OPTIMUM®
MASCHINEN - GERMANY

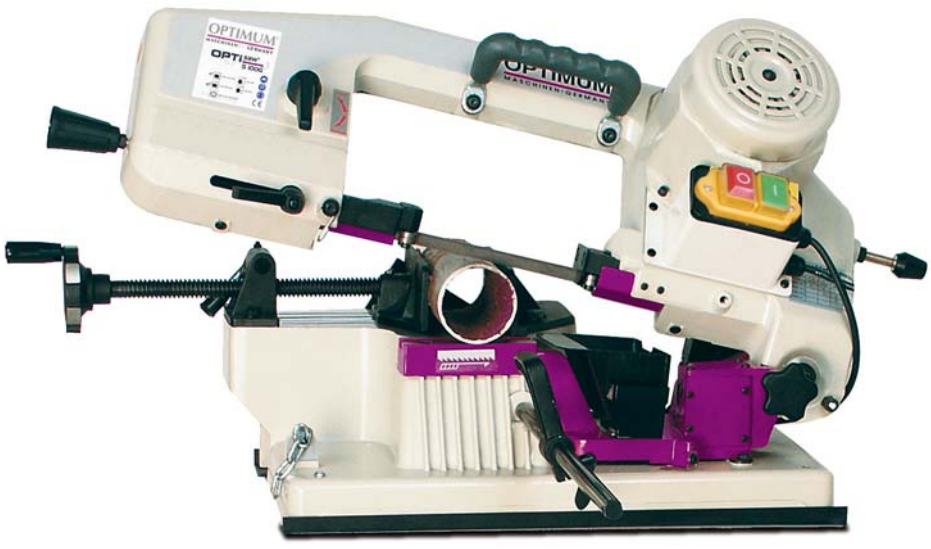
Operating Instructions

Version 2.0.8

Metal band saw

OPTI saw® S 100G

Part no. 3300100



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Preface

Dear customer,

Thank you very much for purchasing a product made by OPTIMUM.

OPTIMUM metal working machines offer a maximum of quality, technically optimum solutions and convince by an outstanding price performance ratio. Continuous enhancements and product innovations guarantee state-of-the-art products and safety at any time.

Before commissioning the machine please thoroughly read these operating instructions and get familiar with the machine. Please also make sure that all persons operating the machine have read and understood the operating instructions beforehand.
Keep these operating instructions in a safe place nearby the machine.

Information

The operating instructions include indications for safety-relevant and proper installation, operation and maintenanceof the machine. The continuous observance of all notes included in this manual guarantee the safety of persons and of the machine.

The manual determines the intended use of the machine and includes all necessary information for its economic operation as well as its long service life.

In the paragraph "Maintenance" all maintenance works and functional tests are described which the operator must perform in regular intervals.

The illustration and information included in the present manual can possibly deviate from the current state of construction of your machine. Being the manufacturer we are continuously seeking for improvements and renewal of the products. Therefore, changes might be performed without prior notice. The illustrations of the machine may be different from the illustrations in these instructions with regard to a few details. However, this does not have any influence on the operability of the machine.
Therefore, no claims may be derived from the indications and descriptions. Changes and errors are reserved !

Your suggestion with regard to these operating instructions are an important contribution to optimising our work which we offer to our customers. For any questions or suggestions for improvement, please do not hesitate to contact our service department.

If you have any further questions after reading these operating instructions and you are not able to solve your problem with a help of these operating instructions, please contact your specialised dealer or directly the company OPTIMUM.

Optimum Maschinen Germany GmbH
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1 Safety

Glossary of symbols

☞	provides further instructions
➜	calls on you to act
❍	listings

This part of the operating instructions

- ❍ explains the meaning and use of the warning notes included in these operating instructions,
- ❍ defines the intended use of the metal band saw,
- ❍ points out the dangers that might arise for you or others if these instructions are not observed and
- ❍ informs you about how to avoid dangers.

In addition to these operating instructions, please observe

- ❍ the applicable laws and regulations,
- ❍ the statutory provisions for accident prevention,
- ❍ the prohibition, warning and mandatory signs as well as the warning notes on the metal band saw.
  warnings on the metal band saw.

European standards must be met during installation, operation, maintenance and repair of the metal band saw.

If European standards have not yet been incorporated in the relevant national legislation of the destination country, the specific applicable regulations of each country must be observed.

If required, the relevant measures to comply with the country-specific regulations must be taken before commissioning the metal band saw.

Always keep this documentation close to the metal band saw.

INFORMATION

If you are unable to rectify an issue using these operating instructions, please contact us for advice:

Optimum Maschinen Germany GmbH
Dr. Robert-Pfleger-Str. 26

D- 96103 Hallstadt, Germany

Email: info@optimum-maschinen.de

1.1 Safety instructions (warning notes)

1.1.1 Hazards Classification

We classify the safety warnings into different categories. The table below gives an overview of the classification of symbols (ideogram) and the warning signs for each specific danger and its (possible) consequences.

Symbol	Alarm expression	Definition / consequence
	**DANGER!**	Impending danger that will cause serious injury or death to people.
	WARNING!	A danger that can cause serious injury or death.
	CAUTION!	A danger or unsafe procedure that can cause personal injury or damage to property.

Symbol	Alarm expression	Definition / consequence
	**ATTENTION!**	Situation that could cause damage to the machine and product and other types of damage. No risk of injury to persons.
	**INFORMATION**	Practical tips and other important or useful information and notes. No dangerous or harmful consequences for people or objects.

In case of specific dangers, we replace the pictogram with


general danger


with a warning of


injury to hands,


hazardous electrical voltage,

or


rotating parts.

1.1.2 Other pictograms


Activation forbidden!


Pull out the mains plug!


Wear protective glasses!


Use ear protection!


Wear protective gloves!


Wear safety shoes!


Wear a protective suit!


Protect the environment!


Contact address

1.2 Intended use

WARNING!

In the event of improper use, the metal belt saw

- **will endanger personnel,**
- **will endanger the machine and other material property of the operating company,**
- **the correct function of the machine may be affected.**

The machine is designed and manufactured to be used in environments where there is no potential danger of explosion.

The machine is designed and manufactured to saw cold metal, cast material and plastics or other material that are not health hazardous and do not generate dust.

You must neither machine wood nor mineral workpieces using the metal belt saw.

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The pieces to be cut must be of a shape that will allow them to be securely attached in the workholder vice and ensure that the piece does not come loose when it is being sawed.

The metal belt saw must only be installed and operated in a dry and ventilated place.

If the metal belt saw is used in any way other than described above, modified without authorization of Optimum Maschinen Germany GmbH, then the metal belt saw is being used improperly.

Operations not in accordance with intended use!

We will not be held liable for any damages resulting from any operation which is not in accordance with the intended use.

We expressly point out that the guarantee or CE conformity will expire due to any constructive technical or procedural changes which had not been performed by the company Optimum Maschinen Germany GmbH.

It is also part of intended use that

- observe the limits of the metal belt saw,
- obey the operating instructions,
- the inspection and maintenance instructions are observed.

☞ Technical specification on page 13

The decisive factor for achieving efficient cutting and the necessary angular tolerance is the correct choice of parameters such as the saw band, feed, cutting pressure, cutting speed and cooling agent.

WARNING!

Extremely severe injuries.

It is forbidden to make any modifications or alternations to the operation values of the metal belt saw! They could endanger people and cause damage to the metal belt saw.

1.3 Possible dangers caused by the metal band saw.

The metal band saw was subjected to a safety test (hazard analysis with risk assessment). The design and construction based on this analysis are state of the art.

Nevertheless, there is a residual risk as the metal band saw operates with

- electrical voltage and currents and
- a rotating metal band saw blade.

We have used construction resources and safety techniques to minimize the health risk to personnel resulting from these hazards.

If the metal band saw is used and maintained by personnel who are not duly qualified, there may be a risk resulting from incorrect or unsuitable maintenance of the metal band saw.

INFORMATION

Everyone involved in the assembly, commissioning, operation and maintenance must

- be duly qualified,
- and strictly follow these operating instructions.

Always disconnect the metal band saw from the electrical power supply when performing cleaning or maintenance works.

WARNING!

The metal band saw may only be used with the safety devices activated.

Disconnect the metal band saw immediately whenever you detect a failure in the safety devices or when they are not mounted!

All additional devices installed by the operator must be equipped with the stipulated safety devices.

This is your responsibility being the operating company! ☞ **Safety devices on page 9**

1.4 Qualification of personnel

1.4.1 Target group

This manual is addressed to

- the operating companies,
- the operators,
- the maintenance personnel.

Therefore, the warning notes refer to both operation and maintenance of the metal band saw.

Determine clearly and explicitly who will be responsible for the different activities on the machine (operation, maintenance and repair).

Unclear responsibilities constitute a safety risk!

Always disconnect the mains plug of the metal band saw. This will prevent it from being used by unauthorized persons.

The qualifications of the personnel for the different tasks are mentioned below:

Operator

The operator is instructed by the operating company about the assigned tasks and possible risks in case of improper behaviour. Any tasks performed beyond operation in standard mode may only be performed by an operator if they are described in these instructions and if the operator has been specifically trained to perform them by the operating company.

Qualified electrician

With professional training, knowledge and experience as well as knowledge of respective standards and regulations, qualified electricians are able to perform work on the electrical system and recognise and avoid any possible dangers.

Qualified electricians have been specially trained for the working environment, in which they are working and know the relevant standards and regulations.

Qualified personnel

Due to their professional training, knowledge and experience as well as knowledge of relevant regulations, qualified personnel are able to perform the assigned tasks and to independently recognise and avoid any possible dangers.

Instructed person

Instructed persons were instructed by the operating company regarding the assigned tasks and any possible risks of improper behaviour.

1.4.2 Authorized persons

WARNING!

Inappropriate operation and maintenance of the metal belt saw constitutes a danger for the personnel, objects and the environment.

Only authorized staff may operate the metal belt saw!

Persons authorized to operate and maintain should be trained technical personnel and instructed by the ones who are working for the operating company and for the manufacturer.

The operating company must

Obligations of the operating company

- train the personnel,
- instruct the personnel in regular intervals (at least once a year) on
  - all safety standards that apply to the machine,
  - operation
  - accredited technical guidelines,
- check the personnel‘s knowledge level,
- document the training/instruction,

- have attendance at the training/instruction confirmed by signature and
- check whether personnel is working in a manner that shows awareness of safety and risks.

The operator must

Obligations of the operator

- have obtained a training regarding the handling of the metal belt saw,
- know the function and mode of action,
- before taking the machine in operation
  - have read and understood the operating manual,
  - be familiar with all safety devices and instructions.

Additional requirements regarding the qualification

Additional requirements apply for work on the following machine components:

- Electric components or operating materials:
  Must only be worked on by a qualified electrician or person working under the instructions and supervision of a qualified electrician.

  Before starting work on electrical parts or operating agents, following measures are to be performed in the following order:
  - disconnect all poles
  - secure against restarting
  - check that there is no voltage

1.5 Operator positions

The operator must stand beside or in front of the metal band saw.

INFORMATION

The mains plug of the metal belt saw must be freely accessible.

1.6 Safety measures during operation

CAUTION!

Danger due to inhaling dust and mist that are hazardous to health.

Depending on the materials to be machined and the agents used, dusts and mists can arise that are detrimental to health.

Ensure that the harmful dust and mist generated are safely sucked off at the point of origin and routed away from the working area or filtered. To do so, use a suitable extraction unit.

CAUTION!

Risk of fire and explosion by using flammable materials or cooling lubricants.

Extra precautionary measures must be taken before machining flammable materials (e.g. aluminium, magnesium) or using combustible agents (e.g. spirit) to avert a health hazard.

1.7 Safety devices

Use the metal belt saw only with properly functioning safety devices.

Stop the metall band saw immediately if there is a failure on the safety device or if it is not functioning for any reason.

It is your responsibility!

If a safety device has been activated or has failed, the metal belt saw must only be used if you

- the cause of the fault has been eliminated,
- you have verified that there is no danger to personnel or objects.

WARNING!

If you bypass, remove or deactivate a safety device in any other way, you are endangering yourself and other staff working with the metal belt saw.

The possible consequences are:

- **injuries may occur due to workpiece or parts of workpieces flying off,**
- **contact with rotating and revolting parts,**
- **fatal electrocution.**

1.7.1 Saw bow

The saw arch of the metal belt saw is fitted with a protective cover firmly screwed laterally. The protective cover covers the band guide rollers and the rotating saw band.

Before each restarting of the metal belt saw you have to close and screw down any protective cover which had been opened.

Img.1-1: Saw band housing

WARNING!

Danger of injury! The teeth of the saw band are sharp. Take thorough care when removing the rear cover to change the saw belt.

1.8 Safety check

➜ Check the metal belt saw at least once per shift. Inform the person responsible immediately of any damage, defects or changes in the operating function.

➜ Check all safety devices

- at the beginning of each shift (with the machine stopped),
- once a week (with the machine in operation),
- after all maintenance and repair work.

➜ Check that prohibition, warning and information signs and the labels on the metal belt saw

- are legible (clean them, if necessary),
- are complete (replace if necessary).

INFORMATION

Organise the checks according to the following table;

General check		
Equipment	**Check**	**OK**
Guards	Mounted, firmly bolted and not damaged	
Signs, Markers	Installed and legible	
Date:	**Checked by (signature):**	

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1.9 Personal protective equipment

For some works you need personnel protective equipment as protective equipment. These are

- safety helmet,
- protective glasses or face guard,
- protective gloves,
- safety shoes with steel toe caps,
- ear protection.

Before starting work make sure that the required personnel protective equipment is available at the work place.

CAUTION!

Dirty or contaminated personal protective equipment can cause illness.

Clean your personal protective equipment

- **after each use,**
- **regularly once a week.**

Personal protective equipment for special works

Protect your face and your eyes: Wear a safety helmet with facial protection when performing work where your face and eyes are exposed to hazards.

Wear protective gloves when handling pieces with sharp edges.

Wear safety shoes when you assemble, disassemble or transport heavy components.

1.10 Safety during operation

We specifically point out the dangers in the description of work with and on the metal band saw.

WARNING!

Before switching on the metal belt saw make sure that there are

- **no dangers generated for persons,**
- **no objects are damaged.**

Avoid any unsafe work methods:

➜ Make sure that nobody is endangered by your work.

➜ The rules specified in these operating instructions must be observed during assembly, operation, maintenance and repair.

➜ Do not work on the metal belt saw, if your concentration is reduced, for example, because you are taking medication.

➜ Observe the accident prevention regulations issued by your Employers Liability Insurance Association or other supervisory authorities applicable to your company.

➜ Stay at the metal belt saw until all movements have come to a complete standstill.

➜ Use the specified personal protective equipment. Make sure to wear a well-fitting work suit and, if necessary, a hairnet.

➜ Inform the supervisor about all hazards or faults.

1.11 Safety during maintenance

Inform the operators in good time of any maintenance and repair works.

Report and document any changes

Report all safety relevant changes and performance details of the metal band saw. Any changes must be documented, the operating instructions updated and machine operators instructed accordingly.

1.11.1 Disconnecting and securing the metal band saw

➜ Disconnect the mains plug before starting maintenance and repairs.

1.11.2 Mechanical maintenance work

Remove or install protection safety devices before starting or after completing any maintenance work; this include:

- covers,
- safety instructions and warning signs,
- grounding cables.

If you remove protective or safety devices, re-fit them immediately after the completing the work.

Check if they are working properly!

1.12 Accident report

Inform your supervisors and Optimum Maschinen Germany GmbH immediately in the event of accidents, possible sources of danger and any actions which almost led to an accident (near misses).

There are many possible causes for "near misses".

The sooner they are notified, the quicker the causes can be eliminated.

INFORMATION

We provide information about the dangers of working with and on the metal band saw in these work descriptions.

1.13 Electrical system

Have the machine and/or the electrical equipment checked regularly, at least every six months.

Rectify all defects such as loose connections, defective wires, etc. immediately.

A second person must be present during work on live components to disconnect the power in the event of an emergency.

Disconnect the metal belt saw immediately if there is a malfunction in the power supply !

☞ Maintenance on page 32

☞ Safety check on page 10

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2 Technical specification

The following information represents the dimensions and indications of weight and the manufacturer‘s approved machine data.

2.1 Electrical connection	
Total connected load	230 V; 50 Hz (~60Hz) ; 0,37 kW
permitted voltage tolerance	220 V - 240 V

2.2 Cutting area	
90^0 round, max. (mm)	100
90^0 rectangular, max. (mm)	100 x 150
45^0 round, max. (mm)	65
45^0 rectangular, max. (mm)	100 x 60
Cutting angle	0^0 - 45^0

2.3 General	
Cutting angle adjustment	via adjustable vice jaws
Saw band guide	Ball bearing deflection roller
Lifting the saw arm	manually
Feed	manually manipulated lowering movement
Saw belt tension	manually via clamping lever

2.4 Dimensions	
Floor space, length [mm]	950
Height [mm]	680
Working area height [mm]	820
Floor space, width [mm]	660
Base plate dimension [mm]	490 x 340
Total weight [kg]	23
Dimensions of saw blade [mm]	1470 x 13 x 0.65

2.5 Speed of saw band	
via direct drive [m/min]	45

2.6 Environmental conditions	
Temperature	5 - 40 °C
Humidity	25 - 80 %

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Emissions

The noise emission of the metal band saw is 75 to 80 dB(A). If several machines are operated at the location of the metal band saw, the noise exposure (immission) to the operator of the metal band saw at the workplace may exceed 80 dB(A).

INFORMATION

This numerical value was measured on a new machine under the operating conditions specified by the manufacturer. The noise behaviour of the machine might change depending on the age and wear of the machine.

Furthermore, the noise emission also depends on production engineering factors, e.g. speed, material and clamping conditions.

INFORMATION

The specified numerical value represents the emission level and does not necessarily a safe working level. Though there is a dependency between the degree of the noise emission and the degree of the noise disturbance it is not possible to use it reliably to determine if further precaution measures are required or not. The following factors influence the actual degree of the noise exposure of the operator:

- Characteristics of the working area, e.g. size or damping behaviour,
- other noise sources, e.g. the number of machines,
- other processes taking place in proximity and the period of time, during which the operator is exposed to the noise.

Furthermore, it is possible that the admissible exposure level might be different from country to country due to national regulations. This information about the noise emission should, however, allow the operator of the machine to more easily evaluate the hazards and risks.

CAUTION!

Depending on the overall noise exposure and the basic threshold values, machine operators must wear appropriate hearing protectors. We generally recommend the use of noise and ear protectors.

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3 Delivery, interdepartmental transport and unpacking

CAUTION!

Injuries caused by parts falling over or off a forklift, pallet truck or transport vehicle. Only use means of transport that can carry the total weight and are suitable for it.

3.1 Notes on transport, installation and unpacking

Improper transport of individual devices and minor machines, unsecured devices and minor machines stacked on top of each other or next to each other in packed or already unpacked condition is accident-prone and can cause damage or malfunctions for which we do not grant any liability or guarantee.

Transport the scope of delivery secured against shifting or tilting with a sufficiently dimensioned industrial truck to the installation site.

3.1.1 General risks during internal transport

CAUTION: DANGER OF TIPPING!

The device may be lifted unsecured by a maximum of 2cm.

Employees must be outside the danger zone, the reach of loads. Warn employees and, if necessary, advise employees of the hazard.

Act responsibly during transport and always consider the consequences. Refrain from daring and risky actions.

Gradients and descents (e.g. driveways, ramps and the like) are particularly dangerous. If such passages are unavoidable, special caution is required.

Before starting the transport check the transport route for possible danger points, unevenness and disturbances as well as for sufficient strength and load capacity.

Danger points, unevenness and disturbance points must be inspected before transport. The removal of danger spots, disturbances and unevenness at the time of transport by other employees leads to considerable dangers.

Careful planning of internal transport is therefore essential.

3.2 Assembly

INFORMATION

The metal belt saw is delivered pre-assembled.

3.3 Scope of delivery

When the metal belt saw is delivered, please check immediately that it has not been damaged during transport. Also check that no fastening screws have come loose.

Img.3-1:Scope of delivery

2	Operating manual
3	Support for the saw arch
4	Shaft (Material stop)
5	Chip collection container
6	Phillips screwdriver
7	Hexagon socket spanner
8	Toolholder
9	Handle for lifting the saw arch
10	Material stop

ATTENTION!

In case of wrong and improper storage components might get damaged and destroyed.

Store packed and unpacked parts only under the intended environmental conditions.

☞ **Environmental conditions on page 13**

Consult Optimum Maschinen Germany GmbH if the metal belt saw and accessories are stored for more than three months or are stored under different environmental conditions than those given here.

3.4 Unpacking and cleaning

ATTENTION!

Please check immediately after receipt of the machine if it shows any transport damages. If this is the case, immediately inform the corresponding carrier and the specialized dealer.

In order to protect the machine against corrosion, protective waxes and protective greases had been applied to all blank parts of the machine by the manufacturer. Clean the machine before the first commissioning with an appropriate, environmental-friendly cleaning agent (we recom-

mendyou to clean the machine using kerosene). Do not use any solvents, thinner or other cleaning agents which could corrode the varnish of the machine. Observe the indications and notes of the manufacturer for cleaning agents. Supply sufficient ventilation during cleaning works in order to avoid any health hazards caused by toxic vapors.

After having thoroughly cleaned the machine, all blank machine parts need to be slightly oiled. To do so, use an acid-free lubricating oil.

ATTENTION!

Lots of cleaning agents are inflammable and highly flammable. While handling cleaning agents you must not smoke. Fire and open light are forbidden!

INFORMATION

Oil, grease and cleaning agents are environmentally hazardous substances and must not be drained to the sewage or disposed of with the standard domestic waste. Dispose of such agents in an environmentally compatible way. Rags which are soaked with oil, grease or cleaning agents are easily inflammable. Collect the rags or shoddy wool in an appropriate closed container and dispose of them in an environmentally compatible way. Do not dispose of them together with the domestic waste!

3.5 Set-up and assembly

3.5.1 Requirements regarding the installation site

Organize the working area around the metal band saw according to the local safety regulations.
☞ Dimensions on page 13

In order to obtain a high processing accuracy as well as a long durability of the machine, the following items need to be observed when determining the installation site:

- The device must only be installed and operated in a dry and well-ventilated place.
- Avoid places close to machines which cause chips or dust.
- The installation site must be vibration-free, i.e. located away from presses, planing machines, etc.
- The subfloor needs to be appropriate for sawing Also observe the load capacity and evenness of the subfloor.
- The saw can also be used on construction sites.
- Make available sufficient space for the preparation and operating staff.
- The working area for operating, maintenance and repair must not be restricted.
- Ensure adequate lighting is available (minimum value: 300 lux).

INFORMATION

Any protruding part such as end stops, handles, etc. need to be secured by on-site measures if necessary in a way that persons will not be endangered.

You need to make sure that any material cuts which fall down will endanger neither persons nor machines.

The substructure must be prepared in such a way as to ensure that, if any lubricant is used, it cannot penetrate the floor.

The mains plug of the metal belt saw must be freely accessible.

3.5.2 Assembly

The saw is already premounted except for some add-on parts when it is delivered. First take off the incidentals and lift the machine with the handle out off the transport packaging.

CAUTION!

Danger of crushing and overturning. Be careful when performing the operations described below.

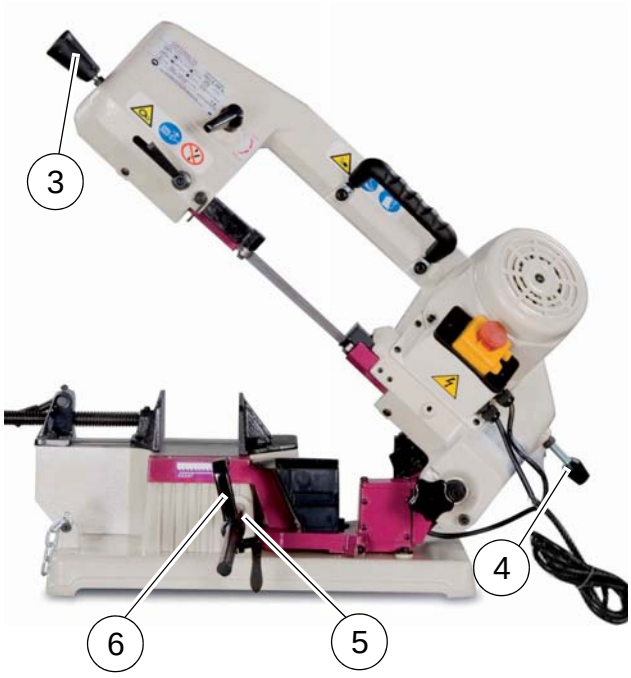
ATTENTION!

When transporting the saw, it is necessary to remount the transportation safety device!

- ➜ First remove the transportation safety device (1) on the saw arch.
- ➜ Screw the saw arch lifting handle (3) at the front of the saw arch into the thread and fasten the counternut.
- ➜ Screw the support screw (4) as arch support into the thread at the rear of the saw arch and fasten the counter-nut. The length is set in a way that the saw arm is safely positioned in vertical orientation.

Img.3-2: Assembly-1

- ➜ Screw the stop shaft (5) into the thread on the vice. Then shift the material stop (6) over the stop shaft and clamp it at the required position.



Img.3-3: Assembly-2

3.5.3 Optionally available machine base frame MUG 1

The mounting holes in the machine frame 3300100 must be drilled to mount the saw on it. Place the saw on the frame and mark the through holes of the saw on the frame.

3.5.4 Electrical connection

The machine is already premounted ready to be plugged.

CAUTION!

When connecting the machine, compare the electrical values of your power supply with the data indicated on the type plate. In case of a too excessive supply voltage, severe injuries of the user as well as damages of the machine may result. In case of too little supply voltage, the motor might get damaged.

INFORMATION

Oil, grease and cleaning agents are environmentally hazardous substances and must not be drained to the sewage or disposed of with the standard domestic waste. Dispose of such agents in an environmentally compatible way. Rags which are soaked with oil, grease or cleaning agents are easily inflammable. Collect the rags or shoddy wool in an appropriate closed container and dispose of them in an environmentally compatible way.

3.6 Adjusting the depth stop and the limit stop switch

3.6.1 Depth stop

The depth stop limits the saw arch to the bottom.

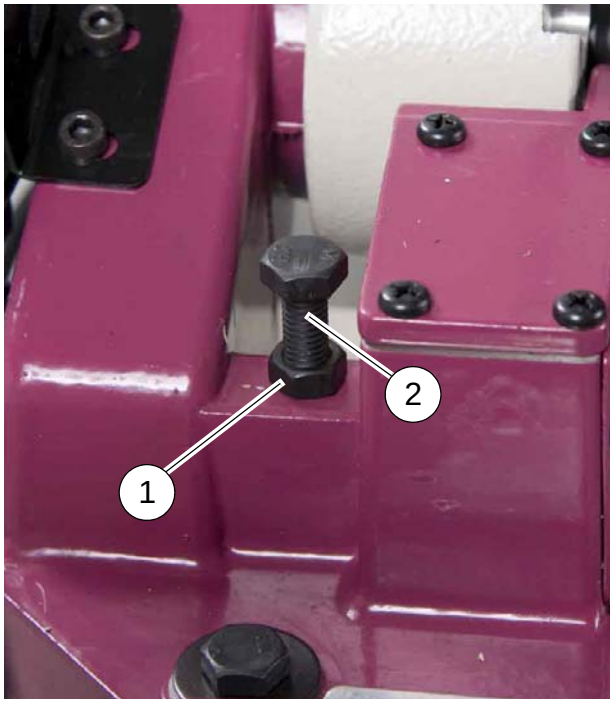
Adjustment (if required):

The adjustment is performed at the rear side of the saw.

➜ First unscrew the counternut (1).

➜ The stop screw (2) can now be adjusted higher or lower.

➜ Finally, retighten the counternut.



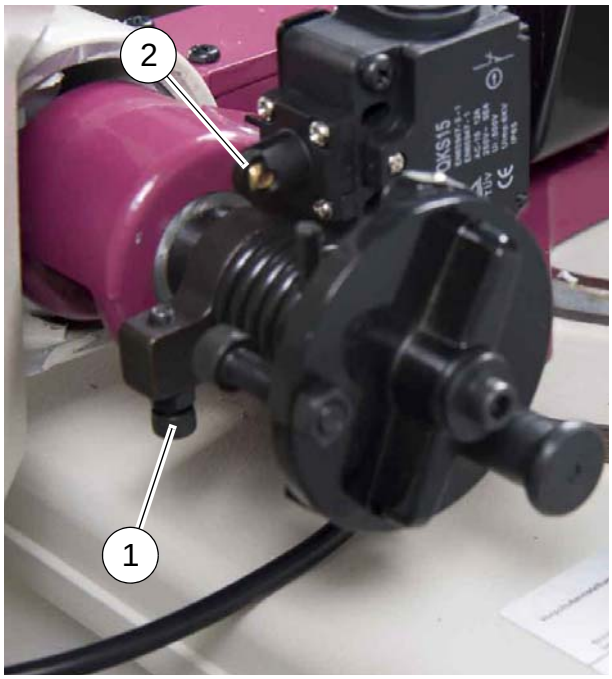
Img. 3-4: Depth stop

ATTENTION!

If the stop screw is adjusted too low, there is a risk to cut the working table!

3.6.2 Automatic limit stop

The automatic limit stop stops the saw band drive at the lowest end position. It is located at the rear side of the saw behind the adjustment disk for the saw arch feed. The shut-off is performed by means of a cam controller.
The control cam which is a type of screw (1) actuates the release (2). The cam is set in a way that the release will switch off as soon as the saw arch attains the bottom position is sawing the material.

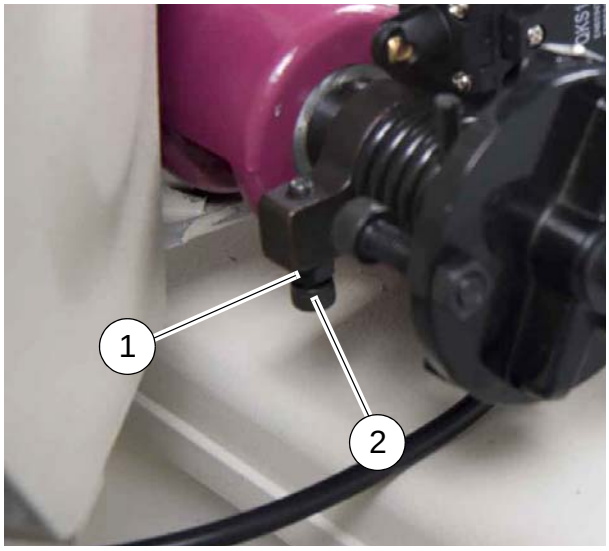


Img.3-5: Cam switch

Setting the control cam (if required):

The adjustment is performed at the rear side of the saw.

- ➜ Unscrew the lock nut (1).
- ➜ Turn the screw (2) to the required position.
- ➜ Clamp the screw (2) again with the lock nut.
- ➜ Check the setting by means of a trial cut.



Img.3-6: Adjusting the control cam

INFORMATION

If the saw is switched off too early, the material will not be completely cut and the saw blade will stay in the material. If the adjustment is too low, it is possible that the machine does not shut off by itself, since the saw arch already abuts the depth stop screw.

3.7 Saw band assembly

INFORMATION

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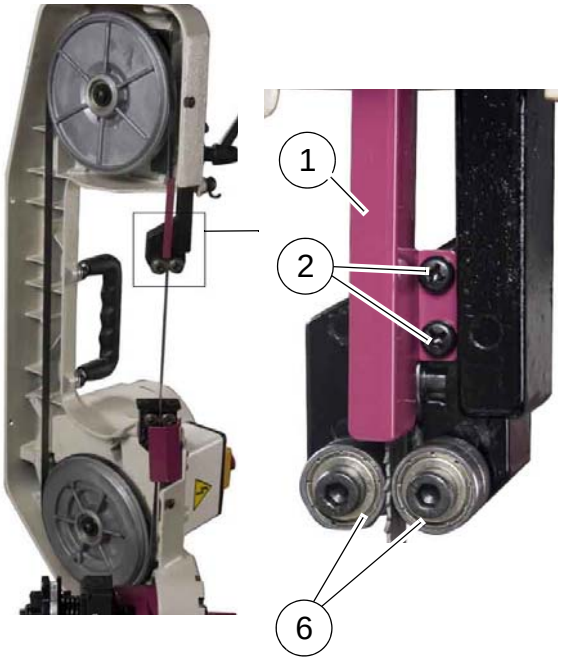
This work must only be performed by authorized and trained staff!

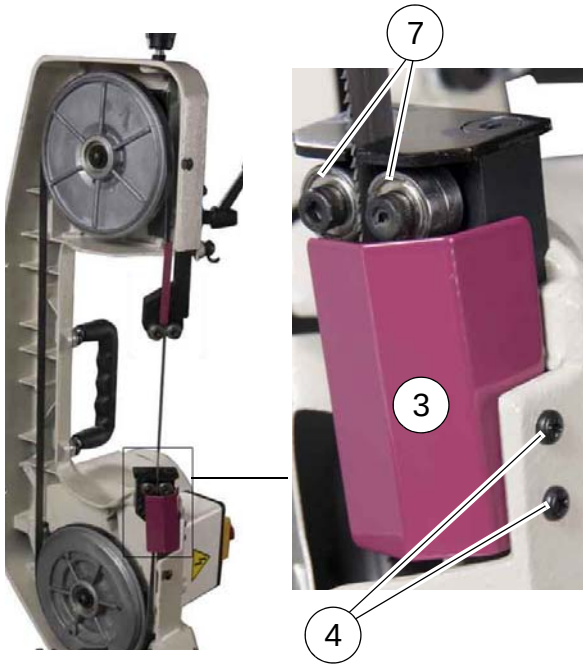
This saw is designed for saw blades with dimensions of 1470mm x 13mm x 0.65mm. If you use other saw blades, it may result in bad sawing results or the machine might be destroyed.

Risk of injury: Saw teeth are very sharp. Wear work gloves.



Img.3-7: Saw band assembly 1

- ➜ Disconnect the saw from the power supply.
- ➜ Position the saw arch in a vertical position.
- ➜ Loosen the two screws (2) and remove the upper protective cover (1).
- ➜ Also remove the bottom protective cover (3) by loosening the two screws (4).



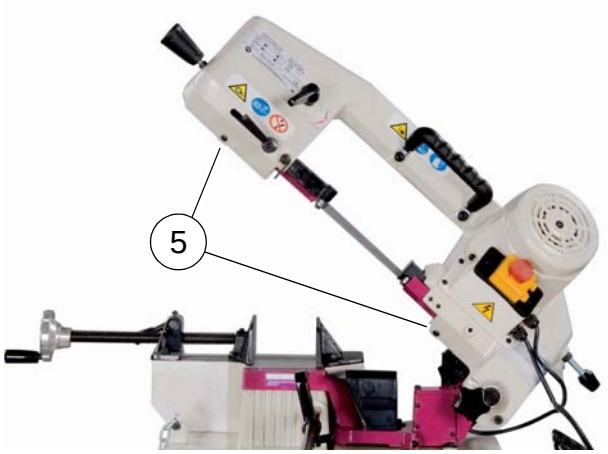
Img.3-8: Saw band assembly 2

➜ Loosen the two retaining screws (5) of the protective cover for the saw band drive.
Slew the protective cover outwards. Now you can pull out the complete saw band protection at the top of the saw arch since the belt cover at the top of the saw arch is only pushed in.

➜ Loosen the tension of the saw band.

☞ Saw band tension on page 27

➜ Carefully remove the old saw band from the guide wheels.



Img.3-9: Saw band assembly 3

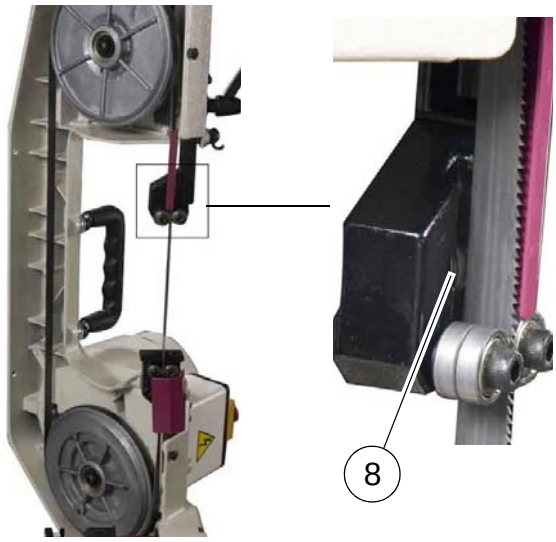
WARNING!

Caution when opening the locking wire on the new saw band. The saw belt can heavily spring back. Danger of injury!

➜ Assemble the new saw belt. First insert the saw belt into the saw belt guide bearings (6) and (7). Check the running direction (running direction arrow on the working table) of the toothing and make sure that the tooth are showing outward!

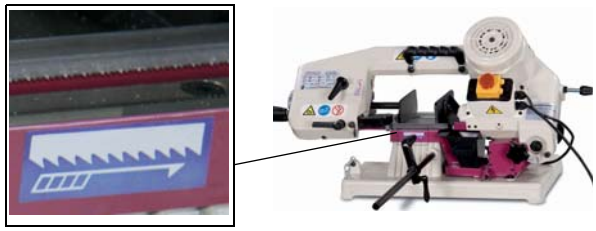
➜ Pull the saw blade first onto the drive wheel (bottom), and then onto the upper wheel.

➜ Make sure that the saw band is also closed to the rear guide bearings (8).



Img.3-10: Saw belt assembly 4

➜ Turn the clamping bolt for the saw belt tension clockwise until the saw belt is tensed. The belt tension needs to be as high as the slipping of the running wheels is avoided.



Img.3-11: Pay attention to the

ATTENTION!

When the saw band is heating up, e.g. when sawing large cross sections, it is possible that it is becoming necessary to re-tension the saw band.

➜ Reattach the saw belt cover.

➜ Reattach the two guard plates.

➜ Connect the saw to the power supply. Perform a short trial run and check if the saw blade safely seated and running correctly.

WARNING!

It is necessary to reattach the safety gears after replacing the saw band, since any missing safety gears may cause injuries.

3.8 Saw belt guide bearing

The saw belt has got lateral and rear guide bearings in order to guide the saw blade for the saw cut. Only when using good guide rollers you will also achieve a good sawing result!

It is not possible to readjust the guide bearing. If the guide bearings are worn, they must be replaced. ☞ Inspection and maintenance on page 36

3.9 First commissioning

ATTENTION!

Before commissioning the machine, all bolts, fastenings and guards must be checked and re-tightened as necessary!

CAUTION!

Rotating parts! Start working reasonably. Make sure what you are doing. Pay special attention to rotating parts. Wear a well-fitting work suit. Also make sure that neither hair nor cloths can be caught by rotating parts! Use a hairnet. When working on the machine you must not wear any jewelry.

CAUTION!

Always wear safety goggles! Protect your eyes from chips and other scraps flying off.

CAUTION!

Wear safety shoes! Particularly be aware of cut-off material pieces which might fall down from the sawing table.

CAUTION!

Always wear ear protection! Particularly when sawing hollow bodies or profiles, it is possible that the limit values for noise are rapidly exceeded.

After mounting the add-on parts, the machine is already ready for operation.

- Before first commissioning it is necessary that the user has completely read and understood this operating manual.
- Remove the transport safety appliance from the saw arch.
- Plug the machine into an appropriate wall outlet.
- Pull the locking bolt outwards, lift the bow and lock the saw bow in the upper position. ☞ Stop positions of the saw arch on page 26
- Switch on the machine. Check the running direction of the saw band.
- Have the saw run about 30 seconds without load.

Before each start of work, perform the following checks:

- Make sure that all protective gears are attached.
- Check that the teeth on the saw band are complete and check the direction of the sawing teeth.
- Check if the sawing belt is safely running on the running wheels.
- Check the exact guidance of the guide bearings of the saw band.
- Check if the top blade guiding roller is correctly positioned on the back side of the saw belt.
- Please note that different feeds are required for sawing different materials. Also note the number of teeth of the saw blade.
- The workpiece which needs to be sawn always has to be clamped for safety reasons.

- Never start the saw on sharp edges. As a precaution first manually break away the edge.
- Lubricate in regular intervals according to the item service.

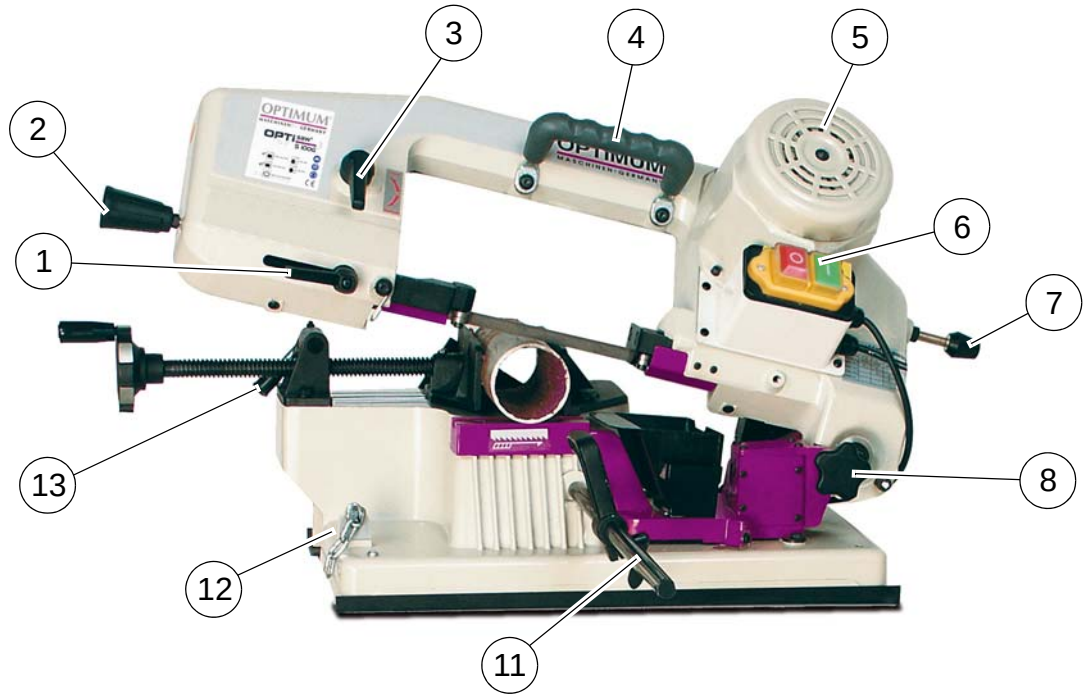
CAUTION!

Danger of injury! It is forbidden to load and unload the clamping device when the saw is running! It is also forbidden to perform any adjustments or repairs when the saw is running!

First disconnect the machine from the power supply in order to avoid unintentional switching on!

4 Operation

4.1 Control elements



1	Clamping lever of the saw band guide
2	Saw arch handle
3	Clamping screw for the saw band tension
4	Carrying handle
5	Motor
6	ON/OFF switch
7	Saw arch support
8	Saw arch fixing device
11	Material stop
12	Transport chain to secure the bow of the saw
13	Quick-action vice

4.2 General

Use the metal belt saw only under the following conditions:

- The metal belt saw is in proper working order.
- The metal belt saw is used as prescribed.
- The operating instructions are followed.
- All safety devices are installed and activated.

Eliminate or have all malfunctions rectified promptly. Stop the machine immediately in the event of any abnormality in operation and make sure it cannot be started-up accidentally or without authorisation.

Notify the person responsible immediately of any modification.

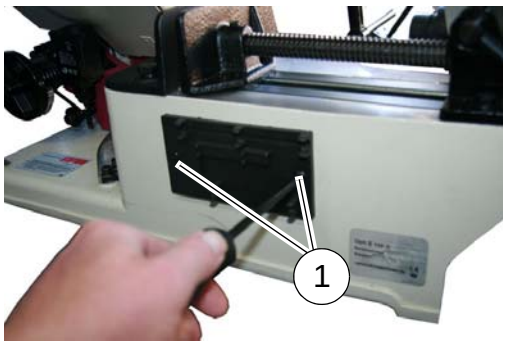
Almost all adjustments are performed at the manufacturer and generally do not need to be adjusted. Only the feed and the saw band guidance always need to be readjusted.

ATTENTION!

Only perform adjustments when the machine is switched off!

Always work with extreme caution!

An appropriate tool kit is included in the delivery to perform the adjustments. You can attach the tool box which is included in the delivery at the rear side of the saw using the two screws (1). In this way, you will have the tools readily available at any time!



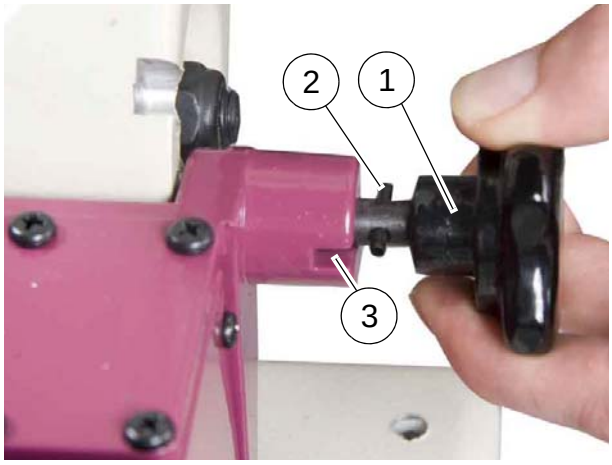
Img.4-1: Tool holder screw-on point

4.3 Stop positions of the saw arch

The saw bow has two locking positions. The stop bolt (1) together with the cross pin (2) serves to fix it. In the displayed position, the stop bolt is not in mesh. Select this position for sawing.

➜ In order to mesh the stop bolt, pull the stop bolt slightly outward on the handle.

➜ Turn the stop bolt until the cross pin can be inserted into the groove (3). The stop bolt will engage in the two defined stop positions (4) or (5).

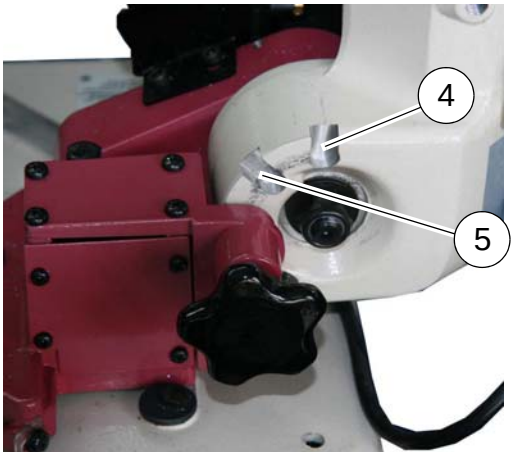


Img.4-2: Stop position - 1

➜ Stop position (4): saw arch in horizontal position: idle position and for transporting the saw

➜ Stop position (5): saw arch in the top position: to clamp the material, to replace the saw blade or for any other adjustment maintenance or service-works.

You can also completely slew up the saw arch (vertical position). In this position you can also replace the saw band or perform any other works.



Img.4-3: Stop position - 2

INFORMATION

You cannot arrest the saw arch in this position. However, it is held in this position by its proper weight!

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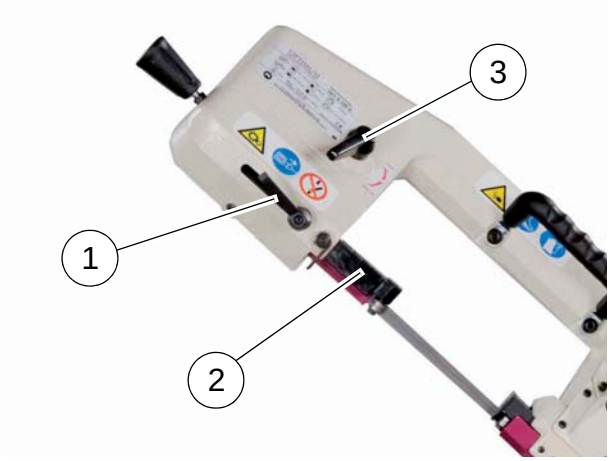
4.4 Adjusting the saw band guidance with the workpiece

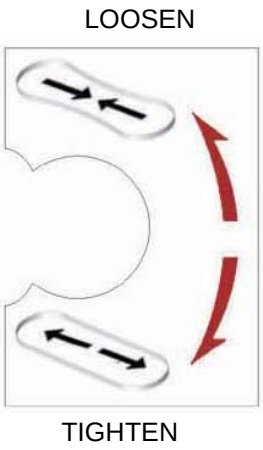
➜ Disconnect the saw from the power supply.
➜ Loosen the clamping screw (1).
➜ Adjust the saw band guidance (2) as near as possible to the workpiece without influencing the cutting process.
➜ Securely retighten the clamping screw (1) and then connect the saw to the power supply.



Img. 4-4: Adjusting the saw band guide

4.5 Saw band tension

➜ Disconnect the saw from the power supply.
➜ Using the clamping lever (3) you can tension or release the saw band.
➜ By turning the clamping lever clockwise, you will tension the saw band - by turning it anti-clockwise, you will release the saw band.
➜ The saw belt has to be tightened and must not slip over the running wheel.



Img. 4-5: Saw band tension

4.6 Saw arch feed

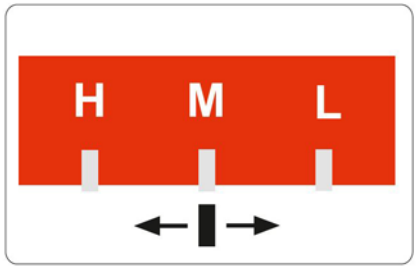
It is possible to adjust 3 different spring settings (H, M, or L) for the sawing feed.

The plate is positioned at the rear side of the sawing table at the adjusting spring.

The medium feed (M) is preset by the manufacturer.

Depending on the material and on the cross sections, you can also select other feeds:

➜ Pull the stop bolt (1) outward.
➜ Using the turning handle (2) you can adjust the key pretension according to the presetting scale (3) and the marking (4) to the required setting.
➜ Make sure that the stop bolt also correctly engages!



Img. 4-6: Setting the feed

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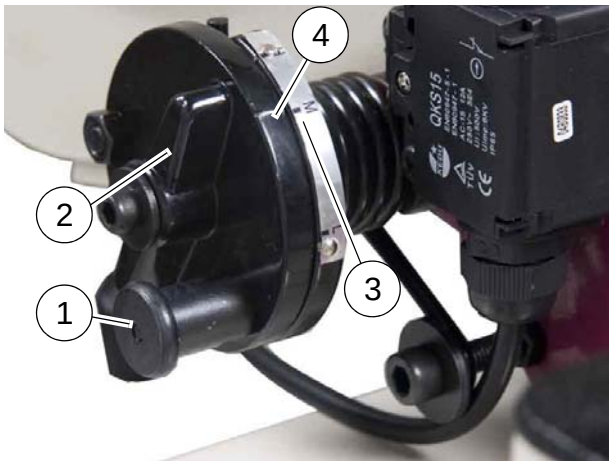
INFORMATION

Empirical rule: The finer the tooth spacing and/or the thinner the wall thickness of the profile, the lower the feed should be.



Img.4-7: Setting the feed

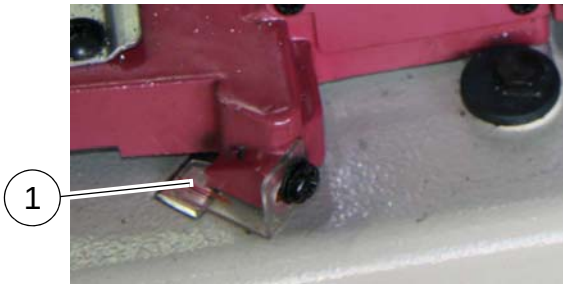
4.7 Orientation of the saw arch to the vice

The 0° orientation of the saw arch had already been performed by the manufacturer and it is generally not required to readjust it.

After angular cuts, just slew the saw back to the stop.

Adjustment (if required):

- ➜ Disconnect the saw from the power supply.
- ➜ Reposition the saw arch to the top stop position.
- ➜ Make sure that the sawing arch is positioned at the reading marking to 0° (1).



Img.4-8: Orientation of the saw arch

- ➜ Unscrew the fixing screw (2).
- ➜ Turn the eccentric disk (3) to the required position.
- ➜ Retighten the fixing screw and reconnect the machine to the power supply.

Img.4-9: Orientation of the saw arch

INFORMATION

You can put a low angle to the firm jaw of the vice as an adjustment aid and adjust the saw band accordingly. However this adjustment may only apply as an approximate sight adjustment. In any case you need to perform a trial cut. It is possibly required to readjust the saw band.

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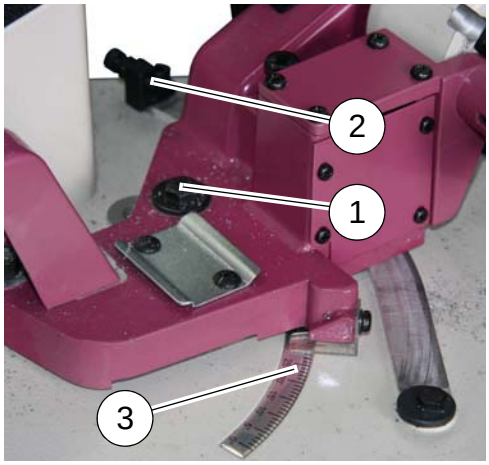
4.8 Angular cuts

4.8.1 Miter cut (45°)

The 45° position of the saw arch is also fixed. The setting had already been performed by the manufacturer and it is generally not required to readjust it. You obtain the 45° position by slewing the saw arch towards the rear stop.

Slewing the saw arch:

- ➜ Disconnect the saw from the power supply.
- ➜ Reposition the saw arch to the top stop position.
- ➜ Pull out the chip collection tray.
- ➜ Make sure that the saw is clean and free from chips in the slewing range before readjusting it!
- ➜ Unscrew the clamping screw (1) in order to readjust the saw arch.

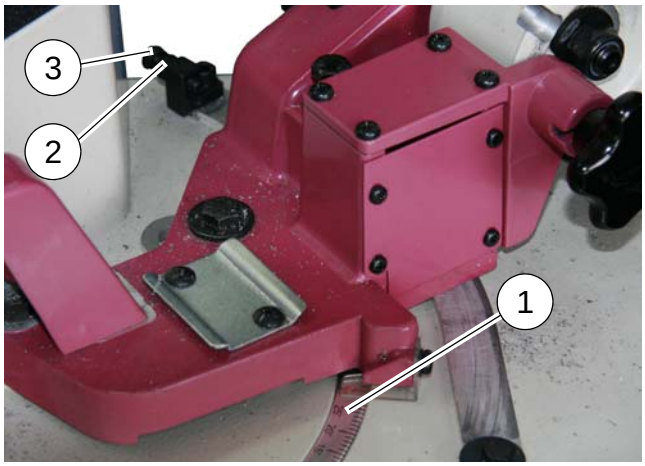


Img.4-10: Slewing the saw arch:

- ➜ Slew the saw arch completely to the rear towards the stop (2).
- ➜ Check the 45° setting by means of the scale (4).
- ➜ Then tighten the clamping screw again and insert the chip collection container.
- ➜ Reconnect the saw to the power supply.

Setting the 45° stop (if required):

- ➜ Disconnect the saw from the power supply.
- ➜ Reposition the saw arch to the top stop position.
- ➜ Remove the chip tray.
- ➜ Make sure that the reading mark on the scale (1) is positioned on 45°.
- ➜ Unscrew the counter nut (2)
- ➜ Turn the Allen screw (3) into the required position.



Img.4-11: Setting the 45° stop

- ➜ Securely retighten the counter nut and insert the chip tray.
- ➜ Reconnect the machine to the power supply.

INFORMATION

You can put a miter angle to the firm jaw of the vice as an adjustment aid and adjust the saw band accordingly.

However this adjustment may only apply as an approximate sight adjustment. In any case you need to perform a trial cut. It is possibly required to readjust the saw band.

4.8.2 Other angular cuts

Other angular cuts from 0° to 45° are also performed by slewing the saw arch.

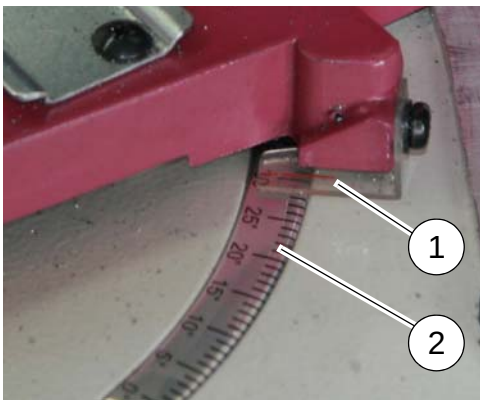
Slewing the saw arch for angular cuts:

➜ Reposition the saw arch to the top stop position.

➜ Pull out the chip collection tray.

➜ Make sure that the saw is clean and free from chips in the slewing range before readjusting it!

➜ Unscrew the clamping screw for the saw arch adjustment.



Img.4-12: Adjusting the cutting angle

➜ Slew the saw arch to the required angular position. You can read it from the reading mark (1) on the scale (2).

➜ Retighten the clamping screw.

4.9 Vice, material tension and material stop

INFORMATION

Make sure to switch off the saw before clamping or unclamping the material!

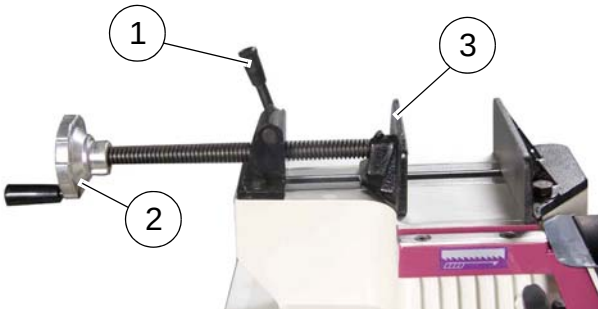
The material which needs to be cut always has to be firmly clamped. For long pieces you need to provide a support!

Clamp thin-walled profiles with "feeling" in order that they do not deform.

4.9.1 Operating the quick-action clamping vice:

➜ Position the clamping lever (1) in the vertical position (upright), this way you can pull the mobile jaw forward or backward.

➜ Position the lever downward so that you can clamp the material by means of the handwheel (2).



Img.4-13: Quick-action vice

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4.9.2 Material tension, material stop and notes regarding the sawing process

➜ Position the material which needs to be clamped as near as possible to the firm jaw.

➜ Position the clamping lever upward and shift the material by means of the mobile jaws towards the firm jaws (bar stocks or long workpieces need to be supported).

➜ Push the clamping lever downward.

➜ Adjust the required material length and clamp the workpiece by means of the handwheel. Check if the material is properly clamped.

Img.4-14: Material tension, material stop

➜ If you would like to perform several sawing cuts with the same dimensions, you can adjust the material stop (2) to the workpiece. The material stop can be clamped to the required position using the clamping lever.

Notes regarding the sawing process:

For sawing, position the saw arch as near as possible to the workpiece.

Make sure that the saw band is not yet touching the workpiece when starting it.

Start the saw using the circuit closer. The sawing process is performed automatically with the preset feed.

ATTENTION!

Never start the sawing process on a sharp edge.

Never use a new saw band in order to finish an old cut!

5 Maintenance

In this chapter you will find important information about

- Cleaning
- Inspection
- Maintenance
- Repair

of the metal band saw.

ATTENTION!

Properly performed regular maintenance is an essential prerequisite for

- **operational safety,**
- **failure-free operation,**
- **long service life of the metal band saw and**
- **the quality of the products which you manufacture.**

Installations and equipment from other manufacturers must also be in good order and condition.

ENVIRONMENTAL PROTECTION

Oil, grease and cleaning agents are environmentally hazardous substances and must not be drained to the sewage or disposed of with the standard domestic waste. Dispose of such agents in an environmentally compatible way. Rags which are soaked with oil, grease or cleaning agents are easily inflammable. Collect the rags or shoddy wool in an appropriate closed container and dispose of them in an environmentally compatible way.

Make sure that the coolant lubricants and oils are not split on the floor.

➜ Clean up any spilt liquid or oils immediately using proper oil-absorption methods and dispose of them in accordance with current environmental protection regulations.

Collect leakages

➜ Do not re-introduce liquids spilt outside the system during repair or as a result of leakage from the reserve tank; collect them in a collecting container for disposal.

Disposal

Never dump oil or other environmentally hazardous substances which are harmful to the environment in water inlets, rivers or channels.

Used oils must be delivered to a collection centre. Please consult your supervisor for further information on your nearest collection point.

5.1 Safety

WARNING!

Incorrect maintenance and repair works may lead to very serious injuries to personnel working on the machine and damages to the machine. Only qualified staff should carry out maintenance and repair work on the machine.

5.1.1 Preparation

WARNING!

Only carry out work on the metal belt saw if it has been disconnected from the mains power supply.

☞ Disconnecting and securing the metal band saw on page 12

➜ Attach a warning sign.

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5.1.2 Restarting

➜ Before restarting, run a safety check.

☞ Safety check on page 10

WARNING!

Before starting the metal band saw you must be sure that
- ❍ **no dangers generated for persons,**
- ❍ **the metal band saw is not damaged.**

5.2 Cleaning

WARNING!

Do not remove chips with your hands. There is a risk of cutting damages due to sharp edged chips!

Never use any solvents or cleaning agents which are inflammable or which develop noxious vapors!

Protect any electrical components such as motors, switches, switch boxes, etc. against penetration of humidity when cleaning them!

Generally the machine should be cleaned after each use. Remove the chips when the machine is switched off using a hand brush or a paint brush. Refrain from cleaning using compressed air, since this way the thin chips might be blown into the guidances or it would be possible to hurt someone (in the eyes) due to chips flying off.

When cleaning the machine, also the chips in the area of the drive and running disks of the saw belt protection and from the chip tray to be removed.

Please refer to your local provisions regarding the disposal of chips.

After having thoroughly cleaned the machine, all blank machine parts need to be slightly oiled. Use an appropriate lubricating oil.

5.3 Maintenance

The frequency of maintenance is depending on the frequency of the use of the machine. If you do not use the machine for a period longer than 6 months, it is also necessary to clean, grease and oil it before recommissioning the machine. This way you can avoid the risk of gumming of old lubricates and oils. In order to apply the lubricating oil, please use an oil can. Spread the oil uniformly using a paint brush or a clean, lint-free cloth. Follow the instructions of the manufacturer of the lubricant.

Do not mix up different lubricants. If you mix up different lubricants, the lubricating properties are no longer guaranteed and this way the lubricating point is lubricated insufficiently which might cause material damages.

If you change the lubricant you first need to remove all old lubricants completely from the lubricant point.

5.3.1 Vice

After each use the guideways of the vices need to be oiled.

Every 4 weeks: slightly grease the spindle.

5.3.2 Band guide bearings

All band guide bearings are maintenance-free bearings and do not require any lubrication.

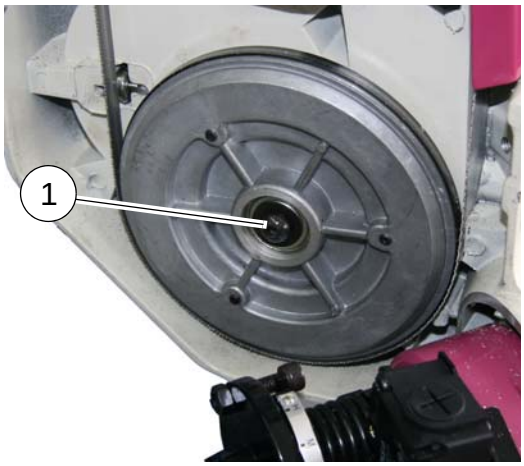
5.3.3 Lubricating transmission gears

The transmission gear is located below the drive wheels and needs to be lubricated every three months using hot bearing grease.

➜ Disconnect the saw from the power supply.

➜ Remove the saw band.

➜ Then unscrew the screw (1) on the driving wheel and pull the driving wheel off to the front.

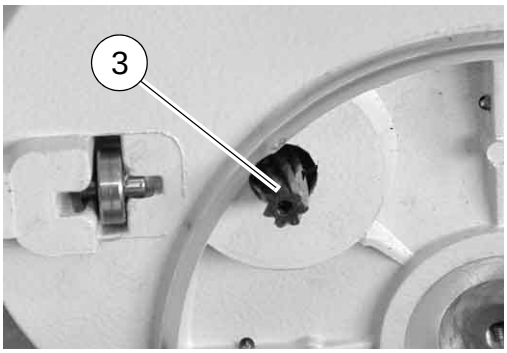


➜ Pull the drive pulley (2) forward as well.

➜ Now lubricate the transmission gear at the gear rim and add the worm wheel (3).

➜ Finally put the drive disk on again. In doing so, make sure that the worm wheel perfectly cams in the gear rim of the drive disk!

➜ Slide the drive wheel over the toothing of the drive disk and fix it with the screw. Reassemble the saw belt and the protective gears in reverse order.



Img.5-1: Lubricating the gear

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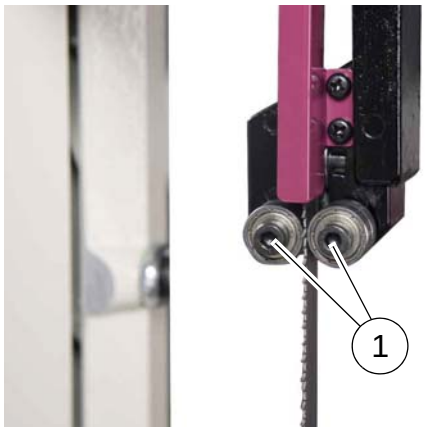
5.4 Maintenance

Due to wear, it may occur that you need to perform maintenance works on the machine.

5.4.1 Lateral guide bearings

- ➜ Disconnect the saw from the power supply.
- ➜ Release the saw band by turning the clamping lever anti-clockwise.
- ➜ Loosen the two hexagon socket screws (1) and remove the worn bearings.
- ➜ Insert new bearings on the screws. Then fix the guide bearings using the hexagon socket screws to the support.



Img.5-2: Lateral guide bearings

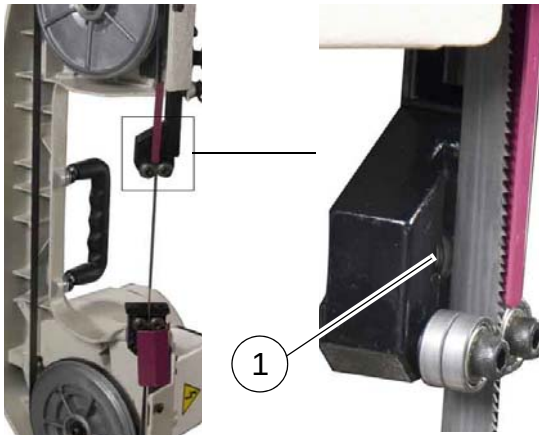
WARNING!

Make sure that the saw is disconnected from the power supply and that your hands are protected against the sharp teeth of the saw blade. Check that the teeth of the saw band do not clash with the guide bearings.

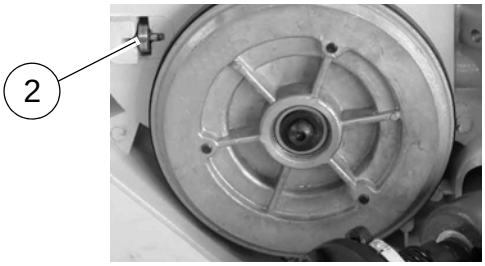
5.4.2 Rear guide bearings

The saw possesses of 3 rear guide bearings. One guide bearing (1) each is located on the two guide bearing supports and the third guide bearing (2) is located on the saw arch below the protective cover beside the drive disk.

- ➜ Disconnect the saw from the power supply.
- ➜ Remove the saw band as described under ☞ Change the saw band on page 36.



- ➜ Now you can replace the guide bearings.
- ➜ After replacing the rear guide bearing, you can reassemble the saw blade and the protective gears.

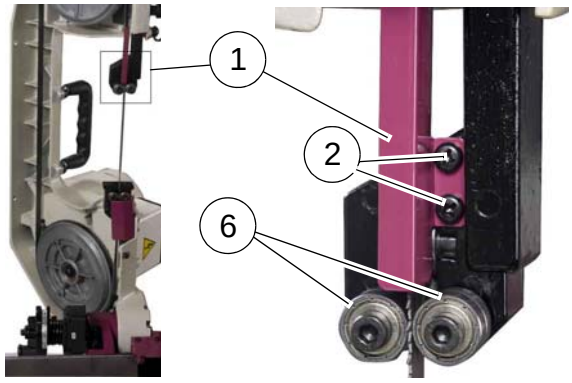


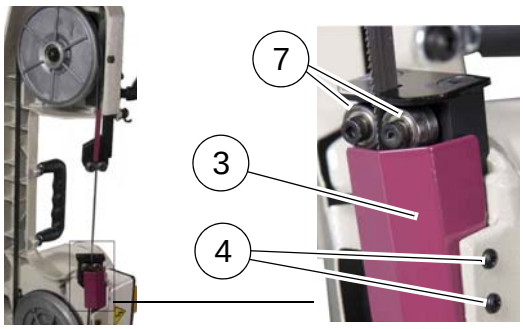
Img.5-3: Rear guide bearings

5.5 Inspection and maintenance

Due to wear, it may occur that you need to perform maintenance works on the machine. The type and level of wear depends to a large extent on the individual usage and operating conditions. All indicated intervals therefore need to be regarded as reference points for the average intended use.

<table>
<tr><th>Interval / When</th><th>Where?</th><th>What?</th><th>How?</th></tr>
<tr><td>Depending on wear</td><td>Saw arch</td><td>Change the saw band</td><td>
ATTENTION!
This metal belt saw is designed to use saw bands with a dimension of 1470 x 13 x 0.65 mm. The use of other saw blades may lead to worse cutting results.

➜ Disconnect the saw from the power supply.
➜ Position the saw arch in a vertical position.
➜ Remove the top guard plate (1) by detaching the screws (2).


Img.5-4: Replacement of saw band - 1
➜ Remove the top guard plate (3) also by detaching the screws (4).
➜ Detach the retaining screws (5) of the protective cover of the saw band drive. Slew the cover outward and remove it.
➜ Release the saw band tension by detaching the saw band clamping lever.
➜ Carefully remove the old saw belt.


Img.5-5: Replacement of saw band - 2
</td></tr>
</table>

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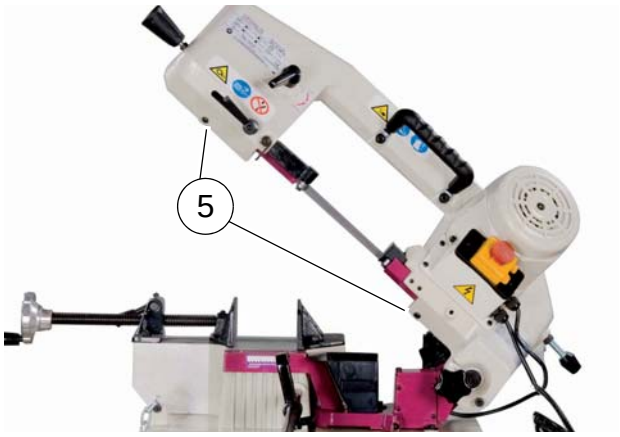
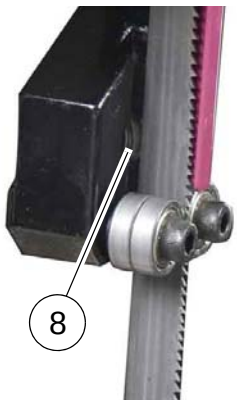
Interval / When	Where?	What?	How?
			➜ Assemble the new saw belt. First insert the saw band into the saw band guide bearings (6) and (7). Check the correct running direction of the toothing and make sure that the teeth are showing outward! ➜ First pull the saw belt on the bottom drive wheel and then on the top running wheel.  Img. 5-6: Replacement of saw band - 3 ➜ Make sure that the saw band is also closed to the rear guide bearings (8). ➜ Tension the saw band by repositioning the clamping lever in the working position. ➜ Reattach the two guard plates. ➜ Connect the saw to the power supply. Perform a short trial run and check if the saw blade safely seated and running correctly.  Img. 5-7: Replacement of saw band - 4

Interval / When	Where?	What?	How?
as required	**Saw belt guide**	Adjusting the saw band guide with respect to the work table	➜ Put an angle measure of 90° to the machine vice and check if the saw band is running parallel to the angle. ➜ Loosen the screws on the saw band guide if the angle is incorrect and adjust the saw band guide accordingly. **INFORMATION** **Check the adjustment with a thin test cut.**
Start of shift after every maintenance or repair work	**Metal band saw**	☞ Safety check on page 10	

5.6 Repair

5.6.1 Customer service technician

For any repair work request the assistance of an authorised customer service technician. Contact your specialist dealer if you do not have the customer service contact details for or contact Stürmer Maschinen GmbH in Germany who can provide you with the contact information of a specialist dealer'. Optionally, the company Stürmer Maschinen GmbH

Dr.-Robert-Pfleger-Str. 26

D- 96103 Hallstadt

can provide a customer service technician, however, the request for a customer service technician can only be made via your specialist dealer.

If the repairs are carried out by qualified technical personnel, they must follow the indications given in these operating instructions.

Optimum Maschinen Germany GmbH accepts no liability nor does it guarantee against damage and operating malfunctions resulting from failure to observe these operating instructions.

For repairs, only use

- faultless and suitable tools only,
- only original parts or parts from series expressly authorised by Optimum Maschinen Germany GmbH.

6 Ersatzteile - Spare parts

6.1 Ersatzteilbestellung - *Ordering spare parts*

Bitte geben Sie folgendes an - *Please indicate the following :*

- Seriennummer - *Serial No.*
- Maschinenbezeichnung - *Machines name*
- Herstellungsdatum - *Date of manufacture*
- Artikelnummer - *Article no.*

Die Artikelnummer befindet sich in der Ersatzteilliste. *The article no. is located in the spare parts list.* Die Seriennummer befindet sich am Typschild. *The serial no. is on the rating plate.*

6.2 Hotline Ersatzteile - Spare parts Hotline

+49 (0) 951-96555 -118

ersatzteile@stuermer-maschinen.de

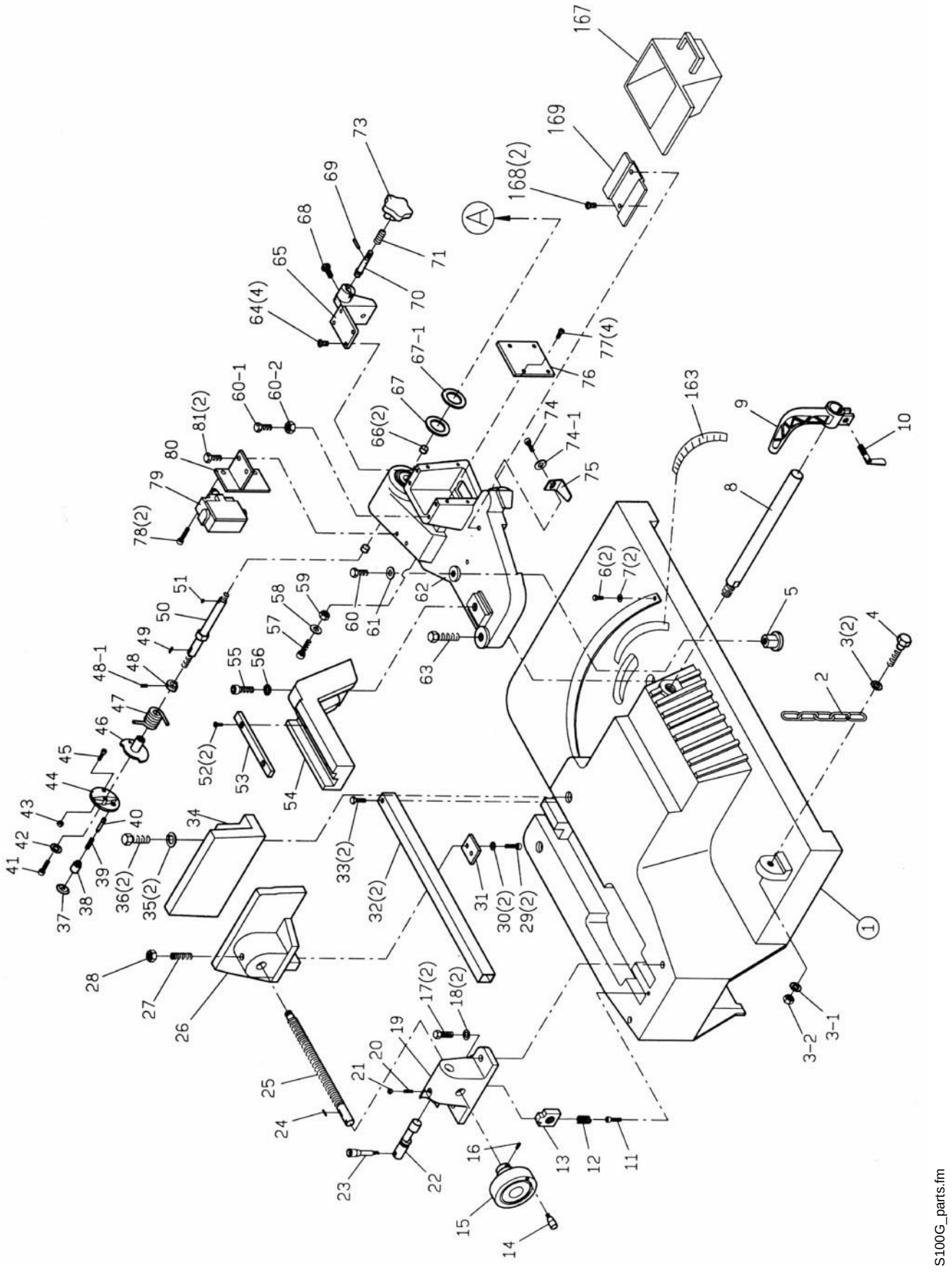
6.3 Service Hotline

+49 (0) 951-96555 -100

service@stuermer-maschinen.de

6.4 Ersatzteilzeichnungen - Spare part drawings

A S100G



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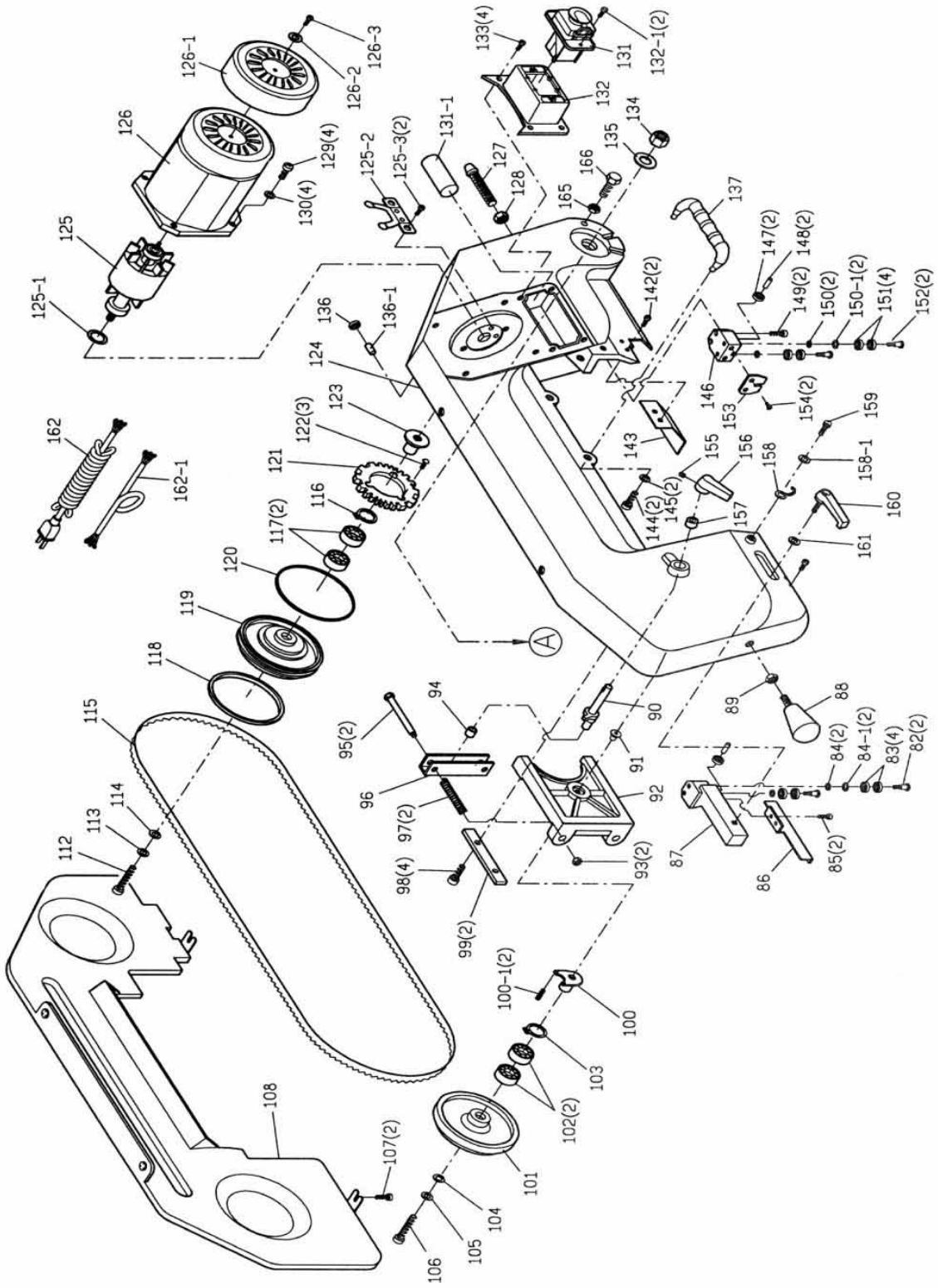

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6.4.1 Ersatzteilliste - Spare parts list - S100G

Pos.	Bezeichnung	Designation	Menge	Grösse	Artikel-nummer
			Qty.	Size	Item no.
1	Grundplatte	Base plate	1		0330010001
2	Kette	Chain	1		0330010002
3	Unterlegscheibe	Washer	2	M5	
3-1	Unterlegscheibe	Washer	1	M5	
3-2	Sechskantmutter	Hexagon nut	1	M5	
4	6-Kt-Schraube	Hexagon cap bolt	1	M5x25	
5	Stellmutter	Set cap	1		0330010005
6	6-Kt-Schraube	Hexagon cap bolt	2	M6x10	
7	Exzenterscheibe	Lock washer	2	0°,45°	
8	Anschlagwelle	Stop rod	1	ab Bj. 2008	0330010008
8A	Anschlagwelle	Stop rod	1	bis Bj. 2008	0330010008A
9	Materialanschlag	Stop block	1	ab Bj. 2008	0330010009
9A	Materialanschlag	Stop block	1	bis Bj. 2008	0330010009A
10	Flügelschraube	Thump screw	1		0330010010
11	Inbusschraube	Hexagon soc cap screw	1	M6x8	
12	Feder	Spring	1		0330010012
13	Spindelmutter	Spindle nut	1		0330010013
14	Handgriff	Handle	1		0330010014
15	Handrad	Hand wheel	1		0330010015
16	Gewindestift	Hexagon soc cap screw	1	M6x6	
17	6-Kt-Schraube	Hexagon cap bolt	2	M8x16	
18	Federscheibe	Spring washer	2	8	
19	Spindelmuttersitz	Spindle nut seat	1		0330010019
20	Gewindestift	Hexagon soc cap screw	1	M5x12	
21	Mutter	Nut	1	M5	
22	Exzenterschaft	Eccentric shaft	1		0330010022
23	Griff	Handle	1		0330010023
24	Paßfeder	Key	1	5x5x16	042P5516
25	Spindel	Spindle	1		0330010025
26	Schraubstockbacken	Vice jaw	1		0330010026
27	Gewindstift	Hexagon soc cap screw	1	M5x12	
28	6-Kt-Mutter	Hexagon nut	1	M5	
29	6-Kt-Schraube	Hexagon cap bolt	2	M6x12	
30	Federscheibe	Spring washer	2	6	
31	Stellplatte	Set plate	1		0330010031
32	Vierkantrohr	Square guard tube	2		0330010032
33	6-Kt-Schraube	Hexagon cap bolt	2	M6x30	
34	Schraubstockbacken	Vice jaw	1		0330010034
35	Federring	Spring washer	2	M10	
36	Sechskantschraube	Hexagon cap bolt	2	M10x20	
37	Abdeckung	Cover	1		0330010037CPL
38	Buchse	Bushing	1		
39	Feder	Spring	1		
40	Stift	Pin	1		
41	Inbusschraube	Hexagon soc cap screw	1	M6x10	
42	Unterlegscheibe	Washer	1	M6	
43	6-Kt-Mutter	Hexagon nut	1	M8	
44	Einstellscheibe	Adjusting plate	1		0330010044
45	Inbusschraube	Hexagon soc cap screw	1	M8x30	
46	Federsitz	Spring seat	1		0330010046
47	Feder	Spring	1		0330010047
48	Abschaltnocke	Cut off power cam	1		0330010048
48-1	Gewindestift	Set screw	1	M8x10	
49	Paßfeder	Key	1	4x4x20	042P4420
50	Welle	Shaft	1		0330010050
51	Paßfeder	Key	1	4x4x12	042P4412
52	Inbusschraube	Hexagon soc cap screw	2	M6x10	
53	Auflegeplatte	Support plate	1		0330010053
54	Winkel	Swivel support	1		0330010054
55	6-Kt-Schraube	Hexagon cap bolt	1	M8x20	
56	Federscheibe	Sping washer	1	M8	
57	6-Kt-Schraube	Hexagon cap bolt	1	M4x40	
58	Unterlegscheibe	Washer	1	M8	
59	6-Kt-Mutter	Hexagon nut	1	M8	
60	6-Kt-Schraube	Hexagon cap bolt	1	M8x45	
60-1	6-Kt-Schraube	Hexagon cap bolt	1	M8x30	
60-2	Mutter	Nut	1	M8	
61	Unterlegscheibe	Washer	1	M8	

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62	Schwenkplatte	Swivel base	1		0330010062
63	Bolzen	Hexagon cap bolt	1		0330010063
64	Kreuzschlitzschraube	Cross screw	4	M5x15	
65	Aufnahme	Shaft seat	1		0330010065
66	Buchse	Bushing	2		0330010066
67	Scheibe	Washer	1		0330010067
67-1	Distanzscheibe	Flat Washer	1		03300100671
68	Rundkopfschraube	Button socket screw	1	M6x20	
69	Spannstift 3mm	Spin	1	3mm	
70	Einstellstift	Adjust pin	1		0330010070
71	Feder	Spring	1		
73	Einstellknopf	Set Knob	1		0330010073
74	Kreuzschlitzschraube	Cross screw	1	M5x10	0330010074
74-1	Unterlegscheibe	Washer	1	M5	
75	Zeiger	Pointer	1		0330010075
76	Platte	Plate	1		
77	Kreuzschlitzschraube	Cross screw	4	M4x10	
78	6-Kt-Schraube	Hexagon cap bolt	2	M5x10	
79	Endabschalter	Limit Switch	1	QKS15/12A, 250V	0330010079
80	Schalterplatte	Switch plate	1		
81	6-Kt-Schraube	Hexagon cap bolt	2	M5x10	
82	Einstellschraube	Set screw	2		0330010082
83	Kugellager	Ball Bearing	4	625R	040625R
84	Distanzring	Flat washer	2		
84-1	Federring	Sping Washer	2	M5	
85	Kreuzschlitzschraube	Cross screw	2	M4x6	
86	Sägebandschutz	Blade guard	1		0330010086
87	Führungsschiene	Adjustable bracket	1		0330010087
88	Sägebügel-Hebegriff	Knob	1		0330010088
89	Sechskantmutter	Nut	1	M8	
90	Welle	Shaft	1		0330010090
91	Buchse	Bushing	1		
92	Aufnahme Laufrad	Blade wheel seat	1		
93	Sechskantmutter	Nut	2	M6	
94	Blattspanner	Blade tension block	1		
95	Federbolzen	Sping lock bolt	2		0330010095
96	U-Profil-Platte	U-shape plate	1		
97	Feder	Spring	2		0330010097
98	Inbusschraube	Hexagon soc cap screw	4	M6x10	
99	Führungsplatte	Guide plate	2		
100	Laufradwelle	Blade wheel shaft	1		03300100100
100-1	Schraube	Set screw	2	M6x10	
101	Laufrad	Blade wheel	1		03300100101
102	Kugellager	Ball Bearing	2	6003	0406003R
103	Sicherungsring	C-Ring	1		
104	Distanzscheibe	Flate washer	1	8x23x2	
105	Federscheibe	Spring washer	1	M8	
106	Rundkopfschraube	Rd, Hexagon sog screw	1	M8x50	
107	Kreuzschlitzschraube	Cross screw	2		
108	Sägeblattabdeckung	Blade cover	1		03300100108
112	Rundkopfschraube	Rd, Hexagon sog screw	1	M8x50	
113	Federscheibe	Spring washer	1	M8	
114	Distanzscheibe	Flate washer	1	8x23x2	
115	Sägeband	Blade	1		
116	Sicherungsring	C-Ring	1		
117	Kugellager	Ball Bearing	2	6003	0406003R
118	Gummiring	Rubber ring	1		03300100118
119	Laufrad	Blade wheel	1		03300100119
120	Filzauflage	Felt Pad	1		03300100120
121	Antriebszahnrad	Speed cogwheel	1		03300100121
122	Rundkopfschraube	Rd, Hexagon sog screw	3	M6x16	
123	Laufradwelle	Blade wheel shaft	1		03300100123
124	Sägebügel	Saw bow	1		03300100124
125	Rotor	Rotor	1		03300100125
125-1	Unterlegscheibe	Washer	1		03300100125-1
125-2	Fliehkraftschalter	Switch	1		03300100125-2
125-3	Sechskantschraube	Button socket screw	2	M4x8	
126	Stator	Stator	1		03300100126
126-1	Lüfterrad-Abdeckung	Cooling cover	1		033001001261
126-2	Distanzscheibe	Flat washer	1	6x31x1	
126-3	Inbusschraube	Hexagon soc cap screw	1	M6x8	
127	Einstellschraube	Support bar	1		03300100127
128	Mutter	Hexagon nut	1		
129	Inbusschraube	Hexagon soc cap screw	4	M5x16	
130	Unterlegscheibe	Washer	4	M5	
131	Schalter	Switch	1	SK-5/ 10A, 250V	03300100131
131-1	Kondensator	Condenser	1	110µF, 150V	033001001311

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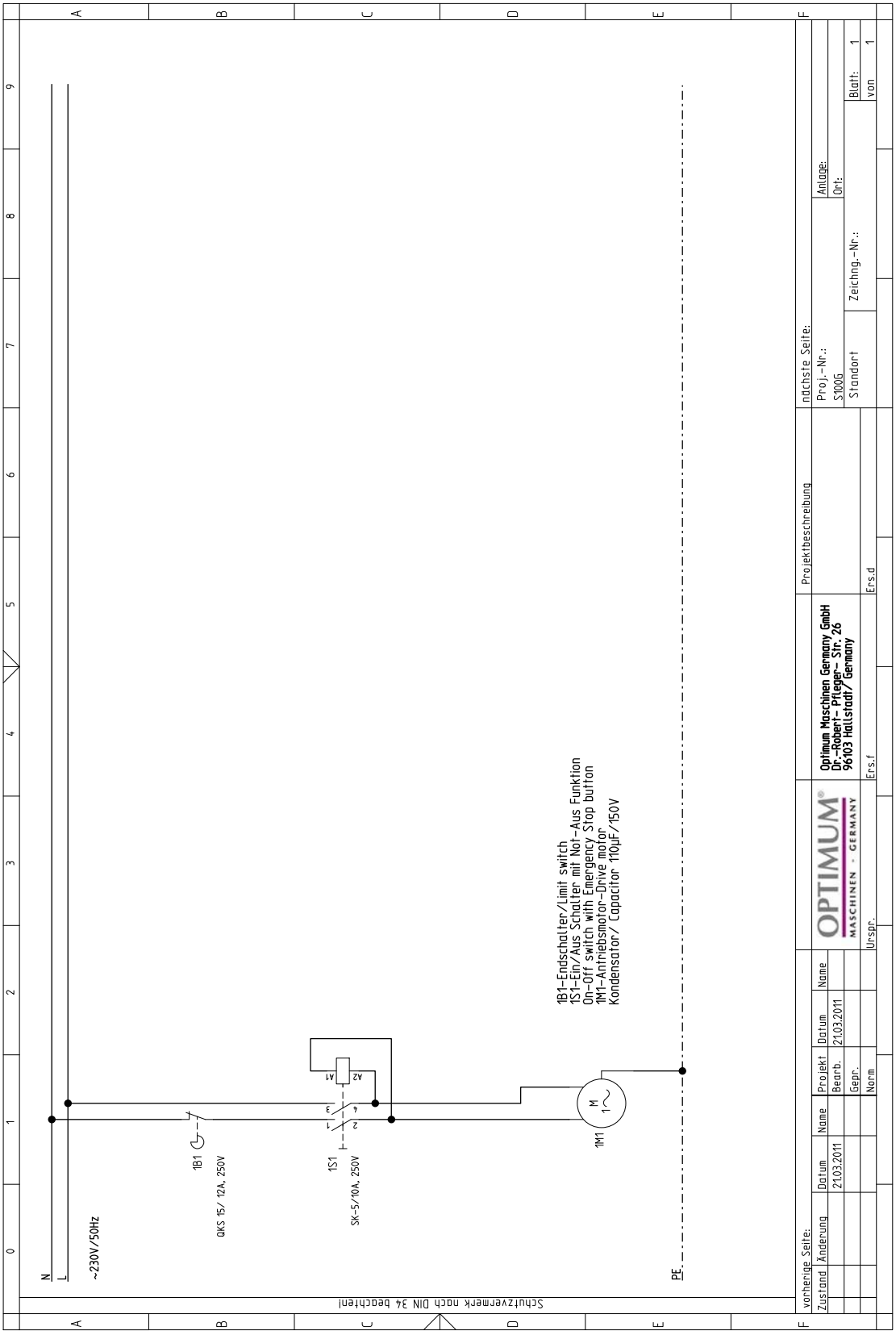
132	Schaltergehäuse	Switch housing	1		
132-1	Befestigungsschraube	Tapping screw	2		
133	Kreuzschlitzschraube	Cross screw	4	M5x6	
134	Sechskantmutter	Hexagon nut	1	M12	
135	Distanzscheibe	Flate washer	1	12x28x3	
136	Kugellager	Ball Bearing	1	625#	040625R
136-1	Lagerbolzen	Bearing pin	1		033001001361
137	Tragegriff	Carry handle	1		03300100137
142	Kreuzschlitzschraube	Cross screw	2	M4x10	
143	Sägebandschutz	Blade guard	1		03300100143
144	Inbusschraube	Hexagon soc cap screw	2	M8x30	
145	Federring	Spring washer	2	M8	
146	Kugellagersitz	Ball bearing seat	1		03300100146
147	Kugellager	Ball bearing	2	625#	040625R
148	Lageraufnahmestift	Round key	2	5x14	
149	Inbusschraube	Hexagon soc cap screw	2	M6x25	03300100149
150	Distanzscheibe	Flate washer	2	5x10x1	
150-1	Federring	Sping Washer	2	M5	
151	Kugellager	Ball bearing	4	625#	040625R
152	Inbusschraube	Hexagon soc cap screw	2	M5x25	03300100152
153	Schutzabdeckung	Protection plate	1		03300100153
154	Inbusschraube	Hexagon soc cap screw	2	M6x10	
155	Inbusschraube	Hexagon soc cap screw	1	M5x12	
156	Klemmhebel	Blade adjusting handle	1		03300100156
157	Buchse	Bushing	1		03300100157
158	Kettenhaken	Chain hook	1		03300100158
158-1	Unterlegscheibe	Washer	1	8x16x1,5	
159	Inbusschraube	Hexagon soc cap screw	1	M8x12	
160	Spannhebel	Adjustable bracket handle	1		03300100160
161	Unterlegscheibe	Washer	1	8x23x2	
162	Elektrokabel mit Stecker	Power cord	1		
162-1	Kabel	Cable	1		
163	Skala	Scale	1		03300100163
165	Sechskantmutter	Nut	2	M8	
166	Sechskantschraube	Hexagon cap bolt	1	M8x25	
167	Späneauffangbehälter	Chip tray	1		03300100167
168	Rundkopfschraube	Round head screw	2	M5x8	
169	Schiebeplatte	Supporting plate	1		03300100169
0	Sägebandführung recht kplt.	Band guide right cpl.	1		03300100146CPL
0	Sägebandführung links kplt.	Band guide left cpl.	1		0330010082CPL
0	Arretierung kplt.	Safety lock cpl.	1		0330010037CPL

6.5 Schaltplan - Wiring diagram

C



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7 Malfunctions

7.1 Malfunctions on the metal band saw

Malfunction	Cause/ possible effects	Solution
Saw motor overloading	• Engine cooling air intake obstructed • Motor not correctly fixed • Power unit for saw blade not properly fixed	• Check and clean • Requires technical service! Have the machine repaired in the workshop
Coolant supply does not work	• Cooling agent tank empty • Cooling agent tap locked • Cooling agent tap blocked • Cooling agent duct bent or blocked • Air in the system, e.g. after refilling • Pump doesn't work	• Fill • Open • Cleaning • Check and clean • Venting by briefly pulling off the pressure hose • Switch on pump
The saw band stops during sawing, but the saw motor runs.	• Saw band too little tensioned • V-belt tension	• Check saw belt • Check tension of V-belt
Short life of saw belt (Teeth blunt)	• Quality of saw band not suitable for this material • An incorrect tooth spacing causes breakage of teeth (the broken tooth in the workpiece blunts the other teeth) • Missing cooling • Cutting speed too high • Feed too high	• Saw band of higher quality (choose bimetallic) • Select correct tooth pitch • Use coolant equipment • Reduce cutting speed • Reduce feed
Breakage of tooth	• The chip space in the saw band is overcharged, tooth pitch incorrect	• Use saw band with a different tooth pitch or reduce feed
Breakage of the saw belt	• Tension in the saw belt too high or too low • Saw band defective • Adjust the saw band guide correctly	• Check tension of saw blade • Replace • Adjust blade guide correctly
Oblique saw cut (Saw band runs incorrectly)	• Distance between guide and workpiece too high • Saw band blunt • Too low saw blade tension • Feed too high • Cutting pressure too high • Saw blade defective (irregular set) • Wrong saw band guidance	• Bring the guide as close to the workpiece as possible • Replace • Tighten correctly • Reduce • Reduce • Replace • Re-adjust
Cut not rectangular but parallel	• Material does not rest on both vice jaws • Metal belt saw not adjusted to 90^0	• Insert material properly • Adjust clamps correctly

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8 Appendix

8.1 Copyright

This document is protected by copyright. All derived rights are reserved, especially those of translation, re-printing, use of figures, broadcast, reproduction by photo-mechanical or similar means and recording in data processing systems, either partial or total.

Subject to technical changes without notice.

8.2 Product follow-up

We are required to perform a follow-up service for our products which extends beyond shipment.

We would be grateful if you could send us the following information:

- Modified settings
- Any experiences with the metal band saw which might be important for other users
- Recurring failures

Optimum Maschinen Germany GmbH
Dr.-Robert-Pfleger-Str. 26

D-96103 Hallstadt ; Fax +49 (0) 951 - 96 555 - 888 ; email: info@optimum-maschinen.de

8.3 Liability claims/warranty

Beside the legal liability claims for defects of the customer towards the seller, the manufacturer of the product, OPTIMUM GmbH, Robert-Pfleger-Straße 26, D-96103 Hallstadt, does not grant any further warranties unless they are listed below or were promised in the framework of a single contractual provision.

- Liability or warranty claims are processed at OPTIMUM GmbH's discretion either directly or through one of its dealers.
  Any defective products or components of such products will either be repaired or replaced by components which are free from defects. Ownership of replaced products or components is transferred to OPTIMUM Maschinen Germany GmbH.
- The automatically generated original proof of purchase which shows the date of purchase, the type of machine and the serial number, if applicable, is the precondition in order to assert liability or warranty claims. If the original proof of purchase is not presented, we are not able to perform any services.
- Defects resulting from the following circumstances are excluded from liability and warranty claims:
  - Using the product beyond the technical options and proper use, in particular due to overstraining of the machine.
  - Any defects arising by one's own fault due to faulty operations or if the operating manual is disregarded.
  - Inattentive or incorrect handling and use of improper equipment
  - Unauthorized modifications and repairs
  - Insufficient installation and safeguarding of the machine
  - Disregarding the installation requirements and conditions of use
  - atmospheric discharges, overvoltage and lightning strokes as well as chemical influences
- The following items are also not subject to liability or warranty claims:
  - Wearing parts and components which are subject to a standard wear as intended such as e.g. V-belts, ball bearings, illuminants, filters, sealings, etc.
  - Non reproducible software errors
- Any services, which OPTIMUM GmbH or one of its agents performs in order to fulfil any additional warranty are neither an acceptance of the defects nor an acceptance of its obligation to compensate. These services neither delay nor interrupt the warranty period.
- The court of jurisdiction for legal disputes between businessmen is Bamberg.

- If any of the aforementioned agreements is totally or partially inoperative and/or invalid, a provision which nearest approaches the intent of the guarantor and remains within the framework of the limits of liability and warranty which are specified by this contract is deemed agreed.

8.4 Advice for disposal / Options of reuse:

Please dispose of your equipment in an environmentally friendly manner, by not placing waste in the environment but in a professional manner.

Please do not simply throw away the packaging and later the disused machine, but dispose of both in accordance with the guidelines laid down by your city council/local authority or by an authorised disposal company.

8.4.1 Decommissioning

CAUTION!

Used devices need to be decommissioned in a professional way in order to avoid later misuses and endangerment of the environment or persons.

- **Unplug the power cord.**
- **Cut the connection cable.**
- **Remove all operating materials from the used device which are harmful to the environment.**
- **If applicable remove batteries and accumulators.**
- **Disassemble the machine if required into easy-to-handle and reusable assemblies and component parts.**
- **Dispose of machine components and operating fluids using the intended disposal methods.**

8.4.2 Disposal of new device packaging

All used packaging materials and packaging aids from the machine are recyclable and generally need to be supplied to the material reuse.

The packaging wood can be supplied to the disposal or the reuse.

Any packaging components made of cardboard box can be chopped up and supplied to the waste paper collection.

The films are made of polyethylene (PE) and the cushion parts are made of polystyrene (PS). These materials can be reused after reconditioning if they are passed to a collection station or to the appropriate waste management enterprise.

Only forward the packaging materials correctly sorted to allow direct reuse.

8.4.3 Disposal of the old device

INFORMATION

Please take care in your interest and in the interest of the environment that all component parts of the machine are only disposed of in the intended and admitted way.

Please note that the electrical devices comprise a variety of reusable materials as well as environmentally hazardous components. Please ensure that these components are disposed of separately and professionally. In case of doubt, please contact your municipal waste management. If appropriate, call on the help of a specialist waste disposal company for the treatment of the material.

8.4.4 Disposal of electrical and electronic components

Please make sure that the electrical components are disposed of professionally and according to the statutory provisions.

The device is composed of electrical and electronic components and must not be disposed of as household waste. According to the European Directive regarding electrical and electronic used devices and the implementation of national legislation, used power tools and electrical machines need to be collected separately and supplied to an environmentally friendly recycling centre.

As the machine operator, you should obtain information regarding the authorized collection or disposal system which applies for your company.

Please make sure that the electrical components are disposed of professionally and according to the legal regulations. Please only throw depleted batteries in the collection boxes in shops or at municipal waste management companies.

8.4.5 Disposal of lubricants and coolants

ATTENTION!

Please imperatively make sure to dispose of the used coolant and lubricants in an environmentally compatible manner. Observe the disposal instructions of your municipal waste management companies.

INFORMATION

Used coolant emulsions and oils should not be mixed since it is only possible to reuse oils without pre-treatment when they have not been mixed. The disposal instructions for used lubricants are made available by the manufacturer of the lubricants. If necessary, request the product-specific data sheets.

8.5 Disposal through municipal collection facilities

Disposal of used electrical and electronic components
(Applicable in the countries of the European Union and other European countries with a separate collecting system for those devices).

The sign on the product or on its packing indicates that the product must not be handled as common household waste, but that is needs to be disposed of at a central collection point for recycling. Your contribution to the correct disposal of this product will protect the environment and the public health. Incorrect disposal constitutes a risk to the environment and public health. Recycling of material will help reduce the consumption of raw materials. For further information about the recycling of this product, please consult your District Office, municipal waste collection station or the shop where you have purchased the product.

8.6 Change information operating manual

Chapter	Short summary	new version number
Appendix	Updated standards CE Declaration	2.0.4
CE	Low Voltage Directive 2014/35/EC	2.0.5
CE	new type C standard	2.0.6
3.3.3	Machine base frame MUG 1	2.0.7
3	Interdepartmental transport	2.0.8

OPTIMUM®
MASCHINEN - GERMANY

EC Declaration of Conformity

in accordance with the Machinery Directive 2006/42/EC Annex II 1.A

The manufacturer / distributor Optimum Maschinen Germany GmbH
Dr.-Robert-Pfleger-Str. 26
D - 96103 Hallstadt

hereby declares that the following product

Product designation: Metal belt saw

Type designation: S100G

fulfills all the relevant provisions of the directive specified above and the additionally applied directives (in the following) - including the changes which applied at the time of the declaration.

Description:

Hand controlled metal belt saw

The following other EU Directives have been applied:

EMC Directive 2014/30/EC ; Restriction of the use of certain hazardous substances in electrical and electronic equipment 2015/863/EU

The following harmonized standards were applied:

EN ISO 16093:2017-10 - Machine tools - Safety - Sawing machines for cold metal

EN 60204-1:2014 - Safety of machinery - Electrical equipment of machines - Part 1: General requirements

EN 13849-1:2015 - Safety of machinery - Safety related parts of controls - Part 1: General design principles

EN 13849-2:2012 - Safety of machinery - Safety related parts of controls - Part 2: Validation

EN ISO 12100:2013 - Safety of machinery - General principles for design - Risk assessment and risk reduction

Name and address of the person authorized to compile the technical file:

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Kilian Stürmer (CEO, General Manager)
Hallstadt, 2019-12-11

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