OPTIMUM

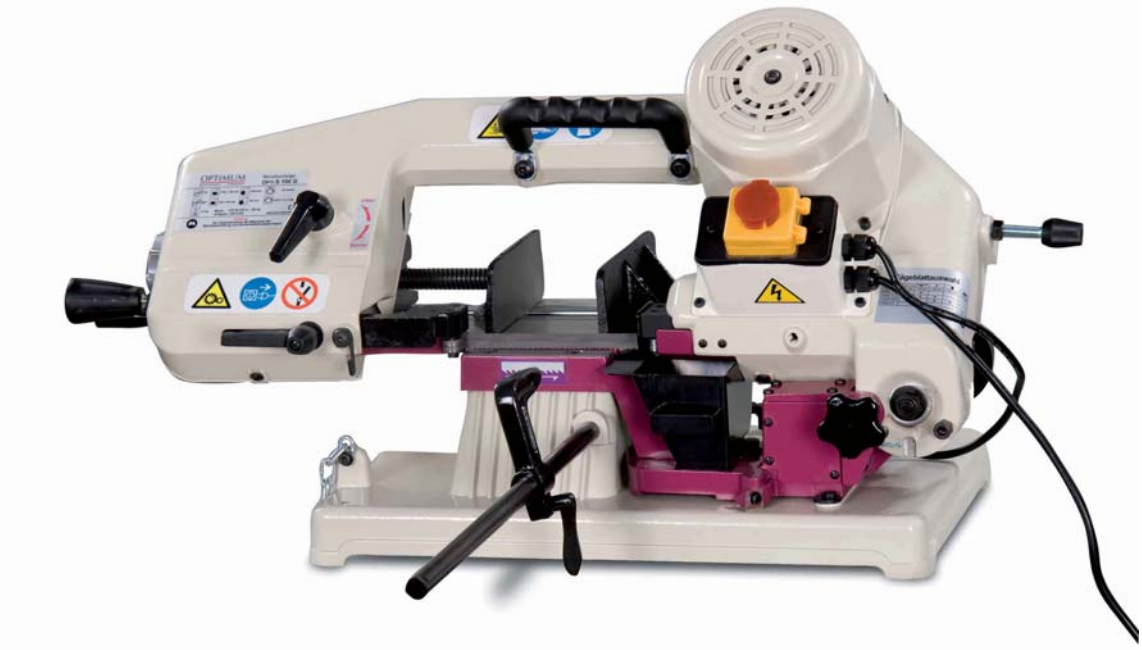
MASCHINEN - GERMANY

Operating manual

Version 2.0.5

Metal belt saw

OPTI saw® S 100G



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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 maintenance of 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

Dr.- Robert - Pfleger - Str. 26

D-96103 Hallstadt

Mail: info@optimum-maschinen.de

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1 Safety

Glossary of symbols

☞	gives further advice
➜	calls on you to act
❍	enumerations

This part of the operating instructions

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

In addition to these operation instructions, please observe

- ❍ the applicable laws and regulations,
- ❍ the legal regulations for accident prevention,
- ❍ the prohibition, warning and mandatory signs as well as the warning notes on the metal belt saw.

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

If European standards are not applied at the national legislation of the country of destination, the specific applicable regulations of each country are to be observed.

If required it is necessary to take the corresponding measures to comply with the country-specific regulations before commissioning the metal belt saw.

Always keep this documentation close to the metal belt saw.

INFORMATION

If you are unable to solve a problem using these operating instructions, please contact us for advice:

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

D- 96103 Hallstadt

Email: info@optimum-maschinen.de

1.1 Safety instructions (warning notes)

1.1.1 Classification of hazards

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

Ideogram	Warning alert	Definition / consequence
	**DANGER!**	Threatening danger that will cause serious injury or death to people.
	WARNING!	A danger that might cause severe injury to the personnel or can lead to death.
	CAUTION!	Danger or unsafe procedure that might cause injury to people or damage to property.
	**ATTENTION!**	Situation that could cause damage to the drilling machine and products and other types of damage. No risk of injury to people.
	**INFORMATION**	Application 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 by

general danger

by a warning of

injury of hands,

hazardous electrical voltage,

or

rotating parts.

1.1.2 Other pictograms

Activation forbidden!

Disconnect the mains plug!

Use protective glasses!

Use ear protection!

Use protective gloves!

Use protective boots!

Wear a safety suit! protection

Protect the environment!

Contact address

1.2 Intended use

WARNING!

In the event of improper use, the metal belt saw

- **will endanger personnel,**
- **the machine and other material property of the operating company will be endangered,**
- **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.

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 you

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

☞ "Technical data“ on page 16

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

WARNING!

Heaviest injuries due improper use.

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

1.3 Possible dangers caused by the metal belt saw

The metal belt saw has undergone a safety inspection (analysis of danger with assessment of risks). It has been designed and built on the basis of this analysis using the latest technological advances.

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

- electrical voltage and currents,
- an revolting saw band.

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

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

INFORMATION

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

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

Always disconnect the circular metal saw if cleaning or maintenance work is being carried out.

WARNING!

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

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

All additional devices installed by the operator have to be equipped with the prescribed safety devices.

This is your responsibility being the operating company! ☞ **"Safety devices“ on page 10**

1.4 Qualification of personnel

1.4.1 Target group

This manual is addressed to

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

Therefore, the warning notes refer to both operation and maintenance of the metal belt 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 plug of the metal belt saw from the electrical power supply. 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 which need to be performed beyond the opera-

tion in the standard mode must only be performed by the operator if it is indicated in these instructions and if the operating company expressively commissioned the operator.

Electrical specialist

Due to his professional training, knowledge and experience as well as his knowledge of respective standards and regulations the electrical specialist is able to perform works on the electrical system and to recognise and avoid any possible dangers himself.

The electrical specialist is specially trained for the working environment in which he is working and knows the relevant standards and regulations.

Qualified personnel

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

Instructed person

Instructed personnel were instructed by the operating company about the assigned tasks and any possible risks in case of improper behaviour.

1.4.2 Authorized personnel

WARNING!

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

Only authorized staff may operate the circular metal 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 personnel‘s state of knowledge,
- document the trainings/instructions,
- require personnel to confirm participation in training/instructions by means of a signature,
- check whether the personnel is working safety- and risk-conscious and observe the operating instructions.

The operator must

Obligations of the operator

- have obtained a training regarding the handling of the circular metal 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

For work on the following parts there are additional requirements:

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

  Before carrying out work on electrical components or operating units, the following measures must be taken, in the order given.
  - disconnect all poles
  - Secure against switching on.
  - Check if the machine is zero potential.

1.5 Operator positions

The operator must stand beside the metal belt saw.

INFORMATION

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

1.6 Safety measures during operation

CAUTION!

Risk due to inhaling of health hazardous dusts and mist.

Dependent on the material which need to be processed and the used auxiliaries dusts and mist may be caused which might impair you health.

Make sure that the generated health hazardous dusts and mist are safely sucked off at the point of origin and is dissipated or filtered from the working area. To do so, use a suitable extraction unit.

CAUTION!

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

Before processing inflammable materials (e.g. aluminium, magnesium) or using inflammable auxiliary materials (e.g. spirit) it is necessary to take additional preventive measures in order to safely avoid health risks.

1.7 Safety devices

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

Stop the metal belt 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 circular metal saw must only be used if you

- have removed the cause of the failure,
- have verified that there is no danger resulting for the 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:

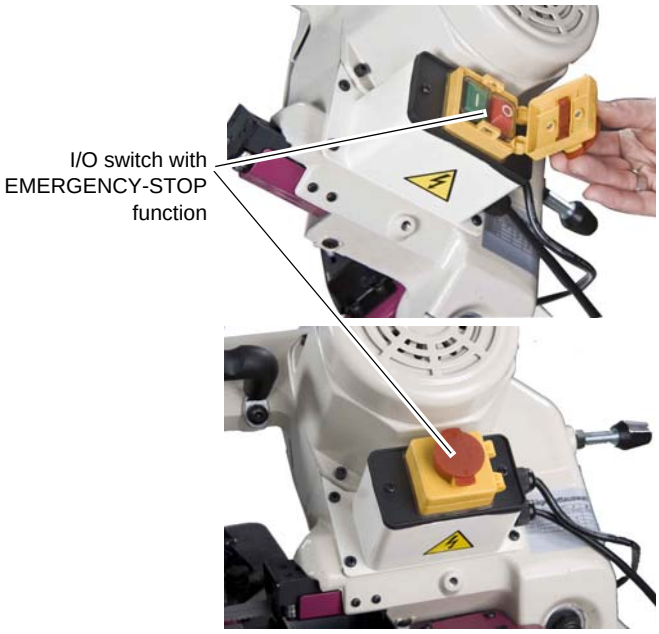
- **injuries may occur due to workpiece or parts of workpieces flying off,**
- **contact with rotating and revolting parts,**
- **fatal electrocution.**

The metal belt saw includes the following safety devices:

- a self-locking EMERGENCY-STOP switch,
- a saw blade housing with protective cover.

1.7.1 I/O switch with EMERGENCY-STOP function

The metal belt saw is fitted with a I/O switch switch with EMERGENCY-STOP function

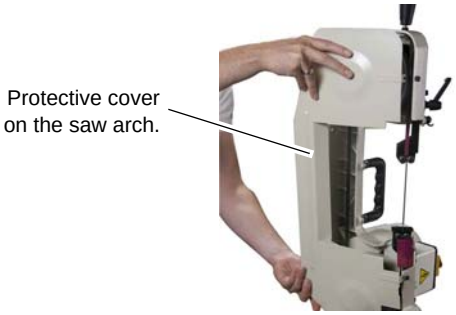


Img.1-1: I/O switch with EMERGENCY-STOP function

1.7.2 Saw arch

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

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



Img.1-2: Saw blade housing

WARNING!

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

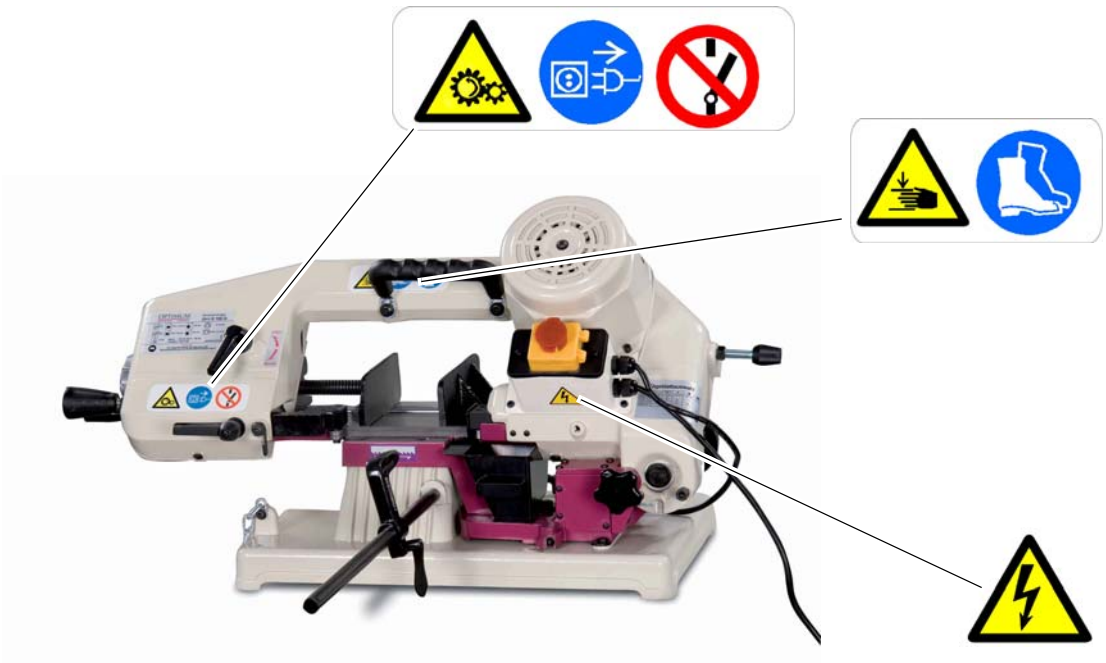
1.8 Prohibition, warning and mandatory signs

INFORMATION

All warning signs must be legible.

Check them regularly.

Position of labels on the metal belt saw:



Img.1-3: Indicating labels - metal belt saw

1.9 Safety check

➜ Check the circular metal saw at least once per shift. Inform the person responsible immediately of any damage, defect or change 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 every maintenance and repair work.

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

❍ are legible (clean them, if necessary),

❍ are complete (replace if necessary).

INFORMATION

Use the following table in order to organize the checks.

General check		
Equipment	**Check**	**OK**
Protective covers	Mounted, firmly bolted and not damaged	
Signs, Markings	Installed and legible	
Date:	**checked by (signature):**	

Functional check		
Equipment	**Check**	**OK**
EMERGENCY-STOP switch	When the EMERGENCY STOP push button is activated, the metal belt saw must switch off.	
Date:	**checked by (signature):**	

1.10 Individual protection gear

For certain work individual protection gear as protective equipment. This includes:

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

Before starting work, make sure that the prescribed individual protective equipment is available in the workplace.

CAUTION!

Dirty or contaminated personnel protective equipment can cause diseases.

Clean your individual protection gear

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

Individual protection gear for special work

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

Use protective gloves when handling pieces with sharp edges.

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

1.11 Safety during operation

We specially point out the specific dangers when working with and on the metal belt 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 risky working practices:

- ➜ Make sure that nobody is endangered by your work.
- ➜ The instructions mentioned in these operating instructions have to be strictly 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 competent supervisory authority, responsible for your company.
- ➜ Stay at the metal belt saw until all movements have come to a complete standstill.
- ➜ Use the prescribed personnel protective equipment. Make sure to wear a well-fitting work suit and, if necessary, a hairnet.
- ➜ Inform the supervisor about all endangerments or errors.

1.12 Safety during maintenance

Inform the operators on time of any maintenance and repair work.

Report all safety relevant changes and performance details of the circular metal saw. Document all changes, have the operating instructions updated accordingly and train machine operators.

Report and document any changes

1.12.1 Disconnecting and securing the metal belt saw

- ➜ Turn off the main plug before starting any maintenance or repair work.

- ➜ Attach a warning sign on the machine.

WARNING!

Before reconnecting the plug to the mains, make sure that the I/O switch on the metal belt saw is in the "OFF" position.

In case of doubt, press the EMERGENCY-STOP switch before reconnecting the mains plug to the power supply.

1.12.2 Mechanical maintenance work

Remove or install protection safety devices before starting any maintenance work and re-install them once the work has been completed.This includes:

- ❍ Covers,
- ❍ Safety indications and warning signs,
- ❍ earth (ground) connections.

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

Check if they are working properly!

1.13 Accident report

Inform your superiors 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 faster the causes can be eliminated.

INFORMATION

We point out the specific dangers when performing works with and on the metal belt saw when describing such works.

1.14 Electric

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

Immediately eliminate all defects such as loose connections, defective wires, etc.

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 33

☞ "Safety check“ on page 12

2 Technical data

The following information gives the dimensions and weight and is the manufacturer's authorised machine data.

2.1 Electrical connection	
Total connection rate	230 V; ~50 Hz; 0.37 kW
Permitted voltage tolerance	220 V - 240 V
Degree of protection	IP 54

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° rectangular, max (mm)	100 x 60
Cutting angle	0^0 - 45^0

2.3 General	
Cutting angle adjustment	using the adjustable jaws on the vice
Saw belt guide	inversion pulleys supported on ball bearings
Raising the saw arch	manually
Feed	manually manipulated lowering movement
Tension of the saw belt	manually via clamping lever

2.4 Dimensions	
Length [mm]	725
Height [mm]	460
Height of work area [mm]	810
Width [mm]	380
Total weight [kg]	23
Dimensions of saw blade [mm]	1470 x 13 x 0.65

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

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

2.7 Emissions

The generation of noise emitted by the metal belt saw is less than 78 dB(A).

INFORMATION

This numerical value was measured on a new machine under proper operating conditions. Depending on the age respectively on the wear of the machine it is possible that the noise behaviour of the machine changes.

Furthermore, the factor of the noise emission is also depending on manufacturing influencing factors, e.g. speed, material and clamping conditions.

INFORMATION

The mentioned numerical value is an emission level and 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 the 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.

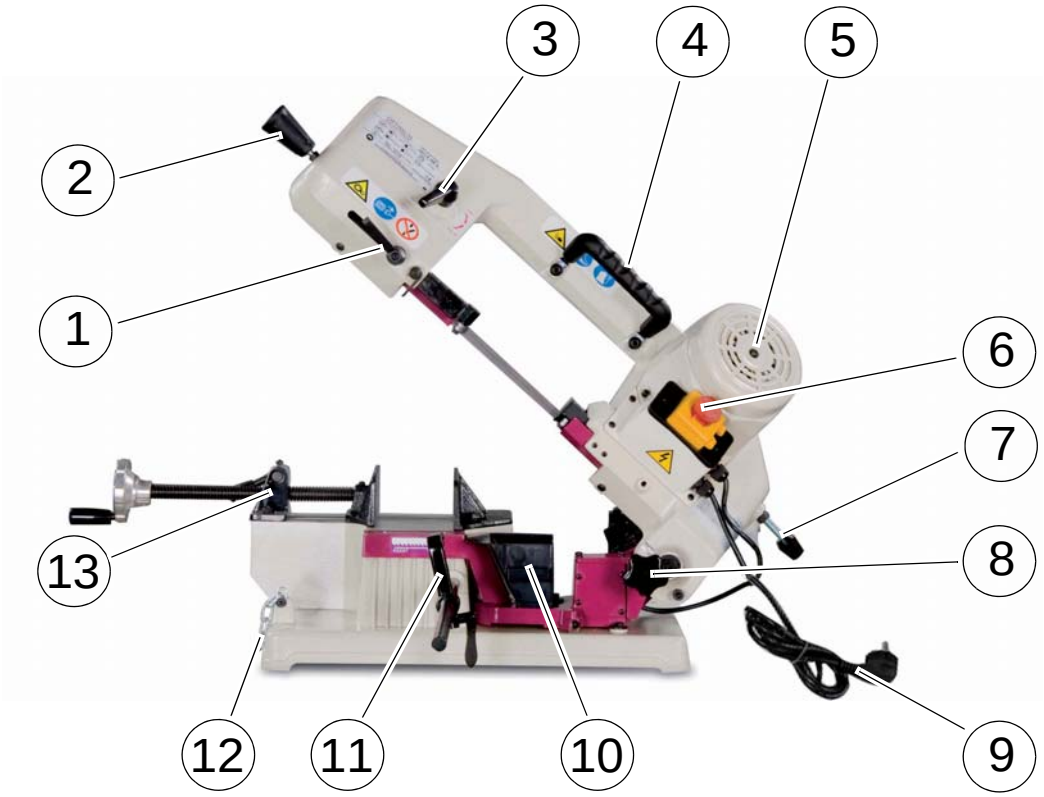
This information about the noise emission shall allow the operator of the machine to more easily evaluate the endangering and risks.

CAUTION!

Depending on the overall noise exposure and the basic limit values the machine operators must wear an appropriate hearing protection.

We generally recommend to use a noise protection and a hearing protection.

3 Structure of the belt saw



Img.3-1:Components of the belt saw

1	Clamping lever of the saw belt guide
2	Saw arch handle
3	Clamping screw for the saw belt tension
4	Carrying handle
5	Engine
6	I/O switch with EMERGENCY-STOP function
7	Saw arch support
8	Saw arch fixing device
9	Connection cable with plug
10	Chip collection container
11	Material stop
12	Transportation lock
13	Quick-action vice

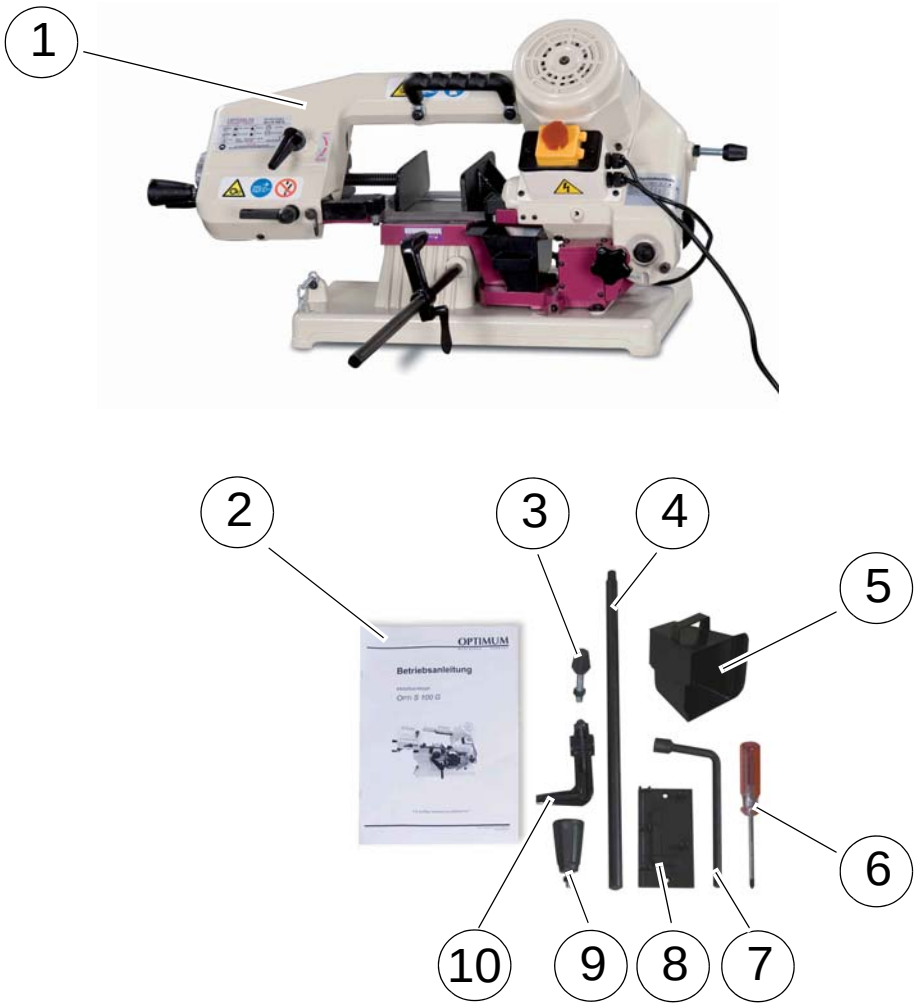
4 Assembly

INFORMATION

The metal belt saw is delivered pre-assembled.

4.1 Scope of delivery

Check immediately upon delivery of the metal belt saw if there are any transport damages or loosened fastening screws.



Img. 4-1:Scope of delivery

1	Metal belt saw with saw belt and vice
2	Operating manual (English)
3	Support for the saw arch
4	Shaft (Material stop)
5	Chip collection container
6	Philips screwdriver
7	Allen wrench
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 16**

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.

4.2 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 recommendyou to clean the machine using kerosene). Do not use any solvents, cellulose thinner or any other cleaning agents which might affect the coating of the lathe when cleaning the lathe. 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!

4.3 Installation and assembly

4.3.1 Requirements regarding the installation site

Organize the working area around the metal belt saw according to the local safety regulations.
☞ "Dimensions“ on page 16

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 nearby machines generating chips or dust.
- The installation site must be free from vibrations also at a distance of 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 hindered.

❍ Provide for sufficient illumination (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 a way that possibly used coolant cannot penetrate into the floor.

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

4.3.2 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.

ATTENTION!

Danger of crushing and tilting. Danger of cutting, perform the works described hereunder with care.

ATTENTION!

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

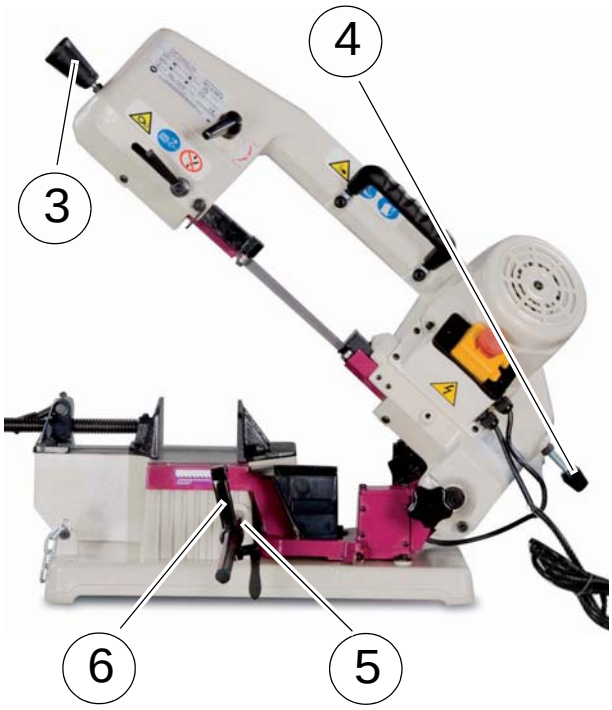
➜ First remove the transportation safety device (1) on the saw arch.

➜ 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.4-2: 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.4-3: Assembly 2

4.3.3 Electrical connection

The machine is already premounted ready to be plugged.

WARNING!

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.

4.4 Adjusting the depth stop and the limit stop switch

4.4.1 Depth stop

The depth stop limits the saw arch to the bottom.

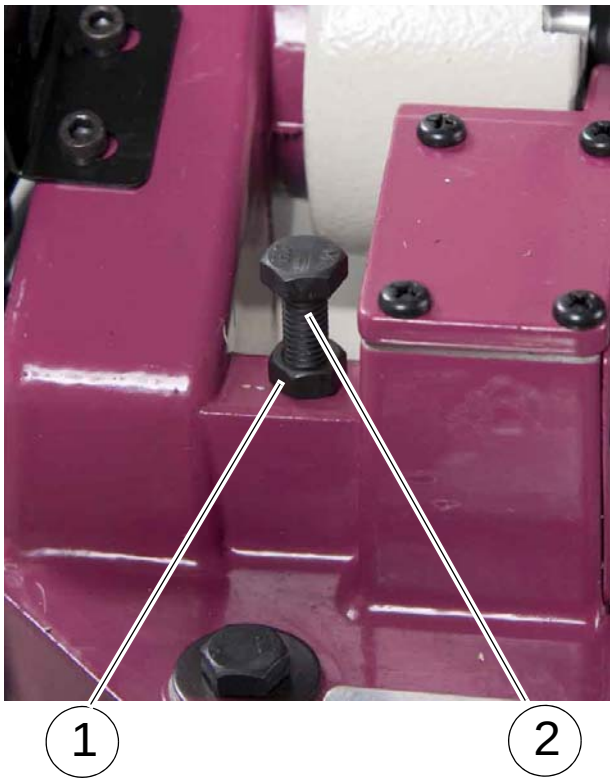
Adjustment (if required):

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.



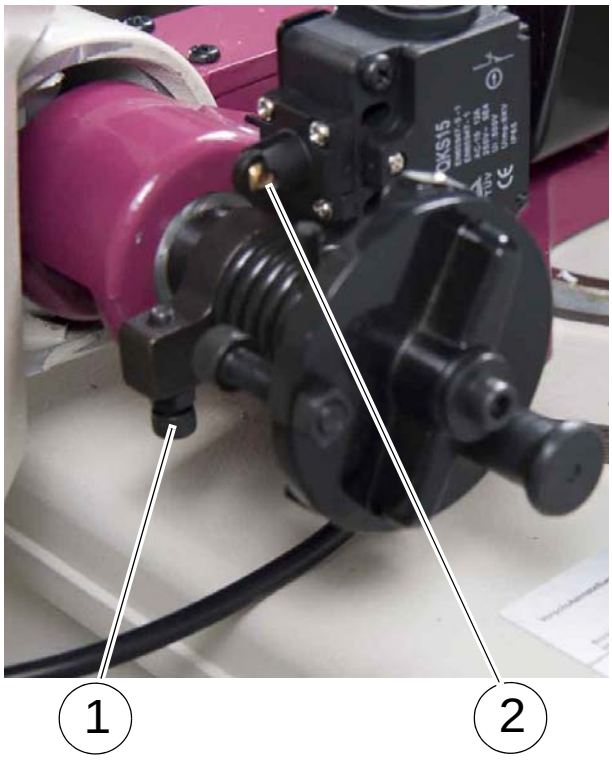
Img. 4-4: Depth stop

ATTENTION!

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

4.4.2 Automatic limit stop

The automatic limit stop stops the saw belt 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.

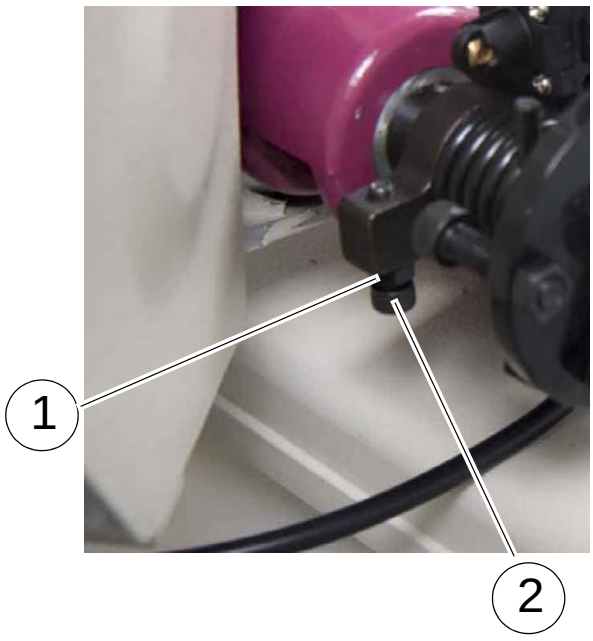


Img.4-5: Cam switch

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.4-6: 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.

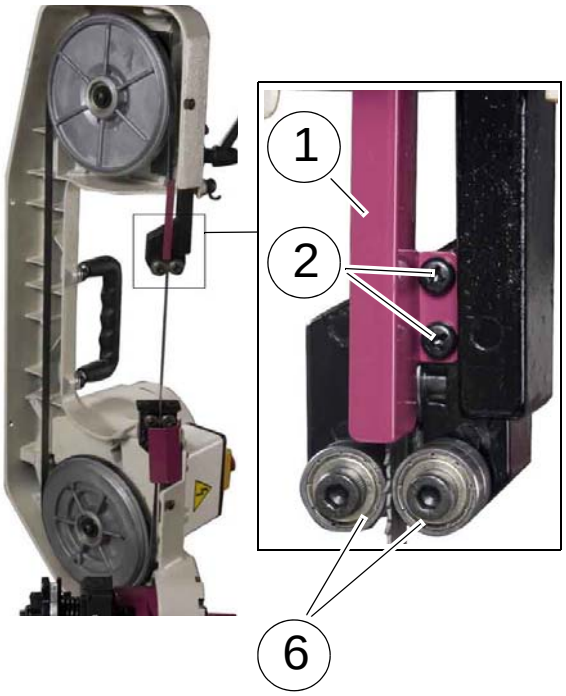
4.5 Saw belt assembly

INFORMATION

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.



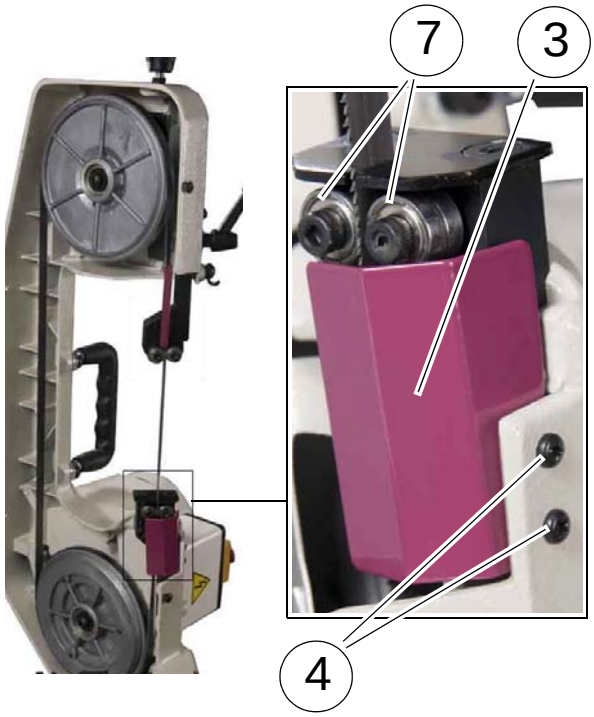
Img. 4-7: Saw belt assembly 1

➜ Disconnect the saw from the power supply.

➜ Position the saw arch in a vertical position.

➜ Unscrew the two screws (2) and remove the top protective cover (1).

➜ Also remove the bottom protective cover (3) by loosening the two screws (4).



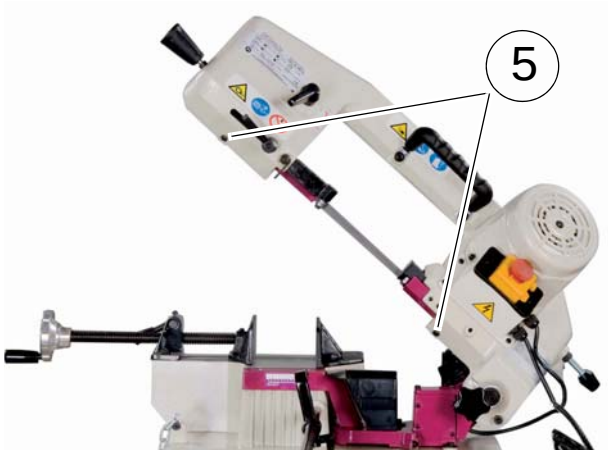
Img. 4-8: Saw belt assembly 2

➜ Unscrew the two retaining screws (5) of the protective cover for the saw belt drive.
Slew the protective cover outwards. Now you can pull out the complete saw belt 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 belt.

☞ "Saw belt tension“ on page 28

➜ Take off the old saw belt with caution from the guide rollers.



Img.4-9: Saw belt assembly 3

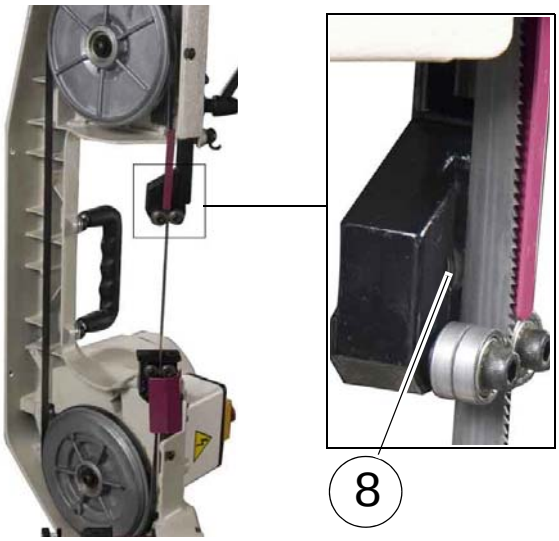
WARNING!

Caution when opening the locking wire on the new saw belts. 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!

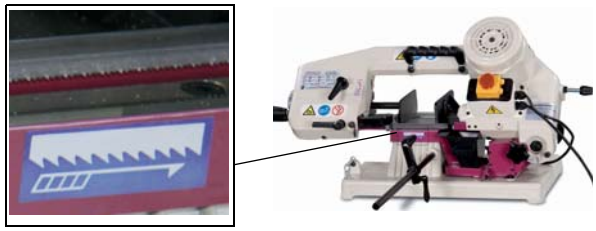
➜ Mount the saw belt first on the driving wheel (at the bottom), then on the top running wheel.

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



Img.4-10: 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.4-11: Running direction

ATTENTION!

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

➜ 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 belt, since any missing safety gears may cause injuries.

4.6 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 a guide bearing is worn out, it needs to be replaced. ☞ "Inspection and maintenance“ on page 37

4.7 First commissioning

ATTENTION!

Before commissioning the machine check all screws, fixtures resp. safety devices and tighten up the screws if 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.
- Make sure that the ON/OFF switch is positioned to "OFF".
- Plug the machine into an appropriate wall outlet.
- Pull the stop bolt outward, lift the arch and stop it at the top position. ☞ "Stop positions of the saw arch“ on page 27
- Switch the machine ON, if necessary you first need to unlock the EMERGENCY-STOP. Check the running direction of the saw belt.
- 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 belt 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 belt.
- 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.
- Check the filling height of the coolant appliance (if available).
- 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!

5 Operation

5.1 General information

Use the metal belt saw 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 manual is followed.
- All safety devices are installed and activated.

All failures should be eliminated immediately. 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.

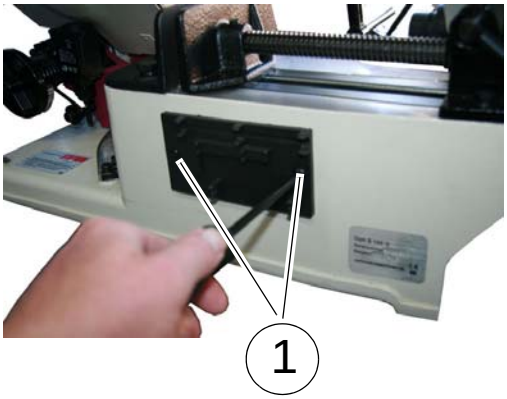
Almost all adjustments are performed at the manufacturer and generally do not need to be adjusted. Only the feed and the saw belt guidance always need to be readjusted.

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!



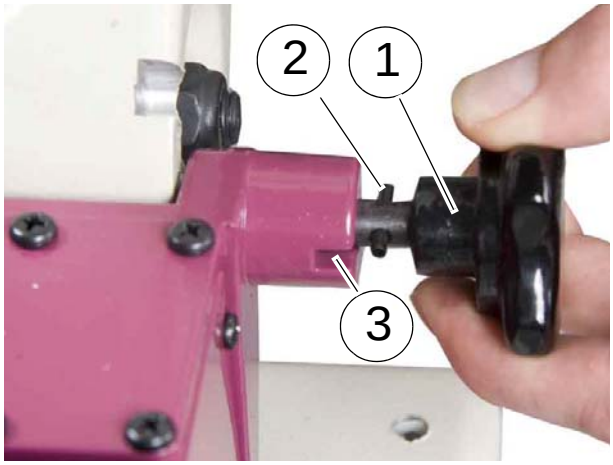
Img.5-1: Position to the attach the tools

5.2 Stop positions of the saw arch

There are two stop positions on the saw arch. 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.

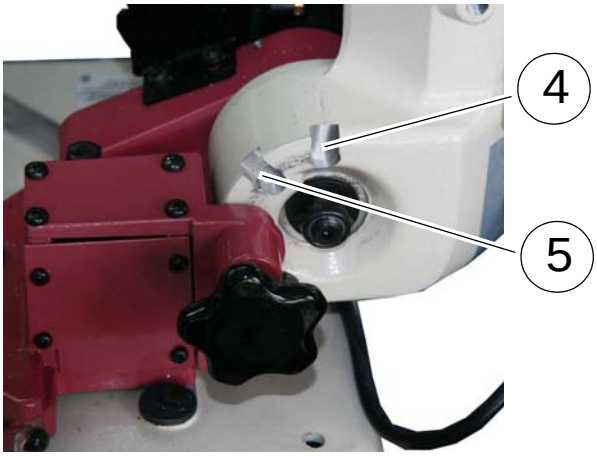
➜ Turn the stop bolt until the cross pin can be inserted into the groove (3). The stop bolt will engage in the two defined stop positions (4) or (5).



Img.5-2: 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 belt or perform any other works.



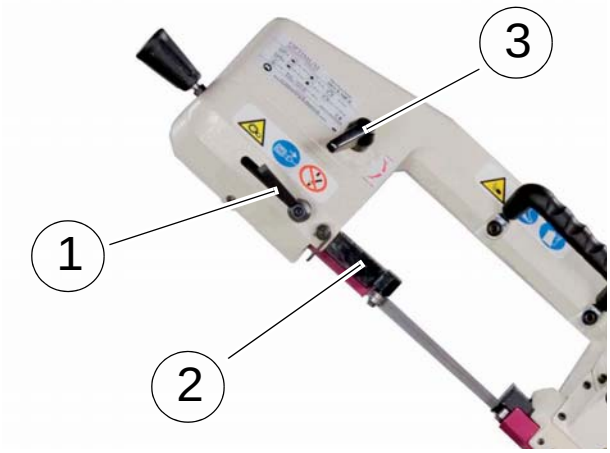
Img.5-3: Stop position 2

INFORMATION

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

5.3 Adjusting the saw belt guidance with the workpiece

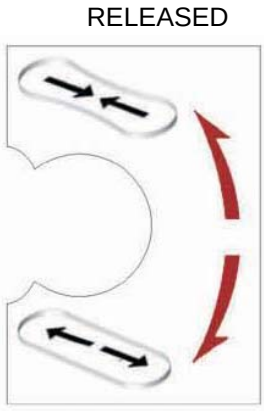
- ➜ Disconnect the saw from the power supply.
- ➜ Unscrew the clamping screw (1).
- ➜ Adjust the saw belt guidance (2) as near as possible to the workpiece without influencing the cutting process.
- ➜ Securely retighten the clamping screw (1) and then connect the saw to the power supply.



Img.5-4: Adjusting the saw belt guidance

5.4 Saw belt tension

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



Img.5-5: Tension of the saw blade

5.5 Saw arch feed

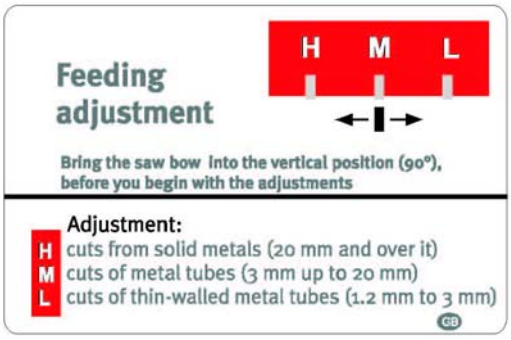
It is possible to adjust 3 different spring settings (H, M, or L) for the sawing feed.

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.5-6: Feed set

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.5-7: Feed set

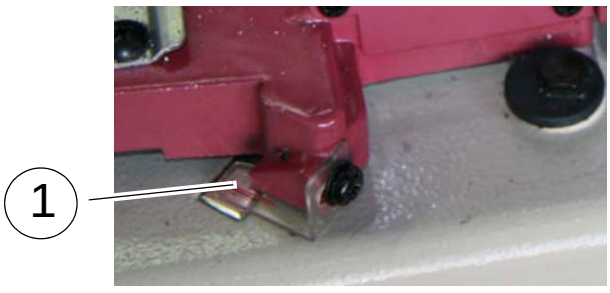
5.6 Orientation of the saw arch to the vice

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.

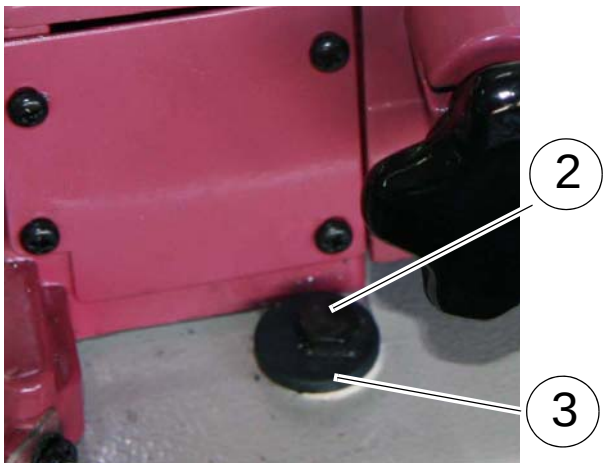
Adjustment (if required):

- ➜ 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.5-8: 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.5-9: 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 belt 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 belt.

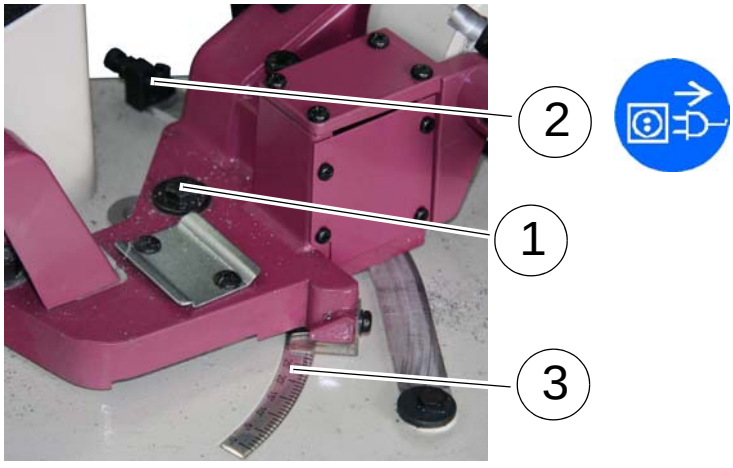
5.7 Angular cuts

5.7.1 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.

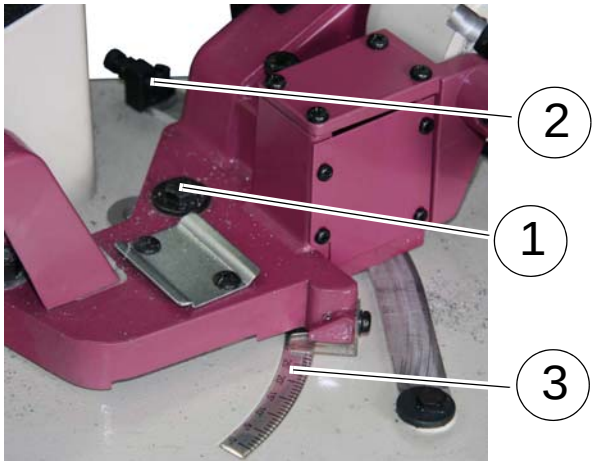


Img.5-10: Slewing the saw arch:

➜ Slew the saw arch completely to the rear towards the stop (2).
➜ Check the 45° setting by means of the scale (4).
➜ Then retighten the clamping screw and reinsert the chip collection tray.
➜ 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.5-11: 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 belt accordingly.

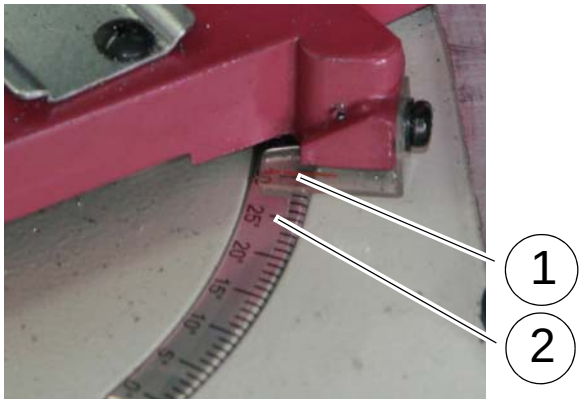
However this adjustment may only apply as an approximate sight adjustment. In any case you need to perform a trial cut. It is possibly required to readjust the saw belt.

5.7.2 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.5-12: 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.

5.8 Vice, material tension and material stop

INFORMATION

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

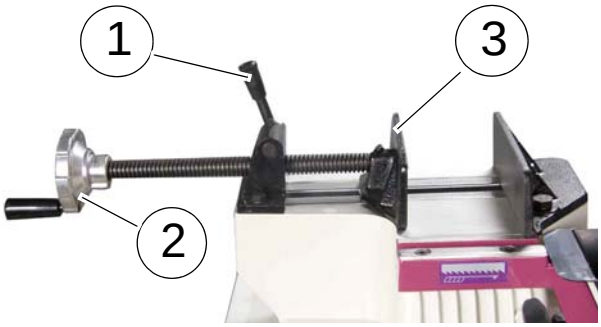
The material which needs to be cut always has to be firmly clamped. For long pieces you need to provide a support!

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

5.8.1 Operating the quick-action clamping vice:

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

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



Img.5-13: Quick-action vice

5.8.2 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.5-14: 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 belt 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 blade in order to finish an old cut!

6 Maintenance

In this chapter you will find important information about

- Cleaning
- Inspection
- Maintenance
- Repair

of the metal belt saw.

ATTENTION !

Properly performed regular maintenance is an essential prerequisite for

- **operational safety,**
- **failure-free operation,**
- **long service life of the metal belt 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 legal requirements on the environment.

Collect leakages

➜ Do not re-introduce liquids split outside the system during repair or as a result of leakage from the reserve tank:collect them in a collecting container to be disposed of.

Disposal

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

Used oils must be delivered to a collection centre. Consult your supervisor if you do not know where the collection centre is.

6.1 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 works on the machine.

6.1.1 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 belt saw“ on page 14

➜ Attach a warning sign.

6.1.2 Restarting

➜ Before restarting run a safety check.

☞ "Safety check“ on page 12

WARNING!

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

6.2 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.

6.3 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.

6.3.1 Vice

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

Every 4 weeks: slightly grease the spindle.

6.3.2 Blade guide bearings

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

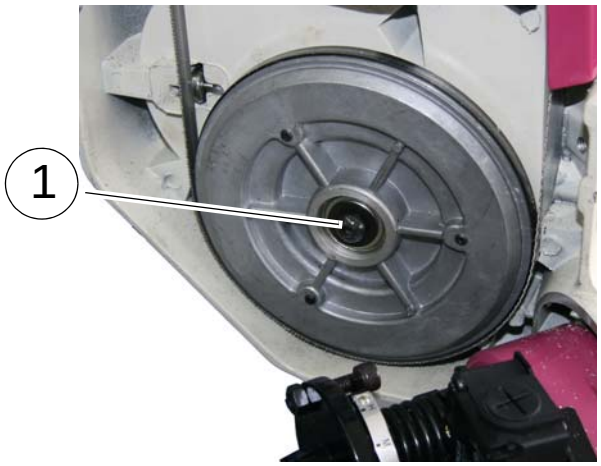
6.3.3 Lubricating transmission gears

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 belt.

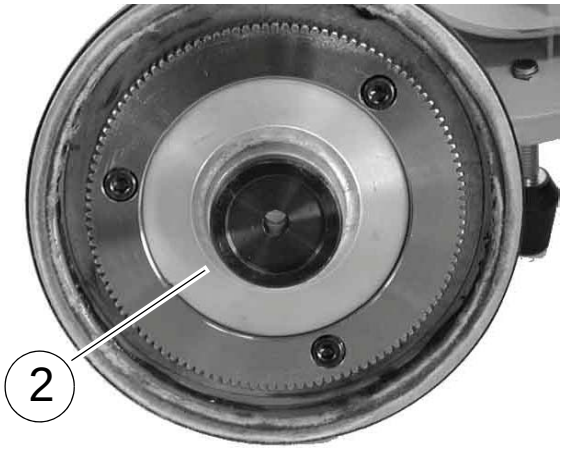
➜ Then unscrew the screw (1) on the driving wheel and pull the driving wheel off to the front.



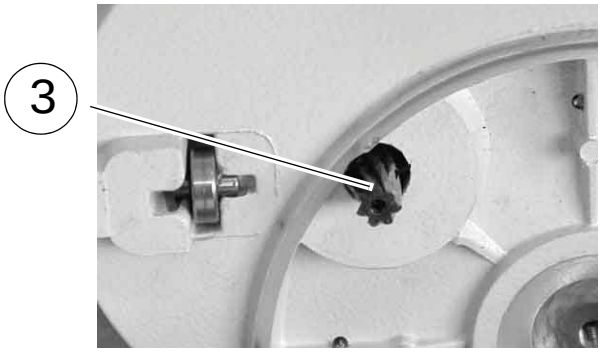
➜ Also pull off the drive disk (2) to the front.

➜ 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. 6-1: Lubricating the gear

6.4 Maintenance

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

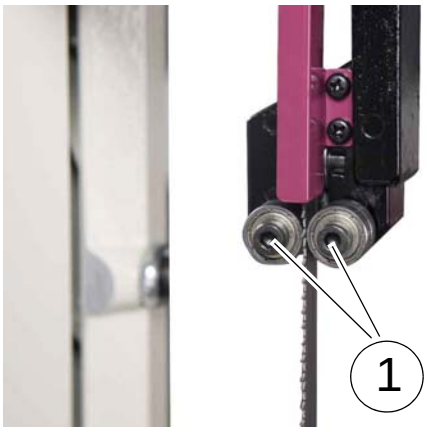
6.4.1 Lateral guide bearings

➜ Disconnect the saw from the power supply.

➜ Release the saw belt by turning the clamping lever anti-clockwise.

➜ Unscrew the two hexagon socket screws (1) and
remove the worn out bearings.

➜ Insert new bearings on the screws. Then fix the guide bearings using the hexagon socket screws to the support.



Img.6-2: Lateral guide bearings

WARNING!

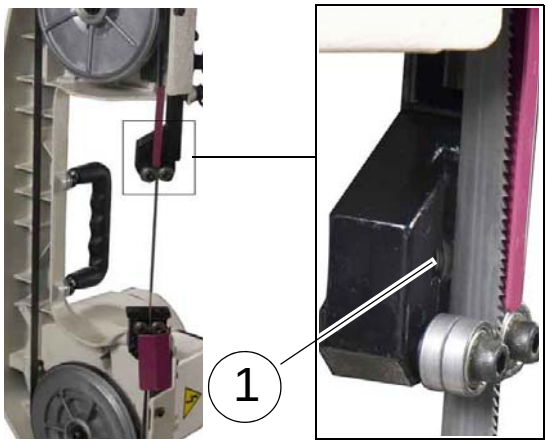
Make sure that the saw is disconnected from the power supply and that your hands are protected against the sharp teeth of the saw blade. Check that the teeth of the saw blade do not clash with the guide bearings.

6.4.2 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.

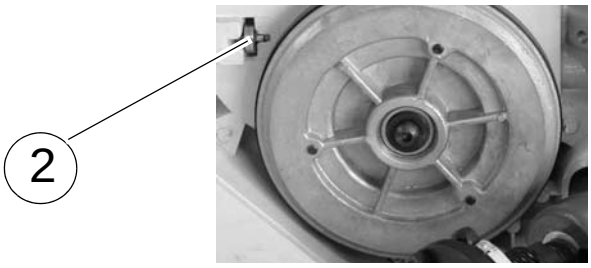
➜ Disconnect the saw from the power supply.

➜ Remove the saw belt as described under ☞ "Change the saw blade“ on page 37.



➜ Now you can replace the guide bearings.

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

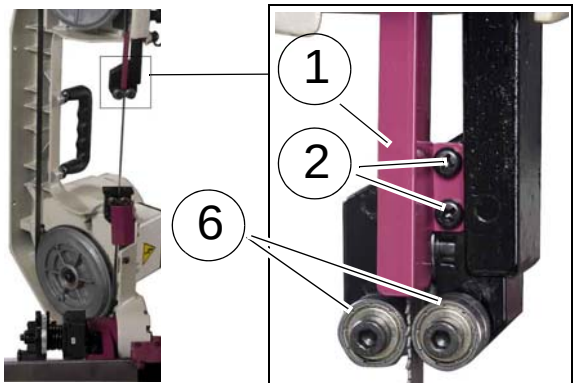


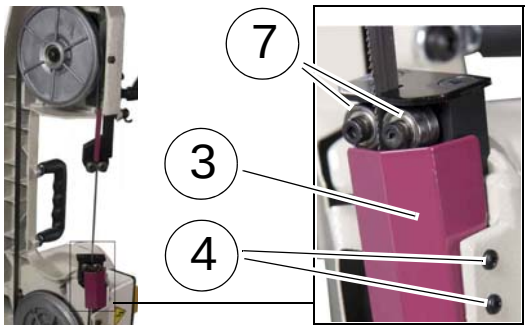
Img.6-3: Rear guide bearings

6.5 Inspection and maintenance

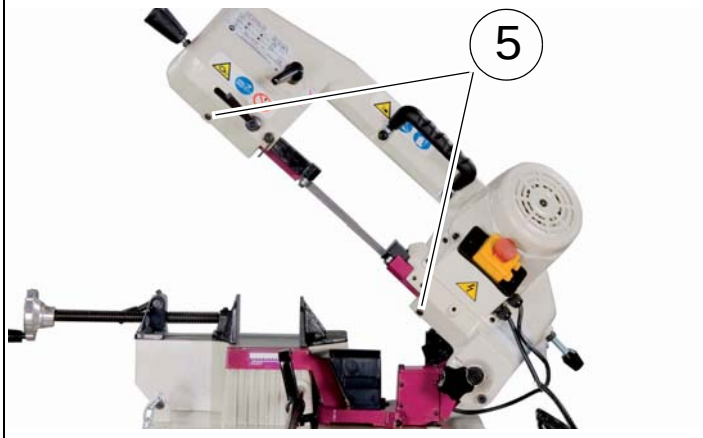
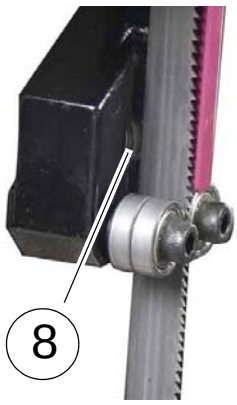
Due to wear, it may occur that you need to perform maintenance works on the machine. The type and level of wear depends to a large extent on the individual usage and operating conditions. All indicated intervals therefore need to be regarded as reference points for the average intended use.

<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 blade</td><td>
ATTENTION!
This metal belt saw is designed to use saw belts 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. 6-4: Replacement of saw belt - 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 belt drive. Slew the cover outward and remove it.
➜ Release the saw belt tension by detaching the saw belt clamping lever.
➜ Carefully remove the old saw belt.


Img. 6-5:
Replacement of saw belt - 2
</td></tr>
</table>

Interval / When	Where?	What?	How?
			➜ Assemble the new saw belt. First insert the saw belt into the saw belt 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.6-6: Replacement of saw belt - 3 ➜ Make sure that the saw belt is also closed to the rear guide bearings (8). ➜ Tension the saw belt 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.6-7: Replacement of saw belt - 4
as required	**Saw belt guide**	Adjusting the saw belt guide with respect to the work table	➜ Put an angle measure of 90° to the machine vice and check if the saw belt is running parallel to the angle. ➜ Loosen the screws on the saw belt guide if the angle is incorrect and adjust the saw belt guide accordingly. **INFORMATION** **Check the adjustment with a thin test cut.**

Interval / When	Where?	What?	How?
Start of shift after every maintenance or repair work	**Metal belt saw**	☞ "Safety check“ on page 12	

6.6 Repair

For any repair work, request the assistance of an employee of Optimum Maschinen Germany GmbH’s technical service or send us the metal belt saw.

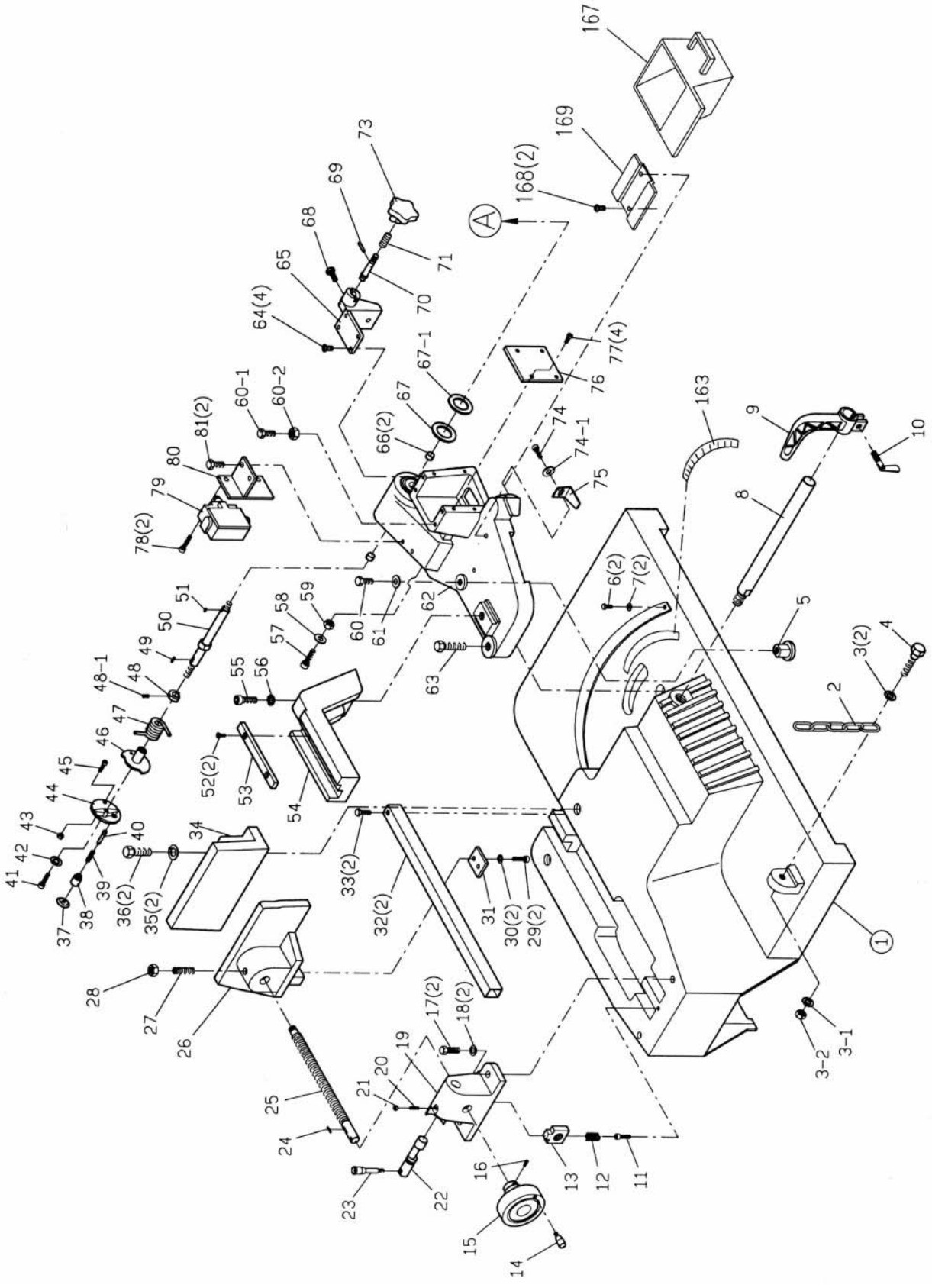
If the repairs are carried out by qualified technical staff, they must follow the indications given in these operating instructions.

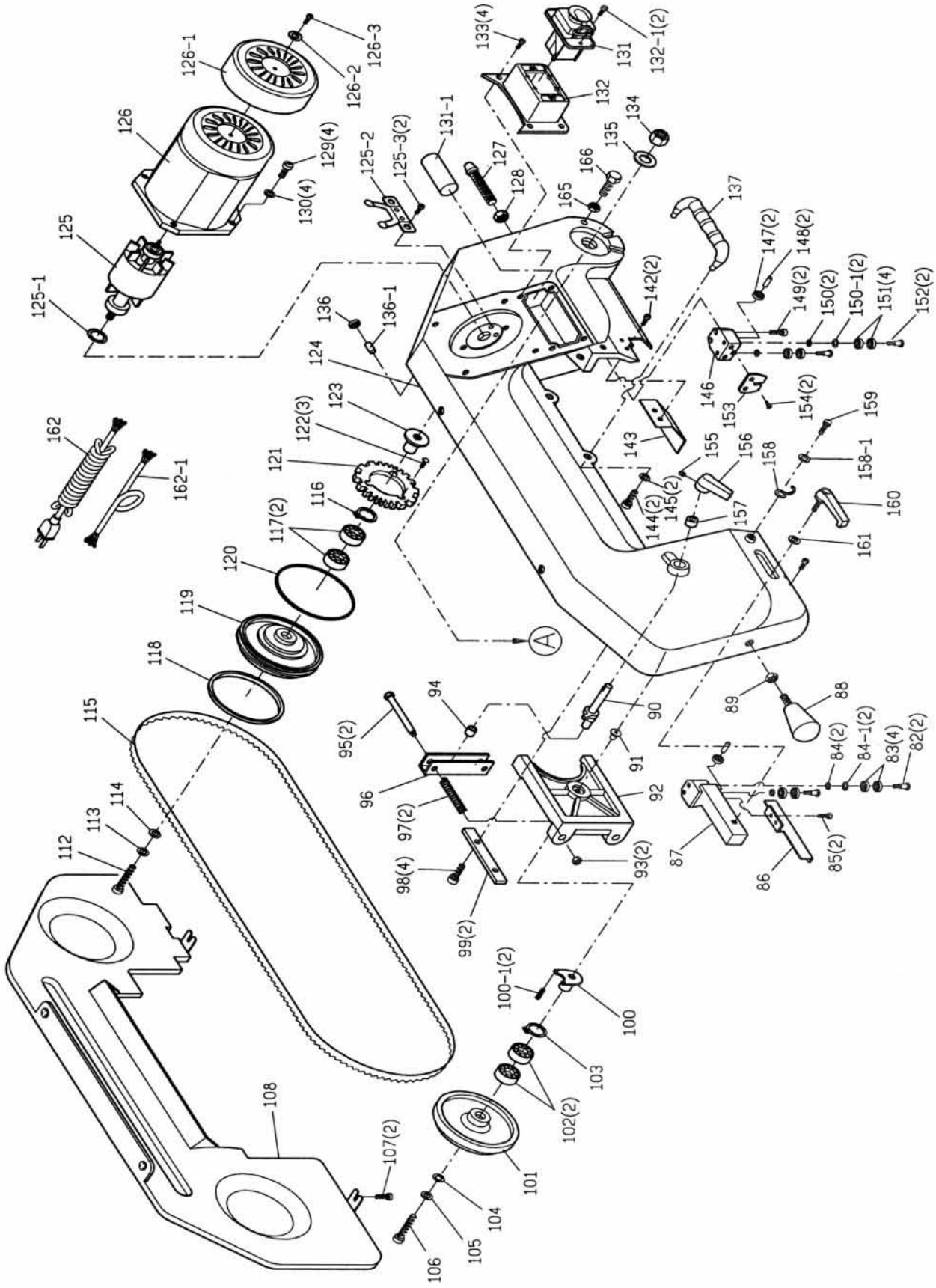
The company Optimum Maschinen Germany GmbH does not take any liability nor does it guarantee against damage and operating malfunctions resulting from failure to observe this operating instructions.

For repairs only use

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

7 Ersatzteile - Spare parts - S100G




126-1
126-3
126-2
126
129(4)
130(4)
125
125-1
125-2
125-3(2)
131-1
133(4)
131
132-1(2)
132
134
135
166
165
127
128
137
147(2)
148(2)
149(2)
150(2)
150-1(2)
151(4)
152(2)
142(2)
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136-1
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122(3)
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117(2)
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107(2)
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102(2)
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100-1(2)
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98(4)
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87
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85(2)
84(2)
84-1(2)
83(4)
82(2)
162
162-1
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154(2)
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144(2)
145(2)
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158-1
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161
A

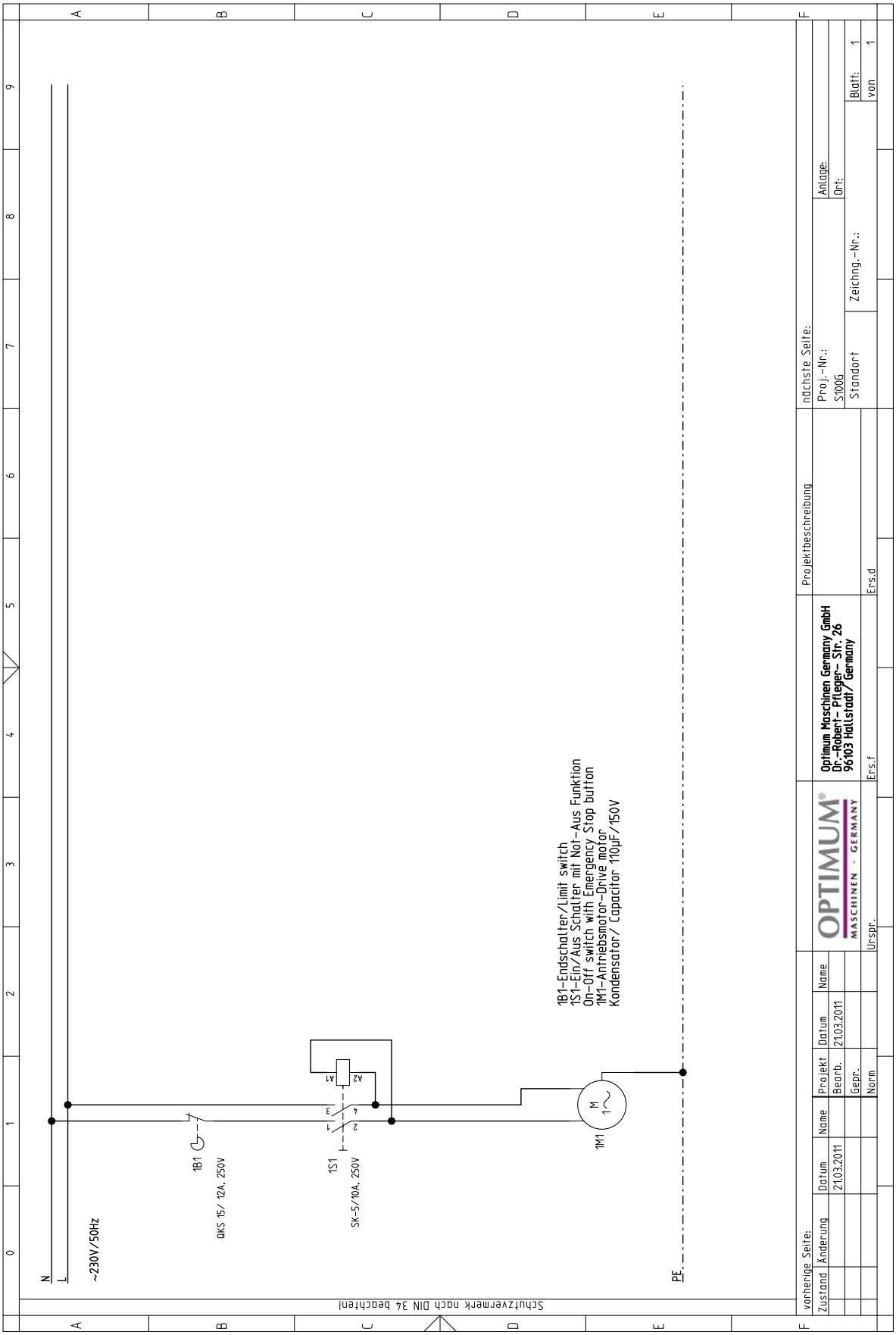
7.0.1 Ersatzteilliste - Spare parts list

Pos.	Bezeichnung	Designation	Menge Qty.	Grösse Size	Artikel-nummer 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°	0330010007
8	Anschlagwelle	Stop rod	1		0330010008
9	Materialanschlag	Stop block	1		0330010009
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		0330010018
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	5x5x15	0330010024
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		0330010030
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	6-Kt-Schraube	Hexagon cap bolt	2		0330010036
37	Abdeckung	Cover	1		0330010037
38	Buchse	Bushing	1		0330010038
39	Feder	Spring	1		0330010039
40	Stift	Pin	1		0330010040
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	0330010049
50	Welle	Shaft	1		0330010050
51	Paßfeder	Key	1	4x4x12	0330010051
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	

Pos.	Bezeichnung	Designation	Menge	Grösse	Artikel-nummer
			Qty.	Size	Item no.
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	0330010069
70	Einstellstift	Adjust pin	1		0330010070
71	Feder	Spring	1		0330010071
73	Einstellknopf	Set Knob	1		0330010073
74	Kreuzschlitzschraube	Cross screw	1	M5x10	
74-1	Unterlegscheibe	Washer	1	M5	
75	Zeiger	Pointer	1		0330010075
76	Platte	Plate	1		0330010076
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		0330010080
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		0330010084
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		0330010091
92	Aufnahme Laufrad	Blade wheel seat	1		0330010092
93	Sechskantmutter	Nut	2	M6	
94	Blattspanner	Blade tension block	1		0330010094
95	Federbolzen	Sping lock bolt	2		0330010095
96	U-Profil-Platte	U-shape plate	1		0330010096
97	Feder	Spring	2		0330010097
98	Inbusschraube	Hexagon soc cap screw	4	M6x10	
99	Führungsplatte	Guide plate	2		0330010099
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	0406003.2R
103	Sicherungsring	C-Ring	1		03300100103
104	Distanzscheibe	Flate washer	1	8x23x2	03300100104
105	Federscheibe	Spring washer	1	M8	
106	Rundkopfschraube	Rd, Hexagon sog screw	1	M8x50	
107	Kreuzschlitzschraube	Cross screw	2		03300100107
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	03300100114
115	Sägeband	Blade	1		
116	Sicherungsring	C-Ring	1		03300100116
117	Kugellager	Ball Bearing	2	6003	0406003.2R
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		033001001251
125-2	Fliehkraftschalter	Switch	1		033001001252
125-3	Sechskantschraube	Button socket screw	2	M4x8	
126	Motor	motor	1		03300100126

Pos.	Bezeichnung	Designation	Menge	Grösse	Artikel-nummer
			Qty.	Size	Item no.
126-1	Lüfterrad-Abdeckung	Cooling cover	1		033001001261
126-2	Distanzscheibe	Flat washer	1	6x31x1	033001001262
126-3	Inbusschraube	Hexagon soc cap screw	1	M6x8	
127	Einstellschraube	Support bar	1		03300100127
128	Mutter	Hexagon nut	1		03300100128
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
132	Schaltergehäuse	Switch housing	1		03300100132
132-1	Befestigungsschraube	Tapping screw	2		033001001321
133	Kreuzschlitzschraube	Cross screw	4	M5x6	
134	Sechskantmutter	Hexagon nut	1	M12	
135	Distanzscheibe	Flate washer	1	12x28x3	03300100135
136	Kugellager	Ball Bearing	1	625#	040625.2R
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#	040625.2R
148	Lageraufnahmestift	Round key	2	5x14	03300100148
149	Inbusschraube	Hexagon soc cap screw	2	M6x25	
150	Distanzscheibe	Flate washer	2	5x10x1	03300100150
150-1	Federring	Sping Washer	2	M5	
151	Kugellager	Ball bearing	4	625#	040625.2R
152	Inbusschraube	Hexagon soc cap screw	2	M5x25	
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	033001001581
159	Inbusschraube	Hexagon soc cap screw	1	M8x12	
160	Spannhebel	Adjustable bracket handle	1		03300100160
161	Unterlegscheibe	Washer	1	8x23x2	03300100161
162	Elektrokabel mit Stecker	Power cord	1		03300100162
162-1	Kabel	Cable	1		033001001621
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

7.1 Schaltplan - Wiring diagram



8 Malfunctions

8.1 Malfunctions on the metal belt saw

Malfunction	Cause/ possible effects	Solution
Saw motor overloading	• Suction of motor cooling air hindered • 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
Cooling agent feed not working	• 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 • Clean • Check and clean • Bleed by briefly withdrawing the pressure hose • Start pump
The saw belt stops when sawing, but the motor operates	• Insufficient saw belt tension • V-belt tension	• Check saw belt • Check tension of V-belt
Short life of saw belt (Teeth blunt)	• Quality of saw belt 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 to high • Feed too high	• Saw belt of higher quality (bimetallic blade) • Select correct tooth pitch • Use coolant equipment • Reduce cutting speed • Reduce feed
Breakage of tooth	• The chip space in the saw belt is overcharged, tooth pitch incorrect	• Use saw belt with a different tooth pitch or reduce feed
Breakage of the saw belt	• Tension in the saw belt too high or too low • Saw belt defective • Saw belt guide adjusted incorrectly	• Check tension of saw belt • Replacing • Adjust blade guide correctly
Twisted cut (saw blade deviating)	• Distance between guide and workpiece too high • Saw belt blunt • Too low saw blade tension • Feed too high • Cutting pressure too high • Saw blade defective (irregular set) • Wrong saw belt guidance	• Bring the guide as close to the workpiece as possible • Replace • Tighten correctly • Reduce • Reduce • Replace • Readjust
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

9 Appendix

9.1 Copyright

This document is copyright. All derived rights are also reserved, especially those of translation, re-printing, use of figures, broadcast, reproduction by photo-mechanical or similar means and recording in data processing systems, neither partial nor total.

Subject to technical changes without notice.

9.2 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 belt 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

9.3 Liability claims for defects / 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 had been promised in the frame of a single contractual agreement.

- The processing of the liability claims or of the warranty is performed as chosen by OPTIMUM GmbH 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. The property of replaced products or components passes on 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 of 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.
  - Non-authorized 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 as well not subject to the 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 fulfill in the frame of an additional guarantee are neither an acceptance of the defects nor an accept-

ance of its obligation to compensate. Such services do neither delay nor interrupt the warranty period.

- Place of jurisdiction among traders is Bamberg.
- If one of the above mentioned agreements is totally or partially inefficient and/or null, it is considered as agreed what is closest to the will of the warrantor and which remains in the framework of the limits of liability and warranty which are predefined by this contract.

9.4 Note regarding disposal / options to reuse:

Please dispose of your device environmentally friendly by disposing of scrap in a professional way.

Please neither throw away the packaging nor the used machine later on, but dispose of them according to the guidelines established by your city council/municipality or by the corresponding waste management enterprise.

9.4.1 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.

- **Pull off the mains plug.**
- **Cut the connection cable.**
- **Remove all environmentally hazardous operating fluids from the used device.**
- **If applicable remove batteries and accumulators.**
- **Disassemble the machine if required into easy-to-handle and reusable assemblies and component parts.**
- **Supply the machine components and operating fluids to the provided disposal routes.**

9.4.2 Disposal of the packaging of new devices

All used packaging materials and packaging aids of 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 forwarded to a collection station or to the appropriate waste management enterprise.

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

9.4.3 Disposing 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 include lots of reusable materials as well as environmentally hazardous components. Account for separate and professional disposal of the component parts. 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.

9.4.4 Disposal of electrical and electronic components

Please make sure that the electrical components are disposed of professionally and according to the legal regulations.

The device includes electric and electronic components and must not be disposed of with the rubbish. According to the European directive 2002/96/EG regarding electrical and electronic used devices and the execution of national rights used electrical tools and electrical machines need to be collected separately and be supplied to an environmentally compatible reuse.

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

Please make sure that the batteries and/or accumulators are disposed of in a professional way according to the legal regulations. Please only throw discharged batteries in the collection boxes in shops or at municipal waste management companies.

9.4.5 Disposal of lubricants and coolants

ATTENTION!

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

INFORMATION

Used coolant emulsions and oils should not be mixed up since it is only possible to reuse used oils which had not been mixed up without pre-treatment.

The disposal notes for the used lubricants are made available by the manufacturer of the lubricants. If necessary, request the product-specific data sheets.

9.5 Disposal via municipal collection

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 handles as common household waist, but that is needs to be delivered to a central collection point for recycling. Your contribution to the correct disposal of this product will protect the environment and the health of your fellow men. The environment and the health are endangered by incorrect disposal. Recycling of material will help to reduce the consumption of raw materials. Your District Office, the municipal waste collection station or the shop where you have bought the product will inform you about the recycling of this product.

9.6 RoHS, 2002/95/EC

The sign on the product or on its packing indicates that this product complies with the European guideline 2002/95/EC.

9.7 Change information operating manual

Chapter	Short note	new version number
Appendix	Updated standards CE Declaration	2.0.4
CE	LVD 2014/35/EU	2.0.5

OPTIMUM

MASCHINEN - GERMANY

EC Declaration of Conformity

Machinery Directive 2006/42/EC Annex II 1.A

The manufacturer / retailer:	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
Serial number:	_ __ __ __ __
Year of manufacture:	20__

Metal belt saw for private persons as well as for craft and industrial plants which meets all the relevant provisions of the above mentioned Directive 2006/42/EC as well as the other directives applied (below) including their amendments in force at the time of declaration. The following other EU Directives have been applied: EMC Directive 2014/30/EC, Low Voltage Directive 2014/35/EU

The safety objective meet the requirement of EC Directive 2006/42/EC

The following harmonized standards were applied:

EN 1037:1995+A1:2008 Safety of machinery - Prevention of unexpected start-up

EN 13898:2003+A1:2009 Machine tools - Safety - Sawing machines for cold metal

EN ISO 13849 - Safety of machinery - Safety-related parts of control systems

EN 50581:2012 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

EN 60204-1:2006/AC: 2010 Safety of machinery - Electrical equipment of machines - Part 1: General requirements (IEC 60204-1:2005 (modified))

EN ISO 12100:2010 Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)

Responsible for documentation: Kilian Stürmer, phone: +49 (0) 951 96555 - 800

Address: Dr.-Robert-Pfleger-Str.26D - 96103 Hallstadt

Kilian Stürmer
(CEO, General manager)
Hallstadt, 2016-03-08

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