

Translation of the original Operating manual

Operating manual

Band-saw machine for plastic pipes

Type BSM 450 / BSM 450 R



Status 13.06.2017

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1. General information

1.1 Manufacturer

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1.2 Operator evaluation

Dear operator,

the description of the machine control, important notes on safety, design, maintenance, as well as technical data, can be found in this operating manual.

Read this operating manual carefully, as the procedure in accordance with these instructions is a prerequisite for the correct use of the machine.

When using the machine note always the generally binding country-specific

Legal provisions.

1.3 Legal notice

Without explicit, written authorisation of the company Eugen Riexinger GmbH & Co. KG the operating manual may not be electronically or mechanically copied, distributed, changed, forwarded, translated into another language nor used in any other way.

The company Eugen Riexinger GmbH & Co. KG is not liable for damages resulting from the fact that the operating instructions have not been or have only been partly complied with, as well as for statutory and other binding provisions on accident prevention and environmental protection in the country in which the machine is operated (eg wearing personal ones) Protective equipment).

1.4 Safety symbols

This operating manual uses the following designations and symbols for hazards:



Danger!

This symbol refers to an *immediate danger to the life and health* of a person. Disregarding such notices results in severe harm to a person and may even cause fatal injuries.



Warning!

This symbol refers to a *potentially immediate danger to the life and health* of a person. Disregarding such notices *may* result in severe harm to a person and may even cause fatal injuries.



Caution!

This symbol refers to a *potentially harmful situation*. Disregarding such notices may result in minor harm to a person or material damage.



Attention!

This symbol gives important information for properly handling the machine. Disregarding such notices may result in malfunctions or material damage *of the machine or cause damage to the environment*.



Information

This symbol provides *instructions* and particularly useful information. Such information helps you use all functions of your machine optimally.

1.5 Used notation styles

This operating manual uses the following notation styles:

- Words or sentences with emphasised meaning are written in *italics*.
- **Control elements** on the control panel are written in blue font.
- The instructions, which the operator follows to perform specific functions, always begin with a number or a letter. Activities or notifications, which the machine uses as a response to executed instructions, are marked with a preceding full stop, e.g.:

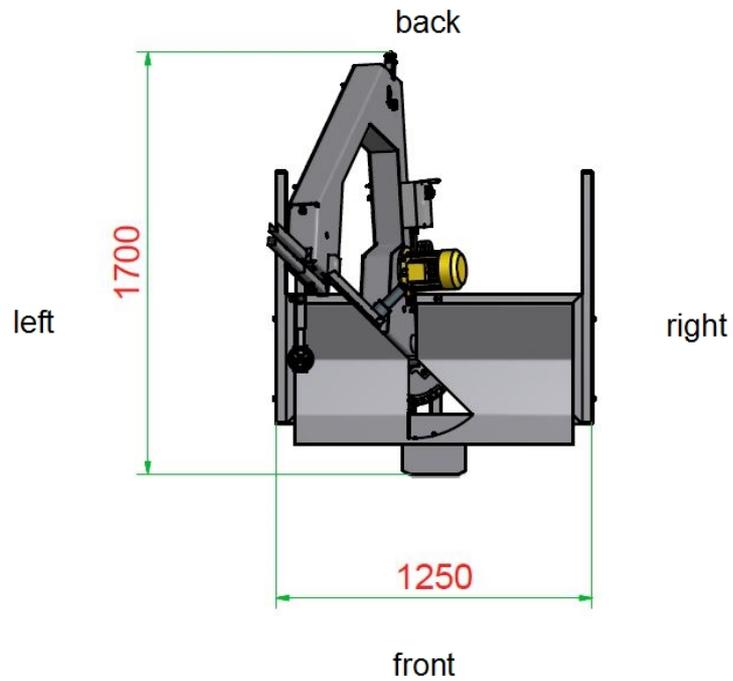
1. Instruction
 - a. Instruction
 - Response or notification from machine

1.6 Used abbreviations

IndSafReg	Industry Safety Regulations (German implementation of Guideline 2009/104/EG)
DGUV	German Social Accident Insurance (electrical facilities and manufacturing equipment) of the Professional Association for Health and Social Welfare
Roule 3	
BSM	Band saw machine
BSM R	Band saw machine with Radius attachment
PE	Polyethylene (thermo-plastic synthetics)
PP	Polypropylene (partial crystalline thermo-plastic synthetics)
PVC	PolyVinylChlorid
PVDF	Polyvinylidene fluoride (opaque, partial crystalline thermo-plastic fluorine synthetics)
APR	Accident Prevention Regulations

1.7 Location of objects in the room

The spatial information about locations of objects in the room in relation to the BSM 450 always refer to the image below.



1.8 Labelling on the machine

Symbol	Attachment location	Meaning
	Saw bow (near the saw band)	Warning of severance- and cut injury caused by saw band
	Saw bow (near the optical cut indicator, optional)	Warning of laser beams
	Switchboard cabinet Control panel, electrical components	Warning of dangerous electrical voltage when opening the door of the switchboard cabinet or the control panel casing
<p>Eugen Riexinger GmbH & Co. KG Egartenring 2 D-75378 Bad Liebenzell Tel. +49/7052/93090-0 Fax +49/7052/93090-33 E-Mail: info@riex.de</p> <p>Typ BSM 450 Nennspannung: 400 V 50/60 Hz Vorsicherung: 16 A Anschlußleistung 2,2 kVA Bandlänge: 3570 X 10 X 0,65 mm Baujahr: XX/XXXX Masch. Nr. XXXXXX</p>  	machine frame	Type label and CE marking of the BSM 450

2. Safety instructions

Repair, set-up, maintenance and cleaning work of the machine do only when the drive is switched off and the machine is at a standstill (switch off the main switch and secure against re-activation).

The instructions regarding operation, assembly, maintenance, repair, faults etc. must be strictly adhered to in order to avoid danger and to avoid damage. In addition, the machine may only be operated, maintained and repaired by persons which have been familiar with the machine and have been informed of the dangers. The relevant accident prevention regulations as well as the other generally accepted safety, occupational medical and environmental regulations must be observed. Persons under the age of 18 must not be employed on the machine.

The workplace must be designed and maintained in such a way that safe work is possible. The work area must be kept free of obstacles (obstacles).

The machine must have a safe stand.

Adequate lighting is to be provided at the workplace.

For work, a flat and non-sloping area with sufficient freedom of movement is required.

Work on the electrical system may only be carried out by a qualified electrician.

Wearing safety equipment is described below for the operator.

2.1 Behaviour in case of emergency



Warning!

Running saw band may injure the operator!

The saw band has a delayed stop-time of 4 seconds.

Wait after switching off machine at the [main switch](#) until the saw band stands still, before approaching the saw band area.

How to shutdown the machine in an emergency:

- 1) Turn off the machine with the [main switch](#) on the machine's control box (see Chapter 1.1 on p.1).
- 2) Call for an authorised person who can discover the reason for the emergency and fix the problem.

2.2 Follow the operating manual

- Carefully read this operating manual before using the machine for the first time.
- Familiarize yourself well with all safety instructions contained therein and observe these at all times when working with the machine.
- Always keep the operating instructions on hand near the machine.
- If the machine is transported to a new location, give these instructions to the new operator.

2.3 Usage according to regulations

The machine is built according to the state of the art and the recognized safety rules. However, their use may result in dangers to life and limb of the user or third parties, or damage to the machine or other property.

The BSM 450 is exclusively designed for sawing pipes with the properties and dimensions outlined in this operating manual (see Chapter 1.1 on p.1). Proper usage also includes:

- Observing all guidelines from the operating manual and
- Adhering to maintenance intervals

The BSM 450 is exclusively intended for usage in industry, craft and trade. It is not intended for private usage.

2.4 Reasonably foreseeable misuse

Any use other than those specified under "Use according to the intended use" or use beyond this is considered to be unauthorized and is prohibited.

Any other use need a consultation with the manufacturer.

The BSM 450 may not be -

- operated by more than one person (exceptions are described in the respective context);
- operated with deactivated safety button when the operator has not implemented the appropriate protective measures (e.g. safety fence) to keep the hazard area clear of people during operation;
- operated with deactivated safety button without operator supervision (with automatic saw feed);
- operated when not all protective equipment are available or fully functional:
- operated when malfunction and defects have not been repaired:
- modified or changed;
- operated in an explosive atmosphere;
- operated in a dusty environment without appropriate ventilation;
- be operated outdoors but only in inside rooms.

Furthermore, it is also not permissible to -

- modify the performance or the rotational speed of the motors;
- bypass the safety button, the end switch, the control elements or other control components;
- saw materials that are not intended for the machine BSM 450 as e.g. wood or metal;
- work on the machine without the personal protective gear prescribed in this operating manual.
- work on the machine with influence of alcohol, drugs and/or medicines.

2.5 Personnel requirements

The BSM 450 may only be operated by trained personnel whom the operator has authorised.

Personnel who are still learning how to work with the machine or apprentices may only operate it under the constant supervision of an instructed person.

The operator undertakes to have only persons working on the machine who have read the operating instructions (in particular safety and warning instructions), and have confirmed this by signing them.



Instructed person

A person who is at least 18 years old and has been sufficiently instructed or supervised by a trained employee and is therefore able to recognize risks and avoid hazards.



Authorised person

- Person who has a reliable understanding of safety-related technological issues due to professional expertise acquired through training, experience and recent professional activities
- The authorised person must have knowledge of state-of-the-art technology for the tasks to be executed and recognise hazards; he must also maintain this state of expertise.



Warning!

Electrocution hazard!

Only professional electricians may perform work on the machine's electrical equipment according to the electro-technological regulations.

The following table shows the personnel that is allowed to work with the machine in a particular life-phase the qualifications that this person must possess.

Life-phase	Instructed person	Authorised person
Transport	–	+
Installation	–	+
Activation	–	+
Operation	+	+
Malfunction search	+	+
Maintenance	+	+
Storage	–	+
Deactivation	–	+
Dismantling	–	+
Disposal	–	+



Attention!

We would like to explicitly state that any kind of repair work on our equipment or machines shall exclusively be performed by suitably trained and qualified personnel.

This includes all mechanical, pneumatic, and electrical work as well as intervention with the software or control system of the machine.

Arising damage on machine-parts, products or even personal injury will be rejected on non-observance.

2.6 Informal safety measures

- Always keep the operating instructions on hand near the machine.
- In addition to this operating manual, adhere to general and local accident prevention- and environmental protection regulations.
- Ensure that all safety instructions and danger notices attached to the machine (see Chap. 1.8 on p. 9) are legible and replace them if necessary.

2.7 Properly functioning of protective devices

All protective devices must be installed and function properly before starting up the machine (see Chap. 7.2 on p. 37).

Protective devices may be removed for repair work -

- after the machine is idle and
- and after the machine has been secured against re-activation (e.g. locking the main switch).

2.8 Organizational measures

The proprietor of the BSM 450 is obligated to provide the required personal protective equipment. The personal protective equipment includes:

<ul style="list-style-type: none"> • Work clothing 	
<ul style="list-style-type: none"> • Hearing protection 	
<ul style="list-style-type: none"> • Safety glasses 	
<ul style="list-style-type: none"> • Protective gloves 	
<ul style="list-style-type: none"> • Protective helmet 	
<ul style="list-style-type: none"> • Protective shoes 	
<ul style="list-style-type: none"> • Lifting device for loading and unloading of pipes to be sawed 	
<ul style="list-style-type: none"> • Climbing aid for maintenance 	

Do not wear loose clothing, bracelets, necklaces or other objects that could get caught in the moving parts of the machine.

Furthermore, the proprietor must ensure the regular examination of all existing safety equipment (see Chapter 1.1 on p.1).

2.9 Other hazards

In the following you will find the overridingly valid safety instructions that are relevant for several of the BSM 450 life phases. Specific safety instructions are listed in the relevant sections of this operating manual.

2.9.1 Fire hazard



Warning!

Fire hazard due to plastic waste

- Keep ignition sources away from the work area.
- Do not smoke in the work area.
- Ensure that no open fire ignites in the work area.

Fire protection

- Never use water to extinguish a fire source; always use sand, carbon dioxide or powder.
- It is imperative to turn off the machine at the main switch or disconnect the power supply before extinguishing a fire source.

2.9.2 Electrical hazards



Warning!

Directly or indirectly touching live parts may result in electrocution.

- Turn off the main switch before opening the door of the switchboard cabinet.
- Pull the power plug or deactivate the power supply before working on electrical components.
- Electrical components are not protected against spray water. The proprietor must implement appropriate protective measures.

2.9.3 Laser radiation (special equipment)



Information!

Important Informations about the Laser!

- The used laser is a laser class 1 according to DIN EN 60825-1:2008-05. The accessible laser radiation is harmless.

2.9.4 Mechanical hazards



Danger!

Running saw band may cause serious severance injury!

Descending saw bow may pinch the operator!



- The machine may only be operated by one person.
- Before running the saw band or lowering the saw bow, the operator must ensure that the work area is clear.
- When starting the work process make absolutely sure that no body parts (arms, hands, etc.) are within the danger area.



Danger!

Danger of crushing during operation of the machine!

Crushing of limbs when pulling down the saw bow.

When starting the work process make absolutely sure that no body parts (arms, hands, etc.) are within the danger area.

2.9.5 Heat hazards



Attention!

After sawing the hot saw band may burn the operator!

Wear protective gloves during repair work or allow the saw band to cool down before touching it.

2.9.6 Environmental hazards



Attention!

Plastic waste and used saw bands contaminate the environment!



Dispose of all shavings, plastic waste and used saw bands according to locally applicable legal stipulations.

2.9.7 Emissions

Dust



Caution!
Sawing plastic materials releases fine dust into the air, which may harm the operator's health!



- Adhere to the respective legal regulations and determined workplace threshold values for dust.
- The proprietor is obligated to install a ventilation system and provide the operator with a respiratory mask if workplace threshold values are exceeded.

Noise emissions

Emission sound pressure level at workstations L_{pA} (drive systems, ca.) 56 dB(A) in 1 m radius without intervention in the workpiece.

Depending on the workpiece, this value fluctuates. Therefore a global statement can not be made. The respective workpiece must be evaluated by a qualified measurement at the time of first use.



Attention!
Permanent high levels of noise at the workplace can cause irreversible damages to hearing!



- Therefore, the operator must wear hearing protection at the workplace during the sawing mode at an emission sound level from >80 dB (A).

EMC

The BSM 450 complies with protection requirements in regard to interference immunity according to EN 61000-6-2:2005 (Interference immunity for industrial areas).

The BSM 450 complies with protection requirements in regard to interference emission according to EN 61000-6-3:2007 (Interference emission for living-, commercial- and trade areas as well as for small business).

Therefore, the machine may be operated in industrial- as well as in living- and commercial areas.

3. Technical data

3.1 General information

Machine construction

- Robust, torsion-resistant machine stand and saw frame made of steel
- Saw-band redirection with ball bearings
- Compensation for warmth-induced expansion of the saw band with band-tensioning device

Cut quality

- Precision guides for straight cuts
- High saw-band speed for optimal cut quality

Operation

- Exact adjustment of saw angle possible with angle scale at front
- Adjustable miter on one side 0 ° to 45 ° by swiveling saw bow
- Manual moving of saw bow via handle

Special Equipment (optional)

- Visual cutting indicator for quick positioning of workpiece
- V-support for processing small pipe diameters
- Attachment for radius cuts for front sawing of radii of various sizes (BSM 450 R)

3.2 Delivery contents

The delivery contents consist of:

- BSM 450
- 1 control box
- 2 saw band
- 2 tension belts
- 8 plastic screw feet
- 1 operating manual

3.3 Dimensions and weight

Length	1250 mm
Width	1700 mm
Height	2090 mm
Weight, ca.	160 kg

Transport dimensions

Transport width	1250 mm
Transport length	1600 mm
Transport height (with wooden blocks), ca.	1720 mm

3.4 Equipment

Saw band

Dimensions	3590 x 10 x 0.65 mm
Tooth pitch (Tz)	4 or 6 ZpZ (depending on wall thickness of workpiece)



Caution!

Saw bands that jump off the spool may injure the operator or cause material damage.

Use original saw bands from the machine's manufacturer. Saw bands from other providers may jump off the spool and injure the operator or cause material damage to the machine or workpiece.

3.5 Workpieces

Type of material	PE, PP, PVC, PVDF plastics (other types of plastics after consultation with manufacturer)
Profile	Pipes and profiles
Min. diameter	50 mm
Max. diameter	450 mm
Min. length	The workpiece must be tensioned fasten with pipe clamping device.

**Attention!**

The BSM 450 may only be used to saw glass fibre-reinforced plastics when the GFP-dust is ventilated with a ventilation system.

Dust is released into the air when sawing GFP, and this dust can very quickly shutdown mechanical components and electrical equipment of the BSM 450. Therefore, a suitable ventilation system is absolutely necessary when sawing GFP.

3.6 Electrical connection

Operating voltage	3N-PE-AC 400 V
Frequency	50/60 Hz
Power rating	7,5 kVA
Connection type	CEE plug-in, 16 A, 400 V
Phase sequence	Field turning clockwise

Saw-band operation

- Mechanical output 1,25 kW
- With overload protection
- With electrical break

3.7 Suction of saw shavings

Shavings produced during cutting of plastic pipes can be removed by suction. For this machine must be connected to an suction system.

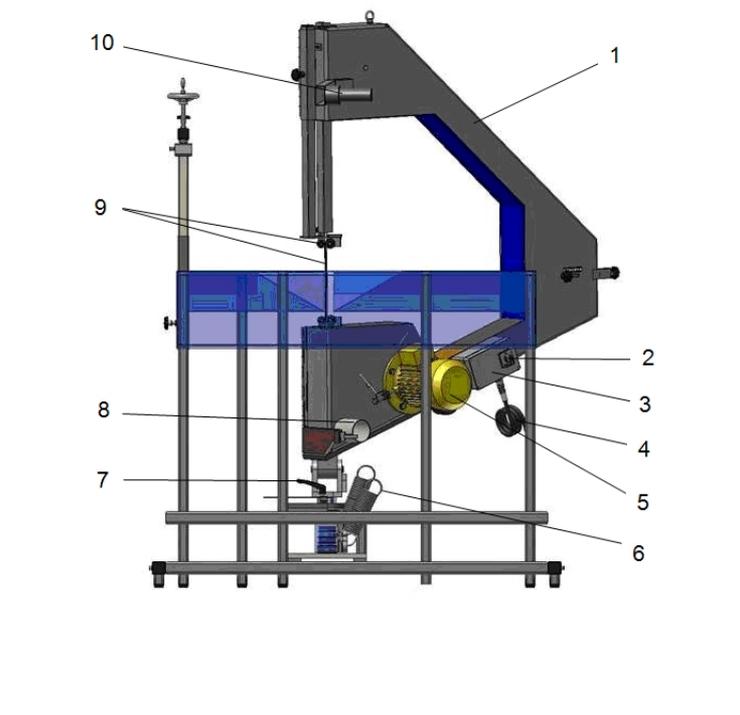
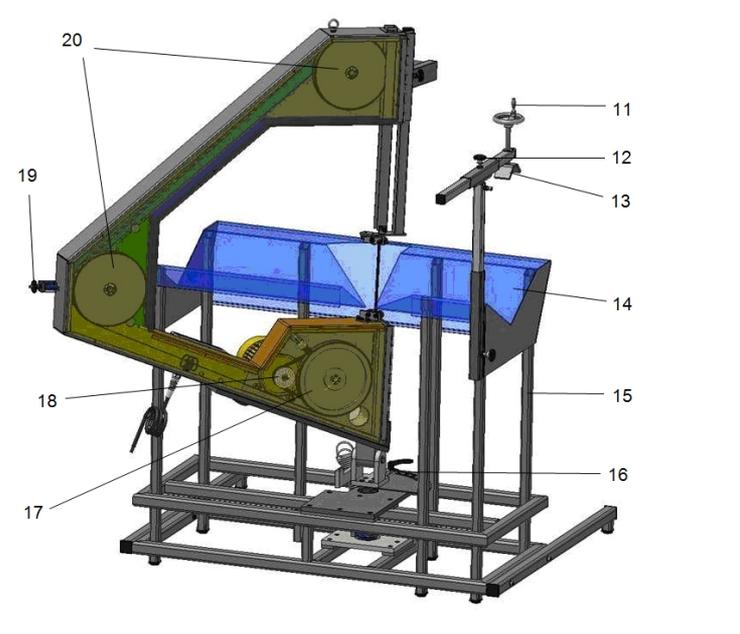
3.8 Manufacturer data

Year of manufacture: 2017

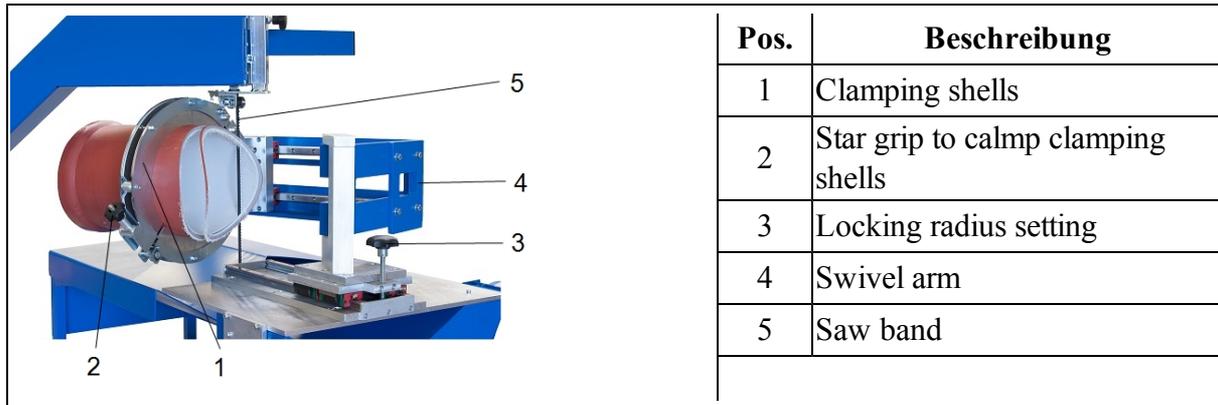
Serial number: 17XXXXXX

4. Setup and function

4.1 Overview

	Pos.	Description
	1	saw bow
	2	main switch
	3	control box
	4	connection cable
	5	driving motor
	6	balance spring
	7	Locking device for angle scale
	8	Connection port for ventilation system
	9	Saw band with adjustable saw band cover
	10	Handle with pressure switch
	11	Hand wheel pipe climping
	12	Fasten screw pipe climping
	13	Climping prism
	14	Prism table
	15	Base frame
	16	Angle scale
	17	Drive wheel
	18	Belt pulley
	19	Star grip for blade tension
	20	Diversion wheel

Attachment for radius cuts



4.2 Functionality

The BSM 450 saws plastic pipes -

- with varying diameters,
- made of various types of plastic,
- with an adjustable saw angle.

The saw process is executed as follows:

- The saw bow is placed in the rear starting position
- If necessary make angle setting and lock.
- The workpiece is inserted into the machine and clamped with clamping prism
- Open saw band cover only in diameter size of the workpiece
- Switch on saw band and pull sawbow forwards slowly. The workpiece is sawed off.
- Swivel saw bow to the rear
- The clamps on the workpiece are released, and the workpiece is removed from the machine.



Information

Functionality and sawing with attachment for radius cuts (optional) see Chap. 7.6 on p. 41.

4.3 Safety concept

4.3.1 Pressure switch

According to valid APR the BSM 450 must operate in jogging mode during processes that are dangerous for the operator. This means that the operator must press the pressure switch of the hand grip with one hand while sawing. As soon as the button are released, the motor of the saw band stops.



Danger!

Running saw band may cause serious severance injury!

- The machine may only be operated by one person.
- Before running the saw band or lowering the saw bow, the operator must ensure that the work area is clear.
- When starting the work process make absolutely sure that no body parts (arms, hands, etc.) are within the danger area.



Warning!

Directly or indirectly touching live parts may result in electrocution.

The BSM 450 is *not* disconnected when you release the pressure switch. The [main switch](#) remains in position *On*.



Danger!

Danger of crushing during operation of the machine!

Crushing of limbs when pulling down the saw bow.

When starting the work process make absolutely sure that no body parts (arms, hands, etc.) are within the danger area.

5. Delivery, in-company transport and storage

5.1 Delivery

- The BSM 450 is delivered by a transportation company and off-loaded at the customer's operating site.
- The machine is transported and delivered upright lashed down on a wooden pallet.

1) Immediately check the off-loaded machine for visible transportation damages. If the machine has been damaged, document the details and promptly report this to the transportation company and manufacturer.

2) Check also if the delivery contents of the BSM 450 are complete (see Chap. 3.2 on p. 21).



Note!

Prohibition of improper disposal of packaging materials!

For disposal, separate the individual material types and dispose of them according to the country-specific regulations.

5.2 Environmental conditions for storage and transport

Temperature	-10 to +40 degrees C
Relative humidity	15-55%, non-condensing



Attention!

Improper environmental conditions may cause damage to machine!

Protect the machine, and especially the electrical equipment, from moisture, rain and dust. The BSM 450 may not be set up or stored outside.

5.3 In-company transport



Warning!

Crushing hazard for arms and legs during transport and machine setup!



- Only authorised persons may carry out the in-company transport and setup of the machine (see Chap. 2.5 on p. 14) according to valid APR.
- Also ensure that no persons are in the transportation path or in the setup area and wear safety shoes with toe-protection caps.



Attention!

Improper transport may cause damage to machine!

The BSM 450 may not be lifted and transported with lifting devices that are attached to machine parts (e.g. the saw bow) but only with a suitable forklift that lifts the frame of the machine.

- 1) Provide a suitable forklift for the in-company transport of the machine.
- 2) Lift the machine frame centrally with the forklift.
- 3) Transport the machine to the desired storage- or setup location.
- 4) With the forklift lower the machine onto the bottom carefully.

6. Setup and activation

6.1 Setup location

6.1.1 Floor conditions



Warning!

Persons may be injured and the machine damaged if the floor in the setup room is not able to bear the machine's load!

Be aware of the following weights when determining the required load-bearing capacity:

- BSM 450 during operation
- Workpieces (pipes)
- Operating personnel
- Lifting equipment for pipes
- Transportation devices for transporting the BSM 450 to the setup location

The floor of the setup room for the BSM 450 must have the following characteristics:

- Hard, level, without slope
- Sufficient load-bearing capacity
- No disruptive vibrations

The surface of the floor must have the following characteristics:

- Easy to clean
- Skid resistant

6.1.2 Lighting

The nominal lighting power at the setup location of the BSM 450 must comply with valid workplace regulations.

6.2 Environmental operating conditions

Operating temperature	-10 to + 40 degrees C
Relative humidity	15-55%, non-condensing
Height a. s. l.	1000 m
Max. Dust concentration	Legal regulations for workplace threshold values

**Attention!*****Improper environmental conditions may cause damage to machine!***

- If the operating temperature exceeds the threshold temperature, the machine's setup room must be air-conditioned to avoid shutdown of electrical components.
- The proprietor is obligated to setup a properly dimensioned ventilation system at the setup site for sawing of glass fibre-reinforced plastics (GFP) or similar dusty work materials; in case of non-compliance, resulting machine damage is not covered under the guarantee.

6.3 Setup plan

Bild 1. Setup plan: View from top

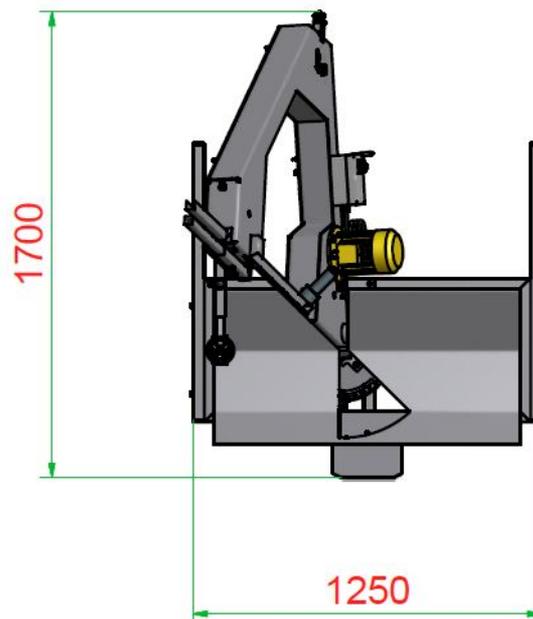
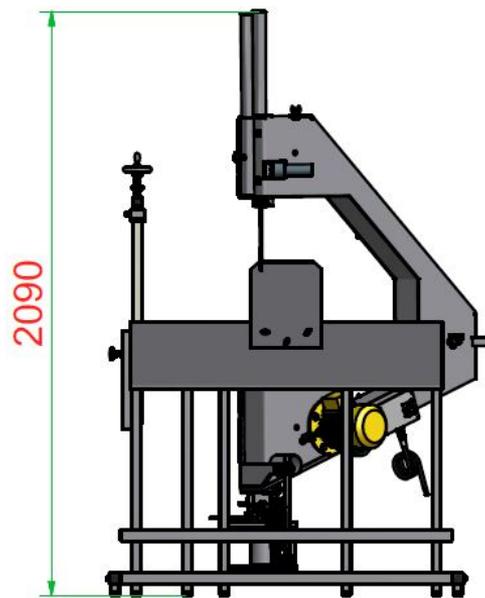


Bild 2. Setup plan: View from side

These are the machine dimensions. The distances the surroundings are largely dependent on the length and size of the workpieces to be processed.

6.4 Setting up the machine



Warning!

Crushing hazard for arms and legs during transport and machine setup!



- Only authorised persons may carry out the in-company transport and setup of the machine (see Chap. 2.5 on p. 14) according to valid APR.
- Also ensure that no persons are in the transportation path or in the setup area and wear safety shoes with toe-protection caps.

- 1) Transport the BSM 450 to the setup location (see Chap. 5.3 on p. 30). During setup pay attention to the required horizontal and vertical spacing (see Chap. 6.3 on p. 32). This depends on the size and length of the workpieces to be processed
- 2) Lift the BSM 450 with a suitable transportation device.
- 3) Remove the pallet.
- 4) Slowly place the BSM 450 on the ground until it fully rests on the screw feet.
- 5) Horizontally align the machine frame lengthwise and across with a water level. The slope of the machine frame can be adjusted by screwing the machine feet in or out.
- 6) Ensure that all screw feet are resting fully on the ground.
- 7) Secure the screw feet with the fitted locknut. This concludes machine setup.

6.5 Connect to electrical power supply

Check the power supply before connecting. Incorrect connections can cause destruction of electrical equipment.



Warning!

Electrocution hazard!

Only professional electricians may connect the machine to the power supply according to the electro-technological regulations.

For longer unattended break from work or shutdown of the machine pull mains plug (mains switch function).



Caution!

Loosely laid cables are a tripping hazard!

Lay the power cable to the machine so that it does not pose a tripping hazard. E.g. cable bridges or connections along the ceiling can be used.



Attention!

Faulty connection values may cause material damage to machine!

Therefore, observe the machine's connection values (see Chap. 3.6 on p. 23).

The specifications on the type label must agree with the data of the electricity grid.

Connect the electrical equipment only at power supply witch is adequately secured against overcurrent.



Attention!

No function of the electric brake in case of power failure!

In case of power failure, the electronic brake has no function. Here, the machine must not be run out unattended. do not reach into the danger zone.



Attention!

Avoid short switching cycles!

Because of the enormous thermal stress during the frequent starting and braking the motor, the electrical box an the elekctronic brake can be damaged.

**Attention!****Machine can not be connected to:**

- electricity producers, emergency generator, generators
- voltage transformer
- static frequency converters
- mains voltage with a different sinusoidal form

The machine is intended for operation on an power supply with a system impedance smaller than 0,39 ohms at the house connection point. The user must ensure that the machine is operated on a network which satisfies the above requirements. If necessary, the system impedance can be requested from the local energy supply company.

- 1) Ensure that the cables that connect the BSM 450 are equipped with an appropriately dimensioned circuit breaker.
- 2) Ensure that the phase sequence of the outer cable turns clockwise in the receptacle.
- 3) Connect the BSM 450 to the power supply by connecting the machine's plug to a receptacle.

We assume no liability for damages resulting from failure to comply with the above points.

6.6 Initial operation

Do not operate the machine if the power cable, motor cable or the electrical box are visibly damaged!

**Attention!****Warning against damage to machine's electrical equipment caused by condensation!**

Wait several hours before turning on the main switch of the machine if there has been a sudden change in ambient temperature.

- 1) Set the machine up (see Chap. 6.4 on p. 33).
- 2) Remove the transport lock at the saw bow (NOTE Information!)

**Danger!****Crushing hazard when removing the transport lock of the saw bow!****Removing the transport safety of the saw frame from tipping backwards.**

The saw frame may tilt backwards if the transport lock is removed.



Information

Store the transport lock at well. When using the BSM 450 with attachment for radius cuts (optional) this is necessary for locking the saw bow.

- 3) Set the saw bow to 0 degrees (see Chap. 7.4 on p. 38).
- 4) Connect electrical power supply (see Chap. 6.5 on p. 34).
- 5) Grease all blank machine guides and lubricate the joints of saw bow (see Chapter 1.1 on p.1).
- 6) Install a saw band if it has not yet been installed in the machine (see Chap. 9.4 on p. 62).
- 7) Check all safety equipment (see Chap. 9.5 on p. 65).
- 8) Check whether all protective equipment is installed and connected (see Chap. 7.2 on p. 37).
- 9) Activate the BSM 450 by turning the main switch on (see Chap. 7.3 on p. 37).



Danger!

Running saw band may cause serious severance injury!

- The machine may only be operated by one person.
- Before running the saw band, the operator must ensure that no persons are behind the workpiece or in the danger area.

- 10) Test to see whether the electrical connection is correct by observing the directional movement of the saw band:
 - a) Turn on the saw band pressing push button and observe the direction of movement of the bandsaw band.
 - b) Release push button to turn off saw band.
 - c) If saw band moves from top to bottom the BSM 450 is connected correctly.
 - d) If the saw band moves from bottom to top, then the electrical connection must be re-configured (see Chap. 6.5 on p. 34).
- 11) Finally, make a test cut (see Chap. 7.6 on p. 41).

7. Operation

7.1 Before start-up

Before start-up, check whether -

- 1) all protective equipment is properly installed and closed off (see Chap. 7.2 on p. 37);
- 2) all safety devices are functioning properly (see Chap. 9.5 on p. 65).

7.2 Protective equipment

How to check whether all protective equipment is properly installed and closed off:

- All saw-band covers mounted and fastened with screws? (see Chap. 9.3 on p. 60)

7.3 Turning the BSM 450 on and off



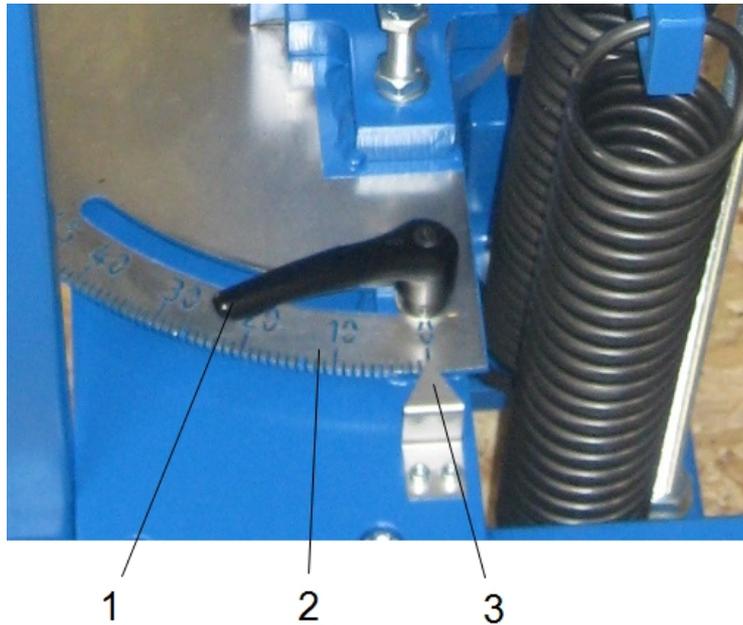
Turning the BSM 450 on

- 1) Turn on the machine by turning the [main switch](#) at the control box clockwise to "I" position.

Turning the BSM 450 off

- 1) Turn off the BSM 450 by turning the [main switch](#) at the control box counter-clockwise to "0" position.

7.4 Setting the sawing angle



Pos.	Description
1	quick tensioning lever
2	angle scale
3	pointer



Danger!

Running saw band may cause serious severance injury!

The swivel-mounted saw bow may pose pinch point hazard!



- The machine may only be operated by one person.
- The sawing angle may only be adjusted when the machine motor is turned off.
- Before setting the sawing angle, the operator must ensure that the work area is clear.
- The operator must ensure that the saw bow is placed in the rear start position.



Mitre cuts

The BSM 450 has a mitre range from 0 to 45 degrees. This allows the operator to make mitre cuts to one side.

- 1) If not already done, slide the saw bow in the rear position.
- 2) Make sure that in the pivot area of the saw bow there is no person and no obstacles.
- 3) Loosen the quick-tensioning lever on the saw-angle adjustment equipment.
- 4) Carefully and slowly swivel the saw frame in the appropriate direction until the pointer shows the desired angle value on the angle scale.
- 5) Secure the set angle position of the saw frame by tightening the quick-tensioning lever.
- 6) Depending on the set saw angle, a tension device that is holding the workpiece in place may now be on the cutting line. If this is the case, reposition the tension device (see Chap. 7.5 on p. 39).

7.5 Loading the machine



Attention!

Tensioning the pipe clamping device may cause pinch point injury!

While tensioning the tension belts, make sure that your hands or your assistant's hands are not pinched by the belts.



Attention!

Heavy workpieces may cause lifting injury!

Use lifting gear such as a fork lift, hoisting crane, transport wagon etc. to load or remove workpieces into or from the machine.



Attention!

Falling, offcut workpieces may injure the operator!

Secure workpiece offcuts that are not clamped in (e.g. with suitable lifting gear) so that these pieces do not fall from the table after sawing.



Attention!

Sharp pipe edges and saw band may injure the operator!

Always wear protective gloves when loading the machine.



Information!

Important informations about the laser!

- The used laser is a laser class 1 according to DIN EN 60825-1:2008-05. The accessible laser radiation is harmless.
- Nevertheless do not look directly into the laser beam.



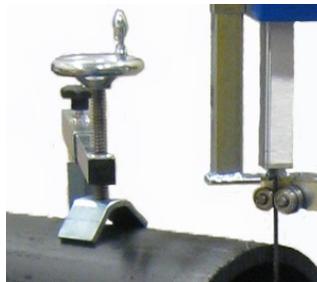
Attention!

Before sawing the workpiece with the machine, it must be securely tensioned with two tension belts.

Damage to the workpiece and the machine may result if the workpiece is not clamped in or clamped in insufficiently.

Loading a workpiece into the machine

- 1) If not already done, slide the saw bow in the rear position.
- 2) Place the workpiece onto the table of the machine with the help of a suitable lifting device and possibly another person.
- 3) Push the workpiece in the desired position.
- 4) Support protruding ends of long workpieces that tip down when not clamped.
- 5) Positioning the the pipe clamping device and fasten the workpiece.



Information

With the pipe clamping device it is possible to fasten pipes onto a max. diameter of 450 mm.

- 6) Secure workpiece offcut that is not clamped in (e.g. with suitable lifting gear) so that these pieces do not fall from the table after sawing.
- 7) Place the saw band cover so that the saw band is only open in cross-sectional size of the workpiece.



Remove workpiece from the machine.

- 1) Stop the motors by releasing the push buttons.
- 2) Press the **emergency-off button** so no one accidentally turns on the machine motor.
- 3) Slide the saw bow in the rear position.
- 4) Open the pipe clamping device.
- 5) Remove the workpiece and offcut from the machine with the help of a suitable lifting device and possibly another person.

7.6 Sawing with the BSM 450



Danger!

Running saw band may cause serious severance injury!

- The machine may only be operated by one person.
- Before sawing, the operator must ensure that the work area is clear.
- Ensure that workpiece is fasten well before sawing operation



Attention!

Falling, offcut workpieces may injure the operator!

- Secure workpiece offcuts that are not clamped in (e.g. with suitable lifting gear) so that these pieces do not fall from the table after sawing.
- It is not permissible for the operator or the assisting person to hold or catch the offcut piece.

**Warning!**

Start sawing only when motor has reached full rotational speed!

- To prevent interference during the sawing process, press the switch to start the saw band and wait until the motor has reached full rotational speed. Then start with the sawing operation.

- 1) Position the saw bow in the rear start position.
- 2) If required, set the desired sawing angle (see Chap. 7.4 on p. 38).
- 3) Load the workpiece and fasten it (see Chap. 7.5 on p. 39).
- 4) Turn on machine with **main switch** (see Chap. 7.3 on p. 37).
- 5) Press push button at the handle of saw bow. The saw band starts.

**Information**

Press push button during the hole sawing process. If you want to interrupt the sawing process, just release the push buttons.

- The motor of saw band stop

- 6) Pull saw bow forward slowly.

**Information**

To achieve an optimal cutting result it is important that the cutting of workpiece begins slowly.

- Not strain the machine and saw band due to high feed rate
- Only use sharp saw bands

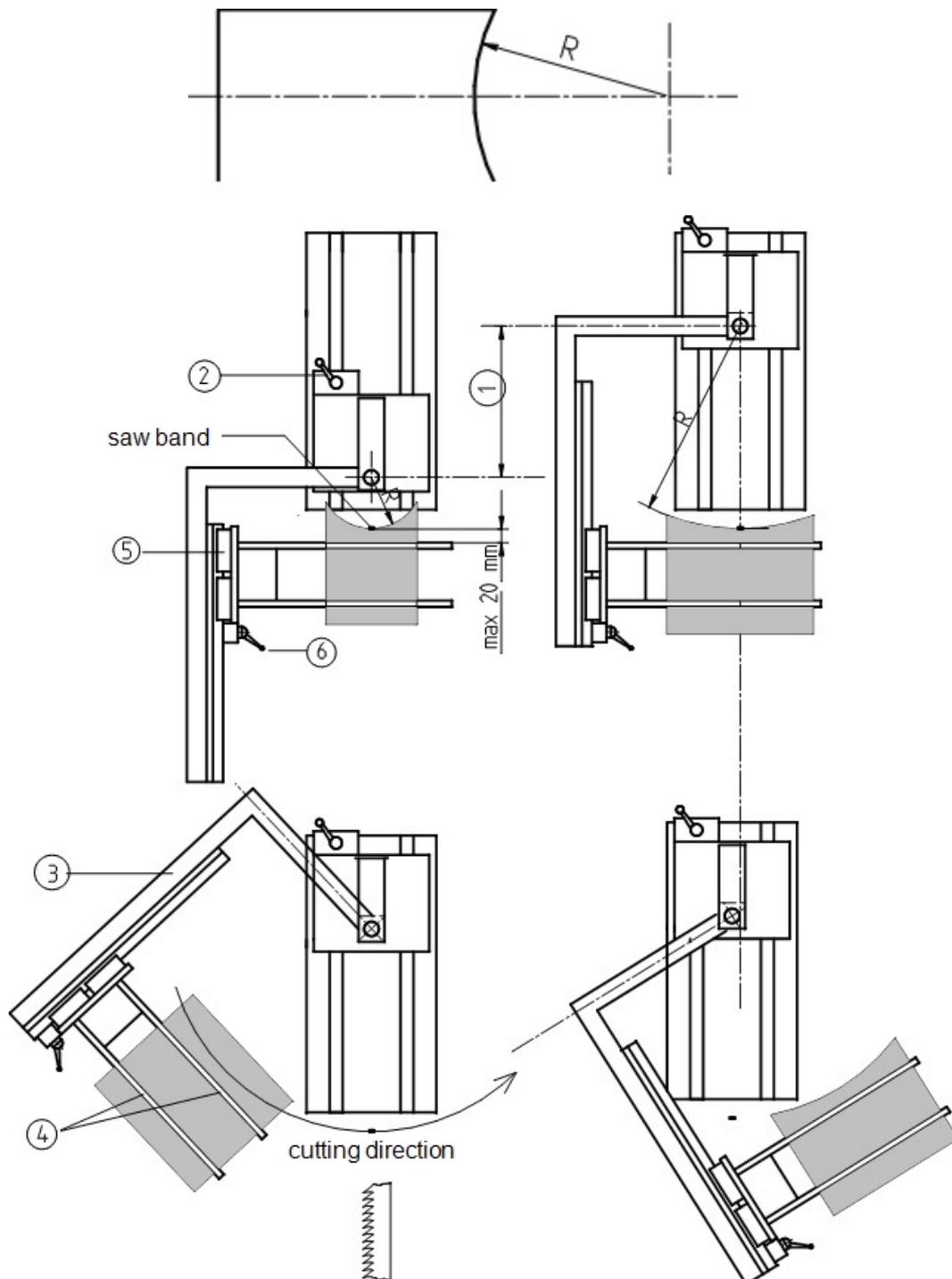
- 7) If the workpiece is completely sawn through, release pressure push button. The saw band drive stops.
- 8) Push the saw bow back into the rear start position.

7.7 Sawing with attachment for radius cuts



Pos.	Description
1	Attachment for radius cuts
2	Transport lock for attachment for radius cuts
3	Scale to set radius
4	Locking for saw bow for radius cuts (transport lock saw bow)

- 1) Mount radius attachment on the table of the BSM 450.
- 2) Mount transport lock of saw bow.
- 3) Position the saw bow in vertical position and lock it with transport lock of saw bow.
- 4) Set sawing angle to 0.
- 5) Remove transport lock of radius attachment.
- 6) Set radius (R) (read distance between saw band and pivot point on the scale at radius table) and lock with clamping lever (2).



7) Slide carriage (5) so far towards saw band that the distance to the saw band is 10 to 20 mm, then lock it with the clamping lever (6).

8) Turn swivel arm (3) to the left, clamp piece of pipe in the clamping elements (4). The tube has so far protrude forward that the full radius can be cut.

9) Turn on machine with [main switch](#) (see Chap. 7.3 on p. 37).

10) Press push button at the handle of saw bow. The saw band starts.

**Information**

Press push button during the hole sawing process. If you want to interrupt the sawing process, just release the push buttons.

- The motor of saw band stop

11) Turn swivel arm to the right slowly.

**Information**

To achieve an optimal cutting result it is important that the cutting of workpiece begins slowly.

- Not strain the machine and saw band due to high feed rate
- Only use sharp saw bands

12) If the workpiece is completely sawn through, release pressure push button. The saw band drive stops.

13) Workpiece now can be removed.

8. Finding and repairing malfunctions

8.1 Repair saw-band malfunctions



Danger!

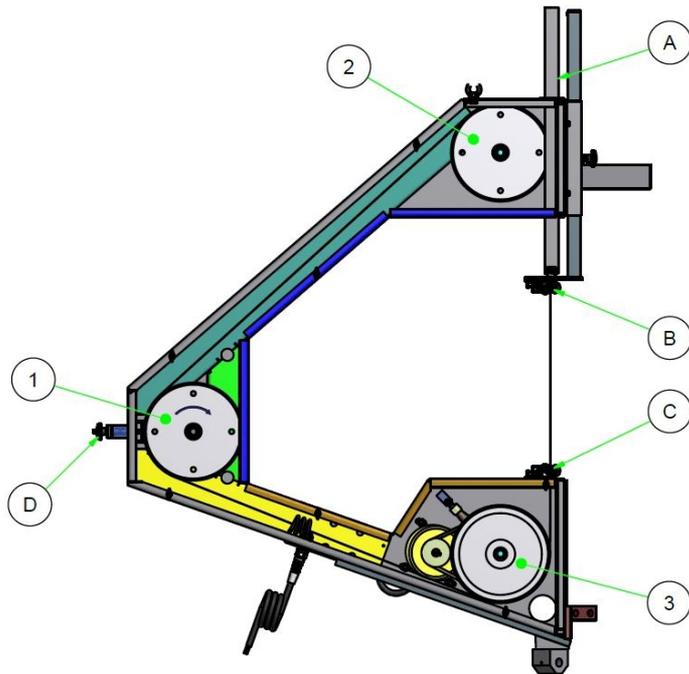
Running saw band may cause serious severance injury!

- Before repairing a malfunction, turn off machine with the **Main switch** so the motors are not accidentally turned on.
- The malfunctions may only be repaired by one person at a time.

For the most part saw-band malfunctions occur while sawing and most often the malfunction notification E01 SAW BAND appears. Go through the table from top to bottom when searching for the cause of the malfunction.

Malfunction	Cause	Corrective action
Saw band "displaced" or pushed back by the workpiece that is being sawed	Saw-band tension not properly adjusted	Set proper saw-band tension (see Chap. 9.2 on p. 59)
	Saw band dull	Exchange saw band (see Chap. 9.3 on p. 60)
	Saw band installed in wrong direction	Properly installing a saw band (see Chap. 9.4 on p. 62)
	Dirty diversion wheels or belt guiding butts	Clean diversion wheels or belt guiding butts (see Chap. 9.1 on p. 58)
Saw band jumps off diversion-wheels	Deversion wheel (2) or belt guiding butts set incorrectly	Set diversion wheel (2) or belt guiding butts (see Chap. 1.1 on p. 1)
Saw band torn	Saw band does not have necessary properties.	Use original saw-band from the manufacturer (see Chap. 3.4 on p. 22)
	Workpiece has unsuitable material type (see Chap. 3.5 on p. 22)	Consultation with the manufacturer (see Chap. 8.7 on p. 55)
	Saw-band speed not correct	Check saw-band motor (see Chap. 8.5).
Saw band jammed in workpiece	Used wrong saw-band type	Consultation with the manufacturer (see Chap. 8.7 on p. 55)
	Frame under workpiece no longer flat	

8.2 Setting diversion wheel



In case that the saw band runs down from deflection wheel 2 and/or diversion wheel 3, you can adjust the carriage of diversion wheel 1 to change saw band line as follows.

Saw band moves inward toward the saw bow

- 1) If you have not already done so, execute the steps in Chap. 9. on p. 57
- 2) Relax the saw band with star grip D.
- 3) If you have not already done so, open or demount the saw band covers.
- 4) Pull down diversion wheel (1) from carriage.
- 5) Loosen the lock on the back of the carriage.
- 6) Turn the screw 1 clockwise and screws 2 opposed. The carriage tilts shown in the drawing detail 3 below.
- 7) Lock the carriage and mount the diversion wheel.
- 8) Insert saw band according to Chap. 9.4 on p. 62 and tension it according to Chap. 9.2 on p. 59.
- 9) Check manually whether the saw band now runs properly.



Information

The inclination of the carriage may have to be repeatedly corrected until the saw band runs correctly on all three diversion wheels when testing manually.

- 10) Mount and close all saw band covers and check saw band tensioning before turning on the machine for additional testing.

Saw band moves outward away from the saw bow

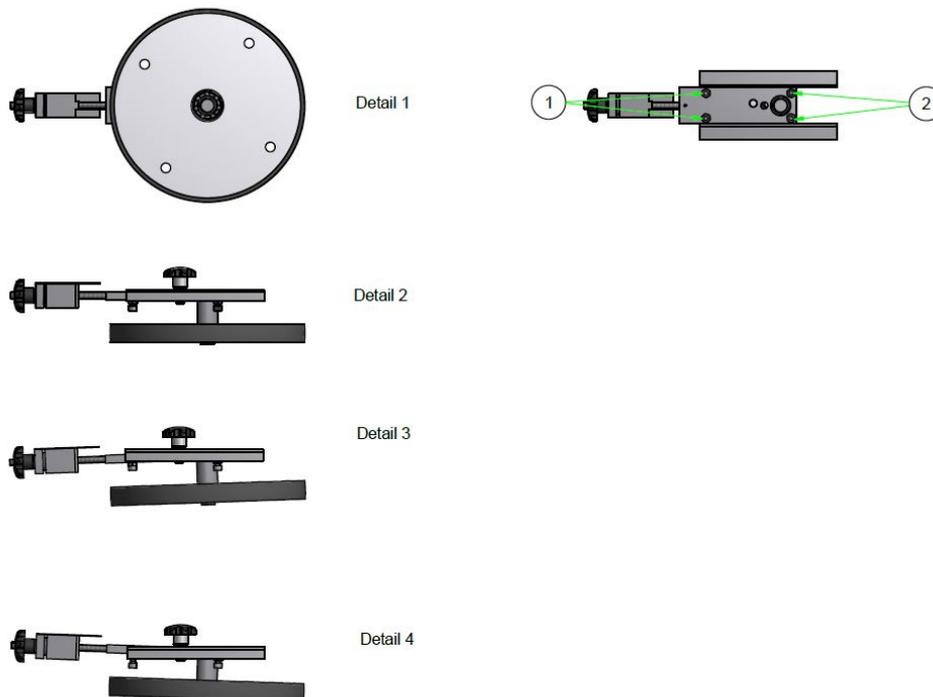
- 1) If you have not already done so, execute the steps in Chap. 9. on p. 57
- 2) Relax the saw band with star grip D.
- 3) If you have not already done so, open or demount the saw band covers.
- 4) Pull down diversion wheel (1) from carriage.
- 5) Loosen the lock on the back of the carriage.
- 6) Turn the screw 2 clockwise and screws 1 opposed. The carriage tilts shown in the drawing detail 4 below.
- 7) Lock the carriage and mount the diversion wheel.
- 8) Insert saw band according to Chap. 9.4 on p. 62 and tension it according to Chap. 9.2 on p. 59.
- 9) Check manually whether the saw band now runs properly.



Information

The inclination of the carriage may have to be repeatedly corrected until the saw band runs correctly on all three diversion wheels when testing manually.

- 10) Mount and close all saw band covers and check saw band tensioning before turning on the machine for additional testing.

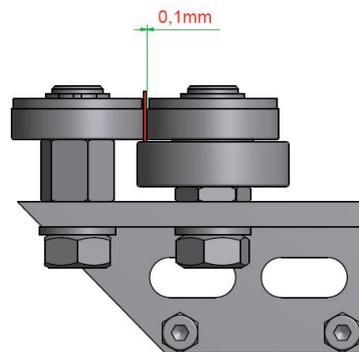


8.3 Setting the saw band guides

The saw band must always be guided between the ball bearings. The lateral distance between the lateral surface and saw band should be 0.1 mm (see drawing).

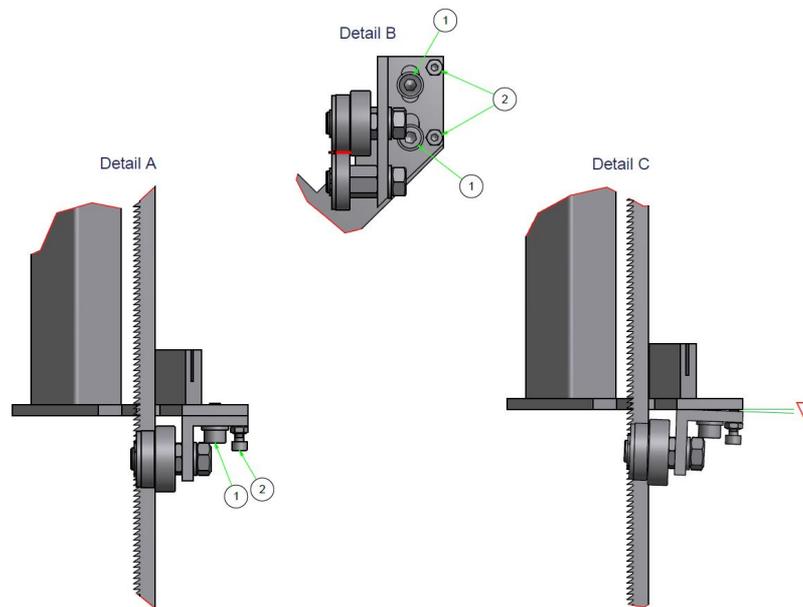
It is important to ensure that the saw band teeth run freely and are not damaged by the guides. If the guide clearance between ball bearing guide and saw band be incorrect proceed as follows.

- 1) If you have not already done so, execute the steps in Chap. 9. on p. 57
- 2) If necessary remove saw band covers.
- 3) Loosen the screws of the bearing pins.
- 4) Insert the saw band correctly and insert between saw blade and lateral surface of the ball bearing a feeler gauge strip with 0.1 mm thickness.
- 5) Retighten the nuts of both bearing pins by observing the distance.
- 6) Check manually whether the saw band now runs properly.
- 7) Mount and close all saw band covers and check saw band tensioning before turning on the machine for additional testing.



If saw band is running out of upper saw band guide set it as follows:

- 1) If you have not already done so, execute the steps in Chap. 9. on p. 57
- 2) Incline the holder of the band guide to the rear, as shown in detail C.
- 3) Loosen therefore screws 1 and screws 2.
- 4) Incline by screwing the screws 2 the holder of the band guide slightly. This makes the saw band run towards the rear guide. The saw band is thus no longer running out of the saw band guide.
- 5) Check if the setting is correct by moving the saw band by hand.
- 6) If saw band runs correctly, check the adjustment over the whole adjustment range of the upper band guide arm.
- 7) Mount and close all saw band covers and check saw band tensioning before turning on the machine for additional testing.



8.4 Repair electrical malfunctions



Warning!

Electrocution hazard!

Only an electrician may repair an electrical malfunction of the machine's electrical equipment if these activities differ from operating tasks. The repair must be conducted according to electro-technological regulations.



Danger!

Running saw band may cause serious severance injury!

- Before repairing a malfunction turn off machine with **Main switch** so the motor is not accidentally turned on.
- The malfunction may only be repaired by one person at a time.

Go through the table from top to bottom when searching for the cause of the malfunction.

Malfunction	Cause	Corrective action
The saw-band motor cannot be activated, saw-band motor starts not to run	Main switch turned off	Turn on main switch (see Chap. 7.3 on p. 37)
	The machine is not connected to power supply.	Connect machine to power supply (see Chap. 6.5 on p. 34)
	Power failure	Re-establish power supply
	Circuit breaker triggered in supply cable	Determine cause and activate circuit breaker
	Power supply is defective.	Request service technician (see Chap. 8.7 on p. 55)
	Safety push buttons not pressed	Press and hold both push buttons at the handle
	Check phase rotation	If the rotating field is counter-clockwise turn phase inverter in the plug
After switching on saw band runs in the wrong direction	Rotating field of power line is incorrectly	Turn phases by phase inverter in plug
The motor is buzzing after switching on and does not come up to rated speed	Missing phase in power supply, error motor connection, plug, supply line	Check power supply, check motor connection
When plugging in the power supply line, the line fuse trips	Incorrect connection, phase and neutral connections swapped	Check connection; send electrical box for safety reasons
	Power semiconductor defective (electrical box with electronical brake)	Send electrical box for safety reasons to check and repair
	Defective mains cable	Check cable
Device switches off suddenly during operation	Overload protection tripping	Start again after sufficient cooling down (motor no longer hot)
	Power failure	Check supply voltage, check the mains fuse protection
	Safety push button has been released	Activate safety push buttons
	Mechanical parts of the machine running heavily	Maintain according parts
After switching off the motor is buzzing for about 10 seconds	Turning off motor activates electronical brake about 10 to max. 15 seconds. Then electronical brake turns off.	Normal operating status (Buzzing is caused by electronic brake)

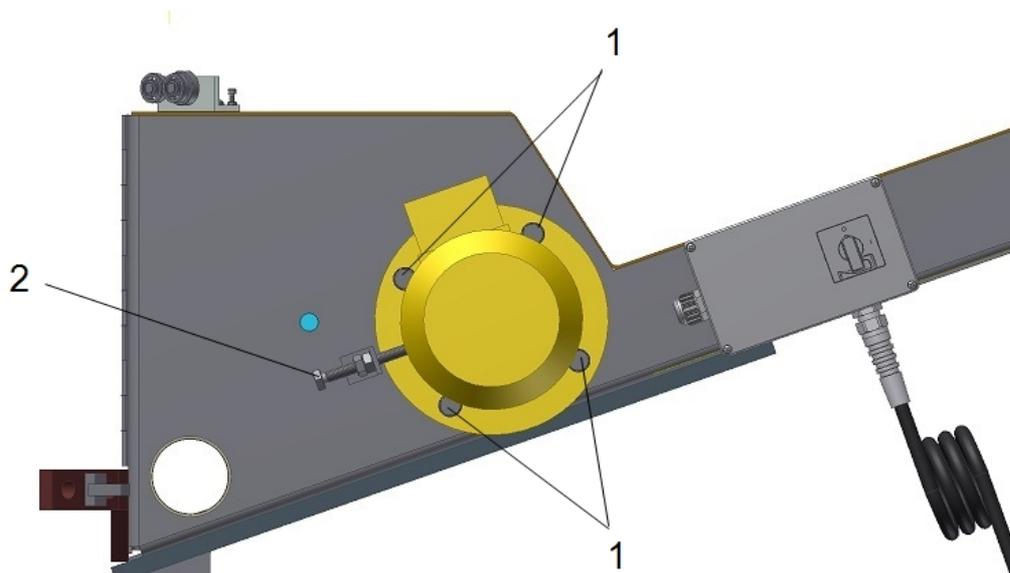
The brake does not switch off no more (continuous buzzing)	Component failure at electrical brake	Pull power plug so that the motor does not overheat. Send electrical box to repair.
No brake function	Failure of the electronic brake	Send electrical box to repair.
Other malfunctions	Please contact our customer service or send the defective electrical box (complete with all cables, without motor) with a short description of the error to us.	



Information

Repairs to electrical boxes older than 3 years is not economical. Please do not return in this case. Otherwise, electrical boxes are free to send in for repair.

8.5 Check saw-band motor



Pos.	Description
1	Motor mounting screws
2	Tensioning screw of motor



Danger!

Running saw band may cause serious injuries!

- Before checking the saw-band motor, turn off the machine at the [main switch](#) and secure it against re-activation.
- The disturbances may be simultaneously solved by one person only.

- 1) If a workpiece is still in the machine, remove it (see Chap. 7.5 on p. 39).
- 2) Place the saw bow in the rear position.
- 3) Turn the machine off at the main switch, and secure it against re-activation.
- 4) Open the saw-band cover.
- 5) Check the tension of the fan belt of the saw-band motor (see image in Chap. 9.4 on p. 62).
- 6) If necessary, tension the fan belt by loosening the four mounting screws and turn the tensioning screw of the motor in the appropriate direction.
- 7) Secure tensioning screw and re-tighten the mounting screws.
- 8) Close and re-tighten the saw-band cover.
- 9) Turn on the machine with the main switch.

8.6 Guarantee

The manufacturer provides a guarantee for a 12-month term after the purchasing date according to legal and country-specific regulations. This means that damages to the machine that have resulted from material- or manufacturer errors are repaired free of charge. As a precondition for the guarantee, the machine must be cleaned and maintained on a regular basis.

The following issues are precluded from the guarantee:

- Damages to BSM 450 which are the result of natural wear, overloading or improper handling; this especially refers to an improper operating environment.
- Damages caused by water, falls or non-legitimate interference with the inner mechanisms of the machine
- Damages to workpieces that have resulted from working with the BSM 450
- Wearing parts such as drive belts, saw bands and carbon brushes of the motors

The manufacturer of the BSM 450 is not liable for the quality of manufactured parts. The proprietor alone is responsible for quality control and the quality of parts manufactured with the machine.

9. Maintenance

***Danger!******Running saw band may cause serious severance injury!***

Only one person may perform maintenance while the machine is turned off (exceptions described in respective context).

***Attention!******Perform all maintenance work thoroughly and on time!***

All maintenance work in this manual must be performed thoroughly and on time to keep the machine operational with a high uptime.

***Attention!******Only use original spare parts!***

For reasons of personal safety and to ensure the proper functioning of the machine, you should only use original spare parts. It cannot be ensured that spare parts from other manufacturers are constructed with the necessary strain-bearing- and safety capabilities.

***Attention!***

We would like to explicitly state that any kind of repair work on our equipment or machines shall exclusively be performed by suitably trained and qualified personnel.

This includes all mechanical, pneumatic, and electrical work as well as intervention with the software or control system of the machine.

Arising damage on machine-parts, products or even personal injury will be rejected on non-observance.

Activity	How often	Description
Clean the machine, clean brush	Daily or after usage	(see Chap. 9.1 on p. 58)
Check saw-band tension	Weekly	(see Chap. 9.2 on p. 59)
Check safety equipment	Weekly	(see Chap. 9.5 on p. 65)
Grease machine	Weekly	(See Chapter 1.1 on p. 1)
DGUV Roule 3 examination (or applicable national regulation)	See DGUV Roule 3	Request service technician or authorised person
Examination according to IndSafReg §10 (2) (or according to national regulation)	Time limits according to § 3 Section 3 (Risk assessment)	Request service technician or authorised person

Before every maintenance activity (except for examination of safety equipment)

- 1) Place the saw bow in the rear position.
- 2) If a workpiece is still in the machine, remove it (see Chap. 7.5 on p. 39).
- 3) Turn the machine off at the main switch, and ensure it is not activated again.

After every maintenance activity

Record performed activities (except cleaning) in the maintenance protocol (see Chap. 9.6 on p. 66).

9.1 Cleaning the machine



Attention!

Do not use compressed air to clean the machine!

Compressed air blows shavings and dust into the machine guides, bearings and electrical equipment. The machine may be damaged as a result.



Attention!

Plastic waste contaminates the environment!



Dispose of all shavings and plastic waste according to locally applicable legal stipulations.

How to clean the machine

- 1) If you have not already done so, execute the steps in Chap. 9. on p. 57 .
- 2) Remove shavings from machine parts with a hand broom, brush or vacuum cleaner.
- 3) Use a brush to remove the shavings in the guide rolls at the back saw-band guide (see image above).

4) Open saw band covers. Check brush and remove shavings from machine parts with a hand broom, brush or vacuum cleaner.



5) Clean up the shavings and plastic waste on the ground with a broom or vacuum cleaner.

9.2 Tensioning the saw band



Danger!

If the saw band tears or jumps off, it may injure the operator!

- The saw band may only be tensioned while the machine is idle.
- If the saw band is tensioned improperly, it may tear or jump off the diversion-wheels during sawing. Adhere to the optimal tensioning values.
- Use original saw bands from the machine's manufacturer as it cannot be ensured that saw bands from other manufacturers are safe for usage or have the proper strain capability.



Attention!

Warning of material damage to machine or workpiece!

Ensure an optimal tensioning of the saw band as it might otherwise tear or jump off the guide wheels and damage either the machine or the workpiece.

Note the MAX mark (see laterally on saw bow).

How to tension the saw band



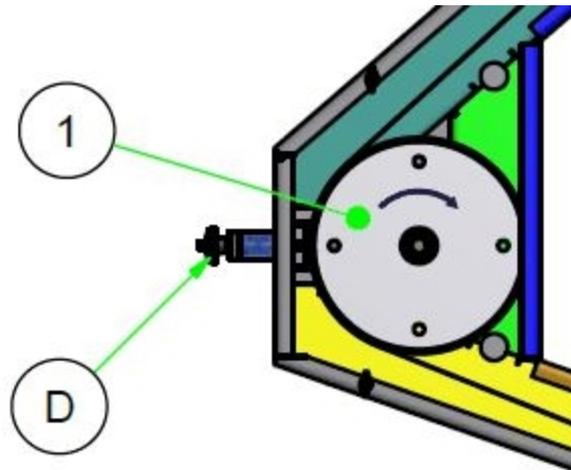
Information

- Since the length of the saw band varies due to manufacturing tolerances and temperature fluctuations, you must find the optimal tension for the saw band while working with the machine.
- The saw band is optimally tensioned when the marking line on the guide of the tension wheel with the MAX mark agrees (marking laterally on saw bow).

1) If you have not already done so, execute the steps in Chap. 9. on p. 57.

2) If the saw band tension is too weak (bad saw cut quality, saw band jumps off of the diversion-wheels etc.), turn star grip (D) at diversion wheel (1) clockwise until it is tensioned optimally. Please also refer to the notes in Chap. 8. on p. 47

3) If the saw band tension is too strong (saw band tears), turn the star grip counter-clockwise until it is tensioned optimally.



9.3 Removing the saw band



Danger!

Running saw band may cause serious severance injury!

The assisting person mentioned below may only enter the hazard- or working area after deactivating the machine with the main switch.

**Danger!**

Climbing onto the machine poses a fall- and injury risk due to sharp machine parts!

It is not permissible to climb onto the machine when performing maintenance- or any other kind of work. Use suitable climbing aids (e.g. stepladders or multi-purpose ladders, but no leaning ladders).

**Attention!**

After sawing the hot saw band may burn the operator!

The saw band poses an injury risk!

Wear protective gloves when working with the saw band and let the saw band cool down before touching it.



- 1) If you have not already done so, execute the steps in Chap. 9. on p. 57.
- 2) Relax the saw band by turning star grip (D) counter-clockwise.
- 3) Open saw band covers.
- 4) Remove cover plate (A).
- 5) Operator and assisting person are required to wear work gloves and safety glasses.
- 6) Carefully pull off the saw band from the lower diversion wheel (3)
- 7) Carefully pull off the saw band out of saw band guides (C and B).
- 8) Remove saw band carefully from diversion wheel 2 and then from diversion wheel of the saw band tensioning device.

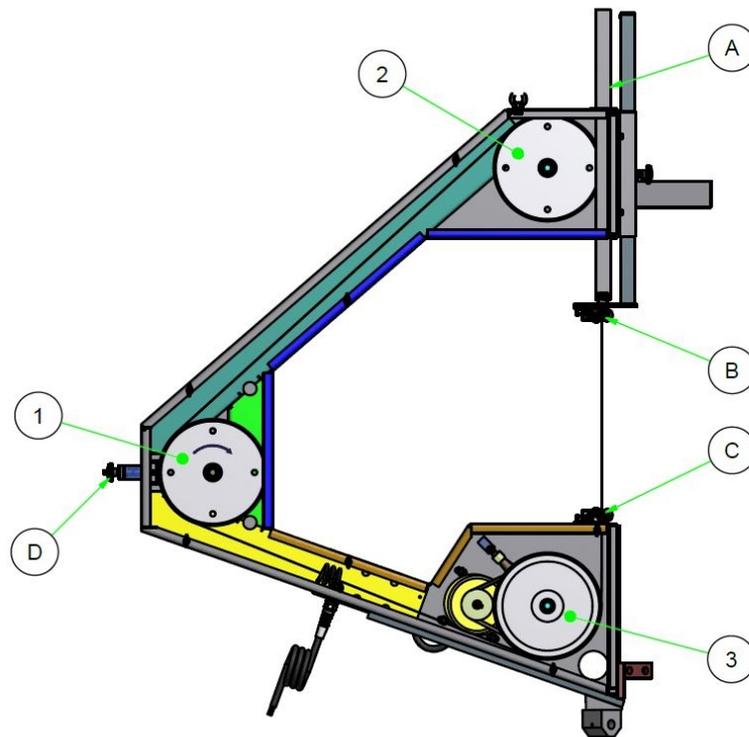
**Warning!**

Coiling up the old saw band poses an injury risk - especially for the facial area!

Operator and assisting person must be especially careful and wear protective glasses and gloves.



- 9) Coil up the old saw band to safely dispose of it.
- 10) Remove all saw dust with a brush or vacuum cleaner from where the saw band used to run. The installation of a new saw band is explained in Chap. 9.4 .



9.4 Inserting the saw band



Danger!

Running saw band may cause serious severance injury!

The assisting person mentioned below may only enter the hazard- or working area after deactivating the machine with the main switch.



Danger!

Climbing onto the machine poses a fall- and injury risk due to sharp machine parts!

It is not permissible to climb onto the machine when performing maintenance- or any other kind of work. Use suitable climbing aids (e.g. stepladders or multi-purpose ladders, but no leaning ladders).



Attention!



After sawing the hot saw band may burn the operator!
The saw band poses an injury risk!



Always wear protective gloves when working on the saw band.

- 1) If you have not already done so, execute the steps in Chap. 9. on p. 57 .
- 2) If the covers of the saw band have not already been opened, do so (see Chap. 9.3 on p. 60).
- 3) Operator and assisting person are required to wear work gloves and safety glasses.



Warning!



Uncoiling the old saw band poses an injury risk - especially for the facial area!



Operator and assisting person must be especially careful and wear protective glasses and gloves.

- 4) Carefully uncoil the band.
- 5) Insert the saw band first around the diversion-wheel of saw band tensioning device (1), then around the upper diversion wheel (2). Please make sure that the saw band rests centrally on the gumming.
- 6) Lead the saw band between the fairing and into the protective cover. If not yet done, remove cover plate (A).
- 7) Insert the saw band through the upper saw band guide rolls (B).
- 8) Then insert saw band through the lower saw band guide rolls (C).
- 9) Make sure that teeth of saw band show forward and downward.
- 10) Lead saw band around the lower diversion wheel (3)
- 11) Then check whether the saw band rests on all three wheels centrally and runs through the saw band guides (B and C).
- 12) Now tension the saw band slightly by turning star grip (D) clockwise (see Chap. 9.2 on p. 59)
- 13) Carefully turn diversion wheel (1) clockwise to check saw band running.

14) Run the saw band stably and centered on all 3 wheels and through the blade guides, increase the belt tension continuously up to the maximum setting (see lateral marking on the saw frame)

15) Mount cover plate (A) and fix it with screws.

16) Close and screw saw band covers.

17) Turn again the saw band in sawing direction. Pay attention to possible noises. They are signs of a possible mounting error

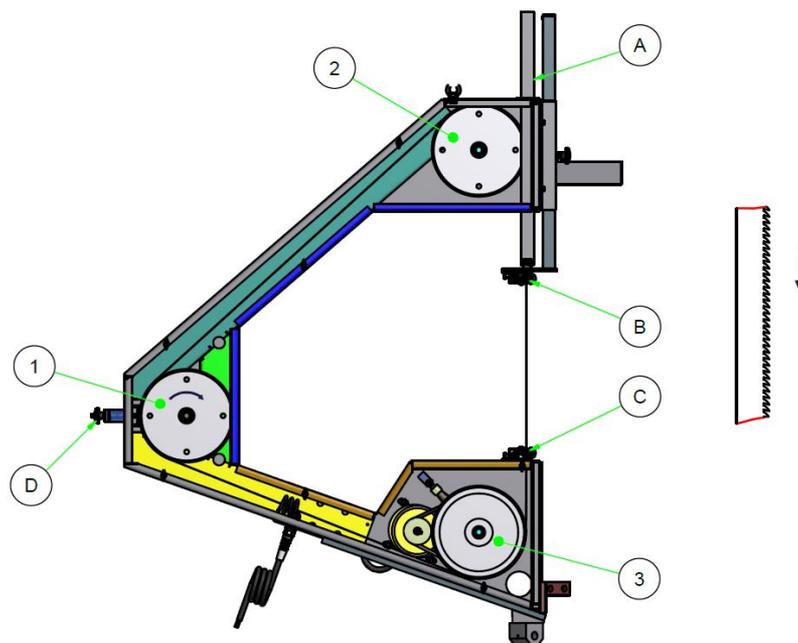
- saw band is incorrectly inserted in saw band guides
- cover plate (A) mounted incorrectly

18) Perform a test cut (see Chap. 7.6 on p. 41) and adjust the saw-band tension if necessary.



Info

If the saw band runs down from diversion wheel 2 or 3 follow the instructions in the chapter fault elimination (see Chap. 8 on p. 47)



9.5 Check safety equipment



Danger!

Running saw band may cause serious severance injury!

Only one person may check the machine's safety equipment.

How to check the main switch

- 1) Turn on the machine off with the main switch (see Chap. 7.3 on p. 37).
 - It should not be possible to activate the machine drives even when the safety push button is active.
- 2) If the machine does not respond as described above when the main switch is deactivated, it is not permissible to use the machine until this defect has been repaired by an electrician.

How to check the safety push button

- 1) Turn on the machine with the main switch (see Chap. 7.3 on p. 37).
- 2) Press and hold push button at the handle
 - Sawing begins.
- 3) Release the push button at the handle
 - Sawing must stop immediately.
- 4) If sawing does not stop immediately or if sawing starts while the **safety push button** is not activated, turn off the machine with the main switch and contact the manufacturer's customer service (see Chap. 8.7 on p. 55).

10. Dismantling and disposal

10.1 Deactivation



Danger!

Running saw band may cause serious severance injury!

Only an authorised person may deactivate the machine (see Chap. 2.5 on p. 14).

How to deactivate the BSM 450:

- 1) If a workpiece is still in the machine, remove it (see Chap. 7.5 on p. 39).
- 2) Place the saw bow in the rear position.
- 3) Turn the machine off at the main switch, and ensure it is not activated again.
- 4) Pull the power plug-in out of the receptacle.
- 5) If the machine is transported to a different location, set the saw bow to 45 degrees (see Chap. 7.4 on p. 38).
- 6) Secure the saw bow and the swivel-mounted control panel with transport anchors before transport (e.g. appropriate cable straps).

10.2 Final shutdown

- 1) Execute the steps from the previous section.
- 2) Disconnect the power supply cable to the machine so that unauthorised persons cannot activate the machine.

10.3 Disposal



Danger!

Climbing onto the machine poses a fall- and injury risk due to sharp machine parts!

Workers may not climb onto the machine even when disposing of it. Use suitable climbing aids (e.g. stepladders or multi-purpose ladders, but no leaning ladders).



Warning!

Crushing hazard for arms and legs during transport of machine!



- The in-company transport may only be conducted by authorised persons (see Chap. 2.5 on p. 14) according to valid APR.
- Also ensure that no persons are in the transportation path or in the setup area and wear safety shoes with toe-protection caps.



Attention!

According to EU regulations machine parts may not be discarded with unsorted household garbage!



During disposal separate the individual types of materials and dispose of them in accordance with country-specific regulations.



Information

The BSM 450 does not contain dangerous materials

The following rules must be observed when disposing of the machine at the end of its lifecycle:

- Adhere to the country-specific regulations regarding disposal of industrial machines
- If unsure, contact a professional disposal company
- Separate plastics from metal and dispose of these materials separately
- Dispose of seals and rubber parts as special waste
- Also dispose of electrical motors and electrical components such as controls, switches and cables separately

11.2 EC Conformity Declaration

according to EC Machine Guideline 2006/42/EG, Annex II A

We hereby declare that the machine distributed by us and described in the following conforms to the basic safety- and health requirements of the EC Guideline 2006/42/EG in regard to its conception and design. This declaration loses its validity if the machine is changed without our consent.

Manufacturer:

Eugen Riexinger GmbH & Co. KG
plasticconnectingsystems
Egartenring 2
75378 Bad Liebenzell / Germany

Person authorised to compile the technical file:

Markus Theobald (Business Manager), Eugen Riexinger GmbH & Co. KG, Egartenring 2, 75378 Bad Liebenzell

Description of machine:

Band-saw machine for plastic pipes of type BSM 450, BSM 450 R

A conformity declaration is also made for other valid product-relevant guidelines.

- Guideline 2014/30/EU (EMC guideline)
- Guideline 2011/65/EU (RoHS guideline)
- The safety objectives of European Directive 2014/35/EU (low voltage guideline) comply with machine guideline Annex I, Section 1.5.1

Applied and harmonised norms:

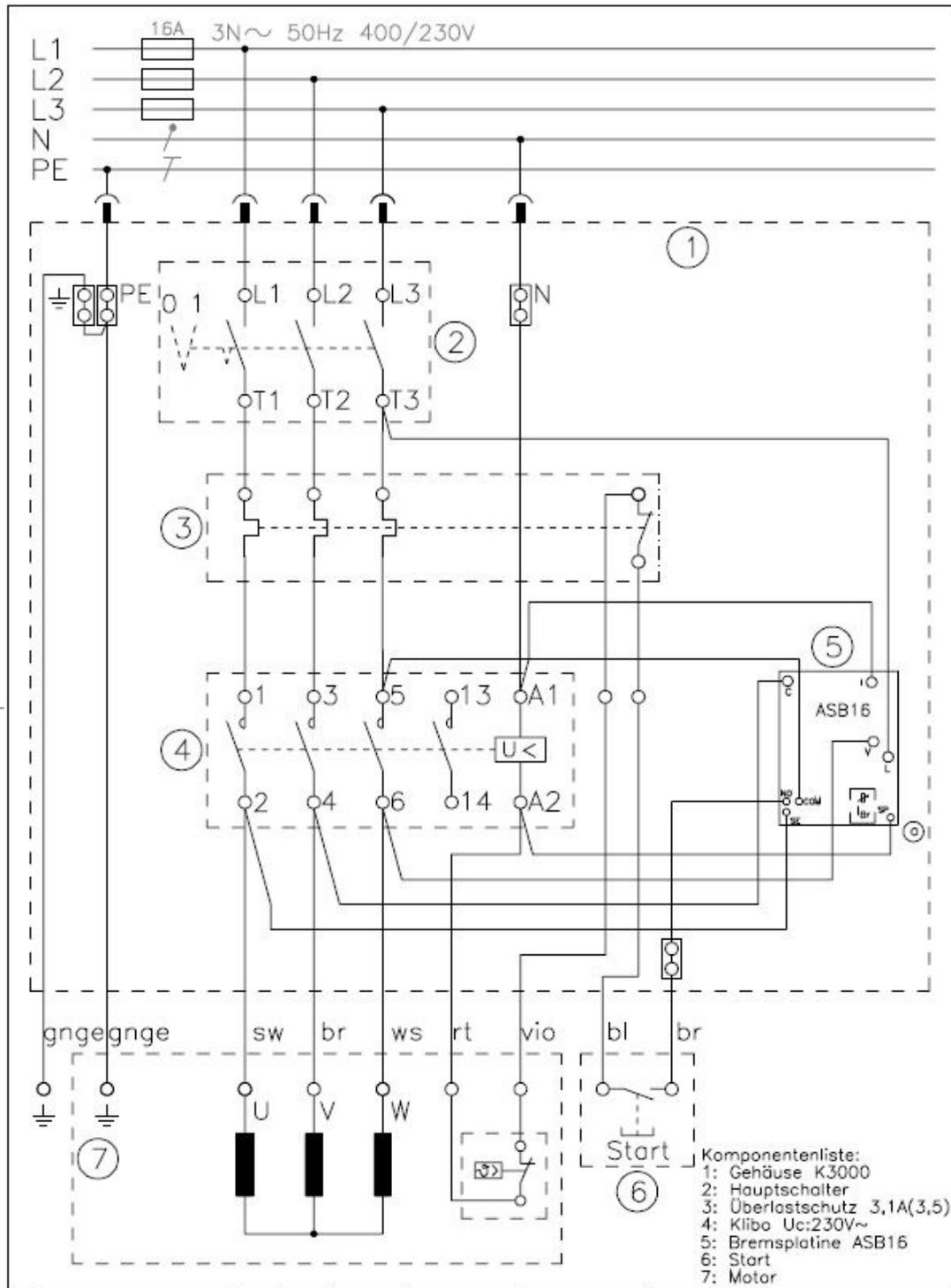
- DIN EN ISO 12100:2010 Machine safety - General design principles - Risk evaluation and risk reduction
- DIN EN ISO 13849-1:2008 Machine safety - Safety-relevant control parts - Part 1: General design principles
- DIN EN ISO 13857:2008 Machine safety - Safety spacing for hazardous proximity of arms and legs
- DIN EN 60204-1:2006 Machine safety - Electrical equipment of machines, Part 1: General requirements
- DIN EN 61000-6-2:2005 Interference stability for industrial areas
- DIN EN 61000-6-3:2007 Interference emission for living-, commercial- and trade areas as well as for small business

Bad Liebenzell, 13.06.2017

Markus Theobald (Business Manager)

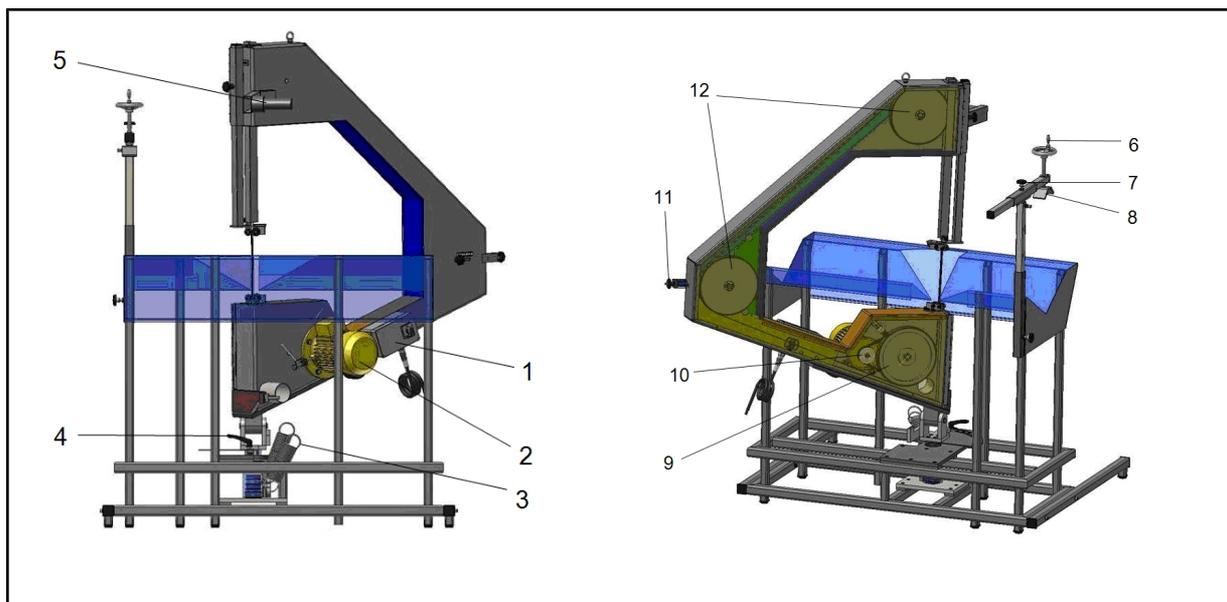


11.3 Circuit diagram



11.4 Spare part list

Pos.	Description	Article No.
1	control box	308519
2	driving motor	301121
3	balance spring	300397
4	locking device for angle scale	300696
5	push buttons	300399
6	hand wheel pipe climping	301018
7	fasten screw pipe climping	306406
8	climping prism	301051
9	drive wheel	311940
10	belt pulley	311926
11	star grip for blade tension	300880
12	diversion wheel	311936



Spare part list Radius attachment (optional)

Pos.	Description	Articel No.
1	Guide carriage	304618
2	Distance roll	301584
3	Reductions	various
4	Star grip	310957
5	Guide carriage	304618
6	Plastic roll	314578

