OPTIMUM®
MASCHINEN - GERMANY

Operating Instructions

Version 1.0.3

Metal band saw

OPTI saw®
SD 200G

Part no. 3300200

EN

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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.

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

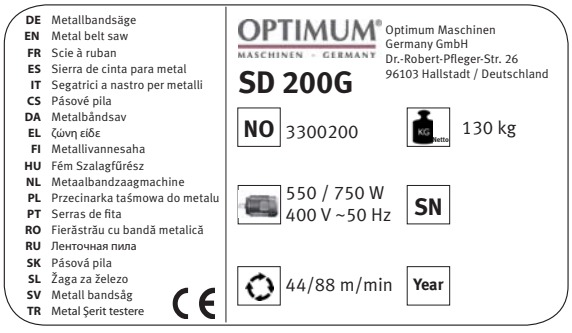
If you are unable to rectify an issue using these operating instructions, please contact us for advice:

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

D- 96103 Hallstadt, Germany

Email: info@optimum-maschinen.de

1.1 Rating plate



1.2 Safety instructions (warning notes)

1.2.1 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.
	**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.

1.2.2 Other pictograms


Warning: danger of slipping!


Warning: risk of stumbling!


Warning: hot surface!


Warning: biological hazard!


Warning: automatic start-up!


Warning: tilting danger!


Warning: suspended loads!


Activation forbidden!

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Read the operating instructions before commissioning!

Pull out the mains plug!

Wear protective glasses!

Wear protective gloves!

Wear safety shoes!

Wear a protective suit!

Use ear protection!

Protect the environment!

Contact address

1.3 Intended use

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.

The metal band saw must not be used on wood.

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.

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 15

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.

1.4 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 circulating metal saw band.

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 10

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1.5 Qualification of personnel

1.5.1 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.

1.5.2 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

- train the personnel,
- instruct the personnel in regular intervals (at least once a year) on
  - all safety standards that apply to the machine,
  - the operation,
  - generally accepted engineering standards.

- check the personnel‘s knowledge level,
- document the training/instruction,
- have attendance at the training/instruction confirmed by signature and
- check whether the personnel is working safety and risk-conscious and observes the operating instructions.

The user must

- 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 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

1.6 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.

1.7 Safety devices

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

Stop the metal 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 override a safety device in any other way, you are endangering yourself and other persons working on the metal belt saw. The possible consequences are:

- **injuries due to components or workpieces flying off at high speed,**
- **contact with rotating and revolting parts,**
- **and fatal electrocution.**

The metal belt saw features the following safety devices:

- an emergency stop button,
- a band saw housing with protective cover on the rear side.

WARNING!

Although the isolating safety devices provided and delivered with the machine are designed to reduce the risks of workpieces being ejected or parts of tools or workpieces breaking off, they cannot eliminate these risks completely. Always work carefully and observe the limits of the machining process.

1.7.1 Saw bow

The saw bow of the metal band saw is equipped with a protective cover on the rear side. The protective cover covers the band guide rollers and the rotating saw band.

Close and mount all protective covers before restarting the metal band saw.

WARNING!

Danger of injury! The teeth of the saw belt are sharp. Take particular care when removing the rear side cover and changing the saw band.

1.8 Prohibition, warning and mandatory signs

INFORMATION

All warning signs must be legible. They must be checked regularly.

1.9 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.

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):**	

Functional check		
Equipment	**Check**	**OK**
Emergency stop button	After pressing the emergency stop button, the metal band saw must switch off.	
Date:	**Checked by (signature):**	

1.10 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 personnel 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.

1.11 Safety during operation

We specifically point out the dangers in the description of work 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 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 prescribed personnel protective equipment. Make sure to wear a well-fitting work suit and, if necessary, a hairnet.

➜ Inform the supervisor about all hazards or faults.

1.12 Safety during maintenance

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

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.

1.12.1 Disconnecting and securing the metal band saw

➜ Disconnect the mains plug before starting maintenance and repairs.

➜ Attach a warning sign on the machine.

1.12.2 Using lifting equipment

WARNING!

The use of unstable lifting and load suspension equipment that might break under load can cause severe injuries or even death.

Check that the lifting and load suspension gear has

- **sufficient load capacity**
- **and that it is in perfect condition.**

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

Never walk under suspended loads!

1.12.3 Mechanical maintenance work

If you remove protection or safety devices, refit them immediately after completing the work.

Check that they are working properly! These are:

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

1.13 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 belt saw in these work descriptions.

1.14 Electrical system

Have the electrical equipment on the machine checked regularly. 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 !

Comply with the required inspection intervals in accordance with the factory safety directive, operating equipment inspection DGUV, formerly BVG.

The operator of the machine must ensure that the electrical systems and operating equipment are inspected with regards to their proper condition, namely,

- by a qualified electrician or under the supervision and direction of a qualified electrician, prior to initial commissioning and after modifications or repairs, prior to recommissioning
- and at certain intervals.

The deadlines must be set so that arising, foreseeable defects can be detected in a timely manner.

The relevant electro-technical rules must be followed during the inspection.

The inspection prior to initial commissioning is not required if the operator receives confirmation from the manufacturer or installer that the electrical systems and operating equipment comply with the accident prevention regulations, see conformity declaration.

Permanently installed electrical systems and operating equipment are considered constantly monitored if they are continually serviced by qualified electricians and inspected by means of measurements in the scope of operation (e.g. monitoring the insulation resistance).

1.15 Inspection deadlines

Define and document the inspection deadlines for the machine in accordance with § 3 of the Factory Safety Act and perform an operational risk analysis in accordance with § 6 of the Work Safety Act. Also use the inspection intervals in the maintenance section as reference values.

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	3 x 400 V; ~ 50 Hz (~60Hz) ; 0,75 kW
Motor power (2-stage drive)	0.75 kW / 0.55 kW
Coolant pump	100W

2.2 General	
Cutting angle adjustment	via adjustable vice jaws
saw band guide	Ball bearing deflection roller
Lifting the saw arm	manually
Feed	Infinitely adjustable lowering speed on the hydraulic cylinder
saw band tension	Manual via handwheel
Vice insertion height [mm]	530

2.3 Dimensions	
Working area height [mm]	about 1500
Length [mm]	☞ Installation plan on page 20
Height [mm]	
Width without material stop [mm]	
Width with material stop [mm]	
Total weight [kg]	☞ Rating plate on page 5
Dimensions of saw blade [mm]	2360 x 19 x 1 Tooth pitch 5/8"

2.4 Speed of saw band	
[m/min]	44 / 88

2.5 Environmental conditions	
Temperature	5-35°C
Humidity	25 - 80 %

2.6 Operating material	
Lowering cylinder	Hydraulic oil, viscosity 32 to 46 according to DIN 51519, quality HLP
Spindle of the machine vice	commercially available plain bearing grease

2.6 Operating material	
Worm gear (maintenance free)	100 ml engine oil or gear oil
Slide bearing	commercially available plain bearing grease
Coolant equipment	Commercial lubricating and cooling agent

2.7 Coolant pump	
Delivery head	2.5 metres
Flow rate	3.5 litres per minute
Tank capacity [Litres]	11

2.8 Emissions

The noise emission of the metal band saw is 75 to 77 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, assembly and commissioning

3.1 Notes on transport, installation, commissioning

Improper transport, installation and commissioning is liable to accidents and can cause damage or malfunctions to the machine for which we do not assume any liability or guarantee.

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

WARNING!

Severe or fatal injuries may occur if parts of the machine tumble or fall down from the forklift truck or from the transport vehicle. Follow the instructions and information on the transport box.

Note the total weight of the machine. The weight of the machine is indicated in the "Technical data" of the machine. When the machine is unpacked, the weight of the machine can also be read on the rating plate.

Only use transport devices and load suspension gear that can hold the total weight of the machine.

WARNING!

The use of unstable lifting and load suspension equipment that might break under load can cause severe injuries or even death. Check that the lifting and load suspension gear has sufficient load-bearing capacity and that it is in perfect condition.

Observe the accident prevention regulations issued by your Employers Liability Insurance Association or other competent supervisory authority, responsible for your company. Fasten the loads properly.

3.1.1 General risks during internal transport

WARNING: TILTING DANGER!

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

Employees must be outside the danger zone, i.e. the reach of the load.

Warn employees and advise them of the hazard.

Machines may only be transported by authorized and qualified persons. 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 faults.

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 interdepartmental transport is therefore essential.

3.2 Delivery

INFORMATION

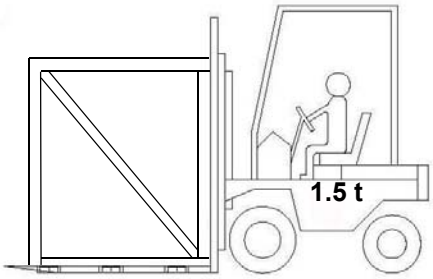
The machine is pre assembled. It is delivered in a transport box. After the unpacking and the transportation to the installation site it is necessary to mount and assemble the individual components of the machine.

Check the status of the machine immediately upon receipt and claim possible damages at the last carrier also if the packing is not being damaged. In order to ensure claims towards the freight carrier we recommend you to leave the machines, devices and packing material for the time being in the status at which you have determined the damage or to take photos of this status. Please inform us about any other claims within six days after receipt of delivery.

Check if all parts are firmly seated.

3.3 Transport

The machine can be raised with a lift truck or forklift truck underneath the packing case.



3.4 Unpacking

Install the machine close to its final position before unpacking. If the packaging shows signs of having possibly been damaged during transport, take the appropriate precautions to prevent the machine being damaged when unpacking. If damage is discovered, the carrier and/or shipper must be notified immediately so the necessary steps can be taken to register a complaint.

Examine the complete machine carefully and check whether all materials, such as shipping documents, instructions and accessories have been delivered with the machine.

3.5 Assembly

INFORMATION

The metal belt saw is delivered pre-assembled.

3.6 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.

- Metal band saw
- Saw band
- 2 x wheels, cotter pins, discs, wheel axle
- 1 x transport handle
- 1 x stand in front
- Coolant equipment
- Material stop
- Operating manual

3.7 Storage

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.

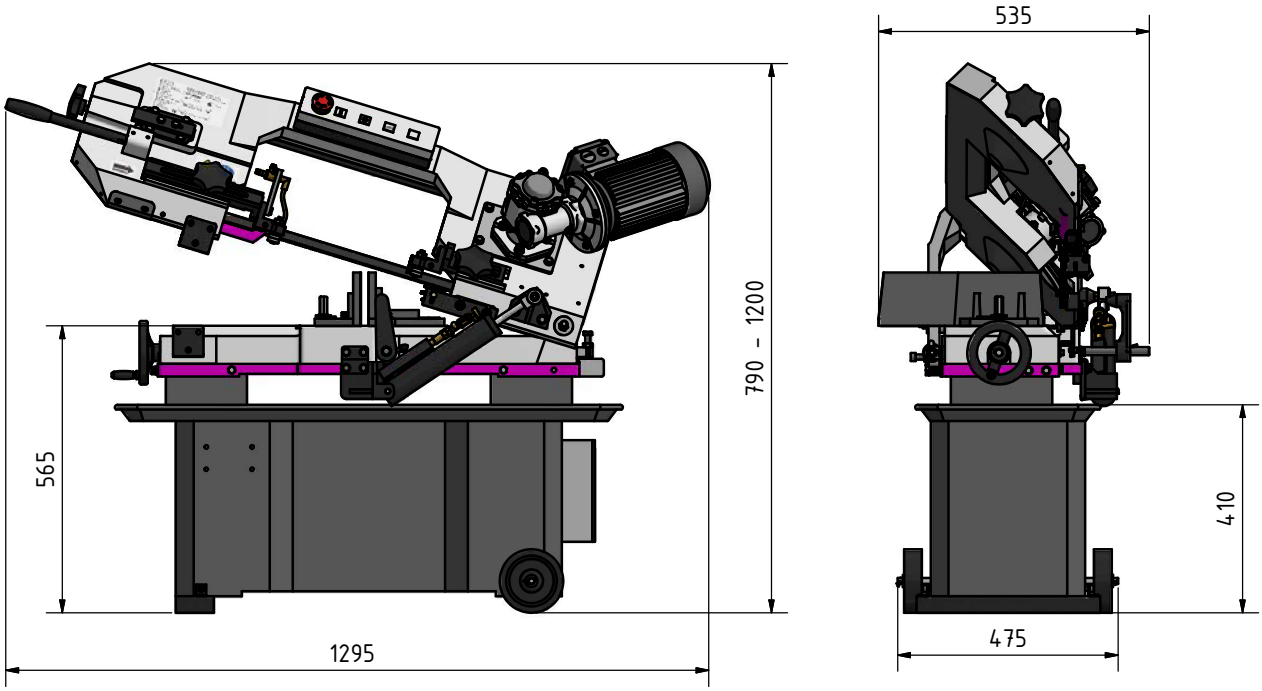
Consult Optimum Maschinen Germany GmbH if the metal belt saw and accessories are stored for more than three months or are stored under different environmental conditions than those given here.

3.8 Installation and assembly

CAUTION !

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

3.8.1 Installation plan



3.8.2 Wheels

- ➜ Place wooden blocks under the underframe to fix the wheels. Ensure that the metal band saw is in a secure position.
- ➜ Insert the axle through the holes in the underframe.
- ➜ Place the wheels on the axles and secure each wheel with a cotter pin.
- ➜ Mount the transport handle and the stand with the supplied mounting material.

3.8.3 Stand and transport handle

- ➜ Mount the transport handle and the stand with the supplied mounting material.

3.9 First commissioning

ATTENTION!

Before commissioning the machine, all bolts, fastenings and protections must be checked and retightened as necessary!

WARNING!

When first commissioning the metal belt saw by inexperienced staff you endanger people and the machine.

We do not accept any liability for damages caused by incorrectly performed commissioning.

3.10 Checks

Perform the following checks.

CAUTION!

Danger of cutting, perform the works described hereunder with care. Use the prescribed protective equipment.

3.10.1 Direction of the saw teeth

➜ Control the direction of the saw teeth. The saw teeth have to point to the drive engine.

3.10.2 Checking the band guide rollers

➜ Check that the saw band is correctly seated on the band guide rollers.

3.10.3 Saw band guide bearings

➜ Check whether the saw band is exactly within the guide bearings.

3.10.4 Saw band tension

➜ Check the saw band tension. The correct saw band tension is available when the saw band can be deflected by 3 mm in the middle with a force of approx. 50 N.

3.10.5 Power supply

Connect a CEE-400V-16A plug.

Change the polarity at the pole switch of the switch / plug combination with a screwdriver, if the running direction of the saw band is wrong.

ATTENTION!

Imperatively make sure that all 3 phases (L1, L2, L3) are correctly connected.

Most motor defects are caused by incorrect connection. For example, if a motor phase is not properly clamped or connected to the neutral conductor (N).
This can have an effect:

- **The motor is getting hot very rapidly.**
- **Increased motor noises.**
- **The motor has no power.**

The guarantee will become null and void if the machine is connected incorrectly.

4 Operation

4.1 Control and indicating elements

Pos.	Designation:	Pos.	Designation:
1	Saw band tension	7	Control panel
2	Saw bow	8	Feed control valve
3	Coolant hose and dosing tap	9	Hydraulic cylinder
4	Handwheel machine vice	10	Gear
5	Swiveling clamping jaws	11	Material stop
6	Saw bow transport lock	12	Saw band guide handle screw

4.2 Safety

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.

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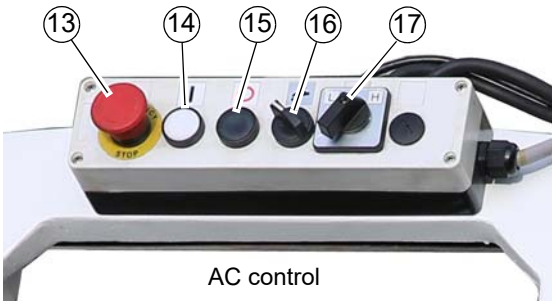
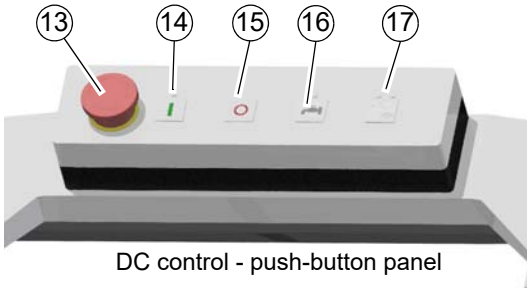
4.3 Control panel

As switching element panel or push-button panel on newer machines.



AC control



DC control - push-button panel

Pos.	Designation:	Pos.	Designation:
13	Emergency stop button	14	Band saw band run On
15	Band saw band run Off	16	Coolant pump ON/OFF
17	Saw band speed step switch ❍ L = slow ❍ H = fast		

4.4 Inserting the workpiece

➜ Raise the saw arm bow.

➜ Close the feed control valve with the stopcock (8) to hold the saw bow in a certain position.

Abb.4-1:

ATTENTION!

Danger of the metal band saw tipping over. Support long workpieces before pushing the part to be sawn into the machine vice.

➜ Place the part to be sawn in the machine vice.

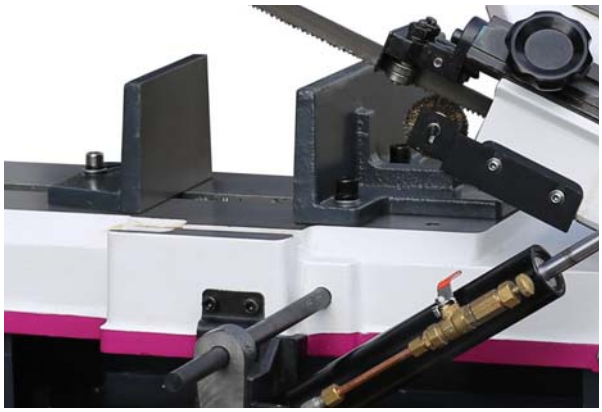


Abb.4-2:

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WARNING!

Disconnect the metal band saw from the power supply if you change the angle of the clamping jaws or increase the clamping capacity of the machine vice.

The clamping jaws of the machine vice can be infinitely adjusted for angle cuts up to a maximum of 45°.

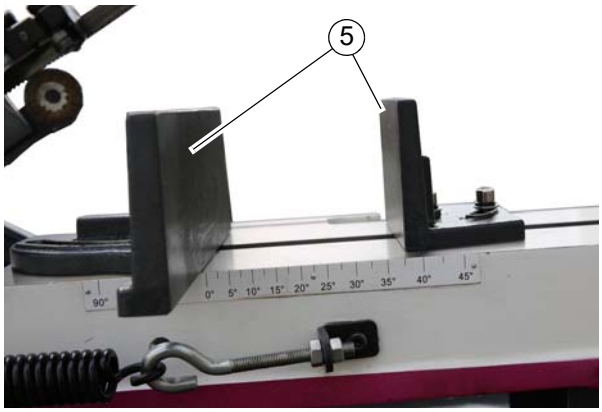


Abb.4-3:

➜ Clamp the workpiece between the clamping jaws by turning the handwheel.

Abb.4-4:

4.4.1 Increasing the clamping capacity

➜ Disconnect the metal band saw from the power supply.
➜ Unscrew the screws of the rear jaw.
➜ Attach the clamping jaw further back to the holes provided for this purpose.
➜ Screw the clamping jaw tight again.

ATTENTION!

Retighten the clamping jaws after each angle or position change.

4.5 Adjusting the saw band guide

Change the position of the saw band guidance depending on the size of the pieces to be cut.

➜ Loosen the grip screw (12).
➜ Adjust the saw band guidance close to the workpiece without influencing or hindering the sawing procedure.

SD200G_GB_4.fm

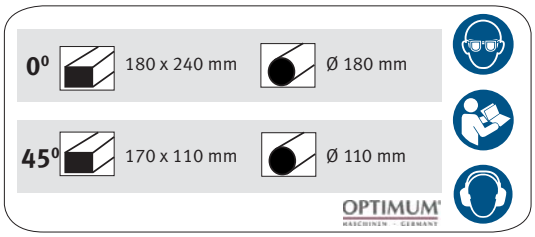
➜ Tighten the grip screw again.

Abb.4-5:

ATTENTION!

An unnecessarily wide space between the work piece and the saw band guide, in combination with a high feed rate very quickly causes the saw band to wear down.

4.5.1 Possible cutting area



4.6 Speed of saw band

Selector switch

➜ Select the speed level with the step switch (17).

L = slow speed

H = high speed

Abb.4-6:

4.7 Saw band speeds

Reference values for cutting speeds [m / min] :

Material	[m / min]	Material	[m / min]	Material	[m / min]	Material	[m / min]
Tool steel	21 - 45	Medium to high-alloy carbon steels	33.5 - 65	Low alloyed carbon steels	45 - 65	Aluminium	50 - 77
Chrome-nickel steel		Hard brass		Soft brass		Plastic	
Stainless steel		Bronze					

4.8 Coolant equipment

WARNING!

Discharge and overflow of cooling lubricants and lubricants Ensure that cooling lubricants are not discharged onto the floor. Any cooling lubricants that run onto the floor must be removed immediately.

ATTENTION!

Destruction of the pump (18) due dry running. The pump is lubricated by the coolant. Do not operate the pump without coolant.

Abb.4-7:

INFORMATION

Use as cooling agents a water soluble, ecologically harmless sawing emulsion, which they can refer in the specialized trade. Make sure that the cooling agent is properly retrieved.

Respect the environment when disposing of lubricants and coolants.

Follow the manufacturer's disposal instructions.

➜ Switch on the coolant device on the control panel.

4.9 Starting the metal band saw

➜ Switch on the metal band saw on the control panel (14).

4.9.1 End stop switch

A limit switch switches off the metal band saw in the lowest position.

4.10 Hydraulic lowering

➜ Set the lowering speed of the saw bow on the feed control valve (19).

➜ Open the stopcock (20).

The band saw switches off automatically after reaching its end position.

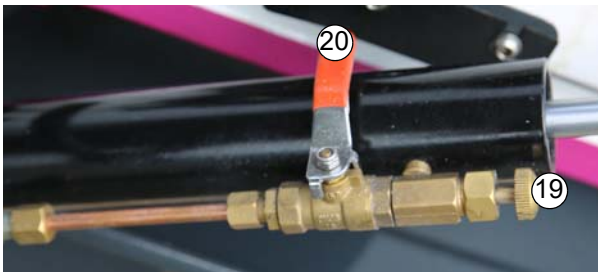


Abb.4-8:

EMPIRICAL RULE!

The finer the tooth pitch and/or the thinner or smaller the workpiece, the smaller the feed rate must be set.

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4.10.1 Saw arch pressure

The saw bow pressure is regulated by spring force. A spring serves as force compensation.

If the saw bow pressure is not set correctly, crooked cuts, broken teeth, deformations and breakage of the band guide rollers may occur.

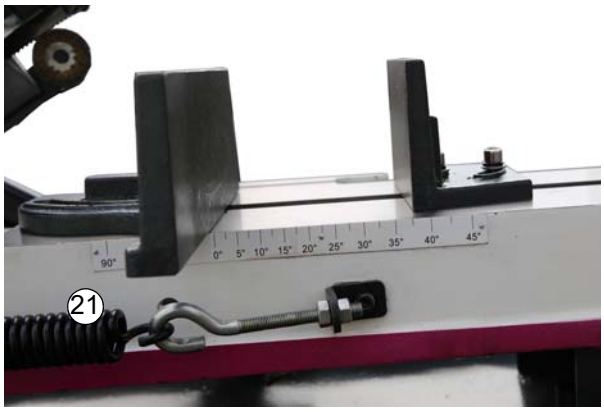

Abb. 4-9:

5 Maintenance

In this chapter you will find important information about

- 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

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!

Improperly carried out maintenance and repair work can result in extremely serious injuries to those working on the machine, and damage 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 band saw if it has been disconnected from the mains power supply.

➜ Attach a warning label.

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5.1.2 Restarting

➜ Before restarting, run a safety check.

☞ Safety check on page 11

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 Inspection and maintenance

The type and level of wear depends to a large extent on the individual usage and operating conditions. Any indicated intervals therefore are only valid for the corresponding approved conditions.

Interval / When	Where?	What?	How?
as required	saw band guide	Adjusting the saw band guide to the worktable	➜ Place a 90° angle gauge in the machine vice and compare the position. ➜ Use the angle gauge to check whether the saw band is parallel to the angle gauge. ➜ Loosen the screws of the saw band guide if the angle is not correct and adjust the saw band guide accordingly. **INFORMATION** **Check your setting with a thin test saw cut.**
as required	Machine vice	Adjusting the clamping jaw to the saw band	➜ Place an angle gauge on the clamping jaws to be adjusted. ➜ Check the desired angle between the clamping jaws and the saw band. ➜ Loosen the locking nuts of the respective clamping jaw if the angle is not correct and adjust the clamping jaw accordingly.
As required and after changing the saw band	Saw arch	Adjusting the saw band tension	➜ Turn the handwheel clockwise to increase the tension in the saw band. **INFORMATION** **Do not strain the saw band more than necessary. The saw band could be overstretched and become warped.**

Interval / When	Where?	What?	How?
as required	**saw band guide**	**Adjusting the band guide bearings**	➜ Move the saw arch to the vertical position and close the stop cock on the hydraulic cylinder. ➜ Adjust the band guide bearings so that the saw band can no longer be moved back and forth, but the band guide bearings can still be turned by hand. ➜ Loosen the lock nut on the grub screws and turn the grub screw until the distance between the guide bearings is corrected.
If the metal band saw continue to operate after the sawing process is complete. If the metal band saw switches off before sawing is terminated.		**Adjusting the end position switch**	➜ Turn the end position cushioning up or down, ➜ or correct the limit switch lug so that it hits the end position when the sawing process is complete.
weekly	**Drive shaft**	**Bearing**	Oiling
When necessary	**Helical gear**	**Fill**	**INFORMATION** **The worm gearbox is largely maintenance-free. An oil change is not necessary and not possible. If components of the worm gearbox are to be replaced, oil must again be supplied via the filling opening before mounting the worm gearbox on the metal band saw.** ➜ Fill approx. 100 ml engine oil or gear oil in disassembled condition via the filling opening of the worm gearbox into the gearbox. When mounted, this opening is located on the underside of the gear unit. The worm gear unit must not be completely filled, as the shaft sealing rings could be damaged by temperature expansion of the oil.

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Interval / When	Where?	What?	How?
as required	**Saw band**	**Saw band track adjustment**	➜ Move the saw arch to the vertical position and close the stop cock on the hydraulic cylinder. ➜ Check the saw band tension. ➜ Remove the protective cover from the saw arch. ➜ Switch on the metal band saw and check that the saw band runs over the band guide rollers. ➜ Loosen the fixing screws and turn the adjusting screw while watching the saw band run. ➜ Change the setting with the adjusting screw so that the saw band runs as close as possible to the housing of the saw arch. ➜ When the adjustments have been completed, the fixing screws must be tightened again. **INFORMATION** **With a deformed saw band it is hardly possible to adjust the track. Use a new saw band before adjusting the track.**
as required	**Machine vice**	**Spindle**	➜ Lubricate the spindle of the machine vice.
Depending on wear	**Saw arch**	**Changing the saw band**	**ATTENTION!** **This metal band saw is constructed for saw bands with the dimensions 2360 x 19 x 1 mm. The use of other saw bands may lead to worse cutting results and damage the band guide rollers.** ➜ Move the saw arch to the vertical position and close the stop cock on the hydraulic cylinder. ➜ Remove the red saw band guard. ➜ Disassemble the saw band brush. ➜ Remove the protective cover from the saw bow. ➜ Release the saw band tension by turning the handwheel counter clockwise. ➜ Carefully remove the old band saw band. ➜ Mount the new saw band by first inserting it into the saw band guide. ➜ Check the running direction and the toothing. ➜ Pull the band saw band onto the two band wheels so that it sits as close as possible to the housing of the saw bow. ➜ Tension the saw band. ➜ Proceed in reverse order to reassemble the components. ➜ Proceed a trial run. ➜ Mount the protective cover of the saw arch.

Interval / When	Where?	What?	How?
as required	**Coolant equipment**	**Coolant pump**	The cooling pump is almost maintenance free. Replace at regular intervals of use the coolant fluid and clean the inside of the pump of chips. Not all chips can be retained by the gap filter in the chip tray and can be sucked back in by the pump, which can destroy the pump. ➜ When using coolants that leave residues, the coolant pump must be cleaned and flushed.
not required	**with external control**	**Overload setting and time delay**	**ATTENTION!** **The settings have already been made at the factory. Adjustment or readjustment is usually not necessary.** There are two potentiometers, R8 and R9, on the external control board. Both potentiometers control the motor shutdown in case of overload. R8 is for time delay. R9 is for current consumption of the motor in star and delta connection.

5.3 Repair work

5.3.1 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

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

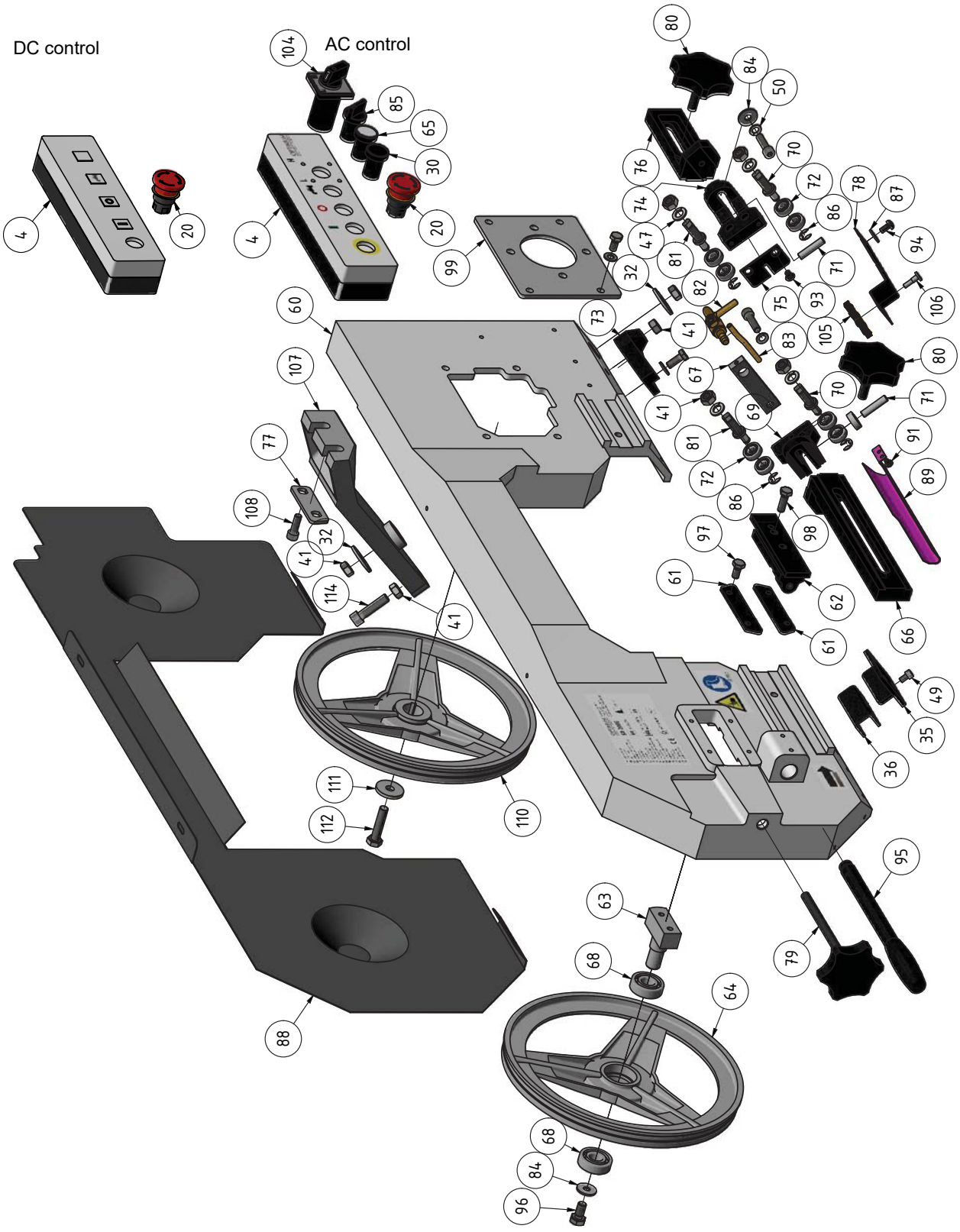
6.3 Service Hotline

+49 (0) 951-96555 -100

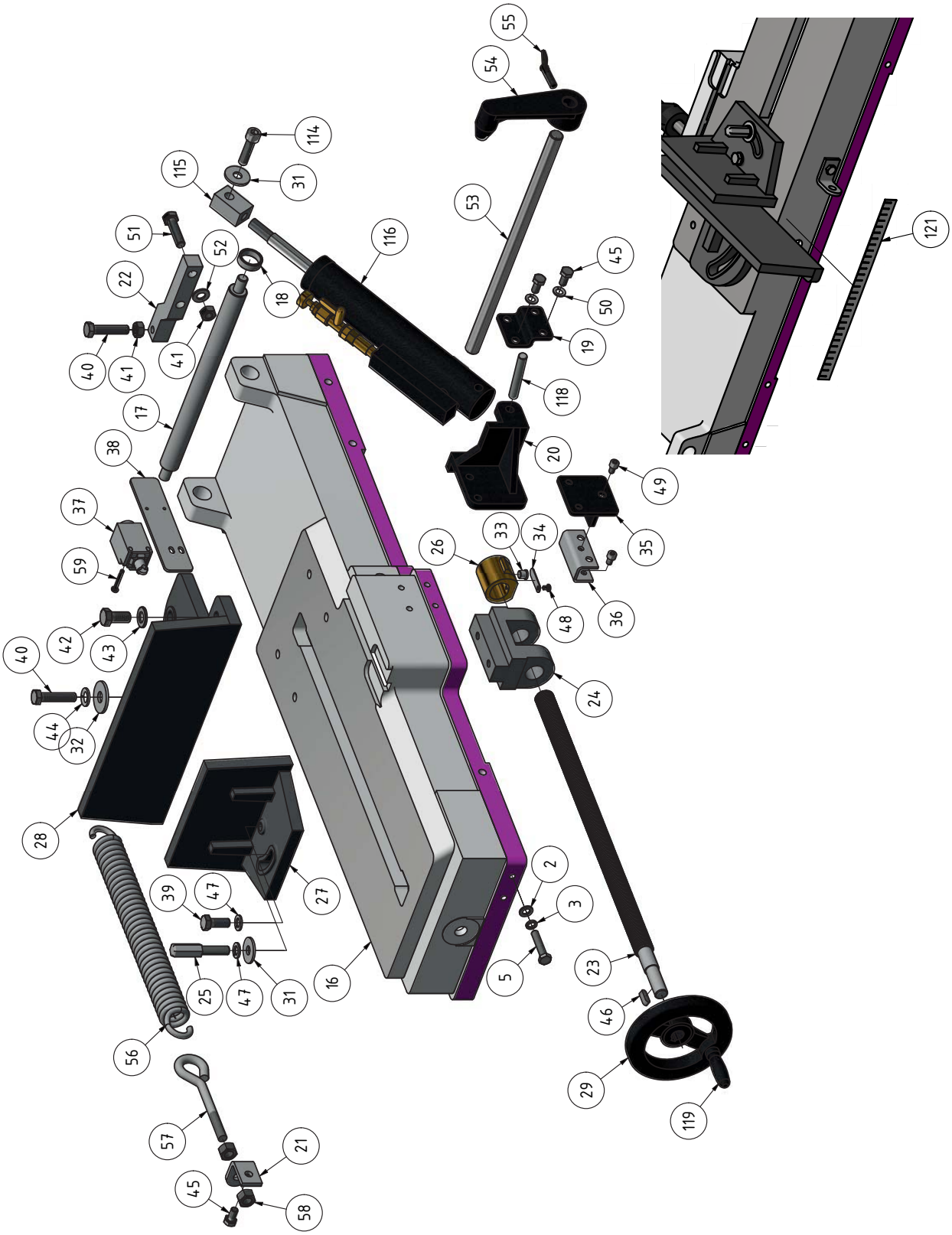
service@stuermer-maschinen.de

6.4 Ersatzteilzeichnungen - Spare part drawings

A Sägebügel - Saw bow



B Tisch - Table



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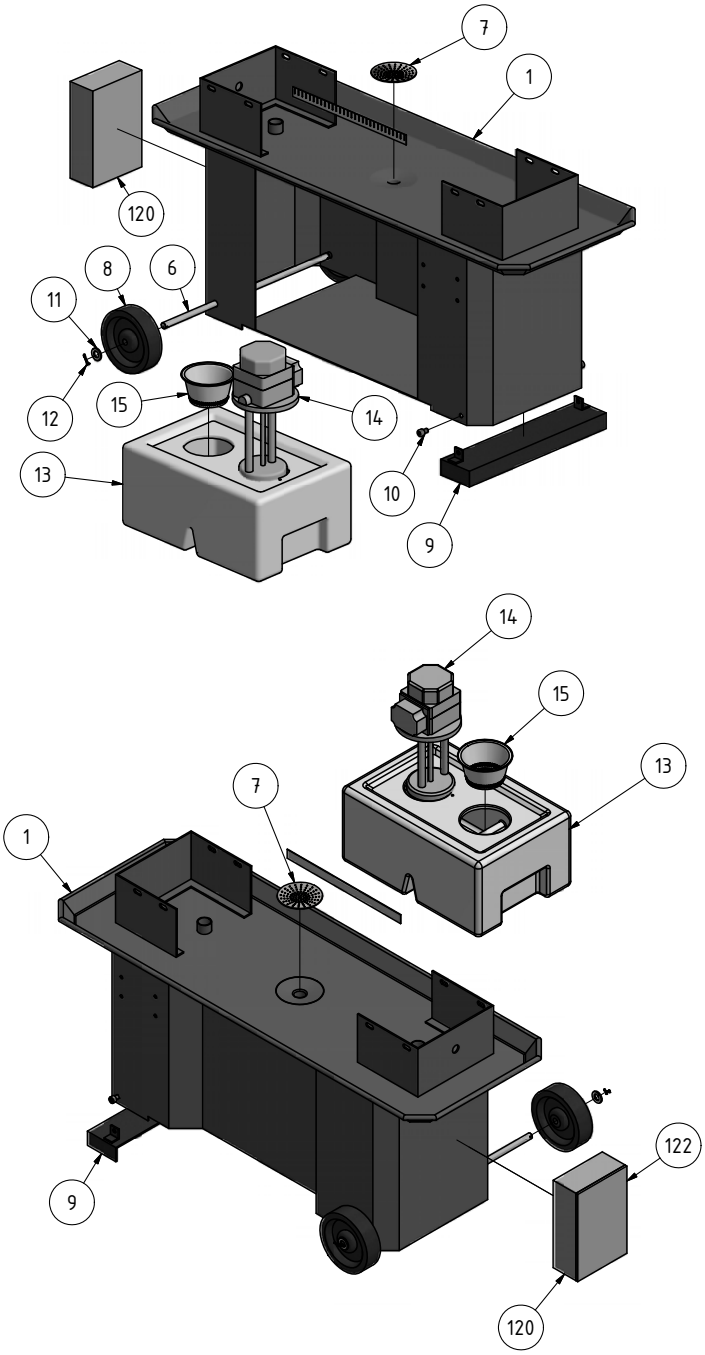
H Unterbau - Substructure



Ersatzteileliste - Parts list					
Pos.	**Bezeichnung**	**Description**	**Menge Qty.**	**Grösse Size**	**Artikelnummer Item no.**
1	Unterbau	Substructure	1		03300200101
2	Scheibe	Washer	6	8	
3	Federring	Spring ring	6	8	

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Ersatzteileliste - Parts list					
Pos.	**Bezeichnung**	**Description**	**Menge Qty.**	**Grösse Size**	**Artikelnummer Item no.**
4	Schalterbox	Switch box	1	AC	03300200104
	DC Drucktastenbedienfeld mit integrierter Steuerung	DC push-button control panel with integrated control	1	DC	03300200ADC
	DC Drucktastenbedienfeld ohne integrierte Steuerung	DC push-button control panel without integrated control	1	DC, in combination with position no. 120 only	03300200ADCV3
5	Schraube	Screw	6	M8x40	
6	Welle	Shaft	1		03300200106
7	Sieb	Filter	1		03300200107
8	Rad	Wheel	2		03300200108
9	Platte	Plate	1		03300200109
10	Innensechskantschraube	Socket head screw	2	ISO 4762 - M8 x 12	
11	Scheibe	Washer	2	DIN 125 - A 13	
12	Splint	Splint	2	2,5x16	
13	Kühlmittelbehälter	Coolant tank	1		03300200113
14	Kuhlmittelpumpe	Coolant pump	1		03300200114
15	Filter	Fliter	1		03300200115
16	Sägetisch	Saw table	1		03300200116
17	Welle	Shaft	1		03300200117
18	Ring	Ring	1		03300200118
19	Platte	Plate	1		03300200119
20	Not-Halt Schlagschalter	Emergency stop button	1		0460082
21	Winkel	Angle	1		03300200121
22	Halter	Holder	1		03300200122
23	Welle	Shaft	1		03300200123
24	Gehäuse	Housing	1		03300200124
25	Bolzen	Bolt	1		03300200125
26	Spindelmutter	Spindle nut	1		03300200126
27	Spannbacke	Clamping jaw	1		03300200127
28	Spannbacke	Clamping jaw	1		03300200128
29	Handrad	Handle	1		03300200129
30	Taster Ein	Button On	1		0460052
31	Scheibe	Washer	2		03300200131
32	Scheibe	Washer	3		03300200132
33	Stift	Pin	1		03300200133
34	Platte	Plate	1		03300200134
35	Platte	Plate	2		03300200135
36	Halter	Holder	2		03300200136
37	Schalter Endlage	Switch Limit stop	1	QKS7	03300200137
38	Platte	Plate	1		03300200138
39	Sechskantschraube	Hexagon screw	1	M10 x 25	
40	Sechskantschraube	Hexagon screw	2	M10 x 45	
41	Sechskantmutter	Hexagon nut	11	ISO 4032 - M10	
42	Sechskantschraube	Hexagon screw	1	M12 x 25	
43	Scheibe	Washer	1	DIN 125-1 - B 13	
44	Federring	Spring ring	1	DIN 128 - A12	
45	Schraube	Screw	5	ISO 4017 - M8 x 16	
46	Passfeder	Fitting key	1	A 6 x 6 x 20	
47	Federring	Spring ring	8	DIN 128 - A10	
48	Schraube	Screw	1	M4x6	
49	Innensechskantschraube	Socket head screw	6	M6 x 10	
50	Federring	Spring ring	6	DIN 128 - A8	
51	Sechskantschraube	Hexagon screw	2	M10 x 40	
52	Scheibe	Washer	6	DIN 125 - A 10,5	
53	Stange	Rod	1		03300200153
54	Endanschlag	Limit stop	1		03300200154
55	Klemmschraube	Clamping screw	1		03300200155
56	Zugfeder	Tension spring	1		03300200156
57	Schraube	Screw	1		03300200157
58	Sechskantmutter	Hexagon nut	2	ISO 4032 - M12	
59	Schraube	Screr	2	M4x30	
60	Sägebügel	Saw frame	1		03300200160
61	Platte	Plate	2		03300200161
62	Führung	Guide	1		03300200162
63	Welle	Shaft	1		03300200163
64	Laufrad	Wheel	1		03300200164
65	Taster Aus	Button Off	1		0460001
66	Führung	Guide	1		03300200166
67	Platte	Plate	1		03300200167
68	Kugellager	Ball bearing	2	6203	03300200168
69	Lagerbock	Bearing block	1		03300200169
70	Welle	Shaft	2		03300200170
71	Zylinderstift	Cylindrical pin	2		03300200171

Ersatzteileliste - Parts list					
Pos.	**Bezeichnung**	**Description**	**Menge Qty.**	**Grösse Size**	**Artikelnummer Item no.**
72	Kugellager	Ball bearing	9	608	03300200172
73	Halter	Holder	1		03300200173
74	Halter	Holder	1		03300200174
75	Platte	Plate	1		03300200175
76	Führung	Guide	1		03300200176
77	Platte	Plate	1		03300200177
78	Halter	Holder	1		03300200178
79	Sterngriff	Star grip	1		03300200179
80	Sterngriff	Star grip	2		03300200180
81	Welle	Shaft	2		03300200181
82	Absperrventil	Block valve	1		03300200182
83	Messingleitung	Brass tube	1		03300200183
84	Scheibe	Washer	2	8	
85	Drehschalter Kühlmittelpumpe	Rotary switch coolant pump	2		03300200185
86	Sicherungsring	Retaining ring	4	8	
87	Scheibe	Washer	2	6	
88	Abdeckung	Cover	1		03300200188
89	Abdeckung	Cover	1		03300200189
90	Innensechskantschraube	Socket head screw	2	ISO 4762 - M8 x 30	
91	Schraube	Screw	2	M5x6	
92	Sechskantschraube	Hexagon screw	2	ISO 4017 - M8 x 20	
93	Schraube	Screw	2	M6x10	
94	Schraube	Screw	2	M6x12	
95	Griff	Grip	1		03300200195
96	Sechskantschraube	Hexagon screw	1	DIN 933 - M10 x 20	
97	Sechskantschraube	Hexagon screw	8	DIN 933 - M8 x 16	
98	Sechskantschraube	Hexagon screw	2	DIN 933 - M8 x 25	
99	Platte	Plate	1		03300200199
102	Scheibe	Washer	4	DIN 125 - A 8,4	
103	Sechskantschraube	Hexagon screw	4	M10 x 18	
104	Stufenschalter Geschwindigkeit	Step switch Speed	1		033002001104
105	Bürste	Brush	1		033002001105
106	Schraube	Screw	1		033002001106
107	Halter	Holder	1		033002001107
108	Innensechskantschraube	Socket head screw	2	ISO 4762 - M8 x 25	
109	Scheibe	Washer	2	DIN 125-1 - B 8,4	
110	Laufrad	Wheel	1		033002001110
111	Scheibe	Washer	1		033002001111
112	Schraube	Screw	1	M10x45	
114	Innensechskantschraube	Socket head screw	2	M10 x 40	
115	Platte	Plate	1		033002001115
116	Zylinder	Cylinder	1		033002001116
117	Stange	Rod	1		033002001117
118	Zylinderstift	Cylinderical pin	1		033002001118
119	Griff	Grip	1		0333812057-1
120	Schaltkasten mit Steuerung	Control box with control	1	Nur in Verbindung mit Drucktasten Bedienfeld V3, Position Nr. 4 Only in combination with push button control panel V3, position no. 4	033002001120
120F2 120F3	Feinsicherung	Fine wire fuse	2	500V ; 0.5A (size 6x30)	033002001120F2
121	Skala Winkelschnitt	Angle cut scale	1		033002001121
122	Deckel für Schaltkasten	Cover for control box	1		033002001122

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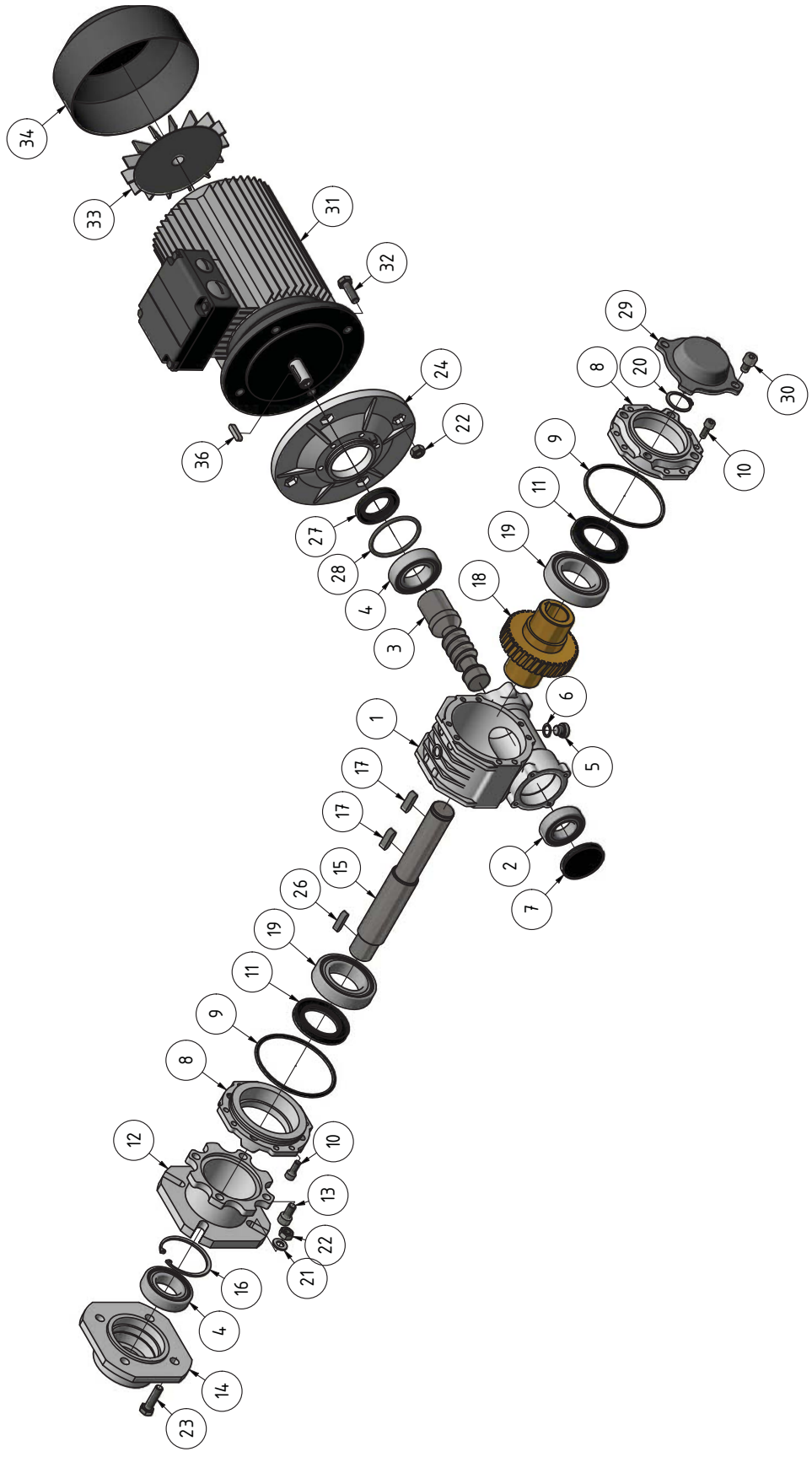
D Getriebe - Gear box



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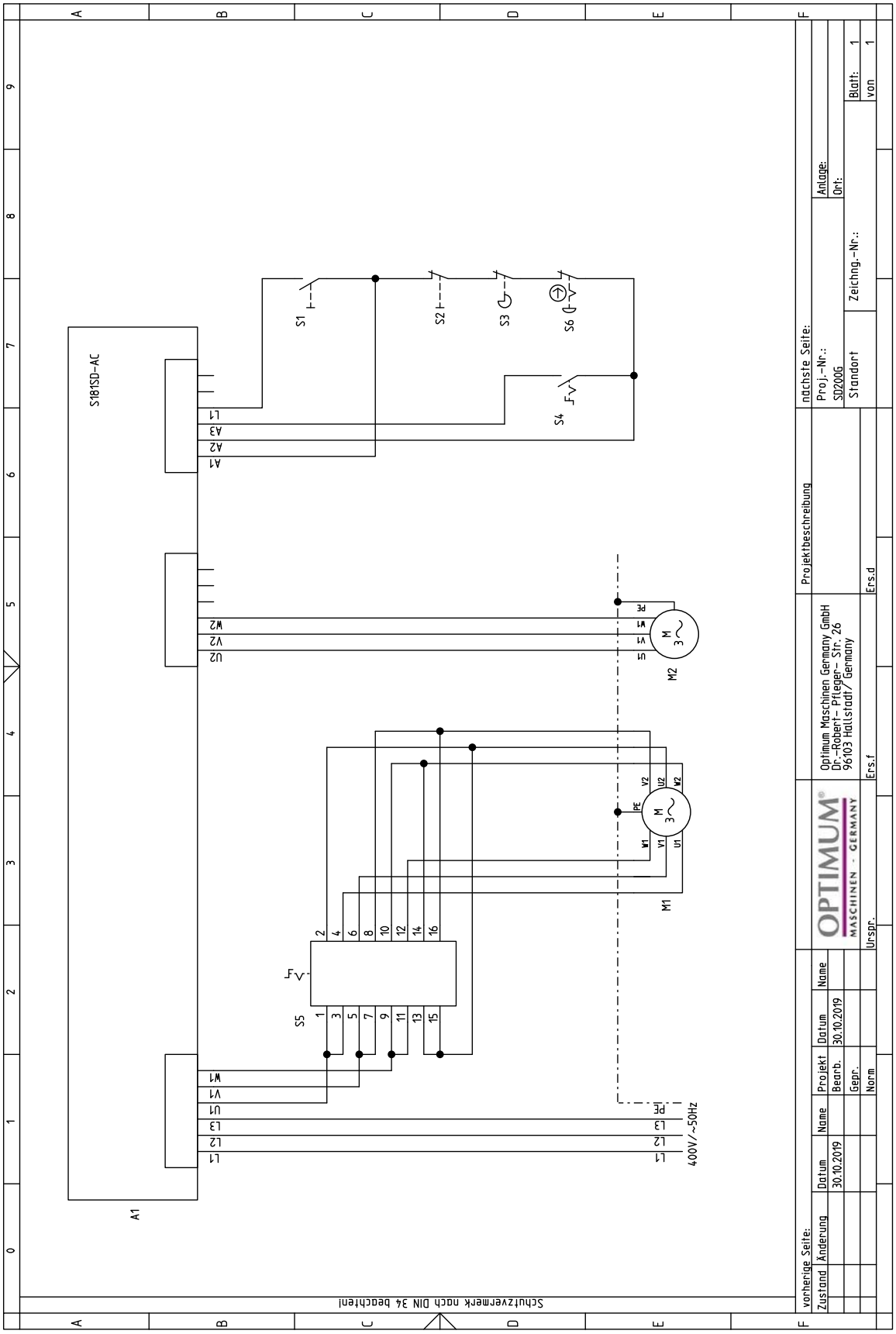
S200DG Getriebe - S200DG Gearbox					
Pos.	**Bezeichnung**	**Description**	**Menge Qty.**	**Grösse Size**	**Artikelnummer Item no.**
1	Gehäuse	Housing	1		03300200201
2	Kugellager	Ball bearing	1	6005	0406005
3	Schneckenwelle	Worm shaft	1		03300200203
4	Kugellager	Ball bearing	2		
5	Verschlussschraube	Plug screw	1		03300200205
6	Dichtung	Seal	1		03300200206
7	Stopfen	Plug	1		03300200207
8	Flansch	Flange	2		03300200208
9	O-Ring	O-ring	2	DIN 3771 - 85 x 3,55	
10	Innensechskantschraube	Socket head screw	16	ISO 4762 - M6 x 16	
11	Wellendichtring	Shaft seal	2	DIN 3760 -40 x 62 x 7	
12	Flansch	Flange	1		03300200212
13	Innensechskantschraube	Socket head screw	4	ISO 4762 - M8 x 16	
14	Flansch	Flange	1		03300200214
15	Welle	Shaft	1		03300200215
16	Sicherungsring	Retaining ring	1	DIN 472 - 55x2	
17	Passfeder	Fitting key	2	DIN 6885 - A 8 x 7 x 25	
18	Schneckenrad	Worm gear	1		03300200218
19	Kugellager	Ball bearing	2		
20	Sicherungsring	Retaining ring	1	DIN 471 - 25x1,2	
21	Scheibe	Washer	4	DIN 125 - A 8,4	
22	Sechskantmutter	Hexagon nut	8	ISO 4032 - M8	
23	Sechskantschraube	Hexagon screw	4	ISO 4017 - M8 x 30	
24	Flansch	Flange	1		03300200224
25	Innensechskantschraube	Socket head screw	6	ISO 4762 - M6 x 12	
26	Passfeder	Fitting key	1	DIN 6885 - A 6 x 6 x 25	
27	Wellendichtring	Shaft seal	1	DIN 3760 - 30 x 47 x 7	
28	O-Ring	O-ring	1	DIN 3771 - 51,5 x 3,55	
29	Abdeckung	Cover	1		03300200229
30	Innensechskantschraube	Socket head screw	2	ISO 4762 - M8 x 12	
31	Motor	Motor	1		0330020031
32	Sechskantschraube	Hexagon screw	4	ISO 4017 - M8 x 25	
36	Motor Passfeder	Motor key	1		03300200236

6.5 Schaltplan Wechselstrom Steuerung - AC control wiring diagram

E



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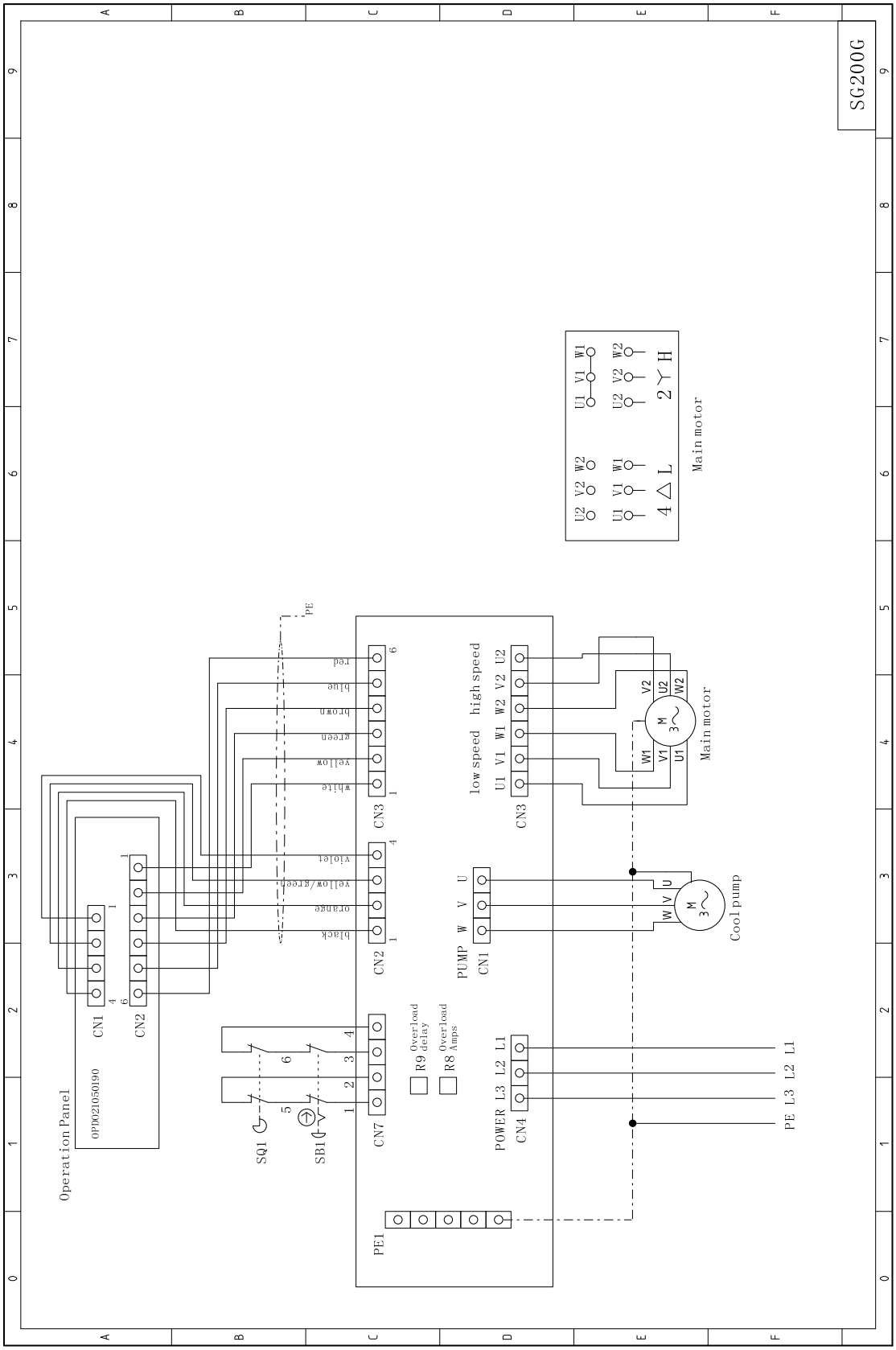
Ersatzteilliste Schaltplan Wechselstrom Steuerung - AC control wiring diagram parts list

Für Maschinen mit älterer Wechselstrom Steuerung ; For machines with older alternating current controls

Pos.	Bezeichnung	Description	Menge Qty.	Grösse Size	Artikelnummer Item no.
A1	Steuerplatine	Control board	1		03300200A1
S5	Stufenschalter	Step switch	1	LW26-20	0330020104
M1	Motor	Motor	1		0330020031
M2	Motor Kühlmittelpumpe	Motor Coolant pump	1		03300200114
S4	Schalter Kühlmittelpumpe	Coolant pump switch	1	L103B3-11X/21	0322791
S6	Not-Halt-Schalter	Emergency stop button	1	LA103B-01S/1	0460082
S3	Schalter Endlage	Switch Limit stop	1	QKS7-5	0330020037
S2	Taster Stop	Stop button	1	LA103-01BN/33	0460001
S1	Taster Ein	Button On	1	LA103-11BN/36	0460052

6.6 Schaltplan Gleichstrom Steuerung - DC control wiring diagram

F



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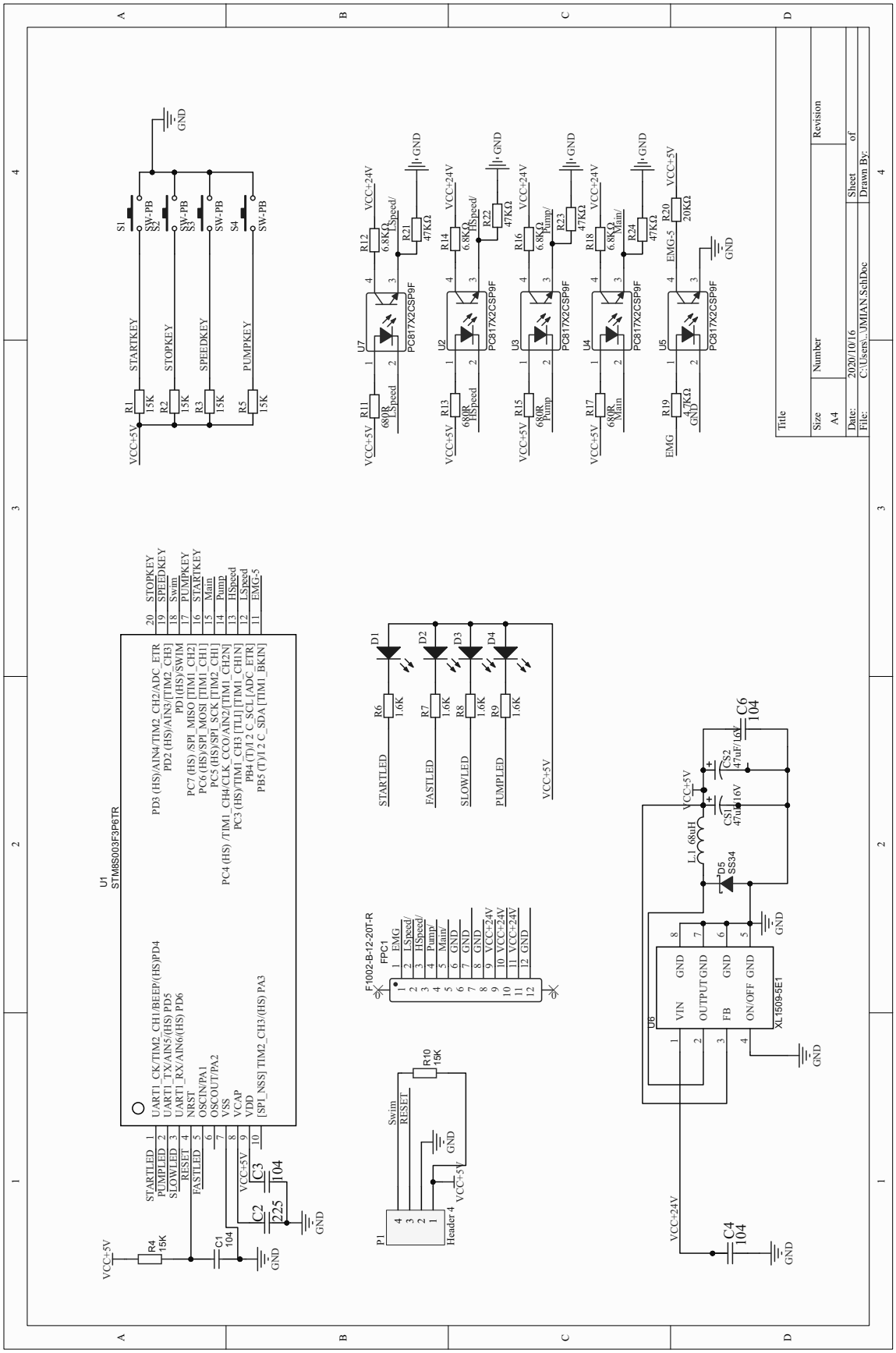

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Ersatzteilliste Schaltplan Gleichstrom Steuerung - DC control wiring diagram parts list

Für Maschinen mit neuerer Gleichstrom Steuerung ; For machines with newer direct current control

Pos.	Bezeichnung	Description	Menge Qty.	Grösse Size	Artikelnummer Item no.
A	DC Tasten Bedienfeld mit Platine	DC key control panel with circuit board	1	DC control	03300200ADC
	DC Tasten Bedienfeld ohne Steuerung	DC key control panel without circuit board	1	DC push buttons only	03300200ADCV3
M1	Motor S200G	Motor S200G	1		0330020031
M2	Motor Kühlmittelpumpe S200G	Motor Coolant pump S200G	1		03300200114
S6	Not-Halt-Schalter S200G	Emergency stop button S200G	1	LA103B-01S/1	0460082
S3	Schalter Endlage S200G	Switch Limit stop S200G	1	QKS7-5	0330020037

Schmierstoffe Lubricant Lubrifiant	Viskosität Viskosity Viscosité ISO VG DIN 51519 mm²/s (cSt)	Kennzeich-nung nach DIN 51502	ARAL	BP	Esso	Klüber Lubrication	Mobil	Shell	Texaco
Getriebeöl Gear oil Huile de réducteur	VG 680	CLP 680	Aral Degol BG 680	BP Energol GR-XP 680	SPARTAN EP 680	Klüberoil GEM 1-680	Mobilgear 636	Shell Omala 680	Meropa 680
	VG 460	CLP 460	Aral Degol BG 460	BP Energol GR-XP 460	SPARTAN EP 460	Klüberoil GEM 1-460	Mobilgear 634	Shell Omala 460	Meropa 460
	VG 320	CLP 320	Aral Degol BG 320	BP Energol GR-XP 320	SPARTAN EP 320	Klüberoil GEM 1-320	Mobilgear 632	Shell Omala 320	Meropa 320
	VG 220	CLP 220	Aral Degol BG 220	BP Energol GR-XP 220	SPARTAN EP 220	Klüberoil GEM 1-220	Mobilgear 630	Shell Omala 220	Meropa 220
	VG 150	CLP 150	Aral Degol BG 150	BP Energol GR-XP 150	SPARTAN EP 150	Klüberoil GEM 1-150	Mobilgear 629	Shell Omala 150	Meropa 150
	VG 100	CLP 100	Aral Degol BG 100	BP Energol GR-XP 100	SPARTAN EP 100	Klüberoil GEM 1-100	Mobilgear 627	Shell Omala 100	Meropa 100
	VG 68	CLP 68	Aral Degol BG 68	BP Energol GR-XP 68	SPARTAN EP 68	Klüberoil GEM 1-68	Mobilgear 626	Shell Omala 68	Meropa 68
	VG 46	CLP 46	Aral Degol BG 46	BP Bartran 46	NUTO H 46 (HLP 46)	Klüberoil GEM 1-46	Mobil DTE 25	Shell Tellus S 46	Anubia EP 46
	VG 32	CLP 32	Aral Degol BG 32	BP Bartran 32	NUTO H 32 (HLP 32)	Klübersynth GEM 4- 32 N	Mobil DTE 24	Shell Tellus S 32	Anubia EP 32
Hydrauliköl Hydraulic oil Huile hydraulique	VG 32	CLP 32	Aral Vitam GF 32	BP Energol HLP HM 32	NUTO H 32 (HLP 32)	LAMORA HLP 32	Mobil Nuto HLP 32	Shell Tellus S2 M 32	Rando HD HLP 32
	VG 46	CLP 46	Aral Vitam GF 46	BP Energol HLP HM 46	NUTO H 46 (HLP 46)	LAMORA HLP 46	Mobil Nuto HLP 46	Shell Tellus S2 M 46	Rando HD HLP 46
Getriebefett Gear grease Graisse de réducteur		G 00 H-20	Aral FDP 00 (Na-verseift) Aralub MFL 00 (Li-verseift)	BP Energrease PR-EP 00	FIBRAX EP 370 (Na-verseift)	MICROLUB E GB 00	Mobilux EP 004	Shell Alvania GL 00 (Li-verseift)	Marfak 00

Spezialfette, wasserabweisend Special greases, water resistant Graisses spéciales, déperlant			Aral Aralub	Energrease PR 9143		ALTEMP Q NB 50 Klüberpaste ME 31-52	Mobilux EP 0 Mobil Greaserex 47		
Wälzlagerfett Bearing grease Graisse de roulement		K 3 K-20 (Li-verseift)	Aralub HL 3	BP Energrease LS 3	BEACON 3	CENTOPLE X 3	Mobilux 3	Shell Alvania R 3 Alvania G 3	Multifak Premium 3
Öle für Gleitbahnen Oils for slideways Huiles pour glissières	VG 68	CGLP 68	Aral Deganit BWX 68	BP Maccurat D68	ESSO Febis K68	LAMORA D 68	Mobil Vactra Oil No.2	Shell Tonna S2 M 68	Way lubricant X 68
Öle für Hochfrequenzspindeln Oils for Built-in spindles Huiles pour broches à haute vitesse	VG 68		Deol BG 68	Emergol HLP-D68	Spartan EP 68		Drucköl KLP 68-C	Shell Omala 68	
Fett für Zentralschmierung (Fließfett) Grease for central lubrication Graisse pour lubrification centrale	NLGI Klasse 000 NLGI class 000		ARALUB BAB 000	Grease EP 000	Shell Gadus S4 V45AC	CENTOPLE X GLP 500	Mobilux EP 023		Multifak 264 EP 000
Fett für Hochfrequenzspindeln Grease for Built-in spindles Graisse pour broches à haute vitesse	METAFLUX-Fett-Paste (Grease paste) Nr. 70-8508 METAFLUX-Moly-Spray Nr. 70-82 Techno Service GmbH ; Detmolder Strasse 515 ; D-33605 Bielefeld ; (++49) 0521- 924440 ; www.metaflux-ts.de								
Kühlschmiermittel Cooling lubricants Lubrifiants de refroidissement	Schneidöl Aquacut C1, 10 L Gebinde, Artikel Nr. 3530030 Cutting oil Aquacut C1, 10 L container, art.no. 3530030		Aral Emusol	BP Sevora	Esso Kutwell		Mobilcut	Shell Adrana	Chevron Soluble Oil B

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	• Check saw band
Short life of saw band (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 blade	• Tension in the saw band too high or too low • Saw blade 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 • Tension of saw band too low • 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 • Vise jaws not set to 90^0	• Insert material properly • Adjust vice jaws correctly

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8 Appendix

8.1 Copyright

8.2 Terminology/Glossary

Term	Explanation
Workpiece	Material to be cut
Blade guide pulley	Pulley through which the saw blade passes in the saw arch
Saw bow	Housing with protective cover for the saw blade
Material stop	Position for multiple cuts Sawing stop
Hydraulic cylinder	Hydraulic lowering cylinder Hydraulic feed
Feed control valve	Valve on hydraulic cylinder
Protective cover saw arch	Covering on the back of the saw bow
Blade guide bearings	Rollers between which the saw blade passes Pilot bearing
Saw band guide	Blade guide bearings
Saw blade brush	Device for scraping off impurities Saw blade cleaning brush
Clamping jaw	Strip terminal on the machine vice
Machine vice	Clamping device for the workpiece
Worm gear	Reduction gear from drive motor
Drive motor	Engine

8.3 Change information operating manual

Chapter	Short summary	new version number
3	Interdepartmental transport	1.0.1
parts	Additional DC control wiring diagram	1.0.2
parts ; 4.3	External control box for control ; Push-button panel	1.0.3

8.4 Liability claims for defects / warranty

Besides 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 as part 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.

8.5 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.

8.5.1 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.**

8.5.2 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.

8.5.3 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.

8.5.4 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 authorised 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.

8.5.5 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.

8.6 Disposal via 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.

8.7 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 machine which might be important for other users
- Recurring malfunctions

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

D-96103 Hallstadt, Germany

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

EC - declaration of conformity

according to Machinery directive 2006/42/EC, Annex II 1.A

The manufacturer / distributor Optimum Maschinen Germany GmbH
Dr.-Robert-Pfleger-Str. 26
D96103 Hallstadt

hereby declares that the following product

Product designation: Metal band saw

Type designation: SD200G

fulfils 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-operated metal band saw

The following other EU Directives have been applied:

EMC Directive 2014/30/EU ; 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 Machine tools - Safety - Sawing machines for cold metal

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

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

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

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

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

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

Kilian Stürmer (CEO, General Manager)
Hallstadt 2021-07-19

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