metallkraft
Metallbearbeitungsmaschinen

Operating Instructions

Bending Machine

RBM 1305-15 E

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Imprint

Product identification

Bending Machine	Item number
RBM 1305-15 E	3781305

Manufacturer

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Indications regarding the operating instructions

Original instructions

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Indications regarding the copyright

Content

1 Introduction

You have made a good choice by purchasing the METALLKRAFT bending machine.

Read the operating manual thoroughly before commissioning the machine.

It gives you information about the proper commissioning, intended use and safe and efficient operation and maintenance of your bending machine.

The operating manual is part of the Bending Machine package. Always keep this operating manual in the location where your Bending Machine is being operated. All local accident prevention regulations and general safety instructions for the operating range of your Bending Machine must also be complied with.

Illustrations in this operating manual serve the general understanding and may deviate from the actual design.

1.1 Copyright

The contents of these instructions are copyright. They may be used in conjunction with the operation of the bending machine. Any application beyond those described is not permitted without the written approval of Stürmer GmbH.

For the protection of our products, we shall register trademark, patent and design rights, as this is possible in individual cases. We strongly oppose any infringement of our intellectual property.

1.2 Customer service

Please contact your dealer if you have questions concerning your bending machine or if you need technical advice. They will help you with specialist information and expert advice.

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We are always interested in valuable experience and knowledge gained from using the application-which then could be shared and be valuable to develop our products even further.

1.3 Limitation of liability

All information and notes in these operating instructions were summarised while taking applicable standards and rules, the state-of-the-art technology and our long-term knowledge and experiences into consideration.

In the following cases the manufacturer is not liable for damages:

- Non-observance of the operating instructions,
- Inappropriate use
- Use of untrained staff,
- unauthorized modifications
- technical changes,
- Use of not allowed spare parts.

The actual scope of delivery may deviate from the explanations and presentations described here in case of special models, when using additional ordering options or due to latest technical modifications.

The obligations agreed in the delivery contract, the general terms and conditions as well as the delivery conditions of the manufacturer and the legal regulations at the time of the conclusion of the contract are applicable.

2 Safety

This section provides an overview of all important safety packages for the protection of operating personnel as well as for safe and fault-free operation. Other task-based safety notes are included in the paragraphs of the individual phases of life.

2.1 Symbol explanation

Safety instructions

The safety notes in these operating instructions are high-lighted by symbols. The safety notes are introduced by signal words which express the concern of the risk.

DANGER!

This combination of symbol and signal words indicates an imminently dangerous situation which may lead to death or severe injury if not avoided.

WARNING!

This combination of symbol and signal words indicates a potentially dangerous situation which may lead to death or severe injury if not avoided.

CAUTION!

This combination of symbol and signal words indicates a potentially dangerous situation which may lead to slight or minor injury if not avoided.

ATTENTION!

This combination of symbol and signal words indicates a possibly dangerous situation which may lead to property and environmental damages if they are not avoided.

NOTE!

This combination of symbol and signal words indicates a potentially dangerous situation which may lead to material or environmental damage if not avoided.

Tips and recommendations

Tips and recommendations

This symbol highlights useful tips and recommendations as well as information for an efficient and trouble-free operation.

It is necessary to observe the safety notes written in these operating instructions in order to reduce the risk of personal injuries and damages to property.

2.2 Requirements to staff

The different tasks described in this manual represent different requirements to the qualification of the persons entrusted with these tasks.

WARNING!

Danger in case of insufficient qualification of the staff!

Insufficiently qualified persons cannot estimate the risks while using the vacuum cleaner and expose themselves and others to the danger of severe or lethal injuries.

- Have all works only performed by qualified persons.
- Keep insufficiently qualified persons out of the working area.

Only persons reliable working procedures can be expected from, are allowed to perform all works. Persons the responsiveness of which is affected by e. g. drugs, alcohol or medication, are not allowed to work with the machine.

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

Operator:

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

Electrically qualified person:

Electrically qualified person is due to their professional training, knowledge and experience as well as knowledge of the relevant standards and regulations, in a position to carry out work on the electrical systems and to independently recognize and avoid possible dangers.

Qualified personnel:

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

Manufacturer:

Certain works may only be performed by specialist personnel of the manufacturer. Other personnel is not authorized to perform these works. Please contact our customer service for the execution of all arising work.

2.3 Personal protective equipment

The personal protective equipment serves to protect persons against impairments of safety and health while working. The staff member has to wear personal protective equipment while performing different tasks on and with the machine which are indicated in the individual paragraphs of these instructions.

The personal protective equipment is explained in the following paragraph:

Eye Protection

The Eye protection protect the eyes from flying parts and liquid splashes.

Protective gloves

The protective gloves serve to protect the hands against sharp components as well as against friction, abrasions or deep injuries.

Safety boots

Safety boots protect the feet from being crushed, falling parts and slipping over on slippery ground.

Protective clothes

Protective clothes are made of a tightly fitted fabric without the protruding parts of low tear strength.

2.4 General safety regulations

Please note the following:

-Use the guards and secure them securely. Never work without protections and get them working.

-Always keep the machine and its working environment clean. Ensure adequate lighting.

-The bending machine may not be modified in its design and may not be used for purposes other than those foreseen by the manufacturer.

-Never work under the influence of concentration-disturbing illnesses, fatigue, drugs, alcohol or medicines.

- Disconnect power before servicing. If any accessories or maintenance are performed on the machine, the power supply to the machine must be disconnected before carrying out any work.

- Keep children and persons not familiar with the bending machine away from their work environment.

- Do not pull on the mains lead to pull the plug out of the socket. Protect the cable from heat, oil and sharp edges.

- Eliminate disturbances that affect safety immediately.

- Never leave the machine unattended.

- Keep the protective device in proper condition. The machine must not be operated with removed protection devices.

- Secure the machine at the ON / OFF switch with a padlock as soon as you leave the work area.

- Protect the round bending machine from moisture.

- Make sure that no parts are damaged before using the Bending Machine. Damaged parts must be replaced immediately to avoid danger sources.

- Do not overload the bending machine! You work better and safer in the specified performance range. Use the right tool! Make sure the tools are not dull or damaged.

- Only use original spare parts and accessories to avoid possible risks and risks of accidents.

NOTE!

This device should be grounded in accordance with national electrical rules and local rules. This must be done by a qualified electrician. The machine must be earthed to protect the user from electric shock.

2.5 Safety lables on the machine

The machine has various warning labels and safety markings that must be observed and followed. The safety markings attached to the bending machine must not be removed. Damaged or missing safety markings can lead to malfunctions, personal injury and material damage. They are to be replaced immediately.

If the safety markings are not immediately recognizable and comprehensible, the round bending machine should be taken out of operation until new safety markings have been made.

Fig. 1: Safety labels

3 Intended use

The RBM 1305-15 E round bending machine is used exclusively for the production of round shaped parts such as pipes, cones, cylinders, etc. The material to be bent must not exceed the maximum sheet thickness specified for the machine. The machine may only be operated by a single person who has been instructed in the use and maintenance of the machine.

Proper use also includes compliance with all information in this manual. Any use beyond the intended use or otherwise is considered misuse.

3.1 Unintended use

WARNING!

Dangers in case of unintended use!

Misuse of the bending machine can lead to dangerous situations.

- Only operate the bender in the power range specified in the technical data.
- Never bypass or override the safety devices.
- Only operate the round bending machine in a technically perfect condition.

By observing the intended use, no reasonably foreseeable misuse is possible, which could lead to dangerous situations with personal injury.

3.2 Residual risks

Even if all safety instructions are observed, and the machine is put to its intended use, there are still residual risks, which are listed below:

-There is a risk of injury to the upper limbs (e.g., hands, fingers).

-Danger from falling workpieces

-Danger from the ingress of clothing and objects.

-During set-up and set-up work, it may be necessary to dismantle on-site protective equipment. This creates various residual risks and potential dangers that every operator must be aware of.

4 Technical Data

4.1 Table

Technical Data	RBM 1305-15 E
Length	1650 mm
Width / Depth	1020 mm
Height	1110 mm
Weight	318 kg
Power of the drive engine	0,75 kW
Total power	2,5 A
Supply voltage	400 V
Bending bore min.	110 mm
Rolling speed	4 m/min
Working width max.	1270 mm
Diameter of the upper roller	75 mm
Bending capacity max. steel 400 N/mm²	1,5 mm
Conical bending performance max. steel 400 N/mm²	0,8 mm
Bending capacity max. VA-steel	1,1 mm
Conical bending performance max. VA-steel	0,6 mm
Bending capacity max. aluminium	1,8 mm
Conical capacity max. Aluminium	0,9 mm

4.2 Type plate

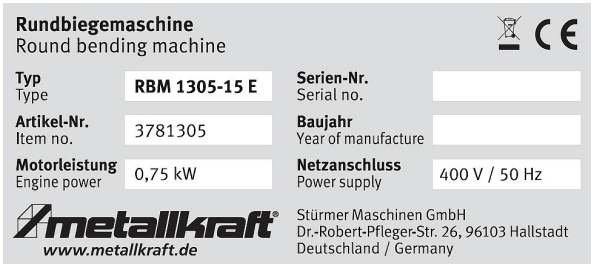

Fig. 2: Type plate RBM 1305-15 E

5 Transport, packaging, storage

5.1 Delivery and transport

Delivery

Check the bending machine on delivery for any visible transportation damage. If you notice any damage to the device please report this immediately to the carrier or dealer.

Transport

Transport with a pallet truck / forklift:

The roll bending machine is delivered on a pallet so that it can be transported with a forklift or pallet truck.

ATTENTION!

When transporting or lifting the bending machine, observe that the transport and lifting equipment can take up the load.

WARNING!

Danger to life!

If the weight of the machine and the permissible lifting capacity of the lifting equipment are not observed during transport or lifting, the machine may tip over or fall.

- Observe the weight of the machine and the permissible lifting capacity of the lifting equipment during transport and lifting operations.
- Check lifting gear and load handler for perfect condition.

NOTE!

The machine may only be loaded and unloaded by qualified personnel.

To avoid accidents, the necessary precautions must be taken when unloading and transporting the machine.

Transport with a crane:

The machine can be placed in a suitable location with a crane. The machine must be attached to the crane in accordance with the regulations.

ATTENTION!

Before transport, check that the upper roller lock is in the closed position and that the transport ropes are tight.

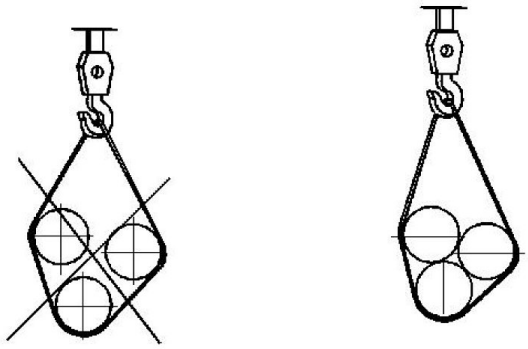

Fig. 3: Transport with a crane

NOTE!

- For transportation, all covers must be attached to the machine frame.
- The machine must not be rocked during transport by crane.

5.2 Packaging

All used packaging materials and packaging aids are recyclable and should be taken to a materials recycling depot to be disposed of.

The delivery packaging is made of cardboard, so please dispose carefully by having it chopped up and given to the recycling collection.

The film is made of polyethylene (PE) and the cushioned parts of polystyrene (PS). Deliver these substances to a collection point for recyclable materials or to the waste disposal company which looks after your region.

5.3 Storage

Store the bending machine thoroughly cleaned in a dry, clean and frost-free environment.

It must not be shut down with chemicals in a room.

If the machine must be stored in a damp room, all electrical components in the control cabinet must be protected by moisture-absorbing agents.

If the machine is stored for a long time, all bare metal parts must be greased against rusting.

6 Description of the device

Illustrations in this operating manual serve the general understanding and may deviate from the actual design.

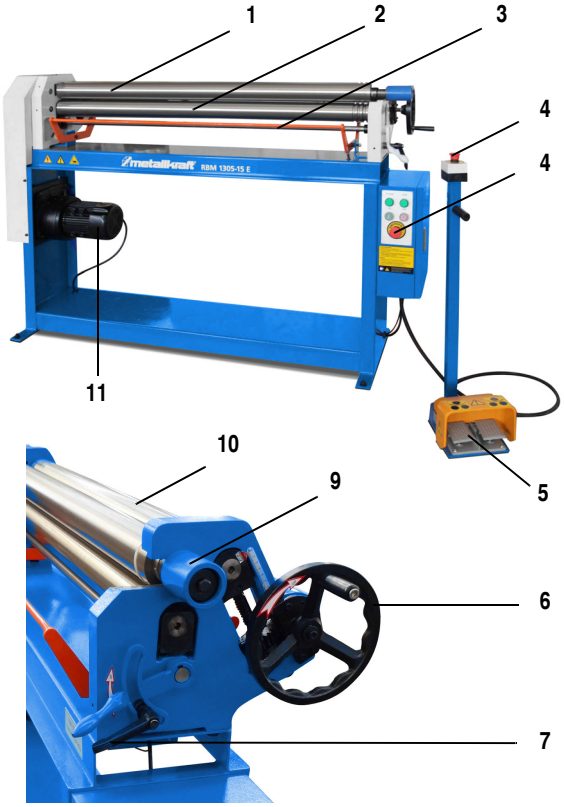

Fig. 4: Controls

1 Top roller folds out
2 Bottom roller
3 EMERGENCY brackets
4 EMERGENCY STOP button
5 Pedals:
right pedal direction of rotation right,
left pedal direction of rotation left
6 Hand wheel for adjusting the rear roller
7 Clamping lever
9 Locking the top roller
10 Behind roller
11 Drive motor

Control panel with pedals

The control panel is equipped with an EMERGENCY STOP button, which immediately interrupts all machine movements when disconnected from the power connection until it is released.

Function of the pedals:

right pedal: Direction of rotation.

left pedal: Direction of rotation.

6.1 Scope of delivery

The scope of delivery of the machine includes:

- Driven Top and bottom roller
- Wire insert groove on the top and rear roller

6.2 Safety switch

For the safety of the operating personnel, the machine is equipped with a safety switch and EMERGENCY STOP brackets.

When the EMERGENCY STOP brackets is actuated, the safety switch is activated as with EMERGENCY STOP, which stops all machine activities.

7 Installation and connection

7.1 Installation

Wear safety gloves!

Wear safety shoes!

Wear protective clothing!

CAUTION!

Risk of crushing!

The bending machine can tilt when setting up and cause serious injuries.

- The round bending machine must be set up by at least 2 people together.

To achieve good functionality and long life of the Bending Machine, the site should meet the following criteria:

- The substrate must be level, firm and vibration-free.
- The installation or work area must be dry and well ventilated.
- Do not operate machines that cause dust and chips near by.
- There must be sufficient space for the operating personnel, for material transport as well as for adjustment and maintenance work.
- The site must have good lighting.

NOTE!

- The Bending Machine is already pre-assembled in the delivery condition.

Setting up the machine

Step 1: Check the surface for horizontal alignment, if necessary, compensate for slight unevenness.

Step 2: Fix the round bending machine with ground anchors to the ground and align horizontally with a spirit level.

NOTE!

After setting up, remove the protective agent from the bare metal parts, which have been applied to protect against rusting.

- Use usual solvents.
- No water, no nitrolic solvents or similar use!

NOTE!

The moving parts must be free from dirt and dust.

- If necessary, lubricate the moving parts as listed in the Care and Maintenance section.

7.2 Danger areas

The bending machine is provided with the necessary protective equipment to prevent injuries that may be caused by the worm gear or other gears. Another area of danger that must be carefully observed during the machining process is the range of rotation of the rollers.

7.3 Lubrication of the bearing

Before using the machine for the first time, check and lubricate the bearings and gears, see chapter „Cleaning and maintenance“.

7.4 Electrical connection

DANGER!

Danger to life due to electric current!

There is an immediate danger of electrocution on contact with live components.

- The bending machine may only be connected by electricians.
- **Work on the electrical system should only be carried out by qualified electricians.**

It is important to make sure that,

- the power connection has the same characteristics (voltage, mains frequency, phase angle) as the motor.
- the mains voltage of 400 V is used,
- For the purpose of a safe working operation the earthing is checked.

ATTENTION!

After connecting the plug, check the direction of rotation of the motor. If this is wrong, two phases must be exchanged.

Step 1: Connect the power cord to the mains.

Step 2: Insert the pedal plug on the machine.

Step 3: Check that the direction of rotation of the rollers and the motor corresponds to the indicated direction of the arrow. In some cases, a reverse connection may cause the motor to burn out. It must also be checked whether the direction of rotation of the roller is carried out in accordance with the operation of the respective buttons on the control panel or according to the operation of the respective pedal:
right pedal: Rotation direction right;
left pedal: Rotation direction left.

Step 4: If the direction of rotation is reversed, the cables must be reconnected by a qualified electrician.

Power box

The power box contains the controls of the machine and is connected to the pedal.

Fig. 5: Power box

WARNING!

The main power supply should be protected by circuit breakers against possible overvoltages!

ATTENTION!

The electrical box may only be opened for maintenance and adjustment work!

Check direction of rotation

Step 1:Turn on the main switch.

Step 2:Press the START-button.

Step 3:Press the pedals and check the direction of rotation of the rollers. If necessary, the connections must be reconnected by an electrician to obtain the correct direction of rotation.

Step 4: Switch off the machine with the EMERGENCY STOP button on the mobile control panel.

Step 5: Turn off the main switch.

8 Operation

WARNING!

Danger due to insufficient qualification of persons!

Insufficiently qualified persons can not assess the risks involved in handling the bending machine and expose themselves and others to the risk of serious or fatal injuries.

- All work should only be carried out by qualified persons.
- Keep inadequately qualified persons out of the work area.

WARNING!

Risk of crushing!

The upper limbs must be kept away from the machine during feed and during machining of the workpiece.

ATTENTION!

- Never perform any work on the bending machine under the influence of alcohol, drugs or medication and / or in case of fatigue or concentration distracting illnesses.
- The bending machine may only be operated by a trained person.

ATTENTION!

Before using the round bending machine for the first time, it is essential to lubricate the chains and bearings!

We assume no liability for damages due to improper commissioning.

ATTENTION!

When operating the rollers: Do not drive the rollers against the lower stop!

ATTENTION!

- The operator should have a basic knowledge of this type of machine.
- Operators should not wear wide garments, necklaces, rings, etc. to prevent them from being pulled into the running machine.
- If faults occur, the EMERGENCY STOP button must be pressed immediately.

NOTE!

To be observed before commissioning:

- The mains voltage must correspond to the voltage specifications on the rating plate.
- The safety devices as well as the protective covers must be functional.

NOTE!

It is important to thoroughly clean the rollers to avoid possible slippage of the profile due to grease residues on the rollers.

Wear protective gloves!

Wear safety boots!

Wear protective clothes!

The machine is designed for steel processing and not for processing flammable or harmful substances. The customer is responsible for the choice of the material to be processed.

It must also be ensured that the safety of nearby operating personnel is ensured.

The material should meet the following requirements:

- Dry and clean, free of oil.
- The diameter must correspond to the specifications.
- The material should have a degree of hardness throughout.
- Buying high quality material is advisable.
- The surface of the areas to be bent should be smooth.

The RBM 1305-15 E round bending machine has three rollers driven by an electric motor and a gearbox. Therefore, the bending process is simple and smooth; however, some experience is needed to work efficiently.

A complete bend with one pass is not possible. To get the desired radius, several passes are required. Tighter bends and full radii always require several passes.

In order to be able to remove a bent workpiece from the machine, the right-hand lock of the upper roller must be released and the upper roller must be removed from the guide.

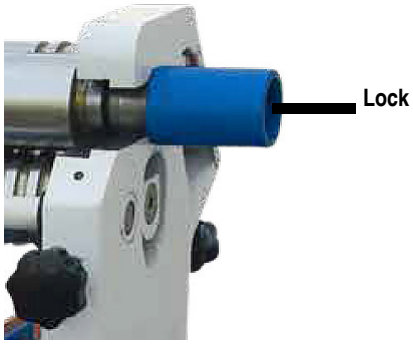

Fig. 6: Lock of the top roller

8.1 Work process

Step 1: Before starting the machine, the lock of the top roller must be checked.

Step 2: Check the parallelism of the rollers with a gauge and spirit level.

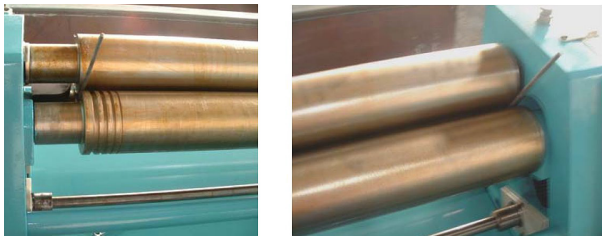

Fig. 7: Checking parallelism of rollers

Step 3: Clean the rollers and the workpiece.

Step 4: Turn on the main switch. The operating display lights up.

Step 5: Press the START button.

Step 6: Press the pedals to activate the rollers.

Step 7: Perform bending operation.

Step 8: Stop the rollers after completing the bending process. Move roller down.

Step 9: Release the upper roller lock, fold out the upper roller and remove the workpiece. Use a crane to support the workpiece.

ATTENTION!

The unfolded top roller must not be overloaded by the workpiece. The workpiece must be supported by a crane.

Step 10: Fold in the top roller and lock.

Step 11: Switch off the machine with the main switch.

8.2 Bending process

Bending may only be performed by qualified personnel experienced in these machines. All steps of bending, pre-bending and conical bending must be carried out extremely carefully. It should be noted that a small radius is made by repeating the bending process several times; Once too much bent, this step can not be undone.

WARNING!

Do not use profiles that go beyond the strength specification. Do not work on more than one piece at a time. Use the machine only for the intended purpose.

Before processing

- Remove dirt and oil from the material.
- The material ends must be free of chips and burnt residues.
- Burned material is harder at the points of separation than in the remaining area.
- The material has to be level.
- It is recommended to make a stencil made of cardboard or cardboard for the desired radius.

Always work the workpiece in the center of the rollers.

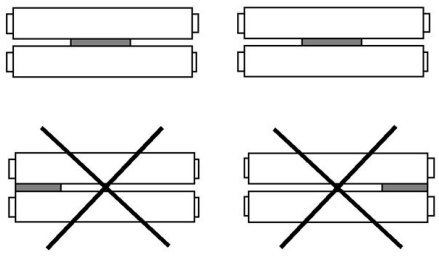

Fig. 8: Position the workpiece in the middle of the rollers

Calculation of the workpiece length

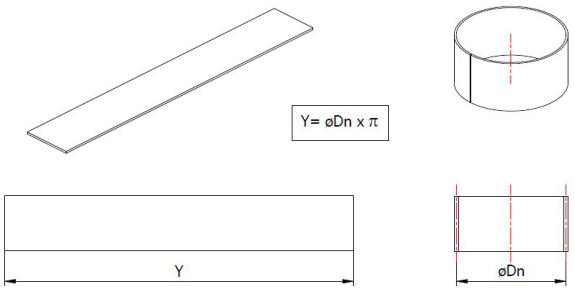

Fig. 9: Calculation of the workpiece length

Bending chart

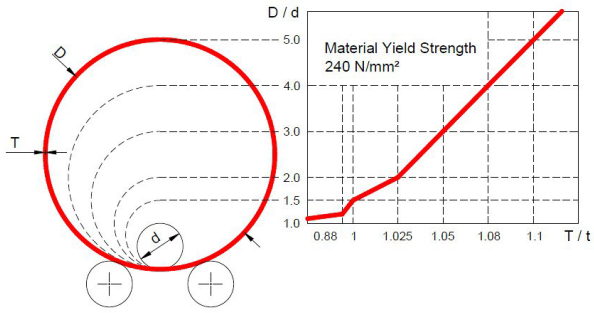

Fig. 10: Bending chart

Pre bending

Pre-bending is the operation whereby the ends of the material are bent to the same radius as the final radius. As a result, the best results are achieved at full radii (eg making tubes) or for operations where no flat ends are desired.

Bending

NOTE!

The material hardens a little bit more after each pass.

When processing stainless steel, several passes must be made because this material is work hardening material.

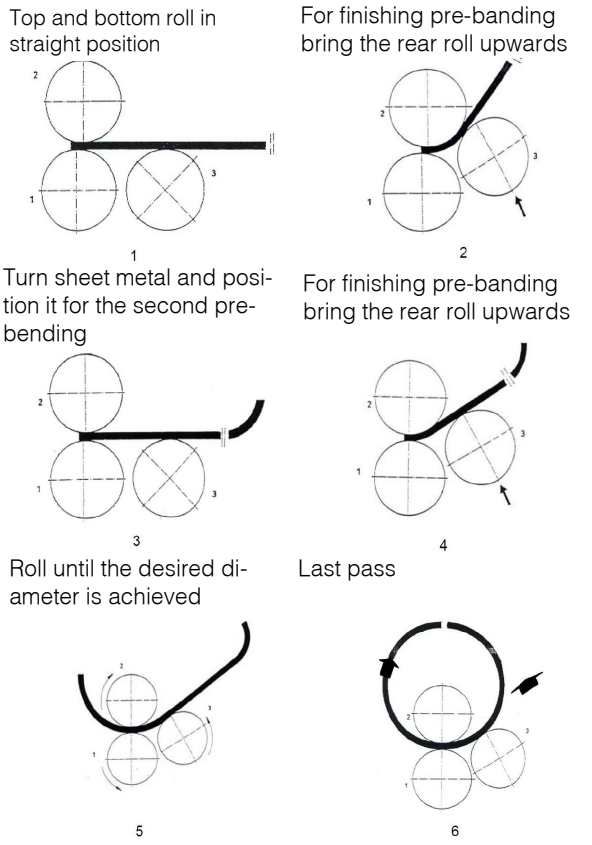

Fig. 11: Bending process

Conical bending

Conical bending is more difficult than normal bending. The machine performance is reduced by 30% to 50%, the conical bending capacity decreases by about 25%. The material thickness must be reduced accordingly.

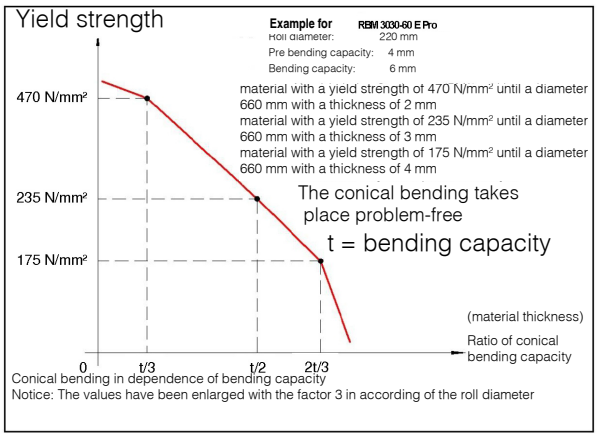

Fig. 12: Bending capacity chart

Calculation of the dimension of the workpiece

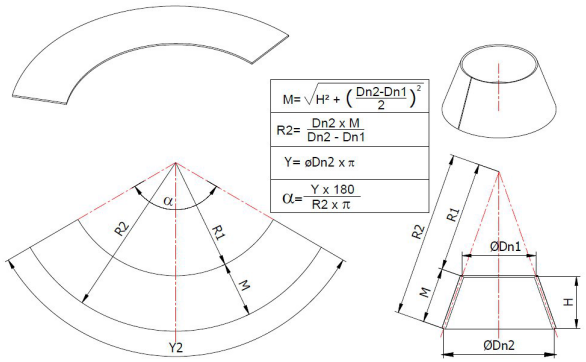

Fig. 13: Calculation of the dimension of the workpiece

Adjusting of the material thickness

Step 1: Loosen the knurled screw to the right of the adjusting screws.

Step 2:Turn the adjusting screws to raise or lower the lower clamping roller.

Step 3:Insert the material between the rollers from the front of the machine and set the rollers so that the material is tight. Tighten the thumbscrews and remove the material between the rollers.

Front adjusting screw and rear hand wheel

The 2 adjusting screws are installed in the left and right side frames.
This allows the operator to raise or lower the pinch roller so that the correct gap between the upper and lower pinch rollers can be obtained to insert the desired material into the machine.

The rear handwheel assist the operator in raising or lowering the guide roll, which determines the degree of bending in the material being fed through the machine. The hand wheel is equipped with a scale that helps the operator to adjust.

Bending process

Step 1: After adjusting the diameter, insert the material on the front of the roller and turn the control handle clockwise until about half of the material has passed through the rollers.

Step 2: When the roller is driven, make sure that the upper roller rotates counterclockwise. While the material is being fed, lift the idler and continue rotating until a semicircle is formed.

NOTE!

It is important that the roller rotates while you operate the cam lever. When the cam lever is engaged while the rollers are not rotating, a noticeable flat spot or line is formed across the width of the material.

Step 3: After the formed semicircle, reinsert the unshaped material into the roller and turn the actuation handle clockwise to form a complete circle.

Withdrawal of the workpiece

Step 1: After completing the bending process, support the workpiece with a crane.

Step 2: Move the lower and rear roller down.

Step 3: Release the lock on the top roller.

Step 4: Swing top roller out.

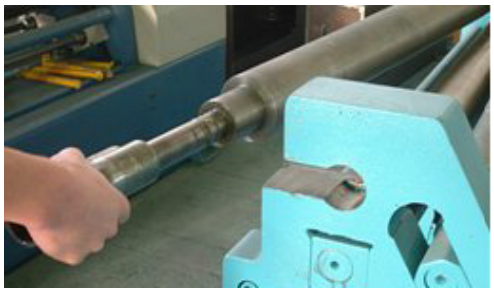

Fig. 14: Swing out of the tp roller

Step 5: Remove workpiece. Use a crane to support the workpiece.

ATTENTION!

When the upper roller is tilted, the upper roller must not be overloaded by the workpiece. The workpiece must be supported by a crane.

Step 6: Swing the top roller back into the bearing and lock it.

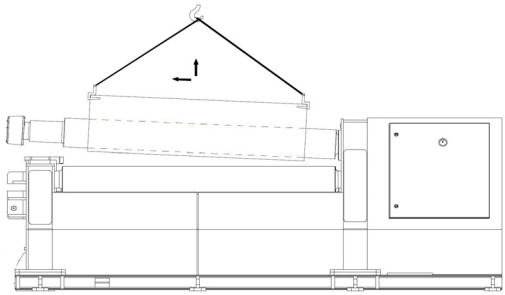

Fig. 15: Workpiece withdrawal with lifting device

9 Cleaning, maintenance and service/repair

Tips and recommendations

To ensure that the bending machine is always in good operating condition, regular care and maintenance work must be carried out.

DANGER!

Danger due to insufficient qualification of persons!

Insufficiently qualified personnel can not assess the risks involved in maintenance work on the machine and expose themselves and others to the risk of serious injury.

- All maintenance work should only be carried out by qualified persons.

DANGER!

Danger to life due to electrical shock!

There is a danger to life when in contact with live components.

- Always unplug the appliance before cleaning and maintenance.
- Connections and repairs of the electrical equipment may only be carried out by a qualified electrician.

NOTE!

Before servicing and maintaining the bending machine, the maintenance instructions must be read carefully. Handling the Bending Machine is only permitted to persons who are familiar with the Bending Machine.

ATTENTION!

After servicing, maintenance and repair work, check that all panels and guards are properly installed on the machine again and that there is no more tools inside or in the working area of the round bending machine.

Damaged safety devices and parts must be repaired or replaced by the customer service.

9.1 Cleaning and maintenance

Regularly clean the bending machine with a soft, damp cloth.

ATTENTION!

- Never use solvents to clean plastic parts or painted surfaces. A surface release and consequential damage may occur.

ATTENTION!

The rollers must not be lubricated or oiled. You would allow slipping of the material and thus trigger no bending process. The rollers are always free from grease and oil.

Treat bare metallic work surfaces with anti-rust spray.

Clean the rollers regularly.

Maintenance (lubrication)

The points listed in the table must be lubricated regularly at least once a month or more often for a period of more than eight hours daily.

Some of these locations are inside the machine and can only be accessed after removing the cover.

Nr		Interval	lubricants
1	bearing, movable parts	monthly	oil
2	gears	half-yearly	grease

- The gearbox under the front cover is maintenance-free and only needs to be checked from time to time.
- The engine and frame mounting screws are tightened if necessary.

9.2 Service/Repair

ATTENTION!

Repair work may only be carried out by qualified personnel.

All protection and safety equipment must be reinstalled immediately after completion of repair and maintenance work.

If the bender does not work properly, contact a dealer or our customer service. The contact details can be found in chapter 1.2 Customer Service.

10 Troubleshooting

ATTENTION!

If one of the following errors occurs, stop working with the machine immediately. It could lead to serious injuries. All repairs or replacement work may only be carried out by qualified and trained specialist personnel.

Trouble	Possible cause	Remedy
The bending machine does not work.	1. The mechanics are broken.	1. Check the mechanics. 2. Contact the dealer.
The bending machine does not start working.	1. Connection cable loose. 2. Engine defective.	1. Verbindungskabel lose 2. Contact a specialist dealer.
The bending machine does not bend the material correctly.	1. The material thickness could be wrong. 2. The wrong material has been inserted.	1. Observe max. sheet thickness. 2. Only insert the right material.
The bending machine does not bend the materials as indicated in the catalog.	1. The material thickness could be wrong. 2. The mechanics are faulty.	1. Check the material to be bent. 2. Contact the dealer.

11 Disposal, recycling of used devices

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

11.1 Decommissioning

Immediately decommission disused machines in order to avoid later misuse and endangering of the environment or personal safety.

- Eliminate all environmentally hazardous operating materials from the used device.
- If required, disassemble the machine into easy-to-handle and usable components and parts.
- Dispose of machine components and operating materials by the disposal channels provided.

11.2 Disposal of lubricants

Remove any leaking, used or excessive grease at the lubricating points.

Disposal notes for used lubricants are available from the manufacturer of the lubricants. If necessary, request the product-specific data sheets. The disposal instructions for the lubricants used are provided by the lubricant manufacturer. If necessary, ask for the product-specific data sheets.

12 Spare parts

DANGER!

Danger of injury by the use of wrong spare parts!

Dangers may result for the user and damages as well as malfunctions may be caused by using wrong or damaged spare parts.

- Only use original spare parts of the manufacturer or spare parts admitted by the manufacturer.
- Always contact the manufacturer in case of uncertainties.

NOTE!

Using non-approved spare parts voids the manufacturer's warranty.

12.1 Ordering spare parts

The spare parts may be purchased with the authorized dealer or directly with the manufacturer. Please find the corresponding contact data in Chapter 1.2 Customer service.

Indicate the following basic information for requests or orders of spare parts:

- Type of device
- Item No.
- Position No
- Year of construction:
- Quantity
- Required mode of dispatch (mail, freight, sea, air, express)
- Address of dispatch

Spare part orders which do not include the above indications may not be taken into consideration. If the indications regarding the mode of dispatch are missing, the product is dispatched at the discretion of the supplier.

You will find information regarding the device type, item No. and year of manufacture on the type plate fixed to the bending Machine.

Example

The motor for the bending machine RBM 1305-15 E must be ordered. This is indicated in the spare parts drawing with the item number 111.

When ordering spare parts, send a copy of the spare parts drawing with the marked component (motor) and marked position number (111) to the authorised dealer or to the spare parts department and provide the following information:

- Device type: **Bending Machine**
- Item number: **3781305**
- Position number: **111**

The item number of your device:

Bending machine RBM 1305-15E : 3781305

12.2 Spare parts drawing

In case of service, the following drawing shall help to identify the necessary spare parts. If necessary, send a copy of the parts drawing with the marked components to your authorized dealer.

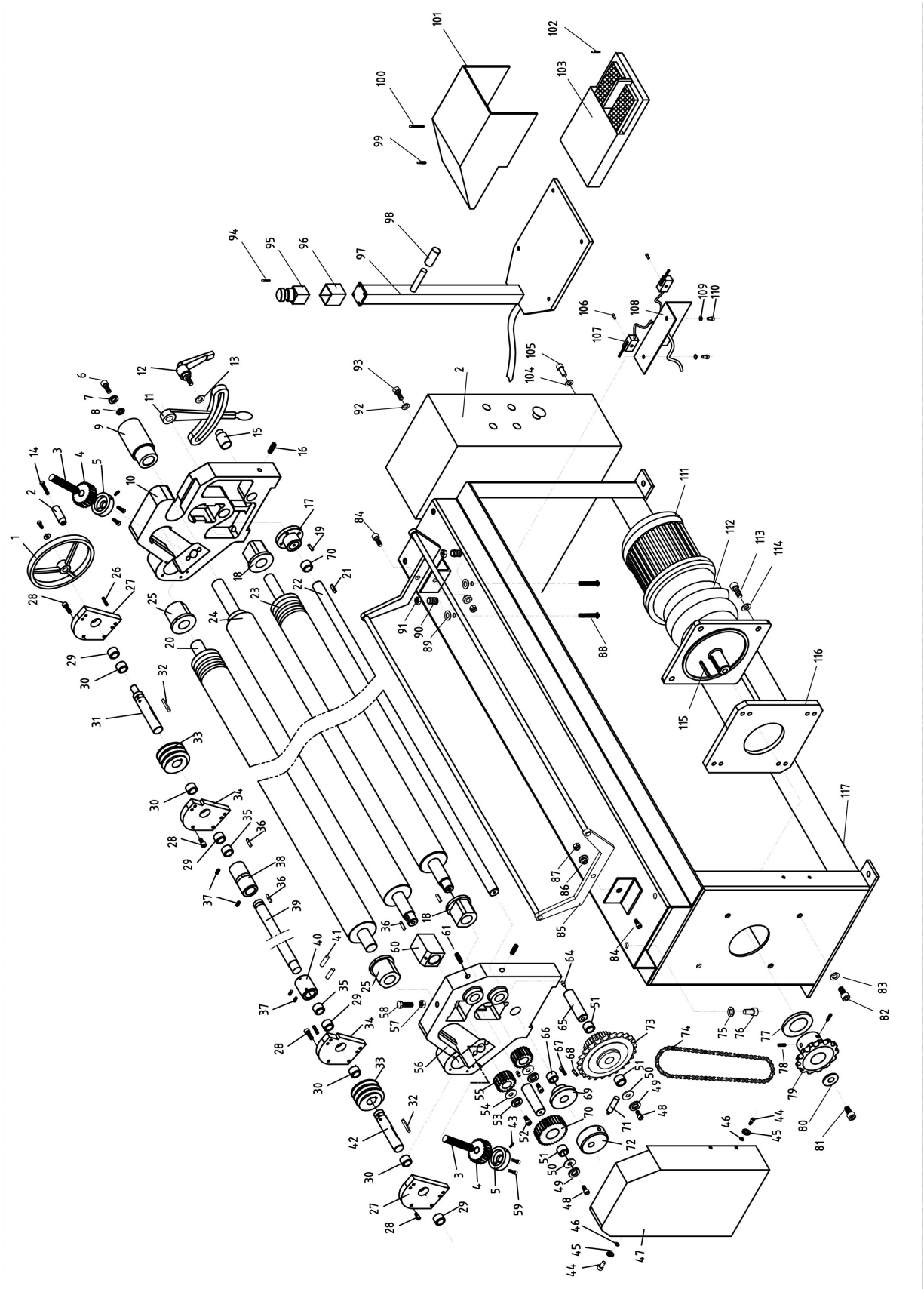

Fig. 16: Spare parts drawing RBM 1305-15 E

13 Electrical-schematic

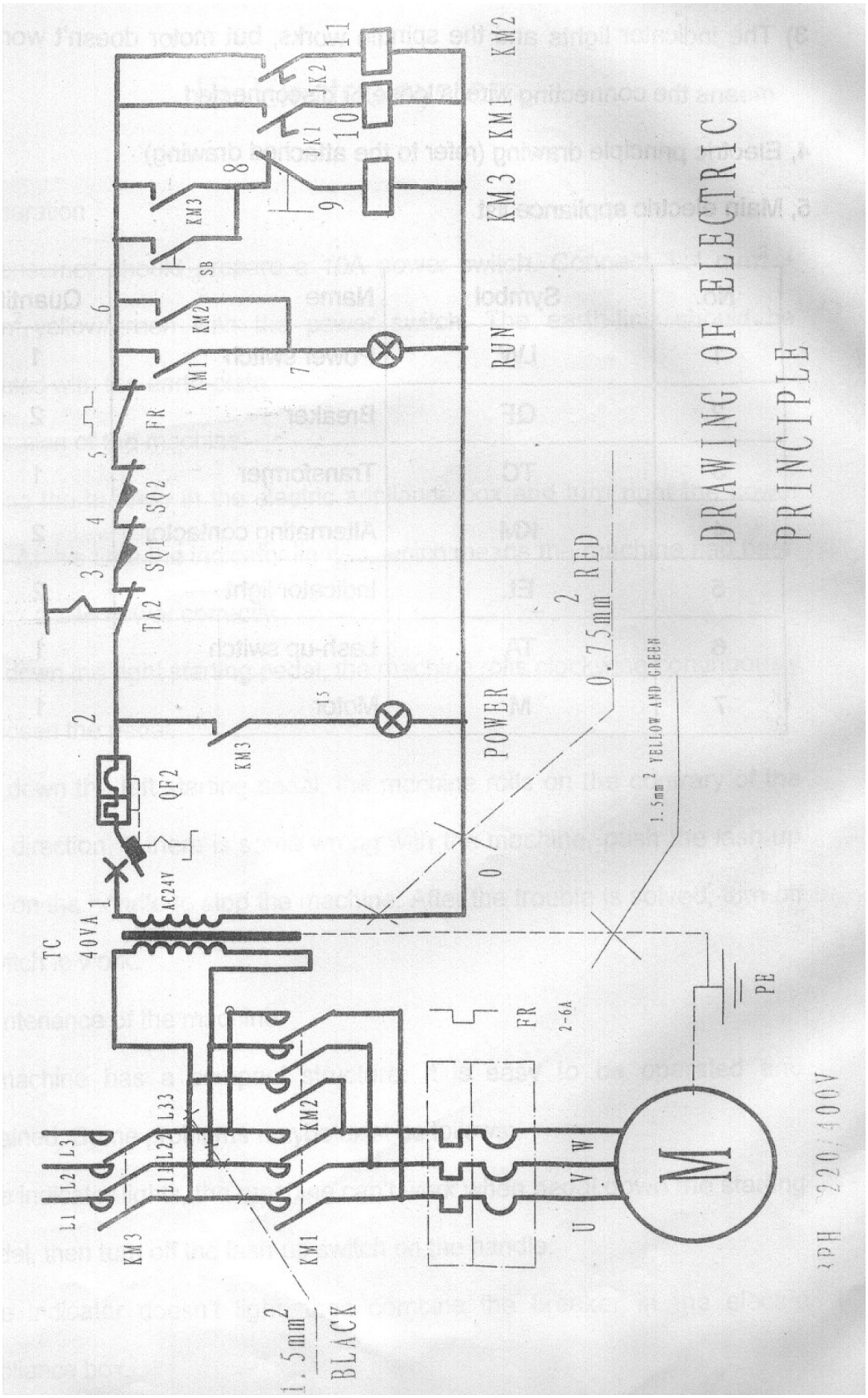

Fig. 17: Electrical-schematic RBM 1305-15 E

14 EC-Declaration of conformity

According to machine directive 2006/42/EC Annex II 1.A

Manufacturer/retailer: Stürmer Maschinen GmbH
Dr.-Robert-Pfleger-Starße 26
D-96103 Hallstadt

herewith declares that the following product

Product group: Metallkraft® Metallbearbeitungsmaschinen

Designation of machine: RBM 1305-15 E

Machine type: Bending Machine

Item number: 3781305

Serial number: _____

Year of manufacture: 20____

corresponds, on the basis of its design and construction, as well as the version that we have put into circulation, with the relevant fundamental health and safety requirements of (subsequent) EC guidelines.

The following harmonized standards were applied:

DIN EN ISO 12100:2011-03	Safety of machinery - General principles for design -Risk assessment and risk reduction
DIN EN 60204-1:2014-10	Safety of machinery - Electrical equipment of machines - Part 1: General requirements

Responsible for documentation: Kilian Stürmer, Stürmer Maschinen GmbH,
Dr.-Robert-Pfleger-Str. 26, D-96103 Hallstadt

Hallstadt, 12.09.2018

Kilian Stürmer
Directors

CE


stürmer
OPTIMUM