



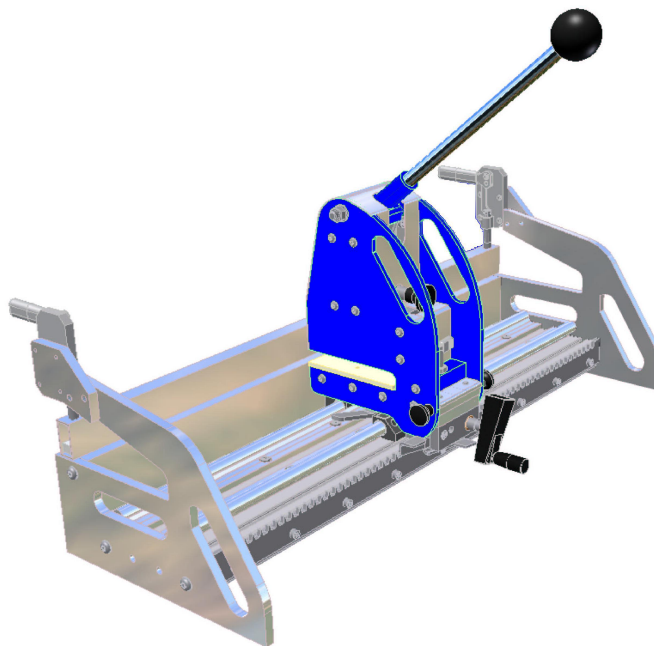
Operating Instructions

Punching Press for Z-Splices

PZ-G/500 M

PZ-G/1000 M

PZ-G/1500 M



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CONVEYOR TECHNIQUE
SPECIALMACHINES
BELTINGTOOLS
COMPONENTS

by



engineering fabrication servicing

Introduction

We would like to congratulate you for having purchased the Müssel-Belting Tools made by Müssel Maschinenbau GmbH and to thank you for the confidence you placed in us.

This operating instruction provides you with important information for the proper and safe use of the punching tool, **PZ-G/... M**.

Owing to our experience over decades in the development and the fabrication of finishing tools for conveyor belts and driving belts, these devices have been designed according to the latest state of technique and in compliance with this application. Please find further information on splicing types and finishing parameters in the detailed splicing instructions or in the belt specific technical data sheets of the belt manufacturer.

Please note that the future usage conditions of the conveyor belt have to be considered for the choice and the finishing of splices.

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Contents

1 General Information

- 1.1 Name and address of the manufacturer
- 1.2 Identification of the device
- 1.3 CE-Declaration

2 General Safety Instructions

- 2.1 Basics
- 2.2 Organisational measures
- 2.3 Personnel selection and qualification
- 2.4 Safety instructions for specific operating phases
- 2.5 Mobile devices
- 2.6 Safety instructions

3 Product Description

- 3.1 Components and proper usage
- 3.2 Mode of operation
- 3.3 Technical Data
- 3.4 Accessories

4 Preparing the product for usage

- 4.1 Transport
- 4.2 Positioning
- 4.3 Adjusting the punching depth
- 4.4 Inserting the punching set
- 4.5 Removing the punching set
- 4.6 Inserting the punching head
- 4.7 Inserting the belt stops

5 Handling

- 5.1 General
- 5.2 Cutting the belt to length
- 5.3 Z-punching – First end of the belt
- 5.4 Z-punching - Second end of the belt

6 Maintenance work

- 6.1 Spare parts

7 Disassembling and Disposal



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1 General Information

1.1 Name and address of the manufacturer

Müssel Maschinenbau GmbH
Reichelsweiherstraße 8
95615 Markredwitz
GERMANY

1.2 Identification of the device

Product designation:	Punching press for Z-splices
Serial/Type designation:	PZ-G/500 M, PZ-G/1000 M, PZ-G/1500 M
Serial number:	see type label
Year of construction:	see type label

1.3 CE-Declaration

see fixed label



2 **General Safety Instructions**

The following document contains important information on serious risks when operating the tool described or important technical information on the tool or processes used. Symbols are used to highlight this important information and indicate as follows:



This symbol is always to be found in connection with an endangerment and its respective signal word.

Signal words hierarchy:

Danger: This signal word is indicating a person endangerment with a high risk level which causes death or serious injury, in case it cannot be avoided.

Warning: This signal word is indicating a person endangerment with a medium risk level, which can cause death or serious injury, in case it cannot be avoided.

Caution: This signal word is indicating an endangerment with a low risk level which can cause a minor or moderate injury, in case it cannot be avoided.

Attention: This signal word is indicating a warning of material and environmental damages.

2.1 Basics

This device has been built as state of the art and according to the fundamental health and safety requirement of the EC machinery directive. However, its usage may result in risks to the body or life of users or third parties, or adverse effects to devices and other property.

The device may only be used in proper technical condition as intended, in a safety- and hazard conscious manner and observing the operating instructions!

Observing the operating instructions and adhering to the inspection and maintenance conditions are also parts of the intended use.

2.2 Organisational Measures

The operating instructions must always be at hand at the place of use of the device!

In addition to the operating instructions, observe and instruct the user in all other generally applicable legal and other mandatory regulations relevant to accident prevention and environmental protection!

The operating instructions must be supplemented by instructions covering the duties involved in supervising and notifying special organizational features, such as job organization, working sequences or the personnel entrusted with the work.

Please only assign trained personnel familiar with the operating instructions on the device.

Check at regular intervals whether the personnel are carrying out the work in compliance with the operating instructions and paying attention to risks and safety factors!

In order to minimize the risk of injury, garments must be close-fitting. Furthermore long hair must be tied back and jewellery -including rings- have to be removed before beginning work.

Observe all safety instructions and warnings attached to the device and see to it that they are always complete and perfectly legible!

If the operating behaviour changes immediately stop the device and report the error to the responsible department/person!

Never make any modifications, additions or conversions which might affect safety without the supplier's approval.

Additional mountings or modifications have as consequence that the responsibility for the accordance with the EU-directive has to be assured by the person who carries out the mountings and the modifications.

Spare parts, only, from the original equipment comply with the technical requirements specified by the manufacturer and guarantee the failure-free operation of the device.

2.3 Personnel selection and qualification

The device can only be operated by staff accordingly skilled and instructed.

2.4 Safety Instructions for specific operating phases

The device can only be operated in a safe and absolutely reliable state. Make sure in particular that all protective and safety-oriented devices are in place and fully functional.

Loosened screws and hose connections must be tightened upon completion of the maintenance and repair work.

2.5 Mobile devices

Always use hoisting and slinging equipment with sufficient weight bearing capacity for loading!

Position hoisting devices or slinging means only on the load lifting appliances of the device that are provided for this purpose.

Please take the necessary and appropriate measures for making sure that during the transportation no device part may fall in or loosen.

2.6 Safety instructions

The removing of covers or parts of safety-oriented components may increase the risk of accident.

Conversions, maintenance and repair work must be performed by trained, competent and skilled persons.

3 Product Description

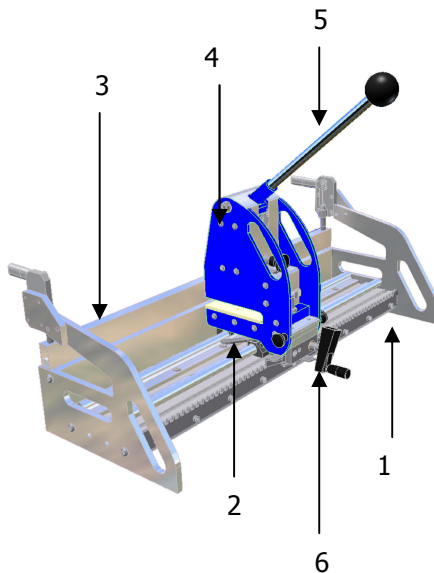
3.1 Components and proper usage

The purpose of the PZ-G/... M manual punching presses are to prepare or make Z-splices on conveyor and power transmission belts, where the belts are 500, 1000 and 1500 mm wide, depending on the type. The instructions and regulations stipulated by the belt manufacturer must be complied with. The punching press has a removable punching head.

You can make the following Z-splices with the appropriate punching set:

- Z 40 x 9,42 mm
- Z 80 x 9,42 mm

The punching press consists of the following components:



Designation	Components
1	Basic frame with guidance bars
2	Support
3	Hold-down bars with side plates and side belt stops
4	Removable punching head with knife holder
5	Pressure lever
6	Crank on the support

3.2 How it works

Cut the material to length and affix the ends of the belt in the hold-down bar. Knives are then pressed against a pressure piece and punched several times at the same distance. Turn the crank to move the punching head.

You can find more information on how the punch press works in the chapter „5 Handling“.

3.3 Technical data

Belt width max.	mm	500 / 1000 / 1500
Width	mm	702 / 1202 / 1702
Length without handle	mm	340
Length with handle	mm	450
Height without handle	mm	335
Height with handle	mm	440
Weight punching head	kg	9,0
Weight basic frame	kg	14,0 / 21,7 / 28,7
Splicing angle	°	90
Type of splice	mm	40 x 9,42 80 x 9,42

Material number	Designation
710092	PZ-G/500 M
710093	PZ-G/1000 M
710094	PZ-G/1500 M

3.4 Accessories

Accessories are not included in the scope of delivery and must be ordered separately!

Material number	Designation
710098	Punching set Z 40 x module (pitch) 3
710099	Punching set Z 80 x module (pitch) 3

4 Preparing the product for usage

Before starting to operate the tool, the following steps must be carried out each time to ensure the tool works properly. Check the following points:

4.1 Transport

Before transporting the tool, remove the punching head from the tool.
Avoid subjecting the tool to hard knocks or jolts, as these can cause distortions in the toothed section. Unintentional distortions in the teeth will produce a faulty looking punch.

4.2 Positioning

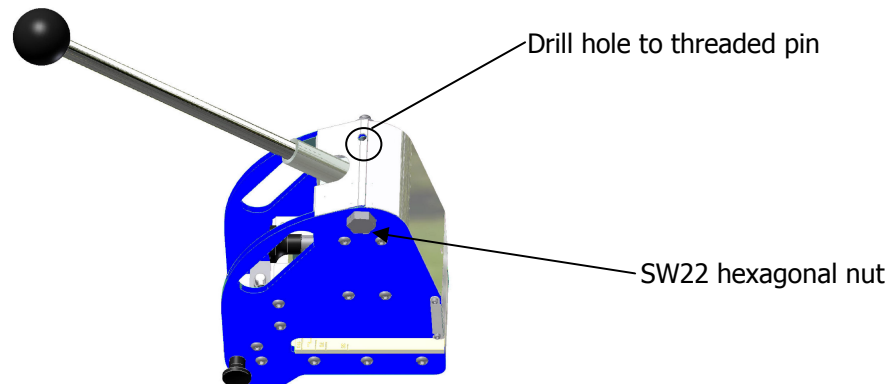
Punching presses may only be placed on an even, suitable surface.

4.3 Adjusting the punching depth

Depending on the punching set ordered, the depth for punching the ends of the splices has been pre-set in the factory.

Should the punching press no longer punch very well after a longer period of usage, this could mean that punching depth is no longer sufficient. If this is the case you can adjust the punching depth as follows:

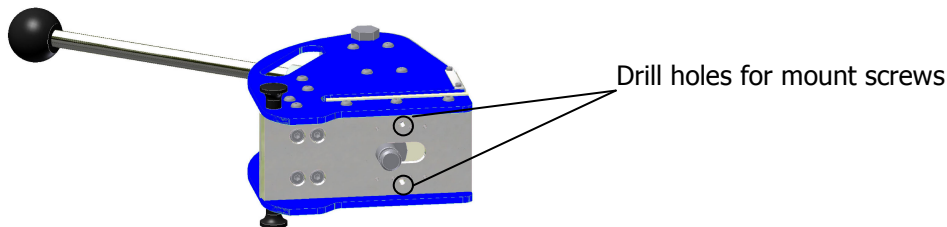
1. Loosen the pin on the punching head, using an SW5 hexagonal key.



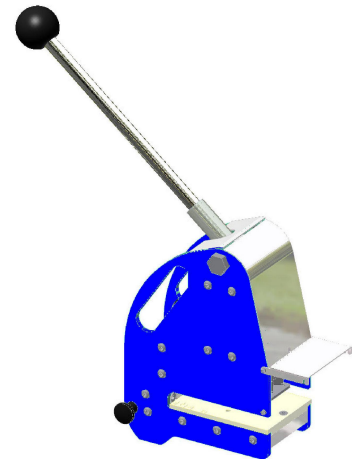
2. Use an SW22 flat wrench to turn the hexagonal nut, without loosening the check nut while doing so.
⇒ The position of the punching set is therefore shifted via an eccentric shaft.
3. After adjusting, tighten the pin.
Eccentricity is +/- 2 mm. The punching depth in the punching plate should be approx. 0.1 mm.
4. Check the punching depth is correct by doing a test punch on a piece of paper.
⇒ The punching depth is correct if the sheet of paper has been punched all the way through.

4.4 Inserting the punching set

1. Remove the punching head.
Two drill holes underneath give access to the mount screws.

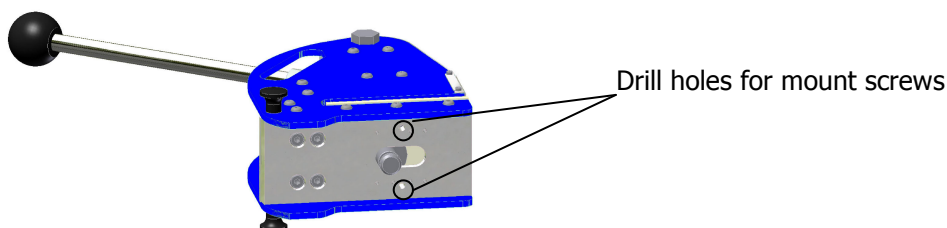


2. Loosen the mount screws, but without completely taking them out.
3. Open the flap on the punching head.
4. Place the punching set from the front and towards the top into the fixation plate.
5. Use the pin to place the fixation plate into the drill hole on the knife retainer.
6. Affix the two mount screws and turn them tightly.
7. Close the flap on the punching head.



4.5 Removing the punching set

1. Remove the punch press head.
Two drill holes underneath give access to the mount screws.



2. Loosen the mount screws, but without completely taking them out.
⇒ When loosening the screws, hold the set of punch cutting knives tightly.
3. Open the flap on the punching head.
4. Remove the punching set towards the bottom and front.
5. Close the flap on the punching head.

4.6 Inserting the punching head

1. Place the frame on a suitable, stable, non-slip surface.
2. To infinitely adjust the head, push the lever and move the support to about the middle of the punching press.
3. Place the punching head's locking bolts in the drill hole on the support (see following figure).
4. Affix the punching head by turning the stop lever on the support from the hold-down bar towards the operator.

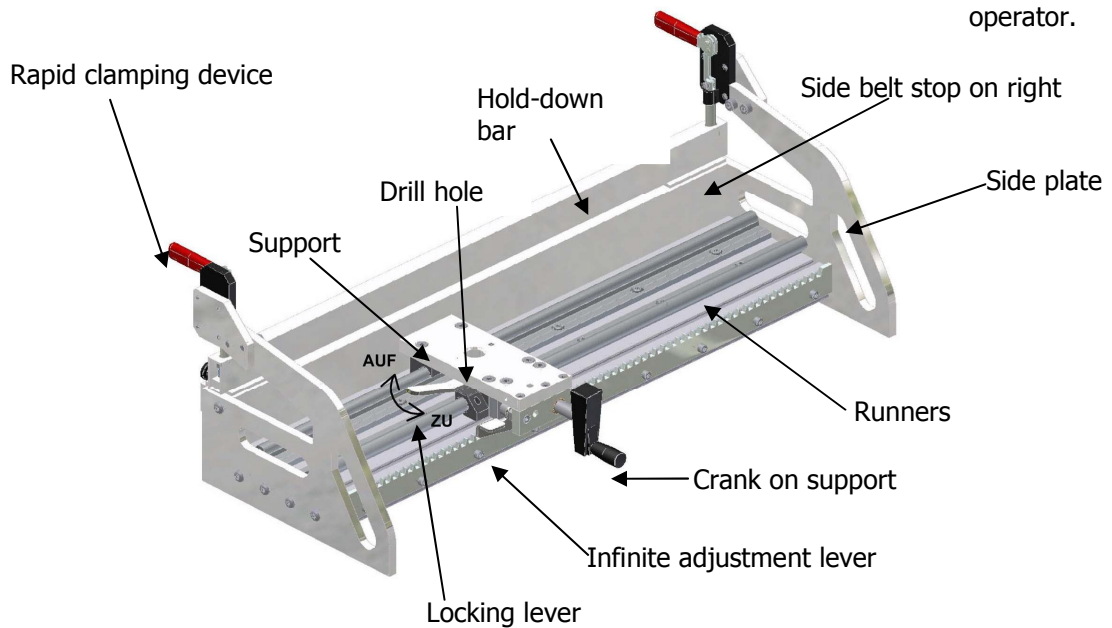


Fig. PZ-G/... M – punching press, basic frame without punching head

4.7 Inserting the belt stops

Place the side belt stops into the slits at the right and left of the basic frame.



5 Handling

5.1 General, proper usage

Punching presses may only be used for preparing Z-splices on conveyor belts. Usage for any other purpose would be improper and make any guarantee invalid and exclude any liability whatsoever from the manufacturer.

Only use verified spare parts, otherwise the CE symbol is not valid. Spare parts must be purchased from the manufacturer of the tool. (For type, serial number, year made: see type label). The registered serial number means the belt can be checked by referring to the acceptance/inspection log.

Handling PZ-G/... M punching presses requires substantial care and attention by the person operating it.

The tool has been made in compliance with the latest regulations and data on accident prevention. Nevertheless, moveable parts and sharp blades can cause injury when you are using the punching press. Therefore, always keep to the following rules:

- Never operate the tool without protective devices.
- Never reach into the tool while operating it.
- Only lift the tool by the handles and holding devices provided.
- When changing the knives, place edge protection over the cutting edges.

Caution



Risk of injury! The operator risks bruising and injury from open blades.

Note:

When making Z-splices, always observe the splicing instructions for the belt type to be spliced.

Before using the tool each time, make a test punch on a piece of paper and look at the result to check the punching press is working properly.

⇒ The punching set is working perfectly if the edges have been punched cleanly. The punching depth is correct if the sheet of paper has been punched all the way through.

5.2 Cutting the belt to length

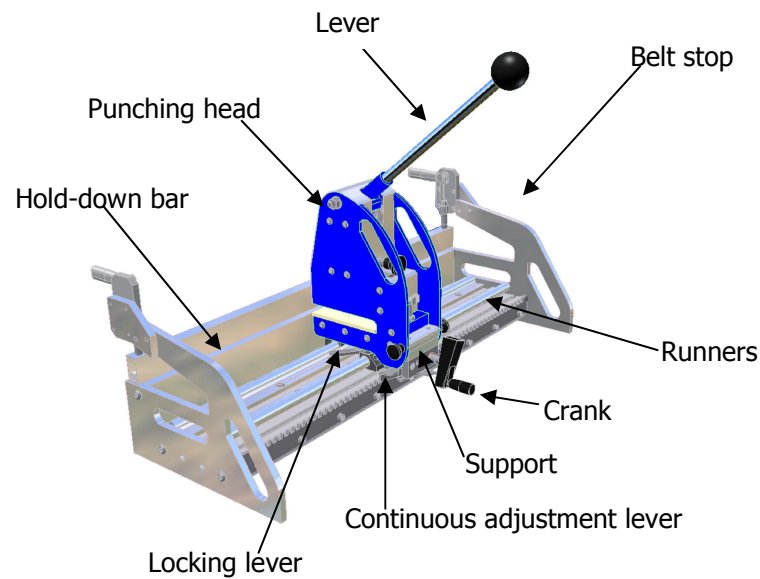
1. Measure the length you require.
2. Add a thickness allowance ($\pi \times$ belt thickness).
3. Add a splice allowance in accordance with the following table.

Splice allowance for Z-punching:

Z 40 x 9,42 mm	50 mm
Z 80 x 9,42 mm	90 mm

⇒ The belt length required plus the allowance equal the total length of the belt.

4. Mark the total length of the belt by applying a clear line at right angles to the belt edge.
5. Cut the belt off at a right angle.



5.3 Z-punching (standard) – First end of the belt

Note:

Insert the belt material always with the carrying side into the punching press.
Valid for BOTH sides.
1x creating the right belt top
and 1x creating the left belt stop!

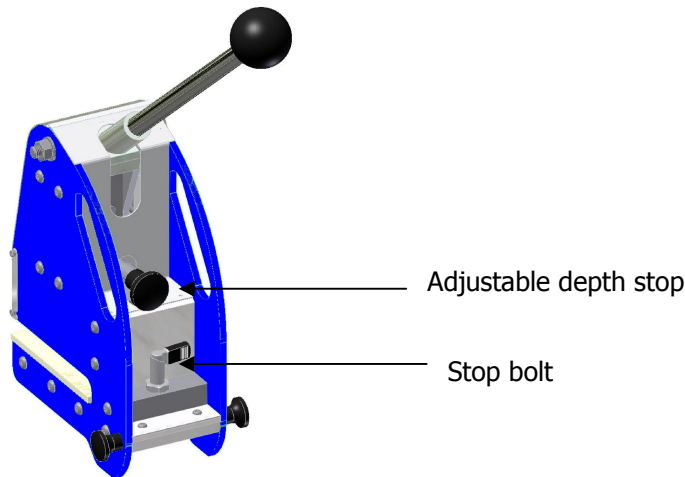


Fig. Punching head

First of all, check whether the punching head is in the right position for Z-punching. To do so, push the punching head towards the hold-down bar till it goes no further. If this is not the case, reposition the punching head as follows:

1. On the punching head, push the stop bolts to the left to unlock the repositioning mechanism.
2. Turn the locking lever on the support towards the hold-down bar till they go no further.
⇒ The punching head can now be moved horizontally on the plinth with the runners.
3. Push the punching head towards the hold-down bar till it goes no further.
4. Push the stop bolt on the punching head to the right.
5. Turn the locking lever on the support towards you till it goes no further.
6. Depress the adjustable depth stop on the punching head until you can hear that it has locked in position.
⇒ Punch the belting material through to the punching base.

If you start punching on the right hand side of the punching press, you will have to punch the second end of the belt on the left hand side of the punching press, so that the finished ends of the belt fit one another. The information in brackets applies if you punch the first end of the belt on the left hand side of the punching press and the second end of the belt on the right hand side.

7. Place the belting material underneath the hold-down bar on the right (left) side belt clamp and affix it temporarily by pressing down the rapid clamping device. Press down the lever to infinitely reposition the punching head and push the punching head to the right (left) towards the belting material.

8. Push the belting material into the punching head and align it with the markings (40 and 80 mm) on the punching base. Ensure that the belt lies exactly flush with the side belt stop, without twisting.
9. Clamp the belting material with the rapid clamping devices of the hold-down bar.
10. To infinitely adjust the punching head, press down the lever and push the punching head to the far right, till the punching head touches the side plate (or to the far left until the infinite adjustment lever touches the side plate). Alternatively, you can also adjust the punching head gradually by turning the crank.
11. Start punching from this position. Press the lever on the punching head down and push the punching head gradually by rotating the crank on the support until you can hear it engaging.
12. After the belt has been punched, remove the scrap, open the rapid clamping devices and remove the belt.

5.4 Z-punching (standard) - Second end of the belt

1. Now place the end of the belt you have not yet punched on the opposite side of the punching press, in other words on the left (right) hand side, underneath the hold-down bar.
2. Push the punching head towards the left (or right) towards the belting material.
3. Push the belting material into the punching head and align it with the markings (40 and 80 mm) on the punching base. Ensure that the belt lies exactly flush with the side belt stop, without twisting.
4. Using the rapid clamping devices, affix the belt.
5. Now repeat the punching process, as described above, by gradually moving the punching head from the stop on the side plate towards the right (or left) over the belting material.
6. Remove the scraps and take out the punched belting material from the hold-down bar.



6 Maintenance work

Before operating the tool, the following maintenance work must be carried out each time to ensure that the tool works properly. If damage is established during maintenance that cannot be put right on site, the tool must no longer be used and sent for repair to the manufacturer. If parts of the tool are removed for repair or maintenance, these must be replaced after they have been repaired.

Check the following each time before use:

- Check the punching base for wear and tear
- Check the result after cutting
- Check the blades are sharp (make a trial punch – never touch the cut edges)

Check after multiple usage:

- Clean the plinth and runners
- Clean the support
- Regularly check to make sure screws and bolts sit tightly
- If after multiple usage the appearance of the punch is no longer satisfactory, we recommend checking the punching depth (see section "4.3 Adjusting the punching depth"), the punching set and the punching plate.

- Punching set

Cutting edges on the blades must not be damaged or blunt. If damaged, the whole punching set must be exchanged (see sections "4.5 Removing the punching set" and "4.4 Inserting the punching set").

Note:

Always replace a complete set of blades. The blades must always be re-sharpened to the same height.

- Punching plate

Frequent cutting can mean that the grooves in the plate can become too deep or the wrong shape. If the ends of the splice can no longer be cut neatly and with sharp edges, the punching plate must be reconditioned.

Check every six months:

- Lubricate all the moveable parts
- Check the punching set is easy to put in the insertion point

6.1 Spare parts

Material number	Designation
710051	Punching set Z 40 x module (pitch) 3
Further spare parts on request!	

7 Disassembling and Disposal

The disassembling in individual components can only be effected by competent staff with a good knowledge of machine building.

Please sort out the device according to the respective materials (metal, plastics and so on) and recycle them.