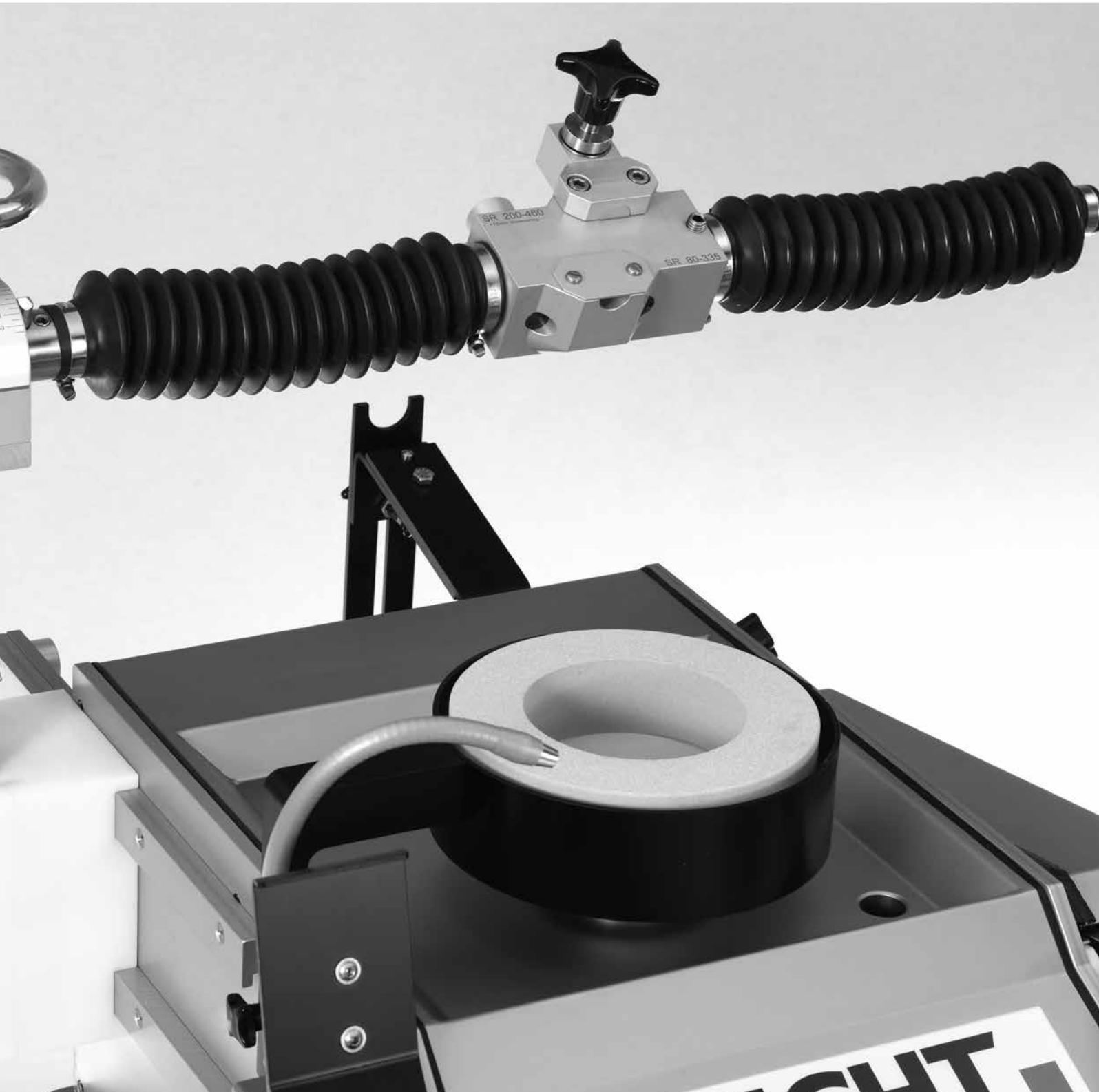


## Operating Instructions

### **HV 203**

Universal Grinding Arm



# Operating Instructions

---

## Universal Grinding Arm HV 203

### 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 machine operator

Operating instructions

### Date of issue of the operating instructions

August 9, 2018

### Copyright

The copyright for these operating instructions as well as other documents for the machine operator is held by KNECHT Maschinenbau GmbH. They are provided only to customers and operators of our products and are included with the machine.

These documents may neither be reproduced, nor made accessible to third parties, in particular rival firms, without our express permission.

# Table of Contents

---

|            |  |           |
|------------|--|-----------|
| <b>1.</b>  | <b>Important notes</b>                                       | <b>7</b>  |
| <b>1.1</b> | <b>Preface to the operating instructions</b>                 | <b>7</b>  |
| <b>1.2</b> | <b>Warnings and symbols in the operating instructions</b>    | <b>7</b>  |
| <b>1.3</b> | <b>Figure and item numbers in the operating instructions</b> | <b>8</b>  |
| <b>2.</b>  | <b>Safety</b>  | <b>9</b>  |
| <b>2.1</b> | <b>Basic safety instructions</b>                             | <b>9</b>  |
| 2.1.1      | Observe notes in the operating instructions                  | 9         |
| 2.1.2      | Obligation on the part of the operator                       | 9         |
| 2.1.3      | Obligation on the part of the personnel                      | 9         |
| 2.1.4      | Hazards involved in handling the universal grinding arm      | 9         |
| 2.1.5      | Malfunction  | 10        |
| <b>2.2</b> | <b>Intended use</b>  | <b>10</b> |
| <b>2.3</b> | <b>Warranty and liability</b>                                | <b>10</b> |
| <b>2.4</b> | <b>Safety regulations</b>                                    | <b>11</b> |
| 2.4.1      | Organizational measures                                      | 11        |
| 2.4.2      | Protective equipment   | 11        |
| 2.4.3      | Informal safety measures                                     | 11        |
| 2.4.4      | Selection and qualification of personnel                     | 11        |
| 2.4.5      | Operation  | 12        |
| 2.4.6      | Safety measures in normal operation                          | 12        |
| 2.4.7      | Particular hazard areas                                      | 12        |
| 2.4.8      | Upkeep (maintenance, repairs), malfunction rectification     | 12        |
| 2.4.9      | Structural modifications to the universal grinding arm       | 12        |
| 2.4.10     | Cleaning the universal grinding arm                          | 13        |
| 2.4.11     | Lubricants and grease  | 13        |
| 2.4.12     | Relocating the universal grinding arm                        | 13        |
| <b>3.</b>  | <b>Description</b>   | <b>14</b> |
| <b>3.1</b> | <b>Intended use</b>  | <b>14</b> |
| <b>3.2</b> | <b>Technical specifications</b>                              | <b>14</b> |
| <b>3.3</b> | <b>Functional description</b>                                | <b>15</b> |
| <b>3.4</b> | <b>Description of components</b>                             | <b>15</b> |
| <b>4.</b>  | <b>Transport</b>   | <b>16</b> |
| <b>4.1</b> | <b>Means of transport</b>                                    | <b>16</b> |
| <b>4.2</b> | <b>Transport damage</b>                                      | <b>16</b> |
| <b>4.3</b> | <b>Transport to another installation site</b>                | <b>16</b> |

# Table of Contents

---

|            |   |           |
|------------|---|-----------|
| <b>5.</b>  | <b>Installation</b>                                 | <b>17</b> |
| 5.1        | Selection of qualified personnel                    | 17        |
| 5.2        | Installation site                                   | 17        |
| 5.3        | Settings  | 17        |
| 5.4        | Initial start-up of the universal grinding arm      | 17        |
| <b>6.</b>  | <b>Commissioning</b>                                | <b>18</b> |
| <b>7.</b>  | <b>Operation</b>                                    | <b>19</b> |
| 7.1        | General grinding fundamentals                       | 19        |
| 7.2        | Grinding linear cutter knives on the grinding wheel | 20        |
| 7.2.1      | Attaching the SP 107 grinding plate                 | 20        |
| 7.2.2      | Clamping on the cutter knife                        | 22        |
| 7.2.3      | Adjusting the cutter knife to the grinding wheel    | 23        |
| 7.2.4      | Setting the grinding angle                          | 24        |
| 7.2.5      | Grinding the cutter knife                           | 24        |
| 7.3        | Grinding linear cutter knives on the grinding wheel | 26        |
| 7.3.1      | Attaching the SP 107 grinding plate                 | 26        |
| 7.3.2      | Clamping on the cutter knife                        | 29        |
| 7.3.3      | Adjusting the cutter knife to the grinding wheel    | 29        |
| 7.3.4      | Setting the grinding angle                          | 30        |
| 7.3.5      | Grinding the cutter knife                           | 30        |
| 7.4        | Adjusting the coolant                               | 32        |
| <b>8.</b>  | <b>Care and maintenance</b>                         | <b>33</b> |
| 8.1        | Cleaning  | 33        |
| 8.2        | Lubrication schedule and lubricant table            | 33        |
| <b>9.</b>  | <b>Disassembly and disposal</b>                     | <b>34</b> |
| 9.1        | Disassembly   | 34        |
| 9.2        | Disposal  | 34        |
| <b>10.</b> | <b>Service, spare parts and accessories</b>         | <b>35</b> |
| 10.1       | Postal address                                      | 35        |
| 10.2       | Service   | 35        |
| 10.3       | Spare parts   | 35        |

# Table of Contents

---

|            |                              |           |
|------------|------------------------------|-----------|
| <b>11.</b> | <b>Annex</b>                 | <b>36</b> |
| 11.1       | EC Declaration of Conformity | 36        |

# 1. Important notes

---

## 1.1 Preface to the operating instructions

These operating instructions are meant to make it easier to get to know the universal grinding arm to use it properly for its intended purpose.

The operating instructions contains important instructions on how to operate the universal grinding arm safely, properly and cost-effectively. Observance of these instructions helps to avoid dangers, reduce repair costs and downtimes, and to increase the reliability and service life of the universal grinding arm.

The operating instructions must always be accessible at the place of use of the universal grinding arm.

The operating instructions must be read and used by all persons entrusted with working on the universal grinding arm, e.g. those entrusted with:

- Transport, installation, commissioning
- Operation, including troubleshooting in the process flow, as well as
- Upkeep (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 a work safety indicator for all work for which there is a risk of serious or fatal injury.

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



"ATTENTION" is used to draw attention to particular points in order to avoid damage and/or destruction of the grinding machine and its environment.



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

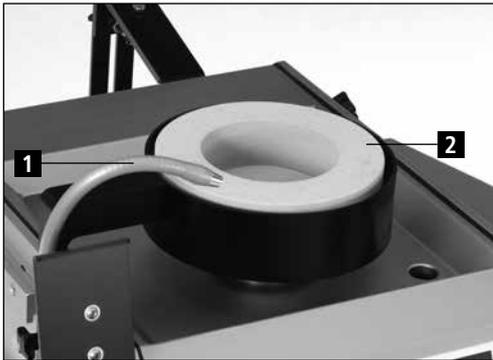
# 1. Important notes

---

## 1.3 Figure and item numbers in the operating instructions

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

Example: (7-24/1) means Figure number 7-24, item 1.



*Regulate the coolant quantity using the coolant tap (see technical documentation of the respective grinding machine) and orient the coolant hose (7-24/1) on the grinding wheel (7-24/2) so that the upper side of the grinding wheel is completely covered with coolant.*

**Figure 7-24** *Setting up the coolant hose*

## 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 universal grinding arm is knowledge of the basic safety instructions and regulations.

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

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

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

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

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

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

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

- observe basic occupational safety and accident prevention regulations,
- read the operating instructions, particularly the section entitled "Safety" and the warning notes, and provide signed confirmation of this.

#### 2.1.4 Hazards involved in handling the universal grinding arm

The universal grinding arm 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 persons, or impairment of the universal grinding arm or other property.

The universal grinding arm may be used only:

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

Malfunctions that may impair safety are to be rectified immediately.

## 2. Safety

---

### 2.1.5 Malfunction

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

Allow only authorized trained personnel to eliminate the malfunctions.

## 2.2 Intended use

The universal grinding arm is designed specifically to grind linear and sickle-shaped flat machine knives on the grindstone. It is only suitable for attachment to KNECHT grinding machines of the S 200 series and for the USK 230. All knives must be tightened to the respective grinding plates.

Before starting work on a flat knife, first check that the knife fits onto the grinding plate. The knife can only be tightened to the grinding plate if it fits, because otherwise the knife may be damaged.

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

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

The universal grinding arm is being used improperly, if, for example:

- it is attached to grinding machines other than the KNECHT S 200 and USK 230 series,
- the knife is improperly tightened to the grinding plate,
- fixtures are not properly attached,
- flat knives are ground without using the grinding plate.

## 2.3 Warranty and liability

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

- improper use of the universal grinding arm,
- improper transportation, commissioning, operation and maintenance of the universal grinding arm and its attachments,
- operating the universal grinding arm with defective safety devices, or using improperly attached or malfunctioning safety and protective equipment,
- failure to observe the instructions with regard to transportation, commissioning, operation, maintenance and repair of the universal grinding arm,

## 2. Safety

---

- unauthorized structural alterations to the universal grinding arm,
- failure to monitor machine parts that are subject to wear, as well as
- use of unapproved replacement and wear parts.

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

### 2.4 Safety regulations

#### 2.4.1 Organizational measures

Inspect all available safety devices regularly.

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

#### 2.4.2 Protective equipment

Before commissioning the universal grinding arm, ensure that all protective equipment is properly mounted and in functional condition.

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

When subcomponents are provided, 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 universal grinding arm. In addition to the operating instructions, the generally applicable as well as the locally relevant accident prevention regulations must also be made available and observed.

All safety alert symbols and danger warnings on the universal grinding arm must be complete and clearly legible.

#### 2.4.4 Selection and qualification of personnel

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

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

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

## 2. Safety

---

### 2.4.5 Operation

Only trained and instructed personnel are permitted to operate the grinding device in connection with the machine.

### 2.4.6 Safety measures in normal operation

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

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

Report any changes present (including those of the operating behavior) to the responsible office or person. Also immediately deactivate the grinding machine and secure it against restart.

Before using the universal grinding arm, ensure that no one is exposed to any risk from the start-up of the machine.

Immediately put the universal grinding arm out of operation and secure against restart in the event of any malfunctions. Rectify malfunctions immediately.

### 2.4.7 Particular hazard areas

In the area of the grinding wheel, wet-grinding belt and finned brush, there is a hazard of pinching and being drawn in, e.g. clothing, fingers and hair. Wear suitable personal protective equipment.

### 2.4.8 Upkeep (maintenance, repairs), malfunction rectification

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

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

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

### 2.4.9 Structural modifications to the universal grinding arm

Modifications to or retrofits or rebuilds of the universal grinding arm are not permitted without the permission of the manufacturer.

This also applies for installation and configuring the safety devices.

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

## 2. Safety

---

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

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

### 2.4.10 Cleaning the universal grinding arm

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

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

### 2.4.11 Lubricants and grease

When using lubricants and grease, follow the safety provisions applicable to the product. Comply with the special regulations for the foodstuffs sector.

### 2.4.12 Relocating the universal grinding arm

Disconnect the grinding machine with the HV 203 universal grinding arm from any external power, even if adjusting its position slightly. Before restarting the grinding machine, properly connect it to the power supply.

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

Ensure that no one, who is not certified for this work, is located where the machine is unloaded and installed.

Only lift the grinding machine correctly with a suspension device in accordance with the operating instructions (attachment points for load suspension devices, etc.).

Use only a suitable transport vehicle with sufficient carrying capacity. Secure loads safely. Use suitable attachment points. When recommissioning, do so only in accordance with the operating instructions.

# 3. Description

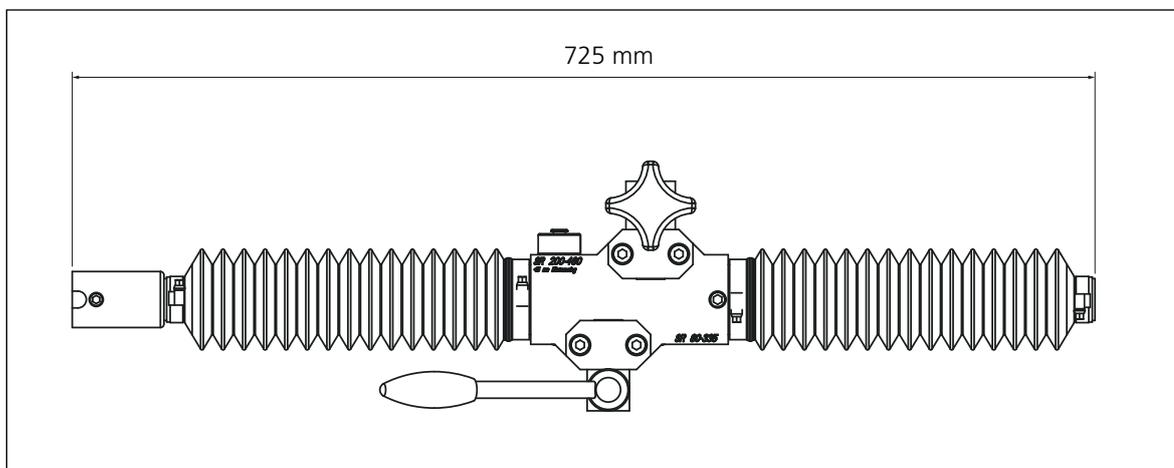
---

## 3.1 Intended use

Sickle-shaped and linear cutter knives and circular knives are ground using the HV 203 universal grinding arm. This device is used on KNECHT grinding machines of the S 200 and USK 230 series.

## 3.2 Technical specifications

|                         |       |        |
|-------------------------|-------|--------|
| Height                  | _____ | 725 mm |
| Width                   | _____ | 140 mm |
| Weight                  | _____ | 17 kg  |
| Traverse distance       | _____ | 400 mm |
| Maximum grinding radius | _____ | 460 mm |
| Minimum grinding radius | _____ | 80 mm  |



**Figure 3-1** Dimensions in mm

# 3. Description

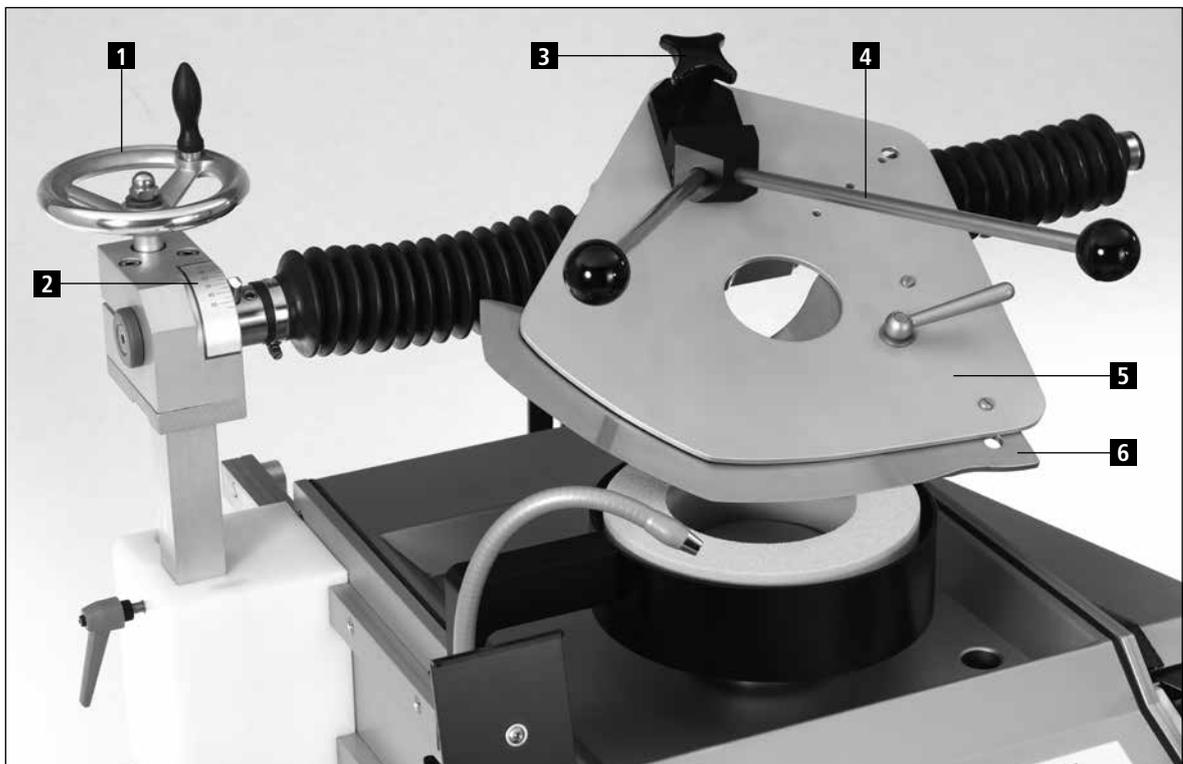
---

## 3.3 Functional description

Sickle-shaped and linear cutter knives and circular knives are ground using the universal grinding arm HV 203.

This device is used on KNECHT grinding machines of the S 200 and USK 230 series.

## 3.4 Description of components



**Figure 3-2** General view of the universal grinding arm

- 1 Hand wheel
- 2 Angle scale
- 3 Star handle(sickle-shaped knives)/clamping lever (linear knives)
- 4 Grinding lever
- 5 Grinding plate
- 6 Knife

## 4. Transport

---



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

### 4.1 Means of transport

Use only transport aids of sufficient size when transporting and setting up the universal grinding arm.

### 4.2 Transport damage

If damage is detected after unloading when accepting delivery, notify KNECHT Maschinenbau GmbH and the forwarding agent immediately. Refer directly to an independent specialist as needed.

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

### 4.3 Transport to another installation site

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

The universal grinding arm must be secured properly during transport.

# 5. Installation

---

## 5.1 Selection of qualified personnel



We recommend having maintenance work on the universal grinding arm carried out by trained KNECHT personnel.

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

## 5.2 Installation site

Consider the necessary space requirements for installation, maintenance, and repair work when determining the location to set up the universal grinding arm (see Chapter 3.2).

## 5.3 Settings

KNECHT Maschinenbau GmbH will configure the various components before delivery.

### **ATTENTION**

**Unauthorized changes to the preset values are not permitted and can damage the universal grinding arm.**

## 5.4 Initial start-up of the universal grinding arm

Completely install and inspect the protective equipment before commissioning.

The universal grinding arm is only suitable for attachment to KNECHT grinding machines of the S 200 and USK 230 series.



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

## 6. Commissioning

---

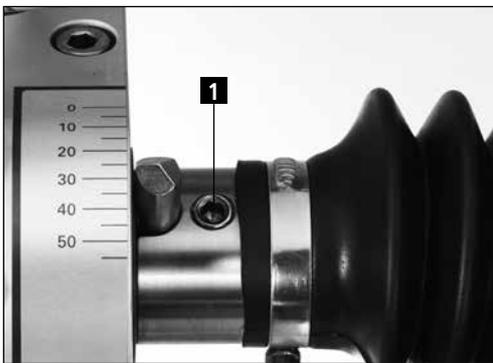


All work on the machine may only be performed by trained personnel.

Observe the local applicable safety and accident prevention regulations.

There is a risk that hands, hair, and clothing may be pulled in while the grinding machine is switched on.

Serious injury may result. Personal protective equipment must be worn.



**Figure 6-1** Loosening the terminal screw

Loosen the terminal screw (6-1/1) using an SW5 Allen key and remove the standard grinding arm from the lifting device.

Then attach the universal grinding arm to the lifting device and screw it on.



**Figure 6-2** "Aggregate ON/OFF"

Turn the "Aggregate ON/OFF" switch on the grinding machine to the "ON" position. The wet-grinding belt, finned brush, and grinding wheel will turn.

# 7. Operation

---

## 7.1 General grinding fundamentals

If a cutting edge has become dull, material must be removed in order to reach its original sharpness.

To do so, the respective knife is ground to the cutting edge. While doing so, if a burr is created on the cutting edge, then the grinding process is complete and can be finished. Before creating the final sharpness, the resulting burr must be removed as part of an additional step. This is done with a finned brush.

As it is not only the sharp cutting edges but also the long service lives that define a blade, the cutting edge angle is another important indicator of a blade's performance. The smaller the cutting edge angle, the higher its theoretical service life. In practice, however, it seems that a cutting edge angle that is too small results in the cutting edge breaking off and thus becoming dull.

The cutting edge angle is therefore between 15° and 35°. For cutting edge angles below 15°, the cutting edge is so unstable that it snaps with the smallest resistance. For a cutting edge angle of more than 35°, the cutting edge angle is extremely stable, but this does reduce the service life.

The cutting edge profile is an additional criterion for the characteristics of the cutting edge.

There are three different ground surfaces:



Tapered grinding



Convex grinding



Concave grinding

Convex ground surfaces can mostly be found on cutter blades and hand knives. Tapered and concave ground surfaces are predominantly found on circular knives and blades.

In essence: The profile and cutting edge angle stipulated by the manufacturer must be maintained.

# 7. Operation



There is a risk that hands, hair, and clothing may be pulled in while the grinding machine is switched on.

Serious injury may result.

## 7.2 Grinding linear cutter knives on the grinding wheel

### 7.2.1 Attaching the SP 107 grinding plate

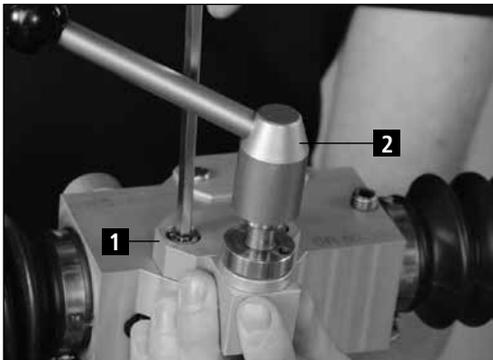


Figure 7-1 Attaching the fixed mounting head

Attach fixed mounting heads (7-1/1) to the universal grinding arm using a SW6 Allen key.

### ATTENTION

For grinding plates up to SR80-335 sizes, the mounting head is attached to the front side of the universal grinding arm.

For grinding plates beyond SR200-460 sizes, the mounting head must be attached to the rear side of the universal grinding arm. Otherwise the cutter knife will project over the grinding wheel.

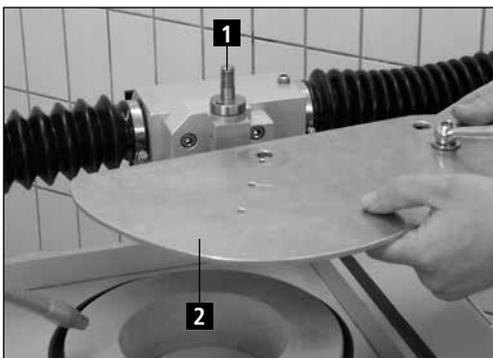


Figure 7-2 Mounting the grinding plate

Remove the clamping lever (7-1/2).

Place grinding plate (7-2/2) on the mounting head (7-2/1) of the universal grinding arm.

# 7. Operation

---



**Figure 7-3** Attaching the grinding lever

The place the grinding lever (7-3/1) on the mounting head (7-2/1) as well. It now lies on the grinding plate (7-2/2).



**Figure 7-4** Affixing the grinding plate

Attach the clamping lever (7-4/1) on the mounting head (7-2/1).

The grinding plate and grinding lever are now securely mounted.

## ATTENTION

Before the knife is mounted, verify that the grinding plate is suitable for the knife. (Compare the label of the grinding plate with that of the knife.) The use of an unsuitable grinding plate can damage the knife and grinding plate.

## NOTICE

There is a suitable grinding plate for each type of cutter knife. KNECHT Maschinenbau GmbH requires a sketch of the blade in order to manufacture the grinding plate.

The blade sketch is created by laying the knife onto a piece of paper and copying all bores and recesses. If possible, specify the cutter type, blade radius and type.

# 7. Operation

---

## 7.2.2 Clamping on the cutter knife



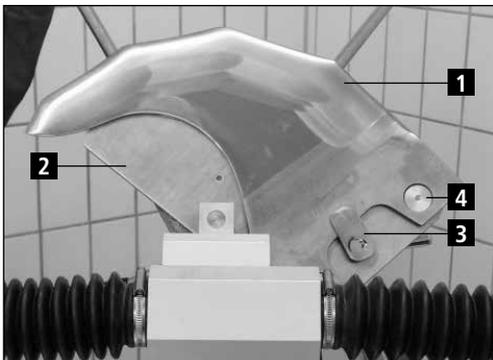
Serious cutting injuries may result.

Wear protective gloves.



**Figure 7-5** Grinding plate in swiveled back position

Work the grinding plate backwards.



**Figure 7-6** Clamping the knife

Clamp the knife (7-6/1) onto the grinding plate (7-6/2). To do so, place the knife with the holes on the bolts (7-6/4) of the grinding plate.

Turn the grinder (7-6/3) to the left. The knife is now locked.

Work the grinding plate with attached knife forwards.

# 7. Operation

---

## 7.2.3 Adjusting the cutter knife to the grinding wheel



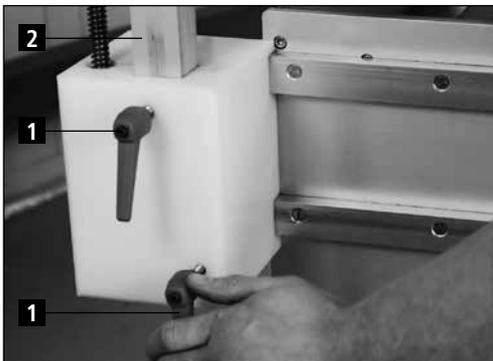
**Figure 7-7** Correctly configured knife

Loosen the clamping lever (7-4/1) on the grinding plate.

Align the cutting edge to be parallel with the grinding wheel (7-7). Retighten the clamping lever (7-4/1).

### NOTICE

**If the cutting edge is not set correctly, the bracket will not grind on the blade with a uniform width.**



**Figure 7-8** Adjusting the cutter knife to the middle of the sharpening wheel

Loosen both clamping levers (7-8/1) counterclockwise and push the entire grinding arm (7-8/2) until the knife is in the middle of the sharpening wheel (7-9).

Retighten both clamping levers (7-8/1).



**Figure 7-9** Correctly configured knife

The grinding arm is set correctly when the cutting edge is parallel to the grinding wheel and in the middle of the sharpening wheel

# 7. Operation

---

## 7.2.4 Setting the grinding angle



Figure 7-10 Setting the grinding angle

Lay the cutter knife on the grinding wheel.

Set the grinding angle to the grinding machine according to the respective technical documentation.

## 7.2.5 Grinding the cutter knife

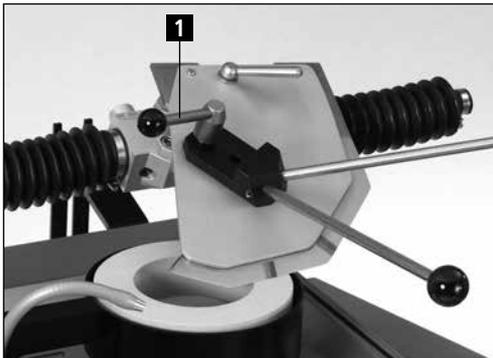


Figure 7-11 Grinding cutter knives

Switch on the grinding machine.

Each segment is ground individually for linear knives (1 segment = corner to corner). When the first segment is completely ground, loosen the clamping lever (7-11/1) and rotate the knife to the next segment.

To grind burrs, simply move the knife over the grinding wheel in a uniform manner, applying light pressure, for the entire knife segment.

### ATTENTION

**Despite the grinding wheel coolant, the cutting edge may overheat because the grinding pressure is too high.**

**As a consequence, grinding cracks may result, which can cause blade fractures. Therefore, apply light pressure when grinding burrs.**

If a burr is present on each knife segment, polish the knife (for knives with a tapered ground surface).

If a convex ground surface is to be applied, reduce the grinding angle by 5° (Chapter 7.1) and grind until the first chamfer width (grind from burr) is still approx. 3 mm wide.

## 7. Operation

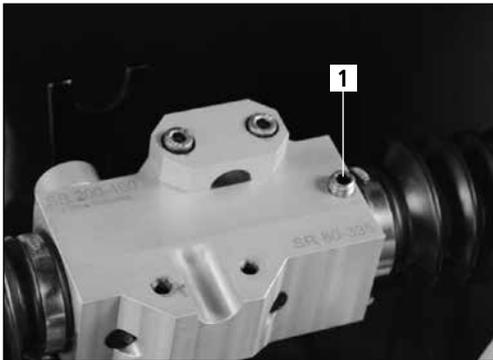
---

Reduce the grinding angle by 5° again and grind until the second chamfer width is approx. 3 mm wide. Then reduce the grinding angle by 5° again. Repeat until reaching 5°.

# 7. Operation

## 7.3 Grinding linear cutter knives on the grinding wheel

### 7.3.1 Attaching the SP 107 grinding plate

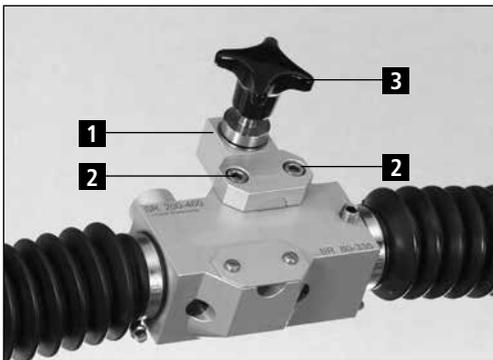


**Figure 7-12** Clamping on the guideway housing

To grind sickle-shaped knives, the guideway housing must be clamped on so that the knife holding fixture of the grinding head moves precisely through the middle of the sharpening wheel.

Tighten screw (7-12/1) using a SW6 Allen key.

The guideway housing (7-12/2) can now no longer be moved.



**Figure 7-13** Pivot-mounted mounting head

For sickle-shaped cutter knives, the fixed mounting head must be replaced with a pivot-mounted version (7-13/1).

To do so, loosen the screws (7-13/2) using a SW6 Allen key and remove the fixed mounting head.

Mount the pivotable mounting head (7-13/1) in reverse order.

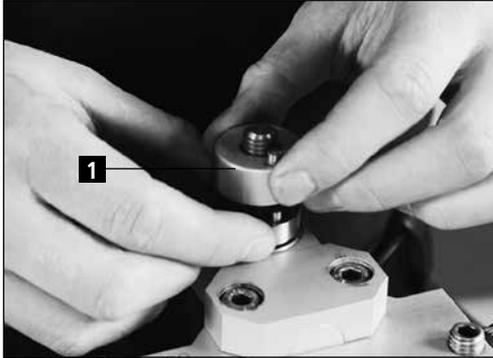
## ATTENTION

**For grinding plates up to SR80-335 sizes, the mounting head is attached to the front side of the universal grinding arm.**

**For grinding plates beyond SR200-460 sizes, the mounting head must be attached to the rear side of the universal grinding arm. Otherwise the cutter knife will project over the grinding wheel.**

# 7. Operation

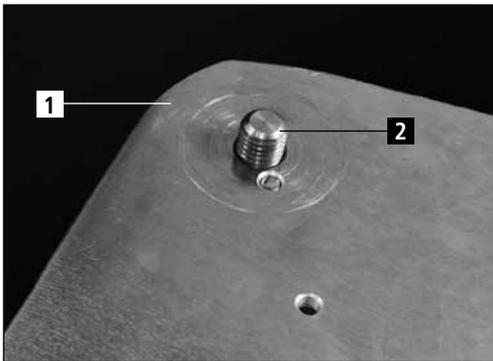
---



**Figure 7-14** Mounting the grinding plate

Remove the star handle (7-13/3).

Insert the spacer plug (7-14/1) on the mounting head.



**Figure 7-15** Clamping on the grinding plate

Place grinding plate (7-15/1) on the mounting head (7-15/2) of the universal grinding arm.



**Figure 7-16** Affixing the grinding plate

Then attach the star handle (7-16/1).

The grinding plate is now securely mounted.

# 7. Operation

---



**Figure 7-17** Mounting the grinding lever

Clamp the grinding lever (7-17/1) onto intake of the grinding plate (7-17/2).



**Figure 7-18** Mounting the grinding lever

Then attach the clamping lever (7-18/1).

The grinding plate and grinding lever are now securely mounted.

## ATTENTION

Before the knife is mounted, verify that the grinding plate is suitable for the knife. (Compare the label of the grinding plate with that of the knife.) The use of an unsuitable grinding plate can damage the knife and grinding plate.

## NOTICE

There is a suitable grinding plate for each type of cutter knife. KNECHT Maschinenbau GmbH requires a sketch of the blade in order to manufacture the grinding plate.

The blade sketch is created by laying the knife onto a piece of paper and copying all bores and recesses. If possible, specify the cutter type, blade radius and type.

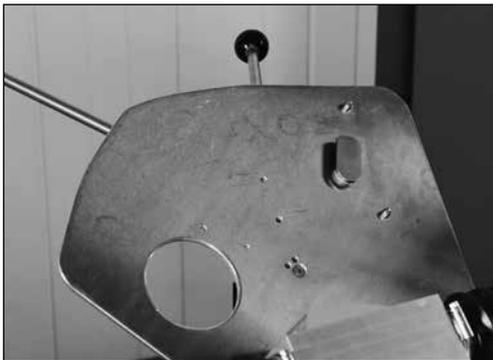
# 7. Operation

## 7.3.2 Clamping on the cutter knife



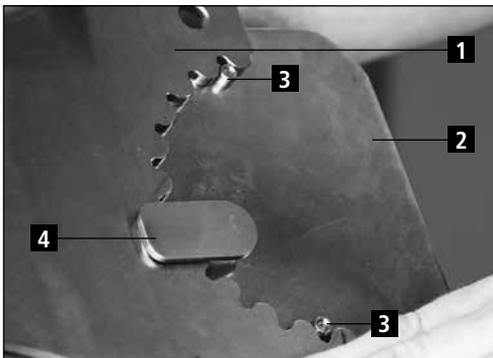
Serious cutting injuries may result.

Wear protective gloves.



**Figure 7-19** Grinding plate in swiveled back position

Work the grinding plate backwards.



**Figure 7-20** Clamping the knife

Clamp the knife (7-20/1) onto the grinding plate (7-20/2). To do so, align the serration of the knife to the bolts of the grinding plate (7-20/3).

Turn the grinder (7-20/4) to the left. The knife is now locked.

Work the grinding plate with attached knife forwards.

## 7.3.3 Adjusting the cutter knife to the grinding wheel



**Figure 7-21** Adjusting the cutter knife to the grinding wheel

Loosen both clamping levers (7-21/1) counterclockwise and push the entire grinding arm (7-21/2) until the knife lies on the middle of the sharpening wheel (see Figure 7-9).

Retighten the clamping lever (7-21/1).

# 7. Operation

---

## 7.3.4 Setting the grinding angle



Figure 7-22 Setting the grinding angle

Lay the cutter knife on the grinding wheel.

Set the grinding angle to the grinding machine according to the respective technical documentation.

## 7.3.5 Grinding the cutter knife



Figure 7-23 Grinding burrs

Switch on the grinding machine.

To grind burrs, simply move the knife over the grinding wheel in a uniform manner, applying light pressure, for the entire knife length.

### ATTENTION

**Despite the grinding wheel coolant, the cutting edge may overheat because the grinding pressure is too high.**

**As a consequence, grinding cracks may result, which can cause blade fractures. Therefore, apply light pressure when grinding burrs.**

If a burr is present along the entire knife segment, polish the knife (for knives with a tapered ground surface).

If a convex ground surface is to be applied, reduce the grinding angle by 5° (Chapter 7.1) and grind until the first chamfer width (grind from burr) is still approx. 3 mm wide.

## 7. Operation

---

Reduce the grinding angle by 5° again and grind until the second chamfer width is approx. 3 mm wide. Then reduce the grinding angle by 5° again. Repeat until reaching 5°.

# 7. Operation

---

## 7.4 Adjusting the coolant

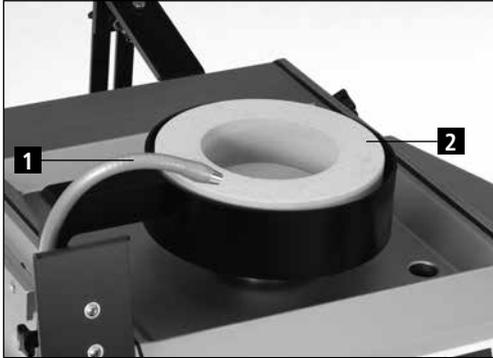


Figure 7-24 Setting up the coolant hose

Regulate the coolant quantity using the coolant tap (see technical documentation of the respective grinding machine) and orient the coolant hose (7-24/1) on the grinding wheel (7-24/2) so that the upper side of the grinding wheel is completely covered with coolant.

### ATTENTION

**Grinding without using coolant will overheat the knives. As a consequence, grinding cracks may result, which can cause blade fractures.**

### NOTICE

**Water may spray out from the grinding wheel during the first grinding procedure. This is prevented by first directing the coolant to the edge of the grinding wheel and then slowly swiveling it on the upper side of the grinding wheel.**

## 8. Care and maintenance

---



For all work on the universal grinding arm, the locally applicable safety and accident prevention regulations as well as instructions in the “Safety” and “Important notes” section of the operating instructions must be observed.

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

### 8.1 Cleaning

All bearing points are maintenance-free. The threads of the knife holding fixture must be lubricated with grease on a 4-week basis.

Clean the universal grinding arm after each sharpening in order to prevent the grinding sludge from drying and making it harder to remove. After cleaning, lightly grease the device with non-corrosive oil.

Inspect the rubber bellows of the device for damage after each grinding process. Damaged bellows must be replaced immediately, otherwise grinding sludge gets into the linear tracks and renders them useless.

### 8.2 Lubrication schedule and lubricant table

| Lubrication work  | Cycle               | OEST                        | SHELL             | EXXON<br>Mobil   | DEA                                |
|---|---------------------|-----------------------------|-------------------|------------------|------------------------------------|
| Lubricate the threads of star handles and clamping levers | 4 weeks             | Multi-purpose grease L 2    | Gadus S2 V100 2   | Mobilith SHC 100 | Dolon E2                           |
| Lubricate machine parts after cleaning                    | After each grinding | Paraffinum perliquidum 16 L | Shell Risella 917 | Marcol 82        | Merkur pharmaceutical white oil 40 |

# 9. Disassembly and disposal

---

## 9.1 Disassembly

Dispose of all operating materials properly.

Secure moving parts against slippage.

Disassembly must be conducted by qualified trained personnel.

## 9.2 Disposal

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

Operating materials (e.g. grinding disks, grinding belts, finned brushes, etc.) must also be disposed of correctly.

# 10. Service, spare parts and accessories

---

## 10.1 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

## 10.2 Service

**Service line:**

For address, see postal address

service@knecht.eu

## 10.3 Spare parts

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

| <b>When ordering, please always provide:</b> | <b>(Example)</b>         |
|--|--------------------------|
| Machine type                                 | (HV203)                  |
| Assembly designation                         | (universal grinding arm) |
| Designation of individual part               | (bellows, V6-59)         |
| Item no.                                     | (09)                     |
| Drawing no.                                  | (408J-010141)            |
| Quantity                                     | (2 pc.)                  |

We are always happy to answer any questions.

# 11. Annex

---

## 11.1 EC Declaration of Conformity

in accordance with the EC Directive 2006/42/EC

- Machinery Directive 2006/42/EC
- Electromagnetic Compatibility Directive 2004/108/EC

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

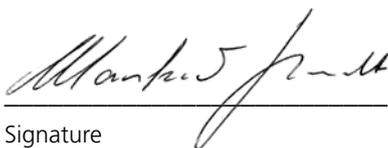
If the machine is modified in a manner that we did not condone, this declaration shall no longer be valid.

|   |  |
|---|--|
| <b>Designation of the machine:</b>                  | Universal grinding arm   |
| <b>Model designation:</b>                           | HV 203   |
| <b>Applicable harmonized standards, especially:</b> | DIN EN 12100-1<br>DIN EN 12100-2<br>DIN EN 60204-1<br>ISO 13857<br>DIN EN 349      |
| <b>Responsible for documentation:</b>               | Peter Heine (B. Eng. Mechanical Engineering BA)<br>Phone +49-7527-928-15           |
| <b>Manufacturer:</b>                                | KNECHT Maschinenbau GmbH<br>Witschwender Straße 26<br>88368 Bergatreute<br>Germany |

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

Bergatreute, July 24, 2018

Place, date



Signature

Managing Director

Signatory details

**KNECHT Maschinenbau GmbH**

Witschwender Straße 26 · 88368 Bergatreute · Germany · T +49-7527-928-0 · F +49-7527-928-32  
mail@knecht.eu · www.knecht.eu