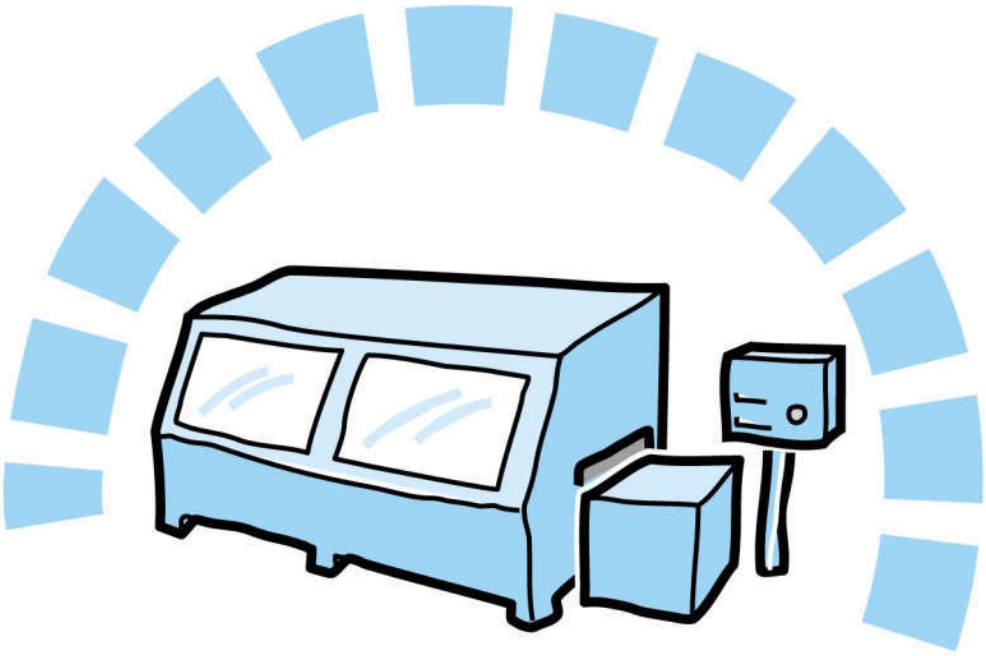
WEINIG

Safety Instructions



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Foreword

Dear Reader

This booklet is one part of the Instruction Material provided on the safe use of your equipment. It contains important information to help you work safely with your machine and describes the dangers inherent in our machines. Some of these dangers are obvious, while others are less evident.

Mandatory information

All persons working on the machine must have read and understood all parts of the Safety Instructions. This applies, in particular, for persons who only work on the machine occasionally (e.g. for maintenance and repair). Persons who have difficulty reading must receive particularly thorough instruction.

Scope of the Instruction Material

The Instruction Material comprises:
- this booklet,
- the machine Operator Instruction Manual,
- the control system Operator Instruction Manual,
- the Operator Instruction Manual for supplementary equipment,
- the Operator Instruction Manual for units made by other manufacturers and
- the **layout and extraction diagram** containing information for transport, installation and connection.

The following documentation must also be taken into account:
- **Installation diagram**
  (only for machines linkes to other equipment)
- **Order confirmation**
  Scope of supply and technical data
- **Shipping documents**
  Transport data including packaging
- **Electric, hydraulic and pneumatic ciruit diagrams**
  (in the control cabinet) containing data for connection and repair
- **Catalogue of replacement parts**
  Data for original replacement parts

Signatures

Everyone involved with assembly, disassembly or re-assembly work, start-up, operation, inspection, maintenance or repair of the machine must sign below to confirm that:

I have read and understood all parts of the complete Instruction Material, especially the Safety Instructions.

Name, date, signature:

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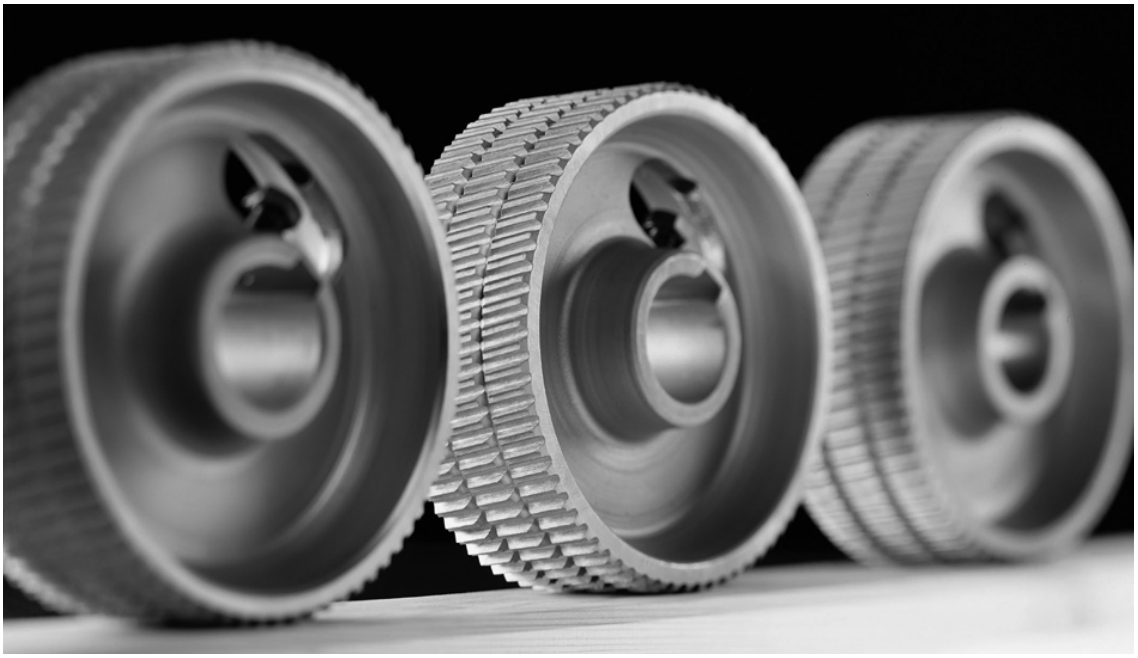


1 Basic rules

1.1 Intended use

Our machines are designed and built in line with the state of the art and the accepted safety rules. However, all machines may endanger the life and limb of their users and/or third parties and be damaged or cause damage to other property, particularly if they are operated incorrectly or used for purposes other than those specified in the Instruction Manual.

1.1.1 Exclusion of misuse

Non-conforming uses include, for example, the machining of metal and/or metallic materials, as well as operation without duly installed safety equipment. The risk rests exclusively with the machine's owner.

Conforming use of the machine includes compliance with the technical data, information and regulations in all parts of the complete Instruction Material, as well as compliance with the maintenance regulations. All local safety and accident prevention regulations must also be observed.

1.1.2 Liability

The machine may only be operated when in perfect working order, with due regard for safety and the potential dangers, as well as in accordance with the Instruction Material. Faults and malfunctions capable of impairing safety must be remedied immediately. We cannot accept any liability for personal injury or property damage due to operator errors or non-compliance with the safety instructions contained in this booklet. The risk rests exclusively with the machine's owner.

1.2 A word to the owner

1.2.1 Organization of work

The Instruction Material must always be kept near the machine so that it is accessible to all concerned.

The general, statutory and other binding regulations on accident prevention and environmental protection must also be observed in addition to the Instruction Material. The operating staff must be instructed accordingly. This obligation also includes the handling of dangerous substances and provision/use of personal protective equipment.

The Instruction Material must be supplemented by instructions, including supervisory and notification duties with due regard for special operational features, such as the organization of work, work sequences, the personnel deployed, etc.

The personnel's awareness of the dangers and compliance with the safety regulations must be checked at irregular intervals in accordance with the Instruction Material.

1.2.2 Choice and qualification of personnel

Ensure that work on the machine is only carried out by reliable persons who have been appropriately trained for such work – either within the company, by our field staff or in the WEINIG Training Centre – and who have not only been duly appointed and authorized, but are also fully familiar with the local regulations. Work on the machine may also be carried out by skilled personnel under the management and supervision of a duly qualified engineer.

This not only applies when the machine is used for production, but also for special work associated with its operation (start-up and maintenance), especially when it concerns work on the hydraulic, pneumatic and electrical systems, as well as on the software.

1.2.3 Training

Everyone working on or with the machine must be duly trained and informed with regard to correct use of the safety equipment, the foreseeable dangers which may arise during operation of the machine and the safety pre-cautions to be taken. In addition, the personnel must be instructed to check all safety mechanisms at regular intervals.

1.2.4 Responsibilities

Clearly define exactly who is responsible for operating, setting-up, servicing and repairing the machine.

Define the responsibilities of the machine operator and authorize him to refuse any instructions by third parties if they run contrary to the machine's safety. This applies in particular for the operators of machines linked to other equipment. Persons receiving training of any kind may only work on or with the machine under the constant supervision of an experienced operator. Note the minimum age limits permitted by law.

1.3 A word to the operator

The greatest danger inherent in our machines

–  is that of fingers, hands or loose clothing being drawn into a machine by live, coasting or rotating tools or rotating feed assemblies
– 

or of being cut by sharp tools,
– of being caught or crushed by guided workpieces,
– of being injured by wood being kicked back by a machine (risk of impact).

1.3.1 Safety equipment on the machines

All machines are delivered with safety equipment which must not be removed or bypassed during operation.

During operation, no one may enter the protective zones identified in the space assignment plan.

There is a risk of accident due to safety equipment that is not in good working order.

The correct functioning of safety equipment on machines and systems must be checked

– every day and before every new shift starts,
– after maintenance and repair work,
– when starting up for the first time and when restarting (e.g. after prolonged shutdowns),
– at irregular intervals, in order to also discover unauthorized modifications.

Checklist:

1. Correct functioning of the emergency OFF system: control voltage OFF, feed OFF
2. Protective covers: protection against contact with moving parts
3. Rear panel cover: protection against contact, for example, with drive belts
4. Saw blade cover: protection against contact with saw arm
5. Locked protective hood – check whether it is possible to open any moveable protective mechanisms before the machine has come to a complete standstill and, by means of a subsequent test, verify that it is impossible to turn on the machine when the protective hood is open.
6. Protective equipment with proximity reaction, e.g., photoelectric barriers – functional checkout
7. Motor brake – functional checkout of whether braking occurs within the specified braking time.
8. Collector – check that the collector is closed completely when there is no workpiece.

Tooled spindles and saw shafts may only be switched on when the chip extractor hoods and protective mechanisms are attached and functional.

If safety equipment has to be dismantled for setting-up, maintenance or repair work, such safety equipment must be replaced and checked immediately upon completing the maintenance or repair work.

All protective mechanisms must be fitted and fully operational whenever the machine is at a standstill or if it has been shut down for a longer period of time.

1.3.2 Damage

If any changes capable of impairing safety are observed in the machine or its mode of operation, such as malfunctions, faults or changes in the machine or tools, appropriate steps must be taken immediately, the machine switched off and the fault reported to the person responsible.

The machine must be examined for obvious damage and defects at least once per shift. Any damage found must immediately be remedied by a duly authorized person.

1.3.3 Safe operation

The machine may only be operated when in perfect working order and when all protective mechanisms and safety equipment, such as detachable protective mechanisms, emergency OFF systems, acoustic hoods, extractors, etc. are in place and operational.

Get a second person to help when loading and unstacking heavy or unwieldy boards.

1.3.4 Faults

The machine must be switched off and all rotating parts (tools, feed rollers, etc.) allowed to come to a standstill and secured against accidental restart before starting to remedy any faults.

1.3.5 Signs on the machine

Safety and danger signs on the machine must be observed and checked at regular intervals to ensure that they are complete and undamaged. They must be clearly visible and legible at all times.

1.3.6 Clothing, jewellery, protective equipment

Long flying hair, loose-fitting clothes, gloves and jewellery, including rings, must be avoided in order to avoid injuries due to being caught, drawn in and wound up inside the machine. Always wear suitable, officially tested personal protective equipment, such as

– ear protection,
– dust mask and
– safety boots

1.3.7 Ear protection against noise

Ear protection should be worn whenever necessary.

The acceptable noise emission levels depend on the national regulations in the owner's country. The measured emission levels at the workplace are stated in the Instruction Manual. If the national noise limits are exceeded in individual instances, the machine's owner must take additional measures to reduce the noise levels.

Machines generating potentially harmful noise levels must be additionally marked with a corresponding warning drawing attention to the need to use hearing protection. The use of ear protection may have to be made mandatory in certain areas of the production environment.

Enquire as to the noise levels to be expected during normal operation of the machine, as well as about the factors influencing its noise levels.

These factors include the following:

- Tool type
- Tool speed
- Tool and machine maintenance
- Material to be machined
- Work fixture
- Noise protection equipment
- Correct use of the specified personal hearing protection
- Production conditions

1.3.8 Noise emission values

Noise emissions

Noise emission values are stated in the Instruction Manual.

The values stated are emission levels and do not necessarily also represent safe workplace levels. Although there is a correlation between the two, it is impossible to determine with reliability whether additional precautions are required. Factors that may influence the noise levels actually present in the workplace include the peculiarities of the workroom, other sources of noise, e.g., the number of machines, and other neighboring operations. The permissible workplace levels may also vary from country to country.
This information should, however, enable the user to better assess the dangers and risks.

1.3.9 Goggles

Goggles which have been tested by the local authorities must always be worn for the following work:

- When grinding tools
- All work on the machine when it is running
- When cleaning the machine with compressed air

1.3.10 Protective gloves

Always wear protective gloves when handling tools and chemicals.

Protective gloves must not be worn when making settings and operating the machine. In this connection, however, please note: danger of burns – in machines with feed rates exceeding 120 m/min, the fences and table may be hot after use.

1.3.11 Dust mask

A dust mask should be worn whenever necessary.
The chip extractor and protection against dust should always be switched on during operation. The tool, material, speed and production conditions can influence the amount of dust generated.

1.3.12 Assembly tools

Always count the number of tools in your possession before starting work on the machine. This will allow you to check that no tools have been left behind inside the machine. Never leave a tool in the machine while working. Tools which are flung aside can seriously injure other people.

1.3.13 Oils, lubricants, chemicals

Note the applicable safety regulations for the product. Great care must be exercised when handling hot fuels and operating media (risk of burns).

1.3.14 Care

Never use petrol or other explosive substances in the vicinity of the machine.

1.3.15 No smoking, fire, explosion hazard

Smoking and open flame (e.g. welding work) are absolutely prohibited, without exception, in the production area due to the risk of fire and explosions.
Chips and wood dust must be removed at reasonable intervals from all units which can become hot (spindle and saw shaft drive motors) and wherever there is any risk of fire due to friction (table rolls).

1.3.16 Cellular Phones

No cellular phones may be used in the vicinity of the system when the switch cabinet doors are open.

1.3.17 Workplace

A clear working area without any obstructions whatsoever is essential for safe operation of the machine.
The floor must be level and clean, without any such waste as wood chips, cutoffs, oil or wood dust.
The workplace must be well lit, either by the general lighting or by local lights. Nothing may ever be deposited on the machine, not even for just a moment.
The raw material and the machined workpieces must be stacked near the normal workplace.

1.3.18 Raw timber

When selecting the timber to be machined, ensure that it does not contain any nails or other such metallic inclusions.

Wood is not a homogeneous material. It may splinter or break and pose a hazard for the operator. Particular care must be exercised when machining any type of timber. Flying chips and splinters pose the greatest danger in such cases.

1.3.19 Dangerous situations – trigger an emergency STOP

The emergency OFF buttons and infeed safety gate bring all machine movements to a standstill. Make sure you know exactly where they are located and how they work. Try them out.
Always ensure easy access to the nearest emergency OFF button while working on the machine.

1.3.20 First Aid

1. Keep calm even when injured.
2. Clear the operator from the danger zone. The decision what to do and whether to seek additional assistance rests entirely with you, particularly if someone has been trapped.
3. 
   Give First Aid.
   Special courses are offered by such organizations as the employers' liability insurance association. Your colleagues should be able to rely on you and vice versa.
4. Call an ambulance.
   Do you know the telephone numbers for the ambulance service, police and fire service?

1.3.21 Reporting and fighting fires

Read the instructions posted in the factory with regard to reporting fires and the emergency exits.
Make sure you know exactly where the fire extinguishers and sprinkler systems are located and how they are operated. Pass on the corresponding information to the firemen when they arrive. Ensure there are enough signs to avoid fire hazards.

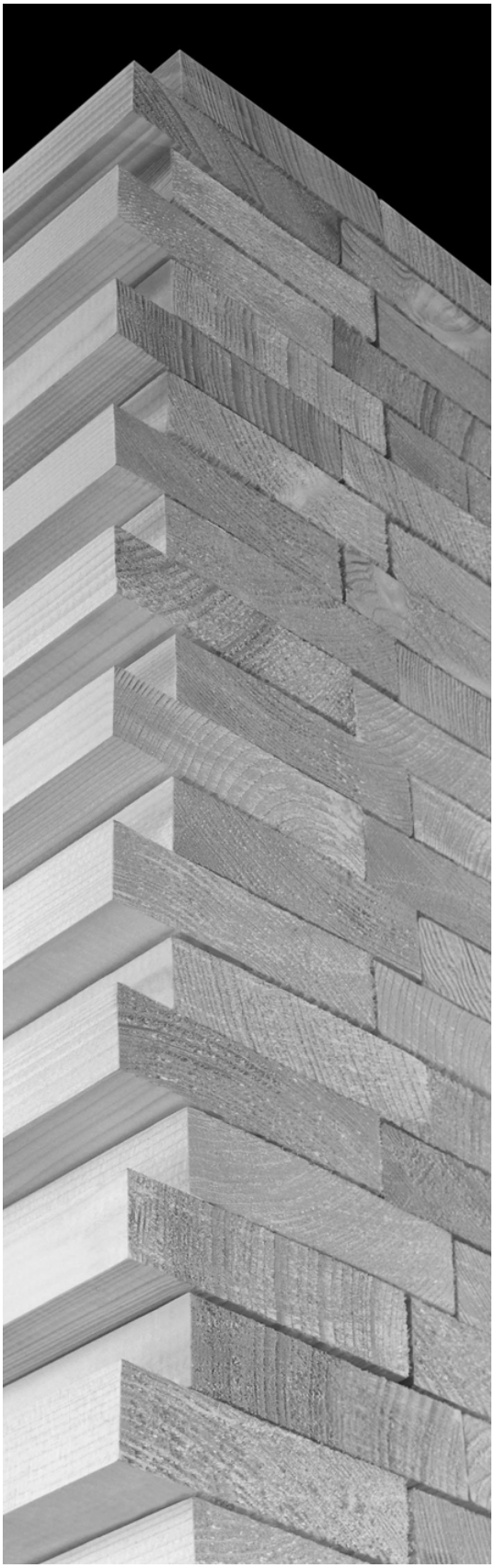
The following fire extinguishers may be used on our machines:

- Dry powder extinguishers, ABC fire-extinguishing powder (6 and 12 kg)
- Carbon dioxide fire extinguishers to DIN 14461 (6 kg) for electronic components

Great care must be exercised when using carbon dioxide fire extinguishers in confined, badly ventilated rooms (see DIN 14406 and 14270).
The number and size of the fire extinguishers required are specified by the authorities and fire insurers.

Isolate the machine from the power supply if a fire breaks out. Do not use water on burning electrical parts until it is absolutely certain that they have been completely disconnected from the power supply. Burning oils, lubricants, plastics and coatings in the machine can give off gases and vapours which are harmful to health.

A specialist must be consulted to repair the damage after a fire, for the corrosive gases and vapours lead to the formation of rust on the machine.



1.3.22 Master switch off / Lock Out – Tag Out

Before undertaking any maintenance or repair work on the machine, switch off the master switch and secure it with a padlock so that it cannot be switched on again without authorization.

In practice, this may mean that the fitter, electrician and operator all attach their own padlock to the master switch simultaneously so that they can carry out their work safely. Locking extension plates should be available for multiple locks if required.

1.4 Residual risks when master switch is off

The machine is still not completely de-energized even when the master switch is off:

– Electricity
  The machine is always isolated from the electrical power supply whenever the master switch has been switched off. However, this does not apply for the power supply in the control cabinet, nor for equipment which does not draw its power via the master switch.

– Pneumatic / hydraulic energy
  Almost all our machines carry compressed air. In addition to switching off the master switch, the air supply must also be disconnected and the machine checked to ensure it is depressurized before starting any work on the machine, otherwise the machine may execute uncontrolled movements.
– Kinetic energy
  Please note that, for example, spindles and saw shafts may continue running for some time before they come to a complete stop.
– Potential energy
  Individual assemblies should be secured with hoisting gear if necessary for repair work.

Notes

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2 Start-up, maintenance

2.1 Delivery of the machine

2.1.1 Packaging

Note any markings on the packaging, such as weights, lifting points and special information. Avoid temperature fluctuations. Condensation may damage the machine.

2.1.2 Transport damage

The packaging and machine must immediately be examined for signs of damage in transit. Such damage must be reported to the freight carrier within the applicable time limits. Contact us and/or your transport insurer without delay. Never operate the damaged machine.

2.1.3 Interim storage

If the machine has to be stored temporarily, it must be oiled or greased and stored in a dry place where it is protected from the weather in order to avoid damage.
A corrosion-inhibiting coating should be applied if the machine has to be stored for a longer period of time and additional precautions taken to avoid corrosion.

2.2 Preparing for transport

Check the lifting points as shown in the layout and extraction diagram or Instruction Manual. Disconnect the machine from all external connections. Dismantle the tools. Tighten all clamps. Fit the transport guards. Refer to the layout and extraction diagram for indication of the machine weights.

2.3 Transporting the machine or individual machine assemblies

2.3.1 Lifting

Never step under a suspended load. When transporting the machine or assemblies in a crate, ensure that the ropes or arms of a fork lift truck are positioned as close to the edge of the crate as possible. The centre of gravity is not necessarily in the middle of the crate. Note the accident prevention regulations, safety instructions and local regulations governing transport of the machine and its assemblies.

Only use suitable transport vehicles, hoisting gear and load suspension devices which are in perfect working order and of adequate carrying capacity. Transport should only be entrusted to duly qualified personnel. Machines may only be lifted with the aid of hoisting gear as specified in the Instruction Manual (lifting points for load suspension devices, etc.).

Never allow the straps to rest against the machine enclosure and never push or pull sensitive parts of the machine. Ensure that the load is always properly secured. Before or immediately after loading the machine, secure it with the means/guards which are provided or recommended so that it cannot change its position inadvertently. Affix a corresponding warning.

2.3.2 Transport guards

All transport guards and lifting devices must be removed before the machine is started up again. Any parts which have to be removed for transport must be carefully refitted and secured before the machine is started up again.

2.4 Installing the machine

2.4.1 Workplace environment

Our machines are designed for use in enclosed rooms:

- Relative humidity approx. 65%.
- Permissible ambient temperature approx. 5 – 40 °C (40 – 104 °F). Malfunctions of the control systems and uncontrolled machine movements may occur at temperatures outside this range.
- Protect against climatic influences, such as electrostatic charges, lightning strikes, hail, storm damage, high humidity, salinity of the air in coastal regions.
- Protect against influences from the surroundings: no structure-borne vibrations, no grinding dust, minor temperature differences, no chemical vapours.
- Protect against unauthorized access, rodents (electric cables, gaskets) and insects (short-circuiting).
- Ensure that the machine and accessories are set up in a stable position.
- Ensure easy access for operation and maintenance (Instruction Manual and layout and extraction diagram); ensure also that the floor is strong enough to carry the weight of the machine.
- Take into account the infeed and discharge of workpieces, as well as machine movements (such as movement of the machine table in window machines).

2.4.2 Local regulations

Particular attention must be paid to local and statutory regulations, etc. when installing machines and plant (e.g. with regard to the specified escape routes).
Note the safety zones in relation to adjacent machines. Machines in mechanical handling systems must be set up so that there are no interruptions or gaps in the line of travel of the workpieces. Any gaps which are required must be safeguarded electrically.

2.5 Connection, reconnection

Energy feed and discharge lines must be routed so that they do not run through the operator's working area, are not compressed, crushed or buckled, are not subjected to tensile stresses and cannot rub against anything.

This is particularly important in the case of pneumatic, hydraulic and electricity lines, as well as for the felixible chip extraction hoses. Always take the machine movements into account when routing such lines.

For example, note the spindle movement and movement of the chip extractor hood when routing chip extraction hoses.

2.5.1 Electrical connection

The machine may only be connected to the factory power supply by a qualified electrician who is familiar with the local regulations.

Incorrectly wired or faulty connections may make the machine unsafe for operation. Turn the system off immediately in the event of trouble with the electrical power supply. Before turning on the master switch, inspect all terminal screws to ensure that they are seated firmly. After turning on the main switch, at the latest, however, before first use, check the direction of rotation of the spindles and saw shafts.

Connecting additional devices:
always connect the protective ground (green-yellow) first. Always connect additional devices and power outlets after the master switch.

2.5.2 Pneumatic connection

Only use dry, filtered compressed air. Ensure that the air pressure always remains within the range specified in the layout and extraction diagram, otherwise malfunctions may occur.

2.5.3 Connecting the chip extraction system

Never operate the machine without chip extraction. The specified cross-sections, air flow rates and air volumes must be ensured for safe extraction of chips and dust. Only flexible hoses with fire-retardant finish may be used.

2.5.4 Starting up the machine

All protective guards and enclosures (e.g. for the belt and chain drive) and the covers on the chip extractor hoods must be fitted correctly before starting up the machine.

2.6 Maintenance

2.6.1 General safety instructions

The machine must be switched off, come to a standstill and be secured so that it cannot be switched on again inadvertently before starting any maintenance work whatsoever.

- Hoods, doors and infeed safety gate must not be opened until the machine has come to a standstill.
- Lock the main switch cabinet and remove the key. Affix a warning sign to the master switch.
- Cordon off the maintenance area where necessary.
- Inform the operating staff of impending maintenance and repair work before actually starting.
- Designate one person to supervise the work!

Remove any oil, grease, dirt and chips from the machine, particularly from the connections and screws, when starting the maintenance and/or repair work. Do not use any corrosive cleaning agents. Use lint-free rags.

Retighten all screw connections which have to be loosened for the maintenance and repair work. Any safety mechanisms which have to be dismantled for setting-up, maintenance or repair purposes must be refitted and checked immediately after completing the work.

Climbing aids or work platforms provided for the purpose or other safe climbing aids or work platforms must be used during all overhead maintenance or troubleshooting work. Never use parts of the system as climbing aids.

2.6.2 Maintenance, care, adjustment

The activities and intervals specified in the Instruction Manual for carrying out adjustments, maintenance and inspections must be observed and parts replaced as specified. Never use compressed air, steam jets (high-pressure cleaners) or highly inflammable solvents to clean the machine.

All hydraulic and pneumatic lines must be examined for leaks, loose connections, rubbing and damage whenever the machine is serviced. Any defects found must be remedied immediately.

2.6.3 Braking motors

Our machines are generally equipped with braking motors, depending on the model concerned or the national regulations.

Motors with mechanical brakes:
Brakes are subject to natural wear.

The air gap between armature and brake pad increases as the brake pad wears down. The brake coil (magnet) no longer releases the brake if the air gap becomes too large and the motor runs against the applied brake. The resultant frictional heat can cause a fire. The brakes are a safety mechanism which must always be fully operational. Tools which continue to run or coast on can also cause serious injuries in the form of cuts.

Ensure that the brakes of the drive motors are operational and that their brake pads are not worn.

The motor brakes may be released if "release brake" is selected when the machine is at a standstill. Whenever adjusting tools, check the spindle and saw shafts to make certain that they rotate freely and simultaneously check the brakes to make certain that they move freely. Call the WEINIG customer service department immediately if the brakes are not released. Do not continue operation until the fault has been remedied. Mechanical brakes must be checked for signs of wear and replaced if necessary. Tools which run on for too long can cause injuries in the form of cuts.

Motors with electronic brakes:
When operating machines with electronic brakes, ensure that the master switch is not switched off until the tools have come to a complete stop (approx. 10 seconds). “Main switch off” deactivates the electronic brakes. The brake function can also be deactivated if the power supply fails or there is a brake fault.

When the motors are turned off, the tools are stopped within approx. 10 s by the electronic brakes. Once the tools have been stopped by the brakes, the hood is released for opening and the electronic brakes are no longer active.

If there is a fault in one of the brakes, the entire machine shuts off and the red trouble indicator light lights up on the control panel.

If trouble occurs in connection with the electronic brakes, proceed as follows:
Move the main switch to the "OFF" position and then switch it on again. If trouble persists, notify an electrician or WEINIG Service.

Always move the main switch to the "OFF" position before opening the terminal box on the motor.

Even if the motor is switched off, when the main switch is in the "ON" position, there is still line-to-line voltage present at the brake module on two (2) terminals in the terminal box of the motor.

The brake function is deactivated if the power supply fails or there is a brake fault.

For machines with no electronic brakes, the locked hood can only be opened after approx. 180 seconds if all tools have come to a stop.

2.6.4 Components for which inspection is mandatory

If your machine is fitted with a pressure accumulator, note the local regulations and report any accumulator faults to the relevant inspection agency for accumulator safety. The intervals and scope of the safety inspection to be performed on the pressure accumulator will be specified by the inspection agency.

2.6.5 Waste, disassembly, disposal

Wood, plastic and metal waste must not be stored together. Wood chips may be ignited by hot aluminium chips.

Ensure that fuels and operating lubricants, as well as replacement parts are disposed of in a safe and ecologically acceptable manner. Note the local regulations on pollution control. The following substances in particular must be disposed of so that they cannot harm the environment: oils, lubricants, Waxilit, chips and brake pads.

When scrapping (disassembling) the machine and its assemblies, ensure that these materials are disposed of safely. Either commission a specialist company familiar with the local regulations or note the local regulations when disposing of these materials yourself.
Materials must be sorted into the following groups in particular: electric scrap, steel scrap, plastics.

2.7 Repair

2.7.1 Replacement parts

Under no circumstances whatsoever shall we be liable for damage due to the use of third-party parts or unauthorized modifications to the machine, so use only original spare parts. Observe any user information delivered with the spare part.

2.7.2 Repair, electrical energy

The power supply must be switched off (master switch off) and secured so that it cannot be switched on again inadvertently before starting any work on live parts.

Those parts of the machine and plant on which inspection, maintenance or repair work is to be carried out must be isolated from the power supply, if specified. The isolated parts must first be checked to determine that they are truly de-energized before being grounded and short-circuited. Adjacent live parts must also be isolated.

The protective measures implemented (e.g. grounding resistance) must be tested before restarting the machine after all assembly or repair work on electric parts.

Signal generators (limit switches) and other electrical parts on the safety mechanisms must not be removed or bypassed. Only use original fuses or circuit overloads with the specified current rating. The machine must be switched off immediately if a fault develops in the electrical power supply.

The electrical equipment of our machines must be checked at regular intervals and any defects found must be remedied immediately.

If it is really necessary to carry out work on live parts, a second person should be on hand to operate the emergency OFF switch or master switch with voltage release in the event of an emergency. The working area should be cordoned off with a red-and-white chain and marked by a warning sign. Only use electrically insulated tools.

2.7.3 Working with open flame

Fires and explosions may occur when working with naked lights. The machine and its surroundings must be cleaned and dust and flammable substances removed. Ensure adequate ventilation and have fire extinguishers on hand.

Welding, firing, and grinding work may only be carried out on the machine with express consent in advance.

Before conducting this work, the machine must be cleared of dust and combustible material due to the danger of fire and explosion. Make certain there is sufficient ventilation.

2.7.4 Hydraulic and pneumatic systems

Work on hydraulic or pneumatic equipment may only be carried out by persons with special knowledge and experience of hydraulic systems. Pressure lines must be depressurized before starting any repair work.

2.7.5 General conversions

Liability for machine damage and personal injury is removed completely if any unauthorized conversions or modifications are made to the machine.
The machine must not be modified, enlarged or converted in any way that would affect safety without the manufacturer's prior approval.

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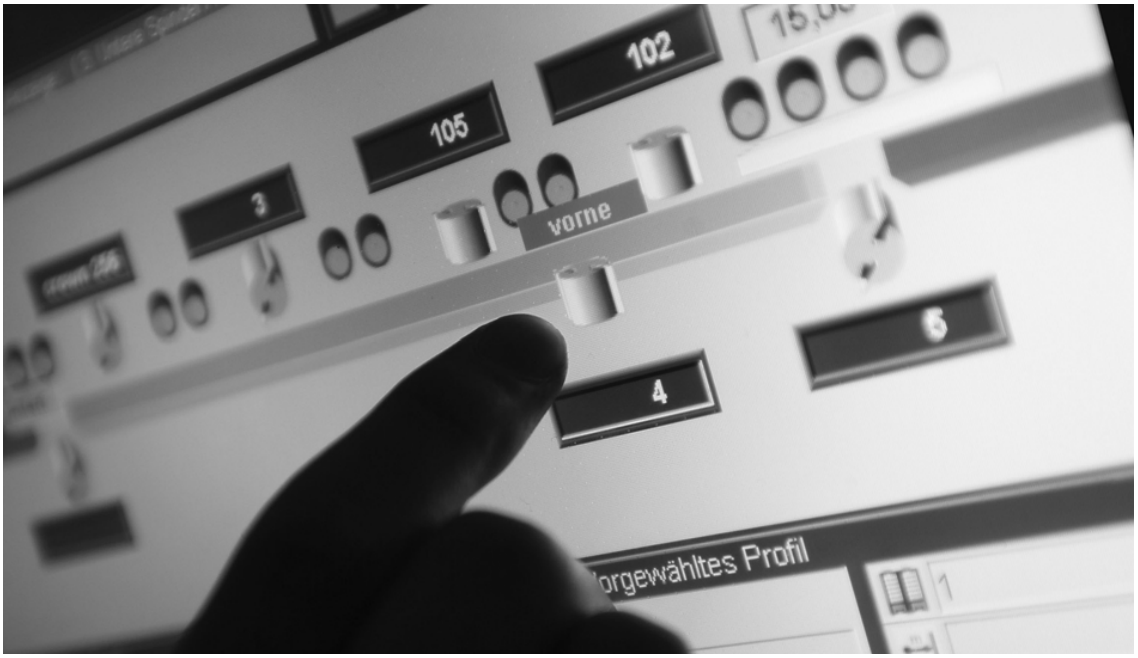


3 Control systems

3.1 Starting machine movements

Read the Instruction Manual carefully to establish which keys and functions start machine movements.

Main machine operating panel
- Starting of the drive motors and the feed
- Feed beam up/down
- Starting of spindle and saw shaft movements up/down/ forward/back

Auxiliary **machine control panels**
Movements can also be started from here, such as:
- Feed beam / feed pendulum up / down
- Feed in jog mode

Electronic controls
Movements can be started in certain screens and functions here.

3.2 Modes of Operation

Depending on machine model, your machine is equipped with several modes of operation:

- Automatic operation (normal operation)
- Manual operation (special operation)
- Setup operation (special operation)

In automatic operation, the machine produces with the protective cover closed and locked. Thus the danger zone with the rotating tools is secure.

Increase danger of accident due to moving machine parts in the special modes of operation. In manual and setup operation, you may enter the danger zone of the machine in order to perform the following tasks:

- Workpiece or tool change
- troubleshooting in the course of production,
- elimination of machine malfunctions,
- setup, programming, test runs, cleaning, and maintenance

Proceed with increased caution in these modes of operation. Clarify who may run the machine in which mode of operation and inform operators of the possible risks. Find out from the owner whether other modes of operation were realized, in addition to those described in the Instruction Manual, which in some circumstances could lead to increased risk.

3.3 Operation

All the controls built by our company are governed by a safety concept. Machine parameters can only be altered after entering a correct password. If you know the corresponding passwords, remember: Errors can lead to serious machine damage or personal injury if alterations to machine and parameters are entered incorrectly.

3.4 Maintenance, repair

Plug-in boards may have to be replaced in the control for maintenance purposes. Never switch on the machine's master switch when plug-in boards are missing from the control, as this may lead to uncontrolled machine movements.

3.5 Electromagnetic radiation

The User Manuals for screens bought in from other manufacturers are enclosed with the overall Instruction Manual. The radiation emitted by such screens is specified in the corresponding manuals.

4 Tools

4.1 Handling

Wood-working tools have extremely sharp cutters which may cause serious injuries even when at a standstill. Utmost care must be exercised when working on a tool. Protective gloves should be worn when handling tools. The tools may only be transported in suitable packaging or in a suitable fixture. They should be stored in such a way that they cannot cause any injuries (e.g. in a tool cupboard).

Keep away from moving cutters when the machine is running. The tools should be covered when working on the machine. Note the national regulations (EC Directive) and the relevant safety regulations when handling wood-working tools.
Reliable assembly is essential, particularly in the case of non-positively clamped cutters. Such cutters are only held by pressure and friction.
Example – moulders: Although the individual cutter only weighs 0.2 kg when the machine is at a standstill, its weight increases to 493 kg when rotating at a speed of 6000 rpm (tool circumference: 125 mm).

Always switch off the master switch and secure it to prevent inadvertent restarts or select "Setting-up" mode and remove the key before

- changing tools and before starting any work on tools in the machine,
- starting any work on the tool jointing device (moulders), except with regard to the actual jointing process at operating speed.

4.2 Checklist – Tool Selection

1. Danger of tool breakage – use only approved tools and tool for removing the workpiece.

2. Danger of tool breakage – use only saw blades and milling cutters manufactured in conformity with appropriate standards.

3. Danger of accident due to tools coming loose – use only the tool mounting devices supplied by the manufacturer.

4. Danger of tool breakage – do not use saw blades made of super-speed steel (HSS).

5. Tools made by our company are only suitable for machines with integrated mechanical feed and manual feed (in which case they are identified by the test mark "BG Test" issued by the employers' liability insurance association) and can only be used for planing and jointing on solid soft and hard timber, as well as woodlike materials in accordance with the technical tool data.

6. The maximum speed specified on the tool must never be exceeded. The actual speed must also not be allowed to drop below that specified on some tools (centrifugal force). The tools made by other manufacturers may only be used for their intended purposes and in accordance with the manufacturers' instructions as regards use, adjustment, repair and permissible speeds.

4.3 Checklist – before fitting the tools

1. Thoroughly clean all spindles, saw shafts, and their bearing surfaces, as well as all parts such as spacer rings, spindle nuts, saw shaft nuts, slide-on bushings, saw blade flanges, sliding heads, etc.
   Grease bearing surfaces, inspect for damage, and replace if necessary.

2. Remove burrs at existing pressure points on the spindle and the saw shaft reference.

3. Check that the tools are not cracked, deformed or tarnished. Check the permissible tool speeds, imbalance and that fastening screws or bolts on the tools have been tightened.

4. Profile cutters and planing knives must not protrude beyond the sides of the tool carrier.

5. Tools which have been heated due to cleaning in a washing machine or in any other way must be allowed to cool before being fitted. The tool mount may work loose or be reduced as the tool shrinks when cooling.

6. Before insertion in the machine, retighten all fastening screws of the cutter in the tool, the nuts of the cutter, the saw blades in the tool or on the sliding heads and check that they are seated firmly.

7. Do not use dull tools.
8. Carry out cutter replacement and turning with utmost caution according to instructions for use for tools. Use only original knives and spare parts.

9. Imbalances must be avoided when assembling cutters. The cutters and clamping wedges must not be fitted one-sidedly. Tools must always be fitted with their full complement.

10. All cutters and clamping wedges must be fitted completely and with great care. Only use suitable assembly tools (no hammers, chisels, etc.) in order to avoid damage. Screws must not be too tight or too loose.

11. Note the permissible minimum clamping length of regrindable profile cutters.

4.4 Checklist – fitting tools in the machine

1. Use only original spindles, saw shafts, and spacer rings. This also applies for saw blade flanges, push-on sleeves, and sliding heads.

2. Note direction of rotation. All tools must always work against the feed direction. If synchronous operation is necessary, then supplementary safety measures are necessary after consultation with us.

3. Note the min. / max. tool length / clamping length.

4. Spindles and saw shafts may only be mounted with tools with permissible dimensions.

5. Tools must be fitted in the machine and secured as directed by the machine manufacturer.

6. Tools must always be fitted with a Weinig safety locking collar.

7. Check that the tools are seated correctly.

8. Tighten spindle nuts and saw shaft nuts until they are tight enough that they cannot come loose by themselves.

9. Never use damaged or dull tools.

10. When mounting the tools, make certain that the tool and the locking ring always project beyond the spindle and saw shaft length by approx. 1 mm so that the tool and locking ring are under tension, thus preventing twisting of the tool.

11. After each tool change, verify that the tools are properly placed and that all fastening elements have been tightened firmly.

4.5 Checklist – before and during operation

1. 

Turn the spindles by hand before starting to ensure they run freely.

2. Ensure that the spindles and saw shafts run smoothly when switching on and during the trial run.

3. If tools do not run smoothly, this may be due to
   – imbalance, dirt, or pressure points in the references. Test: It must be possible to push the tool against the spindle reference or saw shaft reference with a metallic click.

   – defective spacer rings, slide/on sleeves, saw blade flanges, and sliding heads.

4. Danger of tool breakage due to collision of the tools with other parts of the machine, such as table, lateral fence and/or workpiece guide and pressure elements.
   Especially with moulders, there is a danger of collision between the pressure elements before the left and upper tool (tools that work the raw wood) if excessively large raw wood dimensions are used. Thus observe max. raw wood dimensions.

4.6 Checklist – after operation

1. Tools must be examined immediately after being removed. Damaged tools must be set aside so that they cannot be reused.

2. If tools are not changed for a long time, then the corresponding spindles and saw shafts must be checked for freedom of movement, cleaned, and lubricated weekly.

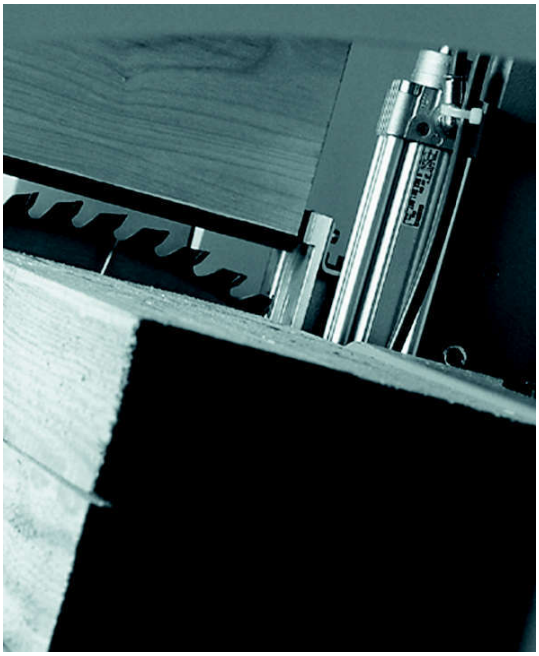
4.7 Tools for window machines

The heaviest tool should be fitted in the lowest position if possible in UNITEC and UNIVAR spindles.

Only use tenoning and slotting tools approved for manual feed (e.g. tools with BG Test mark) when the tenoner is operated individually and the table is operated with manual feed.

Optional electric spindle adjustment: When setting the basic position of the UNITEC and UNIVAR spindles, the operating mode must be switched from manual to setting-up mode when setting up the tools.

The cutting saw for glazing beads and the groove-cutter for fitting grooves cannot and must not be used at the same time (mutually interlocked). The guiding ruler must be moved up to the saw blade before starting the saw for glazing beads.



4.8 Working with circular saws

4.8.1 Window machines

Saw blades may only be used on the spindles for the cutting saw for glazing beads and for cut-off saws.

Kickback prevention must be used when operating the glazing bead saw and when producing profiles from which the beads are cut out.

The kickback prevention elements must move easily and remain sharp-edged at all times (must be checked every day). The kickback prevention must be set so that the workpiece is always caught safely.

4.8.2 Moulders

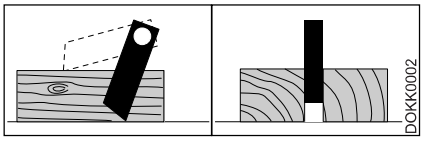
Kickback prevention must be used for all sawing operations (ripping work). A splitting wedge must be used when ripping with a saw blade. Saw blades should preferably be fitted on the bottom spindle (cutting pressure forces the workpiece onto the table). An anti-kickback device or kickback prevention with splinter catcher must be used when operating several saw blades on a saw shaft.

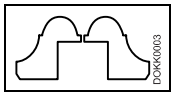
The kickback prevention elements must move easily and remain sharp-edged at all times.
A distance of at least 1 mm must be maintained between the kickback prevention elements and the table surface.

4.8.3 Safety mechanisms when operating saws

When using circular saws or profiling tools with which workpieces may be kicked back or accelerated in the direction of feed, the following safety equipment must be used (see next page).

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
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
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: • 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
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.

5 Setting-up, production

Select the operating mode for setting-up or production as specified in the Instruction Manual and remove the operator key if available. Note the switch-on and switch-off procedures, as well as the indicators specified in the Instruction Manual.

5.1 Tooling, setting-up, measuring

The master switch must always be switched off and secured with a padlock so that it cannot be switched on again when tooling or setting-up the machine and carrying out measurements. Wait until all rotating parts (tools, feed rollers, etc.) have come to a standstill. Never place anything on the machine, not even for just a moment.
Note the maximum raw timber dimensions (L x W x H). Keep your hands out of the machine during feed up / down.

The width of the feed rollers must be adjusted to the workpiece width and the height of the feed rollers to the workpiece height in order to ensure adequate pretension.

5.2 Set up profile, production

Risk of accident due to collision of workpiece and tool – set aside manually adjustable spindles and saw shafts in the non-cutting area (of the working area), before starting the feed.

The tools, feed rollers and their input and output components run down after being switched off and are potentially dangerous. This continued movement must be noted when opening hoods and covers; do not reach into the tools, feed rollers and their drive elements while they are still rotating.

Unprotected hoods, doors and infeed safety gate covers must not be opened until the machine has come to a standstill.

Keep your hands out of the feed area while the machine is running. Never look into the infeed channel of the longitudinal feed.

If there are still workpieces in the machine and the tools are rotating, then the feed beam and the pressure unit may not be moved upward, otherwise the workpieces would be released and may be thrown back.

Always remain out of range of flying chips in order to avoid injuries due to broken material. Only use long, uncracked workpieces of the same width and thickness to push out scraps or short workpieces.

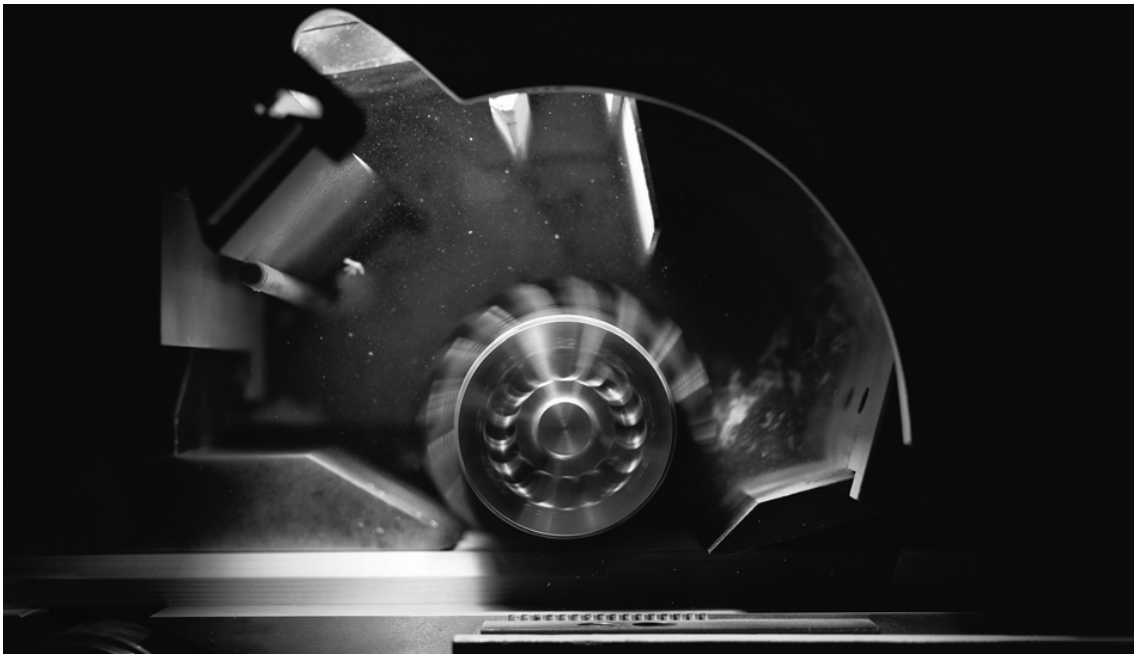
Use hopper feeder for short parts. Ensure that the discharge area of the machine is long enough when machining long stock. Only use long, uncracked workpieces of the same width and thickness to push out scraps or short workpieces.

Never move towards a measuring instrument or piece of wood with the feed or with the upper spindle. In other words, make the adjustment first, then position the measuring equipment, readjust, etc.

5.3 Material blockages / queue of parts / faults

- Never push the timber in or onwards by hand or with a hammer or rods, etc.
- Never push in the next workpiece
- Never increase the feed pressure. Always switch off the machine instead (spindles and feed off) and remedy the fault by hand.

Avoid collisions and crushing when adjusting spindles and pressure elements.



6 Moulders

6.1 Danger areas – moulders

– Workpiece infeed – timber feed
Risk of injury: timber kickback, crushed limbs, noise

– Table rolls
Rotating steel table rolls, risk of injury: crushed limbs, entapment
Table rolls must be kept clear of chips and wood dust, fire hazard

– Feed
Sharp rotating feed rollers made of steel/rubber. Risk of injury: entrapment, crushed limbs, cuts

– 

Tools
Sharp rotating cutters, broken cutting edges, flying chips.
Risk of injury: crushed limbs, cuts, severed limbs, parts catapulted out of the machine, hair or clothing caught and wound up in the machine, dust, noise, eye injuries

– Spindle journal
Protruding, rotating spindle journals.
Risk of injury due to being wound up in the machine

– Workpiece discharge – timber removal
Risk of injury: timber catapulted out when climb-cutting. Risk of crushed limbs due to non-compliance with safety guidelines when handling long workpieces

6.2 Safe workpiece transport

In order to transport workpieces safely and avoid kickbacks, the width of the feed rollers must be set in accordance with the workpiece width and the height of the feed rollers set in accordance with the height of the workpieces to be machined in order to ensure adequate pretension.

The feed rollers must not be adjusted upwards while there are still workpieces inside the machine and the tools are still rotating, otherwise the workpiece will be released and may kickback.

6.3 Points to be noted

The kickback prevention must be installed when producing multiple profiles or simultaneously cutting out mouldings.

The machine may only be switched on when the outboard bearings for the upper and lower spindles have been fitted and pressurized (if available).

As a rule, maintain a gap of ≤ 4 mm (0.157“) between the stands and the straightening plate.

When working with climb-cutting, the impact plate and barrier must be positioned behind the machine outfeed so that flying workpieces are reliably caught and the danger zone is inaccessible. Affix a warning sign to the machine.

7 Window machines

7.1 Danger areas – window machines

– UNITEC area – timber feed
Clamp timber on transfer table (clamping claws are lowered automatically)
Risk of injury: crushed or trapped limbs, risk of being entrapped, trapped between tables

– Feed
Rotating steel feed rollers
Risk of injury: crushed limbs, entrainment, risk of being caught and wound up in the machine

– Tools

Sharp rotating cutters, broken cutting edges, flying chips. Risk of injury: crushed limbs, cuts, severed limbs, parts catapulted out of the machine, hair or clothing caught and wound up in the machine, dust, noise, eye injuries

– UNIVAR area – timber feed for stormproofing
Kickback timber

– Workpiece discharge – remove timber
Timber catapulted out of machine when climb-cutting. Risk of injury due to impacts. Long workpieces. Risk of injury: crushed limbs due to non-compliance with safety margins

7.2 Points to be noted

Note timber movement, transfer table, fence ruler. Sliding clutch of transfer table (if installed) must not be set too tight.

Workpiece kickbacks can be avoided by correctly setting the feed rollers in the feed beam and by correctly setting the clamping bars on the carriage in accordance with the workpiece height.

The sash must always be glued before being stormproofed. Stormproofing unglued sashes can lead to accidents.

If necessary, the workpiece must be supported additionally, for instance if it is very long. The workpieces in the starting stack must be of the same size in order to ensure that they are clamped correctly.

Only power-operated clamping devices may be used in machines with mechanical feed, although the efficacy of such clamping devices depends on whether the clamps have been correctly set by hand.

Depending on the cross-section of the workpiece, corresponding clamping devices must be used, particularly if there is any risk of the workpiece being pulled round. If more than one workpiece is machined at any one time, care must be taken to ensure that each workpiece has been clamped.

Flying cutoffs and their removal may pose a problem. The cutoffs must be discharged from the cutting area into a container. Never attempt to remove cutoffs or other parts from the cutting area while the machine is running.

The sliding table must move freely over its entire traversing range. Ensure that there is no risk of crushing or shearing between the moving table and stationary parts, including the fencing. There must not be any obstacles within the area of movement of the sliding table, nor within an area of one metre around this area. Markings can be a useful aid here.

When producing double pieces, the joint of the clamping claw must be centered over the workpiece. The clamping pressure must be set correctly and the operating procedure followed as described in the Instruction Manual in order to prevent the workpieces from working loose. Clamping jaws which have been set to the same height must be checked daily in order to prevent the timber from being pulled out.

The cut-off saw protrudes beyond the cover when producing studio windows. Do not reach into the saw, otherwise you may be cut by the rotating tools! When the saw is raised, do not reach inside the cover from below, otherwise you may be cut by the rotating tools!

7.3 Tenoning and slotting spindle

When producing studio windows, the controlled guard is open while the jog switch is pressed – risk of cuts due to rotating tools!

Do not reach into the feed transfer area – you may be caught and wound up in the machine!

The workpieces are transported from the feed by a motor drive: it is therefore essential to maintain a safe distance as specified in the Instruction Manual in order to avoid being crushed! Do not reach under the moving safety cover on the feed, otherwise you may be caught and pulled into the machine or crushed or cut.

In the case of machines with motor-driven height adjustment, a shear edge may be produced in relation to the stationary panelling, depending on the set moulding depth. Limbs may be crushed here.

Do not reach behind the cover on the feed when working with climb-cutting, Univar, horizontal grooving spindle, glazing-bead saw and the grooving spindle for fitting grooves.

Keep away from the feed area of the sliding table while machining workpieces, otherwise you may be crushed.

The optionally available electric spindle brake is ineffective if the power is off (mains power failure, master switch off). The controlled guard remains in its momentary position and you may be cut by tools as they run on.

8 Optimization Cutting Saws

8.1 Intended Use and Additional Risks

The optimization cutting saws are solely intended for cutting wood and wood-like materials to length in accordance with the engineering specifications.

8.2 Tools

8.2.1 Sawing Station

Danger of crushing by suddenly extending pneumatic cylinders – do not reach under the feed rollers.

Danger of cuts and crushing by still running drive – note time needed for machine to come to a standstill.

Danger of crushing due to manual feed – do not reach inside the machine in the vicinity of the pressure rollers.

Danger of injury by rotating tools – check the time it takes for the saw motor to come to a standstill. Max. permissible rundown time 10 secs. If the rundown time is excessive, replace motor brake.

8.2.2 Changing the Timber and Aluminum Strip

Danger of injury and damage.
Ensure that the machine is switched off and secured against being switched on again. The pressure must be let out of the pneumatic system .The following tasks are carried out in the danger zone around the saw blade.

Risk of injury and damage.
Use only saw blades that are rated for your machine. Wear gloves when changing the saw blade. Note the direction of rotation of the saw blade (note arrow indicating direction of rotation). Note the max. permissible speed:

- Saw blade-Ø 400 mm = approx. 4,500 RPM
- Saw blade-Ø 500 mm = approx. 3,600 RPM

8.2.3 Replacing Parts

Danger of injuries and damage. Whenever replacing parts, first make certain that the master switch is set to 0 (OFF) and is secured against being turned on again. The pressure must be released from the pneumatic system.

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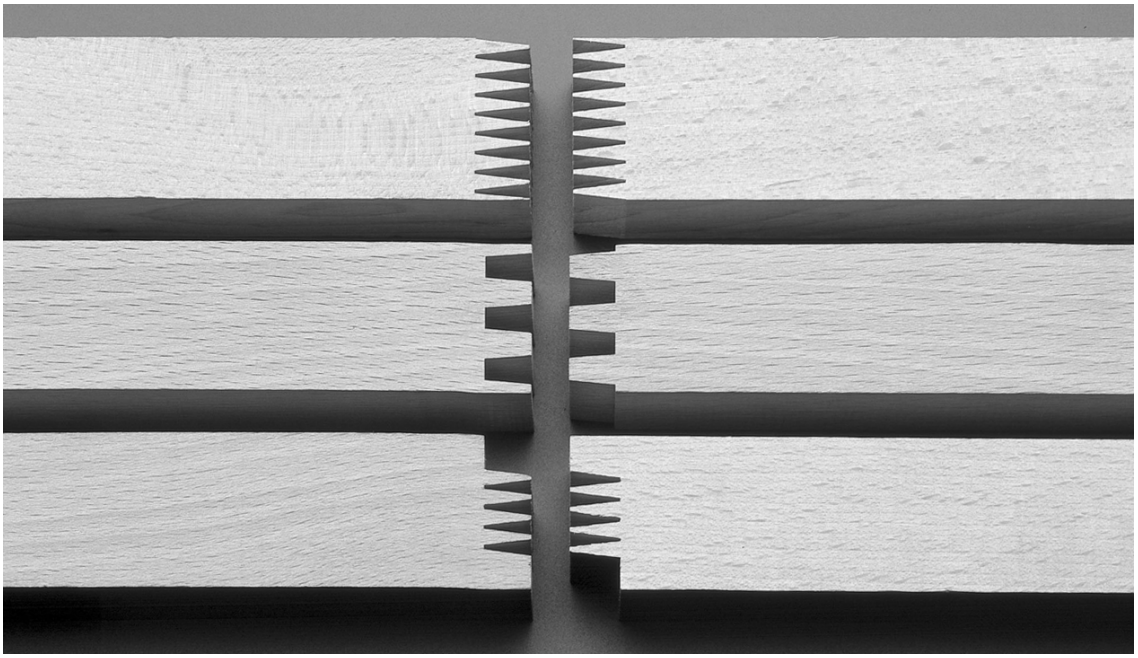


9 Fingerjoiner

9.1 Intended Use and Additional Risks

The fingerjoiner is intended solely for processing solid wood.

Dovetail joints are used to manufacture pieces of lumber that are ready for use. Any other use or any use above and beyond this, e.g., processing other materials or lumber of a different width, thickness, or length than that specified in the technical description, is hereby deemed to be not in accordance with the intended use.

Operators who use the machine for purposes other than those for which it is intended do so at their own sole risk. Part of use in accordance with the intended use is also compliance with the Instruction Manual and the operating and maintenenance conditions stipulated by the manufacturer.

9.2 Tools

Use only saw blades that conform to EN 847-1 and correspond to the range of permissible saw blade diameters and thicknesses stipulated in the technical description.

9.2.1 Milling Cutters

Tools may only be sharpened by expert personnel according to the respective manufacturer's directions.

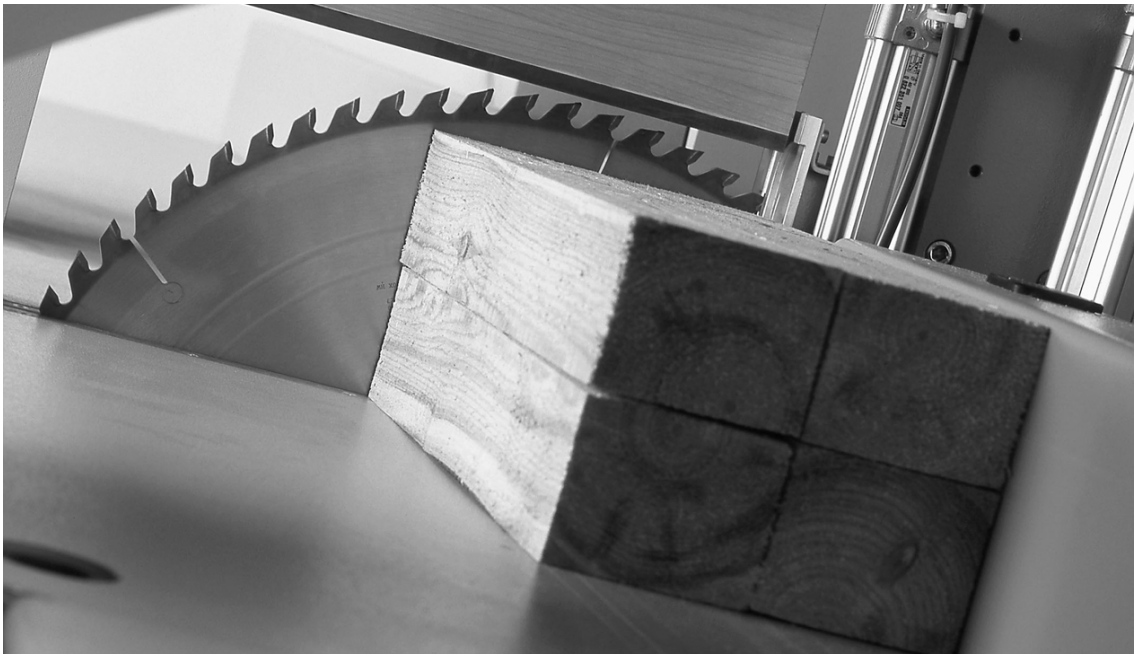
Cracked hard alloy tips mean increased risk of accident. The tool may no longer be used. Tool repairs may only be carried out by the tool manufacturers.

New milling cutters are provided with an edge protector. After the edge protector is removed, there is a danger of injury by the sharp edges.

9.3 System Components

Danger of crushing and dismemberment – do not reach inside the moveable parts of the system during adjustment work. In particular, these are the
– Fences
– Transfer
– Threading station
– Top pressure ruler

Press right – set lumber width
Danger of crushing
Do not reach inside the system while the traverse is in motion.



10 Circular Saws

10.1 Intended Use and Additional Risks

Raimann manufactures circular saws, longitudinal circular saws, and circular crosscut saws.
See the respective Instruction Manual for the precise intended use.

The following, however, applies for all machines: the machines are solely intended for sawing or dividing up wood and wooden materials with tools specified in the Instruction Manual.

Dividing up of edged and non-edged lumber using the tools provided for in Section 4, which in cross-section corresponds to the specified cutting performance and/or the technical specifications in Chapter 4. For other materials, obtain the manufacturer's written consent in advance.

Additional risks exist
- due to kickback of workpieces, parts of workpieces, and splinters
- due to malfunctioning splinter catchers (dirty, incorrectly adjusted, rusty, deformed, etc.)
- due to dangerous work supplies when filling the spray system (option)
- while performing setup tasks, e.g., adjustment of the pressure rake and adjustment of the pressure system height (option)
- when the direction of rotation of the saw blade is changed or reversed
- due to scattering of parts and scrap
- due to the saw blade sinking into saw blade replacement position in the event of power loss
- due to the saw blade being reached by the suction muffles when the suction hose has been removed

10.2 Sawing Tools

10.2.1 Saw Blade Replacement

After replacing the saw package, the tensioning device needed in order to tension the toothed nut must be removed before closing the protective hood.

10.2.2 Saw Blade Diameter

When changing the saw blade diameter (larger/smaller), the saw shaft (saw pendulum adjustment) must be readjusted for the respective saw blade diameter. If this is ignored, there is a danger that saw blades will engage the chain, thus resulting in damage to the chain and/or the saw blades.

Special care should be exercised when unpacking the tools and mounting blades on the saw shaft. Part of quality assurance and work safety is ensuring that the tools are resharpened in due time and cleaned using suitable special materials
Replace dull saw blades and ressure rakes in due time.

10.3 System Components and Special Tasks

10.3.1 Printing System Hood Lock

The saw motor can only be switched on when the printing system hood is closed. The printing system hood is automatically locked when the saw shaft is turning. Factory-installed safety equipment may not be modified or removed.

10.3.2 FlexiRip, Protective Equipment (UKS)

– Two-handed control protects against reaching into the cutting plane.
– A protective shield or a protective grating on both sides of the cutting plane prevents reaching after objects.

10.3.3 Sawing unedged lumber

When cutting unedged lumber (boards with rough edge). Here, for reasons of safety, the board must be fed into the machine with the rough edge facing up.

The following tasks may only be carried out when there is no board in the machine and the saw shaft is at a standstill.
Lifting of the safety catches while the saw shaft is running is prohibited, except when the material being cut causes this to happen.

The kickback protection system should be checked continually for proper function. The individual kickback catches should be shaken out several times each day and cleared of sawdust and chips. Waste of this kind can cause the catches to stick. The inside of the machine must be cleared of chips and shavings.

11 Accessories, mechanical handling devices

11.1 Accessories, options

11.1.1 Laser

Never look into the laser light source. Do not use any optical filters. Do not modify the existing shield in any way, for instance by adjusting it. Ensure that there are no mirrors or shining surfaces which could pose a hazard by reflecting light in the laser area. Do not use a different type of laser without consulting the manufacturer first. Defects in the laser may only be repaired by the manufacturer.

The laser devices used are Class 3A laser devices and comply with Draft Standard EN 60825/VDE 0837. They have been designated as such by the manufacturer and labeled accordingly.

Class 3A laser device: The beam is expanded. Do not look into the laser beam. Do not use any optical aids: they could concentrate the beam and thus pose a hazard to the eyes. Power up to = 15 mW with linear optics (45º divergence angle) in accordance with laser class 3A.

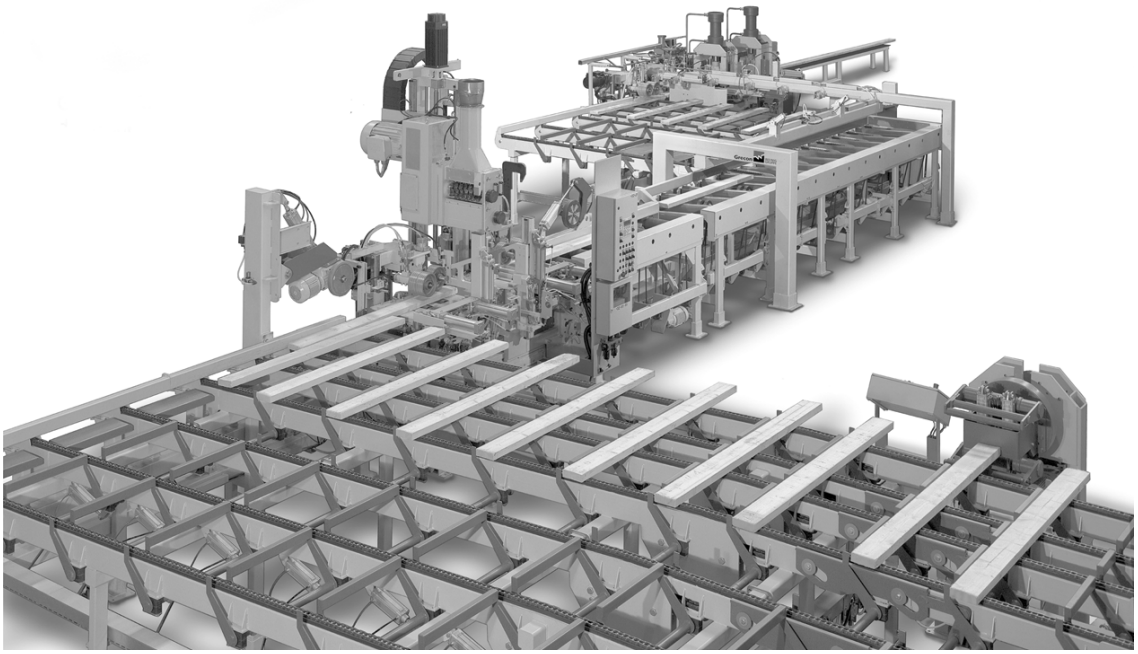
11.1.2 Infeed magazines

Infeed magazines are subject to hydraulic or pneumatic pressure and entail a high risk of being trapped or crushed. To ensure safe starting, the infeed magazine must be disconnected from the air supply for adjustments, maintenance work, remedying faults (jammed workpieces) or disassembling protective devices. The machine must always be switched off as well when eliminating faults (master switch off).

The permissible dimensions and tolerances must be maintained for the workpieces in the stack. Dimensional tolerances must also be taken into account when setting the magazine.

New timber must be inserted in the infeed magazine carefully. This applies in particular for the first few parts. Keep your hands away from the infeed area and from the timber in the infeed magazine during the production process. The feed wheel continues to run even when the infeed magazine is empty and you may be drawn into the machine.

The clamping levers may have to be released in order to remove jammed workpieces from the infeed magazine. These levers must be released very slowly so that the cylinders can complete their working cycles and return to their home position. Ensure that limbs cannot be crushed when releasing the clamping levers.



11.2 Machines linked to other equipment

11.2.1 Intended use

Our machines are designed to transport, sort, position and stack workpieces made of wood or woodlike materials in accordance with the technical specifications. Other materials may only be machined in consultation with the manufacturer.
Due to their overall design, our machines cannot be used for such materials as metal, etc.

All material handling elements, such as belt conveyors, cross feeders, roller conveyors, etc. are precisely matched to the prevailing requirements. The following technical specifications in the installation diagram and order confirmation must therefore be observed in order to avoid accidents, backlogs of material and machine damage:

- Personnel requirements, operator positions
- Min. / max. dimensions for raw timber / finished product
  Note: The size, moisture and type of raw timber used also determine the timber weight.The permissible weight limits for the material handling elements must not be exceeded.
- Permissible type of timber, timber moisture, timber weight, timber quality, ambient temperature
- Cycling rate at the transfer points (number of workpieces arriving within a certain period of time. The cycling rate depends on the feed rate and part length.)
- Min. / max. feed rate of the main machine

11.2.2 A word to the owner

If the owner contractually agrees to safeguard the material handling devices by means of barriers, fences, locked doors, etc. these must be retrofitted in accordance with our specifications and the EC Directive on the safety of machines.

Operator positions must always be readily accessible. Escape routes must always be kept clear.

Ensure there is sufficient room for buffers / interim stores at the feed, acceptance, transfer and production stations. Ensure that the accumulated raw timber, finished timber and rejects are removed at regular intervals by duly appointed members of staff.
Safety areas should be marked on the floor.

The paths travelled by the workpieces and potentially dangerous transfer points must also be clearly evident to third parties. Gaps must be protected mechanically or electrically (by light barriers).

11.2.3 Before working on / with the machine for the first time

Machines linked to other equipment are complex systems which are difficult to survey and demand a high level of concentrated attention, depending on their size. It is important to be informed of the following points in particular:

– Operation and function of the plant modules, safety areas, path followed by the timber
– Effect of a feed stop and emergency STOP. Depending on the type of machine concerned, the feed stop and emergency STOP may only apply for the plant module as such, or for a whole section of the plant or even for the entire

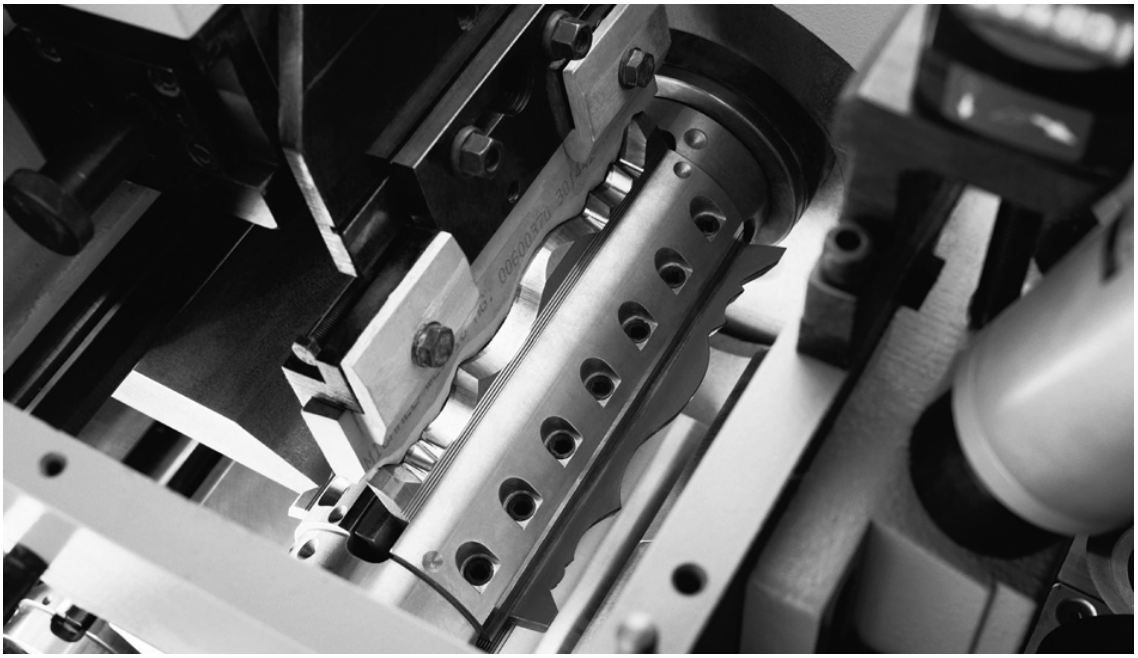
  plant. The emergency OFF buttons are always located in the immediate vicinity of the operator positions.

11.2.4 Switching on

The system can be switched on in two ways, depending on the type of system concerned:

1. Each plant section must be switched on individually. Timber should not be fed in until you are sure that all sections have been switched on.

2. The entire system can be switched on from a single operator position. In this case, an acoustic signal sounds to warn the operating staff that the plant is starting up. Step back immediately from all danger points or press the emergency OFF button.



11.2.5 Feed rate

The feed rates of all infeeds and outfeeds, as well as all integrated machines must be precisely coordinated with one another.

11.2.6 Material backlogs, faults

Backlogs at transfer stations are particularly dangerous. The delivery of material continues constantly although it cannot move further. Suitable countermeasures must be taken (feed stop or emergency STOP) as the situation demands.
The supply of material to the point concerned must in all cases be halted and all plant and machine operators informed.

Malfunctions due to broken timber or lost branches on conveyor belts or chain conveyors must be reported immediately. The feed for these areas must be switched off without delay, since workpieces under stress can be catapulted aside at high speed.

Care must be exercised in front of all moving parts. Never reach into conveyor belts, roller conveyors, drag chains or transfer devices. Damaged handling devices must be replaced or repaired immediately.

11.2.7 Maintenance

Fallen branches, splinters, material residues and other dirt must be removed from the handling devices in order to avoid backlogs. Handles, steps, railings, landings, platforms and ladders must be kept clear of dirt, snow and ice.
The climbing aid provided or other suitable climbing aids must be used when working at overhead heights.
A safety harness must be worn for all work at great heights.

12 Safety Signs on the Machine

For your safety, signs are attached to the machine warning about specific dangers or providing special information:

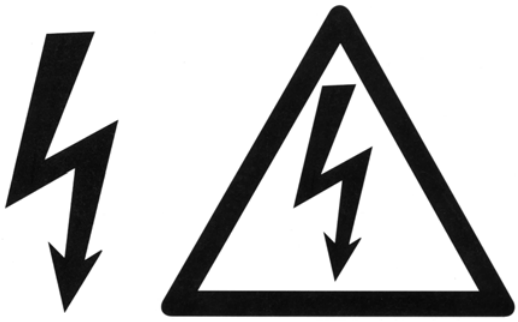
Signs giving orders
(white on blue background)

Prohibition signs
(black on white background, framed in red on a white background, framed in red)

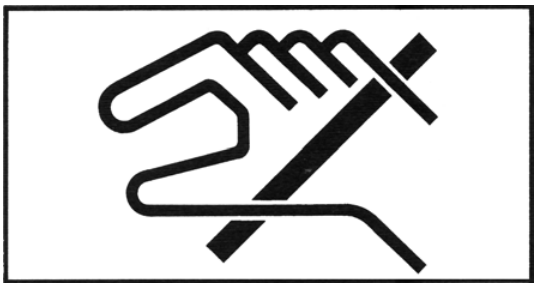
Warning signs
(black on yellow background)

WEINIG and its subsidiaries use additional, special symbols based on these. Variations for attached safety signs may occur as required by specific country requirements.

Please keep the signs on the machine clean so that they are always legible.
Please replace damaged or missing signs immediately. In some of our operating manuals, important signs are pictured as shown in the following examples. They may deviate from one another in the type of depiction although they are equivalent in meaning.



Warning about Dangerous Electrical Voltages



Danger – Do Not Reach Inside the Machine

This sign is found, for example, especially where there is danger due to moving machine parts, e.g., with the notice "Do not reach inside!"

Danger – Risk of Injury by Being Drawn into the Machine

This sign is found especially on the feed rollers used to transport the wood, e.g., with the following notice: "Danger. Do not operate without guards in place."

Danger – Warning about Tool Breakage

Maximum possible speed of the spindle. Here you must never use tools that are not rated for these speeds.

Danger – Hand Injury Warning

You will find this sign wherever rotating tools are in use.

Danger – Eye Injury Warning

Wear eye protection. You will find this sign wherever, for example, there may be a high incidence of flying chips.

Danger – Hearing Injury Warning

Wear ear protectors. You will find this sign wherever people may be exposed to increased levels of noise.

12.1 Safety signs for mechanical hazards (new)

1. Infeed area:

DANGER
Danger of cutting and crushing caused by moving parts.

Stay away from all moving parts until the machine has shut down safely and until all moving parts have come to a full stop.

The brake function is deactivated if the power supply fails or there is a brake fault.

Do not remove safety systems from the machine.

2. Infeed area:

WARNING
Observe the Instruction Manual and safety signs

Errors in reading or a failure to understand the Instruction Manual or safety signs can result in serious injury.

The Instruction Manual must remain accessible close to the machine.

3. Infeed area:

WARNING
Wear hearing protection
Risk of damage to hearing due to machine noise

Wear protective goggles
Risk of eye injury due to dust and chips flying

4. Infeed area:

Clean the table rollers daily

5. Infeed area:

Before beginning, check width of roller and diameter of tool cutting circle

6. Infeed area:

Only operate the Weinig touch panel with the original Weinig plastic pen; otherwise, we will not assume any warranty.

7. Infeed area:

DANGER
Danger of cutting due to sharp rotating tools

8. Infeed area:

DANGER
Danger of crushing, cutting, trapping and entanglement due to rotating machine elements.

9. Infeed area:

Anti-kickback device
Always use a safety device, for example an anti-kickback device or catcher equipment when cutting workpieces against the direction of feed with a saw or multiple profiling units.

Operations with tools rotating in the same direction as the feed rollers on one or both of the last two working spindles or cutting with saws or multiple profiling tools running in the same direction as the feed are only permitted under the following conditions:
To prevent access to the hazard zone you must install a tunnel-type guard with end-stop and lateral part removal at the discharge end of the machine.

Observe the warning notices and warning information in the Instruction Manual.

10. Infeed area:

WARNING
Laser beam!
Do not look into the laser beam
Laser class 2

11. Infeed area:

WARNING
Danger of crushing, cutting, trapping and entanglement due to rotating machine elements.

Do not use the reduced distance feed assembly in the infeed in the event of manual loading.

12. Infeed area (with single split unit only):

DANGER
Danger of kickback and crushing.

The installed anti-kickback device and catcher equipment must not be removed in any case of application. Observe the warning notices and warning information in the Instruction Manual.

13. Infeed area:

WARNING
Danger of crushing, cutting, trapping and entanglement due to rotating machine elements.

The machine may only be operated with automatic loading and extraction.

14. At all spindles / tools:

DANGER
Sharp rotating tools represent an accident hazard.

Please note:
The direction arrow shows the rotational direction of the corresponding tool.
The rated tool speed is indicated on every spindle in accordance with the machine version.

15. At various positions:

WARNING
Do not work with dismounted protective equipment.

16. At all spindles / tools:

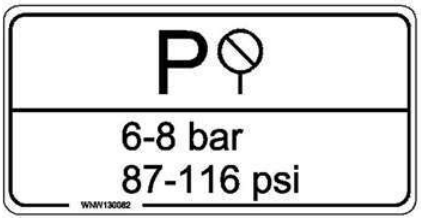
Applies only when utilizing hydraulic milling spindle nuts (option):
Check the pressure gauge of the milling spindle nut daily.

17. At master switch:

CAUTION
Switching off the master switch does not de-pressurize the pneumatic system.

18. At master switch:

Operating pressure information sign.



19. Infeed area:

WARNING
Various general safety instructions.

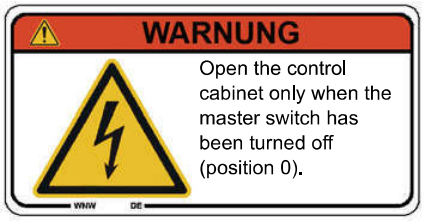
(Added only to machines destined for England).

12.2 Safety signs - electrical system

20. On the control cabinet:

Electrical voltage

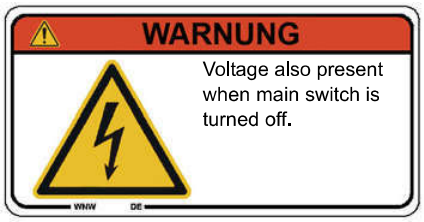
WARNING
Open the control cabinet only when the master switch has been turned off (position 0).



21. Inside control cabinet door:

Electrical voltage

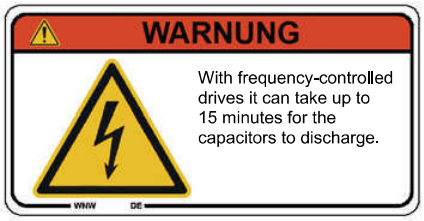
WARNING
Voltage also present when main switch is turned off.



22. On the control cabinet:

Electrical voltage

WARNING
With frequency-controlled drives it can take up to 15 minutes for the capacitors to discharge.



23. Inside control cabinet door:

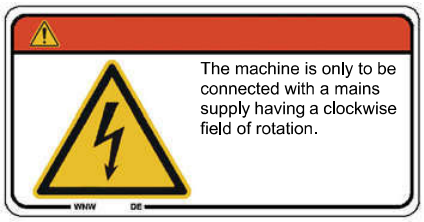
Check that all contact screws are secure before commissioning the machine.

24. Inside control cabinet door:

Confirmation
Protective conductor system tested in accordance with VDE 0100 Part 610. Dielectric and function test carried out in accordance with EN 60 204-1 section 19.

25. Inside control cabinet door:

The machine is only to be connected with a mains supply having a clockwise field of rotation.



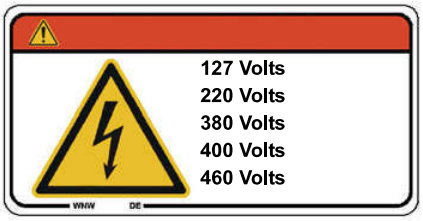
26. On the control cabinet:

WARNING
Extraneous voltage!

27. On the control cabinet:

Information on the electrical voltage

(only with delivery to specific countries)



12.3 Safety signs for the USA and Canada

The safety signs listed below are attached only to machines delivered to the following countries:

- USA
- Canada
- Countries served by Weinig USA.

These special labels are attached to the machines in English or French only. The combination of image and text on the label is self-explanatory so that no explanation is required here.

28. Infeed area:

29. At master switch:

30.

Notes

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Weinig bietet mehr!

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