



Operating Manual

Version 1.1.2

Metal belt saw

OPTIsaw[®]
S 150G Vario

Part no. 3300150





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Preface

Dear customer,

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

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

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

Keep these operating instructions in a safe place nearby the machine.

Information

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

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

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

The illustration and information included in the present manual can possibly deviate from the current state of construction of your machine. Being the manufacturer we are continuously seeking for improvements and renewal of the products. Therefore, changes might be performed without prior notice. The illustrations of the machine may be different from the illustrations in these instructions with regard to a few details. However, this does not have any influence on the operability of the machine.

Therefore, no claims may be derived from the indications and descriptions. Changes and errors are reserved!

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

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

Optimum Maschinen Germany GmbH

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D-96103 Hallstadt

Mail: info@optimum-maschinen.de

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1 Safety

Glossary of symbols

	provides further instructions
	calls on you to act
	Lists

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 met during installation, operation, maintenance and repair of the metal band 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:



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D- 96103 Hallstadt, Germany
email: info@optimum-maschinen.de

1.1 Type plate

S 150G Vario		OPTIMUM [®]		Optimum Maschinen Germany GmbH Dr.-Robert-Pfleger-Str. 26 D-96103 Hallstadt	
DE Metallbandsäge		NO.	3300150		
GB Metal belt saw			1,1 kW 230 V - 50 Hz		
ES Sierra de cinta para metal			100 kg		
FR Scie			1.735 x 12,7 x 0,9 mm		
IT Tsegatrici a nastro per metalli			65 m/min		
DK Metalbåndsav		SN			
CZ Pásový pily		Year	20		
FI Metallivannesaha					CE
GR Πριονοκοπφέλα		www.optimum-maschinen.de			
HU Szalagfűrészgép					
NL Zaagmachine					
PL Przecinarki taśmowe					
PT Serras de Fita					
RU Ферáструу сu бандá металíчá					
SL Pásová pila					
TR Metal Şerit Testere					

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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 (pictograms) and the signal words 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



1.2.2 Other pictograms



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Activation forbidden!



Read the operating instructions before commissioning!



Pull out the mains plug!



Wear protective glasses!



Wear protective gloves!



Wear safety shoes!



Wear a protective suit!



Use ear protection!



Protect the environment!



Contact address

1.3 Intended use

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 metal band saw 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. Operations not in accordance with intended use!

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

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

It is also part of intended use that you

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

📖 Technical specification on page 15



The decisive factor for achieving efficient cutting and the necessary angular tolerance is the correct choice of parameters such as the saw 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 people 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 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:

Category C1

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

Category 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."

Category 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. "

This machine	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Category	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		

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1.5 Possible dangers caused by the metal band saw

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

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

- electrical voltage and currents,
- an revolving saw blade.

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

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

INFORMATION

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

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

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 10



1.6 Qualification

1.6.1 Target group private users

The machine can be used in the private domain. The acumen of people in the private sector with training in metal working was taken into consideration for creating this operation manual. Vocational training or further instruction in a metal working profession is a prerequisite for safe operation of the machine. It is essential that the private user is aware of the dangers involved in operating this machine. We recommend visiting a training course in the operation of metal band saws. Your specialist dealer can offer you an appropriate training course. These courses are also offered by adult education centres in Germany.

1.6.2 Obligations of the User

The user must

- have read and understood the operating manual,
- be familiar with all safety devices and regulations,
- be able to operate the metal band saw.



1.6.3 Additional requirements regarding the qualification

Additional requirements apply for work on electrical components or equipment:

- Must only be performed 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 Operator positions

The operator must stand beside the metal band saw.

INFORMATION

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



Img. 1-1: Operator positions

The metal band saw includes the following safety devices:

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

WARNING!

The separating protective equipment which is made available and delivered together with the machine is designed to reduce the risk of workpieces or fractions of them which being expelled, but not to remove them completely.



1.8 Safety devices

1.8.1 Saw arch

The arch of the metal band saw is provided with a protective cover. The protective cover covers the belt guide rolls and the revolving saw band.

INFORMATION

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



Img. 1-2: a saw blade housing with protective cover.

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.

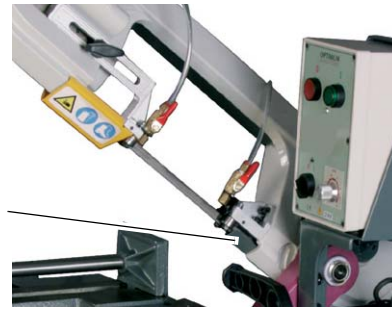
Close and mount all protective covers before restarting the metal band saw.





1.8.2 Saw belt guide

Refit the protective covers after each saw belt change.



Protective covers on the right hand Saw belt guide

Img. 1-3: Protective cover saw blade guide

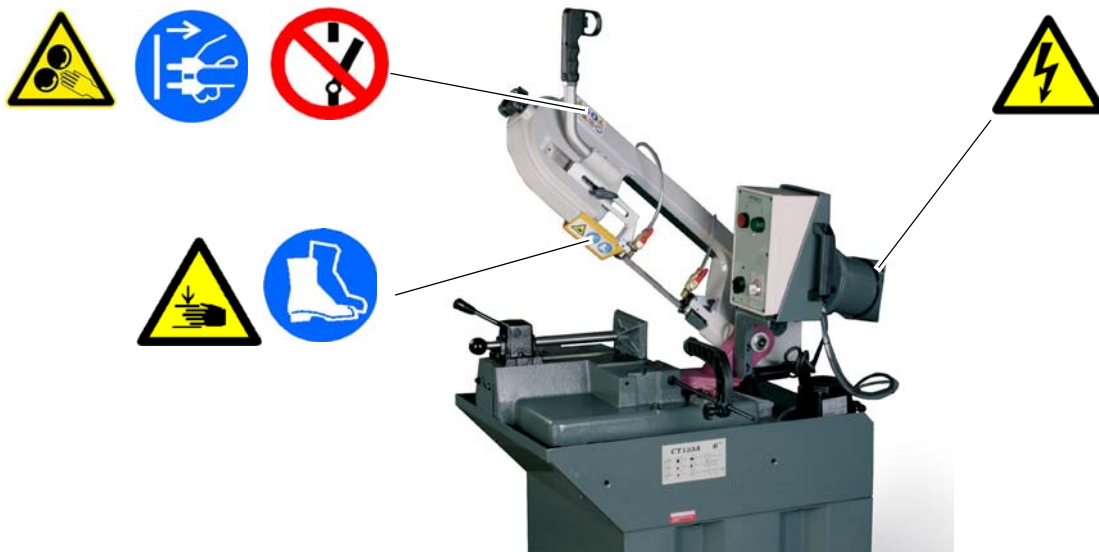
1.8.3 Prohibition, warning and mandatory signs

INFORMATION

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



Position of labels on the metal band saw:



Img. 1-4: metal band saw S150G Vario

1.9 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
Positions switch Protective cover saw arch	The metal band saw may only switch on when the protective cover is being closed.	
Date:	Checked by (signature):	

1.10 Personal protective equipment

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

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

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

CAUTION!

Dirty or contaminated personnel protective equipment can cause illness. Clean it each time after use and once a week.

Personal protective equipment for special work

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

Wear protective gloves when handling pieces with sharp edges.

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

1.11 Safety during operation

We specifically point out the dangers when describing the work with and on the metal band saw.

CAUTION!

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.
- Do not wear protective gloves when you switch on the metal band saw on the handle.

1.11.1 Disconnecting and securing the metal band saw

Pull the power plug before beginning any maintenance or repair work.

WARNING!

Live parts and moves of machine parts can injure you or others dangerously! If you cannot pull the power plug due to required work (e.g. function check), proceed with extreme caution.



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 equipment are of sufficient load-bearing capability and are in perfect condition. Fasten the loads carefully. 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 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).

1.13 Inspection deadlines

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



2 Technical specification

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

Electrical connection	
Total connected load	230 V; ~50 Hz; 1.1 KW

Cutting area	S150G Vario
0°	150 x 160 mm
45°	105 x 130 mm
60°	65 x 65 mm

General	
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	manually
Tension of the saw belt	Manually using the hand wheel

Dimensions	
Floor space length [mm]	1120
Height of work bench [mm]	880
Total height [mm]	1590
Height of work area [mm]	2100
Floor space width [mm]	720
Width of work area [mm]	1500
Weight of the metal band saw [kg]	100
Dimensions of saw blade [mm]	1735 x 12.7 x 0.9

Speed of saw belt	
[m/min]	20 - 65

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

Operating material	
Spindle of the machine vice	Commercial lubricating grease
Slide bearing	commercial lubricating grease
Coolant equipment	Commercial lubricating and cooling agent

Coolant pump	
Power	230 V; ~50 Hz; 90 W
Number of revolutions [min ⁻¹]	2850
Reservoir capacity [Liter]	10

2.1 Emissions

The generation of noise emitted by the metal band saw is 73 dB(A).

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 also depends on production engineering factors, e.g. speed, material and clamping conditions.



INFORMATION

The specified numerical value represents the emission level and does not necessarily a safe working level.

Though there is a dependency between the degree of the noise emission and the degree of the noise disturbance it is not possible to use it reliably to determine if further precaution measures are required or not.

The following factors influence the actual degree of the noise exposure of the operator:

- Characteristics of the working area, e.g. size of 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 and ear protection.





3 Delivery, interdepartmental transport and unpacking

CAUTION!

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



3.1 Notes on transport, installation and unpacking

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

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

3.1.1 General risks during internal transport

CAUTION: DANGER OF TIPPING!

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

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



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

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

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

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

Careful planning of internal transport is therefore essential.



3.2 Scope of delivery

INFORMATION

The metal band saw is delivered pre-assembled.

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



- Metal band saw
- Saw belt
- Coolant equipment
- Material stop
- Saw table
- Fitting tools
- Instruction manual

3.3 Installation and assembly

3.3.1 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 substructure must be prepared in a way that possibly used coolant cannot penetrate into 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 endangerment of 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.

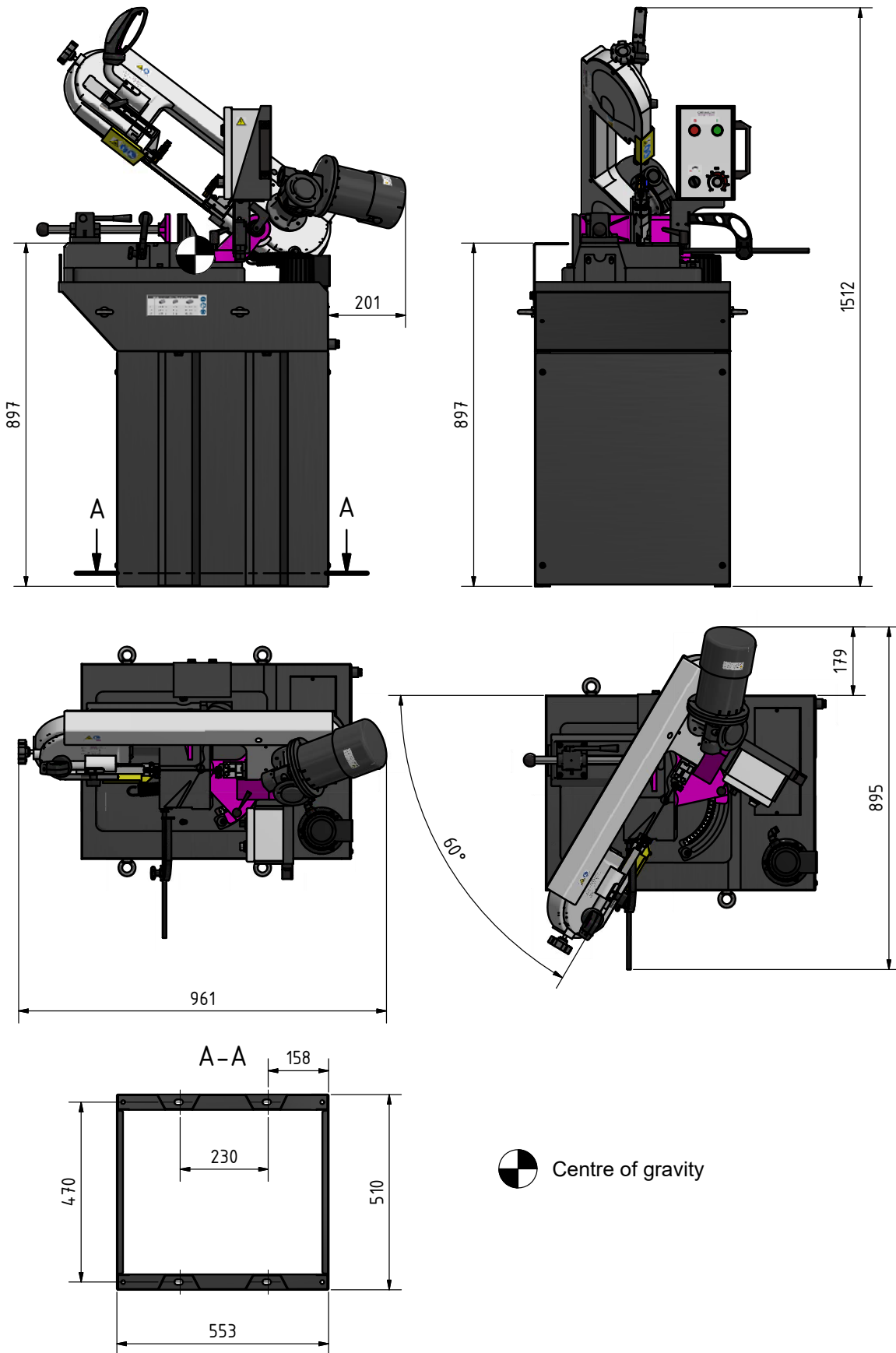
INFORMATION

A possibly mounted power plug of the metal belt must be freely accessible.





3.4 Installation plan





3.4.1 Assembly

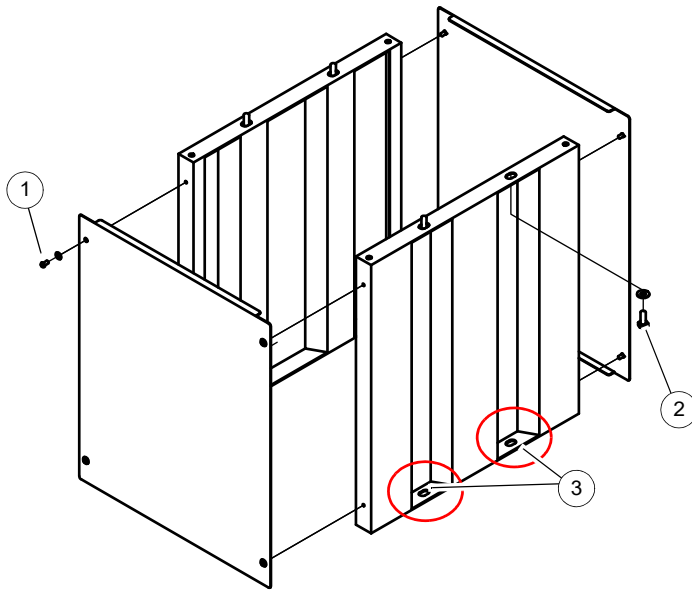
CAUTION!

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.



Assembling the machine stand

- ➔ Fit the side panels of the machine stand with the fitting tools supplied.
- (1) Side parts fixing screws.
- (2) Metal band saw fixing screws.



Img.3-1: Assembly drawing machine stand

- ➔ Place the machine stand on an appropriate foundation. Equalize eventual unevenness.
- ➔ Fasten the machine stand to the ground (3).

DANGER!

Danger of crushing and overturning. The metal band saw must be fitted to the machine substructure by several persons.

Weight 90 kg excluding the machine substructure.



CAUTION!

The acceptable load for individuals may be exceeded when the metal band saw is fitted to the machine substructure.

Wear safety shoes.

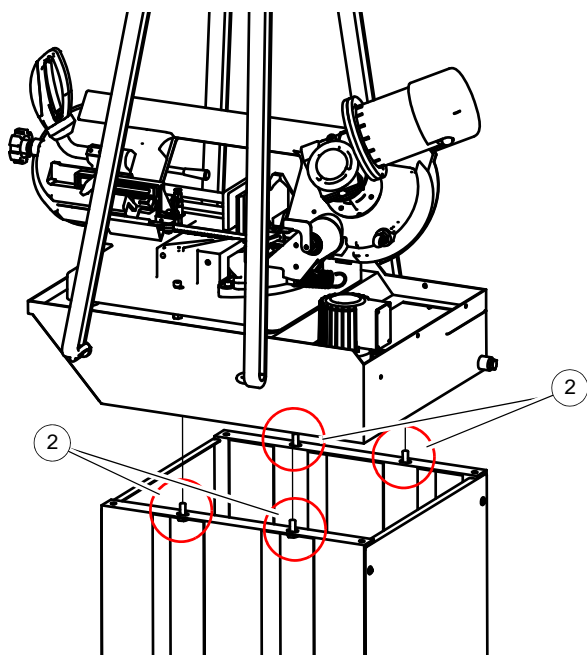


Recommended threshold values when lifting and carrying loads				
	Reasonable load in kg and frequency of lifting and carrying			
	Occasionally		More frequently	
	Women	Men	Women	Men
Age in years				
15 - 18	15	35	10	20
19 - 45	15	55	10	30
from 45	15	45	10	25

S150G_Vario_GB_3.fm



- Place the metal band saw on the machine stand.
- Screw the metal band saw to the machine stand (2).
- Screw the material support to the machine stand.

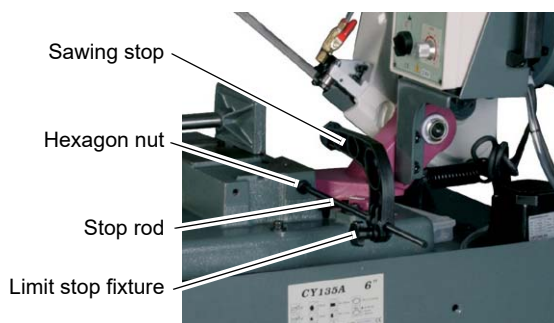


Material support

Img.3-2: Assembly material support

Material stop

- Screw the stop rod into the hole and lock the stop rod with the hexagon nut.
- Push the saw stop onto the stop rod.
- Lock the saw stop using the limit stop fixture.



Img.3-3: Material stop



3.5 Electrical connection

→ Connect the metal band saw according to detail information on the total power input to the electric supply.

📖 Electrical connection on page 23 📖 Qualification on page 9

3.6 First commissioning

WARNING!

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.



3.6.1 Checks

Perform the following checks.

ATTENTION!

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



Direction of the saw teeth

→ Check the direction of the saw teeth. The saw teeth have to point to the drive engine.



→ Drive motor

Running direction of the saw belt

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

Inspecting the belt guide pulleys

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

Belt guide pulley



Img.3-4: Belt guide pulley

3.6.2 Saw belt guide bearings

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


Guide bearing



Img.3-5: Guide bearing

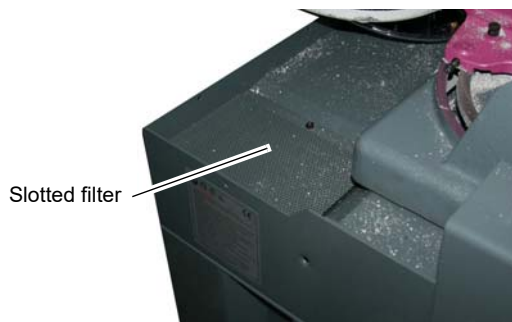


3.6.3 Saw belt tension

- Check the tension of the saw belt. The correct saw belt tension is achieved, when you can move the saw belt with a power of about 50 N in the middle by 3 mm. Setting  Tension of the saw belt on page 26

3.6.4 Coolant

- Fill up coolant through the slotted filter.



Img.3-6: Slotted filter



4 Installation and function

With the metal band saw you can saw different materials.

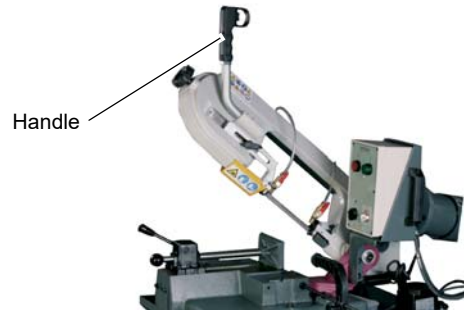
The speed of the saw belt can be changed using a potentiometer on the control panel.

With the metal band saw, you can make angular cuts in a range of 0° - 60°

The tension of the saw belt is adjusted with the handwheel.

4.1 Feed

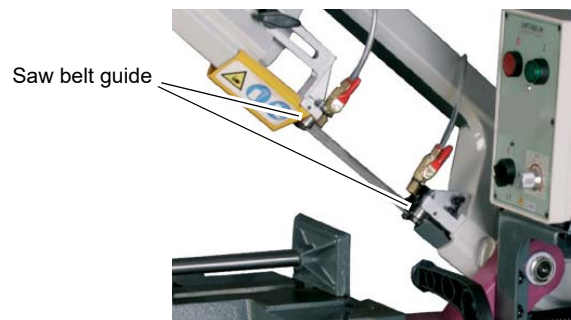
The feed rate of the saw arch is done manually via the handle.



Img.4-1: Handle

4.2 Saw belt guide

The adjustable saw belt guiding with flexible tube for the cooling agent serves to readjust the clearance when sawing workpieces of little dimensions.



Img.4-2: Saw belt guide

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.

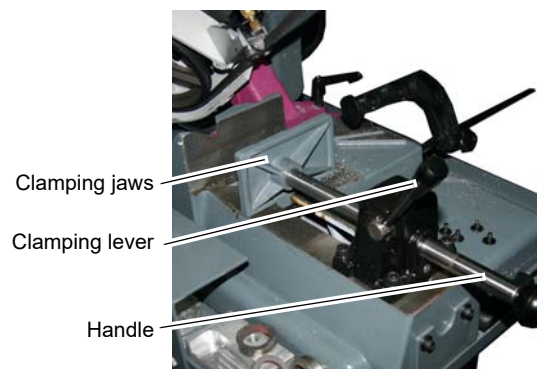


4.3 Machine vice

The machine vice serves as clamping device for the workpiece.

The machine vice consists of

- the working table,
- the clamping jaws,
- the handle,
- the clamping lever.

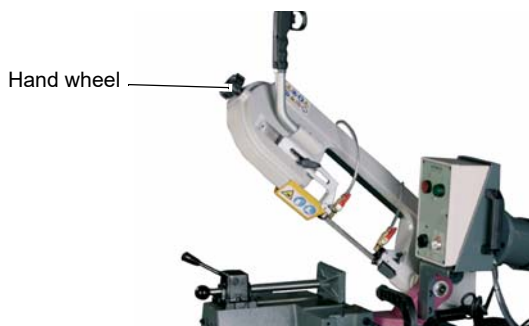


Img.4-3: Machine vice



4.4 Tension of the saw belt

The saw belt tension is set using the handwheel.



Img.4-4: Tension of the saw belt

4.5 Saw belt speeds

4.5.1 Speed regulator S150G Vario

The belt speed is adjusted with the speed regulator (potentiometer).

The possible speed range for the metal band saw is 20 - 65 m/min.



Img.4-5: Potentiometer S150G Vario

INFORMATION

The speed change is only possible during the run of the metal band saw.



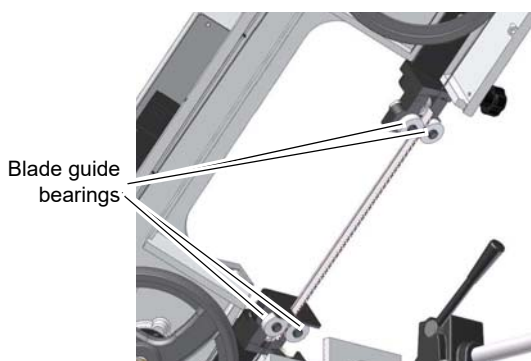
4.6 Belt guide bearings

ATTENTION!

The metal band saws are to be used with the following saw blades.

○ 1735 x 0.9 x 12.7 mm

When using saw blades with other dimensions the metal band saw might be damaged.



Img.4-6: Belt guide bearings



4.7 Coolant equipment

The sawing movement produces high temperatures in the edge of the tool due to the friction generated.

The tool must therefore be cooled during operation. Using a suitable lubricant or cooling agent leads to better results and longer saw belt life.



Img. 4-7: Coolant pump

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.





5 Operation

5.1 Control and indicating elements

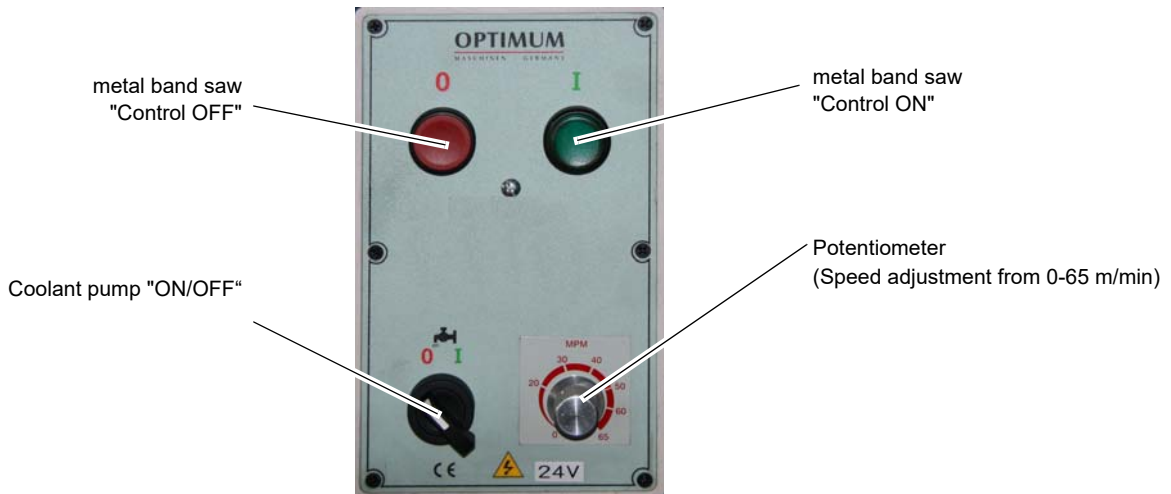


Img.5-1: metal band saw S150G Vario

No.	Designation	No.	Designation
1	Handle with push button to activate the saw band run	6	Quick action vice
2	Tension of the saw belt	7	Machine substructure
3	Saw arch	8	Control panel
4	Adjustable saw belt and coolant hose guide	9	Sawing stop
5	Clamping lever		



5.1.1 Control panel



Img.5-2: Control panel of the metal band saw

5.2 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 modifications.

Safety during operation on page 12



5.3 Working with the metal band saw

5.4 Inserting the workpiece

→ Place the piece to be cut in the work-holder vice.

ATTENTION!

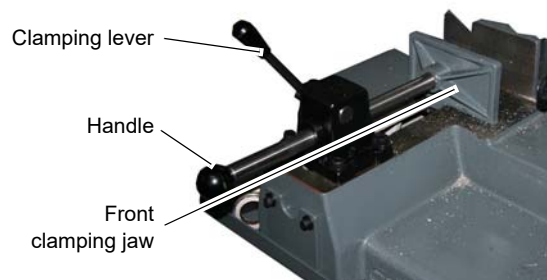
Risk of toppling the metal band saw. Support long work pieces before pushing the piece to be cut into the work-holder vice.

→ Position the front clamping jaw with the handle about 2 mm in front of the workpiece.

→ Press the clamping lever downward.

ATTENTION!

Make sure, that the workpiece is really firmly clamped.




Img.5-3: Handle and clamping lever





5.4.1 Starting the metal band saw

- Connect the electrical supply cable.
- Press the push button "On".
- Push the press button on the handle of the metal band saw and the saw band is running.
- Set the speed of the saw belt with the potentiometer.  Setting the speed of the saw belt on page 31
- Pull the saw arch on the handle down the workpiece until the workpiece is cut completely.



5.4.2 Switching off the metal band saw

- After sawing process release the press button.
- Move the saw arch back to the top position. Make sure after sawing process that you do not release the saw arm.



INFORMATION

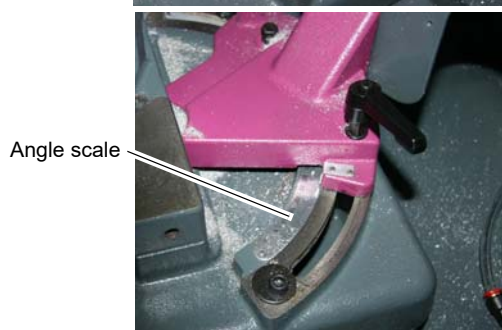
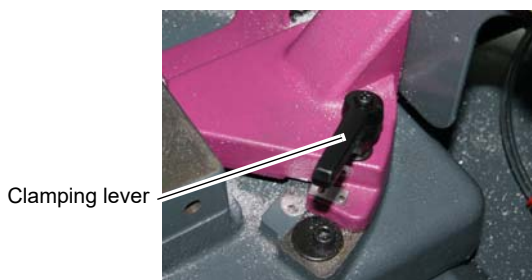
For better handling of the saw arch is equipped with a return spring. When you release the saw arch, the saw arch is moved by the spring force back into the top position.

- Press the push button "Off".
- Pull out the mains plug if the machine is not to be used for a protracted period.



5.5 Angle cut setting

- The locking lever must be solved to adjust angle cuts.
- Turn the saw arch to the required cutting position.
- The scale which you need to adjust the angle is on the bearing support.
- Lock the adjustment by clamping the clamping lever.



Img. 5-4: Clamping lever



5.6 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 set screw.
- Adjust the saw belt guidance close to the workpiece without influencing or hindering the sawing procedure.
- Re-tighten the set screw.



Img.5-5: Set 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.



5.7 Setting the speed of the saw belt

5.7.1 Speed regulator S150G Vario

The belt speed is adjusted with the speed regulator (potentiometer).

The possible speed range for the metal band saw is 20 - 65 m/min.



Img.5-6: Potentiometer S150G Vario

INFORMATION

The speed change is only possible during the run of the metal band saw.



Saw belt speeds

Guidelines values for cutting speeds [m / min]:

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

S150G_Vario_GB_5.fm



5.8 Coolant equipment

ATTENTION!

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



Symbol: Coolant pump



Img.5-7: Coolant pump

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.

➔ Turn on the coolant system with switch (1).





6 Maintenance

In this chapter you will find important information about

- Inspection
- Maintenance
- Repair

of the metal band saw.

ATTENTION!

Properly performed regular maintenance is an essential prerequisite for

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



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

ENVIRONMENTAL PROTECTION

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

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



Collect leakages

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

Disposal

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

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

6.1 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.

Use the prescribed protective equipment.



6.1.1 Preparation

WARNING!

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



Disconnecting and securing the metal band saw on page 13 ; Attach a warning sign.



6.1.2 Restarting

Before restarting, run a safety check.

🔧 Safety check on page 11

WARNING!


Before starting the metal band saw you must be sure that

- no dangers generated for persons,
- the metal band saw is not damaged.



6.2 Inspection and maintenance






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

Interval / When	Where?	What?	How?
As required and after changing the saw belt	Saw arch	Adjusting the tension in the saw belt	<p>→ Turn the hand wheel clockwise to increase the tension in the saw belt.</p> <p>→ The correct saw belt tension is achieved, when you can move the saw belt with a power of about 50 N in the middle by 3mm.</p>  <p>Hand wheel</p> <p>Img.6-1: Tension of the saw belt</p> <p>INFORMATION</p> <p>Do not strain the saw belt more than necessary. The saw belt could be overstretched and become warped.</p>
At the beginning of the shift after every maintenance or repair work	Metal band saw	🔧 Safety check on page 11	
every week	Drive shaft	Bearings	→ Oil




Interval / When	Where?	What?	How?
every week	Metal band saw	Oil	<ul style="list-style-type: none"> ➔ Lubricate all blank steel parts. Use acid-free oil, for example weapon oil or engine oil.
As required	Machine vice	Spindle	<ul style="list-style-type: none"> ➔ Lubricate the spindle of the work-holder vice
As required	Drive	Refill	<ul style="list-style-type: none"> ➔ Refill if necessary. ➔ Use viscous gear oil, e.g. Mobil 629 <div data-bbox="941 772 1476 1086" data-label="Image"> </div> <p>Img.6-2: Helical gear</p> <ul style="list-style-type: none"> 👉 Lubricant on page 50



Interval / When	Where?	What?	How?
Depending on wear	Saw arch	Changing the saw belt	<p>ATTENTION!</p> <p> This metal band saw was designed for use with belts of the following dimensions S150G Vario; 1735 x 12.7 x 0.9 mm The use of other saw belts may lead to worse cutting results.</p> <ul style="list-style-type: none"> → Place the saw arch in the upper position. → 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 tothing.  Direction of the saw teeth on page 23 → 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.  Adjusting the tension in the saw belt on page 34. → Perform the checks as described under  Checks on page 23. → For fitting the components, proceed in reverse order. → Proceed a trial run. → Re-fit the protective covers. <div style="margin-top: 20px;">  <p style="text-align: center;">Belt guide pulley Saw arch casing Saw blade</p> </div> <p style="text-align: center;">Img.6-3: Changing the saw belt</p>

S150G_Vario_GB_6.fm



Interval / When	Where?	What?	How?
at least annually	Coolant System	Replace Cleaning Disinfect	<ul style="list-style-type: none"> ☞ Cooling lubricants and tanks on page 38 ☞ Inspection plan for water-mixed cooling lubricants on page 39
As required	Coolant equipment	Coolant pump	<p>➔ 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.</p>  <p style="text-align: center;">Coolant pump</p> <p style="text-align: center;">Img. 6-4: Coolant pump</p>

6.3 Repair

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

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

For repairs, only use

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



6.4 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/l) or nitrate content to more than 50 ppm (mg/l)
- 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.



6.4.1 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 public 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:

coolant_GB.fm

7 Ersatzteile - Spare parts

7.1 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.*

7.2 Hotline Ersatzteile - Spare parts Hotline



+49 (0) 951-96555 -118

ersatzteile@stuermer-maschinen.de



7.3 Service Hotline



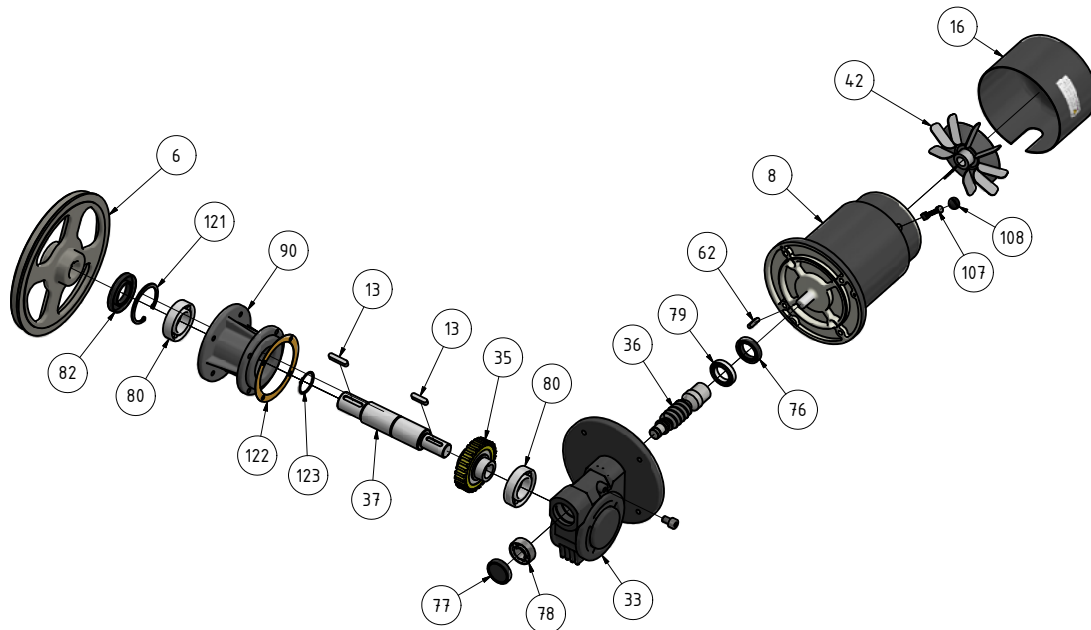
+49 (0) 951-96555 -100

service@stuermer-maschinen.de



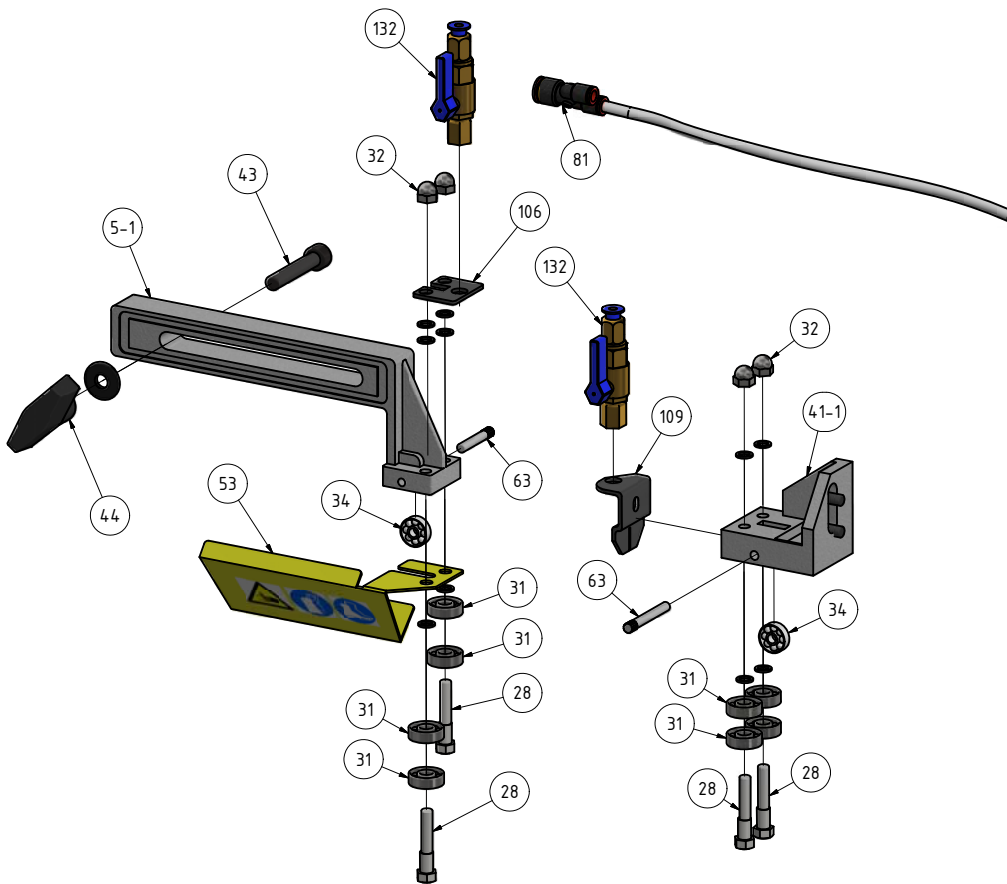
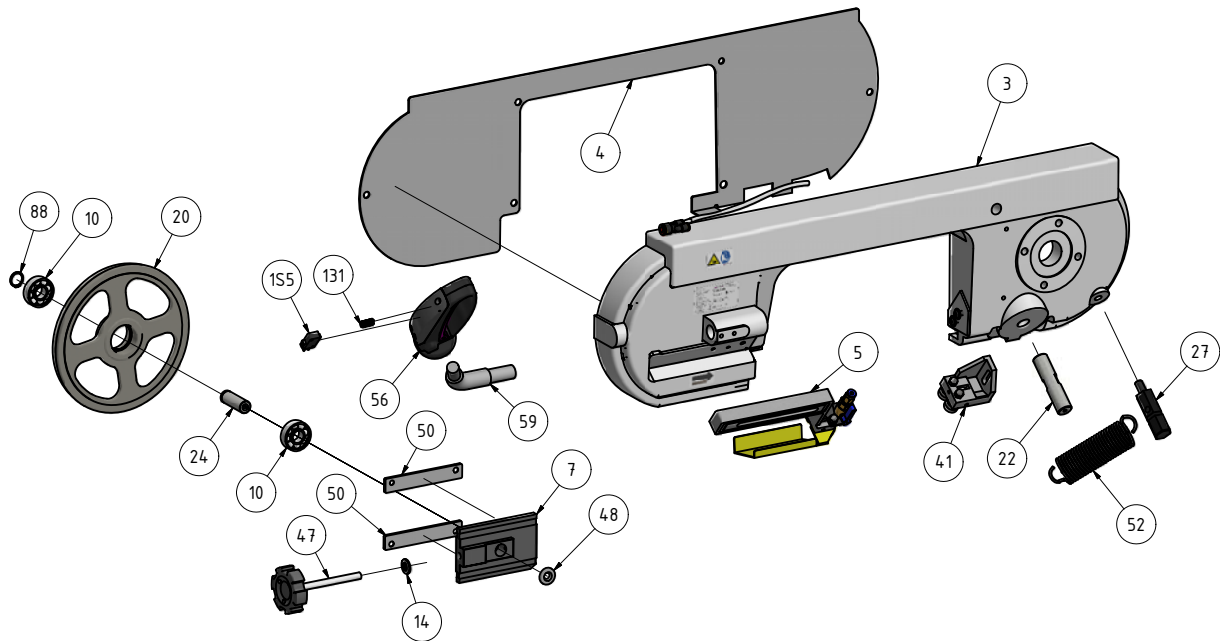
7.4 Ersatzteilzeichnung - Spare part drawing

C Antrieb - Drive



S150G Vario - Antrieb - Drive					
Pos.	Bezeichnung	Description	Menge	Grösse	Artikelnummer
			Qty.	Size	Item no.
6	Laufrad	Wheel	1		0330014506
8	Motor	Motor	1	DC motor	0330014508
13	Passfeder	Fitting key	2		
16	Motorabdeckung	Motor cover	1		0330014516
33	Getriebegehäuse	Gear box housing	1		0330014533
35	Zahnrad	Gear	1		0330014535
36	Schneckenrad	Worm gear	1		0330014536
37	Achse	Axis	1		0330014537
42	Motorlüfter	Motor fan	1		03300278132
62	Passfeder	Fitting key	1		
76	Wellendichtring	Shaft seal	1	25x37x7	04125377
77	Dichtung	Seal	1	35x7	
78	Kugellager	Ball bearing	1	6202	0406202
79	Kugellager	Ball bearing	1	6805	
80	Kugellager	Ball bearing	2	6006	0406006R
82	Dichtung	Oil seal	1	30x55x8	
90	Getriebeflansch	Gearbox flange	1		0330014590
107	Kohlenbürste	Carbon brush	2		03300145107
108	Bürstenabdeckung	Carbon brush cover	2		03300145108
121	Sicherungsring	Circlip	1	DIN 472 - 55 x 2	
122	Dichtung Getriebeflansch	Gear box housing seal	1		
123	Sicherungsring	Circlip	1	DIN 471 - 28 x 1,5	

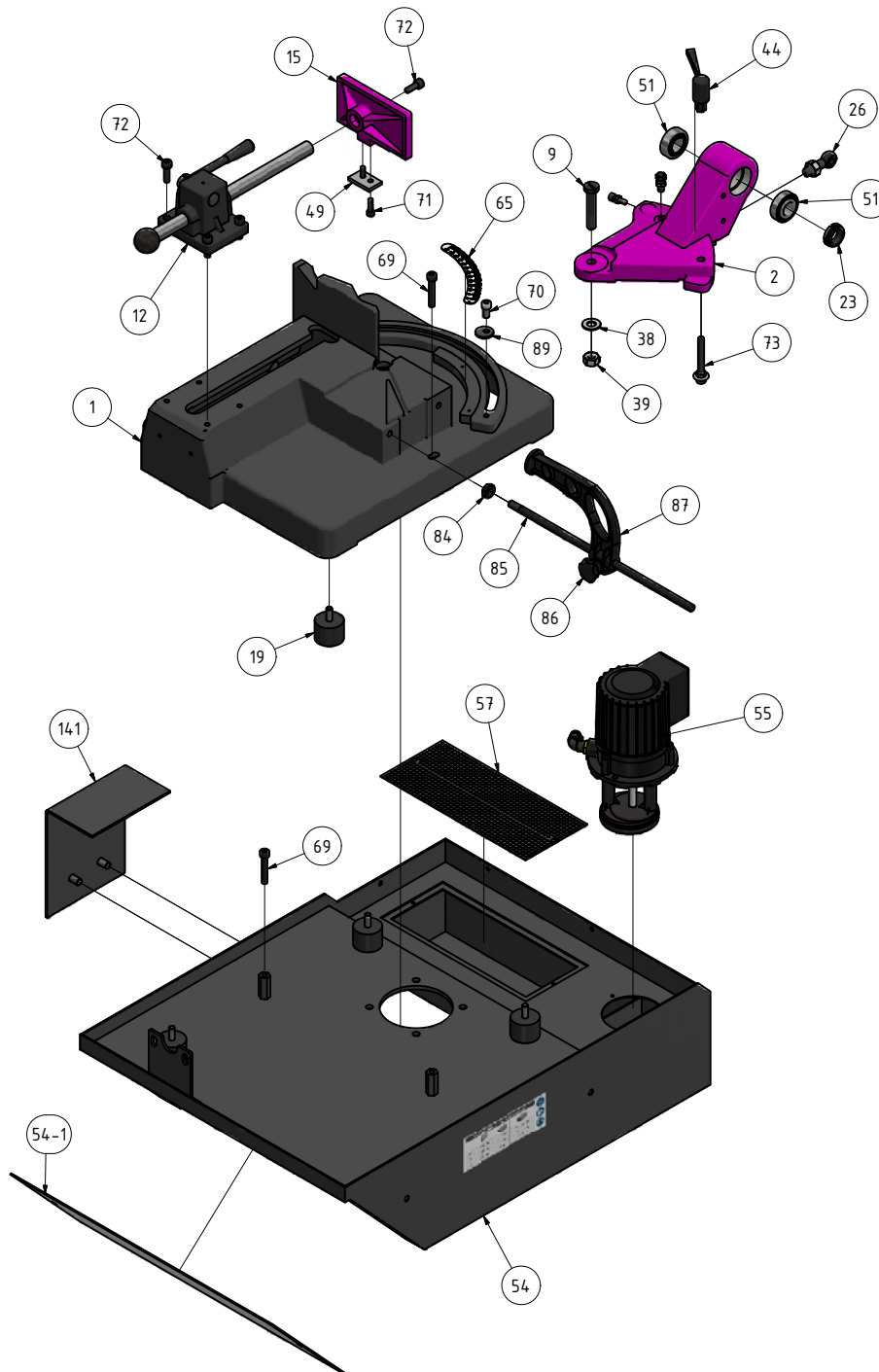
D Sägebügel, Sägebandführung - Saw bow, saw band guide



S150G Vario - Sägebügel, Sägebåndführung - Saw bow, saw band guide					
Pos.	Bezeichnung	Description	Menge	Grösse	Artikelnummer
			Qty.	Size	Item no.
3	Sägebügel	Saw frame	1		0330014503
4	Abdeckung	Cover	1		0330014504
5	Linke Sägebåndführung	Left saw band guide	1		0330014505
5-1	Stützbügel links	Left support bracket	1		
7	Block	Block	1		0330014507
10	Lager	Bearing	2	6203	0406203R
14	Scheibe	Washer	1		
20	Lauftrad	Wheel	1		0330014520
22	Bolzen	Bolt	1		0330014522
27	Führungsbolzen	Guide bolt	1		0330014527
28/29	Führungsbolzen	Guide bolt			0330014529
31	Kugellager	Ball bearing	8	607	040607
32	Hutmutter	Cap nut	4		0421587M6
34	Lager	Bearing	2	625	040625R
41	Rechte Sägebåndführung	Right saw band guide	1		0330014541
41-1	Stützbügel rechts	Right support bracket	1		
43	Schraube	Screw	1		
44	Klemmhebel	Clamping lever	1		0330014544
47	Handrad	Handwheel	1		0330014547
48	Ring	Ring	1		
50	Platte	Plate	1		0330014550
52	Zugfeder	Tension spring	1		0330014552
56	Handgriff	Handle	1		0329029055
59	Hebel	Lever	1		0330021056
1S5	Schalter Ein	ON switch	1	microswitch	030031712018
63	Stift	Pin	1		0330014563
81	Y Verteiler mit Kühlmittelschlauch	Y distributor with coolant hose	1		0329029081
88	Sicherungsring	Circlip	1	DIN 471 - 17 x 1	
106	Abdeckung linke Führung	Left guide cover	1		
109	Abdeckung rechte Führung	Right guide cover	1		03300145109
131	Feder für Griffschalter	Spring for handle switch	1		
132	Kühlmittel Dosierhahn	Coolant dosing tap	2		

S150G Vario - Sägebänder- Saw bands						
Katalogware, nicht als Ersatzteil erhältlich - Catalogue goods, not available as spare part						
	Zähne pro Zoll	Zahnwinkel		Teeth per inch	Tooth angle	Artikel Nr. / Item no.
HSS Bi-Metall M 42	6	10°	HSS Bimetal M 42	6	10°	3351521
HSS Bi-Metall M 42	6 - 10	0°	HSS Bimetal M 42	6 - 10	0°	3351522
HSS Bi-Metall M 42	10 - 14	0°	HSS Bimetal M 42	10 - 14	0°	3351538

E Maschinenunterbau - Machine base

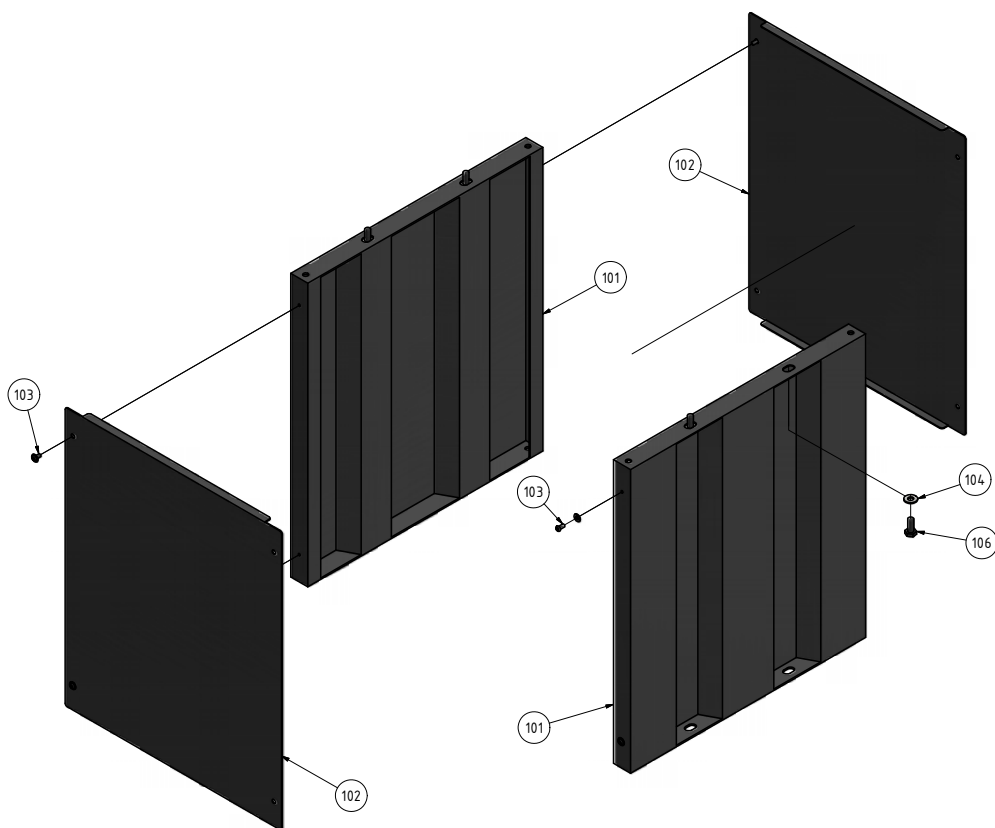


S150G - Maschinenunterbau - machine base					
Pos.	Bezeichnung	Description	Menge	Grösse	Artikelnummer
			Qty.	Size	Item no.
1	Unterbau	Base	1		0330014501
2	Schwenkhalterung	Swivel bracket	1		0330014502
9	Schraube	Screw	1		0330014509
12	Spannvorrichtung	Clamping device	1		0330014512
15	Spannbacke	Vice jaw	1		0330014515
19	Gummipuffer	Rubber bumper	4		
23	Nutmutter	Locknut	1		0363015044
26	Ringschraube	Ring bolt	1		0330014526
38	Scheibe	Washer	1		

S150G_Vario_parts.fm

S150G - Maschinenunterbau - machine base					
Pos.	Bezeichnung	Description	Menge	Grösse	Artikelnummer
			Qty.	Size	Item no.
39	Sechskantmutter	Hexagon nut	1		
44	Klemmhebel	Clamping lever	1		0330014544
49	Führungsplatte	Guide plate	1		0330014549
51	Kegelrollenlager	Taper roller bearing	2	32004X	04032004
54	Spänewanne	Chip tray	1		0330014554
54-1	Abdeckblech Spänewanne	Chip tray cover plate	1		
55	Kühlmittelpumpe	Coolant pump	1		0330014555
57	Sieb	Filter	1		0330014557
65	Skala	Scale	1		0330014565
69	Schraube	Screw	2		
70	Schraube	Screw	1		
71	Schraube	Screw	2		
72	Schraube	Screw	5		
84	Sechskantmutter	Hexagon nut	1	M10	
85	Anschlagstange	Stop bar	1		0330014585
86	Klemmschraube	Clamping screw	1		
87	Endanschlag	Limit stop	1		0330014587
89	Exzenter Scheibe	Eccentric washer	1		0330014589
141	Werkstück Stütze	Workpiece support	1		03300145141

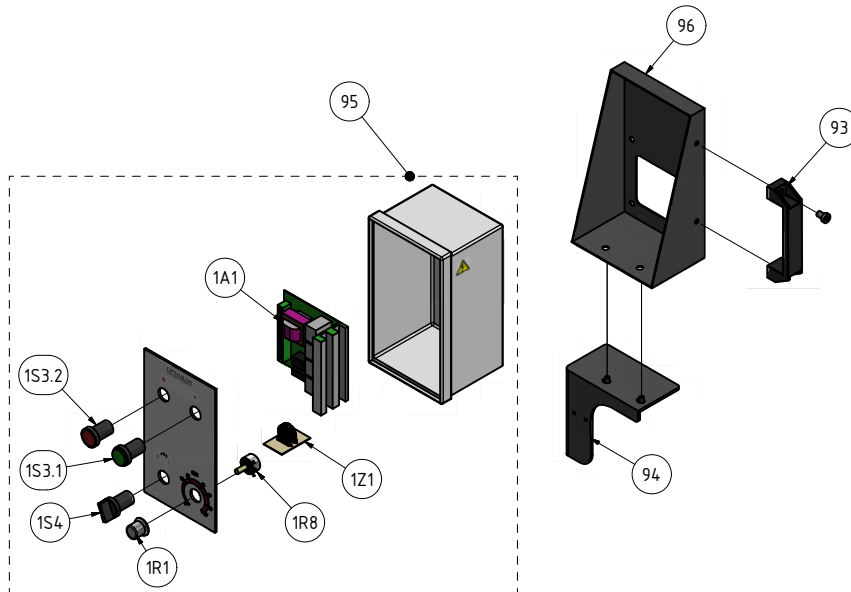
F Maschinenständer - Machine stand



S150G - Maschinenständer - Machine stand

Pos.	Bezeichnung	Description	Menge	Grösse	Artikelnummer
			Qty.	Size	Item no.
101	Seitenwand	Side wall	2		03300210203
102	Seitenwand	Side wall	2		
103	Schraube	Screw	8		
104	Scheibe	Washer	4		
106	Sechskantschraube	Hexagon screw	4		








G Schaltkasten - Switch box



S150G - Schaltkasten - Switch box

Pos.	Bezeichnung	Description	Menge	Grösse	Artikelnummer
			Qty.	Size	Item no.
93	Griff	Handle	1		03300210118
94	Halter	Bracket	1		
95	Schaltkasten komplett	Switch box complete	1		0330014595CPL
96	Halter	Holder	1		
1R1	Drehknopf	Rotary knob	1	knob only	033002781R1
1R8	Potentiometer	Potentiometer	1		033001451R8
1Z1	Ringkerntransformator (Filter)	Toroidal transformer (Filter)	1		033001501Z1
1A1	Steuerung	Control	1		033001451A1
1S3.1	Drucktaster Ein		1	white button	0460052
1S3.2	Drucktaster Aus		1		0460001

S150G - Elektrische Bauteile - Electric components					
Pos.	Bezeichnung	Description	Menge	Grösse	Artikelnummer
			Qty.	Size	Item no.
1M1.1	Antriebsmotor	Drive motor	1		0330014508
1M1.2	Motor Kühlmittelpumpe	Coolant pump motor	1		0330014555
1S3.1	Taster Steuerung Ein	Button control On	1		0460052
1S3.2	Taster Steuerung Aus	Button control Off	1		0460001
1S4	Schalter Kühlmittelpumpe	Colant pump switch	1		0322792
1S5	Schalter Ein	ON switch	1	microswitch	030031712018
1Z1	Ringkerntrafo (Filter)	Toroidal transformer (Filter)	1		033001501Z1
1H4	Betriebskontrolleuchte	Work light	1		033001451H4
1F3.1/ 1F3.2	Sicherung	Fuse	2		033001451F3
1A1	Steuerplatine	Control card	1		033001451A1
1R8	Potentiometer	Potentiometer	1		033001451R8

Schmierstoffe Lubricant Lubrifiant	Viskosität Viscosity Viscosité ISO VG DIN 51519 mm ² /s (cSt)	Kennzeichnung nach DIN 51502							
Getriebeöl Gear oil Huile de réducteur	VG 680	CLP 680	Aral Degol BG 680	BP Energol GR-XP 680	SPARTAN EP 680	Klüberoil GEM 1-680	Mobilgear 636	Shell Omala 680	Meropa 680
	VG 460	CLP 460	Aral Degol BG 460	BP Energol GR-XP 460	SPARTAN EP 460	Klüberoil GEM 1-460	Mobilgear 634	Shell Omala 460	Meropa 460
	VG 320	CLP 320	Aral Degol BG 320	BP Energol GR-XP 320	SPARTAN EP 320	Klüberoil GEM 1-320	Mobilgear 632	Shell Omala 320	Meropa 320
	VG 220	CLP 220	Aral Degol BG 220	BP Energol GR-XP 220	SPARTAN EP 220	Klüberoil GEM 1-220	Mobilgear 630	Shell Omala 220	Meropa 220
	VG 150	CLP 150	Aral Degol BG 150	BP Energol GR-XP 150	SPARTAN EP 150	Klüberoil GEM 1-150	Mobilgear 629	Shell Omala 150	Meropa 150
	VG 100	CLP 100	Aral Degol BG 100	BP Energol GR-XP 100	SPARTAN EP 100	Klüberoil GEM 1-100	Mobilgear 627	Shell Omala 100	Meropa 100
	VG 68	CLP 68	Aral Degol BG 68	BP Energol GR-XP 68	SPARTAN EP 68	Klüberoil GEM 1-68	Mobilgear 626	Shell Omala 68	Meropa 68
	VG 46	CLP 46	Aral Degol BG 46	BP Bartran 46	NUTO H 46 (HLP 46)	Klüberoil GEM 1-46	Mobil DTE 25	Shell Tellus S 46	Anubia EP 46
	VG 32	CLP 32	Aral Degol BG 32	BP Bartran 32	NUTO H 32 (HLP 32)	Klübersynth GEM 4- 32 N	Mobil DTE 24	Shell Tellus S 32	Anubia EP 32
Hydrauliköl Hydraulic oil Huile hydraulique	VG 32	CLP 32	Aral Vitam GF 32	BP Energol HLP HM 32	NUTO H 32 (HLP 32)	LAMORA HLP 32	Mobil Nuto HLP 32	Shell Tellus S2 M 32	Rando HD HLP 32
	VG 46	CLP 46	Aral Vitam GF 46	BP Energol HLP HM 46	NUTO H 46 (HLP 46)	LAMORA HLP 46	Mobil Nuto HLP 46	Shell Tellus S2 M 46	Rando HD HLP 46
Getriebefett Gear grease Graisse de réducteur		G 00 H-20	Aral FDP 00 (Na-verseift) Aralub MFL 00 (Li-verseift)	BP Energ grease PR-EP 00	FIBRAX EP 370 (Na-verseift)	MICROLUB E GB 00	Mobilux EP 004	Shell Alvania GL 00 (Li-verseift)	Marfak 00

oil-compare-list.fm

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



8 Malfunctions

8.1 Malfunctions on the metal band saw

Malfunction	Cause/ possible effects	Solution
Machine does not turn on	<ul style="list-style-type: none"> FI - circuit breaker of the power supply triggers. 	<ul style="list-style-type: none"> 🔌 Electrical connection on page 23
Saw motor overloaded Saw motor overheating	<ul style="list-style-type: none"> Suction of motor cooling air hindered Motor not correctly fixed Drive of saw belt not been properly fixed Wrong electrical connection 	<ul style="list-style-type: none"> Check an clean Requires technical service! Have the machine repaired in the workshop. 🔌 Electrical connection on page 23
Coolant supply does not work	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Fill Open Cleaning Check and clean Venting by briefly withdrawing the pressure hose Check pump
Short life of saw belt (Teeth blunt)	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Saw belt of higher quality (bimetallic blade) Select correct tooth pitch Use coolant equipment Reduce cutting speed Reduce feed
Breakage of tooth	<ul style="list-style-type: none"> The chip space in the saw belt is overcharged, tooth pitch incorrect 	<ul style="list-style-type: none"> Use saw belt with a different tooth pitch or reduce feed
Breakage of the saw blade	<ul style="list-style-type: none"> Tension in the saw belt too high or too low Saw blade defective Saw blade guide adjusted incorrectly 	<ul style="list-style-type: none"> Check tension of saw blade Replace Adjust blade guide correctly
Twisted cut (saw belt deviating)	<ul style="list-style-type: none"> Distance between guide and workpiece too high Saw belt blunt Too low saw belt tension Feed too high Cutting pressure too high Saw belt defective (irregular set) Wrong saw blade guidance 	<ul style="list-style-type: none"> Bring the guide as close to the workpiece as possible Replace Tighten correctly Reduce Reduce Replace Readjust
Cut not rectangular but parallel	<ul style="list-style-type: none"> Material does not rest on both vice jaws Saw arch not adjusted to 90° 	<ul style="list-style-type: none"> Insert material properly Adjust saw arch correctly



9 Appendix

9.1 Copyright

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

Subject to technical changes without notice.

9.2 Terminology/Glossary

Term	Explanation
Workpiece	<ul style="list-style-type: none"> Material to be cut
Belt guide pulley	<ul style="list-style-type: none"> Pulley through which the saw blade passes in the saw arch
Saw arch	<ul style="list-style-type: none"> Housing with protective cover for the saw blade
Material stop	<ul style="list-style-type: none"> Position for multiple cuts Sawing stop
Lowering cylinder	<ul style="list-style-type: none"> Hydraulic lowering cylinder Hydraulic feed
Feed regulation valve	<ul style="list-style-type: none"> Valve on the lowering cylinder
Protective cover of the V-belts	<ul style="list-style-type: none"> Covering cap of the pulley
Protective cover saw arch	<ul style="list-style-type: none"> Cover on the rear of the saw arch
Belt guide bearings	<ul style="list-style-type: none"> Rollers between which the saw blade passes Guide bearing
Saw belt guide	<ul style="list-style-type: none"> Belt guide bearings
Clamping jaw	<ul style="list-style-type: none"> Strip terminal on the machine vice
Vice	<ul style="list-style-type: none"> Clamping device for the workpiece
Drive motor	<ul style="list-style-type: none"> Engine



9.3 Liability claims for defects / warranty

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

9.4 Advice for disposal / Options of reuse:

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.



9.4.1 Decommissioning

CAUTION!

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



- Pull off the 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.

9.4.2 Disposal of new device packaging

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

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

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

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

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

9.4.3 Disposing of the old device

INFORMATION

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



Please note that the electrical devices 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.

9.4.4 Disposal of electrical and electronic components

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

The machine is composed of electrical and electronic components and must not be disposed of as household waste. According to the European Directive 2011/65/EU 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.



9.4.5 Disposal of lubricants and coolants

ATTENTION!

Please imperatively make sure to dispose of the used coolant and lubricants in an environmentally compatible 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.



9.5 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 it 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.



9.6 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 16.



- Prescribed position of the packaging box (marking the top side – arrows pointing upward)




- Maximum stacking height

Example: non-stackable – do not pile any further packaging boxes on top of the first packaging box





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  Information on page 5.

9.7 Change information manual

Chapter	Short note	new version no.
CE declaration	changed standard	1.0.1
Spare parts	Changed wiring diagram	1.0.1
2	Cutting area	1.0.2
1.4.1	Avoiding misuse	1.0.3
CE	declaration	1.0.3
CE conformity	notified body, SGS	1.0.4
1.4.1	EMC, class C2 to class C3	1.0.5
CE	new Type C standard	1.0.6
1	Img.1-4: removed	1.0.7
CE	Update	1.0.8
3	Interdepartmental transport	1.0.9
CE	Update	1.1.0
1.7 ; 1.8.1 ; 1.9 ; 5.1.1 ;	Emergency stop removed	1.1.1
3.4 ; parts	Installation plan + assembly sketch side parts ; spare parts drawings	1.1.2

9.8 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

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Fax +49 (0) 951 - 96 555 - 888

email: info@optimum-maschinen.de



EC Declaration of Conformity

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

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

hereby declares that the following product

Product designation: Metal band saw

Type designation: S150G Vario

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

Description:

Hand controlled metal 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 Machine tools - Safety - Sawing machines for cold metal

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

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

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

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

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

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

EN IEC 61000-6-2 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, 2022-02-24



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