Hammer®

User Manual

Horizontal Mortiser
D3

Keep this manual handy and in good condition for continual reference!

Note: The machine must be inspected immediately on arrival. If the machine was damaged during transport or if any parts are missing, a written record of the problems must be submitted to the forwarding agent and a damage report compiled. Be sure, also to notify your supplier immediately.

For the safety of all personnel, it is necessary to conscientiously study this manual before assembly and operation. This manual must be kept in good condition, as it belongs to the machine! Furthermore, keep the manual at hand and in the vicinity of the machine so that it is accessible to personnel when they are using, maintaining or repairing the machine.

HAMMER | A product of the FELDER GROUP

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06. March 2007

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1 General

1.1 Legend

Important technical safety instructions in this manual are marked with symbols.
These instructions for work safety must be followed. In all these particular cases, special attention must be paid in order to avoid accidents, injury to persons or material damage.

Warning: Risk of injury or death!
This symbol marks instructions that must be followed in order to avoid harm to one's health, injuries, permanent impairment or death.

Warning: Danger – electric current!
This symbol warns of potentially dangerous situations related to electric current. Not observing the safety instructions increases the risk of serious injury or death. Required electrical repairs may only be carried out by a trained electrical technician.

Attention! Risk of material damage!
This symbol marks instructions which, if not observed, may lead to material damage, functional failures and/or machine breakdown.

Note:
This symbol marks tips and information which should be observed to ensure efficient and failure-free operation of the machine.

1.2 Information about the manual

This manual describes how to operate the machine properly and safely. Be sure to follow the safety tips and instructions stated here as well as any local accident prevention regulations and general safety regulations. Before beginning any work on the machine, ensure that the manual, in particular the chapter entitled „Safety" and the respective safety guidelines, has been read in its entirety and fully understood. This manual is an integral part of the machine and must therefore be kept in the direct vicinity of the machine and be accessible at all times. If the machine is sold, rented, lent or otherwise transferred to another party, the manual must accompany the machine.

1.3 Liability and warranty

The contents and instructions in this manual were compiled in consideration of current regulations and state-of-the-art technology as well as based on our know-how and experience acquired over many years. This manual must be read carefully before commencing any work on or with this machine. The manufacturer shall not be liable for damage and or faults resulting from the disregard of instructions in the manual. The texts and images do not necessarily represent the delivery contents. The images and graphics are not depicted on a 1:1 scale. The actual delivery contents are dependent on custom-build specifications, add-on options or recent technical modifications and may therefore deviate from the descriptions, instructions and images contained in the manual. Should any questions arise, please contact the manufacturer. We reserve the right to make technical modifications to the product in order to further improve user-friendliness and develop its functionality.

1.4 Copyright

This manual should be handled confidentially. It is designated solely for those persons who work on or with the machine. All descriptions, texts, drawings, photos and other depictions are protected by copyright and other commercial laws. Illegal use of the materials is punishable by law.
This manual – in its entirety or parts thereof – may not be transferred to third parties or copied in any way or form, and its contents may not be used or otherwise communicated without the express written consent of the manufacturer.
Infringement of these rights may lead to a demand for compensation or other applicable claims. We reserve all rights in exercising commercial protection laws.

1.5 Warranty notice

The guarantee period is in accordance with national guidelines. Details may be found on our website, www.felder-group.com

1.6 Spare parts

Attention! Non genuine, counterfeit or faulty spare parts may result in damage, cause malfunction or complete breakdown of the machine.

If unauthorised spare parts are installed in the machine, all warranty, service, compensation and liability claims against the manufacturer and their contractors, dealers and representatives shall be rejected.

Use only genuine spare parts supplied by the manufacturer.

Note: a list of authorised genuine spare parts can be found at the end of this operating manual.

1.7 Disposal

If the machine is to be disposed of, separate the components into the various materials groups in order to allow them to be reused or selectively disposed of. The whole structure is made of steel and can therefore be dismantled without problem. This material is also easy to dispose of and does not pollute the environment or jeopardise public health. International environmental regulations and local disposal laws must always be complied with.

Attention! Used electrical materials, electronic components, lubricants and other auxiliary substances must be treated as hazardous waste and may only be disposed of by specialised, licensed firms.

2 Safety

At the time of its development and production, the machine was built in accordance with prevailing technological regulations and therefore conforms to industry safety standards.
However, hazards may arise should the machine be operated by untrained personnel, used improperly or employed for purposes other than those it was designed for. The chapter entitled „Safety" offers an overview of all the important safety considerations necessary to optimise safety and ensure the safe and trouble-free operation of the machine.
Additionally, in order to further minimise risks, the other chapters of this manual contain specific safety instructions, all marked with symbols. Besides the various instructions, there are a number of pictograms, signs and labels affixed to the machine that must also be heeded. These must be kept visible and legible and may not be removed.

2.1 Intended use

The HAMMER horizontal slot mortiser D3 is to be used solely to machine wood and other similar materials. Machining materials other than wood is only permitted with the express written consent of the manufacturer. Operational safety is guaranteed only when the machine is used for the intended purposes.

Attention! Any use outside the machine's intended purpose shall be considered improper and is therefore not permitted. All claims regarding damage resulting from improper use that are made against the manufacturer and its authorised representatives shall be rejected. The operator shall be solely liable for any damage that results from improper use of the machine.

The term „proper use" also refers to correctly observing the operating conditions as well as the specifications and instructions in this manual.

The machine may only be operated with original manufacturer parts and accessories.

2.2 Manual contents

All those appointed to work on or with the machine must have fully read and understood the manual before commencing any work. This requirement must be met even if the appointed person is familiar with the operation of such a machine or a similar one, or has been trained by the manufacturer. Knowledge about the contents of this manual is a prerequisite for protecting personnel from hazards and avoiding mistakes so that the machine may be operated in a safe and trouble-free manner. It is recommended that the operator requests proof from the personnel that the contents of the manual have been read and understood.

2.3 Making changes and modifications to the machine

In order to minimise risks and to ensure optimal performance, it is strictly prohibited to alter, retrofit or modify the machine in any way without the express consent of the manufacturer. All the pictograms, signs and labels affixed to the machine must be kept visible, readable and may not be removed. Pictograms, signs and labels that have become damaged or unreadable must be replaced promptly.

2.4 Responsibilities of the owner operator

This manual must be kept in the immediate vicinity of the machine and be accessible at all times to all persons working on or with the machine. The machine may only be operated if it is in proper working order and in safe condition. Every time before the machine is switched on, it must be inspected for visible defects and general condition. All instructions in this manual must be strictly followed without reservation.
Besides the safety advice and instructions stated in this manual, it is necessary to consider and observe local accident prevention regulations, general safety regulations as well as current environmental stipulations that apply to the operational range of the machine.
The operator and designated personnel are responsible for the trouble-free operation of the machine as well as for clearly establishing who is in charge of installing, servicing, maintaining and cleaning the machine.
Machines, tools and accessories must be kept out of the reach of children.

2.5 What is required of personnel

Only authorized and trained personnel may work on and with the machine. Personnel must be briefed about all functions and potential dangers of the machine. „Specialist staff" is a term that refers to those who – due to their professional training, know-how, experience, and knowledge of relevant regulations – are in a position to assess delegated tasks and recognise potential risks. If the personnel lack the necessary knowledge for working on or with the machine, they must first be trained. Responsibility for working with the machine (installation, service, maintenance, overhaul) must be clearly defined and strictly observed. Only those persons who can be expected to carry out their work reliably may be given permission to work on or with the machine. Personnel must refrain from working in ways that could harm others, the environment or the machine itself. It is absolutely forbidden for anyone who is under the influence of drugs, alcohol or reaction-impairing medication to work on or with the machine. When appointing personnel to work on the machine, it is necessary to observe all local regulations regarding age and professional status. The user is also responsible for ensuring that unauthorised persons remain at a safe distance from the machine. Personnel are obliged to immediately report to the operator any irregularities with the machine that might compromise safety.

2.6 Work safety

Following the safety advice and instructions given in this manual can prevent bodily injury and material damage while working on and with the machine. Failure to observe these instructions can lead to bodily injury and damage to or destruction of the machine. Disregard of the safety advice and instructions given in this manual as well as the accident prevention regulations and general safety regulations applicable to the operative range of the machine shall release the manufacturer and their authorised representatives from any liability and from all compensation claims.

2.7 Personal safety

When working on or with the machine, the following must be strictly observed:

Persons with long hair who are not wearing a hairnet are not permitted to work on or with the machine.

It is prohibited to wear gloves while working on or with the machine. All jewellery (rings, bracelets, necklaces, etc.) must be removed before starting work on or with the machine.

When working on or with the machine, the following must always be worn by personnel:

Protective gear (overalls, safety goggles, dust mask, hairnet to contain long hair, etc.)
Sturdy, tight-fitting clothing (tear-resistant, no wide sleeves).

Protective footwear
That protects the feet from heavy falling objects and prevents sliding on slippery floors.

Hearing protection
To protect against loss of hearing.

2.8 Machine hazards

The machine has undergone a hazard analysis. The design and construction of the machine are based on the results of this analysis and correspond to state-of-the-art technology.

The machine is considered operationally safe when used properly.
Nevertheless, there are some residual risks that must be considered.
The machine runs with high electrical voltage.

Warning! Danger – electric current: electrical energy can cause serious bodily injury. Damaged insulation materials or defective individual components can cause a life-threatening electrical shock.

- Before carrying out any maintenance, cleaning and repair work, switch off the machine and secure it against being accidentally switched on again.
- When carrying out any work on the electrical equipment, ensure that the voltage supply is completely isolated.
- Do not remove any safety devices or alter them to put them out of commission.

2.9 Other risks

The following risks can occur with a drilling machine:

- Unintentional hand contact with the rotating tool.
- The workpiece tipping due to insufficient workpiece support.
- Risk of injury when drilling through the workpiece due to the drill bit emerging from the workpiece.

Warning! Risk of injury: even if the safety measures are followed, there are still certain residual risks that must be considered when working on the machine:

- Risk of injuries resulting from ejected workpieces and other workpiece parts.
- Risk of injury resulting from crushing.
- Risk of injury from workpiece kickback.
- Hearing damage as a result of high noise levels.
- Health impairments due to the inhalation of airborne particles, especially when working with beech and oak wood.
- Risk of accident in the uncovered area of the rotating workpiece.
- Risk of injury when changing the tool (cutting injury).
- Rotating tool coming in contact with parts of the machine.

3 Declaration of Conformity

CE

EG-Declaration of Conformity
according to Machine Guidelines 98/37/EG i.d. Fassung 98/79/EG

Manufacturer:	**FELDER** **KR-Felder-Str. 1** **A-6060 Hall in Tirol**

We hereby declare that the machine indicated below, which corresponds to the design and construction of the model we put on the market, conforms with the safety and health requirements as stated by the EC.

Product designation:	**Horizontal slot mortiser**	
Make:	**HAMMER**	
Model designation:	**D3**	
The following EC guidelines were applied:	**98/37/EG** **73/23/EWG** **89/336/EWG**	**- Machine Guidelines** **- Low-Voltage Guidelines** **- Electromagnetic Tolerance Guidelines**
The following harmonised norms were applied:	**EN 292-1** **EN 292-2** **EN 60204**	**EN 50081-2 (01.92)** **EN 50082-2 (03.95)** **ISO 7960**
Issuing authority:	**Prüf- und Zertifizierungsstelle im BG-Prüfzert** **Fachausschuss Holz** **Vollmoellerstraße 11** **D-70563 Stuttgart** **No. 0392**	

This EC Declaration of Conformity is valid only if the CE label has been affixed to the machine.

Modifying or altering the machine without the express written agreement of the manufacturer shall render the warranty null and void.

Johann Felder

Hall in Tirol, 07.08.2006

Johann Felder, Managing Director

4 Specifications

4.1 Dimensions and weight

Total height	800 mm
Shipping width	560 mm
Weight	84 kg
Machine including packaging	
Length	800 mm
Width	1200 mm
Height	1200 mm

4.2 Operation and storage conditions

Operation/room temperature	+10 bis +40 °C
Storage temperature	–10 bis +50 °C

4.3 Electrical connection

Connection	3x 400 V 50 HZ
	1x 230 V 50 HZ
	1x 230 V 60 HZ

The following electrical requirements must be fulfilled:

- Earth the machine using an electrical conductor.
- The voltage regulation in the electricity network must not exceed ± 10% of the rated voltage.
- The quality of the connection cable has to be of the 4(5)x2.5 H07RN-F type or at least of equivalent quality.
- The current supply has to be protected against damages e.g. armoured conduit.
- Connected dust extraction hoses have to be earthed to avoid electrostatic charges.

Attention! All operations may only be executed by an authorised electrical technician!

Please note the connection loads on the rating plate and ensure that your mains voltage corresponds to that specified on the rating plate.

The unit is supplied without a plug and can be equipped with a plug that conforms to country-specific requirements by the customer.

Plug the machine into the mains, switch it on for a short period of time and check that the direction of rotation of the motor is correct.

To change the direction of rotation, change 2 phases of the power supply cable to the machine.

A copy of the wiring diagram is available in the switch box of the machine or in this operating manual.

Never open the switch box without the written consent of the HAMMER service department. If this rule is not observed, the electrical installation guarantee is rendered void.

4.4 Tools

Tools	
Router bit	Dia. 4–16 mm
Dowel bit	Dia. 4–16 mm
Plug cutters	Dia. 10–35 mm
Forstner bit	Dia. 10–35 mm

4.5 Specifications

Table size	550 x 300 mm
Chuck	0–16 mm
Speed	2950 Upm
Motor power	2,2 kW (3 HP)/1,8 kW
Max. mortising width	200 mm
Max. mortising depth	140 mm
Height	110 mm

4.6 Chip extraction

Vacuum connection dia.	120 mm
Min. vacuum	500 Pa
Min. volume flow	418 Cubic meters per hour

4.7 Particle emission

The machine was tested for particle emissions according to DIN 33893. The Wood Authority ascertained, according to the „Principles for Testing Particle Emissions“ (workplace-related particle concentrations) of woodworking machines, that the particle emission values for this machine are notably below the currently valid atmospheric limit of 2.0 mg/m³. This is certified by the blue label „BG Wood Particle Tested“.

4.8 Noise emission

The specified values are emission values and therefore do not represent safe workplace values. Even though a relationship exists between particle emission and noise emission levels, an inference cannot be made about whether additional safety measures need to be implemented. Factors which can significantly affect the emission level that presently exists at the workplace include duration of the effect, characteristics of the workspace, and other ambient influences. The permissible workplace values may also differ from country to country. Nevertheless, this information is provided to help the operator better assess hazards and risks. Depending on the location of the machine and other specific conditions, the actual noise emission values may deviate significantly from the specified values.

Note: to keep the noise emission as low as possible, always use sharpened tools and operate the machine at the correct speed.

Ear protection must always be worn; however, such protection cannot be considered a substitute for properly sharpened tools or the correct speed.

Workplace emission values according to EN ISO 7960	
Idle	67,7 Decibel (A)
Working	73,1 Decibel (A)

An allowance must be made to compensate for tolerances with the specified emission values K=4 Decibel (A)

5. Setting up the machine

5.1 Overview

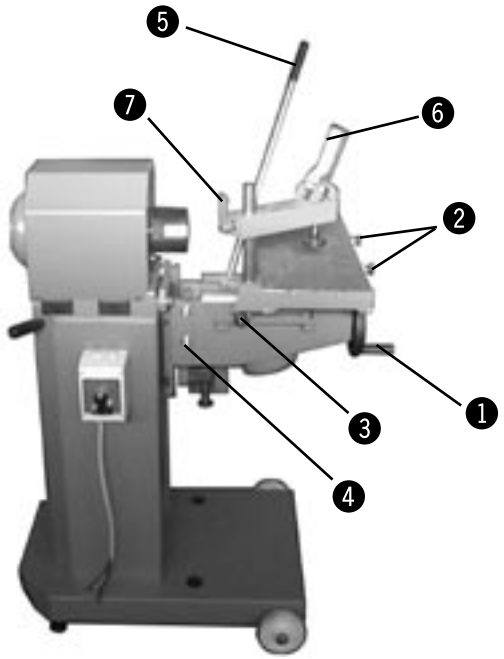


Fig. 1: Overview

1. Spindle head height adjustment handwheel
2. Adjustable longitudinal fence to set the drilling length
3. Adjustable depth fence to set the drilling depth
4. Height adjustment clamp for the spindle head
5. Single-hand lever to guide the spindle head
6. Eccentric clamp to clamp the workpieces
7. Clamping lever for the vertical adjustment of the eccentric clamp

5.2 Accessories

5.2.1 Forward and reverse run switch

- Mount the switch for forward and reverse run with the shims and screws onto the frame.

5.2.3 Rolling carriage

1. Screw the lift handle with the cap nut onto the frame.
2. Remove both plugs.
3. Insert the gear axis through the machine base-frame and secure on both sides with adjusting collars and with setscrews.
4. Place the wheels onto the axles and secure wih adjusting rings and with setscrews.
5. Remove the setscrews (loosen the nuts).

5.3 Data plate

TYPE :		
NR. :		
V:	PH:	HZ:
KW:	A:	
Baujahr / year of constr. / annee de constr. :		

Hammer® Maschinen + Werkzeuge für Holz
Machines + tools for wood
Machines + Outillage pour le bois

Made by Hammer AUSTRIA EUROPE A-6060 HALL
Loretto 42 Tel.: 05223/45090 Fax 05223/45099

Fig. 2: Data plate

The data plate displays the following specifications:

- Manufacturer info
- Model designation
- Machine number
- Voltage
- (Phases)
- Frequency
- Capacity
- Electricity
- Year of construction
- Motor specifications

5.4 Mains switch

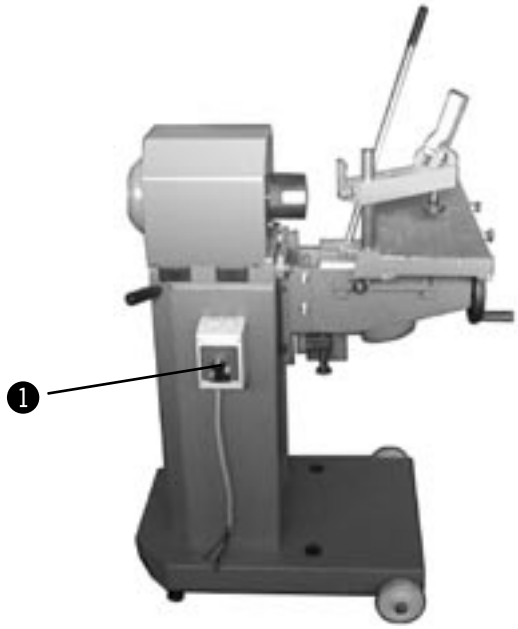


Fig. 3: Mains switch

As a standard, the machine is equipped with a cut-off motor safety switch.

The motor safety switch is equipped with an undervoltage trigger, which protects the motor from undervoltage and phase failure, and if a voltage drop occurs, it prevents the motor switching itself on again once the power returns.

Switch the main switch off, if the machine is not being used!

As an option, the machine can be equipped with a reversing controller.

If changing the speed or the direction, first switch the machine off and wait until the tool has come to a standstill. Then, switch the machine on again.

Switch the main switch off, if the machine is not being used!

❶ Mains switch

6 Transport, packaging and storage

6.1 Safety instructions

Warning! Risk of injury: risk of injury due to falling parts while transporting, loading or unloading the machine.

Attention! Risk of material damage: the machine can be damaged or destroyed if it is subjected to improper handling during transport.

For this reason the following safety instructions must be observed:

- Never lift loads over a person.
- Always move the machine with the utmost care and precaution.
- Only use suitable lifting accessories and hoisting devices that have a sufficient load-carrying capacity.
- The machine should never be lifted by its protruding parts (e.g. working table).
- Consider the machine's centre of gravity when transporting it (minimise the risk of it tipping over).
- Take measures to prevent the machine from slipping sideways.
- Ropes, belts or other hoisting devices must be equipped with safety hooks.
- Do not use torn or worn ropes.
- Do not use knotted ropes or belts.
- Ensure that ropes and belts do not lie against sharp edges.
- Transport the machine as carefully as possible in order to prevent damage.
- Avoid subjecting the machine to shocks.
- When transporting the machine overseas, ensure that the packaging is air-tight and that a desiccant is added to protect the metal parts against corrosion.

6.2 Transport

Attention! Transport the machine only according to the enclosed transport and assembly instructions.

The machine will be delivered partly dismantled on a pallet.
The machine may be transported using a crane, pallet truck or forklift truck.

6.2.1 Unloading

The machine is delivered completely assembled!
Only attach the belts and chains to the frame!

6.3 Transport inspection

Upon arrival, inspect the shipment to ensure that it is complete and has not suffered any damage.
If any transport damage is visible, do not accept the delivery or accept it only with reservation. Record the scope of the damage on the transport documents/delivery note. Initiate the complaint process.

For all defects that are not discovered upon delivery, be sure to report them as soon as they are recognised as damage claims must be filed within a certain period, as granted by law.

6.4 Packaging

If no agreement has been made with the supplier to take back the packaging materials, help to protect the environment by reusing the materials or separating them according to type and size for recycling.

Attention! Dispose of the packaging materials in an environmentally friendly way and always in accordance with local waste disposal regulations. If applicable, contract a recycling firm to dispose of the packaging materials.

Attention: Help preserve the environment! Packaging materials are valuable raw materials and in many cases, they can be used again or expediently reprocessed or recycled.

6.5 Storage

Keep items sealed in their packaging until they are assembled/installed and be sure to observe the stacking and storage symbols on the outside of the packaging.

Store packed items only under the following conditions:
- Do not store outdoors.
- Store in a dry and dust-free environment.
- Do not expose to aggressive substances.
- Protect from direct sunlight.
- Avoid subjecting the machine to shocks.
- Storage temperature: -10° to +50° C
- Maximum humidity: 60%.
- Avoid extreme temperature fluctuations (condensation build-up).
- Apply a coat of oil to all bare machine parts (corrosion protection).
- When storing for a period longer than 3 months, apply a coat of oil to all bare machine parts (corrosion protection). Regularly check the general condition of all parts and the packaging. If necessary, refresh or re-apply the coat of anti-corrosive agent.
- If the machine is to be stored in a damp environment, it must be sealed in air-tight packaging and protected against corrosion (desiccant).

7 Setup and installation

7.1 Safety instructions

Warning! Risk of injury: improper assembly and installation can lead to serious physical injury or equipment damage. For this reason, this work may only be carried out by authorized, trained personnel who are familiar with how to operate the machine and in strict observance of all safety instructions.

- Ensure that there is sufficient space to work around the machine. Ensure there is ample distance between the machine and other solid constructions such as a walls or other machines.
- Keep the work area orderly and clean. Components and tools that are not put in their correct place or put away may be the cause of accidents!
- Install the safety equipment according to the instructions and check that it functions properly.

Warning! Danger – electric current: work on electrical fittings may only be carried out by qualified personnel and in strict observance of the safety instructions.

Before assembling and installing the machine, check to make sure it is complete and in good condition.

Warning! Risk of injury: an incomplete, faulty or damaged machine can lead to serious physical injury or equipment damage. Only assemble and install the machine if the machine and its parts are complete and intact.

Attention! Risk of material damage: Only operate the machine in ambient temperatures from +10° to +40° C. If the instructions are not followed, damage may occur during storage.

7.2 Installation

Characteristics of the installation site:

- Operation/room temperature: +10° to +40° C
- Ensure that the work surface is sufficiently stable and has the proper load-bearing capacity.
- Provide sufficient light at the workstation.
- Ensure there is sufficient clearance for or from neighbouring workstations.
- Risk of injury! Keep machines, tools and accessories etc. out of the reach of children.
- Vacuum hoses and electrical wires should be layed in such a way as to avoid tripping over them.

7.3 Dust extraction

The machine has to be connected to a dust extractor.

Before operating the machine for the first time, inspect it for defects.

Requirements for the dust extraction system and hoses:

- The dust extraction system must produce the required vacuum and air flow (see table).
- Connect the dust extraction system to the machine in such a way so as to operate in unison with the machine.
- The dust extraction hoses must be electrically conductive and grounded to prevent electrostatic loading.

Vacuum connection dia.	120 mm
Min. vacuum	500 Pa
Min. volume flow	418 Cubic meters per hour

Attention! The dust extraction hoses must be flame retardant. Only use original HAMMER vacuum hoses.

7.4 Electrical connection

Warning! Danger – electric current: work on electrical fittings may only be carried out by qualified personnel and in strict observance of the safety instructions.

Characteristics of electrical connections:

- The machine must be earthed with electrical conductors.
- The voltage fluctuations in the main supply may not exceed ±10%.
- The power supply cable must be protected against damage (e.g. armoured conduit).
- The power supply cable must be laid in such a way that it does not overbend or chafe and there is no risk of tripping over it.

Warning! Danger – electric current: before hooking up the machine to the power supply, compare the specifications on the data plate with those of the electrical network. Only hook up the machine if the two sets of data correspond to each other. The electrical outlet must have the appropriate socket (for a three-phase alternating current motor, CEE).

8 Making adjustments and preparations

8.1 Safety instructions

Warning! Risk of injury: improper adjustment and setup work can lead to serious physical injury or material damage. For this reason, this work may only be carried out by authorized, trained personnel who are familiar with how to operate the machine and in strict observance of all safety instructions.

- Before beginning any maintenance work on the machine, switch it off and secure it against accidentally being switched on again.
- Before commencing any work with the machine, inspect it to ensure that it is complete and in technically good condition.
- Ensure that there is sufficient space to work around the machine.
- Keep the work area orderly and clean. Components and tools that are not put in their correct place or put away may be the cause of accidents!
- Install the safety equipment according to the instructions and check that it functions properly.

Warning! Danger – electric current: work on electrical fittings may only be carried out by qualified personnel and in strict observance of the safety instructions.

8.2 Changing the tool

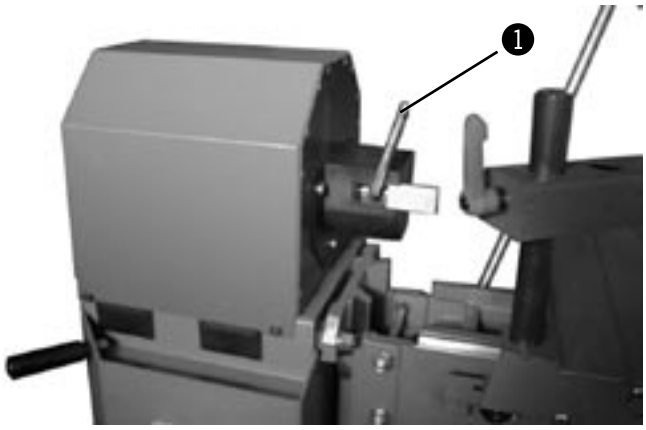


Fig. 4: Changing the tool

Tools with a body diameter of up to 16 mm can be chucked with the 2-jaw chuck.

The two-jaw chuck is opened and clamped with an Allen key (8 mm).

The mortising tool has to be clamped along the total length of the mortising chuck.

Always check that the tool is chucked in tightly before switching the machine on.

Always remove the tool from the boring tool-holder once the boring work is over, as this will reduce the risk of injury!

❶ Allen key

Attention: Minimum tightening torque: 20 Nm!

9 Operation

9.1 Safety instructions

Warning: Risk of injury: improper operation may lead to severe physical injury or material damage. For this reason, this work may only be carried out by authorized, trained personnel who are familiar with how to operate the machine and in strict observance of all safety instructions.

Before starting work:

- Before assembling and installing the machine, check to make sure it is complete and in good condition.
- Ensure that there is sufficient space to work around the machine.
- Keep the work area orderly and clean. Components and tools that are not put in their correct place or put away may be the cause of accidents!
- Ensure that all safety devices have been installed properly.
- Adjustments to the machine or tool replacement may only be conducted once the machine has stopped.
- Only clamp authorised tools to the machine.
- Install the dust extraction system according to the instructions and test its function.
- Only process workpieces that can be safely placed on the machine and guided.
- Carefully inspect workpieces for foreign matter (nails, screws) which might impair processing.
- Support long workpieces with additional surface equipment (e.g. Table extensions, Roll supports).
- Ensure that each unit is rotating in the proper direction.
- Keep tools for handling short and narrow workpieces close at hand.
- Before switching on the machine, always check to make sure that there are no other persons in the immediate vicinity of the machine.

During operation:

- When changing to another workpiece or if a malfunction occurs, first switch off the machine and then secure it against being switched on again accidentally.
- Do not switch off, circumvent or decommission protective and safety devices during operation.
- Do not overload the machine! It is safer and performs better if operated within its power range.

When working on or with the machine, the following must be strictly observed:

- Persons with long hair who are not wearing a hairnet are not permitted to work on or with the machine.
- It is prohibited to wear gloves while working on or with the machine. All jewellery (rings, bracelets, necklaces, etc.) must be removed before starting work on or with the machine.

When working on or with the machine, the following must always be worn by personnel:

- Sturdy, tight-fitting clothing (tear-resistant, no wide sleeves).
- Protective footwear that protects the feet from heavy falling objects and prevents sliding on slippery floors.
- Hearing protection to protect against loss of hearing.

Attention: Risk of material damage: Only operate the machine in ambient temperatures from +10° to +40° C. If the instructions are not followed, damage may occur during storage.

Warning: Danger – electric current: work on electrical fittings may only be carried out by qualified personnel and in strict observance of the safety instructions.

9.2 Switching on the machine

Warning: Risk of injury due to insufficient preparation!
It is only permitted to switch on the machine if, for the work at hand, the required preconditions are fulfilled and any preliminary work is completed. Therefore, the adjusting, fitting and operating instructions (see the corresponding chapters) must be read before switching on the machine.

9.3 Switching off the machine

Attention! Never actuate the emergency stop switch to switch off the machine as this will wear out the brake shoes very quickly. The emergency stop switch is only to be actuated in case of an emergency!

9.4 Emergency stop

Only use the emergency stop switch in case of an emergency!

If you want to switch the machine on again, you need to disengage the emergency stop switch. Pull the emergency stop switch out and repeat the starting process.

9.5 Working techniques

9.5.1 Permitted working techniques

Only the following working techniques are permitted on the drilling unit:
- Drilling holes with or without a depth stop
- Drilling mortises in solid wood
- Drilling dowels
- Removing knots
- Manufacturing plugs for knots

9.5.2 Prohibited working techniques

It is absolutely forbidden to perform the following working techniques on the drilling unit:
- Every type of moulding work with spindle moulder tools
- All types of sanding work

9.5.3 Drilling holes with or without a depth stop

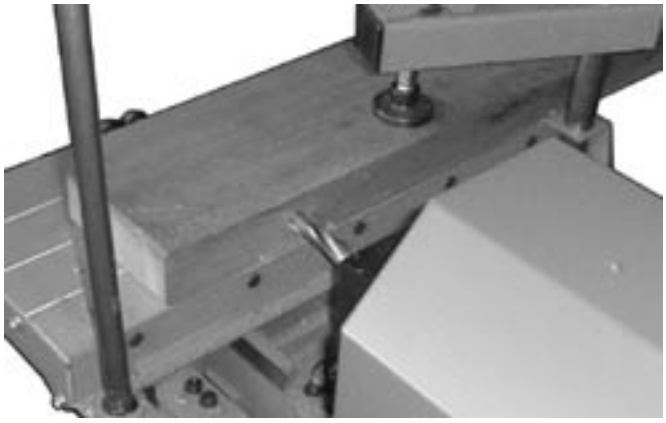


Fig. 5: Drilling holes with or without a depth stop

For this step, push together the ends of the longitudinal stops to fix the drilling table into a centre position.

Place the workpiece onto the working table so it lies against the front edge of the workpiece fence on the machine table. Clamp the workpiece with the eccentric clamp. If you need to drill a blind hole, set the depth stop to the desired measurement.

Set the desired bore height on the handwheel.

Switch the machine on and whilst holding the workpiece tight with your left hand, push the single-handed lever slowly forward until the depth stop comes up against it or the drill bit has gone through the workpiece.

Attention! Do not hold the workpiece in the position where the drill bit is going to break through!

9.5.4 Mortising

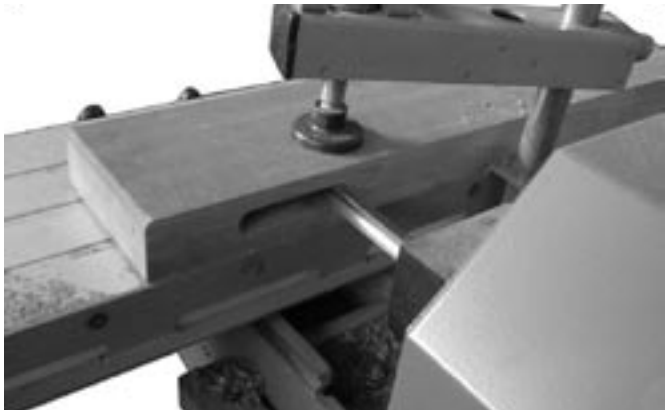


Fig. 6: Mortising

Same steps as drilling with or without a depth stop. Set the desired mortising length with the longitudinal stops. Dip a few millimeters into the workpiece with the drill and continue, lengthwise, up to the set stop.

Repeat this step until the desired slot depth is achieved.

10 Maintenance

10.1 Safety instructions

Warning! Risk of injury: improper maintenance can cause serious injury or damage. For this reason, this work may only be carried out by authorized, trained personnel who are familiar with how to operate the machine and in strict observance of all safety instructions.

- Before beginning any maintenance work on the machine, switch it off and secure it against accidentally being switched on again.
- Ensure that there is sufficient space to work around the machine.
- Keep the work area orderly and clean. Components and tools that are not put in their correct place or put away may be the cause of accidents!
- Following the maintenance work, re-install the guards and check that they are functioning properly.

Warning! Danger – electric current: work on electrical fittings may only be carried out by qualified personnel and in strict observance of the safety instructions.

10.2 Maintenance work

All maintenance, upkeep and adjustment measures may only be performed with the main switch of the machine turned off.

Failure to perform the maintenance instructions will render the guarantee null and void!

To prolong the lifespan and to increase the precision of the drilling unit, it is recommended to remove chips and dust, in particular from the table surface and the guides surface, from the unit on a daily basis and to maintain it with the appropriate care products. See the HAMMER catalogue for other accessories and dust extraction equipment. Your machine will remain in good condition and you will be able to enjoy using it longer.

The following maintenance has to be carried out according to the instructed time intervals!

10.2.1 Height adjustment spindle

Twist the drilling unit right to the top and then right to the bottom and clean the spindle and the guides with compressed air or a blower device. Remove grease deposits and layers of dust; grease anew. Regular machine grease can be used.

Cleaning intervals: monthly

10.2.2 Table track

Clean dust and chips off the guides. In addition, pull the spindle head into the dead-centre position.
Clean the guides and guide rollers of both the length and depth guides with a soft cloth.

The spindle head guides may not be oiled or greased!

Cleaning intervals: weekly

10.2.3 Worn parts

The dust brushes of the guides need to be replaced depending on their frequency of use. Check the condition of the brush every six months.

11 Faults

11.1 Safety instructions

Warning! Risk of injury: repairing faults incorrectly can result in personal injury or damage the machine. For this reason, this work may only be carried out by authorized, trained personnel who are familiar with how to operate the machine and in strict observance of all safety instructions.

Warning! Danger – electric current: work on electrical fittings may only be carried out by qualified personnel and in strict observance of the safety instructions.

11.2 What to do if a fault develops

Strictly speaking:

- In the event of a breakdown which creates danger for either personnel or equipment, the machine should be stopped immediately by activating the emergency stop.
- Also disconnect the machine from the mains and secure it from being switched on again.
- Inform those responsible for machine faults immediately.
- Type and extent of fault should be determined by an authorised professional, as well as the cause and repair.

11.3 What to do after rectifying the fault

Warning! Risk of injury!

Before switching the machine back on:

- the fault and its cause are professionally repaired,
- all safety equipment has been assembled according to regulations and is working correctly,
- individuals are not located in the danger area of the machine.

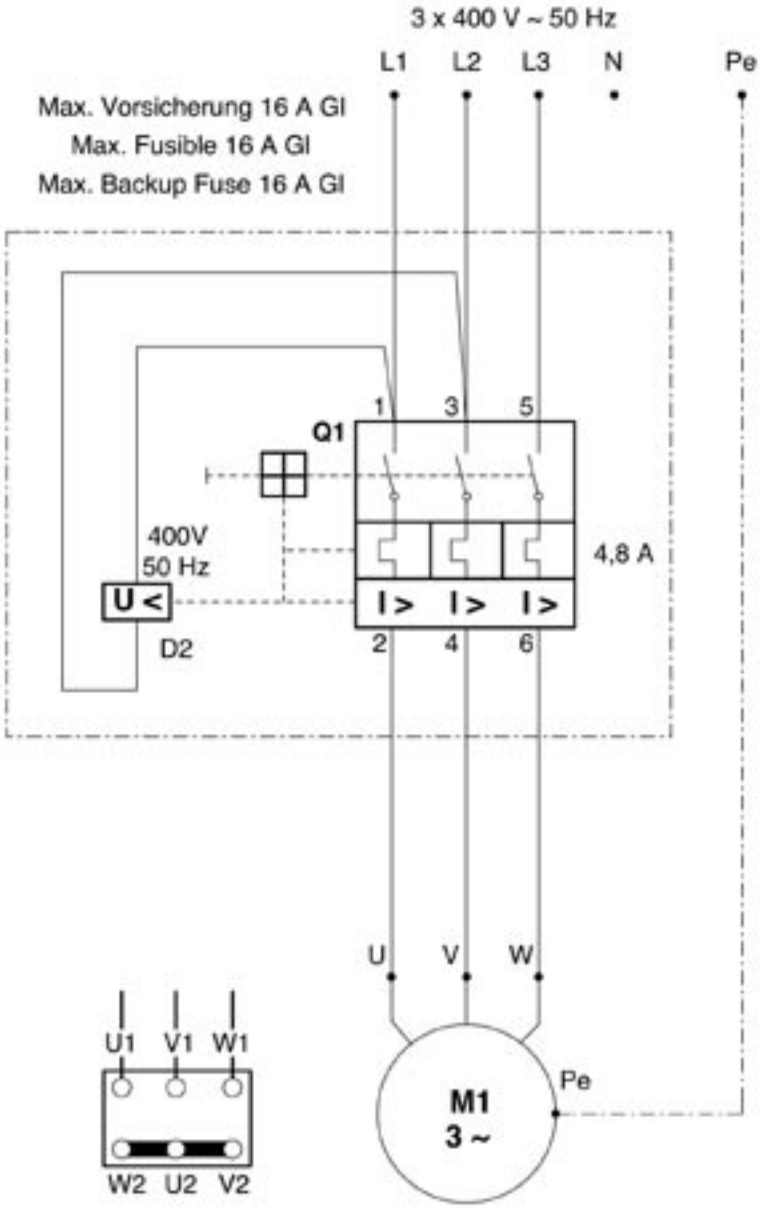
11.4 Faults, causes and repairs

If a problem occurs with your drilling unit, attempt to eliminate the problem with the following tips:

Problem	Possible cause	Repair
The table guides are dragging.	The guides are dirty.	Clean the guides. Do not oil or grease! Run until dry.
Height adjustment catches and drags.	The height guide or height adjustment spindle is dirty. The height adjustment clamping lever is locked.	Clean the height guide and the height adjustment spindle and grease/lubricate. Open the height clamping lever completely.
The motor does not start.	The main switch is off and the fuses blown. Fault in the electrical system or in the machine connection.	Check the fuse and the power supply. If available, talk to someone from the electrical department.

If you are not able to solve the problem yourself or the problem to be solved is not listed in this list, then contact your HAMMER supplier or the HAMMER service department.

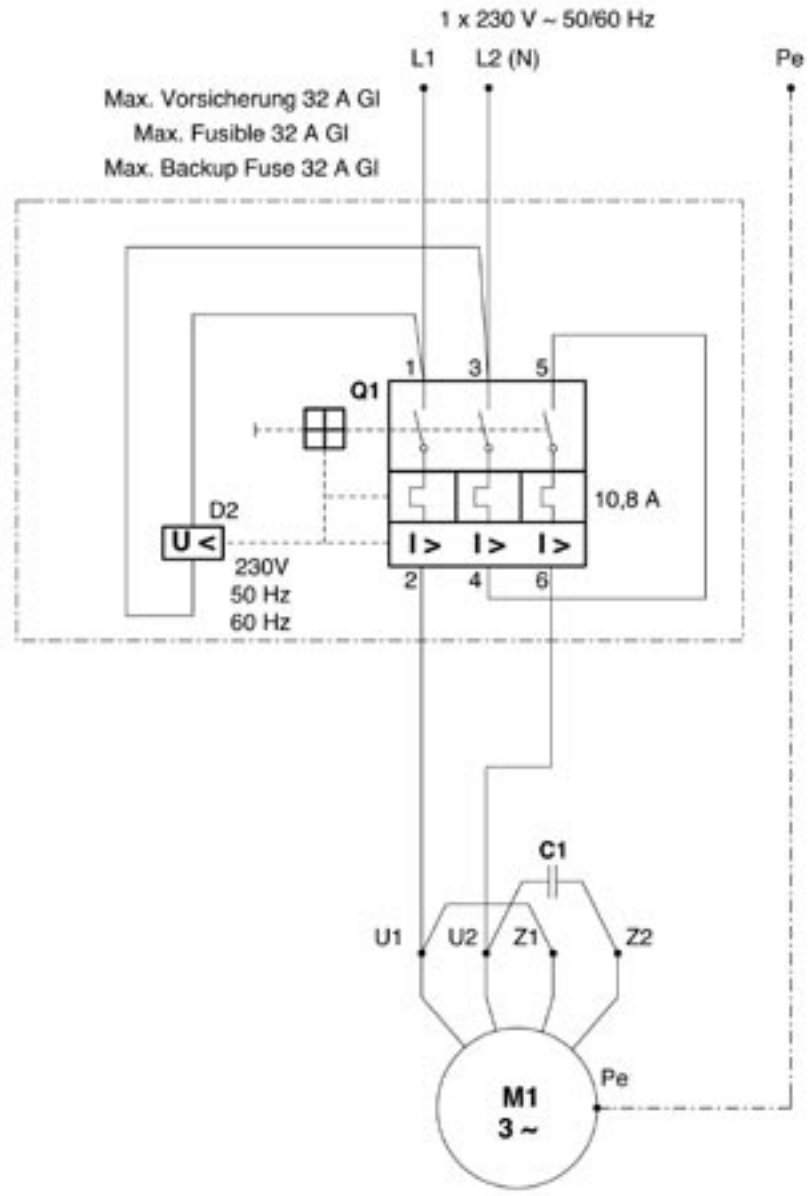
12 Electrical circuit diagram



Q1..... Motorschutzschalter, Overload protection, Protection de moteur 4,45-6,75A,USP 400V, 50 Hz, Typ: MO 014-T/1-BE-MRG	222MW
M1.....Drehstrommotor, Motor, Moteur IMB 34, 2.2kW, 220-245/380-400V, 50/60Hz, 3000/3600 Upm	221DA

Fig. 7: Electrical circuit diagram

Electrical circuit diagram



Q1.....	Motorschutzschalter, Overload protection, Protection de moteur SIEMENS 10-15A, 230V, 50 Hz, Typ: MO 014-T8/1-BE-MRG	222MZ
	Motorschutzschalter, Overload protection, Protection de moteur SIEMENS 10-15A, 230V, 60 Hz, Typ: MO 014-T8/1-BE-MRG	222N
M1.....	Drehstrommotor, Motor, Moteur IMB 34, 1.8 kW, 220-240 V, 50/60Hz 3000/3600 Upm	221DB
C1.....	Kondensator, Capacitor: 40µF	222KR

Fig. 8: Electrical circuit diagram

13 Spare parts

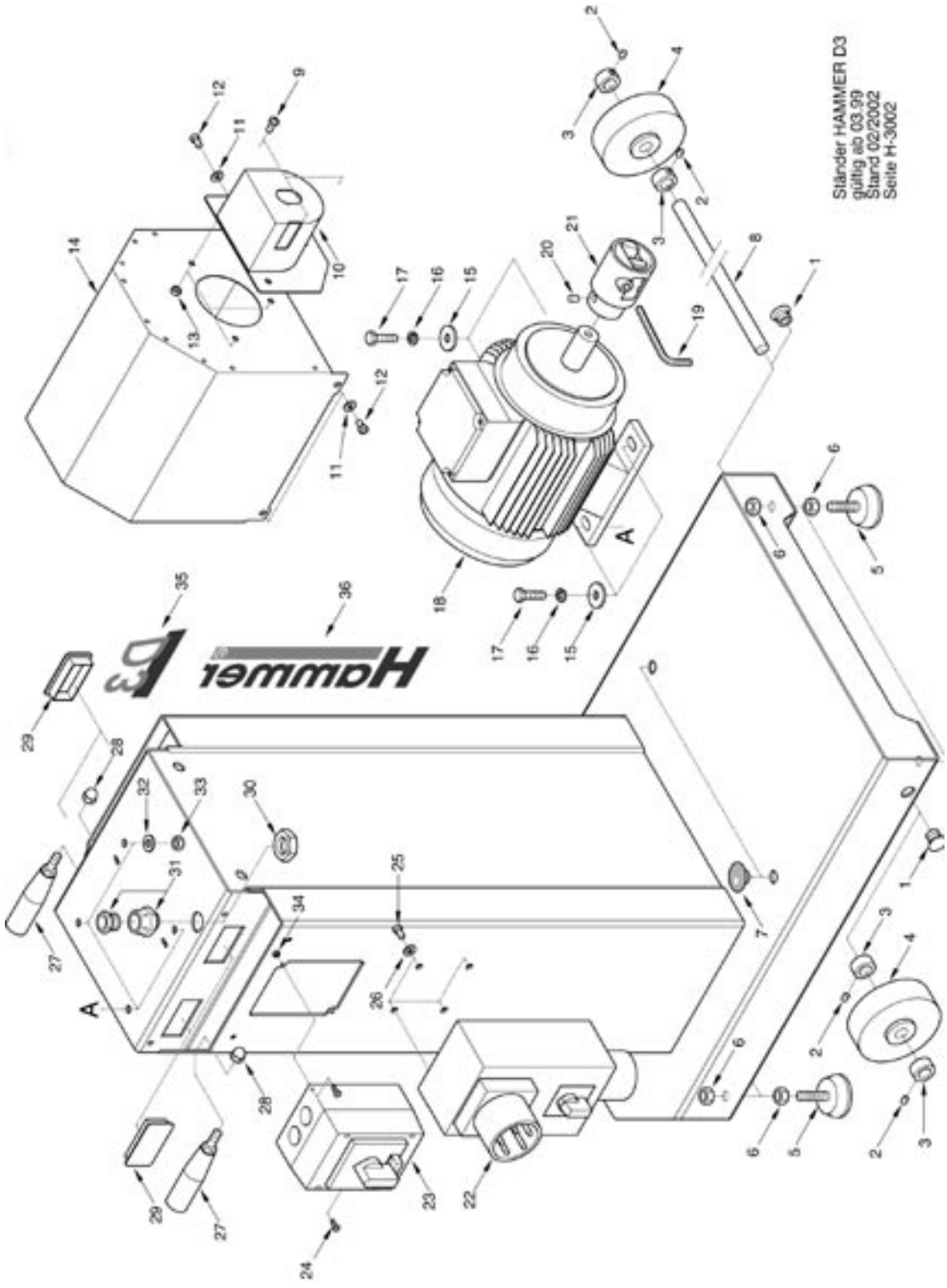


Fig. 9: Spare parts

Spare parts

H-3002	1 213BY	STOPFEN F. RUNDROHRE, D 15-17
H-3002	2 427DE	GEW.STIFT M6X6
H-3002	3 400DB	STELLRING D 15x25x12 +GEW. M6
H-3002	4 213HM	POLYAMIDRAD D100X30
H-3002	5 207CN	VERSTELLSCHRAUBEN MIT TELLER
H-3002	6 401F	SKT MUTTER M10 SCHWARZBLANK
H-3002	7 213CE	AUFLAGENOPPEN SCHWARZ
H-3002	8 500-030-014	RADACHSE D3
H-3002	9 422AA	LINSENSCHRAUBE M6X12 VERZ.
H-3002	10 213ZA	BOHRKOPFSCHUTZ BF SCHWARZ
H-3002	11 404C	SCHEIBE M6
H-3002	12 423BB	INBUSSCHRAUBE M6X10 SCHWARZ
H-3002	13 401D	SKT MUTTER M6 SCHWARZBLANK
H-3002	14 500030-011	MOTORSCHUTZHAUBE D3
H-3002	15 400A	SCHEIBEN AUS STAHL M8 FORM R
H-3002	16 407A	FEDERRING M8 BLANK
H-3002	17 418DE	SKT SCHRAUBE M8X30 SCHWARZ
H-3002	18 221DA	DS-MOTOR 3 PHASEN, 2,2KW, IMB 34
221DB		EINPHASENMOTOR, 1,8KW, IMB34
H-3002	19 S650EO	INBUSSCHLUESSEL 8MM
H-3002	20 427CA	GEW.STIFT M6X10
H-3002	21 219A	BOHRFUTTER 0-16 (MANDRINI)
H-3002	22 500-01-006	Hauptschalter Links- Rechtslaufwahl
H-3002	24 412BB	ZYLINDERSCHR. M4X10 VERZINKT
H-3002	25 423BB	INBUSSCHRAUBE M6X10 SCHWARZ
H-3002	26 404C	SCHEIBE M6
H-3002	27 214AJ	UMLEGGRIFF MANICO MM 70 M8
H-3002	28 400AF	SKT HUTMUTTER M8 VERZINKT
H-3002	29 213BO	RECHTECKSTOPFEN
H-3002	30 222EA	FLACHE SKT MUTTER PVC PSK 13
H-3002	31 222FF	KABELVERSCHRAUBG. KUNSTSTOFF
H-3002	32 404D	SCHEIBE M8
H-3002	33 401E	SKT MUTTER M8 SCHWARZBLANK
H-3002	34 401B	SKT MUTTER M4 SCHWARZBLANK
H-3002	35 212TM	TYPENKLEBER HAMMER D3
H-3002	36 212TS	TYPENKLEBER HAMMER 290MM

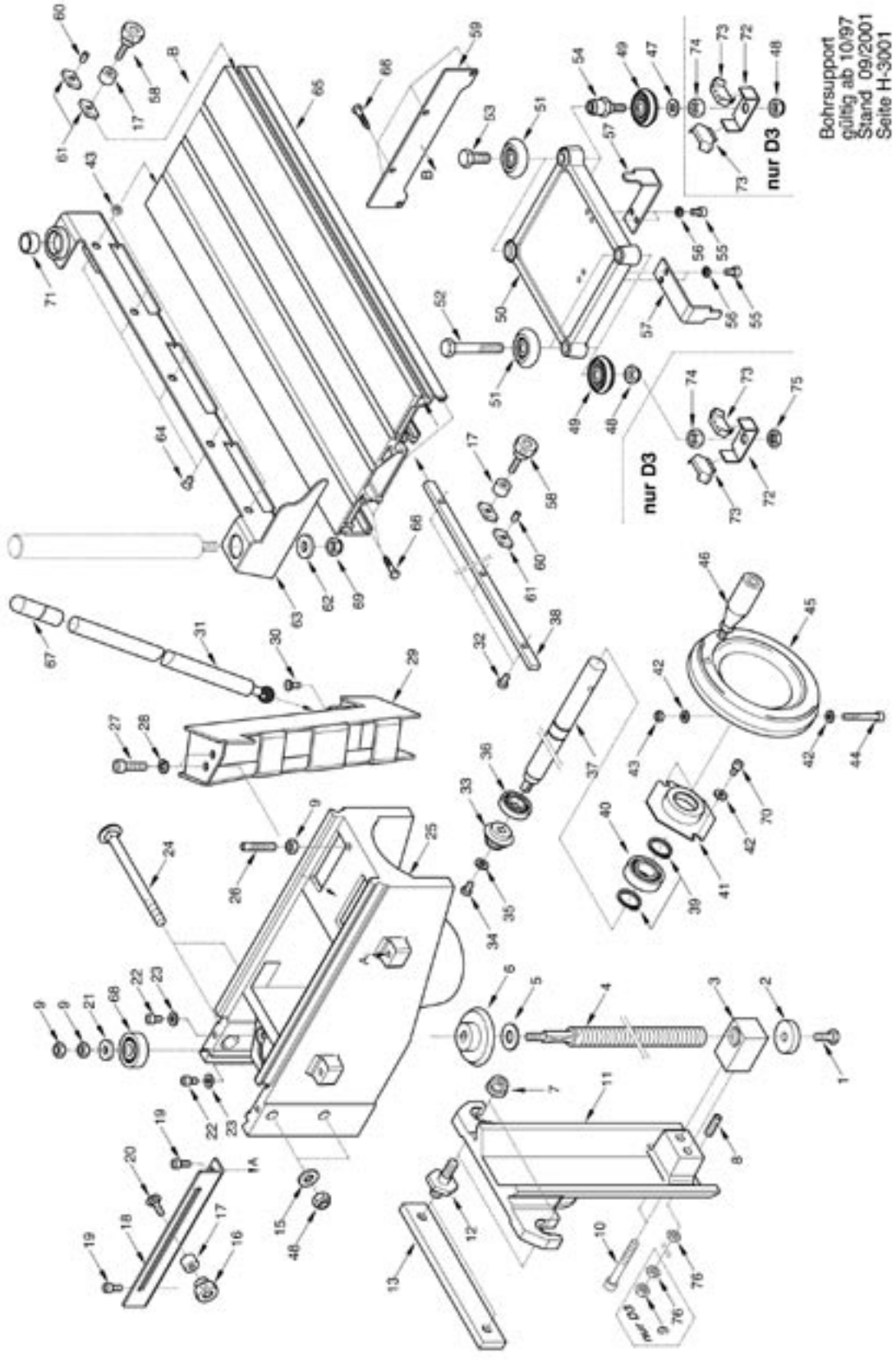


Fig. 10: Spare parts

Spare parts

H-3001	1 418DC SKT	SCHRAUBE M8X20 SCHWARZ
H-3001	2 78-03-110	BEILAGSCHEIBE D35XD9.2X4
H-3001	3 76-07-236	SPINDELMUTTER
H-3001	4 78-07-234	HOEHENSPINDEL FRS- KRS
H-3001	5 404F	SCHEIBE M12
H-3001	6 213FG	KEGELRAD D33MM, MODUL 2, Z15,
H-3001	7 402RC	SKT MUTTER M10
H-3001	8 424DF	GEW.STIFT M8X30
H-3001	9 401E	SKT MUTTER M8 SCHWARZBLANK
H-3001	10 421CE	INBUSSCHRAUBE M8X60
H-3001	11 500-030-001	GRUNDSCHLITTEN
H-3001	12 500-030-003	GRUNDSCHLITTENBOLZEN
H-3001	13 500-030-002	GRUNDSCHLITTENTRÄGER
H-3001	14 440B	SICHERHEITSSKTMUTTER M8
H-3001	15 404E	SCHEIBE M10
H-3001	16 205B	RAENDELMUTTER M6 ART.731-30
H-3001	17 500-030-007	ANSCHLAGBUCHSE
H-3001	18 500-030-202	TIEFENANSCHLAGBLECH
H-3001	19 421BE	INBUSSCHRAUBE M6X14 SCHW.
H-3001	20 415CC	TORBANDSCHRAUBE M6X20 VERZ
H-3001	21 406D	SCHEIBE M8
H-3001	22 423BA	INBUSSCHRAUBE M6X16 SCHW.
H-3001	23 404C	SCHEIBE M6
H-3001	24 415EG	TORBANDSCHRAUBE M10X140
H-3001	25 500-030-004	HÖHENSCHLITTEN
H-3001	26 424DH	GEW.STIFT M8X40
H-3001	27 421DF	INBUSSCHRAUBE M8X30 SCHW.
H-3001	28 407A	FEDERRING M8 BLANK
H-3001	29 500030-001	LAGERARMSTÜTZE GESCHWEISST
H-3001	30 400AH	SENKSCHR. MIT ISK M6X10
H-3001	31 400-030-013	BOHRHEBEL FD
H-3001	32 418CH	SKT SCHRAUBE M6X10 SPEDCAPS
H-3001	33 213FF	KEGELRAD D60MM, MODUL 2, Z30
H-3001	34 422AA	LINSENSCHRAUBE M6X12 VERZ.
H-3001	35 404C	SCHEIBE M6
H-3001	36 432W	RILLENKUGELLAGER 16003 ZZ
H-3001	37 500-030-005	HANDRADWELLE
H-3001	38 500-030-013	DRUCKSCHIENE
H-3001	39 409F	SICHERUNGSRING 20X1,2
H-3001	40 432M	RILLENKUGELLAGER 6004 ZZ
H-3001	41 76-01-040	DICKTEN-LAGERHALTER
H-3001	42 404C	SCHEIBE M6
H-3001	43 401D	SKT MUTTER M6 SCHWARZBLANK
H-3001	44 421BG	INBUSSCHRAUBE M6X35 SCHWARZ
H-3001	45 208I	HANDRAD „VOLANTINO“
H-3001	46 12.0.361	KLEMMHEBEL, GR.II, MUTTER M8
H-3001	47 404D	SCHEIBE M8
H-3001	48 440C	SICHERHEITSSKTMUTTER M10
H-3001	49 500-030-008	V-LAGERROLLE
432C		RILLENKUGELLAGER 6000 ZZ
H- 001	50 500-030-006	KREUZSCHLITTEN
H-3001	51 500-030-009	K-LAGERROLLE
432C		RILLENKUGELLAGER 6000 ZZ
H-3001	52 417DG	SKT SCHRAUBE M10X60 SCHWARZ
H-3001	53 418EB	SKT SCHRAUBE M10X25 SCHWARZ
H-3001	54 500-030-010	LAGEREXZENTER
H-3001	55 421BA	INBUSSCHRAUBE M6X10 SCHWARZ

H-3001	56 407D	FEDERRING M6
H-3001	57 500-030-203	ANSCHLAGFINGER
H-3001	58 204CB	RAENDELSCHRAUBE M6X20
H-3001	59 500-030-206	PROFILBLENDE RECHTS
H-3001	60 424CJ	GEW.STIFT M6X10
H-3001	61 225BC	HAMMERKOPF GEWINDEPLATTE M6
H-3001	62 406EA	SCHEIBE M10 VERZINKT
H-3001	63 500030-002	WERKSTÜCKANSCHLAG
H-3001	64 400BD	SENKSCHR. MIT ISK M6X12
H-3001	65 106DC	BOHRTISCH LC LT.Z.500-030-020B
H-3001	66 400EA	SKT BOHRSCHRAUBE 4,8X32
H-3001	67 213AK	PVC-TAUCHKAPPEN 16MMX100MM
H-3001	68 432I	RILLENKUGELLAGER 6301 ZZ
H-3001	69 440CB	SICHERHEITSSKTMUTTER M12
H-3001	70 421BA	INBUSSCHRAUBE M6X10 SCHWARZ
H-3001	71 214QD	GELENKLAGER FD
H-3001	72 500-030-218	ABSTREIFWINKEL
H-3001	73 213AI	PROFILABSTREIFER FÜR
H-3001	74 401F	SKT MUTTER M10 SCHWARZBLANK
H-3001	75 402K	SKT MUTTER M10 FLACH
H-3001	76 402I	SKT MUTTER M8 VERZINKT FLACH

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