Operating Instructions

E 50
Fully Automatic Hand Knife Sharpening Machine
Operating Instructions

Fully Automatic Hand Knife Sharpening Machine E 50

Manufacturer

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

Documents for the machine operator

Operating Instructions

Date of issue of the operating instructions

April 09, 2018

Copyright

The copyright for these operating instructions as well as other documents for the machine operator is held by KNECHT Maschinenbau GmbH. These documents will be delivered only to our customers and to operators of our products and are a part of the machine.

These documents may neither be reproduced, nor made accessible to third parties, including rival firms.
# Table of Contents

## 1. Important notes

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Foreword</td>
<td>7</td>
</tr>
<tr>
<td>1.2 Warnings and symbols in the operating instructions</td>
<td>7</td>
</tr>
<tr>
<td>1.3 Warning plates and their meaning</td>
<td>8</td>
</tr>
<tr>
<td>1.3.1 Warning and prohibition signs on/in the sharpening machine</td>
<td>8</td>
</tr>
<tr>
<td>1.3.2 General mandatory signs</td>
<td>8</td>
</tr>
<tr>
<td>1.4 Rating plate and machine serial number</td>
<td>9</td>
</tr>
<tr>
<td>1.5 Figure and item numbers in the operating instructions</td>
<td>10</td>
</tr>
</tbody>
</table>

## 2. Safety

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Basic safety instructions</td>
<td>11</td>
</tr>
<tr>
<td>2.1.1 Observe notes in the operating instructions</td>
<td>11</td>
</tr>
<tr>
<td>2.1.2 Operator’s duty</td>
<td>11</td>
</tr>
<tr>
<td>2.1.3 Obligations on the part of the personnel</td>
<td>11</td>
</tr>
<tr>
<td>2.1.4 Hazards associated with the handling of the machine</td>
<td>11</td>
</tr>
<tr>
<td>2.1.5 Malfunctions</td>
<td>12</td>
</tr>
<tr>
<td>2.2 Proper use</td>
<td>12</td>
</tr>
<tr>
<td>2.3 Warranty and liability</td>
<td>12</td>
</tr>
<tr>
<td>2.4 Safety regulations</td>
<td>13</td>
</tr>
<tr>
<td>2.4.1 Organisational measures</td>
<td>13</td>
</tr>
<tr>
<td>2.4.2 Protective devices</td>
<td>13</td>
</tr>
<tr>
<td>2.4.3 Informal safety measures</td>
<td>13</td>
</tr>
<tr>
<td>2.4.4 Selection and qualifications of the personnel</td>
<td>13</td>
</tr>
<tr>
<td>2.4.5 Machine control system</td>
<td>14</td>
</tr>
<tr>
<td>2.4.6 Safety measures in normal operation</td>
<td>14</td>
</tr>
<tr>
<td>2.4.7 Dangers due to electrical power</td>
<td>14</td>
</tr>
<tr>
<td>2.4.8 Particular hazard areas</td>
<td>14</td>
</tr>
<tr>
<td>2.4.9 Servicing (maintenance, repair) and fault rectification</td>
<td>15</td>
</tr>
<tr>
<td>2.4.10 Structural alterations to the sharpening machine</td>
<td>15</td>
</tr>
<tr>
<td>2.4.11 Cleaning the sharpening machine</td>
<td>15</td>
</tr>
<tr>
<td>2.4.12 Oils and greases</td>
<td>15</td>
</tr>
<tr>
<td>2.4.13 Relocation of the sharpening machine</td>
<td>15</td>
</tr>
</tbody>
</table>

## 3. Description

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Use as intended</td>
<td>17</td>
</tr>
<tr>
<td>3.2 Technical specifications</td>
<td>17</td>
</tr>
<tr>
<td>3.3 Functional description</td>
<td>18</td>
</tr>
<tr>
<td>3.4 Description of the assemblies</td>
<td>19</td>
</tr>
<tr>
<td>3.4.1 Control panel</td>
<td>21</td>
</tr>
<tr>
<td>3.4.2 Switching the sharpening machine on/off</td>
<td>21</td>
</tr>
<tr>
<td>3.4.3 Layout of the user interface (main screen)</td>
<td>22</td>
</tr>
</tbody>
</table>
Table of Contents

4. Transport 24

4.1 Transport aids 24
4.2 Transport damage 24
4.3 Transport to another installation site 24

5. Installation 26

5.1 Selection of qualified personnel 26
5.2 Installation site 26
5.3 Supply connections 26
5.4 Settings 26
5.5 Initial commissioning of the sharpening machine 27

6. Commissioning 28

7. Operation 30

7.1 Grinding of hand knives 30
7.2 Changing the wet-grinding belt 32
7.3 Changing the polishing/deburring brushes and polishing paste 33
7.4 Adjusting the polishing/deburring brushes 34
7.5 Changing the test medium for the sharpness testing device 35
7.6 Changing the coolant 37

8. Control system 38

8.1 Manual Functions 38
8.2 Changing the language 39
8.3 Loading product data 41
8.4 Modifying product data 42
8.5 Setting up an internet connection 43

9. Care and maintenance 44

9.1 Lubrication 44
9.1.1 Lubrication schedule and lubricant table (single shift operation) 45
9.2 Cleaning 46
9.3 Maintenance Plan 49
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Malfunctions</td>
<td>50</td>
</tr>
<tr>
<td>10.1 Faults</td>
<td>50</td>
</tr>
<tr>
<td>11. Disassembly and disposal</td>
<td>51</td>
</tr>
<tr>
<td>11.1 Disassembly</td>
<td>51</td>
</tr>
<tr>
<td>11.2 Disposal</td>
<td>51</td>
</tr>
<tr>
<td>12. Service, spare parts and accessories</td>
<td>52</td>
</tr>
<tr>
<td>12.1 Postal Address</td>
<td>52</td>
</tr>
<tr>
<td>12.2 Service</td>
<td>52</td>
</tr>
<tr>
<td>12.3 Spare parts</td>
<td>52</td>
</tr>
<tr>
<td>12.4 Accessories</td>
<td>53</td>
</tr>
<tr>
<td>12.4.1 Grinding abrasives used</td>
<td>53</td>
</tr>
<tr>
<td>13. Appendix</td>
<td>54</td>
</tr>
<tr>
<td>13.1 EC Declaration of Conformity</td>
<td>54</td>
</tr>
</tbody>
</table>
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:

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.

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.

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

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

![Rating plate](image1)

**Figure 1-1** Rating plate

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

![Machine serial number](image2)

**Figure 1-2** Machine serial number
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: (7-5/1) denotes figure number 7-5, item 1.

![Image](image_url)

*Figure 7-5 Changing the polishing paste*

To replace the polishing pastes, loosen the four star knobs (7-4/3) on the side and remove the cover (7-5/1).

The used-up paste can now be replaced with new paste. Mount the cover 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 opposite direction of the cutting edge on the grinding belt or the polishing brush.
- 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
2. Safety

- 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.

If sub-components are supplied, the protective equipment must be correctly attached by the operator according to the instructions.

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. Safety

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.

CAUTION

2.4.8 Particular hazard areas

In the area of the grinding wheels, polishing brushes and knife gripper arm, there is a hazard of pinching and being drawn in (e.g. clothing, fingers and hair). Suitable personal protective equipment must be worn.
2. Safety

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)
- Air consumption max. 50 l/min
- Speed of polishing wheel 1500 l/min
- Speed of grinding belt 1500 l/min
- Maximum knife length 270 mm
- Recommended extraction capacity if air purifier is included ex-factory 700m³/h

*) 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 (Egogrip) by Dick.
3. Description

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](image)

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

3.4.1 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. “Setting mode” key switch: Position “1” for setting mode, Position “0” for automatic mode
7. Main switch ON/OFF
8. USB port

Figure 3-4 Control panel

3.4.2 Switching the sharpening machine on/off

Turning the main switch from “0” to “1” switches on the sharpening machine.

Turning the main switch from “1” to “0” switches off the sharpening machine.

Figure 3-5 Main switch
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)
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
3. Description

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 Belt Reset”: 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.
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).

**CAUTION**

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

For transporting and for setting up the sharpening machine, only use adequately dimensioned transport aids with a load-bearing capacity of at least 1.5 t, e.g. truck, forklift or hydraulic lift 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

Installations on the electrical system may only be performed by an authorized specialist or our customer service staff. 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 sharpening machine is delivered ready for connection with the appropriate connection cable.

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.

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 a 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 hurled parts can lead to injuries.

Observing the local safety and accident prevention regulations for compressed air is required.
All work on the machine may only be performed by trained personnel. The locally applicable safety and accident prevention regulations must be observed.

---

6. Commissioning

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

**Figure 6-1** Water basin

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

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.

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).

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

If required, interchange the phases in the power plug.

Figure 6-3 Control panel

Figure 6-4 Check the direction of rotation
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

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

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

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.

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.
7. Operation

Open the safety doors.

Slide both the knife magazines into the sharpening machine.

Close the safety doors.

Press the “Start/Stop” button (7-2/1).

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.

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

Then check its sharpness.
7. Operation

7.2 Changing the wet-grinding belt

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

To change the grinding belt (7-3/3), the belt protecting hood (7-3/1) must first be opened. For this purpose, turn the star knob (7-3/2) in anti-clockwise direction until the lock disengages. Now swivel out to the right.

A mechanism unloads the belt.

Remove the old wet-grinding belt and then load the new belt. Swivel back the cover. The wet-grinding belt is tightened automatically. Now turn the star knob in clockwise direction until the lock engages.

**NOTICE**

After changing the wet-grinding belt, press and hold “F7 Band Reset” (3-6/20) for two seconds on the touch panel to delete the message.
7. Operation

7.3 Changing the polishing / deburring brushes and polishing paste

To change the polishing and deburring brushes, the shaft must first be fixed in place with a SW10 flat wrench in order to then loosen the threaded nut with a SW22 flat wrench.

**ATTENTION**

The left shaft (7-4/1) has a left handed thread. To loosen the threaded nut on the left, turn it in clockwise direction.

The right shaft (7-4/2) has a right handed thread. To loosen the threaded nut on the right, turn it in anti-clockwise direction.

To replace the polishing pastes, loosen the four star knobs (7-4/3) on the side and remove the cover (7-5/1).

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

7.4 Adjusting the polishing/deburring brushes

The polishing/deburring brushes must be adjusted so that the foremost brush touches the flange of the adjacent brush in each case.

The adjustment is carried out using the SW5 hex wrench provided with the accessories. Replace polishing/deburring brushes at Ø 165 mm.

Figure 7-6 Adjusting the polishing/deburring brushes

ATTENTION

Use only original polishing and deburring brushes.

Using non-original polishing and deburring brushes can cause damage to knife and machine.
7. Operation

7.5 Changing the test medium for 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 (7-7/1) by turning it counter-clockwise and open the sharpness testing device (7-7/2) in the direction facing you.

Pull the handle (7-8/1) of the inner cover (7-8/2) towards you and raise the cover to open it.

Turn the black lock screws (7-9/1) counter-clockwise and remove them.

Remove the used test medium (7-9/2).
7. Operation

Insert new test medium (see Figure 7-10).

Figure 7-10 Inserting the test medium
7. Operation

7.6 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.

Figure 7-11 Changing the coolant

ATTENTION

Machine must not be operated without coolant. Otherwise, there is risk of injury. Machine and hand knife can be damaged.
8. Control system

8.1 Manual Functions

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

Figure 8-1 Main screen

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

Figure 8-2 Settings

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.

Figure 8-3 Manual functions
8. Control system

8.2 Changing the language

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

Figure 8-4 Main screen

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

Figure 8-5 Settings

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

Figure 8-6 Options
Select language

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

8.3 Loading product data

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

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

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

Figure 8-10 Main screen

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

Figure 8-11 Settings

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

Save with “F9 Adopt”.

Figure 8-12 Changing the product data

ATTENTION

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

8.5 Setting up an internet connection

The machine has a network connection port which can be used to establish a direct connection between the machine and KNECHT Maschinenbau. The contents of the display screen of the sharpening machine are transferred via this connection. In this way, the manufacturer’s technicians can perform a diagnosis of the machine, change software settings and install or edit new grinding programs.

“Team Viewer”, the program pre-installed on your machine, is needed for setting up the internet connection. An active internet connection must be available.

For that, please connect the network cable provided with the machine to the network socket provided on site and the network socket (8-13/1) on the backside of the switch cabinet.

NOTICE

Please have the internet connection set up by your network administrator.
9. Care and maintenance

9.1 Lubrication

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 (single shift operation)

<table>
<thead>
<tr>
<th>Lubricating activity</th>
<th>Interval</th>
<th>OEST</th>
<th>SHELL</th>
<th>EXXON Mobil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check oil level of oiler, compressed air, refill as necessary</td>
<td>Weekly</td>
<td>Paraffinum Perliquidum 16 L</td>
<td>Shell Risella 917</td>
<td>Marcol B2</td>
</tr>
<tr>
<td>Check oil of central lubrication unit, refill as necessary</td>
<td>Weekly</td>
<td>Gleitöl CGLP 68</td>
<td>Morlina S2 B 46</td>
<td>Vactra Oil No. 2</td>
</tr>
<tr>
<td>Lubricate motor, grinding belt drive</td>
<td>Monthly</td>
<td>Mehrzweckfett L2</td>
<td>Gadus S2 V100 2</td>
<td>Mobilith SHC 100</td>
</tr>
<tr>
<td>Lubricate guides, safety doors</td>
<td>Monthly</td>
<td>Mehrzweckfett L2</td>
<td>Gadus S2 V100 2</td>
<td>Mobilith SHC 100</td>
</tr>
<tr>
<td>Clean/oil X axis guide rails</td>
<td>Monthly</td>
<td>Paraffinum Perliquidum 16 L</td>
<td>Shell Risella 917</td>
<td>Marcol B2</td>
</tr>
<tr>
<td>Clean/oil steel cover band on polishing paste cylinder</td>
<td>Monthly</td>
<td>Paraffinum Perliquidum 16 L</td>
<td>Shell Risella 917</td>
<td>Marcol B2</td>
</tr>
<tr>
<td>Grease threaded star knobs</td>
<td>Monthly</td>
<td>Mehrzweckfett L2</td>
<td>Gadus S2 V100 2</td>
<td>Mobilith SHC 100</td>
</tr>
</tbody>
</table>
9. Care and maintenance

9.2 Cleaning

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 brushes 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.

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

![Control panel](image)

**Figure 9-2** Control panel

![Suction unit tray](image)

**Figure 9-3** Suction unit tray
9. Care and maintenance

Check the filter cartridge of the suction unit once per month.

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

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

Remove and clean filter cartridge.

Clean the filter cartridge with water.

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

Remove and clean the flow gauge (9-7/1) once a month.

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.

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

<table>
<thead>
<tr>
<th>Interval</th>
<th>Component assembly</th>
<th>Maintenance activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td>Polishing paste</td>
<td>Check paste length. Replace if below 80 mm.</td>
</tr>
<tr>
<td></td>
<td>Polishing/deburring units</td>
<td>Adjust the spacing between brushes. Replace if diameter below 165 mm.</td>
</tr>
<tr>
<td></td>
<td>Knife magazine</td>
<td>Remove and clean the knife magazine.</td>
</tr>
<tr>
<td></td>
<td>Interior of the machine</td>
<td>Clean coarse impurities with scrubber.</td>
</tr>
<tr>
<td></td>
<td>Coolant unit</td>
<td>Empty water, clean basin.</td>
</tr>
<tr>
<td>Weekly</td>
<td>Grinding belt drive</td>
<td>Open belt protecting hood and clean the area of the grinding belt.</td>
</tr>
<tr>
<td></td>
<td>Suction unit</td>
<td>Empty suction unit tray.</td>
</tr>
<tr>
<td></td>
<td>Polishing/deburring units</td>
<td>Check the brush diameter. Replace if diameter below 165 mm.</td>
</tr>
<tr>
<td></td>
<td>Machine interior and exterior</td>
<td>Clean machine interior and exterior. Attention! The polishing/deburring brushes must not get wet.</td>
</tr>
<tr>
<td>Monthly</td>
<td>Grinding belt drive</td>
<td>Remove and clean flow gauges.</td>
</tr>
<tr>
<td></td>
<td>Suction unit</td>
<td>Check filter cartridge and remove, clean or replace as needed.</td>
</tr>
<tr>
<td>Annually</td>
<td></td>
<td>Request service call from KNECHT Maschinenbau GmbH</td>
</tr>
</tbody>
</table>
## 10. Malfunctions

### 10.1 Faults

<table>
<thead>
<tr>
<th>Malfunction</th>
<th>Fault</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knife is not getting sharpened</td>
<td>Burr formation on the knife edge</td>
<td>Check brush setting and polishing paste</td>
</tr>
<tr>
<td></td>
<td>No burr formation on the knife edge</td>
<td>Mount new wet-grinding belt</td>
</tr>
<tr>
<td>Too many knives are being ejected</td>
<td>Feed is too low</td>
<td>Contact KNECHT Service</td>
</tr>
<tr>
<td>Knife gripper arm fault</td>
<td>Knife grips are too narrow or too wide</td>
<td>Contact KNECHT Service</td>
</tr>
<tr>
<td>Control unit cannot be switched on</td>
<td>Motor protection switch has tripped</td>
<td>Switch on the motor protection switch</td>
</tr>
</tbody>
</table>

If a fault is not included in the faults table or if the fault is not eliminated, please contact our service staff (Chapter 12.2).
11. Disassembly and disposal

11.1 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.

11.2 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 brushes, coolant, etc.) must also be disposed of correctly.
12. Service, spare parts and accessories

12.1 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

12.2 Service

Service management:
See postal address

service@knecht.eu

12.3 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.
12. Service, spare parts and accessories

12.4 Accessories

12.4.1 Grinding abrasives used

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension</th>
<th>Grain</th>
<th>Order number</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet-grinding belt CK721X</td>
<td>2200x60</td>
<td>K240</td>
<td>412A-66-0728</td>
<td>Assembled on delivery</td>
</tr>
<tr>
<td>Deburring brush (left)</td>
<td>d.180x6xd.32</td>
<td></td>
<td>412N-03-0180</td>
<td>Assembled on delivery</td>
</tr>
<tr>
<td>HT Sisal Fibre Ring C1B/K</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polishing brush (right)</td>
<td>d.180x6xd.32</td>
<td></td>
<td>412N-05-0180</td>
<td>Assembled on delivery</td>
</tr>
<tr>
<td>HT polishing ring D1A/K</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RAPID polishing paste</td>
<td>50x60x250</td>
<td></td>
<td>412R-05-0825</td>
<td>Assembled on delivery</td>
</tr>
</tbody>
</table>

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 brushes, or other accessories, please contact our sales staff, dealers, or KNECHT Maschinenbau GmbH directly.

Thank you for buying our product!
13. Appendix

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

- Machinery Directive 2006/42/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 13857
- DIN EN 13218
- DIN EN 61000-3-2 (VDE 0838-2): 2010-03
- DIN EN 61000-3-3 (VDE 0838-3): 2009-06
- DIN EN 55014-1 (VDE 0875-14-1): 2012-05
- 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, 9 March 2016

Place, date  Signature  Signatory details

Managing Director