to the general manual functions (6-8).



Figure 6-8 Manual functions

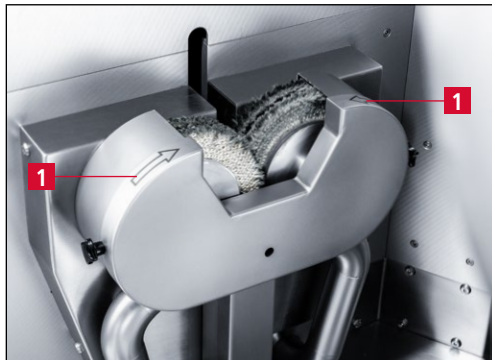
In the general manual functions, select the touch panel field **"Deburring unit"** (6-8/1) to access the specific manual functions of the deburring unit (6-9).

## 6. Commissioning



**Figure 6-9** Manual functions "Deburring unit"

In "Deburring unit drive", select touch panel field **"On"** (6-9/1) to switch on the deburring unit.



**Figure 6-10** Checking the rotating direction

Check the direction of rotation of the deburring rings.

The direction arrows (6-10/1) on the protection hood indicate the direction of rotating of the deburring rings.

If the direction of rotation of the deburring rings is not correct, have the phase reversed by a qualified electrician.

After ensuring the prescribed direction of rotation, turn off the grinding machine.

To do this, turn the main switch (3-9/1) to the position "0 OFF".

## 7. Operation



All work may only be carried out by authorized specialist personnel.

Observe the locally applicable safety and accident prevention regulations.

### 7.1 Switch on the grinding machine

Set the main switch (3-10/1) to the "1 ON" position and wait for the controls to initialize. The main screen appears on the control panel (3-11/1).



Figure 7-1 Control panel

Press the "Control ON" button (7-1/1) to activate the control system. If activation was successful, the "Control ON" button will light up continuously.

### 7.2 Grinding hand knives

#### 7.2.1 Loading the rotary magazines



Figure 7-2 Control panel rotary magazine

Close the safety doors of the rotary magazines ((3-2/4) and (3-2/5)).

Select the desired magazine using the "Magazine" selection switch (7-2/1).

The inner guard opens and the safety doors of the rotary magazine are unlocked for loading.

Open the safety doors of the rotary magazine.

**ATTENTION**

The hand knives must be cleaned before they are placed in the knife magazine.



## 7. Operation

### ATTENTION

The cutting edge must face away from the machine towards the operator.

The knife handle must stand upright, otherwise it may collide with the knife gripper.

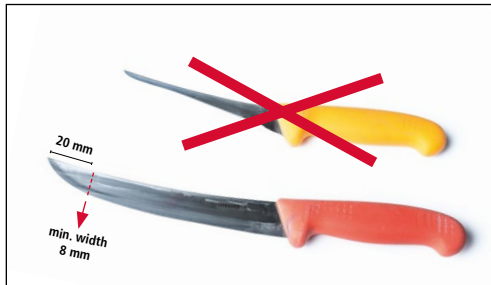


Figure 7-3 Knife width

The knife blade must be at least 70 mm and no more than 270 mm long.

Additionally, the cutting edge must be at least 8 mm wide, measured 20 mm from the tip of the knife (see Figure 7-3).



Figure 7-4 Loading the magazine

Insert each knife into the magazine up to the handle.

Always place the first knife at the top, next to the block labeled "1" (7-4/1).

### ATTENTION

All knives must be placed to the left of the magnetic holder.

## 7. Operation

---

### ATTENTION

The machine processes the knives from top to bottom and then back up again.



Figure 7-5 Placing the knife

Position the knife so that the cutting edge rests on the magazine base (see Figure 7-5).

Close the safety doors of the rotary magazine.

### ATTENTION

Incorrectly inserted knives can cause collisions.

### 7.2.2 Grinding hand knives

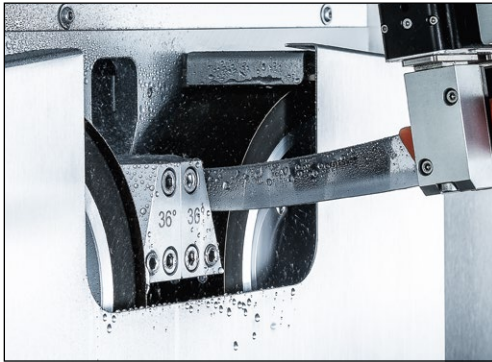


Figure 7-6 Control panel

Press the "Start/Stop" button (7-6/1).

## 7. Operation

---



**Figure 7-7** Grinding hand knives

The grinding program runs automatically.

The knife gripper removes a hand knife from the magazine, measures the knife profile, sharpens the left and right side of the cutting edge, deburrs and polishes the cutting edge, checks the sharpness (optional) and finally returns the knife to the magazine.

This process is repeated until both rotary magazines have been processed.

**ATTENTION**

**After sharpening, deburring and polishing the knives must be cleaned and disinfected.**

# 7. Operation

## 7.3 Replacing the wet-grinding belts



For all work on the hand knife sharpening machine, observe the locally applicable safety and accident prevention regulations as well as instructions in the "Safety" and "Important notes" section of the operating instructions.

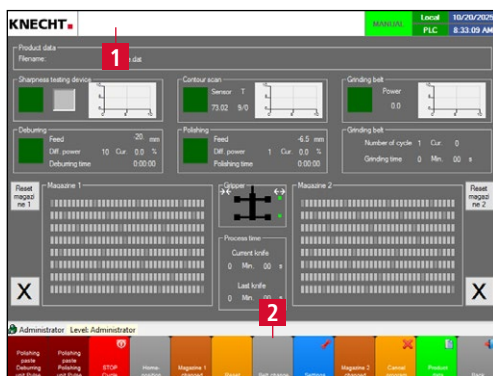


Figure 7-8 Main screen

After a predefined time, the message (7-8/1) "Replace the grinding belt" appears at the top left of the main screen.

Close the rotary magazine.

Press the **"Replace belt"** touch panel field (7-8/2) for 2 seconds.



Figure 7-9 Removing the belt protection hood

The gripper (7-9/1) grabs the belt protection hood (7-9/2) and places it on the right side.

The wet-grinding belts are released automatically.

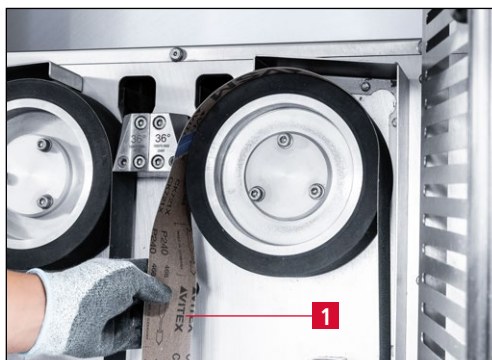


Figure 7-10 Replacing the wet-grinding belts

Remove the used grinding belts (7-10/1) and then attach the new ones.

## 7. Operation



Figure 7-11 Closing the belt protection hood

Press the **“Replace belt”** touch panel field (7-11/2) again for 2 sec. to allow the gripper to close the belt protection hood.

The grinding belts are tensioned automatically.

### NOTE

**The wet-grinding belts wear unevenly. It is therefore recommended to turn each belt once before replacing it with a new one.**

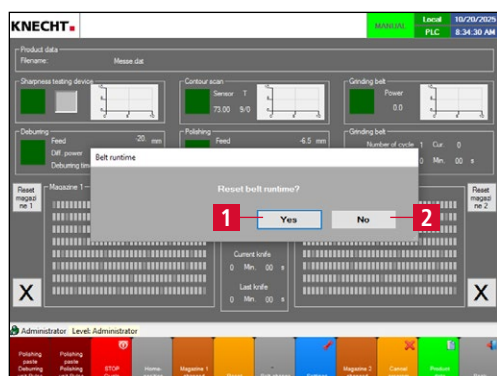


Figure 7-12 “Reset belt runtime?” message

When closing the belt protection hood, the message “Reset belt runtime?” appears on the main screen.

Answer the question with **“Yes”** (7-12/1), if the grinding belt has been replaced or turned.

If the belt protection hood was only opened to assess the grinding belts, answer the question with **“No”** (7-12/2).

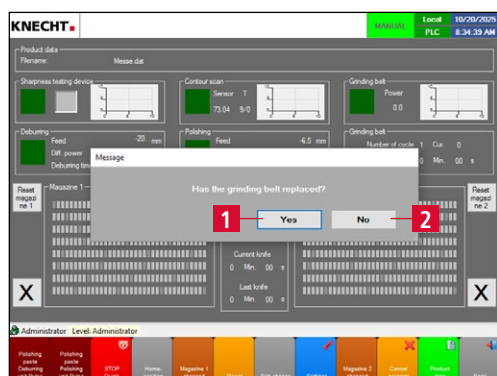


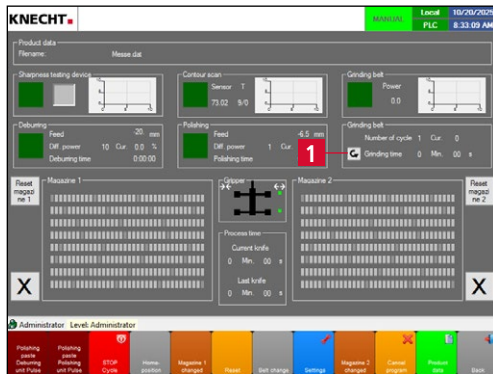
Figure 7-13 “Has the belt been replaced?” message

If the first message was answered with “Yes” (7-12/1), the message “Was the grinding belt changed?” appears.

Answer the question with **“Yes”** (7-13/1), if a new wet-grinding belt has been attached.

If the grinding belt was only turned, answer the message with **“No”** (7-13/2).

## 7. Operation



**Figure 7-14** Main screen

If the grinding belts were turned successfully, an arrow will appear on the main screen near the grinding time (7-14/1).

## NOTE

**After the wet-grinding belts have been replaced or turned, a test run must be carried out. If the machine behaves unusually, it must be taken out of operation and the fault rectified.**

# ATTENTION

**If new wet-grinding belts have been fitted, the message must be answered with "Yes" (7-13/1).**

**After a grinding belt has been replaced, the machine starts the grinding process in a higher position. This ensures that less material is removed from the knife.**

**Only original abrasives from KNECHT Maschinenbau GmbH are permitted to be used.**

**KNECHT Maschinenbau GmbH assumes no responsibility for the use of non-original abrasives.**



## 7. Operation

### 7.3.1 Adjusting the belt movement

#### NOTE

The grinding belts must be adjusted so that they protrude approx. 3 mm to the front beyond the contact disc.

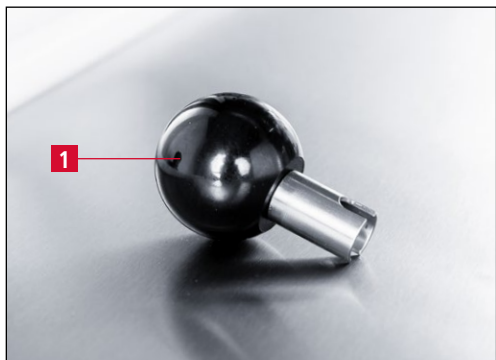


Figure 7-15 Ball handle for belt adjustment

The belt adjustment is carried out using the ball handle (7-15/1) supplied.

Open the rotary magazine using the handle.



Figure 7-16 Belt adjustment

The belt adjustment is located below the grinding belts.

To adjust the right wet-grinding belt, place the ball handle (7-16/1) on the adjustment pin.

Then turn until the right wet-grinding belt protrudes approx. 3 mm beyond the contact disc.

Remove the ball handle from the right adjustment pin and place it on the left (7-16/2).

Then turn until the left wet-grinding belt protrudes approx. 3 mm beyond the contact disc.

#### NOTE

**Clockwise rotation = the wet-grinding belt moves forward**

**Counterclockwise rotation = the wet-grinding belt moves back.**

# 7. Operation

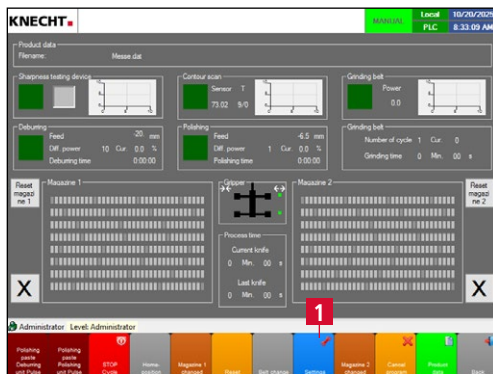


Figure 7-17 Main screen

Always perform a test run after adjusting the grinding belts.

Close the rotary magazine.

On the main screen, use the touch panel field **"Settings"** (7-17/1) to switch to the "Settings" display (7-18).



Figure 7-18 Settings

Use the touch panel field **"Manual functions"** (7-18/1) to switch to the "Manual functions" display (7-19).

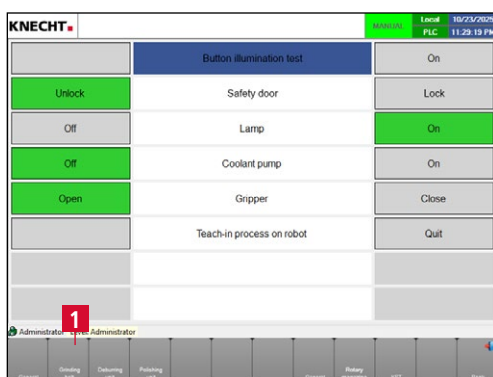


Figure 7-19 Manual functions

Press the **"Grinding belt"** touch panel field (7-19/1) to access the manual functions of the wet-grinding belts.



## 7. Operation

KNECHT			Serial	18/23/2018
			PLC	11.29.29
Off	Grinding belt left - clockwise rotation	2	On	
Off	Grinding belt left - counterclockwise rotation		On	
Off	Grinding belt right - clockwise rotation		On	
Off	Grinding belt right - counterclockwise rotation	1	On	
Off	Coolant valve		On	
On	Grinding belt tension		Off	

Administrator Level: Administrator

**Figure 7-20** Manual functions “Grinding belt”

Switch on the right wet-grinding belt "Grinding belt right – counterclockwise rotation" using touch panel field **"On"** (7-20/1).

Switch on the left wet-grinding belt "Grinding belt left – clockwise rotation" using touch panel field **"On"** (7-20/2).

# 7. Operation

## 7.4 Replacing the deburring rings



For all work on the hand knife sharpening machine, observe the locally applicable safety and accident prevention regulations as well as instructions in the “Safety” and “Important notes” section of the operating instructions.

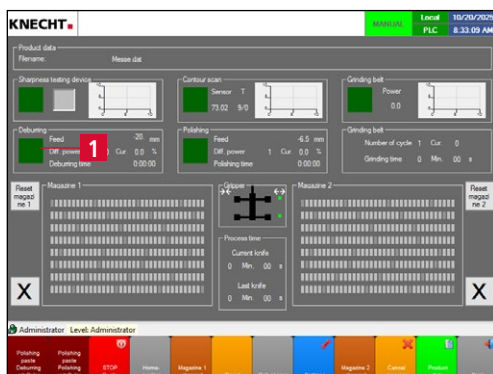


Figure 7-21 Main screen

Press the green **“Deburring”** touch panel field (7-21/1) on the main screen for 2 seconds until the “Deburring” window (7-22) opens.

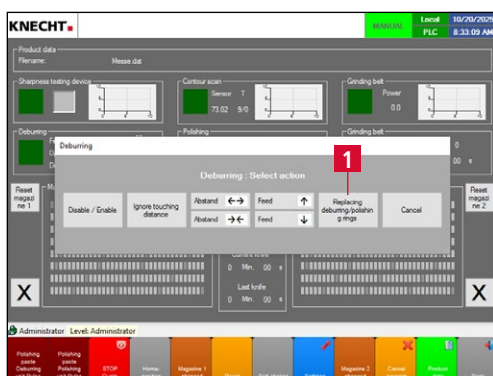


Figure 7-22 Deburring – Replacing the deburring rings

Select the **“Replacing deburring / polishing rings”** touch panel field (7-22/1).

The deburring rings are moved to the change position.



Figure 7-23 Loosening the star handles

Open the rotary magazine.

Loosen the two star handles (7-23/1) of the protection hood.

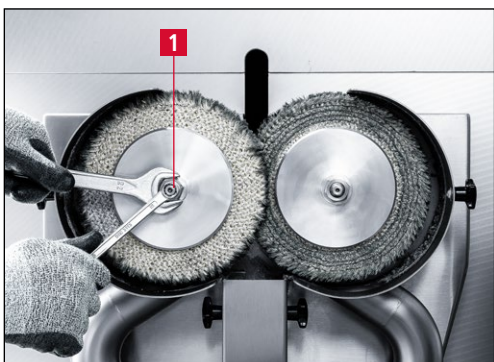
## 7. Operation

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**Figure 7-24** Removing the protection hood

Remove the protection hood (7-24/1) and clean it under running water.



**Figure 7-25** Unscrewing the left clamping nut

Loosen the clamping nut (7-25/1) of the left deburring ring **clockwise** using an AF 22 mm open-end wrench. Fix the shaft with the AF 10 mm open-end wrench.

Unscrew the nut.

### NOTE

**The left shaft has a left-hand thread.  
To loosen the clamping nut, turn clockwise.**

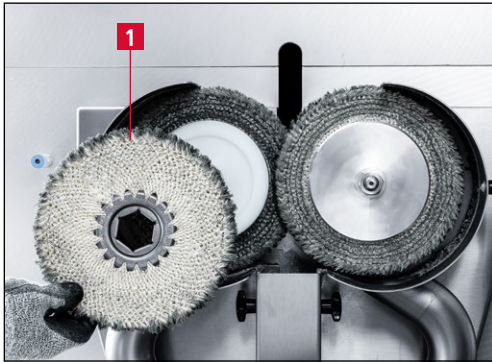


**Figure 7-26** Removing the flange washer

Remove flange washer (7-26/1).

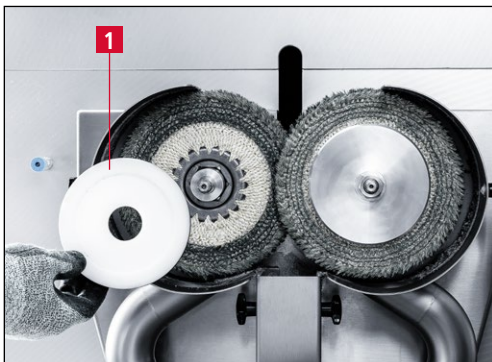
## 7. Operation

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**Figure 7-27** Removing the used deburring ring

Remove the used deburring ring (7-27/1).



**Figure 7-28** Removing intermediate flange

Remove the intermediate flange (7-28/1).



**Figure 7-29** Unscrewing the right clamping nut

Open the clamping nut (7-29/1) of the right deburring ring **counterclockwise** using an AF 22 mm open-end wrench. Fix the shaft with the AF 10 mm open-end wrench.

Unscrew the nut.

### NOTE

The right shaft has a right-hand thread. To loosen the clamping nut, turn counterclockwise.

## 7. Operation

---



**Figure 7-30** Removing the flange washer

Remove flange washer (7-30/1).



**Figure 7-31** Removing the used deburring ring

Remove the used deburring ring (7-31/1).



**Figure 7-32** Removing intermediate flange

Remove the intermediate flange (7-32/1).



## 7. Operation

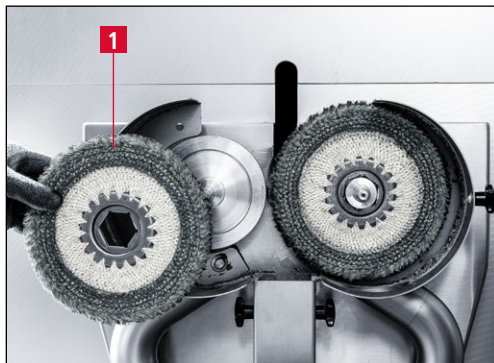


Figure 7-33 Replacing the deburring rings

Remove the left deburring ring (7-33/1).

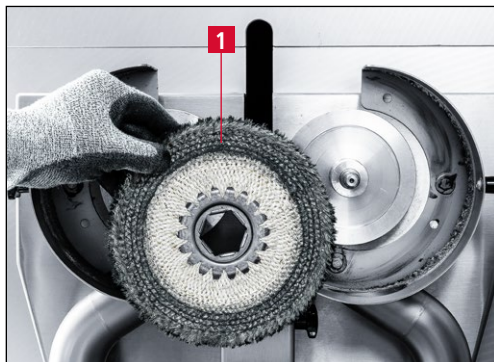


Figure 7-34 Replacing the deburring rings

Remove the right deburring ring (7-34/1).

Mount the new deburring rings and the protection hood in reverse order.

Then adjust the deburring rings (see Chapter 7.4.1).

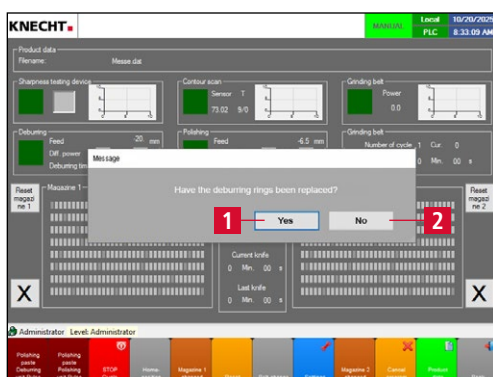


Figure 7-35 Message "Have the deburring rings been replaced?"

After closing the protection hood, the message "Have the deburring rings been replaced?" appears on the main screen.

Answer **"Yes"** (7-35/1) if the deburring rings have been changed.

If the protection hood was only opened to check the deburring rings, answer the question with **"No"** (7-35/2).

**ATTENTION**

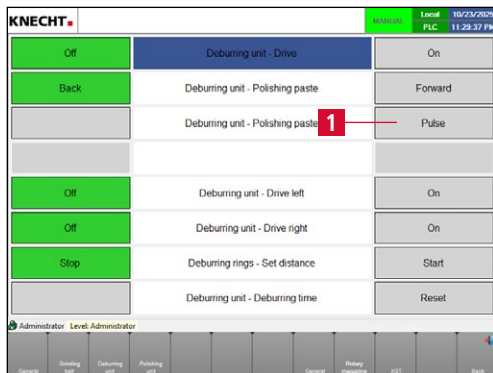
If the deburring rings have been replaced, the message must be answered with **"Yes"** (7-35/1).

## 7. Operation

## NOTE

**After replacing the deburring rings, a test run must be carried out. If the machine behaves unusually, it must be taken out of operation and the fault rectified.**

During the test run under “Manual functions” – “Deburring unit” (see Chapter 8.4.3), press the **“Pulse”** touch panel field (7-36/1) five times to ensure that there is sufficient paste on the deburring rings.



**Figure 7-36** Applying the polishing paste

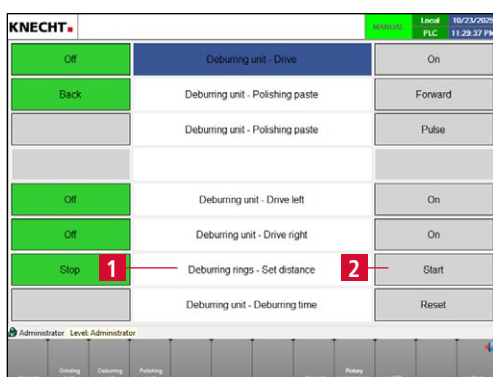
# ATTENTION

**Only original abrasives from KNECHT Maschinenbau GmbH are permitted to be used.**

**KNECHT Maschinenbau GmbH assumes no responsibility for the use of non-original abrasives.**

**Using non-original deburring rings can result in damage to the knife and the grinding machine.**

### 7.4.1 Adjusting the deburring rings



**Figure 7-37** Adjusting the deburring rings

The deburring rings are automatically adjusted so that the front ring touches the metal flange of the neighboring deburring ring.

The adjustment is made automatically after the grinding program has started or manually via "Manual functions" – "Deburring unit" – "Deburring rings – Adjust distance" (7-37/1).

Use the touch panel field **"Start"** (7-37/2) to start adjusting the distance of the deburring rings.

## 7. Operation

### 7.5 Replacing the polishing rings



For all work on the hand knife sharpening machine, observe the locally applicable safety and accident prevention regulations as well as instructions in the “Safety” and “Important notes” section of the operating instructions.

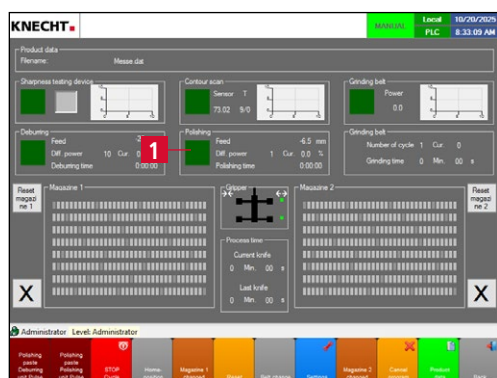


Figure 7-38 Main screen

Press the green **“Polishing”** touch panel field (7-38/1) on the main screen for 2 seconds until the “Deburring” window (7-39) opens.

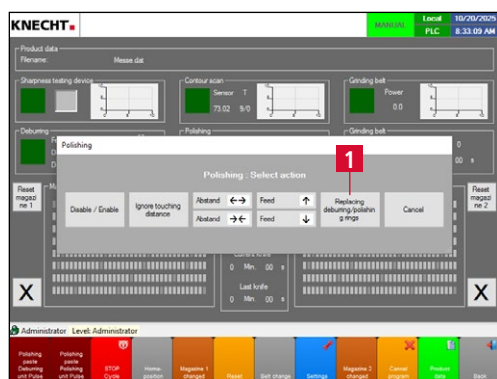


Figure 7-39 Polishing – Replacing the polishing rings

Select the **“Replacing deburring / polishing rings”** touch panel field (7-39/1).

The polishing rings are moved to the change position.



Figure 7-40 Loosening the star handles

Open the rotary magazine.

Loosen the two star handles (7-40/1) of the protection hood.



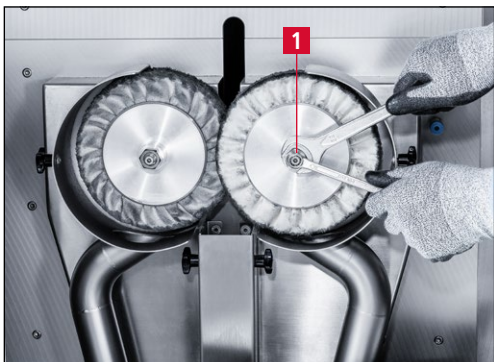
## 7. Operation

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**Figure 7-41** Removing the protection hood

Remove the protection hood (7-41/1) and clean it under running water.



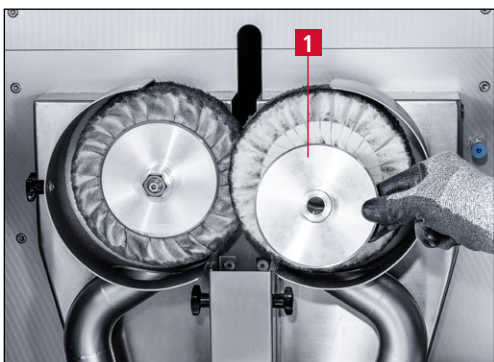
**Figure 7-42** Unscrewing the right clamping nut

Open the clamping nut (7-42/1) of the right polishing ring **counterclockwise** using an AF 22 mm open-end wrench. Fix the shaft with the AF 10 mm open-end wrench.

Unscrew the nut.

### NOTE

**The right shaft has a right-hand thread. To loosen the clamping nut, turn counterclockwise.**

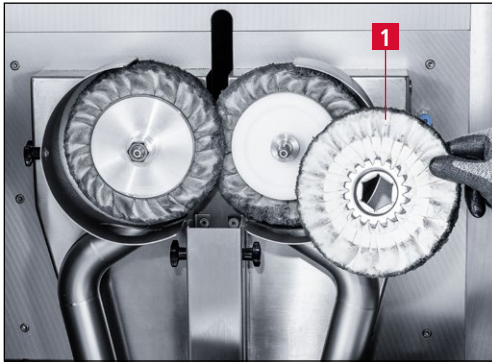


**Figure 7-43** Removing the flange washer

Remove flange washer (7-43/1).

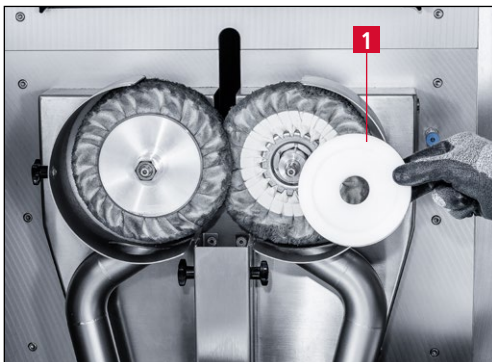
## 7. Operation

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**Figure 7-44** Removing the used polishing ring

Remove the used polishing ring (7-44/1).



**Figure 7-45** Removing intermediate flange

Remove the intermediate flange (7-45/1).



**Figure 7-46** Unscrewing the left clamping nut

Open the clamping nut (7-46/1) of the left polishing ring **clockwise** using an AF 22 mm open-end wrench. Fix the shaft with the AF 10 mm open-end wrench.

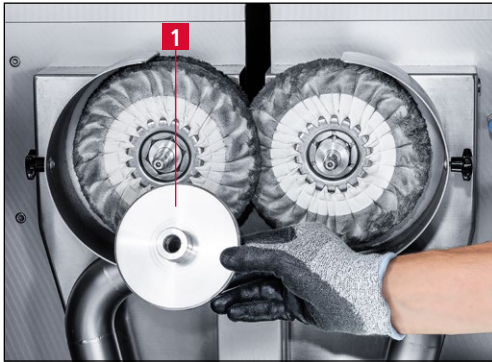
Unscrew the nut.

### NOTE

**The left shaft has a left-hand thread.  
To loosen the clamping nut, turn clockwise.**

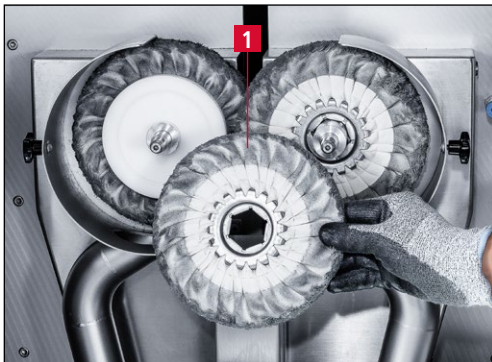
## 7. Operation

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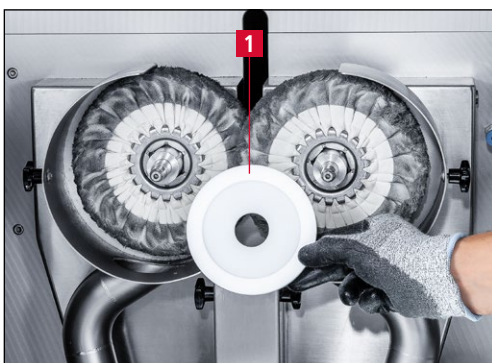
**Figure 7-47** Removing the flange washer

Remove flange washer (7-47/1).



**Figure 7-48** Removing the used polishing ring

Remove the used polishing ring (7-48/1).



**Figure 7-49** Removing intermediate flange

Remove the intermediate flange (7-49/1).

## 7. Operation

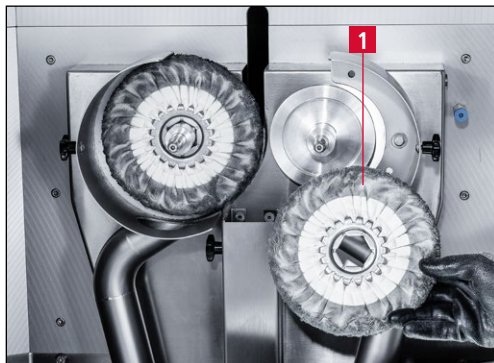


Figure 7-50 Removing the right polishing ring

Remove the right polishing ring (7-50/1).



Figure 7-51 Replacing the polishing rings

Remove the left polishing ring (7-51/1).

Mount the new polishing rings and the protection hood in reverse order.

Then adjust the polishing rings (see Chapter 7.5.1).

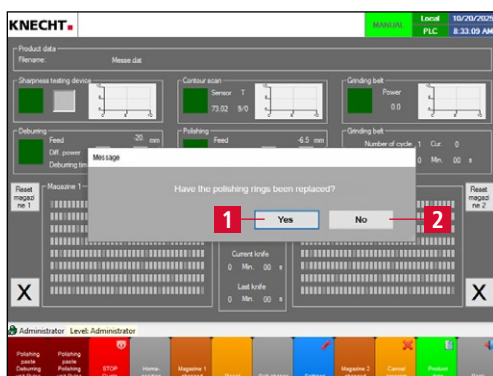


Figure 7-52 Message "Have the polishing rings been replaced?"

After closing the protection hood, the message "Have the polishing rings been replaced?" appears on the main screen.

Answer **"Yes"** (7-52/1) if the polishing rings have been changed.

If the protection hood was only opened to check the polishing rings, answer the question with **"No"** (7-52/2).

**ATTENTION**

If the polishing rings have been replaced, the message must be answered with **"Yes"** (7-52/1).

# 7. Operation

## NOTE

After replacing the polishing rings, a test run must be carried out. If the machine behaves unusually, it must be taken out of operation and the fault rectified.

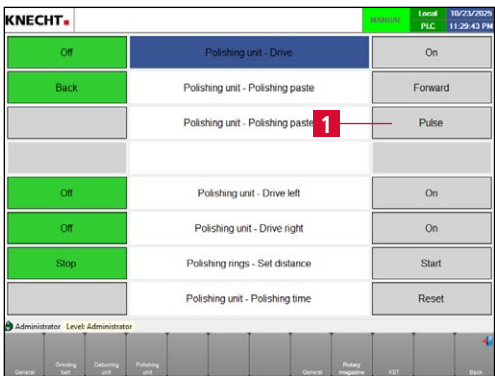


Figure 7-53 Applying the polishing paste

During the test run under “Manual functions” – “Polishing unit” (see Chapter 8.4.4), press the **“Pulse”** touch panel field (7-53/1) five times to ensure that there is sufficient paste on the polishing rings.

## ATTENTION

Only original abrasives from KNECHT Maschinenbau GmbH are permitted to be used.

KNECHT Maschinenbau GmbH assumes no responsibility for the use of non-original abrasives.

Using non-original polishing rings can result in damage to the knife and the grinding machine.

## 7.5.1 Adjusting the polishing rings

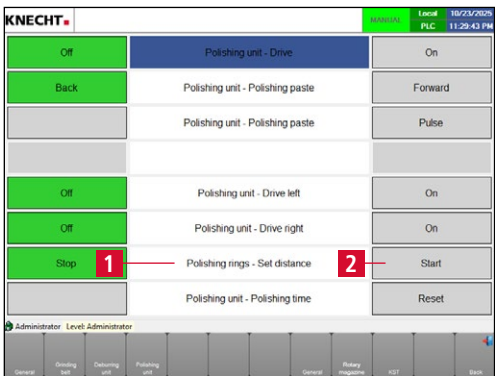


Figure 7-54 Adjusting the polishing rings

The polishing rings are automatically adjusted so that the front ring touches the metal flange of the neighboring polishing ring.

The adjustment is made automatically after the grinding program has started or manually via “Manual functions” – “Polishing unit” – “Polishing rings – Adjust distance” (7-54/1).

Use the touch panel field **“Start”** (7-54/2) to start adjusting the distance of the polishing rings.

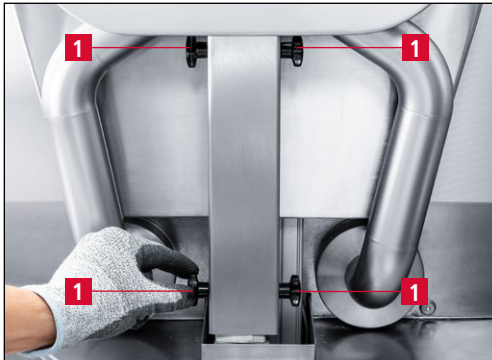


# 7. Operation

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## 7.6 Replacing the polishing pastes

### 7.6.1 Replacing the polishing paste of the deburring unit



**Figure 7-55** Opening the cover

Open the rotary magazine.

To replace the polishing paste of the deburring unit, loosen the four star handles (7-55/1) on the polishing paste cover.



**Figure 7-56** Removing the cover

Remove the cover (7-56/1).



**Figure 7-57** Changing the polishing paste

Remove the used paste and replace it with a new paste (7-57/1).

Refit the cover (7-56/1) and secure with the four star handles (7-55/1).

**ATTENTION**

Only original abrasives from KNECHT Maschinenbau GmbH are permitted to be used.

## 7. Operation

---

### ATTENTION

KNECHT Maschinenbau GmbH assumes no responsibility for the use of non-original abrasives.

### 7.6.2 Replacing the polishing paste of the polishing unit



Figure 7-58 Removing the collection container

Open the rotary magazine.

To replace the polishing paste of the polishing unit, first remove the collection container (7-58/1).



Figure 7-59 Opening the cover

Then loosen the four star handles (7-59/1) on the polishing paste cover.



Figure 7-60 Removing the cover

Remove the cover (7-60/1).

## 7. Operation

---



**Figure 7-61** Replacing the polishing paste

### ATTENTION

Remove the used paste and replace it with a new paste (7-61/1).

Refit the cover (7-60/1) and secure with the four star handles (7-59/1).

Refit the collection container (7-58/1).

**Only original abrasives from KNECHT Maschinenbau GmbH are permitted to be used.**

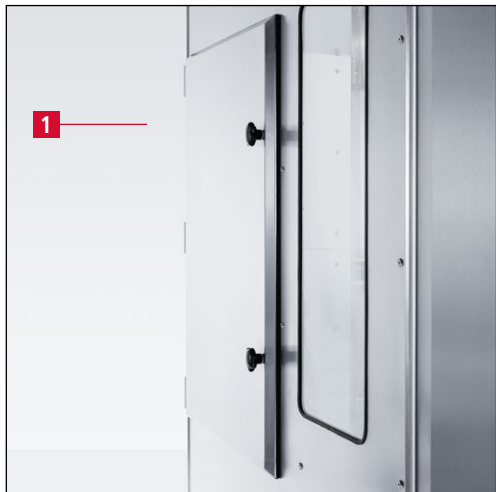
**KNECHT Maschinenbau GmbH assumes no responsibility for the use of non-original abrasives.**



## 7. Operation

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### 7.7 Replacing the test medium of the sharpness testing device



**Figure 7-62** Opening the sharpness testing device

Open the door of the sharpness testing device (7-62/1) on the left side of the machine.



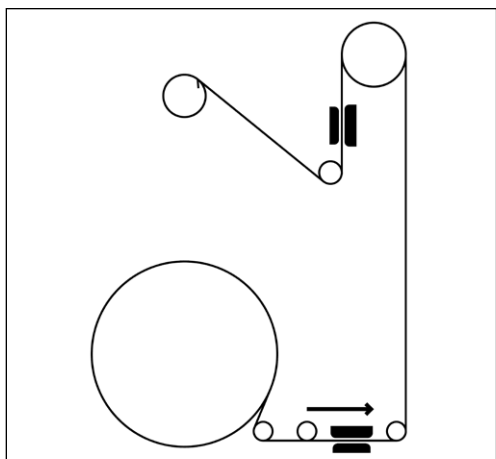
**Figure 7-63** Removing the used test medium

Turn the knurled nut (7-63/1) of the upper coil **counterclockwise** and remove it.

Remove the cover from the coil and take out the used test medium including the triangular core.

Turn the knurled nut (7-63/1) of the upper coil **counterclockwise** and remove it.

Place the triangular core from the lower coil onto the upper coil.



**Figure 7-64** Inserting the test medium

Insert new test medium into the lower coil and thread in as specified (see Figure 7-64).

Reattach the covers of the upper and lower coils and secure with the knurled nuts.

Calibrate the sharpness testing device (see Chapter 7.7.1).

# 7. Operation

## 7.7.1 Calibrating the sharpness testing device

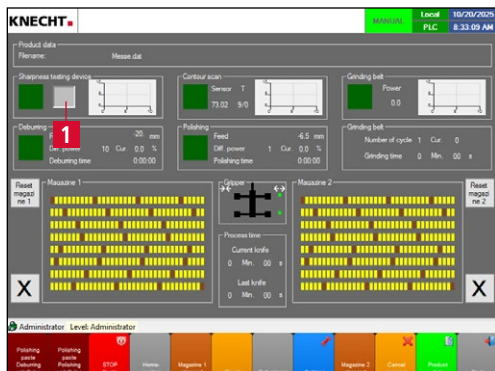


Figure 7-65 Main screen

Open the settings page of the sharpness testing device via the touch panel field (7-65/1).

### NOTE

The test medium must not be under tension.

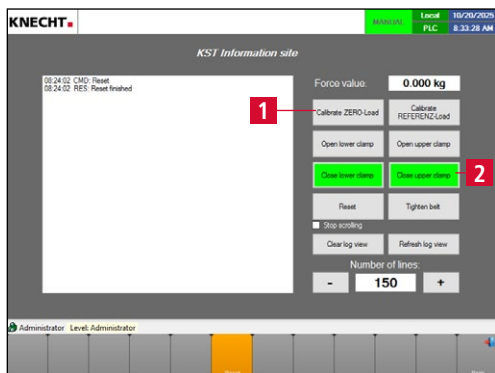


Figure 7-66 Calibrating "ZERO-Load"

Press the **"Calibrate ZERO-Load"** touch panel field (7-66/1).

The sharpness testing device is now calibrated to "0".

Secure the test medium using the **"Close upper clamp"** touch panel field (7-66/2).

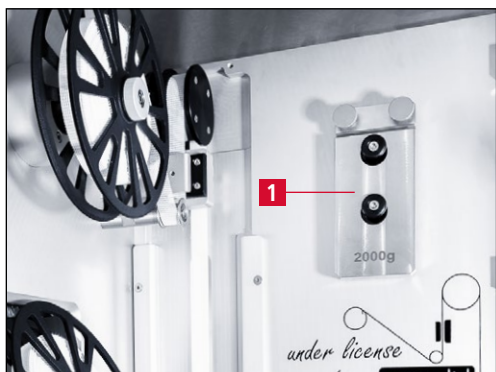
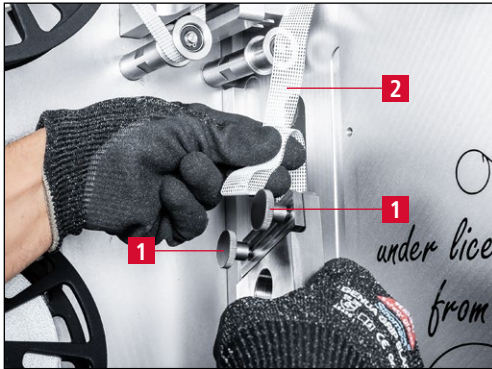


Bild 7-67 Removing calibration weight

Remove the calibration weight (7-67/1) from the holder.

## 7. Operation

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**Figure 7-68** Attaching the test medium to the calibration weight

### NOTE

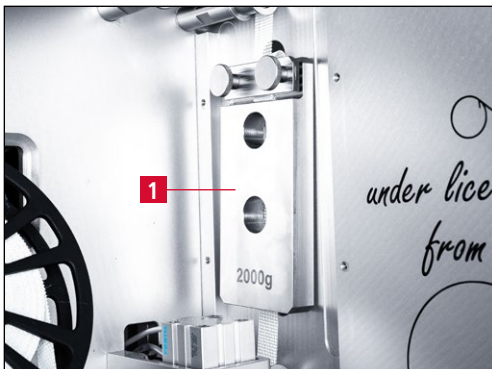
Open the two knurled screws (7-68/1).

Pull the test medium (7-68/2) slightly forwards from the rear, bend it, then insert it into the slot of the calibration weight.

Secure with the knurled screws (7-68/1).

**The test medium must be secured in place by pressing the "Close upper clamp" touch panel field (7-66/2).**

**Otherwise the calibration weight will fall down and calibration cannot be performed.**



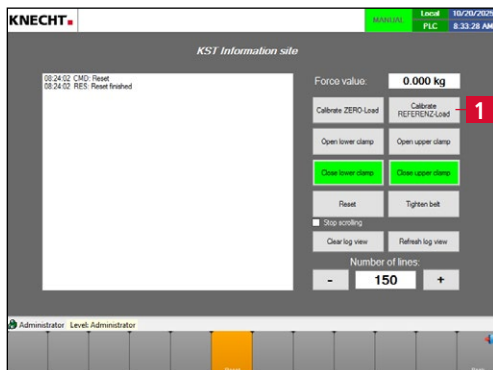
**Figure 7-69** Calibration weight

Make sure that the weight (7-69/1) hangs freely and is not resting on anything.

### ATTENTION

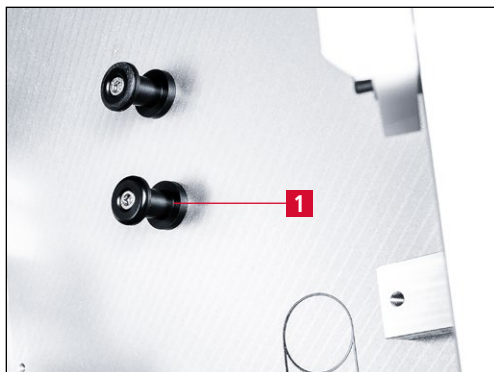
**A calibration weight that is not hanging freely can lead to incorrect calibration and therefore inaccurate sharpness test results.**

## 7. Operation



**Figure 7-70** "CALIBRATING THE "REFERENCE-LOAD"

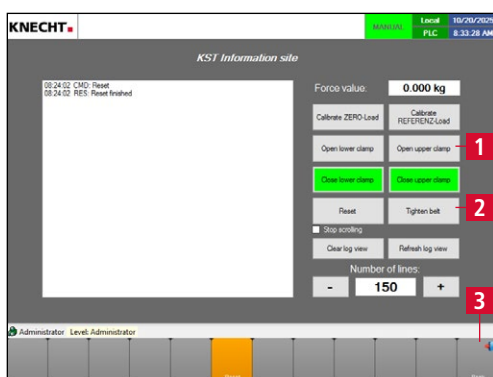
Press the **"Calibrate REFERENCE-Load"** touch panel field (7-70/1).



**Figure 7-71** Calibration weight holder

After calibration, remove the weight and hang it on the holder (7-71/1).

Close the door of the sharpness testing device.



**Figure 7-72** Settings sharpness testing device

Use the **"Open upper clamp"** touch panel field (7-72/1) to release the test medium and then tighten the test medium with **"Tighten belt"** (7-72/2).

Press **"Back"** (7-72/3) to return to the main screen.

## 8. Control

### 8.1 Main screen

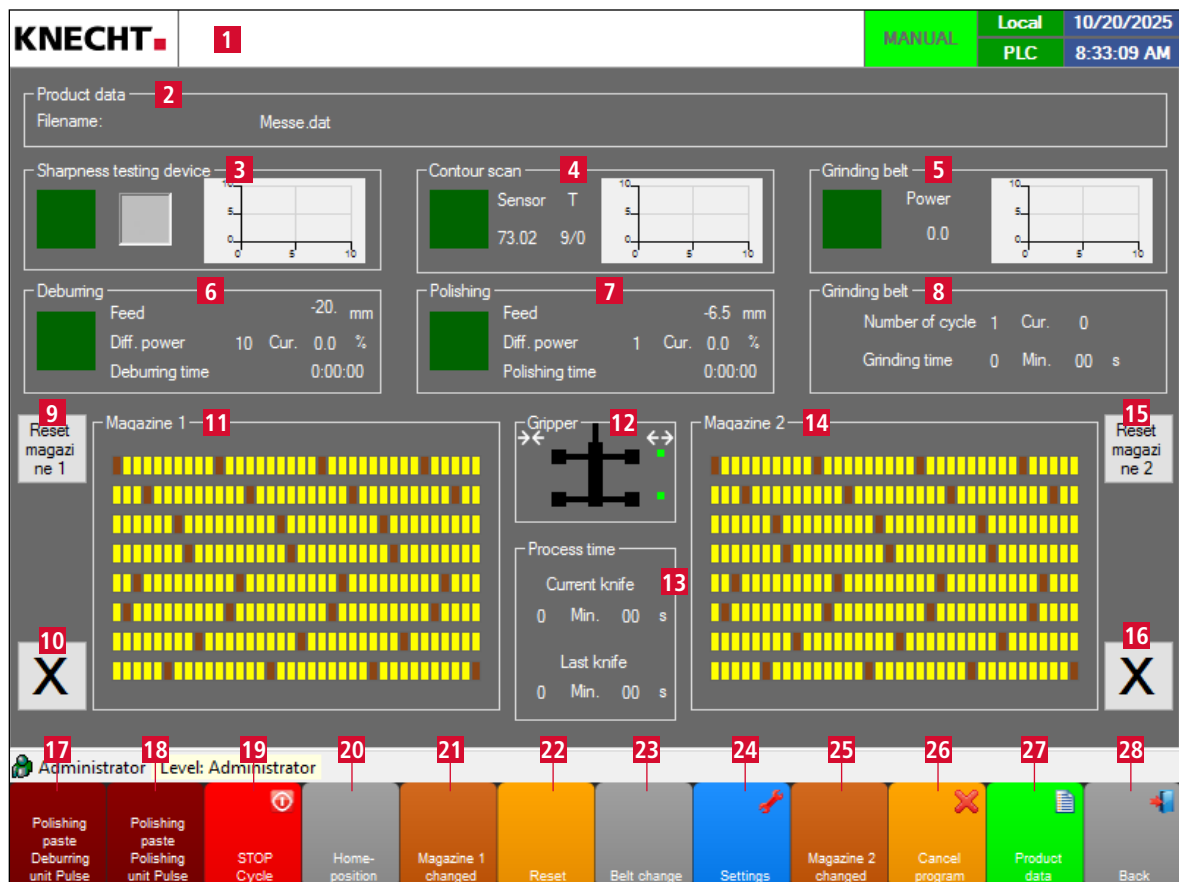


Figure 8-1 Main screen

- 1 Errors and general messages (double-tap to open message texts)
- 2 Product data (loaded product data)
- 3 Sharpness testing device (optional) (activate/deactivate using the green button; tap the diagram to open it)
- 4 Contour capture (tap the diagram to open it)
- 5 Grinding belt (activate the wet-grinding belts using the green button; tap the diagram to open it; performance)
- 6 Deburring (number of cycles and cycles paste, deburring time, activate/deactivate the deburring unit using the green button)
- 7 Polishing (number of cycles and cycles paste, polishing time, activate/deactivate the polishing unit using the green button)
- 8 Grinding belt (number of cycles and grinding time, wet-grinding belt rotated)
- 9 **"Reset magazine 1"**: empty magazine 1
- 10 **"X"**: do not process magazine 1 (activate/deactivate)
- 11 Magazine 1
- 12 **"Gripper "**: tapping the gripper symbol opens/closes knife gripper
- 13 Processing duration (current and last knife)
- 14 Magazine 2

## 8. Control

---

- 15 **"Reset magazine 2"**: empty magazine 2
- 16 **"X"**: do not process magazine 2 (activate/deactivate)
- 17 **"Polishing paste Deburring unit Pulse"**: Feed polishing paste Deburring unit one time
- 18 **"Polishing paste Polishing unit Pulse"**: Feed polishing paste Polishing unit one time
- 19 **"STOP cycle"**: stop processing after the currently active knife
- 20 **"Homeposition"**: run machine to initial position
- 21 **"Magazine 1 changed"**: tap once to add one knife to the magazine; press and hold for 2 sec to refill the magazine
- 22 **"Reset"**: reset control
- 23 **"Belt change"**: clears the "Replace grinding belt" message (press for 5 sec)
- 24 **"Settings"**: switches to the "Settings" display
- 25 **"Magazine 2 changed"**: tap once to add one knife to the magazine; press and hold for 2 sec to refill the magazine
- 26 **"Cancel program"**: cancel current knife program and begin grinding process from beginning
- 27 **"Product data"**: load different grinding programs (for product file loaded, see (8-1/2))
- 28 **"Back"**: switch to the previous display or close user interface

### NOTE

When the key-operated switch (3-11/7) is on position "1", the knife gripper (3-3/3) can be activated even when the rotary magazine is open.

Touch panel fields "Polishing paste Deburring unit Pulse" (8-1/17) and "Polishing paste Polishing unit Pulse" (8-1/18) only work in automatic mode while the deburring and polishing units are active.



The key-operated switch may only be operated by specialized trained personnel.

If the key-operated switch (3-11/7) is on position "1", there is a pinching hazard from the knife gripper.

## 8. Control

### 8.2 Settings

Settings other than the basic “Start” and “Stop” functions of the machine are made in the main menu under **“Settings”** (8-1/24).

#### ATTENTION

Changes to the settings can damage the machine.

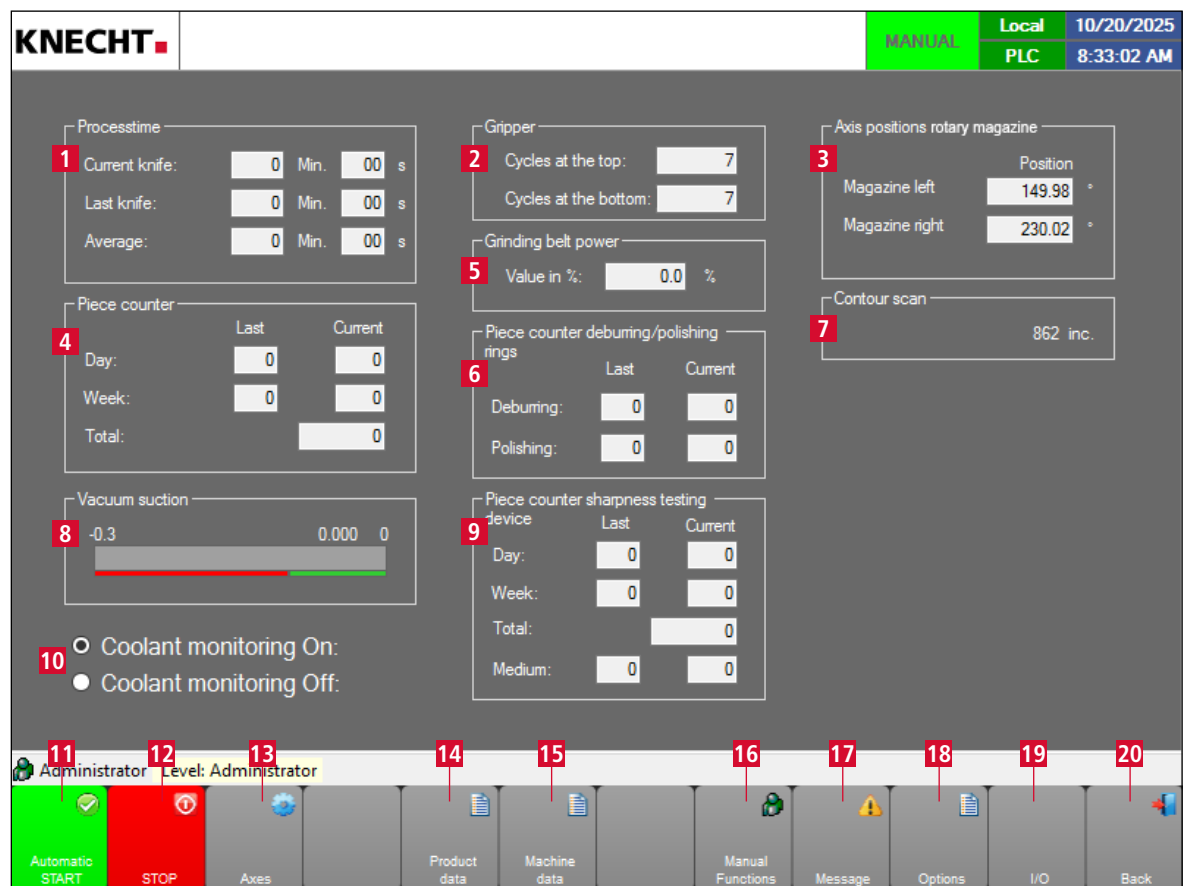


Figure 8-2 Settings

- 1 Processing period (current knife, last knife and average in mins/secs)
- 2 Gripper (Cycles)
- 3 Axis position rotary magazine
- 4 Piece counter (Day, Week, Total)
- 5 Grinding belt power (Value in %)
- 6 Piece counter deburring and polishing rings
- 7 Contour capture
- 8 Vacuum suction unit
- 9 Sharpness testing device (optional)
- 10 Coolant monitoring on/off

## 8. Control

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- 11    **"Automatic START"**: start grinding program
- 12    **"STOP"**: stop processing
- 13    **"Axes"**: axes menu
- 14    **"Product data"**: product data, settings, see Chapter 8.3.2
- 15    **"Machine data"**: display/edit factory-set machine data
- 16    **"Manual functions"**: permits manual operation of the machine; see Chapter 8.4
- 17    **"Message texts"**: displays all error messages continuously (number, frequency, start; see Chapter 8.5)
- 18    **"Options"**: change language etc; see Chapter 8.6
- 19    **"I/O"**: status Beckhoff components
- 20    **"Back"**: switch to the previous display



# 8. Control

## 8.3 Product data

### 8.3.1 Loading the product data

In the “Product data” display, you can load programs you have created yourself, in which, for example, the cycle numbers have been adjusted.



Improper changes to the product data can result in damage to the machine and/or the knives.

Use the **“Product data”** touch panel field (8-3/1) to switch to the “Product data” display (8-4).



Figure 8-3 Main screen

After switching on, the product from the last operation is automatically activated.

To load a new product, select the corresponding file.

Load the new product by double-clicking or using the **“Open”** touch panel field (8-4/1).

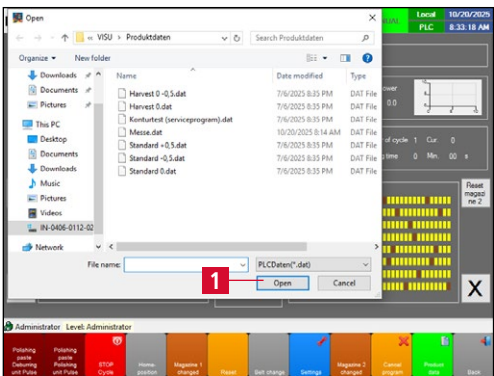


Figure 8-4 Product data

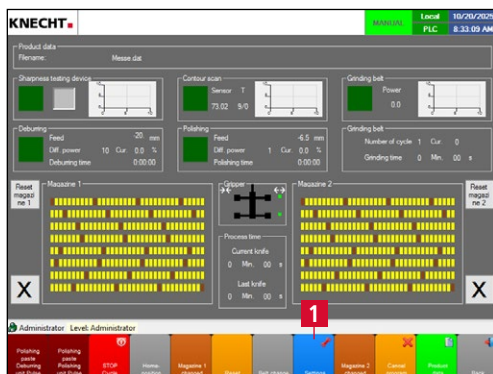
## 8. Control

### 8.3.2 Changing the product data

Product data can be changed, for example, to adjust the cycle numbers.

# ATTENTION

**Improper changes to the product data can result in damage to the machine and/or the knives.**



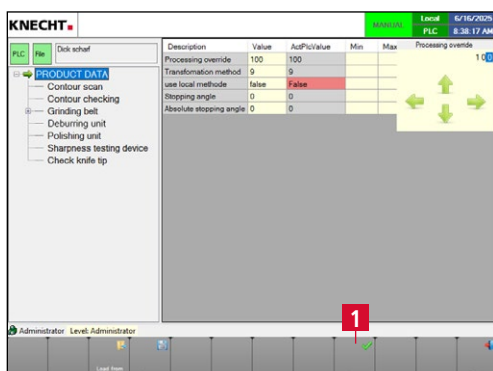
**Figure 8-5** Main screen

Touch panel field **"Settings"** (8-5/1) switches to the "Settings" display (8-6).



### Figure 8-6 Settings

Touch panel field **"Product data"** (8-6/1) switches to the "Product data" display (8-7).



Select the desired parameter in the menu tree and change the value.

Save with **"Accept"** (8-7/1).

**Figure 8-7** Changing the product data

# 8. Control

## 8.4 Manual functions

The manual functions permit manual operation of the machine. Various functions of the grinding machine, such as adjusting the wet-grinding belt and the polishing paste, as well as test runs, can be carried out individually.

They are accessed via the main menu **"Settings"** (8-1/24), followed by **"Manual functions"** (8-2/14). Various functions of the grinding machine can be operated individually.

**ATTENTION**

Buttons highlighted in green are active.  
Buttons highlighted in gray are inactive

**NOTE**

All functions are only active when the safety doors are closed.

### 8.4.1 General

If the **"Manual functions"** submenu (8-2/14) has been called up, the display first changes to the general manual functions (8-8).

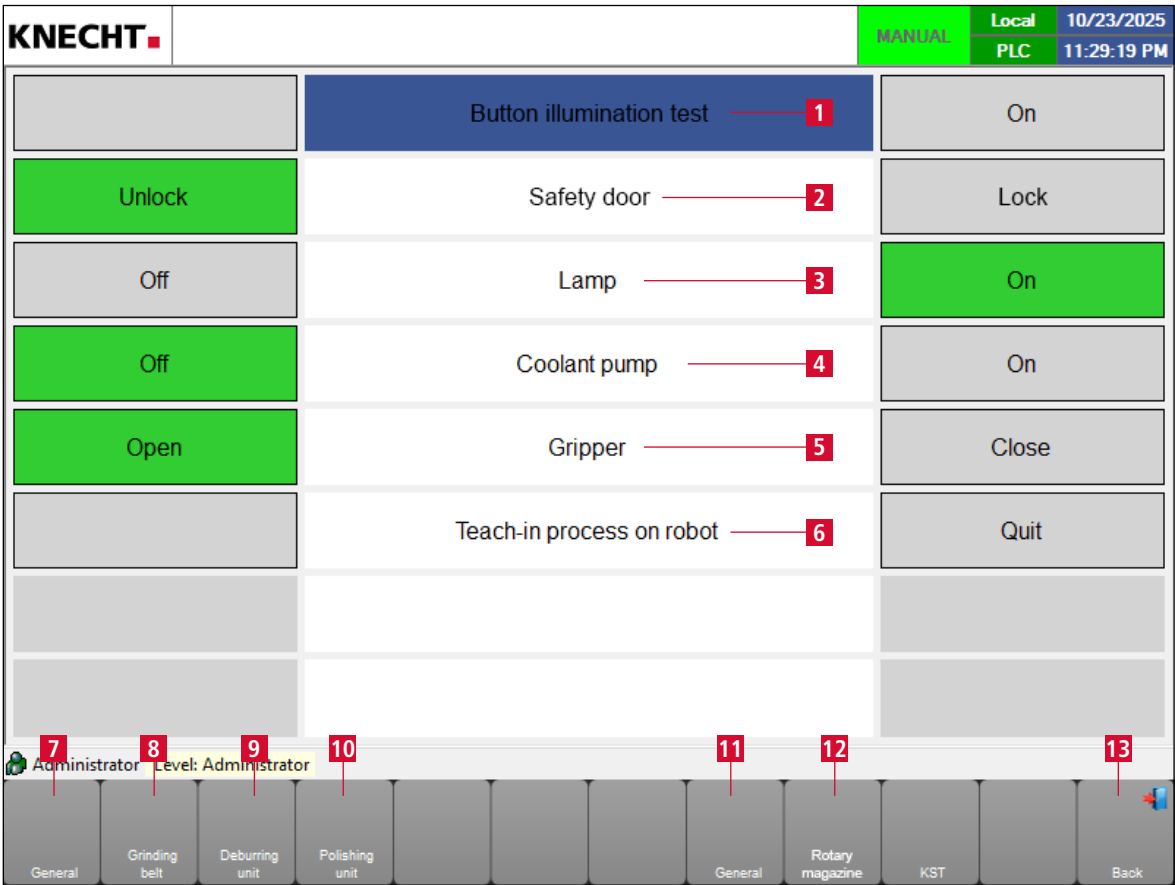


Figure 8-8 Manual functions "General"

## 8. Control

- 1 Button illumination test
- 2 Unlock/lock safety doors
- 3 Switch machine lamps on/off
- 4 Switch the coolant pump on/off
- 5 Open/close the gripper
- 6 Stop teaching process in robot
- 7 **"General"** (current display)
- 8 **"Grinding belt"**: see Chapter 8.4.2
- 9 **"Deburring unit"**: see Chapter 8.4.3
- 10 **"Polishing unit"**: see Chapter 8.4.4
- 11 **"General"**: see Chapter 8.4.5
- 12 **"Rotary magazine"**: see Chapter 8.4.6
- 13 **"Back"**: switch to the previous display

### 8.4.2 Wet-grinding belt

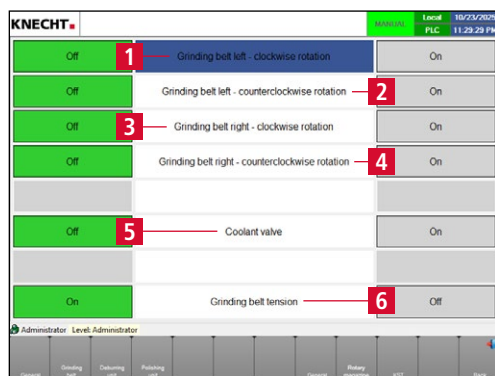


Figure 8-9 Manual functions "Grinding belt"

- 1 Grinding belt left – clockwise rotation on/off
- 2 Grinding belt left – counterclockwise rotation on/off
- 3 Grinding belt right– clockwise rotation on/off
- 4 Grinding belt right– counterclockwise rotation on/off
- 5 Coolant valve on/off
- 6 Belt tension on/off

### 8.4.3 Deburring unit

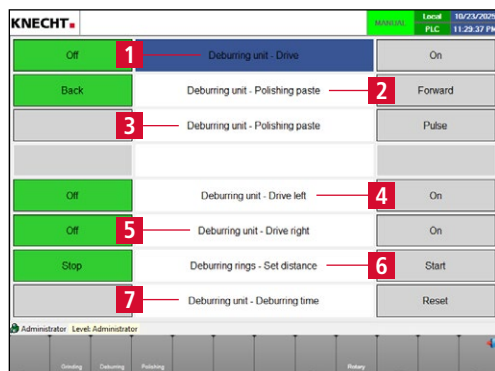


Figure 8-10 Manual functions "Deburring unit"

- 1 Deburring unit - Drive on/off
- 2 Deburring unit - Polishing paste forwards/backwards
- 3 Deburring unit - Polishing paste Pulse
- 4 Deburring unit - Drive left on/off
- 5 Deburring unit - Drive right on/off
- 6 Deburring rings - Set distance start/stop
- 7 Deburring unit - Reset deburring time

## 8. Control

### 8.4.4 Polishing unit



Figure 8-11 Manual functions “Polishing unit”

- 1 Polishing unit - Drive on/off
- 2 Polishing unit - Polishing paste forwards/backwards
- 3 Polishing unit - Polishing paste Pulse
- 4 Polishing unit - Drive left on/off
- 5 Polishing unit - Drive right on/off
- 6 Polishing rings - Set distance start/stop
- 7 Polishing unit - Reset polishing time

### 8.4.5 General



Figure 8-12 Manual functions “General”

- 1 Suction unit internal on/off
- 2 Switch suction unit to deburring unit/polishing unit
- 3 Sealing air contour capture on/off
- 4 Sealing air robot on/off

### 8.4.6 Rotary magazine

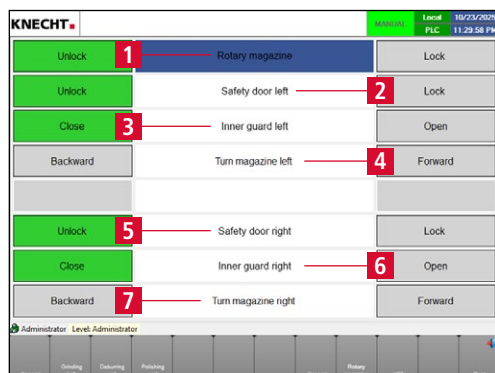


Figure 8-13 Manual functions “Rotary magazine”

- 1 Rotary magazine unlock/lock
- 2 Safety door left unlock/lock
- 3 Inner guard left close/open
- 4 Turn left magazine backward/forward
- 5 Safety door right unlock/lock
- 6 Inner guard right close/open
- 7 Turn right magazine backward/forward

## 8. Control

### 8.5 Message texts

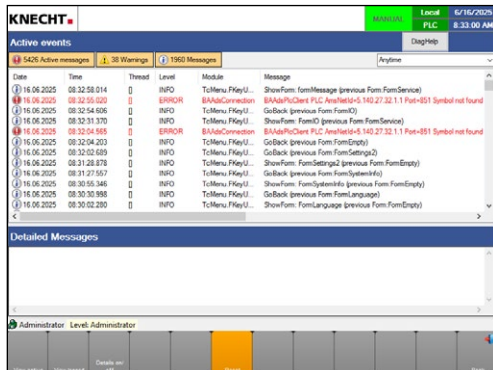


Figure 8-14 Message texts

#### NOTE

The message texts display (8-14) is used exclusively for the detailed display of the status messages of the machine.

It provides an overview of how many errors are currently preventing the machine from operating properly. In addition, the submenu provides information about which errors have occurred and since when they have been active.

**No settings can be made in the Message Texts sub-menu. The errors also appear in the upper part of the main screen (8-1/1).**

### 8.6 Options

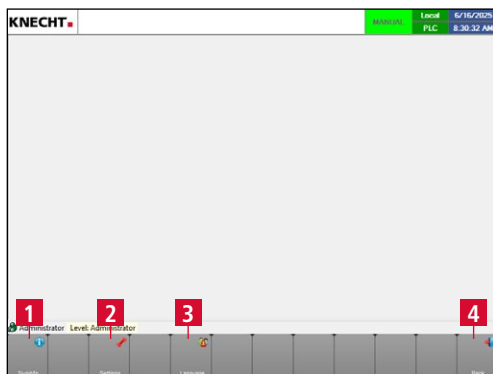


Figure 8-15 Options

- 1 **"Sysinfo"**
- 2 **"Settings"**
- 3 **"Language"**: change language (see Chapter 8.7)
- 4 **"Back"**: switch to the previous display

# 8. Control

## 8.7 Changing the language



Figure 8-16 Main screen

Touch panel field **"Settings"** (8-16/1) switches to the "Settings" display (8-17).



Figure 8-17 Settings

Touch panel field **"Options"** (8-17/1) switches to the "Options" display (8-18).

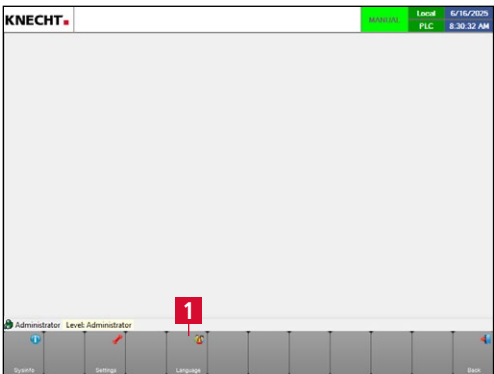


Figure 8-18 Options

Touch panel field **"Language"** (8-18/1) switches to the "Language" display (8-19).

## 8. Control

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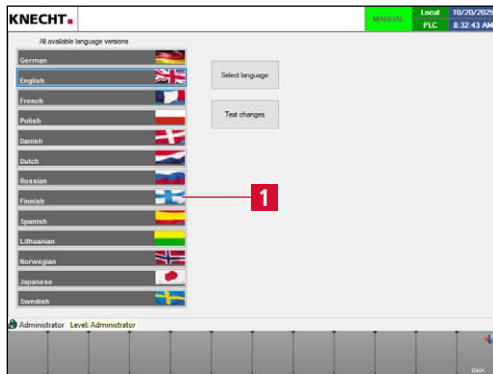


Figure 8-19 Language

The desired language is selected and automatically activated by pressing the corresponding touch panel field (8-19/1).

Each time you press **“Back”** you move one level higher in the menu; after three levels, you reach the main menu.



## 8. Control

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### 8.8 Setting up an internet connection



**Figure 8-20** Network connection

The machine is equipped with an ethernet port (8-20/2). A secure connection between the machine and KNECHT Maschinenbau GmbH can be established via the integrated VPN router. The connection can be activated or deactivated by the operator using the key switch on the control cabinet (8-20/1).

This connection gives the KNECHT service technician access to the control and allows him to diagnose the machine, change the software settings and upload or edit new grinding programs.

There must be an active Internet connection to initiate the connection.

#### NOTE

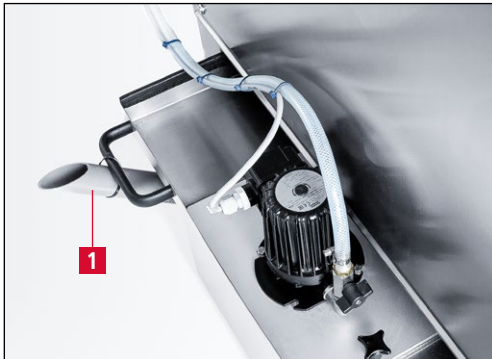
**When commissioning, the VPN router is configured according to the specified IT infrastructure so that the machine communicates exclusively with KNECHT Maschinenbau GmbH via the VPN server. Any communication within the customer network is excluded. The customer network is therefore optimally protected.**

**In order to establish the internet connection, plug the supplied ethernet cable into the on-site network socket (RJ45) and the network port on the control cabinet (8-20/2).**

## 9. Care and maintenance

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### 9.1 Replacing the coolant water



**Figure 9-1** Replacing the coolant water

The cooling water has to be replaced daily and the water tray must be cleaned.

For emptying, place the pipe (9-1/1) at the rear of the water tray in a horizontal position.

The water tray must always be filled with 60 l water up to 3 cm below the rim.

#### NOTE

**Use pure tap water without additives as coolant.**

#### ATTENTION

**The machine must not be operated without coolant. Hand knives may be damaged.**

### 9.2 Cleaning

The machine and the rotary magazine must be cleaned after each grinding operation, otherwise the grinding abrasion dries and is difficult to remove.

To clean the machine, open the entire rotary magazine forward using the handle.

Clean the rotary magazines weekly with a brush or cloth.

Clean the windows with soft cleaning cloths and window cleaning agent.

After cleaning the grinding machine, we recommend using the products listed in the Cleaning agent and lubricant table for care of the machine (see Chapter 9.2.1).

#### ATTENTION

**The grinding machine must neither be sprayed with water nor cleaned with alkaline cleaning agents. Machine components may be damaged or destroyed.**

**Deburring and polishing rings must not get wet, as they can only absorb the polishing paste and deburr / polish a knife properly when dry.**

## 9. Care and maintenance

### 9.2.1 Cleaning agent and lubricant table

Cleaning / Lubrication work	Interflon	WÜRTH	SHELL	EXXON Mobil	OEST	AXEL Christiernsson
Cleaning and care of machine parts	Dry Clean Stainless Steel	Stainless steel care spray	Risella 917	Marcol 82	New Process Multispray	
Lubricate the grinding belt motors						Multi-purpose grease Acinol 142S
Lubricate the gripper					IXELON LT 000 EP	
Lubricate the safety doors	Grease MP 100		Gadus S5 V142 W0018		IXELON LT 000 EP	
Lubricate the deburring/polishing unit				Mobilith SHC 100	Multi-purpose grease LT 190 EP	

### 9.2.2 Checking and cleaning the suction unit



**Figure 9-2** Emptying the drawer of the suction unit

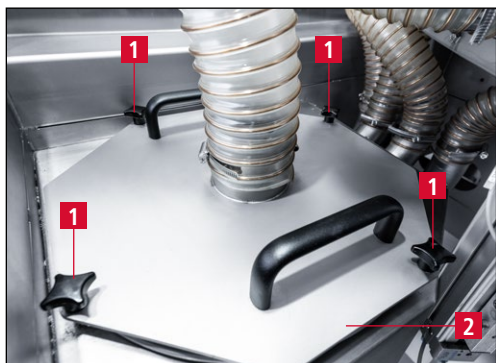
Empty the drawer of the suction unit (9-2/1) once a week.

**ATTENTION**

Move the drawer under the machine as far as it will go, otherwise the suction unit will not operate at full power.

## 9. Care and maintenance

---



**Figure 9-3** Opening the suction unit

Check the filter cartridge of the suction unit once a week.

To do this, open the door on the left side of the machine.

Open the four star handles (9-3/1) of the suction unit and remove the cover (9-3/2) using the handles.



**Figure 9-4** Removing the filter cartridge

Remove the filter cartridge (9-4/1).



**Figure 9-5** Cleaning the filter cartridge

Clean the filter cartridge (9-5/1) with an industrial vacuum cleaner.

### NOTE

The filter cartridge may also be cleaned with water.

### ATTENTION

Do not spray the filter cartridge with a high-pressure cleaner. Only install the filter cartridge when it is dry.

## 9. Care and maintenance

---

### ATTENTION

Damaged filter cartridges must not be reinstalled.

### 9.2.3 Cleaning the flow monitor



Figure 9-6 Unplugging the flow monitor

The flow monitor (9-6/1) must be removed and cleaned every six months.

To do this, remove the plug (9-6/2).



Figure 9-7 Unscrewing the flow monitor

Turn the flow monitor (9-7/1) **counterclockwise** using an AF22 mm open-end wrench.



Figure 9-8 Cleaning the measuring probe

Clean the measuring probe (9-8/1) with a clean cloth.

Lightly grease the thread (not the probe).

After cleaning, reinstall the flow monitor in reverse order.

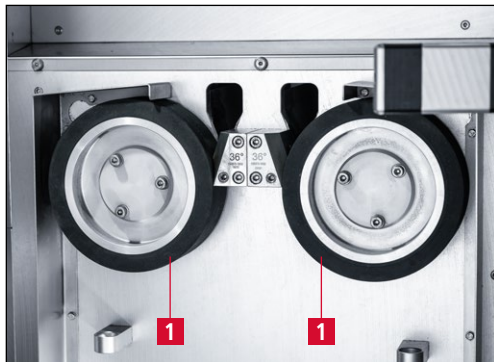
Reinsert the plug (9-6/2).

## 9. Care and maintenance

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### 9.3 Lubrication points

#### 9.3.1 Lubricating the motors for the grinding belt drive



**Figure 9-10** Removing the contact discs

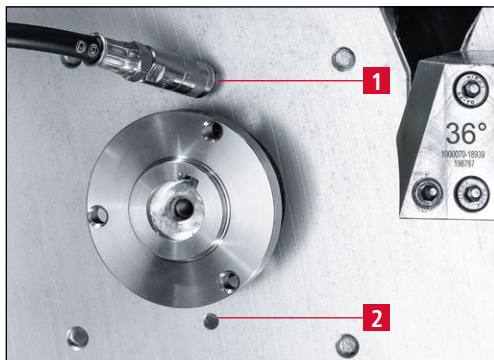
To lubricate the grinding belt motors, remove the wet-grinding belts (see Chapter 7.3).

Remove both contact discs (9-10/1) using an AF 6 mm hexagon screwdriver.



**Figure 9-11** Removing the contact discs

Position the hexagon screwdriver so that it points to the centre of the contact disc (see Figure 9-11). This makes it much easier to loosen the screws.



**Figure 9-12** Lubricating the grinding belt motors

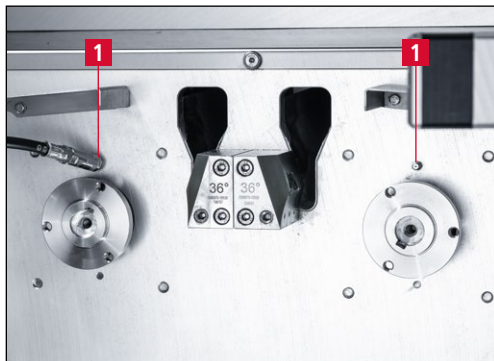
Using the hand lever grease press supplied, press grease into the lubrication nipple (9-12/1) until grease emerges from the hole (9-12/2) below the holding flange.

We recommend "Acinol 142S multi-purpose grease" or a corresponding commercial multi-purpose grease.

Lubricate both motors of the grinding belt drive.



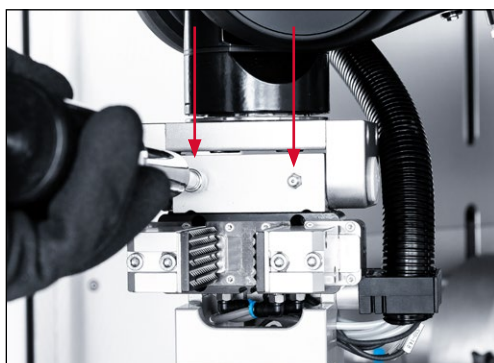
## 9. Care and maintenance



**Figure 9-13** Lubrication nipples for grinding belt motors

There are two lubrication nipples (9-13/1) in total.

### 9.3.2 Lubricating the gripper

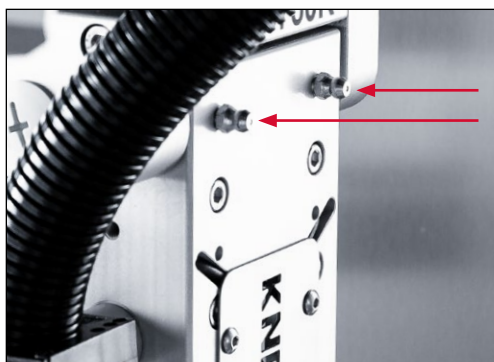


**Figure 9-14** Lubricating the gripper on the front

Place the grease press on the two lubrication nipples at the front (9-14) and lubricate the gripper.

We recommend "OEST IXELON LT 000 EP" or a corresponding commercial fluid grease.

Press two strokes of grease into the lubrication nipples with the grease press every month.



**Figure 9-15** Lubricating the gripper on the rear

Place the grease press on the two lubrication nipples at the rear (9-15) and lubricate the gripper.

We recommend "OEST IXELON LT 000 EP" or a corresponding commercial fluid grease.

Press two strokes of grease into the lubrication nipples with the grease press every month.

There are four lubrication nipples on the gripper in

### ATTENTION

**Be sure to use the LT000EP fluid grease (tube) supplied or a corresponding commercial grease.**

**Regular machine grease will cause the gripper to stick.**

## 9. Care and maintenance

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### 9.4 Maintenance plan (one-shift operation)

Interval	Assembly	Maintenance task
Daily	Polishing pastes	Check paste length. Exchange if less than 80 mm or if a corresponding message appears.
	Machine interior	Clean roughly with a brush or cloth.
	Coolant unit	Drain the water and clean the tray.
Weekly	Grinding-belt drive	Open the belt protection hood and clean the area around the grinding belt.
	Rotary magazines	Clean the rotary magazines with a brush and cloth.
	Suction unit	Empty the drawer of the suction unit (see Chapter 9.2.2).
		Check the filter cartridge, remove and clean or replace if necessary (see Chapter 9.2.2).
	Machine interior and exterior	Clean the machine inside and outside. Attention! Do not allow the deburring/polishing rings to get wet.
Monthly	Gripper	Clean the gripper surface with a wire brush. Unscrew the gripper jaws and clean the sealing surface.
Semi-annually	Grinding-belt drive	Remove and clean the flow monitor (see Chapter 9.2.3).
Annually		Contact the service department of KNECHT Maschinenbau GmbH.



# 10. Disassembly and disposal

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## 10.1 Disassembly

All operating materials must be disposed of properly.

Secure moving parts against slippage.

Disassembly must be conducted by a qualified specialist.

## 10.2 Disposal

After the machine has reached the end of its service life, it must be disposed of by a qualified specialist. In exceptional situations, and after consultation with KNECHT Maschinenbau GmbH, the machine may be returned.

Operating materials (e.g. wet-grinding belts, polishing/deburring rings, coolant etc.) must be disposed of correctly.

### NOTE

The control unit's cooling device contains fluorinated greenhouse gases (F-gases, refrigerant R 513A, fill quantity 0.17 kg, CO<sub>2</sub> equivalent 0.11 t, GWP 631) in accordance with EU Regulation 2024/573.

The refrigerant must be removed properly before disassembly or disposal. Work may only be carried out by qualified personnel.

# 11. Service, spare parts and accessories

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## 11.1 Postal address

KNECHT Maschinenbau GmbH  
Witschwender Straße 26  
88368 Bergatreute  
Germany

Phone +49-7527-928-0  
Fax +49-7527-928-32

mail@knecht.eu  
www.knecht.eu

## 11.2 Service

### **Service line:**

For address, see postal address

service@knecht.eu

## 11.3 Wear and spare parts

If you need spare parts, please use the spare parts list provided with the machine. Please place your order using the format described below.

### **When ordering, please always provide: (example)**

Machine type	(E50RT)
Machine number	(38027150RT)
Designation of assembly	(Polishing felt linear)
Designation of single part	(Bearing housing left)
Item number (position number)	(5)
Drawing number (article number)	(013E50R-0600)
Quantity	(1 pc)

We are always happy to answer any questions.

# 11. Service, spare parts and accessories

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## 11.4 Accessories

### 11.4.1 Abrasives used and others

Type	Dimensions	Grain	Article number	Notes
Wet-grinding belt	2200x60	K240	412A-66-0728	installed on delivery
Deburring ring (left)	d.180x6xd.32		412N-03-0180	installed on delivery
Polishing ring (right)	d.180x6xd.32		412N-05-0180	installed on delivery
Polishing paste	230x60x50		412R-01-0501	installed on delivery
Fluid grease IXELON LT000 EP	900 g		417B-02-0100	included in scope of delivery

#### ATTENTION

**Only original abrasives, wear and spare parts from KNECHT Maschinenbau GmbH are permitted to be used.**

**KNECHT Maschinenbau GmbH assumes no responsibility for the use of non-original parts.**

If you require abrasives or other accessories, please contact our sales staff and distributors, or KNECHT Maschinenbau GmbH directly.

Thank you for choosing KNECHT!

# 12. Appendix

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## 12.1 EU Declaration of Conformity

in accordance with EU Directive 2006/42/EU

- Machinery 2006/42/EU
- Electromagnetic Compatibility 2014/30/EU

We hereby declare that the machine designated as follows, due to its construction and design, as well as the version we introduced on the market, complies with the relevant basic safety and health requirements of the applicable EU Directive.

In case of a modification of the machine not agreed with us, this declaration loses its validity.

<b>Designation of machine:</b>	Fully Automatic Hand Knife Sharpening Machine
<b>Model designation:</b>	E 50 RT
<b>Machine number:</b>	from no. 38027150RT
<b>Applicable harmonized standards, in particular:</b>	DIN EN ISO 12100 DIN EN ISO 13849-1 DIN EN ISO 13857 DIN EN ISO 16089 DIN EN 61000-3-2 DIN EN 61000-3-3 DIN EN 55014-1 DIN EN 13854
<b>Responsible for documentation:</b>	Andreas Doerr (State-certified technician) Phone +49-7527-928-81 a.doerr@knecht.eu
<b>Manufacturer:</b>	KNECHT Maschinenbau GmbH Witschwender Straße 26 88368 Bergatreute Germany

A complete technical documentation is available. The operating instructions document for the machine is available in its original version and in the native language of the user.

The validity of the declaration expires in the event of changes to the legal requirements.

Bergatreute, December 9, 2025

KNECHT Maschinenbau GmbH



Markus Knecht  
CEO

**KNECHT Maschinenbau GmbH**

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