



Operating Instructions

Punching Press for Z-splices PZ 60 M PZ 150 M



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CONVEYOR TECHNIQUE
SPECIALMACHINES
BELTING TOOLS
COMPONENTS



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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 60 M** and **PZ 150 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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1 General Information

1.1 Name and address of the manufacturer

Müssel Maschinenbau GmbH
Reichelsweiherstraße 8
95615 Marktredwitz
GERMANY

1.2 Identification of the device

Product designation:	Punching press for Z-splices
Serial/Type designation:	PZ 60 M, PZ 150 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

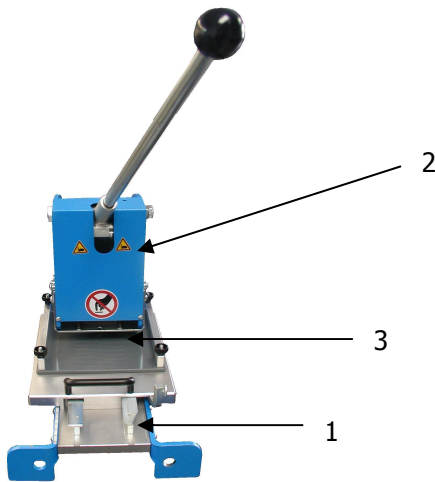
3.1 Components and proper usage

Punching presses of the PZ xx M type are for preparing Z-splices for belt widths of up to 60 mm (PZ 60 M) or 150 mm (PZ 150 M) and belts up to 6 mm thick.

The following Z-splices are possible:

- 35 x 5,75 mm
- 35 x 11,5 mm
- 70 x 11,5 mm
- 110 x 11,5 mm

The punching press consists of the following components:



Designation	Components
1	Basic frame with lock for spacing
2	Punching head
3	Punching table with hold-down bars

3.2 How it works

The PZ xx M punching presses allow you work without producing any scraps, as you can punch continuously from the material roll cut to width. Punching from one side the required belting material is punched in the required length directly from the roll and the end of the belt is prepared accordingly. In doing so, the beginning of the belt is made for each new splice (this shortens set-up times). Working with the PZ xx M requires minimal force because the tool has good leverage.

The punching presses basically consist of the basic frame with punching table, the punching head with punching set and a mechanism that moves the punching set. Clamps have been applied to the table. These help adjust the ends of the belt and affix them securely. When punching, the table is always pushed on one punching section further. Each position is only punched once. This is repeated till the belt has been punched over the whole width.

For the wide range of power transmission and conveyor belts on the market, a single tool has to be able to make different Z-splices. For this reason, this tool makes exchanging the punching set very easy.

You can find more information on how the punching press works in the chapter "5 Handling".

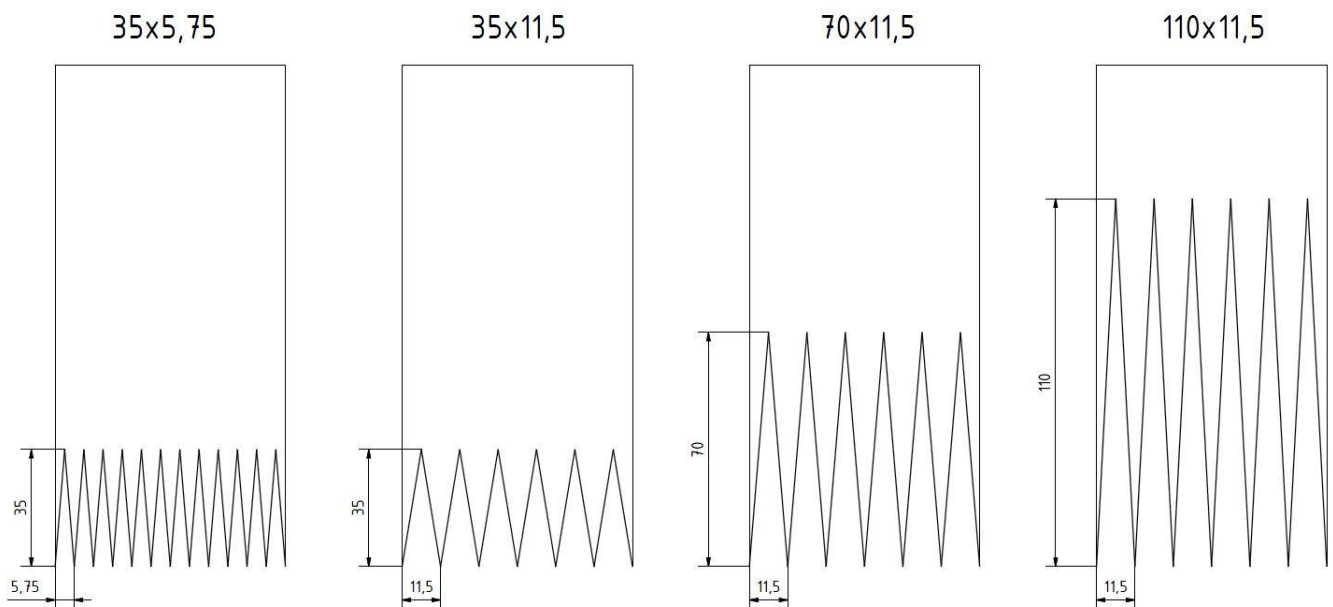
3.3 Technical data

		PZ 60 M	PZ 150 M
Belt width max. (only 90°)	mm	60	150
Belt thickness max.	mm	6	6
Length	mm	440	500
Width	mm	210	210
Height	mm	360	360
Weight (net)	kg	16,0	18,5
Splicing angle	°	90	90
Type of splice	mm	35 x 5,75 35 x 11,5 70 x 11,5 110 x 11,5	35 x 5,75 35 x 11,5 70 x 11,5 110 x 11,5

Material number	Designation
710010	PZ 60 M basic tool with hold-down bar
710011	PZ 150 M basic tool without hold-down bar

3.4 Possible Z-splices

Following Z-splices can be prepared with the punching press:



3.5 Accessories

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

PZ 60 M	PZ 150 M	Designation
7875086	7875086	Punching set 35 x 5,75 mm
7875088	7875088	Punching set 35 x 11,5 mm
7875090	7875090	Punching set 70 x 11,5 mm
7875092	7875092	Punching set 110 x 11,5 mm
/	7872090	Hold-down bar for belts without profile
/	7872184	Hold-down bar for belts with 1 concentric profile
/	7872814	Poster plate for narrow belts with profile

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

Punching presses should only be transported when all general safety regulations have been met. When transporting, ensure the punching presses are only moved or stored when they are closed.

4.2 Positioning

Only place the punching press on a suitable, flat, stable and non-slip surface.

4.3 Changing the punching set

The punching depth of the punching set has been pre-set by the manufacturer for punching ends of splices.

1. Loosen the lock on the punching table and push it slightly towards the left so that you can remove the punching table from the front of the press.

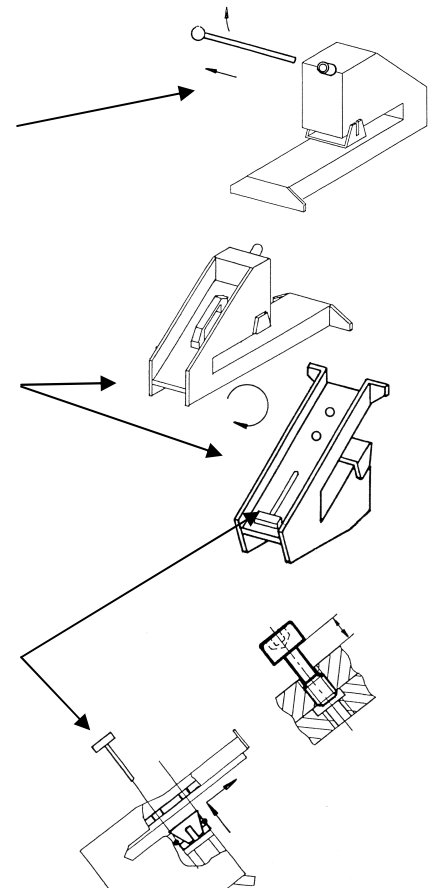
2. Return the operating lever back up to an idle position.

3. Pull the operating lever towards the front of the punching press and out of its clamp.

4. Turn the punching press upside down so that the bottom part is facing towards the top. To do this, put the punching press on the diagonal part of its body.

5. Loosen the mount screws on the punching set. To do this use the long T-allen key in size 5 that you can find underneath the punching press.

6. Pull out the punching set from its insertion point and take it out from the front of the punching press.



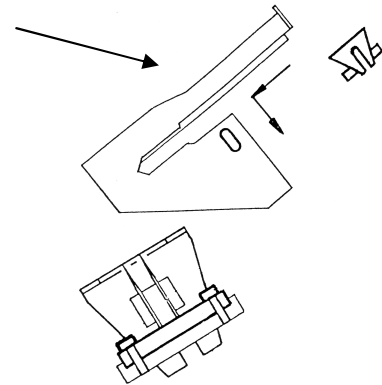


Attention



Risk of damage! If the mount screws are loose, the punching set can easily fall out.

- Put the punching set in the opposite order, from the front of the punching press into the insertion point for the punching set! Please observe the anti-twist protection (bolt + drill hole)



- Fix the punching by tightening the mount screws again, using the long T-allen key.

- Put the punching press in its operating position.

- Put the operating lever back in its clamp.

- Put the punching table back in the press (see point 1 in this list) and close the locking mechanism on the punching table.

Note:

The blades must be inserted tightly to the punching set. Ensure the blades are not damaged or have broken off.



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.

Handling punching presses requires substantial care and attention on the part of the operator. Please note that you:

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

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.

Caution



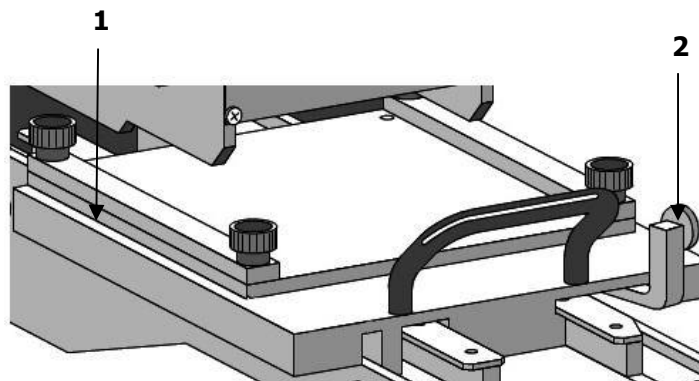
Risk of injury! The operator risks bruising and injury from open blades.



5.2 Preparing and inserting the belting material

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

1. Establish the length of required belt L_0 .
2. Calculate the thickness allowance ($\pi \cdot$ belt thickness).
⇒ Belt length required + thickness allowance + splice allowance produce the overall length.
3. Mark the total length at right angles to the edge of the belt on the top face of the belt with a clearly visible line for the front and back end of the belt.
4. Open the hold-down bar and push it to the side.
5. Insert the belt at the inside stop at right angles to the punching mat into the press, so that the marking at the front end of the belt meets the edge of the punching table exactly (see following fig., number one).
6. Affix the belt by pushing back the hold-down bars and fasten it with the knurled head screws.



5.3 Punching and taking out the belting material

1. Press the operating lever right down.
2. Return the operating lever to its original position.
3. Depress the locking lever (see fig. above, number two) and shift the punching table one spacing on in the row of teeth.
4. Make sure the locking lever engages.
5. Press the operating lever right down again.
6. Repeat the steps 1 – 5 till the belting material has been punched over the entire width.
7. Take out the punched belting material.

6 Maintenance work

Before operating the tool, the following maintenance work must be carried out regularly 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 must be sent for repair to the manufacturer.

Check the following each time before use:

- Body for damage.
- Levers and joints function properly and have no deposits (if necessary remove these).
- Punching set for damage.
- Blades function properly and there is no wear and tear.
- Knife retainer works properly and is not damaged.
- Whether the punching set has been displaced.

Check after using several times:

- Punching plate
Frequent cutting can mean that the grooves in the mat can become too deep or the wrong shape. If the ends of the splice can no longer be cut cleanly and sharply, the punching plate must be replaced.
Note:
Different punching influences the quality of the punch.
- Punching set for wear and tear
Cutting edges on the blades must not be damaged or blunt if damaged, punching set must be exchanged.



6.1 Changing the blades in the punching set

Over time the blades in the punching set will become blunt. If you are no longer satisfied with the results, then change the blades in the set of knives as follows.

Warning



Risk of injury! The punching knives have very sharp blades. Touching them with no protection can lead to cuts. Wear protective gloves.

1. First of all take the punching set.
2. Remove the screws on the blades.
3. Remove blunt or damaged blades from the bottom from the punching set.
4. Insert the new blades from the bottom into the punching set.
5. Tighten the nuts on the hold-down screws just gently to start with, so that the position of the blades can be adjusted.
6. The back of the blades has to lie accurately against the insertion plate.
7. Please adjust the blades lengthwise in order to close succinctly with the adapter of the insertion plate.
8. Tighten the nuts on the hold-down screws.
9. Put the punching set back in the press.
10. Carry out a test punch to ensure that the result is as required (edges cut correctly, no fraying, punching depth OK).

Note:

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

6.2 Spare parts

PZ 60 M	PZ 150 M	Designation
7872077	7872077	Blade 35 mm
7872078	7872078	Blade 70 mm
7872079	7872079	Blade 110 mm
7872146	7872147	Punching plate made of plastic
/	7872814	Poster plate for narrow belts with profile
7871619033	872270	Handle
7872298	7872298	Knurled cupped nut M5
787208914	787208914	Snapping-in lever
78723310117	78723310117	Handle with knob ball
on request	on request	Knob ball \varnothing 40 / 16
7872098014	7872089014	Extension spring for knife holder
on request	787208912	Gear rack, pitch 11,5 mm



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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.