OPTIMUM®
MASCHINEN - GERMANY

Operating Manual

Version 1.2.5

Metal band saw

○ OPTI saw® S 275N Item no. 3300260

○ OPTI saw® S 275NV Item no. 3300265

EN

Table of contents

1 Safety
1.1 Type plates ... 5
1.2 Safety instructions (warning notes) ... 6
1.2.1 Classification of hazards ... 6
1.2.2 Other pictograms ... 6
1.3 Intended use ... 7
1.4 Reasonably foreseeable misuse ... 8
1.4.1 Avoiding misuse ... 8
1.5 Possible dangers caused by the metal band saw ... 9
1.6 Qualification of personnel ... 9
1.6.1 Target group ... 9
1.6.2 Authorized personnel ... 10
1.7 Safety devices ... 11
1.7.1 Emergency-stop button ... 11
1.7.2 Saw arch ... 11
1.7.3 Saw belt guide ... 11
1.7.4 Prohibition, warning and mandatory signs ... 11
1.8 Safety check ... 12
1.9 Personal protective equipment ... 12
1.10 Safety during operation ... 13
1.11 Safety during maintenance ... 13
1.11.1 Disconnecting and securing the metal band saw ... 13
1.11.2 Using lifting equipment ... 14
1.11.3 Mechanical maintenance work ... 14
1.12 Accident report ... 14
1.13 Electronics ... 14
1.14 Inspection deadlines ... 15

2 Technical data
2.1 Emissions ... 17

3 Delivery, interdepartmental transport, assembly and commissioning
3.1 Notes on transport, installation, commissioning ... 18
3.1.1 General risks during internal transport ... 18
3.2 Unpacking the machine ... 19
3.3 Requirements regarding the installation site ... 19
3.4 Dimensions S275N | S275NV ... 20
3.5 Assembly ... 21
3.5.1 Assembling the machine stand - V1 ... 21
3.5.2 Assembling the machine stand - V2 ... 22
3.5.3 Fit optional levelling disc SE2 ... 22
3.5.4 Load suspension point ... 22
3.5.5 Drip pan ... 24
3.5.6 Material stop ... 24
3.6 Electrical connection ... 24
3.6.1 Electrical connection S275N ... 24
3.6.2 Electrical connection S275NV ... 25
3.7 First commissioning ... 25

4 Operation
4.1 Control and indicating elements ... 27
4.2 Safety ... 28
4.3 Inserting the workpiece ... 28
4.4 Setting of angle cut ... 28
4.5 Adjusting the saw belt guide ... 29
4.6 Switching on the machine ... 29
4.7 Switching off the machine ... 29
4.8 Resetting an emergency stop condition ... 29
4.9 Adjusting the speed of the saw belt ... 29
4.9.1 Selector switch / speed controller ... 29
4.9.2 Saw belt speeds ... 30

4.10 Coolant equipment 30
4.11 Starting the metal band saw 30
4.12 Hydraulic feed 31
4.13 Cutting area 31
4.14 General information concerning saw bands 32
4.14.1 Spacing 32
4.14.2 Set of saw teeth 33
4.14.3 Recommended saw band speeds 35

5 Maintenance
5.1 Safety 37
5.1.1 Preparation 37
5.1.2 Restarting 37
5.1.3 Cleaning 37
5.2 Checkup, inspection and maintenance 37
5.3 Repair 43
5.3.1 Customer service technician 43
5.4 Cooling lubricants and tanks 44
5.4.1 Inspection plan for water-mixed cooling lubricants 45

6 Ersatzteile - Spare parts
6.1 Ersatzteilbestellung - Ordering spare parts 46
6.2 Hotline Ersatzteile - Spare parts Hotline 46
6.3 Service Hotline 46
6.4 Ersatzteilzeichnungen - Spare part drawings 47
6.5 Schaltplan - Wiring diagram 400V - S275N - Einkanalig - Single channel 55
6.6 Schaltplan - Wiring diagram 400V - S275N - Zweikanalig - Double channel 56
6.7 Schaltplan - Wiring diagram - S275NV 57

7 Malfunctions
7.1 Malfunctions on the metal band saw 62

8 Appendix
8.1 Copyright 63
8.2 Terminology/Glossary 63
8.3 Change information manual 63
8.4 Liability Claims for Defects / Warranty 64
8.5 Storage 65
8.6 Advice for disposal / Options of re-use 65
8.6.1 Decommissioning 65
8.6.2 Disposal of new device packaging 66
8.6.3 Disposing of the old device 66
8.6.4 Disposal of electrical and electronic components 66
8.6.5 Disposal of lubricants and coolants 67
8.7 Disposal via municipal collection facilities 67
8.8 Product follow-up 67

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

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1 Safety

Glossary of symbols

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

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,
- ❍ informs you about how to avoid dangers.

In addition to these operation 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 kept during installation, operation, maintenance and repair of the circular metal saw.

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

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

Always keep this documentation close to the metal band saw.

INFORMATION

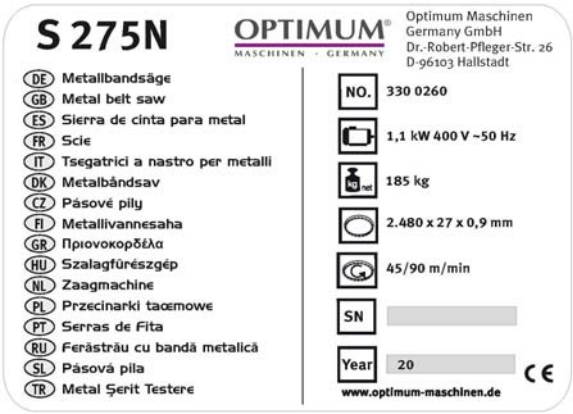
If you are unable to rectify an issue using these operating instructions, please contact us for advice:

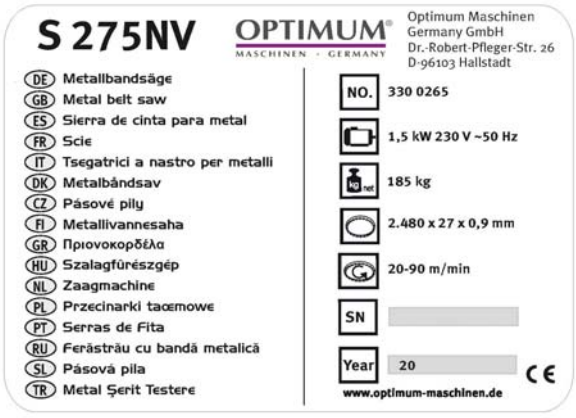
Optimum Maschinen Germany GmbH
Dr. Robert-Pfleger-Str. 26

D- 96103 Hallstadt

Email: info@optimum-maschinen.de

1.1 Type plates





1.2 Safety instructions (warning notes)

1.2.1 Classification of hazards

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	Warning alert	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 people.
	**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!

Caution, danger of explosive substances!

S275N_S275NV_GB_1.fm


Activation forbidden!


Read the operating instructions before commissioning!


Pull the main 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

WARNING!

In the event of improper use, the metal band 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 metal band saw 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 band saw must only be installed and operated in a dry and ventilated place.

If the metal band saw is used in any way other than described above, modified without authorization of Optimum Maschinen Germany GmbH, then the metal band 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 you

- observe the limits of the metal band 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!

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

1.4 Reasonably foreseeable misuse

Any other use other than that specified under "Intended use" or any use beyond the described use shall be deemed as non-intended use and is not permissible.

Any other use has to be discussed with the manufacturer.

In order to avoid misuse, it is necessary to read and understand the operating instructions before first commissioning. Operators must be qualified.

1.4.1 Avoiding misuse

INFORMATION

The metal band saw S275NV with frequency converter for adjusting the saw band speed is built according to the standard EN 61800-3 class C3.

WARNING!

This type is not suitable for connection to a public low-voltage network supplying residential buildings. When connecting to a public low voltage network, radio frequency interference is expected.

Overview of the EMC categories:

This machine	☐	☐	☒	☐
Categorie	**C1**	**C2**	**C3**	**C4**
Environment	Residential area Business area Industrial area		Industrial area	
Voltage / Current	< 1000 V			> 1000 V
EMC knowledge	no requirement	Installation and commissioning by an EMC expert		

Categorie C1

- required limit values Class B Group 1 according to EN 55011

Categorie C2

- Required limit values class A Group 1 according to EN 55011, Installation by EMC experts and warning: “This is a product of category C2 according to EN 61800-3. This product may cause radio interference in a residential area. In this case, it may be necessary for the operator to take appropriate action.“

Categorie C3

Required limit values class A group 2 according to EN 55011, whereby these limit values are below those of class A group 1, plus warning: „This type is not suitable for connection to a public low-voltage network supplying residential buildings. When connecting to a public low voltage network, radio frequency interference is expected. "

1.5 Possible dangers caused by the metal band saw

The metal band saw has been tested for operational safety. The construction and type are state of the art.

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

- electrical voltage and currents,
- a circulating saw belt.

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.

In the event of improper use

- there may be a risk to personnel,
- the metal band saw and further property might be endangered,
- the correct function of the metal band saw may be affected.

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 have to be equipped with the prescribed safety devices. This is your responsibility being the operating company!

☞ **Safety devices on page 11**

1.6 Qualification of personnel

1.6.1 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!

Disconnect the main plug of the metal band saw and secure the metal band saw against restarting.

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

Operator

The operator has been instructed by the operating company regarding the assigned tasks and possible risks in case of improper behaviour. Any tasks which need to be performed beyond the operation in standard mode must only be performed by the operator, if so indicated in these instructions and if the operator has been expressively commissioned 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

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

Instructed person

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

1.6.2 Authorized personnel

WARNING!

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

Only authorized staff may operate the metal band 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,
- require personnel to confirm participation in training/instructions by means of a signature,
- check whether the personnel is working safety and risk-conscious and observes the operating instructions.

The operator must

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

1.7 Safety devices

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

Stop the drilling machine 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 band 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 band saw. The possible consequences are:

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

The metal band saw includes the following safety devices:

- an Emergency-stop button
- a saw blade casing with protective cover and position switch,
- protective covers of the saw blade guide.

1.7.1 Emergency-stop button

The Emergency-stop button switches the metal band saw off.

INFORMATION

After actuation, turn the Emergency-stop push button clockwise in order to switch the metal band saw on again.

1.7.2 Saw arch

The arch of the metal band saw is provided with a protective cover. The protective cover protects the belt guide pulleys and the rotating saw belt.

INFORMATION

The metal band saw only switches on when the protective cover is being closed.

WARNING!

Danger of injury! The teeth of the saw belt are sharp. Take great care when opening the protective cover to change the saw blade.

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

1.7.3 Saw belt guide

Refit the protective covers after each exchange of the saw blade.

1.7.4 Prohibition, warning and mandatory signs

INFORMATION

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

1.8 Safety check

Check the metal band 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 band 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	When the Emergency-stop push button is activated, the metal band saw must switch off.	
Position switch Protective cover saw arch	The metal band saw only switches on when the protective cover is being closed.	
Date:	**checked by (signature):**	

1.9 Personal protective equipment

For some works you need personnel protective equipment 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 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.

1.10 Safety during operation

CAUTION!

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

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.

WARNING!

Before switching on the metal band 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 instructions mentioned in these operating instructions have to be strictly observed during assembly, operation, maintenance and repair.
- Do not work on the metal band 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 responsible for your company.
- Stay at the metal band 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.

1.11 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.

1.11.1 Disconnecting and securing the metal band saw

Disconnect the metal band saw from the electrical supply.

Attach a warning sign on the machine.

1.11.2 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 responsible for your company.

Fasten the loads properly.

Never walk under suspended loads!

1.11.3 Mechanical maintenance work

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

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

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

Check if they are working properly!

1.12 Accident report

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

There are many possible causes for "near misses".

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

INFORMATION

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

1.13 Electronics

Have the machine and/or the electric equipment checked regularly. 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 band 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.

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.

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).

1.14 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 data

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

Electrical connection	S275N	S275NV
Connection	3 x 400 V; 50 Hz; 1.1 KW	230 V; ~50 Hz; 1.5 KW

Cutting area	S275N	S275NV
	☞ Possible cutting areas S275N and S275NV on page 31	

General	S275N	S275NV
Cutting angle adjustment	using the rotating saw arch 0° - 60°	
Saw belt guide	Saw belt guides supported on ball bearings	
Raising the saw arch	manually	
Feed	continuously adjustable	
Saw band tension	Manually using the hand wheel	

Dimensions	S275N	S275NV
Weight of the metal band saw [kg]	185	
Dimensions of saw blade [mm]	2480 x 27 x 0.9	
	☞ Dimensions S275N | S275NV on page 20	

Speed of saw belt	S275N	S275NV
[m/min]	45 | 90	20 - 90
Transmission ratio drive / saw belt pulley [~50 Hz]	1.30	1:20
Transmission ratio drive / saw belt pulley [~60 Hz]	01:40	1:20

Coolant pump	S275N	S275NV
Power	90 W	90 W
Speed [min^{-1}]	2850	2850
Tank capacity [liter]	10	10

Operating material	S275N	S275NV
Hydraulic cylinder	Hydraulic oil, viscosity 32 - 46 as per DIN 51519, HLP Quality	
Helical gear	Mobilgear 636, viscosity 680 mm^2/s (about 0,33 liters)	
Spindle of the machine vice	Commercial lubricating grease	

Operating material	S275N	S275NV
Slide bearing	Commercial lubricating grease	
Coolant equipment	Commercial lubricating and cooling agent	

Environmental conditions	S275N	S275NV
Temperature	5-35 °C	
Humidity	25 - 80 %	

2.1 Emissions

The generation of noise emitted by the metal band saw is 73 dB(A) at idle.
If the metal band saw is installed in an area where various machines are in operation, the noise exposure (immission) on the operator of the metal band saw at the working place 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 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 machine operator to evaluate the hazards and risks more easily.

CAUTION!

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

We generally recommend the use of noise protection and hearing protection.

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 Unpacking the machine

Transport the metal band saw in its packing crate to a place near its final installation location with a forklift before unpacking it.
If the packaging shows signs of possible transport damage, take the necessary precautions not to damage the machine when unpacking. If any damage is discovered, the carrier and/or shipper must immediately be notified of this fact to establish any claim which might arise.

Inspect the machine completely and carefully, making sure that all materials, such as shipping documents, manuals and accessories supplied with the machine have been received.

Compare the delivery volume with the delivery note.

3.3 Requirements regarding the installation site

Organize the working area around the metal band saw according to the local safety regulations.

INFORMATION

In order to attain good functionality and a high processing accuracy as well as a long service life of the machine, the place of installation should fulfil certain criteria.

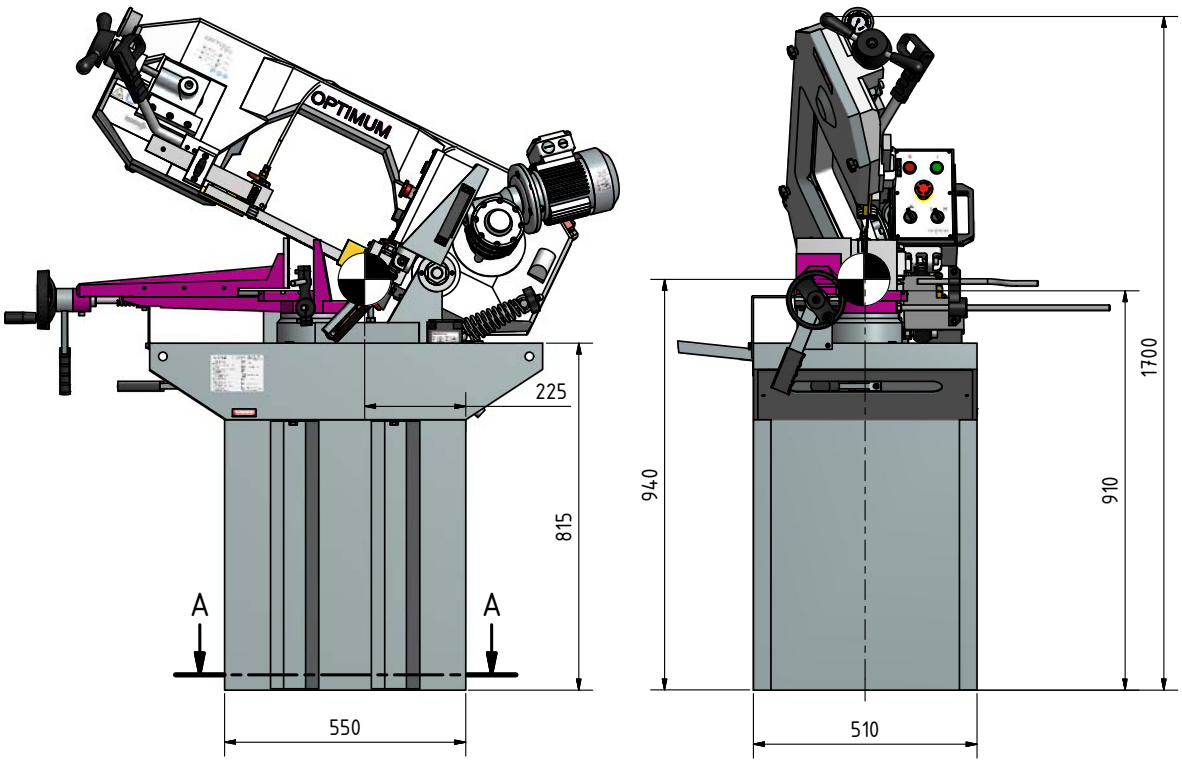
Please observe the following points:

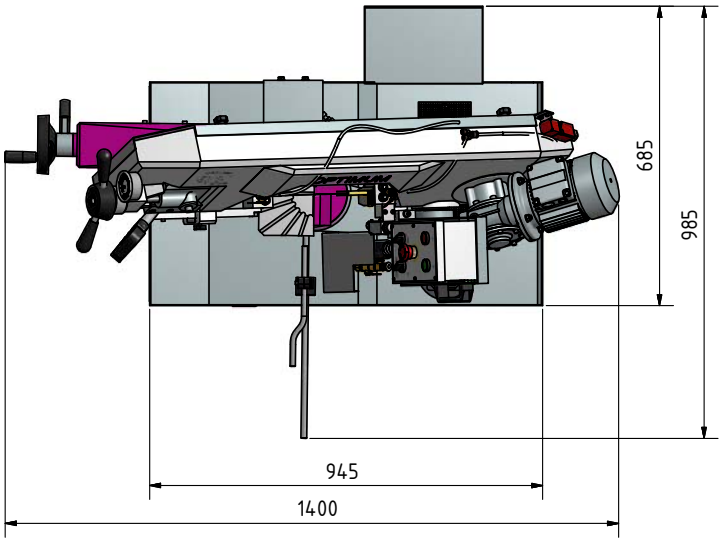
- The device must only be installed and operated in a dry and well-ventilated place.
- Avoid places nearby machines generating chips or dust.
- The installation site must be free from vibrations also at a distance of presses, planing machines, etc.
- The substructure must be suitable for the metal band saw. Also make sure that the floor has sufficient load bearing capacity and is level.
- The ground must be prepared in a way that potential coolants cannot penetrate the floor.
- Any parts sticking out such as stops, handles, etc. have to be secured by measures taken by the customer if necessary in order to avoid endangering persons.
- Provide sufficient space for the personnel preparing and operating the machine and transporting the material.
- Also make sure the machine is accessible for setting and maintenance works.
- Provide for sufficient backlight (Minimum value: 500 lux, measured at the tool tip). At lower illumination intensities, additional illumination has to be ensured e.g. by means of a separate workplace lamp.

INFORMATION

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

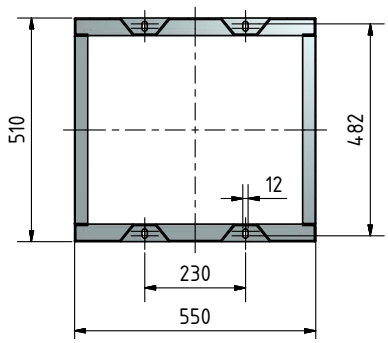
3.4 Dimensions S275N | S275NV





Schwerpunkt / Centre of gravity

A–A



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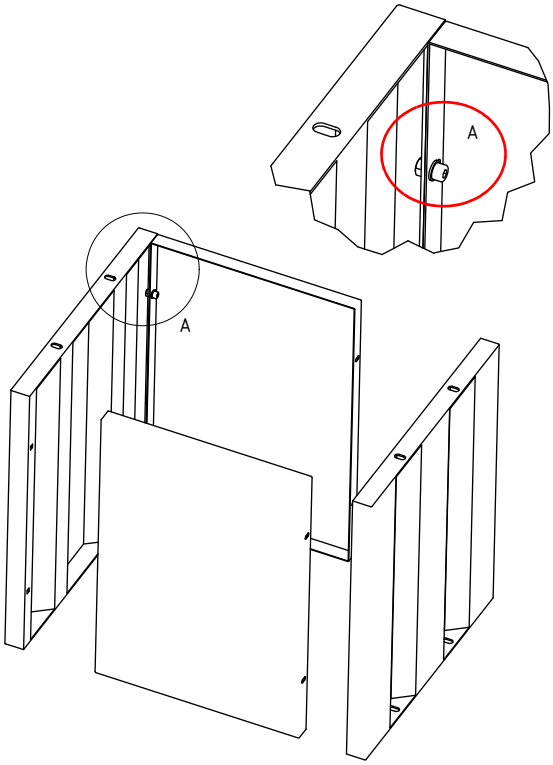
3.5 Assembly

CAUTION!

Danger of crushing and tilting.
Proceed with caution during the work described below.
The metal band saw must be fitted on the machine stand by at least 2 people.

3.5.1 Assembling the machine stand - V1

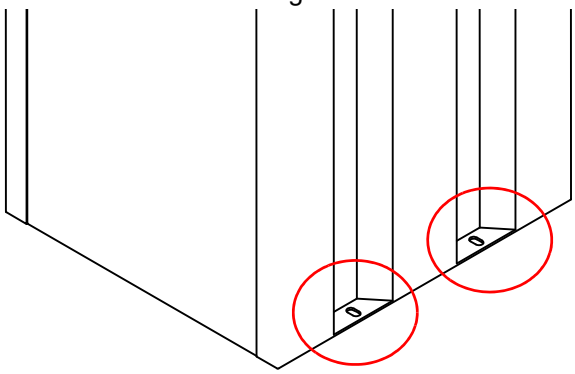
➜ Fit the side panels of the machine stand.



➜ Place the machine stand on an appropriate foundation.

➜ Check if the underground of the metal band saw is level using a spirit level. Compensate existing unevenness.

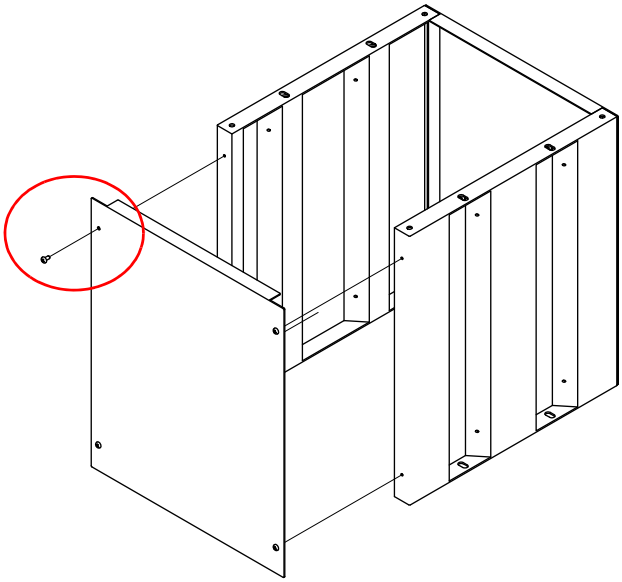
➜ Fasten the machine stand to the ground.



➜ Place the metal band saw on the machine stand.

3.5.2 Assembling the machine stand - V2

➜ Fit the side panels of the machine stand.



➜ Place the machine stand on an appropriate foundation.

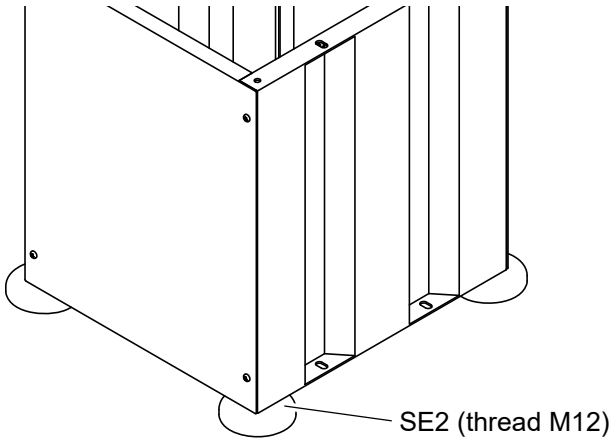
➜ Check if the underground of the metal band saw is level using a spirit level. Compensate existing unevenness.

➜ Fasten the machine stand to the ground.

➜ Place the metal band saw on the machine stand.

3.5.3 Fit optional levelling disc SE2

Only possible in conjunction with machine base V2.



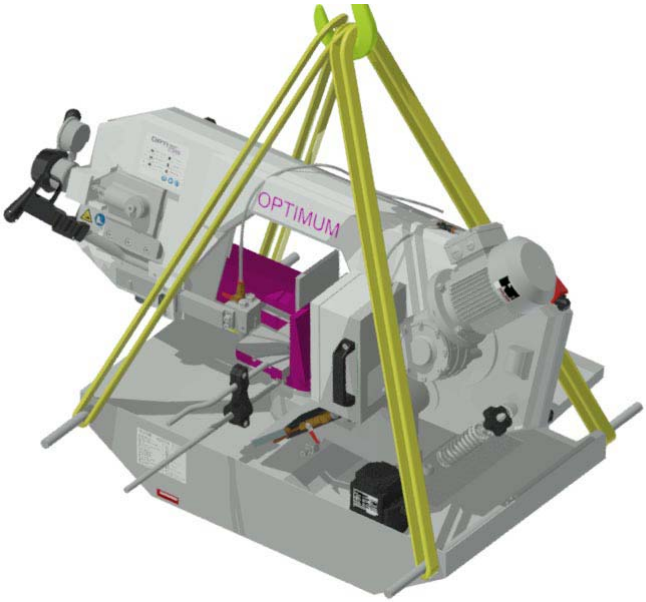
3.5.4 Load suspension point

DANGER!

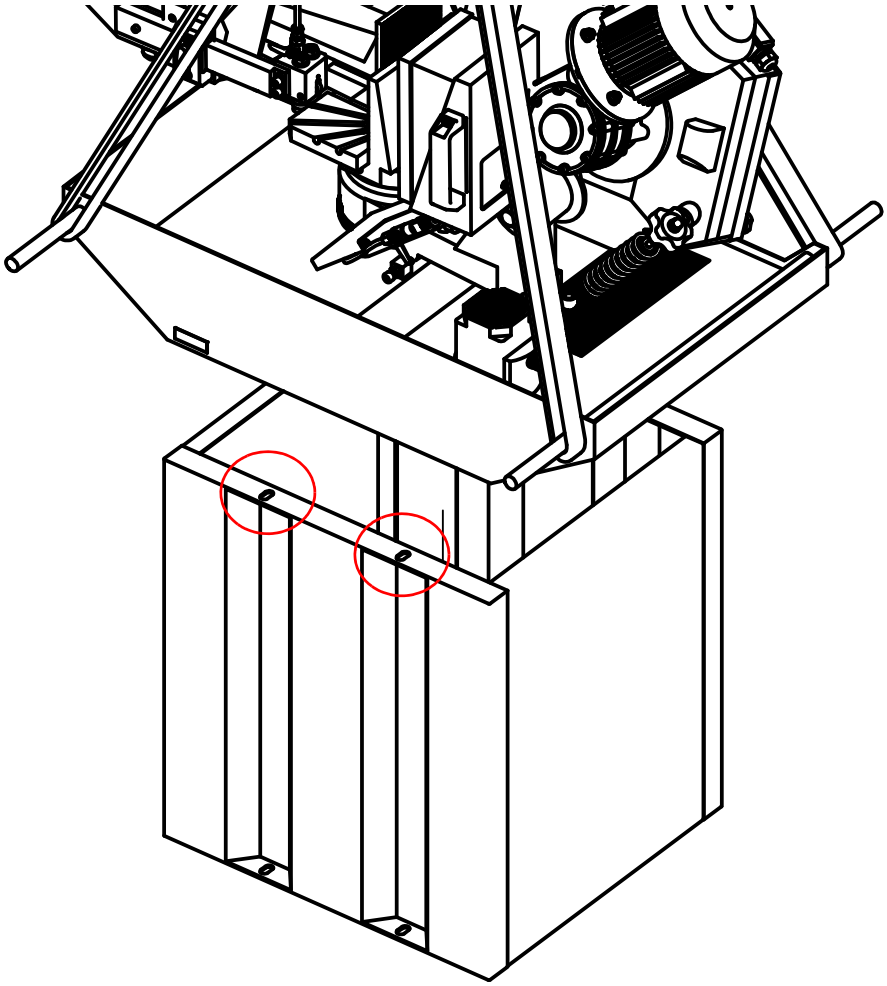
Danger of crushing and overturning. The metal band saw must be installed by several persons.

S275N_S275NV_GB_3.fm

➜ Insert steel rods through the holes in the chip tray. Attach lifting slings on both sides of the steel rods.

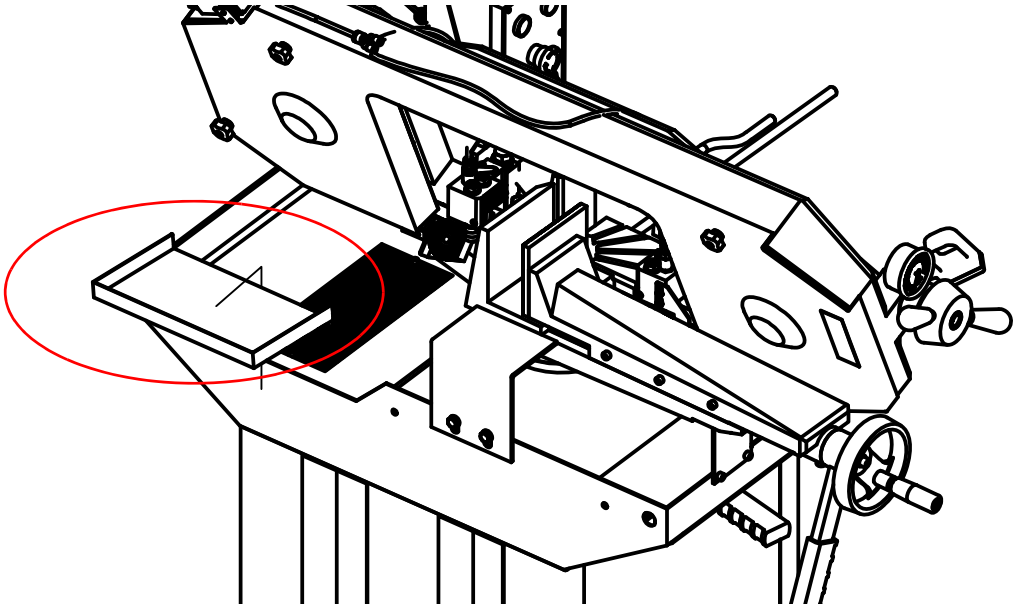


➜ Screw the metal band saw to the machine stand.



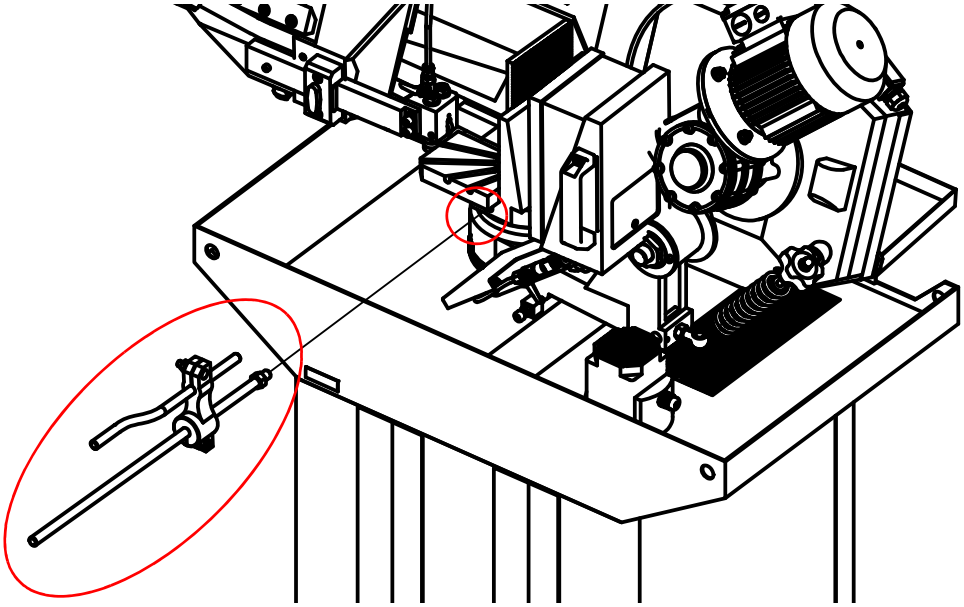
3.5.5 Drip pan

➜ Attach the collecting tray on the chip tray.



3.5.6 Material stop

➜ Turn the stop bar into the threaded hole and clamp the stop bar with the nut.



3.6 Electrical connection

3.6.1 Electrical connection S275N

WARNING!

The three-phase electrical connection of the S275N may only be performed by an electrician or under the guidance and supervision of an electrician.

☞ Qualification of personnel on page 9
☞ Schaltplan - Wiring diagram 400V - S275N - Einkanalig - Single channel on page 55
☞ Schaltplan - Wiring diagram 400V - S275N - Zweikanalig - Double channel on page 56

CAUTION!

Install the connection cable of the machine in such a way that people will not stumble over it.

➜ Connect the three-phase electric cable to the machine.

➜ Check the fusing (fuse) of your electrical supply.
Fusing 10A - 16A

ATTENTION!

Ensure that all 3 phases (L1, L2, L3) and the ground wire are connected correctly. The neutral conductor (N) of its power supply is not connected.

If the machine is already equipped with a three-phase connector, when connected to your rotary power the rotation direction can be wrong.

3.6.2 Electrical connection S275NV

CAUTION!

Install the connection cable of the machine in such a way that people will not stumble over it.

The machine is installed and ready to operate. Please verify if the type of current, voltage and protection fuse correspond to the values specified. A protective earth ground wire connection must be available. Main Fuse 16A.

Protective earthing conductor current

The earth leakage current of the inverter may exceed 3.5 mA AC. Due to this, a fixed earth connection is required and the minimum size of the protective earth conductor shall comply with the local safety regulations for high leakage current equipment. The inverter has been designed to be protected by fuses; however, as the inverter can cause a DC current in the protective earthing conductor, if a Residual Current Device (RCD) is to be used upstream in the supply, observe the following:

The single phase AC 230 V inverters (filtered or unfiltered) can be operated on a type A1) 30 mA or type B(k) 30 mA RCD.

3.7 First commissioning

WARNING!

The machine may only be commissioned after proper installation.

When first commissioning the metal band saw by inexperienced staff you endanger people and the machine. We do not accept any liability for damages caused by incorrectly performed commissioning.

CAUTION!

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

Inspecting the belt guide pulleys

➜ Check if the saw blade is mounted correctly onto the belt guide pulleys.

➜ Check that the saw belt fits snugly inside the guide bearings.

➜ Check the tension of the saw belt. Proper blade tension is reached when the saw band has been stretched to the green mark on the gauge.

Direction of the saw teeth

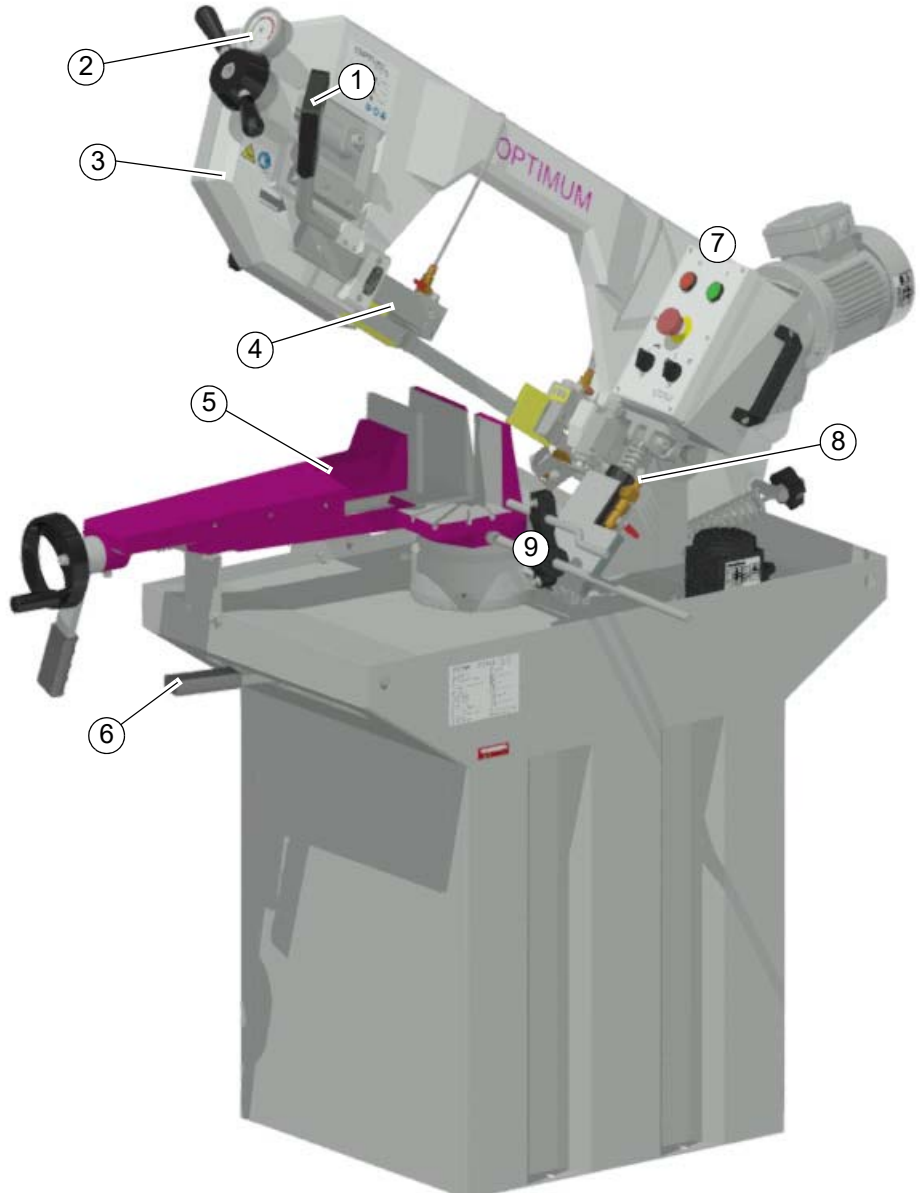
➜ Control the direction of the saw teeth. The saw teeth have to point to the drive engine.

Running direction of the saw belt

➜ The running direction of the saw blade is counter-clockwise.

4 Operation

4.1 Control and indicating elements



Pos.	Designation	Pos.	Designation
1	Handle	2	Saw band tension
3	Saw arch	4	Adjustable saw belt and coolant hose guide
5	Quick-action vice	6	Clamping lever angular adjustment saw arch
7	Control panel	8	Feed regulation valve
9	Sawing stop		

4.2 Safety

Use the metal band saw only under the following conditions:

- The metal band saw is in proper working order.
- The metal band saw is used as prescribed.
- The operating manual is 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.

☞ Safety during operation on page 13

4.3 Inserting the workpiece

➜ Raise the saw arch.

➜ Close the stop cock to secure the arch in a given position.

Img.4-1: Hydraulic feed

➜ Place the piece to be cut in the workholder vice.

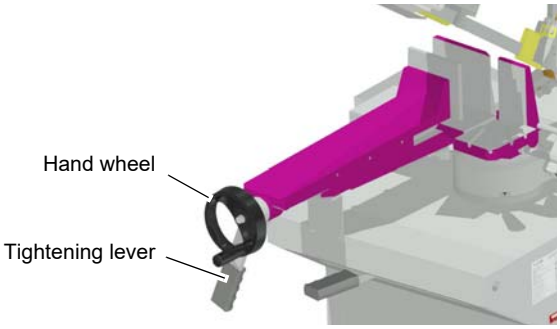
CAUTION!

Danger of tilting. Support long work pieces before pushing the piece to be cut into the work-holder vice.

The saw arch can be regulated with continuous advance for angular cuts.

➜ Position the clamp approximately 4 mm in front of the piece by turning the hand wheel.

➜ Secure the piece using the tightening lever.



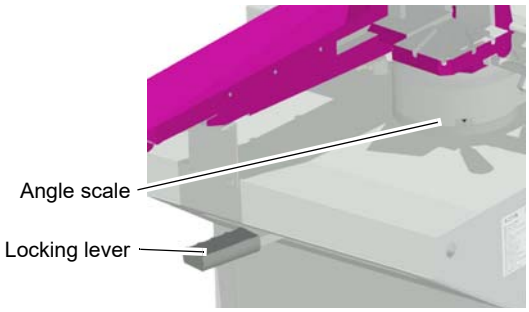
Img.4-2: Hand wheel and tightening lever

4.4 Setting of angle cut

➜ To adjust angular cuts, place the locking bar of the saw arch in the left-hand position.

➜ Turn the saw arch to the required cutting position.

➜ The scale which you need to adjust the angle is on the bearing support.



Img.4-3: Locking lever

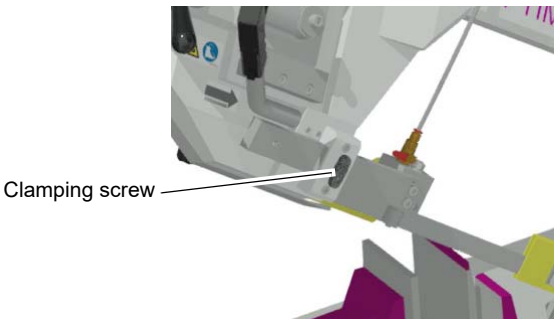
➜ Lock the adjustment by moving the locking lever to the right.

4.5 Adjusting the saw belt guide

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

➜ Loosen the clamping screw.

➜ Adjust the saw belt guidance close to the workpiece without influencing or hindering the sawing procedure.



Img. 4-4: Saw belt guide

➜ Retighten the clamping screw.

ATTENTION!

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

4.6 Switching on the machine

➜ Check that the Emergency-stop switch is not pressed or unlocked. Turn the Emergency-stop switch to the right in order to unlock it.

➜ Actuate the push button „ON“.

4.7 Switching off the machine

➜ Actuate the push button "OFF".

➜ Disconnect during an extended standstill the power plug.

CAUTION!

The emergency stop switch may only be activated in an emergency. A normal shut-down of the machine must not be executed using the emergency stop switch.

4.8 Resetting an emergency stop condition

➜ Unlock the emergency stop switch again.

4.9 Adjusting the speed of the saw belt

4.9.1 Selector switch / speed controller

There are two speeds at your disposal on S275N.

L - slow

H - rapid

The speed setting on S275NV is infinitely variable.

ATTENTION!

Wait until the saw blade has come to a complete halt before changing the speed using the selector.

4.9.2 Saw belt speeds

Guidelines values for cutting speeds [m / min] :

Material	[m / min]	Feed motion per tooth [mm]	Material	[m / min]	Feed motion per tooth [mm]
C10, C15, St34, St37, Steels up to 500 N/mm^2	30 - 50	0.03 - 0.06	Aluminium and alloy aluminium (solid material)	600 - 900	0.04 - 0.09
C20, C40, 15Cr3, 16MnC35, Steels up to 800 N/mm^2	20 - 40	0.03 - 0.04	Aluminium and alloy aluminium (profiles)	800 - 1200	0.03 - 0.07
38NCD4, 50CrV4, Steels up to 1200 N/ mm^2	15 - 25	0.02 - 0.03	Bronze and Copper	200 - 300	0.04 - 0.06
Stainless steels	10 - 30	0.01 - 0.03	Brass	400 - 600	0.04 - 0.08
Cast iron	30 - 50	0.04 - 0.05	Synthetic materials	60 - 150	0.04 - 0.08

☞ General information concerning saw bands on page 32

4.10 Coolant equipment

WARNING!

Ejection of coolants and drainage of coolant over long workpieces on the floor. Make sure you do not get the cooling lubricants on the floor. Spilled on the floor cooling agents must be removed immediately.

ATTENTION!

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

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 cooling units by pressing the switch.

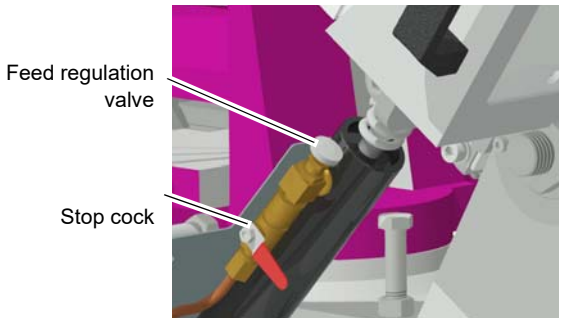
4.11 Starting the metal band saw

➜ Start the metal band saw by pressing the green button.

4.12 Hydraulic feed

➜ Adjust the down speed of the saw arch with the feed regulation valve.

➜ Open the stop cock.



Img.4-5: Hydraulic feed

The belt saw automatically switch off when you reach your end position.

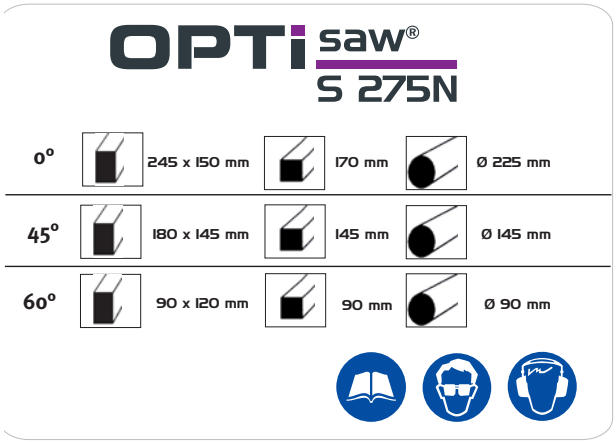
Follow the same steps in reverse order to remove the work piece from the vice.

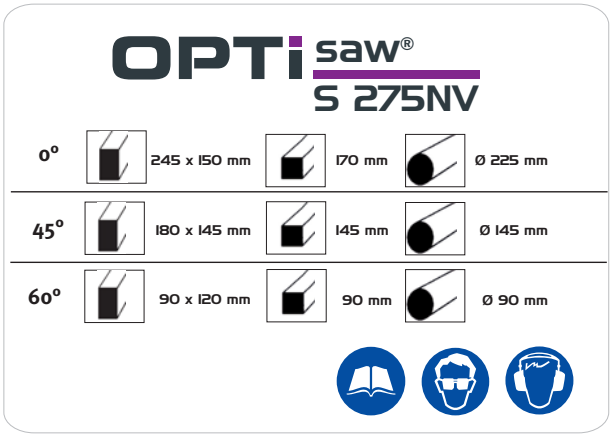
EMPIRICAL RULE !

The finer the tooth spacing and/or the thinner or smaller the work piece, the lower the feed should be.

4.13 Cutting area

Possible cutting areas S275N and S275NV





S275N_S275NV_GB_4.fm

4.14 General information concerning saw bands

In order to achieve an optimum service life with a new saw band, it is necessary to run-in the saw band carefully.

The excessively sharp cutting edges of the saw teeth of a new saw blade are sensitive against small splinters coming off.

It is recommended to start sawing with up to 50% of the standard cutting pressure and only increase the cutting pressure to standard level after about 10 to 15 minutes of cutting period respectively 300 to 500 cm² of cut edge.

4.14.1 Spacing

The toothing indicates the number of teeth on one Inch (25,4mm).

General rule: The shorter the cutting length, the finer the toothing, the larger the cutting width, the rougher the toothing to be used.

For an optimum performance of the cutting operation, apart from the steel quality, the number of teeth as well as the shaping of the cutting edge is essential.

The geometric shape of the cutting edge and of the tooth root surface is depending on the material to be cut and essentially influences the cutting behaviour of the metal band saw. We recommend you four shapes of teeth to fulfil your cutting requirements:

Full-length tooth

Effective cutting angle 0°: Full fillet radius tooth root surface. Universally applicable from little to middle cross sections, tubes, plates, profile cuts.

Special tooth for gaps

Effective cutting angle 0°: Little addendum of tooth, plane tooth root surface. Recommended for the cutting of rough material of larger cross sections, such as for instance bronze, brass, zinc, aluminium cast, rough plastics.

Throat claw

Positive effective cutting angle: With full fillet radius tooth root surface. Advantageous for cutting of oversized material, i.e. non-ferrous metals, steels with low carbon content, materials with large cross sections, metal materials which are susceptible to cold-work hardening when cutting.

Combined tooth

Toothing with 0° (N), positive (Plus) or extremely positive (Super Plus) effective cutting angle: Permanently repeating tooth groups whose teeth within a group have different tooth pitch and are therewith higher. The interfering oscillations are being reduced with a positive result on the noise level, the quality of the cut surface and the tool life. The field of application of this toothing is universal from layer and bundle cut up to the large cross sections of the different metal materials.

Toothing pitch when using HSS Bi metal bands

Standard toothing		Combined tooth	
Material Cross section [mm]	Number of teeth per Inch (tooth shape) [teeth per Inch]	Material Cross section [mm]	Number of teeth per Inch (tooth shape) [teeth per Inch]
< 12	14 (N)	< 25	10 - 14 (0°)
12 - 30	10 (N)	20 - 40	8 - 12 (0°)
30 - 50	8 (N)	25 - 70	6 - 10 (0°)
50 - 80	6 (N)	35 - 90	5 - 8 (0°)
80 - 100	4 (Kl.)	50 - 100	4 - 6 (positive)
110 - 200	3 (Kl.)	80 - 150	3 - 4 (positive)
110 - 200	3 (Kl.)	120 - 350	2 - 3 (positive)
200 - 400	2 (Kl.)	250 - 600	1.33 - 2 (positive)
< 400	1.25 (Kl.)	500 - 3000	0.75 - 1.25 (positive)

Cutting of tubes and profiles							
Diameter	< 40	80	100	150	200	300	500
Wall thickness	Spacing						
3	8 - 12	8 - 12	8 - 12	8 - 12	6 - 10	6 - 10	6 - 10
8	8 - 12	6 - 10	6 - 10	5 - 8	4 - 6	4 - 6	3 - 4
12	6 - 10	5 - 8	5 - 8	4 - 6	4 - 6	4 - 6	3 - 4
15	5 - 8	4 - 6	4 - 6	4 - 6	3 - 4	3 - 4	2 - 3
20	-	4 - 6	4 - 6	3 - 4	3 - 4	3 - 4	2 - 3
30	-	3 - 4	3 - 4	3 - 4	2 - 3	2 - 3	2 - 3
50	-	-	-	3 - 4	2 - 3	2 - 3	1.33 - 2
100	-	-	-	-	2 - 3	1.33 - 2	0.75 - 1.25
120	-	-	-	-	1.33 - 2	0.75 - 1.25	0.75 - 1.25

4.14.2 Set of saw teeth

In order to achieve cutting free when sawing, the individual teeth are reciprocally bent off the blade platform. The kind of set of saw teeth is depending on the cross section of the material to be cut, the shape of material and the material.

Standard set of saw teeth

Appropriate for sawing all materials when there are at least 3 teeth came in simultaneously. Application area from 5 mm on.

Set of saw teeth right/left

To saw soft materials (non-ferrous metals, plastics, wood)

Group of set of saw teeth

A development to almost oscillation-free sawing of thin material cross sections, i.e. tubes and profiles. Due to the inclined teeth in a series of set of saw teeth, smooth cut surfaces for increased cutting speeds are being achieved.

Wave-shape set of saw of teeth

A special set of saw teeth for thinnest material cross sections of up to 5 mm, i.e. thin-walled tubes, profiles, plates, etc.

Set of a saw teeth combined tooth

The groups of teeth which are repeating throughout the band length show one or more straight teeth whereas the other teeth are sets of cut teeth right/left.

4.14.3 Recommended saw band speeds

mm	< 40	80	100	150	200	300	500				
mm	25,4mm / 1 Zoll (inch)			variable / Zoll (inch)				mm	constant / Zoll (inch)	mm	variable / Zoll (inch)
3	10 - 14	8 - 12	8 - 12	8 - 12	6 - 10	6 - 10	6 - 10	< 12	14	< 25	10 - 14
8	8 - 12	6 - 10	6 - 10	5 - 8	4 - 6	4 - 6	3 - 4	12 - 30	10	20 - 40	8 - 12
12	6 - 10	5 - 8	5 - 8	4 - 6	4 - 6	4 - 6	3 - 4	30 - 50	8	25 - 70	6 - 10
15	5 - 8	4 - 6	4 - 6	4 - 6	3 - 4	3 - 4	2 - 3	50 - 80	6	35 - 90	5 - 8
20	—	4 - 6	4 - 6	3 - 4	3 - 4	3 - 4	2 - 3	80 - 100	4	50 - 100	4 - 6
30	—	3 - 4	3 - 4	3 - 4	2 - 3	2 - 3	2 - 3	110 - 200	3	80 - 150	3 - 4
50	—	—	—	3 - 4	2 - 3	2 - 3	1,33 - 3	200 - 400	2	120 - 350	2 - 3
100	—	—	—	—	2 - 3	1,33 - 2	0,75 - 1,25	300 - 700	1,25	250 - 600	1,33 - 2

Chips as an indicator

The sawing chips are the best indicator for the correct adjustment of the feed and of the speed of the saw band. Have a look at the chips which you have produced and adjust the feed correctly.

Thin chips which look like powder. ➜ Increase the feed or reduce the speed of the saw band.	
Burnt, heavy chips. ➜ Reduce the feed and/or the speed of the saw band.	
Gathered, silver and warm chips. ❍ Optimum feed and Speed of saw band	

[m/min] / [feet/min]	DIN			AISI/SAE/ASTM			JIS	
Baustähle / Vergütungsstähle (Carbon steel)								
	St50-2	1.0050	A570 Gr.50	1035	S20C	SUM21
	C22	1.0402	A572 Gr.50	1040	S22C	SUM22
	C35	1.0501	A588	1045	S25C	SUM23
	C45	1.0503	A633 Gr.C	1117	S28C	SUM31
	St52-3	1.0570	M1020	1137	S30C	SUM41
	9SMn28	1.0715	M1023	1141	S33C	SUM42
	Ck22	1.1151	1020	1144	S35C	SUM43
	Ck25	1.1158	1023	1212	S40C	SM490A
	Ck40	1.1186	1025	1213	S45C	SS490
Baustähle / Einsatzstähle (Carbon steel)						
	St37-2	1.0037	A570 Gr.36	1049	S10C	SMn420
	St44-2	1.0044	A570 Gr.40	1050	S15C	SMnC433
	St60-2	1.0060	A572 Gr.65	1055	S55C	SNC236
	C10	1.0301	A366	3310	SCM415	SNCM220
	C15	1.0401	M1010	3415	SCM418	SNCM240
	Ck55	1.1203	M1015	5115	SCr415	SPCC
	Ck50	1.1206	M1016	8620	SCr420	SN400A
	16MnCr5	1.7131	M1017	8740	SM400A	SS400
	16CrMo4	1.7242	1008	9314	SM570	STKM12A
Legierte, unlegierte Vergütungsstähle (Carbon steel / Alloy steel)						
	C60	1.0601	1060	4337	S58C	SCr445
	Ck60	1.1221	1064	4340	SCM421	SMnC420
	14NiCr14	1.5752	3310	5120	SCM432	SNC815
	40NiCrMo6	1.6565	3415	5132	SCM440	SNCM431
	34Cr4	1.7033	4135	5134	SCM445	SNCM439
	37Cr4	1.7034	4137	5140	SCM822	SNCM447
	20MnCr5	1.7147	4140	9314	Scr430	SNCM645
	34CrMo4	1.7220	4142	9850	SCr435	SCCrM3
	42CrMo4	1.7225	4150	A355 Cl.A.	SCr440	SMP7
Kaltarbeitsstahl (Cold work tool steel)						
	C105W1	1.1545	W1	M2	SK3	SUP9
	X155CrVMo12-1	1.2379	W108	M33	SKS93	SUP10
	55NiCrMoV6	1.2713	W110	T1	SKS94	SUP13
	S6-5-2-5	1.3243	A2	1075	SKS95	SUJ1
	S6-5-2	1.3343	D2	5155	SKT4	SUJ2
	S18-0-1	1.3355	L3	5160	SKD11	SUP303
	100Cr6	1.3505	L6	6150	SKH2	SUP303Se
	X10CrNi1812	1.4305	303	9260	SKH51	SNCM630
	55Cr3	1.7176	303Se	52100	SKH55	SNCM815
Warmarbeitsstahl / Nichtrostender Stahl (Hot work tool steel / Stainless steel)						
	X210Cr12	1.2080	304	430Ti	SUS304	SUS431
	40CrMnMo7	1.2311	304L	431	SUS304L	SUS440C
	X40CrMoV5-1	1.2344	304H	439	SUS316	SUS630
	105WCr6	1.2419	305	440C	SUS316L	SUS631
	X15Cr13	1.4024	308	630	SUS316Ti	SCS24
	X20CrNi172	1.4057	316	XM8	SUS321	SCS19
	X5CrNi1810	1.4301	316L	D3	SUS405	SKD1
	X6CrNiTi18-10	1.4541	316Ti	H13	SUS410	SKD61
	X6CrNiMoTi17-12-2	1.4571	321	M42	SUS430	SKH59
Hitze- und zunderbeständige Stähle (High grade alloy steel)						
	X45CrNiW18-9	1.4873	A-286	Ti-13-11-3	A-286	SUH1
	X5NiCrTi26-15	1.4980	HASTELLOY	Ti-6-2-4-2	HASTELLOY	SUH3
	NiCr20TiAl	2.4631	INCOLOY	Ti-6-2-4-6	INCOLOY	SUH31
	NiCo20Cr15MoAlTi	2.4634	INCONEL	Ti-6-4	INCONEL	SUH36
	NiCo20Cr20MoTi	2.4650	MONEL	Ti-6-6-2	MONEL	SUH37
	NiCr19Co14Mo4Ti	2.4654	NIMONIC		NIMONIC	SUH38
	NiCr22Fe18Mo	2.4665	Udemet	309	Udemet	SUH309
	NiCr19NMo	2.4668	WASPALOY	446	WASPALOY	SUH446
	LT31	3.7165			Ti-6-4	SUH616
Aluminiumlegierungen / Kupferlegierungen (Aluminium alloy / Copper alloy)						
	AlMg3	3.3535				
	E-Cu 57	2.0060		173 , 932		
Grauguß / Temperguß (Gray cast iron / Malleable cast iron)						
Plastik (Plastic)						

[mm]	200 x 150	300 x 200	ø 100 x 5	ø 50 x 3	50	100	200	300	400	500
[m/min]	48 ~ 72	41 ~ 61	52 ~ 78	52 ~ 78	48 ~ 72	48 ~ 72	48 ~ 72	48 ~ 72	43 ~ 65	39 ~ 58
[feet/min]	157 ~ 236	135 ~ 200	171 ~ 266	171 ~ 266	157 ~ 236	157 ~ 236	157 ~ 236	157 ~ 236	141 ~ 213	127 ~ 190
[m/min]	44 ~ 66	37 ~ 56	48 ~ 71	48 ~ 71	44 ~ 66	44 ~ 66	44 ~ 66	44 ~ 66	39 ~ 59	35 ~ 52
[feet/min]	144 ~ 217	121 ~ 184	157 ~ 233	157 ~ 233	144 ~ 217	144 ~ 217	144 ~ 217	144 ~ 217	128 ~ 194	115 ~ 170
[m/min]	——	——	43 ~ 65	43 ~ 65	40 ~ 60	40 ~ 60	40 ~ 60	40 ~ 60	35 ~ 53	31 ~ 46
[feet/min]	——	——	141 ~ 213	141 ~ 213	131 ~ 197	131 ~ 197	131 ~ 197	131 ~ 197	115 ~ 174	102 ~ 151
[m/min]	——	——	30 ~ 45	30 ~ 45	28 ~ 42	28 ~ 42	28 ~ 42	28 ~ 42	25 ~ 38	25 ~ 34
[feet/min]	——	——	98 ~ 148	98 ~ 148	92 ~ 138	92 ~ 138	92 ~ 138	92 ~ 138	82 ~ 125	82 ~ 112
[m/min]	——	——	29 ~ 43	29 ~ 43	24 ~ 36	24 ~ 36	24 ~ 36	22 ~ 32	19 ~ 29	17 ~ 26
[feet/min]	——	——	98 ~ 148	98 ~ 148	79 ~ 138	79 ~ 138	79 ~ 138	72 ~ 105	62 ~ 95	56 ~ 85
[m/min]	——	——	——	——	——	8 ~ 18	8 ~ 18	7 ~ 16	——	——
[feet/min]	——	——	——	——	——	26 ~ 59	26 ~ 59	23 ~ 52	——	——
[m/min]	70 ~ 150		[feet/min]	230 ~ 492						
[m/min]	33 ~ 80		[feet/min]	108 ~ 262						
[m/min]	67		[feet/min]	220						

5 Maintenance

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.

5.1 Safety

WARNING!

The consequences of incorrect maintenance and repair work may include:
- **very serious injury to personnel working on the metal band saw,**
- **damage to the metal band saw.**

Only qualified staff should carry out maintenance and repair work on the metal band saw.

Electrical systems and operating materials may only be installed, modified and repaired by a trained electrician or supervised and under the control of a trained electrician and must comply with electrotechnical regulations.

WARNING!

Do not climb onto or into the machine while working.

5.1.1 Preparation

WARNING!

Only work on the metal band saw when the mains plug is disconnected.

Attach a warning sign.

5.1.2 Restarting

Before restarting, run a safety check.☞ Safety check on page 12

WARNING!

Before starting the machine, you must check that there is no danger for persons and that the machine is not damaged.

5.1.3 Cleaning

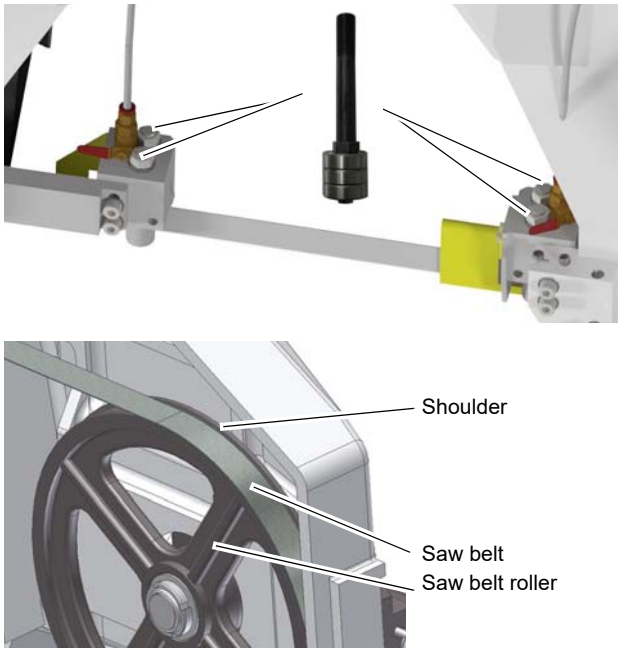
CAUTION!

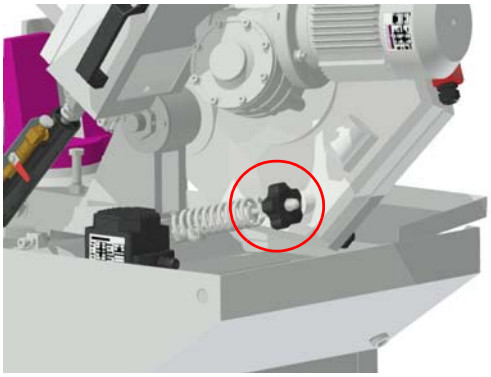
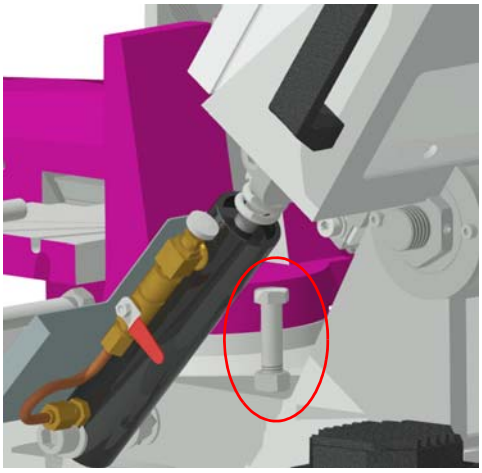
Use a chip hook for removal of chips and wear suitable protective gloves.

5.2 Checkup, inspection and maintenance

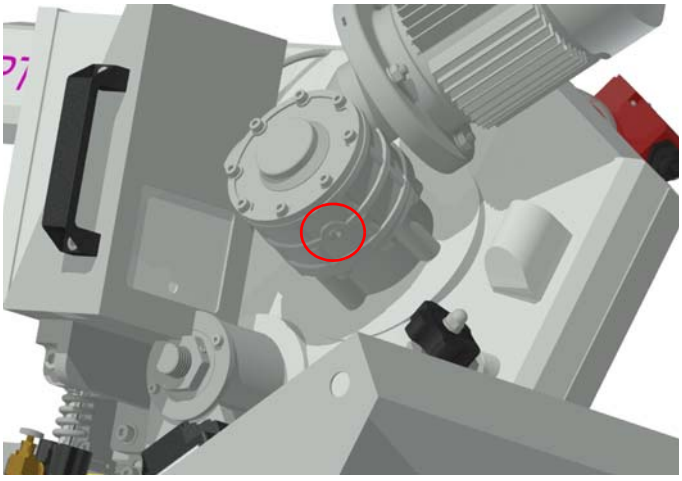
The type and level of wear depends to a large extent on the individual usage and operating conditions. Any indicated intervals therefore are only valid for the corresponding approved conditions.

Interval	Where?	What?	How?
As required and after changing the saw belt	**Saw arch**	Adjusting the saw belt tension Adjusting the position of the saw belt on the saw belt rollers	The saw belt is being tensed with the handwheel. ➜ Turn the handwheel clockwise to increase the tension in the saw belt. ➜ The correct saw band tension is reached when the saw band has been tensioned in the green area of the pressure gauge.  Img.5-1: Saw belt tension

Interval	Where?	What?	How?
As required and after changing the saw belt	**Saw arch**	Adjusting the saw belt tension Adjusting the position of the saw belt on the saw belt rollers	➜ The saw belt must fit on the shoulder of the two saw belt rollers when running. ➜ If necessary, use the eccentric bolts on which the guide bearings are located to adjust the saw band run. Adjusting the front and rear guide bearings in opposite directions allows you to make adjustments. If the counter-rotating adjustment is unsuccessful, an offset can also be achieved with additional sheet metal strips at the fastening points. Adjustments should only be made with a new saw band. Crooked sawn-off parts are usually caused by a worn saw blade, an unsuitable tooth pitch and/or an unsuitable tooth set depending on the material to be sawn, or an unsuitable feed.  Img.5-2: Saw belt roller

Interval	Where?	What?	How?
If crooked cuts are occurring, if teeth break out, if the belt guidance rollers are deformed or breaking.	**Saw arch**	Adjusting of the saw arch pressure	➜ Place the saw arch in the upper position and close the stop cock on the hydraulic cylinder. ➜ Place a weighing machine in the work-holder vice. ➜ Let the saw arch descend slowly. ➜ Fully open the stop cock on the hydraulic cylinder once the saw belt has made contact with the weighing machine. ➜ The support force of the saw arch on the weighing machine should come to 15 - 16 kg. ➜ If necessary, correct the value by changing the position of the spring using the adjusting screw.  Img.5-3: Saw arch pressure
If the metal band saw and the cooling pump continue to operate after the sawing process is complete. If the metal band saw and the cooling pump switch off before sawing is terminated.		Adjusting the end stop switch	➜ Turn the screw on the end stop switch up or down so that it comes into contact with the end stop switch when the sawing process finishes.  Img.5-4: End stop switch ➜ Check the end position of the saw arch. The end position of the saw arch must correspond to the switching-off of the end stop switch.
Start of shift after every maintenance or repair work	**metal band saw**	☞ Safety check on page 12	

S275N_S275NV_GB_5.fm

Interval	Where?	What?	How?
Weekly	**Drive shaft**	Bearing	➜ Oiling
every month	**Worm gear**	Inspection	**INFORMATION** **During the first few days in service, the helical gear may become quite hot. If the temperature does not exceed 70ºC, no further measures need be taken.** **This running-in process can improve considerably if a little Molykote G gear paste is added to the oil in the helical gear before the machine is first used. This reduces wear in the flanks of the teeth and increases the useful service life of the gear.**
As required	**Machine vice**	Spindle	➜ Lubricate the spindle of the work-holder vice
Annually	**Drive**	Oil change	➜ Unscrew the oil bleed screw at the bottom of the helical gear. Use an adequate vessel with enough capacity to collect the oil. ➜ Open the filler cap for a better ventilation. ➜ Use viscous gear oil, e.g. Mobil 629  Img.5-5: Helical gear **INFORMATION** **Have the metal band saw run for a few minutes before starting the oil change. The oil warms up and flows more easily through the outlet.**

Interval	Where?	What?	How?
Depending on wear	**Saw arch**	Changing the saw belt	**ATTENTION!** **This metal band saw was designed for use with belts of the following dimensions.** ❍ **27 x 0.9 x 2480 mm** **The use of other saw blades can cause inferior sawing results.** ➜ Place the saw arch in the upper position and close the stop cock on the hydraulic cylinder. ➜ Remove the saw belt brush by unscrewing the lockscrew. ➜ Remove the protective cover of the saw belt guide. ➜ Remove the protective cover from the saw arch. ➜ Loosen the tension of the saw belt by turning the hand wheel anti-clockwise. ➜ Carefully remove the old saw belt. ➜ Fit the new saw blade by inserting it first into the saw belt guide. ➜ Check the running direction and toothing. ☞ Running direction of the saw belt on page 26 ➜ Place the saw belt on the two pulleys so that it is as close as possible to the casing of the saw arch. ➜ Tighten the saw belt. ➜ Run a check as described in ☞ First commissioning on page 25. ➜ For fitting the components, proceed in reverse order. ➜ Proceed a trial run. ➜ Re-fit the protective covers.
As required	**Coolant equipment**	Coolant pump	➜ The coolant pump is almost maintenance-free. Replace at regular intervals and adapted to 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 therefore be sucked back in by the pump, which can lead to destruction of the pump.

5.3 Repair

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 customer service's information or contact Stürmer Maschinen GmbH in Germany who can provide you with a specialist dealer's contact information. 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 repairs are performed by other qualified technical personnel, they must follow the instructions in this operation manual.

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,
- original parts or parts from series expressly authorised by Optimum Maschinen Germany GmbH.

5.4 Cooling lubricants and tanks

CAUTION!

The cooling lubricant can cause diseases. Avoid direct contact with cooling lubricant or parts covered in cooling lubricant.

Cooling lubricant circuits and tanks for water-cooling lubricant mixtures must be completely emptied, cleaned and disinfected as needed, but at least once per year or every time the cooling lubricant is replaced.

If fine chips and other foreign matters are accumulated in the coolant tank, the machine can no longer be correctly supplied with coolant. Furthermore, the lifetime of the coolant pump is reduced.

When processing cast iron or similar materials generating fine chips, cleaning the coolant tank more often is recommended.

Limit values

The cooling lubricant must be replaced, the cooling lubricant circuit and tank emptied, cleaned and disinfected if

- the pH value drops by more than 1 based on the value during initial filling. The maximum permissible pH value during initial filing is 9.3
- there is a perceivable change in the appearance, odour, floating oil or increase of the bacteria to more than 10/6/ml
- there is an increase in nitrite content to more than 20 ppm (mg/1) or nitrate content to more than 50 ppm (mg/1)
- there is an increase in the N-nitrosodiethanolamine (NDELA) to more than 5 ppm (mg/a)

CAUTION!

Comply with the manufacturer's specifications for mixture ratios, hazardous substances, e.g. system cleaners, including their permissible minimum use times.

CAUTION!

Since the cooling lubricant escapes under high pressure, pumping out the coolant by using the existing cooling lubricant pump via a pressure hose into a suitable tank is not recommended.

ENVIRONMENTAL PROTECTION

During work on the cooling lubricant equipment please make sure that

- **collector tanks are used with sufficient capacity for the amount of liquid to be collected.**
- **liquids and oils should not be spilled on the ground.**

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

Collect leakages

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

Disposal

Never dump oil or other substances which are harmful to the environment into 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.

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5.4.1 Inspection plan for water-mixed cooling lubricants

Company: No.: Date: used cooling lubricant			
size to be checked	Inspection methods	Inspection intervals	Procedure and comment
noticeable changes	Appearance, odour	daily	Find and rectify causes, e.g. skim off oil, check filter, ventilate cooling lubricant system
pH value	Laboratory techniques electrometric with pH meter (DIN 51369) Local measurement method: with pH paper (Special indicators with suitable measuring range)	weekly [1)]	if pH value decreases > 0.5 based on initial filing: Measures in accordance manufacturer's recommendations > 1.0 based on initial filing: Replace cooling lubricant, clean cooling lubricant circulation system
Usage concentration	Manual refractometer	weekly [1)]	Method results in incorrect values with tramp oil content
Base reserve	Acid titration in accordance with Manufacturer's recommendation	as required	Method is independent of tramp oil content
Nitrite content	Test sticks method or laboratory method	weekly [1)]	> 20 mg/L nitrite: Replace cooling lubricant or part or inhibiting additives; otherwise NDELA (N-nitrosodiethanolamine) in the cooling lubricant system and in the air must be determined > 5 mg/L NDELA in the cooling lubricant system: Replacement, clean and disinfect cooling lubricant circulation system, find nitrite source and, if possible, rectify.
Nitrate/nitrite content of the preparation water, if this is not removed from the public grid	Test sticks method or laboratory method	as required	Use water from the public grid if there is water from the pubic grid has > 50 mg/l nitrate: Inform the waterworks

[1)] The specified inspection intervals (frequency) are based on continuous operation. Other operational conditions can result in other inspection intervals; exceptions are possible in accordance with Sections 4.4 and 4.10 of the TGS 611.

Editor:

Signature:

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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

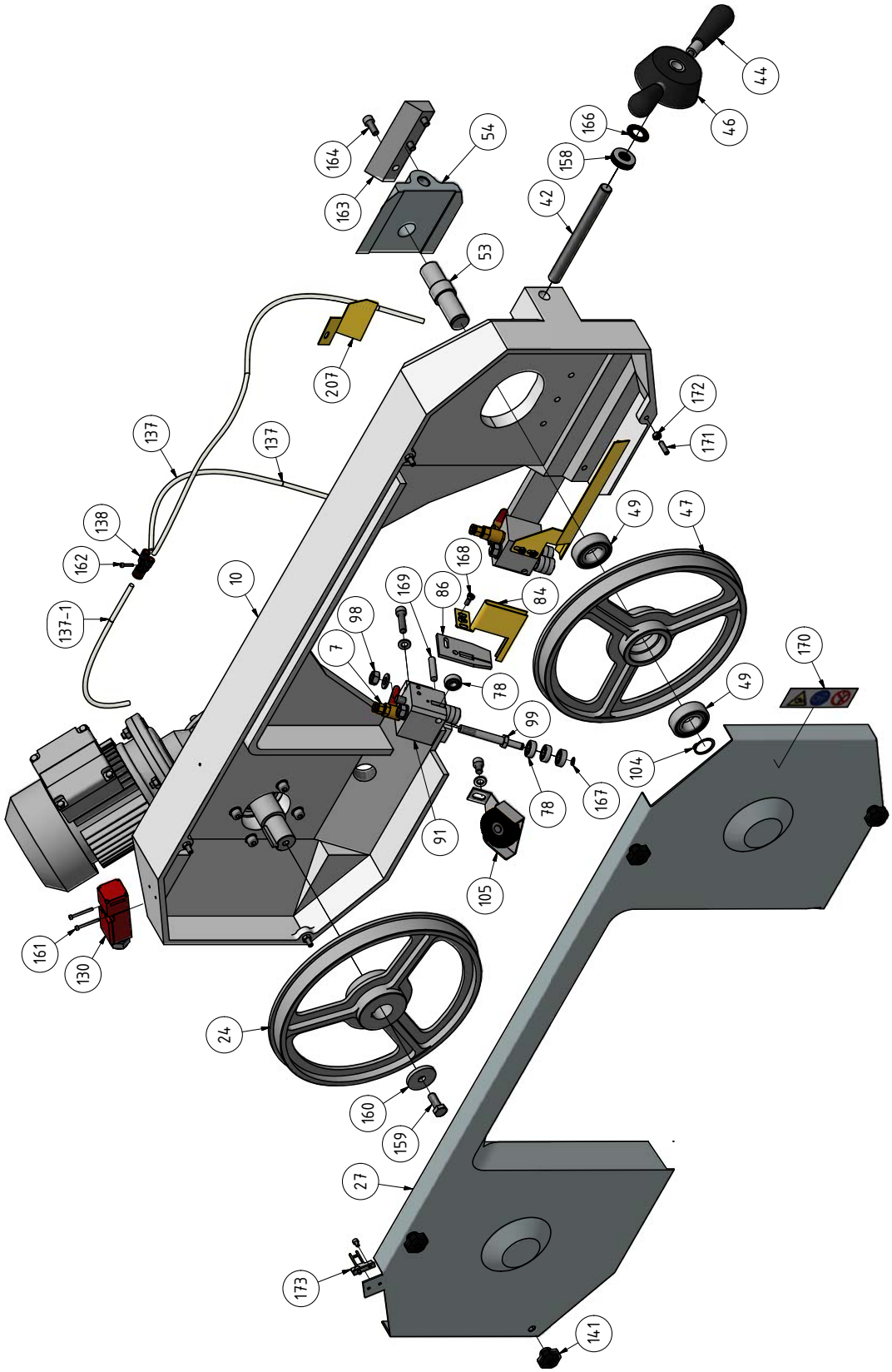
6.3 Service Hotline

+49 (0) 951-96555 -100

service@stuermer-maschinen.de

6.4 Ersatzteilzeichnungen - Spare part drawings

A Bandsäge 1-3 - Band saw 1-3



Img.6-1: Bandsäge 1-3 - Band saw 1-3

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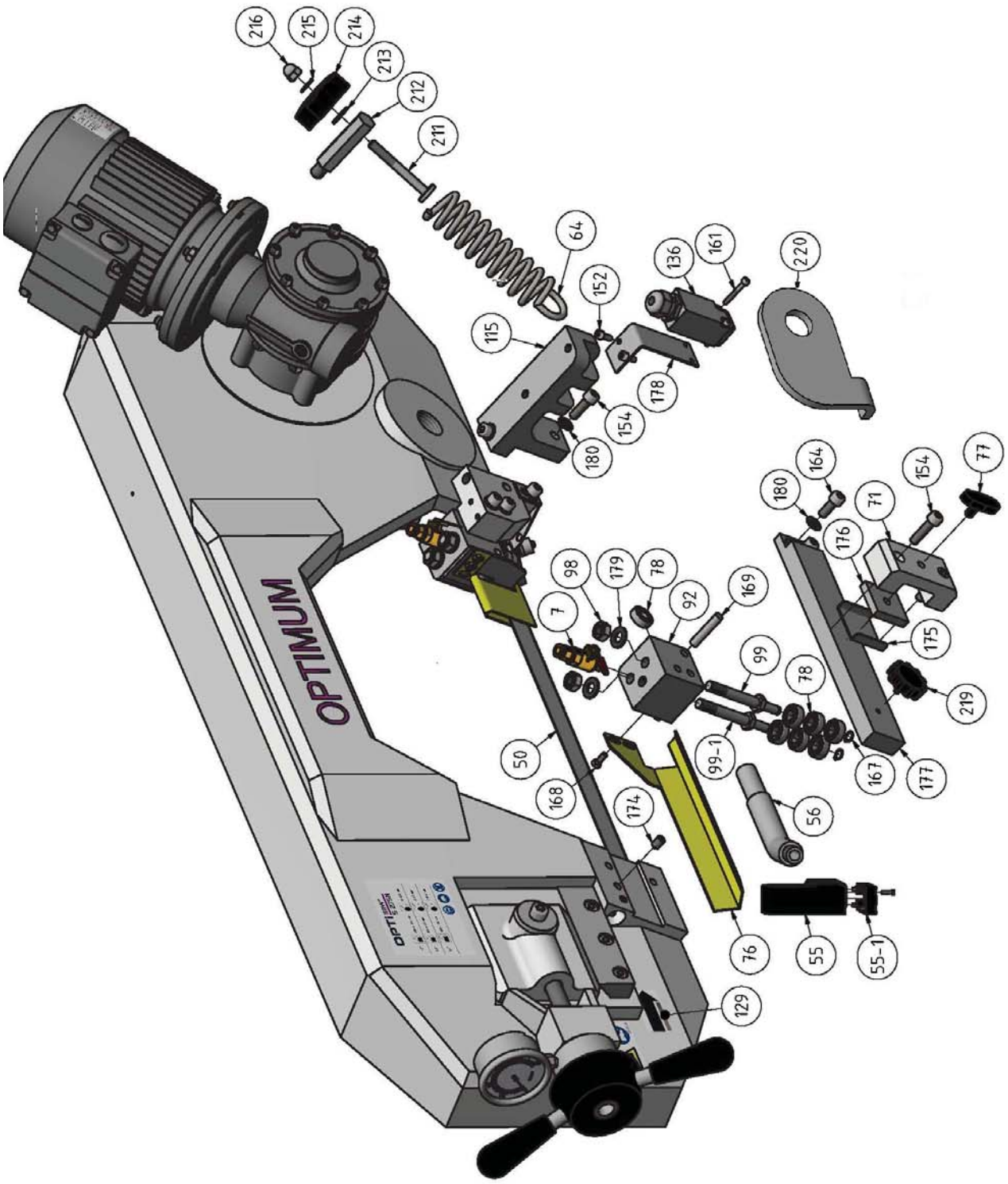
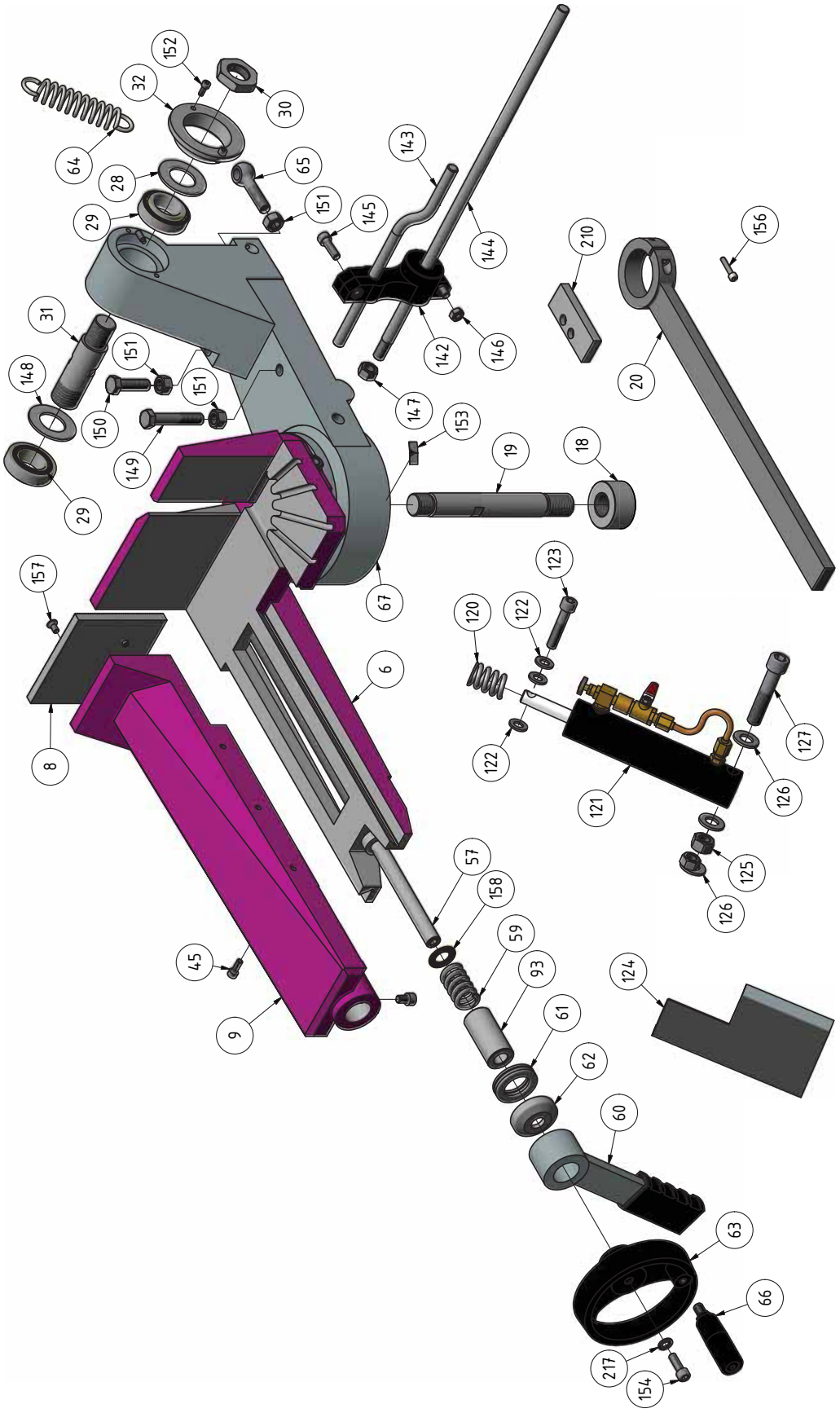
B Bandsäge 2-3 - Band saw 2-3



Img. 6-2: Bandsäge 2-3 - Band saw 2-3

S275N_S275NV_parts.fm

C Bandsäge 3-3 - Band saw 3-3



Img. 6-3: Bandsäge 3-3 - Band saw 3-3

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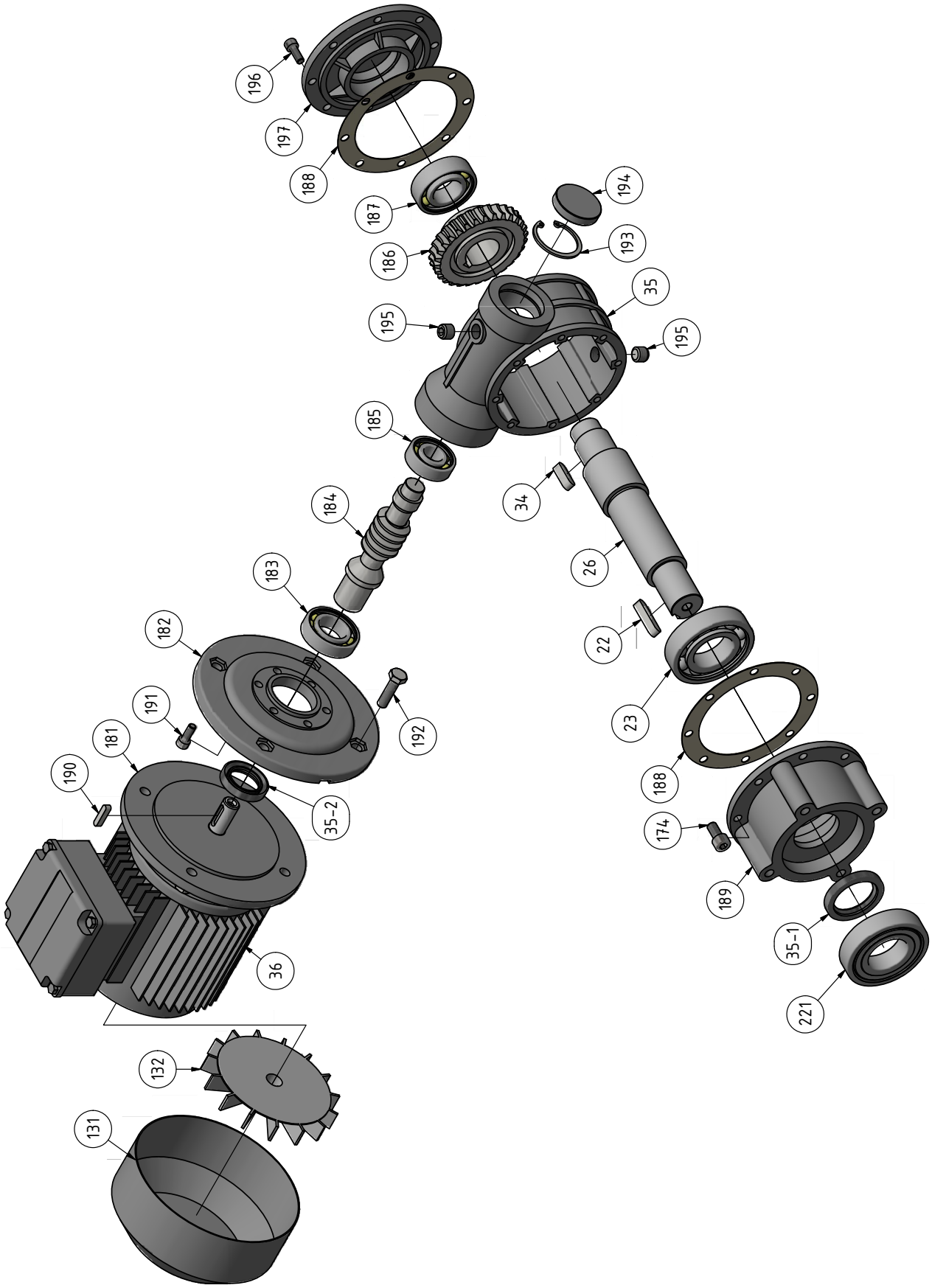
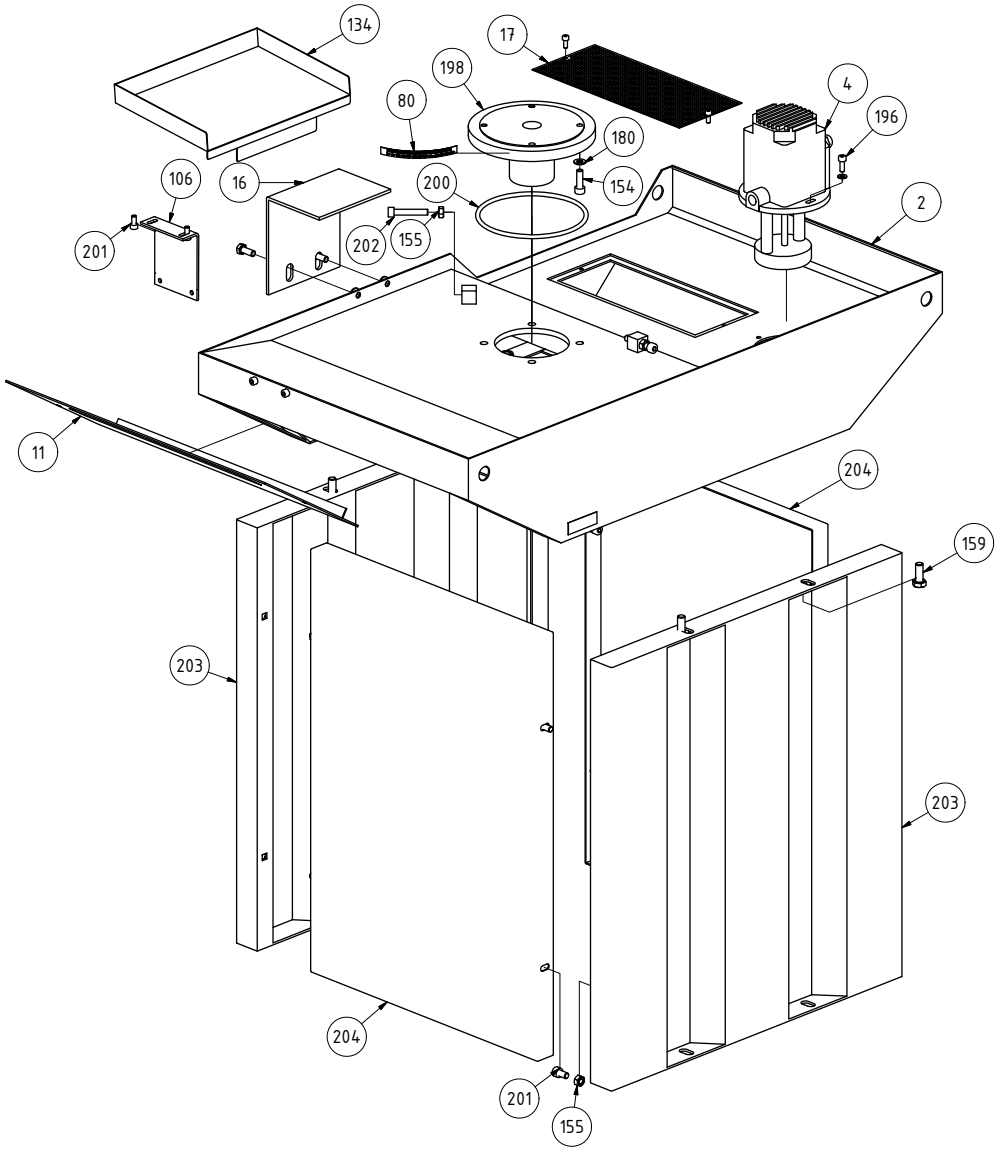
L Getriebe - Gear box



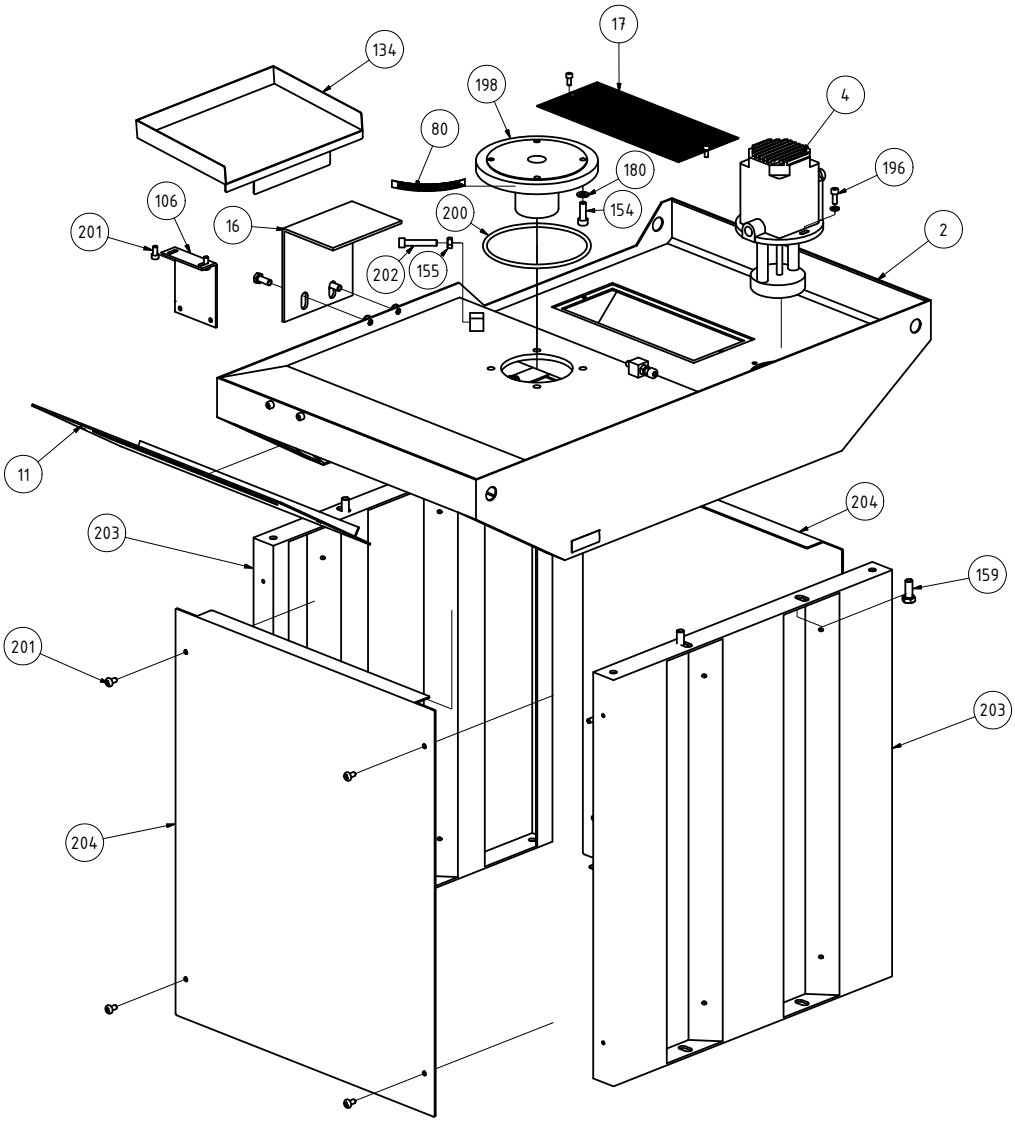
Img. 6-4: Getriebe - Gear box

E Maschinenunterbau - Substructure - V1



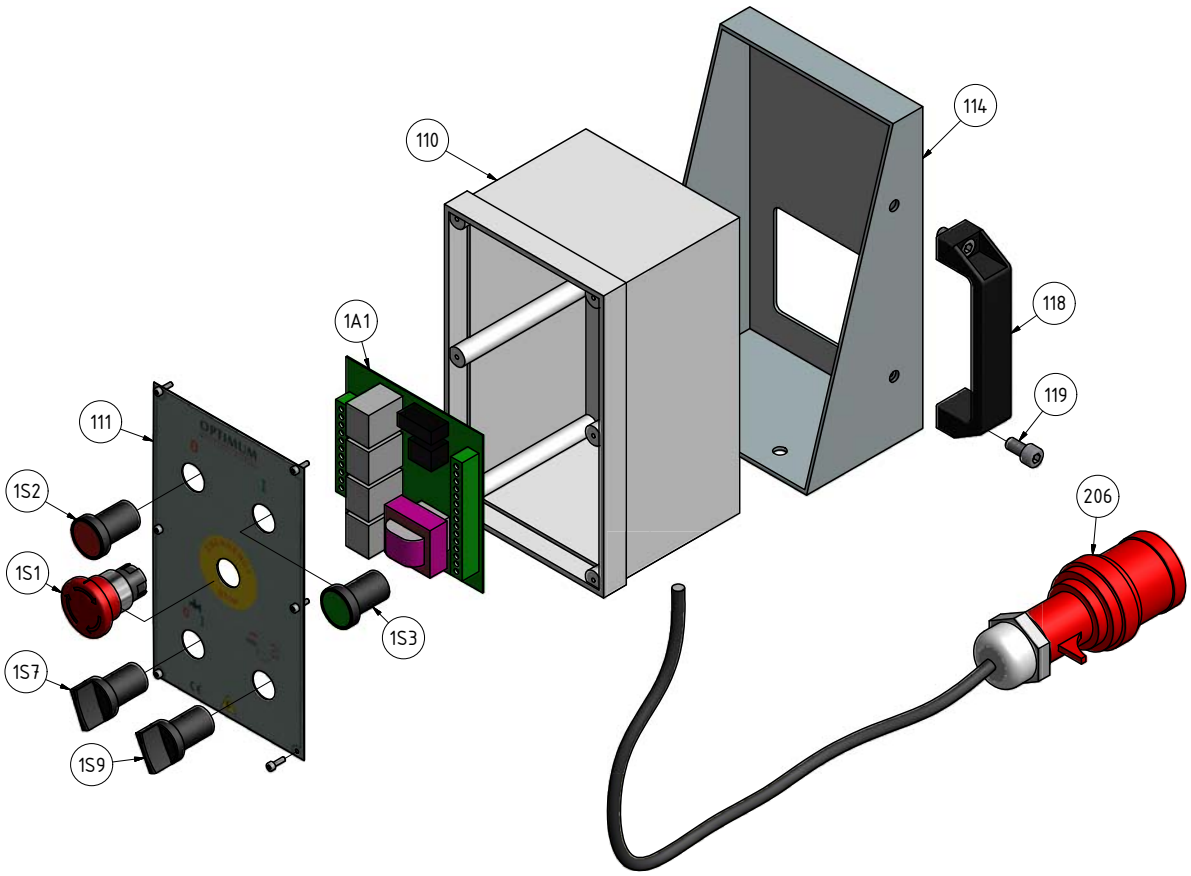
Img. 6-5: Maschinenunterbau - Machine substructure

F Maschinenunterbau - Substructure - V2



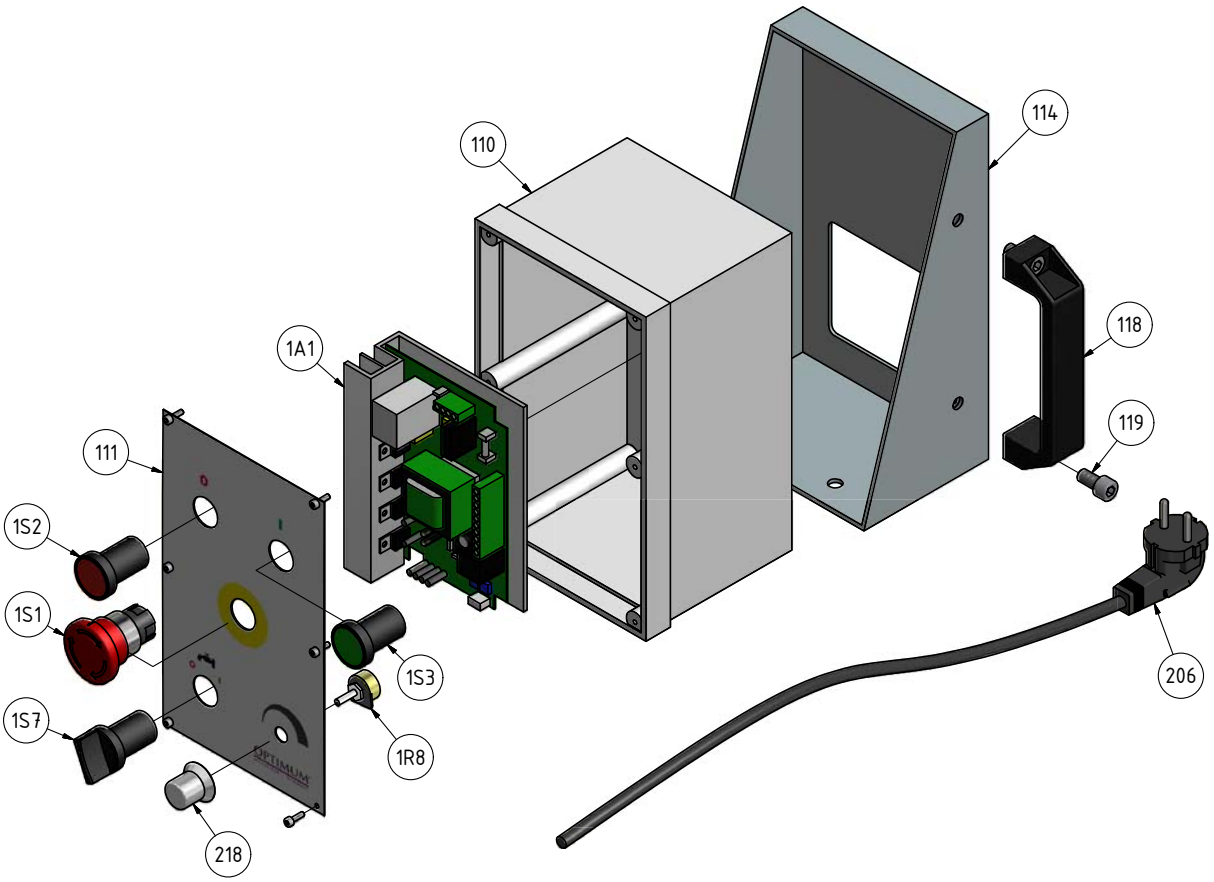
Img. 6-6: Maschinenunterbau - Machine substructure

G Schaltkasten - Electrical box - S275N



Img. 6-7: Schaltkasten - Electrical box

H Schaltkasten - Electrical box - S275NV



Img. 6-8: Schaltkasten - Electrical box

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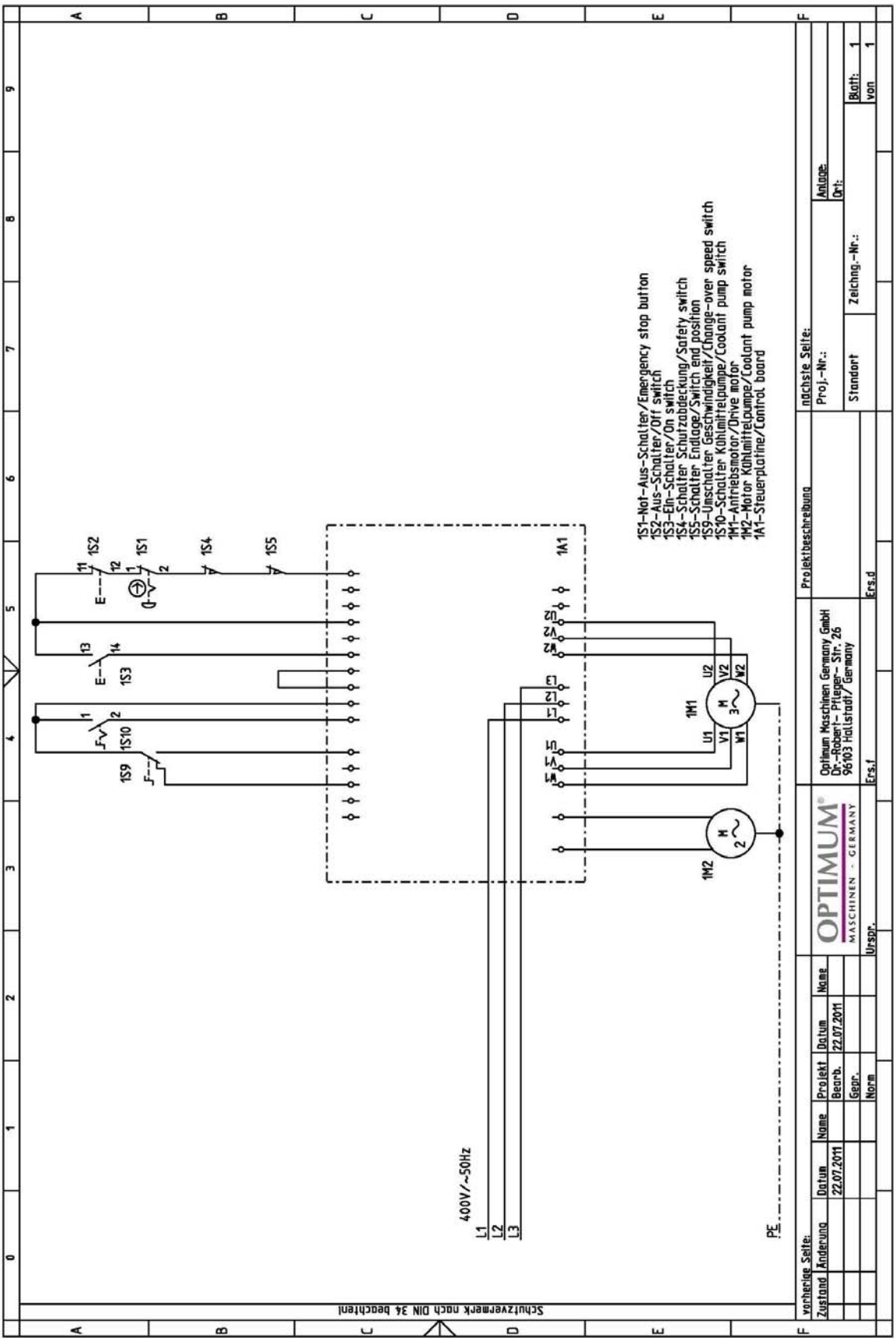
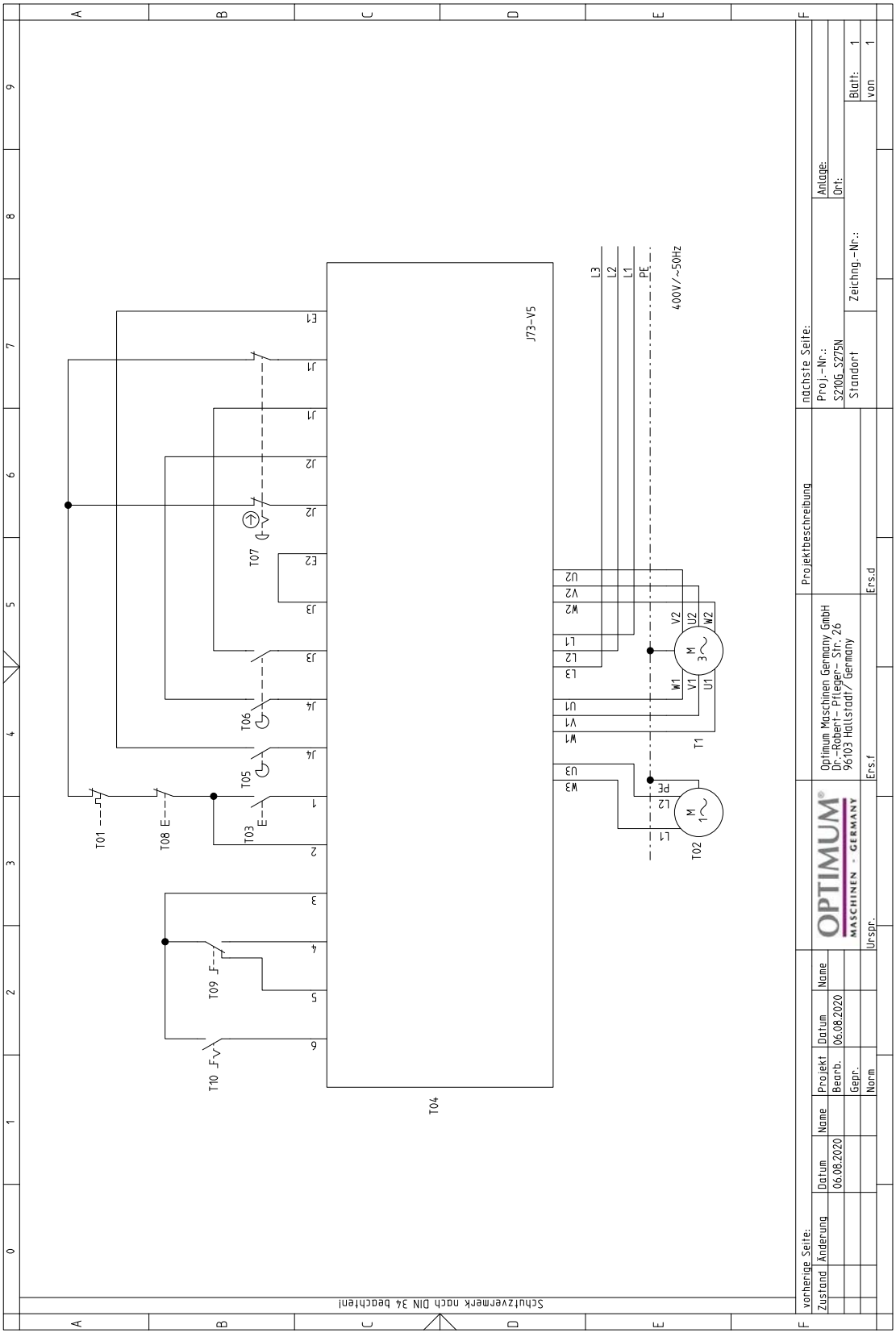
6.5 Schaltplan - Wiring diagram 400V - S275N - Einkanalig - Single channel

I



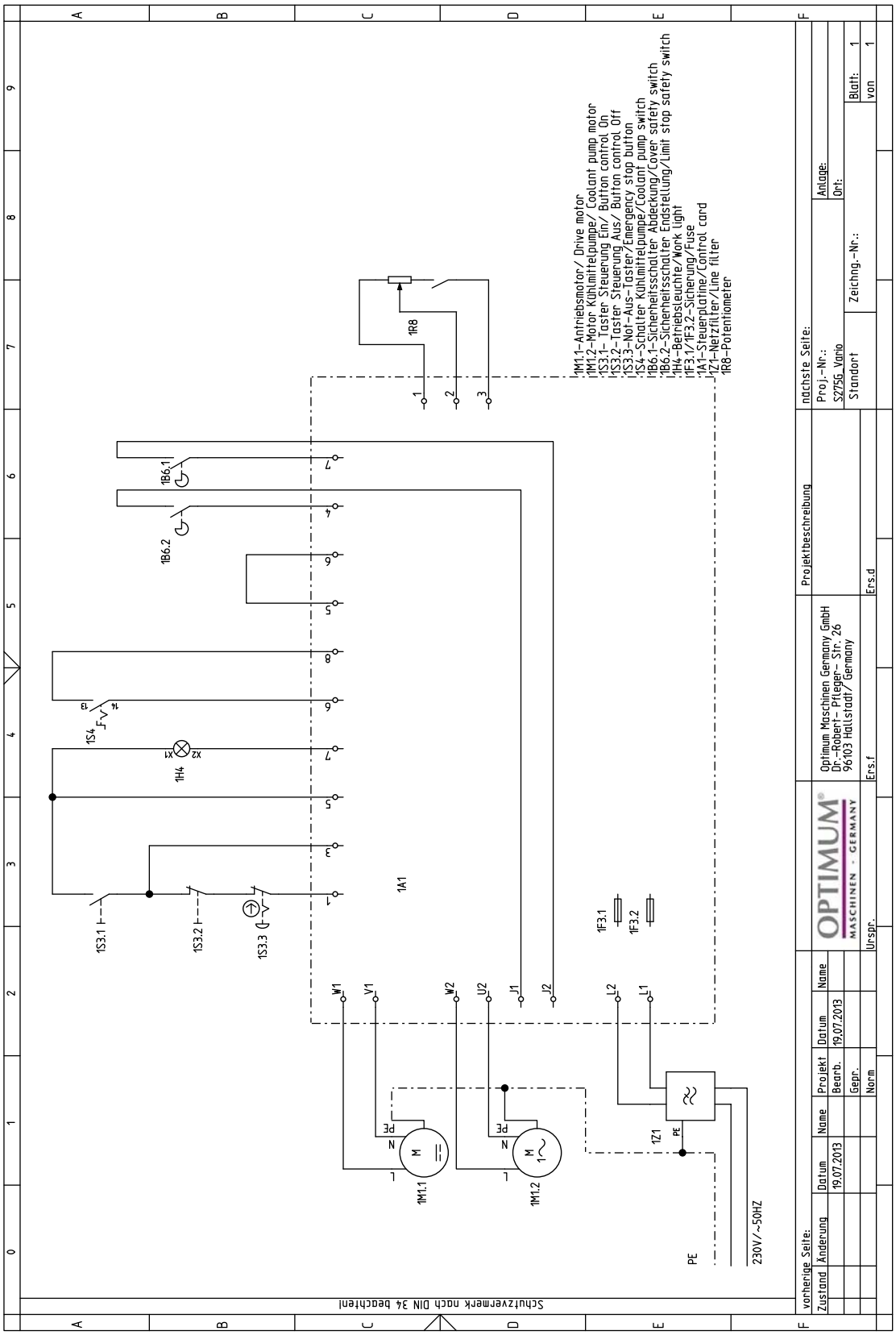
6.6 Schaltplan - Wiring diagram 400V - S275N - Zweikanalig - Double channel

J



6.7 Schaltplan - Wiring diagram - S275NV

K



Ersatzteilliste - Spare parts list - S275N, S275NV					
Pos.	Bezeichnung	Description	Menge Qty.	Grösse Size	Artikelnummer Item no.
2	Maschinengestell	Machine casing	1		0330027502
4	Kühlmittelpumpe	Cooling pump	1	230V	0330014555
				400V	0330021004
6	Feste Backe	Fixed jaw	1		0330027506
7	Kühlmittelhahn	Cooling valve	1		0330021007
8	Schraubstockbacken	Vice jaw	1		0330027508
9	Bewegliche Backe	Moveable jaw	1		0330027509
10	Sägebügel	Saw bow	1		0330027510
11	Verkleidungsblech	Lining plate	1		0330027511
16	Stützbügel	Support	1		0330021016
17	Kühlmittelsieb	Filter	1		0330027517
18	Distanzscheibe	Spacer washer	1		0330021018
19	Bolzen	Bolt	1		0330027519
20	Feststellhebel	Locking lever	1		0330021020
22	Passfeder	Key	1	DIN6885/8x7x36	0330021022
23	Lager	Bearing	1	6207	0406207
24	Angetriebene Bandführungsrolle	Driven belt guide roller	1		0330027524
26	Antriebswelle	Drive shaft	1		0330027526
27	Schutzabdeckung Sägebügel	Protective cover for saw bow	1		0330027527
28	Scheibe	Washer	2		0330021028
29	Lager	Bearing	2	32006.2R	04032006
30	Nutmutter	Groove nut	1	M30	0330021030
31	Drehzapfen	Trunnion	1		0330021031
32	Lagerabdeckung	Bearing cover	1		0330021032
34	Passfeder	Key	1	DIN6885/8x7x25	0330021034
35	Schneckengetriebe	Worm Gear	1	V1.0 without additional 6207 2Z	0330027535
35	Schneckengetriebe	Worm Gear	1	V1.1 with bearing 6207 2Z	03300275351
35-1	Simmerring Getriebe	Shaft seal helical gear	1	TC 35/70/10 F542	041355010
35-2	Simmerring Getriebe	Shaft seal helical gear	1	25/40/7	04125407
36	Motor	Motor	1	S275N	0330027536
36	Motor	Motor	1	S275NV	0330027836
42	Gewindestange	Threaded rod	1		0330027542
44	Handradgriff	Hand wheel grip	2		0330021044
45	Innensechskantschraube	Socket head screw	1	GB70-85/M5x16	0330021045
46	Nabe	Hub	1		0330021046
47	Bandführungsrolle	Un-driven belt guide roller	1		0330027547
49	Lager	Bearing	2	6205 2Z	0406205.2R
53	Welle	Shaft	1		0330027553
54	Führungsblock	Guide block	1		0330027554
55	Handgriff	Handgrip	1		0330021055
56	Handgriffverlängerung	Handgrip extension	1		0330021056
57	Spindel	Spindle	1		0330021057
59	Feder	Spring	1		0330021059
60	Spannhebel	Tension lever	1		0330021060
61	Lager	Bearing	1	51106.2R	04051106
62	Lagerabdeckung	Bearing cover	1		0330021062
63	Handrad	Hand wheel	1		0330021063
64	Feder	Spring	1	ab BJ. 06/2012	0330027564
64A	Feder	Spring	1	bis BJ. 06/2012	030027564A
65	Ösenschraube	Eyelet bolt	1		0330021065
66	Griff Handrad	Handle grip	1		0330021066
67	Lagerbock	Bearing support	1		0330027567
68	Bolzen	Bolt	1		0330027568
71	Block	Block	1		0330027571
77	Griff	Hand grip	1		0330021077
78	Lager	Bearing	11	6082Z	040608ZZ
80	Skala	Scale	1	ab Bj. 10/2009	0330027581
80A	Skala	Scale	1	bis Bj. 10/2009	0330027581A
84	rechte Schutzabdeckung	Protection cover right	1		0330027584
86	Halter Schutzabdeckung	Holder protection cover	1		0330027586
91	feststehende Bandsägeführung	Fixed belt saw guide	1		0330027591
92	verschiebbare Bandsägeführung	Adjustable belt saw guide	1		0330027592
93	Distanzhülse	Spacer	1		0330021093
98	Sechskantmutter	Hexagonal nut	1	M 10	
99	Führungsdrehzapfen Sägeband	Saw belt guide trunnion	2	exzentrisch / eccentric	0330027599

S275N_S275NV_parts.fm

Ersatzteilliste - Spare parts list - S275N, S275NV					
Pos.	Bezeichnung	Description	Menge Qty.	Grösse Size	Artikelnummer Item no.
99-1	Führungsdrehzapfen Sägeband	Saw belt guide trunnion	2	zylindrisch/ cilindrical	03300275991
104	Sicherungsring	Safety ring	1	DIN471/25x1,2	042SR25W
105	Sägebandbürste	Metal belt brush	1		03300275105
106	Stützblech	Support plate	1		03300260106
110	Schalterkasten Bedienschalter	Distribution box	1		03300275110
111	Schalter Platte	Switch plate	1	S275N	03300275111
111	Schalter Platte	Switch plate	1	S275NV	03300278111
114	Halter Schaltkasten	Holder distribution box	1		03300210114
115	Halter Zylinder	Holder cylinder	1	ab 05/2008	03300275115
115A	Halter Zylinder	Holder cylinder	1	bis 05/2008	03300275115A
118	Handgriff	Knob	1		03300210118
119	Innensechskantschraube	Hex. socket head cap screw	2		
120	Feder	Spring	1		03300210120
121	Hydraulikzylinder	Hydraulic cylinder	1		03300275121
122	Scheibe	Washer	1		
123	Innensechskantschraube	Hex. socket head cap screw	1		0330021090
124	Schutzabdeckung	Protective cover	1		03300210124
125	Sechskantmutter	Hex.Nut	1		
126	Scheibe	Washer	1		
127	Innensechskantschraube	Hex. socket head cap screw	1		03300275127
129	Platte	Plate	1		03300210129
130	Endschalter/ Abdeckung	Limit switch/ cover	1		0329035017
131	Motorlüfterdeckel	Motor flywheel cover	1		03300275131
132	Lüfterrad	Motor flywheel	1	S275N	03300275132
132	Lüfterrad	Motor flywheel	1	S275NV	03300278132
134	Auffangblech	Sheet	1		03300210134
136	Endlagenschalter	Limit switch	1		03300210136
137	Kühlmittelschlauch	Coolant hose	1	SET	0329029081
138	Schlauchverbinder/-verteiler	Hose fitting/ distributor	1		03300210138
141	Klemmmutter	Clamping nut	4	M6	03300210141
142	Halter	Holder	1		03300210142
143	Stange A	Rod A	1		03300210143
144	Stange B	Rod B	1		03300210144
145	Innensechskantschraube	Socket head screw	2	GB70-75/M8x25	
146	Sechskantmutter	Hexagonal nut	2	ISO 4031/M8	
147	Sechskantmutter	Hexagonal nut	1	ISO 4031/M12	
148	Scheibe	Washer	1		
149	Sechskantschraube	Counter sunk screw	1	ISO 4014/M12x65	
150	Sechskantschraube	Counter sunk screw	1	ISO 4014/M12x40	
151	Sechskantmutter	Hexagonal nut	2	ISO 4032/M12	
152	Innensechskantschraube	Socket head screw	2	GB 70-85/5x12	
153	Zeiger	Indicator	1		03300210153
154	Innensechskantschraube	Socket head screw	1	GB 70-85/8x25	
155	Sechskantmutter	Hexagonal nut	1	ISO 4032/M8	
156	Innensechskantschraube	Hexagonal nut	1	GB 70-85/5x25	
157	Senkschraube	Counter sunk screw	2	ISO 10642/M6x12	
158	Lager	Bearing	1	AXK 1730	040AXK1730
159	Sechskantschraube	Hexagon screw	1	ISO 4014/M10x25	
160	Scheibe	Washer	2		03300210160
161	Innensechskantschraube	Socket head screw	2	GB 70-85/3x30	
162	Innensechskantschraube	Socket head screw	2	GB 70-85/3x16	
163	Platte	Plate	1		03300275163
164	Innensechskantschraube	Socket head screw	1	GB 70-85/8x20	
165	Zeiger	Indicator	1		0330026310
166	Federscheibe	Washer	1		03300210166
167	Sicherungsring	Retaining ring	2	DIN 471/8x0,8	042SR8W
168	Sechskantschraube	Hexagon screw	4	GB29.2-88/M5x12	
169	Zylinderstift	Cylinder pin	1	GB119-86/8x40	
170	Infolabel	Info label	1		03300210170
171	Gewindestift	Grub screw	4		
172	Sechskantmutter	Hexagon nut	4	ISO 4032/M6	
173	Druckplatte	Pressure plate	1		0460054
174	Gewindestift	Grub screw	3	GB80-85/M8x12	
175	Platte	Plate	1		03300275175
176	Druckplatte	Pressure plate	1		03300275176
177	Fuhrungsplatte	Guide plate	1		03300275177
178	Winkel	Angle	1		
179	Scheibe	Washer	2	DIN125/10	

Ersatzteilliste - Spare parts list - S275N, S275NV					
Pos.	Bezeichnung	Description	Menge Qty.	Grösse Size	Artikelnummer Item no.
180	Scheibe	Washer	2	DIN125/8	
182	Flansch	Flange	1	ab Bj. 2006	03300275182
182A	Flansch	Flange	1	bis Bj. 2005	03300275182A
183	Rillenkugellager	Ball bearing	1	6005	0406005
184	Schnecke	Worm	1		03300275184
185	Rillenkugellager	Ball bearing	1	6203	0406203
186	Schneckenrad	Worm gear	1		03300275186
187	Rillenkugellager	Ball bearing	1	6205	0406205
188	Dichtung	Seal	2		03300275188
189	Lagerdeckel	Bearing cover	1	V1.0 without additional 6207 2Z	03300275189
189	Lagerdeckel	Bearing cover	1	V1.1 for bearing 6207 2Z	033002751891
190	Passfeder	Fitting key	1	DIN6885/5x5x22	
191	Innensechskantschraube	Socket head screw	6	GB 70-85/6x16	
192	Sechskantschraube	Hexagon nut	4	ISO4017/M8x30	
193	Sicherungsring	Retaining ring	1	DIN472/40x1,75	042SR40I
194	Stopfen	Plug	1		041408
195	Verschlussschraube	Plug screw	2		03300210195
196	Innensechskantschraube	Socket head screw	8	GB 70-85/M6x16	
197	Deckel	Cover	1		
198	Aufnahme	Collet	1		03300210198
199	Infolabel	Info label	1		
200	O-Ring	O-Ring	1	GB3452/140x5.3	03300210200
201	Innensechskantschraube	Socket head screw	8	GB 70-85/8x14	
	Schraube	Screw	8	M6	
202	Innensechskantschraube	Socket head screw	8	GB 70-85/8x45	
203	Seitenwand links/rechts	Side panel right/left	2	V1	03300210203
	Seitenwand links/rechts	Side panel right/left	2	V2	03300210203V2
204	Seitenwand vorne/hinten	Side panel front/back	2	V1	03300210204
	Seitenwand vorne/hinten	Side panel front/back	2	V2	03300210204V2
205	Infolabel	Info label	1		
206	Anschlussstecker	Connector plug	1	400V	
			1	230V	0342025107
210	Platte Baujahr bis 2007	Plate year of manufacture to 2007	1		
211	Schraube	Screw	1		
212	Bolzen	Bolt	1		03300210212
213	Scheibe	Washer	1		
214	Sterngriff	Star grip	1		
215	Scheibe	Washer	1		
216	Hutmutter	Acorn nut	1		
217	Scheibe	Washer	1		
218	Knopf	Knob	1		
219	Klemmschraube	Clamping screw	1		03300260219
220	Platte	Plate	1		03300210218
221	Lager	Bearing	1	6207 2Z	04062072Z
1M1	Antriebsmotor	Drive motor	1	S275N	0330027536
1M1.1	Antriebsmotor	Drive motor	1	S275NV	0330027836
1M2	Motor Kühlmittelpumpe	Coolant pump motor	1	S275N	0330021004
1M1.2	Motor Kühlmittelpumpe	Coolant pump motor	1	S275NV	0330014555
1S1	Not-Halt Schalter	Emergency stop button	1	S275N	0460049
1S2	Taster "AUS"	Button "OFF"	1	S275N	0460001
1S3	Taster "EIN"	Button "ON"	1	S275N	0460052
1S3.1	Taster Steuerung Ein	Button control On	1	S275NV	0330013169
1S3.2	Taster Steuerung Aus	Button control Off	1	S275NV	0460001
1S3.3	Not-Halt-Taster	Emergency stop button	1	S275NV	0460049
1S4	Schalter Abdeckung	Switch cover	1	S275N	
1B6.1	Sicherheitsschalter Abdeckung	Cover safety switch	1	S275NV	0460054
1S4	Schalter Kühlmittelpumpe	Coolant pump switch	1	S275NV	0322792
1S5	Endlagenschalter	End position switch	1	S275N	
1B6.2	Sicherheitsschalter Endstellung	Limit stop safety switch	1	S275NV	0329035017
1S9	Schalter Geschwindigkeit	Speed selector switch	1	S275N	0322791
1S10	Schalter Kühlmittelpumpe	Coolant pump switch	1	S275N	0322792
Box2	Klemmkasten Motor	Box motor	1	S275N	
1H4	Betriebsleuchte	Work light	1	S275NV	0330013169
1A1	Steuerplatine mit Trafo	Control board with transformer	1	S275N	03300275LE
1F3.1	Sicherung	Fuse	1	S275NV	033002781F3
1F3.2			1		
1A1	Steuerplatine	Control card	1	S275NV	033001451A1

S275N_S275NV_parts.fm

Ersatzteilliste - Spare parts list - S275N, S275NV					
Pos.	Bezeichnung	Description	Menge Qty.	Grösse Size	Artikelnummer Item no.
1R8	Potentiometer	Potentiometer	1	S275NV	033001451R8
1Z1	Netzfilter	Line filter	1	S275NV	
-	Schlauchanschluss Kühlmittelpumpe	Connector coolant pump	1	S275N	033002104-1
-	Bandführung fest kplt.	Fix belt guide complete	1	S275N	0330027591CPL
-	Bandführung beweglich kplt.	Adjustable belt guide complete	1	S275N	0330027592CPL
Pos.	Bezeichnung	Designation	Menge	Grösse	Artikel-nummer
			Qty.	Size	Item no.
Schaltplan S275N Zweikanalig - Wiring diagram S275N Double channel					
T10	Schalter Kühlmittelpumpe	Coolant pump switch	1	S275N	0322792
T09	Schalter Geschwindigkeit	Speed selector switch	1	S275N	0322791
T01	Temperatursensor Antriebsmotor	Motor temperature sensor	1	S275N	03300260T01
T03	Taster "EIN"	Button "ON"	1	S275N	0460052
T04	Steuerplatine	Control board	1	S275N double channel	033002601T3
T08	Taster "AUS"	Button "OFF"	1	S275N	0460001
1M3	Motor Kühlmittelpumpe	Coolant pump motor	1	S275N	0330021004
T06	Schalter Abdeckung	Cover switch	1	S275N	03300260T06
T05	Endlagenschalter	End position switch	1	S275N	03300260T05
1M4	Antriebsmotor	Drive motor	1	S275N	0330027536
T07	Not-Halt Schalter	Emergency stop button	1	S275N	0460049

7 Malfunctions

7.1 Malfunctions on the metal band saw

Malfunction	Cause/ possible effects	Solution
Saw motor overloading Saw motor overheating	• Suction of motor cooling air hindered • Motor not correctly fixed • Power unit for saw blade not properly fixed • Wrong electrical connection	• Check and clean • Requires technical service! Have the machine repaired in the workshop • ☞ Electrical connection on page 24
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 • Cleaning • Check and clean • Bleed by briefly withdrawing the pressure hose • Check pump
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 too 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 blade	• Tension in the saw belt too high or too low • Saw blade defective • Saw blade guide adjusted incorrectly	• Check tension of saw blade • Replace • 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 blade 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 • Saw arch not adjusted to 90^0	• Insert material properly • Adjust saw arch correctly
Shaft in worm gearbox breaks off.	• Saw blade tension too high. • Additional bearing not yet present in the worm gearbox.	• Reduce saw blade tension • Replace worm gearbox completely with new variant

S275N_S275NV_GB_7.fm

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 arch	• Housing with protective cover for the saw blade
Material stop	• Position for multiple cuts • Sawing stop
Hydraulic cylinder	• Hydraulic lowering cylinder • Hydraulic feed
Feed regulation valve	• Valve on the hydraulic cylinder
Protective cover saw arch	• Cover on the rear of the saw arch
Blade guide bearings	• Rollers between which the saw blade passes • Guide bearing
Saw belt 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 to the belt guidance rollers
Drive motor	• Engine
Emergency stop	Stops the operation of a machine.
Emergency switching off	Interrupts the power supply of the machine.

8.3 Change information manual

Chapter	Short note	new version no.
1.4.1	Avoiding misuse	1.0.1
CE	declaration	1.0.1
CE conformity	notified body, SGS	1.0.2
1.4.1	EMC, class C2 to class C3	1.0.3
EC	New type C standard	1.0.4
3 , parts	modificated substructure for SE1 levelling discs	1.1.0

Chapter	Short note	new version no.
parts	S275N double channel wiring	1.2.0
5.2	The correct saw band tension is reached when the saw band has been tensioned in the green area of the pressure gauge.	1.2.1
3 ; 4.10 ; 4.10.3	Interdepartmental transport ; General information concerning saw bands	1.2.2
CE	Update	1.2.3
5.2	Additional illustration and amended description "Adjusting the position of the saw band".	1.2.4
parts	Additional bearing in the worm gearbox	1.2.5

8.4 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 were promised in the framework of a single contractual provision.

- 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. 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. Such services neither delay nor interrupt the warranty period.
- Place of jurisdiction for legal disputes between businessmen is Bamberg.
- If one of the aforementioned agreements is totally or partially inoperative and/or invalid, a provision closest to the intent of the warrantor is considered agreed upon, which remains within the framework of the limits of liability and warranty which are specified by this contract.

8.5 Storage

ATTENTION!

Incorrect and improper storage might result in damage or destruction of electrical and mechanical machine components.

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

Follow the instructions and information on the transport box.

- Fragile goods
  (Goods require careful handling)

- Protect against moisture and humid environment

☞ Environmental conditions on page 17.

- Prescribed position of the packing case
  (Marking the top surface - arrows pointing up)

- Maximum stacking height

  Example: not stackable - do not stack further packing cases on top of the first one.

- Consult Optimum Maschinen Germany GmbH if the machine and accessories are stored for more than three months or are stored under different environmental conditions than those specified here .

8.6 Advice for disposal / Options of re-use

Please dispose of your machine in an environmentally friendly way, not by disposing of the waste not in the environment, but by acting 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.

8.6.1 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 main 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.**
- **Dispose of machine components and operating fluids using the intended disposal methods.**

8.6.2 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.

8.6.3 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 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.

8.6.4 Disposal of electrical and electronic components

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

The machine 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.

8.6.5 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.

8.7 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, the municipal waste collection station or the shop where you have bought the product.

8.8 Product follow-up

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

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

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

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

D-96103 Hallstadt

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

OPTIMUM®
MASCHINEN - GERMANY

EC Declaration of Conformity

according to Machinery Regulation 2023/1230 Annex V Part A

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

hereby declares that the following product

Product designation: Metal band saw

Type designation: S275N

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

Description:

Hand controlled metal band saw

The following other EU Directives have been applied:

EMC Directive 2014/30/EC ; For individual devices on the machine: 2014/35/EU

The following harmonized standards were applied:

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

EN 60204-1: 2019-06 Safety of machinery - Electrical equipment of machines - Part 1: General requirements

EN 13849-1: 2016-06 Safety of machinery - Safety related parts of controls - Part 1: General design principles

EN 13849-2: 2013-02 Safety of machinery - Safety related parts of controls - Part 2: Validation

EN ISO 12100: 2011-03 Safety of machinery - General principles for design - Risk assessment and risk reduction

EN 61000-6-4: 2020-09 Electromagnetic compatibility (EMC)- Part 6-4: Generic standards – Emission standard for industrial environments

EN IEC 61000-6-2: 2019-11 Electromagnetic compatibility (EMC)- Part 6-2: Generic standards – Immunity for industrial environments: Electrostatic Discharge, Radio-frequency electromagnetic field

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, 2023-11-10

S275N_CE_en.fm

EC Declaration of Conformity

according to Machinery Regulation 2023/1230 Annex V Part A

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

hereby declares that the following product

Product designation: Metal band saw

Type designation: S275NV

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

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EN 13849-2: 2013-02 Safety of machinery - Safety related parts of controls - Part 2: Validation

EN ISO 12100: 2011-03 Safety of machinery - General principles for design - Risk assessment and risk reduction

EN 55011: 2022-05 Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement - class A

EN 61000-6-4: 2020-09 Electromagnetic compatibility (EMC) - Part 6-4: Generic standards – Emission standard for industrial environments

EN IEC 61000-6-2: 2019-11 Electromagnetic compatibility (EMC) - Part 6-2: Generic standards – Immunity for industrial environments: Electrostatic Discharge, Radio-frequency electromagnetic field

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, 2023-11-10

Index

A
Accident report 14
Assembly 19
C
Center of gravity 20
Commissioning 25
Copyright 63
Customer service 43
Customer service technician 43
D
Dimensions 20
Disinfection
  Cooling lubricant tank 44
Disposal 67
E
Electrical connection 24
Electrical system
  safety 14
Emergency stop condition
  reset 29
Environmental conditions 17
H
Hazards
  Classification 6
I
Intended use 6
Interdepartmental transport 18
M
Malfunctions metal belt saw 62
Misuse 8
O
Obligations
  of the operating company 10
  of the operator 10
Operating material 16
Operation 27
P
Protective
  equipment 12
Q
Qualification of personnel
  Safety 9
S
Safety
  devices 11
  during maintenance 13
  during operation 13
  instructions 6
Service Hotline 46
Specialist dealer 43
Speed of saw belt 16
Storage and packaging 65
T
Technical data
  coolant pump 16
  Environmental conditions 17
  General 16
  operating material 16
  Speed of saw belt 16
Transport 18, 20
W
Warning notes 6

S275N_S275NV_GBSIX.fm