TRANSLATION OF THE ORIGINAL VERSION

CE

Operating Manual

Tilting Spindle Moulder

WOODPECKER SPM 2-1000

Machine Type:	**SPM 2-1000**

WOODPECKER
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Handover Certificate

Machine type:		
Machine no.:		
Construction year:		
Customer address (location of the machine):		
Name:		
Street:		
Postcode/City:		
Phone:	**Fax:**	
E-mail:		

Warranty:

On the basis of our Terms and Conditions of Sale, Delivery and Payment of the respective current status, we assume a warranty of **12 months**, calculated from the day of delivery, for material defects and defects of title in connection with the delivery for the above-mentioned machine.

Warranty claims:

Warranty claims on the part of HOKUBEMA Maschinenbau GmbH only exist if we have received the signed handover certificate and the machine has been properly commissioned. We therefore ask for immediate return.

Important: Please read and follow the instructions in chapter ⇨ 1 ”**Liability and Warranty**“.

Confirmation of the buyer:

- ✓ The machine described above was purchased by me/us.
- ✓ Together with this handover certificate, I have received the operating manual valid for the machine (edition: _____).
- ✓ The operating instructions have been read and understood by me, as well as by all persons responsible for operating the specified machine. I will ensure that persons working on the machine at a later date are also instructed accordingly.

_____	_____	_____
Name and position	Date	Signature of the customer

Address of the dealer (company stamp):	The machine, including the operating manual, was handed over to the buyer and installed according to the specifications in the operating manual. _____ _____ Date Signature - Customer Service

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Table of Contents

List of Figures

Revisions:

Revision	Editor	Modification	Date
000	AG	Original manual translated	15.07.2022

1 Liability and Warranty

When purchasing a machine or additional component (hereinafter referred to as “machine”), the General Terms and Conditions of Sale and Delivery of HOKUBEMA Maschinenbau GmbH generally apply. These are provided to the purchaser or operator at the latest when the contract is concluded.

☝	***IMPORTANT NOTE*: Liability and warranty claims shall only commence from the point in time at which the *signed handover certificate* (see ⇨ page 3 resp. 5) from the dealer and/or end customer for the delivered machine has been submitted to HOKUBEMA Maschinenbau GmbH in written form.**

Liability and warranty claims for personal injury and property damage are generally excluded if they are due to one or more of the following causes:

- Commissioning of the machine without prior machine instruction by an authorised and adequately trained specialist who is familiar with the function and dangers of the machine.
- Electrical connection as well as repair and/or maintenance work on electrical components by personnel who do not have the appropriate qualifications.
- Connection and repair and/or maintenance work on hydraulic or pneumatic components by personnel who do not have the appropriate qualifications.
- Non-observance of the instructions in the operating manual, in particular the chapter “Safety”.
- Improper use or operation in an unauthorised area of application.
- Improper assembly, commissioning, operation and maintenance of the machine.
- Unauthorised conversions or modifications to the machine or additional components.
- Operating the machine without using all the protective equipment available for the operation.
- Inadequate monitoring and maintenance of the machine components and protective devices.
- Continuing to operate the machine when faults, damage or defects are present.
- Processing materials that do not correspond to the machine's area of application.
- Carrying out operations that are not permitted for the machine supplied.
- Use of tools that are not permitted for the machine supplied.
- Operating the machine outdoors or in damp, wet or potentially explosive environments.
- Operation of the machine outside permissible ambient temperatures or humidity.
- Grossly negligent behaviour when handling or operating the machine.
- Impact by foreign bodies, e.g. stones, metal parts, etc.
- Improperly carried out repairs.
- Catastrophic events due to force majeure.

2 Introduction

This operating manual applies to the WOODPECKER SPM 2-1000 tilting spindle moulder. The purpose of this document is to acquaint the user with the machine and enable him to use it to the full extent of its intended capabilities. Additionally it contains important information to operate the machine safely, properly and economically. Observance of the manual helps to avoid hazards, reduce repair costs and downtimes and increase the reliability and service life of the machine.

Furthermore, this operating manual serves to supplement instructions based on national regulations for accident prevention and environmental protection.

This operating manual must always be available at the place of use of the machine. It must be read and followed by every person who is assigned to work on the machine, e.g.

- *during operation, including set-up, troubleshooting in the work process, removal of production waste and maintenance,*
- *during maintenance (servicing, inspection, repair)*
- *and/or during transport.*

Apart from the operating manual and the legally binding accident prevention provisions applicable in the country and place of use, the recognized technical regulations for safe and proper work must also be observed.

2.1 Legal Notice

WOODPECKER is a brand of Hokubema Maschinenbau GmbH. All contents of these operating instructions are subject to the rights of use and copyright of HOKUBEMA Maschinenbau GmbH. Any reproduction, modification, further use and publication in other electronic or printed media, as well as their online publication, requires the prior written consent of HOKUBEMA Maschinenbau GmbH.

2.2 Figures

All photos, figures and graphics contained in this document are for illustration and better understanding only and may differ from the current state of the product. Title photos and general views may also include optional components and special accessories.

3 Symbols

3.1 General Symbols

Symbol	*Meaning*
	Indicates passages within this operating manual that must be particularly observed in order to prevent malfunctions or damage to the machine.
	Refers to chapters, sections, or figures within this document.
	Refers to an external document or a third-party source.

3.2 Symbols in Safety Instructions

Symbol	*Safety Instruction*
	General danger symbol, which requires the highest attention! *Failure to observe may result in damage to the equipment, serious injury or even death.*
	Warning of possible danger from forklift traffic! *Non-observance may result in life-threatening injuries.*
	Warning indicates a possible hazard under suspended loads! *Non-observance may result in life-threatening injuries.*
	Warning indicates a possible fall hazard! *Non-observance of these instructions may result in serious injuries.*
	Warning indicates a possible cutting hazard! *Risk of personal injury and possibly additional damage to equipment.*
	Reference to the obligation to wear protective gloves! *Non-observance of these instructions may result in personal injury.*
	Reference to the obligation to wear hearing protection! *Non-observance of these instructions may result in personal injury.*
	Reference to the obligation to wear protective goggles! *Non-observance of these instructions may result in personal injury.*
	Reference to the obligation to wear a respiratory protection mask! *Non-observance of these instructions may cause breathing difficulties and lung damage.*
	Reference to the obligation to wear safety shoes! *Non-observance of these instructions may result in personal injury.*
	Possible dangerous crushing hazard in the area of stationary objects! *Risk of personal injury and possibly additional equipment damage.*
	Reference to a possible crushing hazard! *Non-observance increases the risk of injury to hands and fingers!*
	This symbol warns of the dangers of electric voltage! *Failure to observe may result in damage to the equipment, serious injury or even death.*
	Fire hazard! Do not smoke and do not ignite open fire.
	Access for unauthorized persons prohibited! *Risk of personal injury and possibly additional equipment damage.*
	This safety notice indicates a possible dangerous pull-in hazard! Wearing loose clothing, jewellery as well as long untied hair is prohibited! *Risk of personal injury and possibly additional damage to property.*

4 General

The WOODPECKER "SPM 2-1000" model is a universal spindle moulder with height and tilt adjustable milling arbor, built-in milling spindle lock, two directions of rotation, adjustable speed and separately adjustable total and partial fence.

Special highlights in the basic equipment are the sturdy and smooth-running format sliding table, the telescopic fence with 2 flip stops and eccentric clamp, and the three supplementary table extensions.

- The milling spindle is driven by a powerful 4.0 kW / 5.5 HP three-phase motor equipped with a wear-free, electronic motor brake. An even more powerful motor with 5.5 KW / 7.5 HP is available as an option.
- The machine's four fixed speeds (1400 / 3500 / 6000 / 8000 rpm) can be set by flipping the pulley via the belt quick tensioning device.
- The milling spindle can be tilted backwards from 90° to 45° via an analogue angle scale.
- The height and tilt adjustment is carried out manually using the two handwheels at the front.
- The milling arbor is designed for conventional and climb milling and has a built-in milling spindle lock, which allows for quick and convenient tool changes.
- The standard safety fence can be moved manually forwards and backwards by loosening the two clamping screws. The fine adjustment of the total fence and the partial fence is done manually via adjusting wheels with a scale for the total fence and a vernier scale for the partial fence.
- The PANHANS Type 215 safety fence incl. cast fence plates and aluminium splitter tongues is available as an option. The total fence is adjusted via the built-in handwheel (separate measuring device, e.g. setting gauge or similar required). The partial fence is adjusted via a star knob using the vernier scale.
- The large and solid table top with a 190 mm opening is made of a solid cast iron and measures 1000 x 550 mm. This can be extended with the two included table extensions (500 x 320 mm) on the left and right side.
- The sturdy and smooth-running aluminium sliding table with hardened steel guide rods measures 1150 x 350 mm and is grooved so that the telescopic fence included as standard with two adjustable flip stops and eccentric clamp can be attached to it. The sliding table can be extended with an attachable table extension parallel to the telescopic fence.
- The control panel on the front of the machine is equipped with a lockable main switch, an on/off switch for the spindle, a direction of rotation switch and an emergency stop pushbutton. In addition, the currently set speed is visualized here via four signal lamps.
- The milling spindle can be secured against turning by a locking bolt for tool change. An internal safety switch prevents the milling spindle from starting during this process.
- The machine is supplied in a CE-compliant and GS-tested design.

4.1 Intended Use

The WOODPECKER SPM 2-1000 tilting spindle moulder is used exclusively for machining materials for which the milling cutter used is suitable (e.g. wood, chipboard, veneer). The machines are not suitable for milling metal resp. plastic and waste wood which could contain nails, screws and other metal parts. The machine may only be operated on a firm, level surface with a minimum load-bearing capacity of 1,000 kg/m..

	***Improper use can lead to danger to persons and to a defect or damage to the machine.***

4.2 Target Group and Previous Experience

This operating manual is intended for the operating and maintenance personnel of the machine. The operating personnel is to be determined by the operator and must further meet the following requirements:

- Basic technical knowledge (e.g. apprenticeship as carpenter, machine fitter, etc. and/or practice in operating tilting spindle moulders resp. woodworking machines)
- Reading and understanding these operating and maintenance instructions

In order to acquire the knowledge required to operate this machine, the operator must ensure the following measures:

- Product training for every operator (also possible external personnel)
- Regular safety instruction

4.3 Requirements for the Operators

- The tilting spindle moulder may only be operated by trained personnel who have also read this manual.
- Inspection, maintenance, cleaning and repair may only be performed by technical specialists with product-specific training and mechanical and/or electrical training.
- Specialists with product-specific training are to be commissioned and held responsible for planning and checking the work.
- The national protective regulations for employees must be observed.
- The operator is responsible for the safe use of the machine.
- The legal minimum age must be observed.

4.4 Training of Personnel

All machine operators must be adequately trained in the operation and maintenance of the machine. In particular, the training must include the following:

- General rules for the use of the machine, proper operation, correct adjustment of the machine, tool change, safety fence, slide table with telescopic fence as well as the use of other accessories.
- Proper handling of the workpieces during the machining process. Correct position of the hands on the workpiece and to the rotating tool during and after machining.
- The personnel must be informed about hazards, risks and appropriate protective measures.
- The personnel must be trained in the area of regular checks of the guards and protective devices.
- The personnel must be trained in the use of the guards and protective devices.

4.5 Accident Prevention

To avoid accidents, the following rules must be observed for operation:

- Prevent unauthorized persons from gaining access to the machine.
- Keep unauthorized persons away from the danger areas.
- Repeatedly inform present other persons about existing residual risks (refer to section ⇨ 5.2.3).
- Conduct and record regular training & instruction for persons who must be in the area of the machine.
- New employees must be trained internally to work on a thickener and this training must be documented.

4.6 General Safety Regulations

In general, the following safety regulations and obligations apply when handling the machine:

- A tilting spindle moulder may only be operated in a technically perfect and clean condition.
- It is prohibited to remove, modify or bypass any protective, safety or monitoring equipment.
- It is forbidden to modify or alter the machine without the written approval of the manufacturer / supplier.
- Faults or damage must be reported to the operator immediately, eliminated without delay and repaired if necessary.
- For repairs, only original spare parts may be used.
- All protective, safety and monitoring devices must be regularly checked and maintained by the operator.
- Only instructed, trained or qualified persons may work on this machine.
- Maintenance work must be carried out and documented in accordance with the maintenance instructions.
- After maintenance or repair, the machine may only be started with all protective devices fitted. A responsible person must be defined for this purpose, who checks that the guards have been properly installed.
- For the operation of a tilting spindle moulder, the respective national safety regulations for employees as well as the national safety and accident prevention regulations apply.

4.7 Included Components

- Safety fence with manual total and partial adjustment as well as suction nozzle Ø 120 mm
- Handwheels with analogue scale indicators for height and tilt adjustment
- Format sliding table made of aluminium with hardened steel guide rods
- Second suction nozzle on the right under the table with Ø 120 mm
- Table extension for the support surface of the sliding table
- Telescopic fence with 2 flip stops and 1 eccentric clamp
  for mounting in the grooves of the sliding table
- Table extensions for the cast table top on both sides
- 4 spindle speeds 1400 / 3500 / 6000 / 8000 rpm
- Milling spindle Ø 30 mm with quick clamping nut
- Built-in milling spindle lock
- Protective and pressure device
- Fine planed cast iron table top
- Adjustable machine feet

4.8 Optional Accessories

- Switch contact for automatic on/off switching of the extraction system
- Customized milling spindles Ø 32, 35, 40, 50 mm (on request)
- Reinforced motor with 5.5 KW / 7.5 HP (400 V)
- PANHANS type 215 safety safety fence
- Power feeder PV84 (4 rollers with tripod)
- Various safety accessories (see ⇨22.1)

5 Safety

5.1 Basic Safety Instructions

Woodworking machines can be dangerous if used improperly. Therefore, observe the safety instructions listed in this chapter and the accident prevention regulations of your employer's liability insurance association!

	***The manufacturer accepts no liability for damage and malfunctions resulting from failure to observe these operating instructions.***

5.2 Application Area and Intended Use

	• ***The tilting spindle moulder SPM 2-1000 is used exclusively for milling of solid wood (soft and hard woods) as well as plastics and wood-containing board materials.*** • ***This machine is not suitable for processing metal resp. plastic and scrap wood - which could contain nails, screws and other metal parts.*** • ***The machine may only be operated on a firm, level surface with a minimum load-bearing capacity of 1,000 kg/m².***

Any processing of other materials requires prior consultation with and approval of the manufacturer.

	***Improper use can lead to danger to persons and to a defect or damage to the machine.***

Only workpieces that can be safely placed and guided may be machined.
Metallic materials must not be machined.

The machine is not suitable for operation outdoors or in potentially explosive areas.

- Permissible altitude: max. 1000 m above sea level
- Permissible ambient temperature: +1 … +40° C
- Permissible humidity: max. 90 %

Number of workplaces: 1

Intended use also includes the connection of the machine to an adequately dimensioned extraction system and compliance with the operating, maintenance and servicing conditions specified in the operating manual.

Any other use is not in accordance with the intended use and is therefore prohibited.

5.2.1 Permitted Tools

Spindle Ø	*Clamping length*	*Milling cutters (profiling)*	*Tenoning and slotting tools*
30 mm	max. 125 mm	Ø max. 180 mm (at 90°) Ø max. 125 mm (at 45°)	Ø max. 250 mm

The speed limits indicated on the tool must be strictly adhered to!

	***Only tools according to EN 847-1 are permitted that are marked with the BG-Test test mark or with the Hand Feed or MAN marks (cutting edge projection: max. 1.1 mm).***

Only use tools approved for manual feed! For milling work with a feed unit or the sliding table, tools for partially mechanical feed are approved.

5.2.2 Modifications and Conversions to the Machine

☝	***Unauthorised conversions and modifications to the machine are strictly prohibited for safety reasons. This will invalidate the CE declaration of conformity! The manufacturer is not liable for any resulting damage. The risk for this is borne exclusively by the operator/user.***

5.2.3 Residual Risks

The machine is built according to the latest state of the art and the recognised safety rules. Nevertheless, the use of the machine may cause danger to life and limb of the user or third parties or damage to the machine and other equipment. Due to the construction of the machine, the following residual risks can occur even when used as intended and despite compliance with all relevant safety regulations:

	Reading and applying the operating manual is mandatory for the operating personnel.
	Be alert to possible crushing hazards: a) when transporting the machine by forklift truck → between forks & pallet / machine b) when picking up the machine → between machine / pallet and floor c) when lowering the machine → between machine and fixed equipment
	Be alert to possible crushing hazards when lowering the machine (from the cargo pallet to the floor) with a forklift truck or overhead crane.
	Make sure that no objects fall from the forklift truck / crane. Do not leave any objects / tools on the machine.
	It is strictly prohibited to ride on the machine during a lifting operation (with the indoor crane or forklift). There is a danger of falling!
	Unauthorised persons are not allowed to enter the installation area of the machine (responsibility of the operator).
	Be aware of possible tripping and slipping hazards on the floor. Prevent possible hazards by keeping the floor dry and clean and by using anti-slip floor coverings around the machine.
	Be aware of the danger from falling objects such as workpieces, tools or similar. Therefore, wear safety shoes, especially when transporting and setting down the machine.
	Pay attention to the existing danger of cuts on the cutter knifes. Never reach into the running cutter! Use a power feeder or pushing device for short and narrow workpieces. Wear protective gloves when changing the milling cutter.
	Be aware of the danger of cutting through chips and splinters and never remove them from the danger area by hand and/or while the machine is running. Use suitable aids, e.g. hand brushes.
	Avoid climb milling. There is an increased risk of drawing in and kickback.
	Danger of being drawn in and increased risk of injury when wearing watches and jewellery. Wearing watches and jewellery is prohibited on the tilting spindle moulder.
	Be aware of a possible danger of being drawn in by moving machine parts or tools. This can cause pieces of clothing or hair to be caught. Always wear tight-fitting clothing or avoid loose clothing and wear a hair net if necessary.
	Danger from electric shock! There are hazards when working on the electrical system. This work must only be carried out by qualified personnel!
	Danger from electric shock! It is strictly forbidden to bypass safety devices (e.g. safety switches).
	Electrical equipment must be maintained and cleaned regularly.
	Pay attention to the danger of crushing on workpiece guides and moving machine parts.
	Make sure that no unauthorised persons are in the area of the machine.

	Be aware of the risk of injury from flying tool parts in the event of tool breakage. Therefore wear protective goggles.
	Be aware of the risk of injury from flying workpiece parts and chips, splinters and dust coming out of the machine. Therefore wear protective goggles.
	Be aware of the increased noise emission and wear hearing protection.
	Be aware of the increased dust generation. Use the extraction device and wear a dust mask if necessary.
	The emergency stop buttons must always be freely accessible. They must not be moved, e.g. with hopper boxes. Check the function of the emergency stop buttons daily (before starting work).
	Fire hazard due to wood dust in connection with flying sparks and/or open fire!

5.2.4 Observe the Environmental Protection Regulations

During all work with the machine, the environmental protection regulations, obligations and laws for waste avoidance and proper recycling and/or disposal applicable at the place of use must be observed. This applies in particular to installation, repair and maintenance work involving substances that could pollute the groundwater (e.g. hydraulic oils and cleaning agents and liquids containing solvents). In any case, prevent them from seeping into the ground or entering the sewage system.

	***Store and transport the above-mentioned hazardous substances only in suitable containers. Avoid leakage of hazardous substances by using suitable collection containers. Ensure that the above-mentioned substances are disposed of by a qualified disposal company.***

5.2.5 Organisational Measures

- ⚠ Always keep this operating manual within easy reach and at the place of use of the machine.
- ⚠ In addition to the operating manual, observe and instruct on generally applicable legal and other binding regulations for accident prevention and environmental protection.
- ⚠ Supplement the operating manual with further instructions, including supervisory and reporting duties, to take account of special operational features (e.g. with regard to work organisation, work processes, personnel employed).
- ⚠ Before starting work on the machine, the person responsible for its operation must have read the operating instructions, especially the chapter "Safety Instructions". This applies in particular to personnel who only occasionally work on the machine.
- ⚠ Check that work is carried out in a safety-conscious and hazard-conscious manner and in compliance with the operating manual.
- ⚠ Operators must not wear open long hair, loose clothing or jewellery (including rings). There is a risk of injury, e.g. by getting caught or drawn in.
- ⚠ Observe the safety instructions and danger warnings on the machine and keep them complete and in legible condition.
- ⚠ In case of safety-relevant changes to the machine or its operating behaviour, shut down the entire system immediately and report the fault to the responsible office/person.
- ⚠ Use personal protective equipment as necessary or required by regulations.
- ⚠ Do not make any modifications, additional attachments or conversions to the machine without the manufacturer's approval! This will compromise safety and invalidate the manufacturer's warranty and any liability claim.
- ⚠ Spare parts must meet the technical requirements specified by the manufacturer. The exclusive use of original spare parts ensures this. Therefore, only use original spare parts from the manufacturer.
- ⚠ Observe the fire alarm and firefighting possibilities. Make the location and operation of fire extinguishers (fire class ABC) known. Do not use water!

5.2.6 Personnel Selection and Qualification - Basic Duties

⚠ The machine design and operation is intended for right-handers.

⚠ Work on and with the machine may only be carried out by reliable personnel.
Observe the legal minimum age!

⚠ Only use trained or instructed personnel. Clearly define the responsibilities of the personnel for operating, setting up, maintaining and repairing!

⚠ Ensure that only authorised personnel work on the machine!

⚠ If personnel to be trained or apprenticed have to work on the machine, this may only be done under the constant supervision of an experienced resp. qualified person.

⚠ Work on the electrical equipment of the machine may only be carried out by a qualified electrician or by untrained persons under the direction and supervision of a qualified electrician in accordance with the electrotechnical regulations.

5.3 Safety Instructions for Specific Phases of Operation

⚠	***Defects and damage to the machine are to be reported immediately after detection.***
⚠	***Any mode of operation that compromises safety is prohibited!***
⚠	***Sufficient lighting around the machine must be ensured (at least 500 Lux)!***

5.3.1 Before Working

⚠ Wear personal protective equipment (safety goggles, safety shoes, hearing protection, dust mask), close-fitting clothing and, if necessary, a hair net! Take off wrist watches, necklaces and other jewellery.

⚠ Always work with all available guards and protective devices! These must be in the correct places and in perfect working order. Defective protective devices must be replaced immediately.

⚠ Do not start work until the motor / tool has reached full speed.

⚠ Only use tools in perfect, sharpened condition and with clean clamping surfaces.

⚠ Observe the correct direction of rotation of the tool and avoid dangerous climb milling.

⚠ Always work with all protective devices! These must be in the correct places and in perfect working order. Defective protective devices must be replaced immediately.

⚠ Do not start work until the motor / tool has reached full speed.

⚠ Only use tools in perfect, sharpened condition and with clean clamping surfaces.

⚠ Observe the correct direction of rotation of the tool and avoid dangerous climb milling.

⚠ Only use tools that are suitable for the operation.

⚠ Do not exceed the permissible tool speed.

⚠ Adjust the tool only when the tool is at a standstill and with a dial gauge.

⚠ Remove any objects lying on the table (tools, spacers, etc.) before milling.

⚠ Clean the machine table from dirt and chips and provide a container for waste pieces.

⚠ Always check workpieces to be machined for foreign bodies, cracks and loose knots.

⚠ Only carry out adjustments to the machine and the fence when the machine is at a standstill.

⚠ Required aids such as tool cover, feed device, table extensions, clamping drawer, feed elements (e.g. push stick, feather boards, etc.) and use them as required.

⚠ Use a power feeder whenever possible.

⚠ Adjust guards, pressure devices and tool covers as best as possible.

⚠ Use continuous fence for safe workpiece guidance. If necessary, compensate for chip removal by means of a partial fence to ensure a continuous fence.

⚠ Keep the floor in the area of movement around the machine free of tripping hazards.

⚠ Ensure that the machine is connected to an extraction system.

⚠ If gloves are required for workpiece handling, they must be fingerless.

5.3.2 Normal Operation

⚠ **Guards:** Take measures to ensure that the machine can only be operated in a safe and functional condition. Only operate the machine when all guards and safety-related devices such as
- detachable guards (e.g. tool covers and fence covers),
- emergency stop system, sound insulation, suction device etc.

are present and in working order.

⚠ **Workpiece:** Before machining, inspect the workpiece for foreign inclusions, knots, twists, objects and other irregularities.

⚠ **Working area:** An obstacle-free work area around the machine is essential for safe operation. The floor should be level, well maintained and free from debris such as chips and cut-off workpieces.

⚠ **Rotation speed:** The speed must correspond to the milling cutter and the respective operation. The maximum speed indicated on the tool must not be exceeded. If a speed range is indicated on the milling cutter, this must be adhered to by not going above or below the speed range stated.

⚠ **Cutting area during operation:** Never attempt to remove splinters, chips or other parts from the cutting area while the machine is running! Never remove splinters and chips by hand!
- Cover the milling cutters before the fence by means of a protective device
- Clamp milling cutters as deeply as possible
- Adapt the table opening to the tool diameter with insert rings or optional Table Slide
- Place the fence halves as close as possible to the milling tool and clamp them securely
- Close the protective cover of the fence

⚠ **Power feeder:** Generally adjust so that the workpiece is guided safely along the fence. Set the feeder at an angle of approx. 5° to the feed direction and keep the opening to the fence as small as possible.

⚠ **Manual feeding:** When feeding the workpiece manually, place the hands flat on the workpiece with closed fingers and push forward evenly.

⚠ **Special tools:** For certain operating phases and operations it is necessary to use special tools (e.g. feed device, table extensions, clamping drawer, push bar or comparable feed elements).

⚠ **Single pieces / samples:** Always use all protective devices and appropriate tools!

⚠ **Insert milling:** During insert milling, use optional table extensions with cross fences as well as a Kickback guard adapted to the workpiece dimensions.

⚠ **Workpieces with small cross-section:** Always use one with a push block for machining.

⚠ **Short workpieces:** For short workpieces, use a workpiece holder and bridge the fence halves.

⚠ **Long workpieces:** When milling, generally use feather boards and table extensions and secure the workpiece against tipping.

⚠ **Narrow grooves:** Always use a suitable grooving cutter (no circular saw blades).

⚠ **Milling narrow cross sides:** Generally feed workpiece with push block.

⚠ **Curved or round workpieces:** Use special suction bonnet when milling with a thrust ring or ring fence guard.

⚠ **Extraction:** The machine must be connected to an effective extraction system. This requires a flow velocity of at least 20 m/s for dry chips and 28 m/s for moist chips (moist 18 % or more).

⚠ **Machine condition:** Check the machine for externally visible damage and defects at least once per shift! Any changes that have occurred (including those in the operating behaviour) must be reported immediately to the responsible office or person! If necessary, stop and secure the machine immediately!

⚠ **Work interruptions:** Switch off the machine even during short interruptions! Never leave the machine running unattended!

5.3.3 Special work within the Scope of Maintenance Work as well as Troubleshooting in the Workflow

⚠ Observe maintenance and inspection activities prescribed in the operating manual!

⚠ These activities, as well as all other repair work, may only be carried out by qualified personnel!

⚠ For all work concerning operation, production adjustment, conversion or setting of the machine and its safety-related equipment as well as maintenance and repair, observe switch-on and switch-off procedures according to the operating manual and instructions for maintenance work!

⚠ Secure the machine against unexpected restarting during maintenance and repair work.

➔ **Lock the main switch with a padlock!**

⚠ Always tighten screw connections that have been loosened during maintenance and repair work!

⚠ If it is necessary to dismantle safety equipment during set-up, maintenance and repair, the safety equipment must be reassembled and checked immediately after completion of the maintenance and repair work!

⚠ Ensure safe and environmentally friendly disposal of operating and auxiliary materials (e.g. oils) and replacement parts (e.g. electronic components). See chapter ⇨ 21 “Disassembly and Scraping”.

5.3.4 After Work

⚠ Before leaving the machine, switch off the main switch and the extraction system.
⚠ Secure the machine against unauthorised use and never leave it unattended in an unsecured condition.
⚠ Clean the machine with an industrial hoover (avoid compressed air!).

5.4 Safe Working Practices

Depending on the work to be carried out, the guards must be used for fence milling, insert milling, curved milling and also for tenoning. Nevertheless, in order to prevent accidents, it is necessary that the user observes safe working practices.

5.4.1 Operator Training

It is important that all users of the tilting spindle moulder are adequately instructed in the use, setting and operation. This concerns in detail:

⚠ Possible hazards that may occur when working with the machine.
⚠ The basics of machine operation, correct setting and use of the fences, templates, aids and guards.
⚠ The correct selection of the tool for the respective processing.
⚠ The safe workpiece guidance and feeding.
⚠ The correct hand position and safe stacking and unstacking of the workpieces before and after machining.

5.4.2 Stability

⚠ For safe operation of the machine, it is necessary that it is stable and securely fastened to the floor or another safe part of the building.

5.4.3 Setting up and Adjusting the Machine

⚠ Before starting the adjustment, the machine must be disconnected from the mains supply.
⚠ For tool clamping, refer to the recommendations of the tool manufacturer.
⚠ To ensure safe and effective machining, the tool must be suitable for the material to be machined.
⚠ Tools must be sharp and mounted on carefully balanced tool holders.

5.4.4 Tool Handling

⚠ Tools must be handled with care and tool transport equipment must be used whenever possible.

5.4.5 Tool Clamping

⚠ Use suitable devices, e.g. setting gauges, to clamp the tool when the machine is at a standstill.
⚠ To keep the gap between the spindle and the table as small as possible, the matching table insert rings must be used.

5.4.6 Setting the Safety Fence

⚠ For milling straight workpieces, the safety fence must always be used to ensure adequate guidance of the workpiece.
⚠ Whenever the operation allows it (also for test cuts), an auxiliary fence must be used to keep the gap between the tool and the fence rulers as small as possible.
⚠ Whenever the working process allows it (also for test cuts), a power feeder must be used. This must be equipped with a separate ON and OFF switch.
⚠ For manual feed at the fence, a push stick must be used together with the safety guard to support the feed.
⚠ Roller stands or table extensions must be used as supports for long workpieces.

5.4.7 Direction of Rotation

⚠ It is important that the tool is clamped in the correct direction of rotation.
⚠ The safer machining method is conventional milling. The machine user must ensure that the workpiece is fed against the tool in the opposite direction to the spindle rotation.
⚠ Climb milling with manual feed involves considerable dangers. This operation is only permitted with appropriate devices and suitable tools. If the machine is switched to climb milling, this dangerous operation is signalled by a signal lamp on the control panel.

5.4.8 Speed Selection

⚠ The user must ensure that the correct speed is selected for the clamped tool.
⚠ For the optimum cutting speed, please refer to the diagram attached to the machine.

5.4.9 Machine Operation and Selection / Adjustment of Protective Devices

⚠	***By using different milling spindles, tools and cutters, a large number of different machining operations can be carried out on the spindle moulder. Therefore, it is not possible to use only one protective device for all operations.***

- Each operation should be considered separately. The most appropriate protective measures must be selected for each specific operation.
- The type of tool, its blade projection and its height on the spindle determine the smallest possible table opening.
- This can be achieved by selecting the appropriate table insert rings, which reduces the risk of the workpiece catching on the edge of the opening.
- The tool must be covered as far as the respective operation permits.
- A detachable power feeder attached to machine table combined with the safety fence can provide the most effective tool guarding. This combination is usually the best protective measure on table milling machines. The feeding device must be easily adaptable to the different workpiece dimensions and not cause any drawing-in hazards.

5.4.9.1 Milling at the fence, where the machining extends over the full workpiece length

With workpieces that usually have a right-angled cross-section over their entire length, this machining operation is carried out by using a safety fence. Since the fence rulers are at a 90° angle to the table top, the workpiece can be guided at right angles along the fence rulers.

Since the opening between the fence rulers on a table milling machine must be wide enough for the tool to pass through, unnecessary danger areas are created on the knives, on the tool body and on the spindle. The gap between the two fence rulers must be closed as much as possible. Otherwise there is a risk that the workpiece leading edge will catch on the edge of the take-off ruler. These hazards are avoided by the use of an auxiliary fence or suitable fence bridges, protective inserts, etc.

The manufacture of an auxiliary fence must be carried out with care. It is recommended that the knives are passed through by fine adjustment of the fence and not by pushing the fence into the tool by hand.

5.4.9.2 Insert Milling

Insert milling is milling at the fence, whereby the workpiece is not machined over its entire length. Instead of starting the cut at the beginning of the workpiece, the knives must plunge into the solid material and (depending on the requirement) plunge out again before reaching the end of the workpiece. The splinter tabs must be placed as close as possible to the cutter.

If the workpiece cannot be held safely by hand due to its small dimensions, a tenoning clamp or another workpiece holding device, together with a suitable guard (which secures the tool as far as possible) must be used. The tenoning clamp must allow fast and accurate insertion of the workpiece and ensure firm clamping.

A securely fastened telescopic fence as well as a kickback guard must also be used. For very long workpieces, use an auxiliary fence if necessary.

Quick clamps, acting either via toggle levers or eccentrics, ensure fast and convenient workpiece clamping. Quick clamps, acting either via toggle levers or eccentrics, ensure fast and convenient workpiece clamping. Rear and/or front cross fences attached to the fence or on the table ensure more accurate work with the tenoning clamp. In addition, extension and retraction bars should be provided on the tenoning clamp.

5.4.9.3 Curved Milling

For shaping the workpiece to be machined, a clamping template must always be used for curve milling. The shape of the workpiece is achieved by pressing the template against the ring fence guard (see section ⇨ 18.3), while the knives are simultaneously passing by.

A clamping template cannot be used if the operation makes this impossible, e.g. if

- the workpiece is so large that the use of the template makes the work impracticable or
- the workpiece is so small or so shaped that a secure fixture in the template is not possible.

5.4.9.4 Inclined Milling

A special clamping device or inclinable stop rulers must be used to ensure a secure support during inclined milling. Push sticks must be used at the end of the milling process.

5.4.9.5 Climb Milling

Climb milling is a very dangerous operation as the operator is not able to stop the sudden forward movement of the workpiece when it is caught by the knives. In addition, the workpiece can be dangerously ejected. Climb milling should generally be avoided, even if a clamping device or a workpiece holding device is used. If the direction of rotation switch on the control panel is set turned to the “climb milling” position, this is signalled by an illuminated signal lamp next to the switch.

5.4.9.6 Other Work

If other work is carried out on the machine, suitable clamping devices or workpiece holding devices must be used to reduce the risk of accident.

5.4.10 Use of work devices with protective function

The following devices can be used to support the machine operator during work:

- Table extensions (2 x lateral and 1 x front) for large and long workpieces
- Sliding table, clamping drawers, sliding blocks and comparable aids
- Telescopic fence with two flip stops and workpiece clamping device
- Approach rails on workpiece guides
- Detachable power feeder

5.4.11 Noise Reduction

- The condition of the tools is important to reduce the noise level.
- The material and the requirement of the guards must be chosen in such a way that the noise level is reduced.
- The correct tool speed selection must be used to reduce the noise level.

	***If the workplace-related noise emission values of the machine exceed 85 dB(A), suitable hearing protection must be made available to the personnel!***

The use of personal hearing protection is not a substitute for the above options.

5.5 Construction-related Safety Equipment

- The main switch can be locked to protect the machine against unauthorized/unintentional switch-on during standstill as well as during repair and maintenance work.
- The tool cover is ensured by means of a protective and pressure device (standard version).
- The safety fence has a protective bonnet to cover the tool from the top side. It is also equipped with a suction nozzle to extract chips and dust directly at the point of origin.
- With the insert rings included as standard, the table opening can be adapted to the tool diameter as far as possible in order to keep it as small as possible.
- The smooth-running and lockable sliding table with extendable fence and eccentric clamp ensures reliable workpiece guidance. Even large workpieces can be processed safely.

5.6 Electrical Safety Equipment

- The machine is equipped with an emergency stop button on the front control panel. This is directly accessible at the workstation and immediately puts the machine out of operation in the event of danger.
- The main switch can be locked to protect the machine against unauthorised/unintentional switch-on during standstill as well as during repair and maintenance work.
- Electronic brake for electrodynamic braking of the motors. This ensures the standstill of the tool in less than 10 seconds after the motor is switched off.
- Undervoltage protection: In the event of a voltage interruption, the machine is brought to a standstill, where it remains even when the voltage is restored. To restart the machine, it must be switched on again.
- Protection against electric shock: The housing of the machine and the drives are protected against electric shock by a neutral line.
- Dust protection: The control cabinet and drive unit are protected against contact, dust and splash water on all sides with IP54 protection.
- Safety switch for tool change. A locking bolt can be used to activate an anti-rotation device for the milling spindle. The internal switch then prevents the spindle from starting dangerously.
- Short-circuit protection: The machine has an overload protection for the motor (thermal cut-out switch).
- The service door on the left side of the machine is equipped with a safety switch. This switches off the spindle drive as soon as the door is opened and prevents the drive from being switched on when the door is open.
- A signal light indicates the set direction of rotation during the dangerous “climb milling” operation.

5.7 Optional Safety Equipment

5.7.1 Protective and Pressure Device GAMMA V 1629

The protective and pressure device type GAMMA V 1629 can be attached to all common safety fences and is used instead of the standard protective and pressure device. It is infinitely adjustable horizontally and vertically and locks in the raised position.

- For details see section ⇨ 18.1

5.7.2 Protective and Pressure Device CENTREX 1624

The fold-up protective and pressure device type CENTREX 1624 is used to securely fix workpieces during manual milling operations. It can be attached to all common safety fences and is used instead of the standard protective and pressure device. The special shape of the pressure shoes ensures precise workpiece guidance for all milling work that occurs.

- For details see section ⇨ 18.2

5.7.3 Ring Fence TAPOA 1639

For accident-free milling of curved workpieces on the spindle moulder, with thrust ring and guard ring, 1 thrust ring and guide bar, with fine adjustment of the milling depth, suction nozzle ø 120 mm.

- For details see section ⇨ 18.3

5.7.4 Ring Fence KOALA 1637

For accident-free milling of curved workpieces on the spindle moulder, with thrust ring and guard ring, 2 thrust rings and guide bar, with fine adjustment of the milling depth, suction nozzle ø 120 mm.

- For details see section ⇨ 18.3

5.7.5 Power Feeder PV84

For a safe workpiece feed.

- For details see section ⇨ 18.4

5.7.6 Integral Fence Plates Type 211

Safety fence plates with integrated, swivelling guide rods that ensure a gap-free guide surface for all milling operations. Exact adaptation to tool diameter and height by means of infinitely variable adjustment. The integral fence plates are mounted in place of the standard fence plates and are available in four different length pairs (infeed - outfeed side).

- For details see section ⇨ 18.5

5.8 Hazardous Areas

Hazard	Area/Action	Risk	Avoidance
Cutting Hazard 	At the tool • When changing the cutter head. • In case of contact with the rotating cutter.	Mild to severe injuries to hands and fingers.	• Wear gloves when changing the cutter. • Keep hands out of the danger zone. • Use all available tool covers and fence bridges. • Do not push workpieces along the unsecured cutter by hand. • Use a power feeder, sliding table or sliding block.
Risk of Kickback  **Danger of being drawn in** 	At the tool • Increased risk of draw-in due to rotation of the cutter! • When the splinter tabs are widely spaced apart! • Increased risk of Kickback when tilting the workpiece! • Increased risk of Kickback with incorrectly selected cutting or rotating speed! • Increased risk of Kickback when insert milling! • Increased risk of Kickback and draw-in during climb milling! • Danger of being drawn in when using a power feeder between workpiece and power feeder.	Increased risk of injury or even death from ejected or flying workpieces, workpiece parts and tool parts (e.g. in the event of tool breakage). Increased risk of injuries or even death due to entrapment of hands, fingers, clothing, jewellery and long hair.	• Keep hands out of the danger zones. • Use all available tool covers and fence bridges. • Set splinter tabs correctly. • Do not push workpieces along the unsecured cutter by hand. • Use a power feeder, sliding table or sliding block. • Use an anti-kickback device (also for test cuts!) and add a clamping device if necessary. • The values in the cutting speed table must be observed. • Never wear gloves while the milling spindle is running. • Wearing watches, jewellery and long hair are prohibited! • Wear tight-fitting clothes and hairnet if necessary.
Crushing Hazard 	On all moving parts as well as clamping and tensioning devices of the machine and additional components.	Bruises, contusions and broken bones on the hands and fingers.	• Keep hands out of the danger zones. • Wear gloves for setup and maintenance work (only when the main switch is secured).
Electric Shock Hazard 	On the electrical system and all current-carrying components.	Electric shocks with an increased risk of injury up to death.	• Avoid wetness / moisture. • Have defective parts, cables and insulation repaired immediately (only by qualified personnel!). • Do not touch energised components. • Switch off and lock the main switch or disconnect the machine from the mains during any maintenance or repair work.

6 Machine Data

6.1 Technical Specifications

Size of the cast table top:	L x W = 1000 x 550 mm
Size of the table extensions:	L x W = 500 x 320 mm each
Size of the slide table:	L x W = 1150 x 350 mm
Spindle center ↔ slide table:	450 mm distance
Drive motor:	4.0 kW (5.5 HP) | optional 5.5 kW (7.5 HP)
Motor voltage:	400 VAC / 50 Hz
Protection class:	IP54
Motor brake:	electronic, wear-free
Spindle speeds:	1400 / 3500 / 6000 / 8000 rpm
Milling spindle:	Ø 30 mm (on request: Ø 32, 35 ,40 and 50 mm)
Clamping height:	125 mm (with Ø 30 mm spindle)
Tool diameter (profiling) :	max. Ø 180 mm at 90° | max. Ø 125 mm at 45°
Tool diameter (tenoning) :	max. Ø 250 mm
Height adjustment stroke:	175 mm
Spindle tilt range:	90° … 45°
Height/Tilt adjustment:	manually via handwheels
Height position indicator:	analog indicator on handwheel
Tilt position indicator:	analog angle scale on handwheel
Suction nozzles:	2 x Ø 120 mm (1 x on safety fence and 1 x on machine rear)
Net weight:	approx. 400 kg
Space requirement:	approx. 2800 x 2000 mm
Ambient conditions:	refer to section ⇨ 5.2

Name plate:

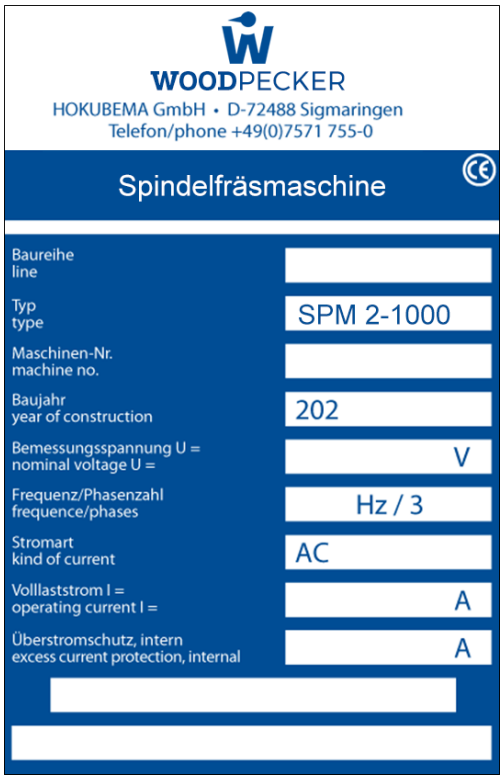


Figure 1: Name plate

Manufacturer:

HOKUBEMA Maschinenbau GmbH
Graf-Stauffenberg-Kaserne
Binger Str. 28 | Halle 120
DE-72488 Sigmaringen (Germany)
Tel.: +49 (0) 7571 / 755-0
Fax: +49 (0) 7571 / 755-2 22

Correspondence in the vase of service:

Please, in case of technical problems, contact your dealer or the manufacturer's service department. In correspondence or during a telephone call regarding the purchased machine, you should have the following data at hand:

- Manufacturer number of the machine
- Voltage and frequency
- Date of manufacture
- Detailed description of the fault
- Detailed description of the type of machining carried out
- General operating time of the machine in working hours
- In case of questions regarding the electrical system, the information on the machine's type plate is also required.

6.2 Emission Levels

6.2.1 Noise Information

The values given are emission levels and therefore do not necessarily represent safe workplace values. Although there is a correlation between emission and immission levels, it cannot be reliably deduced whether additional precautionary measures are necessary or not.

Factors that may affect the current immission level at the workplace include the duration of exposure, the nature of the workspace, other noise sources, etc., e.g. the number of machines and other activities in the vicinity. The permissible workplace values can also vary from country to country.

However, this information should enable the user to make a better assessment of hazard and risk.

6.2.2 Noise Emission Values

Explanation of noise emission	
Weighted level: Noise pressure in idle state	L_{pfA} = 74 dB Uncertainty: K = 2 dB
Weighted level of noise power at the workplace	L_{wA} = 103 dB Uncertainty: K = 2 dB at error limit interval 95 %

The workplace-related noise emission values of the machine exceed 85 dB(A)!
Therefore, suitable hearing protection must be provided to the personnel!

6.3 Workplace Requirements

The effective space requirement generally depends on the maximum external dimensions of the machine (see next section ⇨ 6.4) and the dimensions of the workpieces to be processed. In general, provide sufficient space around the machine and also calculate the required space for the operating and auxiliary personnel as well as for the infeed and outfeed of the workpieces.

- Select a suitable installation site for the machine and consider the workplace shown in the figure for the milling work.
- Consider the existing hazardous areas (see section ⇨ 5.8).
- A clearance of min. 0.8 m must be ensured around the machine.
- The chosen location must guarantee a suitable connection to the mains supply and to an external extraction system.
- Sufficient lighting (min. 500 lux) must be ensured. The lighting must not dazzle and a stroboscopic effect must be avoided.
- Sufficient space must be ensured for the infeed and outfeed of long workpieces.

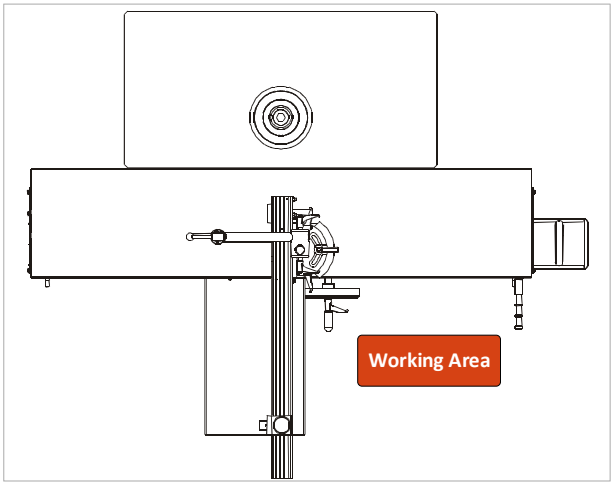


Figure 2: Working area

- Make sure that the floor can support the load of the machine. The machine must be levelled at the four adjusting feet simultaneously with a machine spirit level.

6.4 Maximum Dimensions

The external dimensions of the machine are variable, as they depend on the position of the sliding table, the telescopic fence, and any table extensions that may be attached. The dimensions shown below refer to the maximum achievable state.

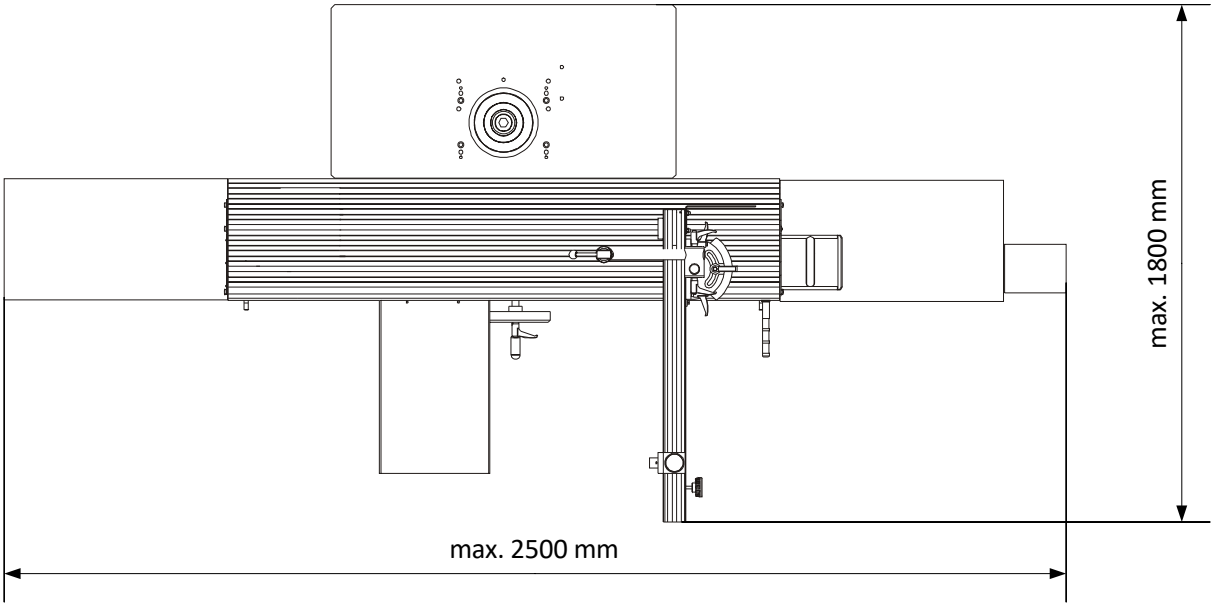


Figure 3: Maximum dimensions - top view

Subject to design and dimensional changes!

7 Installation and Connection

7.1 Check Delivery Conditions

Check the consignment for completeness and possible transport damage. In case of transport damage, please keep the packaging and inform the shipping company and the manufacturer immediately! Later complaints cannot be accepted.

7.2 Transport

Lifting and transporting the machine must be carried out by qualified persons who have the required experience and equipment.

⚠	***Please take great care when loading and unloading the machine. The necessary measures must be taken to avoid impacts, damage as well as injuries to persons. When transporting, also pay attention to the existing danger of tipping over!***

The machine is delivered on a transport pallet and is bolted to the bottom of the pallet. The centre of gravity of the machine is approximately in the middle of the pallet. The machine may only be transported using suitable aids, e.g. a forklift truck, lift truck or indoor crane with a load capacity sufficient for the weight of the machine (net weight approx. 400 kg).

⚠	***Danger to life under suspended loads during transport by forklift or crane. Staying under a suspended load is strictly prohibited! In addition, make sure that no objects fall down during transport by forklift / crane. Do not leave loose objects, accessories or tools on the machine.***

7.2.1 Unloading with a Forklift Truck

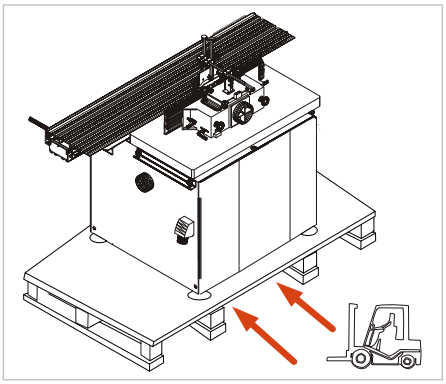


Figure 4: Unloading with a forklift truck

⚠	***Important! The forks of the forklift truck must be be at least 1200 mm long!***

- Move the forks of the forklift truck centrally between the pallet timbers.
- Then feed the forks of the forklift truck as shown in ⇨ Figure 4.
- Lift the pallet by a few centimetres and move the machine to the immediate vicinity of the installation site.

7.2.2 Setting Down with a Forklift Truck

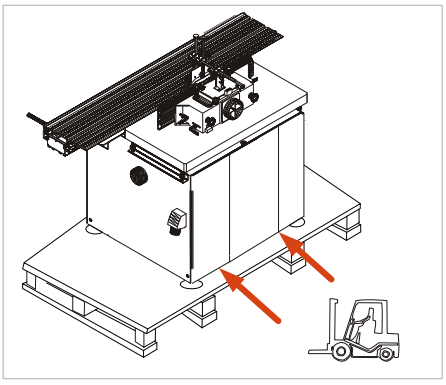


Figure 5: Setting down with a forklift truck

⚠	***Important! The forks of the forklift truck must be be at least 1200 mm long!***

- Remove all screw fastenings and transport locks required for transport on the pallet.
- Then lift the machine off the pallet with the forklift truck and feed the forks as shown in ⇨ Figure 5.
- Now move the machine to the final installation site and park it at the final place of use.

7.2.3 Lifting and Parking with an Overhead Crane

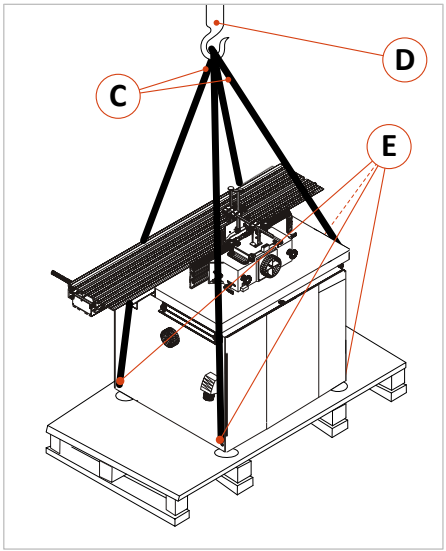


Figure 6: Lifting and parking with a crane

- Prepare four lashing straps or transport ropes (**C**) with the required load capacity and in sufficient length and hang them on the crane hook (**D**) as shown in ⇨ Figure 6.
- Then fasten the straps/ropes (**C**) in the four transport lugs (**E**) of the machine and adjust them well. If necessary, move the crane a little to ensure vertical and stable lifting. Do not tilt the machine!

	***Before lifting, check that the ropes are securely fastened in the four transport lugs!***

- Lift the machine only so far that the pallet can be removed. Proceed carefully and without bumping / rocking.
- Remove the screw fastenings and transport locks required for transport on the pallet and fit the four feet supplied.
- Then park the machine at the intended place of use.

7.3 Machine Installation

Remove the preservative that was applied at the factory to protect the parts against corrosion without painting. This can be done with commercially available solvents. Please do not use nitro solvents or similar solvents and never use water to remove the preservative!

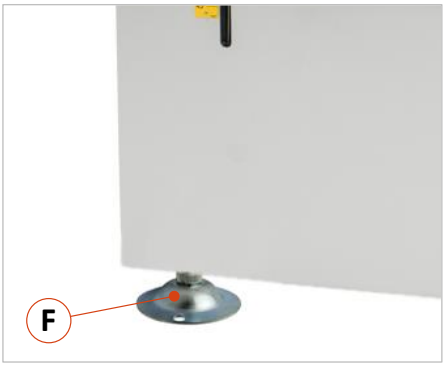


Figure 7: Adjustable foot

- Due to the solid machine construction, no special foundation is required to ensure good levelling and vibration-free operation of the machine.
- Remove all transport locks and fastening elements necessary for transport.
- For levelling, the machine has four feet (**F**) which can be adjusted in height by means of adjusting and lock nuts.
- Use an open-end spanner to level out any unevenness in the floor with a machine spirit level 0.1 mm/1 m via the adjusting nuts until a stable and level stand is achieved. Then secure all 4 feet with the lock nuts.

	***Be aware of possible crushing hazards when placing the machine (from the pallet to the floor) by means of a forklift truck or similar. Pay particular attention to your hands and feet and wear safety shoes and protective gloves as a precaution.***
	***Danger to life when using a forklift truck! Keep a sufficient distance from the forklift truck and watch its speed. Vehicles with combustion engines also produce toxic exhaust gases. Wear a breathing mask if necessary.***
	***It is essential that the machine is level! Check with spirit level!***
	***Dispose of the packaging material in an environmentally friendly way!***
	***Do not use nitro thinner for cleaning. Painted surfaces of the machine can be damaged.***
	***Fire hazard! Do not smoke and do not light an open fire.***

7.4 Temporary Storage

If the machine is not put into operation immediately after delivery, it must be stored carefully in a protected place. Carefully cover the entire machine so that neither dust nor moisture can penetrate.

The bare, non-surface-treated parts are provided with a preservative. This must be checked regularly for effectiveness and renewed if necessary.

7.5 Lashing in a Transport Vehicle

For transport in a transport vehicle, the machine must be bolted to a transport pallet (as on delivery), lashed upright on the vehicle loading surface and properly secured.

The responsibility for safe loading is borne by the respective shipper!

	***At least two lashing straps must be used, each of which must be individually tensioned on the loading area of the transport vehicle! The palletised machine must be additionally secured against slipping and tipping over in the vehicle.***

Please note the following when lashing in the transport vehicle:

- The loading area of the transport vehicle must always be clean and dry.
- The lashing straps used must be suitable for the total weight of the machine (net weight approx. 400 kg).
- For transport, loose assemblies, accessories or tools must be removed from the machine. These can, for example, be individually packed in cardboard boxes and separately lashed to a free area of the pallet (e.g. with another lashing strap).
- For all components remaining on the machine, make sure that the clamping levers and clamping handles are well tightened so that the parts are secured during transport and cannot slip out of place.
- Fastening on the loading area is done by lashing down: This means that the transport pallet is secured by frictional locking. The load is pressed so firmly onto the loading surface that it can no longer slip. The clamping tool should have a high STF value at the frictional connection, e.g. long-lever ratchets.
- In addition, anti-slip mats should be used to provide even more safety.
- The ideal lashing angle (α) for tie-down lashing is 83° to and 90°. Therefore, the lashing straps should pull downwards approx. vertically. As the angle decreases, the pretensioning force of the lashing is reduced.
- When tensioning the lashing straps, make sure that no parts of the machine can be crushed or damaged.
- Observe the permissible total weight of the transport vehicle.
- Ensure that the permissible axle loads of the transport vehicle are observed. The load must be distributed evenly on all axles of the vehicle.

7.6 Connecting the Extraction Unit

- The machine must be connected to an effective extraction system on-site.

  Installation only by a qualified electrician!
- The two suction nozzles (**S**) at the safety fence and on the right side of the machine (see ⇨ Figure 8) have a diameter of 120 mm.
- All parts of the extraction system, incl. hoses, must be included in the earthing measure.

	***If flexible suction hoses are used, they must be flame-retardant.***

- Use a 120 mm diameter suction hose to connect the suction system to the machine's suction nozzles (**S**).

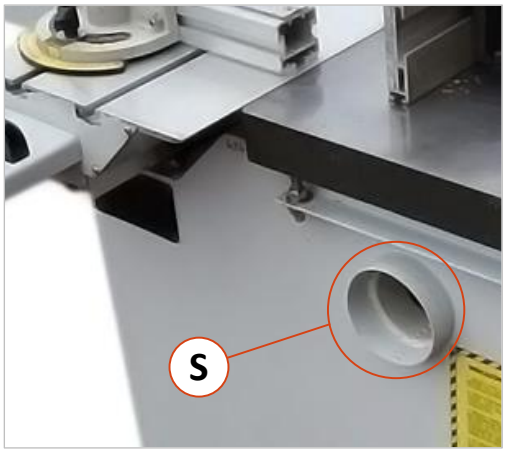


Figure 8: Suction nozzle

- The extraction system for chips and dust must have an extraction capacity of at least 1800 m^3/h at a speed of 25 ... 30 m/s.

	• ***The air velocity must be checked before initial commissioning and after significant changes.*** • ***The extraction system must be checked daily for obvious defects after initial commissioning and monthly for effectiveness.***

	***When the machine is switched on, the extraction system must start automatically.***

7.6.1 Automatic switching of the Extraction System (Option)

If this option is present, additional contacts are available to which two signal generator lines can be connected for automatic switching of the extraction system.

- Order designation: *SPM 2-1000-004*

The wiring diagram for the connection assignment is enclosed with the machine when this option is ordered.

7.7 Electrical Connections

⚠	***The connection must be carried out by an authorised electrician!***

Please observe the specified nominal voltage 400 VAC / 50 Hz (3 phases / N / PE)!

- The supply cable is inserted through the cable gland at the bottom of the terminal box, which is located on the right side of the machine (see ⇨ Figure 9)
- The connection to the mains (3 phases) is made in the terminal box. The 3 phases are to be connected to the terminals "**L1**", "**L2**" and "**L3**".
- The protective earth wire (yellow/green) is to be connected to the terminal marked "PE".
- Then close the cable gland again so that it is dust-tight.
- Observe the direction of rotation of the cutter block!

Figure 9: Terminal box

☝	***<u>Important</u>: Check the correct direction of rotation of the milling spindle during initial commissioning and after any change to the connection to the three-phase mains!***

⚠	***If the direction of rotation is wrong, the phase lines L1 and L2 must be interchanged.***

Only if the connection is carried out by an authorised electrician can a guarantee be given for the motor. In the event of a complaint, the electrician must confirm in writing that he has connected the machine in accordance with the regulations.

☝	***The fault loop impedance and the suitability of the overcurrent protection device must be checked at the installation site of the machine.***

7.7.1 Supply Cable and External Fuse Protection

Use a Cu, 5-core cable. The wire cross section must be determined on site by a qualified electrician!

The electrical cabling and the connection must be performed by a specialist according to the applicable local EVU, VDE, and EN provisions. We recommend the use of a rubber cable type H07RN (WDE0282), whereby additional measures must be taken to protect against mechanical damage. To determine the required cross-section of the supply cable and the external fuse, use the data from the following table:

Consumption current (A)	Required wire cross-section	Required external fuse
up to 10	2.5 mm^2	12 A (slow)
from 10 to 14	4.0 mm^2	16 A (slow)
from 14 to 18	6.0 mm^2	20 A (slow)
from 18 to 22	6.0 mm^2	25 A (slow)
from 22 to 28	10.0 mm^2	32 A (slow)
from 28 to 36	10.0 mm^2	40 A (slow)
from 36 to 46	16.0 mm^2	50 A (slow)

8 Components & Controls

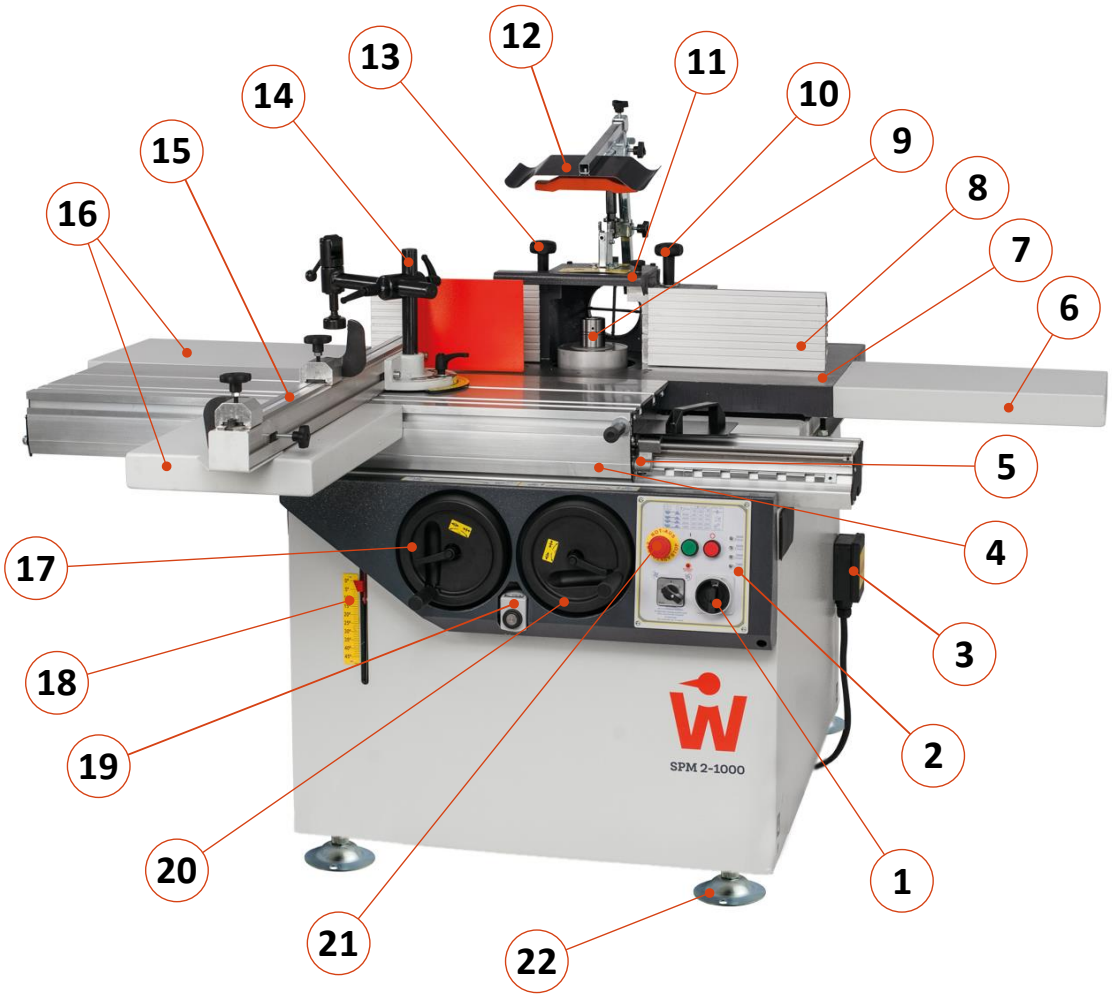


Figure 10: Components & controls

No.	Description	No.	Description
1	Main switch	**12**	Protective and pressure device
2	Control panel	**13**	Partial fence clamping screw
3	Terminal box	**14**	Eccentric clamp for telescopic fence (**15**)
4	Sliding table	**15**	Telescopic fence
5	Locking device for sliding table	**16**	Table extensions
6	Table extension	**17**	Handwheel for spindle tilt adjustment
7	Cast table top	**18**	Angle scale for spindle tilt adjustment
8	Fence plate	**19**	Indicator for spindle height adjustment
9	Milling spindle	**20**	Handwheel for spindle height adjustment
10	Total fence clamping screw	**21**	Emergency stop button
11	Safety fence with cover and suction nozzle	**22**	Adjustable feet

9 Machining Methods

9.1 Permissible Machining Methods

- ✓ Milling of long and short sides as well as profiles with the safety fence and, if necessary, sliding table and telescopic fence
- ✓ Milling of arcs and curves with an arc safety fence (additional option)
- ✓ Milling tenons and slots with the Sliding table and telescopic fence or with a tenoning and slotting device available from specialist dealers
- ✓ Insert milling with the safety fence and other aids (see ⇨ 5.4.9.2)
- ✓ Use of a detachable power feeder (add-on option, see ⇨ 18.4)

All machining methods that deviate from the above-mentioned working methods are not permitted and must not be carried out on this machine.

9.2 Improper Machining Methods

Apart from the deviating machining methods listed in section ⇨ 9.1, the following impermissible operations must be explicitly mentioned because they must not be carried out on this machine under any circumstances:

- X Milling work without the guards required for the operation (protective and pressure device, milling fence, telescopic fence, backstop, ring fence, tool covers, table insert rings, etc.).
- X Milling at speeds outside the permissible speed range indicated on the tool.
- X Use of tools that are not permitted according to EN 847-1, marked with the BG test mark or are marked with the hand feed or MAN symbol.
- X Milling with blunt, damaged or defective tools.
- X Use of tools with too large a bore compensated with reducing sleeves.
- X Milling work on workpieces made of metal or materials containing metal or mineral substances.
- X Slot milling using a circular saw blade.
- X Climb milling (feed direction = direction of rotation))
  - This operation is expressly prohibited by the Employer's Liability Insurance Association for Wood in the case of manual feed. This also applies if a power feeder or a sliding table is used, as these devices are also defined as “manual feed”.
  - The use of the dangerous direction of rotation “climb milling” is at your own risk!
  - The manufacturer is not liable for any resulting damage to property or personal injury!

10 Possible Operations

This chapter explains the possible operations that can be carried out with the spindle moulder. In addition to this, also read and follow all the instructions in the complete section ⇨ 5.4.9.

10.1 Milling of Longitudinal Sides

- Place the workpiece on the machine table with the protective and pressure device correctly adjusted from right to left along the safety fence. The protective bonnet of the fence must be closed.
- If possible, use a power feeder (option, see section ⇨ 18.4).
- If no power feeder is available, always guide the workpiece with the sliding table if possible and secure it with the telescopic fence or anti-kickback guard.
- Use the existing table extensions for very long or wide workpieces.

10.2 Milling Cross Sides

- Guide the workpiece along the safety fence from the right to the left with the protective and pressure device correctly set. The protective bonnet of the fence must be closed.
- If possible (especially with short workpieces) use the sliding table and fix the workpiece to the telescopic fence using the eccentric clamp..
- For very long workpieces use the table extension on the front side of the machine.

10.3 Insert Milling

- Insertion milling is carried out with the protective and pressure device and the safety fence correctly adjusted. The protective bonnet of the fence must be closed.
- For insertion milling, the table extensions (left and right) and two non-return devices (one each for the insertion position and one for the exit position) must be used.
- When insert milling short workpieces, use a clamping strip.
- Place the workpiece or the clamping strip against the non-return device, swivel it in and push it forward. The beginning of the workpiece should be in contact with the fence.

10.4 Tenon and Slot Milling

- The safety fence including protective bonnet, the format sliding table with the telescopic fence, protective cover and eccentric clamp are required for milling slots and tenons. A support wood is recommended between the workpiece and the fence to prevent tearing when the milling tool leaves the workpiece.
- Tenons and slots can be realised even more comfortably and safely with a separate tenon cutting and slotting device as well as an obligatory protective cover.

  SI-TEC - Tenoning and slotting device type 1376 → Art. No.: 2221

  SI-TEC - Protective cover for tenoning and slotting device type 1641 → Art. No.: 2235

10.5 Curved Milling

- A separate ring fence is required for curved milling on this spindle moulder, for example types TAPOA 1629 or KOALA 1637 (see section ⇨ 18.3).

11 Commissioning

Before commissioning, carefully read and observe this manual and the safety instructions in chapter ⇨ 5!

⚠	***Before switching on, make sure that*** • *the cutter is firmly and securely clamped,* • *there is no spanner left in the spindle,* • *the machine table and fence are clean and free of objects,* • *the guards are fitted in accordance with regulations,* • *the extraction system is connected and in good working order* • *and the direction of rotation is selected to suit the tool and work process.*

11.1 Switching ON and OFF

The main switch (**1**) on the control panel is used to switch the machine's power supply on and off.

Switching ON → Turn the main switch to position "**I**"
Switching OFF → Turn the main switch to position "**O**"

After switching on the main switch (**1**), the speed set according to the belt position is indicated by the corresponding signal lamp (**S**).

The speed setting is made according to chapter ⇨ 14.

⚠	***Before switching on, make sure that there is no spanner left in the spindle!***

Figure 11: Control panel

11.2 Switching the spindle ON and OFF

- To start the spindle, the main switch (**1**) must be switched on (position "**I**").
- First set the desired speed according to chapter ⇨ 14.
- To **switch on**, press the green push button (**2**).
  → The milling cutter is set in rotation with the preselected speed and direction of rotation.

⚠	***If the spindle is started without a tool, all the milling arbor rings and the clamping screw must be fitted and tightened.***
☝	***Do not start working until the machine has reached full speed (after approx. 10 s).***

- To **switch off**, press the red push button (**3**).
  → The milling cutter is switched off and brought to a standstill (braking time < 10 s).

⚠	***Do not stop the spindle via main switch (1) or rotary switch (4), as the motor brake is not effective via these two switches! Do not switch the spindle on and off more than 10 times per hour!***

11.3 Direction of Rotation Switch

The spindle direction of rotation is set via the rotary switch (**4**) on the control panel:

Conventional → Turn rotary switch (**4**) to the left (counterclockwise rotation, changeover only at standstill).
Climb milling → Turn the rotary switch (**4**) to the right (clockwise rotation, changeover only at standstill).
The signal lamp (**R**) indicates the dangerous direction of rotation "climb milling".

⚠	***<u>Avoid climb milling</u>, as this considerably increases the risk of accidents!***

11.4 Emergency Stop Button

In the event of danger or malfunctions during operation, the machine can be stopped quickly and reliably using the emergency stop button (**4**) on the control panel. Before restarting the machine, the emergency stop button must be unlocked again.

	The braking time of the motor to a standstill must not exceed 10 seconds.

12 Adjusting the Milling Spindle

Figure 12: Hand wheels for height / tilt adjustment

The tool height and spindle tilt are positioned via the two handwheels at the front, which can be adjusted after loosening the corresponding clamping lever (**K1**) or (**K2**).

- **Left handwheel (17)**
  Tilt adjustment in degrees
  Range: 90° … 45°
- **Right handwheel (20)**
  Height adjustment in mm
  Range: max. 175 mm

12.1 Tilt Adjustment

- Loosen the clamping lever (**K1**).
- Set the angle with the handwheel (**17**) and read it off the angle scale (**18**).
- After adjustment, tighten the clamping screw (**K1**) again.

12.2 Height Adjustment

- Loosen the clamping lever (**K2**).
- Preset the height by cranking the handwheel (**20**).
- Then make the fine adjustment using the indicator (**19**).
- After adjustment, tighten the clamping screw (**K2**) again.

	Please note: In order to avoid possible spindle play, the height adjustment should always be made from the bottom to the top.

13 Tool Change

⚠	***Switch off the machine during speed setting and secure it against unauthorised restarting! Lock the main switch with a padlock!***
☝	***Make sure that the clamping surfaces of the spacer rings and clamping nut are clean!***
☝	***The tools used on the machine must comply with EN 847-1!***
🧤	***Wear cut-resistant protective gloves when changing tools!***

After switching off and locking the main switch (**1**), make the milling spindle accessible by opening the protective bonnet of the safety fence, if fitted (see ⇨ 17.1.2 resp. ⇨ 17.2.3 depending on the fence used). If necessary, the fence can also be moved backwards or lifted off completely.

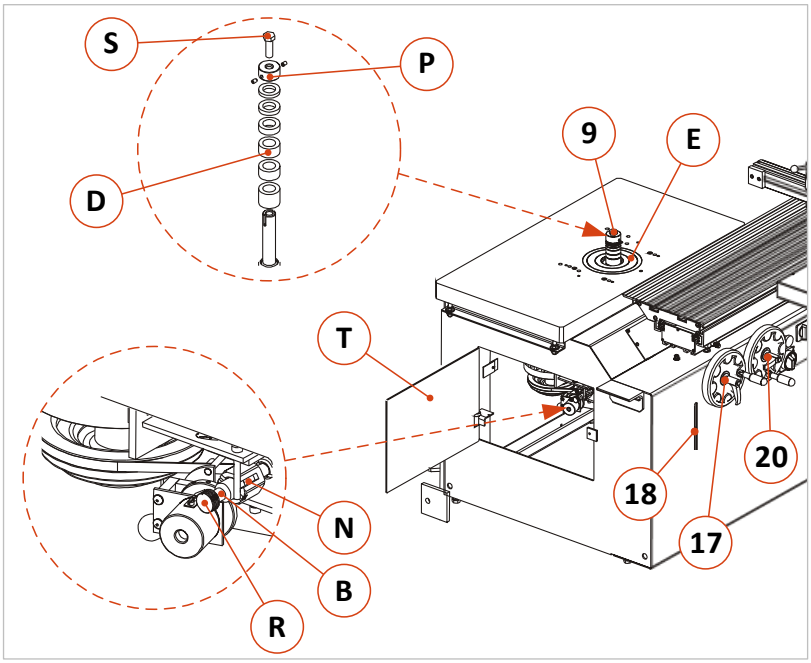


Figure 13: Tool change

- If fitted, remove the table insert rings from the table top opening.
- Loosen the clamping lever of the handwheel (**17**) and adjust the spindle (**9**) via the scale (**18**) to exactly 90° (see ⇨ Figure 13).
- Loosen the clamping lever of the handwheel (**20**) and adjust the height of the spindle (**9**) to the uppermost position (see ⇨ Figure 13).
- Unscrew the handle screw of the service door (**T**) and open the door to access the adjusting wheel (**R**).

- To activate the spindle lock, pull out the adjusting wheel (**R**) and turn it by 90° so that the bolt (**B**) engages in the deeper groove (**N**) → Now turn the milling spindle (**9**) by hand until it is blocked by the adjusting wheel (**R**) → The spindle lock is now active → the spindle can no longer be turned and started, as the internal safety switch prevents this.
- Loosen the clamping screw (**S**) with an Allen key and remove the retaining ring (**P**) and all spacer rings (D).
- Thoroughly clean the clamping and contact surfaces of the aforementioned parts.
- Now select the milling tool to be used, also clean it thoroughly and make sure it is in a damage-free and functional condition.
- Before mounting the tool, pay attention to the permissible speed range and the correct direction of rotation.
- Slide the milling tool onto the spindle as far down as possible and choose spacer rings that match the tool and also slide them onto the spindle.

☝	***The tool must be mounted as far down as possible on the spindle to reduce possible vibrations and to achieve an optimal machining surface.***

- Select the height of the spacer rings (**D**) so that there is still sufficient space for the clamping process after the retaining ring (**P**) has been placed in the uppermost position.

- Now tension all elements by tightening the tensioning screw (**S**) with the appropriate Allen key.
- Be sure to remove the Allen key from the spindle before switching on the machine!

⚠	***Increased risk of injury when starting the milling spindle if the Allen key is not removed!***

- Deactivate the spindle lock by pulling the adjusting wheel (**R**) and turning it back 90° to return the bolt (**B**) to its original position → The spindle can now be turned manually again.
- Turn the spindle manually to make sure that the milling tool does not hit or brush against anything. Now place the table insert rings that match the tool diameter into the table top opening so that the distance between the innermost ring and the milling tool is as small as possible.

⚠	***Increased risk of injury if the table opening is too large or if the table insert rings are incorrectly selected!***

- Now set the desired spindle tilt using the handwheel (**17**) and the spindle height with the handwheel (**20**). Then fix the set positions by tightening the clamping levers on the handwheels.
- Then set the position of the safety fence (refer to section ⇨ 17.1 resp. ⇨ 17.2 depending on the fence used). **Important:** Make sure that the tool does not hit or brush against the safety fence by turning the milling spindle by hand.

14 Speed Setting

With the SPM 2-1000 tilting spindle moulder, the speed is adjusted by shifting the V-belt.

⚠	***Switch off the machine during speed setting and secure it against unexpected restarting. Lock the main switch with a padlock!!***

- After switching off and locking the main switch (**1**), loosen the clamping lever of the handwheel (**20**) for height adjustment and crank the spindle (**9**) to the uppermost position (see ⇨ Figure 14).
- Then loosen the handle screw (**G**) and open the service door (**T**) on the left side (⇨ Figure 14).
- Open the clamping lever (**K**) to release the belt.
- Set loosened belt (**R**) to desired speed by means of lever (**A**), see ⇨ Figure 15.
  Note: The speed table (**S**) is also attached to the inside of the service door (**T**).
- After setting has been completed, tighten the clamping lever (**K**) again.
- **Recheck:** Turn the pulleys by hand and make sure that the belt runs freely and does not rub against the lever (**A**).
- Close the service door and turn the main switch (**1**) on again.
- **Recheck:** The signal lamp (**S**) corresponding to the set speed must light up (see ⇨ Figure 11).

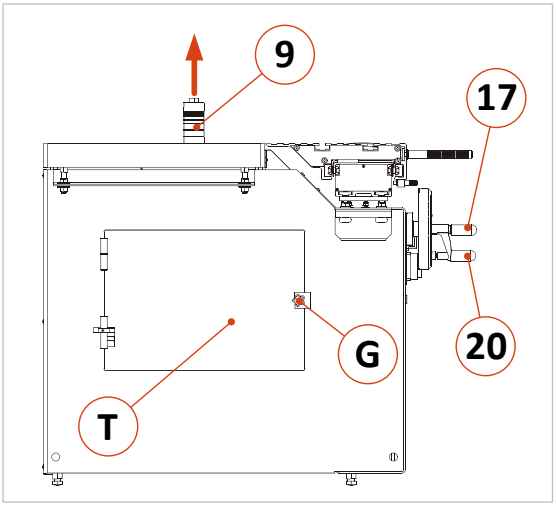


Figure 14: Service door

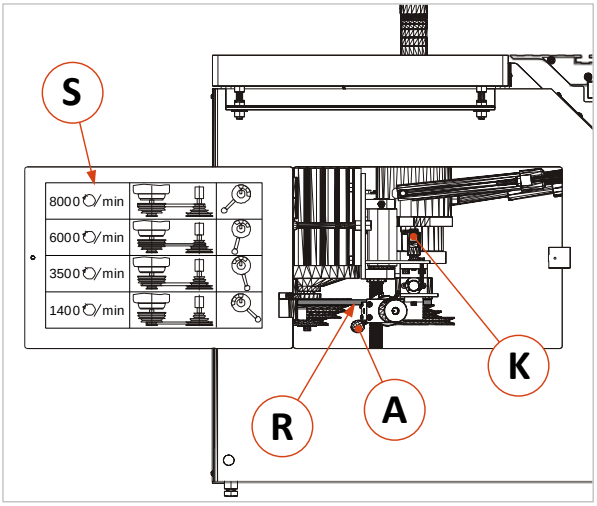


Figure 15: Speed setting

14.1 Selecting the Spindle Speed

The spindle speed depends on the selected tool, the workpiece material and the machining type.

- To avoid kickback, a lower cutting speed of 40 m/s is recommended.
- To avoid tool damage, an upper cutting speed of 70 m/s is recommended.

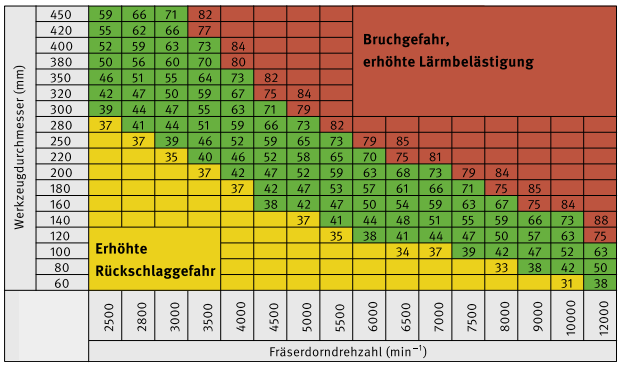
In the following table you will find guide values for the cutting speed depending on the type of material to be machined and the tool used.

Material to be machined	*HSS Tools*	*HM Tools*
Softwoods	50 - 80 m/s	60 - 80 m/s
Hardwoods	40 - 60 m/s	50 - 80 m/s
Boards from pressed wood		60 - 80 m/s
Fibre boards		35 - 50 m/s

In general, use the cutting speed chart in section ⇨ 14.2 on the next page as a guide.

14.2 Cutting Speed Chart

The cutting speed is the speed of the moving tool cutting edges, it is calculated from the spindle speed of the milling machine and the diameter of the cutter. The chart illustrates the dependency between the cutting speed, the tool diameter and the spindle speed.



Werkzeugdurchmesser (mm)	2500	2800	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	9000	10000	12000
450	59	66	71	82												
420	55	62	66	77												
400	52	59	63	73	84											
380	50	56	60	70	80											
350	46	51	55	64	73	82										
320	42	47	50	59	67	75	84									
300	39	44	47	55	63	71	79									
280	37	41	44	51	59	66	73	82								
250		37	39	46	52	59	65	73	79	85						
220			35	40	46	52	58	65	70	75	81					
200				37	42	47	52	59	63	68	73	79	84			
180					37	42	47	53	57	61	66	71	75	85		
160						38	42	47	50	54	59	63	67	75	84	
140							37	41	44	48	51	55	59	66	73	88
120								35	38	41	44	47	50	57	63	75
100										34	37	39	42	47	52	63
80													33	38	42	50
60															31	38

Figure 16: Cutting speed chart

- Select the speed for the cutter used according to the chart and be sure to avoid settings within the danger zones marked in yellow and red.

⚠	***Increased risk of kickback, breakage and/or noise pollution when choosing a non-recommended settin!***

15 Sliding Table

The lockable sliding table provides valuable support during milling work and ensures more flexibility and safety during machining. It enables more precise work, accurate guidance of the workpiece and a straight course of the milled surface.

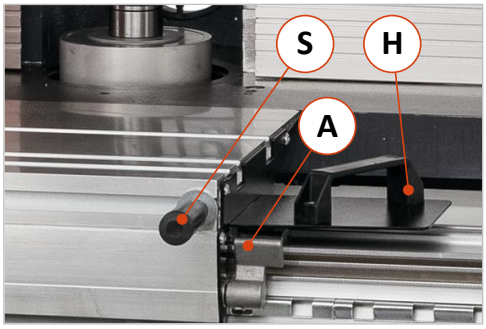


Figure 17: Operating the sliding table

Operating the sliding table:

- To lock the sliding table, push the locking lever (**A**) to the lower position.
- To move the sliding table, set the locking lever (**A**) to the upper position and move the table with the handle (**H**) or the push bar (**S**).

Remark 1: If the sliding table is not used to guide the workpiece, but only as a support, it must be locked in place.

Remark 2: If the sliding carriage is used to guide the workpiece, it is recommended to use it in combination with the telescopic fence whenever possible and to fix the workpiece on the working surface with the eccentric clamp.

16 Telescopic Fence

The adjustable telescopic fence (900 mm) has two flip stops, a protective cover and an eccentric clamp for fixing the workpiece. It is used in combination with the sliding table for precise and safe workpiece guidance and can also be used as a kickback guard.

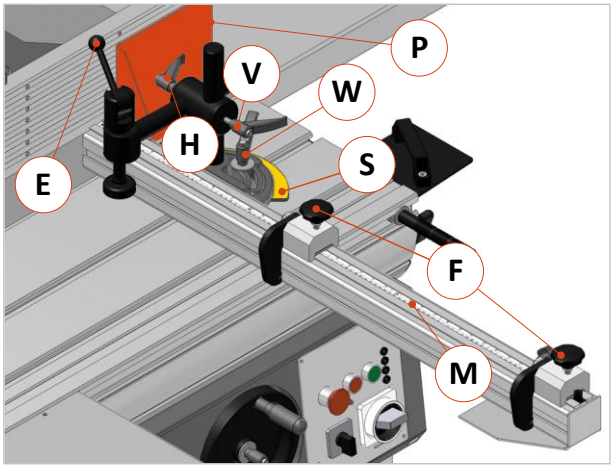


Figure 18: Operating the telescopic fence

Pos.	*Description*
F	Clamping wheels for flip stops
M	Ruler with millimetre scale
W	Clamping lever and angle adjustment
S	Reading scale for angular degrees
V	Vertical adjustment of eccentric clamp
H	Horizontal adjustment of eccentric clamp
E	Clamping lever for eccentric clamp
P	Protective cover

- The telescopic fence is fixed in the groove of the sliding table via the clamping lever (**W**).
- At the same time, the clamping lever (**W**) is used to adjust the angle of the telescopic fence.
- The set angle can be read off the angle scale (**S**).
- The two clamping wheels (**F**) are used to adjust and clamp the two flip stops.
- The position of the flip stops is set on the millimetre scale (**M**).
- The eccentric clamping lever (**E**) is used to fix the workpiece on the sliding table.
- The eccentric clamp can be adjusted in height by loosening the lever (**V**) and can be rotated around its own axis if necessary. The lever (**H**) can be used to adjust the eccentric clamp horizontally.
- **Important:** When adjusting or turning the eccentric clamp, make sure that it does not touch the fence plates of the safety fence and set a sufficient distance to the safety fence.

17 Moulder Fences

⚠	***Increased risk of accidents and collisions! The adjustment and setting processes described below may only be carried out when the milling cutter is stationary!***
⚠	***When milling with manual feed, a tool cover must always be used!***
☝	***Remove chips and dust from the table top before adjusting the safety fence. For maintenance of your fence, please refer to section ⇨ 20.2.***

17.1 Standard Safety Fence

Features:

- The total fence can be moved manually and is finely adjusted by means of an adjusting screw via scale.
- The partial fence for chip removal is adjusted by means of an adjusting wheel and vernier scale.
- The fence is equipped with continuous aluminium fence plates.
- Retrofitting with integral fence plates (see section ⇨ 18.5) is possible.

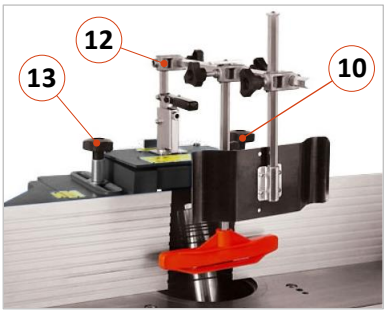


Figure 19: Standard safety fence

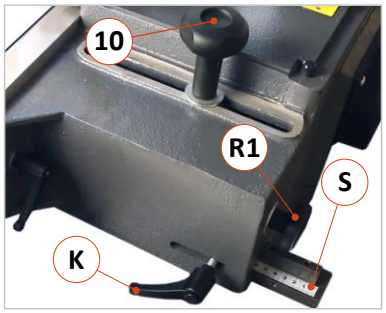


Figure 20: Total adjustment

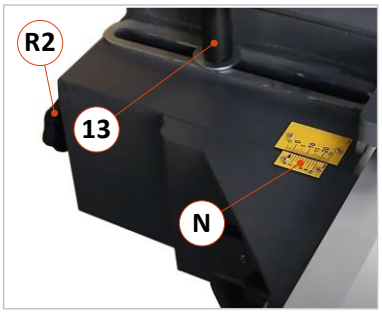


Figure 21: Partial adjustment

Pos.	*Description*	*Pos.*	*Description*
10	Total fence clamping screw	**13**	Partial fence clamping screw (chip removal)
R1	Total fence fine adjustment wheel	**R2**	Partial fence adjustment wheel (chip removal)
K	Fixing lever for fine adjustment (**R1**)	**N**	Vernier scale for adjusting wheel (**R2**)
S	Millimetre scale for fine adjustment (**R1**)	**12**	Protective and pressure device

- To adjust the position, loosen the two clamping screws (**10**) and (**13**) as well as the fixing lever (**K**) and move the entire safety fence roughly to the desired position by moving it manually.
- For fine adjustment of the total fence, tighten the fixing lever (**K**) again and then adjust the position via the adjusting screw (**R1**) and the millimetre scale (**S**) on the back of the fence.
- The partial fence adjustment (chip removal) is made via the adjusting wheel (**R2**) and the vernier scale (**N**).
- After adjustment, retighten the two clamping screws (**10**) and (**13**).

17.1.1 Adjusting the Fence Plates

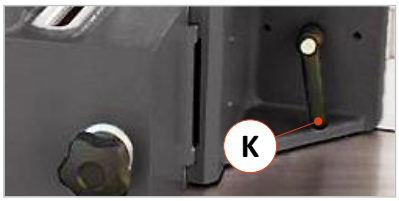


Figure 22: Clamping lever for fence plate

- Release the clamping lever (**K**) on the rear side of the fence and push the corresponding fence plate (**1**) to the desired position.
- Always adjust the plates so that they cover as much of the tool as possible without touching it.
- Then tighten the clamping lever (**K**) again.

17.1.2 Folding up the protective bonnet

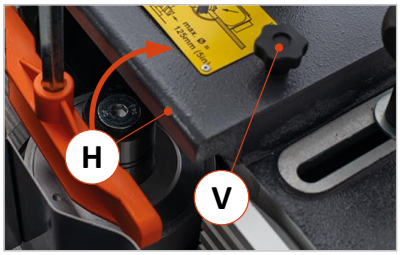


Figure 23: Fold up protective bonnet

To open the protective bonnet, proceed as follows:

- Loosen the fixing screw (**V**).
- Fold the protective bonnet (**H**) upwards.

⚠	***Increased danger of drawing in, cutting, kick-back and ejection at the tool when the protective bonnet is open!***

17.2 Optional Safety Fence “PANHANS Type 215”

Features:

- Solid safety fence for tool diameters up to 250 mm in proven PANHANS quality.
- The total fence is adjusted by handwheel and the partial fence by means of an adjusting screw.
- The fence is equipped with cast iron stop plates, aluminium splinter tabs and a tool cover.
- A separate measuring device is required to position the total fence (e.g. setting gauge).
- Retrofitting with integral fence plates (see section ⇨ 18.5) is possible.

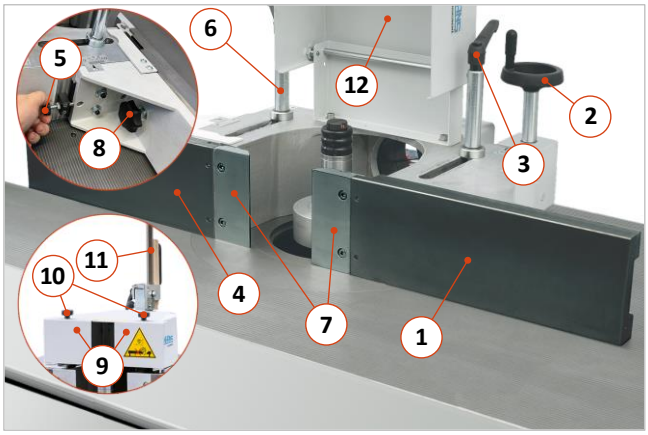


Figure 24: Components of safety fence type 215

With type 215, the total and partial fence are manually adjustable. For adjustment, the clamping levers (**3**) and (**6**) are released and the fence is adjusted via the hand wheel (**2**). Afterwards the two clamping levers (**3**) and (**6**) must be re-tightened.

The partial fence on the right side can be adjusted by the adjusting screw (**5**) and read off on the vernier scale.

To adjust the total fence via hand-wheel, a separate measuring device is required (e.g. setting gauge or similar).

Pos.	*Description*	*Pos.*	*Description*
1	Total fence plate (multiplex)	**7**	Splinter tabs
2	Total fence handwheel adjustment	**8**	Clamping star grip for fence plate adjustment
3	Total fence clamping lever	**9**	Sliding covers for high tools
4	Partial fence plate (multiplex)	**10**	Knurled screws for tool covers (**9**)
5	Partial fence adjusting screw	**11**	Milling protection & pressure device
6	Partial fence clamping lever	**12**	Protective hood (unlocking rear left)

Note: The star grips (**8**) as well as the partial fence adjustment screw (**5**) are located on the rear side.

17.2.1 Fence plate adjustment

Loosen star grip (**8**) and push the fence plate (**1**) to the desired position. Then retighten star grip (**8**). Always adjust the plates so that they cover as much of the tool as possible without touching it.

17.2.2 Fit a grooved board or safety rulers

To insert a grooved board or safety rulers, remove the splinter tabs (**7**), attach the grooved board or safety rulers as fence bridges and fasten them via the free threaded holes.

17.2.3 Folding up the protective bonnet

Before the protective bonnet (**12**) of the fence can be folded up, the locking bolt (**V**) at the rear left must be unlocked by pulling it out (see ⇨ Figure 25).

⚠	***Increased danger of drawing in, cutting, kick-back and ejection at the tool when the protective bonnet is open!***

Figure 25: Locking mechanism

17.2.4 Tool covers for high milling arbors

By opening the knurled screws (**10**), the two cover plates can be moved, which is particularly advantageous with high milling arbours. The opening should always be closed as far as possible without touching the milling arbor or the cutter.

17.3 Attaching and Removing the Safety Fence

⚠	***Switch off the machine before attaching or removing the fence and secure it against unauthorised restarting. against unauthorised restarting! Lock main switch with padlock!***

⚠ ⚠ ● ●	***Increased risk of accidents due to the high weight of the fence! Attaching and removing the fence should be done by at least two people or with a suitable hoist (e.g. an indoor crane)!*** • ***Danger of crushing hands and fingers between fence and machine table!*** • ***Wear protective gloves when lifting or placing the fence.*** • ***Acute risk of injury to the feet from the fence falling down!*** • ***Wear safety shoes with steel toecaps.***

17.3.1 Attaching the Standard Safety Fence

- The fence is placed with the guide part on the cast table top so that the pins on the underside of the fence engage in the fitting holes in the table surface.
- Then it is fixed to the table by screwing in the two clamping screws (**10**) and (**13**).

17.3.2 Removing the Standard Safety Fence

- Remove clamping screws (**10**) and (**13**) by unscrewing them, lift off the fence and remove it.

17.3.3 Attaching the PANHANS Safety Fence Type 215 (Option)

- The fence is placed with the guide part on the cast table top so that the pins on the underside of the fence engage in the fitting holes in the table surface.
- Then it is fixed to the table by screwing in the two clamping levers (**3**) and (**6**).

17.3.4 Removing the PANHANS Safety Fence Type 215 (Option)

- Remove clamping levers (**3**) and (**6**) by unscrewing them, lift off the fence and remove it.

18 Optional Accessories

18.1 Protective and Pressure Device GAMMA V 1629

The protective and pressure device type GAMMA V 1629 can be attached to all common safety fences and is used instead of the standard protective and pressure device. It is infinitely adjustable horizontally and vertically and locks in the folded-up position.

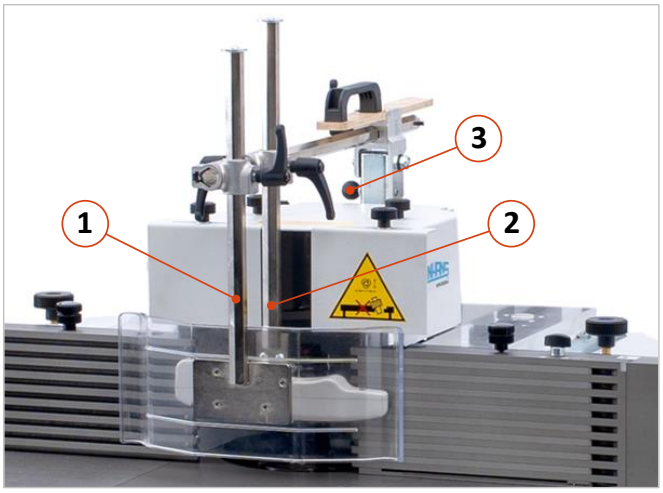


Figure 26: Protective and pressure device GAMMA V 1629

- First adjust the safety fence to the respective tool diameter and the desired chip removal.
- Adjust the front, horizontal pressure piece (**1**) to the width of the workpiece and the rear, vertical pressure piece (**2**) to the height of the workpiece.

  Remark: The two pressure pieces must form a tunnel through which the workpiece is pushed. Therefore, the adjustment must be made in such a way that the workpiece can be pushed through by hand under light pressure.

When not in use (e.g. when milling with a power feeder), the device is simply folded upwards. To do this, pull out the locking bolt (**3**) on the ball handle and swivel the device upwards until the locking bolt engages again.

⚠	***If <u>no</u> power feeder is used for milling, a protective and pressure device must be used.***

18.2 Protective and Pressure Device CENTREX 1624

The fold-up protective and pressure device CENTREX 1624 is used to securely fix workpieces during manual milling operations. It can be attached to all common safety fences and is used instead of the standard protective and pressure device. The special shape of the pressure shoes ensures precise workpiece guidance for all milling work.

Figure 27: Protective and pressure device CENTREX 1624

- First adjust the safety fence to the respective tool diameter and the desired chip removal.
- Then loosen the clamping wheel (**3**) and (**4**) and put the pressure shoe (**2**) upwards.
- Adjust the pressure shoe (**1**) to the workpiece width, pretension and tighten the clamping wheel (**3**).
- Adjust the pressure shoe (**2**) outside the knife-edge circle to the height of the workpiece, pretension and tighten the nut (**4**).
- Adjust the pressure shoe (**1**) to the workpiece height for milling wide or flat workpieces and for milling end faces.

When not in use (e.g. when milling with a power feeder), the device is simply folded upwards. To do this, pull out the locking bolt (**3**) and swivel the device upwards until the locking bolt engages again.

⚠	***If <u>no</u> power feeder is used for milling, a protective and pressure device must be used.***

18.3 Ring Fence TAPOA 1639 and KOALA 1637

The optionally available ring fences are used for accident-free milling of curved workpieces by means of a clamping template. It is suitable for spindle diameters of 30, 35, 40 and 45 mm and for tool diameters up to 160 mm. The ring fence can be quickly attached to the milling table and is easy to adjust. The transparent protective cover always allows an optimal view to the cutter head.

⚠	***A clamping template must always be used for shaping the workpiece during curve milling. Only work with the ring fence when the extraction system is connected.***

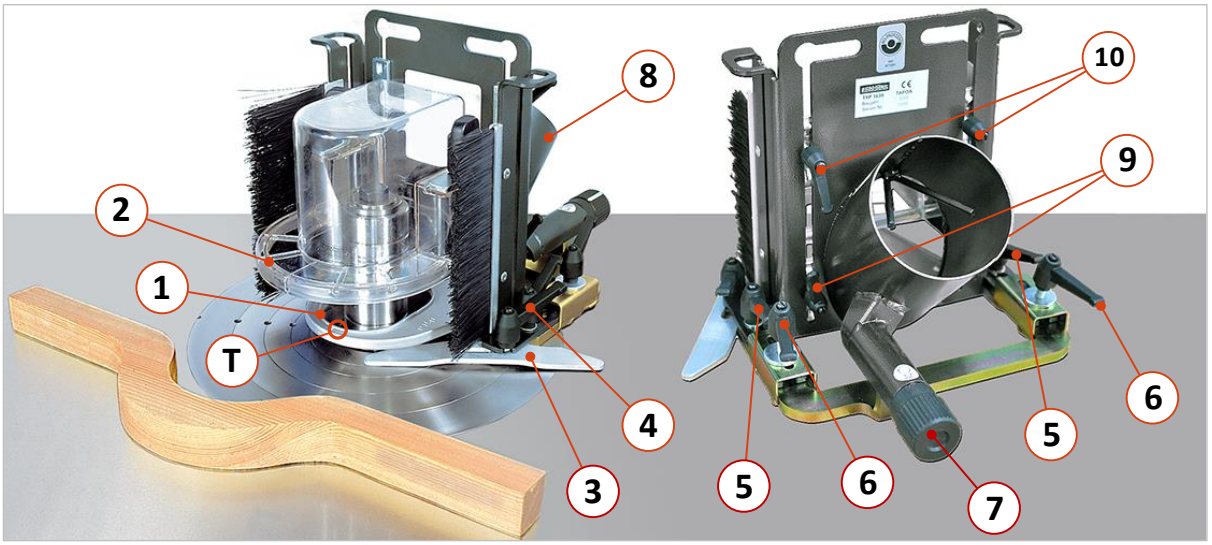


Figure 28: Components of the ring fence TAPOA 1639

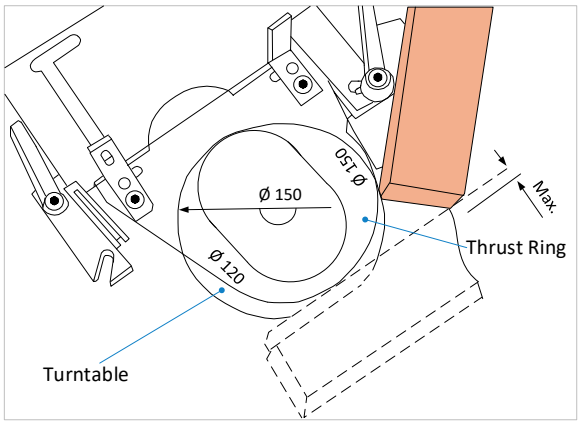


Figure 29: TAPOA 1639 ring fence adjustment

Adjust the thrust ring (**1**) so that the diameter printed on the inlet side corresponds closest to the diameter of the tool. To do this, the thrust ring may need to be rotated.

Example: With a tool diameter of 140 mm, the thrust ring must be installed as shown in ⇨ Figure 29.

- The height of the thrust ring (**1**) can be adjusted using the two clamping levers (**9**) at the rear of the fence parallel to the table top. It can be mounted either above or below the tool.
- The height of the workpiece hold-down and the contact guard (**2**) are adjusted to the required level with the two clamping levers (**10**) on the rear side of the fence.
- The feed strip (**3**) can be swivelled away by loosening the clamping lever (**4**) if necessary. Further, it can also be mounted on the other side (with a different spindle rotation direction).
- The tangential point (**T**) is marked on the thrust ring. This mark is used to measure the maximum cutting depth. The adjustment is made by loosening the two clamping levers (**5**) and turning the adjusting wheel (**7**).
- The two brushes ensure that milling chips are wiped off and optimally extracted during work.
- After the adjustment work, always make sure that all screws and levers are tightened again.
- Before milling, check that the milling tool does not touch the fence.
- If the workpiece hold-down is worn, it must be replaced.

⚠	***Avoid climb milling, as this considerably increases the risk of accidents! When switching to the direction of rotation "climb milling" the signal light (R) lights up (see section ⇨ 11.3).***

Remark: In contrast to the “TAPOA 1639” (SI-TEC Art. No. 2246) with only 1 thrust ring, the type “KOALA 1637” (SI-TEC Art. No. 2245) has 2 thrust rings but is almost identical in design and operation.

18.4 Power Feeder PV84

Note: If the optionally available power feeder PV84 is ordered with the machine, it is already mounted on the table top of the spindle moulder at the factory. If it is retrofitted at a later date, the corresponding threaded holes must be drilled in the table top on site.

⚠	***For safety reasons, a power feeder should be used whenever possible.***

Generally applies: Always adjust the power feeder so that the workpiece is guided safely along the fence. Set the unit at an angle of approx. 5° to the feed direction and keep the opening to the fence as small as possible.
Please note: External 400 V / 16 A CEE connection required.

Figure 30: Power feeder type PV84

- Power feeder with 4 rollers (120 x 60 mm)
- 8 adjustable feeding speeds (2/4/5,6/6,7/11/13/16,5/33 m/min)
- Clockwise/anti-clockwise rotation
- Stand with an max. outreach of 1,050 mm by an elongated extension arm
- Further speeds adjustable via two-step manual gearbox
- Metal gearbox for setting four additional speeds
- Can be used individually horizontally and vertically
- incl. mounting, cable and plug

For information on operation and functionality, please refer to the ☞ manufacturer's operating manual.

Power feeder type PV84 → Art. No.: 4029 (installed state) resp. Art. No.: 4023 (without mounting, e. g. retrofitting)

18.5 Integral Fence Plates Type 211

Both safety fences can optionally be equipped with integral fence plates. These can be mounted without tools and in just a few steps instead of the standard cast fence plates.

The swivelling guide fingers integrated in the fence plates always ensure a gap-free guide surface and optimum tool coverage for all milling work. This ensures even more safety. Precise adaptation to the diameter and height of the cutter is achieved by the stepless adjustment.

Figure 31: Integral fence plates

Components and functions:

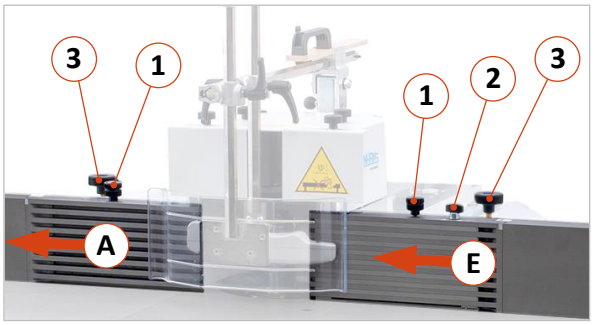


Figure 32: Components of the integral fence plates

Pos.	*Function*
1	Height adjustment
2	Fold out guide fingers
3	Move fence plates

The fence plate pairs are available in 4 lengths:

- Side(**A**) / Side (**E**) = 500 / 500 mm (Art. No.: 2120)
- Side (**A**) / Side (**E**) = 500 / 650 mm (Art. No.: 2121)
- Side (**A**) / Side (**E**) = 650 / 500 mm (Art. No.: 2122)
- Side (**A**) / Side (**E**) = 650 / 650 mm (Art. No.: 2123)

19 Troubleshooting

Proceed systematically when searching for the cause of a malfunction. If you are unable to find the fault or to remedy the malfunction, contact our customer service department (phone number: 0049 7571 / 755 - 0).

Before you call us, please follow these steps:

- Make a note of the type, machine number and year of production (see nameplate).
- Keep this operating manual (and any circuit diagrams) to hand.
- Describe the fault to us in detail so that a competent remedy can be found.

Fault	Possible Cause	Remedy
Machine does not start	No voltage or wrong connection	→ Check power supply, connections and phases (electrician!)
	Control fuse defective	→ Replace fuse and eliminate cause of the tripping (electrician!)
	Main switch defective	→ Replace main switch (electrician!)
	Drive motor defective	→ Replace motor (customer service)
	Drive belt defective/loose	→ Retension/replace belt (see ⇨ 20.8)
	Motor overloaded/overheated	→ Switch off the machine and let the engine cool down for some time (only then switch on again)
	Emergency stop button pressed	→ Pull/unlock button
	Safety switch of service door is active	→ Close the service door (see ⇨ Figure 14)
	Spindle lock is active	→ Deactivate spindle lock (see ⇨ Figure 13)
Wrong direction of spindle rotation	Wrong polarity of the main switch	→ Interchange phases L1/L2 (electrician!)
Milling spindle runs out without braking when switched off	Motor brake / control defective	→ Contact customer service
	Spindle not switched off correctly (wrong switch used)	→ Generally switch off the spindle via the red push-button so that the brake engages
Braking time > 10 s	Error in the electrical control	→ Contact customer service
Speed indicator does not light up	Signal lamp(s) defective	→ Replace signal lamp(s) (electrician!)
	Fuse defective	→ Replace fuse (electrician!)
	Speed sensor/component defective	→ Replace defective part (electrician!)
Machine vibrates	Tool sharpened unevenly	→ Sharpening the tool correctly
	Tool is clamped too high	→ Clamp the tool as far down as possible
	Clamping lever for height/tilt loosened	→ Tighten handwheel clamping levers firmly
	Machine stands unevenly	→ Re-levelling the machine (see ⇨ 7.3)
Unclean milling results	Blunt milling tool	→ Resharpen/replace tool
	Wrong speed set	→ Set the speed correctly
	Poor wood quality	→ Use good wood (without knots etc.)
The full cutting length is no longer achieved	With many short strokes the sliding table can be misaligned	→ Push the sliding table briskly beyond the resistance to the end stop, and then briskly to the other end stop

20 Maintenance and Inspection

	***Before carrying out any maintenance and inspection work, chapter ⇨ 5 "Safety" must be read carefully and observed!***

Breakdowns caused by inadequate or improper maintenance can result in very high repair costs and long machine downtimes. Regular maintenance is therefore essential.

	***Switch off the machine during all maintenance and repair work and secure it against being switched on again unexpectedly! Lock the main switch with a padlock!***

Due to the different operating conditions, it is not possible to determine in advance how often a wear check, inspection or maintenance is required. Appropriate inspection intervals should be determined considering your operating conditions.

20.1 Cleaning

Regular and thorough cleaning guarantees a long service life of the machine and also contributes to safety.

- After each work shift, the machine and all its parts must be thoroughly cleaned by thoroughly removing dust and chips from the surfaces of the machine table, the safety fence and the sliding table, as well as from the machine interior.
- Clean all moving parts every week with turpentine or other suitable and safe solvents.
- Take special care to thoroughly clean all guides as well as the ruler support for the telescopic fence and the T-slots in the sliding table and clean them with a soft brush and turpentine or other suitable and safe solvents.
- To remove dust and chips, clean the machine's belts with a soft brush approximately every 500 hours of operation.

	***Avoid cleaning with compressed air, as the wood dust produced can penetrate the bearings and guides of the machine and is also distributed in the workshop!***

20.2 Lubrication

The machine was subjected to a test run at the factory for a longer period of time and was already lubricated ready for operation. Relubrication before commissioning is therefore not necessary.

- Clean all sliding/rolling parts weekly and check for smooth running. If necessary, lubricate with a thin oil.
- Apply a few drops of oil weekly to the threads of clamping and adjusting levers.
- When lubricating parts in the interior, cover the belt and pulleys to avoid contamination by oil and grease.

Lubricate the machine only with special grease, e.g.

- **ARCANOL BN 102**
- **CALIPSOL H442B**
- **Shell Gadus S2 V100 3 (formerly SHELL Alvania 3)**

For oil lubrication we recommend:

- **Motor oil type 20 W 40**

Always use the same grease/oil.

20.3 Maintaining the Safety Fence

The safety fence should be cleaned thoroughly at regular intervals. The contact surfaces between the fence and the fence plates and between the fence and the table top are particularly important. Dust can accumulate at these points, leading to inaccuracies in the setting of the safety fence.

20.4 Checking the Electronic Motor Brake

- The machine has an electronic brake for electrodynamic braking of the motor.
- If the machine is switched off with the red push button (3) shown in ⇨ Figure 11, the braking time until the spindle stops completely must not exceed 10 seconds.
- This braking time must be checked once a month. If it is more than 10 seconds, the motor brake must be checked by a qualified electrician.
- **Important:** The motor brake is designed for a maximum of 10 braking operations per hour.

20.5 Checking the Emergency Stop Button

- Check the function of the emergency stop button weekly. To do this, press the emergency stop button while the machine is running → The machine switches off the motor immediately and the spindle stops after the braking time has elapsed.
- To restart the machine, the emergency stop button must be unlocked again (turn to the right or pull out).

20.6 Checking the Safety Devices

The following safety devices must be checked at regular intervals:

20.6.1 Checking the Safety Fence

Check weekly

- the correct fixing of the safety fence on the table top,
- the correct seating of the fence plates on the safety fence,
- the protective bonnet of the fence for cracks and damage, and
- and the fence plates for damage or bending.

	***Tighten loose clamp connections and fixings well with the appropriate levers, handles or screws and replace defective, damaged or bent parts immediately!***

20.6.2 Checking the internal Safety Switches

- Open the service door → When switching on, the machine must not start if the door is open.
- Activate the spindle lock (see chapter ⇨ 13) and close the service door properly
  → When switching on, the machine must not start with the spindle lock activated.

20.6.3 Checking the Protective and Pressure Device

Check weekly

- the proper function of the pressure shoes and pressure elements,
- all components of the protective and pressure device for damage and defects,
- all handles, levers and screw connections required for adjustment for damage and defects.

	***Tighten loose clamp connections and fixings well with the appropriate levers, handles or screws and replace defective, damaged or cracked parts immediately!***

20.7 Checking the Safety Labels

- Check regularly that all safety labels on the machine are present and in good legible condition.
- The safety labels must be completely present and always clearly legible.
  This applies especially to the safety instructions.

20.8 Changing and Tensioning the Drive Belt

⚠	***Switch off the machine during belt replacement and retensioning and secure it against unauthorised restarting! Lock the main switch with a padlock!***

The drive belt should be replaced in the event of excessive wear, frayed flanks, traces of oil, porosity or if cross-sectional fractures are present. Only use belts of the same type that you are replacing. The exact type designation is printed on the drive belt.

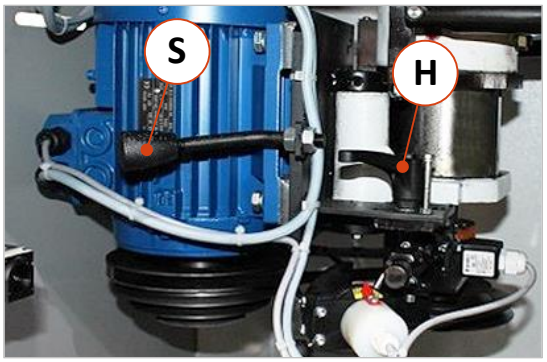


Figure 33: Changing and retensioning the belt

Retension belt:

- Switch off the main switch and lock it.
- Open service door (**T**), see ⇨ Figure 14.
- Now loosen the clamping lever (**H**).
- Push the motor down with the swivel lever (**S**) around the axis of the lever (**H**) until the correct belt tension is reached. The procedure for checking the belt tension is described in detail in section ⇨ 20.8.1.
- Then tighten the clamping lever (**H**) again.

Replace belt:

- Switch off the main switch and lock it.
- Open service door (**T**), see ⇨ Figure 14.
- Now loosen the clamping lever (**H**).
- Lift the motor with the swivel lever (**S**) so that the old belt can be removed
- Then put on the new belt and move the motor back to its original position.
- Then tighten the clamping lever (**H**) again.
- Now check the V-belt tension according to section ⇨ 20.8.1 .
- If necessary, retension as described above next to ⇨ Figure 33.

20.8.1 Checking the Drive Belt Tension

The correct pretension of the drive belt can be checked as follows:

1. Press the drive belt (in the middle between the two belt pulleys) from above with a strong thumb pressure (approx. 2 kg).
2. With correct pretension, the belt must only be able to be pushed downwards (**X**) by max. 5 mm.
3. If a new belt is installed, it must only be possible to push it downwards (**X**) by max. 2 mm.

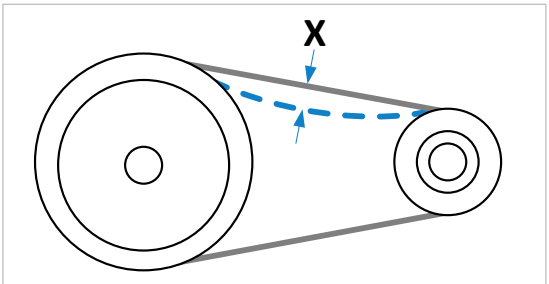


Figure 34: Checking the belt tension

☝	***Too low belt tension leads to increased wear or failure of the belt.*** ***Excessive belt tension can cause bearing damage to the drive axes.***

20.9 Maintaining the Drive Belt

Contamination of the drive belt with oil, grease, solvents, paint, etc. must be avoided. Clean and dry the belt and pulley channels only with a soft brush or a clean cotton or paper towel. Do not use solvents or similar cleaning agents and never use water.

20.10 Taking the Machine out of Operation / Storage

- When putting the machine out of operation, switch off the electrical system.
- If the machine will not be used for a long time, clean the machine carefully after switching off the electrical system and treat the worktable and the other bare parts with an anti-corrosion agent.
- The machine must not be stored in a damp room and must be protected against the effects of the weather.

20.11 Defects and their Remedy

- In case of defects and pending repair work, switch off the machine, lock the main switch and disconnect the machine from the mains by pulling out the supply plug. Attach an appropriate sign, e.g. "Defect / Repair Work", to the machine so that it is clearly visible.

20.12 Average Situations / Emergencies

	• ***In case of flooding of the work area, switch off the power supply immediately!*** • ***In case of fire, immediately switch off the power supply and use a class A fire extinguisher. Alternatively, fight the fire with a fire blanket. If the power cannot be switched off, you need a class C powder extinguisher.*** • ***Never extinguish burning electrical equipment with water!***
	• ***Before the machine is put back into operation, it must be checked by a trained and approved technician.*** • ***The working area around the machine (see section ⇨ 6.3) always be clear.***
	• ***The machine must not be used in potentially explosive atmospheres!***

21 Disassembly and Scrapping

When dismantling and scrapping the machine, the current EU regulations or the respective regulations and laws of the country of operation, which are prescribed for proper dismantling and disposal, must be observed. The aim is to dismantle the machine and its various materials and components properly, to recycle all possible parts and to dispose of non-recyclable components in the most environmentally friendly way.

	***Please pay particular attention to*** • *the dismantling of the machine in the working area* • *proper dismantling of the machine and accessories* • *a safe and proper removal of the machine* • *proper separation of all components and materials.*

When dismantling and disposing the machine, the laws and regulations in force at the place of use concerning health and environmental protection must be observed.

	***Remove all residues of oil, grease and other lubricants and have them disposed of properly by a qualified disposal company.***

When separating, disposing of or recycling the machine materials, comply with the environmental protection laws in force at the place of use regarding the disposal of industrial solid waste toxic and hazardous waste.

	• ***Hoses and plastic parts as well as other components that are not made of metal must be dismantled and recycled or disposed of separately.*** • ***Electrical components such as cables, switches, connectors, transformers, etc. must be removed and (if possible) recycled or otherwise disposed of in a qualified manner.*** • ***Pneumatic and hydraulic parts such as valves, solenoid valves, pressure regulators, etc. must be removed and (if possible) recycled or otherwise disposed of in a qualified manner.*** • ***Dismantle the base frame and all metal parts of the machine and sort them according to material type. Metals can be melted down and recycled.***

In the event of improper disposal of lubricants, the following residual risks to the environment and health exist:

	***Pollution of the environment by seepage into groundwater or sewage system.***
	***Poisoning of the personnel contracted for the disposal.***

Note: The disposal of lubricants considered toxic and hazardous must be carried out in accordance with the regulations and laws in force at the respective place of use. Only qualified disposal companies that have the appropriate permits for the disposal of used oil and lubricants are to be commissioned with the disposal.

22 Options and Accessories

	***Use only the tools, accessories and spare parts specified by the manufacturer. The use of other tools, accessories or spare parts may cause injury to persons and damage to the machine. The manufacturer accepts no liability for any damage resulting from the use of tools, accessories or spare parts not specified by the manufacturer or from additional components supplied by third parties!***

22.1 Optional Safety Equipment

Article	Description		Art. No.
Power feeder Type PV84	4 rollers with tripod	Without mounting (when retrofitting)	4023
		Installed state (with new purchase)	4029
Safety fence Type PANHANS 215	Mit Gussanschlagplatten und Aluminium-Splitterzungen		2053
Integral fence plates Type 211	Details und Funktionen siehe Abschnitt ⇨ 18.5	Outfeed / infeed 500 / 500 mm	2120
		Outfeed / infeed 500 / 650 mm	2121
		Outfeed / infeed 650 / 500 mm	2122
		Outfeed / infeed 650 / 650 mm	2123
Protective & pressure device GAMMA V 1629	Suitable for all moulder safety fences, infinitely adjustable horizontally and vertically, with lock in folded-up position.		2204
Protective & pressure device CENTREX 1624	Suitable for all moulder safety fences, secure fixing of workpieces during manual milling work, infinitely adjustable horizontally and vertically, good view of the workpiece. The special shape of the pressure shoes ensures precise workpiece guidance for all milling operations.		2007
Ring fence Type TAPOA	For accident-free milling of curved workpieces on the spindle moulder, with thrust ring and guard ring, 1 thrust ring and guide bar, with fine adjustment of the milling depth, suction nozzle ø 120 mm.		2246
Ring Fence Type KOALA	For accident-free milling of curved workpieces on the spindle moulder, with thrust rings and guard ring, 2 thrust rings and guide bar, with fine adjustment of the milling depth, suction nozzle ø 120 mm.		2245
Tenoning & slotting device Type 1641	Easy mounting on the table top with fence ruler, angular adjustable in the range 30°... 150°, length of base plate = 1000 mm, sliding stroke = 710 mm, sliding plate size L x W = 295 x 255 mm, assembly height approx. 56 mm.		2221
Protective bonnet for the tenoning & slotting device Type 1376	For tenoning and slotting tools up to max. ø 350 mm, made of strong sheet steel, with adjustable protective cover and ø120 mm suction nozzle, distance between fastening screws = 560 mm		2235

22.2 Other Options

Article	Description	Art. No.
Reinforced Motor	With 5.5 kW (7.5 HP) / 400 V instead of 4 kW.	SPM2-1000-003
Switching contact for the extraction system	Contact for automatic switching of the extraction system (on/off).	SPM2-1000-004

CE EU - Declaration of Conformity

in accordance with the EU Machinery Directive 2006/42/EC Annex II A

The manufacturer,
HOKUBEMA Maschinenbau GmbH
Graf-Stauffenberg-Kaserne
Binger Str. 28 | Halle 120
DE 72488 Sigmaringen (Germany)

Phone: +49 (0) 7571 / 755 - 0
Fax: +49 (0) 7571 / 755 - 222

hereby declares that the manufactured machine

Tilting Spindle Moulder WOODPECKER SPM 2-1000

Machine-No.: .....

Year of manufacture: .....

in the version provided complies with the following directives:

- Machinery Directive 2006/42/EC

- EMC Directive 2014/30/EU

Applied regulations in particular:

- DIN EN 848-1

Mr. Andreas Ganter, Graf-Stauffenberg-Kaserne, Binger Str. 28 | Halle 120,
72488 Sigmaringen (Germany), is authorised to compile the technical documentation.

Sigmaringen, 15.07.2022

.....

R. Beck

.....

Reinhold Beck
Business Manager