holzstar
Holzbearbeitungsmaschinen

# Operating Instructions

## Spindle Moulder

TF 170 E - 230 V

TF 170 E - 400 V


TF 170 E

TF 170 E

# Imprint

**Product identification**

| Spindle Moulder | Item number |
|---|---|
| TF 170 E - 230V | 5901917 |
| TF 170 E - 400V | 5901918 |

**Manufacturer**

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

Fax: 0049 (0) 951 96555-55

E-Mail: info@holzstar.de
URL: www.holzstar.de

**Indication regarding the operating instructions**

Original instructions
according to DIN EN ISO 20607: 2019

Edition: 07.06.2021
Version: 1.07
Language: English

Author: SN/FL

**Indication regarding the copyright**



# Content

**1 Introduction ..... 3**
1.1 Copyright ..... 3
1.2 Customer service ..... 3
1.3 Disclaimer ..... 3
**2 Safety ..... 3**
2.1 Legend of symbols ..... 3
2.2 Operator responsibility ..... 4
2.3 Operating staff qualification ..... 4
2.4 Personal protective equipment ..... 5
2.5 Safety labels on the spindle moulder ..... 5
2.6 General safety instruction ..... 6
2.7 Safety devices ..... 6
2.8 Safety data sheets ..... 6
**3 Intended Use ..... 7**
3.1 Foreseeable misuse ..... 7
3.2 Residual risks ..... 7
**4 Technical Data ..... 7**
4.1 Type plate ..... 8
**5 Transport, packaging, storage ..... 8**
5.1 Delivery and Transport ..... 8
5.2 Packaging ..... 9
5.3 Storage ..... 9
**6 Description of the device ..... 10**
6.1 Scope of delivery ..... 10
**7 Setting up and connection ..... 10**
7.1 Requirements for the place of operation ..... 10
7.2 Environmental conditions ..... 10
7.3 Assembly ..... 10
7.4 Connection of the exhaustion system ..... 12
7.5 Setting up the spindle moulder ..... 12
7.6 Electrical connection ..... 12
**8 Operation ..... 12**
8.1 Adjusting the height of the milling spindle ..... 13
8.2 Speed change ..... 13
8.3 Workflow ..... 14
8.4 Milling with collars ..... 16
8.5 Replacement of moulding tools ..... 17
**9 Care, maintenance and repair ..... 17**
9.1 Care after work ..... 18
9.2 Maintenance and repair ..... 18
**10 Troubleshooting ..... 19**
**11 Disposal, recycling of used devices . 21**
11.1 Decommissioning ..... 21
11.2 Disposal of electrical equipment ..... 21
11.3 Disposal of lubricants ..... 21
**12 Spare parts ..... 21**
12.1 Ordering spare parts ..... 21
12.2 Spare parts drawings TF 170 E ..... 22
**13 Electrical circuit diagram ..... 26**
**14 EC Declaration of Conformity ..... 27**

# 1 Introduction

You have made an excellent choice in purchasing a HOLZSTAR spindle moulder.

**Carefully read the operating instructions prior to commissioning.**

They describe correct commissioning, intended use and safe as well as efficient operation and maintenance of the spindle moulder.

The operating instructions form part of the spindle moulder. Always keep them at the spindle moulder´s location of use. Please also observe the local accident prevention regulations and general safety regulations for the use ofthe spindle moulder.

## 1.1 Copyright

The contents of these instructions are protected by copyright and are the sole property of Stürmer Maschinen GmbH. Their use is permitted within the framework of the use of the spindle moulder. Any further use is not permitted without the written consent of the manufacturer.

Forwarding and copying of this document, utilization and communication of its contents are prohibited unless expressly permitted. Violations oblige you to pay damages. We register trademark, patent and design rights to protect our products, insofar as this is possible in individual cases. We strongly oppose any infringement of our intellectual property.

## 1.2 Customer service

Please contact your specialist retailer if you have any questions regarding your spindle moulder or require any technical information. Your specialist retailer will be happy to support you with specialist advice and information.

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

**Repair service:**
**Fax:** 0951 96555-111
**E-Mail:** service@stuermer-maschinen.de
**Internet:** www.holzstar.de

**Spare parts orders:**
**Fax:** 0951 96555-119
**E-Mail:** ersatzteile@stuermer-maschinen.de

Please submit any information and experiences you make during application of the machine as these may be valuable for product improvements.

## 1.3 Disclaimer

All data in this operation manual has been compiled on the basis of the state-of-the-art, valid standards and guidelines as well as our many years of expertise and experience.

The manufacturer shall not be liable for damage in the following cases:

- Failure to comply with the operation manual,
- Unintended use
- Deployment of untrained staff
- Conversions at one's own responsibility
- Technical modifications
- Use of unauthorised spare parts

The actual scope of delivery may deviate from the descriptions and illustrations in this document as a result of special variants, optional extras or recent, technical modifications. The obligations defined in the supply contract shall apply in addition to the general terms and conditions and the manufacturer's general terms and conditions as well as the statutory regulations valid at the time of the conclusion of the contract.

# 2 Safety

This section provides an overview of all important safety packages for personal protection as well as safe and reliable operation. The individual sections contain additional, task-specific safety information.

## 2.1 Legend of symbols

**Safety instructions**

Safety instructions in this operation manual have been highlighted with symbols. Safety instructions are indicated by signal terms that express the degree of risk involved.

**WARNING!**

This combination of symbol and signal term indicates a potentially dangerous situation which may cause death or serious injury if not averted.

**DANGER!**

This combination of symbol and signal term indicates a immediate dangerous situation which may cause death or serious injury if not averted.

**ATTENTION!**

This combination of symbol and signal term indicates a potentially hazardous situation which may cause minor or light injuries if it is not averted.

**IMPORTANT!**

This combination of symbol and signal term indicates a potentially dangerous situation which may cause material damage or harm the environment if it is not averted.

**NOTE!**

This combination of symbol and signal term indic tes a potentially dangerous situation which may cause material damage or harm the environment if it is not averted.

**Tips and recommendations**

**Tips and recommendations**

This symbol highlights useful tips and recommendations as well as information for efficient and reliable operation.

Observe the safety information in these operating instructions to minimise the risk of personal injury as well as material damage and prevent hazardous situations.

## 2.2 Operator responsibility

Operators are defined as the persons who operate the machine for commercial or profit-based purposes or provide the machine to third parties for use or application and bear the legal product responsibility in terms of the protection of users, staff or third parties during operation.

**Obligations of the operator:**

If the machine is used for commercial purposes, operators are subject to the legal stipulations in terms of occupational safety. For this reason, the safety instructions in these operating instructions as well as the safety, accident prevention and environmental protection regulations valid at the installation location must be complied with. In this process, the following shall apply in particular:

- Operators shall obtain information about valid occupational safety regulations and determine additional hazards as part of a risk assessment which result from the specific operating conditions at the machine's installation location. Said risk assessment shall be reflected in operating instructions for machine operation.
- During the entire machine operating time operators must check whether the operating instructions they created meet current standards and adapt the operating instructions where necessary.
- Operators shall clearly manage and specify the responsibilities for installation, operation, troubleshooting, maintenance and cleaning.
- Operators must make sure that all persons handling the machine have read and understood these operating instructions. Operators must also regularly train staff and notify of the hazards.
- Operators shall provide staff with the required protective equipment and wearing the required protective equipment shall be mandatory.

Operators shall also be responsible for maintaining the machine in a technically perfect condition. For this reason, the following shall apply:

- Operators shall make sure that the maintenance intervals described in these operating instructions are complied with.
- Operators shall regularly check that the safety equipment is fully functional and complete.

## 2.3 Operating staff qualification

The different tasks described in these operating instructions require different levels of skills in terms of the qualifications of operating staff working with the machine.

**WARNING!**

**Risk from inadequately qualified persons!**

Inadequately qualified persons are unable to assess the risks when handling the machine, thus putting themselves and others at risk of severe injuries.

- All work must be carried out by qualified persons only.
- Keep inadequately qualified persons and children away from the work area.

Exclusively persons of whom it can be expected that they reliably complete assigned tasks shall be authorised to carry out any tasks. Persons whose reactions have been impaired shall not be authorized, e.g. drug users, users under the influence of alcohol or medication.

These operating instructions specify the following personal qualifications for the different tasks:

**Operating staff:**

Operating staff has undergone an induction by the operator about the entrusted tasks and potential hazards resulting from improper behaviour. Tasks which go beyond normal operation may only be carried out by the operator if they are listed in the operation manual and the operator has made him/herself familiar with them.

**Qualified electrician:**

Due to the electrician's specialised training, know-how, experience and knowledge of pertinent standards and regulations the electrician is in a position to work on the electrical systems, and autonomously identify and avoid potential hazards.

**Specialist staff:**

As a result of specialist training, expertise, experience and skills in terms of the relevant standards and regulations, specialist staff is able to complete the tasks they are entrusted with and independently identify hazards and avert risks.

**Manufacturer:**

Certain work must be carried out by manufacturer specialist staff only. Other staff is not permitted to carry out this work. Contact our customer service to have the work carried out.

## 2.4 Personal protective equipment

Personal protective equipment is intended to protect the health and safety of persons at work. Staff must wear the personal protective equipment indicated in individual sections of these operating instructions when carrying out the different tasks on the machine.

The personal protective equipment is described in the following section:

**Head protection**

The industrial helmet protects the head against falling objects and bumping into stationary objects.

**Hearing protection**

The hearing protection protects the ears against damages of hearing due to noise.

**Eye protection**

Protective glasses protect the eyes against projected parts and splashes of liquid.

**Protective gloves**

The protective gloves provide protection for the hands against sharp-edged components, as well as against friction, abrasions or deeper injuries.

**Safety boots**

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

**Protective clothes**

Protective work clothing means tight-fitting clothing with low tear resistance.

**NOTES!**

Impurged, possibly contaminated body protection products can cause illnesses.

Clean them after each use and once a week.

## 2.5 Safety labels on the spindle moulder

The following safety labels and instructions are attached to the spindle moulder (Fig. 1) and must be observed.


Fig. 1: Safety labels
1 Warning of danger I 2 Warning of dangerous electrical voltage I 3 Warning of danger of crushing the upper limbs I 4 Ground symbol I 5 prohibition sign I 6 Mandatory signs

If safety labels on the machine are damaged or missing, this can cause errors, personal injury and material damage. The safety symbols attached to the machine must not be removed. Damaged safety symbols must be replaced immediately.

As soon as the signs are not clearly visible and comprehensible at first glance, the machine must be stopped until new signs have been attached.

## 2.6 General safety instruction

This machine is equipped with various safety devices designed to protect both the operator and the machine. However, this cannot yet cover all safety aspects and thus the responsibility of the operator. Before putting the machine into operation, you must read and fully understand this chapter. In addition, the operator must also consider other aspects of the hazard in relation to the environmental conditions and the material.

The following must be observed:

Before connecting the device to the mains, make sure that all safety devices are present in their active positions and check that they work properly. If it is necessary to remove the doors or protective covers, turn off the switch and unplug the plug from the wall outlet.

- The non-return devices must be freely movable and their function regularly checked (several times a day).
- Do not connect the device to the mains if the door or protective cover has been removed.
- To avoid improper operation, familiarize yourself with the location of the switches before turning on the machine.
- Memorize the position of the emergency stop switch so that you can use it immediately at any time.
- Be careful not to touch any switches while the machine is in operation.
- Never touch a rotating tool with your hands or other objects.
- If you are not working on the machine, switch off the machine at the switch and disconnect the plug from the socket.
- Do not modify the machine in a way that poses a risk to safe operation.
- If you have any doubts about the correctness of your procedure, contact a responsible person.
- Do not neglect to carry out regular inspections in accordance with the instructions for use.
- Check and ensure that the machine is not subject to any malfunctions caused by the user.
- When the work is finished, adjust the machine so that it is ready for another series of operations.
- If is a power failure, switch the machine off immediately.
- Do not paint, soil or damage the safety plates.
- Do not modify or remove the safety plates.
- Keep the working area clear. Overcrowded areas and workbenches cause injury.
- Consider the area around the work area.
- Do not expose tools to rain.
- Do not use tools in a damp or wet environment.
- Ensure that the work area is well lit.
- Do not use tools in the presence of flammable liquids or gases.
- Do not use the bench milling machine for curved work.
- Before starting work, remove objects such as rings, watches, bracelets, ties, etc., as these may get caught on various parts of the machine.
- Protect and secure your hair properly so that it cannot be caught by moving parts on the machine.
- Wear shoes that are recommended or required by the health and safety regulations of all countries.
- Always wear the necessary safety equipment (safety glasses, apron, safety shoes, hearing protection, etc.).
- Wear a helmet if there are obstacles above your head - in the work area.
- Always wear a protective mask while working on material that generates dust during the process.
- Never wear loose work clothing.

## 2.7 Safety devices

**Motor potection switch**

In the motor ofthe spindle moulder there is a thermal protection switch, which automatically shuts off the motor under thermal overload.

After eliminating the cause of the overload and waiting for the engine to cool down completely, the motor can be restarted.

**Cover breaker**

The cover circuit breaker is located under the front cover. If the cover is not mounted or closed, the switch prevents the motor from starting.

## 2.8 Safety data sheets

Safety data sheets on hazardous materials can be obtained from your specialist dealer or by calling +49 (0)951/ 96555-0.

Specialist dealers can find safety data sheets in the download area of the partner portal.

# 3 Intended Use

The TF 170 E table router is used for routing boards and strips of wood with versatile adjustable angles. It is possible to process solid wood, chipboard, panels and profiles. The machine must be operated with a suitable exhaust system.

The machine allows both longitudinal and transverse machining.

It is suitable for private use, not for industrial use.

Intended use also includes compliance with all the information in these instructions. Any use beyond the intended use or any other use is considered misuse.

Stürmer Maschinen GmbH accepts no liability for design and technical modifications to the bench milling machine.

Claims of any kind for damage due to improper use are excluded.

## 3.1 Foreseeable misuse

- The machine is not intended for curved workpieces and must not be used for such machining.
- Only operate the table milling machine in the power range listed in the technical data.
- Never bypass or override the safety devices.
- Never machine materials other than those specified in the intended use.
- Only operate the bench milling machine when it is in perfect technical condition.
- Never machine several workpieces at the same time.

## 3.2 Residual risks

- Risk of injury to hands and fingers from the rotating milling spindle.
- Risk of injury from contact with live components.
- Risk of injury from flying parts.
- Danger due to inhalation of wood dust.

# 4 Technical Data

| TF 170 E | 230 V | 400 V |
|---|---|---|
| Length (Product) [mm] | 1000 | 1000 |
| Width/Depth (Product) [mm] | 900 | 900 |
| Height (Product) [mm] | 1140 | 1140 |
| Length max. (Product) [mm] | 1000 | 1000 |
| Width/Depth max. (Product) [mm] | 950 | 950 |
| Height max. (Product) [mm] | 1170 | 1170 |
| Weight [kg] | 96 | 96 |
| Drive motor output [kW] | 1,1 | 1,1 |
| Motor output [kW] | 1,5 | 1,5 |
| Duty type drive motor | S6 | S6 |
| Protection class drive motor | IP54 | IP54 |
| Total current draw [A] | 6,2 | 2,6 |
| Total rated value [A] | 1,5 | 1,5 |
| Electrical connection [V] | 230 | 400 |
| Phase (s) | 1 | 3 |
| Current type | AC | AC |
| Mains frequency [Hz] | 50 | 50 |
| Fuse | yes | yes |
| Work table length [mm] | 600 | 600 |
| Work table depth [mm] | 400 | 400 |
| Work table height [mm] | 850 | 850 |
| Moving carrier plate length [mm] | 1000 | 1000 |
| Moving carrier plate depth [mm] | 218 | 218 |
| Moving carrier plate height [mm] | 850 | 850 |
| Spindel inclination | No | No |
| Milling spindle stroke [mm] | 105 | 105 |
| Excess lenght of spindel [mm] | 105 | 105 |
| Spindle speed [$min^{-1}$] | 1400; 4000; 6000; 9000 | 1400; 4000; 6000; 9000 |
| Tool Ø max. retractable [mm] | 160 | 160 |
| Milling spindle Ø [mm] | 30 | 30 |

| Specifications concerning noise of the device | | |
|---|---|---|
| Level of noise A in the place of operation (LpAeq) | without load | LpAeq =81.7 dB(A) |
| | with load | LpAeq =89.5 dB(A) |
| Level of acoustic power A (LWA) | without load | LWA = 94.5 dB(A) |
| | with load | LWA = 103 dB(A) |

Operating conditions for noise measurement comply with annex B of ISO 7960.

The figures quoted are emission levels and are not necessarily safe working levels. Whilst there is a correlation between the emission and exposure levels, this cannot be used reliably to determine whether or not further precautions are required.

Factors that influence the actual level of exposure of the workforce include the characteristics of the work room, the other sources of noise etc., i.e. the number of machines and other adjacent processes. Also the permissible exposure level can vary from country to country. This information, however, will enable the user of the machine to make a better evaluation of the hazard and risk.

## 4.1 Type plate

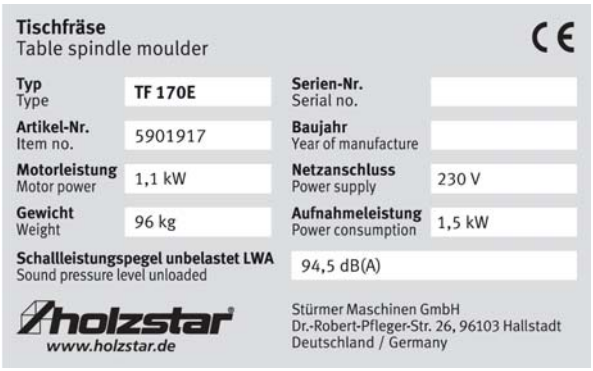



Fig. 2: Type plate TF 170 E

# 5 Transport, packaging, storage

## 5.1 Delivery and Transport

During transport or storage of the machine, measures must be taken to protect the machine from excessive vibration and moisture.

**Delivery**

After delivery, check the spindle moulder for visible transport damage. If you discover any damage to the Spindle Moulder, report it immediately to the transport company or 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.

**Transport with a forklift/lift truck:**

For shipping, the device packed in a wooden box is delivered on a pallet so that it can be transported with a forklift truck or pallet truck.

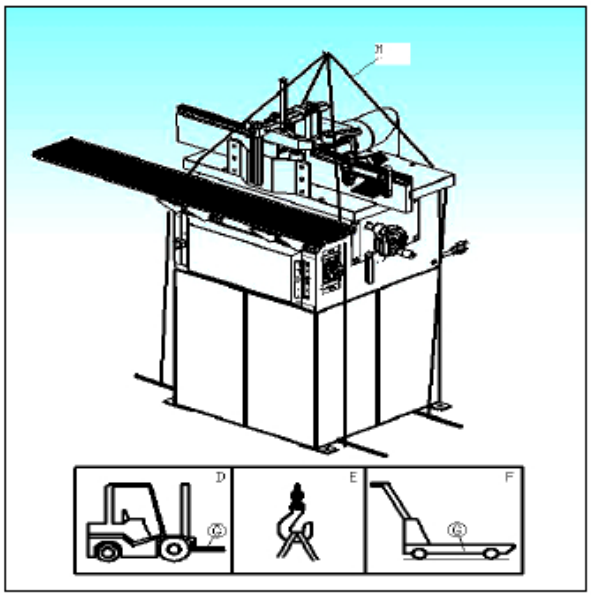



Fig. 3: Transport options for the machine

Step 1: Prepare a high-lift truck (Pos. D, Fig. 3) or a manual lifting carriage (Pos. F, Fig. 3) with sufficient lifting capacity,

Step 2: Put the forks (Pos. G) below the machine, as shown in the illustration 3.

Should you use a crane (Pos. E, Fig. 3) or a similar hoisting equipment, proceed as follows:

Step 1: Prepare four lifting belts (Pos. H, Fig. 3) or steel ropes at least 2 m long with sufficient lifting capacity, fix the ropes to the hook of the crane with the required capacity.

Step 2: Place the other end of the ropes on the lifting rods put under the machine (rods are not part of delivery).

Step 3: After lifting the machine slightly, check the stability of the machine hanging on the ropes.

Step 4: Lift the machine carefully and slowly and then move it without any rapid changes of the movement to the selected place.

## 5.2 Packaging

All packaging materials and packaging aids used in the spindle moulder are recyclable and must always be recycled.

Cardboard packaging components are crushed and sent for waste paper collection.

The films are made of polyethylene (PE) and the padding parts of polystyrene (PS). You hand these materials over to a recycling collection point or to the disposal company responsible for you

## 5.3 Storage

The spindle moulder must be thoroughly cleaned before being stored in a dry, clean and frost-free environment. Cover the machine with a protective tarpaulin.

Ambient temperature range: -25 °C to +55 °C.

# 6 Description of the device

**The illustrations in these operating instructions serve the general comprehension and may deviate from the actual type.**

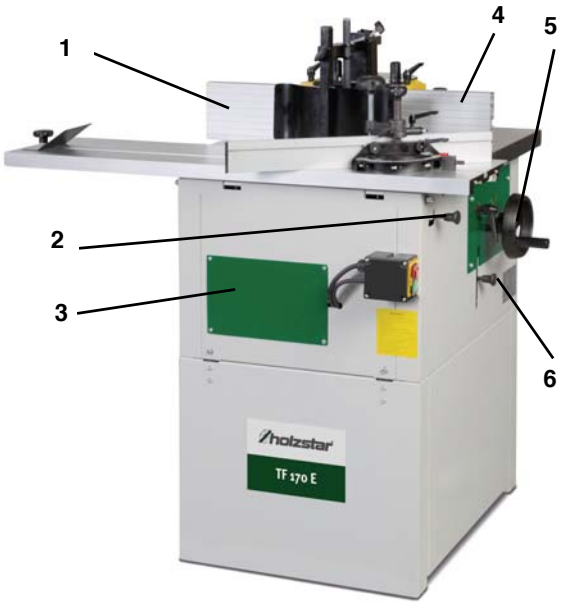



Fig. 4: Spindle Moulder TF 170 E

1 Outfeed fence

2 Sliding table lock

3 Motor compartment door

4 Infeed fence

5 Handwheel for spindle height adjustment

6 Spinde rotation lock

## 6.1 Scope of delivery

- Chassis
- Spindle protection
- Milling stop
- Milling spindle with collet chuck
- Operating instructions

# 7 Setting up and connection

## 7.1 Requirements for the place of operation

The spindle moulder must be installed securely on a level and firm surface. Ensure that there is sufficient freedom of movement for working. The place of operation should meet the following criteria:

- The underground must be even, solid and vibration-free.
- The underground must not allow any lubricants to pass through.
- The installation or working area must be dry and well ventilated.
- No machines causing dust or chips should be operated near the machine.
- There must be sufficient space for the operating personnel, for material transport and for adjustment and maintenance work (see installation plan).
- It is important to maintain free area of 0.8 m around the machine, which is required for the working place. If any long material is machined, it is necessary to have a sufficient room in front of the machine as well behind it in the places of material input and output.
- The place of operation must have good lighting.
- There must be an extraction device with sufficient dimensions for the machine.
- Remove the protective coating from the working tables and other parts of the machine either with paraffin oil or any similar solvent, do not use petrol or similar solvents for this activity they might cause reduced corrosion resistance of certain parts of the machine.

## 7.2 Environmental conditions

The machine must be operated in the following workshop environment:

- The temperature must not exceed +40 ° C and must not drop below +5 ° C.
- The relative humidity of the environment must be between 30% and 95% (non-condensing).
- Altitude above sea level must not exceed 1000 m

## 7.3 Assembly

Step 1: Find the bolts in the plastic box..

Fig. 5: Bolts and screws for the stand board

Step 2: Assemble the stand board with the bolts and screws.

Fig. 6: Assembly the stand board

Step 3: Attach all four side panels as shown in Fig.7.

Fig. 7: Fixe the side panels

Step 4: Attach the four corners with the black connecting plate and screws .

Fig. 8: Attach the four corners

Step 5: Then loose and take down the bolts

Fig. 9: Loose the bolts

Step 6: Place the machine on the base with the help of a second person

Fig. 10: Place the machine on the base

Step 7: Fix the bolt to combine the main body and stand.

Fig. 11: Place the machine on the base

Step 8: Install the switch on the hold on to the hole of the main body.

Fig. 12: Install the switch

## 7.4 Connection of the exhaustion system

**ATTENTION!**

Work on the machine only with the exhaustion system connected and running!

Extraction equipment is required for the proper functioning of the machine:

- with minimum exhaustion capacity of 570 $mm^3$/h / h and minimum speed of air in the pipes equal to 20 m / s for dry particles.
- with minimum exhaustion capacity of 790 $mm^3$/h / h and minimum speed of air in the pipes equal to 28 m / s for wet particles is necessary.

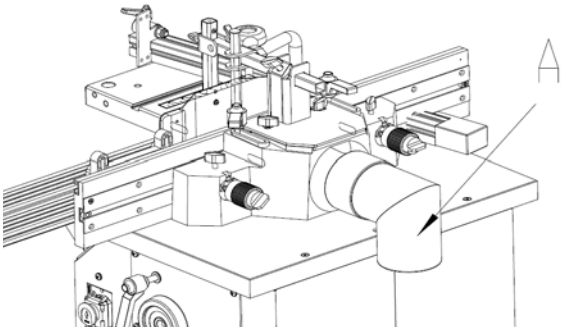


Fig. 13: Connection of the exhaustion system

Switch on the machine drive and exhaustion system at the same time!

Use flexible exhausting hoses with diameters equal to 100 mm The exhausting hoseis connected to exhausting outlet whose location on machine is as follows:

For the moulding machine the exhausting hose is fitted onto the outlet from the moulding tool cover which also forms the exhausting connector (Pos. A, Fig. 13).

## 7.5 Setting up the spindle moulder

**CAUTION!**

Danger of injury due to a machine that is not stably erected!
Check the stability of the machine after placing it on stable ground.

**CAUTION!**

Pay attention to the weight of the machine! The machine may only be set up by two persons. Check the aid accordingly for sufficient dimensioning and loadcapacity.

**ATTENTION!**

In order to ensure sufficient stability of the machine, it should be fixed to the ground with screws.

The spindle moulder is delivered in a wooden box and is already largely assembled. Only a few parts have to be assembled after delivery.

## 7.6 Electrical connection

**DANGER!**

**Risk of death due to electric shock!**

Contact with live components may result in fatal injury. Switched-on electrical components can make uncontrolled movements and lead to serious injuries.

- Disconnect the mains plug before making any adjustments to the machine.

**ATTENTION!**

All work on the electrical installation may only be carried out by a qualified electrician.

**ATTENTION!**

The three phases must be connected in such a way that the milling cutter moves according to the cutting direction shown on the housing.

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

Step 1: Check that the spindle moulder is off.

Step 2: Connect the machine to the mains and check the direction of motor rotation. If the direction of rotation is wrong, two phases must be exchanged.

Damaged power supply cables must be replaced by the competent specialist immediately. Operation with damaged cables is dangerous to life and is therefore forbidden!

This machine must be connected to the protection earth. Inspect and be sure that the socket is reliably earthed.

# 8 Operation

**Direction of rotation**

If you are standing on the side of the machine and viewing from upper of the table, the moulder spindle rotates anticlockwise if you look down.

**Note:**

- Make sure that electric cables are not damaged so that injuries caused by electric current leaking (electric shocks) are avoided.

- Check regularly that safety covers are mounted properly and that they are not damaged. Repair damaged covers immediately or replace with other ones by a qualified person.
- Do not put the machine into operation with the cover removed.
- Never use any tools that are distorted, broken or blunt.
- Always use the tool suitable for the work given, which corresponds to the machine specifications. The tools must be in accordance with EN 847-1:2005.
- Replace blunt tools as soon as possible, as blunt tools may cause injuries or damage.
- Never use the tools at speeds higher than their recommended rated speeds by the respective manufacturer.
- Stop all functions of the machines before replacing tools and pull out the plug from the supply socket.
- Do not remove or interfere otherwise in safety devices such as covers, limit switches.
- While handling parts above your possibilities, ask for helps from a qualified person.
- It is not recommended to work on the machine during a storm.

**WARNING!**

**Danger to life!**

There is a danger to life for the operator and other persons if they do not comply with the following rules.

- The spindle moulder may only be operated by an instructed and experienced person.
- The operator must not work when under the influence of alcohol, drugs or medication.
- The operator must not work if he is overtired or suffers from illnesses affecting his concentration.
- The spindle moulder may only be operated by one person. Other persons must stay away from the work area during operation.

**CAUTION!**

**Risk of crushing!**

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

**ATTENTION!**

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

**Wear head protection!**

**Use protective goggles!**

**Wear safety boots!**

**Wear protective clothes!**

## 8.1 Adjusting the height of the milling spindle

Step 1: Set the height of the moulding spindle by means of the hand wheel located on the rear right side of the stand and secure it with the arresting screw.

**NOTE!**

The handwheel moves by 2 mm per rotation.

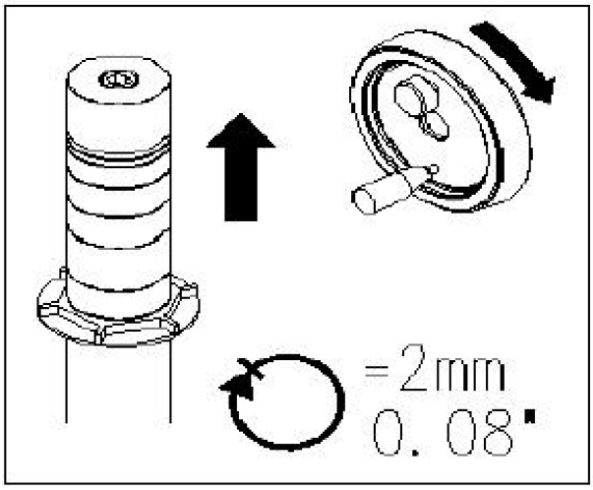



Fig. 14: Adjusting the spindle height using the handwheel

Step 2: Select the suitable filler of the table (table ring) according to the tool used.

## 8.2 Speed change

The machine is equipped with a belt drive. To change the milling speed, the drive belt can be placed over various belt wheels.

The machine may be operated at 6,500 RPM (lower pulleys) or 4,500 RPM (upper pulleys).

To change the spindle speed, proceed as follows:

Step 1: Open the door to the machine housing

Step 2: Loosen the lock handle (Pos. A, Fig. 15) and pivot the motor assembly toward the spindle.

Step 3: Reposition the belt to the desired speed and tension the knob (Pos. B, Fig. 15).

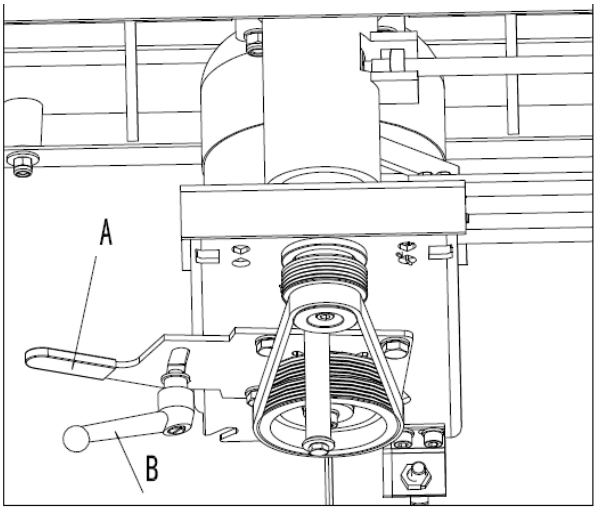



Fig. 15: Changing the belt position

## 8.3 Workflow

**ATTENTION!**

Before starting work, check that the distance between the cutter blades and the stop and the worktable is approx. 4 mm to 8 mm.

***Tools:***

Use suitable tools with a defined thickness of the chip for manual feeding.

***Working cycle:***

Before starting the machining operation, perform a test run with a workpiece of sufficient length, width and height.

It is necessary to prevent blocking of the machine and it can be use a security against kick-back adapted to the workpiece dimensions.

In order to prevent kickback it is necessary to use back and/or front end stops fixed to the fence, table or fixed to and extension table.

Never set the rulers while the machine is being operated!

Step 1: Perform the lateral adjustment of the fence plates.

Step 2: Keep the opening for the tool to a minimum.

Step 3: Lock the fence plates and adjust the fine adjustment handle to set the desired chip size (wood removal).

Step 4: Lock the station using the locking knob.

Step 5: Hold the pressure blocks firmly and evenly in contact with the table and the stop plates along the guide ruler.

**NOTE!**

The cutting speed shall exceed 40 m $s^{-1}$ in order to lessen the risk of kickback but shall not exceed 70 m $s^{-1}$ in order to lessen the risk of tool damage.

Step 6: Make the final settings on the machine for the milling operation and connect the suction device.

Step 7: Plug the power plug into the socket.

Step 8: Switch on the suction device.

Step 9: Start the machine. If the direction of rotation is incorrect, switch off the machine and change the direction of rotation.

Step 10: Place the workpiece on the machine and carry out the milling process.

Step 11: After completion of the milling work, switch off the machine and pull out the mains plug. Switch off the suction device.

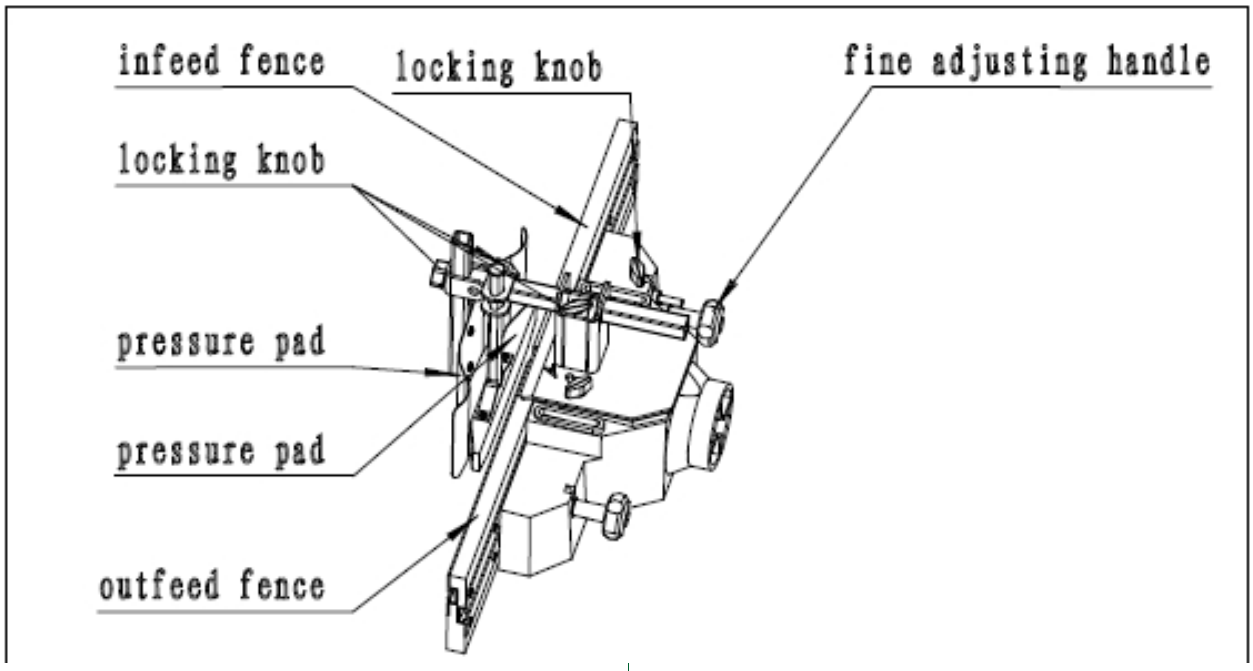



Fig. 16: Description of the limit stop device

**Moulding of workpieces with small cross-section**

*Tools:*

Choose the tool suitable for manual feeding.

*Working cycle:*

Adjust the moulding machine and put both halves of the ruler close to the tool. Machine the material only by means of a pusher!

Choose the size of the pusher so that the hand may be put on it comfortably.

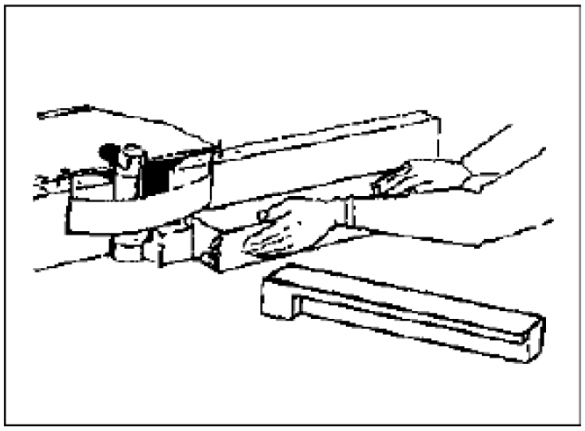


Fig. 17: Use of a pusher

**Wear head protection!**

**Use protective goggles!**

**Wear safety boots!**

**Wear protective clothes!**

- Touch the tool or its close surrounding places and other moving parts
- Machine any materials other than wood or those based on wood
- Overload the machine while machining large semi-finished products
- Remove chips from the place near the tools by hand or with any object while the machine is being operated
- Use other tools than those delivered or recommended by the machine manufacturer

**Using the fence as a guide**

Shaping with the fence is the safest and most satisfactory method of working. This method should always be used when work permits. Almost all-straight work can be used with the fence.

For most work, where a portion of the edge of the work is not touched by the cutter, both the front and rear fences are in a straight line, as shown in figure 18.

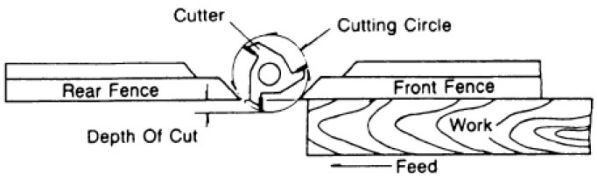



Fig. 18: Milling

When the shaping operation removes the entire edge of the work (i.e. jointing or making a full bead), the shaped edge will not be supported by the rear fence when both fences are in line as shown in Figure 19. In this case, the workpiece should be advanced to the position shown in figure 19 and stopped.

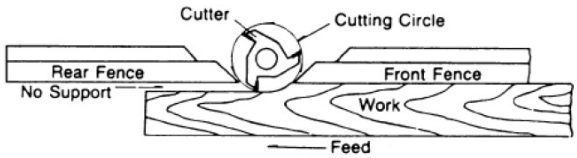



Fig. 19: Milling of a total surface

The front fence should be advanced to contact the work as shown in figure 20. The rear fence will then be in line with the cutting circle.

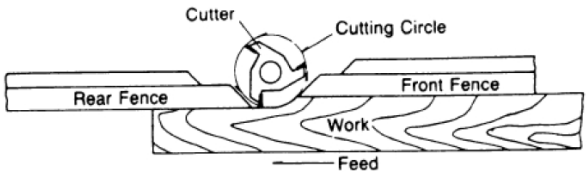



Fig. 20: Use of a pusher

## 8.4 Milling with collars

Follow these rules when shaping with collars for safest operation and best results:

- Collars must be smooth and free from all gum or other substances.
- The edge of the work must be smooth. Any irregularity in the surface, which rides against the collar, will be duplicated on the shaped surface.
- A portion of the work's edge must remain untouched by the cutter so that the collar will have sufficient bearing surface. See figure 21 for an example of insufficient bearing surface.

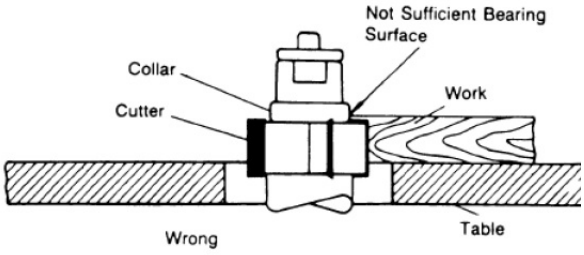



Fig. 21: Milling with collars without sufficient starting surface

Figure 22 illustrates sufficient bearing surface.

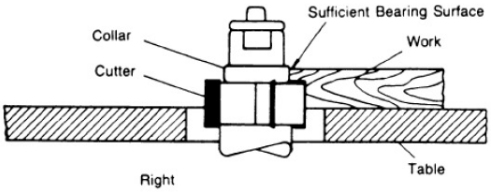



Fig. 22: Milling with collars with sufficient starting surface

Under no circumstances should a small workpiece be shaped against the collars as shown in Figure 23.

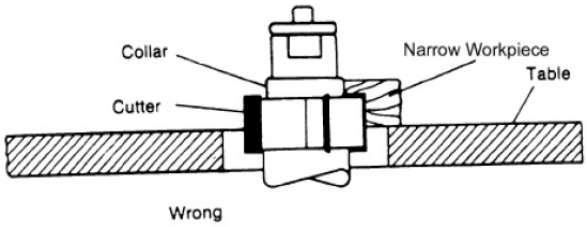



Fig. 23: Small workpiece

**Collar positioning**

Collars may be positioned above, below, or between two cutters:

When using the collar below the cutter (Fig. 24), the progress of the cut can be observed at all times. A disadvantage of this method is any accidental lifting of the work will gouge the wood and ruin the workpiece

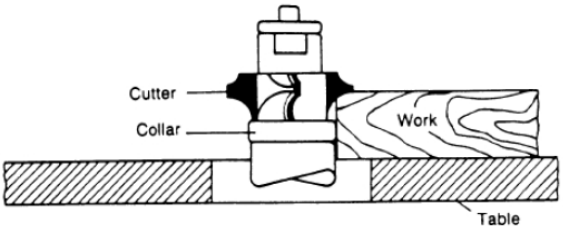



Fig. 24: Collar below the cutter

Using the collar above the cutter (Fig. 25) offers the advantage of the cut not being affected by slight variations in the stock's thickness. However, the cut is not visible during the operation. Another advantage is accidental lifting of the work piece will not gouge the work piece.Simply correct the mistake by repeating the operation.

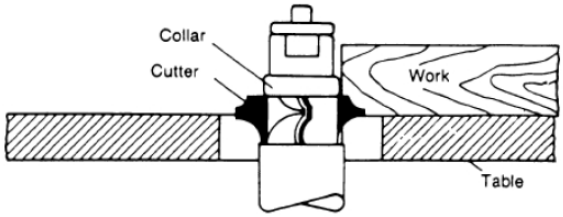



Fig. 25: Collar above the cutter

The collar between cutters method, shown in figure 26, has both the advantages and disadvantages of the first two methods. This method is used primarily where both edges of the work are to be shaped.

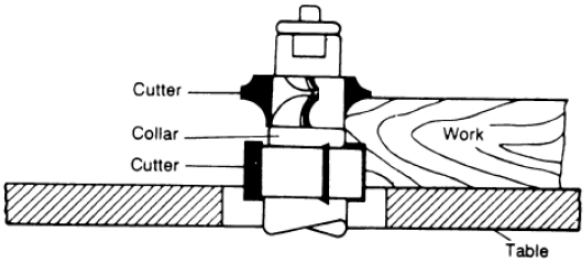



Fig. 26: Collar between cutters

## 8.5 Replacement of moulding tools

Only use moulding tools that are designed for manual feeding and may be clamped firmly and safely. Only tools conforming to EN847-1:2005 and marked MAN shall be used.

When mounting the moulding tools, the protective cover must be opened:

Step 1: Loose the two locking knobs (Pos. F, Fig. 27) to open the cover.

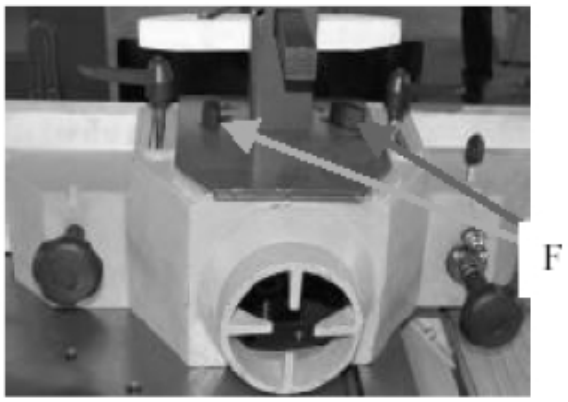



Fig. 27: Mounting the tools

Step 2: Before mounting tool (Pos. A, Fig. 28) make sure that spacing rings (Pos. E, Fig. 28) are clean and not damaged.

Step 3: The moulding tool is fixed and clamped by bolt (nut) (Pos. C, Fig. 28), through spindle ring (Pos. D, Fig. 28) and spacing rings (Pos. E, Fig. 28) on the moulding spindle!

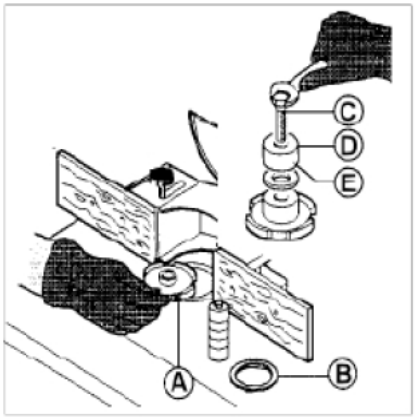



Fig. 28: Mounting the tools

Step 4: Adjust the hole in the table according to the diameter of moulding tool (Pos. A, Fig. 28) by table rings (Pos. B, Fig. 28).

Step 5: After installation, close the cover and lock it through the locking knobs.

**DANGER!**

Always close the cover of guard and lock it securely after tools installed.

# 9 Care, maintenance and repair

**DANGER!**

**Risk of fatal injury due to electric shock!**

Contact with live components may result in fatal injury. Switched-on electrical components can make uncontrolled movements and lead to serious injuries.

- Before starting cleaning and maintenance work, switch off the machine and pull out the mains plug.
- Connections and repairs to the electrical equipment may only be carried out by a qualified electrician.

- Maintenance and repair must be carried out by a qualified person. Do not carry out any maintenance work until you are thoroughly familiar with the maintenance instructions.
- Always turn off the switch and unplug the power cord before starting any maintenance work. This avoids the possibility of the machine being accidentally switched on by another person.

- Even if the machine is stopped, the power supply is not interrupted. Always remove the plug from the socket.
- Keep your fingers away from belts and pulleys.
- Never remove, bridge or obstruct safety devices such as covers or limit switches.
- Do not turn on the unit until all removed covers have been reinstalled after maintenance.
- Always keep the maintenance area, including the workplace, clean.
- Maintenance work must be carried out by qualified personnel in accordance with the machine manufacturer's regulations and instructions.
- Read the maintenance instructions carefully and completely.
- Only use original spare parts.
- Use only specified types of lubricating oil and grease or equivalents.
- If a belt in the belt set used is longer than prescribed, replace the entire set.
- Do not use compressed air to clean the machine or remove chips.

## 9.1 Care after work

**Ulse protective gloves!**

**NOTE!**

Never use strong cleaning agents for any cleaning tasks. This may damage or destroy the device.

Before cleaning the machine, switch off the machine and unplug the machine.

Step 1: Disconnect the mains plug from the socket.

Step 2: Empty and clean the suction device.

Step 3: Clean the machine from chips and planing dust with compressed air and/or with a dry cloth.

**Wear a dust mask!**

Step 4: Spray or oil all unpainted metal surfaces with a little anti-rust spray.

Step 5: Lubricate the rods, pins, threads and other parts susceptible to rust with suitable oil.

Step 6: Check the machine for damage to the safety devices and the planing knife. If necessary, carry out or arrange for the repair to be carried out in accordance with the safety instructions.

Step 7: Check the machine regularly:
- Appropriate tension of the drive belt.
- Loose bolts and nuts.
- Worn or damaged switches.
- Worn or damaged planing knives.

Step 8: Remove the dust with a suitable vacuum cleaner. (At least once a week)

Step 9: Check the drive belt every 3 months, monthly if used daily, replace if worn or damaged.

**NOTE!**

The bearings of the electric motors and the forming spindle are lubricated for life and are closed on both sides. They do not require lubrication.

## 9.2 Maintenance and repair

Before carrying out any maintenance work inside the machine, switch off the machine and disconnect the plug from the machine.

Maintenance and repair work may only be carried out by qualified personnel. If the spindle moulder does not function properly, contact a specialist dealer or our customer service. The contact details can be found in chapter 1.2 Customer service. All protective and safety devices must be reinstalled immediately after completion of repair and maintenance work.

### 9.2.1 Functional testing

A functional test should be carried out before each use.

Step 1: The drive belt must be tensioned.

Step 2: Check the direction of rotation of the milling cutter.

### 9.2.2 Suction

Check the suction system daily for sufficient function. If the extraction system does not function or functions only to a limited extent, it must be repaired. Only then may the spindle moulder be put into operation.

### 9.2.3 Lubrication

Lubricate the rods, pins, threads and other parts susceptible to rust with suitable oil.

### 9.2.4 Changing the drive belt

The drive belt must not come into contact with oil or grease. It must be checked regularly for wear, cracks or brittleness. If necessary, replace the drive belt (at least once a year).

### 9.2.5 Change of the drive belt

The drive belt must not come into contact with oil or grease. It must be checked regularly for wear, cracks or brittleness. Replace the drive belt if necessary (at least once a year).

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

Step 2: Disassemble the side cover.

Step 3: Loosen the lever of the belt tension.

Step 4: Remove belt and insert new belt.

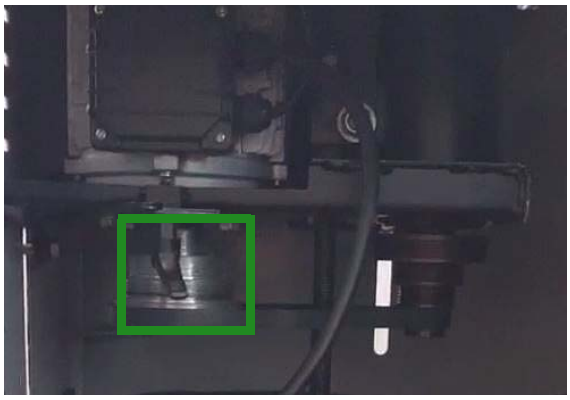


Fig. 29: Lever belt tension

Step 5: Close the side cover.

### 9.2.6 Oil change

Oil for lifting sleeve = SEA 30W OIL.

# 10 Troubleshooting

No faults should occur while the machine is used correctly and maintained duly. If the exhausting hose is blocked with chips, the machine should be switched off before handling. If a workpiece becomes jammed, turn off the machine immediately!

A blunt knife often causes that the electric motor becomes heated excessively. If the machine vibrates excessively, check its setting and anchoring, possibly also clamping and balancing of the tools used.

| Fault | Possible cause | Solution |
|---|---|---|
| The spindle moulder does not start. | 1. The fuse has been tripped.<br>2. The circuit breaker has tripped.<br>3. The cable is defective.<br>4. The mains plug unplugged from the power source.<br>5. The reversing switch is in the OFF position. | 1. Replace the fuse.<br>2. Let the motor cool down, then reset the circuit breaker and restart.<br>3. Replace the cable.<br>4. Plug in the power cord.<br>5. Turn the switch to forward or reverce. |
| Overload protection triggers regularly. | 1. The extension cord or wiring is of an unsuitable size.<br>2. Feeding stock too fast.<br>3. The cutting head is blunt. | 1.Raplace cord or wiring by a suitable size.<br>2. Reduce the material feed rate<br>3. Replace the cutting head. |
| The spindle moulder does not reach full speed. | 1. The wire diameter of the workshop is too low.<br>2 The extension cable is too weak or too long.<br>3. The power source is insufficient. | 1. Replace the cable or electrical system with suitable wire gauge versions.<br>2. Replace the extension cord with a suitable one.<br>3. Check your power supply or contact your local supplier. |

| Fault | Possible cause | Solution |
|---|---|---|
| The edge splinters off at a cross fiber cut. | 1. The properties of this cut type. | Perform the crossfiber cuts first, and then finish the fiber cut.<br>Use a metal block to support the end of the cut. |
| The cutting results are unsatisfactory. | 1. Blunt cutter.<br>2. Lubricant or resin on the cutter.<br>3. The cutter head rotates in the wrong direction.<br>4. The feed direction is wrong. | 1. Replace the milling cutter.<br>2. Remove the lubricant or resin from the cutter with a solvent.<br>3. Check the correct direction of rotation before starting.<br>4. Insert the workpiece against the cutter head rotation. |
| The machine is vibrating. | 1. The milling head is damaged.<br>2. The machine is standing on uneven ground.<br>3. Defective drive belt.<br>4. The drive belt has not been tensioned correctly.<br>5. Bent belt pulley.<br>6. The motor is badly mounted. | 1. Replace milling head.<br>2. The frame must stand firmly on the flat surface and be bolted to the floor.<br>3. Replace the belt.<br>4. Tighten the belt correctly.<br>5. Replace the pulley.<br>6. The motor must be properly assembled with nuts and bolts. |
| The workpiece burns | 1. The cutting depth is too deep during the working cycle.<br>2 The workpiece is subjected to too much force. | 1. Make smaller cuts on hard wood. Achieve the required cutting depth in several passes.<br>2. Feed the workpiece slowly and continuously. |
| Raised areas on the formed edges. | The holding pressure that presses the workpiece against the cutter varies. | 1.Hold the workpiece steadily against the table and the fence.<br>2. Use hold-down devices. |
| The workpiece is pushed away from the hands. | The workpiece is inserted in the wrong direction. | Always insert the workpiece against the direction of rotation of the milling cutter. |
| The cutting depth is not even. | 1. Wrong adjustment of the fence.<br>2. The side pressure is not the same. | 1 Align the outfeed fence.<br>2. Use hold-down devices; keep the pressure constant against the fence. |
| Cutting height is not even. | Pressure variations in the workpiece holder in the direction of the table. | 1. Hold the pressure stable across the passageway.<br>2 Use holding-down devices.<br>3. Make the cycle slowly and steadily. |
| The cut's not even. | 1. Wrong speed.<br>2. Feed too fast.<br>3. Working against the grain direction.<br>4. The cutting depth is too deep in one cycle. | 1. Use a higher speed.<br>2. Reduce the feeding speed.<br>3. Work with the grain direction.<br>4. Perform several small cuts until you have reached the desired cutting depth. |
| The spindle does not increase freely. | 1. Sawdust or dirt in the lifting system | 1. Sweep or blow out the dirt or sawdust. |

# 11 Disposal, recycling of used devices

Please take care in your own interest and in the interest of the environment that all component parts of the machine are only disposed of in the intended and permitted way.

## 11.1 Decommissioning

Immediately decommission used machines in order to avoid later misuse and endangering of the envi-ronment or of persons.

Step 1: Eliminate all environmentally hazardous operating materials from the used device.

Step 2: If required, disassemble the machine into easy-to-handle and usable components and parts.

Step 3: Dispose of machine components and operating materials by the disposal channels provided.

## 11.2 Disposal of electrical equipment

Please note that electrical equipment contains a variety of recyclable materials and environmentally harmful components.

Contribute to the separation and proper disposal of these components. In case of doubt, please contact your municipal waste disposal.

If necessary, the help of a specialised waste disposal company should be used for processing.

## 11.3 Disposal of lubricants

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

# 12 Spare parts

**DANGER!**

**Risk of injury due to the use of wrong 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**

The manufacturer's warranty will become null and void if non-permissible spare parts are being used.

## 12.1 Ordering spare parts

The spare parts may be purchased with the authorised dealer.

Indicate the following basic information for requests or orders of spare parts:

- Type of device
- Item No.
- Position No.
- Year of construction:
- Quantity
- 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.

You will find information regarding the device type, item No. and year of construction on the type plate which is fixed on the machine.

**Example**

The drive belt for the the spindle moulder TF 170 E - 230V must be ordered. The drive belt has the number 73 in the spare parts drawing 2.

By ordering spare parts, send a copy of the spare parts drawing (2) with the marked part (drive belt) and marked positon number (73) to the dealer or spare parts department and provide the following information:

- Type of device: **Spindle Moulder TF 170 E 230V**
- Item number: **5901917**
- Drawing number: **2**
- Position number: **73**

**The item number of your device:**

Spindle Moulder TF 170 E - 230 V: **5901917**

Spindle Moulder TF 170 E - 400 V: **5901918**

## 12.2 Spare parts drawings TF 170 E

The following drawings are intended to identify the required spare parts in the event of service. If applicable, submit a copy of the parts drawing including the highlighted components to your authorised retailer.

**Spare parts drawing 1**

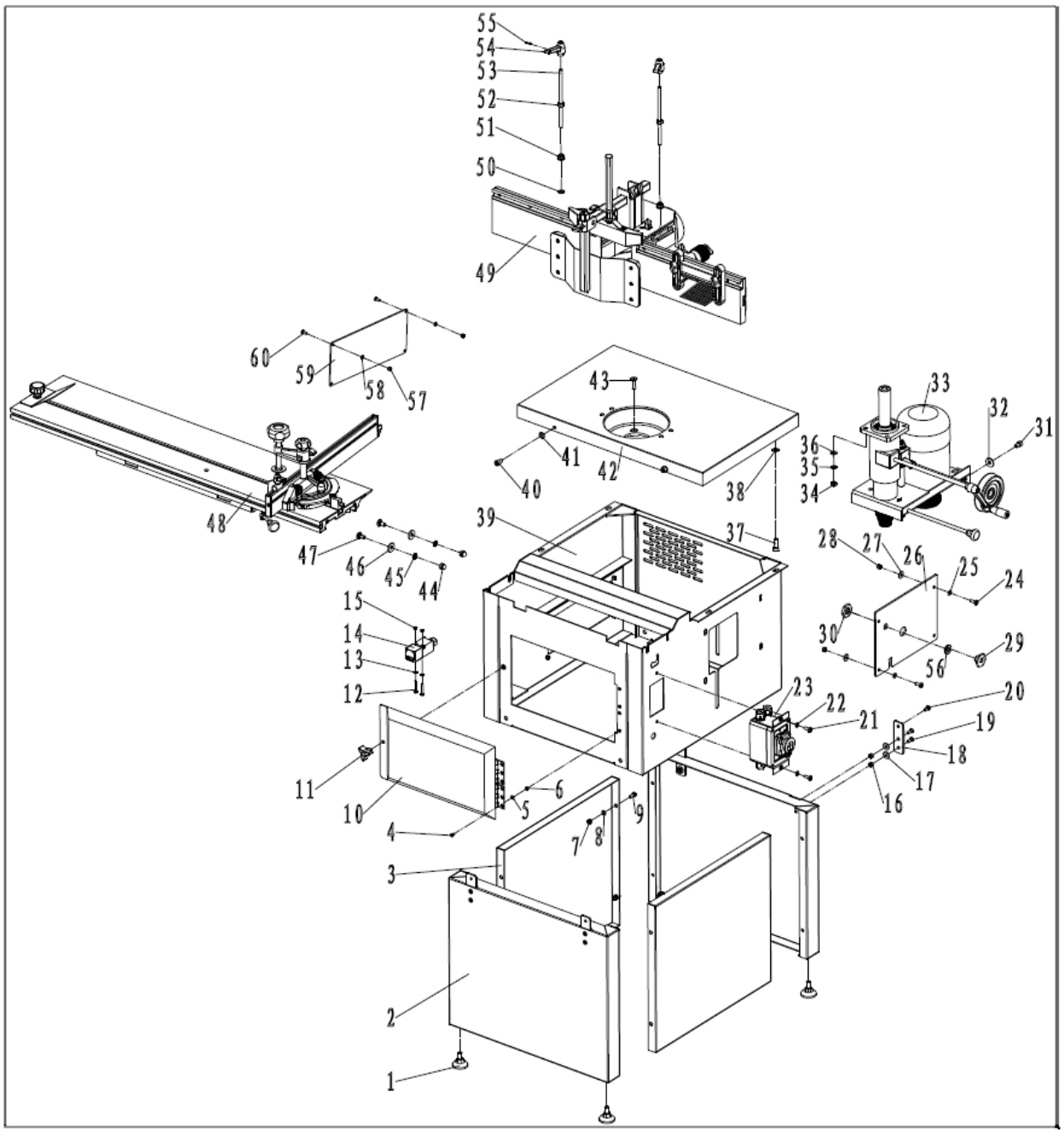



Fig. 30: Spare parts drawing 1 - Spindle Moulder TF 170 E (230 V and 400 V)

**Spare parts drawing 2**

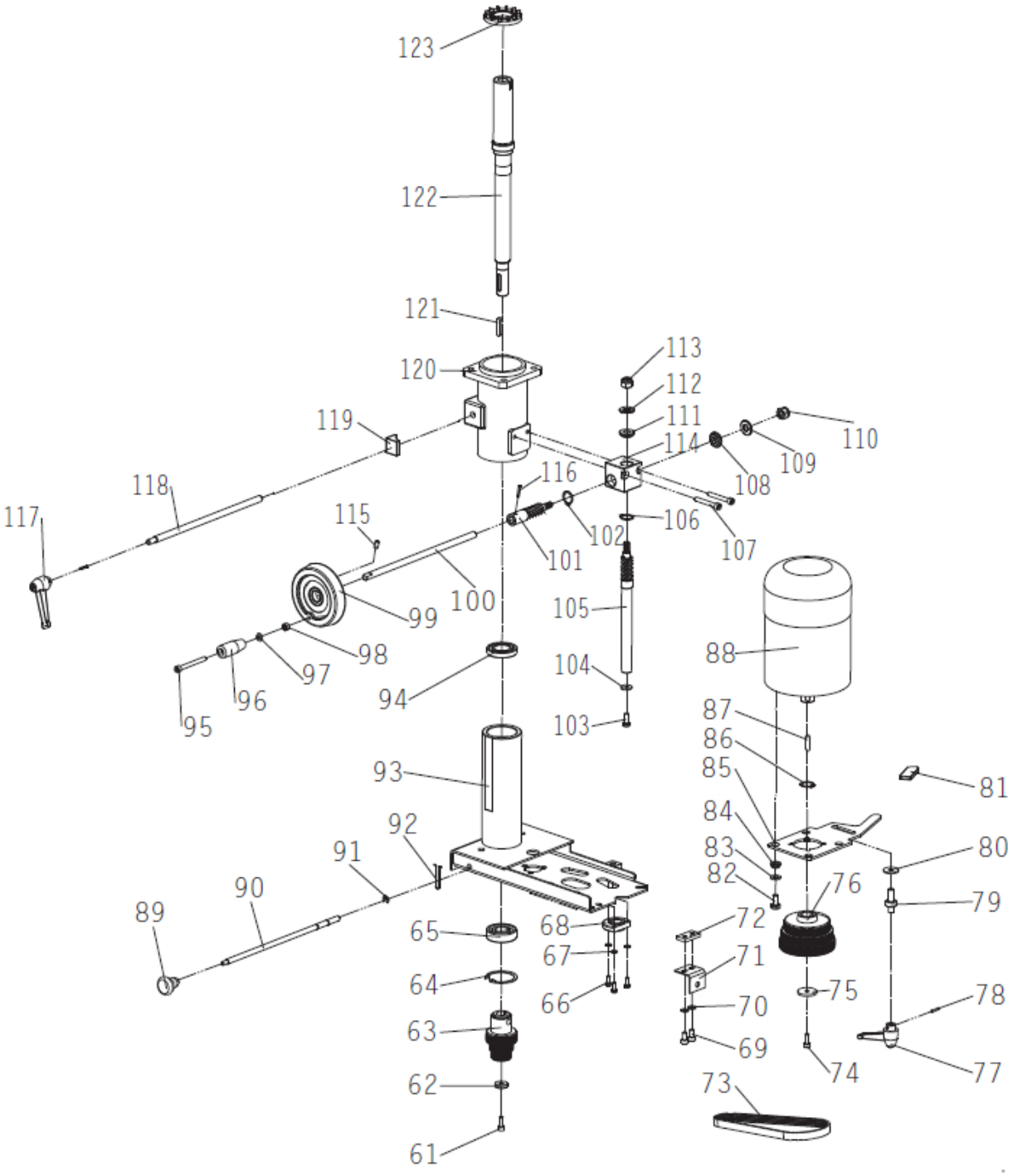



Fig. 31: Spare parts drawing 2 - Spindle Moulder TF 170 E (230 V and 400 V)

### Spare parts drawing 3

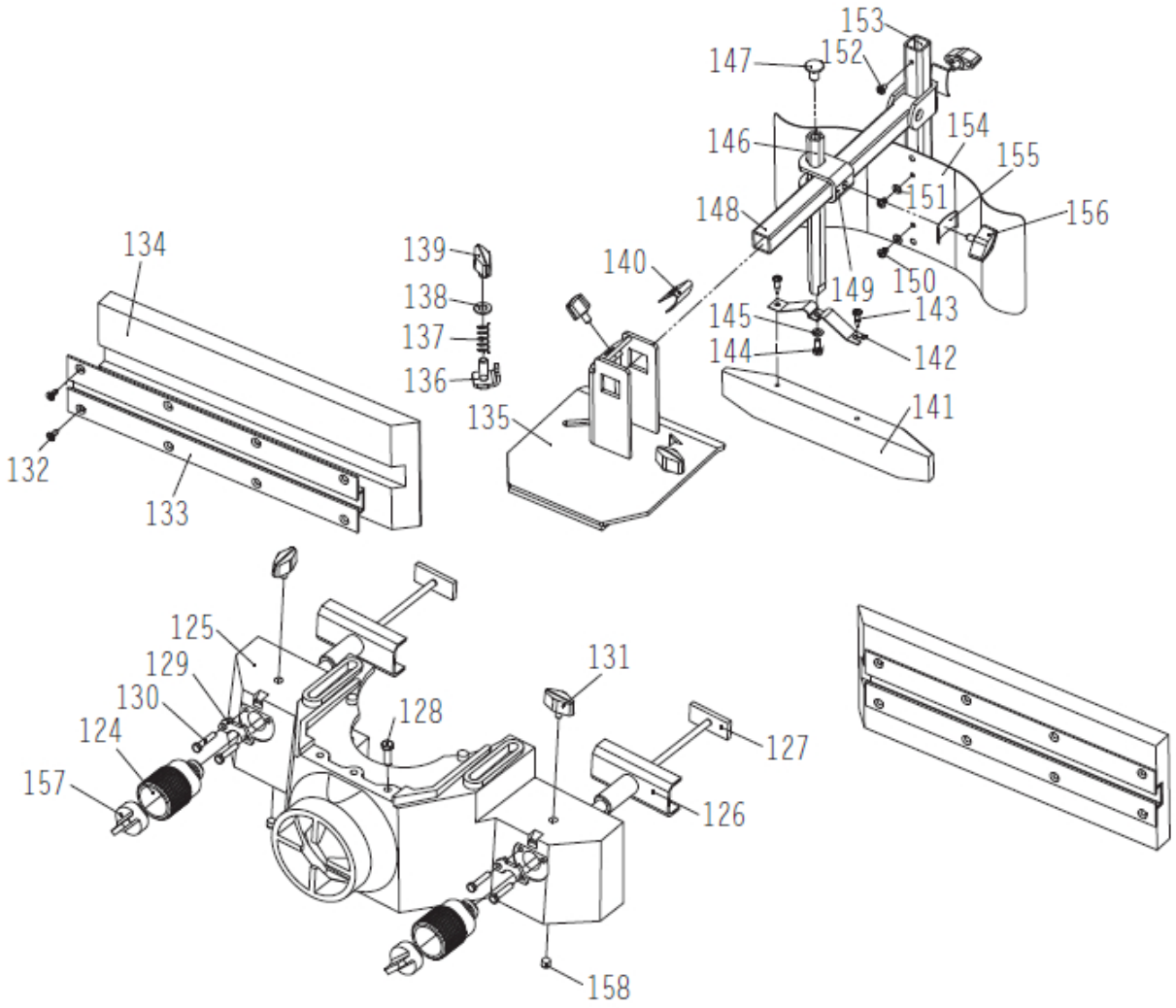



Fig. 32: Spare parts drawing 3 - Spindle Moulder TF 170 E (230 V und 400 V)

**Spare parts drawing 4**

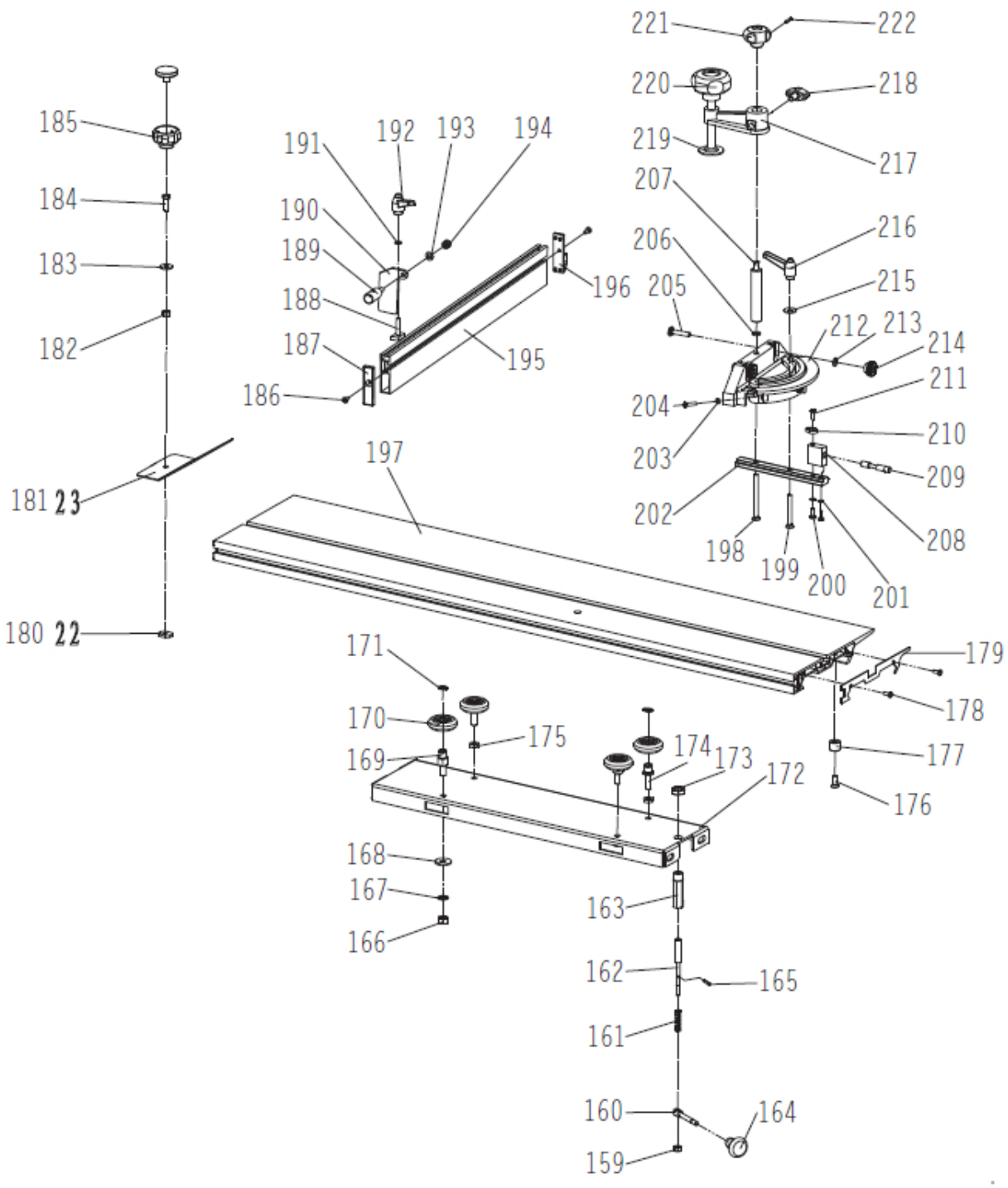
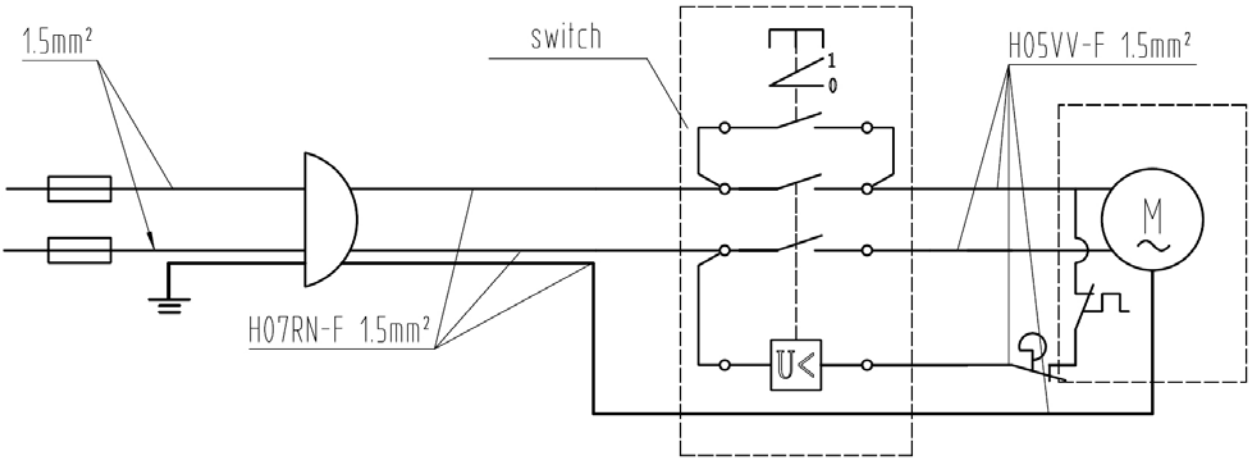



Fig. 33: Spare parts drawing 4 - Spindle Moulder TF 170 E (230 V and 400 V)

# 13 Electrical circuit diagram

### 230 V Model




### 400 V Model

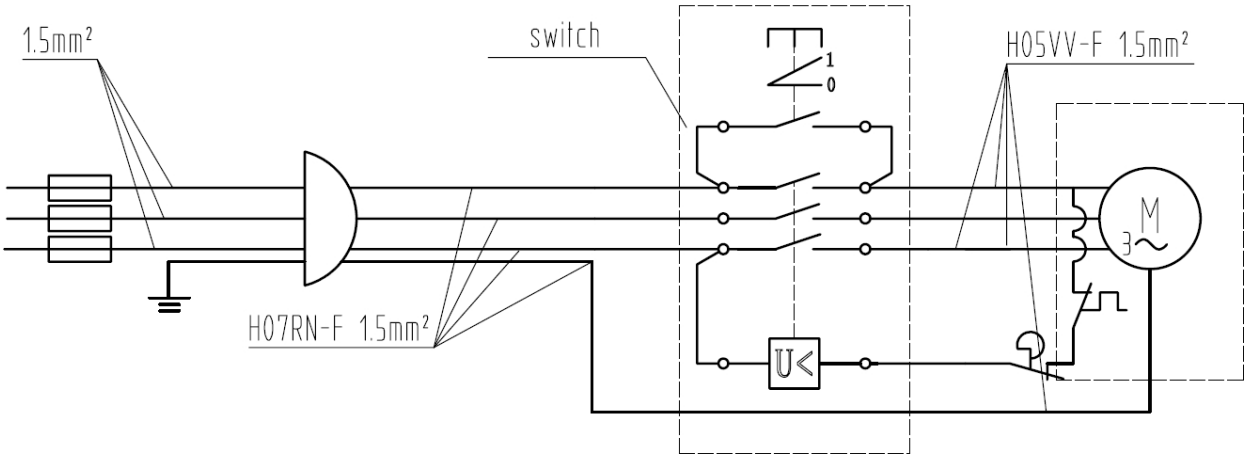



Fig. 34: Electrical circuit diagramm TF 170 E (top: 230 V; bottom: 400 V)

# 14 EC Declaration of Conformity

According to machine directive 2006/42/EC Annex II 1.A

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

herewith declares that the following product

**Product group:** Holzstar® Woodworking machines

**Maschine type:** Spindle Moulder

| **Designation of the machine*:** | **Item number *:** |
|---|---|
| ☐ TF 170 E 230V | ☐ 5901917 |
| ☐ TF 170 E 400V | ☐ 5901918 |

**Serial number*:** _____

**Year of manufacture*:** 20____

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

corresponds, on the basis of its design and construction, as well as the version that we have put into circulation, with the relevant fundamental health and safety requirements of (subsequent) EU Directives.

**Relevant EU Directives:** 2014/30/EU EMC-Directive

**The following harmonized standards have been applied:**

| | |
|---|---|
| DIN EN ISO 12100-1:2011-03 | Safety of machinery. General principles for design. Risk assessment and risk reduction (ISO 12100:2010) |
| DIN EN 60204-1:2014-10 | Safety of machines - Basic concepts, general principles for design - Part 1: General requirements |
| DIN EN 848-1:2013-01 | Safety of woodworking machines - One side moulding machines with rotating tool - Part 1: Single spindle vertical moulding machines |

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

Hallstadt, 04.03.2021

_____
Kilian Stürmer
Managing Director

CE


stürmer
OPTIMUM