Renz 500 ES Professional Heavy-Duty Punch

Instruction Manual

Operating manual
PUNCH 500 (E)
(Electric punching machine)

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<tr><td>Applicable from s/n 13149</td><td colspan="2">Nov. 2004</td></tr>
</table>

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2 EU-conformity declaration

For the purpose of EC Directives

- EG guidelines for machines 98/37/EG
- Electromagnetic Compatibility 89/336/EEC amended by 93/31/EEC
- Low voltage 73/23/EEC

The Equipment/Machine

Product:	***Electric punching machine***
Type:	***PUNCH 500***
Applicable from machine no.:	***13149***
From year of manufacture:	***November 2004***

was developed, designed and manufactured in conformity with the above-mentioned EC Directives; sole responsibility is borne by the

Company: ***Chr. Renz GmbH, Rechbergstraße 44, D-73540 Heubach***

Following harmonised standards applied:

EN ISO 12100-1 EN ISO 12100-2, *Safety of machinery, devices and equipment*
DIN EN 60204.1*, Electrical equipment for machinery*
.....
.....
.....
.....
Following national standards, directives and specifications apply:

.....
.....
.....

A full set of technical documentation is available.
The instruction manual for the machine is available

☒ *in the original version*

☒ *in following European languages: German, English, ...*

Heubach, Nov. 2004
(Place, date))

Signature

Managing Director
(Details of the signatory)

3 General Information

Please read this manual very carefully before installing or starting the Punch 500.

3.1 Intended Use

The **RENZ® PUNCH 500 (P500)** is only for punching and perforating paper, card board and thin plastic foils. If you ordered the option “grooving” the machine also can be used for grooving paper, card board and foils. Any use for other purposes is not allowed. Each operator has to be familiar with all safety regulations and the intended purpose of the machine.
The machine is not intended for types of use other than those listed here – any infringement of this is considered **improper use!**

 **Caution**	• If the P500 is not used in accordance with this requirement, safe use of the machine cannot be guaranteed. • The user, and not the manufacturer, of the machine is liable for all personal and material damage arising from improper use.

4 General Safety Instructions

4.1 User ´s Duty of Care

- The **RENZ® P500** electric punch machine has been designed and built after careful selection of the harmonised standards to be complied with and of other technical specifications. It is state-of-the-art technology and enables a very high degree of safety during operation.
- Machine safety can however only be converted into operational practice if all the action required for this has been taken. The planning of this action and the control of its implementation fall under the duty of care of the user of the machine.

The user must especially ensure that

- the machine is only used as intended.
- the machine is only operated in perfect working order and the safety equipment in particular is regularly inspected as regards its fitness for operation.
- necessary personal protective equipment for operating, maintenance and repair personnel is available and is worn.
- the operating manual is always in a legible condition and is fully available at the site the machine is used.
- only qualified and authorised personnel operate, maintain and repair the machine.
- this personnel is regularly trained in all relevant matters of Health and Safety and Environmental Protection, as well as knowing the operating manual and in particular the safety instructions contained in it.
- all safety instructions and warnings applied to the machine itself are not removed and are legible.

4.2 Safety Instructions

In this operating manual concrete safety instructions are given to indicate the residual risks that cannot be avoided when operating the machine.

These residual risks include risks to

- People, in particular the operating personnel
- Product and machine
- Environment

4.3 Description of symbols

Symbols indicated below are used in the appropriate place in the operating manual to indicate notably the named residual risks!

 **Danger**	**This symbol indicates that there are, above all, hazards to people! (Danger to life, risk of injury)**
 **Caution**	**This symbol indicates that there are, above all, hazards to machine, material and environment! (Damage, collision, loss of data)**
	**This symbol indicates that there are, above all, hazards to people by electricity see also chapter 4.6. (Danger to life, risk of injury and risk of fire)**

The most important objective of the safety instructions is to prevent people from being injured.

- If there is a warning triangle in front of a safety instruction with the caption **"Danger"**, hazards to machinery, material and environment are not excluded.
- If there is a warning triangle in front of a safety instruction with the caption **"Caution"**, hazards to people are however not anticipated.

The respective symbol used may not replace the text of the safety instruction. For this reason the text must always be read in its entirety!

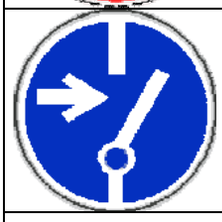
 **Information**	**This symbol identifies points, which are of particular importance for the operator and / or serves as information for a better understanding of the operating sequences of the machine!**

4.4 Safety Requirements for Normal Operation

	The machine may only be operated by trained and authorised personnel who are familiar with the operating manual and are capable of working in accordance with the manual! Before turning the machine on, check and ensure that Only authorised personnel are in the working area of the machine! No one may be injured when the machine starts! Every time you start production, inspect the machine for visible damage and ensure that it is operated only in perfect working order! The supervisor must be informed of any faults that have been noticed! Every time you start production, clear any material and objects that are not required for production from the working area of the machine! Every time you start production, check and ensure that all safety equipment is working perfectly!

4.5 Safety Requirements for Maintenance and Servicing

Adhere to the inspection and maintenance intervals specified in the operating manual!
Comply with the maintenance and repair instructions for the individual components in this operating manual!

	Before carrying out maintenance or repair work, block access to the working area of the machine by unauthorised personnel! Attach or put up a sign that draws attention to the maintenance or repair work!
	Before carrying out maintenance and repair work **turn off** the main isolator switch for the power supply and lock it with a padlock! The key to this lock must be in the hands of the person carrying out the maintenance or repair work!
	When replacing heavy machine components, use only appropriate and perfectly operating lifting equipment and accessories! Before carrying out maintenance and repair work ensure that all parts of the machine that may be touched have cooled down to ambient temperature!
	Properly dispose of lubricants, coolants or cleaning materials that may harm the environment!

4.6 Working on Electrical Equipment

	Repair work on electrical equipment of the machine may only be carried out by a trained and skilled electrical personnel! • Regularly inspect electrical equipment! • Retighten loose connections! • Immediately replace damaged leads/cables! • Always keep the electrical cabinet closed! Access is only permitted to authorised personnel with key/tool! • Never clean electrical cabinets and other electrical equipment casings by spraying them down with a water hose!

4.7 Environment Protection Regulations

	In the case of all work on and with the machine, statutory obligations for waste avoidance and proper recycling/disposal are to be complied with! In particular in installation, repair and maintenance work, substances hazardous to water such as • Lubricant greases and oils • Hydraulic oils • Coolants • Cleaning fluids containing solvent may not pollute the ground or may not enter the sewerage system! **These substances must be stored, transported, collected and disposed of in suitable containers!**

5 Transport and Installation

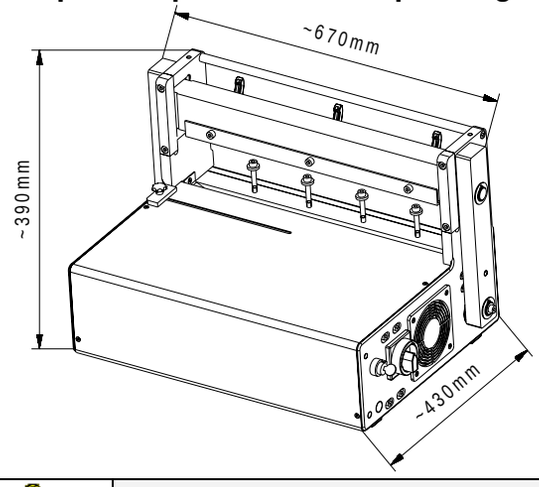
5.1 Safety Instructions for Transport

Danger

In order to exclude damage to the machine and highly dangerous injuries during transport the following are to be observed:

- **Lifting equipment and accessories must meet the requirements of the regulations for the prevention accidents!**
- **The weight of the P500 (about 110kg without punching tool or transport crate) should be taken into consideration when choosing the lifting equipment and accessories!**
- **Transport routes should be blocked off and marked so that no unauthorised party may enter the danger area!**
- **Transport work may only be carried out by qualified and authorised personnel!**
- **Only use lifting equipment with forks long enough to extend through the whole machine frame to ensure safe conditions during transport!**
- **Use only lifting apparatus to transport the machine over ramps!!**

5.2 Space requirement and operating environment



- Please ensure that for the safe operation of the machine the working area of the operating personnel is of an adequate size. The sketch beside only shows the machine size without working personnel.
- Set the machine up on a level surface.

Caution	**The full weight of the P500 (approx. 110kg without punch tool) will be put on points. Please make sure that your table or place you put it onto, has enough load capacity.**

5.3 Electrical connection

	• **The standard voltage is 230/400V (3 ph.) 50Hz [110/200V (3ph.) 60Hz on request]** • **The socket must have a protective wire (PE)** • **The socket must be secured with 16 Amps.** **If you are not sure that your socket is fulfilling the specifications please consult an electrician before you install the P500.**

5.4 Installation

 **Danger**	**To avoid the risk of tripping up:** • Lay the connecting cable in such a way as to avoid creating any tripping points (Use of cable conduits, bridges etc.)! **To ensure fault-free operation:** • Prepare the installation site so that the machine is level on an even floor! • Lay the connecting cable so that that there is no tensile strain on the connectors! • Avoid chafing points on the connecting cable!
 **Information**	**Before starting the P500 for the first time check:** • Have all transport securing devices and desiccant bags been removed? • Is the electrical connection correct? • Are all safety devices operational?
 **Information**	**Before starting the P500 for the first time, without fail carry out the following procedures:** • Clean all painted and metal surfaces in the working area with a mild cleaning agent to remove residues of rust proofing materials applied for transport!!

6 Guarantee and Liability

Guarantee and liability claims are excluded if they are attributed to one or more of the following causes:

- Improper use of the machine.
- Improper assembly, installation, operation and maintenance of the machine.
- Operating the machine with faulty safety devices or with safety and protection equipment that is not installed properly or is not operational.
- Non-compliance with the instructions in the instruction manual regarding transport, storage, assembly, commissioning, operation, maintenance and setting up of the machine.
- Arbitrary constructional changes to the machine.
- Poor inspection of machine parts which are subject to wear.
- Repairs carried out improperly.
- Catastrophic events due to the action of a foreign body and force majeure.

7 Unpacking the machine

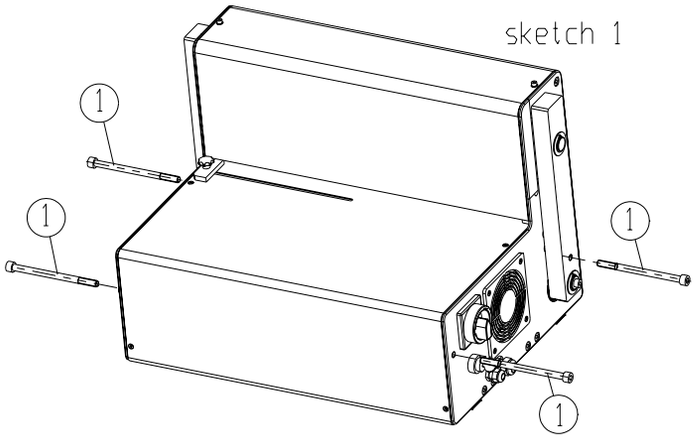
 **Caution**	**The P500 will be delivered in a wooden crate with a gross weight of about 200kg. Please transport the machine only with lifting equipment that has enough load capacity.**
 **Danger**	**The P500 has a weight of about 125-150kg. Move and lift the machine only with mechanical lifting accessories. However if you have to lift it manually please pay attention to the following points:** • **lift the machine only with 4 persons.** • **the transportation track does not have any tripping points.** • **the place where the machine should be installed must be well prepared.**

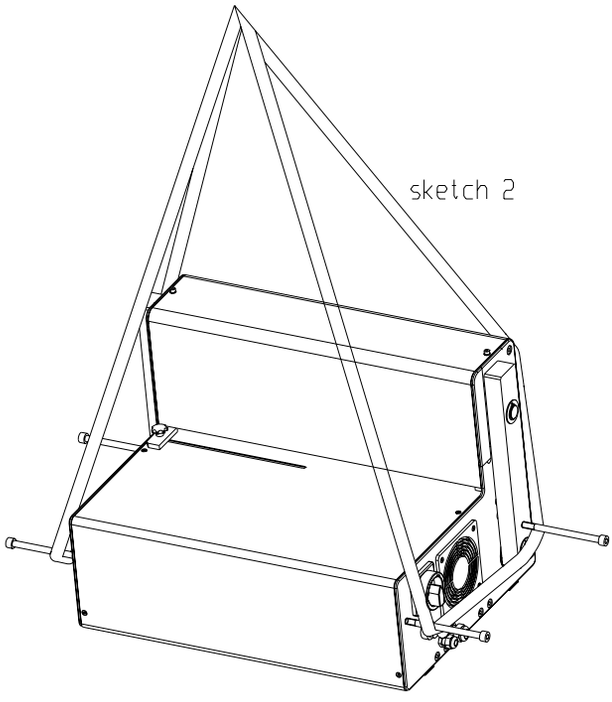
To unpack the machine please proceed as follows:

- Release the screws for the top cover of the crate and remove it.
- Release the screws of the cross bar (made of wood) above the machine and remove it.
- Release the screws of the side covers and remove them.
- Screw in the screws①(see sketch 1) for transportation

 **Danger**	**Turn the screws ①(see sketch 1) in as far as possible to make sure that the screws do not move out during transportation.**

- Lift up the machine with a fork lift as shown in sketch 2. If there is no fork lift available you can lift it up with 4 personnel.
- Move the machine to the place where you want to operate the machine (operating environment see chapt. 5.2.).
- Remove the four screws for transportation.





8 Electrical Connection

 **Information**	Depending on the order, concerning connection, the machine is supplied in two different conditions.

6.18.1 With a 16Amp. EEC plug already fitted

Please proceed as follows:

- Turn the main switch of the machine to the “0” position.
- Ensure that the nominal voltage of the socket corresponds to the voltage of the machine specified on the nameplate.
- Insert the plug in the socket.

	**Before you insert the plug please check the electrical data of your network by qualified and skilled personal.**

6.28.2 Without a plug fitted

This version is supplied abroad or for direct connection to distribution systems.

	**The electrical installation of the machine must be carried out by a qualified electrician.**

6.38.3 Rotating direction of the motor

Ensure the direction of rotation of the motor is correct. At both sides of the machine there are arrows indicating direction of rotation. If the machine should turn in the wrong direction, exchange phase L1 with phase L2 in the plug.

	**The correction of the direction of rotation must be carried out by a qualified electrician**

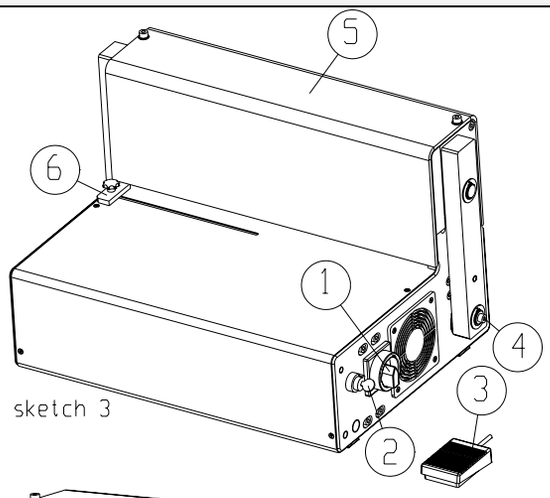
79 Technical Data

Input power:	230/400V 3-phase /16Amp. (115/200V 3-phase on request)
Power requirement:	1,1 kW
Current requirement:	2,8 Amp.
Frequency:	50 Hz (60Hz on request)
Class of protection:	IP32
Weight:	~ 150kg
Dimensions: L x W x H	750mm x 530mm x 490mm
Working width max.:	500mm
Theoretical punching strokes:	~3000/hour
Practical punching capacity:	~ 400-500/hour
max. punching thickness/punching:	2,5 - 4,0mm (depending on the die you use)
Applicable tools:	PUNCH500 and AP360 dies
Perforation shapes:	on request

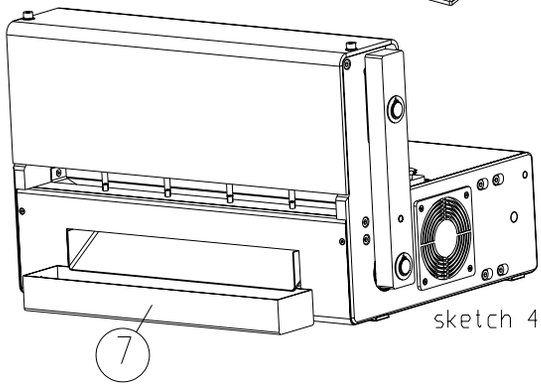
10 The machine and its parts

Information	Basically the Punch 500 and the Punch 500 E are the same. For the detailed differences please read chapter 14.

① = Main switch
② = Mode selector switch Manuel/Automatic
③ = Foot switch
④ = Screw for manual movement of the pressure bar
⑤ = Perspex safety cover
⑥ = adjustable paper side stop
⑦ = waste tray

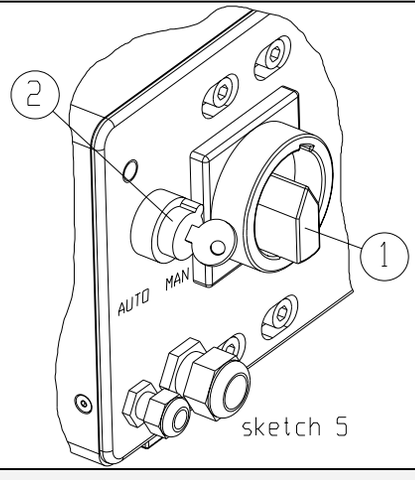


sketch 3

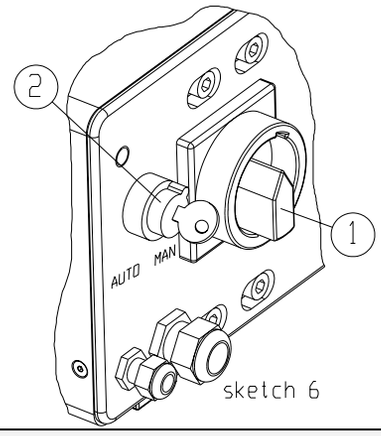


sketch 4

11 Operating modes

Information	• The main switch① and operating mode selector switch② are located on the right-hand side frame of the machine • The main switch de-energises the whole machine.	 sketch 5
	When the main switch is off there is still mains voltage at the terminals of the main switch.	
Information	The mode selector switch activates the different modes of the P500.	

11.1 Manual Operation



In this operating mode the machine is de-energised and the brake is vented. The punching shaft can be cranked by hand (by inserting an allen key) to check that e.g. the die is correctly installed. Proceed as follows:

- Turn the mains switch① to position "1"
- Using a key, turn the operating mode selector switch② to the "MAN" position.

Danger	**If the machine was moved in "MAN" mode and is not at top dead centre, the machine returns of its own accord to top dead centre after switching to "AUTO" mode. Ensure that before switching on "AUTO" mode, no tools such as e.g. the Allen key are engaged. When starting the machine in "AUTO" mode this could cause severe injuries.**

11.2 Automatic Operation

In automatic operation on activating the foot pedal the machine carries out a punching cycle and then stops again when top dead centre is reached. Top dead centre is the uppermost position of the pressure beam, where the punching pins are fully retracted into the slide and the punching slot is clear. Proceed as follows:

- Turn the main switch① to position "1"
- Using a key, turn the operating mode selector switch② to the "AUTO" position.

Danger	**If the machine was moved in "MAN" mode and is not at top dead centre, the machine returns of its own accord to top dead centre after switching to "AUTO" mode. Ensure that before switching on "AUTO" mode, no tools such as e.g. the Allen key are engaged. When starting the machine in "AUTO" mode this could cause severe injuries.**

12 General Punch tools information

Information	Punch dies are very precise and expensive. Please maintain and handle the dies carefully. Avoid high humidity because of corrosion to the dies.

12.1 Different executions of the punch tools (dies)

There are several possible choices of the dies for the P500.

- Single part dies with QSA in simple execution with sheet metal guiding.
- Two part dies with thumb cut and QSA in simple execution with sheet metal guiding.
- Single part dies with QSA, with massive brass guiding and high precision punch pins.
- Two part dies with thumb cut and QSA; with massive brass guiding and high precision punch pins.
- Single part dies without QSA with massive brass guiding and high precision punch pins.
- Two part dies with thumb cut without QSA with massive brass guiding and high precision punch pins.
- Grooving dies.

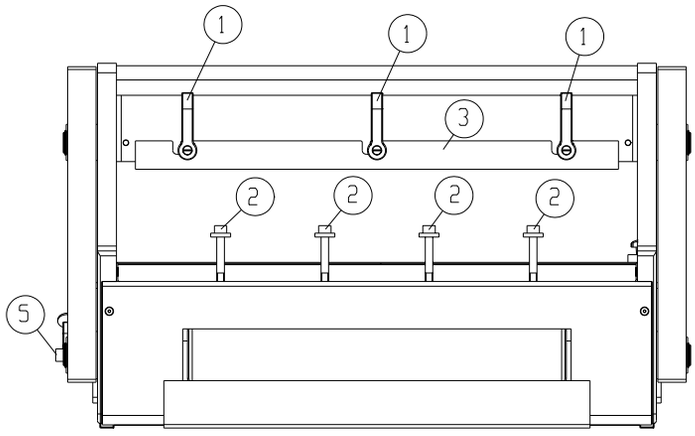
Information	• QSA means „Quick size adjustment" and enables you to deactivate single pins without removing or disassembling the die. (see chapter 12.6).

12.2 Change of the punch dies

Caution	**If you have a machine with eccentric adjustment at the punch bar together with the standard tools in simple execution, the two eccentrics must remain on the basic setting of the factory. Never ever adjust one of the eccentrics if you use simple execution dies. You destroy the tool unavoidably and you will lose your warranty.**

12.2.1 Removal of punch tools

- Switch the main power switch to position "O" and pull the power plug.
- First of all release the two socket head screws at the upper left and right side (for the perspex covering) and remove the perspex covering by lifting it upwards.
- Remove the four socket head screws② under use of the delivered Allen key SW6mm.
- Release the three fixing levers① for the upper rear tool holding rail③.
- Move the rear tool holding rail③ to the left as long as possible. You now can remove the tool holding rail by moving it downwards.
- Now you can remove the tool by moving it out to the rear side of the P500.

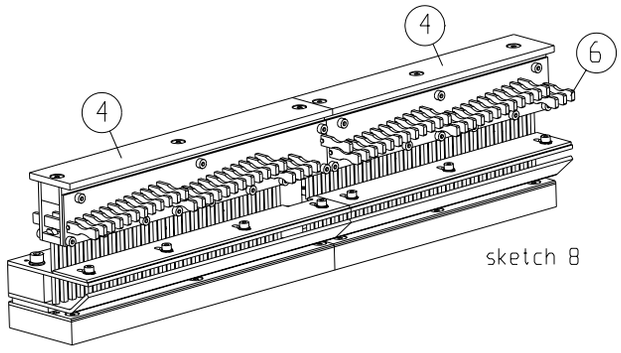


sketch 7

Danger	**Depending on the Version, the die may weigh up to 20 kg. Proceed with caution when removing it. There is a crushing risk.**

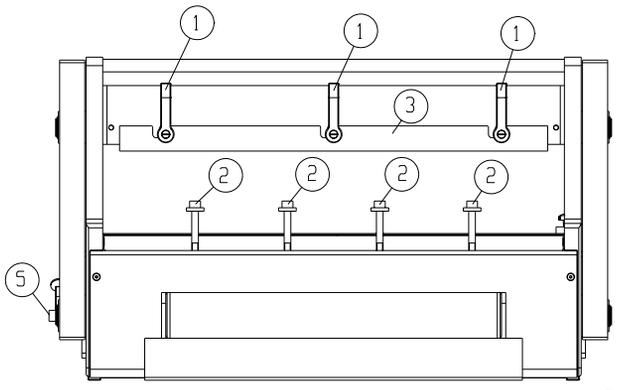
12.2.2 Installation of punch tools

- Switch the main power switch to position "O" and pull the power plug.
- Put the punch die (the punch slot draws to the front) into the machine.
- Pull the head rail④ of the punch die upwards as long as it will fit into the slot of the upper front tool holding rail.
- Move the rear tool holding rail③ upwards with the slots into the clamping levers①. Make sure that the head plate of the die fits proper behind the clamping rail.



sketch 8

- Fix the rear tool holding③ rail by moving it to the left.
- Tighten the fixing levers①.
- Put the four fixing screws② into the holes of the punch die. Move the die as long to the left or right as you are able to turn the screws in. Make sure to move the parts of a two part die closed together.
- Tighten the four screws.



sketch 9

Caution	**Make sure that the head rail④ (sketch 8) of the punch die fits proper in the upper holding device. Any faulty installation will damage the punch tool and as for this you will lose warranty.**

Caution	Make sure that there is no distance between the parts of a two part punch tool. If there is a distance in between your pitch will be incorrect.
Caution	**The cancellation pins⑥(sketch 8) of the activated punch pins must be pushed into up to the stop. The cancellation pins⑥(sketch 8) for the deactivated punch pins must be removed completely out of the slot. Inappropriate handling of the cancellation pins voids warranty.**

- Switch the mode selection switch to position "MAN".
- Switch the main switch to position “1”.
- Put the allen key into the screw(⑤ sketch 9) and turn the machine one cplt. cycle (according to the turning direction arrow at the P500).
- If you only can turn the screw with a lot of power or there are screeching noise during the die moves please check again your installation.

Caution	**Caution! Always turn your machine manually with the allen key before your start operating. This avoids installation mistakes.**

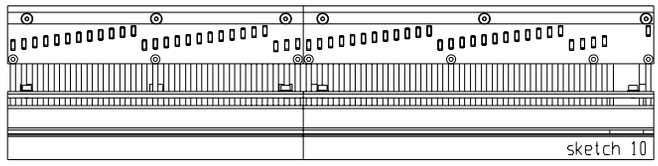
- Assemble the perspex cover before you start the machine.
- Remove the Allen key before you change into the "AUTO" mode.
- If everything is functional, you can start with the punching.

Caution	**Make sure that the punch tool is not installed under any tension or canted otherwise the wear of the punch tool will be a multiple than normally.**
Danger	**If the machine was moved in “MAN” mode and is not at top dead centre, the machine returns of its own accord to top dead centre after switching to “AUTO” mode. Ensure that before switching on “AUTO” mode, no tools such as e.g. the Allen key are engaged. When starting the machine in “AUTO” mode this could cause severe injuries.**

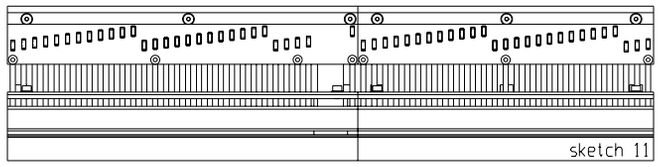
12.3 Two-part punch tools with thumb cut

Information	Two part punch tools will increase your flexibility considerable and you will save a second single punch tool. Two part punch tools enables you to work either with the thumb cut in the centre (for calendars) or to punch books up to 465mm length. The following sketches (10, 11, 12,) are showing the different installation conditions.

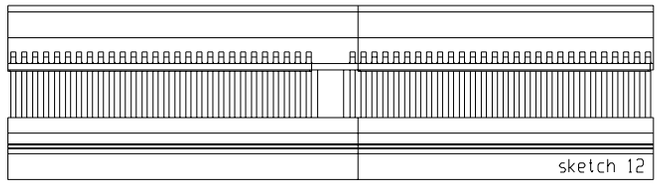
Two-part punch tool with thumb cut. The part with thumb cut is built-in outside. Maximum working width 465mm. Simple execution with sheet metal guiding.



Two part punch tool with thumb cut. The part with the thumb cut is built-in in the centre. Maximum working width 500mm. Simple execution with sheet metal guiding.



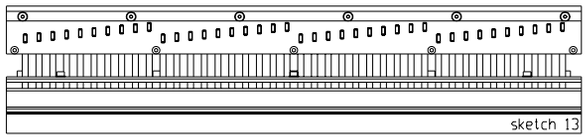
Two part punch tool with thumb cut. The part with the thumb cut is built-in in the centre. Maximum working width 500mm. Massive brass guiding and high precision punch pins.



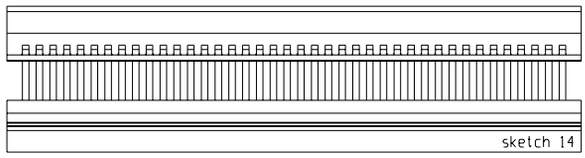
12.4 Single-part punch tools

Information	The technical execution of single-part punch tools are identical to the two-part punch tools. If no thumb cut is needed, the single part tools are the first choice.

Single-part punch tool without thumb cut.
Maximum working width 500mm.
Simple execution with sheet metal guiding.



Single-part punch tool without thumb cut.
Maximum working width 500mm.
Massive brass guiding and high precision punch pins.

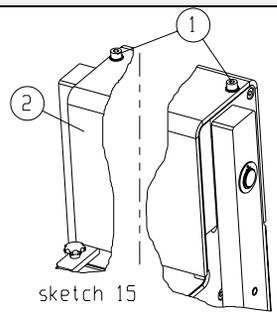


12.5 Deactivating of individual punch pins

Information	Standard punch tools are all equipped with QSA ("**Q**uick **S**ize **A**djustment"). This means you are can deactivate each individual punch pin (not the thumb cut), to be able to carry out an adaptation onto the product to be punched in a very short time.
Danger	**Before you deactivate individual punch pins please set the main switch to position „0“ and pull the power plug, because you have to disassemble the safety cover.**

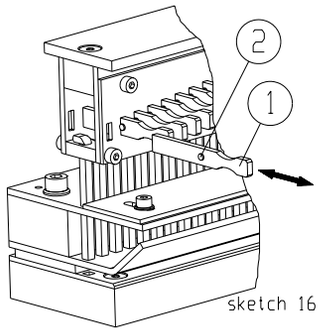
To deactivate individual punch pins please proceed as follows:

- Turn the main switch into position "0" and pull the power plug.
- Remove both hexagon socket screws① and lift the perspex cover② up.



12.5.1 Punch tools in simple execution with sheet metal guiding

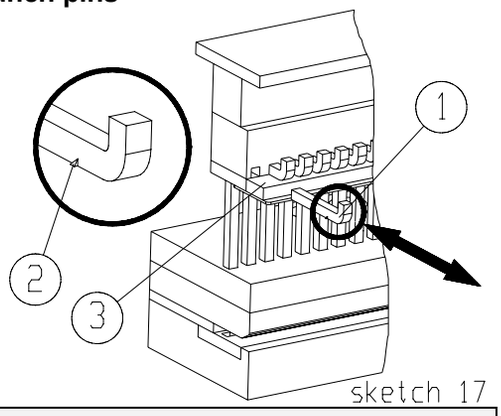
- Pull the cancellation pin① completely out and keep it at a secure place.
- After you pulled out the cancellation pin the according punch pin is deactivated and does not punch into the paper.
- To reactivate the punch pin please put the cancellation pin① into the slot. Make sure that the small round bolt② of the cancellation pin hits the sheet metal surface.



Caution	• **For deactivating pull the cancellation pin completely out of the slot.** • **For reactivating please move in the cancellation pin as far as the round bolt of the pin touches the sheet metal surface. If you move the cancellation pin not in far enough you may destroy the punch tool during the punching action. This set up error voids warranty.**
Caution	**Deactivate only the punch pins that are necessary. For example if you want to punch A4 size you need 34 punch pins. Deactivate only the two pins at the left and the pin at the right of the paper edge. If you deactivate all pins that are not in use the wear of die will increase dramatically. In extreme cases the tool may be destroyed.**

12.5.2 Punch tools with massive brass guiding and high precision punch pins

- Pull the cancellation pin① completely out and keep it at a secure place. After you pulled out the cancellation pin the according punch pin is deactivated and does not punch into the paper.
- To reactivate the punch pin please put the cancellation pin① into the slot. Make sure that the small pin② of the cancellation pin hits the metal surface.



sketch 17

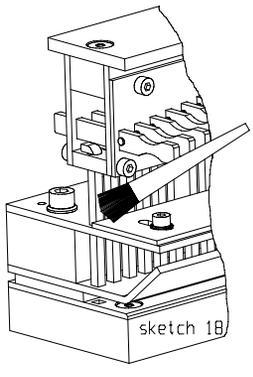
Information	By light downward pressure to the cancellation pin (against the rubber) it is easier to move the pin in and out.
Caution	**Deactivate only the punch pins that are necessary. For example if you want to punch A4 size you need 34 punch pins. Deactivate only the pin at the left and the pin at the right of the paper edge. If you deactivate all pins that are not in use the wear of die will increase dramatically. In extreme cases the tool may be destroyed.**
Caution	• **For deactivating pull the cancellation pin completely out of the slot.** • **For reactivating please move in the cancellation pin as far as the small pin②(sketch 17) touches the metal surface. If you move the cancellation pin not in far enough you may destroy the punch tool during the punching action. This operating error voids warranty.**

12.6 Maintenance and recommendations for punch tools

Information	The punch tools normally needs less maintenance. If you pay attention to the following maintenance recommendations you will keep your punch tool in good conditions. To avoid rust you should store your tools only in low humidity areas. For longer periods of non-using please use a rust protecting agent.

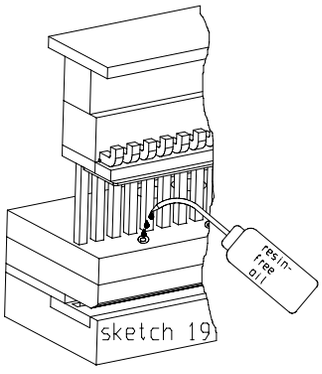
12.6.1 Punch tools in simple execution and sheet metal guiding

- Lubricate the punch pins once a week with standard ball bearing grease. Use a brush and put the grease at the rear and the front side of punch pins from the left to the right. (see sketch 18).
- According to the conditions of use the punching tools will wear more or less. This wear shows itself first in "baking" of your product after the punching and bad edges at the perforation(frayed edges). If this effect occurs, you should get in touch with your dealer or contact directly the RENZ technical service. Possibly the tool can be repaired, or it must be replaced with a new one.


sketch 18

12.6.2 Punch tools with massive brass guiding and high precision punch pins

- Fill up the holes at the brass guiding with resin free oil once a week. By filling the holes up with oil the lubrication felt (inside the brass guiding) soaks up and contains the oil for the next few days.
- According to the conditions of use the punching tools will wear more or less. This wear shows itself first in "baking" of your product after the punching and bad edges at the perforation(frayed edges). If this effect occurs, you should get in touch with your dealer or contact directly the RENZ technical service. Normally the punch pins and the matrix could be re-grinded or repaired.



sketch 19

12.6.3 Recommendation about punch thickness

Information

- As a rule the maximum punch thickness per stroke is about 3,8mm. (Paper & Board)
- Constant punching at maximum thickness may reduce tool efficiency – See table below for recommended working practice.

For a good perforation quality we recommend the following optimum punch thickness.

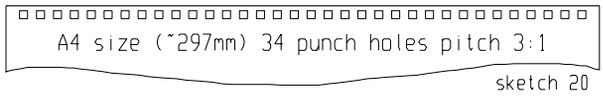
shape of pin	pin measurement	punch thickness/stroke
square	4 x 4 mm	1,5 – 2,0 mm
square	6 x 6 mm	2,0 mm
rectangular	5,5 x 3,5 mm	2,0 mm
rectangular	7 x 3 mm	2,0 – 2,5mm
rectangular	8 x 3 mm	2,0 –2,5 mm
round	ø 4,5 mm	1,5 – 2,0mm
round	ø 6,5 mm	2,0 – 2,5 mm
oval	ø4,5 x 3,6 mm	1,5 – 2,0mm

13 Example how to setup for punching an A4 size

Information

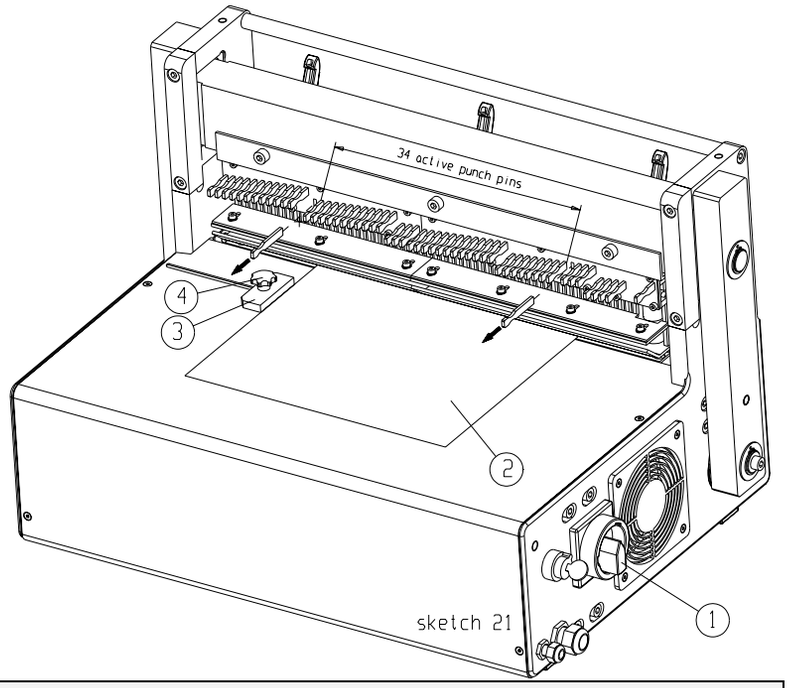
Please try to punch always in the center of the P500. This decreases wearing and increases the lifetime of your machine.

We now want to set the P500 for the following product:
A4 size with 34 punch holes (sample see sketch 20) in 3:1 pitch and a pin size of 4mm x 4mm. Please proceed step by step as following. We assume an existing two-part punch tool with thumb cut..



sketch 20

- After the correct installation of the punch tool (thumb cut at the right out-side see chapt.12.2.2), we now set the P500 according to the product.
- Put one sheet of paper onto the table of the P500. Move it to the center of the machine and push it into the punch tool slot.
- Deactivate the punch pin at the left paper edge by pulling the cancellation pin completely out.
- Count 34 cancellation pins to the right and deactivate the 35th cancellation pin by pulling it completely out. You now have 34 active punch pins and 1 deactivated on the left and one on the right side of the paper edge.
- Assemble the perspex safety cover.
- Release the knurled screw④ and move the side stop⑤ together with the paper to a position that is centered according to your deactivated pins.



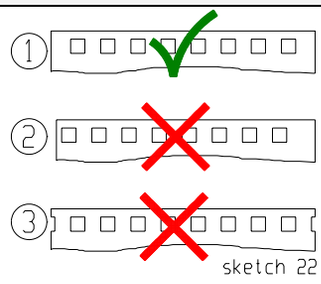
sketch 21

Danger

- **If the perspex safety cover is not assembled there is a high danger of injury.**
- **Make sure that the main switch is set to position “0” and the machine is plugged off.**
- **After the installation you have to make sure that all the safety devices are assembled and operational.**

Caution	**Please consider the special references concerning the deactivation of punch pins in chapter 12.5.**

- Plug in the P500 and set the main switch to position „1“.
- Set the mode selector switch to position „AUTO“.
- Put a sheet of paper into the punch tool slot and move it to the left against the paper side stop.
- By pressing the foot pedal a punch cycle will be carried out.
- If your result is like example ① you can start with your production. The result is symmetrical.
- If your result is like example② the perforation is to far to the left. Open the clamping screw of the side stop and move the stop more to the left. Check again by punching a sheet of paper.
- If your result is like example③ your punch pin deactivation is wrong. The left and the right pin are punching into the paper edges. Please check your deactivated pins and correct it.



sketch 22

Information	Make sure that your knurled screw (④ sketch 21) is tightened enough. If not the side stop will move and you will lose a proper punching position.

14 Special features of the Punch 500 E

Information	The Punch 500 E differs from the Punch 500 by the built-in eccentric at the pressure bar. This allows the adjustment of the pressure bar for re-ground punch tools with massive brass guiding and high precision punch pins. With the adjustable eccentric, working with grooving tools is also possible.
Caution	**If you ordered a Punch 500 E together with a punch tool in simple execution and sheet metal guiding the eccentric must not be re-adjusted. There are two fixing screws that holds the eccentric in an exact position (see no.⑦ at sketch 23). If you remove the fixing screws and disadjust the eccentric while using a simple punch tool the warranty will be lost.**

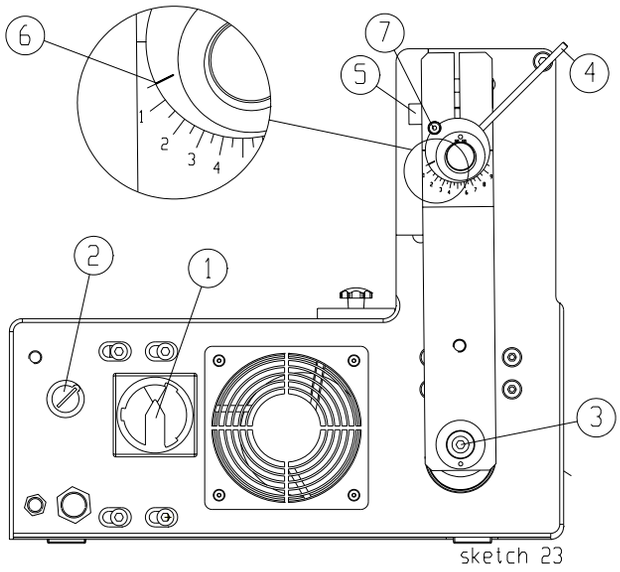
14.1 Adjustment of the eccentric

Information	• If the P500 E and the punch tool are new it is not necessary to adjust the eccentric because the fine tuning has been done by the factory. • If your punch tool was re-ground (only possible with execution in massive brass guiding and high precision punch pins) it could be necessary to adjust the height level of the pressure bar by turning the eccentric.
Information	The adjustment of the eccentric can only be done with installed punch tool.

Information	Conditional on the re-grinding of punch pins it is possible that the die will not punch completely through the paper. This is not a fault of the punch tool because after the grinding the punch pins are shorter. You must correct this problem by adjusting the eccentric.

- Install your punch tool after your received it from the re-grinding (see chapter 12.2.2).
- The adjustment of the eccentric is only necessary if some punch pins are not punching through. Check your punch tool after installation. If it does not punch through all the holes adjust the eccentric as following:

- If the two fixing screws⑦ are installed please remove them now.
- Set the mode selection switch② to position „MAN“.
- Set the main switch① into position „1“.
- Put an Allen key into the hexagon socket screw③ and turn the machine as long (in direction of the arrow) as you reach the upper dead center. Put one sheet of paper into the slot of the punch tool. Turn the machine one complete cycle with the Allen key.
- Remove the paper and check either if the all the holes are punched through properly or not.
- If some holes are not punched through please open the clamping screws⑤ of the two eccentric.
- Put the round rod④ into one of the holes at the circumference of the eccentric.
- Turn the eccentric to the next marking according to the scale⑥. You must set both eccentric exactly to the same value according to the scale.
- Now punch again a sheet of paper and check if all holes are punched through..



sketch 23

Information	Sketch 23 shows the standard factory setting for the eccentric.
Caution	**Adjust the eccentric at the left and the right side always exactly to the same value according to the scales. If the adjustment is different from the left to the right you will destroy your punch tool and possibly the machine for itself. A wrong adjustment of the eccentric voids warranty.**
Danger	**If the machine was moved in “MAN” mode and is not at top dead centre, the machine returns of its own accord to top dead centre after switching to “AUTO” mode. Ensure that before switching on “AUTO” mode, no tools such as e.g. the Allen key are engaged. When starting the machine in “AUTO” mode this could cause severe injuries.**

- Adjust the eccentric step by step (from one marking to the next) until all the holes are punched through

Information	• If you set the eccentric too far down you will get problems with feeding the paper into the slot and to pull it out because the punch pins are not fully retracted back into the guiding. • If you set the eccentric too far up the paper will not punched through at each punch pin.
Caution	**If you work with different punch tools for example with simple execution tools and punch tools with massive brass guiding you have to take care if you change from the massive one to the simple one. Make sure that your eccentric are set to the factory settings before you start operating the simple tool. A wrong setting may destroy your punch tool and voids warranty.**
Danger	**Maintenance, adjusting and repair work may only be carried out by qualified and authorised personnel! Make sure that all safety devices are installed and operational before you operate the P500. Pull off the key for the mode selector switch and keep it at a safe place.**

15 Grooving die (optional)

15.1 Safety Notes for installation of grooving dies into the Punch 500 E

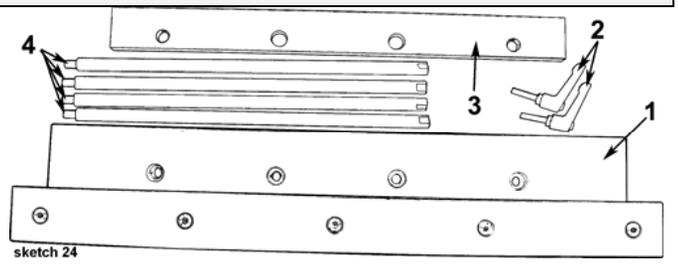
Caution	**It is only allowed to install and operate grooving dies in a Punch 500 E. If you try to fix a grooving die in a Punch 500 (without eccentric adjustment) you will loose any guarantee or warranty.**
Danger	**The installation and adjustment of grooving dies may only be carried out by qualified and authorised personnel! Non-compliance with these safety rules could cause heavy injury (contusions etc.).**
Danger	**Always unplug the P500 E before you start to install or adjust a punch or grooving die. Set the main switch (no. ⑤ at sketch 26) to position "0"and the mode selector switch (no. ④ at sketch 26) to position "MAN".**

15.2 The grooving die and its parts

Information	At the rear side of the grooving die a paper guiding is assembled. Please provide enough space behind the P500 E.
Information	Because of the transportation in a wooden crate the grooving die will be delivered in parts

The grooving consists of the following parts:

- grooving die①
- 2 pcs. clamping lever②
- rear paper stop③
- 4 pcs. guiding and support rails④



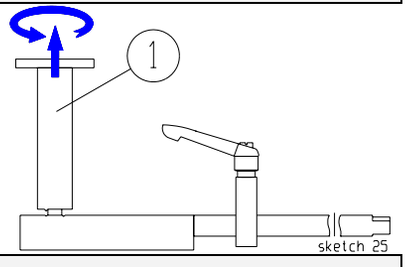
sketch 24

15.3 Choose of the groove dimension

Information	Standard grooving dies are equipped with 2 usable grooves. The widths of the grooves are 0,7mm and 1,0mm. To use the other groove you only have to turn the upper part by 180° (only if the die is not installed in the P500E)

To change to width of the groove please proceed as follows:

- Lift the upper part completely out of the guiding.
- Turn the upper part by 180° and put it back into the guiding.

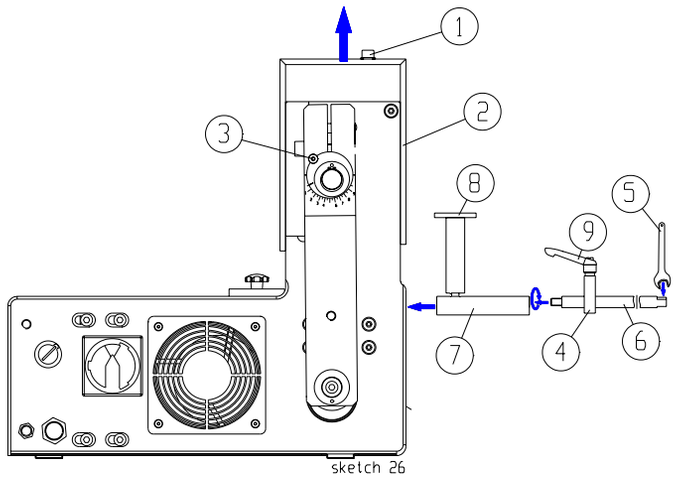


sketch 25

Danger	**If you lift up the upper part of the grooving part please always hold onto the headplate. There is a risk of injury while the die goes down even if the die is disassembled.**
Caution	**Be careful when you move the parts together. Never ever put tools or other things (with exeption of you product) between the upper and lower part of the grooving die. You may damage the grooving nut.**

15.4 Preparing the P500E and installation of the grooving die

- Remove the two upper screws① and remove the Perspex cover② to the top.
- If a punch tool is installed please remove it like described in chapt. 12.2.1 at page13.
- Remove the two fixing screws③ at the left and right eccentric.
- Install the grooving die (part ⑦+⑧) like described in chapt. 12.2.2 at page 13 (Attention! the lower 4 screws are shorter than for Standard punch tools).
- Now screw in the 4 guiding shafts⑥ and tighten it with a 8mm jaw wrench⑤.
- Now put the rear paper stop rail④ onto the guiding shafts and screw the clamping levers⑨ into the paper stop rail.



sketch 26

Caution	**Make sure that the head plate of the grooving die fits correctly into the upper guiding of the P500E. If you try to operate the P500E and the head plate does not have a proper seat you may destroy the tool and the machine.**

15.4.1 Adjusting the grooving die

Caution	**The grooving die always must be adjusted with the original product because different thickness or different material requires a different adjustment. Always groove only one single sheet. If you try to groove several sheets at the same time you will damage the grooving die and the P500E.**
Danger	**The installation and adjustment of grooving dies may only be carried out by qualified and authorised personnel! <u>Non-compliance with these safety rules could cause heavy injury (contusions etc.).</u>**

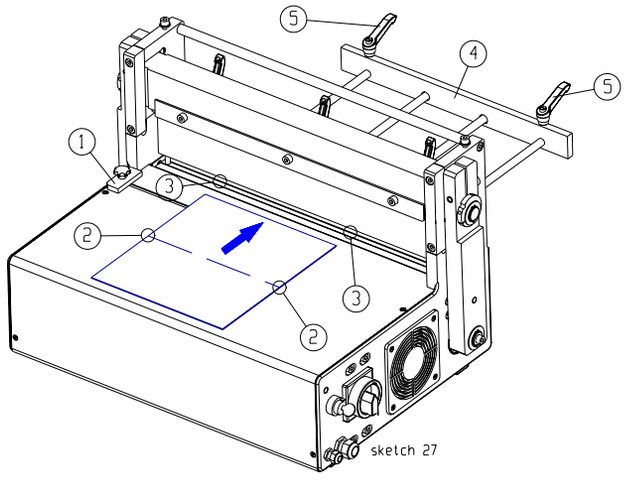
15.4.1.1 Adjust the rear paper stop

Danger	**During the adjustment of the rear paper stop the P500E must be unplugged (risk of injury).**

- Move the lateral side stop to left (it's not in use for the grooving)
- Mark the desired grooving line② at your product. This marking is important for the adjustment of the rear paper stop. The rear paper stop makes sure that the groove will always be at the same position in your product.
- Move you product between the grooving die as long as the left and the right marking lines up to the groove③ in the base plate of the die.

Information	Use the correct groove for lining up your product (there are two grooves in the base plate of the die)

- Now hold your product in position and move the rear paper stop④ exactly against the rear paper edge (eventually you have to release the clamping levers).
- Fix the rear paper stop rail by tightening the clamping levers⑤.

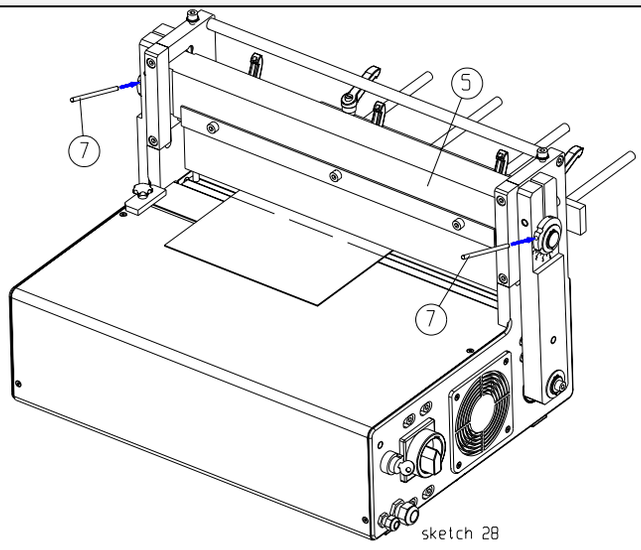


sketch 27

15.4.1.2 Adjust the groove depth

Danger	**To adjust the groove depth you must plug in and switch on the P500E to be able to turn the punch shaft. All adjustments have to be done with mode selector switch in position "MAN". Before you plug in the P500E please set the mode selector switch into position "MAN" (see chapter 11.1) and pull off the key. Non-compliance with these safety rules could cause heavy injury (contusions etc.).**

- Switch the mode selector switch① to position "MAN" and pull off the key②.
- Plug in the power cord of the Punch 500E
- Switch the main switch③ to position "1".
- Now place your product into the grooving die.
- Move the pressure bar⑤ to the lowest position. Therefore put a suitable Allen key into the screw④ of the main punch shaft and turn it clockwise. The pressure bar now moves down.

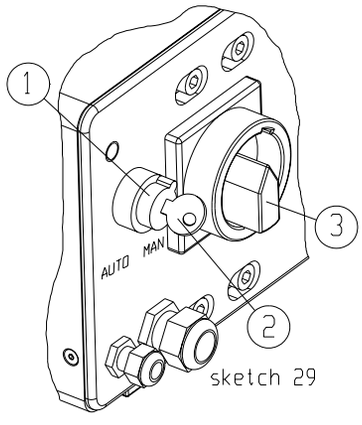


sketch 28

Information	Pease turn your Allen key for the pressure bar movement always clockwise to avoid releasing of the screw.

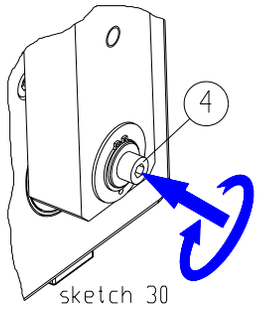
- Release the left and right clamping screw⑥ for the eccentric adjustment.
- Put the adjustment levers⑦ into the hole at the eccentric. Turn both eccentric as long as the groove will be stamped deep enough.

Information	For an even groove in your product please make sure that both eccentric are set to the same value.

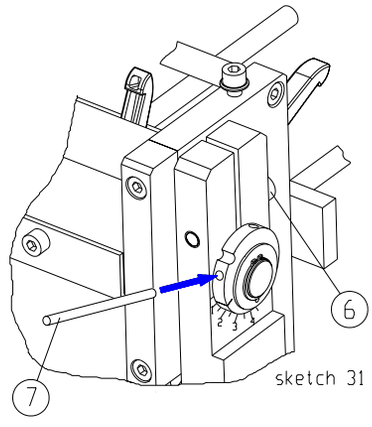


sketch 29

- Tighten your clamping screws⑥.
- Move the pressure bar to the upper position (manually with the Allen key).
- Place your product into the machine and turn the P500E manually a cplt. cycle.
- If the groove is not ok please correct like above mentioned.
- If the groove is like desired now assemble the Perspex protection cover.
- Put the key for the mode selector switch in and switch to position "AUTO".
- Now put your product into the slot of the P500E and move it backwards as long as you reach the rear paper stop. Press the foot pedal. The P500E is grooving your product.



sketch 30



sketch 31

Danger	**It is not permitted to operate the P500E without the protection cover. Make sure that all safety stuff is assembled well and workable before you start your production. Pull off the mode selector switch key after the installation/adjustment and store it at a safe place.**

16 Maintenance of the P500

The P500 needs less maintenance. Please consider the following points.

- Within the first 6 months please check monthly the chain tension of the drive motor. Therefore please remove the front cover. Check the tension and if necessary oil the chain. Tension the chain by moving the motor (release the motor fixing screws).
- After 6 months you have to check the tension twice a year.
- Empty the waste tray regular. The frequency of emptying depends on your punch volume.
- Clean the surface of the machine each day from paper dust.
- Clean the machine once a week in the area of the punch tool.
- Remove the sheet metal covers twice a year and clean the inside of the P500 from dust and dirt.

 **Danger**	**Make sure that the P500 is unplugged and the main switch is set to position "0" before you remove the sheet metal covers and the safety cover. Maintenance, adjusting and repair work may only be carried out by qualified and authorised personnel! Make sure that all safety devices are installed and operational before you operate the P500.**

17 Trouble shooting list

Malfunction	Cause	Remedy
Drive motor is not running	1. Power plug is not plugged in. 2. Main Fuse has burned. 3. Main switch is switch off. 4. Mode selector switch is in position „MAN". 5. Motor protection has tripped.	1. Plug in the power plug 2. Check the fuse. 3. Switch on the main switch. 4. Set the mode selector switch to position „AUTO". 5. Consult an authorized electrical specialist or ask at the RENZ technical service.
The P500 runs continuously without stopping at the upper dead centre (in "AUTO" mode)	1. The micro switch that controls the upper stopping position is defective or not adjusted well.	1. Consult an authorized person to reset/exchange the micro switch or ask at the RENZ technical service.
After punching the paper can ´t be removed.	The P500 does not stop at the upper dead centre. The micro switch is not adjusted well.	1. Consult an authorized person to reset the micro switch or ask at the RENZ technical service.
		If you have questions or problems, which are not dealt with here, please refer to your competent RENZ Service Department.

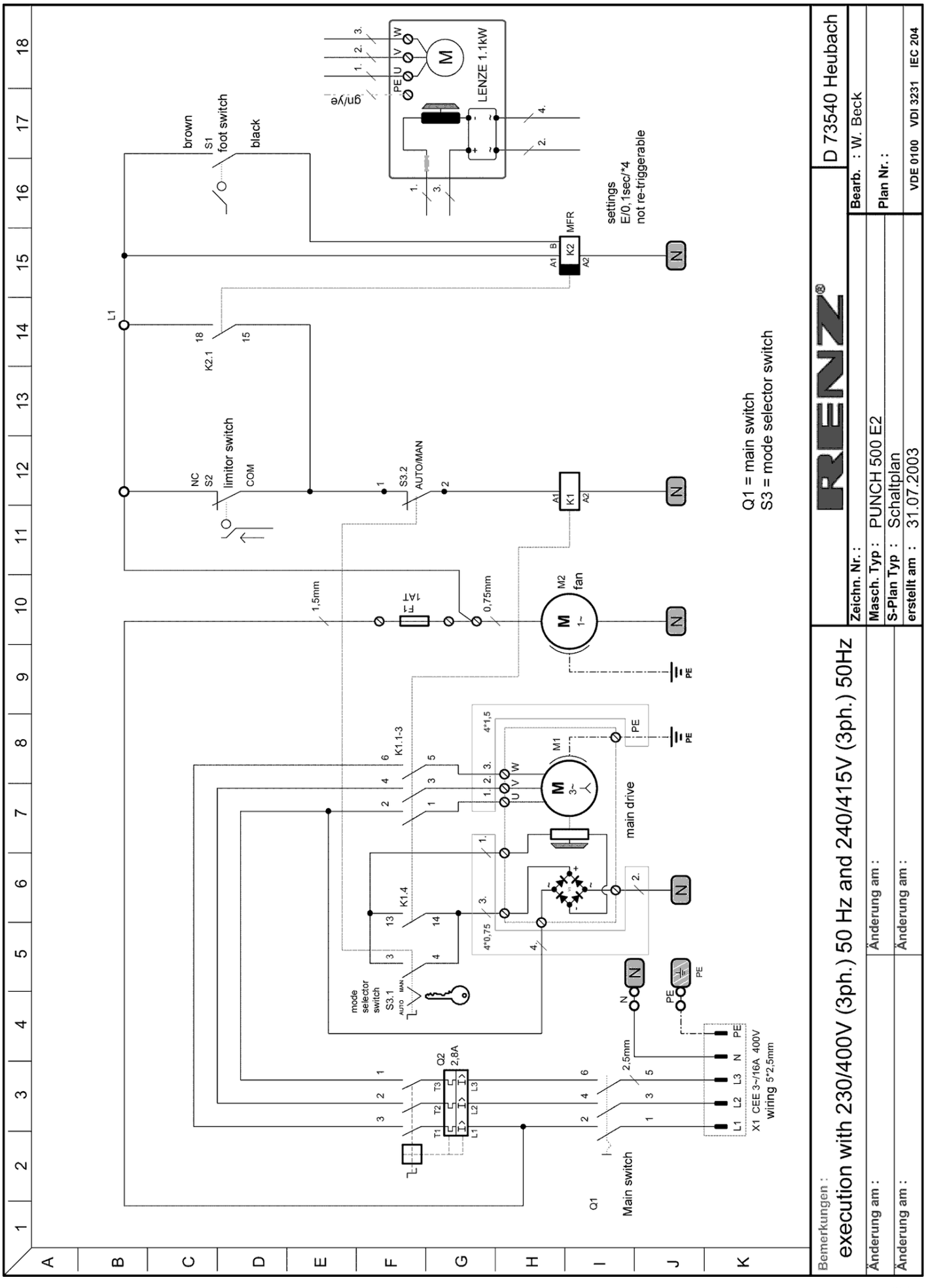
18 Hand tools provided

The following tools and spare parts are provided with the machine.

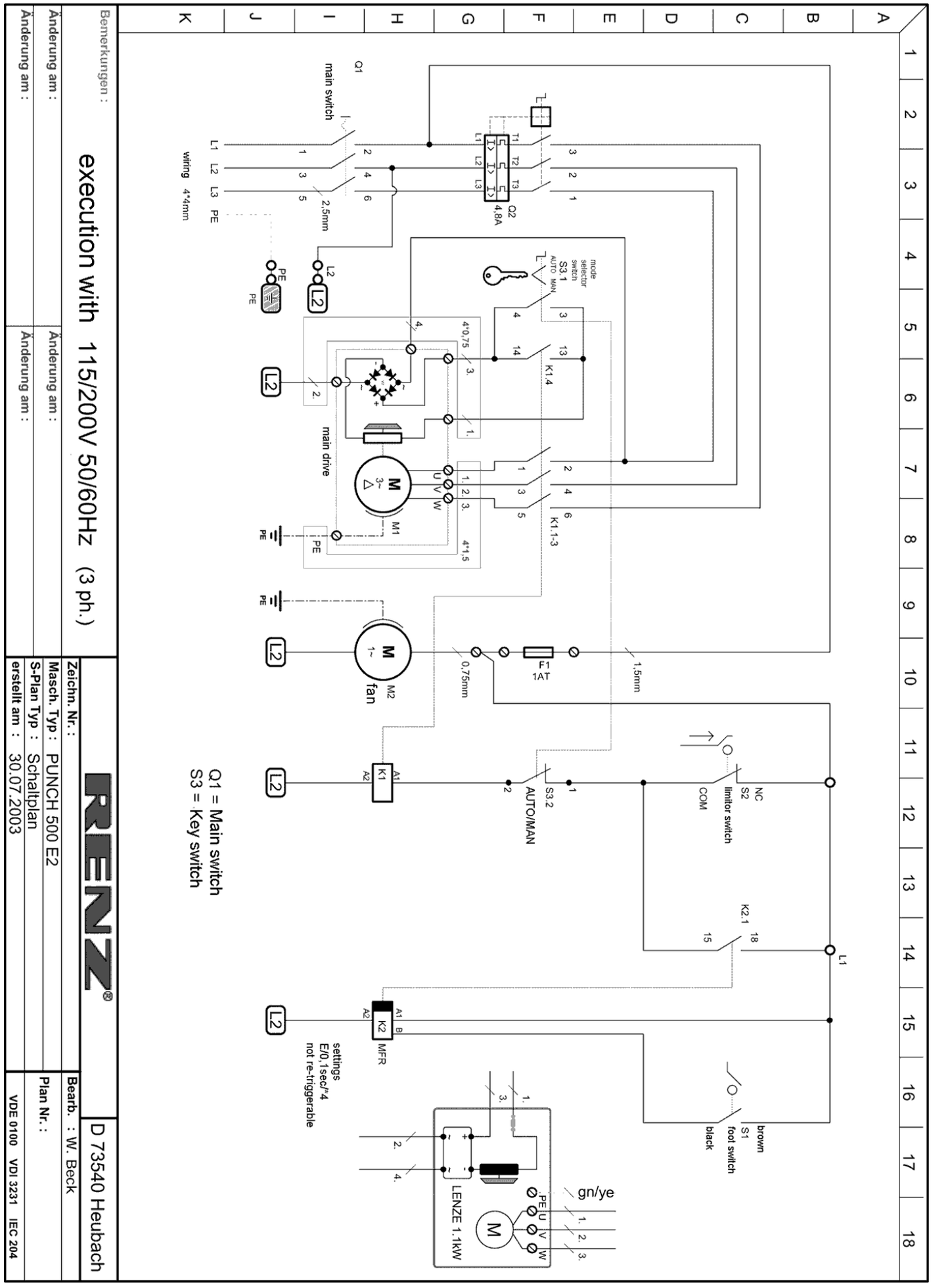
Description	Qty
T-grip Allen key (6mm)	1
Standard- Allen key (6mm)	1
key for mode selection switch	2
Rod for eccentric adjustment (optional)	2
Hexagon socket screw DIN912 M10x140 (for transportation)	4
Standard Allen key (8mm) long execution (only with Punch 500 E)	1

16

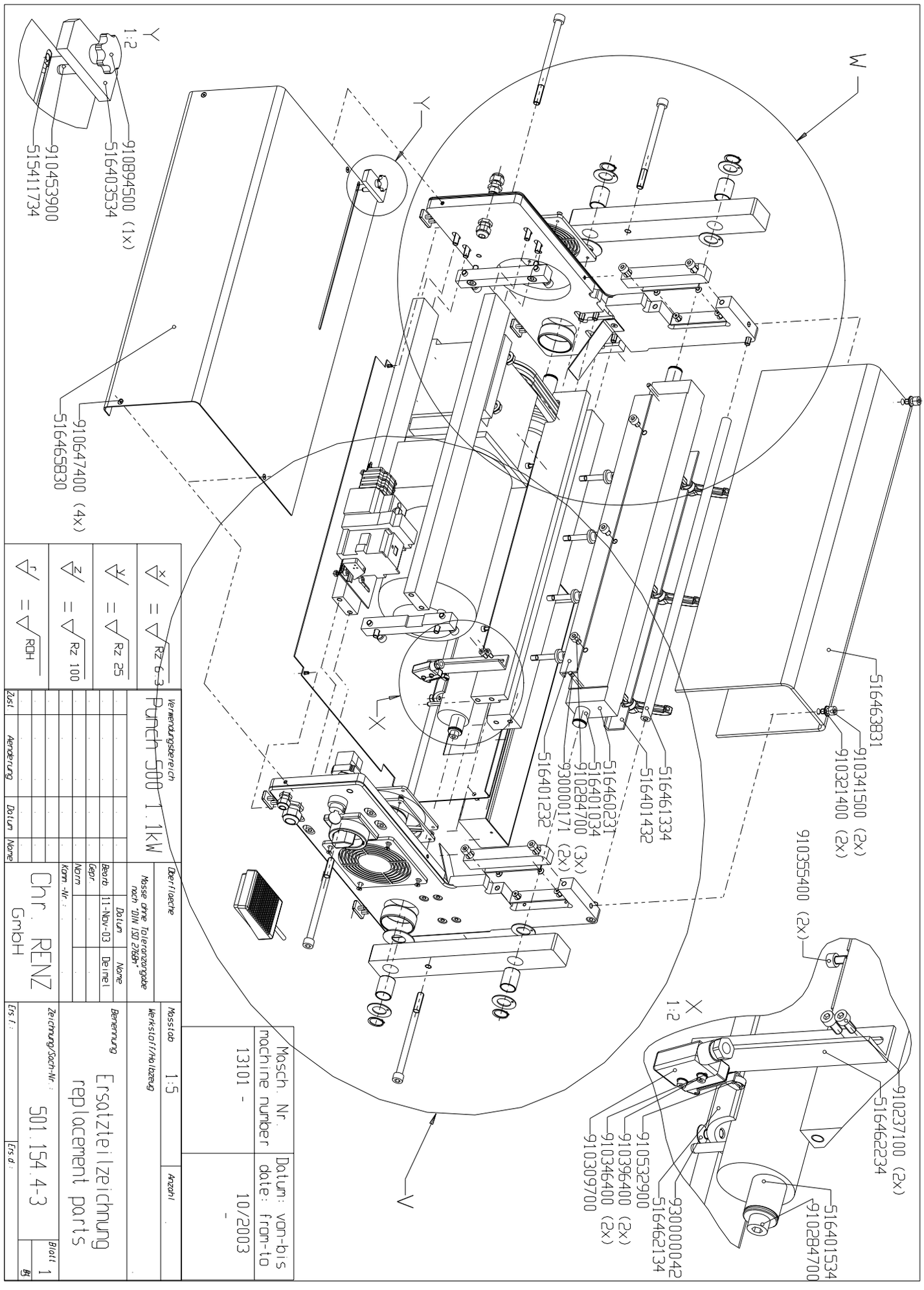
1619 Schematic 230/400V 50Hz 3 ph. and 240/415V 50Hz 3ph.

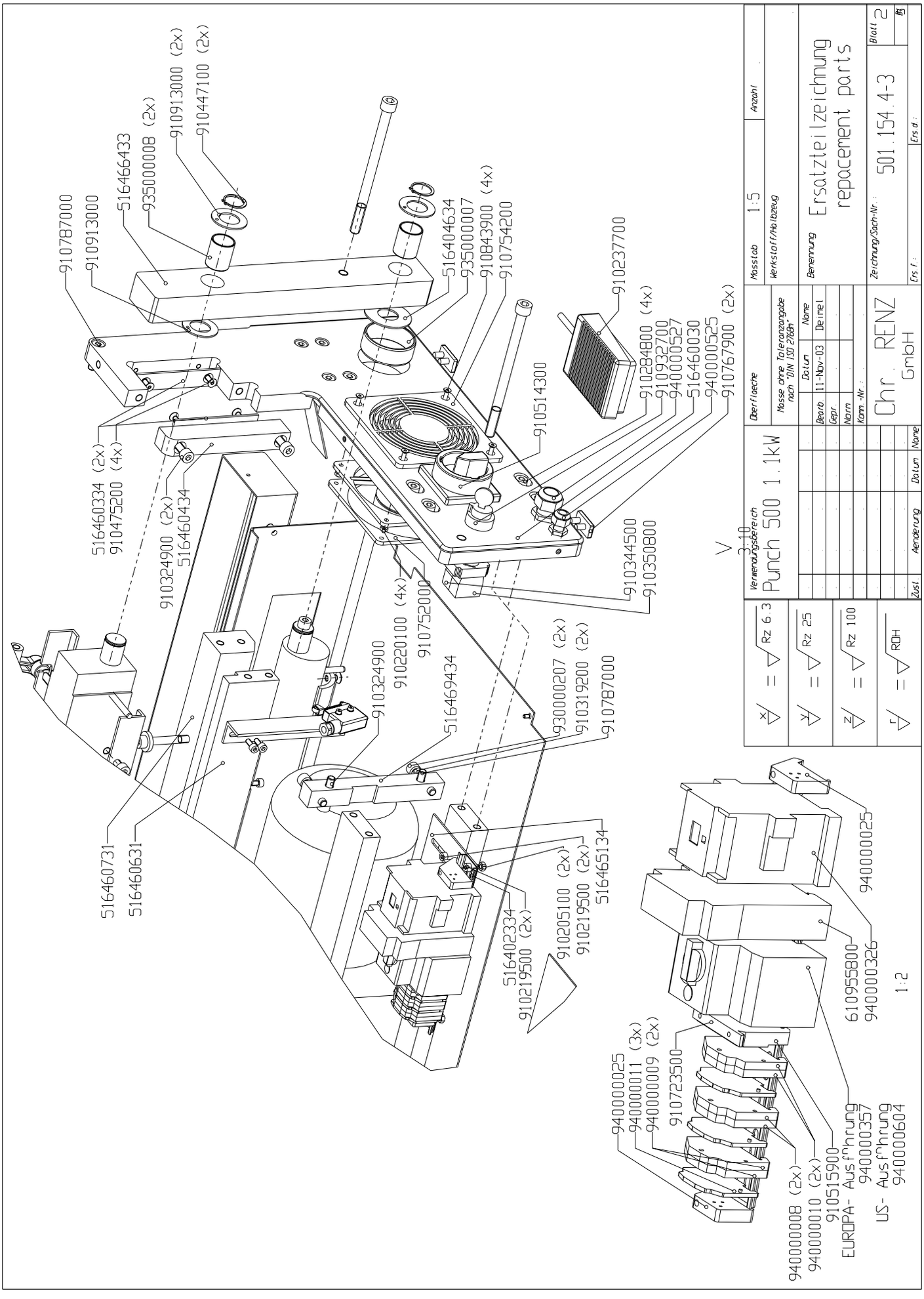


1620 Schematic 115/200V 60Hz 3 ph.



21 Spare part drawings

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910913000
516466433
935000008 (2x)
910913000 (2x)
910447100 (2x)
516404634
935000007
910843900 (4x)
910754200
910237700
910284800 (4x)
910932700
940000527
516460030
940000525
910767900 (2x)
910514300
516460334 (2x)
910475200 (4x)
910324900 (2x)
516460434
910344500
910350800
910220100 (4x)
910752000
910324900
516469434
930000207 (2x)
910319200 (2x)
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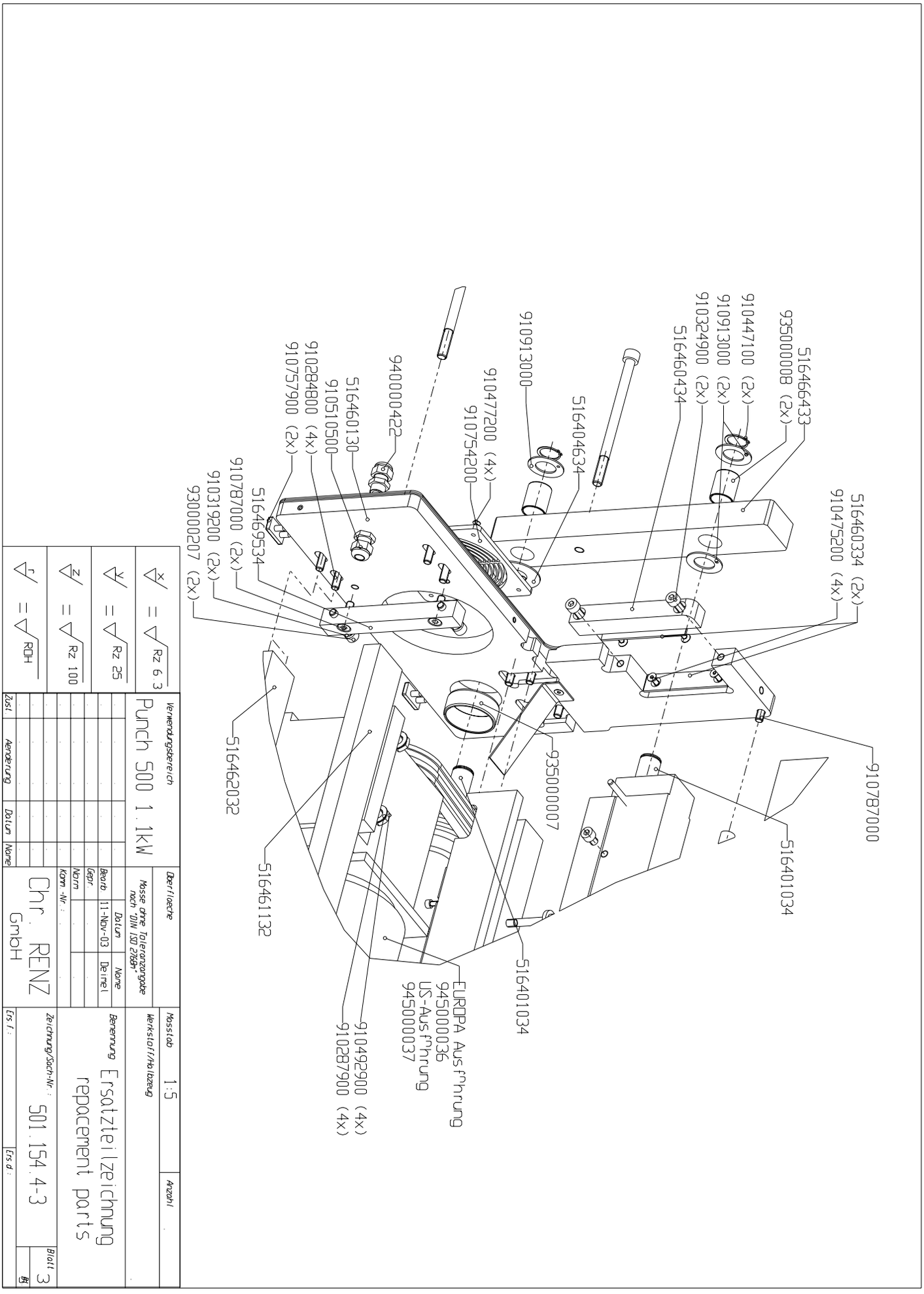
910219500 (2x)
910205100 (2x)
910219500 (2x)
516465134
940000025
940000011 (3x)
940000009 (2x)
910723500
940000008 (2x)
940000010 (2x)
910515900
EUROPA- Ausführung
940000357
US- Ausführung
940000604
610955800
940000326
940000025
1:2
3:10
Punch 500 1.1kW
Chr. RENZ GmbH
501.154.4-3
Ersatzteilzeichnung
replacement parts
Werkstoff/Halbzeug
Maßstab 1:5
Oberfläche
Maße ohne Toleranzangabe nach DIN ISO 2768m
Rz 6.3
Rz 25
Rz 100
RDH



Verwendungsbereich: Punch 500 1.1kW

Oberfläche: Masse ohne Toleranzangabe nach DIN ISO 2768m

		Datum	Name
Bearb		11-Nov-03	Deimel
Gepr.			
Norm			
Komm.-Nr.			

Chr. RENZ GmbH

Zust.	Aenderung	Datum	Name

Rz 6.3 | Rz 25 | Rz 100 | RDH

Massstab: 1:5

Werkstoff/Halbzeug:

Benennung: Ersatzteilzeichnung
replacement parts

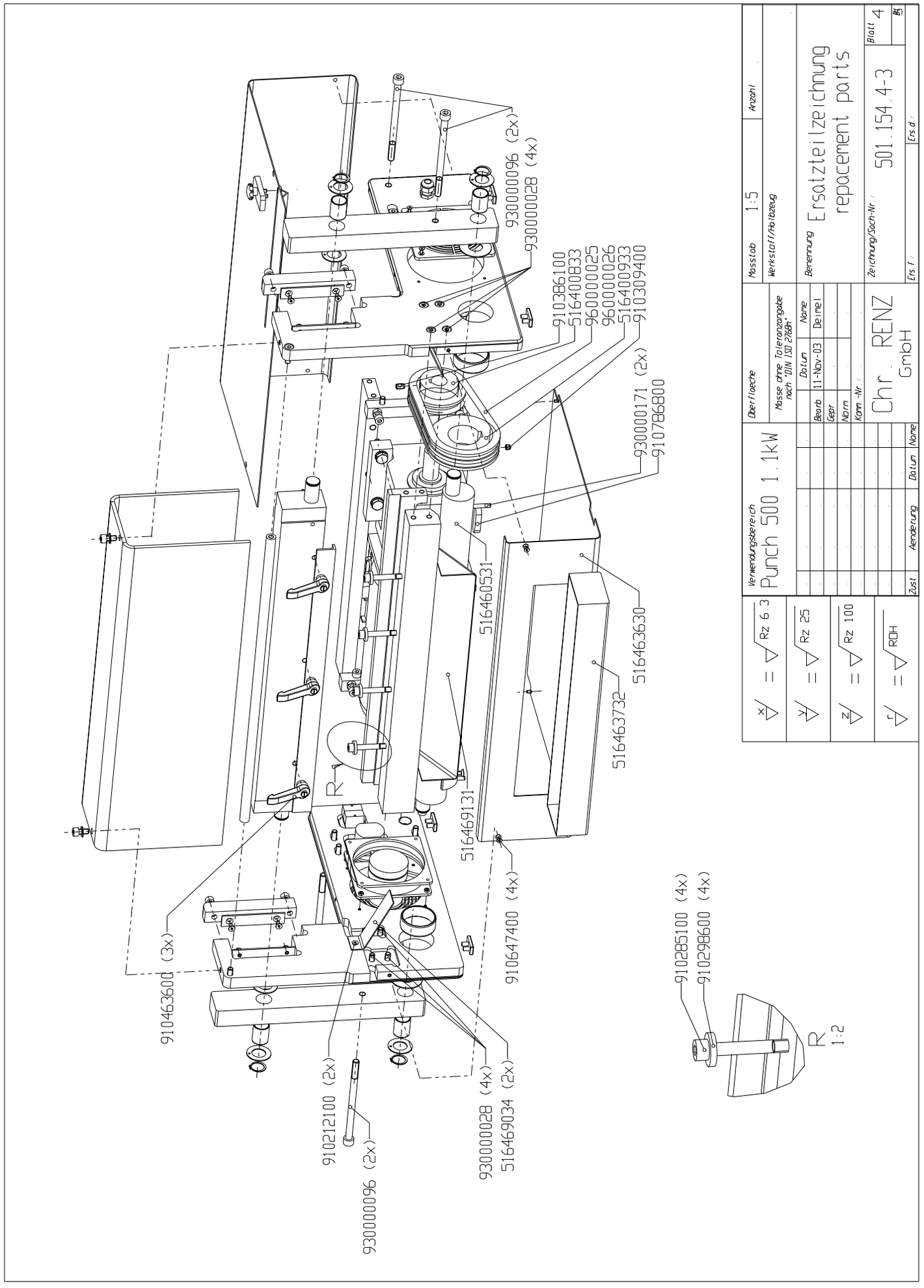
Zeichnung/Sach-Nr.: 501.154.4-3

Ers.f.:

Ers.d.:

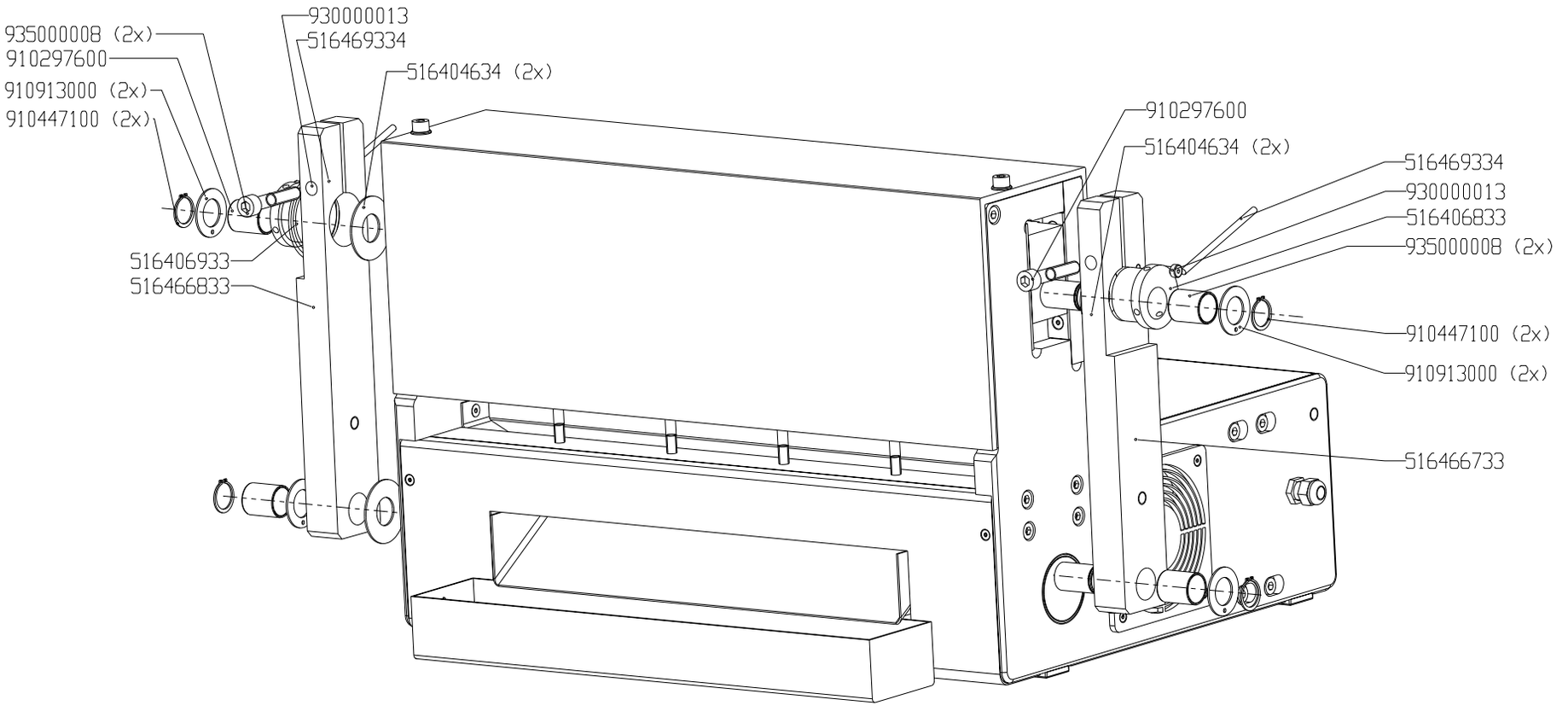
Blatt 3

Anzahl:


930000096 (2x)
930000028 (4x)
910386100
516400833
960000025
960000026
516400933
910309400
930000171 (2x)
910786800
516460531
516463630
516463732
516469131
910647400 (4x)
910463600 (3x)
910212100 (2x)
930000096 (2x)
930000028 (4x)
516469034 (2x)
910285100 (4x)
910298600 (4x)
R
1:2
Verwendungsbereich
Punch 500 1.1kW
Oberflaeche
Masse ohne Toleranzangabe nach "DIN ISO 2768m"
Masstab 1:5
Werkstoff/Halbzeug
Anzahl
Benennung
Ersatzteilzeichnung
replacement parts
Zeichnung/Sach-Nr.
501.154.4-3
Blatt 4
Chr. RENZ GmbH
Name
Datum
Bearb
11-Nov-03
Deimel
Gepr.
Norm
Kom.-Nr.
Rz 6.3
Rz 25
Rz 100
RDH

Optional

Zugarm / connecting rod



x: = Rz 6.3	Verwendungsbereich: Punch 500 1.1kW				Oberflaeche		Masstab 3:10	Anzahl
y: = Rz 25					Masse ohne Toleranzangabe nach "DIN ISO 2768m"		Werkstoff/Halbzeug	
z: = Rz 100						Datum / Name	Benennung: Ersatzteilzeichnung replacement parts	
r: = ROH					Bearb.	11-Nov-03 / Deimel		
					Gepr.			
					Norm			
					Komm.-Nr.:			
	Zust.	Aenderung	Datum	Name	Chr. RENZ GmbH		Zeichnung/Sach-Nr.: 501.154.4-3	Blatt 5
							Ers.f.:	Ers.d.: