TRANSLATION OF THE ORIGINAL VERSION

CE

Operating Manual

Thickness Planer

PANHANS 436|100

Machine Type:	**436|100**

HOKUBEMA Maschinenbau GmbH
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Tel.: +49 (0)7571-755-0
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Handover Certificate

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

Warranty:

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

Warranty claims:

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

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

Confirmation of the buyer:

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

_____	_____	_____
Name and position	Date	Signature of the customer

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

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Revisions:

Revision	Editor	Modification	Date
000	AG	Original manual translated	02/11/2021
001	AG	Document completely revised and supplemented with new maintenance instructions, various new chapters and safety-relevant sections.	14/12/2023

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.

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

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

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

2 Introduction

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: Thickness planer 436|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! *Failure to observe may result in damage to the equipment, serious injury or even death.*
	Warning of possible danger from forklift traffic! *Non-observance may result in life-threatening injuries.*
	Warning indicates a possible hazard under suspended loads! *Non-observance may result in life-threatening injuries.*
	Warning indicates a possible fall hazard! *Non-observance of these instructions may result in serious injuries.*
	Warning indicates a possible cutting hazard! *Risk of personal injury and possibly additional damage to equipment.*
	Reference to the obligation to wear protective gloves! *Non-observance of these instructions may result in personal injury.*
	Reference to the obligation to wear hearing protection! *Non-observance of these instructions may result in personal injury.*
	Reference to the obligation to wear protective goggles! *Non-observance of these instructions may result in personal injury.*
	Reference to the obligation to wear a respiratory protection mask! *Non-observance of these instructions may cause breathing difficulties and lung damage.*
	Possible dangerous crushing hazard in the area of stationary objects! *Risk of personal injury and possibly additional equipment damage.*
	Reference to a possible crushing hazard! *Non-observance increases the risk of injury to hands and fingers!*
	This symbol warns of the dangers of electric voltage! *Failure to observe may result in damage to the equipment, serious injury or even death.*
	Fire hazard! Do not smoke and do not ignite open fire.
	Access for unauthorized persons prohibited! *Risk of personal injury and possibly additional equipment damage.*
	This safety notice indicates a possible dangerous pull-in hazard! Wearing loose clothing, jewellery as well as long untied hair is prohibited! *Risk of personal injury and possibly additional damage to property.*

4 General

This thickness planer was produced by HOKUBEMA Maschinenbau GmbH according to the current state of the art and placed on the market as a complete machine. All legal and normative regulations were observed.

- The thickness planer has a planing width of 630 mm.
- The maximum planing height is 300 mm with a table length of 1040 mm.
- The maximum depth of cut is 8 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 thickness planer 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 thickness planer:

- A thickness planer 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 thicknessing table is double-guided and equipped with two adjustable table rollers with ball bearings (see chapter ⇨ 12).
- The height of the thicknessing table is adjusted by an electric motor via position controller unit (refer to section ⇨ 11). The exact height is entered as a setpoint and automatically positioned at “Start”.
- 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 ⇨ 17.1).
- The feed during thickness planing is effected by a pole-changing three-phase motor. The feed speed (7 or 14 m/min.) can be changed during operation by means of a selector switch. An infinitely variable feed speed from 3 to 24 m/min is available as an option (see section ⇨ 17.2).
- The suction nozzle for thickness planing is located at the rear of the machine and can be turned to the right and left.
- The machine is driven by a three-phase motor with mechanical motor brake. It has a central circuit with push-button and motor protection switch.
- All operating elements and switches are mounted on the front and are therefore easily accessible. The main switch is at the rear of the machine and also serves as emergency stop.
- The protective devices comply with the regulations of the German “Employer's Liability Insurance Association for Wood”.

4.6 Advantages and special features of the machine

- The 436|100 thickness planer can be used for thickness planing on the full planing width (630 mm) with a chip removal of max. 8 mm.
- In addition to its compact and robust steel construction, it is distinguished by the extremely smooth and quiet running of its dynamically balanced blade shaft.
- The maintenance-free bearing design with high-performance precision ball bearings guarantees long-lasting reliability. The finely planed cast iron thicknessing table is mounted vibration-free and tilt-proof on 4 table spindles and ensures a perfect planing pattern.
- A rubber infeed and outfeed roller each with a diameter of 90 mm ensure optimum feed of the workpiece.
- Thanks to the powerful main motor with 7.5 kW, even very large chip removals can be realised without compromise.
- The height of the thicknessing table is adjusted via the 4.3" touchscreen position controller.
- The 436|100 thickness planer is designed with compact and ergonomic machine dimensions.

4.7 Standard equipment

- Three-phase motor 7.5 kW (10 HP)
- All-steel cutter block with TERSA knives
- Electromotive height adjustment of the thicknessing table
- Position controller with touchscreen
- Pendulum-mounted feed rollers
- Fine-planed thicknessing table with 4 height-adjustable spindles
- Segmented rubber infeed and outfeed roller
- Segmented pressure beam
- Two feed rates switchable (7 und 14 m/min)
- Brass wedge for Tersa cutter change
- Automatic star-delta starter
- 1 Grease gun (hollow nuzzle)
- 1 Suction nozzle 160 mm Ø
- CE compliant and GS tested

4.8 Optional accessories:

- Two table rollers, steel feed rollers and rubber feed rollers (see section ⇨ 17.2)
- Steel feed roller, spiral toothed instead of rubber feed roller (see section ⇨ 17.2)
- Steel link feed roller, pendulum mounted, for simultaneous planing of mouldings with max. 3 mm thickness tolerance
- Table extension 400 mm, mounted on the machine table in the outfeed area (see section ⇨ 17.2)
- Thickness table extension (L = 1000 mm, B = 630 mm) with automatic height adjustment (see section ⇨ 17.2)
- Thickness table extension (L = 2000 mm, B = 630 mm) with automatic height adjustment (see section ⇨ 17.2)
- Frequency-controlled feed motor, infinitely variable from 3 to 24 m/min (see section ⇨ 17.2)
- PANHANS 4-knives traditional cutter block with brass adjusters as well as necessary tools (see section ⇨ 17.1)
- All-steel spiral cutter block consisting of 6 spiral-shaped blade rows with improved cutting quality due to "pulling" cut, incl. 10 spare knifes, mounting material and tools (see section ⇨ 17.1).

Further accessories can be found in chapter ⇨ 17.

5 Safety

5.1 Basic safety instructions

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

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

5.1.1 Application area and intended use

	***The thickness planer 436 l 100 is used exclusively for thickness planing of solid wood (soft and hard woods) as well as plastics and wood-containing board materials.*** ***This machine is not suitable for processing metal or scrap wood - which could contain nails, screws and other metal parts.*** ***The machine may only be operated on a firm, level surface with a minimum load-bearing capacity of 1,000 kg/m².***

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

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

	***Only the manufacturer's original planing cutter-blocks and replacement knifes according to EN 847-1 are permitted as tools. These must be marked with MAN!***

Processing type	*Length*	*Height*	*Width*
Thickness planing	5500 mm	3 - 300 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

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

5.1.3 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 knifes. Never reach into the running band saw blade! Wear protective gloves when changing the planing knifes.
	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 emergency stop button must always be freely accessible and must not be blocked with objects. Check the function of the emergency stop button 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.

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

5.1.5 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 "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.
- ⚠ The machine is intended to be operated by a single person. Other persons in the vicinity of the machine must maintain an appropriate safety distance.
- ⚠ 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 knifes as described in ⇨ 14.

⚠ **Workpiece:** Before the operation, check the workpiece for

- foreign inclusions
- knots
- twists (contortions)

and other irregularities.

Workpieces that are longer than the thicknessing table (including the standard table extensions) 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!).

⚠ **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 thicknessing table against shifting during the workpiece feed.

⚠ **Workpiece inspection:** Inspect the workpiece for foreign inclusions, knots, twists and other irregularities.

⚠ **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

⚠	***To ensure safe working in thicknessing mode, please observe the following instructions and also read the section ⇨ 5.3 "Hazardous areas".***

⚠ 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. knifes or cutting blocks.

⚠ Damaged parts must be replaced with new ones.

⚠ Do not exceed the permissible speed of the tool.

⚠ Workpieces with cross-sections that cannot be fully gripped by the anti-kickback fingers must not be processed.

⚠ 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 thicknessing table, 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.

⚠ Danger from ejecting parts! Always keep the insertion shaft clear when the cutter is running and do not look into the opening.

⚠ Repairs may only be carried out by qualified personnel and with the main switch locked.

⚠ The machine is equipped with a mechanical brake. If this brake no longer brakes within the prescribed braking time (10 s) despite readjustment, the customer service of the manufacturer must be contacted.

5.3 Hazardous areas

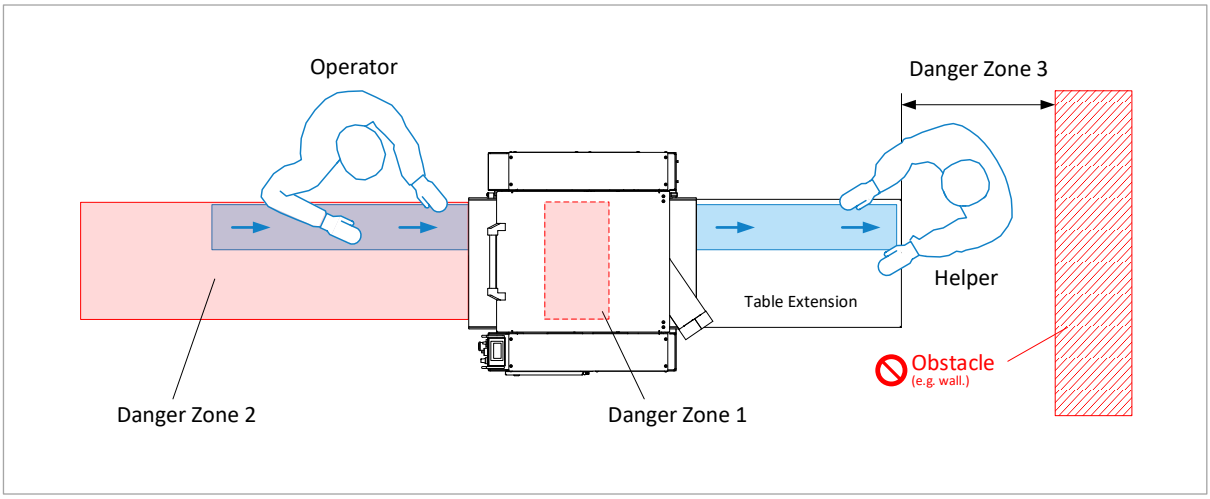


Figure 2: Danger zones during thickness planing

Danger Zone	Type of hazard	Prevention
1	***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!*	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.
2	***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.*	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.
3	***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.*	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.

5.3.1 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 thickness planing. Do not enter the danger zone 2 marked in ⇨ Figure 2 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 3: 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 ⇨ 11.7) 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 4: 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

Figure 5: Emergency stop button

The machine is equipped with a quickly accessible emergency stop button on the operating side.

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

5.4.4 Anti-kickback device

Figure 6: 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 section ⇨ 16.9.

5.4.5 Extraction unit

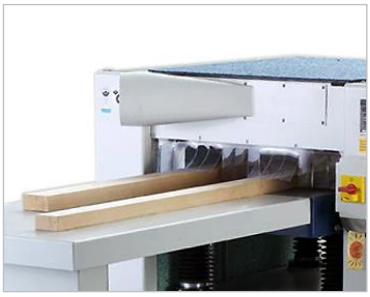


Figure 7: Upper suction nozzle

The suction nozzle with a generous diameter of 160 mm is located on the back of the machine. 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).

5.4.6 Motor brake

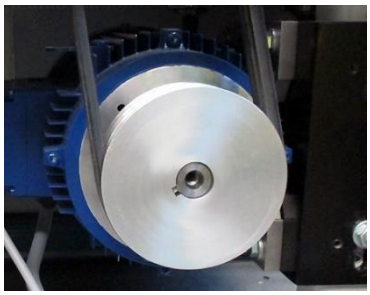


Figure 8: Drive motor

The machine is equipped with a mechanical motor brake.

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.

5.4.7 Electrical protective circuits

Figure 9: Electrical protective circuits

The machine is equipped with several electrical protective devices. These include a freely tripping motor protection switch, a thermal overload protection as well as an overcurrent 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

Maximum planing width:	630 mm
Maximum planing height:	3 - 300 mm
Table length:	1040 mm
Machine height:	1114 mm
Maximum depth of cut:	max. 8 mm
Cutter block speed:	5000 U/min
Cutter block diameter:	125 mm
Main motor power:	7.5 kW / 10 HP
Main motor voltage:	400 V / 50 Hz
Feed motor power:	0.55 kW / 0.8 HP 0.75 kW / 1.0 HP
Feed rate:	7 + 14 m/min (standard) 3 - 24 m/min (option)
Protection class:	IP54
Space requirement:	2700 x 2700 mm*
Nett weight:	1050 kg
Extraction outlet:	Ø 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

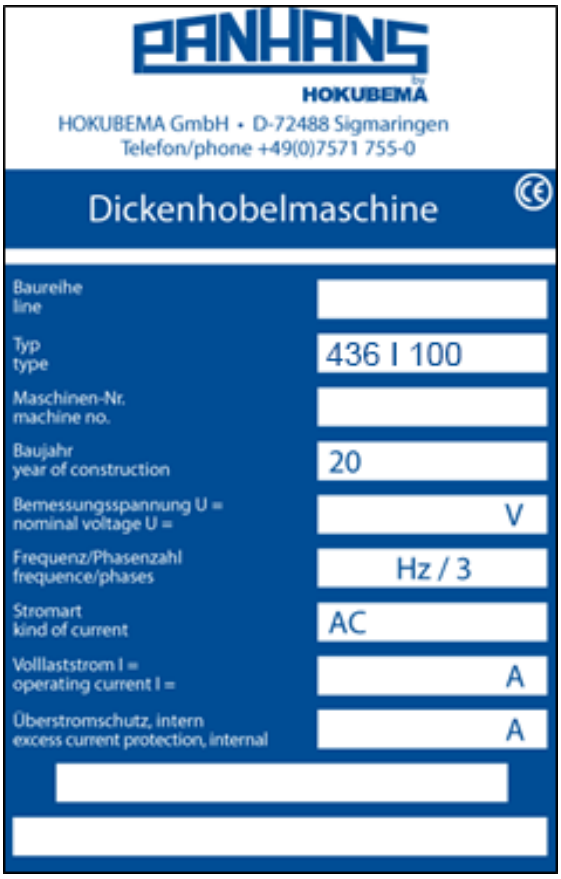


Figure 10: Nameplate

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

6.2 Technical features

- 1040 mm long machine table with finely planed cast iron surface and the typical features of the proven PANHANS thickness planers
- Suction nozzle for optimum extraction
- Pendulum-mounted feed rollers
- Segmented rubber infeed and outfeed roller
- 2 feed rates by pole-changing feed motor or optional infinitely variable control
- Segmented pressure bar
- Thicknessing table without table glide rollers
- Electromotive height adjustment of the thicknessing table
- Position controller 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			***Sound power level***	
Idle	Working area 1	74.0 dB(A)	Idle	Lwa = 83.4 dB(A)
	Working area 2	70.6 dB(A)		
Working	Working area 1	80.5 dB(A)	Working	Lwa = 94.2 dB(A)
	Working area 2	82.7 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
1.72 mg/m³ air *(permissible 2.0 mg/m³ air)*

Dust emission values:
Determined according to GS-HO-05

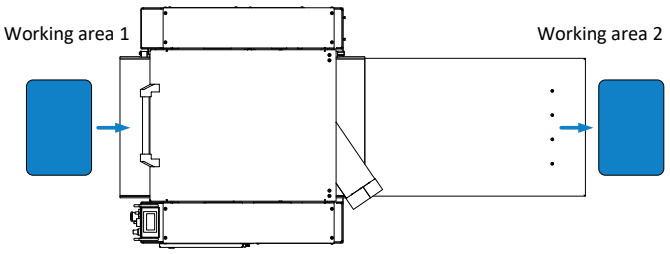


Figure 11: Working areas (top view)

7 Dimensions

7.1 Side view and top view

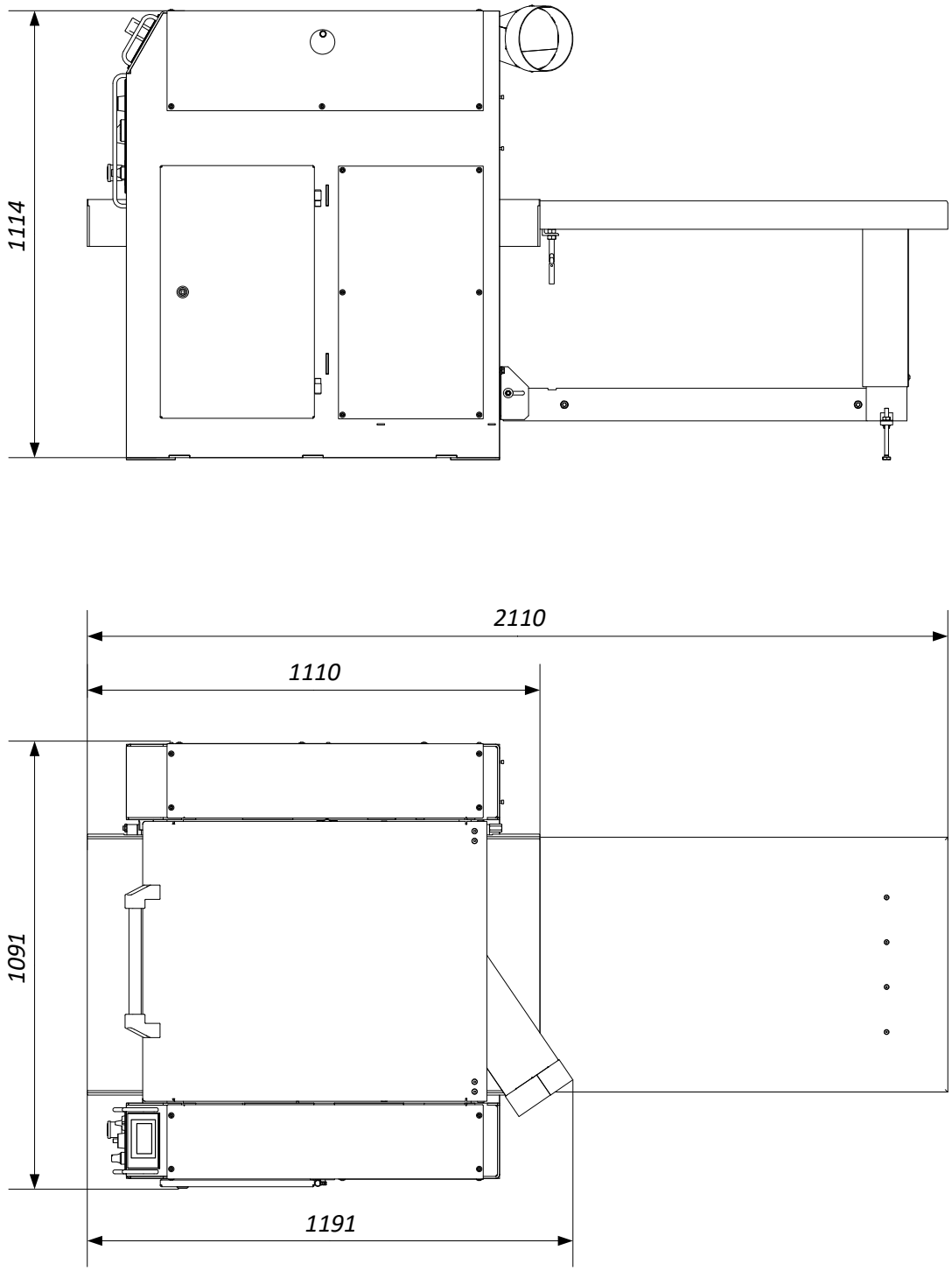


Figure 12: Dimensions side view and top view

Subject to design and dimensional changes!

7.2 Front view

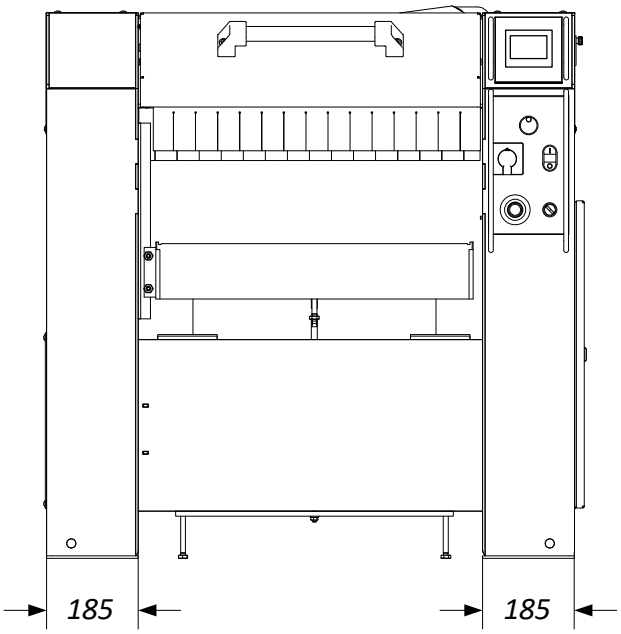


Figure 13: Dimensions front view

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 to the installation site

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 transport pallet.

- Unscrew the screw fastening of the machine on the transport pallet.
- Drive a forklift truck under the machine from the front and lift it a few centimetres.
- Lift the machine off the pallet using the forklift truck.
- Drive between the machine from the front with a lift truck, lift it only a few centimetres and move it to the final installation site.

	***Pay attention to the existing danger of tipping over during transport!***

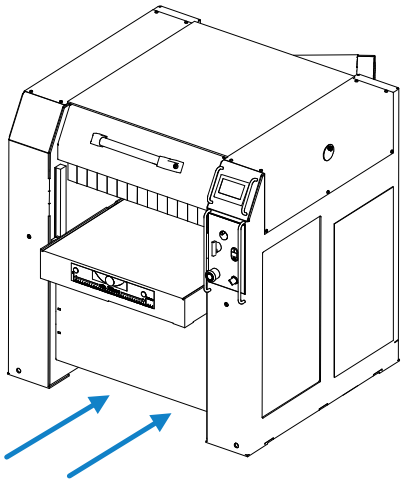


Figure 14: Transportation

8.3 Installing the machine

- A foundation is not required. The floor must have a load-bearing capacity corresponding to the machine weight (1050 kg).
- Level out any unevenness of the floor with underlays and a spirit level.
- The bare parts of the machine are greased to protect them from corrosion. Carefully degrease the parts protected against rust with petroleum or benzine.

	***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.***
	***Danger to life when using a forklift truck! Keep a sufficient distance from the forklift truck and watch its speed. Vehicles with combustion engines also produce toxic exhaust gases. Wear a breathing mask if necessary.***
	***It is essential that the machine is level! Check with spirit level!***
	***Dispose of the packaging material in an environmentally friendly way!***
	***Do not use nitro thinner for cleaning. Painted surfaces of the machine can be damaged.***
	***Fire hazard! Do not smoke and do not light an open fire.***

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

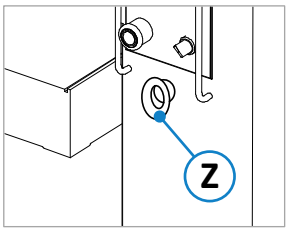


Figure 15: Lashing points (4 x)

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 <u>separate lashing strap</u> must be used for <u>each</u> 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 (approx. 1050 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 nozzle has a diameter of 160 mm.
- All parts of the extraction system, including hoses, must be included in the earthing measure.

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

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

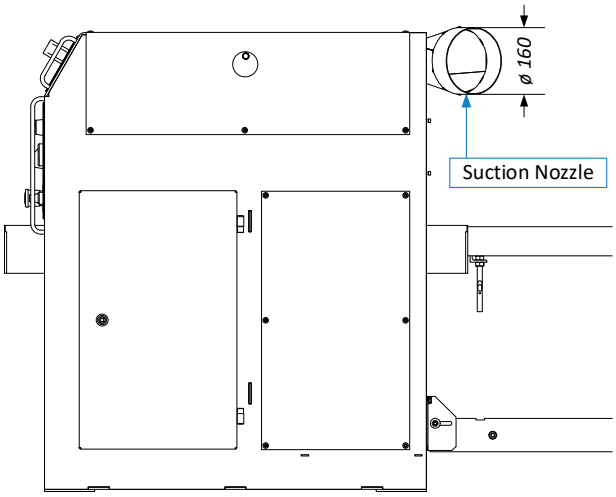


Figure 16: Extraction connection

Two signal generator lines for automatic switching of the extraction system can be connected to the terminals **13** and **14** of contactor **Q2**.

	The connection must be carried out by an authorised electrician!

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)
600 Pa

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).

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

8.7 Electrical connections

	The connection must be carried out by an authorised electrician!

The electrical circuit diagrams are located in the control cabinet on the right-hand side of the machine.

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 17: 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 18.

	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.
	Acute danger of being drawn in by rotating parts and the cutter block! ***<u>Never open the cover when the cutter block is running!</u>!***

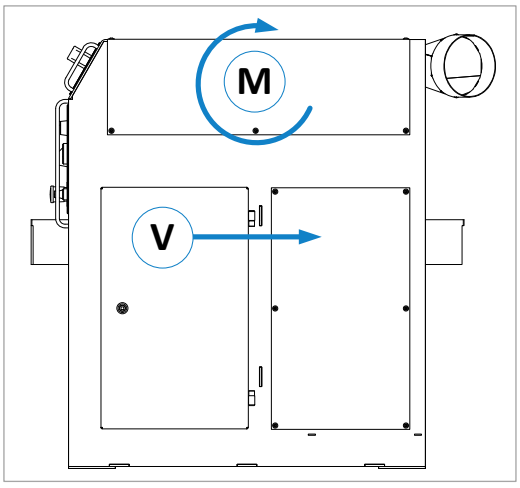


Figure 18: Direction of rotation and feed direction

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	25 A time-lag

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

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 EVU, VDE and EN regulations.

9 Components and controls

9.1 Machine components

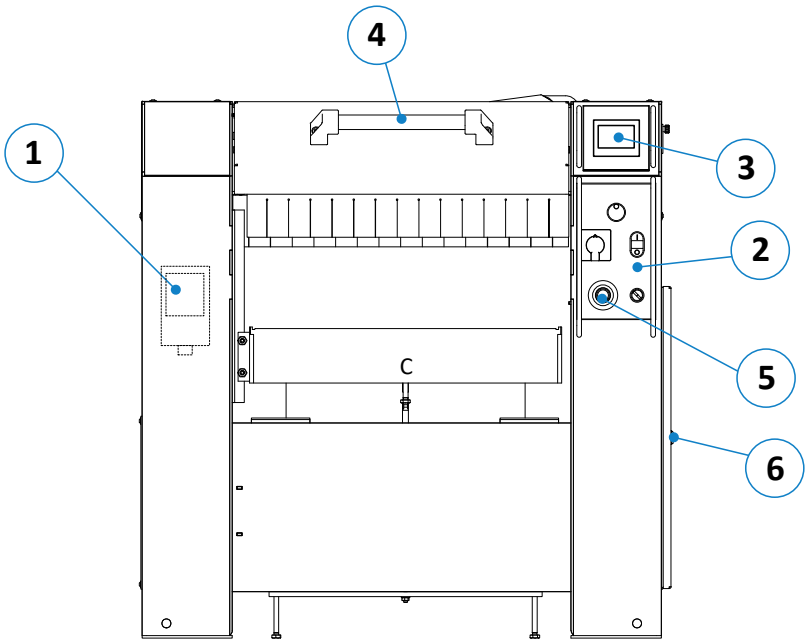


Figure 19: Components and controls / front view

No.	Description	No.	Description
1	Main switch (rear of machine)	**4**	Bow handle for protective cover
2	Control panel (see ⇨ 9.2)	**5**	Emergency stop
3	Position controller with 4.3“ touchscreen	**6**	Control cabinet door

9.2 Control panel (details)

This section shows a detailed view of the control panel (**1**) shown in ⇨ Figure 19 with the existing switches and controls, which vary in the standard and optional equipment.

Standard

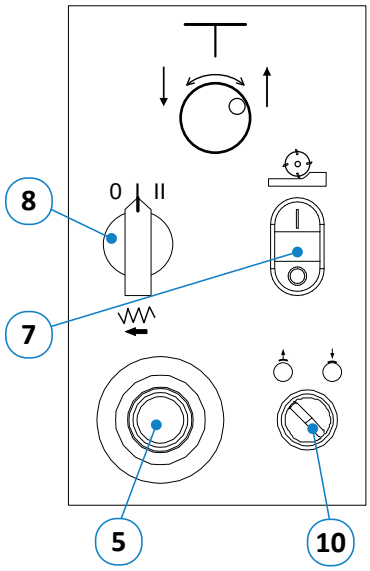


Figure 20: Control panel (standard)

Optional

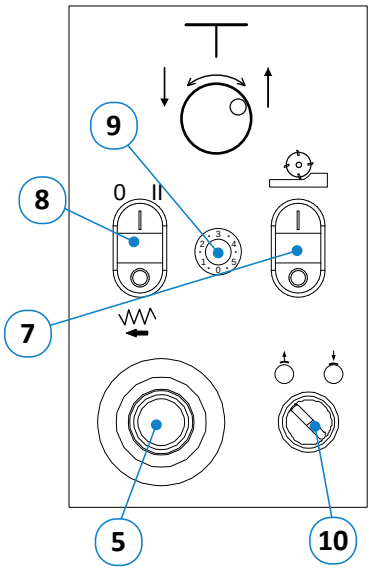


Figure 21: Control panel (option)

No.	*Control panel for standard machine*	*No.*	*Control panel with optional equipment*
5	Emergency stop	**5**	Emergency stop
7	Push button cutter block ON/OFF	**7**	Push button cutter block ON/OFF
8	Selector switch feed ON/OFF	**8**	Push button feed ON/OFF
	a) Feed rate position **I** → 7 m/min	**9**	Potentiometer for feed rate (option), infinitely variable from 3 - 24 m/min
	b) Feed rate position **II** → 14 m/min		
10	Selector switch “Brake Release” Position left = brake released Position right = normal operation	**10**	Selector switch “Brake Release” Position left = brake released Position right = normal operation

10 Commissioning

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

Before switching on, check that

- *there are no loose parts on the thicknessing 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 Switching ON

- Turn the main switch (**1**) on the rear of the machine (see ⇨ Figure 19) to position “**I**”.

The machine can only be started when the switch (8) for the feed drive is in position “0” and the switch (10) “Brake Release” is set to “Normal Mode” (right)!

- Start the cutter block with the push button (**7**).
- Set the desired feed rate:

  a) **Two step feed** (standard):
  Turn the Selector switch (**8**) to position **I** (= 7 m/min) or to position **II** (= 14 m/min) → The feed runs.

  b) **Variable feed** (option):
  Turn the potentiometer (**9**) completely to the left and switch on the feed with the push-button (**8**). Then set the desired feed rate (3 ... 24 m/min) by turning the potentiometer (**9**). The current speed rate is displayed on the screen of the position control unit (see chapter ☞ 11).

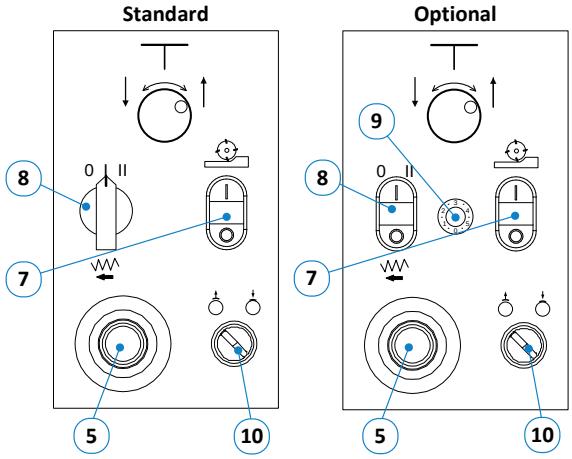


Figure 22: Control panels (standard and option)

Important: Do not start working until the machine has reached full speed (after approx. 10 s), as the feed drive can only be started afterwards (see warnings in the section ⇨ 11.7.1).

- The height is adjusted via the position controller (**3**). Procedure see section ⇨ 11.4.

10.1.2 Switching OFF

- Switch off the feed switch (**8**).
- Stop the cutter block with push button (**7**) and wait for it to come to a complete standstill.
- Switch off the main switch (**1**) on the rear.

10.1.3 Emergency stop system

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

1. Emergency stop button (**5**) on the control panel on the infeed side.
2. Main switch (**1**) on the rear of the machine.

11 Operation with position controller

⚠	***Before adjusting the table, make sure that there are no objects on it that could be trapped!***

Figure 23: Touchscreen position controller

The touchscreen position controller serves the following purposes:

- Height adjustment of the thicknessing table
- Calibrating the thicknessing 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)

11.1 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***
	*Back 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).*

11.2 Activating the controller

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

➔ **Switch ON the machine**

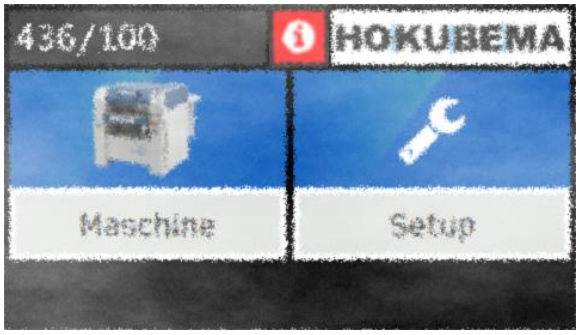


Figure 24: Screen at start-up (booting)

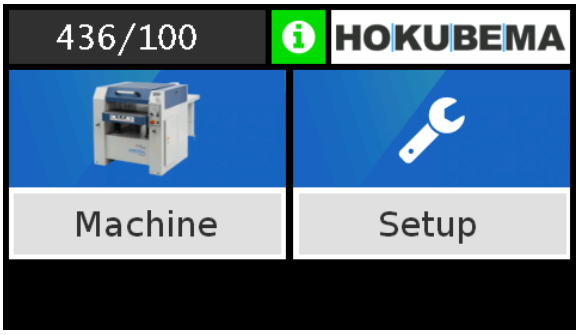


Figure 25: Screen "ready for use"

- When booting, the main menu initially appears in German language, graphically unclear, blurred and with a red ⓘ (⇨ Figure 24) → As soon as the main menu appears clear and sharp, the position controller and the machine are ready for operation (see ⇨ Figure 25).
- Press the "**Machine**" button for normal positioning mode (see ⇨ 11.3).
- To calibrate the table height, press the button "**Setup**" (procedure see ⇨ 11.5).

Symbol	
ⓘ	***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 ⇨ 11.3 and ⇨ 11.7 .***

11.3 Operating states & language ("Info" Menu)

By tapping the symbol ⓘ resp. ⓘ 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.

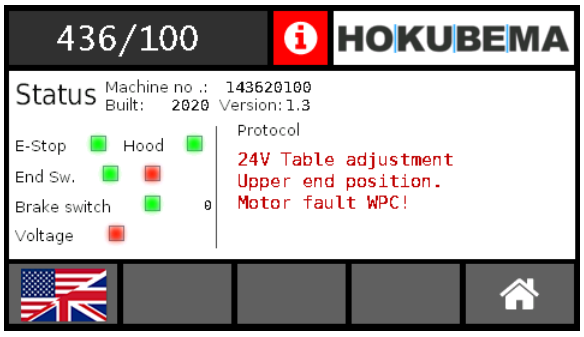


Figure 26: Info menu with status messages

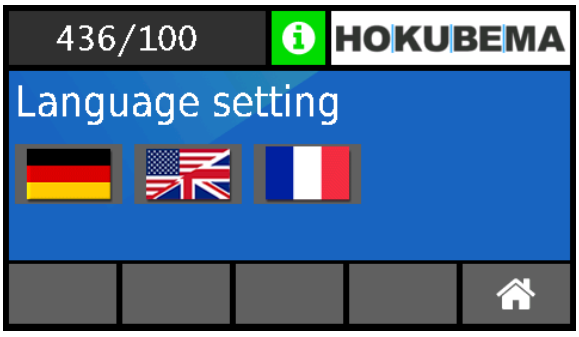


Figure 27: Language menu

- Status messages (example ⇨ Figure 26): Here the required 24 V voltage for the thicknessing table is missing. In addition, there is a motor fault WSK (winding protective contact). 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 (⇨ 11.4.1).
- Detailed information about all error and warning messages can be found in the section ⇨ 11.7.
- Tapping the flag symbol at the bottom left opens the language menu (see ⇨ Figure 27).
  The desired menu language can be chosen here.

11.4 Positioning mode (“Machine” menu)

11.4.1 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:**”.

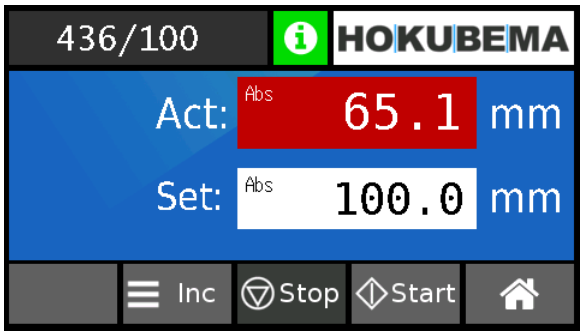


Figure 28: Setpoint input in absolute mode

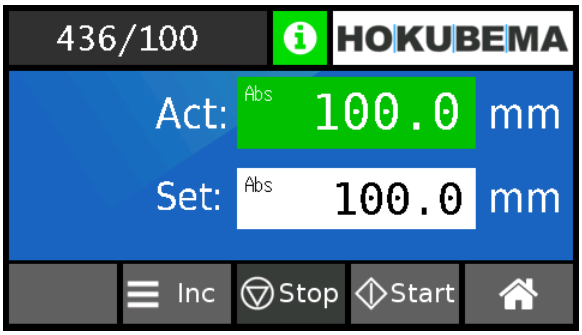


Figure 29: Position reached in absolute mode

- 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 28 and ⇨ Figure 29).
- Tap on the field “**Set:**” and enter the desired setpoint, e.g. **100.00** mm (⇨ Figure 28).
- Press “**Start**” to start positioning:
  → The “**Act:**” field is highlighted in red until the setpoint value “**Set:**” is reached (see ⇨ Figure 28).
  → The “**Act:**” field changes to green as soon as the target position “**Set:**” is reached (see ⇨ Figure 29).
- 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).

11.4.2 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).

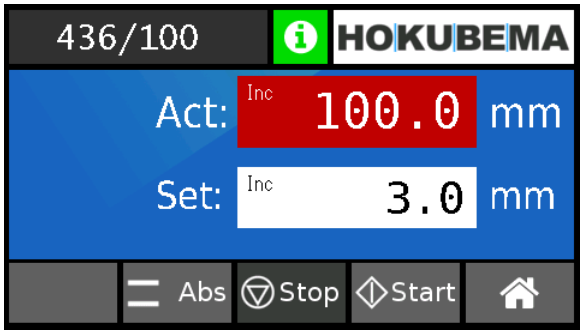


Figure 30: Setpoint input in incremental mode

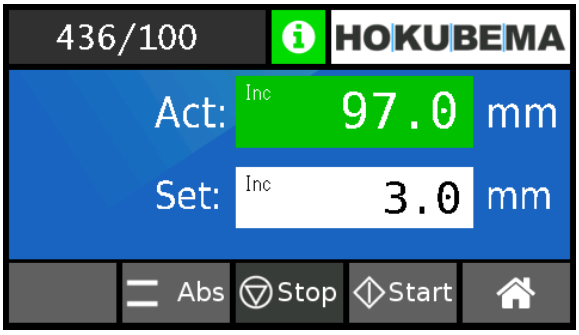


Figure 31: Setpoint reached

- 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 30).
  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 30).
  → The “**Act:**” field changes to green as soon as the target position “**Set:**” is reached (see ⇨ Figure 31).
  → 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**”.

11.5 Calibrating the table height (“Setup” menu)

The position controller makes it easy to calibrate the height of the thicknessing 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 32)

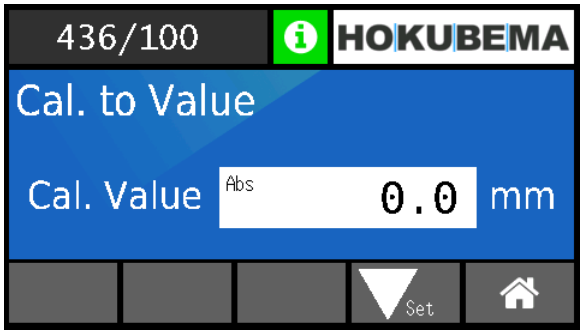


Figure 32: Calibrate table height

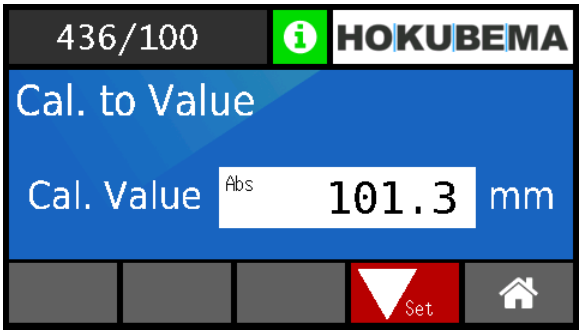


Figure 33: Input of the reference value

- 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 33):
  → 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.

11.6 Feed rate visualisation (option)

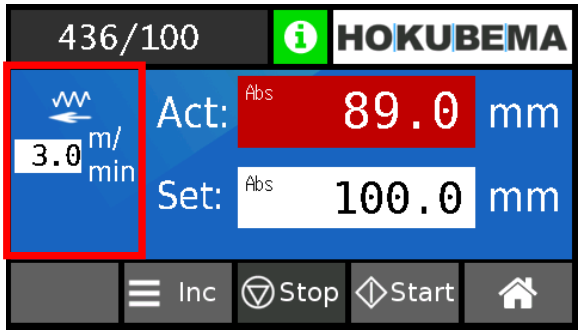


Figure 34: Feed rate visualisation

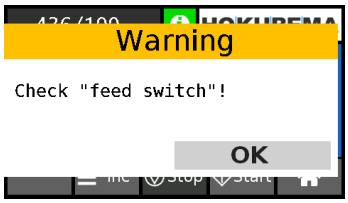
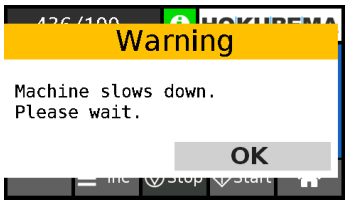
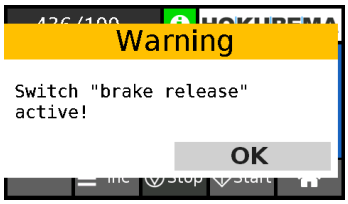
On machines with infinitely variable feed rate (option see section ⇨ 17.2), the current feed rate is visualised on the left-hand side of the screen, as shown in the figure on the left.

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

11.7 Warnings and error messages

11.7.1 Warnings

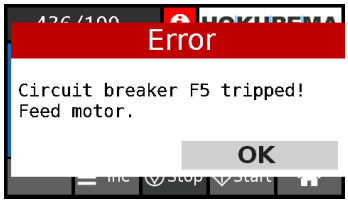
Warnings are signalled by a “**Warning**” pop-up window with a yellow background. The yellow highlighted warnings appear as soon as the “**Start**” button is pressed during a pending problem:

 *Figure 35: Warning 1*	**Cause:**	The protective cover is open. It is not possible to work with an open protective cover!
	Remedy:	Close the protective cover.
 *Figure 36: Warning 2*	**Cause:**	The feed switch is in position “**I**” (ON). The feed can only be switched on when the cutter block has reached full speed and the cutter block ON/OFF button stops flashing.
	Remedy:	Switch off the feed switch.
 *Figure 37: Warning 3*	**Cause:**	The machine brakes.
	Remedy:	Please wait until the machine has stopped completely.
 *Figure 38: Warning 4*	**Cause:**	The “Brake Release” selector switch is active.
	Remedy:	Turn the selector switch to “inactive” position.

Error messages can be found on the following pages in section ⇨ 11.7.2

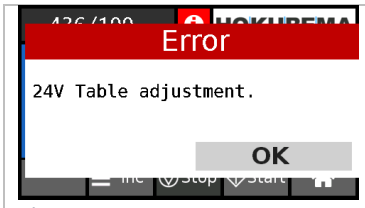
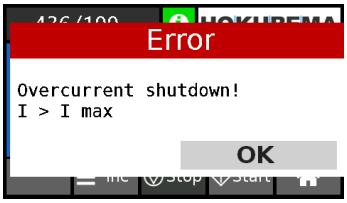
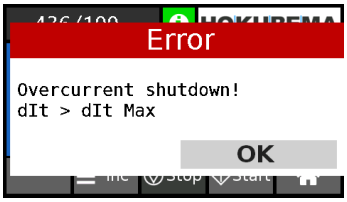
11.7.2 Error messages

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.

 *Figure 39: Error message1*	**Cause:**	The emergency stop switch is actuated.
	Remedy:	Unlock the emergency stop switch.
 *Figure 40: Error message2*	**Cause:**	Fault on the motor protection for the cutter block.
	Remedy:	Check the motor circuit breaker and if necessary, the existing fuses and connections.
 *Figure 41: Error message3*	**Cause:**	Fault on the motor protection of the feed motor[1].
	Remedy:	Check the motor circuit breaker and if necessary, the existing fuses and connections.
 *Figure 42: Error message4*	**Cause:**	The thermal fuse WSK has tripped because the motor has become too hot.
	Remedy:	Allow the machine to cool down and then switch on again. In case of repeated occurrence, contact customer service.
 *Figure 43: Error message5*	**Cause:**	The thicknessing table is in the upper end limit range.
	Remedy:	Move the thicknessing table out of the end limit range.
 *Figure 44: Error message6*	**Cause:**	The thicknessing table is in the lower end limit range.
	Remedy:	Move the thicknessing table out of the end limit range.

Continuation on the next page ⇨

[1] This error cannot occur with optional variable feed.

 *Figure 45: Error message7*	**Cause:**	a) The voltage monitoring at the load input of the controller for the thicknessing table has tripped. b) Fuse F3 has tripped. c) Power unit G1 defective or overloaded.
	Remedy:	Check the 24 V voltage, the fuse F3 and/or the power supply for the thicknessing table.
 *Figure 46: Error message8*	**Cause:**	The axis constantly consumes too much current. Positioning was aborted because the maximum axis current was exceeded. a) The thickness table was moved against block b) Spindle guide is too sluggish c) Thickness table extension runs sluggishly
	Remedy:	a) Release blockade b) Clean and grease spindle guide c) Check the table extension mechanically
 *Figure 47: Error message9*	**Cause:**	Abrupt increase in current. The positioning was stopped because the dl/t monitoring has triggered. The thickness table was moved against block.
	Remedy:	If necessary, free the workpiece from the machine and loosen the blockage. Check the calibration values and re-calibrate if necessary. Check the limit switches at the top and bottom.

Further (non-control-relevant) operating faults are described in chapter ⇨15.

12 Fine adjustable table rollers (option)

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

12.1 Adjusting the table rollers

- The knurled thumbwheel (see figure on the right) 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.

The article number of this option can be found in section ⇨ 17.2.

Figure 48: Adjusting the table rollers

13 Thickness table extensions

For machining long workpieces, the use of the optionally available thickness table extensions is recommended. These are available in lengths of 400 mm, 1000 mm and 2000 mm.

Figure 49: Optional table extensions

When attaching the table extensions, make sure that they are aligned on all sides with a spirit level to the correct height and parallelism to the machine table. The adjustment is made via the adjustment screws attached to the feet.

For more information on the option and corresponding article numbers, refer to section ⇨ 17.2.

14 Changing the planer knives

To be able to change the planer knives, please first proceed as follows:

- Set the main switch (**1**) shown in Figure 19 to the "**I**" position.
- Set the brake release switch (**10**) shown in ⇨ Figure 20 to the left "**Brake Released**" position.
  (so that the cutter block can be turned by hand into the optimum position for changing the knives).
- Then turn the cutter block (**M**) shown below manually to the desired position.
- Turn the main switch (**1**) back to position "**0**".
- Then open the protective cover with the bow handle (**4**) shown in ⇨ Figure 19.
- Fold up the hole cover (**A**) as shown below.

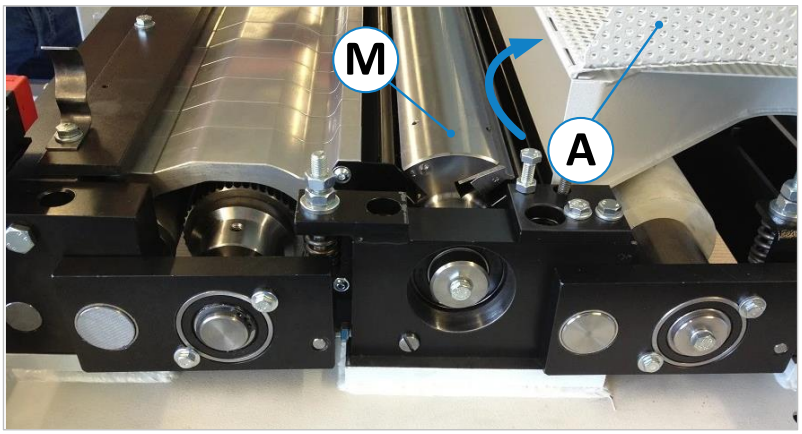


Figure 50: Making the cutter block accessible

	***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!***
	***Even when stationary, cuts from the knives are possible!***
	***Always wear protective gloves when changing the knives!***

14.1 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 436|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 knife 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.

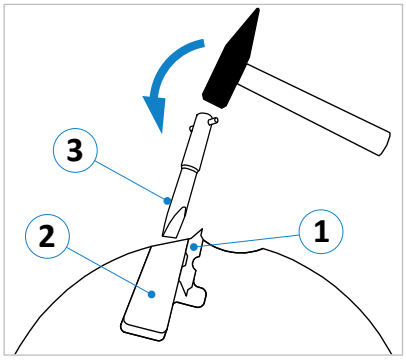


Figure 51: Changing Tersa knives

Suitable replacement knives for your Tersa cutter can be found in section ⇨ 17.1.1

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

Permitted replacement knives: **35 x 3 x 630 (TYP 436|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 ⇨ 14.2.1 or ⇨ 14.2.2).
- 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 52).

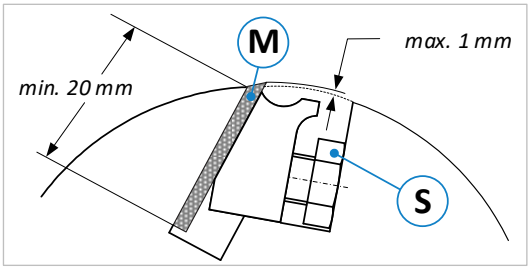


Figure 52: Traditional cutter block

☝	***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!***

14.2.1 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:

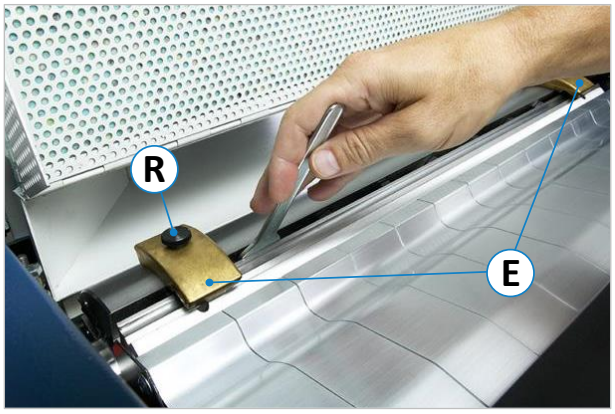


Figure 53: Standard adjusting devices

- Using a flat spanner SW17 (as shown in ⇨ Figure 53), loosen all the screws (**S**) in sequence and remove the blunt knives (**M**), see ⇨ Figure 52.
- 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.

☝	***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 ⇨ 17.1.2.

14.2.2 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 ⇨ 17.1.2).

Figure 54: Magnetic quick adjusters 1533

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 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 of the adjusters, they are placed over the planing knives according to ⇨ Figure 55 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**).

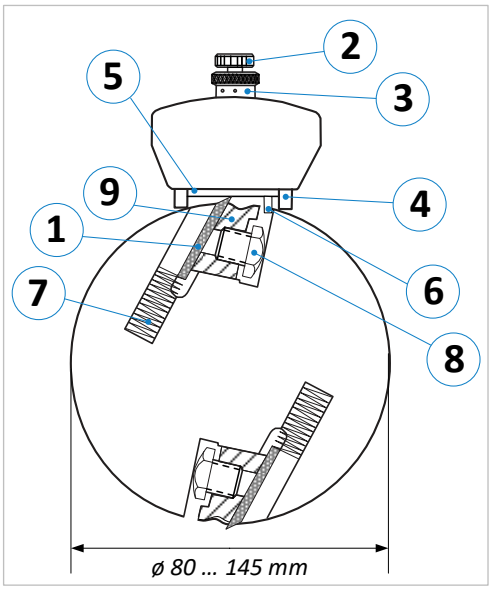


Figure 55: Adjustment of the cutter block

- 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.

	***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 ⇨ 17.1.2.

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

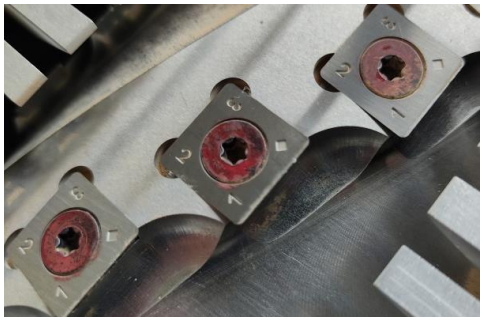


Figure 56: PANHANS spiral cutter carbide inserts

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 shafts [2] (see section ⇨ 17.1.3) 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.

14.3.1 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!***

14.3.2 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.

[2] 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 ⇨ 17.1.3.

15 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
	Brake released	→ Switch off brake release switch
	Protection cover not closed properly	→ Close cover correctly
Brake motor no longer brakes	Brake pad is worn	→ Readjust brake (see section ⇨ 16.5)
The cutter block does not run up cleanly	V-belt too loose	→ Retighten the V-belt (see section ⇨ 16.5)
Rubber extension rollers no longer pull out	Rubber coating worn	→ Readjust / replace Contact customer service!
Feed unevenly	Drive chain worn	→ Replace chain, see ⇨ 16.2
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 does not work	Connecting cable between encoder and electronics loose or encoder defective	→ Check connections an 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 ⇨ 11.7.

16 Maintenance and inspection

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

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 ⇨ 16.5).
- 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 thicknessing 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 ⇨ 16.9). If necessary, adjust the anti-kickback fingers in accordance with section ⇨ 16.10.
- 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 ⇨ 16.3).
- 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.
- The function of the gas springs should be checked occasionally. If it takes a lot of force to open the protective cover, the gas springs must be replaced.
- 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.

16.1 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.

16.2 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.

16.3 Checking the emergency stop button

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

16.4 Lubrication instructions

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**

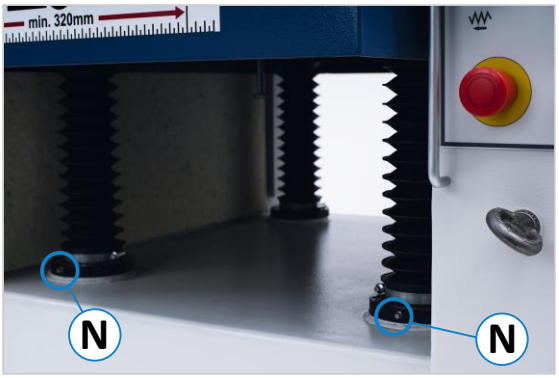


Figure 57: Grease nipples for adjusting spindles

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

⚠	***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!***

- Check all sliding or rolling parts weekly for smooth running and lubricate with a thin oil if necessary.
- Apply a few drops of oil weekly to the threads of the clamping and adjustment levers.
- Lubricate feed chain every 6 months with a suitable grease.
- Move the thicknessing table upwards every month and lubricate the 4 adjusting spindles (**N**) with 2 grease shots each (⇨ Figure 57).
- Lightly grease the two lateral guides (**F)** on the thicknessing table (front and back) every month (⇨ Figure 58).

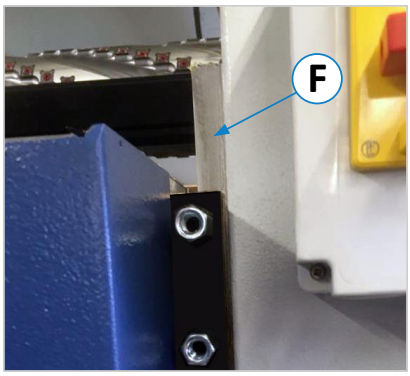


Figure 58: Grease lateral guides

16.5 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 thicknessing 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 ⇨ 16.5.1).

16.5.1 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.

16.6 Replace / tension 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 ⇨ 17.3.

- Turn the main switch (**1**) to position "**0**"and lock it.
- Remove the cover plate on the left side of the machine base.

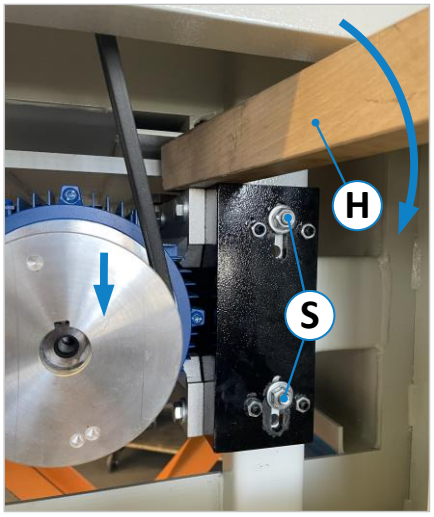


Figure 59: Tension the V-belt

16.6.1 Tensioning the V-belts

- See ⇨ Figure 59: Loosen the two hexagon nuts (**S**) and push the motor downwards with a wooden lever (**H**). Then tighten the two nuts (**S**) again.
- Do not tighten the V-belts too much. Tension the belts and check the belt tension in accordance with section 16.6.3.
- Finally, mount the cover plate again.

16.6.2 Replacing the V-belts

All 3 belts must always be replaced at the same time!

- Loosen the two hexagon nuts (**S**) The motor can now be lifted up to remove the V-belts.
- Fit new V-belts and proceed as described in ⇨ 16.6.1.

16.6.3 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.

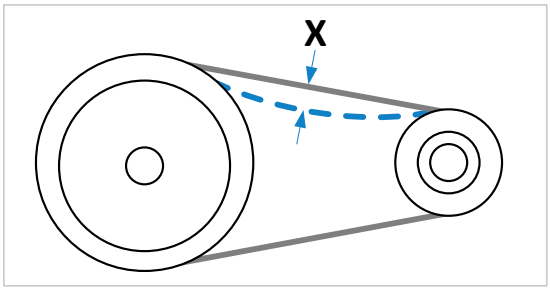


Figure 60: Check the V-belt tension

☝	***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.***

16.7 Readjust the motor brake

If the machine no longer comes to a standstill within 10 seconds when braking, the motor brake must be adjusted.

⚠	***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!***

Procedure:

- Turn the main switch (**1**) to position "**0**"and lock it.
- A socket spanner SW 17 is required for adjustment.
- Put the socket spanner on the adjusting nut (⇨ Figure 61) and adjust it clockwise by approx. 1/8 turn.


Figure 61: Readjusting the motor brake

16.7.1 Check the adjustment

- Before checking the adjustment, make sure that the belt is well tensioned (see ⇨ 16.5).
- Then unlock the main switch (1) again and switch it on (position "**I**")
- Turn the brake release switch to the "**Break Released**" position.
  → It must now be possible to move the V-belt pulley by hand. By turning it, you can now check whether the brake is dragging, which means that it has been adjusted too excessively.
  → If the brake is dragging, the readjustment made must be minimally reversed again.

	***Danger of cutting! Wear protective gloves when handling the cutter block!***

- Now turn the brake release switch back to "**Normal Operation**".
- Start the cutter block and wait until the machine has reached full speed.
- Then switch off the machine and check the braking time to standstill.
- If the braking time is still over 10 seconds, repeat the adjustment procedure (see section ⇨ 16.6.3) and check the adjustment again.
- If the adjustment was not successful, please contact the customer service of the manufacturer.

	***If rattling noises occur in the area of the fan blade when turning the motor, please contact customer service. Possibly the brake lining is worn out.***

16.7.2 Replace motor brake

If the previously described adjustment of the motor brake was not successful, the motor brake must be replaced. First make a note of the type designation and other information on the nameplate of your motor. Then contact our customer service (telephone 0049 - 7571 / 755 - 0) to order a suitable new brake.

16.8 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.***

16.9 Checking the anti-kickback fingers

⚠	***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 anti-kickback fingers installed in the machine serve to protect the operating personnel from dangerous workpiece 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 ⇨ 17.5).

16.10 Adjustment of the anti-kickback fingers

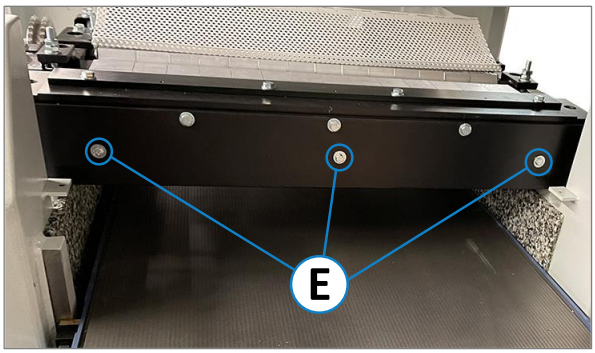


Figure 62: Adjusting screws

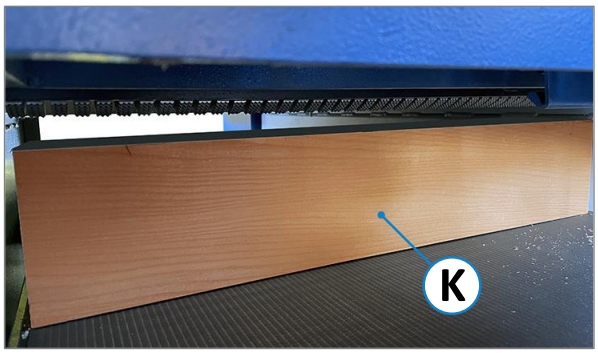


Figure 63: Dressed squared timber as adjusting aid

- Loosen the three M6 adjusting screws (**E**) in the oblong holes with an SW10 spanner, push them all the way up and lightly tack them in place.
- 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.
- Measure the actual height of the squared timber and set 2 mm more on the thickness planer.

  Example: Height squared timber = 200 mm | Setting thickness planer = 202 mm
- Loosen the tacked adjustment screws (**E**) and make sure that all fingers rest on the squared timber.
- Now press the three adjusting screws (**E**) all the way down and tighten them again.
- The procedure is completed.

16.11 Replace rubber 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 ⇨ 17.4.

Preparation:

- Plane a piece of squared timber with min. 150 mm on the right side of the thicknessing 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

To make the rollers accessible, first remove the side cover (**A**) and place it on the top of the machine.

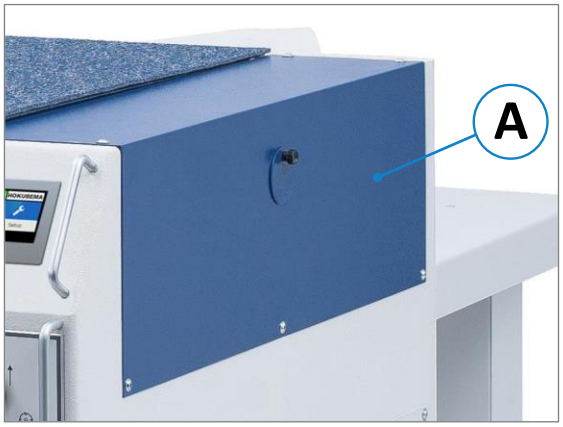


Figure 64: Rubber roller replacement Step 1a

The rollers are now visible:
Left → infeed roller / Right → outfeed roller

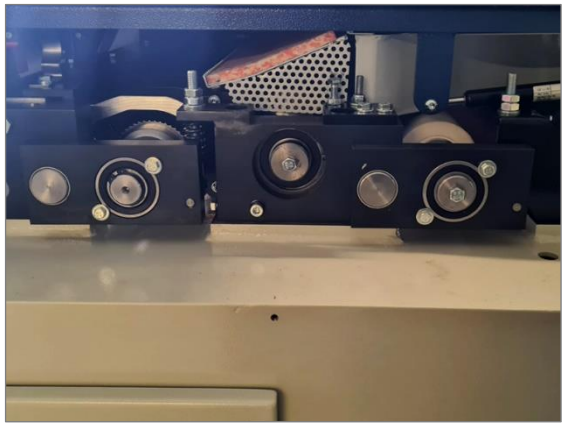


Figure 65: Rubber roller replacement Step 1b

Step 2

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

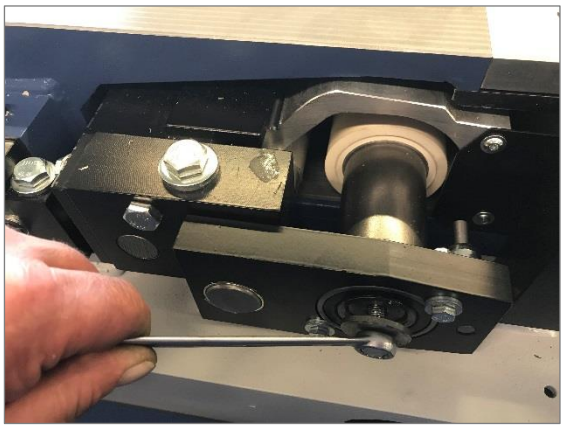


Figure 66: Rubber roller replacement Step 2

Step 3

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

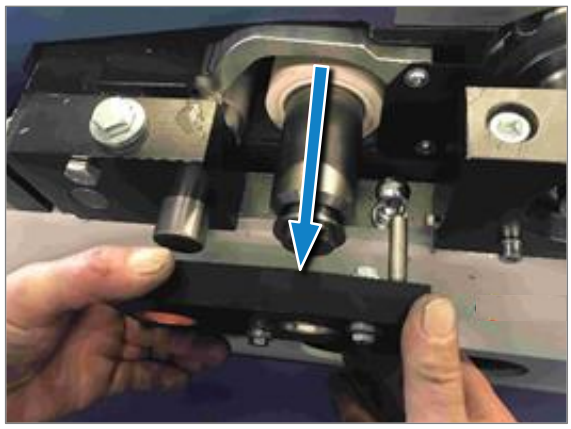


Figure 67: Rubber roller replacement Step 3

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 thicknessing 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.

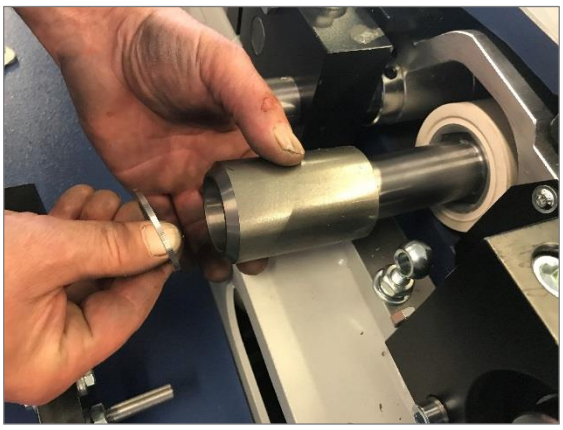


Figure 68: Rubber roller replacement Step 5a

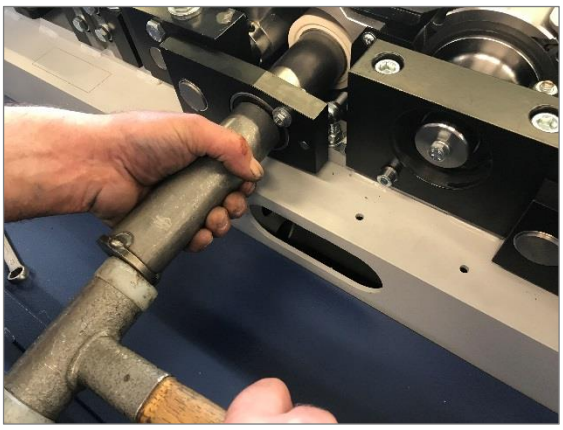


Figure 69: Rubber roller replacement Step 5b

The outfeed rollers are then also replaced in the same way.

17 Options and accessories

17.1 Cutter blocks and planing knives

17.1.1 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

17.1.2 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

17.1.3 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	162 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

17.2 Optional table systems

Article	Description	Art.-No.
Thickness Table Extension 400 mm	L = 400 mm, B = 630 mm, with automatic height adjustment.	4739
Thickness Table Extension 1000 mm	L = 1000 mm, B = 630 mm, with automatic height adjustment.	4339
Thickness Table Extension 2000 mm	L = 2000 mm, B = 630 mm, with automatic height adjustment.	4740
Table Glide Rollers	2 pieces with fine adjustment in the thicknessing 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 of strips with max. thickness tolerance of 3.0 mm. **Table glide rollers absolutely necessary**	4484
Frequency controlled Feed Motor	Infinitely variable feed rate via potentiometer from 3 - 24 m/min (instead of 7 + 14 m/min) + Speed display via controller unit.	4645

17.3 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). *Profile: SPZ | Width: 9.7 mm | Height: 8 mm | Length: 1750 mm (Lw)* Order at least 3 pieces, as all 3 V-belts must always be replaced at the same time to ensure proper function.	0345.0372

17.4 Rubber segments for the infeed and outfeed roller

Article	Description	Art.-No.
1 piece Rubber segment for in- and outfeed roller	The infeed and outfeed shafts are segmented with 5 rubber rollers each. → To be able to replace all rubber segments for both shafts, 10 pieces must be ordered.	5103.0837

17.5 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, 45 pieces must be ordered.	6103.2145

17.6 Special accessories

Article	Description	Art.-No.
Central Lubrication	For central grease supply to all lubrication points of the machine via a hand pump with 400 g grease cartridge. The maximum outlet pressure is 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-authorised accessories and spare parts or additional components from third parties!***

18 Disassembly and scrapping

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

Please pay particular attention to

- *the dismantling of the machine in the working area*
- *proper dismantling of the machine and accessories*
- *a safe and proper removal of the machine*
- *proper separation of all components and materials.*

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

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

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

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

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

Pollution of the environment by seepage into groundwater or sewage system.

Poisoning of the personnel contracted for the disposal.

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

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

Thickness planer type 436 l 100

Machine-No.: .....

Year of manufacture: .....

in the version provided complies with the following directives:

- **Machinery Directive 2006/42/EC**
- **EMC Directive 2014/30/EU**

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 151105

Sigmaringen, 14/12/2023

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R. Beck

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Reinhold Beck
Managing Director