KNECHT

Operating Instructions

E 50 RT

Fully Automatic Hand Knife Sharpening Machine

Status 06.2024 ▪ Version 1.2 | Translation

Operating Instructions

E 50 RT Fully Automatic Hand Knife Sharpening Machine

Manufacturer

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Documents for machine operator

Operating instructions

Date of issue of the operating instructions

June 13, 2024

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1. Important notes

1.1 Preface to the operating instructions

These operating instructions are intended to make it easy to learn how to use the fully automatic hand knife sharpening machine, 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. Your attention 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 always be stored in the location that the grinding machine is used.

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:

CAUTION

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

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

NOTICE

"NOTICE" refers to user tips and especially useful informations.

1. Important notes

1.3 Warning and mandatory signs and their meaning

1.3.1 Waring and mandatory signs on / in grinding machine

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

CAUTION! DANGEROUS ELECTRICAL VOLTAGE
(warning notice on the switch cabinet)

The grinding machine carries lethal voltage when connected to the current supply.

Current-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 warning- and mandatory signs

The following general mandatory signs must be observed:

CAUTION! RISK OF INJURY FROM ABRASIVE PARTICLES

Eye protection must be worn for general maintenance and cleaning work.

CAUTION! RISK OF INJURY FROM KNIFE

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

Protective gloves must be worn when inserting and removing knives.

Caution when transporting blades. Use the protective equipment provided by the knife manufacturer. Protective gloves and safety shoes must be worn.

1. Important notes

1.4 Rating plate and serial number

Figure 1-1 Rating plate

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

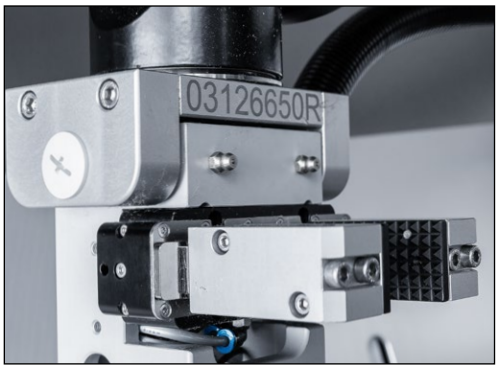


Figure 1-2 Machine serial number

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

1. Important notes

1.5 Figure and position numbers in the Operating Instructions

If there is a reference to a machine component in the text which is depicted in an image, the figure and item number will be given in parentheses.

Example: (7-20/1) means Figure number 7-20, position 1.

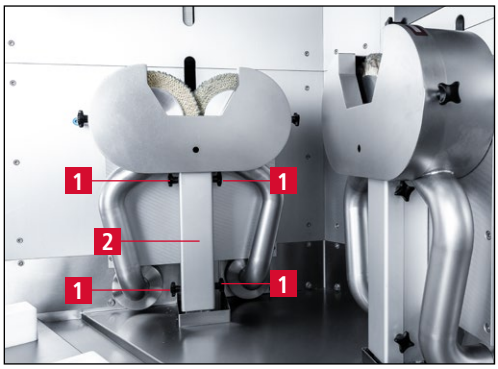


Figure 7-20 *Replacing the polishing paste*

To replace the polishing pastes, loosen the four star handles (7-20/1) on the side and remove the cover (7-20/2).

The used paste can now be replaced with new paste. Mount the cover again and tighten the four star handles.

2. Safety

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-related work of personnel 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 of this.

2.1.4 Hazards involved in handling the grinding machine

The grinding machine has been built to the latest technological standards and the acknowledged rules of technical safety. In spite of this, its use poses inherent risks which could result in bodily harm or even death of the user or third persons, or impairment of the grinding machine or other property.

The grinding machine may be used only:

- for its intended purpose
- in faultless condition with regard to safety-related aspects.

Malfunctions that may impair safety are to be rectified immediately.

2. Safety

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 provided magazine.

Any other use is considered to be improper. The company KNECHT Maschinenbau GmbH is not liable for any damage arising from this. The user alone bears this risk.

Use as intended includes the observance of all the notes in the operating instructions.

ATTENTION

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

- **fixtures are not properly attached.**
- **knives are sharpened / polished in the opposite direction of the cutting edge on the grinding belt or the polishing ring.**
- **work pieces 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 transportation,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 of aspects such as drive conditions (power and speed)

- failure to monitor machine parts that are subject to wear, and
- use of unapproved replacement and wear parts.

Use only original replacement and wear parts. When using external parts, it cannot be guaranteed that they are constructed and manufactured to be suitable and safe.

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 commissioning 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 the locally relevant accident prevention regulations must also be made available and observed.

All safety alert symbols and danger 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!

2.4.5 Machine control system

Do not make any changes to the software program under any circumstances. Parameters that the operator can set themselves are excluded from this prohibition (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.

Check the grinding machine for external signs of damage and correct operation of the safety devices at least once every shift.

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

Before activating the grinding machine, ensure that no one will be injured by the start-up of the machine.

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

2.4.7 Hazards due to electrical power sources

The switch cabinet must always remain secured against access. 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 rectified immediately 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 zones

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

2.4.9 Servicing (maintenance, repair) and fault elimination

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 upkeep work, the grinding machine is to be disconnected from the power supply and secured against accidental restart. Remove power plug. Cordon off the maintenance area where required.

After completing maintenance work and fault rectification, install all safety devices and verify that they are fully functional.

2.4.10 Structural modifications to the grinding machine

Modifications, retrofitting or rebuilds of the grinding machine are not allowed without the permission of the manufacturer. This also applies for installation and configuring the safety devices.

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

Immediately replace any machine parts that are not in a serviceable state.

Use only original replacement and wear parts. When using external parts, it cannot be guaranteed that they are constructed and manufactured to be suitable and safe.

2.4.11 Cleaning the machine

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

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

2.4.12 Oils and greases

When using lubricants and grease, follow the safety provisions applicable to the product. Observe special instructions for the foodstuffs sector.

2.4.13 Relocation of the grinding machine

Disconnect the grinding machine from any external power, even if adjusting its position slightly. Before restarting the grinding machine, properly connect it to the power supply.

When loading or unloading, only use suspension devices and load suspension devices with sufficient load-bearing capacity. Designate suitable lifting devices for the lifting process.

Ensure that only persons authorized to carry out this work are located where the machine is unloaded and installed.

2. Safety

Only lift the grinding machine correctly with a suspension device in accordance with the operating instructions (attachment points for load suspension devices, etc.). Use only a suitable transport vehicle with sufficient carrying capacity. Secure loads safely. Use suitable attachment points.

When recommissioning, do so only in accordance with the operating instructions.

3. Description

3.1 Intended purpose

The E 50 RT fully automatic hand knife grinding machine grinds, deburrs, and polishes hand knives with a length of 70 - 270 mm.

3.2 Technical specifications

Height	approx. 2055 mm
Width	approx. 2690 mm
Depth	approx. 2875 mm
Space requirement (BxDxH)	approx. 4000 mm x 4000 mm x 2100 mm
Allowable room temperature	10 - 35°C
Allowable air humidity	20 - 80%
Weight	1200 kg
Current supply*	3x 400 V
Mains frequency*	50/60 Hz
Output*	8 KW
Energy consumption*	11 A
Back-up fuse	25 A
Control voltage	24 V DC
Measured A-evaluated emission sound pressure level at workstation LpA**	72 dB (A)
Compressed air connection according to ISO 8573-1:2010 [1:4:2]	6 - 6.5 bar (max. 50 l / min)
Diameter of polishing ring	180 mm
Speed of polishing ring	1500 1/min
Diameter of deburring ring	180 mm
Speed of deburring ring	1500 1/min
Speed of wet-grinding belt	1500 1/min
Maximum knife length	270 mm

3. Description

Suction capacity _____ max. 300 m³/h

Particle diameter of cartridge filter _____ 3.2 µm

*) This information may change depending on the electrical supply.
**) Two-digit sound emission value per EN ISO 4871 (measurement uncertainty kPa 3 dB(A)) Emission sound pressure level per EN ISO 11201. A hand knife (Ergogrip) from the company Dick was ground.

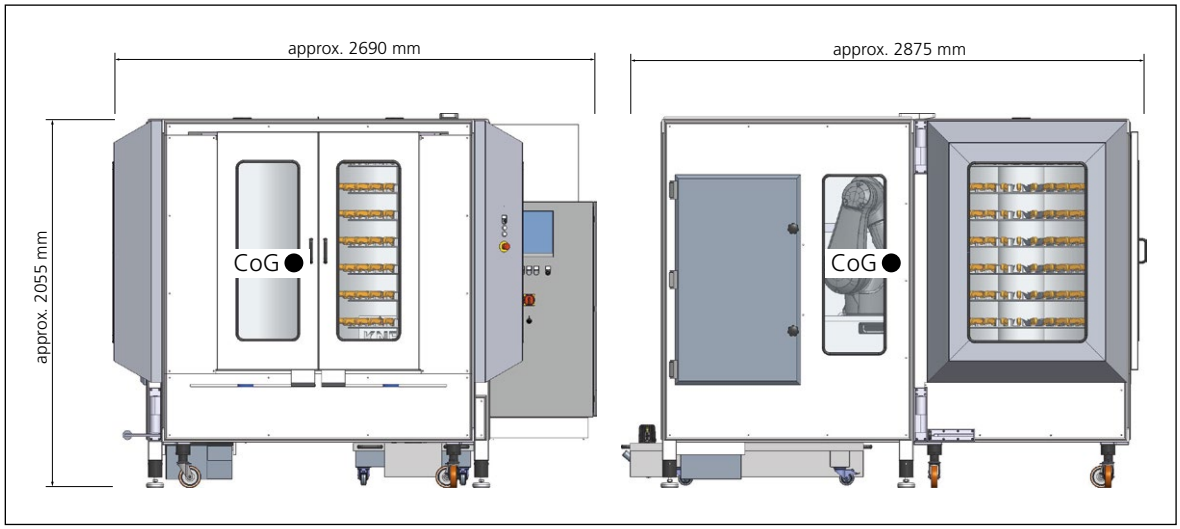


Figure 3-1 Dimensions in mm

3.3 Functional description

The E 50 RT fully automatic hand knife grinding machine is used to grind, deburr, and polish hand knives.

The hand knives are inserted into the magazine. After starting, the knife gripper grabs and measures the first knife then sharpens it at the grinding or polishing station. After the grinding process is complete, the knife is replaced in the magazine and the next one is processed.

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

3. Description

3.4 Description of components

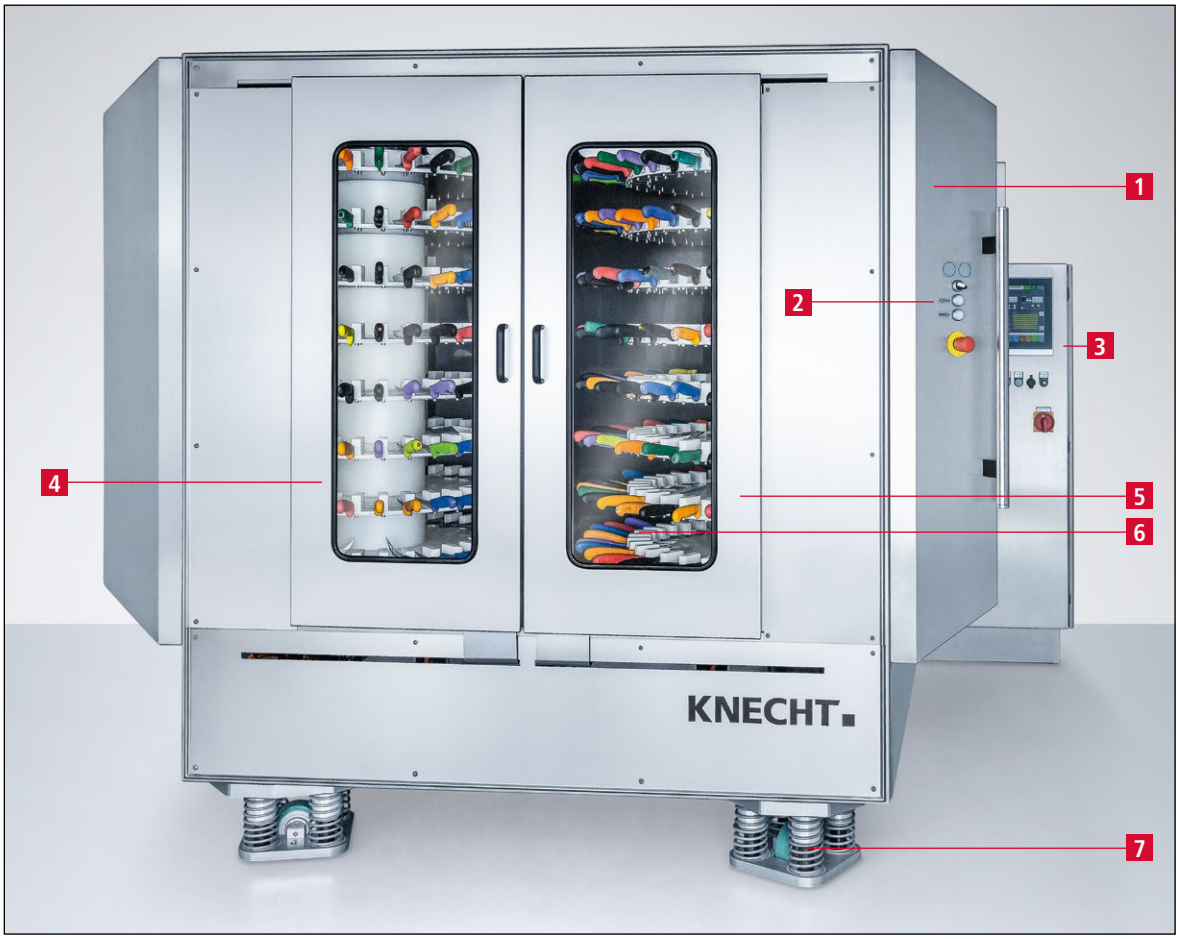


Figure 3-2 Overall view of grinding machine

1 Magazine tower
2 Control, magazine tower
3 Controller and switch cabinet
4 Protective door, magazine tower left
5 Protective door, magazine tower right
6 Inner door right
7 Machine feet, magazine tower

3. Description

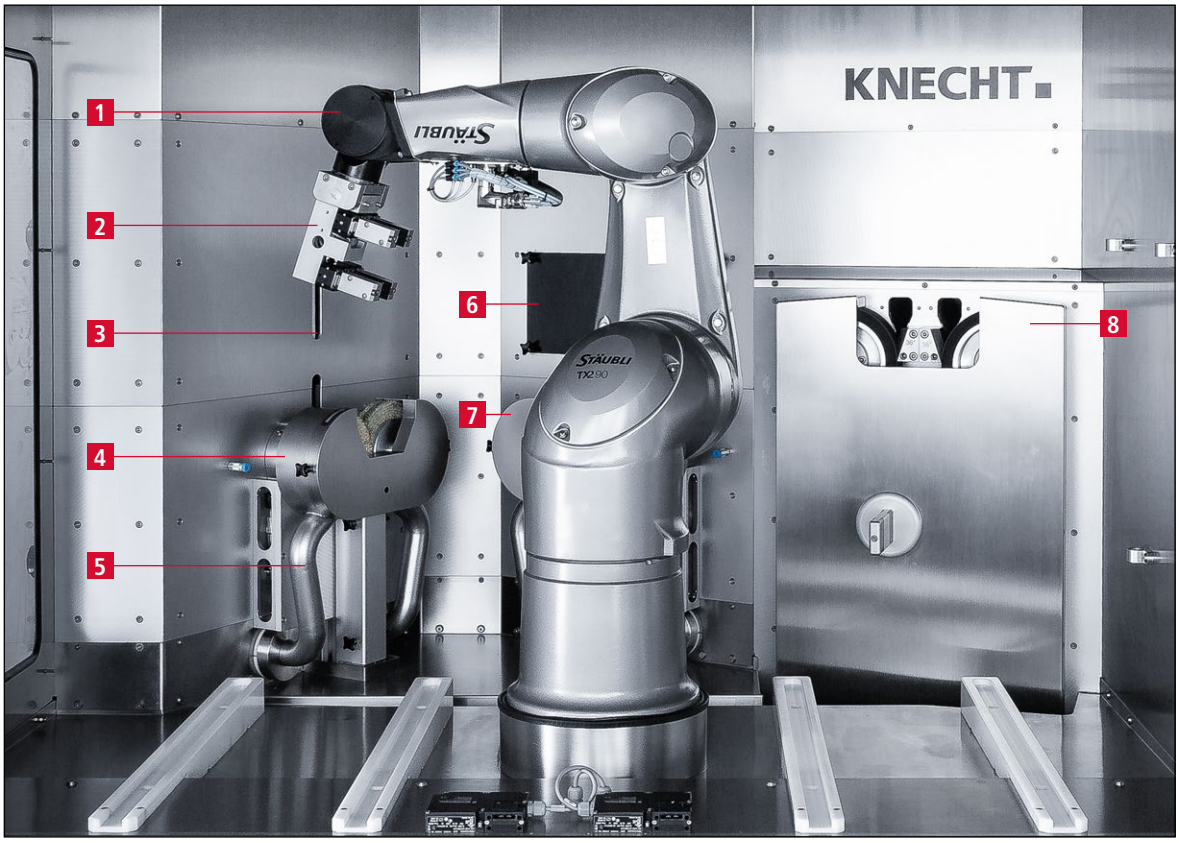


Figure 3-3 Interior, grinding machine

1 Robot
2 Knife gripper
3 Sharpness testing device (optional)
4 Deburring unit
5 Suction unit
6 Measuring device
7 Polishing unit
8 Grinding unit

3. Description

Figure 3-4 Interior, magazine tower

1 Magazine left
2 Magazine right
3 Inner door left
4 Inner door right

3. Description

3.4.1 Control panel, grinding machine

Figure 3-5 Control panel, grinding machine

1 Touchpanel
2 "Emergency off" button
3 "Controller on" button: activates controller (when button flashing)
4 "Start/Stop" button: starts/stops grinding program
5 "Coolant on/off": switches coolant pump on/off (for cleaning)
6 USB port
7 "Servicing on/off" key switch: position "1" for setup mode, position "0" for automatic mode
8 ON/OFF main switch
9 "Lockout tagout": (only on machines for the USA)

3.4.2 Switching the grinding machine on / off

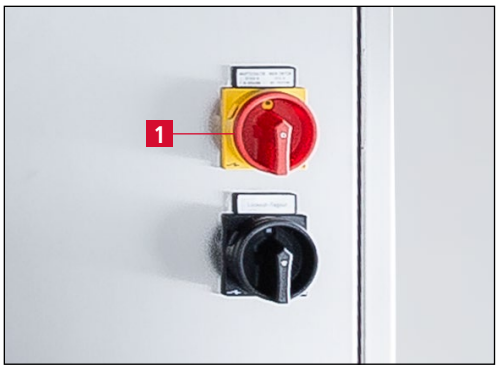


Figure 3-6 Main screen

Turning the main switch (3-6/1) to the "1 ON" position switches on the grinding machine.

Turning the main switch (3-6/1) to the "0 OFF" position switches off the grinding machine.

3.4.3 Control panel, magazine tower

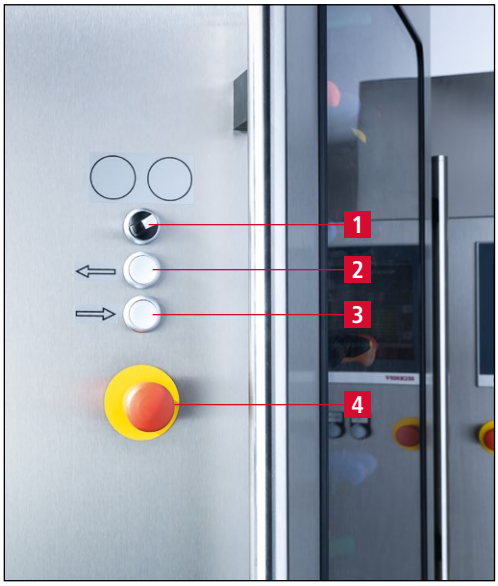


Figure 3-7 Control panel, magazine tower

1 Selector switch "Magazine" (three selection options): In the vertical position, the machine processes both magazines. In this position, the magazine cannot be loaded. Position "L" (left) closes the left inner door (3-4/3) to the grinding area and unlocks the protective door of the magazine tower for loading. Position "R" (right) closes the right inner door (3-4/4) to the grinding area and unlocks the protective door of the magazine tower for loading.

2 "Rotate magazine clockwise" button: rotate the selected magazine clockwise using the selector switch (3-7/1).

3 "Rotate magazine counterclockwise" button: rotate the selected magazine counterclockwise using the selector switch (3-7/1).

4 "Emergency off" button (entire system)

NOTICE

To rotate the magazine using the buttons ((3-7/2) and (3-7/3)) the protective doors ((3-2/4) and (3-2/5)) must be closed.

3. Description

3.4.4 Layout of user interface (main screen)

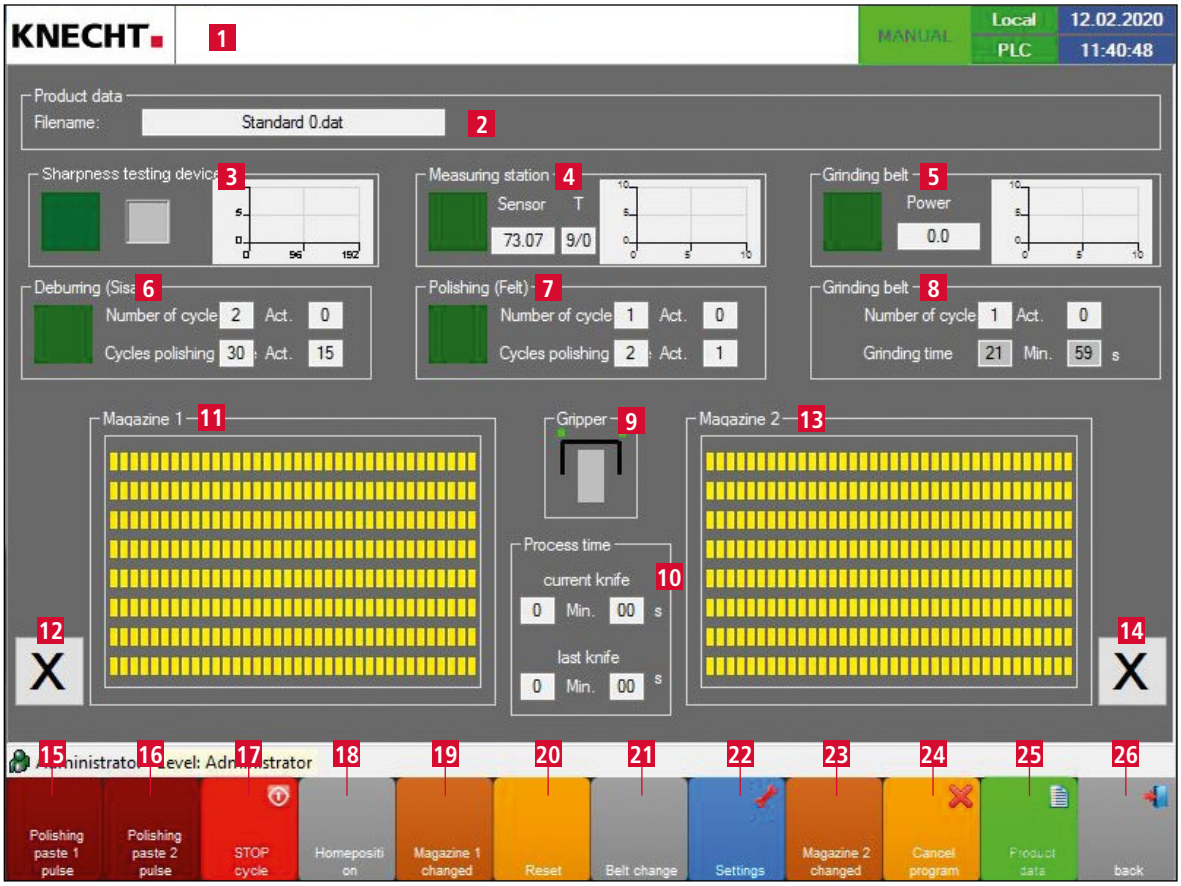


Figure 3-8 Main screen

1 Errors and general messages
2 Product data (loaded product data)
3 Sharpness testing device (optional)
4 Measuring station (contour capture)
5 Grinding belt (wet-grinding belt activated/deactivated, capacity)
6 Deburring (Sisal) (number of cycles and cycles paste, deburring unit activated/deactivated)
7 Polishing (Felt) (number of cycles and cycles paste activated/deactivated)
8 Grinding belt (number of cycles and grinding time, wet-grinding belt rotated)
9 **"Gripper"**: Tapping the gripper symbol opens/closes knife gripper
10 Processing duration (current and last knife)
11 Magazine 1
12 **"X"**: Empty magazine 1
13 Magazine 2
14 **"X"**: Empty magazine 2
15 **"Polishing paste 1 pulse"**: Feed polishing paste 1 one time
16 **"Polishing paste 2 pulse"**: Feed polishing paste 2 one time
17 **"STOP cycle"**: Stop processing after the currently active knife

18 **“Home position”**: Run machine to initial position

19 **“Magazine 1 changed**”: Pressing 1x sets the magazine back by one knife. Pressing for 2 sec sets the entire magazine back.

20 **“Reset”**: Reset control

21 **“Belt change”**: triggers “Replace grinding belt” message (press for 2 sec)

22 **“Settings”** switches to the “Settings” view

23 **“Magazine 2 changed”**: Pressing 1x sets the magazine back by one knife. Pressing for 2 sec sets the entire magazine back.

24 **“Cancel program”**: cancel current knife program and begin grinding process from beginning

25 **“Product data”**: load different grinding program (for product file loaded, see (3-8/2))

26 **“Back”**: switch to previous view or close user interface

NOTICE

When the key-operated switch (3-5/7) is on position “1”, the knife gripper (3-3/2) can be activated even when the door is open.

The “Polishing paste 1 pulse” (3-8/15) and “Polishing paste 2 pulse” (3-8/16) only work in automatic mode while the polishing unit is on.

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

If the key-operated switch (3-5/7) is on position “1”, there is a pinching hazard from the knife magazine.

4. Transport

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

Transport the grinding machine with the machine feet facing downwards.

4.1 Means of transport

When transporting and setting up the grinding machine, only use adequately dimensioned transport aids, e.g. truck, forklift or hydraulic lifting truck.

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 when accepting delivery, notify KNECHT Maschinenbau GmbH and the forwarding agent immediately. Refer directly to an independent specialist as needed.

Remove the packaging and shipping 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 section 3.2).

An approved electrical connection, pneumatic connection, and network connection must be available at the new installation site. The grinding machine must be firmly and securely fixed in place. The grinding machine must sit tightly and securely.

Work on the electrical system 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 maintenance work on the grinding machine carried out by 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 section 3.2).

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

5.3 Supply connections

The grinding machine can be connected upon delivery using the corresponding plug (32 A) for the power supply and a compressed air hose (5 m).

Have an authorized electrician install the current supply on-site.

Have the compressed air supply and the connection with the power supply installed on site by an authorized specialist.

Confirm that the machine is correctly connected to the pressurized air supply.

If connected incorrectly, pressurized air may leak, causing parts to spin and potentially injure someone.

Observe local safety and accident prevention regulations for pressurized air.

Confirm that the machine is correctly connected to the current supply.

5.4 Settings

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

ATTENTION

Unauthorized changes 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.

Level out any uneven floors by adjusting the machine feet of the grinding machine with a flat wrench (SW 19 mm).

Have an authorized electrician install the current supply on-site.

Have the compressed air supply and the connection with the power supply installed on site by an authorized specialist.

Completely install and check the protective equipment before commissioning.

Have the functionality of all protective equipment checked by authorized trained personnel before commissioning the machine.

No work on the machine is to be performed unless by trained personnel.

Observe the locally applicable safety and accident prevention regulations.

Have the functionality of all protective equipment (in particular the electrical safety circuits) checked by authorized trained personnel before commissioning the machine.

6. Commissioning

CAUTION

No work on the machine is to be performed unless by trained personnel.

Observe the locally applicable safety and accident prevention regulations.

Figure 6-1 Water trough

Push the water trough (6-1/1) under the machine and fill to 3 cm below the rim with water.

NOTICE

Do not use any coolant additives.

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

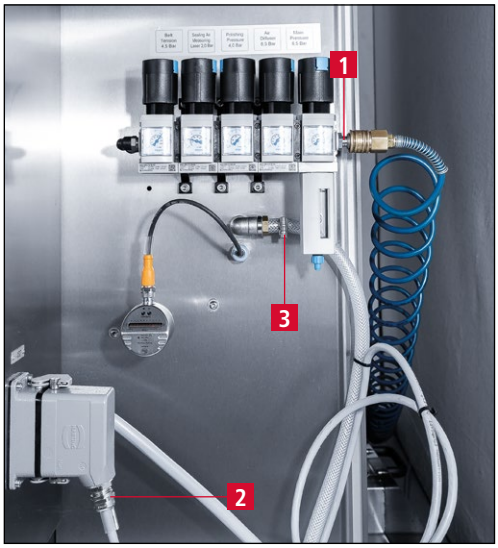


Figure 6-2 Compressed air connection

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

Hang pump in water trough and plug in on switch cabinet (6-2/2).

Insert water hose from pump below the compressed air maintenance unit and secure using hose clamp (6-2/3).

Close the protective doors.

6. Commissioning

Figure 6-3 Control panel

Set the main switch (3-6/1) to "I". Wait for the controls to initialize.

Switch on the control unit with the "Control ON" button (6-3/1) when the "Control ON" button (6-3/1) starts flashing.

ATTENTION

In manual mode, switch on the polishing unit (see section 8.1).

Under no circumstances should the grinding program be activated using the "Start / Stop" button (3-5/4).

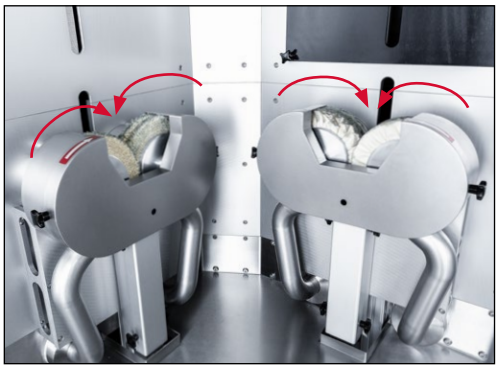


Figure 6-4 Checking the direction of rotation

Check the direction of rotation of the polishing and deburring rings.

If required, interchange the phases in the power plug.

7. Operation

No work on the machine is to be performed unless by trained personnel.

Observe the locally applicable safety and accident prevention regulations.

CAUTION

7.1 Grinding hand knives

Figure 7-1 Control panel, magazine tower

Close protective doors to the magazine tower ((3-2/4) and (3-2/5)).

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

The inner door to the grinding area will close and the protective doors for the magazine tower will unlock for loading.

Open protective doors for the magazine tower.

ATTENTION

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

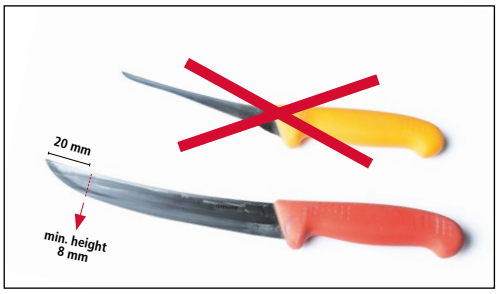


Figure 7-2 Knife size

The cutting edge is not to be greater or less than 70–270 mm.

Additionally, the cutting edge must be at least 8 mm high, measured 20 mm from the tip of the knife (see Figure 7-2).

7. Operation

Figure 7-3 Loading the magazine

Insert every knife up to the grip into the magazine.

Insert the first knife at the very top, next to the block designated "1" (7-3/1).

ATTENTION

All knives must be inserted to the left of the block. The machine processes the knifes from the top down and then from the bottom up.

Figure 7-4 Inserting knives

Place the knives so that the edges lie on the magazine bottom (see Figure 7-4).

7. Operation

ATTENTION

Incorrectly inserted knives can lead can cause a collision.

Close protective doors of the magazine tower.

Figure 7-5 Control panel, grinding machine

Press the "Start/Stop" button (7-5/1).

The grinding program starts automatically.

The machine picks up one hand knife after the other, measures the blade profile, grinds the left and right knife flank respectively, polishes the blade, checks the sharpness (optional), and finally places the knife back in the magazine.

ATTENTION

After grinding, clean and disinfect the hand knives again.

Then check the sharpness (optional).

7. Operation

7.2 Changing the wet-grinding belt

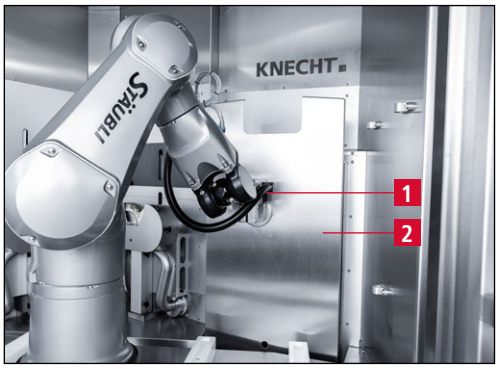


Figure 7-6 Replacing the wet-grinding belt

After a predefined time, the message (3-8/1) "Replacing grinding belt" appears at the top of the touchpanel.

Press "Replace belt" (3-8/21) on the touchpanel.

The gripper (7-6/1) grabs the belt protection hood (7-6/2) and places it on the right side. The wet-grinding belts (7-7/1) are released automatically.

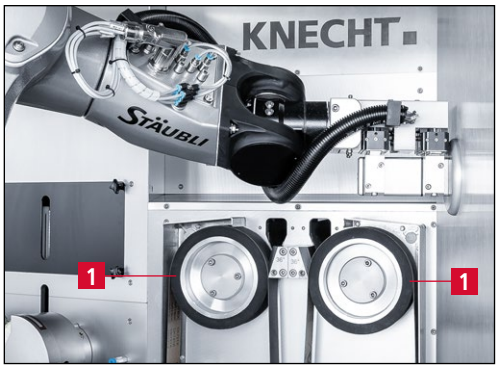


Figure 7-7 Replacing the wet-grinding belt

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

Press the "Replace belt" touchpanel button (3-8/21) again in order to have the gripper close the belt protection hood.

The grinding belts are tightened automatically.

NOTICE

The wet-grinding belt is subject to uneven wear. Therefore, we recommend rotating the belt once before replacing it with another.

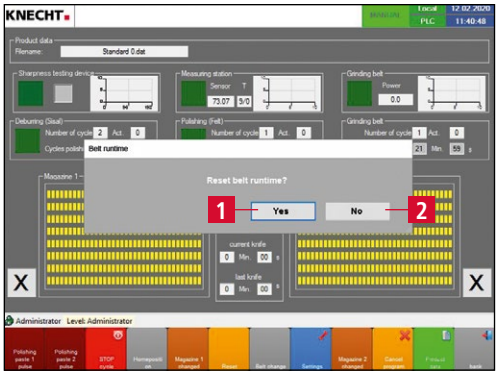


Figure 7-8 "Reset belt runtime?" message

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

Answer the question with "Yes" (7-8/1), if the grinding belt has been replaced or rotated.

If the belt protection hood was only opened to assess the grinding belts, answer the question with "No" (7-8/2).

7. Operation

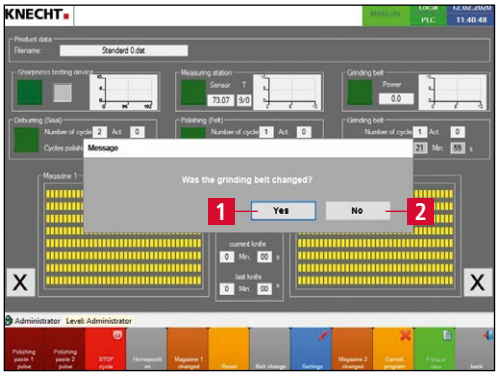


Figure 7-9 "Has the belt been replaced?" message

If the first message was answered with "Yes" (7-8/1), the message "Was the grinding belt changed?" appears.

Answer the question with "Yes" (7-9/1), if a new wet-grinding belt has been attached.

If the grinding belt was only rotated, answer the message with "No" (7-9/2).

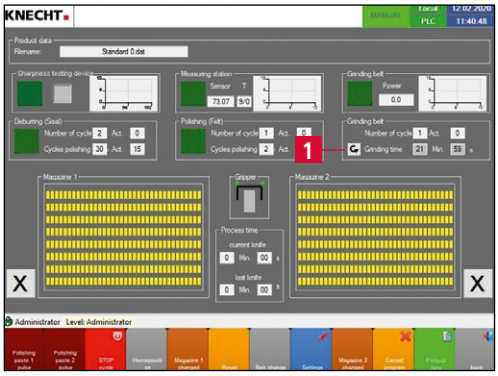


Figure 7-10 Main screen

If the grinding belts were rotated successfully, an arrow will appear on the main screen near the grinding time (7-10/1).

NOTICE

After the wet-grinding belts have been replaced or rotated, perform a trial run. If the machine behaves unusually, take it out of service and correct the cause.

ATTENTION

If new wet-grinding belts were attached, the message must be answered with "Yes" (7-9/1).

After replacing, the machine begins the grinding process in a higher position. This ensures a lower material removal on the knife.

7. Operation

7.2.1 Adjusting the wet-grinding belt

Figure 7-11 Adjusting the wet-grinding belt

The grinding belts must be configured in such a way that they each protrude about 3 mm forward over the contact disc.

Figure 7-12 Star handle for belt adjustment

Adjust the belt using the provided star handle (7-12/1).

Open the protective doors.

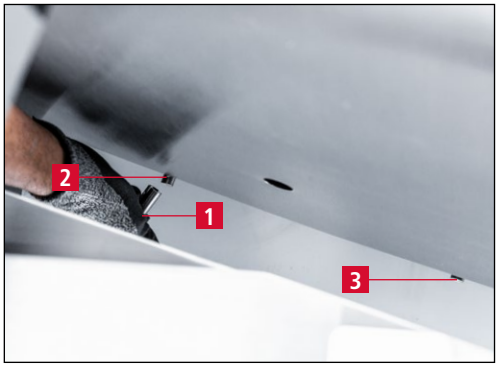


Figure 7-13 Aligning the wet-grinding belt

The belt is adjusted on the underside of the grinding device.

To adjust the left wet-grinding belt, set the provide star handle (7-13/1) onto the pivot rod (7-13/2).

Then rotate until the left wet-grinding belt runs approx. 3 mm in front of the contact disc.

Remove the star handle from the left pivot rod and set onto the right pivot rod (7-13/3). Set the right wet-grinding belt in the same manner.

Clockwise rotation = the grinding belt moves forward.

Counterclockwise rotation = the grinding belt moves back.

7. Operation

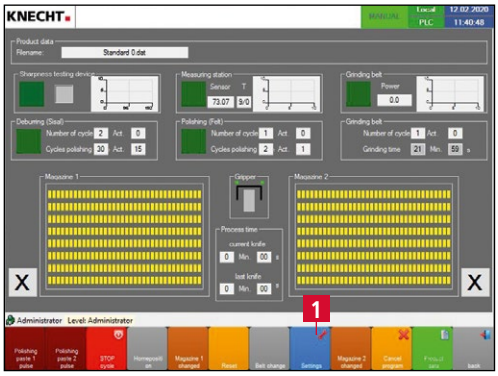


Figure 7-14 Main screen

After adjustment, perform a trial run.

Close the protective doors.

To do so, switch to the "Settings" (7-15) view using the "Settings" touchpanel button (7-14/1) on the main screen.

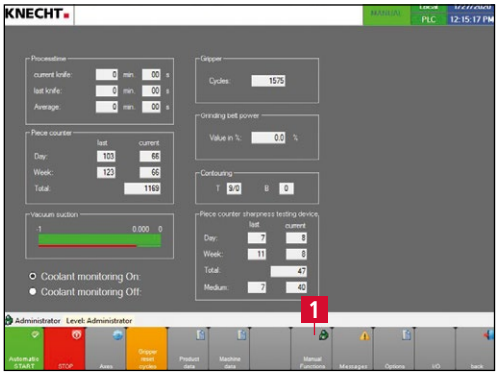


Figure 7-15 Settings

Switch to the "Manual functions" view (7-16) using the "Manual functions" touchpanel button (7-15/1).

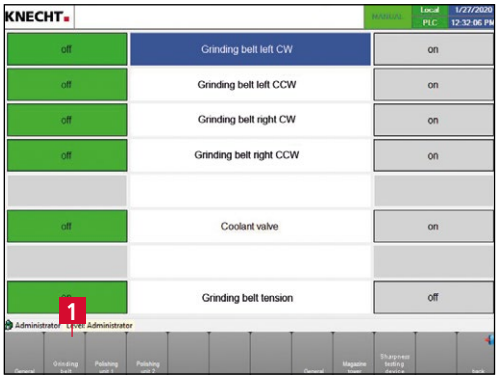


Figure 7-16 Manual functions

Press the "Grinding belt" touchpanel button (7-16/1) to access the wet-grinding belt functions.

7. Operation

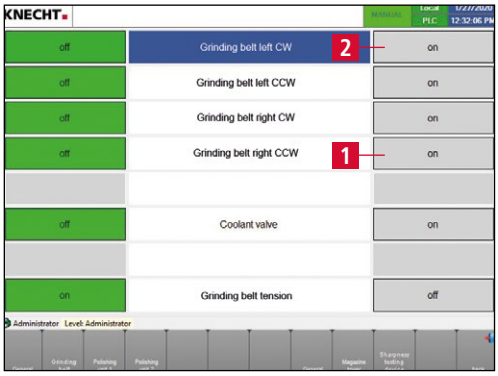


Figure 7-17 "Grinding belt" manual functions

Switch on the right wet-grinding belt "Grinding belt right CW" via the "On" touchpanel button (7-17/1).

Switch on the left wet-grinding belt "Grinding belt right CCW" via the "On" touchpanel button (7-17/2).

7. Operation

7.3 Changing the polishing / deburring rings and polishing paste

Figure 7-18 Removing the protection hood

To replace the polishing and deburring rings, first open and remove the cover (7-18/1) by turning the two star handles (7-18/2).

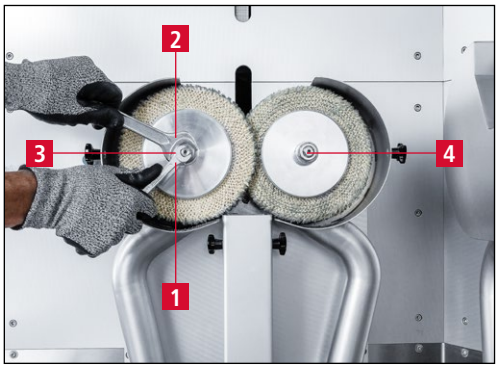


Figure 7-19 Replacing the polishing / deburring rings

The shaft must be attached using a SW10 mm spanner (7-19/1) in order to then loosen the threaded nuts using a SW 22 mm spanner (7-19/2).

NOTICE

After replacing the polishing / deburring ring, perform a trial run. If the machine behaves unusually, take it out of service and correct the cause.

ATTENTION

The left shaft (7-19/3) has a left-hand thread. To loosen the threaded nuts to the left, turn clockwise.

The right shaft (7-19/4) has a right-hand thread. To loosen the threaded nuts to the right, turn counterclockwise.

7. Operation

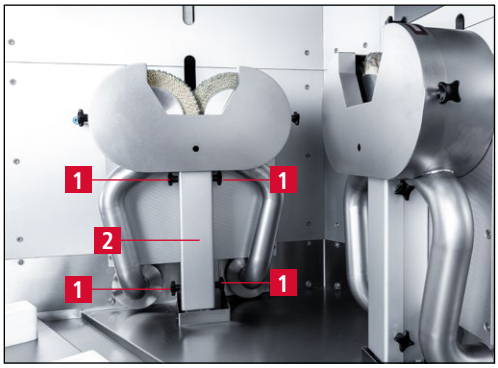


Figure 7-20 Replacing the polishing paste

To replace the polishing pastes, loosen the four star handles (7-20/1) on the side and remove the cover (7-20/2).

The used paste can now be replaced with new paste. Mount the cover again and tighten the four star handles.

7. Operation

7.4 Adjusting the polishing / deburring ring

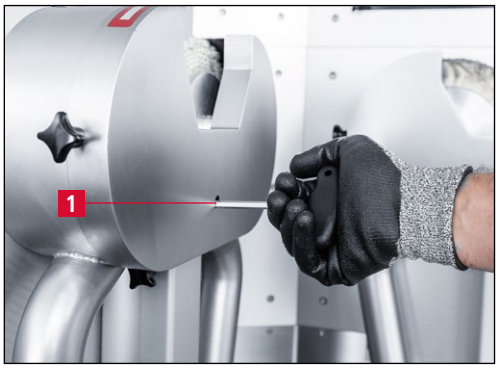


Figure 7-21 Setting the polishing / deburring rings

The polishing / deburring rings must be configured in such a way that the front ring touches the flange of the ring next to it.

The adjustment is carried out using the SW 5 mm Allen key provided with the accessories. Replace polishing / deburring rings with a Ø of 165 mm.

The Allen screw has a right-hand thread.

Clockwise rotation = the rings move away from one another.

Counterclockwise rotation = the rings move towards one another.

ATTENTION

Use only original polishing and deburring rings.

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

7. Operation

7.5 Changing the test medium of the sharpness testing device

Figure 7-22 Opening the sharpness testing device

Open the doors to the sharpness testing device (7-22) on the left side of the machine.

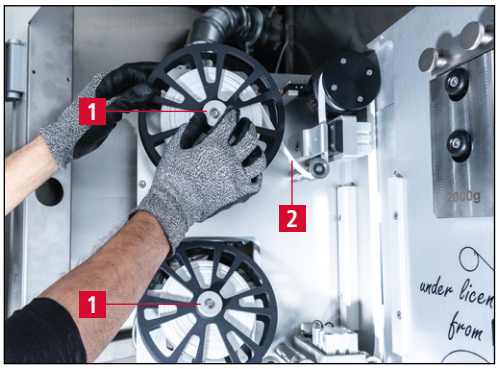


Figure 7-23 Removing the test medium

Turn the locking screw (7-23/1) counterclockwise and remove.

Remove the used test medium (7-23/2).

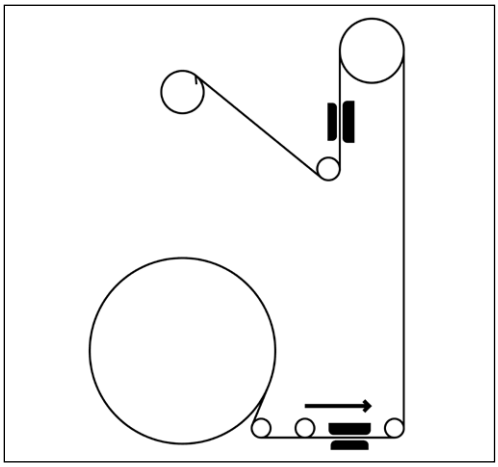


Figure 7-24 Inserting the test medium

Insert a new test medium (see Figure 7-24) and calibrate the sharpness testing device (see Chapter 7.5.1).

7. Operation

7.5.1 Calibrating the sharpness testing device

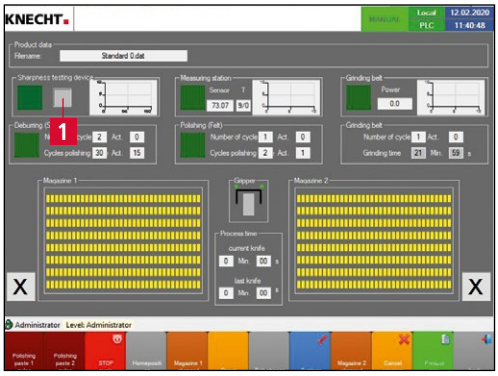


Figure 7-25 Main screen

Open the settings window on the sharpness testing device using the touch panel (7-25/1).

NOTICE

Do not clamp the test medium.

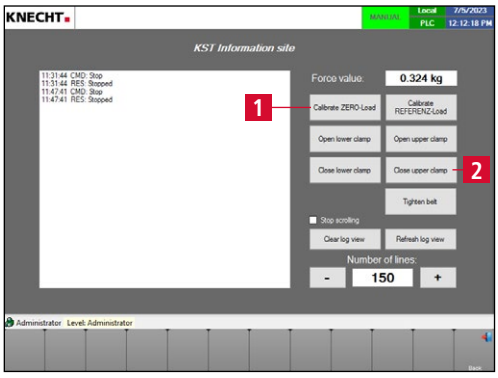


Figure 7-26 Calibrating the "ZERO load"

Press the "Calibrate ZERO load" touch panel button (7-26/1).

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

Fix the test medium in place using the "Close upper clamp" touch panel button (7-26/2).

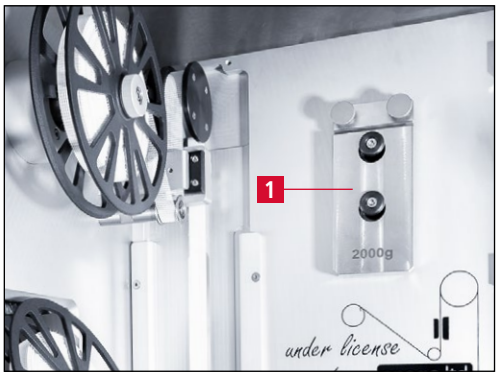


Figure 7-27 Removing the calibration weight

Remove the calibration weight (7-27/1) from the holder.

7. Operation

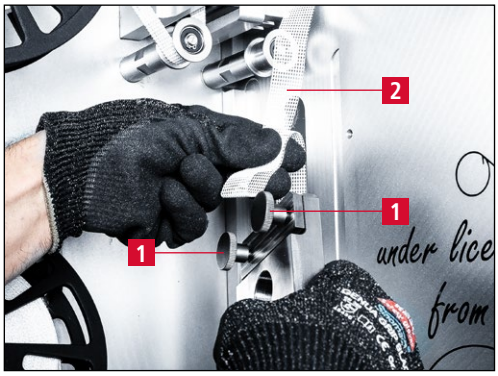


Figure 7-28 Attaching the test medium to the calibration weight

Remove the two knurled screws (7-28/1).

Pull the test medium (7-28/2) slightly forward from the rear, bend it, then insert it into the slot on the calibration weight.

Secure it using the knurled screws (7-28/1).

NOTICE

The test medium must be fixed in place by pressing the "Close upper clamp" touch panel button (7-26/2).

Otherwise the calibration weight will fall down and calibration will not be possible.

Figure 7-29 Calibration weight

Make sure that the weight (7-29/1) hangs freely and is not resting on anything.

ATTENTION

If the weight is not hanging freely, this can cause the calibration to be incorrect, thus leading to inaccurate results for the sharpness test.

7. Operation

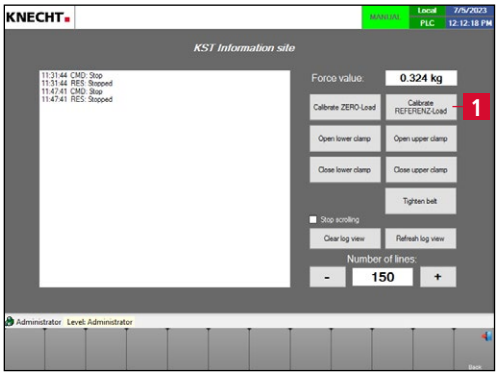


Figure 7-30 Calibrating the "REFERENCE load"

Press the "Calibrate REFERENCE load" touch panel button (7-30/1).

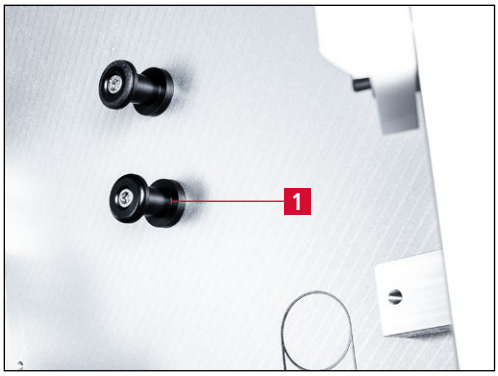


Figure 7-31 Calibration weight holder

After calibration, remove the weight and hang it on the holder (7-31/1).

Close door to the sharpness testing device.

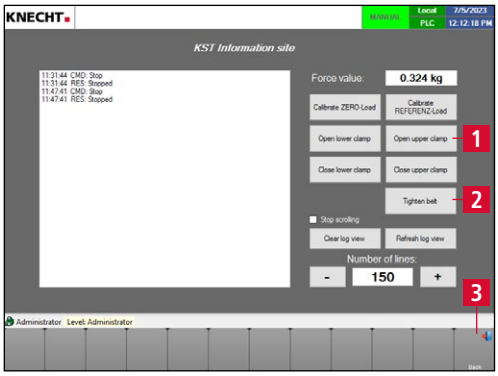


Figure 7-32 Sharpness testing device settings

Use the "Open upper clamp" touch panel button (7-32/1) to loosen the test medium, then tighten the test medium using the "Tighten belt" button (7-32/2).

Press "Back" (7-32/3) to return to the main screen.

7.6 Replacing the coolant

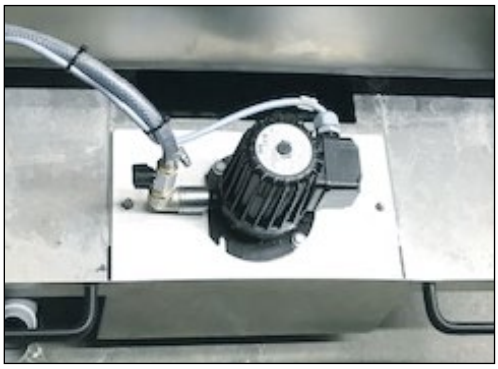


Figure 7-33 Replacing the coolant

Replace coolant daily.

Hold the pipe in the rear of the water trough horizontally for emptying.

Use clean tap water without additives for the coolant.

ATTENTION

Do not operate the machine without coolant. This may damage the hand knives.

8. Control

8.1 Manual functions

The manual functions allow you to operate the machine by hand. Various grinding machine features, such as wet-grinding belt and polishing paste adjustments as well as trial runs, can be run individually.

ATTENTION

Buttons highlighted in green are enabled.
Buttons highlighted in gray are disabled.

NOTICE

No function can be enabled if the protection doors are not closed.

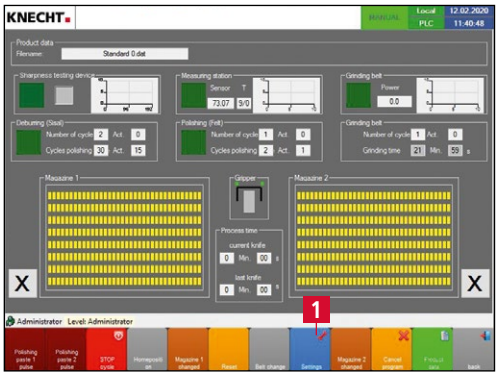


Figure 8-1 Main screen

The "Settings" touchpanel button (8-1/1) switches to the "Settings" view (8-2).

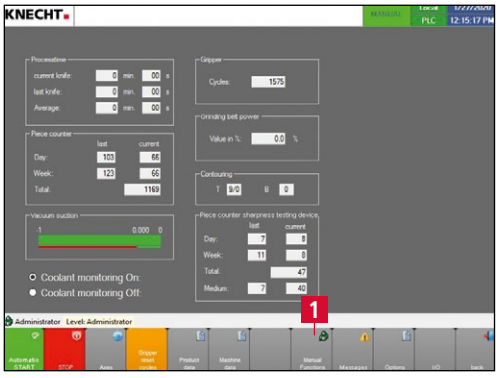


Figure 8-2 Settings

The "Manual functions" touchpanel button (8-2/1) switches to the "Manual functions" view (8-3).

8. Control

Figure 8-3 Manual functions

Functions in manual mode can be switched on or off via the “On” or “Off” buttons.

Use the bottom touchpanel buttons to select the various options.

8. Control

8.2 Setting the language

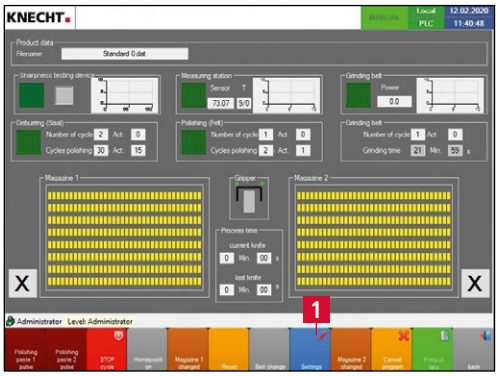


Figure 8-4 Main screen

The "Settings" touchpanel button (8-4/1) switches to the "Settings" view (8-5).

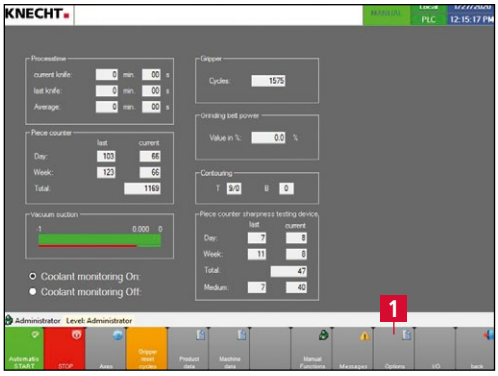


Figure 8-5 Settings

The "Options" touchpanel button (8-5/1) switches to the "Options" view (8-6).

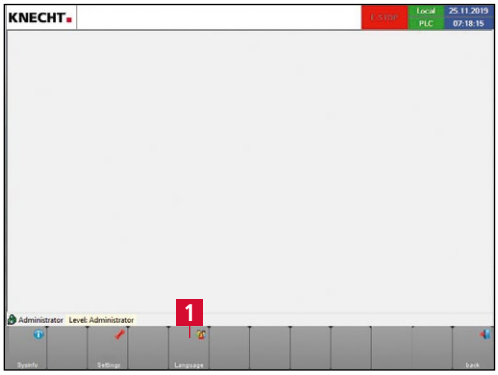


Figure 8-6 Options

The "Language" touchpanel button (8-6/1) switches to the "Language" view (8-7).

8. Control

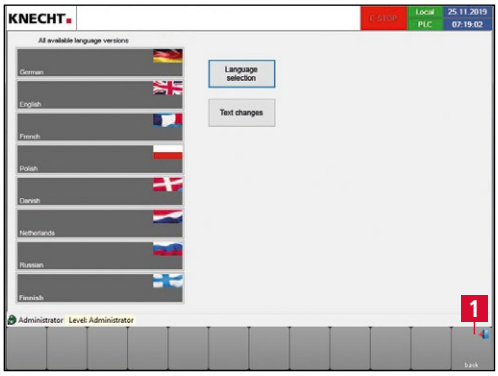


Figure 8-7 Language

Select the desired language.

Press the "back" touchpanel button (8-7/1) to return to the main menu.

8. Control

8.3 Loading product data

Self-created programs, in which, for example, the cycle numbers have been modified, can be loaded in the “Product data” view.

ATTENTION

Improper changes to product data may lead to machine and / or knife damage.

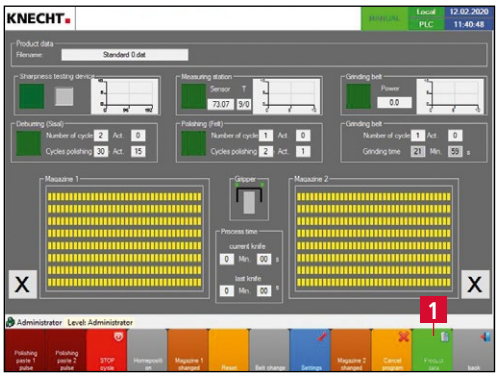


Figure 8-8 Main screen

Switch to the “Product data” view (8-9) using the “Product data” touchpanel button (8-8/1).

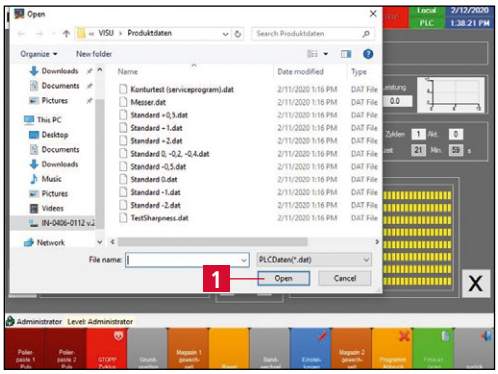


Figure 8-9 Product data

After switching on, the product from the last process will be activated automatically.

To load a new product, select the corresponding file.

Double-click or use the “Open” dialog window (8-9/1) to load the new product.

8. Control

8.4 Changing product data

Product data can be changed in order to modify cycle numbers, for example.

ATTENTION

Improper changes to product data may lead to machine and / or knife damage.

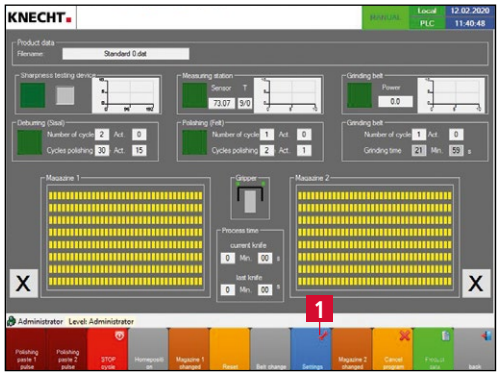


Figure 8-10 Main screen

The “Settings” touchpanel button (8-10/1) switches to the “Settings” view (8-11).

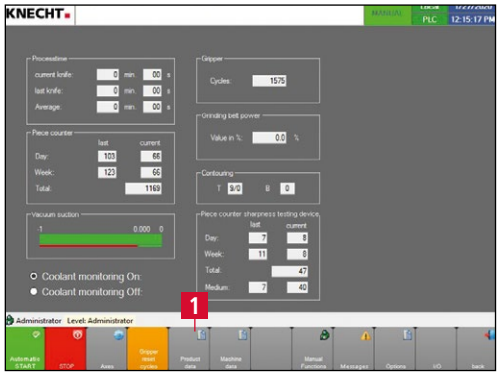


Figure 8-11 Settings

The “Product data” touchpanel button (8-11/1) switches to the “Product data” view (8-12).

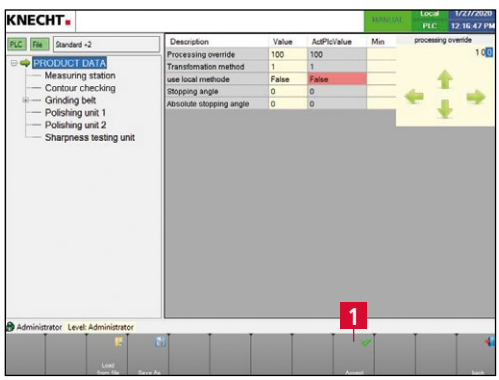


Figure 8-12 Changing product data

Select the desired parameter from the tree and change the value.

Save via “Accept” (8-12/1).

8. Control

8.5 Setting up an internet connection

Figure 8-13 Network connection

The machine has an Ethernet connection. A secure connection between the machine and KNECHT Maschinenbau GmbH can be established via the integrated VPN router. This connection can be activated or deactivated by the operator using the key switch on the control cabinet (8-13/1).

This connection gives the KNECHT service technician access to the control in order to diagnose the machine, change the software settings, and load or edit new grinding programs.

An active internet connection is required to establish the connection.

NOTICE

During commissioning, configure the VPN router according to the specified IT infrastructure so that the machine communicates exclusively with KNECHT Maschinenbau GmbH via the VPN server. There is no communication within the customer network. In this way, the network is optimally protected.

To establish the internet connection, connect the supplied Ethernet cable to the on-site network socket (RJ 45) and the network connection on the control cabinet (8-13/2).

9. Care and maintenance

9.1 Lubrication

9.1.1 Lubrication schedule and lubricant table (one-shift operation)

Lubrication work	Cycle	AXEL Christiernsson	SHELL	EXXON Mobil
Lubricate motor for abrasive belt drive	Monthly	Multi-purpose grease Acinol 142S		

9. Care and maintenance

9.2 Cleaning

Figure 9-1 Interior

Clean the machine and magazine tower each time after grinding to prevent the grinding sludge from drying, which makes it harder to remove.

ATTENTION

The polishing and deburring rings cannot be wet, as they can only accept the polishing paste and properly deburr the knife when dry.

The cross table parts cannot become wet. Under no circumstances should the machine be sprayed using a high-pressure washer.

Figure 9-2 Opening the magazine tower

To clean the machine, open the entire magazine tower using the handle (9-2/1).

After cleaning, lightly grease the grinding machine and magazine tower with non-corrosive oil (also refer to the lubrication schedule, section 9.1.1)

Replace coolant daily and clean container.

9. Care and maintenance

Figure 9-3 Suction unit tray

Empty the suction unit tray (9-3/1) once per week.

ATTENTION

Push the tray until reaching the stop under the machine, otherwise the suction unit will not work at full capacity.

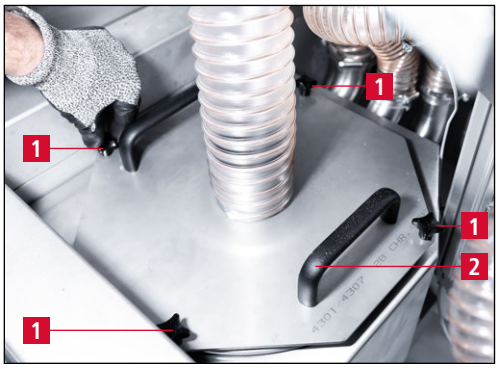


Figure 9-4 Suction unit lock

Check the filter cartridge once per week.

To do so, open the doors on the left side of the machine and unscrew the four star handles (9-4/1).

Remove the filter cover (9-4/2).

Figure 9-5 Filter cartridge

Remove the filter cartridge (9-5/1) and clean.

NOTICE

The filter cartridge may be cleaned with water.

9. Care and maintenance

ATTENTION

Do not spray filter cartridge with the high-pressure washer. Insert the filter cartridge only when dry.

Do not continue to use damaged filter cartridges.

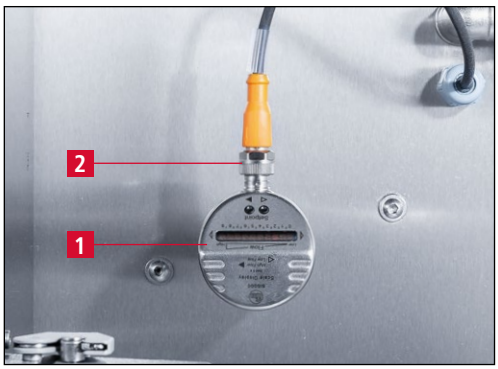


Figure 9-6 Flow gauge

The flow gauge (9-6/1) must be removed and cleaned semi-annually.

To do so, disconnect the plug (9-6/2) and turn the flow gauge by hand counter-clockwise. Clean the measuring probe with a clean cloth.

Lightly lubricate the threading slightly (not the probe) and rotate back down.

9. Care and maintenance

9.3 Maintenance plan (one-shift operation)

Cycle	Assembly	Maintenance task
Daily	Polishing pastes	Check paste length. Replace if below 80 mm or if the corresponding message has appeared.
	Polishing/deburring unit	Set ring distance. Replace if the diameter is less than 165 mm.
	Magazine	Clean magazine.
	Machine interior	Clean thoroughly using a brush or cloth.
	Coolant unit	Drain water out, clean trough.
Weekly	Grinding belt drive	Open belt protection hood and clean the area of the grinding belt.
	Suction unit	Empty suction unit tray.
		Check filter cartridge, remove and clean or replace as needed.
		Clean interior and exterior of machine. Attention! The polishing/deburring rings cannot be wet.
Monthly	Gripper	Unscrew gripper and clean seal surface.
Semi-annually	Grinding belt drive	Remove and clean flow gauge.
Annually		Contact service department of KNECHT Maschinenbau GmbH.

10. Disassembly and disposal

10.1 Disassembly

Dispose of all operating materials 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 certain 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 also be disposed of correctly.

11. Service, spare parts and accessories

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 are in need of spare parts, please use the spare parts list provided with the machine. Please make your order using the format provided in the following.

When ordering, please always provide:	**(example)**
Machine model	(E50RT)
Machine serial number	(001025720)
Assembly designation	(gearbox housing_2PO)
Designation of individual part	(pinion shaft_below)
Item number	(19)
Drawing no. (Article number)	(2000135-11969)
Quantity	(1 pc.)

We are always happy to answer any questions.

11. Service, spare parts and accessories

11.4 Accessories

11.4.1 Abrasives used, etc.

Model	Dimensions	Grain	Order number	Remarks
Wet-grinding belt CK721X	2200x60	K240	412A-66-0728	Installed on delivery
Deburring ring (left) HT-Sisal fabric ring	d.180x6xd.32		412N-03-0180	Installed on delivery
Polishing ring (right) HT polishing ring	d.180x6xd.32		412N-05-0180	Installed on delivery
RAPID polishing paste	50x60x250		412R-05-0825	Installed on delivery

ATTENTION

Only original abrasives, wear parts, and spare spares from KNECHT Maschinenbau GmbH can be used.

KNECHT Maschinenbau GmbH is not liable in the event that original parts are not used.

If you require wet-grinding belts, polishing/deburring rings, or other accessories, please contact our sales staff, partners, or KNECHT Maschinenbau GmbH directly.

Thank you for choosing KNECHT!

12. Annex

12.1 EU Declaration of Conformity
in accordance with the EU Directive 2006/42/EU

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

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

If the machine is modified in a manner that we did not condone, this declaration shall no longer be valid.

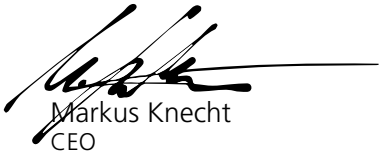
Machine designation:	Fully Automatic Hand Knife Sharpening Machine
Model designation:	E 50 RT
Machine serial number:	from no. 33087050RT
Applicable harmonized standards, in particular:	DIN EN ISO 12100 DIN EN ISO 13849-1 DIN EN ISO 13857 DIN EN ISO 16089 DIN EN 61000-3-2 DIN EN 61000-3-3 DIN EN 55014-1 DIN EN 349
Responsible for documentation:	Peter Heine (B. Eng. Mechanical Engineering BA) Tel. +49-7527-928-15 p.heine@knecht.eu
Manufacturer:	KNECHT Maschinenbau GmbH Witschwender Strasse 26 88368 Bergatreute Germany

Technical documentation is available and complete. 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 legislation.

Bergatreute, January 15, 2024

KNECHT Maschinenbau GmbH



Markus Knecht
CEO

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