

# Instruction Manual

- Manual brake bending machine
- HSBM 305 HS
- HSBM 610 HS



HSBM 305 HS

HSBM HS-SERIES

## Imprint

### Product Identification

Machine type	Item number
HSBM 305 HS	3772305
HSBM 610 HS	3772610

### Manufacturer

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### Indications regarding the operating instructions

Original Instructions

Edition: 27.10.2019  
Version: 2.03  
Language: English

Author: PS/MS

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# 1 Introduction

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

**Thoroughly read the operating instructions before commissioning the machine.**

It informs you about the proper commissioning, the intended use as well as the safe and efficient operation and maintenance of your brake bending machine.

The operating instructions are part of the brake bending machine. Always keep it at the place of use of the brake bending machine. Furthermore, the local accident prevention regulations and the general safety notes are applicable for the field of application of the brake bending machine.

The illustrations in these operating instructions serve the general comprehension and may deviate from the actual type.

## 1.1 Copyright

The contents of these instructions are copyright. Their application is admissible in the frame of the machine utilisation. An application beyond the described application is not allowed without written approval of the manufacturer. 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 any questions about your brake bending machine or for technical information. There you will be happy to help with expert advice and information.

### Germany:

Stürmer Maschinen GmbH  
Dr.-Robert-Pfleger-Str. 26  
D-96103 Hallstadt

### Repair-Service:

Fax: 0049 (0) 951 96555-111  
E-Mail: [service@stuermer-maschinen.de](mailto:service@stuermer-maschinen.de)  
Internet: [www.metallkraft.de](http://www.metallkraft.de)

### Spare part orders:

Fax: 0049 (0) 951 96555-119  
E-Mail: [ersatzteile@stuermer-maschinen.de](mailto:ersatzteile@stuermer-maschinen.de)

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 taking the applicable standards and rules, the state-of-the-art 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,
- Unauthorised 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 paragraph will give you an overview of all important safety packages for the protection of the people using it well as for a safe and undisturbed operation. Other task-based safety notes are included in the individual chapters.

## 2.1 Symbol Explanation

### Safety Instructions

The safety notes in these operating instructions are highlighted 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 injuries if they are not avoided.



### WARNING!

This combination of symbol and signal words indicates a possibly dangerous situation which may lead to minor or light injuries if they are not avoided.



### CAUTION!

This combination of symbol and signal word indicates a potentially hazardous situation which, if not avoided, could result in minor injury.



### ATTENTION!

This combination of symbol and signal word indicates a potentially hazardous situation which, if not avoided, could result in property damage and environmental damage.



### NOTE!

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.

## 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 quoted in these operating instructions in order to reduce the risks for personal injuries and damages to property.

## 2.2 Qualification of personnel

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 machine and expose themselves and others to the danger of severe injuries.

- Have all works only performed by qualified persons.
- Keep insufficiently qualified persons and children 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 expressly commissioned the operator.

### Specialist staff:

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 has to wear personal protective equipment while performing different works on and with the appliance which are indicated in the individual paragraphs of these instructions.

The personal protective equipment is explained in the following paragraph:



### Protective gloves

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



### Safety boots

The safety boots protect the feet against crushes, falling parts and slipping over on slippery underground.



### Protective clothes

The protective clothes are tight clothes of little tensile strength.

## 2.4 General safety instructions



### WARNING!

#### Risk of misuse!

The manual hand-held bending machine may only be operated in a technically perfect condition. Any faults must be eliminated immediately. Unauthorized modifications to the manual handheld bending machine or improper use of the manual handheld bending machine and disregard of the safety instructions or the operating instructions exclude liability of the manufacturer for resulting damage to persons or objects and invalidate the warranty!

#### 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 manual hand-held bending machine must not be modified in design and should 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.
- Keep children and persons unfamiliar with the manual hand-held bending machine away from their work environment.
- Eliminate disturbances that affect safety immediately.
- Protect the manual hand pivot bending machine from moisture.
- Make sure that no parts are damaged before using the manual hand bending machine. Damaged parts must be replaced immediately to avoid any danger.
- Do not overload the manual hand 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 dangers and accident risks.

## 2.5 Safety signs on the machine

There are various warning labels and safety markings on the manual brake bending machine, which must be observed and followed. The safety markings attached to the manual brake bending machine, must not be removed. Damaged or missing safety markings can lead to malfunctions, personal injury and property damage. They are to be replaced immediately. If the safety markings are not immediately recognizable and comprehensible, the manual brake bending machine, should be taken out of service until new safety markings have been made.



Fig. 1: Safety signs

## 2.6 Intended Use

The Manual Hand Bending Machine is used exclusively for bending steel sheets or non-ferrous metals. The material to be bent must not exceed the maximum sheet thickness. It may only be operated by a single person instructed in the use and maintenance of the manual hand swivel machine.

It may only be operated by instructed persons familiar with the machine.

Proper use also includes compliance with all information in this manual. Any use beyond the intended use or otherwise is considered misuse. Use of the Manual Hand Swing Bending Machine in other areas and for other purposes is considered improper use. For structural and technical changes to the manual hand bending machine, the company Stürmer Maschinen GmbH assumes no liability. Claims of any kind due to damage due to improper use are excluded.



### WARNING!

#### Risk of misuse!

Misuse of the manual hand swivel machine can lead to dangerous situations.

- Operate the manual hand swivel machine only in the performance range specified in the technical data.
- Never bypass or override the safety devices.
- Only operate the manual hand-held bending machine in a technically perfect condition.

## Misuse

The Manual Hand Swing Bending Machine must not be used to bend materials other than its intended use.

## Residual risks

Even if all safety regulations are observed and the machine is used correctly, there are still residual risks listed below:

# 3 Technical Data

## 3.1 Table

Technical Data	HSBM 305 HS	HSBM 610 HS
Max. working width	305 mm	610 mm
Max. sheet thickness*	1,0 mm	1,0 mm
Max. bending angle	0-135°	0-135°
Dimensions	500x350x410 mm	850x360x420 mm
Weight	30kg	42 kg
Segmented upper cheek split	<b>5Stk. Upper beam segments</b>  <b>1x</b> 25,4 mm <b>2x</b> 50,8 mm <b>1x</b> 76,2 mm <b>1x</b> 101,6 mm	<b>5 Stk. Upper beam segments</b>  <b>1x</b> 25,4 mm <b>1x</b> 50,8 mm <b>1x</b> 76,2 mm <b>1x</b> 203,2 mm <b>1x</b> 254 mm

\* Performance details relate to material with a tensile strength 400 N/mm<sup>2</sup>; optional hardened tool required for bending VA steel

## 3.2 Type plate



Fig. 2: Type plate

# 4 Transport, packaging and storage

## 4.1 Delivery and Transport

### 4.1.1 Delivery

Check the device for visible transport damage after delivery. If the device shows damage, it must be reported immediately to the transport company or the dealer.

### 4.1.2 Transport

#### Transport with a pallet truck / forklift:

The Manual brake Bending Machine is delivered on a pallet so that it can be transported with a forklift or pallet truck.



#### DANGER!

When transporting and lifting the manual brake bending machine, observe that the transport and lifting equipment can pick up the load.



#### WARNING!

##### Risk of life!

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

- During transport and lifting work, observe the weight of the machine and the permissible load capacity of the lifting equipment.
- Check lifting gear and load handler for perfect condition.



#### NOTE!

- The machine may only be loaded and unloaded by qualified personnel.
- Never drive the forks under the machine directly to raise them!
- For transport, all covers must be attached to the machine frame.



## 4.2 Packaging

All used packaging materials and packaging aids of the appliance are recyclable and generally need to be transported to the material recycling.

Crush the packaging material made of cardboard and supply it to the waste paper collection.

The films are made of polyethylene (PE) and the upholstery parts are made of polystyrene (PS). These materials have to be delivered to a recycling station of the responsible dumping company.

## 4.3 Storage

The device must be thoroughly cleaned before storing it in a dry, clean, dust- and frost-free environment. It must not be shut down with chemicals in a room.

## 5 Description of the device

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



Fig. 3: Description

- 1 Tension lever
- 2 Segmented upper beam
- 3 Lower bending cheek
- 4 Handle

## 6 Installation and commissioning

### 6.1 Set up



**Use protective gloves!**



**Use protective boots!**



**Wear protective clothes!**



**WARNING!**

**Risk of crushing!!**

Incorrect work on the brake bending machine is a risk of injury to the upper limbs.

- The device must be set up together from 2 people.

In order to achieve good functionality of the manual brake bending machine as well as a long service life, the site should meet the following criteria.

- The substrate must be level, firm and vibration-free.
- The installation or working room must be dry and well ventilated.
- Do not operate machines that cause dust and chips near the manual brake bending machine.
- 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.

The manual brake bending machine is already preassembled in the delivery state with the exception of a few add-on parts. The scope of delivery also includes various accessories.

**Step 1:** Place the Manual Hand Swing Bending Machine on a sturdy workbench that can support the weight and bending force of the machine.

**Step 2:** Use a pin to mark the mounting holes on the work plate.

**Step 3:** Take the Manual Hand Swing Bending Machine off the workbench.

**Step 4:** Pierce the work plate at the marked points. Use a drill with a diameter of approx. 9 mm.

Step 5: Firmly mount the Manual Hand Swing Bending Machine on the workbench with 4 Allen screws, washers and nuts (M8).



### 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 of dirt and dust.

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

## 6.2 Operation



**Use protective gloves!**



**Use protective shoes!**



**Wear protective clothes!**



### WARNING!

#### **Danger due to insufficient qualification of persons!**

Insufficiently qualified personnel can not assess the risks involved in handling the manual hand-held bending machine and expose themselves and others to the risk of serious injury.

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



### CAUTION!

#### **Risk of crushing!**

Incorrect work on the manual brake bending machine can cause injury to the upper limbs.

### Tension the sheet metal

Step 1: Cut your sheet to the desired size. Do not use sheets that have the max. Exceed sheet thickness.

Step 2: Draw the bending point with a scribe, foil sliders or similar.

Step 3: Press the tension lever [Fig. 3; 1] of the upper cheek upwards. Insert the plate between the upper and lower beam and align it after the crack on the upper beam.

Step 4: Press the tension lever [Fig. 3; 1] down to securely clamp the sheet. If the upper beam does not clamp the plate, either the plate is thicker than 1 mm or the clamping must be adjusted.



### DANGER!

Make sure that there are no other persons in the working environment during the bending process who may be injured or no objects are damaged.

### Bending process

Step 1: After clamping the material, the Manual Hand Swing Bending Machine is ready for bending with the bending cheek [Fig. 3; 3].

Step 2: Bend the sheet at the desired angle by lifting the bending beam [Fig.3; 3]. Lift it by the handle with both hands [Fig. 3; 4]. (Take into account that the sheet springs back slightly and thus the bending angle has to be chosen slightly larger).

Step 3: After the bending process, swing the lower part of the handle completely downwards again. Lift the upper beam with the lever to remove the plate.

### Adjusting the upper beam

To determine the position of the upper beam and to align it correctly with the material thickness, please follow the following working instructions.

Step 1: Lift with the handle [Fig. 4; 1] the upper cheek to the very top.

Step 2: Loosen the nuts [Fig. 4; 2], around the threaded rod [Fig. 4; 3] in or out to screw.

Step 3: Turn the threaded rod [Fig. 4; 3] clockwise to move the upper bending beam down or counter-clockwise to move it upwards (for thicker materials). Count the number of revolutions.



Step 4: Tighten the nuts [Fig. 4; 2] to tighten the threaded rod [Fig. 4; 3] to fix.

Step 5: Repeat steps 2. to 4. on the opposite threaded rod [Fig. 4; 3] and adjust with the same number of turns. The upper bending beam must be flush with the sheet when closing. There must be no gap left. If necessary, a readjustment is necessary.

Step 6: Turn the eccentric [Fig. 4; 4] after loosening the set screws [Fig. 4; 5] to move the upper bending beam forward or backward. Make this setting the same on both sides.

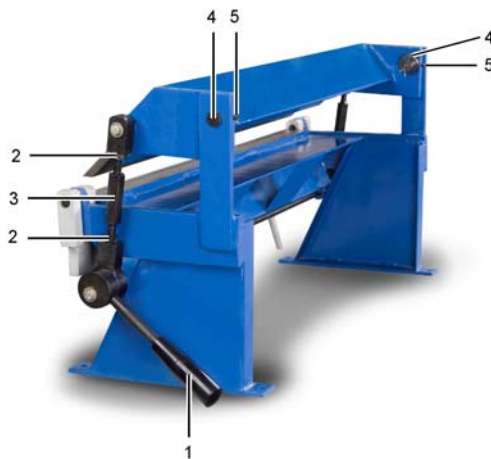


Fig. 4: Adjusting the upper beam

### Change bending segments

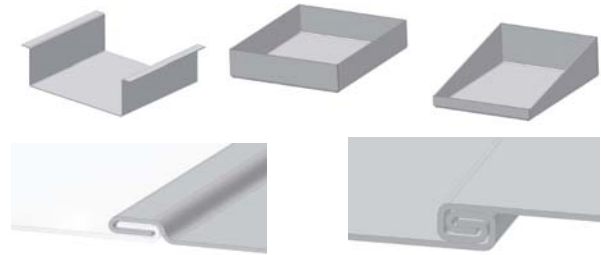
The Manual Hand Swing Bending Machine has a segmented upper jaw. The bending segments can be assembled or disassembled individually.

Step 1: Loosen the screw [Fig. 5; 1] on the movable bending beam and remove the bending segment [Fig. 5; 2]. The assembly takes place in reverse order.



Fig. 5: Removal / installation of the bending segments

Due to the removable segments, it is easily possible, e.g. produce box-shaped and complex profiles. Through a seam seam, you can connect sheets together.



simple fold seam

double fold seam

Fig. 6: Bending possibilities

### Determine a stretched length of 90 ° bends

$$L = a + b + c + \dots - n \cdot v$$

L = extended length  
a, b, c = lengths of thighs  
s = sheet thickness  
r = bending radius 1 mm  
n = number of bending points  
v = balancing worth

for the compensation value v per bend applies to the following plate thickness s in mm:

s	0,4	0,6	0,8	1,0
v	1,0	1,3	1,7	1,9

Example:

a = 25 mm; b = 20 mm; c = 15 mm; n = 2; s = 1 mm

→  $L = 25 \text{ mm} + 20 \text{ mm} + 15 \text{ mm} - 2 \cdot 1,9$

**L = 56,2 mm**

If possible, cut the sheet to its final dimensions only after bending to avoid inaccuracies

Fig. 7: Determine the extended length of 90 ° bends

## 7 Care and Maintenance/Repair



### Tips and recommendations

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



### NOTE!

Before servicing and maintaining the manual hand pivot bending machine, the maintenance instructions must be carefully read. Handling the Manual Hand Swing Bending Machine is only permitted to persons familiar with the Manual Hand Swing Bending Machine.



**DANGER!**

**Danger due to insufficient qualification of persons!**

Insufficiently qualified personnel can not assess the risks involved in repairing the equipment and expose themselves and others to the risk of serious injury.

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

After servicing, repairing and cleaning, check that all panels and guards are correctly installed on the Manual Hand Swing Bending Machine and that there is no tool inside or in the working area of the Manual brake Bending Machine.

### 7.3 Troubleshooting



**DANGER!**

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.

### 7.1 Care by cleaning

Regularly clean the Manual Hbrake Bending Machine with a soft, damp cloth.



**DANGER!**

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

### 7.2 Maintenance

Treat bare metallic work surfaces with anti-rust spray. All moving parts and bearings should be lubricated monthly with commercial grease.

Fault	Possible Cause	Remedy
The Manual brake Bending Machine does not work.	1. The mechanics are broken.	1. Check the mechanics. 2. Contact the dealer / manufacturer.
The Manual brake Bending Machine does not bend the material correctly.	1, The material thickness could be wrong. 2. The wrong material has been inserted.	1. max. Note plate thickness. 2. Insert only the correct material
The Machine does not bend the materials as specified 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 / manufacturer.

## 8 Disposal, recycling of old equipment

In the interests of the environment, care must be taken to ensure that all components of the machine are disposed of in the proper and approved way.

### 8.1 Decommission

Disused equipment must be taken out of service immediately in order to avoid later misuse and endangering the environment or people.

- Dispose of all environmentally hazardous fluids from the old device.
- If necessary, disassemble the machine into manageable and usable components and components.
- Supply the machine components and operating materials to the appropriate disposal channels.

## 8.2 Disposal of electrical equipment

Electrical equipment contains a variety of recyclable materials and environmentally harmful components.

These components must be separated and properly disposed of. If in doubt, contact municipal waste management.

If necessary, the help of a specialized waste management company can be used for the treatment.

## 8.3 Disposal of lubricants

Remove the leaking, used or excess grease at the lubricated lubrication points.

The disposal instructions for the lubricants used are provided by the lubricant manufacturer. If necessary, ask for the productspecific data sheets.

# 9 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

## 9.1 Ordering spare parts

The spare parts can be obtained from the dealer or directly from the manufacturer. The contact details are in chapter 1.2 Customer Service.

Specify the following key data for inquiries or when ordering spare parts:

- Type of device
- Item number
- Part number
- Quantity
- Year of manufacturing
- Required mode of dispatch (mail, freight, sea, air, express)
- Address of dispatch

Spare parts orders without above given information can not be considered. If the shipping method is missing, shipping will be at the discretion of the supplier.

Information on the device type, article number and year of manufacture can be found on the type plate, which is attached to the machine.

### Example

The bending beam for the the manual hand swivel bending machine HSBM 305 HS must be ordered. The bending beam has the number 1 in the spare parts drawing 1.

By ordering spare parts, send a copy of the spare parts drawing (1) with the marked part (bending beam) and marked position number (1) to the dealer or spare parts department and provide the following information:

- Type of device: **Manual brake bending machine HSBM 305 HS**
- Item number: **3772305**
- Drawing number: **1**
- Position number: **1**

### Item number of your machine

HSBM 305 HS:	<b>3772305</b>
HSBM 610 HS	<b>3772610</b>

## 9.2 Spare parts drawing

The following drawing should help in case of service to identify necessary spare parts. To order, send a copy of the parts drawing with the parts marked to your authorized dealer.

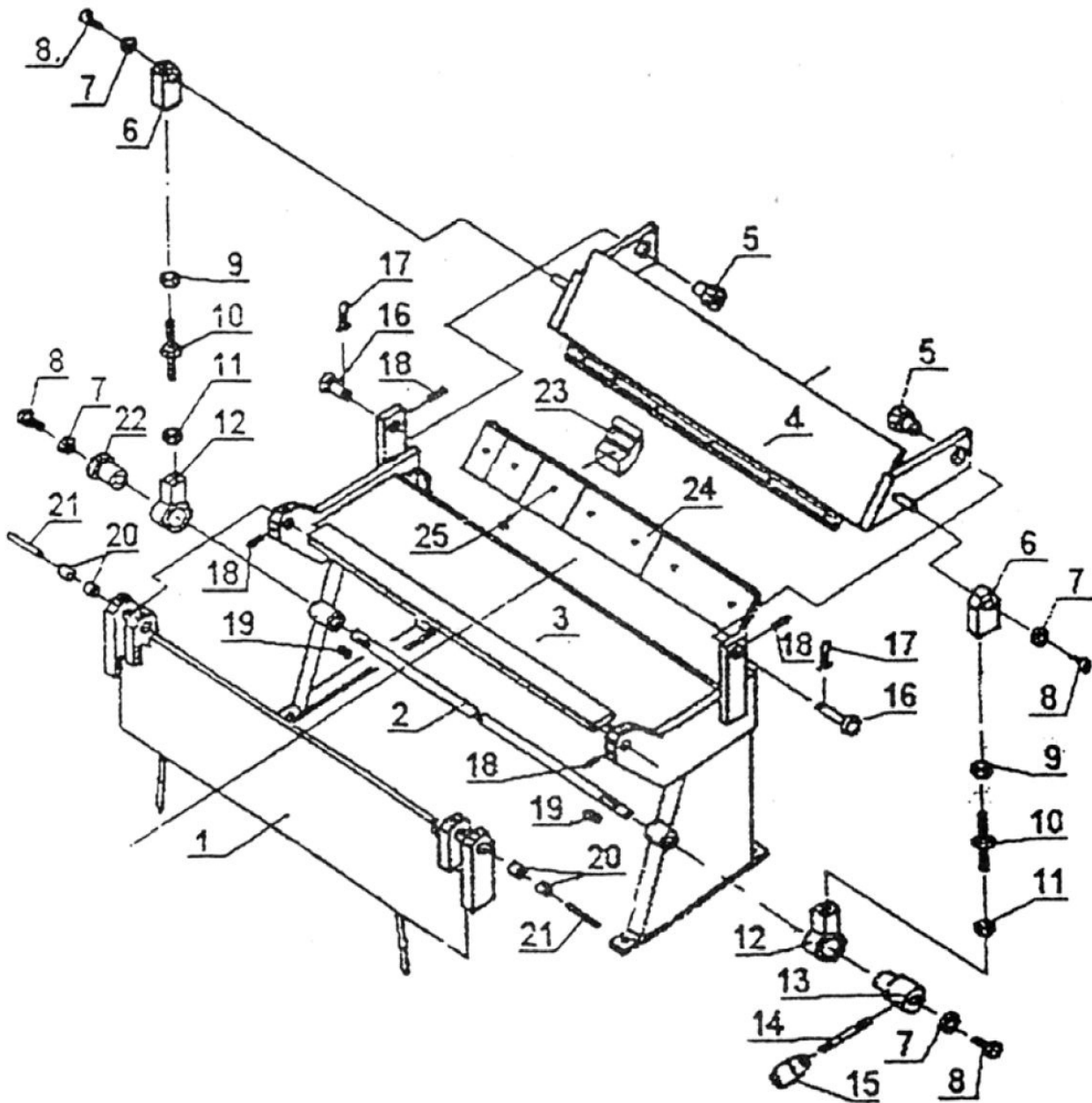


Fig. 8: Spare parts drawing

## 10 Declaration

According to Machinery Directive 2006/42 / EC Annex II 1.A

**Manufacturer / distributor:** Stürmer Maschinen GmbH  
Dr.-Robert-Pfleger-Str. 26  
D-96103 Hallstadt

hereby declares that the following product (below)

**Product group:** Metallkraft® Metal working machines

**Machine type:** Manual brake bending machine

**Designation of the machine \*:** ☐ HSBM 305 HS **Item number \*:** ☐ 3772305  
☐ HSBM 610 HS ☐ 3772610

**Serial number\*:** \_\_\_\_\_

**Year of manufacture\*:** 20\_\_\_\_

\* fill in these fields using the information on the nameplate

We hereby declare that the machine described below, due to its design and construction as well as in the version we have placed on the market, complies with the relevant basic health and safety requirements.

A declaration of conformity in accordance with Machinery Directive 2006/42 / EC does not require this machine. In the event of a modification of the machine not agreed with us, this declaration shall lose its validity.

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

Hallstadt, 27.10.2020



Kilian Stürmer  
Manager

