holzstar
Holzbearbeitungsmaschinen

Instruction manual

Cylinder sanding machine

ZSM 405

ZSM 405

ZSM SERIES

Imprint

Product identification

Cylinder sanding machine	Item number
ZSM 405	5901405

Manufacturer

Stürmer Maschinen GmbH
Dr.-Robert-Pfleger-Str. 26
D-96103 Hallstadt

Fax: 0049 (0) 951 96555 - 55
E-Mail: info@holzstar.de
Internet: www.holzstar.de

Indications regarding the operating instructions

Original instructions

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Indications regarding the copyright

Subject to technical modifications and error.

Contents

1 Introduction

You have made a good choice by purchasing the Cylinder sanding machine made by HOLZSTAR.

Thoroughly read the operating instructions before commissioning the machine.

It informs you about the proper commissioning, the intended use as well as the safe and efficient operation and maintenance of the Cylinder sanding machine. The operating instructions are part of the Cylinder sanding machine. Always keep it at the place of use of the Cylinder sanding machine. Furthermore, the local accident prevention regulations and the general safety notes are applicable for the field of application of the Cylinder sanding machine. The illustrations in these operating instructions serve the general comprehension and may deviate from the actual type.

1.1 Copyright

The contents of these instructions are copyright. Their application is admissible in the frame of the device. An application beyond the described application is not allowed without written approval of the manufacturer.For the protection of our products, we shall register trademark, patent and design rights, as this is possible in individual cases. We strongly oppose any infringement of our intellectual property.

1.2 Customer service

Please contact your dealer if you have questions on the machine or if you need technical advice. They will help you with specialist information and expert advice.

Germany:
Stürmer Maschinen GmbH
Dr.-Robert-Pfleger-Str. 26
D-96103 Hallstadt

Repair service:
Fax: 0049(0)951 96555-111
E-Mail: service@stuermer-maschinen.de
Internet: www.holzstar.de

Spare part orders:
Fax: 0049(0)951 96555-119
E-Mail: ersatzteile@stuermer-maschinen.de

We are always interested in valuable experience and knowledge gained from using the application, which then could be shared and be valuable to develop our products even further.

1.3 Limitation of liability

All information and notes in these operating instructions were summarised taking the applicable standards and rules, the state-of-the-art and our long-term knowledge and experiences into consideration.

In the following cases the manufacturer is not liable for damages:

- Non-observance of the operating instructions,
- Inappropriate use
- Use of untrained staff,
- Unauthorised modifications
- Technical changes,
- Use of not allowed spare parts.

The actual scope of delivery may deviate from the explanations and presentations described here in case of special models, when using additional ordering options or due to latest technical modifications.

The obligations agreed in the delivery contract, the general terms and conditions as well as the delivery conditions of the manufacturer and the legal regulations at the time of the conclusion of the contract are applicable.

2 Safety

This paragraph will give you an overview of all important safety packages for the protection of the people using it well as for a safe and undisturbed operation. Other task-based safety notes are included in the individual chapters.

2.1 Symbol explanation

Safety instructions

The safety notes in these operating instructions are highlighted by symbols. The safety notes are introduced by signal words which express the concern of the risk.

DANGER!

This combination of symbol and signal words indicates an imminently dangerous situation which may lead to death or severe injuries if they are not avoided.

WARNING!

This combination of symbol and signal word indicates a potentially dangerous situation that can lead to death or serious injury if not avoided.

CAUTION!

This combination of symbol and signal word indicates a potentially dangerous situation that can result in minor injury if it is not avoided.

ATTENTION!

This combination of symbol and signal words indicates a possibly dangerous situation which may lead to property and environmental damages if they are not avoided.

NOTE!

This combination of symbol and signal words indicates a possibly dangerous situation which may lead to property and environmental damages if they are not avoided.

Tips and recommendations

Tips and recommendations

This symbol highlights useful tips and recommendations as well as information for an efficient and trouble-free operation.

It is necessary to observe the safety notes quoted in these operating instructions in order to reduce the risks for personal injuries and damages to property.

2.2 Obligations of the operating company

The operating company is the person who operates the machine for business or commercial reasons by herself, or leaves it to a third party for use or application, and who bears the legal product responsibility for the protection of the user, the staff or for third parties.

Obligations of the operating company:

If the machine is used for commercial purposes, the operating company must comply with the legal working safety regulations. Therefore, the safety notes in this operating manual, as well as the safety, accident prevention and environment protection regulations applying for the area of application of the machine must be met. The following applies in particular:

- The operating company must be informed about the applying industrial safety regulations and further analyse hazards resulting from the special working conditions at the place of use machine. She must implement these in form of operating manuals for the operation machine.
- During the entire lifetime of machine, the operating company must verify whether the operating manuals prepared by her correspond to the current status of the regulations, and must adapt these if necessary.
- The operating company must unambiguously regulate and determine the responsibilities for installation, operation, troubleshooting, maintenance and cleaning.
- The operating company must ensure that all persons who work with machine, have read and understood this manual. Furthermore she must instruct the staff in regular intervals and inform them about the hazards.
- The operator must provide the necessary protective equipment to the staff and order the use of the necessary protective equipment in a binding way.

Furthermore the operating company is responsible to keep the Machine always in a technically flawless state. Thus, the following applies:

- The operator must ensure that the maintenance intervals described in this manual are kept.
- The operator must have all safety devices checked regularly for their good working order and their integrity.

2.3 Qualification of personnel

The different tasks described in this manual represent different requirements to the qualification of the persons entrusted with these tasks.

WARNING!

Danger in case of insufficient qualification of the staff!

Insufficiently qualified persons cannot estimate the risks while using machine and expose themselves and others to the danger of severe injuries.

- Have all works only performed by qualified persons.
- Keep insufficiently qualified persons and children out of the working area.

Only persons reliable working procedures can be expected from, are allowed to perform all works. Persons the responsiveness of which is affected by e. g. drugs, alcohol or medication, are not allowed to work with the machine.

The qualifications of the personnel for the different tasks are mentioned below:

Operator:

The operator is instructed by the operating company about the assigned tasks and possible risks in case of improper behaviour. Any tasks which need to be performed beyond the operation in the standard mode must only be performed by the operator if it is indicated in these instructions and if the operating company expressively commissioned the operator.

Electrical specialist:

Due to his professional training, knowledge and experience as well as his knowledge of respective standards and regulations the electrical specialist is able to perform works on the electrical system and to recognise and avoid any possible dangers himself.

Specialist staff:

Due to their professional training, knowledge and experience as well as their knowledge of relevant regulations the specialist staff is able to perform the assigned tasks and to recognise and avoid any possible dangers themselves.

Manufacturer:

Certain works may only be performed by specialist personnel of the manufacturer. Other personnel is not authorized to perform these works. Please contact our customer service for the execution of all arising work.

2.4 Personal protective equipment

The personal protective equipment serves to protect persons against impairments of safety and health while working. The staff has to wear personal protective equipment while performing different works on and with grinding system which are indicated in the individual paragraphs of these instructions.

The personal protective equipment is explained in the following paragraph:

Ear and head protection

The hearing protection protects the ears against damages of hearing due to noise. The industrial helmet protects the head against falling objects and bumping into fixed objects.

Eye protection

The protective goggles protect the eyes against parts flying off and splashes of liquids.

Breathing protection

The breathing protection serves for protecting the respiratory passages and the lung against the intake of dust particles.

Protective gloves

The protective gloves serve to protect the hands against sharp components as well as against friction, abrasions or deep injuries.

Safety boots

The safety boots protect the feet against crushes, falling parts and slipping over on slippery underground.

Protective clothes

The protective clothes are tight clothes of little tensile strength.

2.5 Safety signs on the Machine

The following safety markings are attached to the Cylinder sanding machine and must be observed and followed.

1

2

Fig. 1: safety labels

Damaged or missing safety symbols at the machine may lead to errors with personal and material damages. The safety symbols which are applied on the machine must not be removed. Damaged safety symbols must be replaced immediately.

The machine must be put out of operation from the moment when the labels are unable to be recognized and understood at first glance, until new labels are attached.

2.6 Safety equipment

2.6.1 Electrical connections

WARNING!

Danger due to insufficient qualification of persons!

All electrical connections must be made by a qualified professional to avoid the risk of personal injury from improperly performed work.

All necessary measures for connection are described in this manual. The connection may only be made after reading and understanding the instructions. If you have any questions, please contact the dealer.
The machine may only be connected by qualified personnel. Installation errors, including electrical Connection errors are not covered by warranty. Before connecting and disconnecting the machine, the power connection must be interrupted.

2.7 Danger zones

Persons under the age of 16 are strictly prohibited from operating the machine (EC Directive). The operator must have read these operating instructions and understood the dangers he is exposed to in case of misuse of the machine. For illegible or unrecognizable passages of this manual contact the manufacturer or dealer.

The machine owner is responsible for staffing the machine with qualified operators.

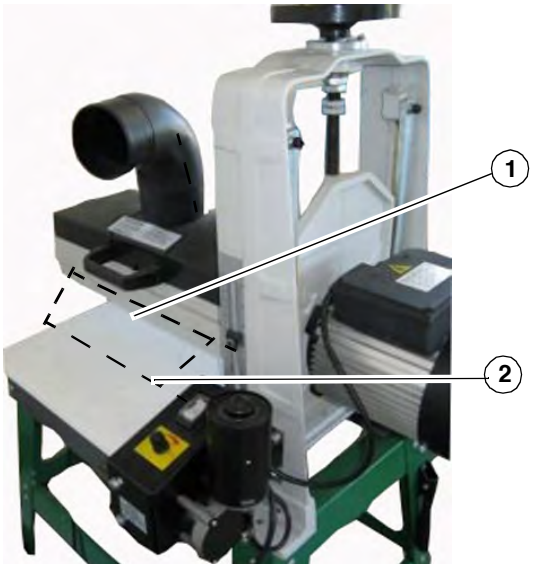


Fig. 2: Danger zones

1 Danger area

2 Safety leash

2.8 Workspace

DANGER!

Before using for the first time, the following points should be carefully checked:

- Is the work area around the machine free?
- Are the switches on the control panel functional?

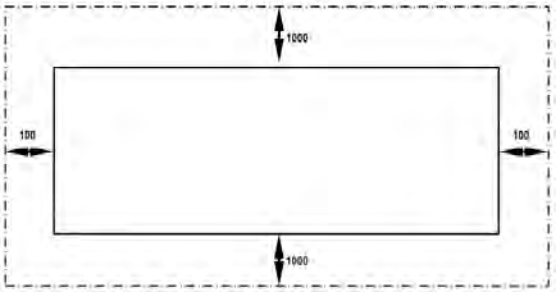


Fig. 3: Work space

Personal security

During operation safety glasses, gloves and head protection should be worn.

DANGER!

- Caution is advised for people who are in the work area.
- Switch off the machine if it is not immediately continued.
- If a workpiece gets stuck, lift the sanding drum with the machine off.

Tips and recommendations

In the case of missing or illegible signs, manufacturers or dealers must be contacted for subsequent delivery.

2.9 General safety instructions

- Read the operating instructions before operating the machine.
- Keep the work area clean and well lit. Cluttered or dark areas invite accidents. Keep the floor free of tripping hazards and dirt.
- Do not operate power tools in potentially explosive atmospheres, e.g. in the presence of flammable liquids, gases or dust. Power tools produce sparks that can ignite dust or the fumes.
- Do not expose the machine to rain or wet conditions.
- Check power supply at regular intervals. Do not use defective cables.
- Never use the cord to carry, pull or unplug the machine. Keep the cable away from heat, oil, sharp edges or moving parts.
- Never touch rotating or moving parts.
- Never work with the machine when you are not concentrated.
- Keep children and untrained personnel away from the machine.
- As soon as a safety device has been triggered or has failed, the machine may only be put into operation after you have eliminated the cause of the fault and made sure that there is no danger to persons or objects.
- Always report electrical faults to an electrician.
- Switch off the machine when work is interrupted.
- Wear appropriate safety clothing (safety shoes, safety goggles, respiratory protection, etc.).
- Check the safety devices for correct function before starting work. If safety devices are damaged, the machine must not be put into operation.
- Read and understand the safety instructions attached to the machine.
- Carry out regular maintenance work.
- Do not overload the machine.
- In case of abnormal operation of the machine, inform the supervisor immediately.
- Exercise caution when people are in the work area.
- Never modify electrical or safety devices.
- Never remove mechanical or electrical safety devices.
- Always keep hands away from the working area of the grinding drum.
- Check feed belt from time to time to make sure there is no dirt or sawdust between components.
- Pay special attention when transporting or reassembling; follow transport instructions.
- Securely fasten the machine to the work area if possible.
- Never perform a grinding operation if the cover of the grinding drum has been removed.
- Before starting work, check all screws and safety devices for tightness.
- Never force the workpiece into the feed opening of the machine.
- Allow the grinding drum to reach full speed before starting work.
- Only process wood that has as few knots as possible.
- Make sure that the workpiece is free of nails, screws or other foreign bodies that could damage the grinding drum or the feed belt.
- Use only original spare parts and accessories.

3 Intended Use

The ZSM 405 Cylinder sanding machine is intended for surface sanding of wood or wood-like materials.

Intended use also includes compliance with all the information in these instructions.

3.1 Reasonably foreseeable misapplication

Any use beyond or different from the intended use is considered misuse.

Possible misuses can be:

- Simultaneous machining of several workpieces.
- Machining of unacceptable materials such as metals or plastics.
- Bypassing or modifying the safety devices.
- Installation of spare parts and use of accessories not approved by the manufacturer.
- Maintenance work on an unsecured machine.

Misuse of the Cylinder sanding machine can lead to dangerous situations. Stürmer Maschinen GmbH accepts no liability for design and technical modifications to the Cylinder sanding machine. Claims of any kind for damage due to improper use are excluded.

3.2 Residual risks

Even if all safety regulations are observed and the machine is used in accordance with the regulations, there are still residual risks, which are listed below.

- The rotating guide drum can cause injuries to fingers and hands.
- Ejected workpieces can cause injuries if the workpiece is not properly secured or fed.
- Wood chips and sawdust can be hazardous to health. Be sure to wear personal protective equipment such as safety glasses and dust mask. Use an extraction
- system.
- Injuries due to defective grinding belts. Check the grinding belts regularly to ensure that they are in perfect condition.
- Hearing damage due to noise exposure when working on the machine. Wear suitable hearing protection.
- Health hazard due to long hair and loose clothing being drawn in. Wear personal protective equipment such as hair nets and tight-fitting clothing.
- Risk of injury from starting grinding belts when switching on the machine. Remove the adjusting key and workpieces before switching on the machine. Keep hands away from the grinding belts.
- Risk of injury from electricity when using damaged extension cables. Only use undamaged extension cables that have been tested by a specialist.

4 Technical Data

4.1 Table

Type	ZSM 405
Motor output 230 V / 50Hz	1,5 kW
Speed	1.440 rpm
Sanding length x width max.	60 x 405 mm
Workpiece thickness max.	130 mm
Feed speed continuously adjustable	0 - 3,5 m/min
Sanding roller-Ø	132 mm
Extraction port-Ø	100 mm
Dimensions (L x W x H)	1.030 x 950 x 1.300 mm
Weight	85 kg

4.2 Type plate

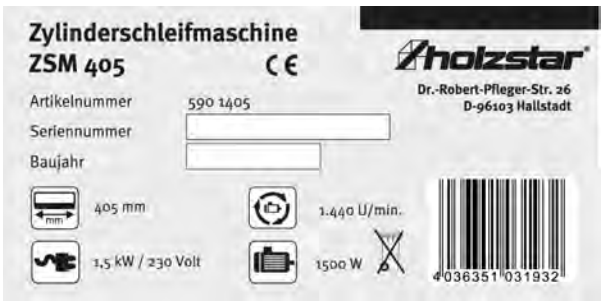


Fig. 4: Type plate ZSM 405

5 Scope of delivery

- Extraction unit
- Front table extension
- Rear table extension
- Transport device

6 Transport, Packaging, Storage

6.1 Delivery and Transport

Delivery

Check the cylinder sanding machine after delivery for visible transport damage. If you discover any damage to the Cylinder sanding machine, immediately report it to the transport company or the dealer.

Transport

Improper transport is accident-prone and can cause damage or malfunctions for which we do not grant any liability or guarantee.

Transport the scope of delivery secured against shifting or tilting with a sufficiently dimensioned industrial truck to the installation site.

WARNING!

Severe or fatal injuries may occur if parts of the machine tumble or fall down from the forklift truck, pallet truck or from the transport vehicle.
Follow the instructions and information on the transport box.
Note the total weight of the machine. The weight of the machine is indicated in the "Technical data" of the machine. When the machine is unpacked, the weight of the machine can also be read on the rating plate.
Only use transport devices and load suspension gear that can hold the total weight of the machine.

WARNING!

The use of unstable lifting and load suspension equipment that might break under load can cause severe injuries or even death. Check that the lifting and load suspension gear has sufficient load-bearing capacity and that it is in perfect condition.
Observe the accident prevention regulations issued by your Employers Liability Insurance Association or other competent supervisory authority, responsible for your company.
Fasten the loads properly.

General risks during internal transport

WARNING: DANGER OF TIPPING

The device may be lifted unsecured by a maximum of 2cm.
Employees must be outside the danger zone, the reach of loads.
Warn employees and, if necessary, advise employees of the hazard.

Devices may only be transported by authorized and qualified persons. Act responsibly during transport and always consider the consequences. Refrain from daring and risky actions.

Gradients and descents (e.g. driveways, ramps and the like) are particularly dangerous. If such passages are unavoidable, special caution is required.

Before starting the transport check the transport route for possible danger points, unevenness and disturban-ces as well as for sufficient strength and load capacity.

Danger points, unevenness and disturbance points must be inspected before transport. The removal of danger spots, disturbances and unevenness at the time of transport by other employees leads to considerable dangers.

Careful planning of internal transport is therefore essential.

6.2 Packaging

All used packaging materials and packaging aids of the grinding system are recyclable and generally need to be transported to the material recycling.

Crush the packaging material made of cardboard and supply it to the waste paper collection.

The films are made of polyethylene (PE) and the upholstery parts are made of polystyrene (PS). These materials have to be delivered to a recycling station of the responsible dumping company.

6.3 Storage

The cylinder sander must be thoroughly cleaned before storing in a dry, clean and frost-free environment. Cover the machine with a protective tarpaulin.

7 Description

Illustrations in this manual may differ from the original.

Fig. 5: Cylinder sanding machine ZSM 405

1 Scale for height adjustment
2 Engine
3 Clamping screw
4 Work table
5 Automatic table feed
6 Substructure
7 Handwheel for height adjustment
8 Sanding drum
9 Start button

7.1 Space requirement

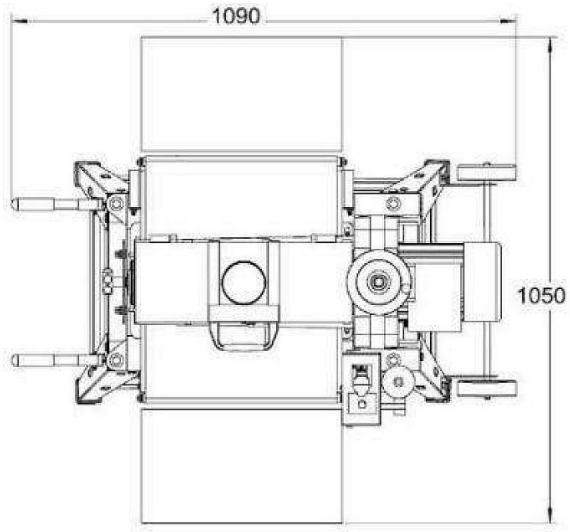


Fig. 6: Space requirement of the machine

8 Specification and standard equipment

- The grinding unit is adjusted quickly and precisely to the workpieces by means of height adjustment crank and scale
- With powerful drive motor for best grinding results, even with continuous use
- Standard with insert and extension extension
- Standard with suction device for a clean workplace
- Infinitely adjustable feed rate for optimum grinding results
- With extension and extension
- Suitable for the use of commercial abrasive cloths operating manual
- EU standard according to (CE mark)

WARNING!

It is not allowed to use profiles exceeding the specification strength. Use the machine only for the intended purpose.

9 Setting up and connection

9.1 Requirements for the installation site

The cylindrical sanding machine must be set up stable on a level and firm ground. It is important to ensure that there is enough freedom of movement to work. On each side must be at least 1 m from the wall to the cylinder sanding machine. The site should meet the following criteria:

- The substrate must be level, firm and vibration-free.
- The substrate must not let any lubricant through.
- The installation or work area must be dry and well ventilated.
- Do not operate machines that cause dust and chips near the machine.
- There must be sufficient space for the operating personnel, for material transport as well as for adjustment and maintenance work.
- The Working place must have good lighting.

9.2 Setting up the cylinder sanding machine

Wear safety shoes!

Wear protective gloves!

CAUTION!

Risk of injury due to an unstable machine!
Check the stability of the machine after setting it up on a stable surface..

CAUTION!

Observe the weight of the machine!
The machine may only be set up by two persons together.
Check the auxiliary equipment for sufficient dimensioning and load-bearing capacity.

The machine must be fully assembled before it can be put into operation. To ensure that the assembly process runs smoothly, first clean any parts that are covered or coated with a rust inhibitor (if applicable). Avoid chlorine-based solvents, such as acetone or brake parts cleaner, which can damage painted surfaces.

Proceed as follows to assemble the machine:

Step 1: Unpack the machine and check the carton contents for the following.

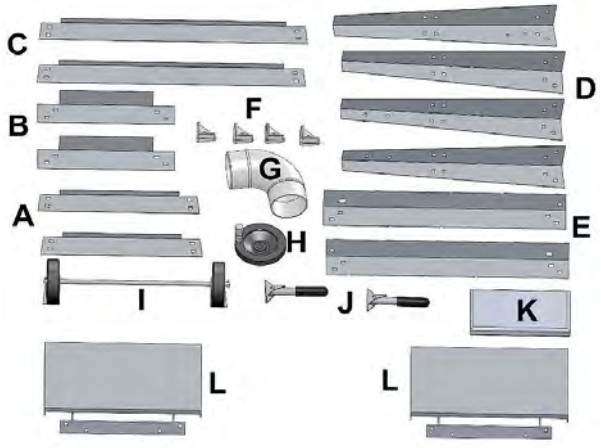


Fig. 7: Mounting parts of the machine

Step 2: Turn the cross struts (B and E, Fig.7) over and fold them rectangularly onto a flat surface.

Step 3: Connect the machine feet (D,Fig.7) to the upper crossbars (B and C, Fig.7) and hand-tighten the screws.

Fig. 8: Mount the machine feet

Step 4: Mount the lower cross braces (Fig.7) to the machine feet using the remaining screws.

Fig. 9: Assemble cross braces of the machine

Step 5: Insert rubber cover (F,Fig.7) at the bottom of the 4 feet.

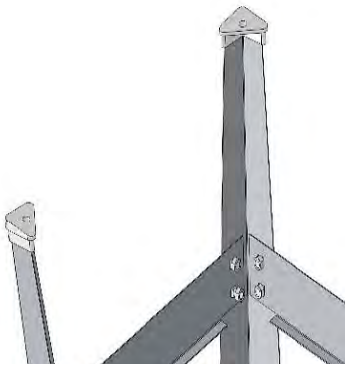


Fig. 10: Insert rubber cover

Step 6: Turn over the base frame, align the struts and machine feet and tighten all screws.

Step 7: Fasten the wheel holder to the two machine feet using 4 screws.

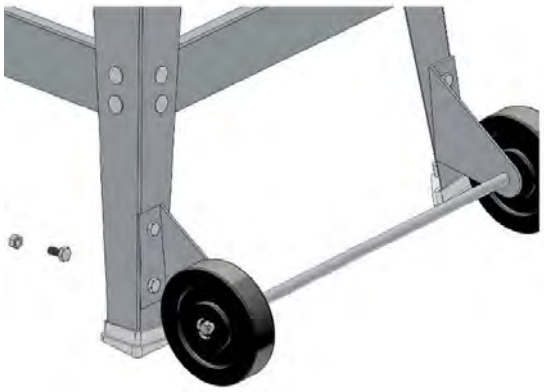


Fig. 11: Mount the transport wheels of the machine

Step 8: Push the wheel axle through the previously mounted bracket.

Step 9: Mount the two wheels at the end of the wheel axle and insert 2 cotter pins through the hole of the wheels to secure them.

Step 10: Mount the transport handles to the machine using 4 screws.

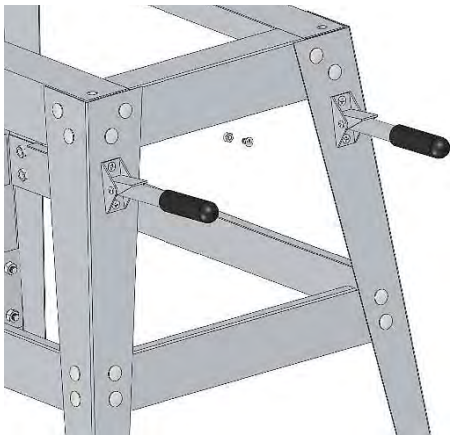


Fig. 12: Mount the transport handle of the machine

Step 11: With the help of another person, lift the cylinder grinding machine onto the previously mounted base frame and align it. Align mounting holes on machine with holes on base.

Step 12: Mount machine to base using (4) hex bolts and washers.

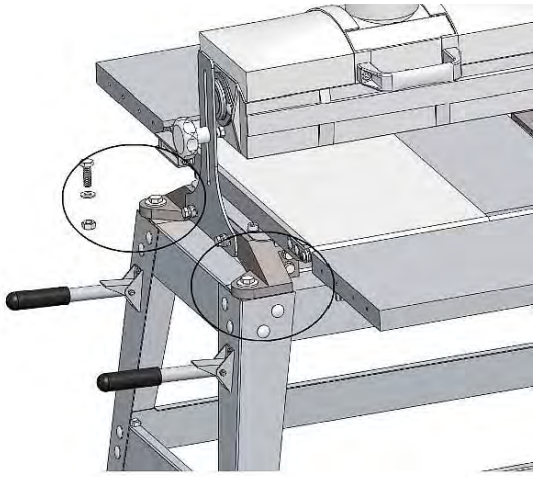
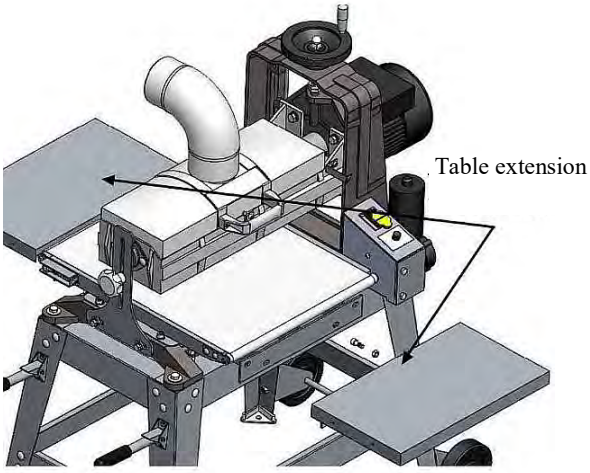


Fig. 13: Mount machine on base frame

Step 13: Mount the table extension to the feed opening of the machine with screws and washers. The height of the table extension can be adjusted by turning the adjustment screws.



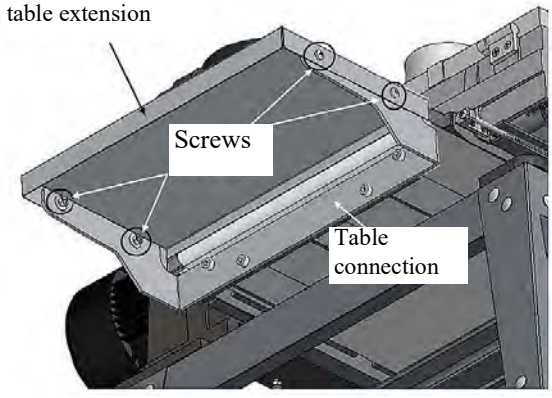


Fig. 14: Mount table extension

Step 14: Mount the handwheel for height adjustment on the machine head using the screw, washer and cap nut.

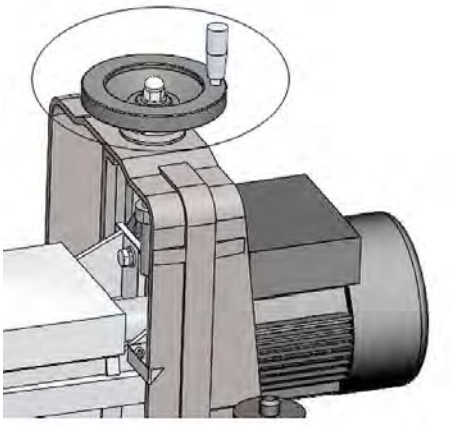


Fig. 15: Mount handwheel

Step 15: Place the suction nozzle on the opening of the grinding drum cover and attach a suction hose to the suction nozzle using a hose clamp.

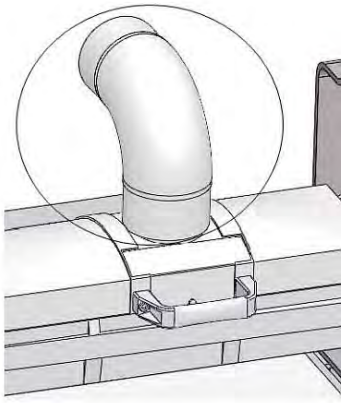


Fig. 16: Mount suction nozzle

Step 16: Connect the suction hose to a suitable suction unit.

9.3 Electrical connection

DANGER!

Danger to life due to electric shock!

There is danger to life when in contact with live components. Switched on electrical components can cause uncontrolled movements and lead to serious injuries.

DANGER!

All work on the electrical installation must only be carried out by a qualified electrician in order to avoid the risk of personal injury due to improperly performed work.

When making electrical connections, make sure that the characteristics (voltage, mains frequency, protection) match those on the rating plate and for the motor.

1. The lines must be connected directly to the machine without intermediate points.
2. For the purpose of a safe working operation, the earthing must be checked (see wiring diagram).
3. If the motor is overloaded, it automatically switches off. After a cooling time of approx. 2 minutes, the thermal protection switch on the motor terminal box can be pressed in again.
4. The customer's power supply and the extension cables used must comply with the regulations.

10 Commissioning

DANGER!

The machine must be connected to an extraction system before start-up.

DANGER!

Before commissioning, check the electrical connection, cables and contacts.

Wear hearing protection!

Wear protective goggles!

Wear safety shoes!

Wear protective work clothing!

Wear dust mask!

10.1 Test run

Once assembly is complete, perform a test run to ensure that your machine is running properly and is ready for regular operation.

Make sure that all tools and objects used during setup have been removed from the machine and that the grinding drum is safely above the feed belt so that no contact can occur during operation.

The test run consists of checking the following items:

- Switch on the machine and check for correct operation.
- Check safety shut-off mechanism on switch and cover.
- Check rotary switch for variable feed speed.

The following settings have been set in advance at the factory and must be checked before commissioning the machine.

- Belt tension
- Alignment from feed belt to drum
- Pressure roller adjustment
- Adjusting the height stop

11 Operation

DANGER!

Danger to life from electric shock!

There is a danger to life in case of contact with live components. Switched-on electrical components can perform uncontrolled movements and lead to serious injuries.

- Disconnect the power plug before starting any adjustments on the machine.

WARNING!

Danger to life!

There is danger to the life of the operator and other persons if they do not observe the following rules.

- The Cylinder sanding machine may only be operated by an instructed and experienced person.
- The operator must not work if he is under the influence of alcohol, drugs or medication.
- The operator must not work if he is overtired or suffers from diseases that impair concentration.
- The Cylinder sanding machine may only be operated by one person. Other persons must keep away from the working area during operation.

CAUTION!

Risk of crushing!

Improper work on the machine may result in injury to the upper limbs.

Wear hearing protection!

Wear protective goggles!

Wear safety shoes!

Wear protective work clothing!

Wear dust mask!

11.1 Basic operation

The cylindrical grinding machine has a drum. which is driven by the motor. The workpiece is fed with the automatic feed against the rotation of the drum. However, a certain level of experience is necessary to work efficiently.

The following recommendations should be helpful during processing:

- The operator should have a basic knowledge of this type of machine.
- The material removal is better when working in several passes with low delivery and higher feed rate.
- Operators should not wear wide garments, necklaces, rings, etc. to prevent them from being pulled into the running machine.
- However, the best surface finish can be achieved by grinding in the fiber direction.
- The optimum delivery requires some experience, and depends on the abrasive grain size, feed rate and type of wood.
- Before processing, remove nails and other foreign objects from the workpiece.
- Never operate the machine with the guards removed - Risk of injury!
- It is important to ensure that all workpieces are held and guided safely during machining.
- Only work on a workpiece that rests securely on the table.
- Only remove chips and workpiece parts when the machine is at a standstill.

11.2 Starting the machine

The following steps can be used to start the machine and perform the editing process:

Step 1: Make sure the electrical connection is correct.

Step 2: Press the start button.

Step 3: Switch on automatic table feed.

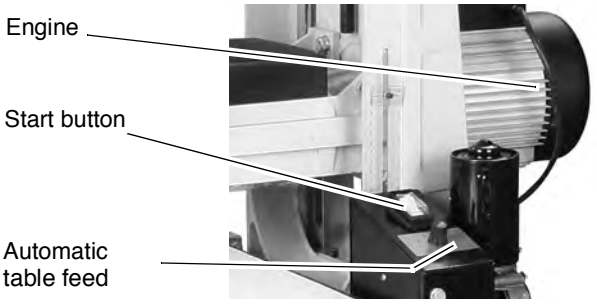


Fig. 17: Starting the Machine

11.3 Set feed rate

When selecting the feed rate for machining, consider variables such as the hardness and condition of the wood, the grit of sandpaper used, the desired surface finish, etc. As a guideline, wide or hard workpieces and the use of finer grit sandpaper require a slower feed rate. The goal in setting the proper feed rate is to achieve the desired results for the operation without damaging the workpiece.

To adjust the feed rate, turn the variable feed rate knob clockwise.

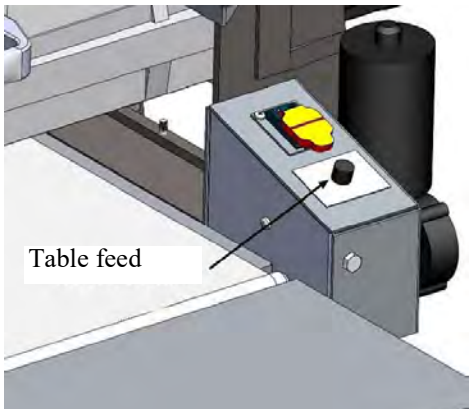


Fig. 18: Set feed rate

11.4 Height adjustment

The proper depth of cut for surface sanding depends on many variables, such as the hardness of the wood, the width of the workpiece, and the feed rate.

Generally, for coarser grits or softer woods, a 1⁄4 turn of the handwheel (1⁄32" depth of cut) per pass is acceptable. A 1⁄8 turn of the handwheel (1⁄64" depth of cut) is recommended for finer grits or harder woods.

Proceed as follows to set the height:

Step 1: Loosen the clamping screw (Fig.19).

Step 2: Turn the raising handwheel counterclockwise to lower the grinding drum.

Step 3: Once the correct cutting depth for your operation is set, retighten the clamping screw (Fig.19).

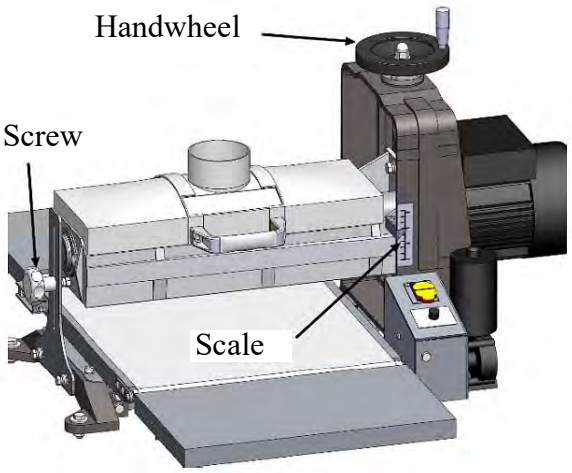


Fig. 19: Height adjustment

11.5 Grinding process

11.5.1 Rules for grinding on the machine

The grinding operation may only be performed by qualified personnel experienced on these machines.
The workpiece is fed with the automatic feed against the direction of the drum. Feed the workpiece with the thicker end first. Do not machine highly twisted or bent workpieces or those whose thickness varies greatly. Support long workpieces with roller blocks. Use the height adjustment handwheel to set the grinding drum to the desired chip removal rate.

Follow these precautions to ensure a safe grinding process and high-quality results:

- Replace the sandpaper with a higher grit to achieve a finer final result.
- When making multiple passes on the workpiece, do not lower the sanding drum more than 1⁄32" or 1⁄4".
- If possible, feed the workpiece to the grinding drum at a 60° angle. This will ensure more effective material removal, less stress on the motor, and more even wear on the abrasive paper.
- Extend the life of the abrasive paper by regularly using an abrasive pad.
- DO NOT edge grind workpieces. This can cause boards to recoil and cause serious injury.
- Replace damaged and worn sanding belts immediately.

11.6 Workflow

Step 1: Check the correct mounting of the sanding paper on the sanding drum.

Step 2: Check the workpiece for foreign bodies such as nails.

Step 3: Place the workpiece to be machined on the work table of the machine.

Step 4: Set the chip removal.

Step 5: Start the machine.

Step 6: Start feed and select feed rate.

Step 7: Start the suction unit.

Step 8: Feed workpiece (if possible, place workpiece at a slight angle, as the sandpaper load is lower here).

Step 9: Switch off the suction system and the machine.

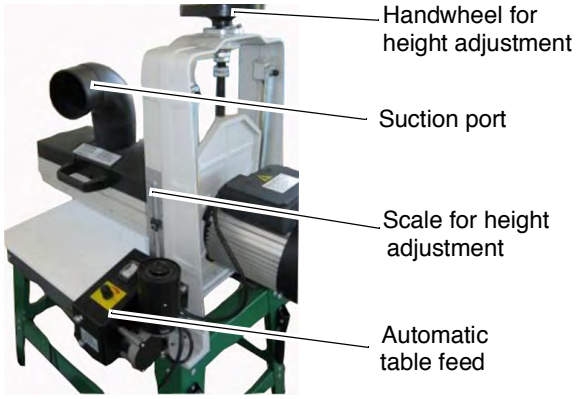


Fig. 20: Workflow

12 Adjustment and setup work

NOTE!

Before adjustment and setup work, the
The machine must be secured against start-up.
Pull out the mains plug!

Wear protective work clothing!

Wear protective gloves!

12.1 Grinding belt change

Proceed as follows to remove the grinding belt:

Step 1: Switch off the cylinder grinding machine and disconnect the power plug.

Step 2: Loosen the locking hook of the cover below the handle.

Step 3: Swing the cover up to access the sanding drum and sandpaper.

Step 4: Reach under the right clamp and press the lever to release the sandpaper.

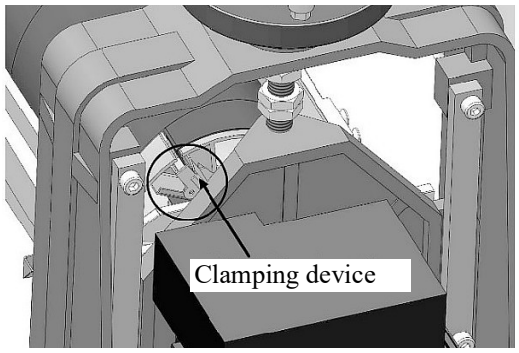


Fig. 21: Clamping device right

Step 5: Unwind the sandpaper strip from the drum until you reach the clamping device on the left side.

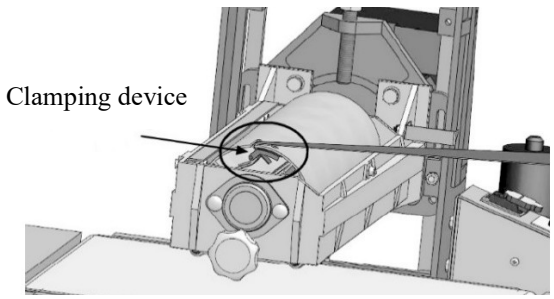


Fig. 22: Clamping device left

Step 6: Reach under the left clamp and press the lever to remove the sandpaper from the machine.

Proceed as follows to install the grinding belt:

Step 1: Reach under the left clamp and press the lever.

Step 2: Insert the end of the new sandpaper into the clamp and align the sandpaper with the left side of the drum slot.

NOTE!

Align the direction arrow printed on the bottom of the sandpaper with the direction of rotation of the drum.

Step 3: Close the lever to clamp the sandpaper.

Step 4: Pull the sandpaper to make sure it is securely and tightly clamped.

Step 5: Hold the sandpaper under tension with one hand and rotate the drum clockwise with the other hand to wind the sandpaper.

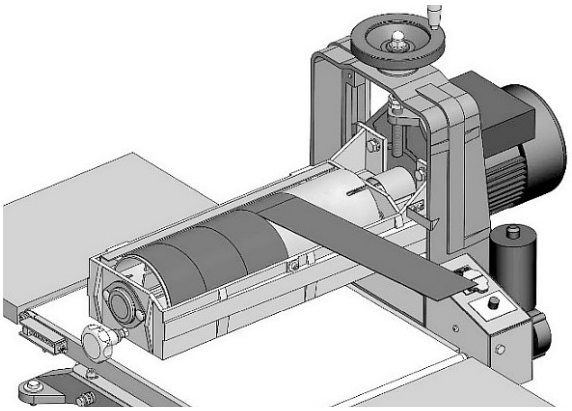


Fig. 23: Wind up sandpaper

Step 6: Lift the right clamp forward and press the lever.

Step 7: Insert the end of the sandpaper at the drum slot between the clamp and the lever.

Step 8: Close the lever to clamp the sandpaper.

Step 9: Make sure the sandpaper is tight and flush against the drum, edges do not protrude more than 1⁄8" and do not overlap.

Step 10: Close the cover and turn on the machine.

12.1.1 Sandpaper selection

Choosing the right abrasive belt grit is extremely important for optimizing grinding performance. Always grind with a coarse grit first and then gradually switch to finer grits. Do not skip more than one grit level. Grain sizes that are too fine and worn grinding belts can leave burn marks on the workpiece.

Grain 36:
Extra coarse, maximum stock removal e.g. for paint removal.

Grain 60- 80:
Surfaces and light calibration, most common grits

Grain 100 and 120:
Surfaces and finishing

Grain 150, 180 and 220:
Fine tuning only

12.2 Sandpaper cleaning

Clean the sanding paper regularly with a fine brush.

By removing the abrasive dust deposits, the life of the abrasive paper is significantly increased.

Step 1: Start the sanding drum with the cover open.

Step 2: Guide the brush along the rotating sanding drum. It is recommended to remove the resulting abrasion with a brush.

By turning the sandpaper its life can be increased. Here new grain tips are used.

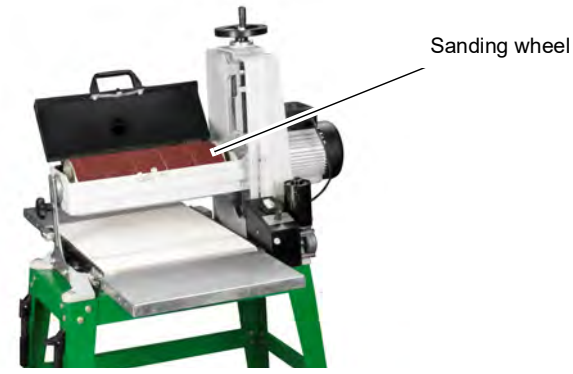


Fig. 24: Sandpaper cleaning

12.3 Adjustment of the pressure roller

The height of the pressure rollers is set below the grinding drum to hold the workpiece firmly against the feed belt as it passes through the grinder and to prevent the workpiece from kicking back.

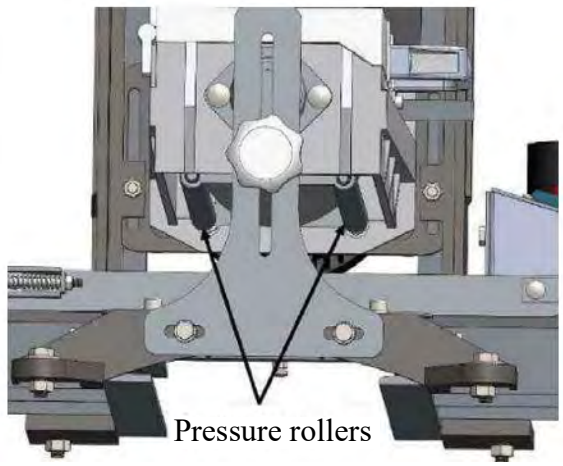


Fig. 25: Pressure rollers

The pressure that the pressure rollers exert on the workpiece while the workpiece is being machined is controlled by pressure springs and adjusting screws.

Fig. 26: Adjustment screws pressure rollers

The correct pressure on the workpiece helps to prevent kickback. However, if the pressure on the workpiece from the rear pressure roller increases, the pressure on the grinding drum also increases. In this case, reduce the pressure on the rear pressure roller.

If you want to increase or decrease the pressure that these rollers exert on the workpiece, perform the following steps.

Step 1: Switch off the machine and disconnect the power plug.

Step 2: Loosen the locking hook of the cover below the handle.

Step 3: Swing the cover up to include access to the pressure roller adjustment screws.

Step 4: To increase the pressure exerted by the rollers, tighten all four screws in small, even turns and test the pressure of the rollers by pushing them upwards. Conversely, loosen the adjustment screws to decrease the pressure.

Step 5: Perform test run. If the workpiece tends to recoil, decrease the pressure by turning the screws counterclockwise.

Step 6: If the workpiece slips on the belt, increase the pressure by turning the screws clockwise one turn and perform the test again.

12.4 Setting the height stop

The adjustment screw, which protrudes through the bottom of the frame, serves as a stop to prevent the grinding drum from coming into contact with the feed belt when adjusting the height.

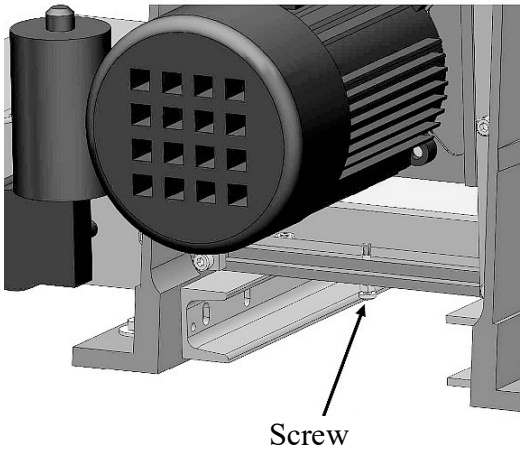


Fig. 27: Height stop adjustment screw

The setting of the screw was set correctly at the factory. However, if it is necessary to readjust the stop screw, perform the following steps.

Step 1: Switch off the machine and disconnect the power plug.

Step 2: Make sure that the belt is correctly tensioned.

Step 3: Crank the grinding drum to the highest position.

Step 4: Loosen the hexagon nut on the adjustment screw and adjust the height of the screw that protrudes above the frame so that it does not protrude less than 6.3 mm.

Step 5: Tighten the hex nut and lower the grinding drum until the adjustment screw touches the frame of the holder.

Step 6: Ensure that the grinding roller is at least 4.8 mm above the surface of the feed belt.

NOTE!

If the grinding drum is not at least 4.8 mm above the feed belt, repeat this process until the grinding drum is at least 4.8 mm above the feed belt.

12.5 Adjusting the guide rails

The guide rails exert pressure on the slides of the grinding head. This allows the grinding head assembly to move up and down precisely when using the handwheel.

If the ledges are too loose, the grinding roller will be pushed up during operation, resulting in poor grinding results.

If the bars are too tight, it is difficult to adjust the grinding roller height, resulting in excessive wear.

Proceed as follows to adjust the bars:

Step 1: Switch off the machine and disconnect the power plug.

Step 2: Loosen the lock nut on both guides.

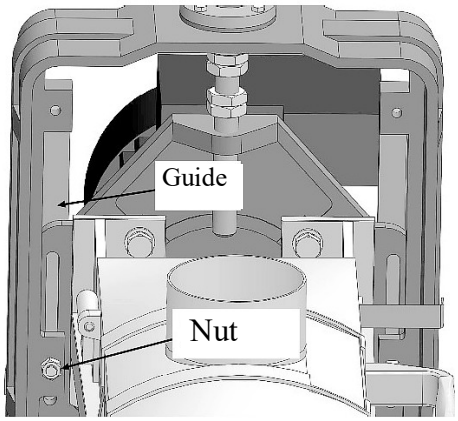


Fig. 28: Loosen guide sides

Step 3: Screw each of the six cap screws in or out in short, equal turns. Then turn the handwheel for height adjustment to test the movement of the grinding head.
Note: Tighten the cap screws to increase the pressure on the bar.

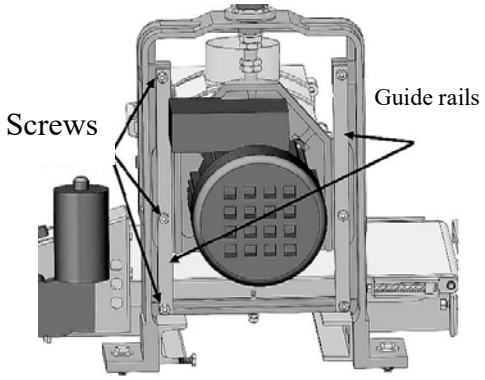


Fig. 29: Set guide sides

Step 4: Repeat step 3 until you are satisfied with the grinding head movement.

Step 5: Tighten the lock nut on the two guides again.

12.6 Align feed belt to grinding drum

To ensure a good grinding result, the feed belt and grinding drum must be parallel to each other from side to side. Otherwise, more material will be removed from one side of the workpiece than the other. The goal of this procedure is to set the parallelism of the feed belt and sanding drum within 0.05" difference from side to side.

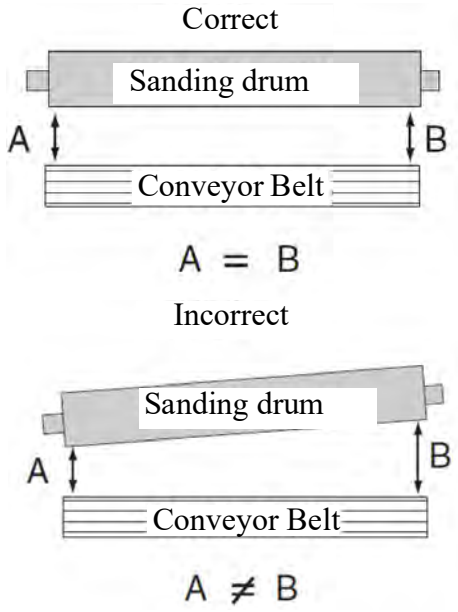


Fig. 30: Parallelism of feed belt and grinding drum

Proceed as follows to set the parallelism of the feed belt to the grinding drum:

Step 1: Switch off machine.

Step 2: Make sure that the guide pads are set correctly.

Step 3: Select a workpiece that has an equal thickness on each side.

Step 4: Switch on the machine.

Step 5: Make several light sanding passes without rotating or turning the board.

Step 6 : Remove the workpiece and switch off the machine.

Step 7: Perform measurement at location A and B as shown in Figure 31.

- If dimension "A" is smaller than "B", loosen or remove the screws on the right hinge support. Remove or place a washer between the support and the frame to compensate for the difference between "A" and "B".
- If the "B" dimension is less than "A", loosen or remove the screws on the left hinge bracket. Remove or place a washer between the support and the frame to compensate for the difference.

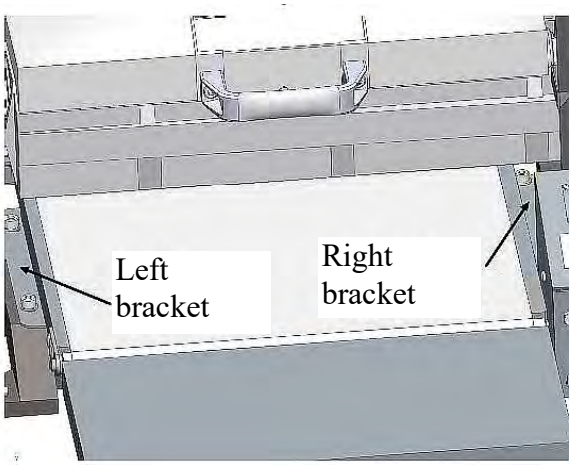


Fig. 31: Set parallelism of feed belt to grinding drum

Step 8: Repeat steps 1-5 to verify adjustment.
If necessary, repeat step 5 until the parallelism of the feed belt and grinding drum is within 0.05" from side to side.

13 Care, maintenance and repair

DANGER!

Danger to live due to electrical voltage!

Contact with live components can be fatal. Activated electrical components can execute uncontrolled movements and cause serious injuries.

- Switch off the machine before carrying out cleaning and maintenance work and unplug the power cord.
- Connections and repairs of electrical equipment may only be performed by a qualified electrician.

13.1 Cleaning

Wear safety gloves!

Wear protective clothing!

NOTE!

Never use harsh cleaning agents for cleaning. This can lead to damage or destruction of the device. Provide adequate ventilation when using solvents.

Step 1: Disconnect the power plug from the power outlet.

Step 2: Empty and clean the suction device.

Step 3: Clean the machine from sawdust and sawdust.

Step 4: Thoroughly clean resin deposits on the machine using resin remover.

Step 5: Spray all unpainted metal surfaces with some anti-rust spray.

Step 6: Inspect the machine for damage to the safety devices and the sanding belt. If necessary, carry out the repair or arrange for it, observing the safety instructions.

Step 7: Check the machine for damage to the safety devices and the grinding belt. If necessary, carry out the repair or arrange for it to be carried out, observing the safety instructions.

13.2 Regular control and maintenance

Lubrication of the machine

Regularly check the grinding belt for defects.

1. Replace a damaged grinding belt immediately. Check the correct setting of the feed belt at regular intervals. Lubricate monthly all moving parts (Fig.32) such as threaded spindle, pulleys and bearing bushes including the depth limiter, sliding surfaces and bushes connected to the depth control mechanism. Do not use oil or grease for this purpose as it tends to bind sawdust.

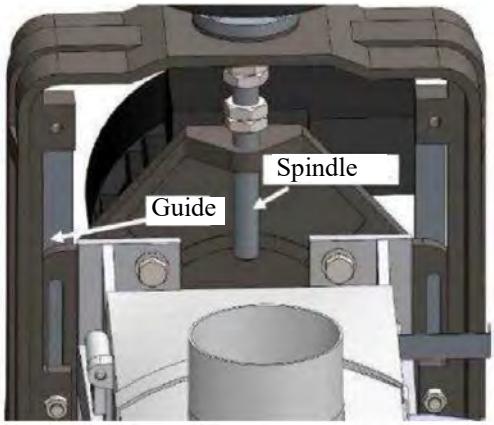


Fig. 32: Lubrication

2. Clean the machine at regular intervals. Vacuum the dust from inside the drum to avoid vibrations (use a vacuum cleaner).

3. Regularly check the tightness of all frame screws and motor/drum mounting screws.

4. Check daily that the extraction system is functioning adequately. Replace damaged safety devices immediately.

WARNING!

Do not operate the grinding machine with the drum cover open. Exercise extreme caution when performing drum cleaning on your grinding machine. Do not wear long-sleeved shirts, ties or jewelry. Tie back long hair when cleaning the drum. Failure to follow this warning can result in serious injury.

Clean grinding belt

During use, the sanding belt and guide may become clogged with sawdust, resulting in insufficient sanding, damage to the workpiece, and burn marks on the workpiece. With the machine switched off and not connected to the power supply, occasionally check the condition of the sandpaper on the sanding drum for clogging. This should be done frequently, especially with resinous woods.

Step 1: Switch off the machine and disconnect the power plug.

Step 2: Set the feed control to the lowest feed setting. Avoid contact with conveyor belt.

Step 3: Open the protective cover to expose the grinding drum and belt.

Step 4: Use a long cleaning strip to keep hands away from the rotating drum.

Step 5: Turn on the machine, grasp the belt cleaning rod with two hands and place the cleaning rod on the casting where the grinding drum is located. Gently lower the cleaning rod onto the rotating drum and move the cleaning rod from side to side to remove the whipped sawdust.

Step 6: When cleaning is complete, remove the stick, turn off the power, and close and lock the dust cover.

13.3 Replacing the feed belt

If the feed belt is excessively worn or damaged, it can be easily replaced.

Proceed as follows to replace the conveyor belt:

Step 1: Switch off the machine and disconnect the power plug.

Step 2: Disassemble the clamping screw and washer of the grinding head carrier.Remove the hexagonal screws, spacers and washers from the underside of the carrier and remove the carrier.

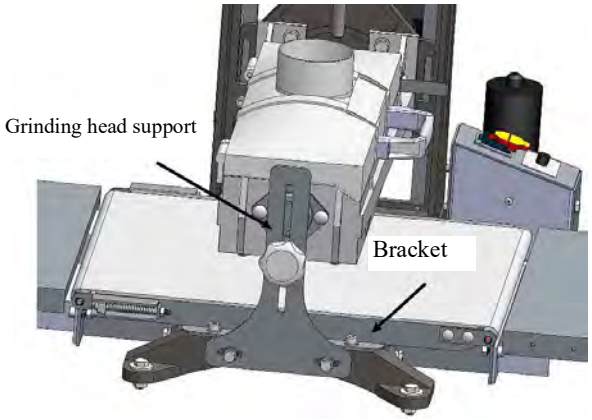


Fig. 33: Replace feed belt

Step 3: Release the feed belt completely by loosening the clamping screws on the left and right.

Step 4: Remove the feed belt holder by loosening the screws.

Step 5: Pull off the feed belt from the side.

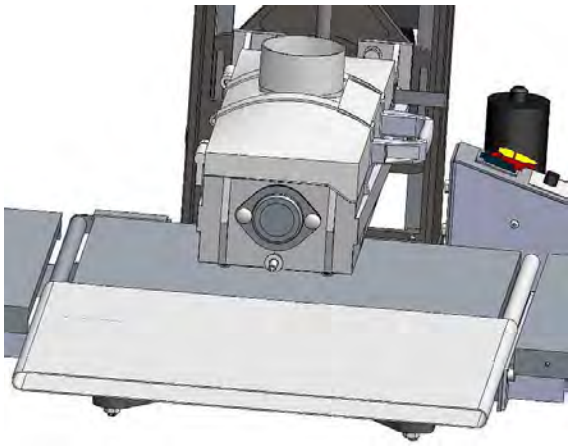


Fig. 34: Remove feed belt

Step 6: Slide on the replacement feed belt, reinstall the feed belt support screws and washers, and tighten the grinding head support with the fasteners you removed in step 3.

Step 7: Tension the feed belt again and connect the machine to the power supply.

13.4 Tensioning the feed belt

The tension and guidance of the feed belt must be set correctly so that the workpiece passes correctly and safely under the grinding drum and the feed belt is not damaged during operation. If the feed belt slips on the rollers, the belt tension must be increased.

If the feed belt moves to one side or the other during operation, the belt run must be adjusted.

NOTE!

Ensure even tension on the left and right of the feed belt!

Step 1: Switch off the machine and disconnect the power plug.

Step 2: Make sure that the feed belt is centered on the rollers. If this is not the case, loosen the belt tension equally on both sides of the belt. This is done by holding the hex nut while turning the screw (Fig.35) counterclockwise until the belt can be moved by hand from side to side. Then center the belt on the rollers.

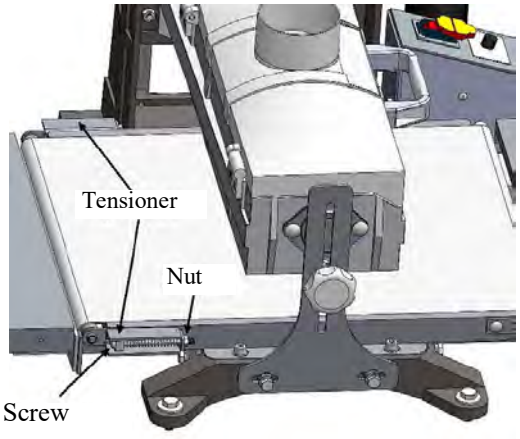


Fig. 35: Tension feed belt

Step 3: Ensure that the ends of both clamping screws extend evenly about 1⁄4" beyond the hex nut.

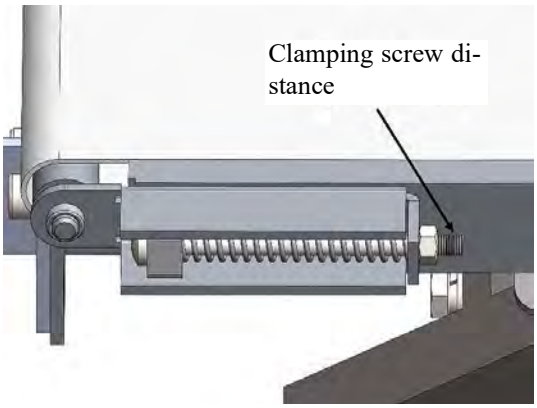


Fig. 36: Position of the clamping screws

If the belt slips during operation, turn the tensioning screws clockwise a quarter turn at a time until the belt no longer slips on the rollers. Be careful not to tension the feed belt too tightly.

13.4.1 Adjust belt run

Run the feed belt at high speed and observe whether it runs to one side or the other. Make sure that the belt does not run off the rollers, otherwise the feed belt may be damaged.

If the feed belt moves centrally and not to one side or the other, no further adjustments are required.

If the feed belt moves too much, proceed as follows to readjust the belt run:

Step 1: Turn the tension screw clockwise on the side the belt is running to until it moves to the center of the rollers.

Step 2: Run the belt for a few minutes to make sure it runs properly on the rollers. Repeat this process if necessary until the belt is properly centered.

14 Disposal, recycling of old equipment

In your own interest and in the interest of the environment, please ensure that all components of the machine are disposed of only via the designated and approved channels.

14.1 Decommission

Discarded devices must be taken out of service immediately in a professional manner in order to avoid later misuse and the endangerment of the environment or persons.

Step 1: Remove all environmentally hazardous operating materials from the old machine.

Step 2: If necessary, dismantle the machine into manageable and recyclable assemblies and components.

Step 3: Route the machine components and operating materials to the designated disposal channels.

14.2 Disposal of electrical equipment

Please note that electrical equipment contains a variety of recyclable materials as well as components that are harmful to the environment.

Help to ensure that these components are disposed of separately and properly. If in doubt, please contact your municipal waste disposal service.

If necessary, enlist the help of a specialized disposal company for reprocessing.

14.3 Disposal of lubricants

The disposal instructions for the lubricants used are provided by the lubricant manufacturer. If necessary, ask for the product-specific data sheets.

14.4 Disposal via municipal collection points

Disposal of used electrical and electronic equipment (To be applied in the countries of the European Union and other European countries with a separate collection system for this equipment).

The symbol on the product or its packaging indicates that this product should not be treated as normal household waste, but must be taken to a collection point for the recycling of electrical and electronic equipment. By helping to dispose of this product correctly, you are protecting the environment and the health of those around you. Environment and health are endangered by incorrect disposal. Material recycling helps to reduce the consumption of raw materials. For more information about recycling this product, contact your local municipality, municipal waste disposal service or the store where you purchased the product.

15 Troubleshooting

Fault	Possible causes	Disposal
Machine does not start	1. Safety switch defective 2. No power supply. 3. Mains plug defective. 4. Start capacitor defective. 5. Motor incorrectly wired. 6. Motor is overloaded. 7. On/off switch defective.	1. Check safety switch. 2.Check power supply. 3. Check power plug. 4. Check capacitor. 5. Check wiring. 6. Allow motor to cool down. 7. check on/off switch.
The machine stops during the grinding process.	1. Workpiece material not suitable for machining. 2. Grinding depth incorrectly set. 3. Feed rate too high/low. 4. Clean suction clogged.	1. Sand only natural wood products; ensure moisture content below 20%. 2. Adjust the sanding depth correctly. 3. Increase or reduce feed rate. 4. Check dust extraction.
The machine has excessive vibration or noisy operation.	1. Sandpaper torn or incorrectly mounted. 2. Motor loose. 3. Machine mounted on uneven floor. 4. Fan wheel rubs against housing. 5. Motor bearing defective. 6. Grinding drum bearing defective.	1. Reinstall sandpaper. 2. Check motor and tighten if necessary. 3. Install machine on a level floor. 4. Check fan wheel and cover 5. Check motor bearings 6. Check sanding drum.
Abrasive grit rubs off easily from the sandpaper.	1. Sandpaper has been stored in an incorrect environment. 2. Sandpaper has been folded or damaged.	1. Store the abrasive paper in a dry environment. 2. Store sandpaper only rolled and not folded.
Sandpaper wears out quickly	1. Grinding depth of the cut too large or feed rate too slow. 2. The workpiece has a high moisture content. 3.The correct abrasive paper with the correct grit is not used. 4. Insufficient dust extraction.	1. Reduce the grinding depth or increase the feed rate. 2. Only process material with a moisture content of less than 20%. 3. Use the correct abrasive paper. 4. Connect extraction system.

Fault	Possible causes	Disposal
Burn marks on the workpiece	1. Use of abrasive grit that is too fine for the depth of cut. 2. Grinding belt worn out. 3. Feed speed too slow. 4. Incorrect mounting of the grinding belt	1.Use coarser grit sandpaper or reduce the depth of cut. 2. Insert a new grinding belt. 3. Increase the feed rate. 4. Check assembly.
Poor grinding pattern	1. Workpiece too wet / moist 2. Grinding belt worn	1. Only process material with a moisture content of less than 20% 2. Replace the grinding belt.
Workpiece has too much play during machining	1.Feed belt dirty or worn. 2.Workpiece height incorrectly set.	1.Clean or replace feed belt. 2.Check the height of the workpiece and adjust if necessary.
Uneven workpiece thickness	1. Height adjustment knob is not firmly seated and the grinding drum is pressed upwards. 2. Feed belt is not parallel to the grinding drum. 3. Feed belt is worn.	1.After setting the correct height, fully tighten the height adjustment clamping screw. 2.Align the feed belt correctly with the grinding drum. 3. Replace the feed belt.
The feed belt slips or does not run properly	1. Belt tension not set correctly. 2. Belt guide not adjusted correctly. 3. Feed belt is worn.	1. Readjust the belt tension. 2. Readjust the belt run. 3.Replace feed belt.
Handwheel is difficult to turn	1. Screw of the handwheel too tight. 2. Threaded spindle dirty.	1. Loosen the screw slightly. 2. Clean the threaded spindle.
Abrasive paper strip comes off the drum or is loose.	1. Sandpaper incorrectly wound on the drum. 2. Defective abrasive paper wound on. 3. Drum slot too large.	1. Rewind the abrasive paper. 2. Wind on new abrasive paper. 3. Reduce the drum slot.

16 Spare parts

DANGER!

Danger of injury by the use ofwrong spare parts!

Dangers may result for the user and damages as well as malfunctions may be caused by using wrong or damaged spare parts.

- Only use original spare parts of the manufacturer or spare parts admitted by the manufacturer.
- Always contact the manufacturer in case of uncertainties.

Tips and recommendations

Using non-approved spare parts voids the manufacturer's warranty.

16.1 Ordering spare parts

The spare parts may be purchased with the authorised dealer.

Indicate the following basic information for spare part orders:

- Type of device
- Serial number
- Quantity
- Designation
- Required mode of dispatch (mail, freight, sea, air, express)
- Address of dispatch

Spare part orders which do not include the above indications may not be taken into consideration. If the indications regarding the mode of dispatch are missing, the product is dispatched at the discretion of the supplier.

Information on the device type, item number and year of manufacture can be found on the nameplate, which is attached to the unit.

Example

The engine for the Cylinder Sanding Machine ZSM 405 must be ordered. The engine has the number 81A in the spare parts drawing 1.

By ordering spare parts, send a copy of the spare parts drawing (1) with the marked part (engine) and marked positon number (81A) to the dealer or spare parts department and provide the following information:

- Type of device: **Cylinder sanding machine ZSM 405**
- Item number: **5901405**
- Drawing number: **1**
- Position number: **81A**

16.2 Spare parts drawings ZSM 405

The following drawings is intended to help in case of service, to identify necessary spare parts. To order send a copy of the parts drawing with marked components to your dealer.

Spare parts drawing 1

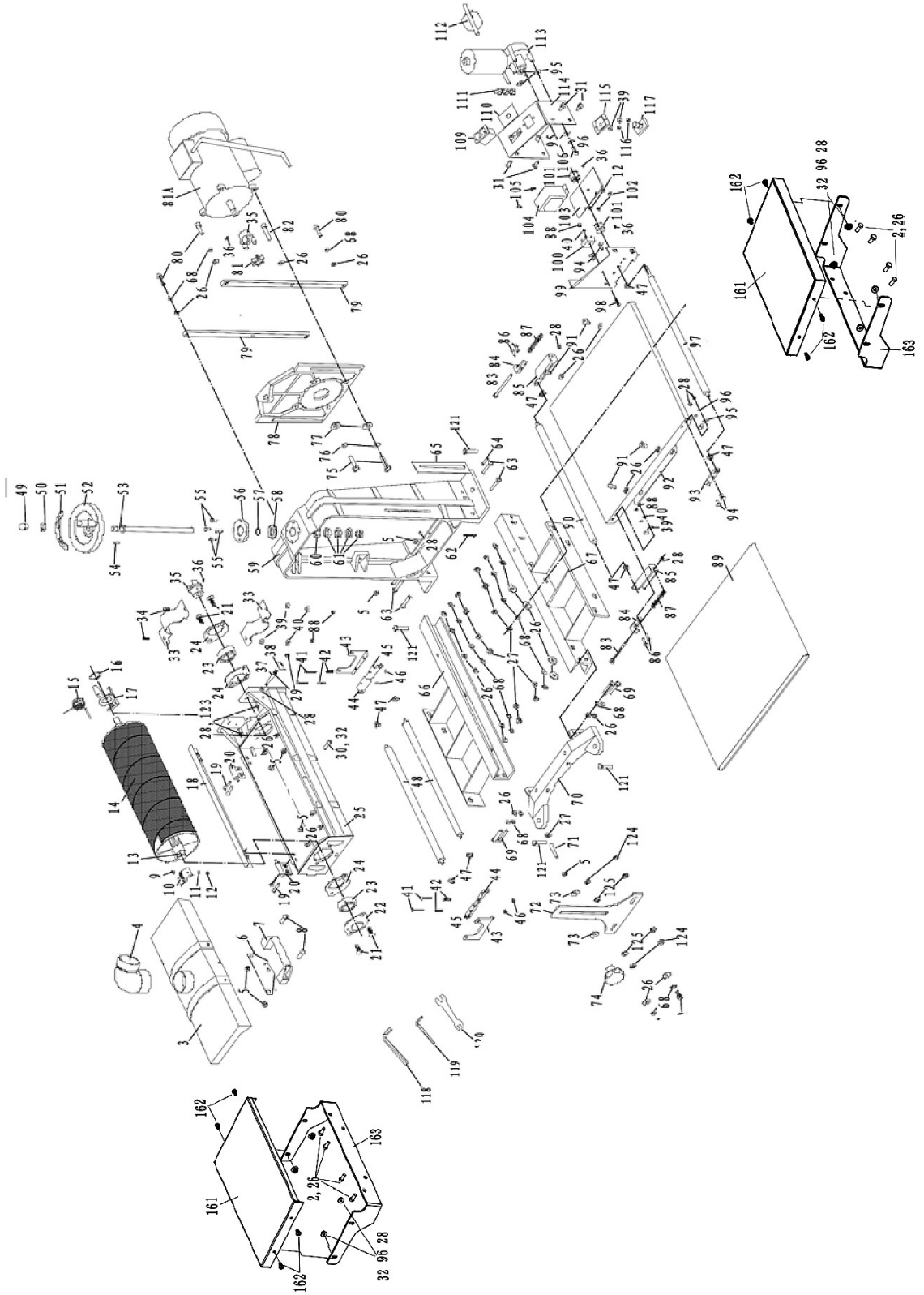


Fig. 37: Spare parts drawing 1

Spare parts drawing 2

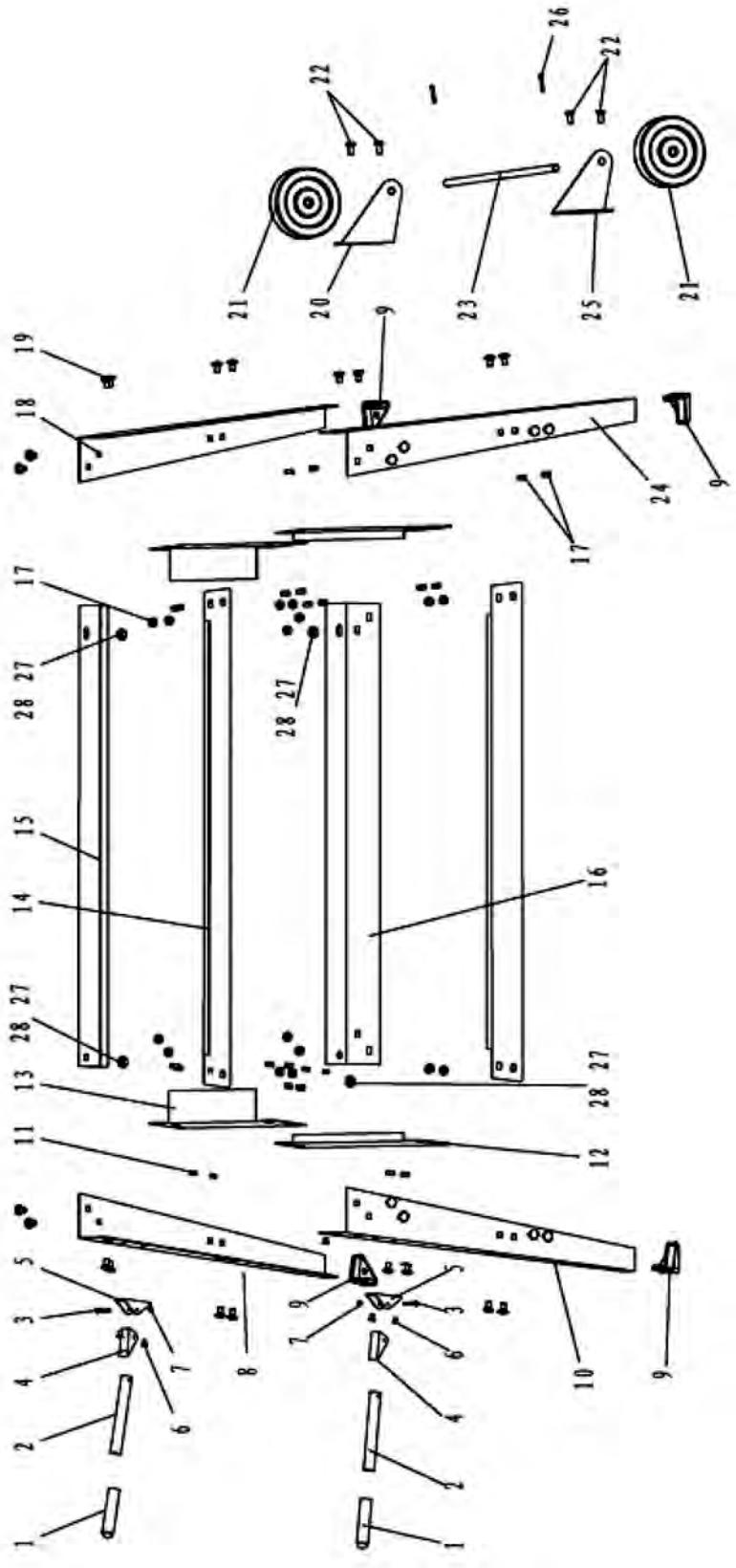


Fig. 38: Spare parts drawing 2

17 Electrical Schematic

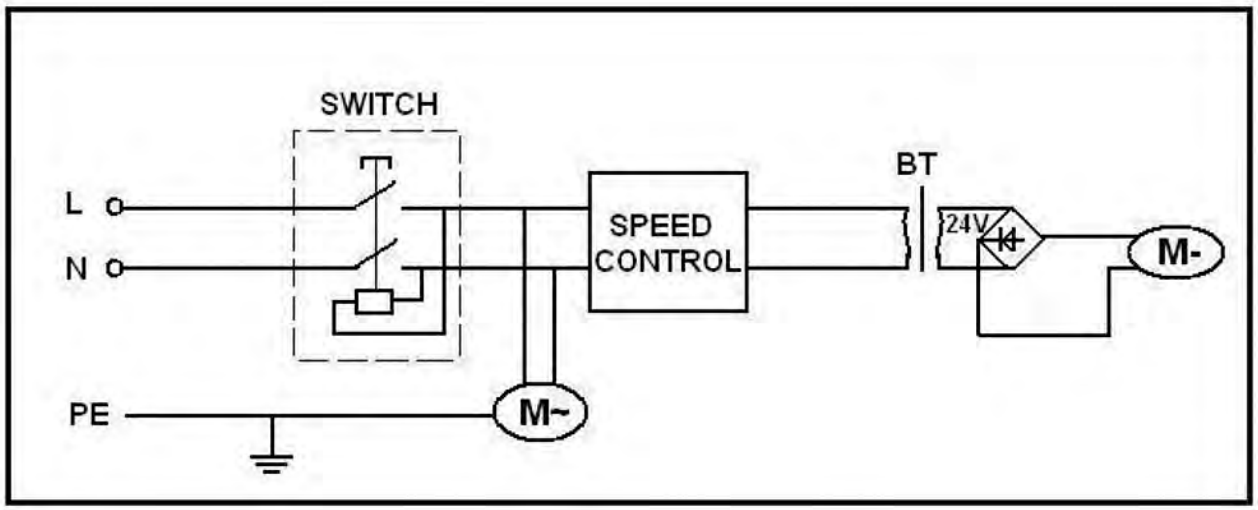


Fig. 39: Electrical Schematic ZSM 405

18 EC Declaration of Conformity

According to Machinery Directive 2006/42/EC Annex II 1.A

Manufacturer / distributor: Stürmer Maschinen GmbH
Dr.-Robert-Pfleger-Str. 26
D-96103 Hallstadt

hereby declares that the following product

Product Group: Holzstar® Wood working machines

Machine type: Cylinder sanding machine

Description of the machine: ZSM 405

Item Number: 5901405

Serial Number*: _____

Year of manufacture*: 20____

* please fill in according to the information on the type plate

corresponds to all the relevant provisions of the abovementioned Directive and other Directives applied (below) - including their amendments current at the time of the declaration.

Relevant EU Directive:

2014/30/EU	EMC-Directive
2012/19/EU	WEEE-Directive

The following harmonized standards were applied:

DIN EN ISO 12100-1:2011-03	Safety of machinery. General principles for design Risk assessment and risk reduktion (ISO 12100:2010)
DIN EN 60204-1:2019-06	Safety of machinery - Electrical equipment of machines - Part 1: General requirements

Responsible for documentation: Kilian Stürmer, Stürmer Maschinen GmbH,
Dr.-Robert-Pfleger-Straße 26, D-96103 Hallstadt

Hallstadt, 11.01.2023

_____
Kilian Stürmer
Manager

CE

19 Notes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