

Instruction Manual

Profimat 23 E

Englisch/English L23 880 02

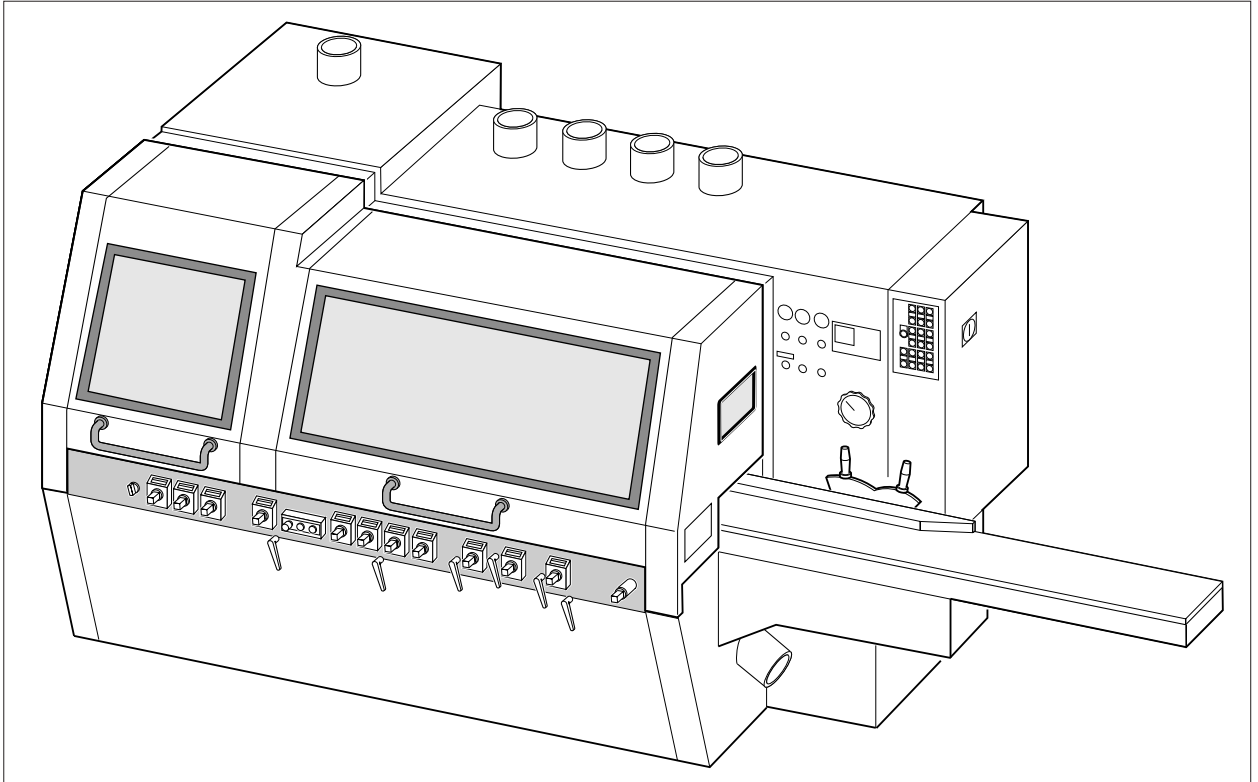
CE • ISO 9001

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09/2000



Type

Date, place of transfer

Contract

.....

Machine/
 Control system/
 Accessory parts

Address of authorized dealer/importer/other

Customer

Company stamp / Signature

I have purchased the machine/control system/accessory parts specified above. The Instruction Manual and Safety Manual were issued together with the machine, etc.

The machine has been handed over to the customer in accordance with the manufacturer's directions.

.....
 Signature, customer Date

.....
 Signature, customer service Date

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Dear Customer

Your machine may differ from that illustrated here, but that is of no relevance for safe operation of the machine. A Profimat 23 E with universal spindle has been used by way of example to describe the operating sequence.

Training

This Manual is merely part of the overall documentation. It is essential to read and note the manual entitled "Safety Instructions". The "Electrical circuit diagram", "Pneumatic circuit diagram" and "Hydraulic circuit diagram" are located in the control cabinet. The "Installation diagram" was sent to you with the confirmation of your order. Instructions for "Control systems" and "Supplementary features" supplied separately as required for your particular machine version.

No one may work with the machine, not even for a brief period, without the **requisite training** either within the company, by our field staff, by vocational training institutes or in the WEINIG Training Center.

Symbols



Danger: This symbol draws attention to exceptional hazards which will certainly lead to very serious injury if the instructions are disregarded and precautions are not taken.



Warning: This symbol draws attention to a potential hazard which can lead to very serious injury if precautions are not taken.



Caution: This symbol draws attention to hazardous situations which may lead to physical injury, damage to the machine or other property or to loss of data (control systems).



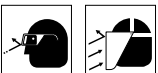
Additional information on how to operate the machine correctly.



Take note of further instructions, instruction modules, enclosures or other manufacturers' instructions.



Reference to general and specific hazards. Some symbols are also to be found on the machine. These symbols must be noted and must remain clearly legible at all times.



General safety instructions



The separate manual entitled "Safety Instructions" must be read and observed, for it contains further information on the machine's intended use and its safe operation.



The machine has been designed and built in line with state-of-the-art technology and is safe when operated correctly. Safety of the operating personnel was one of the basic concepts underlying its design.

All machines are potentially dangerous if they are operated incorrectly, used for purposes other than those for which they were built or are operated by persons lacking the requisite know-how, training or sense of responsibility.

The manufacturer cannot accept any liability for losses incurred due to non-conforming use of the machine. The risk of accidents and damage rests exclusively with the owner in such cases.



It is therefore essential to note the information and instructions contained in the Instruction Manual. All local safety and accident prevention regulations must also be complied with.



The machine may only be operated, serviced and repaired by duly authorized, trained and instructed personnel. These persons must be informed in detail of all the foreseeable potential dangers. No one should work on the machine or remain in its vicinity if they are not completely fit both physically and mentally.



The Instruction Manual must be read through completely and understood by all authorized persons before starting work on the machine. The person responsible for safety should obtain written confirmation of this from all concerned.



Tools, feed rollers and their drive components coast after being switched off and are a source of danger.

Great care must therefore be taken when opening hoods and covers!

CAUTION! Never reach into tools, feed rollers and their drive elements before they have come to a complete stop.

The owner must clearly define exactly who is responsible for setting-up, retooling, operation and maintenance and is obliged to ensure that the machine is only operated when in safe working order.

The operator is obliged to immediately remedy all damage or changes in the machine which may impair its safety (provided that he is authorized to do so) or must report these without delay.

When unloading and installing the machine, it is important to ensure that the load-carrying capacity of the lifting gear is sufficient to bear the weight of the machine.

Signs referring to product safety and other safety stickers must be checked regularly and cleaned. They must be replaced if they are no longer clearly legible, even at a reasonable distance.



All safety mechanisms must be checked every day and before starting up the machine in order to ensure that they are always in perfect working order.

Any protective mechanisms which have been removed for setting-up, retooling, repair or maintenance work must be replaced before switching on the machine.

Hoods, doors and covers must not be opened or maintenance work started until the machine has been switched off, all rotating parts (tools, feed rollers, etc.) have come to a complete stop and the machine has been secured so that it cannot be switched on again inadvertently (lockout or warning sign on the master switch).

Machine parts and safety mechanisms must not be removed, modified or bypassed.

Only original WEINIG replacement parts may be used in the machine.
No liability whatsoever can be assumed for damage and losses due to the use of parts from other manufacturers or unauthorized changes in the machine.

Loose-fitting garments, long hair, wristwatches, jewellery and gloves can lead to accidents at work (e.g. snagging, being trapped by rotating tools, feed rollers, etc.).
For this reason:

- Do not wear any loose-fitting garments
- Cover your hair
- Remove wristwatches and jewellery

Ensure that the workplace is kept clean and tidy. Dirt (e.g. oil or wood dust on the floor) and obstacles can impair your safety.

Wear goggles or a full face mask and use ear protection.
Keep your hands well clear of the feed area!

In order to avoid kickbacks, the width of the feed rolls must be selected in accordance with the width of the workpiece and the height of the feed rolls must be set in accordance with the workpiece height to be machined, so that sufficient pressure is ensured.

The specified cross-sections and the required air velocities and flow rates (see layout and extraction diagrams) should be noted in conjunction with the extraction of chips and dust. The extractor system should always be running whenever the machine is in operation.

Feeding timber with the aid of a push-bar or similar can be dangerous and is therefore prohibited.

Never stand behind a workpiece that is being fed into the machine.



Do not raise the feed mechanism or movable infeed roller while there are still workpieces in the machine and the tools are still rotating, otherwise the workpieces may be released and kicked back.

Do not feed in additional timber if the feed system becomes jammed. Switch off the machine, secure it so that it cannot be switched on again inadvertently, wait until all rotating parts have come to a complete stop and then remedy the fault.

Only long workpieces of the same width and thickness and without cracks may be used to push out short workpieces (too short for complete throughfeed).

Do not look into or stand behind the infeed opening of the machine while the machine is in operation, as you may be injured by workpieces or splinters.

Before leaving the machine unattended, the control voltage must be switched off and the machine secured so that it cannot be switched on inadvertently (lock or warning sign on the master switch).

The permissible noise level depends on the national regulations and standards prevailing in the owner's country. Additional noise abatement measures must be taken by the owner if the applicable limit values are exceeded on account of exceptional circumstances (e.g. room, workpieces, tools, spindle speed) in individual instances.

If the machine is equipped with outboard bearings, it may only be switched on when the outboard bearings have been fitted on the top and bottom spindles.

The following safety instructions must be noted when working on the control cabinet:



Before starting any work on live parts, the power supply must be switched off (master switch OFF) and secured so that it cannot be switched on again.

Work on the electrical system may only be carried out by duly qualified electricians.

Whenever electrical parts have been installed or repaired, the relevant protective elements (such as grounding resistors) must be tested before the machine is put into service again.

Signalling elements (limit switches) and other electrical parts must not be removed from the safety mechanisms or bypassed in any way.

Tools



We recommend that braking motors (optional) be used to avoid spindles, tools and the feed system from coasting when shut off. This considerably reduces the risk of injury on tools and feed rollers as they run down.



Spindle brakes are naturally subject to wear and tear. It is therefore imperative to check and service the brakes at regular intervals. The machine must not be started up until all faults have been remedied.

The cutting edges on the tools are very sharp and can cause injury even when at a complete stop. Tools must therefore be treated with great care. Keep away from moving cutters when the machine is running.

Note the minimum clamping lengths of regrindable planing knives (refer to the Instruction Manual for the tools). Profile and planing knives must not protrude beyond the cutterhead body at the sides. Do not use any cracked or deformed tools.

The spindles, their contact surfaces and the spacer rings must be cleaned before inserting the tools. Tools must always be fitted with safety collar.

When using saws they should be fitted on the lower spindle whenever possible (the cutting pressure forces the workpiece onto the table). Check that the tools are seated correctly.

The spindle nuts must be tightened securely so that they cannot work loose by themselves.

The spindles must be turned by hand before starting in order to check whether they rotate freely.

Always beware of collisions with the feed roll when adjusting the left-hand spindle.

Spindle adjustments must not be undertaken while tools are rotating.



The following points must be noted when using tools with aluminium core:

- Aluminium tools must not be heated to more than 120 °C during operation or when cleaned.
- Only solvents which do not corrode the aluminium may be used to clean and desinify the aluminium tools.
- Tools which have been heated as a result of cleaning in a washing machine or in any other way must be allowed to cool before being fitted. The tool clamp may be released or reduced as the tool shrinks when cooling.



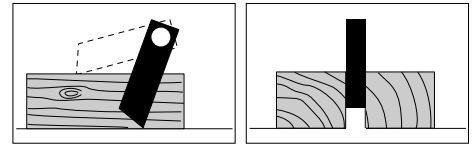
WEINIG cannot assume any liability for injuries or damage due to misconduct or non-compliance with these safety instructions.

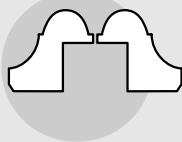
Further information on accident prevention is available on request from your local employers' liability insurance association.

Sawing and splitting



The following safety mechanisms must be used when working with circular saw blades or profile cutters to produce multiples, during which workpieces can be kicked back or accelerated in feed direction:



	Application	Requisite safety mechanism
a)	Cutting workpieces into two or more parts with a saw or multiple profile cutter running in the opposite direction. The workpieces are held securely by the transport rollers after being split.	Anti-kickback device or catcher
b)	Cutting workpieces into two or more parts with a saw or multiple profile cutter running in the opposite direction. The workpieces are not held securely by the transport rollers after being split. For example: <ul style="list-style-type: none"> • Multiple profiling operations in which the bars could tilt after being profiled. • Narrow slats • Cutting off remnants on the outer side 	Anti-kickback device; a special outfeed should be used if necessary.
c)	Cutting with saws or multiple profiling tools running in the same direction.	Impact plate to catch the workpieces and cordon around the hazard area.

Splitting wedges are advantageous and should be used additionally.

However, they do not ensure sufficient safety when used exclusively.

The distance between the anti-kickback fingers elements and the workpiece surface must be no more than 1 mm (0.039").

The anti-kickback fingers elements must move easily and remain sharp-edged.

Miscellaneous safety instructions

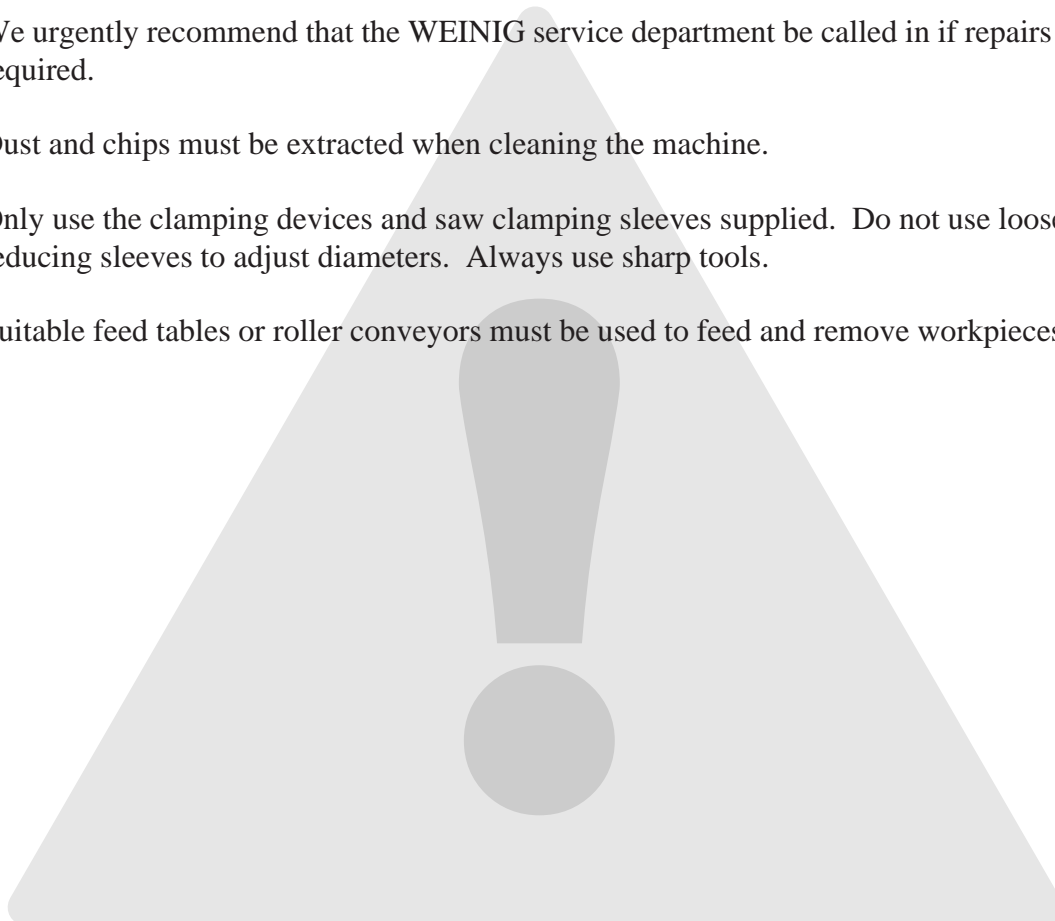
Risk of injury on sharp-edged machine parts in feed and discharge openings, such as tool cutting edges, anti-kickback fingers and transport rollers. Also risk of being drawn into the machine when the hood is open and in inching feed mode.

We urgently recommend that the WEINIG service department be called in if repairs are required.

Dust and chips must be extracted when cleaning the machine.

Only use the clamping devices and saw clamping sleeves supplied. Do not use loose reducing sleeves to adjust diameters. Always use sharp tools.

Suitable feed tables or roller conveyors must be used to feed and remove workpieces.



The Instruction Manual must be read through completely and understood by all authorized persons before starting work with the machine. The supervisor concerned should obtain written confirmation that this is indeed the case.

The Instruction Manual has been read and thoroughly understood.

	Date:	Signature:
Owner
Operating personnel:

Intended use

Application

The machine is designed and built exclusively for planing and producing longitudinal profiles on four sides. All other uses must be approved by the manufacturer in each instance.

Permissible materials

Standard types of wood and wood substitutes with outside dimensions (L x W x H) as specified in the technical data.

Permissible tools

Planing and profiling cutterheads and hydraulic tools as specified in the technical data and pr EN 847-1.

Workplaces



The number and position of the workplaces are shown in the installation diagram; refer to the order confirmation drawing when material handling is connected. The main workplace is on the feed side.

All other uses are deemed to be non-conforming. For example: sawing and splitting work may only be carried out with the requisite supplementary equipment. Machining of metal or similar materials and operation without duly installed safety mechanisms are deemed to be non-conforming uses.

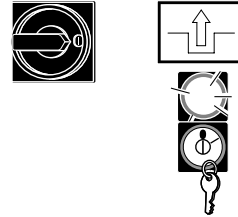


The manufacturer cannot assume any liability for resultant damage and losses; this risk rests exclusively with the user. Conforming use also includes compliance with the associated Instruction, Service and Maintenance Manuals.

Setting-up

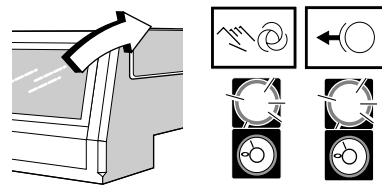
Switching on the machine

- Main switch "on".
- Turn key-operated switch for "Open hood" (optional) to "1", hood can only be opened after approx. 180 seconds.



Setting-up in manual mode

- Open hood
- Set mode selector to "0", manual mode.
- Set selector "Release brakes" (optional) to "1". Spindle brakes are released for basic setting and tool change. Spindle motors cannot be switched on.



Tools may only be changed and basic machine settings effected in manual mode with spindle brakes released and keys removed.

Example:

Planing a strip 100 mm (3.937") x 30 mm (1.181") on four sides:

Tools and basic setting:

- Fit four straight cutterheads; note the chapter "Tools"
- Effect basic settings; note chapter "Basic setting"
- Always keep the vertical spindles slightly below the table and horizontal spindles behind the fence in the axial direction so that the complete timber is indeed machined.

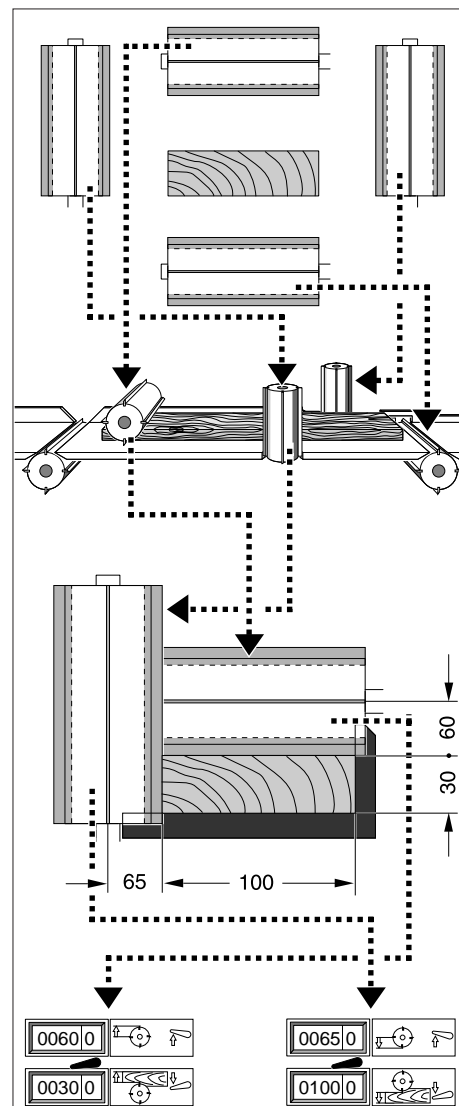
Timber width:

- Release clamp for left-hand spindle.
- Option Digiset: Switch numerical indicator to workpiece width and adjust spindle to a workpiece width of 100 mm (3.937").
- Clamp spindle

Timber height:

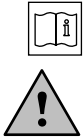
- Release clamp for top spindle.
- Option Digiset: Switch numerical indicator to workpiece height and adjust spindle to a workpiece height of 30 mm (1.181").
- Clamp spindle

Further examples for setting-up profiles can be found in the chapter entitled "Setting-up".



Production

Checklist



- The **Manual "Safety Instructions"** must be read and observed, for it contains further, detailed information on the moulder's intended use and its safe operation.
- **Basic settings** have been made.
- **Tools** have been fitted securely.
- **Unobstructed movement** of the spindles has been checked.
- **Safety mechanisms** and dust extraction hoods have been fitted.
- **Unused spindles** have been adjusted away from the working area.
- There are no **set-up tools** or measuring instruments in the machine.
- The **working area** is clear.
- Wear **goggles and ear protection** when setting up profiles with the hood open.

Setting up profiles in manual mode

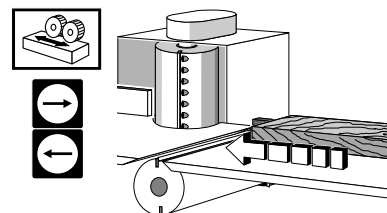
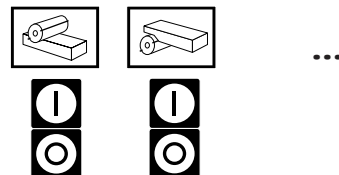
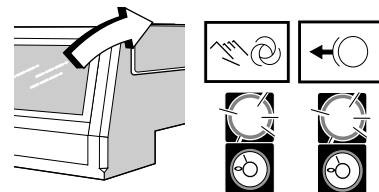
- Open hood
- Set mode selector to "0".
- Set selector "Release brakes" (optional) to "0", brakes are applied.

Spindle motors can be switched on when the hood is open. Feed movement is only possible in inching mode.

- Dust extraction, spindle motors "on".
- Automatic Waxilit pump (optional) "on".

- Place set-up piece on infeed table and edge jointing fence.
- Carefully advance the set-up part through the machine at inching feed speed.

- Stop production via an Emergency OFF if dangerous situations arise.



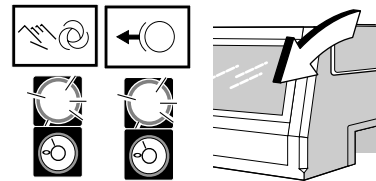


Keep out of range of the flying chips. Do not look into the infeed tunnel. Do not touch any moving machine parts. Never raise the feed beam while there is timber in the machine, otherwise the workpiece will be released and can be kicked back.

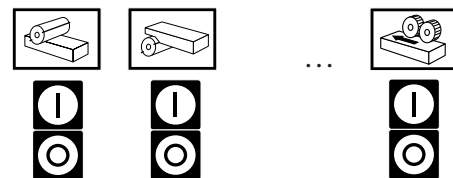
Production in automatic mode

- Set mode selector to "1", automatic mode.
- Set spindle brake to "0", apply brakes.
- Close hood.

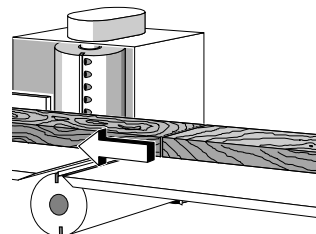
Spindle motors and continuous feed can be switched on.



- Spindle motors "on", continuous feed "on". Spindles motors and feed are switched off when the hood is opened.



- Place timber on infeed table and against edge jointing fence. Feed timber into the machine end-to-end.



- Stop production via an Emergency OFF if dangerous situations arise.

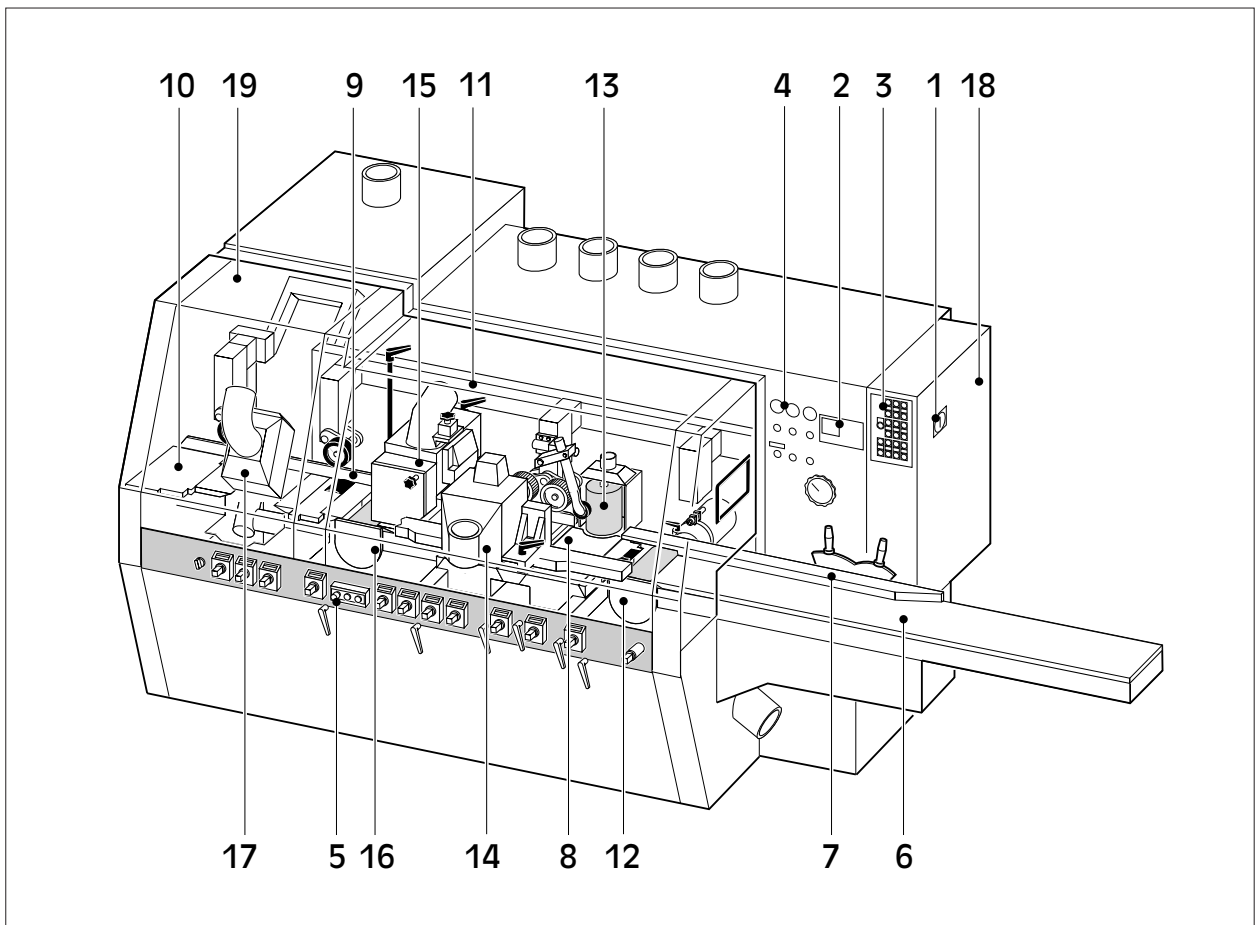


Switching off the machine

- Wait until machine is empty
- Spindles, feed, dust extraction and all supplementary equipment "off"
- Master switch "off"; secure with lock prior to prolonged shutdowns, repair work or tool change.



Overview of machine



Machine controls

- 1 Master switch on control cabinet
- 2 Control systems (optional)
- 3 Control panel with Emergency OFF button
- 4 Pneumatic control panel
- 5 Control panels on the console with Emergency OFF button

Spindles

- 12 First bottom spindle (straightening spindle)
- 13 First right-hand spindle (edge-jointing spindle)
- 14 First left-hand spindle
- 15 First top spindle
- 16 Second bottom spindle
- 17 Universal spindle


Protected components for accident prevention

- 18 Control cabinet, locked by master switch in position "I"
- 19 Machine hood: machine cuts off when hood is opened. If "Hood interlock with delayed release" (optional) is installed, the hood remains interlocked for approx. 180 seconds after switching off the machine.

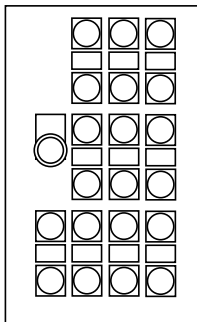
Workpiece guidance












- 6 Infeed table
- 7 Edge jointing fence
- 8 Machine table
- 9 Machine fence
- 10 Outfeed table
- 11 Feed beam

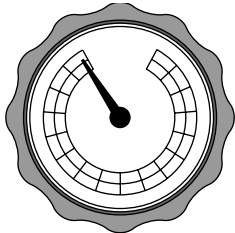
Master switch

B1		<p>Master switch: "I" Switch on machine: control panel, control system (optional) and machine are operational "0" Switch off machine</p>
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Control panel



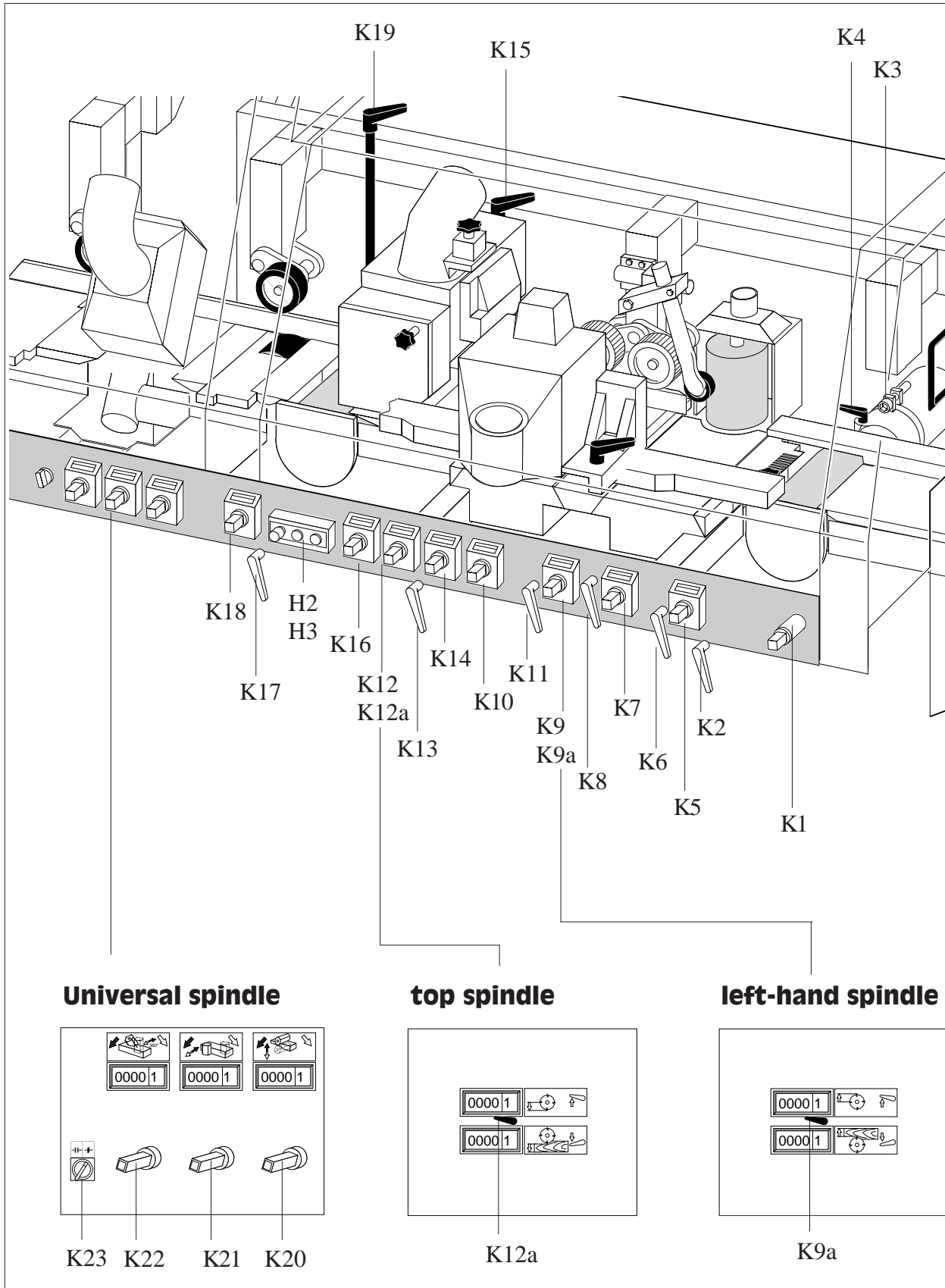
B1		<p>Emergency OFF</p>
B2	 	<p>Feed beam up/down inching mode Height indicated on pneumatic control panel or on hood at timber infeed</p>
B3	  	<p>Continuous feed Only with hood closed and automatic operation</p>
B4	  	<p>Inching feed Forward, reverse</p>
B5		<p>Operating hours counter Hours of operation with feed on (optional)</p>
B6		<p>Interior lighting on/off (optional)</p>

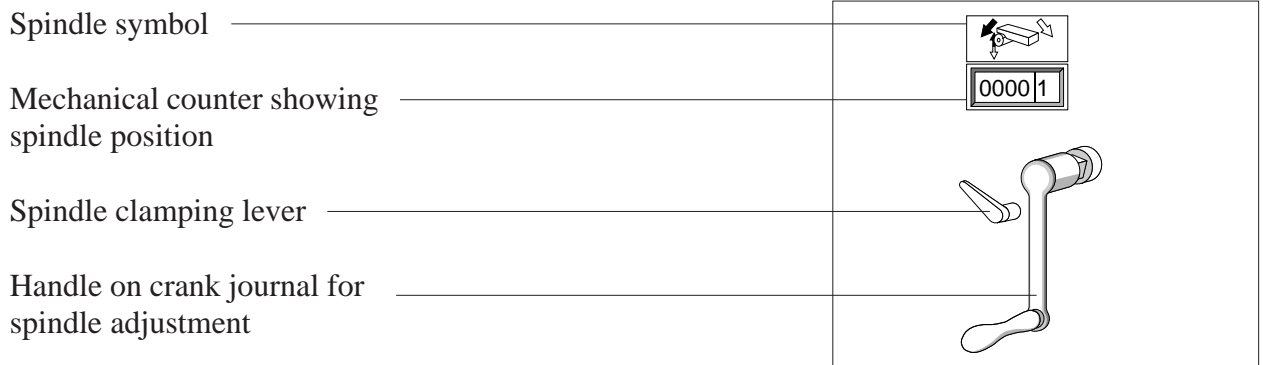
<p>B7</p> 	<p>Feed rate adjustment</p>
--	------------------------------------

B8		<p>Mode selector (key-operated switch) Automatic "1" Manual "0"</p>	E14		<p>SERVICE CONTROL (optional)</p> <p>Note operating instructions for "SERVICE CONTROL": service intervals must be programmed and displayed</p>
B9		<p>Release spindle brakes (optional) Lights up immediately when "Brakes released". Brake is released after approx. 10 s. Spindle brake released "1" Spindle brake locked "0"</p>			
B10		<p>Hood interlock with delayed release (optional) (Key-operated switch) Open hood "1" Close hood "0" The machine is switched off completely when switching over to "1", but the hood remains locked for approx. 180 seconds (time for spindles to come to a complete halt).</p>			
B11		<p>Spindle motors on/off individually Same order as on the machine</p> <p>First right and left-hand spindle on/off together</p>			
B12		<p>Universal spindle, spindle motor on/off</p> <p>Direction of rotation, universal spindle Clockwise / counterclockwise rotation</p>			
B13		<p>MTS (optional) Accurate positioning, top spindle upwards in inching mode</p>			
B14		<p>Cycle infeed roller up/down</p>			

Console, spindle adjustments

(manual machine without ATS control)

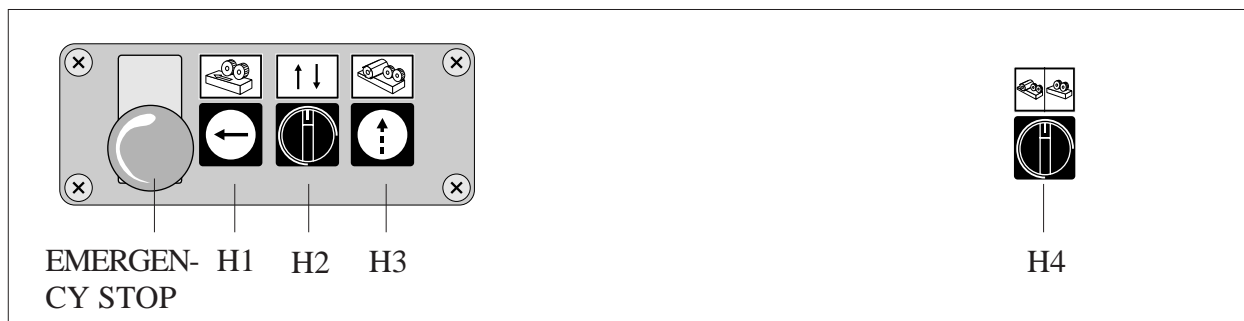




1st bottom spindle (straightening spindle)	K1	Radial adjustment (mechanical counter, optional)
	K2	Radial clamping
	K3	Axial adjustment
	K4	Axial clamping
1st right-hand spindle (edge-jointing spindle)	K5	Radial adjustment
	K8	Radial clamping
	K7	Axial adjustment
	K6	Axial clamping
1st left-hand spindle	K9	Radial adjustment
	K8	Radial clamping
	K10	Axial adjustment
	K11	Axial clamping
	K9a	(Optional, Digiset) Lever up: set tool radius Lever down: set workpiece width
1st top spindle	K12	Radial adjustment
	K13	Radial clamping
	K14	Axial adjustment
	K15	Axial clamping
	K12a	(Optional, Digiset) Lever up: set tool radius Lever down: set workpiece height
	H2 H3	(optional, see next page)

2nd bottom spindle	K16	Radial adjustment
	K17	Radial clamping
	K18	Axial adjustment
	K19	Axial clamping
Universal spindle	K20	Adjustment up/down
	K21	Adjustment forward/backward
	K22	Adjustment for angular position
	K23	Central clamp for adjustment up/down, forward/backward and angle

Control panels on the console



H1	Feed forwards at inching speed
H2	Feed up/down – rough positioning, motor-driven (optional) Feed + 1st top spindle up/down when top spindle is engaged with feed unit via switch H4
H3	Feed up - fine positioning, motor-driven Feed + 1st top spindle up when top spindle is engaged with feed unit via switch H4

H4	Engage top spindle Switch below pneumatic control panel Left-hand position: Top spindle engaged with feed unit Right-hand position: Top spindle disengaged from feed unit
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Adjusting the top spindle

The top spindle can optionally be motor-adjusted in radial direction (up/down) together with the feed.

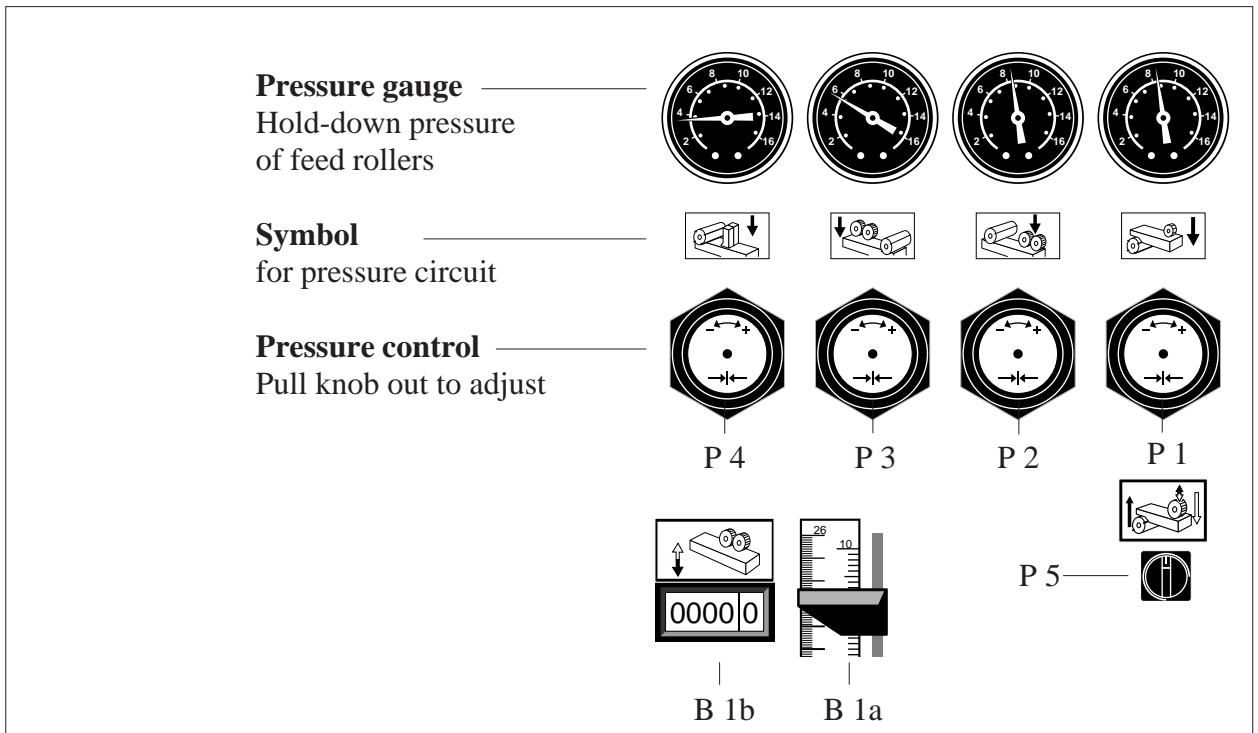
Adjusting the top spindle

- Engage top spindle in feed via switch H4 (see above).
- Radially adjust spindle via H2 or H3.
- Disengage H4 again after adjustment.



Continuous feed cannot be started if the spindle is not disengaged via H4 after adjustment.

Pneumatic control panel



P 1	<p>Pressure circuit 1, transport roller before 1st bottom spindle (straightening) (optional) Hold-down pressure of transport rollers before the straightening spindle, raw timber</p> <p>Basic setting: Workpieces < 100 x 100 mm: appr. 1 – 4 bar Workpieces > 100 x 100 mm: appr. 3 – 6 bar</p>
P 2	<p>Pressure circuit 2, steel feed rollers</p> <p>Set hold-down pressure of the steel rollers before the top spindle, raw timber</p> <p>Basic setting: approx. 2 – 3 bar</p>
P 3	<p>Pressure circuit 3, rubber feed rollers</p> <p>Hold-down pressure of the rubber rollers after the top spindle, finished timber</p> <p>Basic setting: approx. 2 – 3 bar</p>
P 4	<p>Pressure circuit 4, hold-down pressure of chipbreaker before top spindle (optional)</p> <p>Hold-down pressure of chipbreaker before top spindle, raw timber</p> <p>Basic setting: approx. 2 – 3 bar</p>

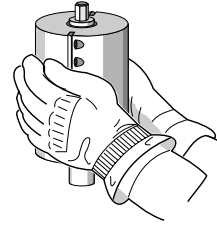
P 5	<p>Cycled infeed roller (optional)</p> <p>Left = Cycle infeed roller downwards, surfacing</p> <p>Right = Cycle infeed roller upwards, straightening</p>
B 1a	<p>Feed rollers, height indication</p> <p>Bottom edge of feed roller in front of top spindle to table, height indication on timber infeed</p>
B 1b	<p>(optional) instead of B 1a</p>

Safety instructions

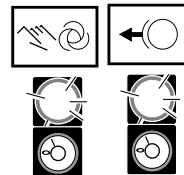
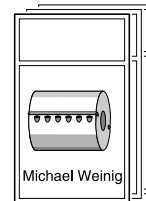
When changing tools



Protective gloves must be worn when changing tools – high risk of injury on sharp cutting edges. Tools must be fitted with great care. Assembly / disassembly sequence must be followed precisely.



- Note the safety instructions and directions in the following:
 - "Instruction Manual, Tools" issued by the tool manufacturer
 - Manual entitled "Safety Instructions"
- Select manual mode and release spindle brakes for tool changes.



Before switching on the spindles

Note the following checklist:

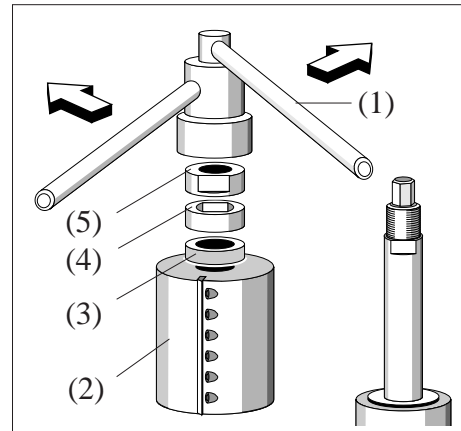


- **Clean** all contact surfaces. **Pressure points** on the spindle collar must be deburred with a whetstone.
- Always use a **safety locking collar**. This is the only way to ensure that the tools are adequately prevented from spinning.
- Tighten the **spindle nut** so that it cannot work itself loose.
- Before starting the spindles, turn the tool by hand to ensure it **runs smoothly without interference**.
- Spindles **may only be switched on** when dust extraction hoods and safety mechanisms have been fitted.

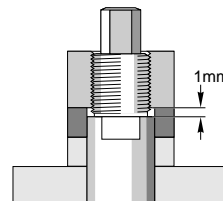
Fitting tools

Planing / profile tool

- Planing tool (2), spacer rings (3), safety locking collar (4) and spindle nut (5).
- Tighten spindle nut. Always use a double-ended open-jawed wrench (1) for this purpose.
- The arrows in the diagram illustrate the direction of action for tightening the spindle nut.



The safety collar must protrude at least 1 mm (0.040") beyond the spindle thread, otherwise the tool cannot be tightened so that it is axially secure and can spin on the spindle.

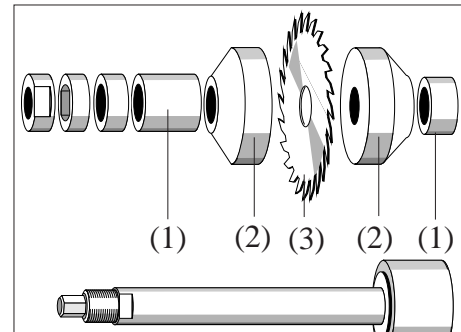


Saw blade on horizontal spindles

- Roughly determine the axial position of the saw (3) by means of the spacer rings (1) and clamping flanges (2) or clamping sleeve.
- Use axial spindle adjusting mechanism for precise positioning.



Closely following the WEINIG fitter's instructions. Use anti-kickback device.



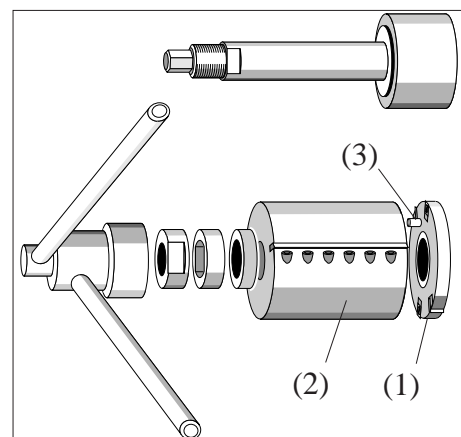
Sawing unit for glazing beads

Note the information in the chapter "Machine options".

Rebate cutter

The rebate cutter is axially clamped by the planing tool.

- Mount rebate cutter (1) and planing tool (2) on spindle with mutually offset cutting edges.
- Insert pin (3) on rebate cutter into corresponding hole on cutterhead or gap under gib.



Principle of basic settings

This chapter summarizes the most important settings. A more detailed description can be found in the following chapters.

Adjusting spindles

Spindles can be adjusted in two directions: axially in parallel to the axis or radially in parallel to the radius. The spindle position can be read off on the numerical indicator.

1. Loosen spindle clamp (1).
2. Adjust spindle via crank handle (2) and retighten spindle clamp (1).

Basic setting and calibration of the numerical indicators

After setting the spindle shaft in relation to the setting straight edge, for example, the mechanical counter must be set as follows:

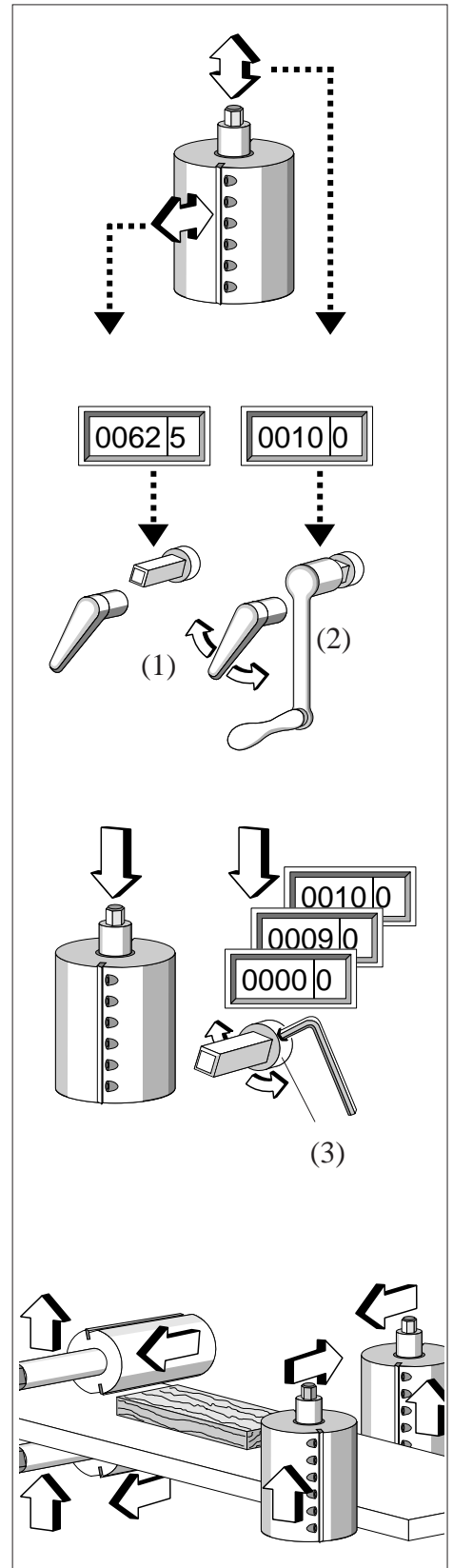
3. Loosen clamping screw (3) on adjusting ring.
4. Turn adjusting ring to the required setting. The direction in which the numerical indicator was last turned must be the same as the direction of rotation of the spindle (play in the numerical indicator).
5. Tighten clamping screw (3).

Adjustment procedure



In order to eliminate the spindle play, the bottom, right-hand and left-hand spindles must always be set to their final position by turning towards the workpiece.

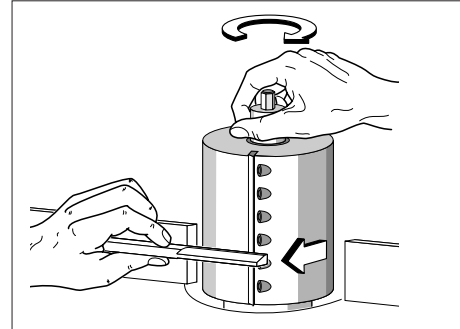
The top spindles and feed, on the other hand, must always be set to their final position from bottom to top in order to eliminate the spindle play.



Setting spindles

The tool must be set in relation to the following fence or table in order to avoid snipes. The following example refers to the right-hand spindle:

- Hold setting straight edge against fence and adjust tool towards setting straight edge until at least one cutting edge touches the bar. Turn the tool by hand in the direction opposite to that of cutting during the adjustment.
- The tool is correctly set when the rubbing movement of the cutting edge against the setting straight edge can be faintly felt but not heard.
- Set the mechanical counter in this position.



Pressure elements

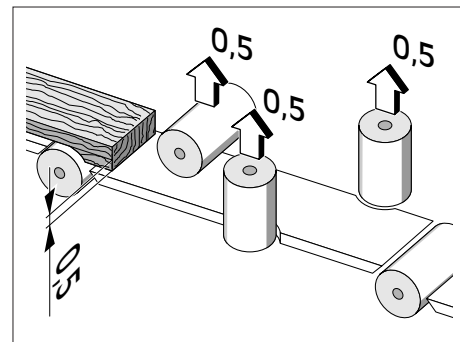
When the tools have been set to their basic position, the pressure elements and table plates must be set as close as possible to the largest tool cutting circle.

Note the following point for the bottom spindle:

If a chip is removed on the last bottom spindle, this must be taken into account on the top spindle when setting the numerical indicators, e.g. 0.5 mm (0.020").

Height correction

The chip removal in axial direction must be taken into account, e.g. 0.5 mm (0.020"), when profiling with the vertical spindles.



Accident prevention



Select manual mode for basic settings.



Before switching on a spindle, check that it rotates smoothly by hand and verify the entire setting.



Replace extractor hoods and safety mechanisms immediately after making an adjustment.

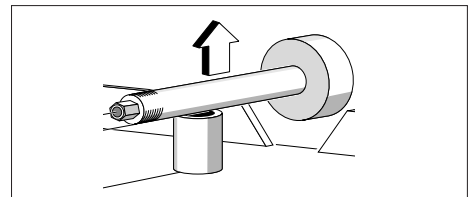


Never advance feed or feed/top spindle onto a measuring device or piece of timber. In other words, always make adjustment, then position measuring equipment, repeat adjustment, etc.

Use jog switch for motor-driven adjustment.



All machine clamps which are released in order to make an adjustment must always be retightened immediately after the adjustment.





Infeed table

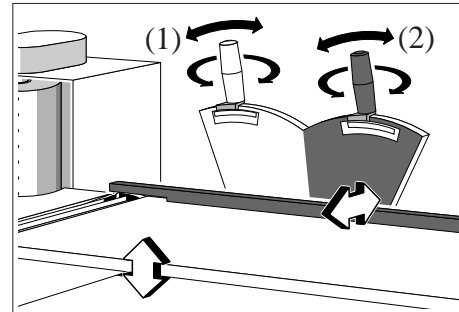
Straightening table

Straightening table up/down – chip removal on the straightening spindle:

- Turn adjusting lever (1) to release it and adjust height of table by 0 – 10 mm (0.394") up/down.

Edge-jointing fence forwards/backwards – chip removal on the edge jointing spindle:

- Turn adjusting lever (2) to release it and adjust position of edge-jointing fence by 0 – 10 mm (0.394") forwards/backwards.

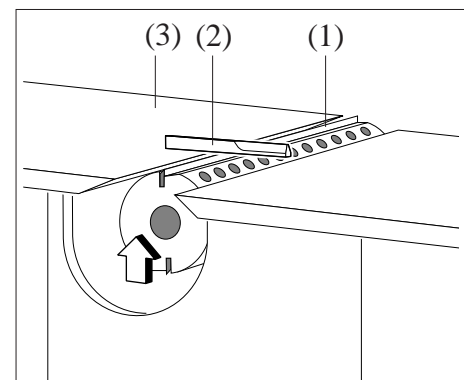


Straightening spindle

Radial basic setting

- Set straightening tool (1) in relation to setting straight edge (2) on machine table (3).
- Release clamp for spindle slide.
- Adjust spindle via crank handle.

Check cutting edges over their full length. Align cutter in tool if cutting edges (1) are not parallel to machine table.

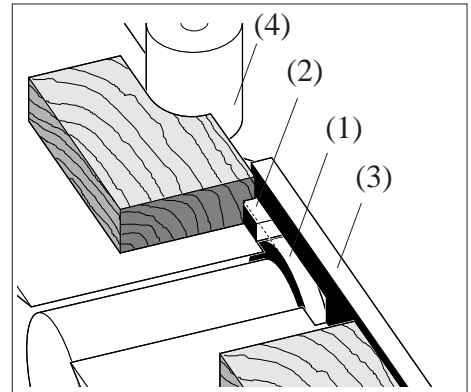




Rebate cutter (optional)

Rebate cutter (1) cuts a rebate. When the timber reaches rebate fence (2), it is guided by the rebate fence at the side instead of by the edge-jointing fence (3).

The rebate is planed off again by edge-jointing spindle (4).

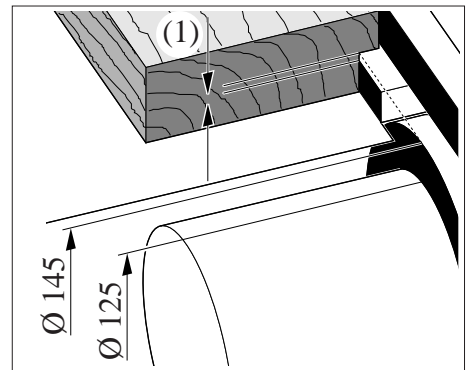


Tool specification

Since the rebate cutter and straightening spindle are adjusted simultaneously in radial direction, their diameters must be matched with one another.

Tool specifications: rebate cutter dia. 145 mm (5.70"), straightening tool dia. 125 mm (4.92").

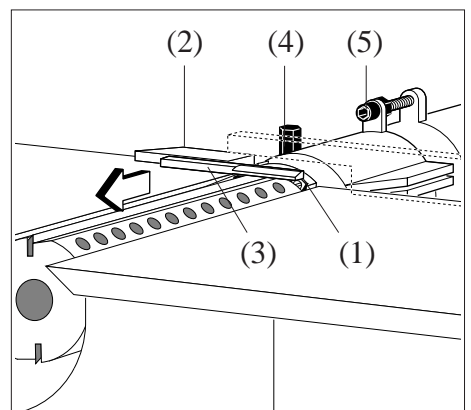
Only this tool combination will ensure that the rebate cutter always clears slightly more (1) than the height of the rebate fence in axial direction.



Axial basic setting

The axial basic setting of the spindle sets the rebate cutter (1) in relation to the rebate fence (2).

- Position setting straight edge (3) against rebate fence (2).
- Release clamp (4) and adjust rebate cutter (1) in relation to setting straight edge via hexagon socket head screw (5).
- Continue to adjust spindle until at least one cutting edge of the rebate cutter (spur) lightly touches the setting straight edge.

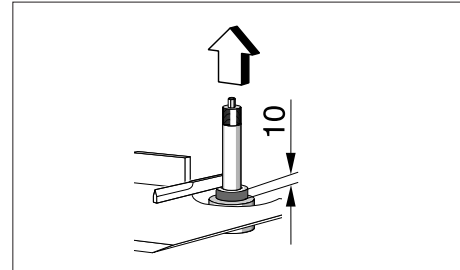




Right-hand spindle

Axial basic setting

- Position spindle ring 10 mm (0.394") on spindle.
- Position setting straight edge on spindle ring.
- Release clamp and adjust spindle in axial direction until setting straight edge is aligned with table.
- Set numerical indicator to 10 mm (0.394") (see page 4-1).
Note any chip removal on the last bottom spindle.



Radial basic setting

- Fit dimensioned tool; radius 62.5 mm (2.460") in this case.
- Hold setting straight edge against fence.
- Release spindle clamp and adjust spindle radially in relation to tool.
- Set numerical indicator to 62.5 mm (2.460") (see page 4-1).

The numerical indicator can be set to 0 if measured (calibrated) tools are not used.

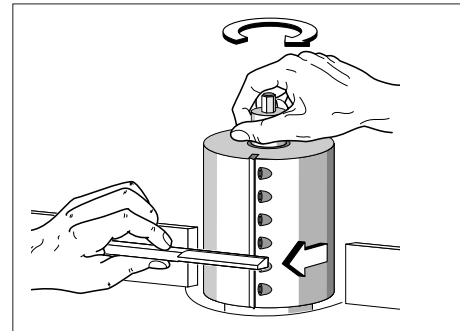
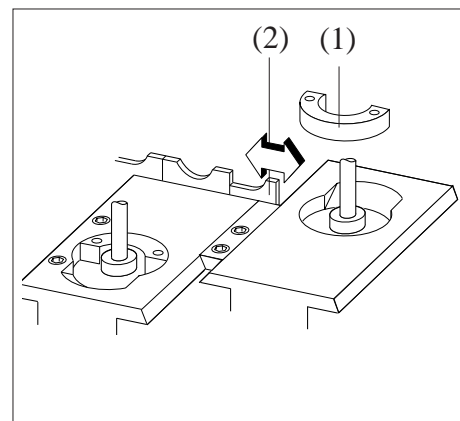


Table plates, fences

- Use insert (1) (optional) for small tool cutting circles; remove insert for large tool cutting circles.
- Set fence (2) within 3 mm (0.118") of the tool cutting circle. Release clamping screws on rear of fence support for this purpose.

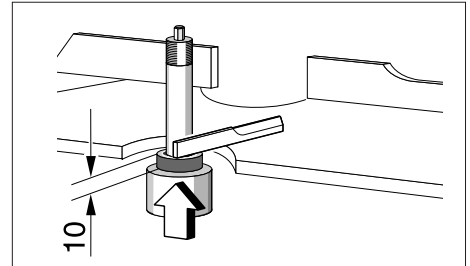




Left-hand spindle

Axial basic setting

- Position spacer ring 10.0 mm (0.394") on spindle.
- Position setting straight edge on spacer ring.
- Release clamp and adjust spindle in axial direction until setting straight edge is aligned with table.
- Set numerical indicator to 10.0 mm (0.394") (see page 4-1).
Adjust for any chip removal on the last bottom spindle (see page 4-12).



Radial basic setting

- Plane a test piece and measure timber width.
- Set numerical indicator to measured value (see page 4-1).

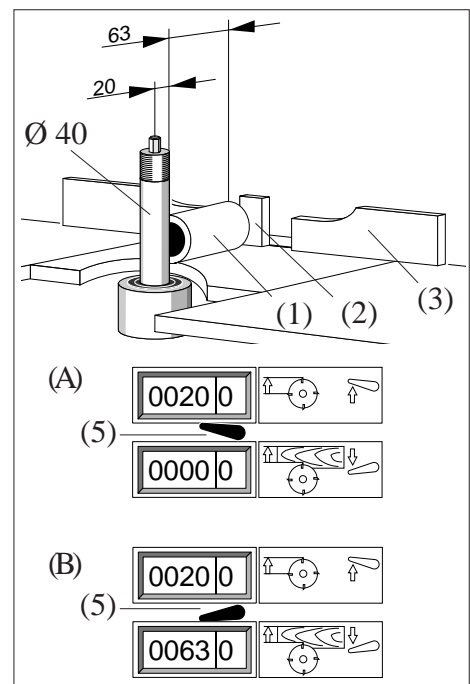
Machines with DigiSet counter (optional):

(A) Spindle radius

- Move lever (5) upwards.
- Set upper indicator to 20.0 mm (0.787") by means of crank handle.

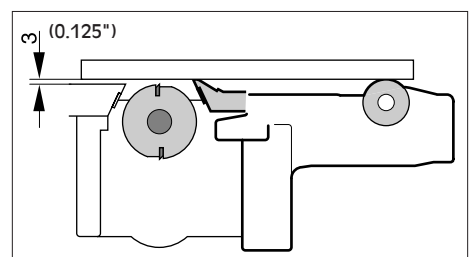
(B) Spindle ring length

- Move lever (5) downwards.
- Place measured spindle ring (1) – 63.0 mm (2.480") in this case – against fence (2).
- Release spindle clamp and move spindle towards fence until spindle ring can just be moved.
- Set lower indicator to basic setting of 63.0 mm (2.480") (see page 4-1).



Pressure elements before and after tool

- Set pressure elements after tool in relation to tool with the aid of the setting straight edge.
 - Then set pressure elements before tool so that they are 3 mm (0.125") in front of the tool.
- When the basic settings have been made for the spindle and pressure elements, the entire assembly must be set to the required workpiece width.





Set timber width, change tool radius (optional)



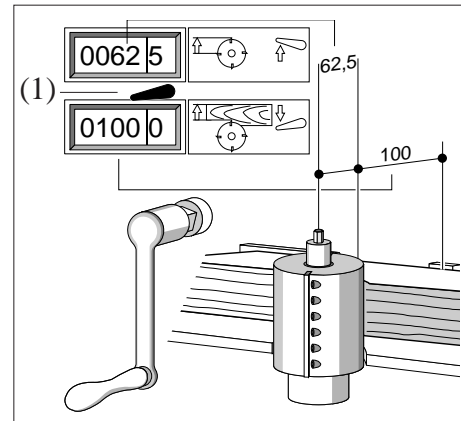
The adjusting spindle must not be turned when changing lever (1) from radius to width or height indication! This applies for both motor-driven and manual adjustment.

Set timber width

Example:

Timber width 100 mm (3.94 in), tool radius 62.5 mm (2.46 in).

- Lever (1) down:
Set required workpiece width (100 mm (3.94 in) in this case) by means of the crank handle.



Change tool radius

Example:

Change tool radius from 62.5 mm (2.46 in) to 70 mm (2.756 in)

- Lever (2) up:
Set new tool radius of 70 mm (2.756 in) by means of the crank handle.
- Lever (1) down:
The required workpiece width can be set immediately.
- Set the pressure elements before and after of the spindle to the new tool radius.

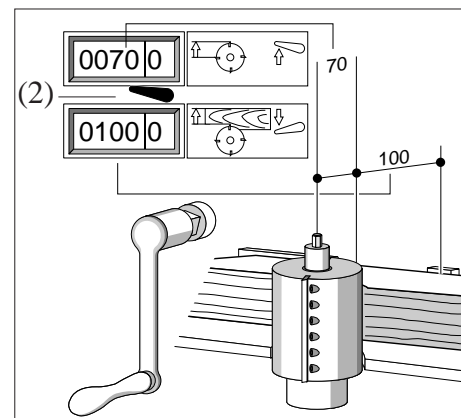
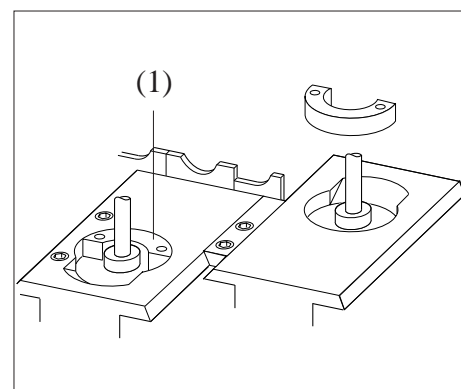


Table plate

- Use insert (1) (optional) for small tool cutting circles; remove insert for large tool cutting circles.

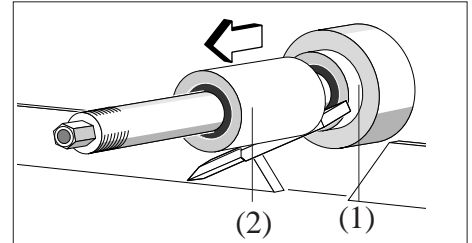




Top spindle

Axial basic setting

- Clamp setting straight edge between spacer ring (1) 10.0 mm (0.394") and spindle ring (2) 63.0 mm (2.480").
- Release clamp and axially adjust spindle until setting straight edge is aligned with fence.
- Set numerical indicator to 10.0 mm (0.394") (see page 4-1).



Radial basic setting

- Raise pressure elements before and after top spindle if necessary so that they do not rest on the machine table when adjusting settings.
- Plane a test piece and measure timber height.
- Set numerical indicator to measured value (see page 4-1).

Machines with two-fold indication (optional):

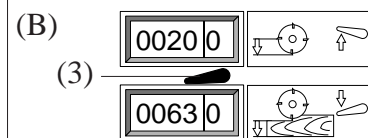
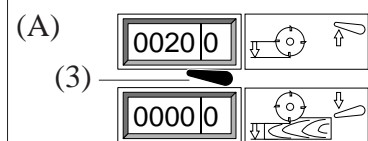
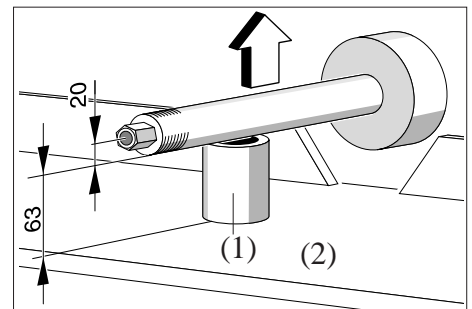
(A) Spindle radius:

- Lever (3) up.
- Set upper indicator to 20.0 mm (0.787") or half of spindle diameter by means of the switch and button.

(B) Spindle ring height:

- Lever (3) down.
- Place measured spindle ring (1) – 63.0 mm (2.480") in this case – on machine table (2).
- Release spindle clamp and move spindle up towards spindle ring until spindle ring can just be moved under the spindle
- Set lower indicator to 63.0 mm (2.480") (see page 4-1).

Note any chip removal on the last bottom spindle.



Set timber height, change tool radius

The timber height and tool radius can be set directly, as with the left-hand spindle, when these basic settings have been obtained.

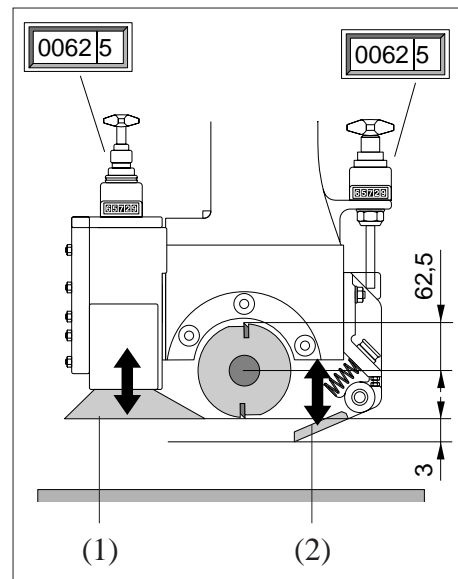


The adjusting spindle must not be turned when changing lever (3) from radius to width or height indication! This applies for both motor-driven and manual adjustment.



Basic setting of top pressure elements

- Set pressure shoe (1) after the spindle to the smallest tool cutting circle by holding the setting straight edge against the underside of the pressure shoe.
- Release clamping screw on numerical indicator (optional) and set indicator to tool radius, in this case 62.5 mm (2.46").
- Then set chipbreaker (2) before tool so that it is 3 mm (0.125") below the tool.
- Hold setting straight edge underneath chipbreaker and adjust pressure element in relation to setting straight edge.
- Set chipbreaker 3 mm (0.125") lower in accordance with numerical indicator (if installed). This automatically sets a pretension of 3 mm (0.125").
- Release clamping screw on numerical indicator and set tool radius, in this case 62.5 mm (2.460").

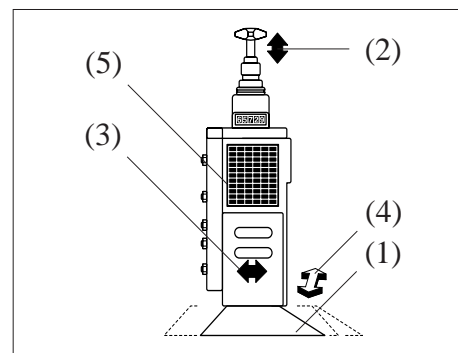


Pressure shoe (1) and chipbreaker (2) can now be set to new tool cutting circles without delay in accordance with the numerical indicator.

When the basic settings have been made for the top spindle and upper pressure elements, the entire assembly (spindle, chipbreaker, feed) must be set to the required workpiece height.

Pressure shoe after top spindle

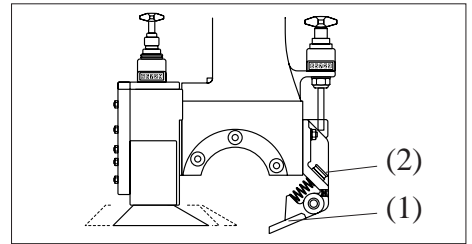
- Set pressure shoe (1) to minimum tool cutting circle up/down (2) and to maximum tool cutting circle forwards/backwards (3) for profile tools.
- If a profile guide is fitted, it must be set forward/backward in relation to the profile. Ensure that the pressure shoe does not press against the machine fence when setting is complete.
- Set hold-down pressure on pressure shoe as shown in table (5).





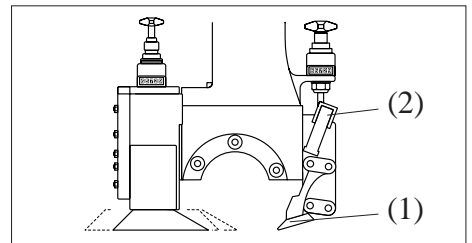
Pressure elements before top spindle

- Fit laminated fabric pressure plates (1) of different lengths when changing the tool cutting circle.
- The hold-down pressure of the adjacent pressure plates (1) must be adjusted individually by means of the adjusting screws (2).



Receding pressure element (optional)

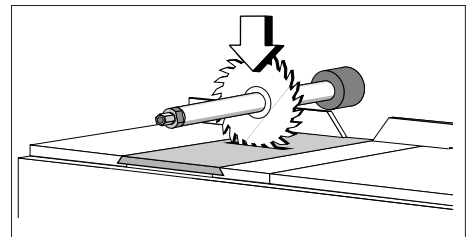
- Fit steel pressure plates (1) of different lengths when changing the tool cutting circle.
- The hold-down pressure of the adjacent pressure plates (1) must be adjusted individually by means of the adjusting screws (2).



Fitting a circular saw

The circular saw is fitted in the same way on the bottom spindle (see page 4-13). Refer to the technical data with regard to the max. saw blade diameter.

- Fit a wooden insert and cut into it with the circular saw.





Bottom spindle

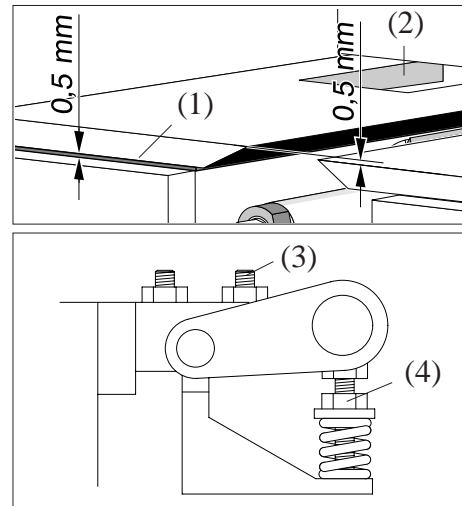
Set chip removal

The table plate must be adjusted upwards after the last bottom spindle so that the underside of the timber can be finish-planed.

- Unscrew table plate.
- Place 0.5 mm (0.20") shim supplied between base and table plate.
Chip removal is impossible without the shim.

Table roller

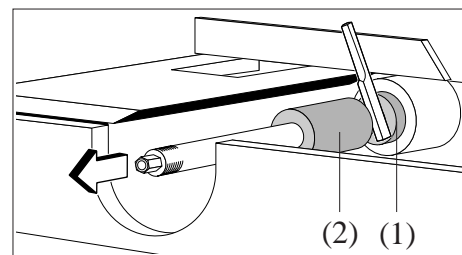
- Adjust table roller (2) to match table height.
On the rear of the table:
- Adjust table roller up/down by means of adjusting screw (3).
- Adjust spring pressure via spring pressure element (4) if necessary (set to basic position by manufacturer).



If the spindle is set for chip removal, all spindles must be raised in relation to the outfeed table by the amount of chip removed.

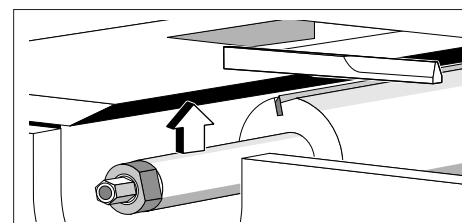
Axial basic setting

- Clamp setting straight edge between spacer ring (1) 10.0 mm (0.394") and spindle ring (2) 63.0 mm (2.480").
- Release clamp and adjust spindle in axial direction until setting straight edge is aligned with fence.
- Set numerical indicator to 10.0 mm (0.394").



Radial basic setting

- Fit a dimensioned tool, radius 62.5 mm (2.460") in this case.
- Place setting straight edge on outfeed table.
- Release clamp for spindle slide and adjust tool in relation to setting straight edge.
- Set numerical indicator to 62.5 mm (2.460") (see page 4-1).





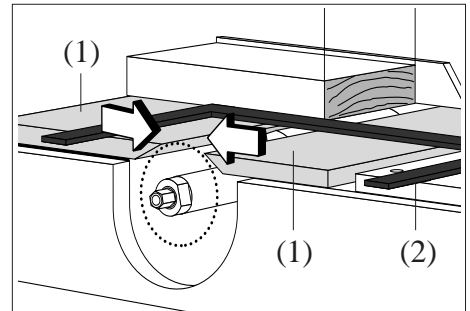
Adjust table plates

- Set table plates (1) in line with tool cutting circle.

Adjust left guide

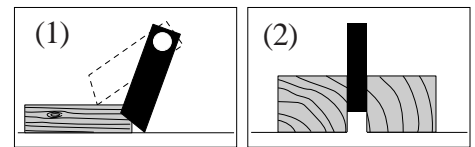
Left guides of different lengths are fitted near the top and bottom spindles, depending on the machine configuration.

- Set left guide (2) to timber width.



Fitting a circular saw

Such safety devices as the anti-kickback device (1) or catcher and the splitting wedge (2) from WEINIG are required when working with a circular saw (refer also to the chapter headed Safety, page 0-9).

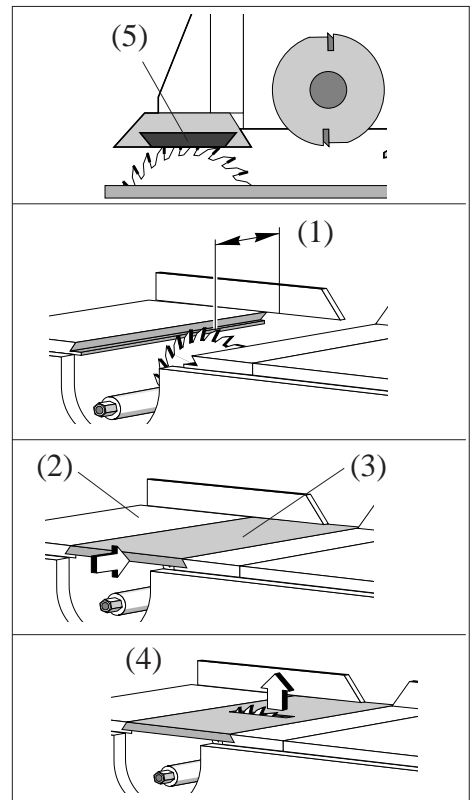


The risk of accidents is greater when working with a circular saw. Please consult WEINIG without fail before making the basic setting which is merely outlined in global terms below.



Anti-kickback devices, catchers and splitting wedges should be ordered from WEINIG.

- Adjust **splitting wedge** to saw blade. Use **pressure shoe with wooden insert (5)** and adjust to timber height. Fit **anti-kickback device or catcher**.
Refer to the technical data with regard to the maximum saw blade diameter.
- Axially adjust saw blade to finished size (1) in relation to fence.
- Fit special table plates (2). Place wooden insert (3) in guide groove and clamp into place with table plates.
- Switch on bottom spindle. Slowly move the saw through the wooden insert from the bottom upwards (4).





Universal spindle

Use

Used as top, bottom, left-hand, right-hand or tilt spindle. Direction of spindle rotation can be reversed on control panel for planing in opposite direction. Ensure that it runs against the feed.



When cutting with the feed, impact plate and barrier must be installed behind the machine outfeed so that flying workpieces are reliably stopped and no-one can enter the danger zone. A corresponding sign must be affixed to the machine.

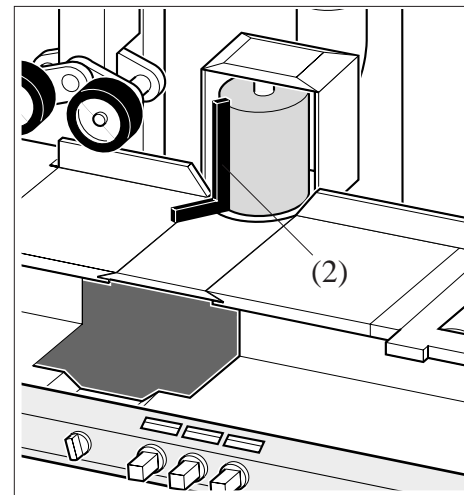
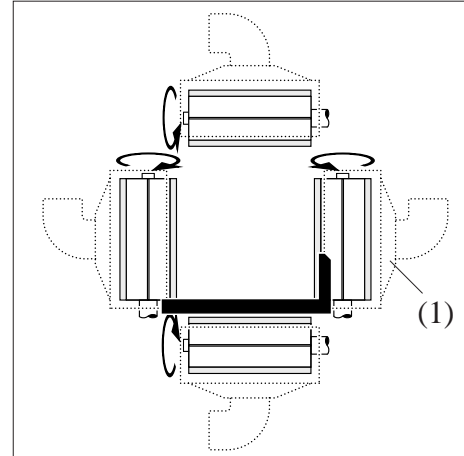
Using a circular saw

A circular saw may be used in the same way as the top or bottom spindle.

Refer to the technical data with regard to the maximum saw diameter.

Basic setting of the angle indicator

- Set spindle upright and line it up on the machine table with a 90° steel angle (2), using the crank handle for swivelling the spindle.
- Set numerical indicator to 0 (see page 4-1).



Basic setting forward/backward, up/down

- Adjust basic settings as for top, bottom, right-hand or left-hand spindle, depending on how the spindle is used.



Tilting, change of position

Tilting:

- Remove table plates and dust hood if applicable.
- Release clamp on console.
- Release clamp for tilt movement and set required spindle position with crank handle as indicated on angle indicator.
- Reverse direction of rotation on control panel.
- Fit dust hood (1) according to figure p. 4-14.

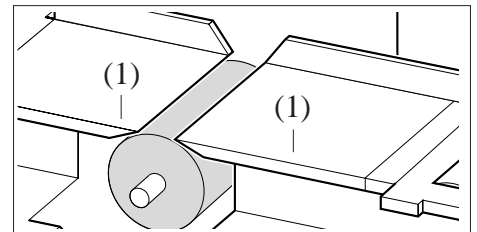
Changing position from right to left:

- To change position, first move spindle vertically to the right (used as right-hand spindle).
- Then move spindle through working area from right to left.
- Proceed accordingly when changing from left to right.

Table plates

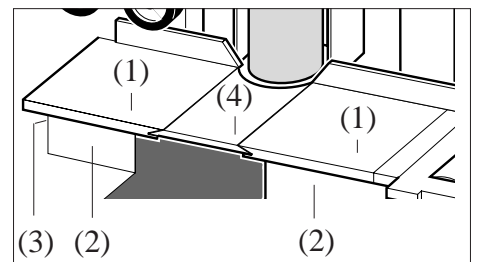
When used as bottom spindle:

- Fit table plates (1).



When used as top, left-hand or right-hand spindle:

- Release clamping screws (2) on front of table plates (1) and turn table plates (1) through 180°.
- Slide continuous table plate (4) into guide grooves and tighten clamping screws (2).
- Clamping screw (3) at end of table must additionally be tightened when using table plate (4).

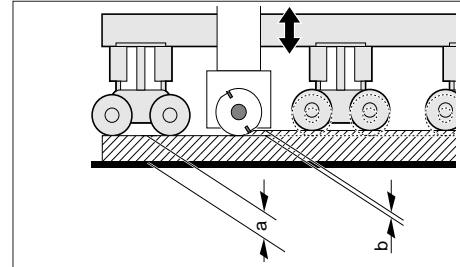


Feed

Basic up/down setting

- Set the feed beam, which can be infinitely adjusted up/down, to the finished timber height (a).

The difference in height between raw timber and finished timber (b) is compensated by the pneumatic pressure element.



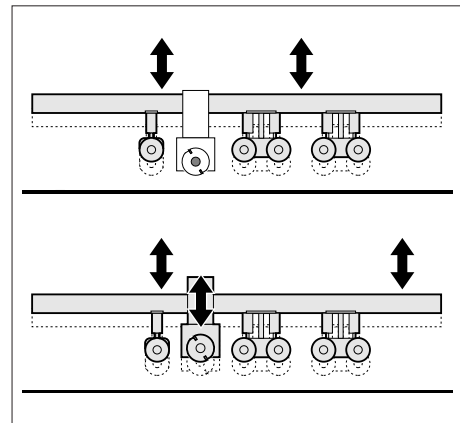
Hold-down pressure

The hold-down pressure can be adjusted separately for the feed rollers before and after the top spindle. See page 2-7 for information on pneumatic adjustments.

Motor-driven adjustment up/down

Two motor-driven adjustments can be effected:

- Only feed beam up/down.
Disengage top spindle in this case.



Feed beam and first top spindle up/down:

- Engage top spindle.
- Disengage top spindle after adjustment.



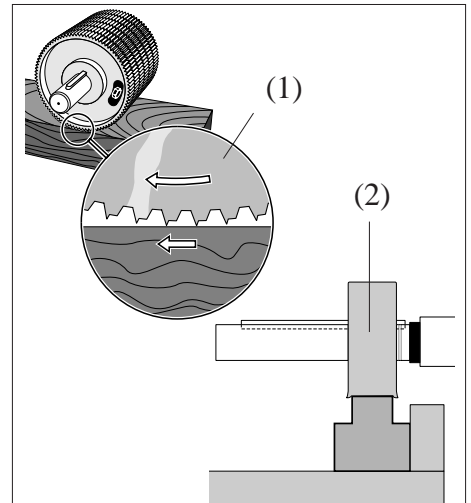
Continuous feed cannot be switched on if the top spindle is not disengaged.

Steel rollers

- Additional steel rollers (1) must be fitted on the roller shaft so that the timber is covered completely when processing very wide raw timber. Note the direction of movement of the steel rollers (1).
- Set the outfeed rollers (2) after the top spindle to the middle of the workpiece in order to prevent the timber running off to the side.

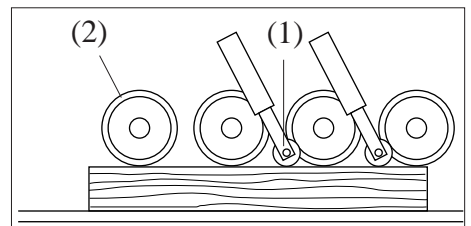


Wear protective gloves when fitting steel rollers.



Pressure rollers (optional)

- Set pressure rollers (1) to the height of the feed rollers (2).



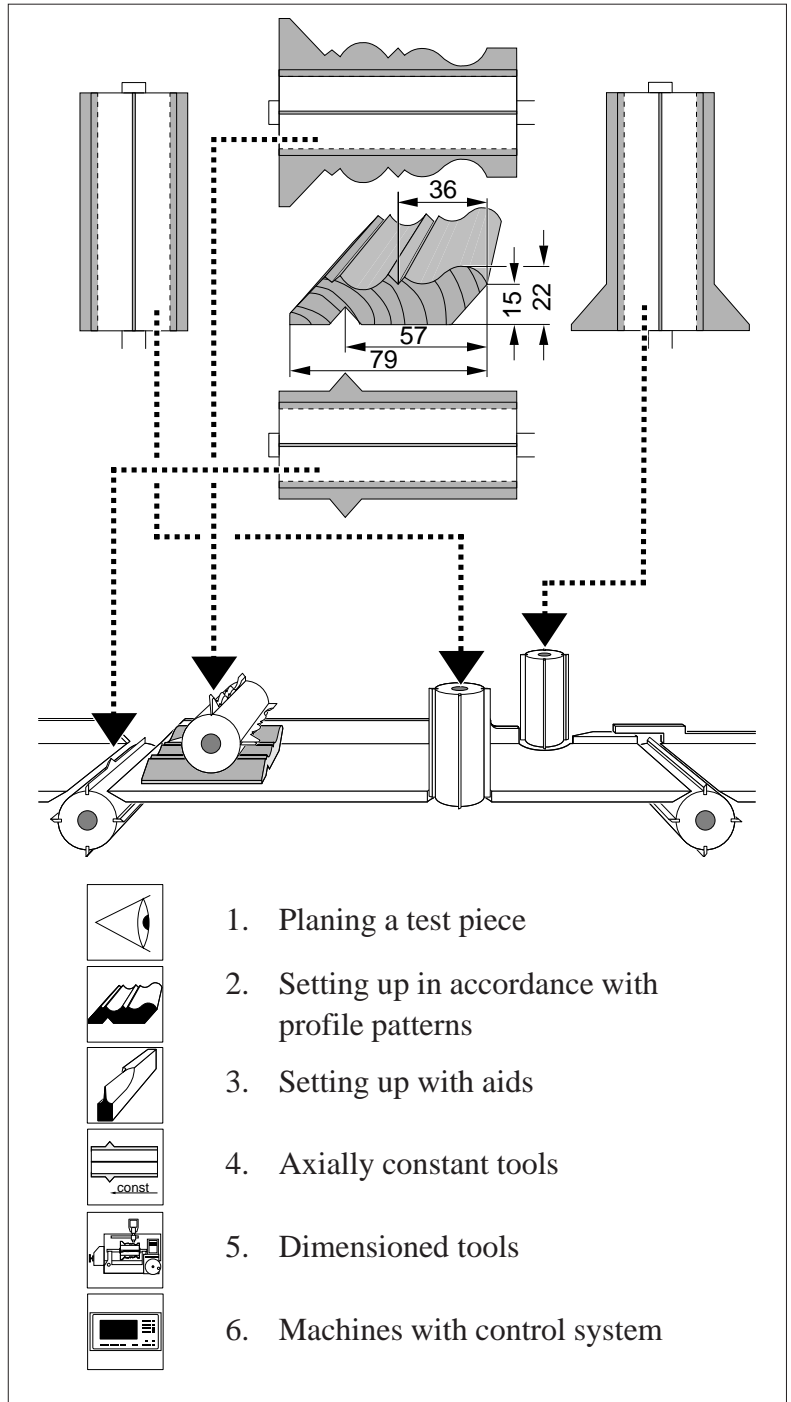
Setting up tools – profiled wood

Workpiece

Define axial and radial dimensions which can easily be measured on the profile.

Tools

- Fit tools as shown in diagram.



Setting up tools – axial and radial

- Select one of the set-up variations alongside, depending on the configuration and accessories for your machine.

Tool cutting circle

- Set table plates and fences for the maximum tool cutting circle.
- Check all settings again.

Start production

- As already described in the chapter entitled "Operation".



Set-up variation – planing a test piece

Adjust the profile tools to roughly the correct position with the aid of the setting straight edge in radial direction and as appears correct in axial direction.

Example, top spindle

- Set all profile spindles to roughly the correct position.
- Plane a test piece.
- Establish the axial or radial spindle correction values from the required and actual values:

Example – radial

Required value, profile (1). 22.0 mm (0.866")
– Actual value, test piece (2) . 25.0 mm (0.984")
= Spindle correction (3) 3.0 mm (0.118")

Example – axial

Required value, profile (1). 36.0 mm (1.417")
– Actual value, test piece (2) 38.5 mm (1.516")
= Spindle correction (3) 2.5 mm (0.098")

- Adjust spindles 3 mm (0.118") downwards and 2.5 mm (0.098") to the rear.



Recommendation:

- Note value shown on numerical indicator on the tools.

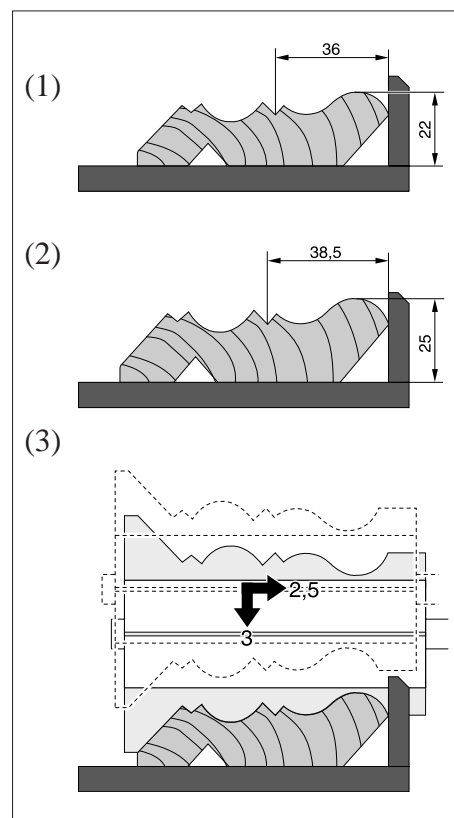
These settings can be reused when the tools are fitted again and have not been resharpened, provided that the basic setting remains unchanged.



When cutting the test piece, feed the raw timber through the machine cautiously at inching speed.



Ensure that the maximum chip removal is not exceeded and that the workpiece rests squarely against the fence.





Set-up variation – setting up in accordance with a sample profile

Successively set up all profile tools in accordance with an existing sample profile.

Sample length

The sample profile must be long enough to rest securely on the next table/fence and extend under/ beside the center axis of the spindle.

Example, top spindle

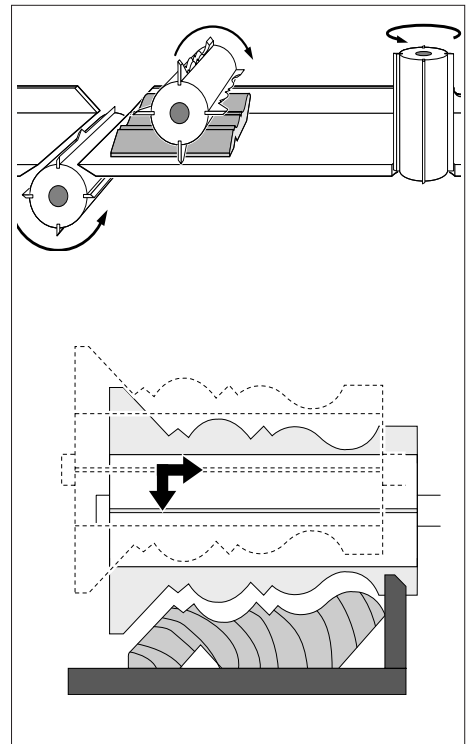
- Place profiled timber under the top spindle, against the lateral fence.

Example – axial, radial

- Adjust spindle in axial and radial directions until the profile tool accurately fits into the profiled timber.
- Simultaneously turn the tool by hand in the direction opposite to that of cutting.

Trial run

- After a trial run, correct spindle setting as described in the chapter entitled "Set-up variation, planing a test piece".

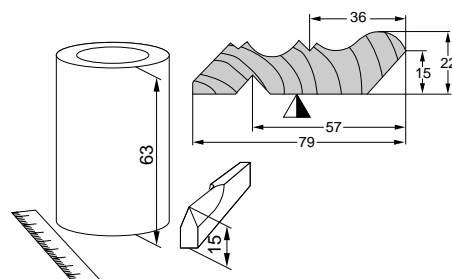




Set-up variation – setting up with aids

Setting up profile tools to match the profile with the use of aids, such as:

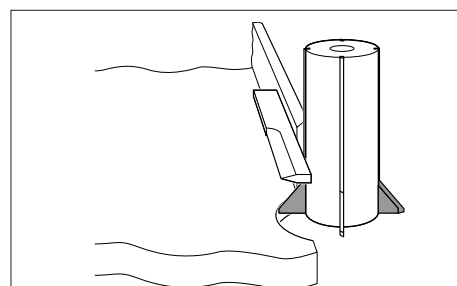
- Dimensioned setting straight edge
- Dimensioned spacer ring
- Ruler



Right-hand spindle

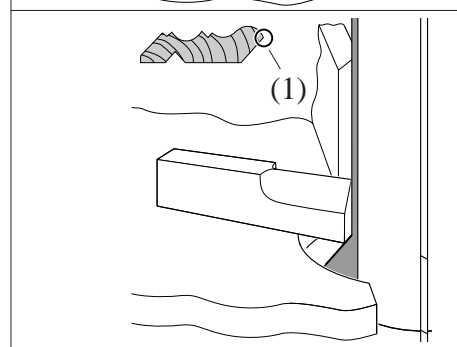
Example – radial:

- Set the smallest tool cutting circle in relation to the fence after the spindle with the aid of the setting straight edge.



Example – axial:

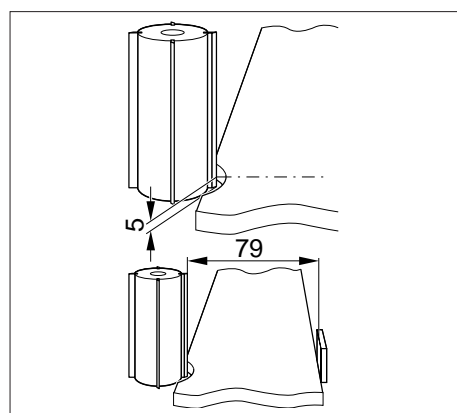
- Set tool point 1 on table level with the aid of the setting straight edge.
- Adjust spindle 15 mm (0.590") upwards from here.



Left-hand spindle

Example – axial:

- Move planing tool 5 mm (0.197") below the table from its basic axial position.



Example – radial:

- Set planing tool to a workpiece width of 79 mm (3.110").

Top spindle

Example – radial

- Place spacer ring (1) and setting straight edge (2) on table. Adjust tool in relation to setting straight edge.
- Calculate workpiece height:

Height of setting straight edge	15.0 mm (0.590")
+ Height of spacer ring	63.0 mm (2.480")
– Ref. value of workpiece	22.0 mm (0.866")
<hr/>	
= Spindle correction.....	56.0 mm (2.205")

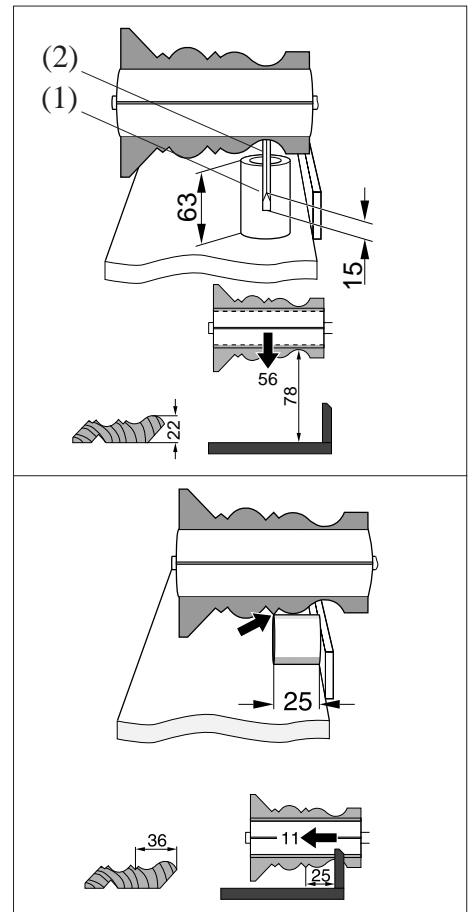
- Move spindle down by 56.0 mm (2.205").

Example – axial

- Place spacer ring against fence. Set tool against edge of spacer ring.
- Calculate reference value of workpiece.

Height of spacer ring	25.0 mm (0.984")
– Ref. value of workpiece ...	36.0 mm (1.417")
<hr/>	
= Spindle correction.....	11.0 mm (0.433")

- Move tool 11.0 mm (0.433") forwards.



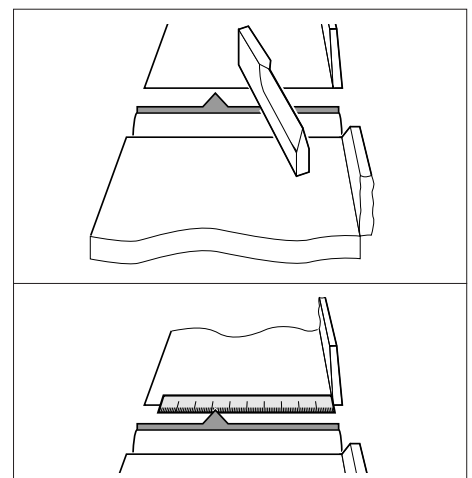
Bottom spindle

Example – radial

- Set smallest cutting circle in relation to setting straight edge on the outfeed table.

Example – axial

- Place steel ruler against the fence after the spindle and set profile tip to 57 mm (2.244").



Test run

- After a trial run, correct spindle setting as described in the chapter entitled "Set-up variation, planing a test piece".

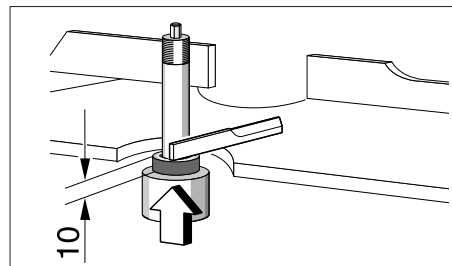


Set-up variation – axially constant tools

Axially constant tools need only be set in radial direction. Set spindles to the axial constant value (10.0 mm) (0.394").

Example – radial

- Set tools in radial direction as described in a following chapter.



Set-up variation – dimensioned tools

An axial and a radial value must be determined for the tool on the measuring stand in accordance with the reference values on the workpiece (WEINIG can supply different measuring systems depending on the application in question).

- Determine settings for mechanical counter.

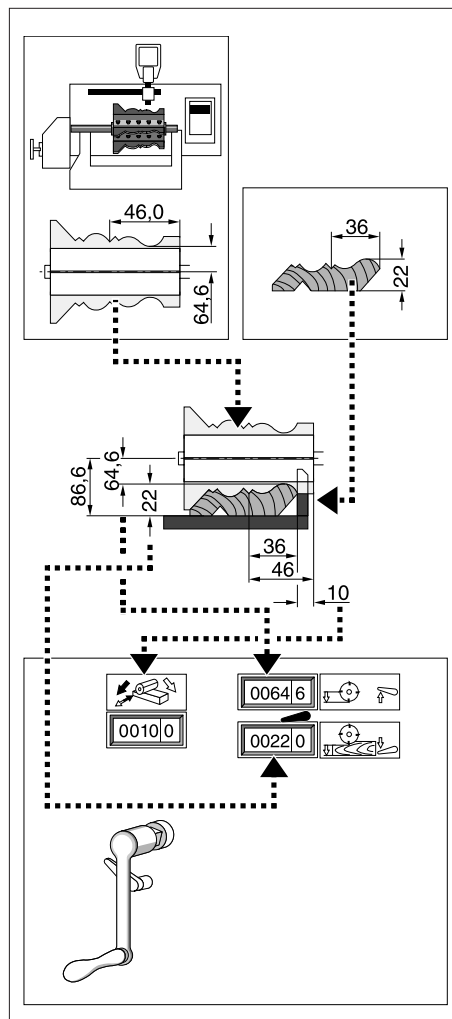
Example – radial

Tool value	= Set value .. 64.6 mm (2.543")
Workpiece value	= Set value .. 22.0 mm (0.866")

Example – axial

Tool value	46.0 mm (1.811")
– Workpiece value	36.0 mm (1.417")
<hr/>	
= Set value	10.0 mm (0.394")

- Set spindles to the set values obtained.





Set-up variation – recall set values (control system)

Positioning spindles via a control system.



Positioning the spindles in the machining positions is described in detail in the Instruction Manual for the control system.

Summary of control system

- Enter all tool and workpiece values in the control system and save them as a program.

- Call up program.

Positioning

If the axes are not positioned automatically by a positioning motor:

- Set the spindles to the working position as shown by the numerical indicator and as directed by the control system.

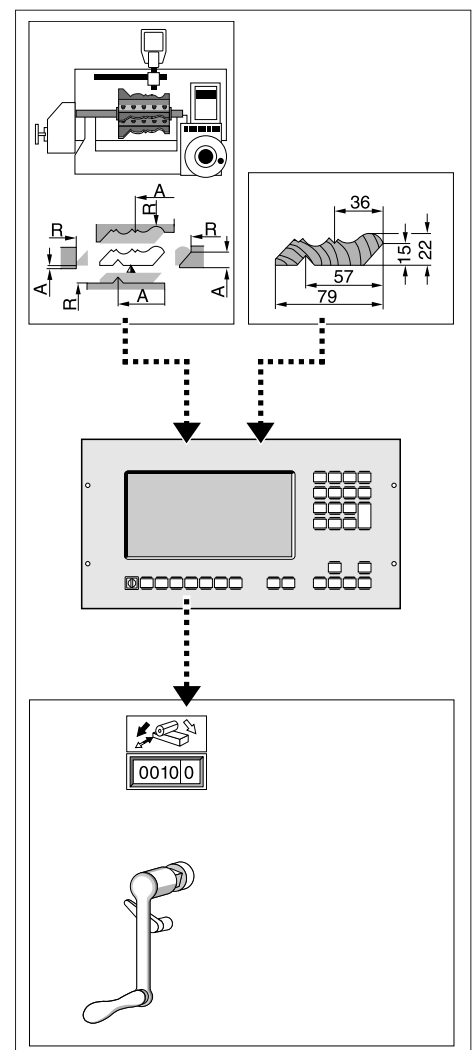


Table lubrication

Application

Transporting green/resinous timber.



Lubricant: Only Waxilit or Waxiglide may be used.

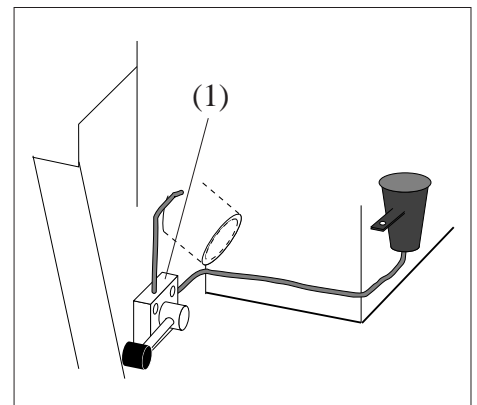


Note the manufacturers' safety instructions and specified precautions when handling lubricants and sprays. Suitable protective gloves and goggles must be worn.

Version 1 – Lever-type manual pump

Metered quantity: Via pedal-actuated pump (1)

Lubricated area:
General Workpiece width 0 – 230 mm (9.055")

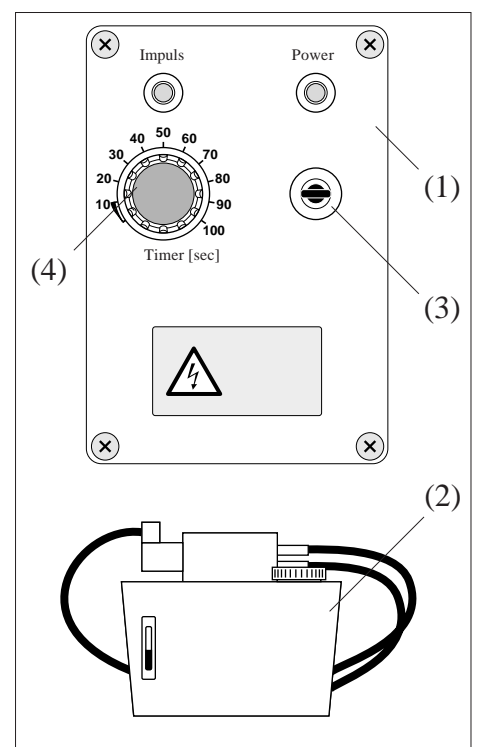


Version 2 – Automatic pump

- (1) Control unit on control console
- (2) Waxilit pump on machine base

Metered quantity: Set number of lubricating pulses on control (4).

Lubricated area (standard version):
Set via switch (3):
Off Waxilit pump off
On Workpiece width 0 – 230 mm (9.055")



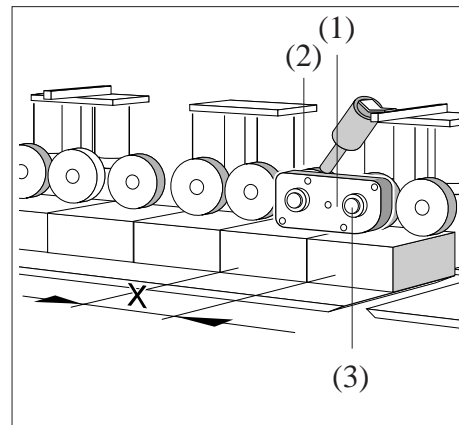
Reduced distance feed assembly

Application

Additional feed rollers on the feed beam make it possible to transport particularly short workpieces.

Versions

Depending on the machine configuration, one or two float assemblies (1) with an additional feed roller (2) each are mounted on the extended roller shaft (3).



Basic setting up/down

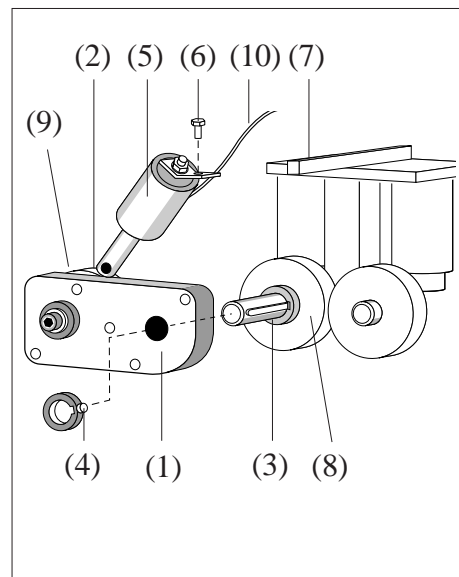
- Set roller of feed assembly (9) to height of feed roller (8) on the roller shaft via screw (2).

Basic setting forward/backward

- Set roller of first float assembly to centre of workpiece with spacer rings (3).

Fitting the feed assembly

- Fit spacer ring (3).
- Fit feed assembly (1) and secure with clamping screw (4).
- Tightly screw pneumatic cylinder / spring pressure element (5) to holder (7) with screw (6).
- Plug pneumatic hose (10) into feed beam pneumatic circuit.



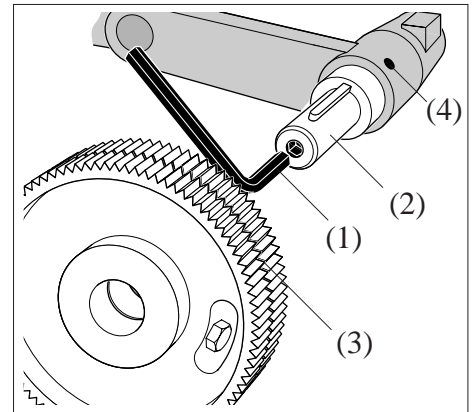
Telescoping roller shaft opposite left-hand spindle

Application

Quick infinite adjustment of the feed roller shaft to different feed roller widths; max. roller width 50 mm.

Changing feed rollers

- Release clamp on telescoping shaft (2) with Allen key (1) and infinitely adjust roller shaft to the width of the feed roller(s) (3).
- Release clamping screw (4) in order to fit extended roller shaft (2) (optional).



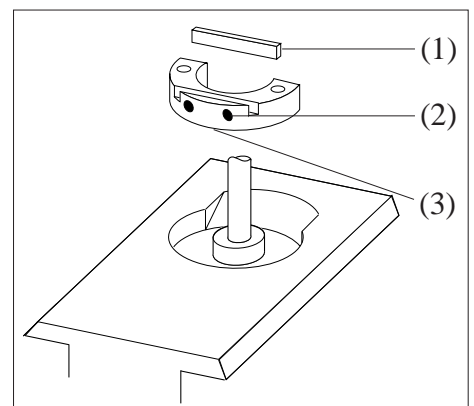
Guiding knife

Application

The guiding knife (1) in the vertical spindle insert ensures accurate guidance in the spindle area. The shallow groove is removed from the timber by the last bottom spindle.

Basic setting

- Release clamping screws (2) of guiding knife and adjust height of guiding knife to 0.3 mm above the table via the adjusting screws (3) on the underside of the insert. Align parallel to machine fence.
- Set the last bottom spindle to a chip removal of 0.5 mm.



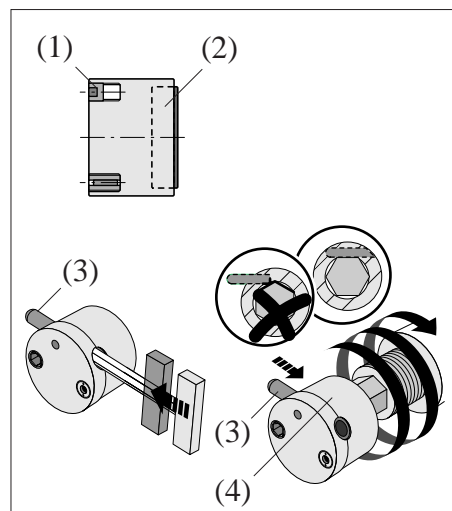
Hydraulic spindle nut

Application

The tools on the spindle are conveniently clamped by hydraulic pressure.

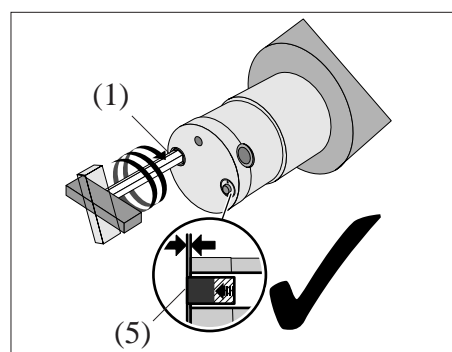
Clamping tools

- Release clamping screw (1) (screw is flush with cylinder surface).
- Drive out locking pin (3).
- Force pressure cylinder (2) back completely by screwing it onto the spindle.
- Tightly screw on hydraulic spindle nut (4) and back off slightly. Press home locking pin (3).



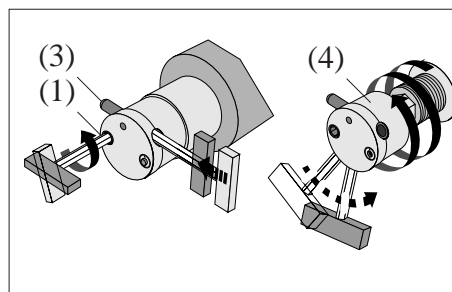
- Turn clamping screw (1) down until indicator pin (5) protrudes slightly beyond cylinder surface.

The tool is now clamped.



Releasing tools

- Release clamping screw (1).
- Press locking pin (3) outwards.
- Unscrew clamping nut.



Air cushion

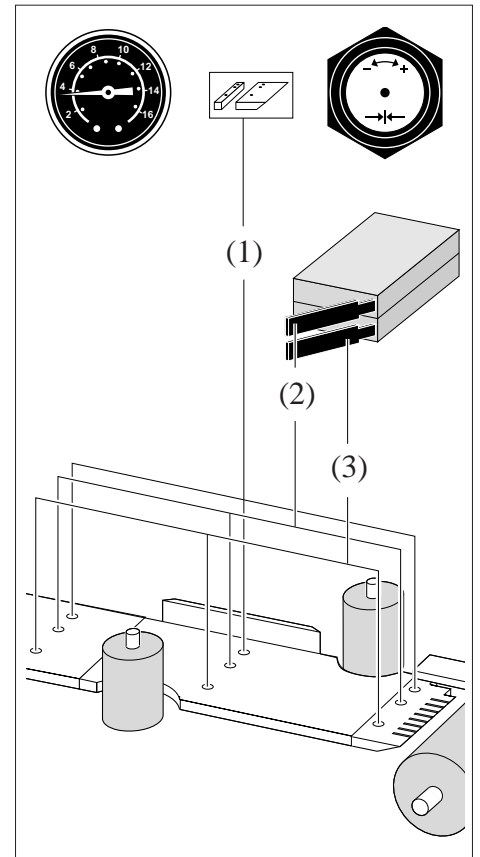
Application

Compressed air is blown under the workpiece via holes in the machine table. The timber is transported through the machine on a cushion of air.

Adjust width of air cushion

Pneumatic circuits (1), (2) and (3) can be switched in or out in accordance with the timber width.

- To switch in pneumatic circuit (1):
Set pressure controller on pneumatic control panel to approx. 2-3.
Set pressure controller to 0 to switch off all pneumatic circuits.
- To switch pneumatic circuit (2) into circuit (1):
Actuate switch near feed beam (2).
- To switch pneumatic circuit (3) into circuits (1) and (2):
Actuate switch (3).



Sawing unit for glazing beads

Application

Cutting out glazing beads during window production.



The safety instructions given by the WEINIG service engineer during commissioning must be observed when fitting saw blades and setting the glazing bead saw.

Fitting the saw blade

- Fit saw blade (3) on flange and mount safety collar. Fit clamping screw and tighten by hand.
- Hold clamping nut with size 50 fork wrench and securely tighten clamping screw with hexagonal socket wrench.



All guiding elements must be adjusted to the clamped saw blade and the blade's freedom of movement checked before switching on the sawing unit.

Radial basic setting

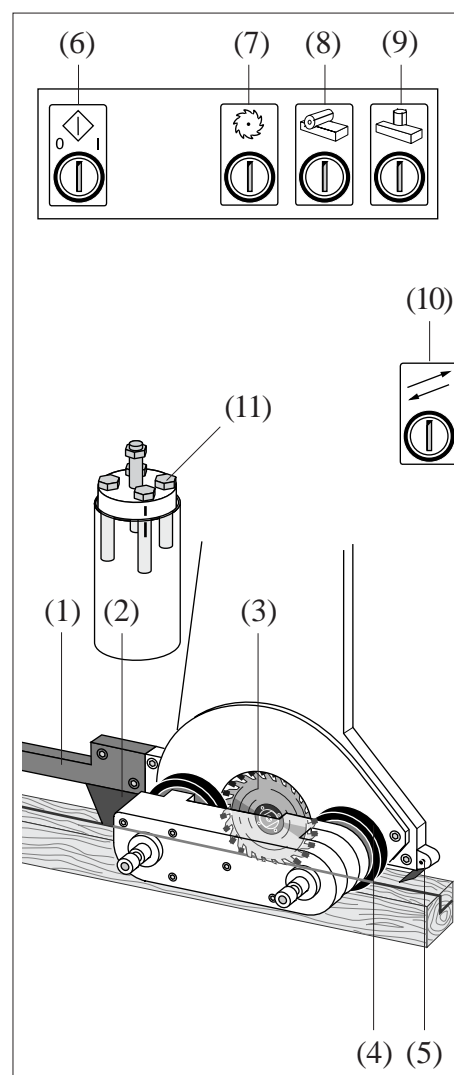
- Adjust depth of penetration of saw blade via turret (11). A number of depths can be set.

Axial basic setting

- The axial position of the saw blade in relation to the machine fence must be set via the counterscrew on the horizontal slide on the rear of the machine.

Adjusting the guiding and safety elements

- Align anti-kickback device (5), additional feed rollers (4), splitting wedge (2) and guide rollers for the glazing bead on guide beam (1) in relation to the clamped saw blade as specified by the WEINIG service engineer during commissioning.



Working without sawing unit

The sawing unit must be moved out of the working area when cutting large timbers:

- Move glazing bead saw upwards by pressing switches (6) or (7).
- Then move saw blade backwards out of the working area by pressing switch (10).

Cycled spindles (optional)

All the spindles required for separating the glazing bead can be operated via an additional control panel on the control cabinet.

- (6) Glazing bead saw, top spindle, right-hand spindle cycled into or out of the working position or the working area
- (7) Move glazing bead saw in/out
- (8) Move top spindle in/out
- (9) Move right-hand spindle in/out

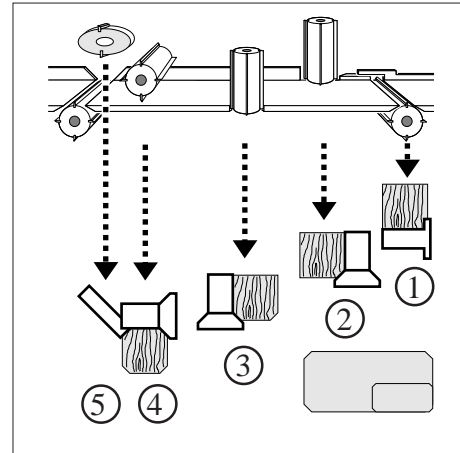
Bevel unit

Sequence of work, bevel unit and bevel cutter

A workpiece is to be bevelled on four sides:

- Step 1: Rebate groove
- Step 2: Bevel bottom right
- Step 3: Bevel bottom left
- Step 4: Bevel top right
- Step 5: Bevel top left by bevel unit

- Fit bevel cutter behind cutterheads as shown in diagram.



Axial spindle setting when using bevel cutters and bevel unit

A = Bevel width 0 mm:

The bevel cutters (tool height 14 mm) must be axially positioned behind the fence or under the table for a bevel size of 0 mm; in other words:

- Axially adjust right-hand, left-hand and top spindle to set value = 14 mm as shown on numerical indicator.

B = Bevel width x mm:

The bevel width (b) is determined by the operator through axial adjustment of the spindles. The set value for the numerical indicator is calculated as follows:

- Set value = 14 mm – bevel width

A

b = Bevel width
l = Bevel length

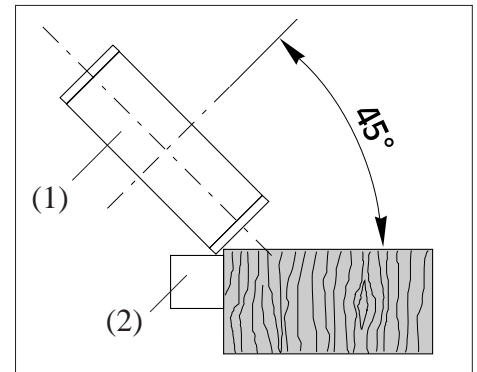
b [mm]	l [mm]
1	1.4
2	2.8
3	4.2
4	5.6
5	7.0
6	8.4
7	9.8
8	11.2
9	12.6
10	14.0

B

Cutter height 14 mm
– Bevel width (b) 5 mm
= Set value for numerical indicator 9 mm

Function of the bevel unit

Bevel cutter (1) cuts the top left-hand bevel. In the 45° position, the bevel unit can sense its way along the timber via a sensor plate. Result: unchanging width of bevel over the full length of the workpiece, even if the timber is warped. The bevel unit is adjusted up/down to the new timber height via the top spindle; it is adjusted forwards/backwards to the corresponding timber width via the left-hand spindle.



Main parts and possible adjustments

Technical data:

Max. bevel width 10 mm

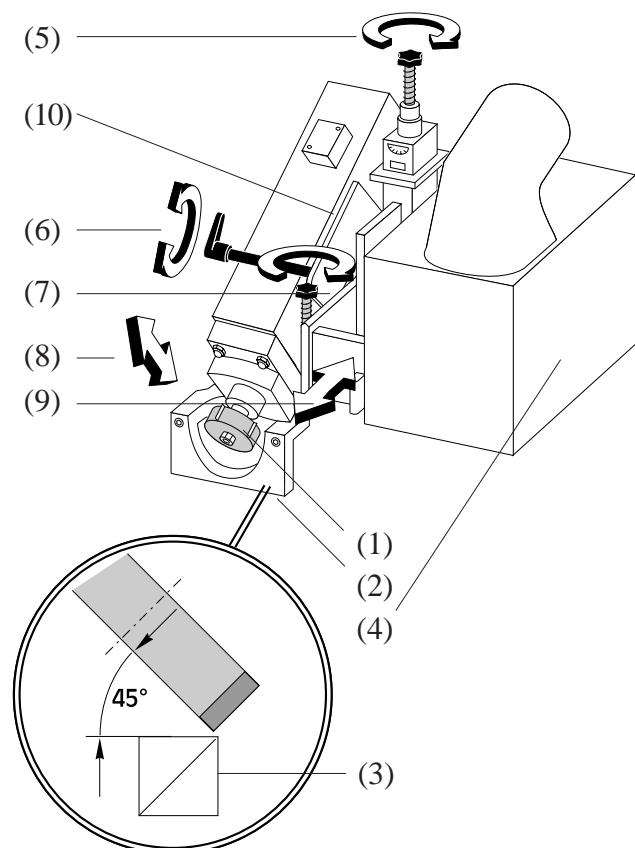
Bevel cutter Dia. 65 x 20 mm

Main parts:

- 1 Bevel cutter
- 2 Sensor plate
- 3 Scanning surface of the sensor plate
- 4 Top spindle

Possible adjustments

- 5 Pressure element after top spindle
- 6 Clamp for adjustment (7) and for swivelling right out of the working area
- 7 Adjustment of the bevel width
- 8 Bevel width
- 9 Width adjustment via Bowden control, together with the left-hand spindle
- 10 Scale for bevel size



Basic setting, production

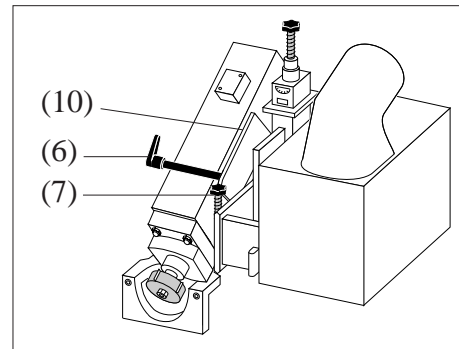
The bevel unit is set by the manufacturer. Only the bevel unit need be moved into position for bevelling.

For this purpose:

- Release clamp (6).
- Set bevel size in accordance with scale (10) using adjustment (7).



Tools with a cutting circle diameter of 125 mm should generally be used on the left-hand and top spindles. The bevel unit cannot be used with other cutting circles.



Example

To plane the following workpiece:
Workpiece size 200 mm x 100 mm, bevel size 8 mm

Timber width

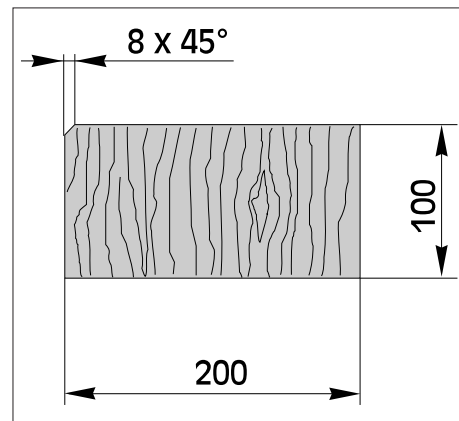
- Set timber width 200 mm on the numerical indicators of the left-hand spindle

Timber height

- Set the top spindle to a workpiece height of 100 mm on the numerical indicator. The bevel unit is automatically adjusted at the same time.

Bevel size

- Set a bevel size of 8 mm on the scale of the bevel unit.



Profiling package

The profile guide after the top spindle can only be used when the bevel unit has been moved out of the working area.

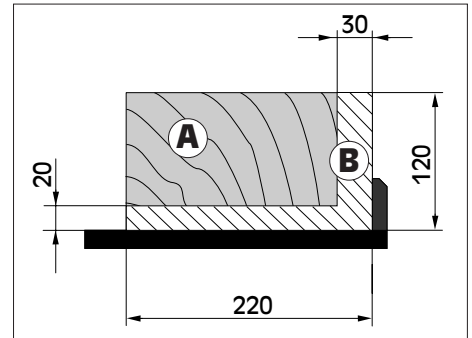
Working area for 45° bevels

45° bevels can only be produced for workpiece sizes within area A.

45° bevels cannot be produced for workpieces whose top left-hand corner is located in area B.

Example:

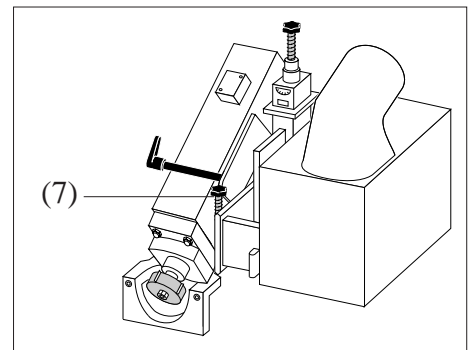
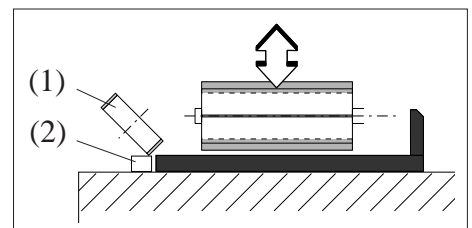
- Bevel size 4 mm – minimum timber thickness 24 mm
- Bevel size 10 mm – minimum timber thickness 30 mm



Timber heights < 20 mm (0.787")

In order to lower the top spindle to a timber height < 20 mm (0.787"):

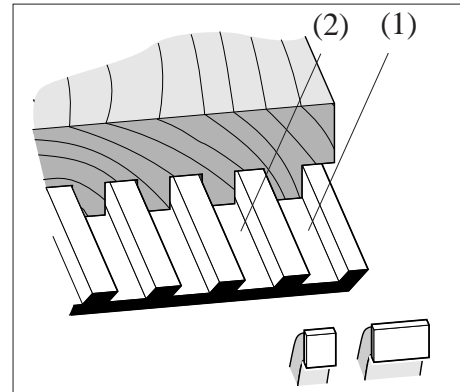
- Move bevel cutter (1) out completely so that sensor plate (2) can move past the table plate.
- Move bevel unit out of working area via adjustment (7) in order to machine workpieces below 20 mm without bevel.



Groove guide

Function

Prevents short parts or parts with uneven ends from running off the fence. Grooves are cut into the workpiece by a groove cutter on the straightening spindle. The timber is guided through the machine by the grooves in the groove bed. The outer right-hand groove (1) or the second groove (2) acts as the main guide and corresponds exactly with the width of the cut groove. The other ridges are slightly narrower. The guide grooves are planed off on the last bottom spindle.



Radial basic setting of the edge-jointing spindle

- Move the edge-jointing spindle approx. 0.2 mm forwards in relation to the fence so that the workpiece is guided in the groove and not along the fence.

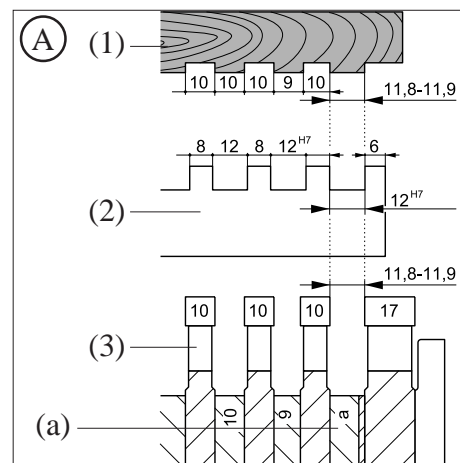
Axial specifications

The cutters must be assembled and mounted as shown in Fig. A if the timber is guided in the first groove.

- (1) Timber
- (2) Grooved table plate
- (3) Groove cutters

Groove width (a) as a function of the timber length

If the first ridge is cut off from the right on account of the profile shape, the workpiece must be guided by the second groove. The groove cutters must be assembled as shown in Fig. B.

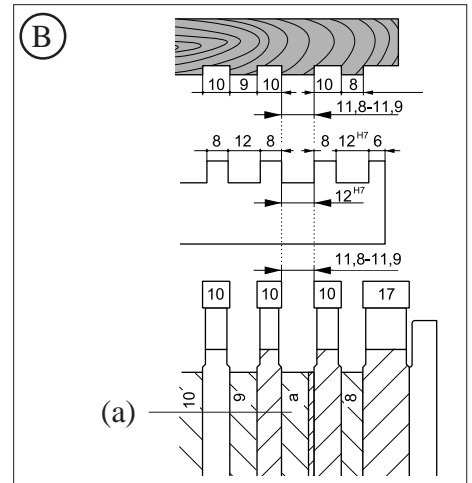


Timber lengths:

Approx. 0.3 – 0.8 m	a = 11.9 mm
> 0.8 m	a = 11.8 mm or less

Spacer rings supplied:

1 spacer ring	11.5 mm
8 spacer rings	10.0 mm
1 spacer ring	9.0 mm
1 spacer ring	8.0 mm
2 spacer rings	0.2 mm
3 spacer rings	0.1 mm

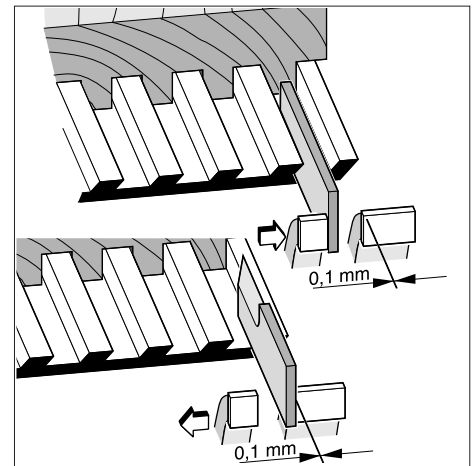


Axial basic setting

- Position setting straight edge against side of ridge in first groove.
- Release clamp and adjust spindle in axial direction.
- Turn setting straight edge through 180° and position it against the opposite ridge.
- Continue axial adjustment until the spurs on both sides of the guide groove have been set uniformly.



If the groove cutters are resharpened, the width of the guide ridge must be checked and corrected with the aid of intermediate spacer rings if necessary.

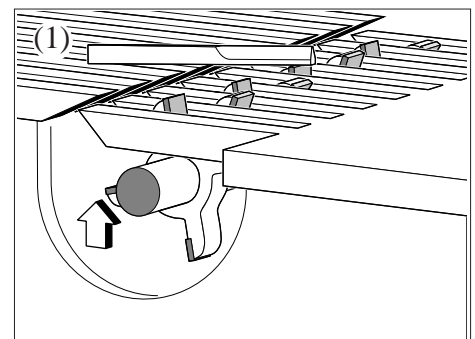


Radial basic setting

- Place setting straight edge on ridges (1).
- Radially adjust groove cutter from bottom to top.
- Check each individual cutter with the setting straight edge.

Maximum concentric running tolerance between groove cutters:

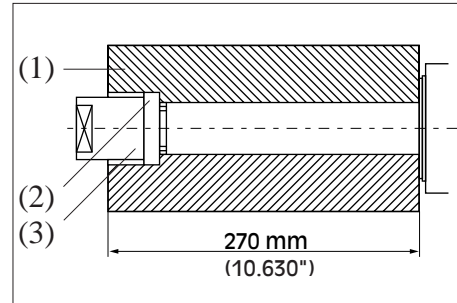
0.02 – 0.03 mm (0.001 – 0.002 inch)



Working width 260 x 160 mm (10.236" x 6.299")

Only tools with aluminium body may be used when working with a width of more than 230 mm (8.661"). The tools must also include a recess for the spindle nut.

- (1) Tool
- (2) Safety locking collar
- (3) Spindle nut



For safety reasons, steel tools must not be used at widths of more than 220 mm (8.661").

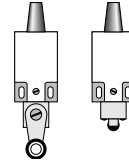


The following points must be noted when using tools with aluminium body:

1. Aluminium tools must not be heated to more than 120 °C when in service or when being cleaned.
2. The solvents used to clean and remove resin from aluminium tools must not corrode the aluminium.
3. Tools which have been heated as a result of cleaning in a washing machine or in any other way must be allowed to cool before being installed in the machine, otherwise the tool mount can work loose or be reduced as the tool shrinks on cooling.

Summary of limit switches

Check that limit switches are functioning correctly if machine functions are not executed.



No.	Designation	Function	Optional	Location
1	S 301 Q	Limit switch for infeed flap	–	Feed flap
2	S 101 Q	Limit switch for hood	–	Beginning of hood above straightening spindle
3	S 501 Q	Limit position, feed beam, max.	–	Feed beam near top spindle
4	S 502 Q	Limit position, feed beam, min.	–	Feed beam near top spindle
5	S 503 Q	1st top spindle, max.	–	Behind pressure shoe
6	S 504 Q	1st top spindle against feed beam	–	Behind pressure shoe
7	S 511 Q	Left-hand spindle max.	ATS	Left-hand spindle
8	S 512 Q	Left-hand spindle min.	ATS	Left-hand spindle
9	S 551 Q	Feed rate max.	Optional	
10	S 552 Q	Feed rate min.	Optional	
11	S 5017 Q	Top spindle max.	ATS	Top spindle
12	S 5018 Q	Top spindle min.	ATS	Top spindle
13	S 5020 Q	Pneumatic converter, 1st top spindle	Optional	
14	S 5021 Q	Clamp, universal spindle	Optional	Feed beam of universal spindle



If an optional control system or supplementary equipment are installed, additional limit switches are installed on the controlled axes.

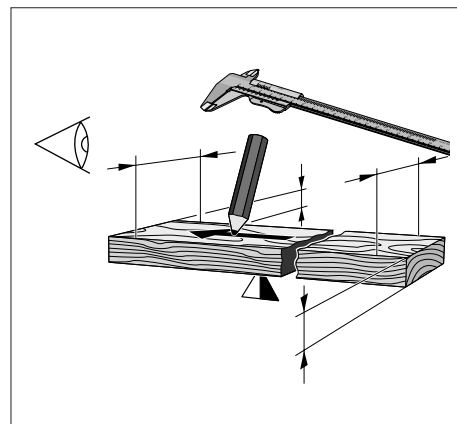
Determining the cause of snipes

Recommendations for troubleshooting

Mark faults

Immediately upon removal of the workpiece:

- Mark the feed direction and the position of the workpiece in the machine.
- Mark snipes.
- Check for parallelism: Measure the width/height on the infeed and out-feed side.
- Check for twist or bow: Place the workpiece on the level bottom straightening table.

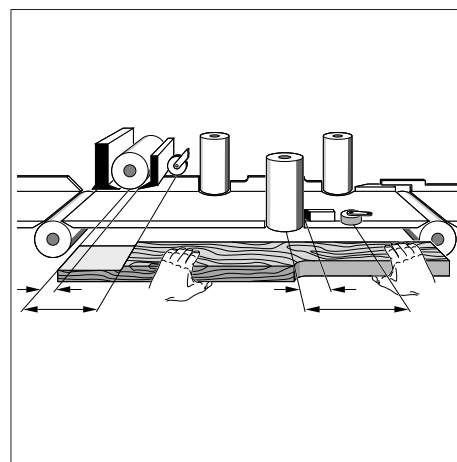


Mark workpiece

Workpiece and machine

- Hold the trial workpiece next to machine and check which tool caused the snipe.
- Has the basic set-up of the spindle been properly performed? Check which hold-down adjacent to the spindle, which pressure roller or feed roller might have caused the snipe.

The component responsible for the snipe can be located by comparing the length of snipe and the distance between the spindle axis and the component (see Page 7.3).



Determine cause of fault

Example: Faults due to spindle

Situation:

The second bottom spindle is positioned too low, thus affecting the correctly set top spindle.

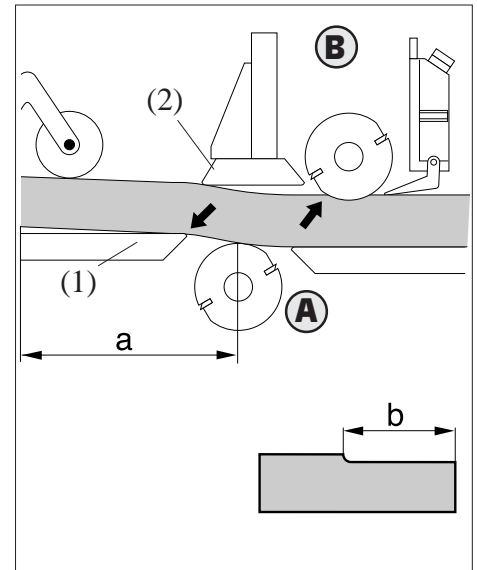
Cause of defect (A):

The timber knocks against the table plate (1) and moves diagonally upwards and away from it.

Result: Snipes on the entire underside (a) and workpieces which are neither parallel nor dimensionally accurate.

Cause of defect (B):

Pressure shoe (2) lifts off due to the angular travel of the timber. Consequence: snipe on top (b).



Example: Fault due to pressure element

Situation:

Pressure element (2) before top spindle has been set incorrectly.

Position snipe under middle of tool. The distance between the point of tool action and the pressure element indicates which component has been set incorrectly.

Snipe (a) at beginning of timber:

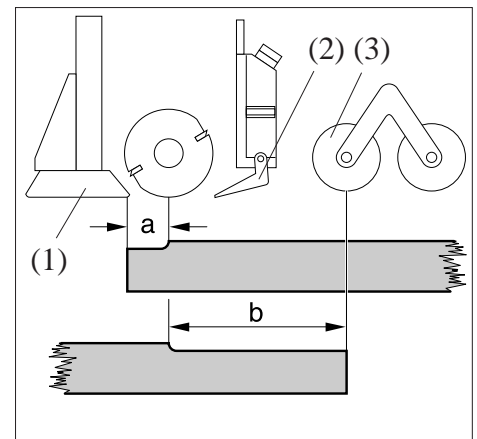
Pressure shoe (1) presses timber downwards.

Pressure element (2) has been set too lightly so that the timber springs upwards. Consequence: snipe mark at the beginning of the timber.

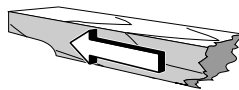
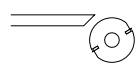
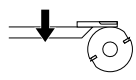
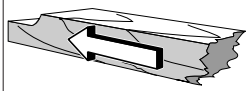
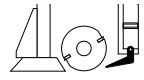

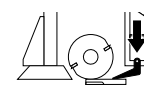

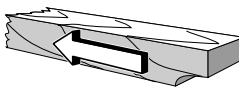

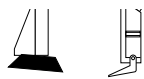
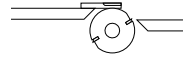
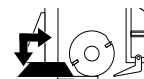
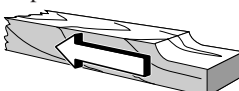
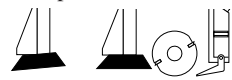

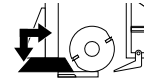
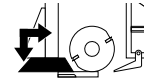
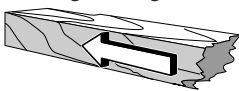
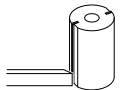
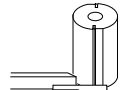
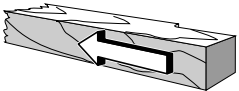
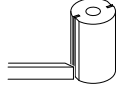
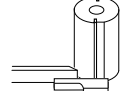
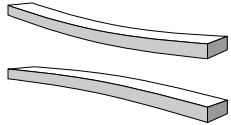
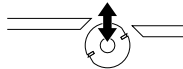
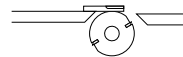
Snipe (b) at end of timber:

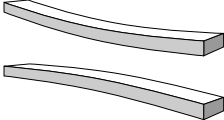
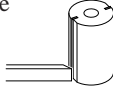
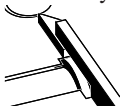
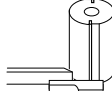
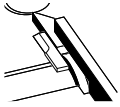
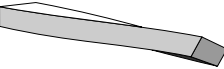

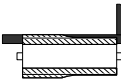
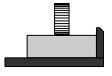
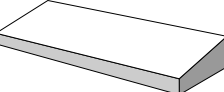
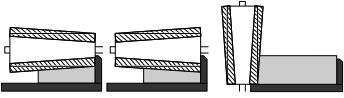
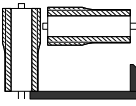
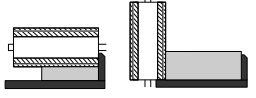
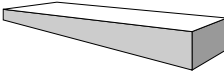


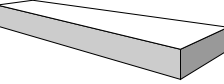
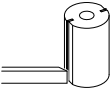
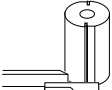
The end of the timber emerges from the feed roller (3). Pressure element (2) has been set too lightly so that the timber springs upwards.

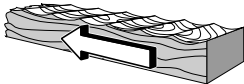


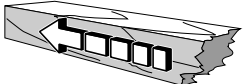
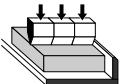

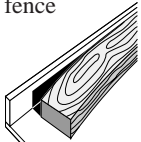
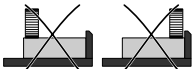


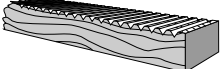
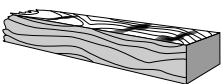
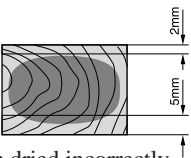
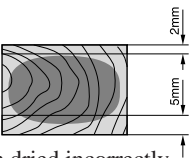
Consequence: snipe mark at the end of the timber.

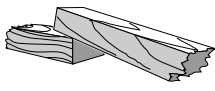



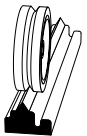

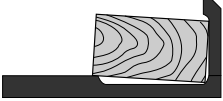


Troubleshooting on workpiece

No.	Fault	Possible cause	Remedy
1	Snipes, leading end, bottom 	a) Tool on one of bottom spindles too low or blunt 	a) Readjust tool relative to table or sharpen 
2	Snipes, leading end, top 	a) Hold-down ahead of top spindle too high  b) Timber bowed or warped 	a) Readjust hold-down relative to tool  b) Place timber on table with hollow side down 
3	Snipes, trailing end, bottom 	a) Tool on bottom spindle too high  b) Pressure shoe behind top spindle not parallel 	a) Readjust tool relative to table  b) Realign pressure shoe parallel to table 
4	Snipes, trailing end, top 	a) Pressure shoe behind top spindle too high or not parallel to table  b) Chipbreaker set too low 	a) Realign parallel to table and readjust pressure shoe relative to tool  b) Readjust chipbreaker 
5	Snipes, leading end, right 	a) Tool positioned <u>behind</u> fence 	a) Readjust tool relative to fence 
6	Snipes, trailing end, right 	a) Tool positioned <u>ahead</u> of fence 	a) Readjust tool relative to fence 
7	Point/hollow joint when straightening 	a) Tool on straightening spindle not set accurately relative to table, or blunt 	a) Readjust tool relative to table 

No.	Fault	Possible cause	Remedy
8	Point/hollow joint when edge-jointing 	a) Edge-jointing tool not set correctly relative to fence  b) Rebate cutter on straightening spindle not set correctly relative to rebate fence 	a) Readjust tool relative to fence  b) Readjust rebate cutter relative to rebate fence 
9	Workpiece spirally distorted 	a) One feed roller exerts one-sided pressure, or two rollers exert one-sided pressure due to height difference in unmachined workpiece  b) One-sided wear of straightening tool due to constantly same timber width 	a) Readjust feed rollers to middle of workpiece  b) Resharpen straightening tool
10	Workpiece not parallel laterally 	a) Tool cutting edges not parallel to table or fence  b) One-sided wear of tools 	a) Realign knives in tool body  b) Resharpen straightening tool
11	Workpiece not parallel over full length – height 	a) Lower tool a tiny bit too low 	a) Realign tool relative to table 
12	Workpiece not parallel over full length – width 	a) Workpiece drifts away from fence because tool set behind fence 	a) Readjust tool relative to fence 

No.	Fault	Possible cause	Remedy fault
13	Irregular marks on the top over the full length of the work-piece 	a) Workpiece wobbles because pressure elements not set correctly 	b) Set pressure elements correctly 
14	Timber does not run through the machine (congestion) 	a) Pressure elements at top and front of left-hand spindle set to too strong a value  b) Feed beam too high 	a) Reduce hold-down pressure of lateral and upper pressure elements b) Adjust height of feed beam
15	Timber wanders away from fence 	a) Top feed rollers set incorrectly  b) Pressure elements set incorrectly from the left 	a) Set feed rollers to middle of workpiece  b) Check all pressure elements
16	Feed roller impressions visible on the surface of the timber 	a) Raw timber with too little oversize b) Excessive chip removal at the straightening spindle c) Feed rate too high	a) Use raw timber with larger oversize b) Reduce chip removal on straightening spindle c) Reduce hold-down pressure of feed
17	Burn marks in the timber 	a) Feed rate too low, tool scrapes b) Timber has briefly stopped in the machine c) Tool is blunt	a) Increase feed rate (cutter mark calculation) b) Do not leave test timber under one spindle for too long when working at inching feed rate c) Regrind tool
18	Timber warps after machining 	a) Irregular chip removal on opposite sides or when timber is strongly profiled  b) Timber has been dried incorrectly	a) Uniform chip removal on both sides b) Use well seasoned timber with uniform moisture content in core and exterior wood

No.	Fault	Possible cause	Remedy
19	Timbers overlap 	a) Thin raw timber is severely warped  b) Not enough pressure rollers on top c) Timber pointed at beginning or end	a) Place timber on infeed table with curved side facing downwards  b) Insert pressure rollers and protection against tear-up (optional) c) Square off timbers
20	Rubber roller at machine outfeed is frequently scored 	a) Pointed timber profiles 	a) Reduce pressure of outfeed rollers to a minimum b) Run machine without outfeed roller  Feed timber into machine end-to-end in both cases!
21	Workpiece defects recur although basic setting is correct	a) Table and fence are worn  b) Table and fence are worn out on account of excessive hold-down pressure	a) – Replace table plates or fences – Use special lubricant instead of diesel – Use hard chrome-plated table plates and fences b) Reduce the hold-down pressure

Troubleshooting on the tool

Nr.	Fault	Possible cause	Remedy
1	High tool wear	a) Wrong tool material	a) Select tool material to suit workpiece (HSS, stellite, carbide)
2	Nicks in cutting edges	a) Tool edge overheated during resharpening b) Back clearance angle too large	a) Reduce grinding speed and use coolant; select suitable grinding wheel b) Reduce back rake angle
3	Tool rumbling	a) Tool not properly balanced b) Knives not mounted uniformly c) Knives of different size mounted (weight imbalance) d) Cutting chips between tool body and spindle collar e) Deposits on spindle collar	a) Balance tool b) Mount knives uniformly on tool body c) Always use knives of the same size and weight d) Clean all contact surfaces before mounting tools e) Remove deposits using grindstone
4	Tool cannot be pushed on spindle	a) Tool clamping screws not tightened uniformly; bore thus distorted	a) Tighten clamping screws to uniform torque

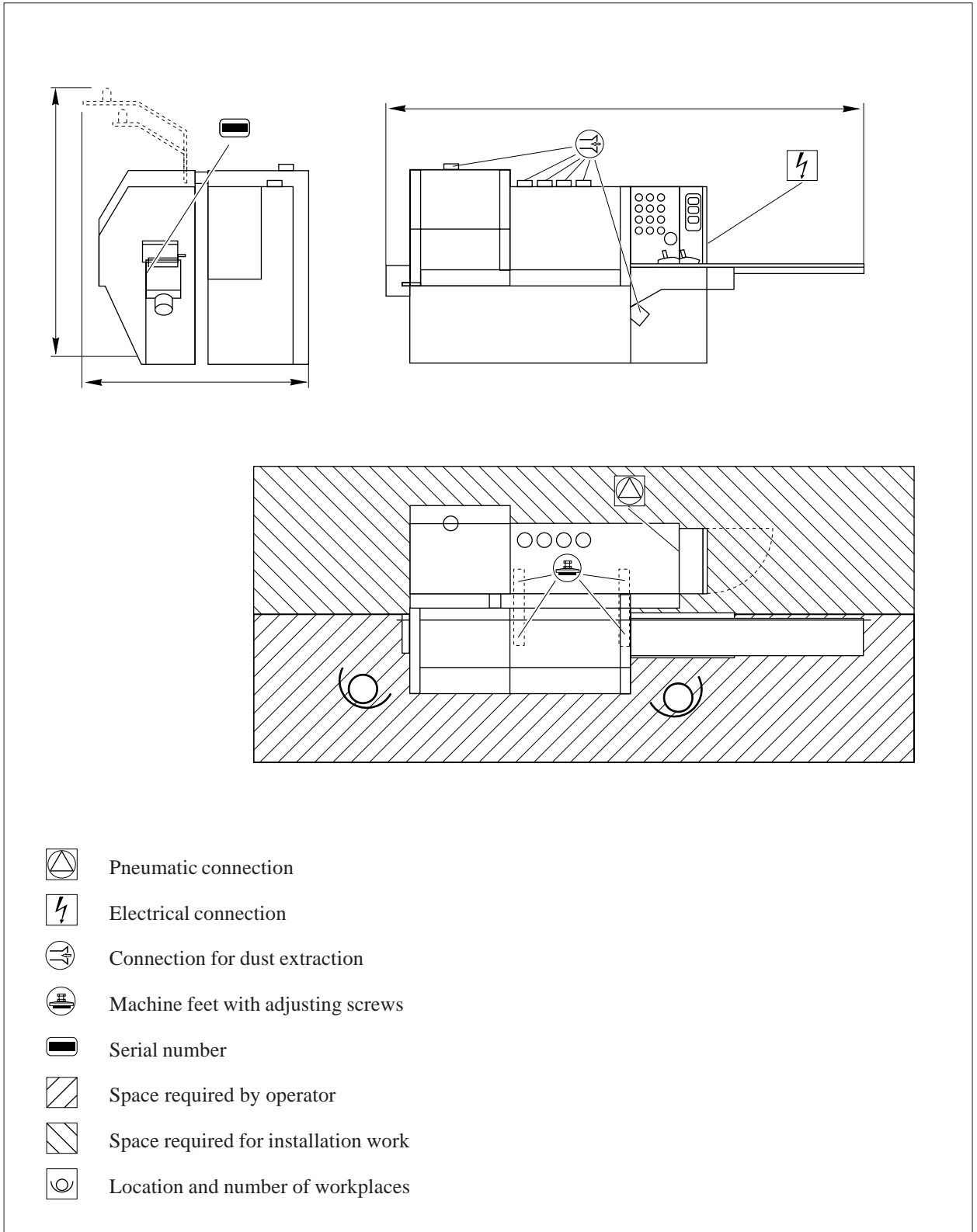
Electrical faults

No.	Fault	Possible cause	Remedy
1	Machine will not switch on	a) No voltage on power supply b) Master switch not turned on	a) Check mains fuses b) Turn on master switch
2	Master switch cannot be turned on	a) Undervoltage release tripped (CDN) (USA) b) Door contact switch not pressed (CDN) (USA)	a) Mains voltage too low or at least one phase missing b) Close control cabinet door properly
3	None of the motors will switch on	a) Emergency stop has been pressed b) Control voltage has been switched off c) Fuse on control transformer defective d) Brake released e) Motor protecting switch ¹⁾ tripped f) Overcurrent relay tripped g) Protecting switch ¹⁾ for control voltage tripped (USA) (CDN)	a) Reset emergency stop by pulling button out b) Switch control voltage on c) Replace fuse d) Apply brake e) Switch protective motor switch ¹⁾ on f) Allow machine to cool down, relay will come on automatically after a few minutes g) Switch protective switch ¹⁾ on
4	Continuous feed will not switch on	a) Limit switch at infeed end of machine in depressed condition b) Guards at front not closed or limit switch defective c) Brake released d) Spindles not in use have not been de-selected (option, keylock switch) e) Manual mode / open hood selected	a) Check limit switch b) Close enclosure or check limit switch c) Apply brake d) De-select spindles not in use e) Select Automatic mode / close hood and close the hood
5	Brake cannot be released	a) Master switch has been switched off b) Fuse on control transformer defective c) Protecting switch ¹⁾ for brake voltage tripped (USA) (CDN)	a) Switch master switch on b) Replace fuse c) Switch protective switch ¹⁾ on

¹⁾ The protection switches are located in the control cabinet

Technical data

Additional information related to the installation diagram



Space required by the machine



The installation diagram supplied with the order confirmation contains the definitive machine data and dimensions. It should always be consulted whenever the machine is transported, installed and connected.



The actual space required by the machine is calculated as follows:

Outside dimensions of machine L x W x H
(see installation diagram)

- + Swivel range of doors, flaps, assemblies
 - + Space required for setting up
 - + Space required for maintenance work
 - + Space required for workplaces
 - + Material handling systems for workpiece infeed / guides
 - + Safety zone (national regulations)
 - + Space required for peripherals (emergency exits, raw timber store, etc.)
 - + The machine must be set up in such a way that there is no risk of being crushed between moving parts and other fixed machines, parts of buildings, stacks of material, etc.
 - + Space for the maximum timber length before and after the machine
- A minimum distance of 0.5 metres must be allowed between the longest workpiece and immovable surrounding elements

= Space required for machine



Append the installation diagram supplied with the order confirmation, for example, here.

Size of foundations



Position of machine feet See installation diagram
Static load on machine feet for strength of foundations See installation diagram

Shipping data



Shipping weight / dimensions (incl. packaging) See freight documents
Shipping weight (without tools) See installation diagram

Feed rollers

Feed rollers, steel (dia., width, bore) Dia.140 x 50 x dia. 35 mm
Feed rollers, rubber Dia.140 x 50 x dia. 35 mm
Cup rollers, steel Dia.140 x 16.2 x dia. 35 mm

Material

Permissible materials Timber and wood substitutes, without impurities

Tools, general

Permissible tools Balanced, stress-tested,
..... suitable for mechanical feed,
..... suitable for speeds up to 6000 rpm



All saw blades and cutters must meet the safety requirements of pr EN 847-1.

Electrical connection

Total connected load, min./max. See installation diagram
Power requirement See order confirmation for motor sizes
Current, operating voltage, frequency Rating plate in control cabinet
Connected cross-section on installation side Rating plate in control cabinet
Short-circuit-protection on installation side Rating plate in control cabinet

Pneumatic connection

Nominal pressure 8 bar (113 psig)
Operating pressure, min./max. 6 bar/10 bar (85/141 psig)

Dust extraction connection



Air flow rate, air requirement per spindle See installation diagram
Number of extractor hoods, additional connection diameters See installation diagram
Total air requirement Sum of the individual air requirements per spindle



Workpiece

Width min./max. for tool dia. 125 mm (4.92")	[mm]	20/230	*20/260
		0.787"/9.055"	*0.787"/10.250"
Height min./max. for tool dia. 125 mm (4.92")	[mm]	8/120	*8/160
		0.315"/4.725"	*0.315"/6.299"

* Optional. Special tools may be used in consultation with WEINIG.

Tool clamping lengths

Straightening spindle,	[mm]	247 (9.725")
Edge-jointing spindle, left-hand spindle	[mm]	130 (5.118")
Top spindle, universal spindle, bottom spindle	[mm]	240 (9.448")

Motor rating

Straightening spindle, top spindle, bottom spindle, universal spindle	[kW]	4 – 11 (5.6 Hp – 15 Hp)
One motor for left-hand and edge-jointing spindle	[kW]	5,5 – 11 (7.5 Hp – 15 Hp)

Spindle diameter

All spindles	standard	[mm]	40
	optional	[inch]	1½

Tool cutting circle diameter

Straightening spindle min./max. Rebate cutter	[mm]	125/145 (4.921"/5.748")
	[mm]	145 (5.748")
Edge-jointing spindle, min./max. left-hand spindle	[mm]	100/200* (3.937"/7.874")*
Spindle		
Top spindle, min./max.	[mm]	100/200 (3.937"/7.874")
Bottom spindle, Universal spindle		

* Max. 15 mm below table possible for tool dia. 200 mm (7.874")
 Max. 40 mm below table possible for tool dia. < 180 mm (7.087")

Spindle speed

All spindles	[rpm]	6.000
Universal spindle	[rpm]	6.000

Feed

Mechanical		[m/min.]	5 – 24 (16 – 78 ft/min.)
Motor output	standard	[kW]	2,2 (3 Hp)
	optional	[kW]	3 (4 Hp)
Height adjustment	standard	[kW]	0,25 (0.30 Hp)
	optional	[kW]	0,55 (0.75 Hp)

Emission levels

Noise

Noise emission levels measured in the workplace (DIN 45 635, Part 1656)

Idle / Machining < **85.0 dB(A)**

The emission values referred to the workplace were measured in accordance with the machining and measuring conditions stipulated by DIN 45 635, Part 1656 (woodworking machines, particular specifications for two-sided and multi-sided milling machines).

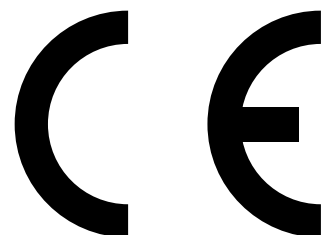
Standard conditions for moulders (the first bottom, right-hand, left-hand and top spindles in use in each case):

Workpiece:	Preplaned soft wood 100 x 80 mm
Machining:	3 mm on all sides with chip extraction
Tools:	4-edged, parallel to axis, horizontal dia. 125 x 130 mm vertical dia. 125 x 100 mm Cutter projection 1.5 mm For spindle dia. > 40 mm: tool dia. 140 mm
Speed:	n = 6000 rpm (or nearest possible)
Feed rate:	15 m/min.
Distance of table plates:	4 mm from tool

Nationally applicable noise ceilings may be exceeded on account of special circumstances (e.g. room, workpieces, tools, feed rate, etc.). The owner is responsible for introducing additional soundproofing measures.

Dust

The machine has been tested with regard to dust emissions. The test report is available from WEINIG on request.



Safety mechanisms

Protective mechanisms

The machine is equipped with the specified safety features.

- Fully enclosed with safety sound hood. Also available with interlocked hood if required by national regulations (optional). If the interlocked hood with delayed release is installed, the hood can only be opened when the spindles have come to a complete halt (approx. 180 seconds).
- Door of control cabinet interlocked when master switch is "on"
- Spindle brakes (only in CE countries and if purchased as an option)
- Mode selector (key-operated switch) for automatic and manual modes
- Key-operated switch to release spindle brakes
- Puncture-proof dust extraction hoods
- Hand guard over bottom spindles

Safety functions

The feed is stopped and the spindle motors cut out when the hood is opened. The spindles are braked to a complete stop within 10 seconds by the spindle brakes (optional).

When the hood is open in manual mode and the brakes have been opened:

- Spindle motors cannot be started.
- Use for carrying out basic settings and tool changes.

When the hood is open in manual mode and the brakes have been applied:

- Feed is only possible at inching speed. Spindle motors can be switched on.
- Use for fine profile set up adjustment.

Emergency OFF functions

Emergency OFF cuts out the spindles and feed immediately. Emergency OFF is triggered by:

- Emergency OFF buttons on the control panel and column, infeed guard flap with Emergency OFF function
- Opening the hood
- Tripping the infeed guard

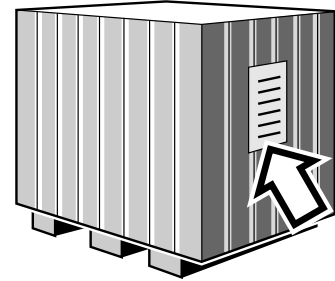
Transport

Delivery

The markings on the packaging must be noted without fail.



The machine may only be transported by a qualified person familiar with such tasks. Note the manual entitled "Safety instructions" when transporting the machine. The machine has a tendency to tip backwards on account of the heavy motors.



Transport the crate

- Ropes and the arms of a fork-lift truck should be spread out as far as possible; the centre of gravity is not necessarily in the center of the crate.



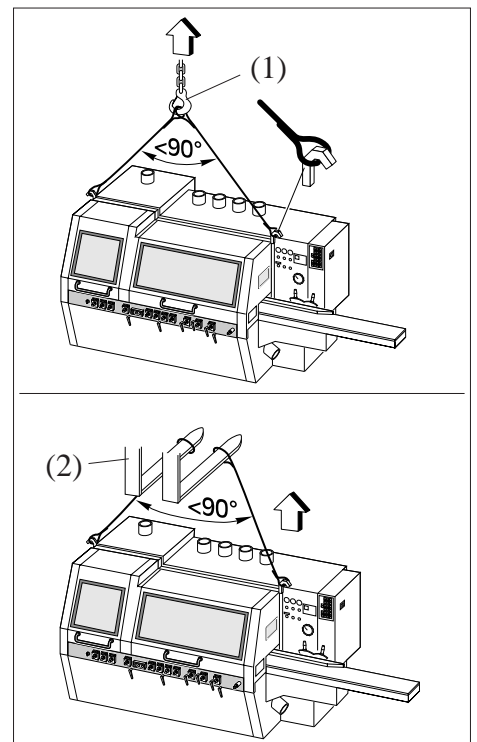
Crated weight will be shown in the freight documents.



Transport on a hook

Suitable hoisting gear of adequate strength is required.

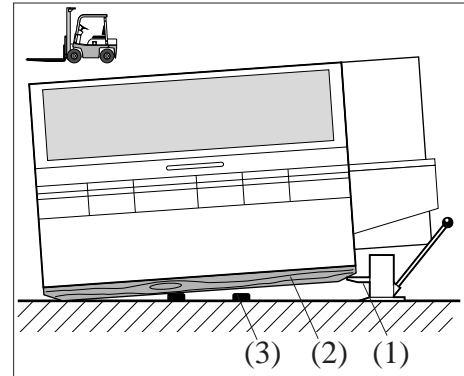
- Connect straps to appropriate hooks on left and right.
- Connect straps to crane hook (1) or arms of a fork lift truck (2).
- Carefully lift machine and lengthen or shorten straps as required to balance machine.
- Ensure that machine hangs straight.



Transport by fork lift truck

The machine may only be transported by fork lift truck when the longitudinal supports (2) have been fitted.

- Slide lift truck (1) under longitudinal supports (2) and obliquely raise machine and block (3).
- Move fork lift truck under both longitudinal supports from the front.
- Carefully lift machine.



Cleaning

- Remove transport locks.
- Remove all corrosion inhibitors from the bare metal machine parts.



Do not use inflammable solvents.

Scope of supply

- Check the scope of supply immediately upon delivery.



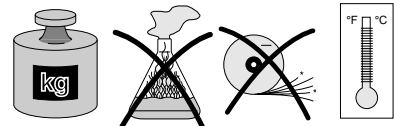
The scope of supply (optional equipment, standard equipment, operating tools) is specified in the delivery note and order confirmation.

Installation, alignment

Installation



Note the information in the "Safety instructions" with regard to the choice of location. Space requirements as specified on pages 6-1 and 6-2, as well as in the installation diagram.



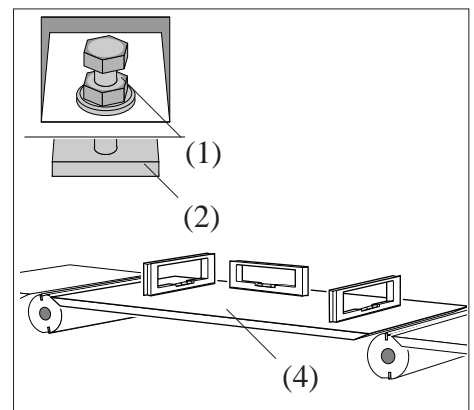
Foundations

- A foundation must be prepared if the floor is not sufficiently strong. The area pressure under the machine feet and the size of the foundations can be found in the installation diagram.



Alignment

- Place the levelling pads (2) provided under the adjusting screws (1) on the machine feet.
- Place a spirit level on the machine table (4). The centre of the machine is an ideal point for this purpose.
- Align the machine via the adjusting screws (1). Tolerance = ± 0.1 mm/m.



Connection, start-up

Electrical connections



The machine may only be connected to the plant mains power supply by a duly qualified electrician familiar with the local regulations.

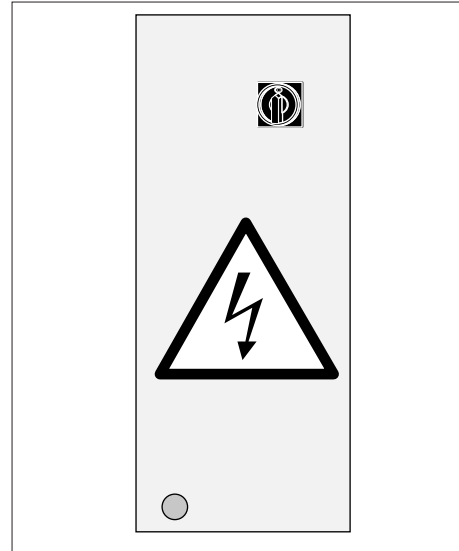


Risk of accidents due to electric power. When working on electrical equipment, incorrect or faulty connections can lead to damage due to short-circuiting, as well as causing damage to electronic components.



Connect wiring as indicated in circuit diagram and on rating plate in control cabinet.

- Run power cable through opening provided in the control cabinet.
- The phases may only be reversed at the main connection.
- Check that all contact screws are secure before switching on the master switch.
- If necessary, route power supply to the matching transformer and then into the control cabinet.
- Check direction of rotation of feed rollers in order to verify that connections are correct.



Pneumatic connection



Refer to the installation diagram with regard to min./max. plant air pressure.

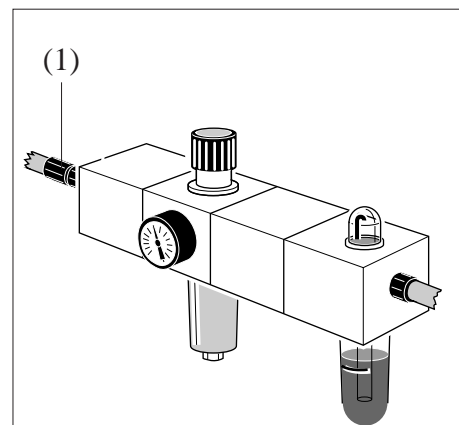


Refer to the installation diagram with regard to the position of the pneumatic service unit.

- Connect compressed air hose to the pneumatic service unit with the single-hand coupling (1). (Note: Different service units are installed, depending on the machine version concerned.)
- Set operating pressure (see technical data) on the pressure reducer.



Only use dry, filtered and oiled compressed air.

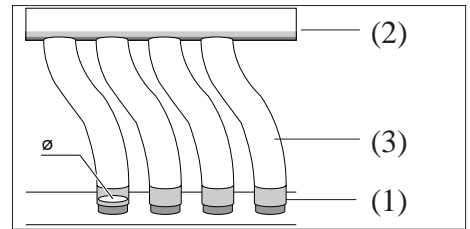


Dust extraction

- Install flexible hoses (3) between the dust extraction hoods (1) and the dust manifold (2).



See installation diagram with regard to the outlet diameter of the extractor hoods. The hose length depends on the type of hose and on the spindle travel.



The extraction system must generate an air velocity of 30 – 34 m/s at the outlets of the individual extractor hoods.

Due to pressure losses and the velocity of air, the following negative pressures must be taken into account in the machine:

a negative pressure of 1500 Pa at 30 m/s and
a negative pressure of 2000 Pa at 34 m/s.



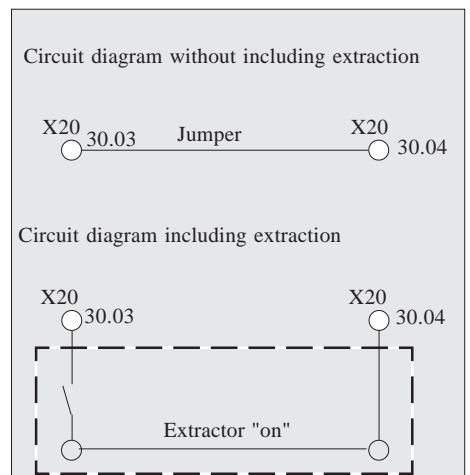
Hoses with flame-retardant finish must be used for the flexible connecting leads.

Outlet diameter	Air requirement	
	min.	max.
200 mm	3400 m ³ /h	3850 m ³ /h
160 mm	2160 m ³ /h	2450 m ³ /h
140 mm	1680 m ³ /h	1920 m ³ /h
120 mm	1260 m ³ /h	1380 m ³ /h
80 mm	540 m ³ /h	660 m ³ /h

Electrical connection of the dust extractor

If continuous feed is only to run when the extraction system is on, terminals –X20 : 30.03 and –X20 : 30.04 in the control cabinet must be connected to a floating contact in the extractor control. The terminal labelling must be altered accordingly.

The electrical connections for the dust extractor must be connected by a qualified electrician.



General information

Master switch



Switch master switch off and secure with lock before starting any maintenance work.

Regular maintenance

Maintenance regulations and intervals must be complied with. WEINIG cannot assume any liability for damage in cases of non-compliance.



Fire risk, cleaning

Keep highly inflammable wood chips away from table rollers and all units which may become hot.



Highly inflammable solvents must not be used for cleaning.

Lubricants, recycling

Only the lubricants listed in the table of comparable lubricants may be used. They must subsequently be disposed of in an ecologically safe manner.



Maintenance symbols












Maintenance interval in operating hours		
Drain or change		
Check level and top up if necessary		
Lubricate with grease gun		
Lubricate with oil press/can		
Lubricate with a brush		
Check/change filter		
Adjust		
Check		
Clean		
Change		

Lubrication and maintenance schedule

Lubrication



Only the lever-type hand gun without pressure gauge (pressure indicator) supplied by WEINIG may be used for lubrication.



Pos.	Lubricating points	Recommended lubricant or equivalent product as specified in table of comparable lubricants	Lubricating interval 	Amount of lubricant ¹⁾ , maintenance job	Comments
1	CNC/ATS-controlled spindles (optional) (not illustrated) – Transport slide – Spindle slide – Adjusting spindle – Spindle nut	SHELL ALVANIA GREASE G2	40	 1 shot with lever-type hand gun	Until grease emerges
2	Dovetail guides – All spindles except ATS/CNC – Glazing bead saw (optional) (Second lube nipple on rear of machine (not illus.)).	SHELL ALVANIA GREASE G2	160	 1 shot with lever-type hand gun	Until grease emerges
3	Universal joint shafts – Feed	SHELL ALVANIA GREASE G2	160	 1 shot with lever-type hand gun	
4	Spindle nut – Top spindle, transport slide on feed beam	SHELL ALVANIA GREASE G2	480	 1 shot with lever-type hand gun	
5	Adjusting spindles – Horizontal spindles – Vertical spindles – Universal spindles	SHELL ALVANIA GREASE G2	480	 Grease lightly	Clean thoroughly first
6	Infeed table – Adjustments	SHELL ALVANIA GREASE G2	480	 1 shot with lever-type hand gun	
7	Pressure element – Top spindle	SHELL ALVANIA GREASE G2	480	 1 shot with lever-type hand gun	
8	Worm gear (not illus.) – Universal spindle	SHELL ALVANIA GREASE G2	480	 Grease lightly	Clean thoroughly first
9	Gear mechanism – Feed	SHELL OMALA 220	160	 Up to oil viewglass	Check for leaks and oil level every 160 h, top up oil if necessary 1st oil change after 500 h 2nd oil change after 2000 h, then every 2 years
			500/2000	 875 – 1125 ccm	

¹⁾ Amount delivered by lever-type hand gun (Order No.: 00 309 091): 1.5 ccm/shot

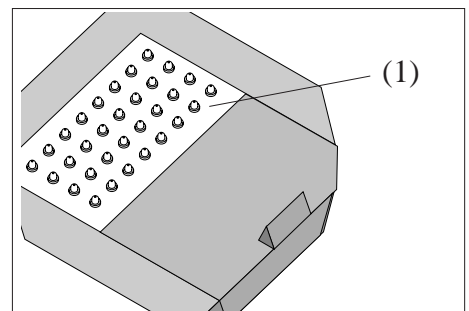
Lubrication with central lubricating panel for axial lubrication (optional)

The axial adjustments of the spindles are lubricated via the central lubricating panel (see overleaf). All other lubrication as above.









Lubrication with central lubricating panel (optional)

Pos.	Lubricating points	Recommended lubricant or equivalent product as specified in table of comparable lubricants	Lubricating interval 	Amount of lubricant ⁽¹⁾ , maintenance job	Comments
10	Central lubricating panel - All lubricating nipples without ATS/CNC with ATS/CNC	SHELL ALVANIA GREASE G2 SHELL ALVANIA GREASE G2	160 40	 1 shot with lever-type hand gun	
3, 5, 6 7, 8, 9	See page 9-2	See page 9-2	See page 9-2	See page 9-2	See page 9-2

Many of the lubricating points have been replaced by a central lubricating panel (1) in front of the machine table. A few lubricating points must be lubricated separately, as the panel does not include all lubricating points.



Maintenance and testing

Pos.	Lubricating points, maintenance work, Test points	Recommended lubricant or equivalent product as specified in table of comparable lubricants	Maintenance interval, Test interval 	Amount of lubricant ⁽¹⁾ , maintenance job, Test	Comments
11	Pneumatic service unit		40	 Drain	
12	Flat belts		40	 Check tension	
13	Emergency OFF (not illus.)		80	 Function test, all Emergency OFF buttons	
14	Interlocks (not illus.)		80	 Disconnect each isolating guard to switch off the machine. Check that it is impossible to switch on the machine when any of the guards is open.	
15	All switches (not illus.)		80	 Function test, all switches	
16	Spindle brakes (not illustrated). Note manufacturer's documentation!		80	 Function test, spindles must be braked within max. 10 seconds	Optional. Call WEINIG service engineer if exceeded
17	Anti-kickback device or catcher (not illustrated)	Lubricate with non-resinous grease if required	continuously, but at least 80	 Check easy running, sharp edges, wear and dirt	Optional

Maintenance summary

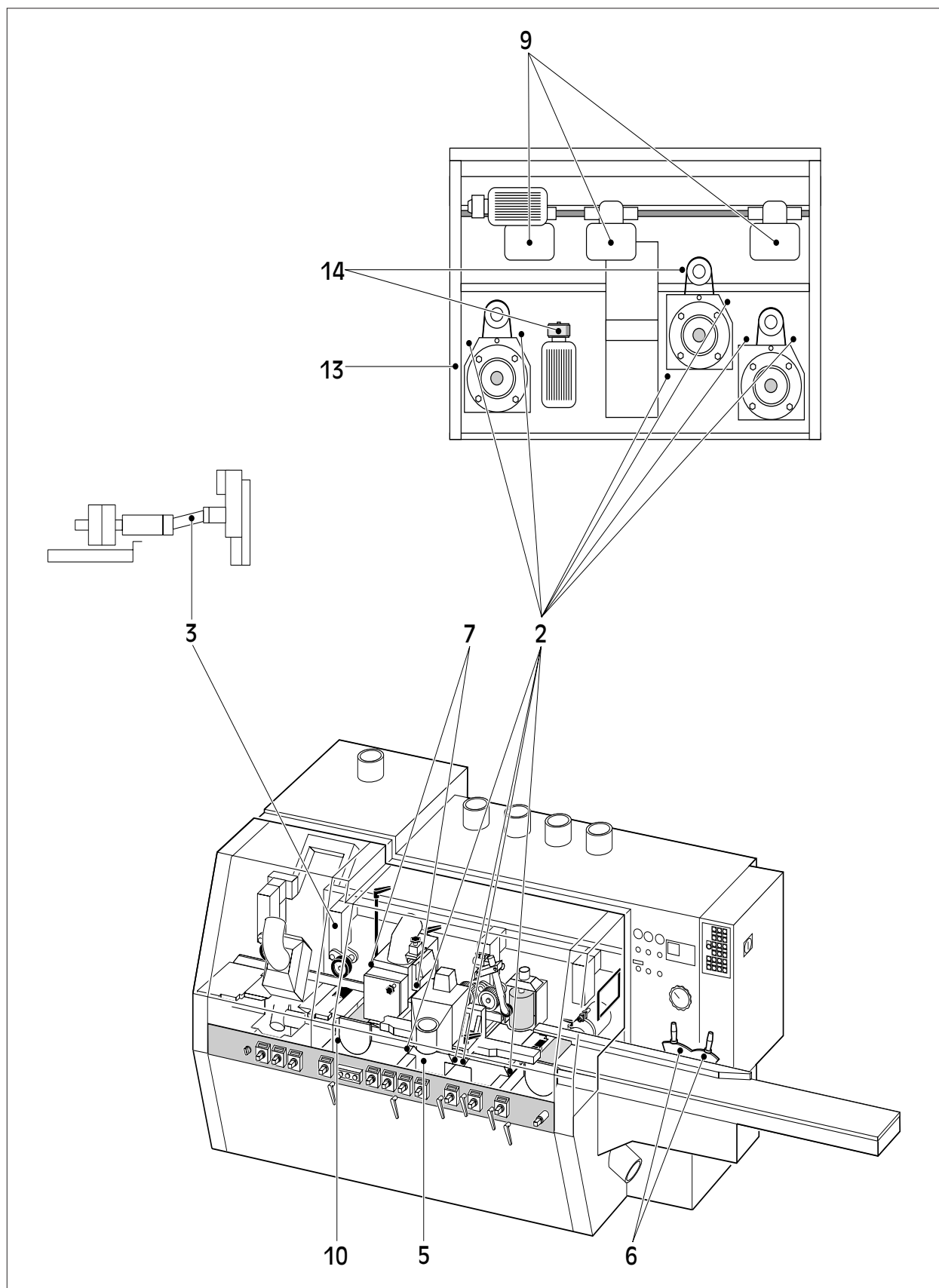




Table of comparable lubricants

DIN designation	Products used by manufacturer	ARAL	AVIA	BP	DEUTSCHE CASTROL	DEA	ESSO	TRIBOL	KLÜBER	MOBIL OIL	OPTIMOL	SHELL	DOW CORNING
CLP 220	OMALA 220	ARAL DEGOL BG 220	AVILUB RSX 220	BP ENERGOL GR-XP 220	CASTROL ALPHA SP 220	FALCON CLP 220	SPARTAN EP 220	TRIBOL 1100/220	LAMORA 220	MOBILGEAR 630	OPTIGEAR 220 ULTRA 220	SHELL OMALA OL 220	
CLP PG 220 *	TRIBOL 800/220 *	ARAL DEGOL GS 220 *	AVILUB VSG 220 *	BP ENERGOL SG-XP 220 *	CASTROL ALPHA PG 220 *	POLYDEA PGLP 220 *	UMLAUFOEL S 220 *	TRIBOL 800/220 *	SYNTHEO HT 220 *	GLYGOYLE 30 *		SHELL TIVELA OL WB *	
CLP 32	TEGULA 32	ARAL DEGOL BG 32	AVILUB RSL 32	BP ENERGOL HL-XP 32	HYSPIN SP 32 VARIO HDX	ASTRON HLP 32	ESSO TORQUE FLUID N 45 NUTO H32 (HLP)	TRIBOL 1100/32	LAMORA HLP 32	MOBILFLUID 125 MOBIL DTE 24	OPTIGEAR 32 ULTRA 32	SHELL TEGULA OL 32	
HLP 10	TELLUS 10	ARAL VITAM GF 10	AVILUB Hydraulic fluid RSL 10	BP ENERGOL HLP 10	HYSPIN AWS 10 HYSPIN SP 10	ASTRON HLP 10	NUTO H 10	TRIBOL 770 (ISO VG 15)	AIRPRESS 15	MOBIL DTE 21	HYDO 10	SHELL TELLUS 10	
HLP 32	TELLUS OIL DO 32	ARAL VITAM GF 32	AVILUB Hydraulic fluid RSL 32	BP ENERGOL HLP 32	HYSPIN AWS 32 HYSPIN SP 32	ASTRON HLP 32	NUTO H 32	TRIBOL 943 AW 32	LAMORA HLP 32	MOBIL DTE 24	HYDO 32	SHELL TELLUS OIL DO 32	
HLP 46	TELLUS OIL DO 46	ARAL VITAM GF 46	AVILUB Hydraulic fluid RSL 46	BP ENERGOL HLP 46	HYSPIN AWS 32 HYSPIN SP 46	ASTRON HLP 46	NUTO H 46	TRIBOL 943 AW 46	LAMORA HLP 46	MOBIL DTE 25	HYDO 46 HYDO E 46	SHELL TELLUS OIL DO 46	
HLP 68	TELLUS OIL DO 68	ARAL VITAM GF 68	AVILUB Hydraulic fluid RSL 68	BP ENERGOL HLP 68	HYSPIN AWS 32 HYSPIN SP 68	ASTRON HLP 68	NUTO H 68	TRIBOL 943 AW 68	LAMORA HLP 68	MOBIL DTE 26	HYDO 68 HYDO E 68	SHELL TELLUS OIL DO 68	
KPE2K-40	ISOFLEX NCA 15								ISOFLEX NCA 15				
K2K-20	ALVANIA FETT G 2	ARAL ARALUB HL 2	AVIA multi-purpose grease	BP ENERGREASE LS 2	LZW-EP SPHEEROL AP 2	GLISSANDO 20	BEACON 2	TRIBOL 4020/220-2 TRIBOL3030	CENTOPLEX 2	MOBILUX 2	LONGTIME PD 2	SHELL ALVANIA FETT G 2	MOLYCOTE LONGTERM WZ
KPF1K-20	MOLUB-ALLOY-777-1							MOLUB-ALLOY-777-1					
	OPTIMOLY PASTE MP3								KLÜBER PASTE 46 MR 401		OPTIMOLY PASTE MP3		

* Cannot be mixed with mineral oil.

Maintenance work

Belt tension of the spindle drives



Care must be taken to ensure that the belt is always correctly tensioned. An incorrectly tensioned belt can result in damage to the machine and/or tools.

The belt tension must be checked every week or when changing belts and the belt retensioned if necessary.

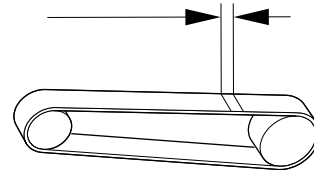
- Make two marks 200 mm apart on the untensioned belt.
- Tension the belt and check the elongation.

Belt type NE 22 + NE 26				Elongation (%)
Motor output (kW)				
4	5.5	7.5		0.5 + 0.2
11	15	18.5	22	0.8 + 0.2

Belt type NE 18					Elongation (%)
Motor output (kW)					
15	18.5	22	30	37	0.5 + 0.2

Example for belt type:

NE 22 5.5 kW 200 mm + elongation



Marks	200 mm
Dehnung	1.0 – 1.4 mm
Marks after elongation	201 – 201.4 mm

Consult Weinig if other belt types are used!

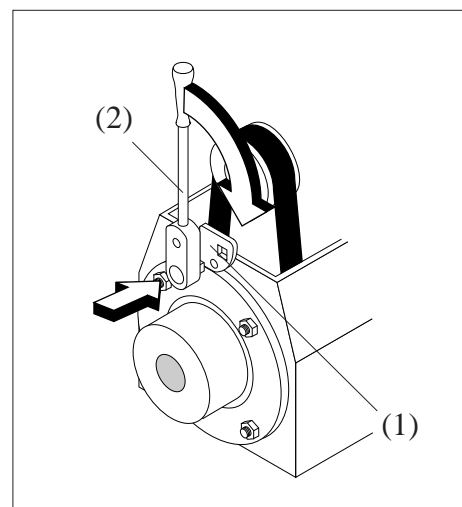
Horizontal spindles:

- Release clamping screws on motor.
- Insert wrench (1) in housing, fit ratchet (2) in wrench and tension belt.
- Retighten clamping screws on motor.

Vertical spindles:

The belt is tensioned continuously by a spring tensioner.

- Remove cover on front of machine in order to reach the spring tensioner when changing belts.



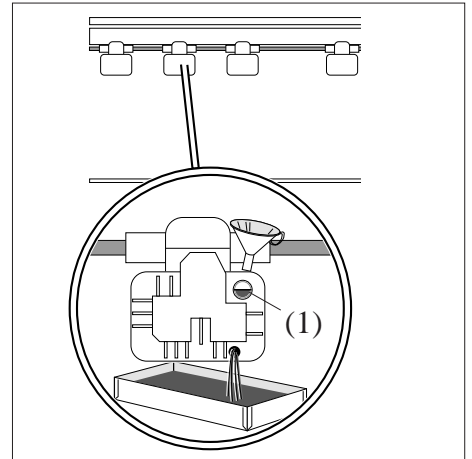
Feed gear

Check gear box for leaks.

Check oil level on viewglass (1).

Top up with oil if oil level is not visible.

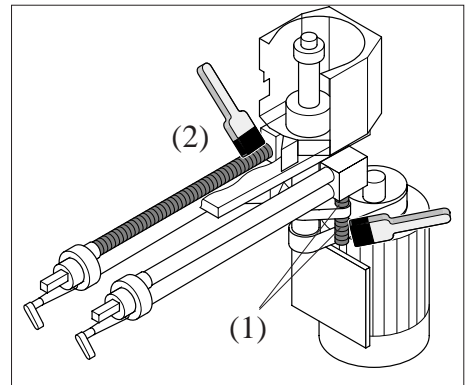
- Capacity approx. 800 to 1250 ccm.
- Remove steel burrs from magnetic drain plug.
- Fill with gear oil through filter until level reaches mark on viewglass.



Threaded spindles

Note: The diagram merely illustrates the basic principle and not the situation in your machine.

- Remove grease residues and dust from the spindle.
- Lubricate the threaded spindle up/down (1) and threaded spindle forwards/backwards (2) with a brush directly in front of the spindle nut.



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