KNECHT

Operating Instructions

W 300

Surface Grinding Machine

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Operating Instructions

Surface Grinding Machine W 300

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Documents for the machine operator

Operating Instructions

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1. Important notes

1.1 Forward to the operating instructions

These operating instructions are meant to make it easier to get to know the surface grinding machine, referred to in this document as grinding machine, and to use it properly for the intended purpose.

The operating instructions contain important information on how to operate the grinding 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 grinding machine.

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

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

- transportation, installation, commissioning
- operation, including fault elimination 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 Warning notes and symbols in the operating instructions

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

CAUTION

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

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

ATTENTION

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

NOTICE

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

1. Important notes

1.3 Warning signs and their meaning

1.3.1 Warning and prohibition signs on / in the grinding machine

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

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

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

Live machine parts may be opened only by authorized trained personnel.

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

CAUTION! PACEMAKERS (prohibition sign on the safety doors)

A powerful magnet is installed in the machine. To avoid possible malfunctions in the pacemaker, a minimum distance of 30 cm between the magnetic clamping plate and the implant must be complied with.

1.3.2 General mandatory sign

The following general mandatory signs must be observed:

CAUTION! RISK OF INJURY ON THE BLADE

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

Wearing protective gloves is mandatory when carrying out such jobs.

Be careful when transporting blades.

Protective gloves should also be worn when changing the coolant (see Chapter 8.1).

1. Important notes

1.4 Rating plate and machine serial number

Figure 1-1 Rating plate

The rating plate is located on the right side of the machine.

Figure 1-2 Machine serial number

The machine serial number is located on the rating plate and in the machine room, visible through the KNECHT logo.

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.

Figure 7-5 *Workpiece holder*

Small workpieces are held and aligned correctly on the rotary table via centring pieces (7-5/1). The relevant centring piece is inserted in the centre of the rotary table.

Large workpieces are aligned in the centre without a centring piece. The edge of the rotary table and the grooves can be used as an orientation aid.

The workpiece is clamped with the electromagnetic table. Before each grinding process, the magnet of the rotary table must be activated by pressing the "Magnet On/Off" (3-5/5) button.

2. Safety

2.1 Basic safety instructions

2.1.1 Observe notes in the operating instructions

The basic prerequisite for the safe handling and uninterrupted operation of this grinding machine is the knowledge of the basic safety instructions and regulations.

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

2.1.2 Obligations on the part of the operator

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

- are familiar with the basic occupational safety and accident prevention regulations and have been trained and instructed in the handling of the grinding 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 grinding 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 grinding 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 persons, or impairment of the grinding machine or other property.

The grinding 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 grinding machine, or if the processing behavior indicates that such malfunctions may have occurred, the grinding machine must be stopped immediately and until such time as the malfunction has been found and eliminated.

Allow only authorized technical staff to eliminate the malfunctions.

2.2 Use as intended

The grinding machine is only designed for surface grinding mincing plates and knives, also referred to as workpieces in this document.

All blades must be clamped in the centre on the magnetic rotary table.

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 grinding machine is being used improperly, if, e.g.,

- devices are not fastened properly.
- workpieces other than mincing plates or 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 grinding machine,
- improper transportation, commissioning, operation and maintenance of the grinding machine,
- operating the grinding 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 grinding machine.
- unauthorized structural alterations to the grinding machine,
- unauthorized modification, e.g. of the drive conditions (power and speed), and
- insufficient monitoring of machine parts that are exposed to wear.

• use of unapproved replacement and wear parts.

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

2.4 Safety regulations

2.4.1 Organizational 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 equipment

Before commissioning the grinding 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 grinding machine.

When delivering spare parts, the protective equipment must be attached by the operator as stipulated.

2.4.3 Informal safety measure

The operating instructions must be permanently available at the place of use of the grinding machine. In addition to the operating instructions, the generally applicable as well as the locally relevant accident prevention regulations must also be made available and observed.

All the safety alert symbols and danger warnings on the grinding 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 grinding 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 grinding machine under the permanent supervision of an experienced person.

2. Safety

2.4.5 Machine control

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

2.4.6 Safety measures during normal operation

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

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

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

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

In case of functional faults, immediately stop the machine and secure against restarting. Have the faults eliminated immediately.

2.4.7 Dangers due to electrical power

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 authorized specialist.

Cables marked in yellow are electrically live even when the main switch is in off position.

2.4.8 Particular hazard areas

In the area of the grinding wheel, there is a hazard of pinching and being drawn in (e.g. clothing, fingers and hair). Suitable personal protective equipment must be worn.

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 grinding 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 grinding machine

Modifications, retrofitting or rebuilds of the grinding 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 grinding machine.

2.4.11 Cleaning the grinding machine

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.

2.4.12 Lubricants / oils and greases

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

2.4.13 Relocation of the grinding 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.

Only lift the grinding 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 surface grinding machine W 300 grinds mincing plates and knives to a diameter of 300 mm (optional 400 mm).

3.2 Technical specifications

Height (maximum if lever at top)	approx. 2095 mm
Width (incl. belt filter coolant unit)	approx. 1665 mm
Depth (incl. belt filter coolant unit and extraction)	approx. 1700 mm
Weight	650 kg
Weight belt filter coolant unit	90 kg
Weight standard coolant unit	20 kg
Current supply*	3x 400 V
Mains frequency*	50 Hz
Output*	4 kW
Power consumption*	6 kW
Energy consumption*	9 A
Back-up fuse	25 A
Measured A-evaluated emission sound pressure level at the workstation LpA**	75 dB (A)
Rotary table diameter	300 mm (optional 400 mm)
Rotary table speed	31 and 62 rpm
Grinding wheel diameter	200 mm
Grinding wheel speed	3000 rpm
Cutting speed with grinding wheel d. 200***	31 m/s

*) This data may vary depending on the electrical power supply.
**) Noise emission information according to EN ISO 11202 (measurement uncertainty KpA. 2.5 dB(A))
***) Caution! The cutting speed of 31 m/s is achieved at 50 Hz. With an electrical supply with higher frequency, faster cutting speeds are reached. Only use approved abrasives.

A mincing plate from Turbocut (d. 200 mm) was ground.

3. Description

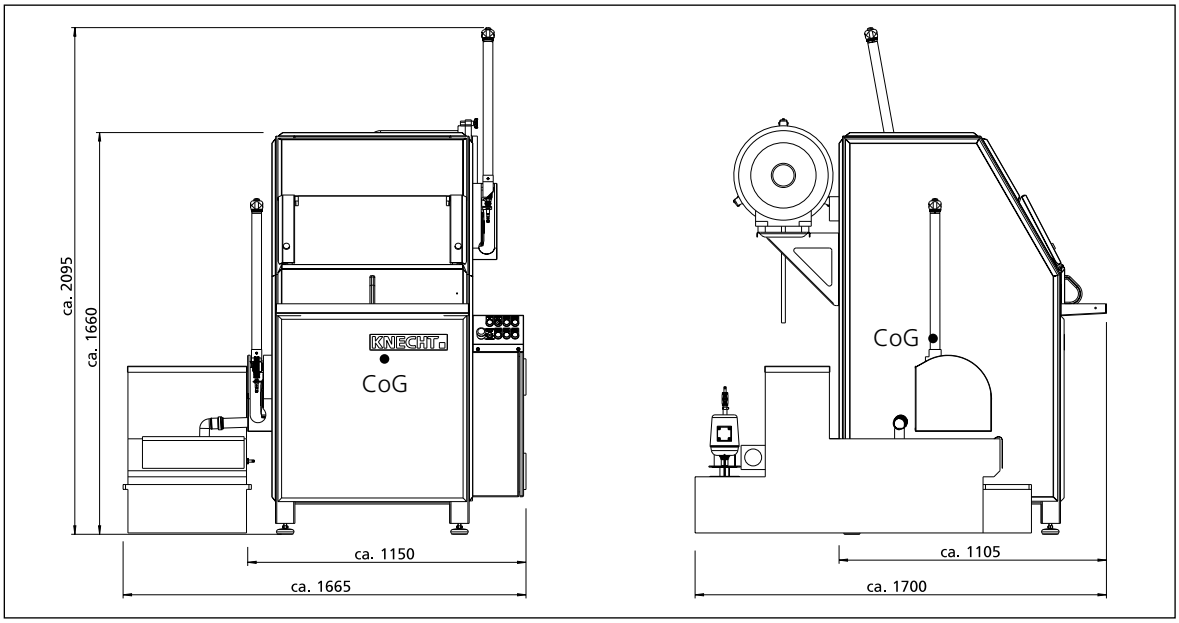

Figure 3-1 Dimensions in mm

3.3 Functional description

With the surface grinding machine W 300, mincing plates and knives with a diameter of up to 300 mm (optional 400 mm) can be ground.

ATTENTION

The mincing plate must not protrude over the magnetic table.

Mincing plates are fixed on the rotary table of the surface grinding machine W 300 with either magnetic clamping or, if grinding takes place without magnetic clamping, with centring pieces.

For surface grinding, mincing knives are fixed on a mincing plate with the centring piece for blades provided.

For unusual applications, special holders are also available.

The machine is supplied with CBN grinding wheels and a belt filter coolant unit as standard.

As an option, the W 300 can be supplied with a standard coolant unit and an air purification unit (referred to as extraction in this document).

ATTENTION

Only abrasives that are approved by KNECHT Maschinenbau GmbH may be used.

3. Description

3.4 Description of the assemblies

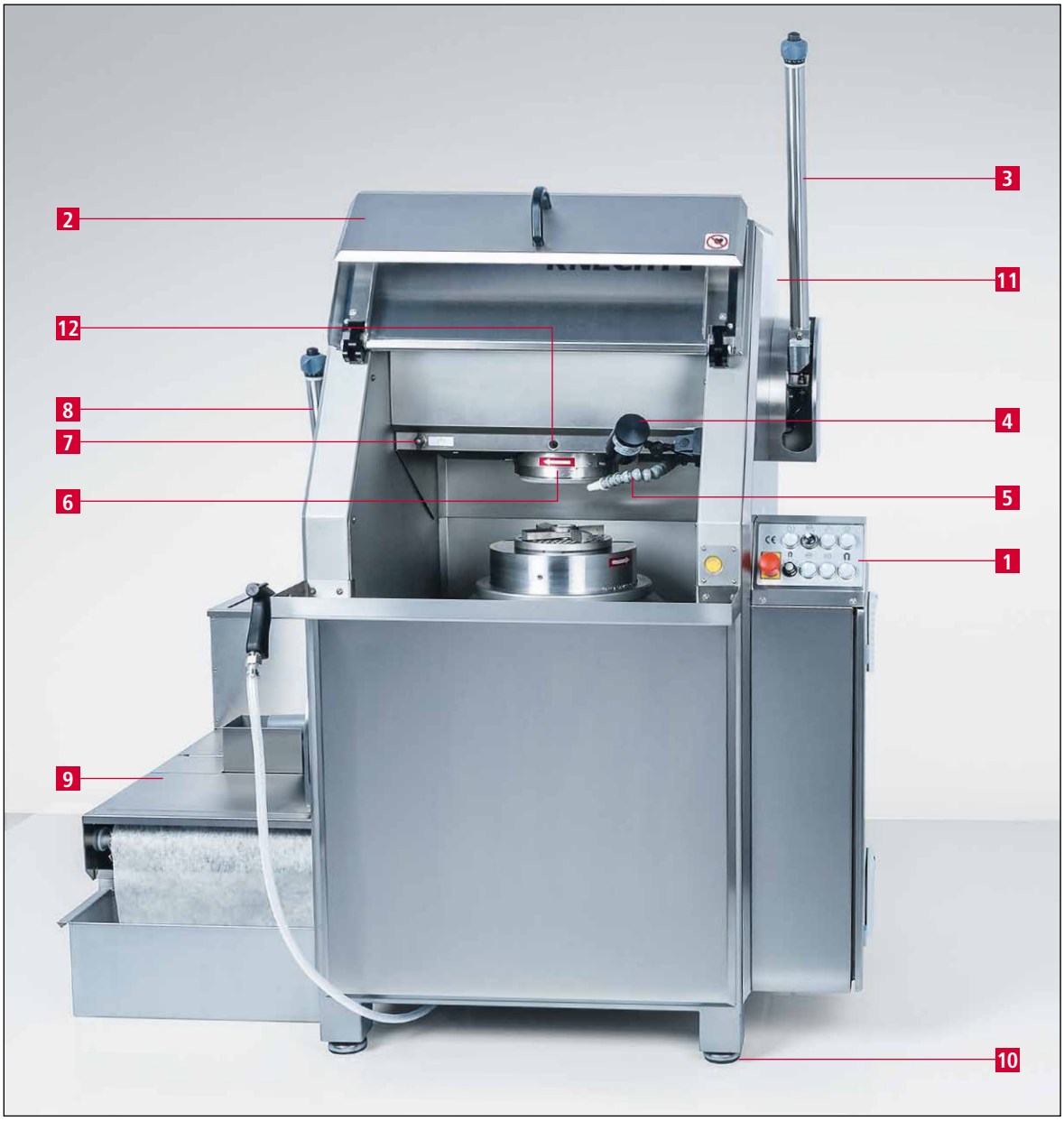

Figure 3-2 General view of the grinding machine

1 Control panel
2 Safety doors
3 Control lever “grinding unit”
4 LED work lights
5 Coolant hose
6 Grinding unit
7 Coolant tap
8 Control lever “rotary table”
9 Belt filter coolant unit
10 Adjustable machine feet
11 Extraction (optional)
12 Retaining pin

3. Description

3.4.1 Switching the grinding machine on / off

Figure 3-3 Main switch

The main switch is on the rear side of the control panel.

Turning the main switch from “0” to “I” switches on the grinding machine.

Turning the main switch from “I” to “0” switches off the grinding machine.

3.4.2 Control panel

Figure 3-4 Control panel

The machine is operated via the control panel of the PLC-control.

The mechanical components can be operated via the buttons, switches and controllers.

3. Description

Figure 3-5 Control panel

1 "Control On" button: Activates PLC-control
2 Selection switch "Rotary table I/II": Changes the rotary table feed speed
3 "Coolant On/Off" button: Switches the coolant pump on/off
4 "Drive On/Off" button: Switches the drive grinding wheel, rotary table, coolant pump and extraction on/off (only works with the magnet switched on)
5 "Magnet On/Off" button: Switches the rotary table magnet on/off
6 "Grinding wheel On/Off" button: Switches the grinding wheel on/off (only works with the magnet switched on)
7 "Rotary table On/Off" button: Switches the turning motion of the rotary table on/off
8 "Adhesive force magnet" selection switch: Controls the rotary table magnetic field strength
9 "Emergency Stop" button

3.4.3 Belt filter or standard coolant unit (optional)

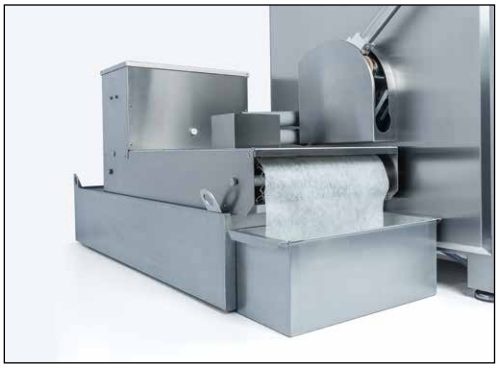

Figure 3-6 Belt filter coolant unit

The belt filter coolant unit (3-6) is located on the left side of the machine.

During grinding, the workpiece must be permanently cooled.

Fill approx. 140 liters of water with coolant additive into the water tank.

Figure 3-7 Standard coolant unit (optional)

The standard coolant unit (optional) (3-7) is located on the left side of the machine.

During grinding, the workpiece must be permanently cooled.

Fill water with coolant additive into the tank. The maximum fill level is 220 mm.

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).

4.1 Transport aids

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

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

Dispose of the packaging in an environmentally friendly way.

4.3 Transport to another installation site

For transport 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 grinding machine must be stable and firmly placed.

Work on the electrical system must be carried out by an authorized specialist only. 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 grinding 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 grinding machine.

5.3 Supply connections

The grinding 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.

ATTENTION

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

5. Installation

5.5 Initial commissioning of the grinding machine

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

Uneven floors must be compensated for via adjustable machine feet.

Have a qualified electrician on site install the current supply.

Completely install and check the safety devices before commissioning.

Have all the safety devices checked for proper functioning by trained personnel before commissioning.

6. Commissioning

CAUTION

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

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

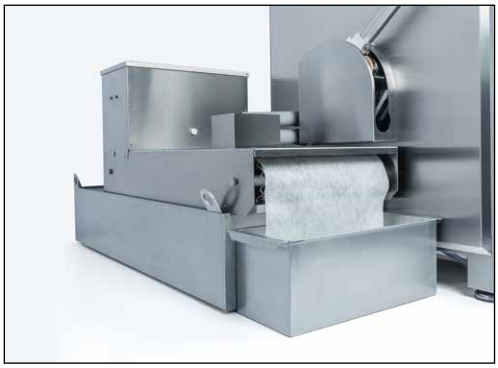

Figure 6-1 Filling the belt filter coolant unit

Set up the belt filter coolant unit or standard coolant unit, connect it and fill with water and coolant additive as described in Chapter 3.4.3.

For information on the coolant additive, see Chapter 8.1.

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

Figure 6-2 Control panel

Press the "Control On" button (6-2/1) on the control panel. The PLC-control is now activated.

Press the "Rotary table On/Off" button (6-2/2). The rotary table turns.

6. Commissioning

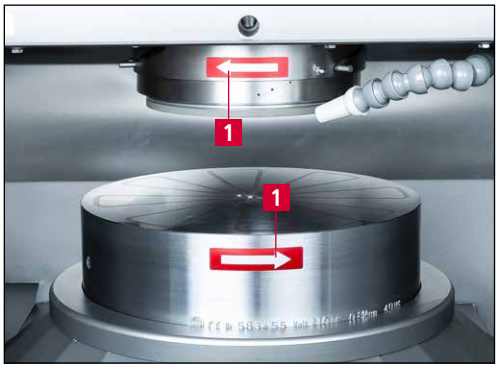

Figure 6-3 Check the direction of rotation

Check the direction of rotation.

The direction arrows (6-3/1) show the direction of rotation of the rotary table and grinding wheel.

Where necessary, switch the pole changer plug.

ATTENTION

In the event of an incorrect connection, the grinding wheel and the rotary table can turn opposite to the specified direction of rotation.

An incorrect direction of rotation can result in the grinding wheel coming loose.

During commissioning, check the direction of rotation of the rotary table first. The rotary table must turn counter-clockwise.

After ensuring that the direction of rotation is correct, press the "Rotary table On/Off" button (6-2/2) again to switch off the rotary table.

7. Operation

7.1 Switching on the grinding machine

Set the main switch (see figure 3-3) to "I". Press the "Control On" button (3-5/1). The PLC-control is now activated.

7.2 Rotary table

Figure 7-1 Rotary table

The workpieces are placed on the rotary table (7-1/1) and centred for machining. The rotary table has an electric magnet for fixing the workpiece. The strength of the magnetic field is divided into six levels (3-5/8).

The rotary table is powered by a spur gear. Two speeds (3-5/2) are available.

7.3 Control lever for rotary table and grinding unit

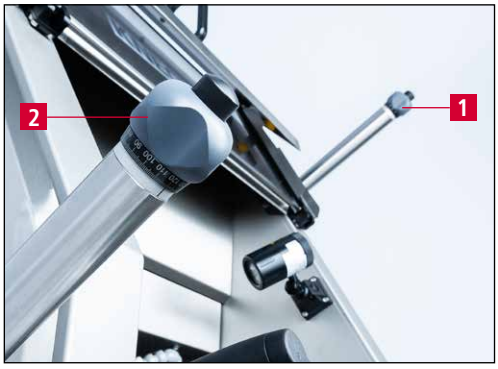

Figure 7-2 Control lever

The feed of the grinding unit and rotary table takes place via the relevant control levers ((7-2/1) and (7-2/2)).

For a quick feed, the control levers are pushed upwards or pulled forwards.

Figure 7-3 Fine feed "rotary table"

The control lever must be released electromechanically first. To do this, press the knob (7-3/2) on the end of the control lever. Once the desired position is reached, release the knob. The control lever is electromechanically locked again.

For fine feed, press the rotary knobs (7-3/1) on the end of the relevant control lever.

7. Operation

7.4 Workpiece holder with / without centring piece

Figure 7-4 Control lever "rotary table"

To insert a workpiece, the rotary table can be moved into the change position. To do this, move the "Rotary table" control lever (7-4/1) down.

Figure 7-5 Centring piece

Small workpieces are held and aligned correctly on the rotary table via centring pieces (7-5/1). The relevant centring piece is inserted in the centre of the rotary table.

Large workpieces are aligned in the centre without a centring piece. The edge of the rotary table and the grooves can be used as an orientation aid.

The workpiece is clamped with the electromagnetic table. Before each grinding process, the magnet of the rotary table is activated by pressing the "Magnet On/Off" (3-5/5) button.

7. Operation

7.5 Defining the working position

Figure 7-6 Position rotary table

The working position of the rotary table differs depending on the size of the workpiece. The correct working position is reached if the workpiece is covered by the grinding wheel from the bore to the outer edge.

The position of the rotary table is defined with the "Rotary table" control lever (7-2/2) on the left side of the machine.

To do this, push the control lever to the back or pull it to the front.

For workpieces with a collar, the position of the rotary table can be precisely adjusted with the fine feed (7-3/1) on the end of the control lever.

ATTENTION

When grinding mincing knives, it is important to ensure that the grinding wheel does not touch the collar of the blade.

7. Operation

7.6 Adjusting the coolant supply

Figure 7-7 Interior

The coolant pump is switched on and off by pressing the "Coolant On / Off" (3-5/3) button while the controller is activated. The coolant supply can be regulated using the coolant tap (7-7/1).

The coolant supply is throttled by turning the coolant tap clockwise. Turning it counterclockwise opens the coolant tap and thus the coolant supply.

The coolant hose (7-7/2) is flexible and must be configured so that the coolant flows directly onto the workpiece.

ATTENTION

When grinding, make sure that the workpiece is always supplied with sufficient coolant, because otherwise the workpiece may overheat, thus damaging the metal structure of the workpiece. Check the coolant level regularly before grinding.

7. Operation

7.7 Grinding mincing plates

Figure 7-8 Mincing plate on rotary table

Switch on the grinding machine (see Chapter 3.4.1) and activate the control with the "Control On" (3-5/1) button.

Place and centre the mincing plate on the rotary table. For small workpieces, use centring pieces (7-8/1).

Fix the mincing plate in place by pressing the "Magnet On/Off" button (3-5/5).

Bring the rotary table and grinding unit into the working position as described in Chapter 7.5.

Figure 7-9 Control lever "grinding unit"

Bring down the grinding unit using the "Grinding Unit" (7-9/1) control level on the right side of the machine until it is almost over the mincing plate. The grinding wheel is only to touch the mincing plate when the drive is activated.

Close the safety doors (3-2/2). Start the rotary table, grinding wheel, coolant pump and extraction by pressing the "Drives On/Off" (3-5/4) button.

ATTENTION

The machine is electrically secured and the units can only be switched on with the safety doors closed and active magnet switched on.

NOTICE

The machine has two rotating speeds for the rotary table. The rotating speed can be selected with the "Rotary table I/II" selection switch (3-5/2). With the fast rotary table speed "II", more material is removed.
The slow rotary table speed "I" delivers a better surface quality on the workpiece.

7. Operation

Figure 7-10 Fine feed "grinding unit"

To grind, feed the grinding unit with the fine feed (7-10/1) on the end of the control lever until a clear spark formation becomes visible.

Let the machine run without further feed until the spark formation decreases. Feed again until the workpiece is evenly surface ground.

You can achieve the required surface quality by reducing the rotary table speed and allowing the machine to briefly spark out after the last feed, i.e. grind with low pressure.

After the grinding process, move the grinding unit up with the control lever until the drives stop automatically. Switch off the magnet of the rotary table with the "Magnet On/Off" button (3-5/5).

The mincing plate can now be removed and ground on the rear side.

To ensure a consistent level of quality, the first side is then ground again.

ATTENTION

When rinsing the mincing plate, under no circumstances must you spray directly into the water trough opening.

7. Operation

7.8 Surface grinding mincing knives

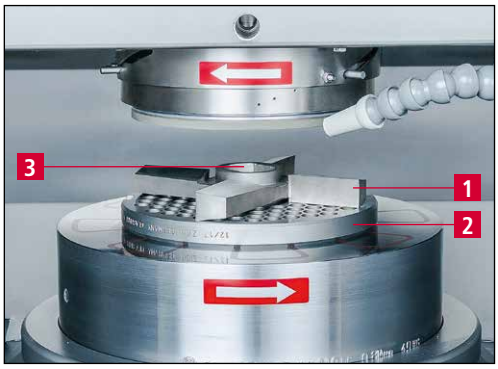

Figure 7-11 Mincing knife on rotary table

Switch on the grinding machine (see Chapter 3.4.1) and activate the control with the "Control On" (3-5/1) button.

Place the mincing knife (7-11/1) onto a surface-ground mincing plate (7-11/2). The collar of the mincing knife lies in the drill hole of the mincing plate. Center the mincing plate and mincing knives with the flat centering piece (7-11/3) for mincing knives.

Fix the workpiece in place by pressing the "Magnet On/Off" button (3-5/5).

Bring the rotary table and grinding unit into the working position as described in Chapter 7.5.

NOTICE

The knife is not held with magnetic force here. In this case, switching on the magnetic table only serves to release the control so that the grinding drives can be switched on.

Figure 7-12 Fine feed "rotary table"

When grinding mincing knives, it must be ensured that the grinding wheel does not touch the collar of the knife.

The position of the rotary table can be adjusted precisely with the fine feed (7-12/1) of the left control lever.

7. Operation

Figure 7-13 Control lever "grinding unit"

Bring down the grinding unit using the "Grinding Unit" (7-13/1) control level on the right side of the machine until it is almost over the mincing knife. The grinding wheel is only to touch the mincing plate when the drive is activated.

Close the safety doors (3-2/2). Start the rotary table, grinding wheel, coolant pump and extraction by pressing the "Drives On/Off" (3-5/4) button.

ATTENTION

The machine is electrically secured and the units can only be switched on with the safety doors closed and active magnet switched on.

NOTICE

The machine has two rotating speeds for the rotary table. The rotating speed can be selected with the "Rotary table I/II" selection switch (3-5/2). With the fast rotary table speed "II", more material is removed.
The slow rotary table speed "I" delivers a better surface quality on the workpiece.

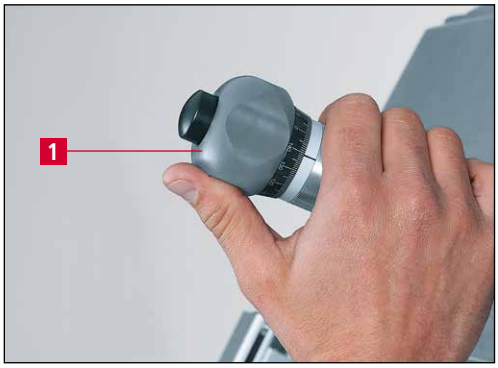

Figure 7-14 Fine feed "grinding unit"

To grind, feed the grinding unit with the fine feed (7-14/1) on the end of the control lever until a clear spark formation becomes visible.

Let the machine run without further feed until the spark formation decreases. Feed again until the workpiece is evenly surface ground.

You can achieve the required surface quality by reducing the rotary table speed and allowing the machine to briefly spark out after the last feed, i.e. grind with low pressure.

After the grinding process, move the grinding unit up with the control lever (7-13/1) until the drives stop automatically. Switch off the magnet of the rotary table with the "Magnet On/Off" button (3-5/5).

The mincing knife can now be removed and ground on the rear side.

7. Operation

To ensure a consistent level of quality, the first side is then ground again.

ATTENTION

When rinsing the mincer knife, under no circumstances must you spray directly into the water trough opening.

7. Operation

7.9 Grinding cutting sets in the original Handtmann quality

The W 300 surface grinding machine grinds Handtmann cutting sets in the original "H" quality. - These workpieces are labeled with an "H". The W 300 meets all grinding requirements of the Handtmann cutting sets:

- improved grinding quality
- levelness and plane-parallelism optimized to 0.02 mm (this meets higher requirements and provides better quality than that required for standard plates)

ATTENTION

The W 300 surface grinding machine must be configured for increased plane-parallelism by a KNECHT Service Technician beforehand!

A CBN grinding wheel (d. 200 mm) must be used for grinding.

7.9.1 Grinding Handtmann mincing plates in a plane-parallel manner

Figure 7-15 Mincing plate on rotary table

Clean the rotary table as described in Chapter 8.3.

Switch on the grinding machine (see Chapter 3.4.1) and activate the control with the „Control On" (3-5/1) button.

Place the mincing plate onto the rotary table and center it. Use centering pieces (7-15/1) for smaller workpieces.

Set the mincing plate by pressing the "Magnet On/Off" (3-5/5) button (magnet voltage I).

Put the rotary table and grinding unit in their working positions as described in Chapter 7.5.

Close the protective door (3-2/2). Start the rotary table, coolant pump, and suction by pressing the „Drive On/Off" button (3-5/4).

ATTENTION

The machine is electrically secured and the units can only be switched on with the protective doors closed and active magnet switched on.

NOTICE

The rotary table speed must be set to level "I".

Grind three sides (four, ideally) and allow to spark out every 20 seconds. Remove pressure minimally using the fine feed (7-14/1) and allow to spark out for an additional 10 seconds.

After grinding, run the grinding unit upwards using the control lever (7-13/1) until the drive stops automatically. Switch off the rotary table magnets using the "Magnet On/Off" (3-5/5) button.

Wash out the perforated disk with water and dry with compressed air. Then lubricate to avoid the buildup of rust. Clean the rotary table (see Chapter 8.3).

7.9.2 Grinding Handtmann mincing knives in a plane-parallel manner

Figure 7-16 Mincing knife on rotary table

Clean the rotary table as described in Chapter 8.3.

Place the mincing knife (7-16/1) onto a surface-ground mincing plate (7-16/2). The collar of the mincing knife lies in the drill hole of the mincing plate. Center the mincing plate and mincing knives with the flat centering piece (7-16/3) for mincing knives.

Set the workpiece by pressing the "Magnet On/Off" (3-5/5) button (magnet voltage I).

Put the rotary table and grinding unit in their working positions as described in Chapter 7.5.

NOTICE

The knife is not held by magnetic force. Switching on the magnetic table serves, in this case, only to release the control so that the grinding drive can be switched on.

The rotary table speed must be set to level "I".

When grinding mincing knives, make sure that the grinding wheel does not touch the knife collar. The position of the rotary table can be set precisely using the fine feed (7-12/1) of the left control lever.

Grind three sides (four, ideally) and allow to spark out every 20 seconds. Remove pressure minimally using the fine feed (7-14/1) and allow to spark out for an additional 10 seconds.

After grinding, run the grinding unit upwards using the control lever (7-13/1) until the drive stops automatically. Switch off the rotary table magnets using the "Magnet On/Off" (3-5/5) button.

Wash out the perforated disk and mincing knife with water and dry with compressed air. Then lubricate to avoid the buildup of rust. Clean the rotary table (see Chapter 8.3).

7. Operation

7.10 Dressing CBN grinding wheels

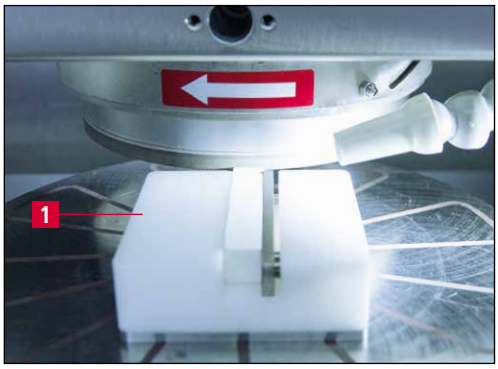

Figure 7-17 Dressing the grinding wheel

If the grinding capacity decreases during grinding, the grinding wheel must be dressed.

Position the dressing device (7-17/1) on the rotary table and switch on the magnet of the rotary table by pressing the "Magnet On/Off" (3-5/5) button.

Put the rotary table in working position as described in Chapter 7.5 (dressing stone below grinding wheel).

Move the grinding wheel down until it is just a few millimetres above the dressing stone.

Start the grinding wheel by pressing the "Grinding wheel On/Off" button (3-5/6).

Feed the grinding wheel with the fine feed of the "Grinding unit" control lever (7-14/1). As soon as the grinding wheel touches the dressing stone, feed a little. Repeat this process several times.

The grinding wheel is ready for use again.

7. Operation

7.11 Changing the grinding wheel

Figure 7-18 Changing the grinding wheel

To release the grinding wheel, insert the retaining pin (7-18/1) and press until the spindle is locked. Release the grinding wheel with the special key (7-18/2) and unscrew it by turning it in the direction of the arrow.

Position the new grinding wheel and tighten with the special key (7-18/2). Remove the retaining pin (7-18/1) again.

After changing the grinding wheel, re-adjust the grinding wheel protective equipment. The grinding wheel must not protrude under the guard by more than 1.5 cm.

NOTICE

For optimal working, only use abrasives recommended by KNECHT.

Make sure that the retaining pin is released and removed when the machine is switched on (turn the wheel briefly by hand).

CAUTION

For all work on the grinding machine, 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. 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 grinding machine.

After a new grinding wheel is mounted, a test run must be carried out.

To do this, lower the grinding wheel to 5 mm above the rotary table and run with water for 10 minutes.

7. Operation

7.12 Grinding without a magnet

Figure 7-19 Control panel

In order to be able to grind special mincing plates for which you do not wish to use magnetic clamping, the units can be switched on using special button combinations.

To do this, press the button combination "Control On" (7-19/2) and "Magnet On/Off" (7-19/1) at the same time.

The "Magnet On/Off" button (7-19/1) flashes and the units can be switched on via the "Drives On/Off" button (7-19/3).

ATTENTION

Grinding without a magnet is only permitted in conjunction with suitable centring pieces. Otherwise, the mincing plate can be flung out and the machine damaged.

KNECHT Maschinenbau GmbH accepts no liability for incorrect use.

8. Care and maintenance

8.1 Coolant additive

An anti-rust coolant additive must be added to the cooling water (see Chapter 8.1.1).

ATTENTION

No other coolant additive may be used without the approval of KNECHT Maschinenbau GmbH.

8.1.1 Maintenance plan cooling lubricant

- Check fill level daily.
- After topping up with water, always measure concentration and if necessary top up with cooling lubricant.
- Check cooling lubricant concentration weekly.

Cooling lubricant: Colometa SBF-PN	**Refractometer °Brix: 3 - 5**			
Date:	**°BRIX**	**Conc %**	**Remarks etc.**	**Signature**

(The value read off in Brix multiplied by 1.6 is the concentration in %).

The concentration must always lie between 3 - 5 °Brix (corresponds to between 5 and 9% concentration).

Check the cooling lubricant regularly for odor and appearance. The cooling lubricant must be replaced at the latest every three months (biological hazard due to germ formation in the cooling lubricant).

8. Care and maintenance

8.2 Lubrication

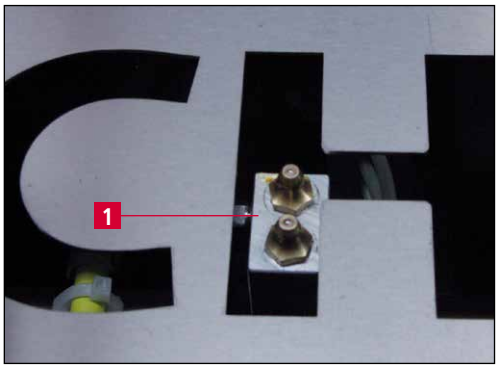

Figure 8-1 Lubrication nipple for recirculating ball bearing guide

All bearing points are equipped with water-tight, lubricated anti-friction bearings and are therefore maintenance-free.

The recirculating ball guide of the grinding head and the guide rails must be lubricated with fluid grease every four weeks. This is done using the KNECHT lettering in the cover of the machine (8-1/1).

The grease nipple on the transmission plate must be lubricated once a year by KNECHT Service with OEST multi-purpose grease L2.

8.2.1 Lubrication schedule and lubricant table

Lubricating work	Interval	OEST	SHELL	EXXON Mobil
Recirculating ball bearing guide	4 weeks	LT 0000-EP	Rentiax CSZ	–
Grease machine parts after cleaning	After each grinding operation	Paraffinum Perliquidum 16 L	Shell Risella 917	Marcol 82

8. Care and maintenance

8.3 Cleaning

Bild 8-2 Cleaning

Clean the machine after each grinding process to prevent grinding sludge from drying, hence making it harder to remove.

After cleaning, we recommend greasing the machine lightly with acid-free oil.

See also the explanations in the lubrication schedule, Chapter 8.2.1.

ATTENTION

When cleaning, under no circumstances should you spray directly into the water trough opening.

Bild 8-3 Removing the drip ring

Remove the drip ring (8-3/1) daily and remove the grinding sludge below it.

8. Care and maintenance

8.4 Maintenance plan (one-shift operation)

Interval	Assembly	Maintenance task
Daily	Grinding space	Clean the plates with washing brush.
		Remove the drip ring from the magnet and clean.
	Protective door	Clean protective door panes.
	Coolant unit belt filter	Check fill level. If water has been added, it is essential to measure the concentration of the coolant lubricant and top it up if necessary.
Weekly	Suction unit	Clean the hose nozzle.
		Check the filter.
	Coolant unit	Measure the concentration of the coolant lubricant and top up if necessary.
Monthly	Rotary table	Check for unevenness and surface grind if necessary.
	Guide rails	Lubricate the lubricating nipples of the guide rails (8–1/1).
Annually		Contact service department of KNECHT Maschinenbau GmbH.

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 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. whetstones, coolants 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 for the 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	(W300)
Machine serial number	(380155300)
Designation assembly	(table incl. drive)
Designation individual part	(drive motor)
Item no.	(31)
Drawing no.	(41GA20-0090)
Quantity	(1)

Please feel free to contact us with any questions.

10. Service, spare parts and accessories

10.4 Accessories

10.4.1 Grinding wheels used

Type	Dimension	Suffix	Standard	Order number	Remark
CBN	d.200xd.78x50			412F-80-0435	Standard

ATTENTION

No other grinding wheels and cup wheels may be used without the approval of KNECHT Maschinenbau GmbH.

KNECHT Maschinenbau GmbH accepts no liability if other grinding wheels and cup wheels are used.

If you require grinding wheels or other accessories, please contact our sales staff, dealers, or KNECHT Maschinenbau GmbH directly.

Thank you for buying our product!

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 2014/30/EC

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

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

Designation of the machine:	Surface Grinding Machine
Type designation:	W 300
Applicable harmonised standards, in particular:	DIN EN ISO 12100 DIN EN ISO 13857 DIN EN ISO 16089 DIN EN 61000-3-2 DIN EN 61000-3-3 DIN EN 55014-1 DIN EN 349
Responsible for the documentation:	Peter Heine (Dipl. Ing. Mechanical Engineering BA) Phone +49-7527-928-15
Manufacturer:	KNECHT Maschinenbau GmbH Witschwender Straße 26 88368 Bergatreute Germany

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

Bergatreute, May 8, 2019		Managing Director
Place, date	Signature	Signatory details

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