KNECHT

Operating Instructions

E 50

Fully Automatic Hand Knife Sharpening Machine

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Operating Instructions

Fully Automatic Hand Knife Sharpening Machine E 50

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Documents for the machine operator

Operating Instructions

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1. Important notes

1.1 Foreword

These operating instructions are designed to make it easier to get to know the Fully Automatic Hand Knife Sharpening Machine, referred to in this document as sharpening machine, and to use it properly for the intended purpose.

The operating instructions contain important information on how to operate the sharpening machine safely, properly and cost-effectively. Observance of these instructions helps to avoid dangers, repair costs and downtimes, and increases the reliability and service life of the sharpening machine.

The operating instructions must always be accessible at the place of use of the sharpening machine.

The operating instructions must be read and used by all persons entrusted with working on the sharpening machine, e.g. those entrusted with

- Transport, installation, commissioning
- Operation, including troubleshooting in the process flow, as well as
- Servicing (maintenance, repair).

In addition to the operating instructions and the binding accident prevention regulations applicable in the country and place of use of the machine, the generally acknowledged rules of technology with regard to safe and professional work practices are to be observed.

1.2 Warnings and symbols in the operating instructions

Heeding the following safety alert symbols/designations used in the operating instructions is absolutely necessary:

CAUTION

The hazard triangle with the signal word "CAUTION" is used as a work safety indication for all work which could result in death or physical injury.

Special care and caution must be taken when carrying out such jobs.

ATTENTION

The signal word "ATTENTION" is used to call attention to hazards which could result in damage and/or destruction of the sharpening machine or its environment if special attention is not paid while carrying out particular jobs.

NOTICE

The signal word "NOTE" calls attention to tips on use and useful information.

1. Important notes

1.3 Warning plates and their meaning

1.3.1 Warning and prohibition signs on / in the sharpening machine

The following warning and prohibition signs have been affixed to the sharpening machine:

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

On being connected to the voltage supply (3x 400 V), the sharpening machine becomes electrically live and touching its live parts directly could be life-threatening.

Live machine parts may be opened only by authorised, trained personnel.

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

1.3.2 General mandatory signs

The following general mandatory signs must be observed:

CAUTION! RISK OF INJURY FROM ABRASIVE PARTICLES

Safety glasses must be worn when carrying out general maintenance and cleaning activities.

CAUTION! RISK OF INJURY ON THE BLADE

Work on the sharpening machine involves the sharpening of knives which could cause serious cut injuries due to their sharpness.

Protective gloves must be worn when clamping and unclamping the knives.

Be careful when transporting blades. Use the protective devices provided by the knife manufacturer. Wear protective gloves and apron.

1. Important notes

1.4 Rating plate and machine serial number

Figure 1-1 Rating plate

The rating plate is located on the right side of the machine, namely on the switch cabinet

.

Figure 1-2 Machine serial number

The machine serial number can be found on the rating plate and on the Z axis of the knife gripper arm.

1. Important notes

1.5 Figure and item numbers in the operating instructions

If a component of the machine that is shown in a figure is described in the text, it is followed by a figure or item number in brackets.

Example: (7-16/1) denotes figure number 7-16, item 1.

Figure 7-16 *Changing the polishing paste*

To replace the polishing pastes, loosen the four star knobs (7-16/1) on the side and remove the cover (7-16/2).

The used-up paste can now be replaced with new paste. Place the cover back again and tighten the four star knobs.

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 sharpening machine is knowledge of the basic safety instructions and regulations.

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

2.1.2 Operator's duty

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

- are familiar with the basic occupational safety and accident prevention regulations and have been trained and instructed in the handling of the sharpening machine,
- have read the operating instructions, particularly the "Safety" section, and have read and understood the warning notes. They have given a signed confirmation of this in writing.

It is also checked at regular intervals as to whether the worker is fulfilling his employee obligation to observe safety at work.

2.1.3 Obligations on the part of the personnel

All the personnel working on the sharpening machine shall be obliged to

- observe the basic occupational safety and accident prevention regulations,
- read the operating instructions, particularly the "Safety" chapter, and the warning notes. They shall give a signed confirmation of this in writing.

2.1.4 Hazards associated with the handling of the machine

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

The sharpening machine may be used only:

- for the intended purpose, and
- in faultless condition with regard to safety-relevant aspects.

2. Safety

Faults that could impair safety must be eliminated immediately.

2.1.5 Malfunctions

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

Allow only authorised technical staff to eliminate the malfunctions.

2.2 Proper use

The sharpening machine is only meant for grinding, deburring and polishing of hand knives (70 - 270 mm long). All the knives must be inserted in the designated knife magazine.

Any other use is considered improper use. KNECHT Maschinenbau GmbH does not assume any liability for damages resulting from improper use. The user alone bears the risk in such cases.

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

The sharpening machine is being used improperly, if, e.g.,

- devices are not fastened properly.
- 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 injuries or property damage are excluded if such damage is attributable to one or more of the following causes:

- improper use of the sharpening machine,
- improper transportation, commissioning, operation and maintenance of the sharpening machine,
- operating the sharpening machine with defective safety devices, or improperly attached or malfunctioning safety and protective equipment,
- ignoring the operating instructions with regard to transportation, commissioning, operation, maintenance and repair of the sharpening machine,
- unauthorised structural alterations to the sharpening machine,
- unauthorised modification, e.g. of the drive conditions (power and speed), and

- insufficient monitoring of machine parts that are exposed to wear.

- use of unapproved replacement and wear parts.

Use only original replacement and wear parts. If parts are purchased from external suppliers, it cannot be guaranteed that they will be constructed and manufactured to withstand the stresses and provide the level of safety required for operating the sharpening machine.

2.4 Safety regulations

2.4.1 Organisational measures

All the existent safety devices must be checked regularly.

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

2.4.2 Protective devices

Before commissioning the sharpening machine, it must be ensured that all protective equipment is properly mounted and in functional condition.

Protective equipment may be removed only after the machine has stopped and has been secured against accidental restarting of the sharpening machine.

When delivering 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 sharpening 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 the safety alert symbols and danger warnings on the sharpening machine must be complete and clearly legible.

2.4.4 Selection and qualifications of the personnel

Only trained and instructed personnel may work on the sharpening machine. The minimum legal age for employment must be observed.

The responsibilities of the personnel must be clearly assigned, i.e. commissioning, operation, maintenance and repair, etc.

Personnel still in the training or instruction phase may only be allowed to work on the sharpening 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 himself are excluded from this prohibition (e.g. setting the number of cycles).

Only trained and instructed personnel is allowed to switch on the machine.

2.4.6 Safety measures in normal operation

Refrain from any method of working which may pose a risk to safety. Only operate the sharpening machine if all the safety devices are installed and fully functional.

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

Report any changes (including operating behaviour) immediately to the competent department/person. Where required, shut down the sharpening machine immediately and secure against restarting.

Before switching on the sharpening machine, ensure that no one is exposed to any risk from the start-up of the machine.

If there are any functional faults, immediately stop the machine and secure against restarting. Have the faults eliminated immediately.

2.4.7 Dangers due to electrical power

The switch cabinet must always remain secured against access. Only authorised personnel must be allowed to access it.

Work on electrical units or operating materials may only be performed by a qualified electrician in accordance with electrical rules.

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

Cables marked in yellow are not electrically live when the main switch is in off position.

2.4.8 Particular hazard areas

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

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 starting repair work. The responsible supervisor is to be named. For all service work, the sharpening machine is to be disconnected from the power supply and secured against accidental restarting. Pull out the mains plug. Cordon off the servicing area, as far as possible.

After completion of the maintenance work and fault rectification, install all the safety devices and check whether they are fully functional.

2.4.10 Structural alterations to the sharpening machine

Modifications, retrofitting or rebuilds of the sharpening machine are not allowed without the permission of the manufacturer. This also applies to the installation and adjustment of safety devices.

No alterations may be carried out without prior written permission from KNECHT Maschinenbau GmbH.

Immediately replace machine parts which are not in perfect condition.

Use only original replacement and wear parts. If parts are purchased from external suppliers, it cannot be guaranteed that they will be constructed and manufactured to withstand the stresses and provide the level of safety required for operating the sharpening machine.

2.4.11 Cleaning the sharpening machine

Cleaning agents and materials used must be handled properly and disposed of in an environmentally friendly way.

Ensure that wear and replacement parts are disposed of in a safe and environmentally friendly way.

2.4.12 Oils and greases

When handling oils and greases, follow the safety instructions for the product. Observe special instructions for the food industry.

2.4.13 Relocation of the sharpening machine

Even when moving the machine a short distance from its site, disconnect it from all external power supply sources. Before restarting the machine, connect it properly to the current supply.

When loading or unloading, only use hoisting and load lifting equipment with sufficient load-bearing capacity. Appoint a qualified banksman (signaller) for the lifting process.

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

2. Safety

Only lift the sharpening machine correctly with a suspension device in accordance with the operating instructions (attachment points for load suspension devices, etc.). Only use suitable transport vehicles with sufficient load-bearing capacity. Attach the load securely. Use suitable attachment points. When putting in operation again, proceed only as instructed in the operating instructions.

3. Description

3.1 Use as intended

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

3.2 Technical specifications

Height (fully extended)	approx. 3000 mm
Width	approx. 2389 mm
Depth	approx. 1391 mm
Required space (WxDxH)	approx. 3200 mm x 3000 mm x 3000 mm
Permissible ambient temperature	10 - 35°C
Permissible humidity	20 - 80%
Weight	800 kg
Current supply*	3x 400 V
Mains frequency*	50 Hz
Power*	8 kW
Energy consumption*	11 A
Back-up fuse	25 A
Control voltage	24 V DC
Measured A-evaluated emission sound pressure level at work station LpA**	72 dB (A)
Compressed air connection	6–6.5 bar
Air consumption	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

Recommended extraction capacity if air purifier is included ex-factory _____ 700m³/h

Particle diameter of cartridge filter _____ 3.2 µm

*) This data may vary depending on the electrical power supply
**) Dual number noise emission information according to EN ISO 4871 (measurement uncertainty KpA. 3 dB(A)). Emission sound pressure level according to EN ISO 11201.

The knife used for grinding was a hand knife (Ergogrip) by Dick.

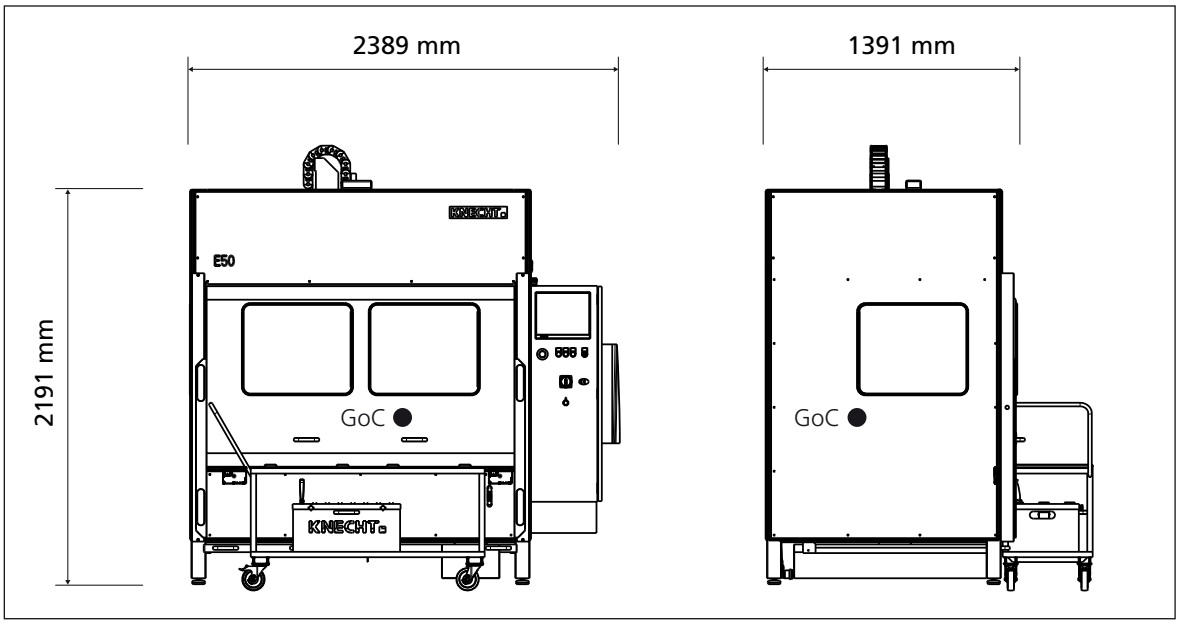

Figure 3-1 Dimensions in mm

3.3 Functional description

The E 50 Hand Knife Sharpening Machine can be used to grind, deburr and polish hand knives in a fully automatic process.

The hand knives are inserted in the knife magazine. On machine start, the knife gripper arm fetches the first knife, measures and sharpens it at the grinding or polishing stations. At the end of the grinding process, the knife is placed back in the magazine and the next one is machined.

In case of emergency, the Hand Knife Sharpening Machine can immediately be stopped by pressing the "Emergency Stop" button.

3. Description

3.4 Description of the assemblies

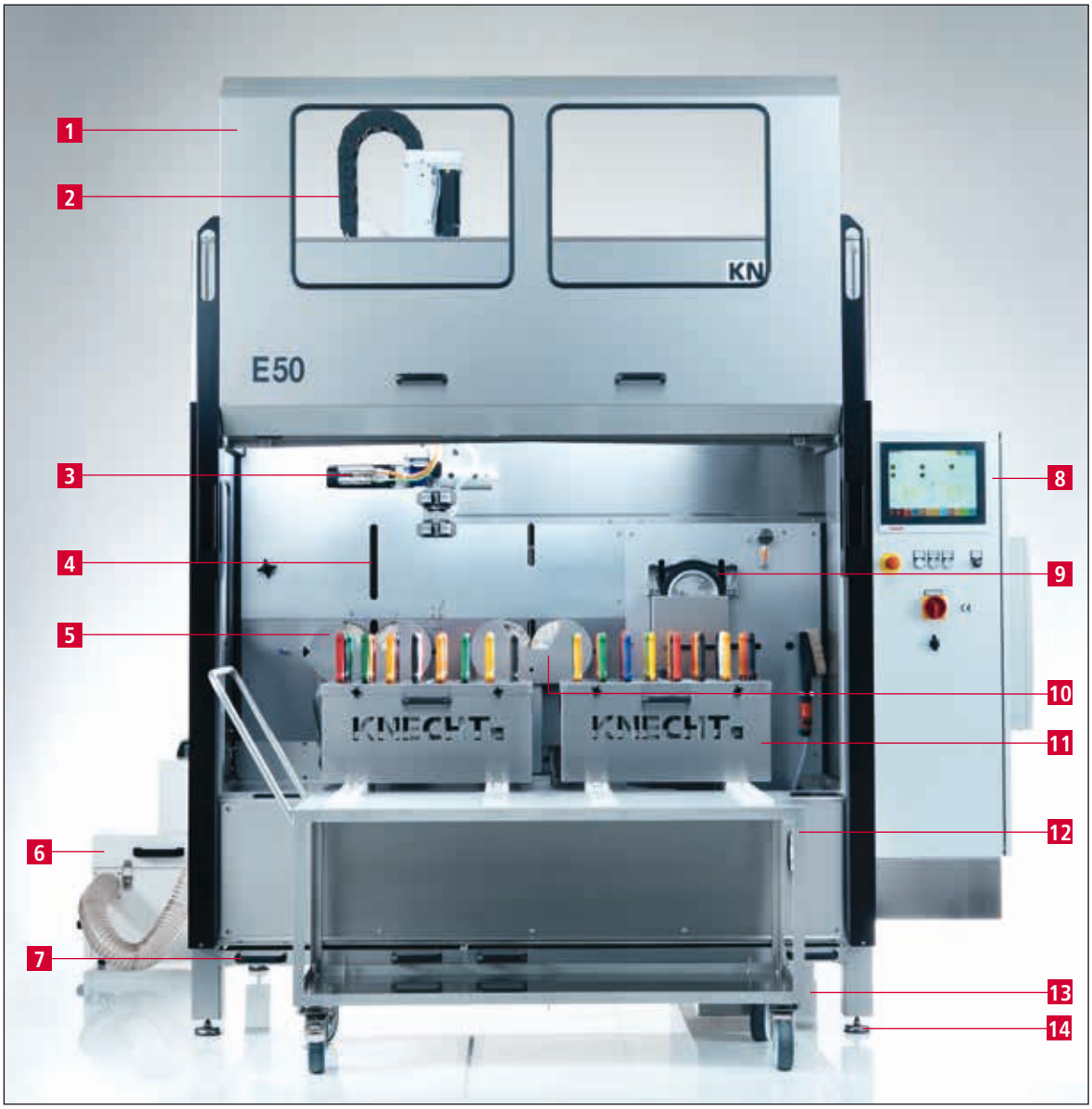

Figure 3-2 General view of the sharpening machine

1 Safety doors
2 Cross table
3 Knife gripper arm
4 Sharpness testing device ANAGO (optional)
5 Deburring unit
6 Suction unit
7 Dirt trap
8 Control unit and switch cabinet
9 Grinding unit
10 Polishing unit
11 Knife magazine
12 Magazine trolley
13 Water basin
14 Adjustable machine feet

3. Description

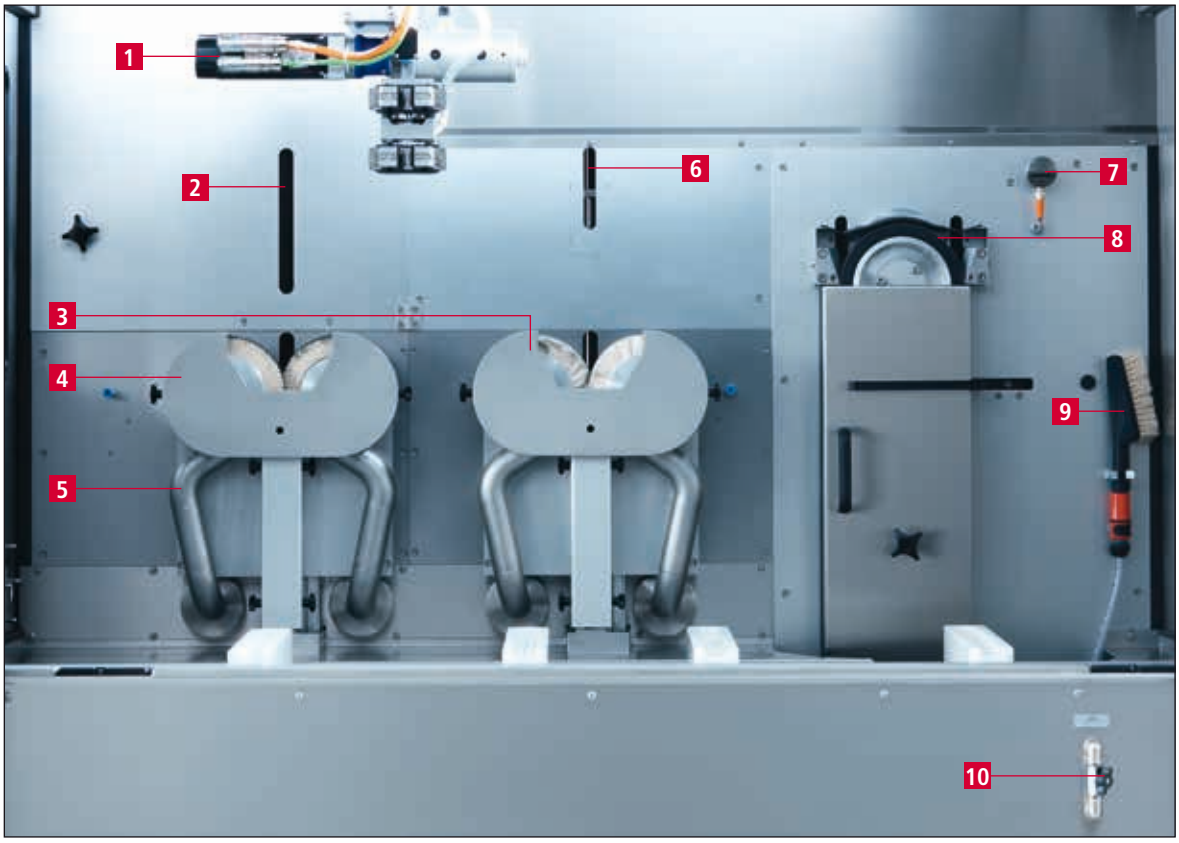

Figure 3-3 Interior

1 Knife gripper arm
2 Sharpness testing device ANAGO (optional)
3 Polishing rings
4 Deburring rings
5 Suction
6 Measuring device
7 Flow gauge
8 Wet-grinding belt
9 Scrubber
10 Coolant tap

3. Description

3.4.1 Control panel

Figure 3-4 Control panel

1 Touch panel
2 "Emergency Stop" button
3 "Control On" button: Activates the controls (button starts flashing)
4 "Start/Stop" button: Starts/stops the grinding program
5 "Coolant On/Off" button: Switches the coolant pump on or off (for cleaning)
6 "Servicing On/Off" key switch: Position "1" for setting mode, Position "0" for automatic mode
7 Main switch ON/OFF
8 USB port

3.4.2 Switching the sharpening machine on / off

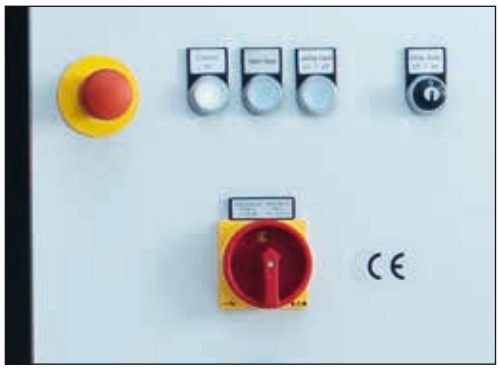

Figure 3-5 Main switch

Turning the main switch from "0" to "I" switches on the sharpening machine.

Turning the main switch from "I" to "0" switches off the sharpening machine.

3. Description

3.4.3 Layout of the user interface (main screen)

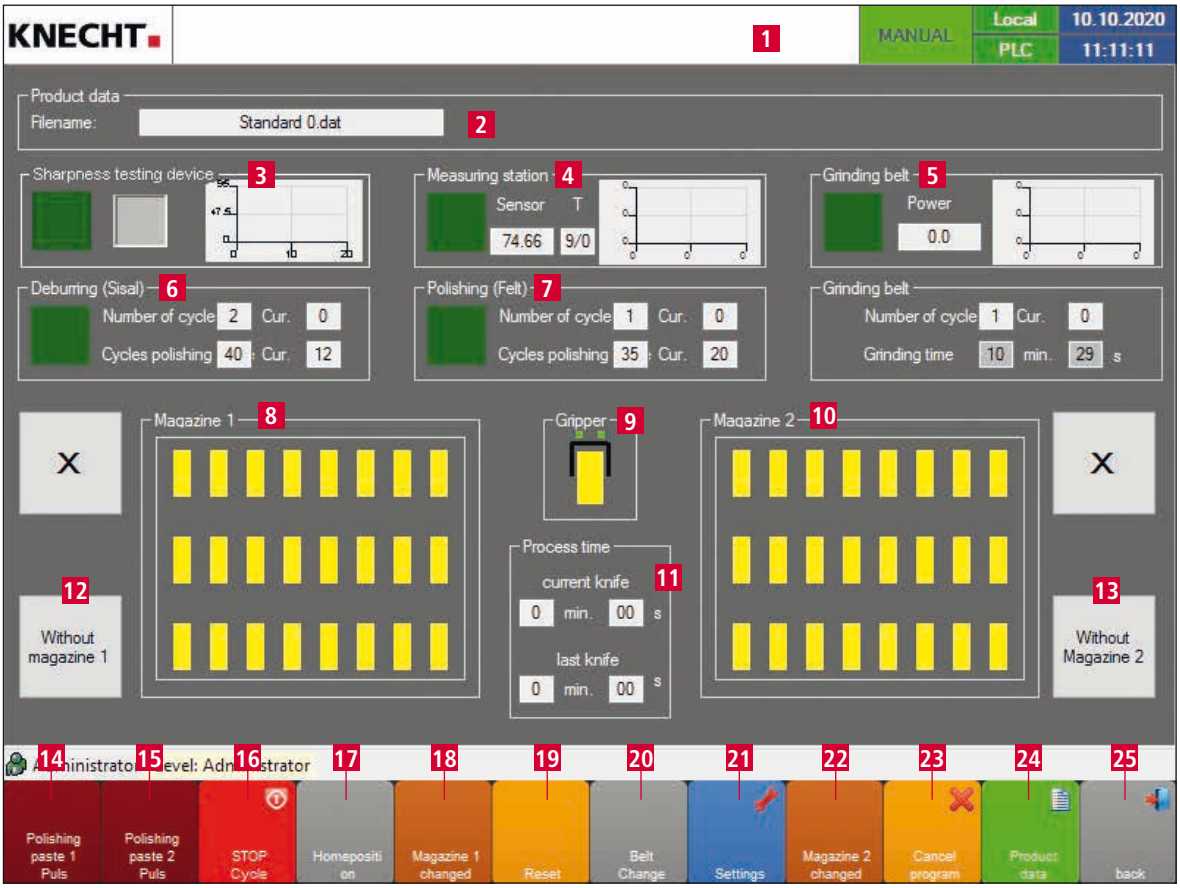

Figure 3-6 Main screen

1 Fault messages
2 Product data (loaded product data)
3 Sharpness Testing Device
4 Contour holder
5 Grinding belt (number of cycles and grinding time, wet-grinding belt activated/deactivated, wet-grinding belt rotated)
6 Polishing with sisal (number of cycles and paste cycles, deburring unit activated/deactivated)
7 Polishing with felt (number of cycles and paste cycles, polishing unit activated/deactivated)
8 Magazine 1
9 “Gripper”: Tapping the gripper icon opens/closes the knife gripper arm
10 Magazine 2
11 Machining period (current and last knife)
12 “Magazine 1” Activate/deactivate knife magazine 1
13 “Magazine 2” Activate/deactivate knife magazine 2
14 “F1 Polishing paste 1 pulse”: Feed polishing paste 1 once
15 “F2 Polishing paste 2 pulses”: Feed polishing paste 2 once
16 “F3 STOP Cycle”: Stop machining after the currently active knife
17 “F4 home position”: Moves the cross table to home position

18 "F5 Magazine 1 changed": 1x tapping moves the magazine back by one knife. Tapping and holding for 2 seconds resets the magazine completely.

19 "F6 Reset" Resets the control unit

20 "F7 Replace belt": Deletes the "Change grinding belt" message (press and hold for 2 sec.)

21 "F8 Settings": Switches to the "Settings" menu

22 "F9 Magazine 2 changed": 1x tapping moves the magazine back by one knife. Tapping and holding for 2 seconds resets the magazine completely.

23 "F10 Abort Program": The current program is aborted and the grinding program is started all over again

24 "F11 Product data": To load different grinding programs (for loaded product file, see (3-6/2))

25 "F12 Back": Goes back to the previous screen or closes the user interface

NOTICE

When the key switch (3-4/6) is on position "1", the knife gripper arm (3-3/1) can be activated even when the door is open.

Touch panel buttons "F1 Polishing paste 1 pulse" (3-6/14) and "F2 Polishing paste 2 pulse" (3-6/15) function only in automatic mode while the polishing units are active.

Pulling out the knife magazine resets the machine.

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

If the key-operated switch (3-4/6) is on position "1", there is a pinching hazard from the knife gripper arm.

4. Transport

For transporting the machine, the locally applicable safety and accident prevention regulations must be observed.

Only transport the machine in upright position (with the machine feet facing downwards).

ATTENTION

Before transporting, pull out the water basin (3-2/13) and move the cross-table (3-2/2) to the lowermost position.

4.1 Transport aids

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

When using a forklift or a lift truck, move the fork under the sharpening machine.

Bear in mind the centre of gravity of the machine. The centre of gravity (CoG) is shown in figure 3-1.

4.2 Transport damage

If damage is detected on unloading after acceptance of the delivery, inform KNECHT Maschinenbau GmbH and the freight forwarder about it immediately. If required, consult an independent expert immediately.

Remove the packaging and shipping straps. Remove the shipping straps on the sharpening machine. Dispose of the packaging in an environmentally friendly way.

4.3 Transport to another installation site

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

A reliable electrical connection must be provided at the new installation site.

The sharpening machine must be stable and firmly placed.

4. Transport

CAUTION

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

It is advisable to have trained KNECHT personnel perform the installation work on the sharpening machine.

We assume no liability for damage caused by improper installation.

5.2 Installation site

When determining the installation site, bear in mind the space requirement for installation, maintenance and repair work on the sharpening machine (see Chapter 3.2).

The machine may only be stored or operated in dry rooms. 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).

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

5.4 Settings

The various components and the electrics are adjusted by KNECHT Maschinenbau GmbH before delivery.

ATTENTION

Unauthorised changes to set values are not permitted and may damage the sharpening machine.

.

5. Installation

5.5 Initial commissioning of the sharpening machine

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

Remove the transportation locks on the doors.

Level out any floor unevenness by adjusting the machine feet (3-2/14) with a flat wrench (SW19).

Have a qualified electrician on site install the current supply.

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

Completely install and check the safety devices before commissioning.

CAUTION

Have all the protective devices checked for proper functioning by authorised specialists before initial operation of the machine.

All work on the machine may only be performed by trained personnel.

The applicable safety and accident prevention regulations must be observed.

Have all the protective devices (particularly the electrical safety circuits) checked for proper functioning by authorised specialists before initial operation of the machine.

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

If the machine is connected incorrectly, escaping compressed air and hurtled parts can lead to injuries.

Observing the local safety and accident prevention regulations for compressed air is required.

6. Commissioning

CAUTION

All work on the machine may only be performed by trained personnel.

The locally applicable safety and accident prevention regulations must be observed.

Figure 6-1 Water basin

Fill the water basin (6-1/1) to 3 cm below the rim with water.

NOTICE

The use of coolant additives is not permitted.

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

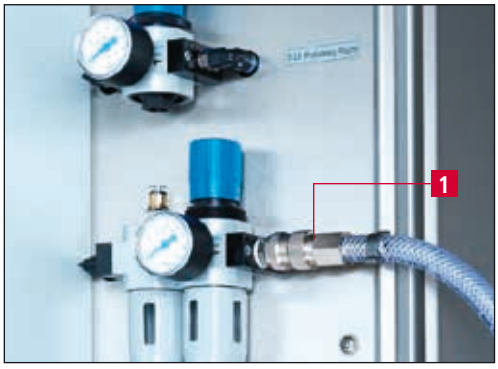

Figure 6-2 Compressed air port

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

Close the safety doors.

6. Commissioning

Figure 6-3 Control panel

Set the main switch (3-4/7) to "I". Wait for the controls to initialise.

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

ATTENTION

Switch on the deburring and polishing unit in the manual function (see Chapter 8.1).

Under no circumstances, activate the grinding program with the "Start / Stop" program (3-4/4).

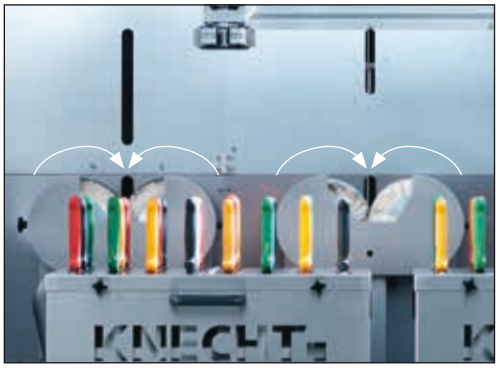

Figure 6-4 Check the direction of rotation

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

If required, interchange the phases in the power plug.

7. Operation

CAUTION

All work on the machine may only be performed by trained personnel.

The locally applicable safety and accident prevention regulations must be observed.

7.1 Grinding of hand knives

Figure 7-1 Knife magazine

Place the hand knife (7-1/1) in both the knife magazines outside the machine.

NOTICE

As shown in figure 7-1, start by placing the knife on the bottom left, since the grinding program begins here.

ATTENTION

The hand knives must be cleaned before being placed into the knife magazine.

The knife blade must point away from the machine in the direction of the operator.

Knife handle must be vertical, otherwise collisions with the knife gripper arm may occur.

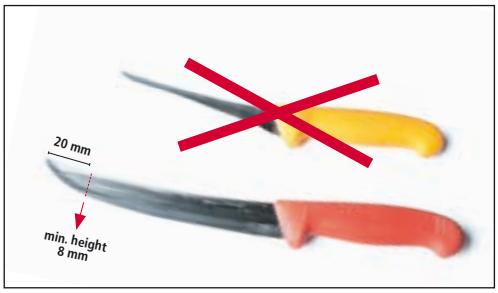

Figure 7-2 Knife size

The blade must not exceed or fall short of a length of 70 - 270 mm. Moreover, the blade height must be at least 8 mm wide, measured at a distance of 20 mm from the blade tip (see Figure 7-2).

7. Operation

Open the safety doors.

Slide both the knife magazines into the sharpening machine.

Close the safety doors.

Figure 7-3 Control panel

Press the "Start/Stop" button (7-3/1).

Grinding program runs automatically.

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

ATTENTION

After grinding, the hand knives must be cleaned and disinfected again.

Then check its sharpness.

7. Operation

7.2 Changing the wet-grinding belt

Figure 7-4 Changing the wet-grinding belt

After a preset time, the message "Change wet-grinding belt" (3-6/1) appears on the touch panel.

Then press "F7 Replace belt" (3-6/20) on the touch panel to open the belt protection hood (7-4/1). The wet-grinding belt (7-4/2) is released automatically.

Remove the old grinding belt and then attach the new one. Press "F7 Replace belt" (3-6/20) again to close the belt protection hood.

The grinding belt is tensioned automatically.

NOTICE

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

Figure 7-5 "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" (7-5/1), if the grinding belt has been replaced or rotated.

If the belt protection hood was only opened to assess the grinding belt, answer the question with "No" (7-5/2).

Figure 7-6 "Has the belt been replaced?" message

If the first message was answered with "Yes" (7-5/1), the message "Has the belt been replaced?" appears.

Answer the question with "Yes" (7-6/1), if a new wet-grinding belt has been attached.

If the grinding belt was only rotated, answer the message with "No" (7-6/2).

7. Operation

Figure 7-7 Main screen

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

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 a new wet-grinding belt was attached, the message must be answered with “Yes” (7-6/1).

After replacing, the machine begins the grinding process in a higher position. This ensures that less material will be removed from the knife.

7.2.1 Adjusting the wet-grinding belt

Figure 7-8 Adjusting the wet-grinding belt

The grinding belt must be configured in such a way that it protrudes about 3 mm forward over the contact disc.

Close belt protection hood and protective door.

Figure 7-9 Main screen

Switch to the "Settings" (7-10) view using the "F8 Settings" touchpanel button (7-9/1) on the main screen.

Figure 7-10 Settings

Switch to the "Manual functions" view (7-11) using the "F8 Manual functions" touchpanel button (7-10/1).

7. Operation

Figure 7-11 Manual functions

Press the "F2 Grinding belt" touchpanel button (7-11/1) to access the wet-grinding belt functions.

Figure 7-12 "Grinding belt" manual functions

Switch on counterclockwise or clockwise rotation using the "On" touchpanel button (7-12/1).

Figure 7-13 Aligning the wet-grinding belt

Insert the provided star handle on the machine front into the top opening (7-13/1). Then rotate until the belt runs clockwise or counterclockwise on the same horizontal position.

Remove the star handle from the top opening and insert into the lower opening (7-13/2). Rotate until the wet-grinding belt runs approx. 3 mm in front of the contact disc.

Clockwise rotation = the grinding belt moves forward.

Counterclockwise rotation = the grinding belt moves back.

7. Operation

7.3 Changing the polishing / deburring rings and polishing paste

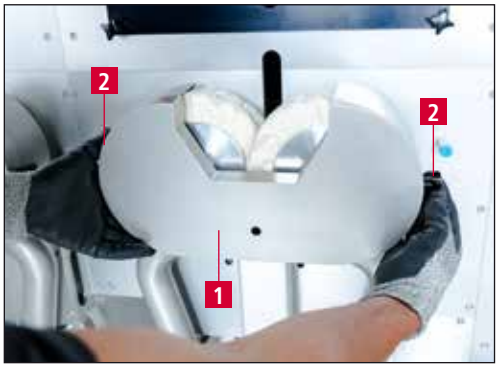

Figure 7-14 Removing the protection hood

To replace the polishing and deburring rings, first open and remove the cover (7-14/1) by turning the two star handles (7-14/2).

Figure 7-15 Replacing the polishing / deburring rings

The shaft must be attached using a SW10 spanner (7-15/1) in order to then loosen the threaded nuts using a SW22 spanner (7-15/2).

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 (7-15/3) has a left handed thread. To loosen the threaded nut on the left, turn it in clockwise direction.

The right shaft (7-15/4) has a right handed thread. To loosen the threaded nut on the right, turn it in anti-clockwise direction.

7. Operation

Figure 7-16 Replacing the polishing paste

To replace the polishing pastes, loosen the four star knobs (7-16/1) on the side and remove the cover (7-16/2).

The used-up paste can now be replaced with new paste. Place the cover back again and tighten the four star knobs.

7.4 Adjusting the polishing / deburring rings

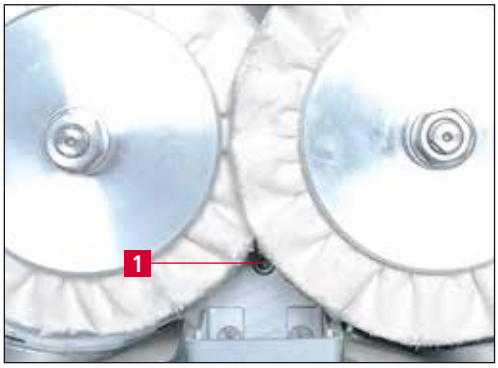

Figure 7-17 Adjusting the polishing/deburring rings

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 SW5 Allen key provided with the accessories. Replace polishing/deburring rings with a Ø of 165 mm.

The Allen screw (7-17/1) 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 cause damage to knife and machine.

7. Operation

7.5 Changing the test medium for the sharpness testing device

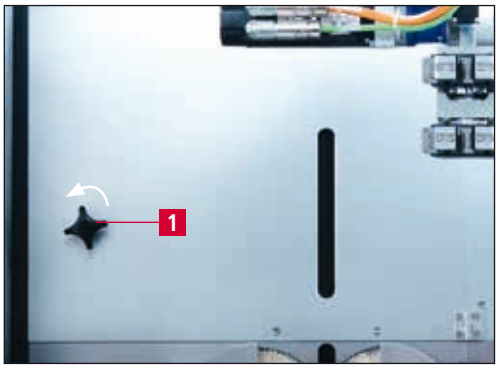

Figure 7-18 Opening the sharpness testing device

Move the machine to home position by pressing the "F4 Home Position" button (3-6/17) on the touch panel.

Loosen the star knob (7-18/1) by turning it counter-clockwise and open the sharpness testing device in the direction facing you.

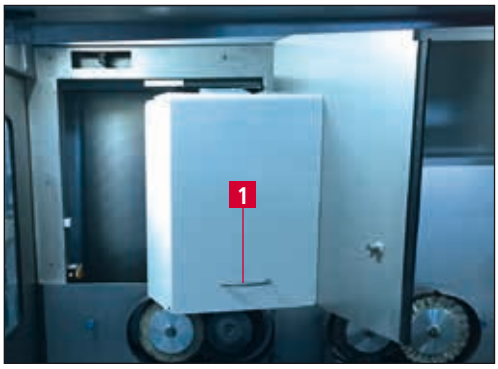

Figure 7-19 Opening the cover

Pull the handle (7-19/1) of the inner cover (7-19/2) towards you and raise the cover to open it.

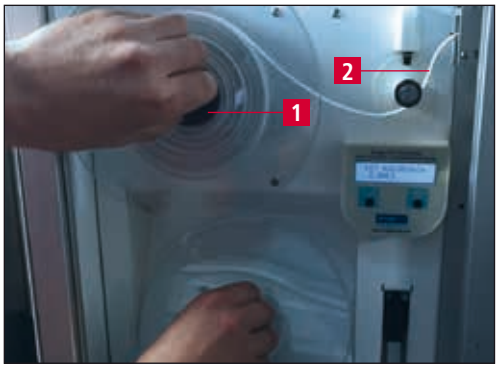

Figure 7-20 Removing the test medium

Turn the black lock screws (7-20/1) counter-clockwise and remove them.

Remove the used test medium (7-20/2).

7. Operation

Figure 7-21 Inserting the test medium

Insert new test medium (see Figure 7-21).

7. Operation

7.6 Changing the coolant

Figure 7-22 Changing the coolant

Replace the coolant daily.

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

Use pure drinking water without additives as coolant.

ATTENTION

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

8. Control system

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 hood is not closed.

Figure 8-1 Main screen

Press the touch panel button "F8 Settings" (8-1/1) to change to the "Settings" menu (8-2).

Figure 8-2 Settings

Press the touch panel button "F8 Manual Function" (8-2/1) to change to the "Manual Function" menu (8-3).

8. Control system

Figure 8-3 Manual functions

Functions can be activated in manual mode by pressing the “On” or “Off” buttons.

Press the touch panel buttons “F1” to “F4” to select the various options.

8. Control system

8.2 Changing the language

Figure 8-4 Main screen

Press the touch panel button “F8 Settings” (8-4/1) to change to the “Settings” menu (8-5).

Figure 8-5 Settings

Press the touch panel button “F10 Options” (8-5/1) to change to the “Options” menu (8-6).

Figure 8-6 Options

Press the touch panel button “F5 Languages” (8-6/1) to change to the “Languages” menu (8-7).

8. Control system

Figure 8-7 Language

Select language

Press “F12 Back” (8-7/1) to go back to the main menu.

8. Control system

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

Change to the "Product Data" (8-9) menu with the touch panel button "F11 Product Data" (8-8/1).

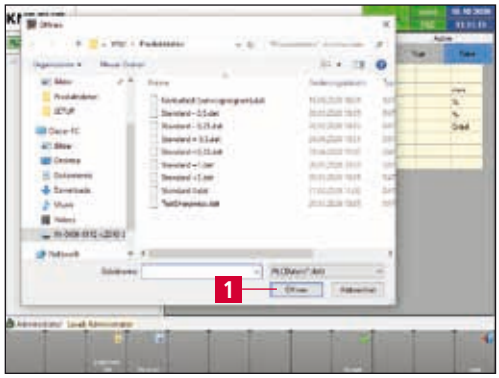

Figure 8-9 Product data

On start, the product from the last work cycle is automatically activated.

To load a new product, select the file in question.

Load the new product by double clicking on it or via the "Open dialog window" (8-9/1) button.

8. Control system

8.4 Modifying product data

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

ATTENTION

Unauthorised and improper changes to the product data can cause damage to the machine and / or knife.

Figure 8-10 Main screen

Press the touch panel button "F8 Settings" (8-10/1) to change to the "Settings" menu (8-11).

Figure 8-11 Settings

Press the touch panel button "F5 Product Data" (8-11/1) to change to the "Product Data" menu (8-12).

Figure 8-12 Changing the product data

Select the desired parameters in the tree and change the value.

Save with "F9 Adopt".

8. Control system

8.5 Setting up an internet connection

Figure 8-13 Power supply 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.

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, the VPN router will be configured to the specified IT infrastructure so that the machine can communicate only with KNECHT Maschinenbau GmbH over 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 (RJ45) and the network connection on the control cabinet (8-13/1).

9. Care and maintenance

9.1 Lubrication

Figure 9-1 Central lubrication system

The machine is equipped with a central lubrication system which regularly lubricates the guides. When the message: "Refill lubricant in central lubrication unit" (16) appears, refill the oil in the container (9-1/1) immediately.

If the container is empty, air enters the lubricant lines. Consequently, the guides are not supplied with oil.

Press the touch panel button "F8 Settings" (3-6/21), then "F4 Reset gripper cycles" (8-11/2), to reset the message.

ATTENTION

The container for the central lubrication unit must never be allowed to be empty.

When the message "Check gripper oil level (17)" appears, check the oil level in the container (9-1/1) and refill as necessary.

Remove the contact disk of the wet-grinding belt every month and press grease into the lubrication point until grease oozes out of the hole below the motor shaft.

Furthermore, lubricate the safety doors every month with the grease gun provided along with the machine. Two lubrication points each are located on each side of the door. Raise the safety doors until the lubrication points in the holes are visible.

9. Care and maintenance

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

Lubricating activity	Interval	OEST	SHELL	EXXON Mobil
Check oil of central lubrication unit, refill as necessary	Weekly	Lubricating oil CGLP 68		
Lubricate motor, grinding belt drive	Monthly	Multi-purpose grease L 7020		
Lubricate guides, safety doors	Monthly	Multi-purpose grease L 7020		

9. Care and maintenance

9.2 Cleaning

Figure 9-2 Control panel

Clean the machine each time after sharpening to prevent the swarf from drying, which makes it harder to remove.

After cleaning, lightly grease the sharpening machine with non-corrosive oil. See also Lubrication Schedule in Chapter 9.1.1.

Replace coolant daily and clean container.

Press the "Coolant On" button (9-2/1) and clean the inside of the machine using the scrubber (3-3/9).

ATTENTION

Polishing and deburring rings must not get wet, since they can only absorb polishing paste and can only correctly deburr a knife in dry state.

The parts of the cross-table must not get wet. Never spray the machine with a high-pressure jet cleaner.

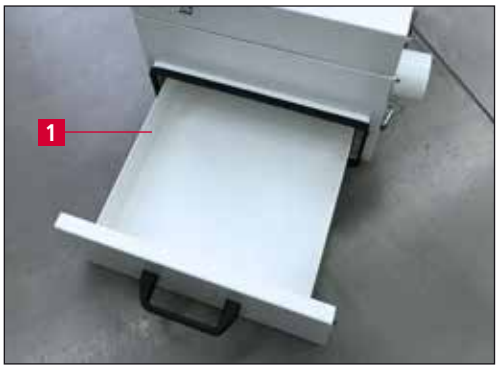

Figure 9-3 Suction unit tray

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

9. Care and maintenance

Figure 9-4 Suction unit fastening brackets

Check the filter cartridge once per week.

To do so, open the four fastening brackets (9-4/1) and remove the top section with motor and turbine.

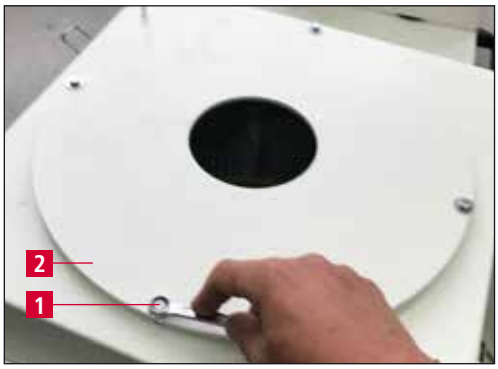

Figure 9-5 Filter cover

Unscrew the four screws (9-5/1) and remove the filter cover (9-5/2).

Figure 9-6 Filter cartridge

Remove and clean filter cartridge.

NOTICE

Clean the filter cartridge with water.

ATTENTION

Do not spray the filter cartridge with a pressure washer. The filter cartridge is only to be inserted when dry. Do not reinsert damaged filter cartridges.

9. Care and maintenance

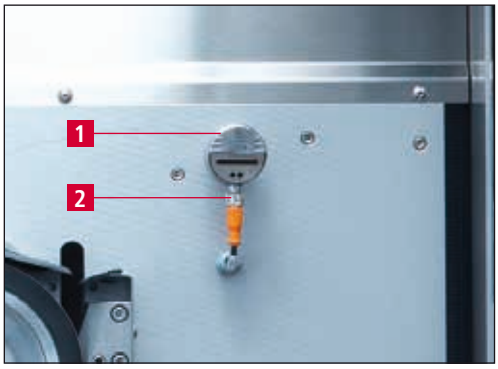

Figure 9-7 Flow gauge

The flow gauge (9-7/1) must be removed and cleaned semi-annually.

For this purpose, disconnect the connector (9-7/2) and turn the flow gauge in counter-clockwise direction by hand. Clean the measuring probe with a clean cloth.

Lightly grease the thread (not the probe) and re-tighten.

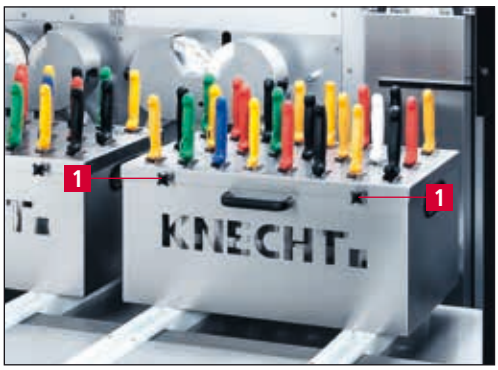

Figure 9-8 Knife magazine

Remove the knife magazine daily and clean with a steam jet outside of the machine. For removing, loosen the star knobs (9-8/1) and turn the magazine upside down.

Now you can remove the plate. Re-assemble in reverse order.

9. Care and maintenance

9.3 Maintenance Plan (one-shift operation)

Interval	Component assembly	Maintenance activity
Daily	Polishing paste	Check paste length. Replace if below 80 mm or if the corresponding message has appeared.
	Polishing/deburring units	Adjust the ringdistance. Replace if the diameter is less than 165 mm.
	Knife magazine	Remove and clean the knife magazine.
	Interior of the machine	Clean coarse impurities with scrubber.
	Coolant unit	Empty water, clean basin.
Weekly	Grinding belt drive	Open belt protecting 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.
	Polishing/deburring units	Check the ringdiameter. Replace if the diameter is less than 165 mm.
	Machine interior and exterior	Clean machine interior and exterior. Attention! The polishing/deburring rings must not get wet.
Semi-annually	Grinding belt drive	Remove and clean flow gauge.
Annually		Request service call from KNECHT Maschinenbau GmbH

10. Disassembly and disposal

10.1 Disassembly

All operating materials must be disposed of correctly.

Secure moving parts against slipping.

The disassembly must be carried out by a qualified specialist company.

10.2 Disposal

At the end of the machine service life, it must be disposed of by a qualified specialist company. In exceptional cases and in agreement with KNECHT Maschinenbau GmbH, the machine can 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 management:
See postal address

service@knecht.eu

11.3 Spare parts

If you need spare parts, please use the spare parts list provided with the machine. Please place your order as shown below.

Please always include the following information:	**(Example)**
Machine type	(E50)
Machine serial number	(001025720)
Assembly designation	(Gearbox_2PO)
Designation of individual part	(Output shaft_bottom)
Item number	(19)
Drawing number	(2000135-11969)
Quantity	(1 pcs.)

Please feel free to contact us with any questions.

11. Service, spare parts and accessories

11.4 Accessories

11.4.1 Grinding abrasives used etc.

Type	Dimension	Grain	Order number	Remarks
Wet-grinding belt CK721X	2200x60	K240	412A-66-0728	Assembled on delivery
Deburring ring (left) HT Sisal Fibre Ring C1B/K	d.180x6xd.32		412N-03-0180	Assembled on delivery
Polishing ring (right) HT polishing ring D1A/K	d.180x6xd.32		412N-05-0180	Assembled on delivery
RAPID polishing paste	50x60x230		412R-01-0501	Assembled on delivery

ATTENTION

No other abrasives may be used without the approval of KNECHT Maschinenbau GmbH

KNECHT Maschinenbau GmbH accepts no liability if other abrasives are used.

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

Thank you for buying our product!

12. Appendix

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

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

We hereby declare that the machine mentioned below fulfils the basic health and safety requirements of the relevant EC Directive by virtue of the machine's construction and design and the version placed by us on the market.

This declaration becomes void if the machine is modified in any way without our consent.

Designation of the machine:	Fully Automatic Hand Knife Sharpening Machine
Type designation:	E 50
Applicable harmonised 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 the documentation:	Peter Heine (Dipl. Ing. Mechanical Engineering BA) Phone +49-7527-928-15
Manufacturer:	KNECHT Maschinenbau GmbH Witschwender Straße 26 88368 Bergatreute Germany

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.

Bergatreute, December 9, 2019		Managing Director
Place, date	Signature	Signatory details

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