

Operating Instructions

HV 161

Belt Grinding Attachment



Operating Instructions

Belt Grinding Attachment HV 161

Manufacturer

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Documents for the machine operator

Operating instructions

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Table of contents

1.	Important notes	6
1.1	Preface to the operating instructions	6
1.2	Warnings and symbols in the operating instructions	6
1.3	Figure and item numbers in the operating instructions	7
2.	Safety	8
2.1	Basic safety instructions	8
2.1.1	Observe notes in the operating instructions	8
2.1.2	Obligation on the part of the operator	8
2.1.3	Obligation on the part of the personnel	8
2.1.4	Hazards involved in handling the belt grinding attachment	8
2.1.5	Malfunction	9
2.2	Intended use	9
2.3	Warranty and liability	9
2.4	Safety regulations	10
2.4.1	Organizational measures	10
2.4.2	Protective equipment	10
2.4.3	Informal safety measures	10
2.4.4	Selection and qualification of personnel	11
2.4.5	Operation	11
2.4.6	Safety measures in normal operation	11
2.4.7	Particular hazard zones	11
2.4.8	Servicing (maintenance, repair) and fault elimination	11
2.4.9	Structural modifications to the belt grinding attachment	12
2.4.10	Cleaning the belt grinding attachment	12
2.4.11	Oils and greases	12
2.4.12	Relocating the belt grinding attachment	12
3.	Description	13
3.1	Intended use	13
3.2	Technical specifications	13
3.3	Functional description	14
3.4	Description of modules	15
4.	Transport	16
4.1	Transport aids	16
4.2	Transport damage	16
4.3	Transport to another installation site	16

Table of contents

5.	Installation	17
5.1	Selection of qualified personnel	17
5.2	Installation site	17
5.3	Settings	17
5.4	Initial start-up of the belt grinding attachment	17
6.	Commissioning	18
7.	Operation	19
7.1	General principles of grinding technology	19
7.2	Grinding sickle-shaped cutter knives on the wet-grinding belt	20
7.2.1	Adjusting the grinding angle	20
7.2.2	Mounting the grinding plate	21
7.2.3	Clamping on the cutter knife	21
7.2.4	Grinding the cutter knife	22
8.	Care and maintenance	25
8.1	Cleaning	25
8.2	Lubrication schedule and lubricant table	25
9.	Disassembly and disposal	26
9.1	Disassembly	26
9.2	Disposal	26
10.	Service, spare parts and accessories	27
10.1	Postal address	27
10.2	Service	27
10.3	Spare parts	27
11.	Appendix	28
11.1	EC Declaration of Conformity	28

1. Important notes

1.1 Preface to the operating instructions

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

The operating instructions contain important information on how to operate the belt grinding attachment safely, properly and cost-effectively. Observance of these instructions helps avoid hazards, reduce repair costs and downtimes, and increase the reliability and service life of the belt grinding attachment.

The operating instructions must always be accessible at the place of use of the belt grinding attachment.

The operating instructions must be read and used by all persons entrusted with working on the belt grinding attachment, 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 in which the machine is used, generally acknowledged technological rules with regard to safe and professional work practices are to be observed.

1.2 Warnings and symbols in the operating instructions

It is essential to observe the following symbols/designations used in the operating instructions.



The hazard triangle with the signal word "CAUTION" is used as a work safety indication for all work which might result in death or physical 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 belt grinding attachment and its environment.



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

1. Important notes

1.3 Figure and item numbers in the operating instructions

If the text refers to an attachment component shown in a figure, a figure or item number is added in brackets after the machine component.

Example: (7-11/1) denotes figure number 7-11, item 1.

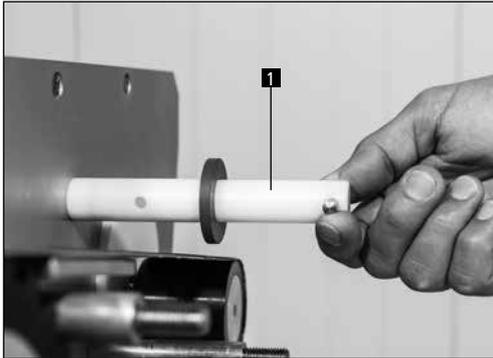


Figure 7-11 Water regulation on the wet-grinding belt

The quantity of coolant is regulated by the water nozzle (7-11/1).

Turning clockwise = more water

Turning counterclockwise = less water

2. Safety

2.1 Basic safety instructions

2.1.1 Observe notes in the operating instructions

The basic prerequisite for safe handling and trouble-free operation of this belt grinding attachment is familiarity with the basic safety instructions and regulations.

- These operating instructions contain important notes on how to operate the belt grinding attachment safely.
- These operating instructions, in particular the safety notes, must be read by all those who work at the belt grinding attachment.
- 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 belt grinding attachment, who

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

Checks are also carried out at regular intervals to ensure that the personnel are fulfilling their obligation to observe safety at work.

2.1.3 Obligation on the part of the personnel

All personnel working on the belt grinding attachment undertake 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 belt grinding attachment

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

The belt grinding attachment may only be used:

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

2. Safety

Faults that might impair safety must be eliminated immediately.

2.1.5 Malfunction

If any safety-relevant malfunction occurs on the belt grinding attachment or if the processing response indicates that such malfunction may have occurred, the belt grinding attachment must be stopped immediately until such time as the malfunction has been detected and eliminated.

Malfunctions may only be eliminated by authorized specialists.

2.2 Intended use

The belt grinding attachment is meant for grinding sickle-shaped flat knives only. It is meant to be installed onto KNECHT grinding machines of the USK 160 S series only. All knives must be tightened to the respective grinding plates.

Before starting work on a flat knife, a check must first be carried out as to whether 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 improper use. KNECHT Maschinenbau GmbH assumes no 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 belt grinding attachment is being used improperly if, for example:

- it is installed onto grinding machines other than the KNECHT USK 160 S series,
- the knife is improperly tightened to the grinding plate,
- attachments are not properly mounted,
- knives are sharpened/polished in the opposite direction of the cutting edge on the wet-grinding belt or wet-honing wheel/finned brush.

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 belt grinding attachment,
- improper transportation, commissioning, operation and maintenance of the belt grinding attachment,
- operating the belt grinding attachment with defective safety devices, or using improperly attached or malfunctioning safety and protective equipment,

2. Safety

- failure to observe the instructions with regard to transportation, commissioning, operation, maintenance and repair of the belt grinding attachment,
- unauthorized structural alterations to the belt grinding attachment,
- unauthorized modification of such aspects as 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, there is no guarantee that they are designed and manufactured to withstand the required level of stress and provide the required level of safety.

2.4 Safety regulations

2.4.1 Organizational measures

All available safety devices must be checked regularly.

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

2.4.2 Protective equipment

Before commissioning the belt grinding attachment, care must be taken to ensure that all protective equipment is properly mounted and functional.

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

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 belt grinding attachment. 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 belt grinding attachment must be complete and clearly legible.

2. Safety

2.4.4 Selection and qualification of personnel

Only trained and instructed personnel may work on the belt grinding attachment. 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 undergoing training or instruction may only work on the belt grinding attachment under the permanent supervision of an experienced person!

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

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

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

Report any changes (including operating behavior) immediately to the department/person in charge. Also immediately deactivate the grinding machine and secure it against restart.

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

Immediately put the belt grinding attachment out of operation and secure against restart in the event of any malfunctions. Have the faults eliminated immediately.

2.4.7 Particular hazard zones

In the area of the wet-grinding belt, flat wheel, whetstone, finned brush, and wet-honing wheel, there is a risk that clothing, fingers, and hair, for example, may be pulled in and crushed. Suitable personal protective equipment must be worn.

2.4.8 Servicing (maintenance, repair) and fault elimination

Maintenance work is to be carried out on schedule by trained personnel. Inform operating personnel before starting repair work. A responsible supervisor must be appointed.

For all service work, the belt grinding attachment 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.

2. Safety

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

2.4.9 Structural modifications to the belt grinding attachment

Modifications, retrofitting or rebuilds of the belt grinding attachment 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 the prior written approval of KNECHT Maschinenbau GmbH.

Immediately replace machine parts which are not in perfect condition.

Only use original replacement and wear parts. If parts are purchased from external suppliers, there is no guarantee that they are designed and manufactured to withstand the required level of stress and provide the required level of safety.

2.4.10 Cleaning the belt grinding attachment

Cleaning agents and materials used must be handled properly and disposed of in an environment-friendly manner.

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

2.4.11 Oils and greases

When handling lubricants/oils and greases, follow the safety regulations for the product. Observe special instructions for the foodstuffs sector.

2.4.12 Relocating the belt grinding attachment

Even when moving the grinding machine with HV 161 belt grinding attachment 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 (signaler) for the lifting process.

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

Only lift the grinding machine correctly with hoisting gear in accordance with the operating instructions (attachment points for hoisting equipment, 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 Intended use

The HV 161 belt grinding attachment is used to grind sickle-shaped cutter knives. This attachment is meant to be installed onto KNECHT grinding machines of the USK 160 S series.

3.2 Technical specifications

Height _____ approx. 475 mm

Width _____ approx. 280 mm

Depth _____ approx. 163 mm

Weight _____ 3.5 kg

Maximum grinding radius _____ 260 mm

Minimum grinding radius _____ 70 mm

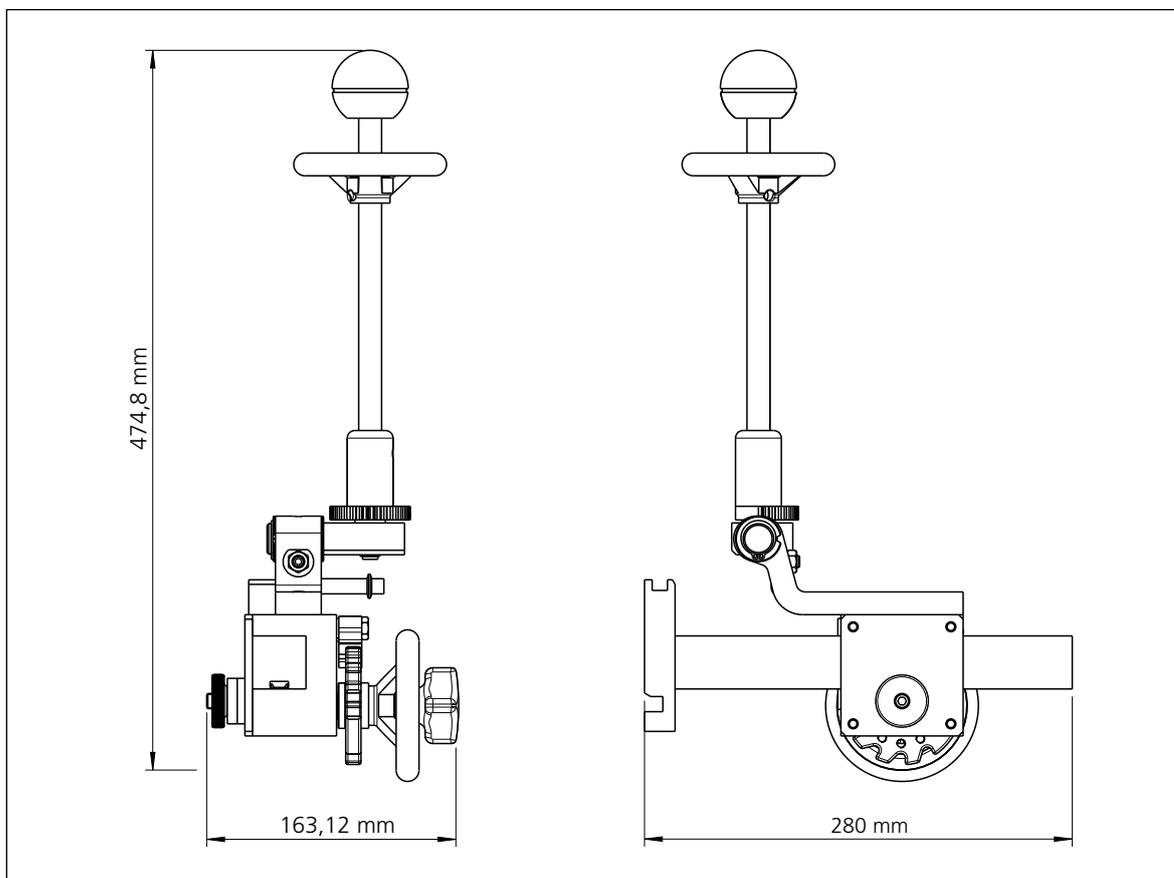


Figure 3-1 Dimensions in mm

3. Description

3.3 Functional description

The HV 161 belt grinding attachment is used to grind sickle-shaped cutter knives. This attachment is meant to be installed onto KNECHT grinding machines of the USK 160 S series.

To grind, the cutter knife is moved back and forth over a wet-grinding belt.

Spacer discs for 25° and 27° are used to set the desired grinding angle.

3. Description

3.4 Description of modules

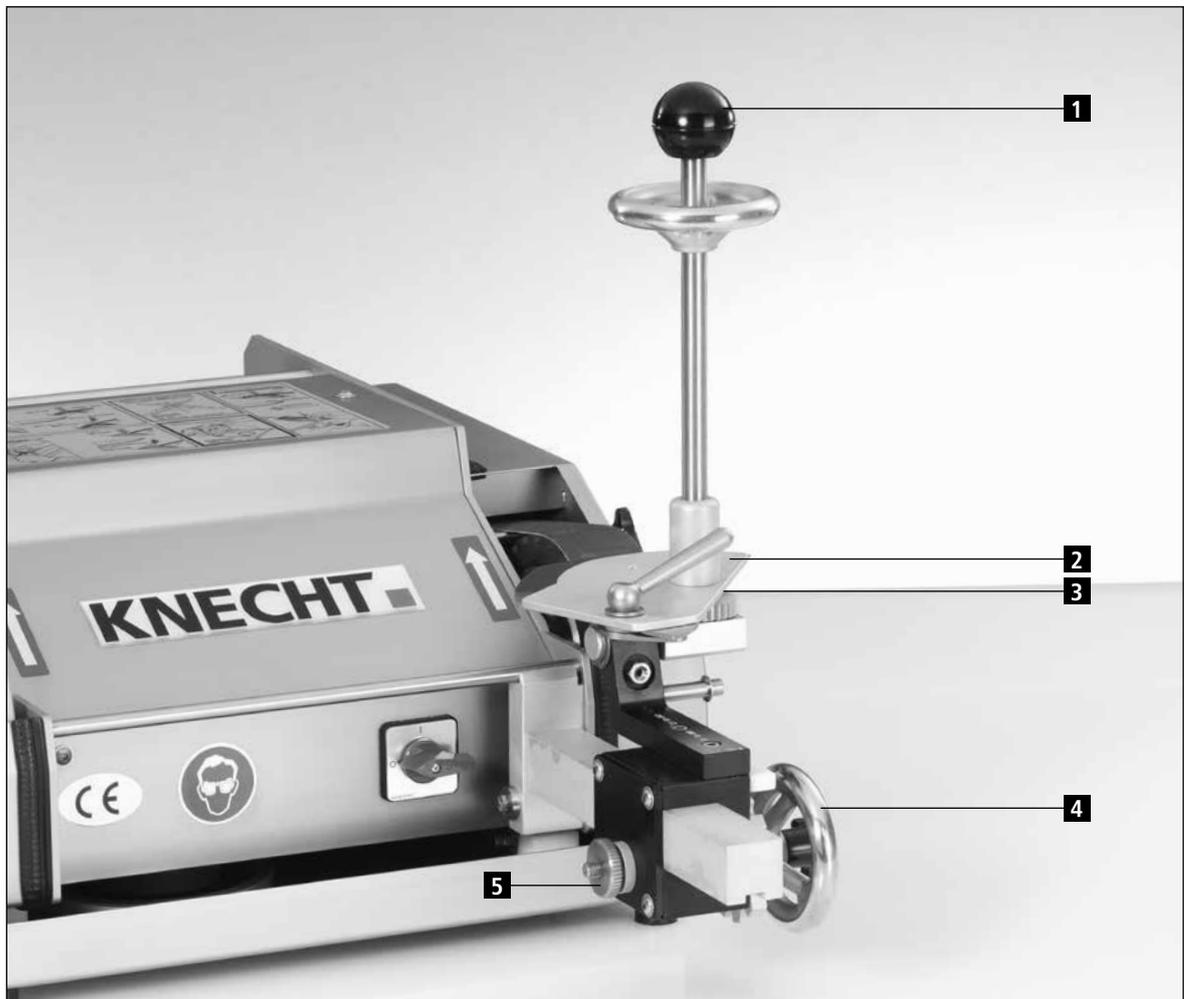


Figure 3-2 HV 161 belt grinding attachment

- 1 Grinding lever
- 2 Grinding plate
- 3 Spacer discs for grinding angle adjustment
- 4 Hand wheel for feeding the belt grinding attachment
- 5 Spacer disc bracket

4. Transport



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

4.1 Transport aids

Use only transport aids of sufficient size when transporting and setting up the belt grinding attachment.

4.2 Transport damage

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

Remove the packaging and shipping straps. Remove the shipping straps on the belt grinding attachment. Dispose of the packaging in an environment-friendly way.

4.3 Transport to another installation site

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

The belt grinding attachment must be secured properly during transport.

5. Installation

5.1 Selection of qualified personnel



We recommend having the belt grinding attachment installed by trained KNECHT personnel.

We assume no liability for damage caused by improper installation.

5.2 Installation site

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

5.3 Settings

The various components and the electrical system are adjusted by KNECHT Maschinenbau GmbH prior to delivery.

ATTENTION

Unauthorized changes to set values are not permitted and may damage the belt grinding attachment.

5.4 Initial start-up of the belt grinding attachment

Completely install and check the safety devices before commissioning.

The belt grinding attachment is meant to be installed onto KNECHT grinding machines of the USK 160 S series only.



Be sure to have all the safety devices checked by trained personnel before commissioning.

6. Commissioning



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

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

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

This can result in serious injury. Personal protective equipment must be worn.

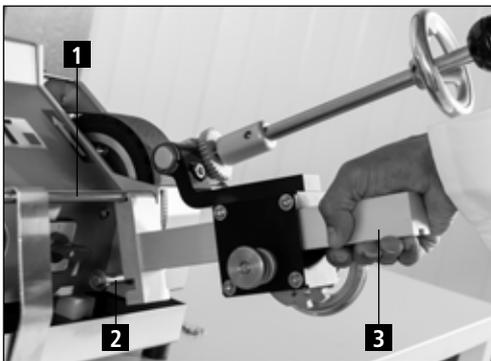


Figure 6-1 Mounting the belt grinding attachment

Mount the belt grinding attachment (6-1/3) using the recesses on the grinding spindle (6-1/1) and the bolts (6-1/2).

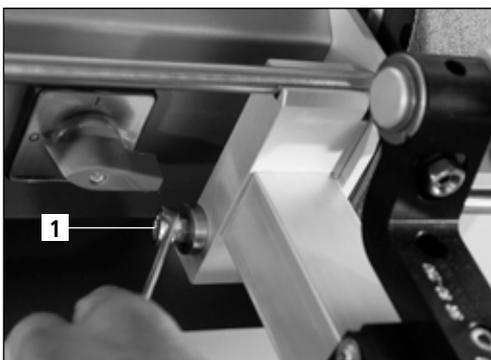


Figure 6-2 Mounting the belt grinding attachment

Tighten the (6-2/1) using a ring spanner (SW 10).

7. Operation

7.1 General principles of grinding technology

If a blade has become blunt, material must be removed from its surface to restore it to its original sharpness.

For that, the knife in question is ground to produce its cutting edge. If, in the process, a burr appears on the blade, then the grinding process was successful and can be concluded. Now, before the final sharpness is achieved, the burr must be removed in a further step. This is done with a flap brush.

As it is not only the sharp cutting edges but also the long service lives that define a blade, the cutting angle is another important indicator of a blade's performance. The smaller the cutting edge angle, the higher is the theoretical service life. In practice, however, the cutting edge breaks off and is therefore no longer sharp when the cutting edge angle is too small.

The cutting edge angles must therefore lie between 15° and 35° . If the cutting edge angles are less than 15° , the blade becomes so unstable that it breaks at the slightest resistance. If the cutting edge angle is greater than 35° , the blade is extremely stable, but service life will not be as long.

One more criterion for judging the properties of a cutting edge is the cutting edge profile.

There are three different ground profiles:



Tapered grinding



Convex grinding



Concave grinding

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

In general: Adhering to the profiles and the cutting edge angles specified by the manufacturer is required

7. Operation



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

This can result in serious injury.

7.2 Grinding sickle-shaped cutter knives on the wet-grinding belt

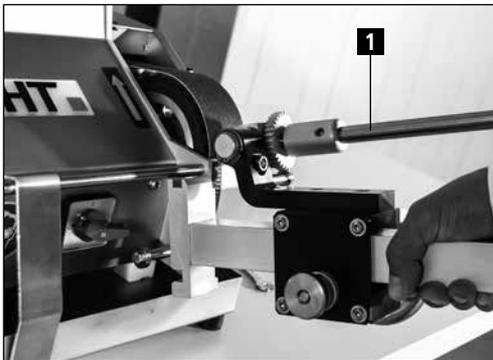


Figure 7-1 Mounting the belt grinding attachment

Mount the HV 161 belt grinding attachment according to the instructions (see Chapter 6).

Remove grinding lever (7-2/1).

7.2.1 Adjusting the grinding angle

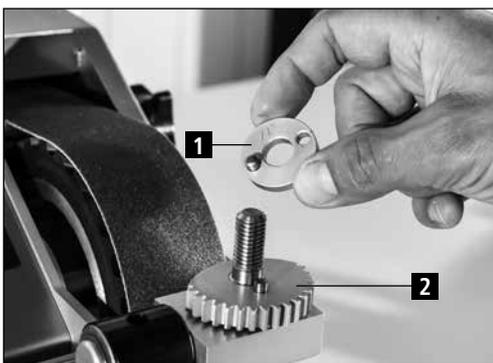


Figure 7-2 Spacer discs for grinding angle adjustment

For setting the desired grinding angle, insert the matching spacer disc (7-2/1) on the locating bolt (7-2/2).

Spacer discs for 25° and 27° are located to the left of the device (3-2/5).

7. Operation

7.2.2 Mounting the grinding plate

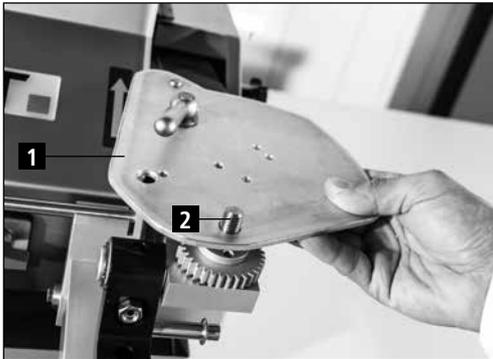


Figure 7-3 Mounting the grinding plate

The grinding plate (7-3/1) is placed over the spacer discs (7-2/1).

The follower pin of the locating bolt (7-3/2) must engage in the driver bore of the grinding plate (7-3/1).

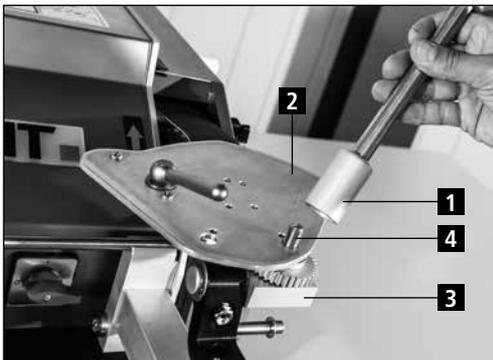


Figure 7-4 Attaching the grinding plate with grinding lever

Using the grinding lever (7-4/1), the grinding plate (7-4/2) is fixed to the belt grinding attachment (7-4/3).

For that, turn the grinding lever (7-4/1) on the locating bolt (7-4/4) in clockwise direction.

7.2.3 Clamping on the cutter knife



Figure 7-5 Tightening the cutter knife to the grinding plate

When clamping the knife, swivel back the grinding plate (7-5/2) and grinding lever (7-5/1).

The knife (7-5/3) is clamped onto the grinding plate (7-5/2) by inserting the bolts (7-5/6) of the grinding plate into the holes on the knife (7-5/3).

The knife is locked to the grinder (7-5/5) by turning the bolts left.

7. Operation



Figure 7-6 Switching on the grinding machine

Then turn the main switch (7-6/1) of the USK 160 S to the "I" position.

If the cutter knife is tightened, swivel the grinding lever, grinding plate and knife forward again.

ATTENTION

Hold the grinding plate steady when swiveling the grinding lever forward. Otherwise this will swivel away, which may result in injury.

7.2.4 Grinding the cutter knife



Figure 7-7 Turning the hand wheel to first locking position

Turn the hand wheel (7-7/3) in clockwise direction until the locking lever (7-7/1) engages in the first locking position of the locking disc (7-7/2).

NOTICE

Press with the thumb on the locking lever (7-7/1) to move to the first locking position. Turn the hand wheel (7-7/3) clockwise with the remaining four fingers.

Tighten the star handle (7-8/2) to be able to move the locking disc.

7. Operation



Figure 7-8 Making the locking position inactive

Disable the locking disc (7-8/1) by turning the star handle (7-8/2) counter-clockwise by 1/4th of a rotation.

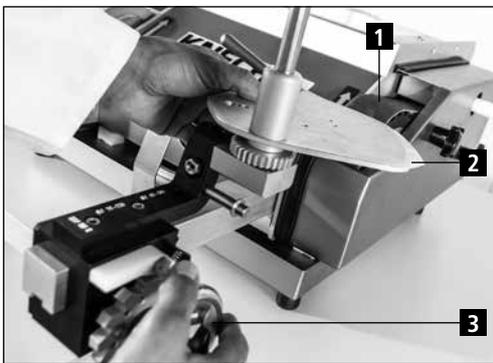


Figure 7-9 Adjusting the cutter knife device

Turn the hand wheel (7-9/3) in counter-clockwise direction until the cutter knife (7-9/2) touches the grinding belt (7-9/1).

Tighten the star handle (7-8/2) back again.

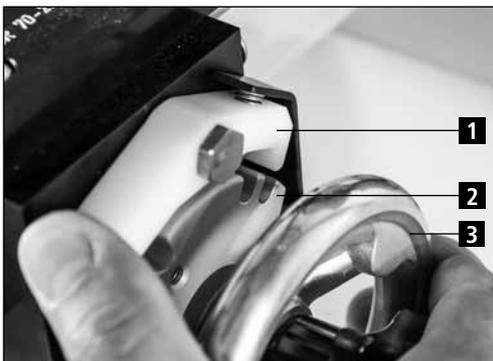


Figure 7-10 Turning the hand wheel to second locking position

Turn the hand wheel (7-10/3) to the second locking position of the locking disc (7-10/2).

NOTICE

Press with the thumb on the locking lever (7-10/1) to move to the second locking position. Turn the hand wheel (7-10/3) counter-clockwise with the remaining four fingers.

7. Operation

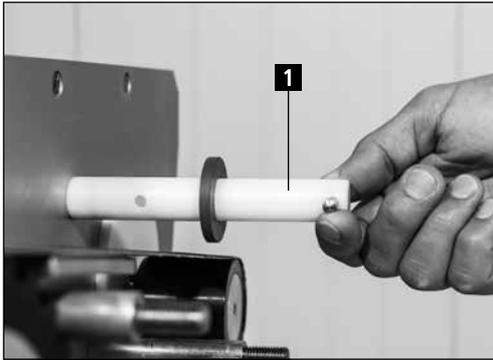


Figure 7-11 Water regulation on the wet-grinding belt

The quantity of coolant is regulated by the water nozzle (7-11/1).

Turning clockwise = more water

Turning counterclockwise = less water



Figure 7-12 Grinding the cutter knife

Push the grinding lever forward with the right hand and rotate the knife along the cutting edge with the left hand until burr has been formed over the entire length of the cutting edge.

If a burr has formed over the entire blade, the grinding unit is moved to the next locking position with the hand wheel. The knife moves in the direction of the belt. Carry out five strokes in this position (a stroke = grinding from the blade edge to blade base and back again).

Then move to the next locking position and execute five strokes again (etc.) until the entire curvature of the knife is ground.

Then move back to position "2". Swivel back the belt grinding attachment including knife. The knife can now be removed and a new one tightened on.

NOTICE

The locking lever must not be pressed when moving back to locking position 2. All the locking positions up to locking position 2 can be skipped by turning the hand wheel.

Knives with very pronounced corners are only ground from corner to corner before moving on to the next area and grinding from notch to notch again.

Switch off the grinding machine once the grinding process is finished.

To do so, set the "I/O" main switch (7-6/1) to the "0" position.

8. Care and maintenance



For all work on the belt grinding attachment, 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.

Only use original replacement and wear parts. If parts are purchased from external suppliers, there is no guarantee that they are designed and manufactured to withstand the required level of stress and provide the required level of safety.

8.1 Cleaning

Clean the belt grinding attachment after each sharpening in order to prevent the grinding sludge from drying and making it harder to remove.

After cleaning, lightly grease the belt grinding attachment with non-corrosive oil (also refer to the lubrication schedule, Chapter 8.2).

8.2 Lubrication schedule and lubricant table

Lubrication work	Turnus	OEST	SHELL	EXXON 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

All operating materials must be disposed of correctly.

Secure moving parts against slipping.

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

9.2 Disposal

At the end of service life, the machine must be disposed of by a qualified specialist company. In exceptional cases and by agreement with KNECHT Maschinenbau GmbH, the machine can be returned.

Operating materials (e.g. grinding disks, wet-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 management:

See postal address

service@knecht.eu

10.3 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	(HV161)
Designation of individual part	(truing device)
Item no.	(31)
Drawing no.	(2000014-11700)
Quantity	(1 pcs.)

Please feel free to contact us if you have any questions.

11. Appendix

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 mentioned below fulfills 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.

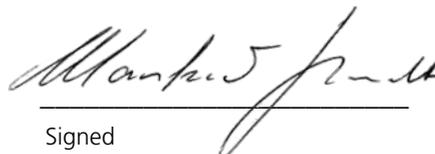
This declaration becomes void if the machine is modified in any way without our consent.

Designation of the machine:	Belt grinding attachment
Type designation:	HV 161
Applicable harmonized standards, in particular:	DIN EN 12100-1 DIN EN 12100-2 DIN EN 60204-1 ISO 13857 DIN EN 349
Responsible for 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, April 17, 2018

Place, date



Signed

Managing Director

Signatory details

KNECHT Maschinenbau GmbH

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