

TRANSLATION OF THE ORIGINAL VERSION

PANHANS

QUALITÄT SEIT 1918

CE

Operating Manual

Combined surface planer & thicknesser

PANHANS 546 | 100



Machine type: 546 | 100

HOKUBEMA Maschinenbau GmbH

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Space for notes:

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<h2>Handover Certificate</h2>		
Machine type:		
Machine no.:		
Construction year:		
Customer address (location of the machine):		
Name:		
Street:		
Postcode/City:		
Phone:		Fax:
E-mail:		
<p>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.</p>		
<p>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.</p> <p>Important: Please read and follow the instructions in chapter ⇨ 1 "Liability and Warranty".</p>		
<p>Confirmation of the buyer:</p> <ul style="list-style-type: none"> ✓ 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
<p>Address of the dealer (company stamp):</p>	<p>The machine, including the operating manual, was handed over to the buyer and installed according to the specifications in the operating manual.</p>	
	_____ Date	_____ Signature - Customer Service

Space for notes:

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Revisions:

Revision	Editor	Modification	Date
000	AG	Original manual translated	10/02/2022
001	AG	Document completely revised and supplemented with updated illustrations, various new chapters and safety-relevant sections.	12/12/2023

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.

	<p>IMPORTANT NOTE: <i>Liability and warranty claims shall only commence from the point in time at which the <u>signed handover certificate</u> (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.</i></p>
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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

The purpose of this operating manual 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.



Figure 1: 546/100



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




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 Illustrations



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.

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

4 General

This combined planer and thicknesser was produced by HOKUBEMA Maschinenbau GmbH according to the current state of the art and put into operation as a complete machine. All legal and normative regulations were complied with.

- The thickness planer has a planing width of 630 mm.
- The maximum planing height for thickness planing is 250 mm with a table length of 1100 mm.
- The maximum chip removal during thicknessing is 8 mm and during surface planing 5 mm.
- All measuring scales are manufactured according to accuracy class 2 in accordance with the calibration regulations.

4.1 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 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

4.2 Requirements for the operators

- The planer & thicknesser 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.

4.3 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 (see section ⇒ 5.1.3 “Residual Risks”).
- 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.

4.4 General safety regulations

In general, the following safety regulations and obligations apply when handling the planer & thicknesser:

- A planer & thicknesser 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 thickness planer, the respective national safety regulations for employees as well as the national safety and accident prevention regulations apply.

4.5 Structure and function

- The machine has a heavy, well-shaped construction and meets all the requirements of modern wood processing.
- The large-surface machine stand guarantees a safe stand and vibration-free running.
- The thickening table is quadruple-guided and, as a special request, equipped with two adjustable, ball-bearing table rollers (see section ⇒ 12).
- The height of the thickening table is adjusted by an electric motor via position controller unit (refer to section ⇒ 11.7). The exact height is entered as a setpoint and automatically positioned at "Start".
- The surface planing tables are heavily ribbed for a secure support. The long version is equipped with asymmetrical table lengths and serrated table lips. The height of the infeed table (chip removal) is adjusted via an electromotor. The chip removal is shown on a digital display.
- The fence in a smooth-running roller guide on the delivery table can be quickly adjusted across the entire table width. It can also be tilted from 0° to 45° with an adjusting lever.
- The safety cutter block is equipped with a four-knife shaft that is dynamically balanced and runs in special ball bearings. Other cutter types are optionally available (see section ⇒ 16.1).
- The feed rate for thickness planing is provided by a pole-changing three-phase motor. The feed rates of 7 and 14 m/min. can be set during work by means of a rotary switch. An infinitely variable feed rate from 3 to 24 m/min is available as an option (see section ⇒ 10.1.2).
- The two suction nozzles are firmly built into the machine.
- The suction nozzle for thickening is located behind the surface planer fence. When changing over to surface planing, the fence must be pushed forward.
- The machine is driven by a three-phase motor with an electric, wear-free motor brake. It has a central circuit with push-button and motor protection switch.
- All switches (main switch, cutter block ON/OFF with electronic soft start, two-stage feed switch and the push-buttons for height adjustment) are located within easy reach on the operating side, depending on the work sequence.
- The protective devices comply with the regulations of the German "Employer's Liability Insurance Association for Wood".

4.6 Advantages & special features of the machine

The 546|100 machine allows up to 5 mm chip removal when surface planing and up to 8 mm chip removal when thickening on the full planing width of 630 mm.

The most significant advantage of the machine is that it does not have to be converted to switch between surface planing and thickening, because the planing tables do not have to be folded up. In addition, the protective cover, which is normally used for thickening, is also not required.

Another advantage is that the machine can be used in combination. To do this, the planer fence is pushed to half the planing width of 315 mm (with locking device). This divides the working area. Surface planing & jointing can be carried out on the front 315 mm and, in the opposite direction, thickening can be carried out on the rear cutter block side.

4.7 Standard equipment

- Powerful three-phase motor 7.5 kW (10 HP)
- Planer guard TXF 1570 with fold-down cover
- Electromotive adjustment of the infeed table via push-button operation
- All-steel cutterblock with TERSA knives
- Planer fence with swivelling auxiliary fence
- Angular console for mounting a feed unit
- Positioning control with touchscreen operation
- Serrated table lips for noise reduction
- Thicknessing table with 4 height-adjustable spindles
- One segmented rubber infeed roller and two segmented rubber outfeed rollers
- Segmented pressure bar
- 2 feed rates (7 and 14 m/min)
- Electric, wear-free motor brake
- Electrical height adjustment of the thicknessing table
- 1 grease gun (hollow mouthpiece)
- 2 suction nozzles 160 mm Ø
- 1 Si-Tec push block for safe dressing of short workpieces
- Brass wedge for Tersa cutter change
- CE conform and GS tested

4.8 Options


- 2 table glide rollers, steel link infeed rollers and rubber outfeed rollers (see section ⇒ 16.2)
- Outfeed table with two rollers (see section ⇒ 16.2)
- PANHANS 4-knives traditional cutter block with brass adjusters as well as necessary tools (see section ⇒ 16.1)
- All-steel spiral cutter block consisting of 6 spiral-shaped blade rows with improved cutting quality due to “pulling cut”, incl. 10 spare knives, mounting material and tools (see section ⇒ 16.1)
- Frequency-controlled feed motor, infinitely variable from 3 to 24 m/min (instead of 7 + 14 m/min.) including feed rate indication via touchscreen control (see section ⇒ 16.2).
- Planing guard SUVAMATIC (see section ⇒ 11.5)
- Planing guard TX MATIC (see section ⇒ 11.5)

Further accessories, options and spare parts can be found in chapter ⇒ 16 “Options and Accessories”.


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!


	<i>The manufacturer accepts no liability for damage and malfunctions resulting from failure to observe these operating instructions.</i>
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5.1.1 Application area and intended use

	<p><i>The combined surface plane & thicknesser "546/100" is used exclusively for surface planing, jointing and thicknessing of solid wood (soft and hard woods) as well as plastics and wood-containing board materials.</i></p> <p><i>This machine is not suitable for processing metal or scrap wood - which could contain nails, screws and other metal parts.</i></p> <p><i>The machine may only be operated on a firm, level surface with a minimum load-bearing capacity of 1,000 kg/m².</i></p>
---	--

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

	<i>Improper use can lead to danger to persons and to a defect or damage to the machine.</i>
---	--

	<i>Only the manufacturer's original planing cutter-blocks and replacement knives according to EN 847-1 are permitted as tools. These must be marked with MAN!</i>
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<i>Processing type</i>	<i>Length</i>	<i>Height</i>	<i>Width</i>
Surface planing	5500 mm	75 mm	630 mm
Jointing	5500 mm	1000 mm	100 mm
Thicknessing	5500 mm	250 mm	630 mm


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

- Permissible ambient temperature: +5 ... +40° C.
- Permissible humidity: 30 ... 90 %.

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.

5.1.2 Modifications and conversions to the machine

	<i>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.</i>
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5.1.3 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 planing knives. Never reach into the running band saw blade! Wear protective gloves when changing the planing knives.
	Be aware of the danger of cuts due to chips and splinters and never remove them from the danger area by hand.
	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 and a hair net if necessary. Generally avoid jewellery, loose clothing and untied long hair.
	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 two emergency stop buttons must always be freely accessible and must not be blocked with objects. Check the function of the emergency stop buttons regularly.
	Fire hazard due to wood dust in connection with flying sparks and/or open fire!

5.1.4 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.

	<p><i>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.</i></p>
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5.1.5 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 ⇒ 5 "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!


5.1.6 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.



5.2 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!
	The machine must not be used if the fingers of the anti-kickback system are damaged or do not fall back unhindered by their own weight!

5.2.1 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,
 - anti-kickback system,
 - emergency stop units,
 - noise insulations,
 - extraction system,
 - separating protective devices

are available and functional.
-  **Knife change:** Change and adjust the knives as described in ⇒ 13. The fence must always be securely fastened when changing the knives.
-  **Workpiece:** Before the operation, check the workpiece for

 - foreign inclusions
 - knots
 - twists (contortions)

and other irregularities.

Workpieces that are longer than the infeed or outfeed table must be additionally supported (e.g. with support rollers or similar).

Due to the automatic feed, make sure that there is sufficient space on the removal side in front of stationary obstacles (danger of crushing!).
-  **Auxiliary equipment:** For surface planing and jointing of short workpieces that do not allow a safe hand support, push blocks are to be used. The shape of the push block must be adapted to the workpiece.
-  **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!
-  **Extraction:** The machine must be connected to an effective extraction system. This requires a mean flow velocity of 20 m/s.
-  **Work 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.
-  **Planing area during operation:** Never try to remove offcuts, chips or other parts from the planing area while the machine is running! Never use your hands to remove!
-  **Chamfering and bevelling:** To produce chamfers or bevels, a corresponding template must be used to guide the workpiece and produce the desired angle. Fixed guides must be fitted to the template to prevent lateral movement of the workpiece. The base plate of the template must be provided with bars to hold the template on both sides of the thickening table against shifting during the workpiece feed.
-  **Workpiece inspection:** Inspect the workpiece for foreign inclusions, knots, twists and other irregularities.
-  **Lighting:** The working area should be sufficiently bright due to general or local lighting.

- ⚠ **Work interruptions:** Switch off the machine even during short interruptions! Never leave the machine running unattended!
- ⚠ **Leaving the machine:** Switch off the control voltage and main switch before leaving the machine. Never leave the machine unattended in an unsecured state.

5.2.2 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)!

5.2.3 Safe working practices

- ⚠ Always work with all protective devices! These must be in the intended places and in perfect working order. Defective guards must be replaced immediately.
- ⚠ Do not start planing until the motor / tool has reached full speed.
- ⚠ Do not use damaged tools resp. knives or cutting blocks.
- ⚠ Do not exceed the permissible speed of the tool.
- ⚠ Damaged parts must be replaced with new ones.
- ⚠ Workpieces that are longer than the infeed or outfeed table must be supported additionally. (e.g. table extension, support rollers or similar).
- ⚠ Repairs may only be carried out by qualified personnel and with the main switch locked.
- ⚠ Unused areas of the cutter block must always be covered (also during combined operation).
- ⚠ During surface planing workpieces with a length < 400 mm, thin workpieces or workpieces with a very smooth surface are to be pushed forward with a feed tray or sliding block.
- ⚠ When planing surfaces, always push the workpiece with the hand in a closed, flat position and the thumb resting against it. Advance the workpiece at a steady speed and with constant pressure on the table.
- ⚠ Do not remove splinters and chips by hand while the cutter is running.
- ⚠ When jointing high workpieces, ensure controlled lateral pressure (prevent tilting) and complete covering of the cutter block.
- ⚠ Danger from ejecting parts! Always keep the insertion shaft clear when the cutter is running and do not look into the opening.

5.3 Hazardous areas

5.3.1 General danger zones

<p>Noise and dust</p> 	<p>Around the machine, due to the noise and dust generated</p> <ul style="list-style-type: none"> • Pay attention to the increased noise development and wear hearing protection. • Pay attention to the increased dust development and generally use an extraction device. Wear a dust mask if necessary.
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5.3.2 Danger zones during surface planing

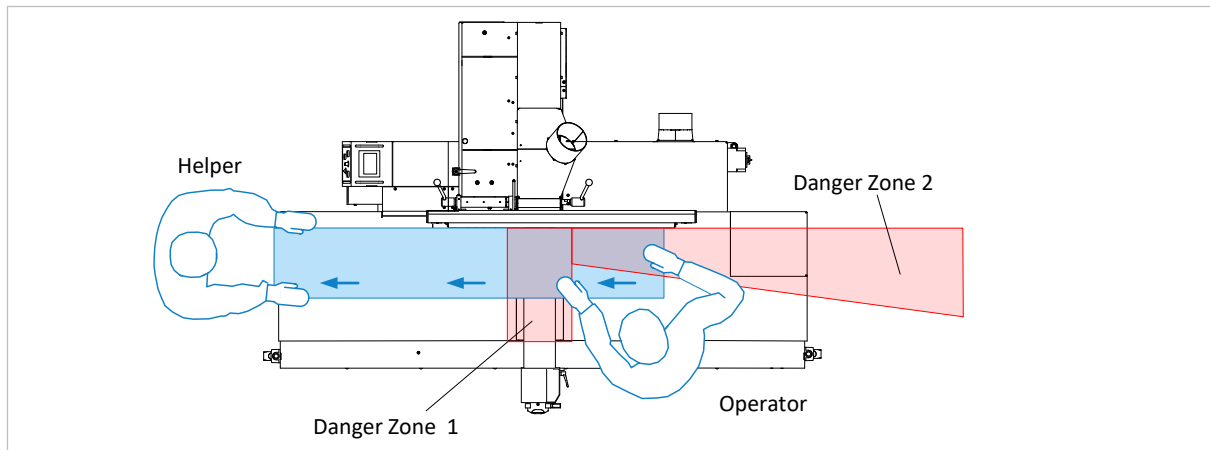




Figure 2: Danger zones during surface planing

Danger Zone	Type of hazard	Prevention
<p>1</p> 	<p><i>Danger of drawing in and cutting!</i> The area around the cutter block is considered an absolute danger zone. There is an increased risk of injury and even death when reaching into this area. There is also an increased risk of clothing, hair, watches and jewellery being pulled in.</p>	<ol style="list-style-type: none"> 1. Never reach into the Danger Zone 1 when the cutter is running (see ⇨ Figure above). 2. Always cover the unused part of the cutter block with a planer guard. 3. To feed, the hands must lie flat on the workpiece with fingers closed and thumbs applied. Important: Do not grip the edges of the workpiece! 4. Wearing loose clothing, gloves, loose hair, watches and jewellery is prohibited. Suitable pushing aids must be used for short, very flat and narrow workpieces. 5. The operator must always stand in front of the planing & jointing table. It is forbidden to be in Danger Zone 2 (⇨ Figure above) when the cutter block is running. This applies equally to the operator and to any helper.
<p>2</p> 	<p><i>Risk of kickback!</i> Risk of injury due to the workpiece being kicked back or due to workpieces and workpiece or tool parts being catapulted away (e.g. tool breakage).</p>	

5.3.3 Working areas and protective measures

- When planing & jointing, the operator of the machine must generally stand in front of the planing table, to the right of the cutter block resp. planer guard. It is forbidden to enter the Danger Zone 2 marked in ⇨ Figure 2 while the cutter is running.
- A required helper for workpiece removal must generally stand on the left side of the planing & jointing table. The helper does not intervene in the machining process, but only removes the finished workpieces. It is forbidden for helpers to stay on the infeed side or in the danger zone.
- Any observers must generally remain outside the danger zones. A sufficient distance is prescribed so that the operator of the machine and any assistant cannot be hindered in their work.

5.3.4 Danger zones during thickening

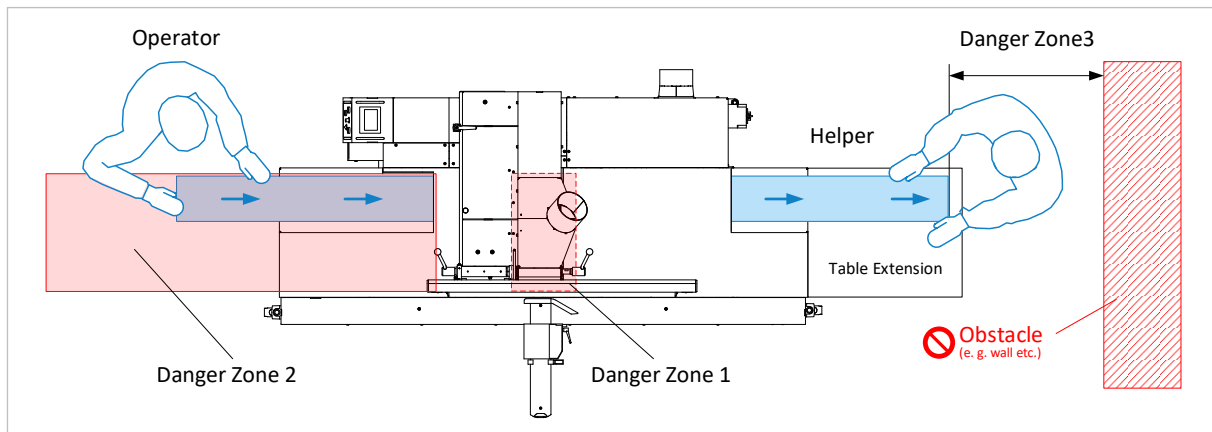





Figure 3: Danger zones during thickening

Danger Zone	Type of hazard	Prevention
<p>1</p> 	<p>Danger of drawing in and cutting! Although the cutter block is not accessible from the outside, it is theoretically possible to reach into the infeed and outfeed opening of the machine and thus into the rotating cutter block. There is a high risk of injury and even death here!</p>	<ol style="list-style-type: none"> 1. Never reach into the opening of the thickness planer while the cutter is running or the machine is switched on (see Danger Zone 1 above). 2. Before carrying out maintenance work or removing pieces of material, be sure to switch off the main switch and secure it with a padlock. 3. If thickening is not carried out over the full width or in combined mode, the exposed part of the cutter block (surface planing & jointing side on top) must be covered with the planing guard.
<p>2</p> 	<p>Risk of kickback! Despite anti-kickback protection, in exceptional cases the workpiece can kick back dangerously and cause the most serious injuries and endanger the lives of people. This can be the case, for example, if the workpiece tilts in such a way that the anti-kickback system can no longer engage.</p>	<ol style="list-style-type: none"> 1. The operator must always stand next to the machine and never in front of the infeed opening. In addition, the workpiece must never be pushed with the body. 2. It is forbidden to stay in Danger Zone 2 (see figure above) when the cutter block is running. This applies equally to the operator and to a helper.
<p>3</p> 	<p>Danger of crushing! The processed workpiece is constantly pushed out of the outfeed side of the thickness planer by means of automatic feed. If there is an obstacle on the outfeed side, there is a risk of a person being crushed.</p>	<p>Keep the outfeed side clear at all times and do not place any obstacles, such as walls, material handling trolleys, forklift trucks, etc. in the Danger Zone 3 shown in the figure above.</p>

5.3.5 Working areas and protective measures

- The operator of the machine must generally stand on the infeed side of the machine, in the cutting direction and with his body to the side of the machine table during thickening. Do not enter the Danger Zone 2 marked in ⇨ Figure 3 while the cutter is running.
- To avoid tipping of longer workpieces, a table extension should be used.
- A required helper for workpiece removal must generally stand on the outfeed side of the machine. The helper does not intervene in the machining process, but only removes the finished workpieces. It is forbidden for helpers to stay on the infeed side or in the danger zone.
- Any observers must generally remain outside the danger zones. A sufficient distance is prescribed so that the operator of the machine and any assistant cannot be hindered in their work.

5.4 Existing safety equipment

The machine is already equipped with the following safety devices as standard:

5.4.1 Intelligent control unit



Figure 4: Warning message window

The intelligent touchscreen control effectively prevents dangerous situations by informing the operating personnel of any faults resp. incorrect settings by means of clear error messages and warnings (see also section ⇒ 11.11) and preventing a dangerous start of the machine.

At the same time, the corresponding suggested solutions are visualised in the message windows. The machine can only be restarted after the error or fault has been rectified.

5.4.2 Lockable main switch



Figure 5: Lockable main switch

The main switch, which can be locked with a padlock, prevents unauthorised persons from switching on the machine during adjustment, maintenance and repair work as well as during longer standstills and at the end of work.

5.4.3 Emergency stop system



Figure 6: Emergency stop button

The machine is equipped with a quickly accessible emergency stop button at both working areas.

This allows the machine to be stopped immediately in the event of danger (motor braking time < 10 seconds).

5.4.4 TX 1570 bridge guard (surface planer)



Figure 7: TX 1570 bridge guard

Made of robust materials, the 1570 planer guard is a two-part, hinged bridge guard for covering the cutterblock on the planing table.

It effectively protects the operator from injuries caused by the cutter block and at the same time enables safe and effective processing of the workpieces.

The two-part design enables comfortable working even with large workpieces, as there is no interfering edge.

5.4.5 Auxiliary fence (surface planer)



Figure 8: Auxiliary fence

The swivelling auxiliary fence combined with the planer fence is an ideal addition for safety on the planing table.

It creates additional space and ensures a safe tool rest when surface planing narrow workpieces. At the same time, the cutter block is concealed in this area. The auxiliary fence is also very helpful in combination with the push block (see below).

The auxiliary fence can be quickly and easily folded down and away again if required. For further details, see section ⇒ 11.3.5.

5.4.6 Push block (surface planer)



Figure 9: Push block

The scope of delivery also includes a push block, which serves to protect hands during surface planing resp. manual workpiece feed.

Workpieces with a length of less than 400 mm, narrow workpieces or workpieces with a very smooth surface should therefore generally be fed using the push block.

5.4.7 Anti-kickback device (thickness planer)



Figure 10: Anti-kickback fingers

The thicknesser unit is equipped with effective kickback protection consisting of individual, solid anti-kickback fingers across the entire width of the planer.

The anti-kickback fingers prevent the uncontrolled kickback of workpieces towards the operator on the feed side.

To ensure proper functioning, the anti-kickback fingers should be checked before each work shift and readjusted if necessary in accordance with ⇒ 15.10.

5.4.8 Extraction unit



Figure 11: Upper suction nozzle

Both the surface planer and the thicknesser are each equipped with a separate suction nozzle with a generous diameter of 160 mm. This effectively protects the operating personnel and people in the vicinity from inhaling hazardous wood dust..

In addition, the machine has two switch contacts for automatic control of the extraction system (see section ⇒ 8.6).

5.4.9 Electronic motor brake

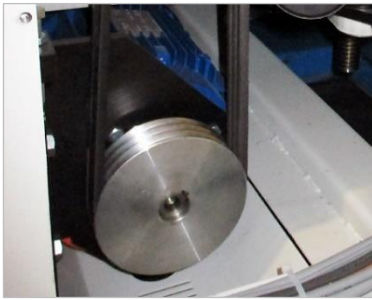


Figure 12: Drive motor

The machine is equipped with a wear-free, electronic motor braking system.

This is designed in such a way that it brings the drive motor for the cutter block to a standstill within the time of < 10 seconds prescribed by the German Professional Association for Wood when switching off or in an emergency stop situation.

5.4.10 Electrical protective circuits



Figure 13: Electrical protective circuits

The machine is equipped with the electrical protective devices required in accordance with DIN-VDE 0113/EN 60204. These include a freely tripping motor protection switch, thermal overload protection, overcurrent and undervoltage tripping and electrical short-circuit tripping.

If one of the above trips occurs, the control unit prevents the machine from starting until the cause of the fault has been rectified and the corresponding circuit breaker has been reset.

6 Machine data

6.1 Technical specifications

Planing width (both modes):	630 mm
Thickening height:	3 - 250 mm
Table length surface planer:	2555 mm
Table length thickener:	1100 + 400 mm
Chip removal surface planer:	max. 5 mm
Chip removal thickener:	max. 8 mm
Cutter block speed:	5000 rpm
Cutter block diameter:	125 mm
Drive motor power:	7.5 kW / 10 HP
Protection class:	IP54
Drive motor voltage:	400 V / 50 Hz
Feed motor power:	0.55 kW / 0.8 HP 0.75 kW / 1.0 HP
Feed rates:	7 + 14 m/min
Space requirement:	4250 x 3300 mm*
Net weight:	approx. 1210 kg
Suction nozzles:	160 mm / 160 mm
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	



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Abricht- und Dickenhobelmaschine Ⓢ

Baureihe line	
Typ type	
Maschinen-Nr. machine no.	546 I100
Baujahr year of construction	20
Bemessungsspannung U = nominal voltage U =	V
Frequenz/Phasenzahl frequency/phases	
Stromart kind of current	AC
Vollaststrom I = operating current I =	A
Überstromschutz, intern excess current protection, internal	A

Figure 14: Nameplate

*) Based on external dimensions (see chapter ⇨ 7) + 800 mm safety clearance on all sides.

6.2 Technical features

General:

- Two suction nozzles for optimum extraction in both operation modes.
- Electromotive height adjustment for surface planing and thickening table with digital visualisation (accuracy 0.1 mm).

Surface Planer:

- Swivelling fence for quick and easy adjustment of different angles (0° - 45°).
- 2555 mm long machine table with finely planed cast iron surface and the typical features of the proven PANHANS surface planing machines.
- Integrated auxiliary fence (also swivelling) for secure hand support with narrow workpieces.
- Bridge guard TXF 1570 with fold-away cover.

Thickener:

- Ergonomic working method due to thickness planing function without conversion work.
- 1100 + 400 mm long thickening table with finely planed surface
- Pendulum-mounted feed rollers
- Segmented rubber infeed and outfeed roller
- 2 feed rates by pole-changing feed motor or optional infinitely variable control
- Link pressure bar
- Thickening table without table glide rollers
- Positioning control with touchscreen

6.3 Emission levels

6.3.1 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 emission levels, it cannot be reliably deduced whether additional precautionary measures are necessary or not.

Factors that may affect the current emission 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.

6.3.2 Noise emission values


The specified measured values are determined in accordance with EN 860.

Uncertainty allowance K = 4 dB(A)

Workplace-related emission value at surface planing		Workplace-related emission value at thickness planing		
Idle	83 dB(A)	Idle	Working area 1	86 dB(A)
			Working area 2	84 dB(A)
Working	88 dB(A)	Working	Working area 1	87 dB(A)
			Working area 2	85 dB(A)

Sound power level at surface planing		Sound power level at thickness planing	
Idle	Lwa = 102 dB(A)	Idle	Lwa = 102 dB(A)
Working	Lwa = 104 dB(A)	Working	Lwa = 101 dB(A)

Note: The noise emission values specified above were determined with a standard Tersa cutter block. With an optional spiral cutter block, the sound power levels are correspondingly lower.

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

Workplace-related dust emission value (permissible 2.0 mg/m³ air)	
Surface planing	0.43 mg/m ³ air
Thicknessing	1.72 mg/m ³ air

Dust emission values:

Determined according to GS-HO-05

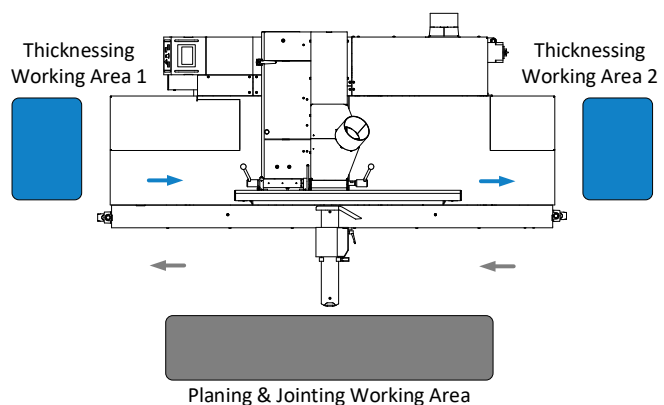


Figure 15: Working areas

7 Dimensions

7.1 Front and top view

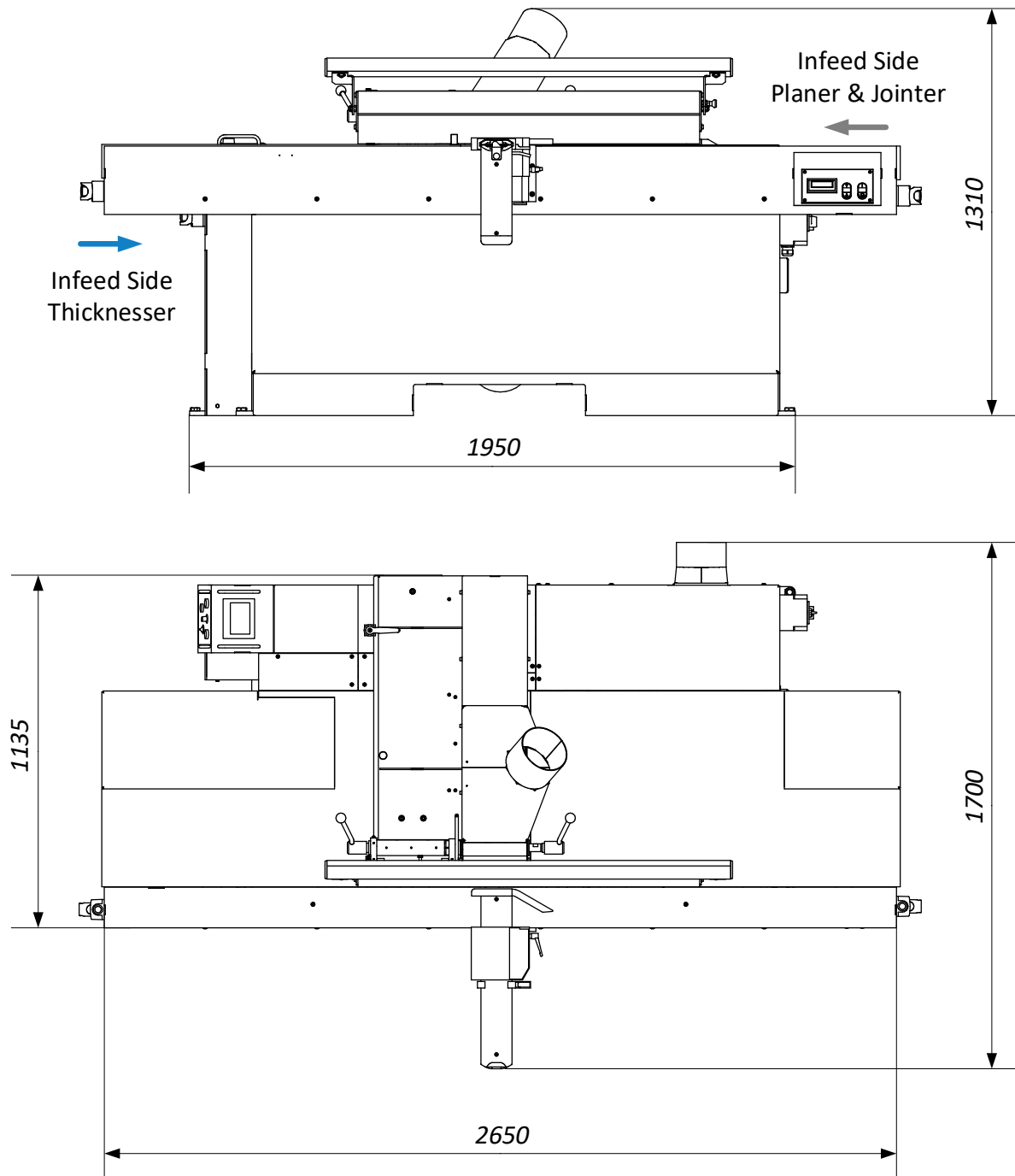


Figure 16: Dimensions top and top view

Subject to design and dimensional changes!

7.2 Side view

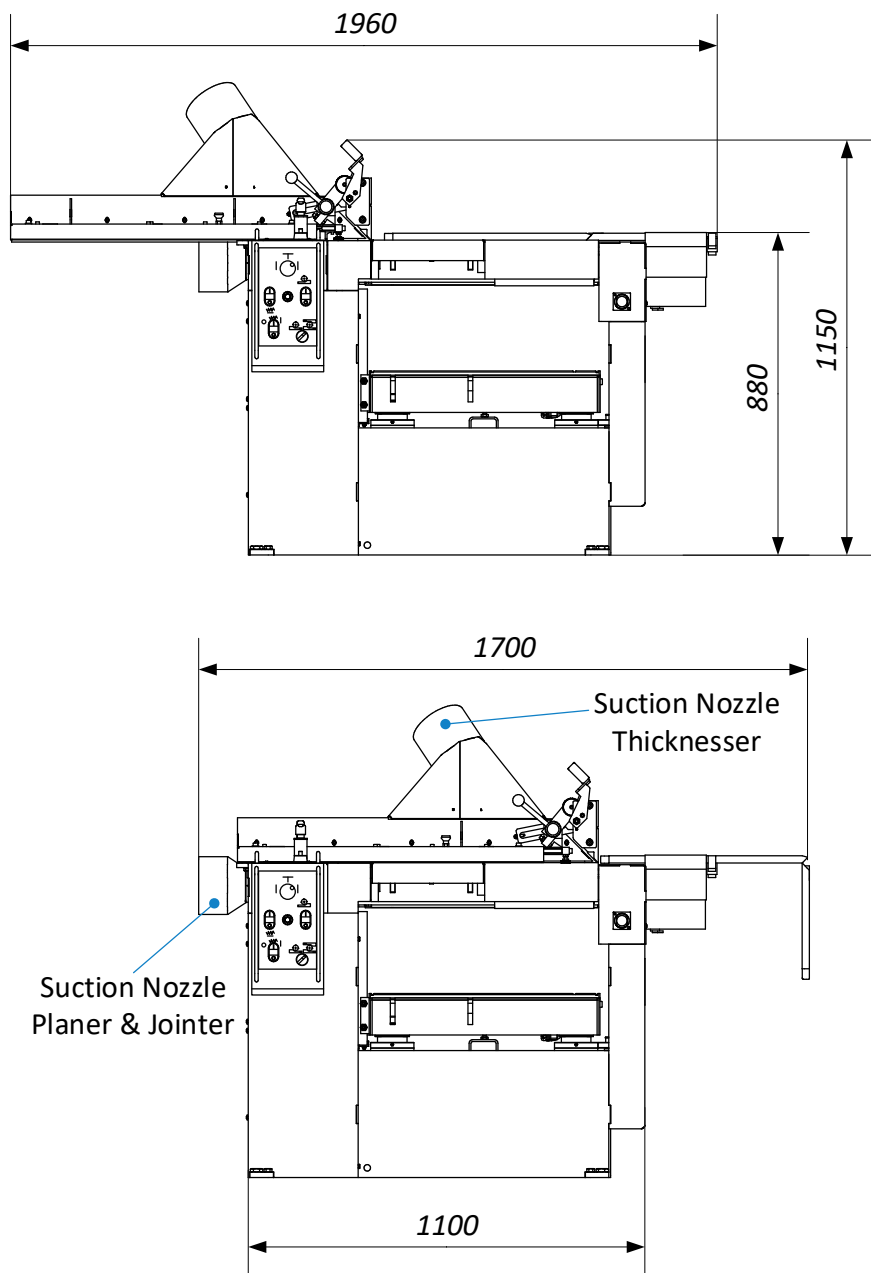


Figure 17: Dimensions side view

Subject to design and dimensional changes!

8 Installation and connection

8.1 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.

8.2 Transport

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.

- Lift the pallet from the transport vehicle with a forklift truck in accordance with the safety regulations.
- Remove the machine's screw fastenings on the transport pallet.
- Drive a forklift truck under the machine from the front and lift it only a few centimetres.
- Then carefully lift the machine off the pallet with the forklift truck.
- Drive a pallet truck from the front between the machine, lift it only a few centimetres and move it to the final installation location.

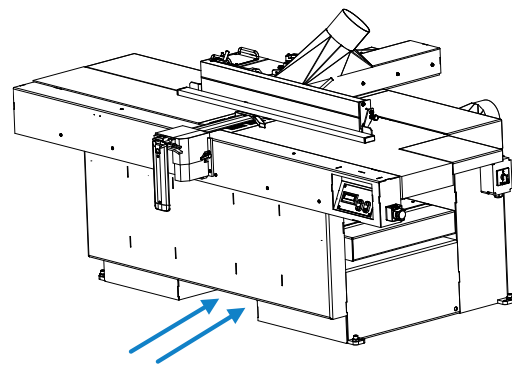


Figure 18: Transport

	<p>The fork length of the forklift truck must be <u>at least 1.20 m!</u></p>
	<p>Pay attention to the existing <u>danger of tipping over</u> during transport!</p>
	<p>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.</p>

8.3 Installing the machine

- A foundation is not required. The floor must have a load-bearing capacity corresponding to the weight of the machine.
- Before placing the machine on the ground, fit the four supplied underlays (**U**) under the feet. One threaded bolt (**G**) is attached to each machine foot. With this, the machine must be properly aligned with a machine spirit level 0.1 mm/ 1 m.
- There is a 13 mm diameter hole (**B**) on each of the four machine feet. If necessary, the machine can be bolted to the floor via these holes.
- The bare parts of the machine are greased to protect them from corrosion. Carefully degrease the parts protected against rust with petroleum or benzene.

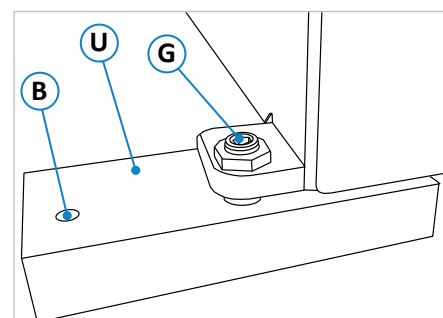






Figure 19: Foot underlay

	<p>Be aware of possible crushing hazards when placing the machine (from the pallet to the floor) by means of a forklift truck or overhead crane. Pay particular attention to your hands and feet and wear safety shoes and protective gloves as a precaution.</p>
--	--

	<i>It is essential that the machine is level! Check with spirit level!</i>
	<i>Dispose of the packaging material in an environmentally friendly way!</i>
	<i>Do not use nitro thinner for cleaning. Painted surfaces of the machine can be damaged.</i>
	<i>Fire hazard! Do not smoke and do not light an open fire.</i>

8.4 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 (e.g. the cast iron tabletop) are provided with a preservative. This must be checked regularly for effectiveness and renewed if necessary.

8.5 Lashing on a transport vehicle

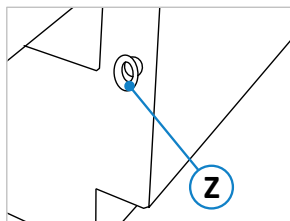


Figure 20: Lashing points (4 x)

For transporting the palletised machine in a transport vehicle, a lashing point (Z) for one lashing strap each is fitted on all four sides of the machine.



A separate lashing strap must be used for each lashing point. All four lashing points must be tensioned individually on the loading area of the vehicle! The pallet must also be secured against slipping!

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

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. 1210 kg).
- 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.
- 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.

8.6 Connecting the extraction unit

- The machine must be connected to an effective extraction system on-site.
- The suction nozzles have a diameter of 160 mm.
- All parts of the extraction system, including hoses, must be included in the earthing measure.

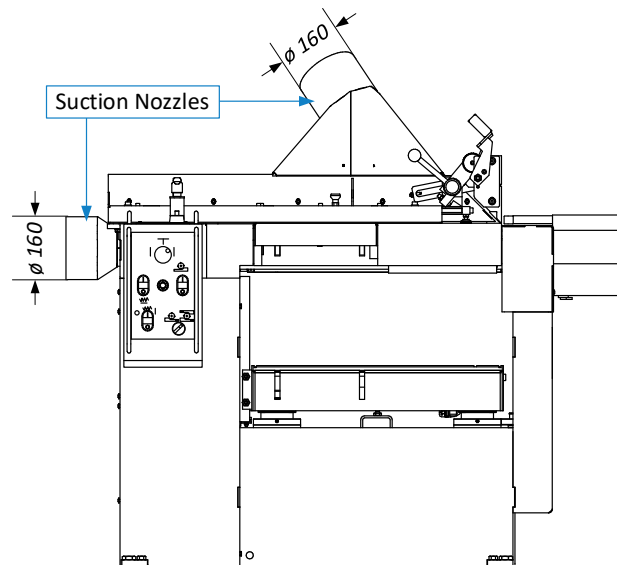
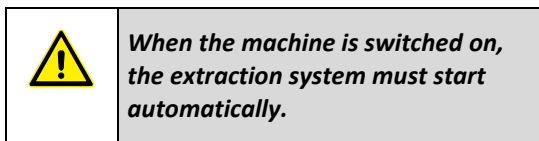
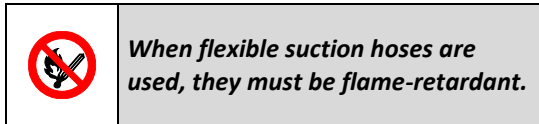
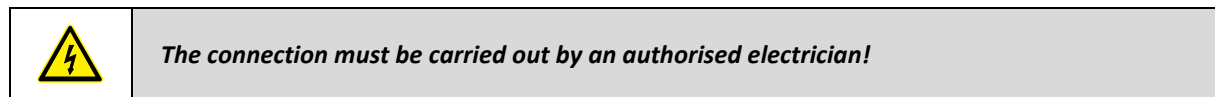


Figure 21: Extraction ports

Two signal generator lines for automatic switching of the extraction system can be connected to the terminals **03** and **04** of contactor **K2**.



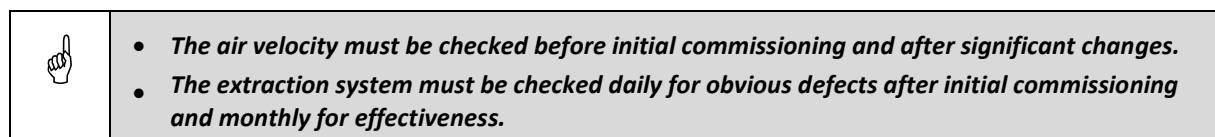
The air speed must be set in such a way that, with the extraction line connected and the tools stationary, an average air speed of

- 20 m/s (1450 m³/h) for dry chips,
- 28 m/s (2050 m³/h) with moist chips (moisture 18 % or more)


is achieved at the extraction nozzles.

Required negative pressure (at 20 m/s) in Pa	
Planer & Jointer	900
Thicknesser	550

If the machine is properly connected to the extraction system, it can be assumed that the wood dust assessment value will be complied with (permanently and safely).



8.7 Electrical connections

	<i>The connection must be carried out by an authorised electrician!</i>
---	--

The electrical circuit diagrams are located in the control cabinet.


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 main switch housing.
- The connection to the mains (3 phases) is made at the main switch in the main switch housing. 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”.
- With the option “variable feed rate”, the neutral conductor must also be connected to the terminal marked “N” on the main switch. Please note: “N” is loaded in this case!
- Then close the cable gland again so that it is dust-tight.



Figure 22: Main switch housing

Note: Also check the correct direction of rotation of the cutter block (M) and the running direction of the feed (V), see arrow directions in ⇨ Figure 23.

	<i>If the cutter block (M) rotates in the wrong direction and/or the feed (V) moves in the wrong direction, 2 outer conductors must be swapped at the corresponding motor connection.</i>
--	--

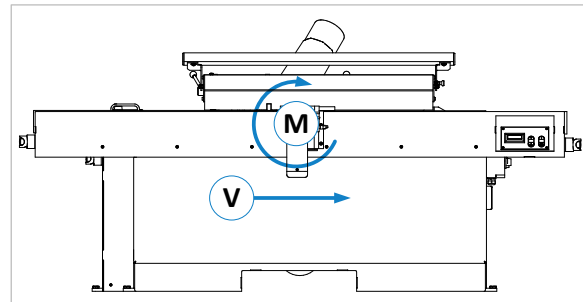



Figure 23: Direction of rotation and feed direction

Note: 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.

8.7.1 Backup fuse

Motor Power	7.5 kW
400 V	32 A or 35 A

	<i>The fault loop impedance and the suitability of the overcurrent protection device must be checked at the installation site of the machine.</i>
---	--

8.7.2 Supply cable

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

The electrical wiring and connection must be carried out by a specialist in accordance with the applicable local regulations of the power supply company (EVU / VDE / EN).

8.7.3 Machine socket (option)

A machine socket is optionally available as special equipment (see section ⇨ 16.4).

8.7.4 Attachment of auxiliary equipment

Auxiliary equipment such as angular jointing units or power feeders can be mounted on a console, which is already included in the scope of delivery of the machine. **Please note:** Only power feeders equipped with a separate on/off switch may be used.

9 Components and controls

9.1 Machine components

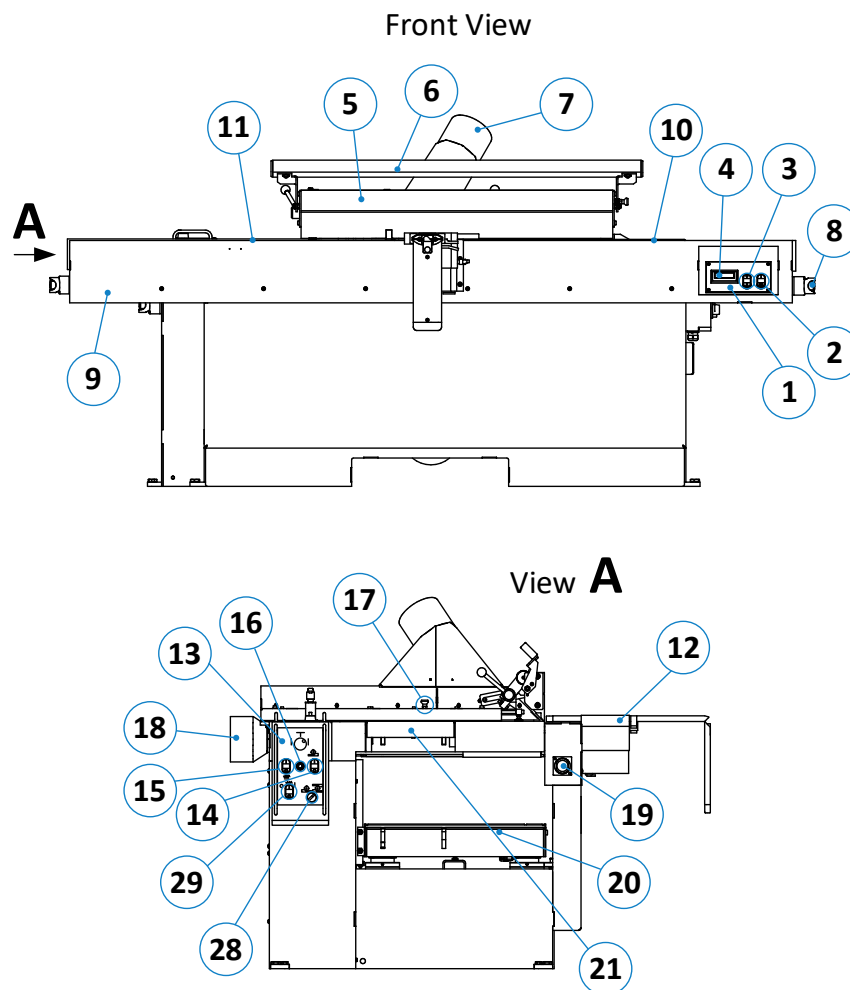


Figure 24: Components & controls (front view)

No.	Description	No.	Description
1	Planer & Jointer control panel (details see ⇨ 9.2)	13	Thicknesser control panel (details see ⇨ 9.3)
2	Cutter block ON/OFF (planing & jointing area)	14	Cutter block ON/OFF (thicknessing area)
3	Height adjustment infeed table	15	Feed motor ON/OFF (thicknessing area)
4	Position indicator for planing & jointing	16	Potentiometer for feed rate (option)
5	Planing & jointing fence	17	Locking pin for planer & jointer fence
6	Planing & jointing auxiliary fence	18	Suction nozzle for thicknesser
7	Suction nozzle (planing & jointing area)	19	Emergency Stop (thicknessing area)
8	Emergency Stop (planing & jointing area)	20	Support table for thicknesser
9	Front cover	21	Table extension outfeed side
10	Infeed table	28	Switchover
11	Outfeed table	29	ON/OFF switch for outfeed table (option)
12	Planer guard		

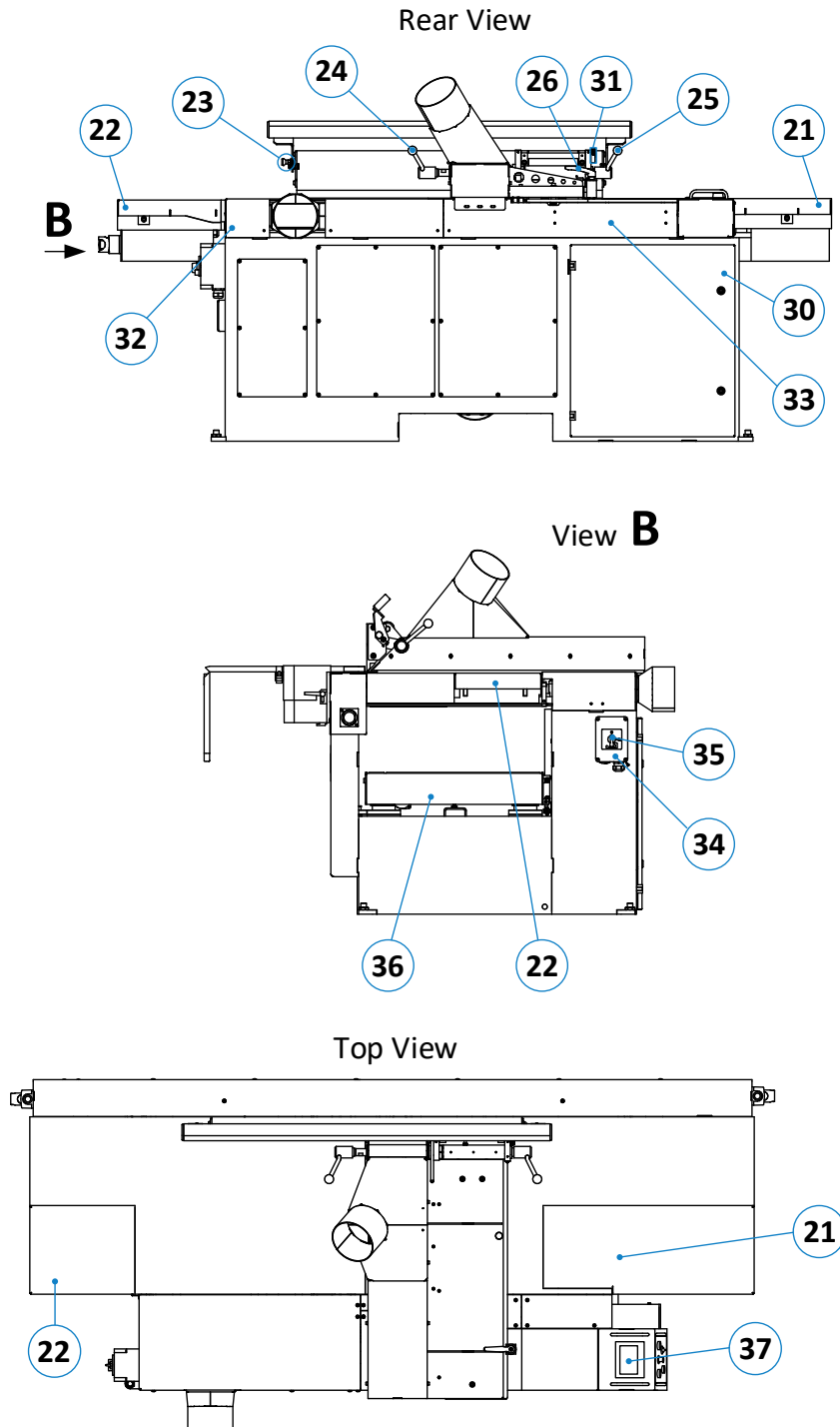
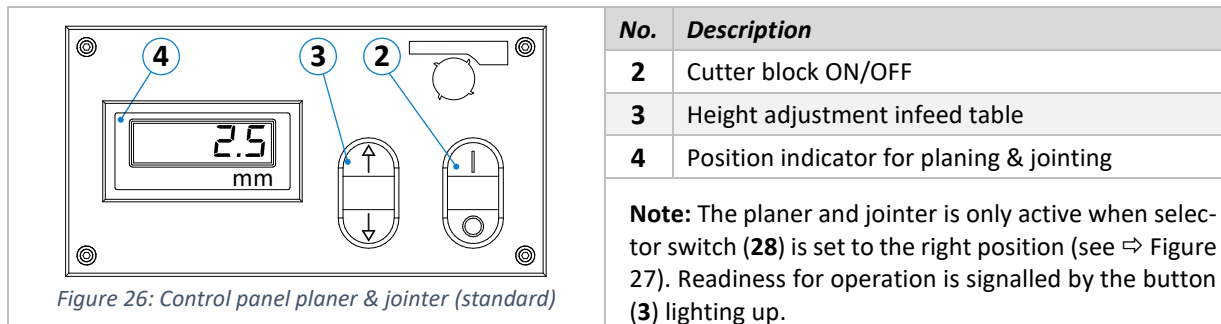


Figure 25: Components & controls (side & rear view)

No.	Description	No.	Description
21	Table extension outfeed side	31	Graduation scale
22	Table extension infeed side	32	Cover rear infeed table
23	Locking pin for auxiliary fence	33	Cover rear outfeed table
24	Clamping lever for planing & jointing fence	34	Main switch housing
25	Adjusting lever for planing & jointing fence	35	Main switch
26	Clamping lever for fence guide	36	Thickening table (optionally with outfeed)
30	Control cabinet door	37	Positioning control for thickening height

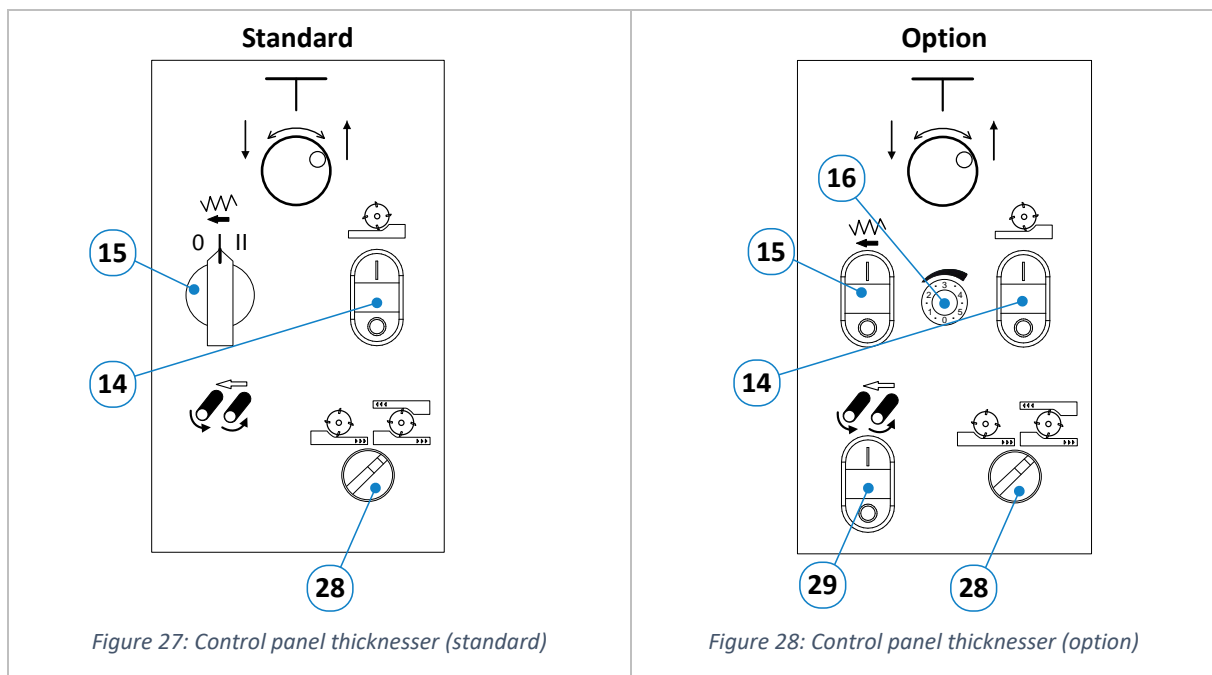
9.2 Control panel - planer and jointer (detail view)

This section shows a detailed view of the control panel (13) for the planer & jointer shown in ⇨ Figure 24. This large view provides a better illustration of the respective operating elements.



9.3 Control panel - thicknesser (detail view)


This section shows a detailed view of the thicknesser control panel (1) shown in ⇨ Figure 24 (on the right for the standard version and on the left for optional equipment). This large view provides a better illustration of the respective operating elements.



Nr.	Control panel for standard machine	Nr.	Control panel with optional equipment
14	Cutter block ON/OFF (thicknessing area)	14	Cutter block ON/OFF (thicknessing area)
15	Rotary switch thickness feeder ON/OFF a) with feed rate I → 7 m/min b) with feed rate II → 14 m/min	15	Push-switch thickness feeder ON/OFF (option)
		16	Potentiometer for variable feed rate (option)
28	Selector switch planer & jointer active/inactive	28	Selector switch planer & jointer = active/inactive
		29	ON/OFF switch for outfeed table (option)


10 Commissioning

Read the operating manual and the chapter ⇒ 5 “Safety” carefully before commissioning and observe them.

	<p>Before switching on, check that</p> <ul style="list-style-type: none"> • there are no loose parts on the thickening table and that all tools have been removed, • the guards are fitted in accordance with regulations, • the extraction system is connected and in working order, • the direction of rotation is correct, • the V-belts are perfectly tensioned • and no persons are in a danger zone of the machine
---	---

10.1 Switching the machine ON and OFF

10.1.1 Surface planing and jointing

	<p>From surface planing widths > 300 mm, the table extensions must be hooked in on both sides. Both table extensions are queried by the control. If they are not hooked in, an error message appears (see section ⇒ 11.11.1) and the machine cannot be started!</p>
---	---

Switching ON

- Turn the main switch (35) to position “I”.
(see ⇒ Figure 25).
- Turn selector switch (28) to the right position
(see ⇒ Figure 27) → Button (3) lights up.
- Move the planer fence the desired position.
- Set chip removal with double push buttons (3).
- Start cutter block with push button (2).

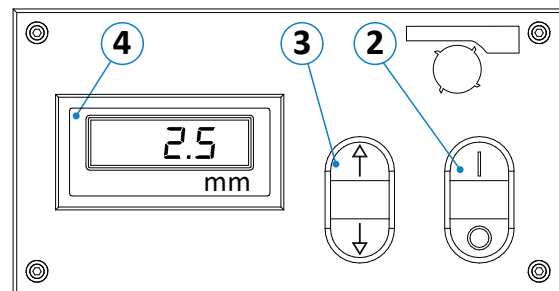


Figure 29: Planing & jointing controls

Switching OFF


- Stop cutter block with push button (2) and wait for it to come to a complete standstill.
- Turn off main switch (35).

For further information on the operation during “Surface planing and jointing” (see section ⇒ 11.3).

10.1.2 Thickening

Switching ON

- Turn the main switch (35) to position “I”.
- Turn selector switch (28) to the left position (see ⇒ Figure 27).
In this position the control panel for planing & jointing is deactivated.
- Push the planer fence all the way to the front. The suction bonnet must sit on the planer fence.

	<p>The position of the planer fence is queried. Only when the fence is in the foremost position the complete width of 630 mm can be planed.</p>
---	--

- Adjust the height setting to the desired value by means of the positioning control (37) (for procedure see section ⇒ 11.8.1). When pressing the “Start” button, the table moves to the required position.
- Start the cutter block with the push button (14) and wait until the full speed is reached.
- **Two step feed (standard):** Turn the selector switch (15) to position I (= 7 m/min) or to position II (= 14 m/min) → The feed runs (see section ⇒ 9.3).

Variable feed (option): Turn the potentiometer (16) shown in section ⇒ 9.3 completely to the left and switch on the feed with the push-button (15). Then set the desired feed rate (3 ... 24 m/min) by turning the potentiometer (16) to the right. The feed rate is visualised in the touchscreen control (see ⇒ 11.10).

- With optional pull-out (automatic outfeed) of the thickening table (36) and short workpieces switch on the outfeed with push button (29) by pressing "I".
- Now you can start working.

Switching OFF

- With optional pull-out (automatic outfeed) of the thickening table (36) turn the selector switch (29) to the "OFF" position.
- Switch off the feed with button (15) resp. selector switch.
- Stop cutter block with push button (14) and wait for it to come to a complete standstill.
- Turn off main switch (35).

10.1.3 Combined working

The 546|100 can be used in combination. This means that surface planing & jointing can be done in the front area and thickening in the rear (opposite) area.

To do this, the following steps must be observed:

- Push the planer fence to half the planing width of 315 mm and lock it in the middle position with the locking pin (17).
- Turn selector switch (28) to the right to the inclined position.
- Turn main switch (35) to position "I".
- Adjust the infeed table and the thickening table to the desired position as described before.
- Start cutterblock with push button (2) or (14).
- This allows surface planing & jointing on a width of max. 315 mm at the front and thickening on a width of max. 315 mm on the rear side.

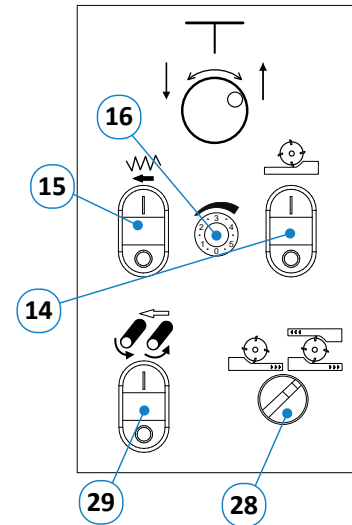


Figure 30: Thickening controls

	Do not surface plane and thickness plane at the same time, but only one after the other! The cutter block is to be loaded with only one work cycle.
--	--

	For workpieces that exceed the dimension of 315 mm during thickness planing, the machine is automatically switched off via a flap stop.
--	--

10.1.4 Emergency stop system

In case of an emergency, the machine can be shut down via the following two switches:

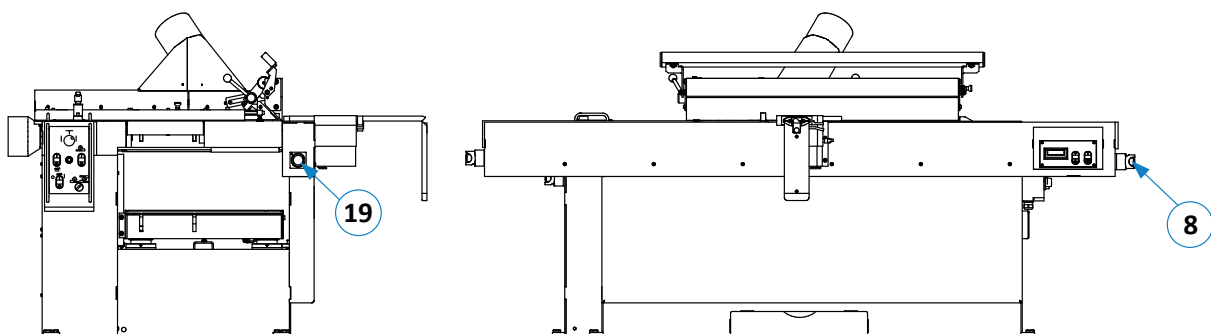




Figure 31: Emergency stops

- Emergency stop button (19) in the thickening area
- Emergency stop button (8) in the surface planing & jointing area

11 Operation

11.1 General safety information


	All adjustment and set-up work is only permitted when the <u>cutter block is stationary!</u>
	Only machining operations in which <u>the entire length of the workpiece is machined</u> may be carried out on the machine.

11.2 Operation as a surface planer and jointer



Figure 32: Working on the planer table (example)

11.2.1 Working safely on the surface planer and jointer

	To ensure safe working in planing mode, please observe the following instructions and also read the chapter ⇒ 5 "Safety" and the section ⇒ 5.3 "Hazardous areas".
---	--

- Observe the safety instructions (⇒ 5) and danger zones (⇒ 5.3.2) when surface planing and jointing.
- Also ensure the correct feed direction on the surface planer & jointer (see arrow directions in ⇒ Figure 15).
- The workpiece must never be fed in or out via the free cutter block.
- The cutter block must always be covered with a bridge guard.
- When processing narrow or short workpieces, use appropriate safety accessories (e.g. the auxiliary fence for narrow workpieces / the push block or push stick for short workpieces, etc.).
- For warped or curved workpieces, place the hollow side on the infeed table.
- When machining curved surfaces, start with low chip removal.
- The workpiece must always be advanced with a closed, flat hand position, consistent speed and constant pressure on the outfeed table.
- Never lift the machined workpiece by hand on the outfeed table side (in the direction of the cutter block)! Long workpieces can be pushed beyond the edge of the table for removal and tilted upwards at the edge so that the rear side can be gripped by hand without risk.
- When jointing tall workpieces, ensure controlled lateral pressure (prevent tilting) and ensure that the cutter block is completely covered by the bridge guard.
- If the machine stops suddenly (e.g. in the event of a power failure, V-belt breakage, etc.), stop feeding the workpiece immediately.

11.3 Surface planing and jointing

11.3.1 Electrical adjustment of the infeed table

- The chip removal is set via button (3), see ⇒ Figure 33.
- First move the selector switch (28) to the right inclined position, see ⇒ Figure 27.
- Pressing the button (3) moves the feed table up or down, depending on the direction of the arrow.
- Arrow pointing upwards:
→ Chip thickness decreases
- Arrow pointing downwards:
→ Chip thickness increases

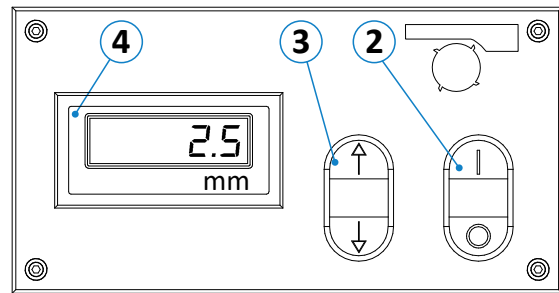



Figure 33: Operation "planing & jointing"

The chip removal is visualised on the digital indicator (4). The cutter block can be switched on and off via pressure switch (2). Further information can be found in the section ⇒ 10.1.1.

11.3.2 Adjusting the outfeed table

	<p><i>In the standard model, the outfeed table is set exactly to the cutter flying circle at the factory. This can only be adjusted by qualified personnel.</i></p>
---	--

11.3.3 Adjustable outfeed table (option)

At a central point, the optionally available adjustable outfeed table for re-sharpenable planing knives is used to adjust the delivery table to the cutter flying circle.

This option is only recommended when re-sharpening the standard Tersa cutter block or the optional 4-knives traditional cutter block .

Procedure:

- Loosen the grub screw (S) for spindle clamping with an SW 4 Allen key.
- Turn the handwheel (H) two turns counterclockwise ⤿ to ensure spindle play compensation → The outfeed table is lowered.
- Turn the handwheel (H) clockwise ⤿ and set the desired dimension.
→ The outfeed table is lifted.
- Turn the handwheel (H) 1/3 turn counterclockwise again to reduce the preload.
- Tighten the spindle clamp (S) again (do not overtighten as this may cause mechanical damage)
→ 9 graduations on the scale correspond to approx. 0.1 mm height adjustment of the outfeed table.
→ Recommendation: The table can be set even more accurately with a dial gauge with magnetic stand.
- The article number of this option can be found in section ⇒ 16.1.3.

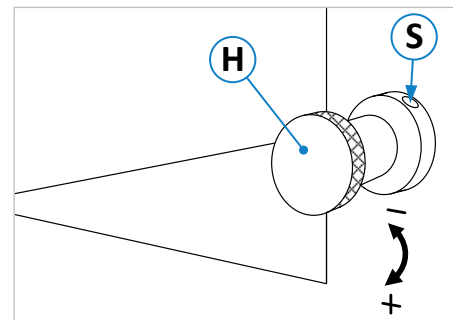



Figure 34: Outfeed table adjustment

	<p><i>The outfeed table is factory set exactly to the cutter flying circle and should only be adjusted if the knives have been re-sharpened or misadjusted.</i></p>
---	--

11.3.4 Operating the planer fence

- To move the fence backwards and forwards, loosen the clamping lever (26).
- To set the angle of the fence to 45°, loosen the clamping lever (24) with one hand and pull the adjusting lever (25) forward with the other hand → The fence automatically moves to the 45° position under its own weight. Then tighten the clamping lever (24) again.

- The graduation scale (31) shows the number of degrees.

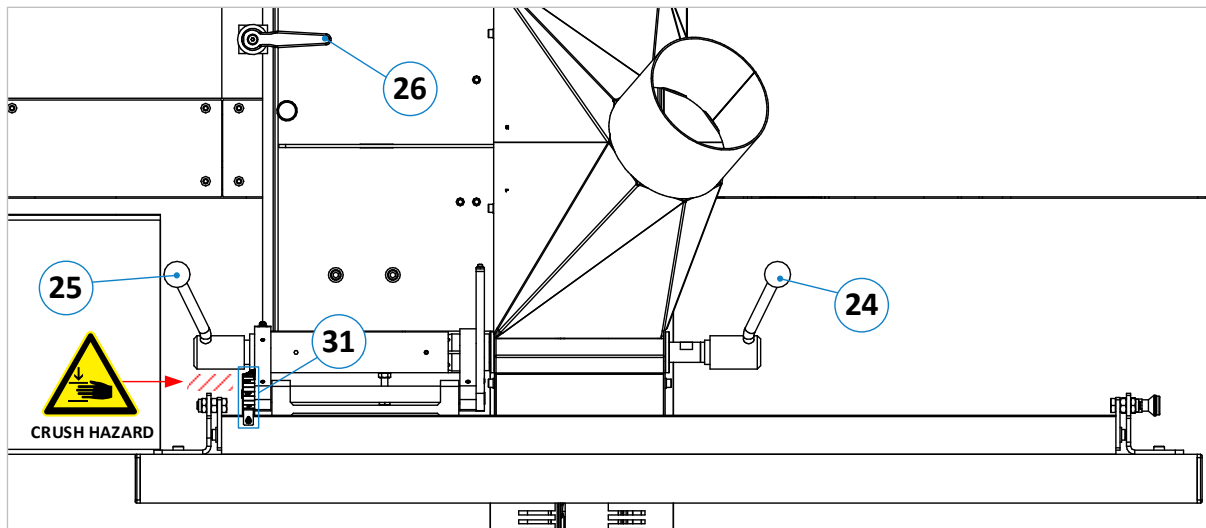


Figure 35: Top view of the surface planer fence

- To reset the fence to position 0 ($\cong 90^\circ$), loosen the clamping lever (24) again and set the adjusting lever (25) in the other direction (to the rear).
Important: While doing so, push the fence with the adjusting lever (25) with force all the way back (until it stops, the ruler must lift slightly). Then tighten the clamping lever (24) again.

To calibrate the angles of the fence, please refer to sections \Rightarrow 0 and \Rightarrow 11.3.8.



Warning: Danger of crushing fingers and hands between the adjusting lever (25) and the auxiliary fence (see \Rightarrow Figure 35)! During the angular adjustment of the fence, as well as during measurements or other adjustment work, always fold the auxiliary fence down towards the table.

11.3.5 Auxiliary fence

- For planing narrow workpieces or for joining work, use the swiveling auxiliary fence (6), which is located on the main fence (5).
- When not in use, pull the locking bolt (23) outwards, swivel the fence upwards (see \Rightarrow Figure 36) and snap the locking bolt (23) back into place.

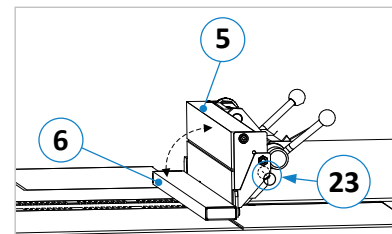


Figure 36: Auxiliary fence

11.3.6 Push block

- When dressing short workpieces, the supplied push block (Z) or similar aids (e. g. push stick) must be used.
- When not in use, the push block should be placed in the designated storage compartment (A) on the machine stand (see \Rightarrow Figure 37).

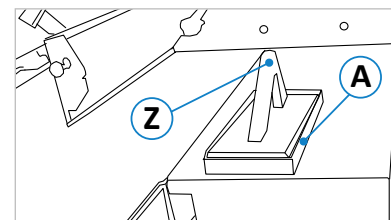


Figure 37: Push block in compartment

11.3.7 Calibrating the planer fence (position 90°)

The angle of the fence should be checked regularly. If this is no longer exactly 90°, a calibration procedure is necessary. To calibrate the fence to position 0 ($\cong 90^\circ$), proceed as follows:

1. Check the angle at the starting position 0 with a 90° stop angle (**W**) in the clamped state of lever (**24**) (see \Rightarrow Figure 38) \rightarrow If the angle is not exactly 90°, it must be readjusted.
2. To correct, open the clamping lever (**24**) and pull the adjusting lever (**25**) all the way forward (to 45° position). Loosen the now accessible lock nut (**M**) with an open-end spanner SW13 (see \Rightarrow Figure 39). Then adjust the screw (**S**) either inwards or outwards (as required) until the angle is exactly 90° again (\Rightarrow Figure 39).
3. To check whether you are turning in the right direction, push the adjustment lever (**25**) - as shown in \Rightarrow Figure 38 - all the way back with force (as far as it will go, the ruler must lift slightly). Then tighten the clamping lever (**24**) again. Repeat steps 1. and 2. until the angle is correct.

Note: During adjustment, the lever (**25**) must always be moved fully forwards (towards the planing table) and to check the angle, it must be moved backwards with force (so that the ruler lifts up slightly).

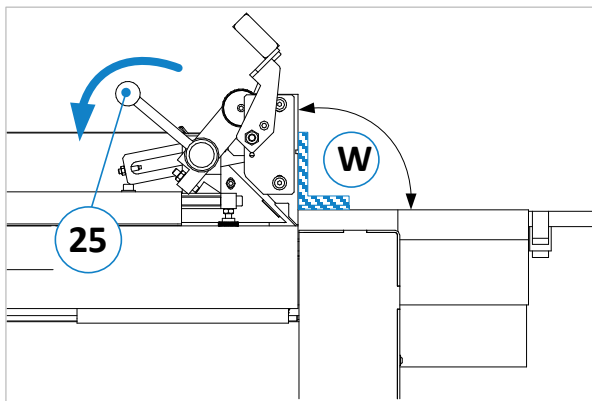


Figure 38: Check angle 90 degrees

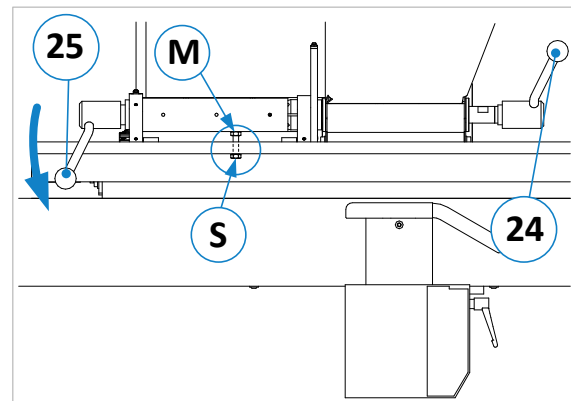


Figure 39: Calibrate angle to 90 degrees

4. Finally, tighten the clamping lever (**24**) again \rightarrow The fence is now calibrated.

11.3.8 Calibrating the planer fence (position 45°)

As with the 90° angle, it is also advisable to check the 45° angle regularly with a protractor and to calibrate it if necessary. To adjust the 45° angle, proceed as follows:

1. When the clamping lever (**24**) is open, move the adjusting lever (**25**) forwards (towards the planing table) (\Rightarrow Figure 40) \rightarrow Fence automatically folds to 45°.
2. Check the 45° angle with a protractor.
3. For readjustment, open the clamping lever (**24**) and loosen the lock nut (**M**) with an open-end spanner SW10. Then adjust the angle using the grub screw (**S**) and an Allen key SW3. Repeat steps 2. and 3. until the angle is correct

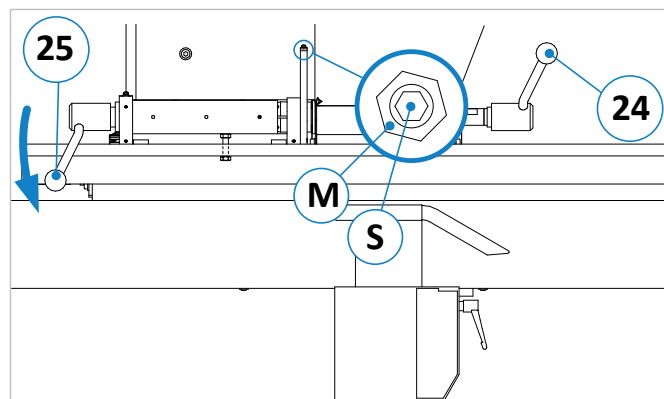


Figure 40: Calibrate angle to 45 degrees

Note: The clamping lever (**24**) must always be open during the adjustment of the screw and in the clamped state during the angle check.

11.4 Planer guard TXF 1570

The standard TXF 1570 planer guard has a bridge that can withstand very high loads. It can raise parallel to the machine tables to a height of max. 60 mm.

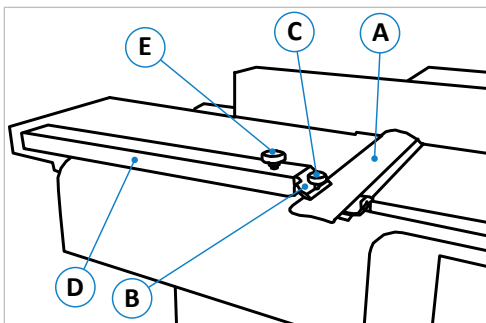


Figure 41: Planer guard TXF 1570

TXF 1570 components:

- A Protective bridge
- B Bridge support
- C Locking lever of the bridge
- D Planer guard arm
- E Locking screw for height adjustment

11.4.1 Flat planing

- Loosen the bridge lock (C) and push the bridge all the way against the planer fence.
- Clamp the bridge lock again.
- Set the height of the bridge slightly higher than the workpiece using the locking screw (E).
- Now the workpiece is passed under the bridge, whereby the bridge is pressed down with one hand.

The underside of the bridge, regardless of its height, is always parallel to the tables and is automatically held in position.

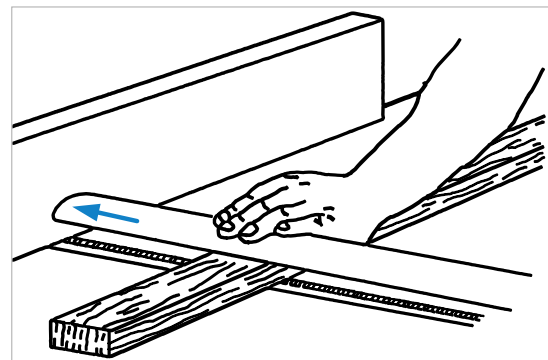


Figure 42: Guard setting for flat planing

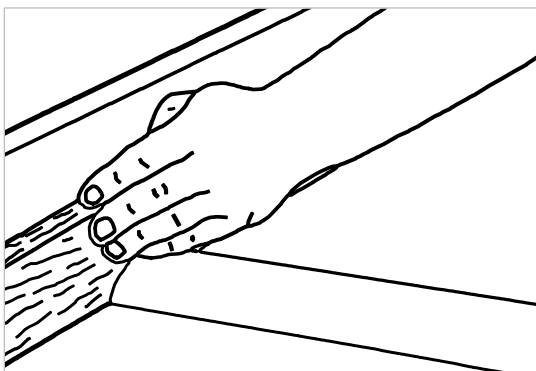


Figure 43: Guard setting for edge jointing

For several operations, the workpiece is brought back over the bridge onto the infeed table. During this process, the bridge is lowered and then returns to its initial position.

11.4.2 Edge jointing

- Set the bridge all the way down using the locking screw (E).
- Adjust the bridge with the locking device (C) so that the workpiece can just pass between the bridge and the fence.

11.5 Optional planer guards SUVAMATIC and TX MATIC

The following planer guards are optionally available (see also options in section ⇒ 16.3):

1. **SUVAMATIC** - with 2-part fold-down cover and spring-loaded contact pressure.
2. **TX MATIC** - with 2-part fold-down cover and spring-loaded contact pressure with rollers.

For information and instructions on operation and maintenance, please refer to the separately enclosed [operating manual of the manufacturer](#).

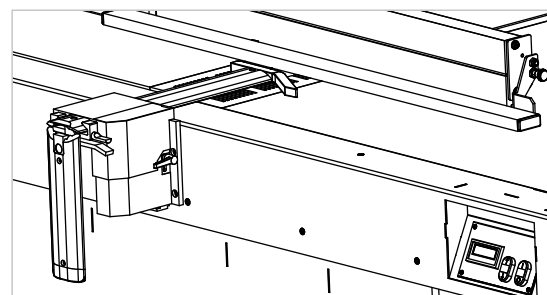


Figure 44: Type SUVAMATIC (example)

11.6 Operation as a thickness planer



Figure 45: Working on the thicknesser unit (example)

11.6.1 Switching to thickening mode

- To be able to operate the machine as a thicknesser, the selector switch (28) shown in ⇨ Figure 27 must first be turned to the left position.
- Then remove the hook-in table required for surface planing from the top on the infeed side and hook it in at the bottom as a workpiece support for the thickening table (see ⇨ Figure 45 above).
- Also remove the hook-in table on the dispensing side and place it in a safe place..
- For workpieces > 310 mm, the planer fence must be pulled all the way to the front and fixed there.
- For combined surface and thickness planing, please also read the section ⇨ 10.1.3.

11.6.2 Working safely on the thicknesser



To ensure safe working in thickening mode, please observe the following instructions and also read the chapter ⇨ 5 "Safety" and the section ⇨ 5.3 "Hazardous areas".



During operation as a thicknesser, workpieces with cross-sections that cannot be fully gripped by the anti-kickback fingers must not be processed.

- When thickness planing, observe the safety instructions (⇨ 5) and also the danger zones (⇨ 5.3.4).
- For workpieces with different thicknesses at both ends, feed the end with the greater thickness first to avoid wedging.
- The machine can be used for thickness planing up to a maximum chip removal of 8 mm.
- If chip removal > 8 mm is required, this can be done in several steps up to a maximum of 8 mm, whereby the last chip removal should be approx. 1 - 2 mm to ensure a good planing result.
- If the workpiece is wedged and does not move, the chip removal must be reduced.
- For very long workpieces that are longer than the thickening table including the standard table extensions, additional roller supports or table extensions must be used. This prevents the workpiece from tipping over.
- Workpieces with lengths < 320 mm and thicknesses < 5 mm must not be processed, as they cannot be transported safely by the machine rollers.

11.7 Thicknessing via touchscreen control

To operate the machine as a thickener, first turn the selector switch (28) to the left position (⇒ Figure 27). Then proceed as described from section ⇒ 11.8 onwards.














Figure 46: Touchscreen control unit

The touchscreen positioning control installed in the “Thickener area” is used for the following purposes:

- Height adjustment of the thickening table
- Calibrating the thickening table height (password protected)
- Display of the machine's operating status (emergency stop, motor protection, motor voltages)
- Display of status and error messages
- For indicating the feed rate (only with variable feed rate option)
- Setting machine parameters (for authorised personnel only, see separate ↗ Service Manual)

11.7.1 Buttons and symbols

Depending on the active mode, different symbols and buttons appear on the screen of the control unit. The respective functions are described in the following table:

Action	Function
	The “Home” button takes you back one level or to the main menu.
	Starts the positioning process to the specified setpoint.
	Stops a running positioning process.
	Switch to incremental mode.
	Switch back to absolute mode.
	Starts the calibration of the table height in the setup mode.
	After entering the calibration value, the “Set” button turns red. This is to indicate that the key must now be pressed. As soon as the calibration value has been adopted, the button changes back to the grey background.
	Symbol opens the “Info” menu with relevant additional information, e.g. operating status of the machine, such as emergency stop, motor protection and motor voltages.
	If the symbol described above appears in red, an error is detected (e.g. the machine is in the end limit zone). Work can only be continued after the error has been remedied.
	Language selection in the “Info” menu (currently available: German, English and French).
	This symbol flashes when an important warning is pending and the feed of the thickener is inactive. Then tap the symbol to find out more about the error.

11.7.2 Activating the controller

The controller activates automatically when the machine is switched on. The main menu appears.

➔ **Switch ON the machine**

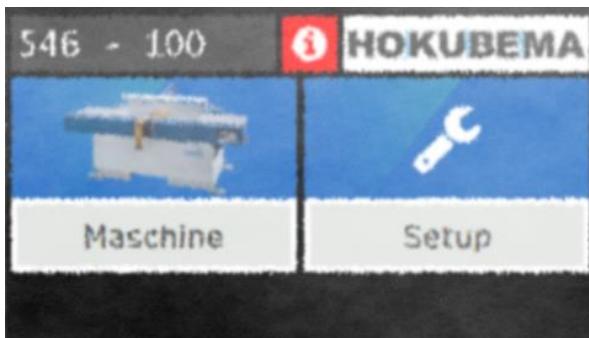


Figure 47: Screen at start-up (booting)

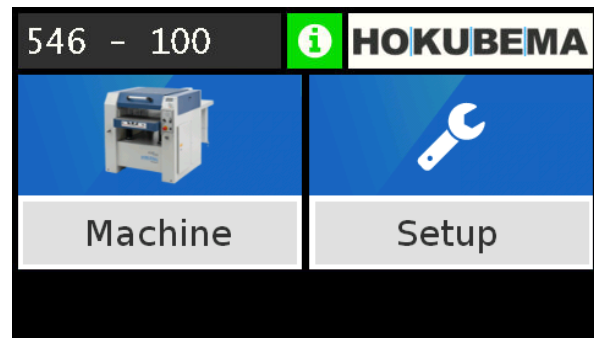


Figure 48: Screen "ready for use"

- When booting, the main menu initially appears in German language graphically unclear, blurred and with a red **i** → As soon as the main menu appears clear and sharp, the position controller and the machine are ready for operation (see ⇒ Figure 48).
- Press the **"Machine"** button for normal positioning mode (see ⇒ 11.7.3).
- To calibrate the table height, press the button **"Setup"** (procedure see ⇒ 11.9).

Symbol i	<i>If the "Info" icon still appears in red after booting, then tap on the icon to open the "Info" menu and explore the cause of the problem. For more details refer to ⇒ 11.7.3 und ⇒ 11.11.</i>
--------------------	---

11.7.3 Operating states and language ("Info" menu)

By tapping the symbol **i** resp. **i** you can access the **"Info"** menu. Various operating states, the machine and version number, the year of manufacture and various messages are displayed here. In addition, the menu language (German, English or French) for the control system can be set here.

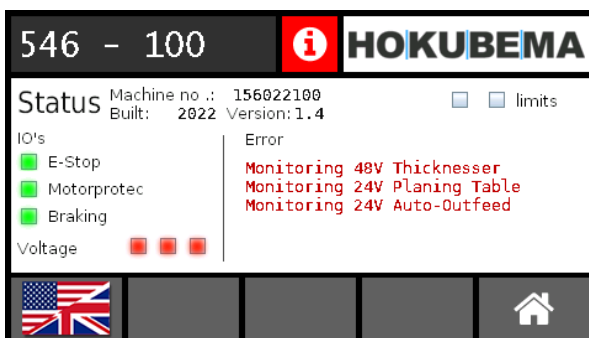


Figure 49: Info menu with status messages

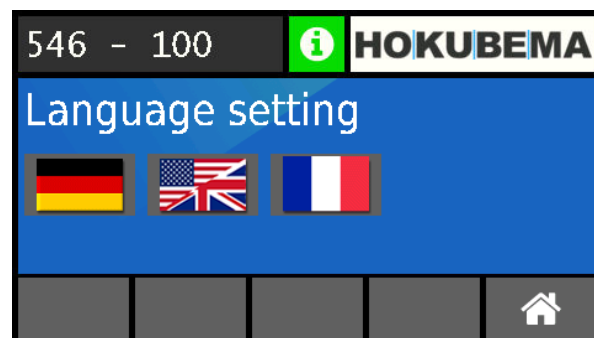


Figure 50: Language menu

- Status messages (example ⇒ Figure 49): Here the voltages required for operation are missing for the thicknesser, the pull-out (automatic outfeed) as well as for the surface planing table. Operation is only possible after the faults have been remedied. If the end position symbol is active, you must first move out of the end position range in the opposite direction so that the message becomes inactive and the control unit can be used for positioning again (see ⇒ 11.8.1).
- Detailed information about all error and warning messages can be found in the section ⇒ 11.11.
- Tapping the flag symbol at the bottom left opens the language menu (see ⇒ Figure 50). The desired menu language can be chosen here.

11.8 Positioning mode (“Machine” menu)

11.8.1 Table height positioning in absolute mode

After pressing “**Start**”, the height of the table is positioned directly to the value defined in the field “**Set**”.

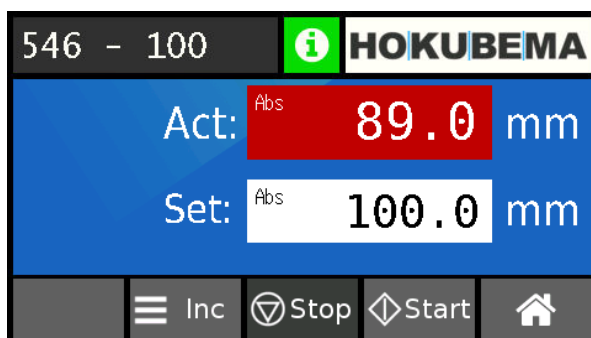


Figure 51: Setpoint input in absolute mode

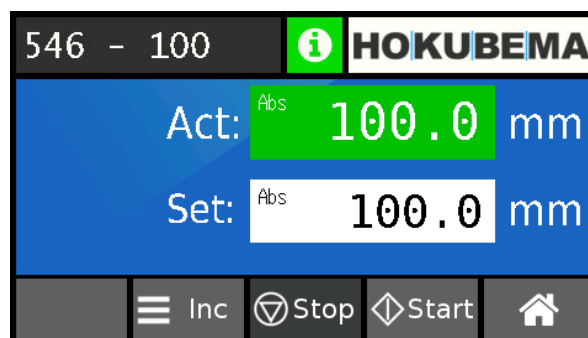


Figure 52: Position reached in absolute mode

- Absolute mode is active when the “**Inc**” button is visible in the bottom line of the screen and “**Abs**” appears in the input fields in the top left-hand corner (see ⇒ Figure 51 and ⇒ Figure 52).
- Tap on the field “**Set:**” and enter the desired setpoint, e.g. **100.00** mm (⇒ Figure 51).
- Press “**Start**” to start positioning:
 - The “**Act:**” field is highlighted in red until the setpoint value “**Set:**” is reached (see ⇒ Figure 51).
 - The “**Act:**” field changes to green as soon as the target position “**Set:**” is reached (see ⇒ Figure 52).
- Press the “**Stop**” button if you want to cancel the positioning process.
By pressing “**Start**” again, you can continue the positioning at any time.

Note: When positioning to a setpoint > actual value, this is first overrun by approx. 1 mm and then approached from below. This serves to compensate for spindle play (loop function).

11.8.2 Table height positioning in incremental mode

In this mode, positioning is incremental, resp. at each “**Start**”, the dimension entered in the “**Set:**” field is subtracted from the current actual value. Thus the incremental value defines the depth of cut (max. 8 mm).

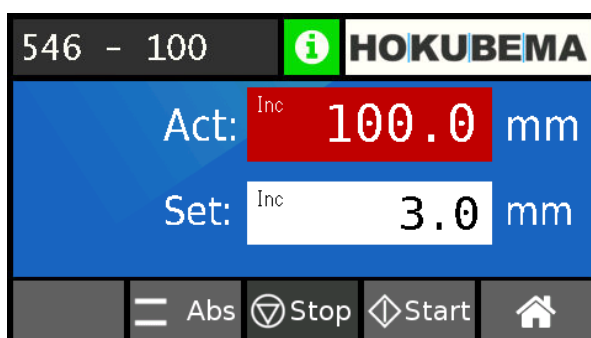


Figure 53: Setpoint input in incremental mode

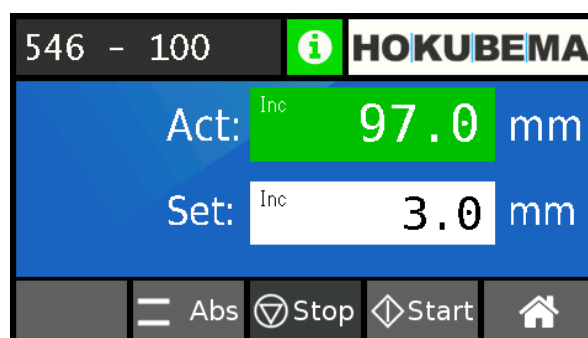


Figure 54: Setpoint reached

- Press the “**Inc.**” button to change to incremental measurement mode.
- Then tap on the “**Set**” field and enter the desired incremental setpoint, e.g. **3.00** mm (⇒ Figure 53).
Note: Dimensions resp. chip removal > 8.00 mm are not possible (a short beep sounds).
- Press “**Start**” to start positioning:
 - The “**Act:**” field is highlighted in red until the setpoint value “**Set:**” is reached (see ⇒ Figure 53).
 - The “**Act:**” field changes to green as soon as the target position “**Set:**” is reached (see ⇒ Figure 54).
 - With “**Start**” this process can now be repeated arbitrarily often.
- Press the “**Stop**” button if you want to cancel the positioning process.
By pressing “**Start**” again, you can continue the positioning at any time.
- To return to the absolute mode, press the button “**Abs**”.

11.9 Calibrating the table height (“Setup” menu)

The position controller makes it easy to calibrate the height of the thickening table. For this purpose, you must first switch from normal positioning mode to the setup menu.

- Press the “**Home**” button to switch to the main menu.
- Then press the “**Setup**” button to enter the setup menu:
 - An alphanumeric keyboard appears with a password request.
 - Enter the password 7550 and confirm with “**ENT**” (Enter).
 - If the password has been entered correctly, the button “**Calibrate**” appears on the screen.
- Now press the “**Calibrate**” button to enter the calibration menu:
 - The calibration screen appears (see ⇒ Figure 55)

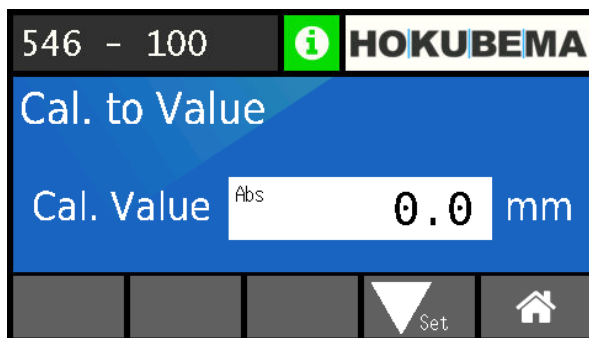


Figure 55: Calibrate table height

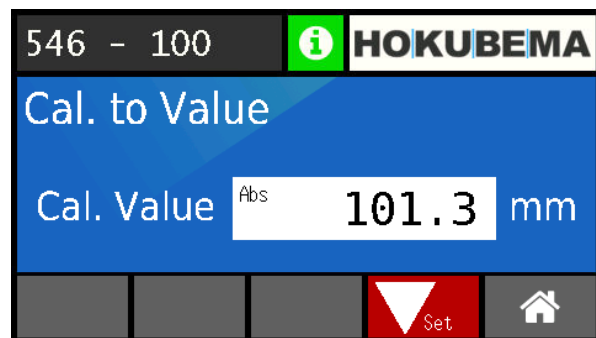


Figure 56: Input of the reference value

- Now use a test workpiece that has already been dressed and set the table to any height that is suitable for a thickness planing test run with the selected test workpiece.
- Start the thickness planing test run.
- Measure the machined test workpiece with a suitable measuring device (vernier caliper recommended!)
- Enter the measured value (z. B. **101.3 mm**) into the “**Cal. Value**” field (see ⇒ Figure 56):
 - The “**Set**” button in the bottom line of the screen is highlighted in red.
- Then press the “**Set**” button:
 - The table is automatically calibrated to the reference dimension
- Finally, press “**Home**” to return to the main menu.

11.10 Feed rate visualisation (option)

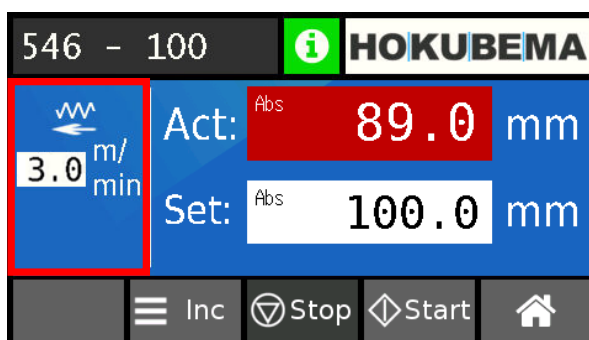


Figure 57: Feed rate visualisation

On machines with infinitely variable feed rate (option see section ⇒ 16.1.3), the current feed rate is visualised on the left-hand side of the screen, as shown in the figure on the left.

Note: This function is unavailable on machines with two-stage standard feed.

11.11 Warnings and error messages

11.11.1 Error messages

Error messages are pop-up windows with the title “Error” and with a red background. In this case, the machine or positioning cannot be started without first remedying the error.

 <p>Figure 58: Error message 1</p>	<p>Cause: One of the existing emergency stop buttons is actuated.</p>	
	<p>Remedy: Unlock the corresponding emergency stop button.</p>	
 <p>Figure 59: Error message 2</p>	<p>Cause: There is a fault on the motor protection.</p>	
	<p>Remedy: Check the motor protection switch and, if necessary, the existing fuses and connections.</p>	
 <p>Figure 60: Error message 3</p>	<p>Cause: A fault is present at the start/brake unit. This can be triggered by thermal overload of the main motor or by undervoltage.</p>	
	<p>Remedy: Let the machine cool down and check all motor protection switches in the control cabinet. To reset the fault, the machine must be restarted.</p>	
 <p>Figure 61: Error message 4</p>	<p>Cause: The machine does not start because the feed switch is turned to the “ON” position and the feed is active.</p>	
	<p>Remedy: Turn the feed switch to the “OFF” position to be able to start the machine.</p>	
 <p>Figure 62: Error message 5</p>	<p>Cause: a) The fence is too far back b) The hook-in tables are not mounted</p>	
	<p>Remedy: a) Position the fence to the centre position b) Mount both hook-in tables</p>	
 <p>Figure 63: Error message 6</p>	<p>Cause: The selector switch (28), see ⇨ Figure 27, is set to the wrong position.</p>	
	<p>Remedy: For planing & jointing operation, the selector switch (28) must be turned to the “right” position.</p>	

Further (non-control-relevant) operating faults are described in the chapter ⇨ 14.

11.11.2 Warnings



Warnings are signalled by a yellow, flashing warning triangle (see left). If the symbol is tapped, the "Warning" window appears with a yellow background and the corresponding information.

<p>Figure 64: Warning 1</p>	<p>Figure 65: Warning 2</p>	<p>Cause:</p>	<p>Fence and/or extraction are in the unacceptable range.</p>
		<p>Remedy:</p>	<p>Move fence and/or extraction into the permissible range.</p>

- With these warning messages, only surface planing (on top of the planing table) is possible.
- The function "thicknessing" is therefore not possible because the feed cannot be started.
- To be able to thickness-plan workpieces > 315 mm, the fence must be completely closed.

Further (non-control-relevant) operating faults are described in the chapter ⇒ 14.

12 Fine adjustable table rollers (option)

12.1 Adjusting the table rollers

When equipped with this option, two adjustable table rollers are built into the thickening table for better sliding of the wood.

- The knurled thumbwheel (**G**) is used to adjust the rollers according to the condition of the wood. The adjustment range is approx. 1 mm. The planing result deteriorates the higher the table rollers are set.
- With full stop left, the rollers are in lowest position
→ Use this setting on dry, well-dressed wood.
- With full stop on the right, the rollers are in the uppermost position
→ Use this setting on damp, resin-rich or non-straightened wood to ensure safe feeding.

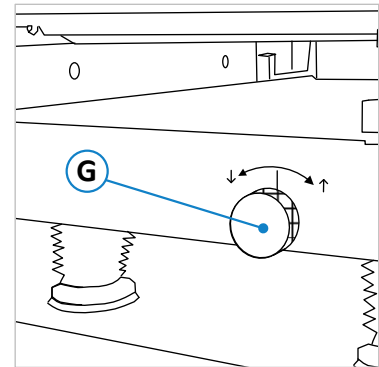


Figure 66: Adjusting the table rollers

The article number of this option can be found in section ⇒ 16.1.3

13 Changing the planer knives

	<p>Switch off the machine during maintenance and repair work and secure it against being switched on again unexpectedly! Lock the main switch with a padlock!</p>
	<p>Even when stationary, cuts from the knives are possible!</p>
	<p>Always wear protective gloves when changing the knives!</p>

13.1 Changing the TERSA knives on an all-steel cutter block (standard)

Only use original replacement planing knives from the manufacturer. The blades must always be the same length as the maximum planer width (630 mm with 546|100).

- Knock back the pressure bar segments using a hammer in combination with the brass wedge (**3**) included in the delivery or a piece of wood. Please do not use a screwdriver or similar made of steel, otherwise the blades will be damaged!
- Pull out the knife (**1**) sideways
→ Turn the knife resp. replace and reinsert it.
- The knives are automatically tensioned to the correct flight circle by the centrifugal force acting on the pressure bars (**2**).
- To ensure absolute clamping of the knives after changing the knives, an initial planing with hardwood over the entire planing width is necessary.

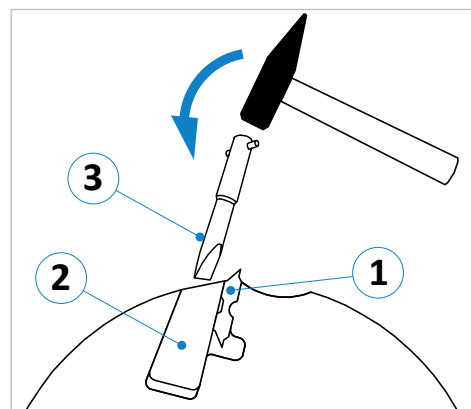


Figure 67: Changing TERSA knives

Suitable replacement knives for your Tersa cutter can be found in section ⇒ 16.1.1.

13.2 Changing the knives on PANHANS traditional cutter block (option)

Permitted replacement knives Traditional cutter block: **35 x 3 x 630 (TYP 546 | 100)**

Correctly ground and adjusted knives are the basic prerequisite for clean and precise working of the machine. The following measures are generally to be applied:

- Thoroughly clean the knives, wedge bars, contact surfaces on the shaft as well as the contact surfaces of the adjusting devices.
- Sharpen, hone and balance the knives in parallel.
- Check the knives for straightness and clean grinding before insertion.
- The adjustment may only be made with PANHANS adjusting devices (see ⇒ 13.2.1 or ⇒ 13.2.2).
- Generally use only high-quality knives.
- The knives (**M**) may only be sharpened to such an extent that a minimum clamping length of 20 mm can be maintained with a knife protrusion of max. 1 mm (see ⇒ Figure 68).

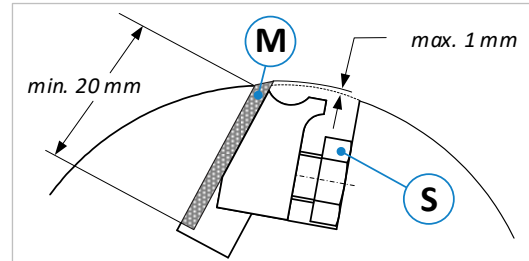



Figure 68: Traditional cutter block

	<p>To replace the knives, use only the PANHANS cutter adjusting devices included in the scope of delivery or the magnetic quick adjusters (type 1533), which are available as accessories. The manufacturer is not liable for damage caused by a deviating or improper procedure!</p>
---	--

13.2.1 PANHANS cutter block adjusters

The standard cutter block adjusters are already included in the scope of delivery when ordering the optional PANHANS traditional cutter block. The correct adjustment is carried out as described below:

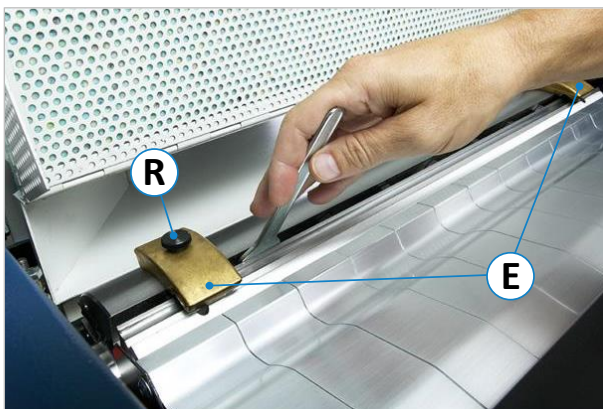




Figure 69: Standard adjusting devices

- Using a flat spanner SW17 (as shown in Figure 68⇒ Figure 69), loosen all the screws (**S**) in sequence and remove the blunt knives (**M**), see ⇒ Figure 68.
- After thoroughly cleaning all parts and contact surfaces, insert the new or sharpened knife (**M**) into the shaft groove and tighten lightly with two screws (**S**).
- Tighten the two adjusting devices (**E**) with the knurled screws (**R**) in the threaded holes of the cutter block.
- Loosen the two screws (**R**) again → The pressure springs will force the knife against the adjusters.

- Starting from the middle screw, tighten all the cutter block screws alternately in an outward direction.
- After approx. 5 minutes of running, retighten the cutter block screws.

	<p>Maximum permissible knife protrusion over the shaft base body = 1 mm.</p>
---	---

	<p>The optimum tightening torque for the cutter block screws is 32 Nm. Please do not use an extension or a hammer!</p>
---	---

- Suitable replacement knives and accessories for the traditional cutter block can be found in section ⇒ 16.

13.2.2 Magnetic quick adjusters 1533 (option)

The knives can be adjusted even faster, more precisely and more comfortably with the two optionally available magnetic quick adjusters 1533 (refer to section ⇒ 16).

Before starting, make sure that the clamping surfaces of the cutter block and the cutter wedges are clean. The planing knives must always be sharpened, honed and balanced in parallel.

Then proceed as described below:

- Using a flat spanner SW17, loosen all screws (8) one after the other and remove the blunt knives.
- Place the two adjusters 1533 (Accessories ⇒ 16.1.2) with the magnetic shoes (4) onto the knife shaft body (not in the knife area) and press the brass stop piece (5) with the adjusting nut (2) down to the shaft body diameter.
- Turning back the adjusting nut (2) gives the blade protrusion. One graduation point (3) on the neck of the adjusting nut corresponds to 0.1 mm.
- The blade protrusion on all thickness planers is 1.0 mm. The adjusting nut (2) is to be turned back by 10 pitch points (3).
- Then insert the new resp. sharpened knives (1), press them into the knife holder of the cutter block with a piece of wood and screw them slightly tight.
- After adjustment, the adjusters are placed over the planing knives according to ⇒ Figure 71 so that the spring-loaded pin (6) rests against the cutter body (clamping screw side).
- The knife can be pressed up to the brass stop piece by the spring (7).
- Then tighten the clamping wedge (9) from the centre outwards with the screws (8) and the adjustment is finished. The adjusters must not be placed tilted or angled, otherwise the adjustment will be inaccurate.
- After approx. 5 minutes of running, retighten the cutter block screws.



Figure 70: Magnetic quick adjusters 1533

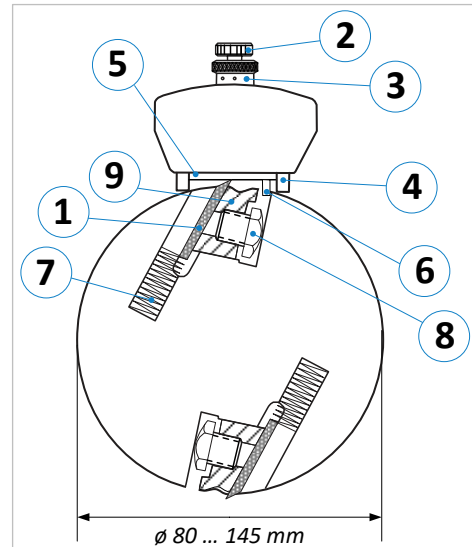


Figure 71: Adjustment of the cutter block

	Maximum permissible knife protrusion over the shaft base body = 1 mm
--	---

	The optimum tightening torque for the cutter block screws is 32 Nm. Please do not use an extension or a hammer!
--	--

Suitable replacement knives and accessories for the traditional cutter block can be found in section ⇒ 16.1.2.

13.3 Changing the knives on PANHANS spiral cutter block (option)



Figure 72: Spiral cutter carbide inserts

The optionally available PANHANS spiral cutter block consists of 6 spiral-shaped rows of cutters, each segmented with 27 special 4-fold carbide inserts.

Only the PANHANS service set for spiral cutter blocks¹ (see section ⇨ 16.1.2) is to be used for turning or replacing the cutting inserts.

The set includes a torque spanner for the M6 x 15 Torx screws, which ensures the correct tightening torque for mounting the cutting plates and thus optimal function.

13.3.1 Procedure for changing the knives

Changing or turning the cutting inserts is very simple:

- Unscrew the Torx screws of the cutting insert and remove it from the socket.
- Clean the insert holder with the accessories included in the set.
- If the plate is to be turned over, clean it from all sides (the plates are numbered for better orientation).
- Now replace the cutting insert or turn it to the position of the next number. Then tighten it with the torque spanner until it locks into place.



Only use the PANHANS service set for spiral cutter shafts to change and turn the cutting inserts. The manufacturer is not liable for damage caused by a deviating or improper procedure!

13.3.2 Advantages of the PANHANS spiral cutter block

1. When using a spiral cutter block its “pulling cut” significantly improves the cutting quality and thus the planing result.
2. Another advantage is the simplified knife replacement due to segmentation and reduced knife changing times. In the case of minor damage or blunt spots, it is usually sufficient to simply turn or replace the cutting inserts at the damaged spots. It is not necessary to replace the entire blade.
3. A spiral cutter block produces much smaller chips and thus additionally protects the extraction unit.
4. The use of a spiral cutter block ensures lower power consumption and also reduced noise emission.

¹ Also included in the set are 1 litre of resin dissolving concentrate, one steel and one brass cleaning brush, 10 reversible cutting inserts (15 x 15 x 2.5 mm), 5 Torx screws (M 6 x 15) and two T20 bit inserts for the torque spanner. The set is supplied in a practical storage case.

This and other accessories for your spiral cutter block can be found in section ⇨ 16.1.2.

14 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
The cutter block does not start	No voltage	→ Check power supply
	Control fuse defective	→ Replace the fuse (see wiring diagram)
	Main switch defective	→ Replace main switch
	Main motor defective	→ Replace motor
	V-belt defective/loose	→ Tension/replace the V-belt
	Feed selector switch "ON"	→ Turn switch to "OFF" position
	Emergency stop is locked	→ Unlock emergency stop
	Rotary switch position	→ check if switch is in set to thicknesser or planer & jointer
	Table extensions not hooked	→ Hook in
	Planer fence in wrong position	→ Position correctly
Motor no longer brakes in intended time (10 sec.)	Electrical brake unit is defective	→ Renew brake unit Contact customer service!
The cutter block does not run up cleanly	V-belt too loose	→ Retighten the V-belt (see section ⇨ 15.3)
Rubber extension rollers no longer pull out	Rubber coating worn	→ Readjust / replace Contact customer service!
Feed unevenly	Drive chain worn	→ Replace chain, see ⇨ 15.4.1
Material is not drawn in	Infeed roller is set too high or spring tension too low	→ Readjust infeed roller Contact customer service!
Material is not fed out	Outfeed roller is set too high or spring tension too low	→ Readjust outfeed roller Contact customer service!
One-sided infeed	Spring pressure uneven	→ Readjust spring pressure Contact customer service!
Planing marks or unevenness on the workpiece	Table glide rollers are not correctly adjusted	→ Readjust glide rollers (see section ⇨ 12.1)
Height adjustment indicator for thicknesser does not work	Connecting cable between encoder and electronics loose or encoder defective	→ Check connections and tighten if necessary or replace the encoder.
Variable feed without function	Thermal overload	→ Check fuse (see wiring diagram)
Impacts in the wood on the first or last approx. 50 mm	Rear pressure bar not correctly adjusted	→ Readjust the pressure bar Contact customer service!

Other operating faults are reported by the touchscreen control.
These are described in detail in section ⇨ 11.11.


14.1 Behaviour in the event of a power failure


As the machine has an electric motor brake, it is not able to brake the cutter shaft drive properly in the event of a power failure or power interruption → The motor coasts to a halt.


	<i>In the event of a power failure or power interruption, wait until the machine and the cutter block have come to a complete standstill before taking any further action.</i>
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- As soon as the power supply is restored, the machine is ready for operation again.
- The cutter block can then be restarted as normal.

15 Maintenance and inspection

	<i>Before any maintenance and inspection work is carried out, chapter ⇨ 5 "Safety" must be read carefully and observed!</i>
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	<i>Maintenance and repair work on mechanical and electrical components may only be carried out by qualified personnel!</i>
---	---

	<i>Switch off the machine during maintenance and repair work and secure it against being switched on again unexpectedly! <u>Lock the main switch with a padlock!</u></i>
---	---

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

- Clean the machine daily (refer to details in section ⇨ 15.3).
- Check all sliding or rolling parts weekly for smooth running and lubricate with a thin-bodied oil if necessary.
- The anti-kickback device of the thickening table must always be kept in good condition: Therefore, at least once per work shift, check the contact surface of the anti-kickback fingers for tarnishing and make sure that they drop down freely under their own weight. If necessary, adjust the anti-kickback fingers according to section ⇨ 15.9). If necessary, adjust the anti-kickback fingers in accordance with section ⇨ 15.10.
- Inspect electrical equipment/components weekly for externally visible damage and have them repaired by a qualified electrician if necessary.
- Immediately remove and replace damaged guards. Never work with damaged equipment!
- Check the function of the two emergency stop buttons weekly (for details, see section ⇨ 15.6).
- Before starting work, check the extraction system for full function every day.
- The extraction system must be checked for obvious defects before the initial commissioning and on a daily basis, and then monthly to ensure its effectiveness.
- The air velocity to the extraction system must be checked before the initial commissioning and after significant modifications.
- Do not use the machine until these conditions are met.

Due to the different operating conditions, it is not possible to determine in advance how often a wear check, inspection or maintenance is required. Inspection intervals are to be determined appropriately according to the respective operating conditions.

15.1 Checking the safety labels

Regularly check that all safety labels on the machine are present and in a legible condition. The safety labels must be complete and always clearly legible. If not, they must be replaced.

15.2 Lubrication instructions



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

The machine was subjected to a longer test run at the factory and has already been lubricated ready for operation. Relubrication before commissioning is therefore not necessary. Lubricate the machine only with special grease, e.g.

- **PANHANS VE-MO-0002**
- **ARCANOL BN 102**
- **CALIPSOL H442B**
- **Shell Gadus S2 V100 3 (formerly SHELL Alvania 3)**

For oil lubrication we recommend:

- **Engine oil 20 W 40**

Always use the same grease/oil and the supplied grease gun!

- Check all sliding or rolling parts weekly for smooth running and lubricate with a thin oil if necessary.
- Lubricate feed chain every 6 months with a suitable grease.
- Apply weekly a few drops of oil on the threads of clamping and adjusting levers.
- Lubricate the 4 adjusting spindles (**N**) of the thickening table monthly with 2 grease shots (⇒ Figure 73).



Figure 73: Grease nipples for adjusting spindles

15.3 Cleaning



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

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

- The main switch (**35**) must be switched off and locked during all cleaning work.
- After each work shift, the machine and all its parts must be thoroughly cleaned by extracting the dust and chips through the extraction system and removing all other waste.
- The surface planing and thickening table must be cleaned daily. Use a cloth moistened with turpentine for cleaning. **Important:** Never treat the tables with oil or grease. Oils and greases are absorbed by the wooden workpiece and render it unusable for gluing, staining or painting.
- After approx. 200 operating hours, but after 6 months at the latest, use a soft brush to clean all belts on the machine to remove dust and chips (see ⇒ 15.3.1).

15.3.1 Cleaning and maintaining V-belts

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

15.4 Changing and tensioning the V-belts



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

The type of V-belt to be used and the article number can be found in the section ⇨ 16.4.

1. Remove the rear cover next to the control cabinet door.
 2. Move the planer fence completely to the front
 3. **To re-tension the V-belts** loosen the two screws (**S**) and the lock nut (**K**) and tighten the motor block via the adjusting screw (**V**) by turning it clockwise ☹. **Important: Do not tighten the V-belts too much.** Tension the belts and check the belt tension in accordance with section 15.4.1.
 4. Remount the rear cover.
 5. **To replace the V-belts**, loosen (**S**), (**K**), and (**V**) so that the motor can be lifted sufficiently to remove and re-install the belts. **All 3 belts must always be replaced at the same time!**
- **To tension the V-belts** proceed as described in steps 4. to 5.

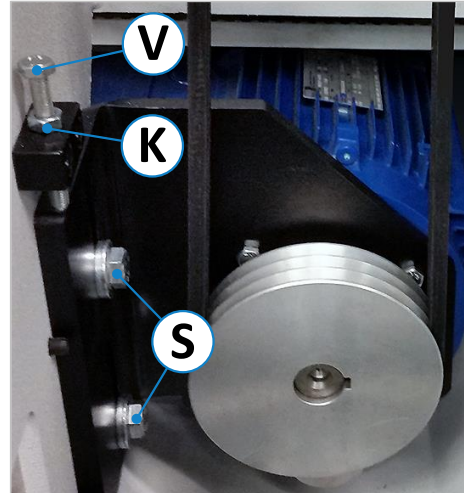


Figure 74: V-belt pulleys

15.4.1 Check the V-belt tension

The correct tension of the V-belts can be checked as follows:

1. Press firmly with your thumb (approx. 2 kg) from above on the respective drive belt (in the centre between the two pulleys).
2. With the correct tension, the belt may only be pressed downwards (**X**) by a maximum of 5 mm.
3. If a new belt is installed, it may only be pressed downwards (**X**) by a maximum of 2 mm.

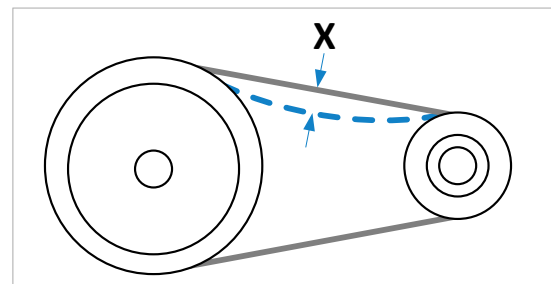


Figure 75: Check the V-belt tension



**V-belt tension that is too low leads to increased wear or failure of the belt.
V-belt tension that is too high can cause bearing damage to the units.**

15.5 Retighten the feed chain

The feed chain is equipped with an automatic chain tightener that always ensures the correct tension. Manual retightening is therefore not necessary. The chain only needs to be replaced when it is excessively worn.

15.6 Checking the emergency stop buttons




Check the emergency stop function weekly. To do this, press both emergency stop buttons in succession while the machine is running → The machine must come to a standstill within the prescribed braking time (< 10 s).

15.7 Checking the motor braking time


Check the motor braking time of the machine at least once a month. If the motor brake no longer brakes within the prescribed braking time (< 10 s), contact customer service.

15.8 Working on the frequency inverter (option)

Machines with an optional infinitely variable feed rate are equipped with a frequency inverter. The following instructions must be observed during maintenance and repair work:

	Maintenance and repair work on the frequency inverter may only be carried out by authorised PANHANS factory technicians or qualified electricians.
	Switch off the machine during maintenance and repair work and secure it against being switched on again unexpectedly! <u>Lock the main switch with a padlock!</u>
	Risk of electric shock from the frequency inverter! <u>Wait at least 15 minutes</u> after switching off the main switch before carrying out any work on the frequency inverter.

15.9 Checking the anti-kickback fingers

	Switch off the machine during maintenance and repair work and secure it against being switched on again unexpectedly! <u>Lock the main switch with a padlock!</u>
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The anti-kickback fingers installed in the machine serve to protect the operating personnel from dangerous work-piece kickbacks. For this reason, it is essential that the functionality of the elements is checked at least once per work shift.

- Each individual anti-kickback finger should move back to the lower starting position by its own gravity after it has been rotated upwards.
- The teeth of the anti-kickback fingers must always be sharp. Otherwise there is an increased risk of kickback of the workpiece.
- Anti-kickback fingers that are difficult to move and soiled with resin can be cleaned with a brush and turpentine and dried with compressed air to make them move smoothly again.
- Damaged anti-kickback fingers must be replaced immediately with new ones (for the art. no. see ⇒ 16.6).

15.10 Adjusting the fingers of the anti-kickback device

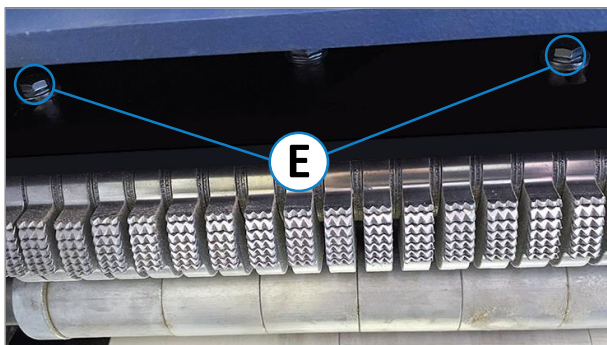


Figure 76: Two of the four adjustment screws



Figure 77: Squared timber as adjustment aid

- Loosen all four M6 adjusting screws (E) in the slotted holes with an open-end spanner SW10, push them all the way up and lightly tack them in place.
- Measure the actual height of the squared timber and set 2 mm more on the thicknesser.
- Prepare a dressed squared timber (K) with a length of approx. 620 mm and a height of at least 150 mm. This serves as an adjustment aid.

Example: Height squared timber = 200 mm | Setting thicknesser = 202 mm

- Loosen the tacked adjusting screws (E) and make sure that all fingers are resting on the squared timber.
- Now press the four adjusting screws (E) all the way down and tighten them again.
- The process is completed.

15.11 Replace rubber segments of infeed and outfeed rollers



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

Note: The article number for the required rubber segments can be found in section ⇒ 16.5.

Preparation:

- Provide 2 pcs. support blocks to support the front sheet metal covering.
- Plane a piece of squared timber with min. 150 mm on the right side of the thickening table (length approx. 1.5 m). Then stop the feed; the workpiece must rest under the infeed and outfeed roller as support.
- Switch off the machine, turn off the main switch and lock it!

Step 1

Remove the front sheet metal cover and place it sideways on the 2 support blocks. **Important:** Be careful not to load the cable (see photo below):



Figure 78: Rubber roller replacement Step 1a

Supplementary to Step 1

Photo for information

- front left: 1 piece rubber infeed roller
- front right: 2 pieces rubber outfeed rollers



Figure 79: Rubber roller replacement Step 1b

Step 2

On the pendulum bearing of the feed roller, loosen the M8 screw with a SW13 spanner:



Figure 80: Rubber roller replacement Step 2

Step 3

Pull off the pendulum bearing to the front, remove the sleeve and shim washer:

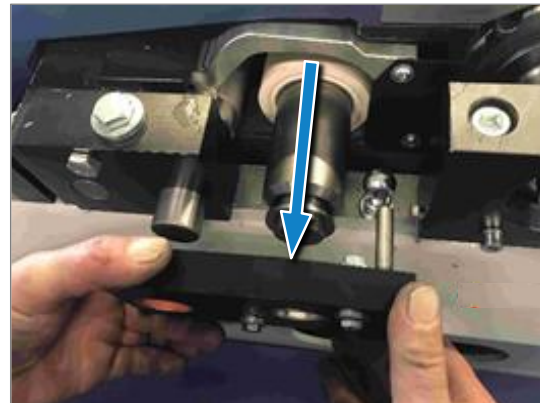


Figure 81: Rubber roller replacement Step 3

Step 4

Pull out the rubber segments from the main shaft to the front. Let segments 2 - 5 (by hand and preferably with the help of a second person) be pushed above the thickening table. For this purpose the prepared squared timber with min. 150 mm thickness serves. Now push the new segments onto the shaft.

Step 5

Place the sleeve and the shim washer and push them in. Important: The black sealing ring must be fitted properly. Use a press-in tube or a piece of wood and a rubber mallet to carefully tap the pendulum bearing inwards. Then tighten with the M8 screw (SW 13) and washer.

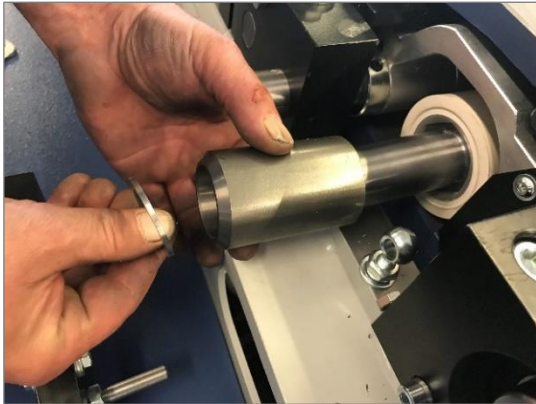


Figure 82: Rubber roller replacement Step 5a



Figure 83: Rubber roller replacement Step 5b

Auf dieselbe Weise werden dann auch die Auszugswalzen ausgetauscht.

16 Options and accessories

16.1 Cutter blocks and planer knives

16.1.1 Accessories for Tersa cutter blocks (standard)

Article	Description	Art.-No.
TERSA disposable reversible knife	Standard quality 630 mm for the TERSA Cutter Block.	4096
TERSA disposable reversible knife HSS	HSS steel quality 630 mm for the TERSA Cutter Block.	4126
Brass wedge	For loosening the pressure bar segments when changing knives.	7003.0050

16.1.2 Accessories for traditional cutter blocks (option)

Article	Description	Art.-No.
Magnetic quick adjusters type 1533	With strong magnetic adhesion, the planing knife protrusion is accurate to 1/10 mm due to the fine adjustment. Suitable for all cutter block diameters from 80 - 145 mm.	2004
Strip planer knife 1505 Standard	PANHANS-Granat 630 x 35 x 3 mm, standard quality for PANHANS Traditional Cutter Block shaft, made of continuous cut steel.	3308
Strip planer knife 1505 HSS	PANHANS-Granat 630 x 35 x 3 mm, standard quality for PANHANS Traditional Cutter Block shaft, made of HSS steel.	3316
Cutter block pressure bars	Balanced, with screws R 1/4", SW 17 (supplied in pairs).	4131
Cutter block spare Screws	Standard version, height approx. 21 mm (hardened, R 1/4", SW 17).	4107
Flat spanner SW17	For cutter block screws with spanner size 17 mm.	4113
Cutter block pressure spring	For lifting the knives and for easier adjustment of the knives with magnetic quick adjusters (see ⇨ Art.-No.: 2004 above).	4114

16.1.3 Accessories for spiral cutter block (option)

Article	Description	Art.-No.
Solid steel cutter block	With 6 rows of spiral knives, 27 rotatable and replaceable carbide inserts with 4 cutting edges per row for improved cutting quality through "pulling cut", longer service life and enormous noise reduction.	4472
Replacement carbide inserts for spiral cutters	10 pieces replacement carbide inserts, rotatable and exchangeable, 15 x 15 x 2.5 mm, 30°, with 4 cutting edges	4641
Replacement carbide inserts for spiral cutters	162 pieces replacement carbide inserts, rotatable and exchangeable, 15 x 15 x 2.5 mm, 30°, with 4 cutting edges for the complete cutter block.	4641.6
Service set for spiral cutter blocks	Case with 1 litre resin dissolving concentrate, 1 cleaning brush each of steel and brass, 10 reversible carbide inserts (15 x 15 x 2.5 mm), incl. 5 screws (Torx M6 x 15 mm), 1 torque spanner and 2 bit inserts for assembly.	4647
Spare Screws for spiral cutter block	10 pcs. spare screws (Torx M6 x 15 mm)	4642

16.2 Optional table systems

Article	Description	Art.-No.
Adjustable outfeed table	At central point for re-sharpenable planing knives to adjust the outfeed table (for surface planing) to the flying circle of the cutter block.	4643
Thickness table extension 1000 mm	L = 1000 mm, B = 630 mm, with automatic height adjustment.	4339
Table glide rollers	2 pieces with fine adjustment in the thickening table, including ribbed steel infeed and rubber outfeed rollers.	4482
Steel infeed roller	Spiral toothed, instead of rubber feed roller. Table glide rollers absolutely necessary!	4646
Segmented steel infeed roller	Pendulum-mounted for simultaneous planing of strips with max. thickness tolerance of 3.0 mm. Table glide rollers absolutely necessary	4484
Switchable pull-out (automatic outfeed)	Instead of the standard table extension. L = 400 mm, extension with 2 driven support rollers on the thickening table. Ideal for short parts from approx. 320 mm in length.	4343
Infinitely variable feed rate motor	Feed rate (3 - 24 m/min) infinitely variable via potentiometer (instead of 7 + 14 m/min) + Indication of the feed rate via touchscreen control.	4645

16.3 Planer guards

Article	Description	Art.-No.
Planer guard SUVAMATIC	With 2-piece fold-down cover and spring-loaded contact pressure.	3282
Planer guard TX MATIC	With 2-piece fold-down cover and spring-loaded contact pressure with rollers.	3295

16.4 Drive belt (main motor)

Article	Description	Art.-No.
1 piece Drive belt	V-belt for the main motor as a replacement (type: SPZ 1600 Lw). <i>Profile: SPZ Width: 9.7 mm Height: 8 mm Length: 1600 mm (Lw)</i> Order at least 3 pieces, as all 3 V-belts must always be replaced at the same time to ensure proper function.	4472

16.5 Rubber segments for infeed/outfeed rollers

Article	Description	Art.-No.
1 piece Rubber segment for infeed/outfeed rollers	The infeed shaft and the two outfeed shafts are each segmented with 5 rubber rollers → To be able to replace all the rubber rollers on the machine, <u>15 pieces must be ordered</u> .	5104.0602

16.6 Anti-kickback fingers for the thickness planer

Article	Description	Art.-No.
1 piece Anti-kickback finger	Anti-kickback finger for the thickness planer. The anti-kickback device of the thicknesser consists of 45 elements → To be able to replace all anti-kickback fingers on the machine, <u>45 pieces must be ordered.</u>	6103.2145

16.7 Special accessories


Article	Description	Art.-No.
Machine socket	For the power supply of additional components, e.g. a power feeder.	4005
Central lubrication	For centralized grease supply to all lubrication points via a hand pump with 400 g grease cartridge. Output pressure max. 350 bar.	4859
Special voltage	230 VAC / 50 Hz (max. 7,5 kW)	4601




Only use the accessories and spare parts specified by the manufacturer. The use of other 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 non-authorized accessories and spare parts or additional components from third parties!

17 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.

	<p>Please pay particular attention to</p> <ul style="list-style-type: none"> • <i>the dismantling of the machine in the working area</i> • <i>proper dismantling of the machine and accessories</i> • <i>a safe and proper removal of the machine</i> • <i>proper separation of all components and materials.</i>
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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.


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

	<ul style="list-style-type: none"> • <i>Hoses and plastic parts as well as other components that are not made of metal must be dismantled and recycled or disposed of separately.</i> • <i>Electrical components such as cables, switches, connectors, transformers, etc. must be removed and (if possible) recycled or otherwise disposed of in a qualified manner.</i> • <i>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.</i> • <i>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.</i>
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In the event of improper disposal of lubricants, the following residual risks to the environment and health exist:

	<p>Pollution of the environment by seepage into groundwater or sewage system.</p>
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	<p>Poisoning of the personnel contracted for the disposal.</p>
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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.

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
D- 72488 Sigmaringen (Germany)

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

hereby declares that the manufactured machine

Surface Planer & Thicknesser TYPE 546 I 100

Machine-No.:

Year of manufacture:

in the version provided complies with the following directives:

- Machinery Directive 2006/42/EG
- EMC Directive 2014/30/EU
- EC Low Voltage Directive 2006/95 EC G

Applied harmonized standards, especially

- pr EN 861
- pr EN 860
- pr EN 859
- EN ISO 13849
- EN 349
- EN 847-1
- EN 418

The notified body (0392)

DGUV Test

**Prüf- und Zertifizierungsstelle Holz
Fachbereich Holz und Metall
Vollmoellerstraße 11
70563 Stuttgart (Germany)**

has carried out an EC type-examination for the above machine.

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

Type Examination Certificate No.: HO 131064 dated 17.07.2013

Sigmaringen, 12/12/2023

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Reinhold Beck
Managing Director