

Rittal – The System.

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Electrical crimping machine R8 E



AS 4050.454

Operating instructions

ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

IT INFRASTRUCTURE

SOFTWARE & SERVICES

FRIEDHELM LOH GROUP



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1 About this documentation

The warnings in this documentation are structured differently depending on the severity of danger.



Warning!

Possible risk of fatality!

Notices with the signal word "warning" warn you about situations which could lead to fatal or serious injuries if you do not pay attention to the notices specified.



Caution!

Risk of injury!







Notices with the signal word "caution" warn you about situations which could lead to injury if you do not pay attention to the notices specified.

Caution!

Property damage!

Notices with the signal word "attention" warn you about dangers which could result in damage to property.

Situation-related warnings may contain the following warning symbols:

Symbol	Meaning
	Warning: dangerous electrical voltage
	Warning: injury to hands due to sharp blades
	Work may only be performed by a qualified electrician
	Only perform work with personal protective equipment
	Disconnect the mains plug
	Notes on documentation

Additional formatting is used in the rest of the text which has the following meaning:



Note:

This constitutes information which is not related to safety, but which provides important information regarding correct and effective work.

- This symbol indicates an "action point" and shows that you should perform an operation or procedure.
- Bullet points are indicated with dashes.

2 General safety instructions

2.1 Intended use

The electrical crimping machine R8 E is an electrically-driven insulation stripping and crimping machine designed exclusively for insulation stripping from flexible conductors in accordance with DIN 60228:2005 and the crimping of "wire end ferrules on rolls" (0.5 – 2.5 mm²) on cable ends. For this reason, because of its construction, the machine has only this intended use.

For the intended use, the following must be observed:

- All notes from the operating instructions
- The documentation of the supplied products, as well as
- The notes for servicing/maintenance

Any other use is deemed improper.

The operational safety of the machine is guaranteed only for the intended use. Only persons authorised by the manufacturer may perform changes, conversions and repairs to the machine.

Any safety-relevant changes or manipulations to the machine are prohibited. If the operating company makes such changes or manipulations, safe operation of the machines is not guaranteed.

The manufacturer accepts no liability for damage or consequential damages that result because of the preceding measures.

Use only original spare parts and accessories authorised by the manufacturer. The use of other parts voids the liability for any damage (also consequential damages) that results from the use of other parts or non-authorised accessories.

2.2 Not permitted

- Removing notification or warning signs.
- Opening the machine during operation.
- Using the machine with obvious defects or damage.

2.3 Machine dangers

A risk evaluation with subsequent safety inspection and safety acceptance was performed on the electrical crimping machine R8 E. As for every machine, some residual risks, that cannot be precluded because of design considerations, remain. See section 2.8 "Residual risks".

2.4 Operational hazards

The operator may rectify only those faults for which the housing does not need to be removed.

2.5 Hazard sources

- Before performing servicing, maintenance and cleaning work on the machine, switch off the machine, disconnect it from the power supply (e.g. cut off the electricity supply, switch off the fuse).

2.6 Safety equipment

Safety equipment is installed to protect personnel. The operating company is obliged to inspect the safety equipment annually.

Under no circumstances may safety devices be changed, removed or circumvented by changes to the machine.


2 General safety instructions

EN

Safety devices	Function	Inspection
Housing	The housing may be removed only by service technicians or qualified personnel. Only for switched-off state of the machine. After removal of the housing, ensure that the earthing wire is inserted before the machine is closed again.	Inspect for damage.
Safety switch	The safety switch is activated when the front flap is opened.	By a qualified electrician.
LPV-100-24 switched-mode power supply (SMPS)	The SMPS protects against dangerous voltages, because not more than 60 VAC or 110 VDC may be present.	By a qualified electrician.

2.7 Warning signs at and on the machine or components

– **PE conductor connection:** This marking is placed on the earth screw.

Symbol	Meaning
	The protective earth is a measure that in the event of a fault protects against dangerous touch voltage and electrical shock. The "protective earth" measure is provided by the protective conductor.

The connection is made via an IEC connector with leading protective conductor contact. The "PE" protective conductor (green/yellow insulating sheath only in Germany) is used for these protective measures.

2.8 Residual XXX risks

Even when all safety and warning notes are observed, residual risks remain for the machine operation.

The machine is state-of-the-art and built according to recognised safety regulations. Nevertheless, hazards for users or third-parties can result when operating the machine.

- The machine may be used only for the intended purpose.
- The machine must be in proper safety condition during commissioning.
- Faults that can impair the safety must be rectified immediately, whereby the manufacturer may need to be contacted.
- For opened flap, access to the fixed blade is possible and so cut injuries can result.
- Manipulation of the safety devices can cause the reoccurrence of the described hazards.

2.9 Safety measures at the installation site

The machine must be placed stable on a table.

- There is a large hazard risk should a machine fall.



Note:

Inner-company instructions and checks should ensure that the workplace and its vicinity remain clean and uncluttered.

2.10 Notes for the operating company

- The operating company is obliged to write operating instructions.
- The operating company is obliged to inspect the safety devices annually.
- Deploy only original fuses with the specified amperage.
- Knowledge of the local, operational safety and accident-prevention regulations.
- All notes on machines must be kept legible, and renewed when necessary.
- Notify the manufacturer without delay should defects become apparent, provided they were not caused intentionally.
- Any imperfect machine parts must be replaced immediately.

2.11 Personnel requirements

The following target groups have different authorisations.

2.11.1 Operator

Requirements:

- Literacy skills
- Technical knowledge
- Instructed/trained

Knowledge:

- Machine function
- Intended use of the machine
- Machine safety devices

2.11.2 Technician

Requirements:

- Rittal service technician

Work steps	Target group	
	Operator	Technician
Transporting	X	X
Mounting		X
Dismantling		X
Setup	X	X
Operation	X	X
Cleaning	X	X
Maintenance	X	X
Repairs		X

2.12 Training and instruction

- Only trained and instructed personnel may work on the machine.

3 Device description

EN

– Repair work may be performed only by the manufacturer or authorised service departments.

2.13 Noise

The A-weighted equivalent continuous sound pressure level of the R8 E crimping machine is ≤ 70 dB(A).

Consequently, ear muffs are not required for operating the machine.

3 Device description

3.1 Overview

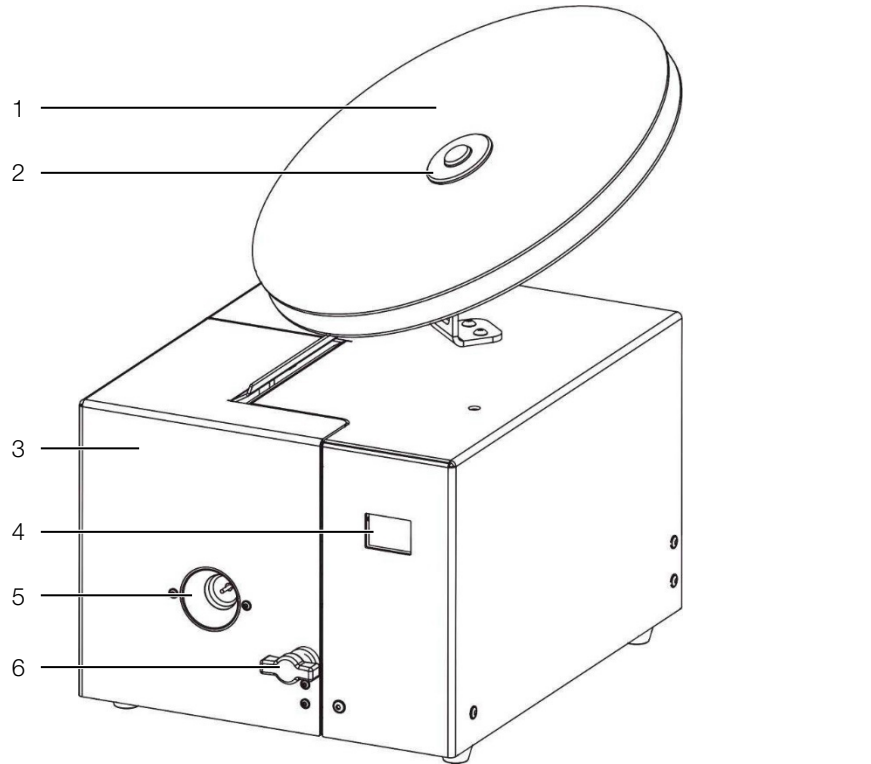


Fig. 1: Front view

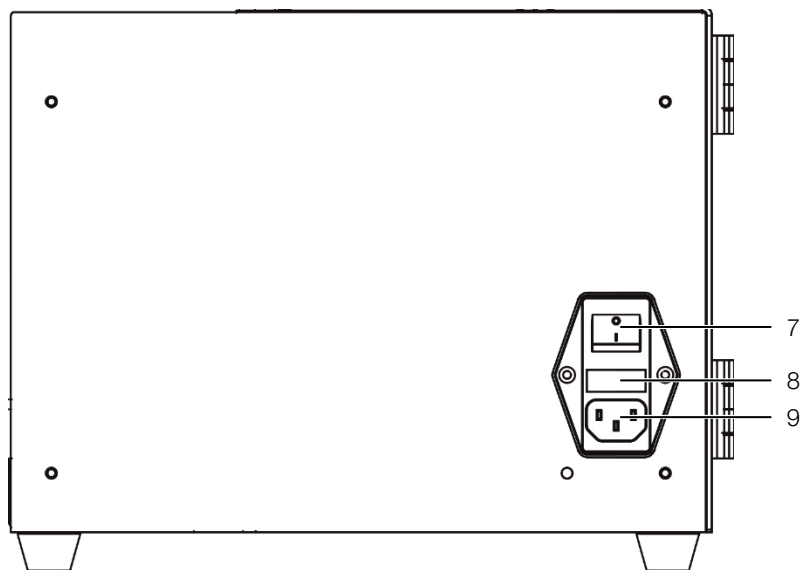


Fig. 2: Connection circuit-board

Key

- 1 Belt roll
- 2 Roll holder
- 3 Flap
- 4 Touch display
- 5 Insertion funnel
- 6 Twist lock
- 7 ON/OFF power switch
- 8 Fuses
- 9 Mains plug

3.2 Technical data

	Electrical crimping machine R8 E
Conductor insertion length	40 mm
Wire end ferrules	0.5 – 2.5 mm ²
Ferrule length	8 mm
Crimping form	Trapezoidal
Drive	Electric motor
Voltage	100...240 V
Frequency	50/60 Hz
Power consumption	100 VA
Fuse (mains filter module)	2 x T2AH250V
Degree of protection	IP 20
Protection class	I / PE conductor
Cycle time	1.8 s
Continuous sound pressure level	≤70 dB(A)
Dimensions (W x D x H)	288 mm x 349 mm x 230 mm
Weight	16 kg
Operating environment	
Storage/transport temperature	-25 °C to +55 °C (short-term +70 °C)
Ambient temperature	+5 °C to 40 °C
Operating temperature	+10 °C to 45 °C
Max. operating altitude	2000 m above mean sea level
Humidity	50% at 40 °C (without dewing) 90% at 20 °C (without dewing)
Contamination level	2

4 Transporting the machine

EN

4 Transporting the machine

Always use the complete original packaging for transport.



Note:

The machine with all its accessories must be sent for service and repair work.

Caution!

Force can cause damage to the machine.

- Transport the machine properly.



Caution!

There is a risk of injury, in particular to feet, should the machine fall.

- Wear safety shoes when transporting the machine.

5 Setting up the machine

- Read the operating instructions carefully before commissioning the machine.
- Deploy the machine only in a dry environment.

5.1 Operating tools

Tools	Included in the scope of supply
Allen key size 4	✓
Allen key size 2.5	✗
Tweezers	✗

5.2 Machine connection

Caution!

The electrical data shown on the rating plate must match that of the power grid.

– Otherwise, damage can occur to the machine.

- Connect the mains cable to the mains plug (see fig. 3, item 3) of the machine and to the power supply.
- Switch on the electrical crimping machine R8 E at the power switch (see fig. 3, item 1).

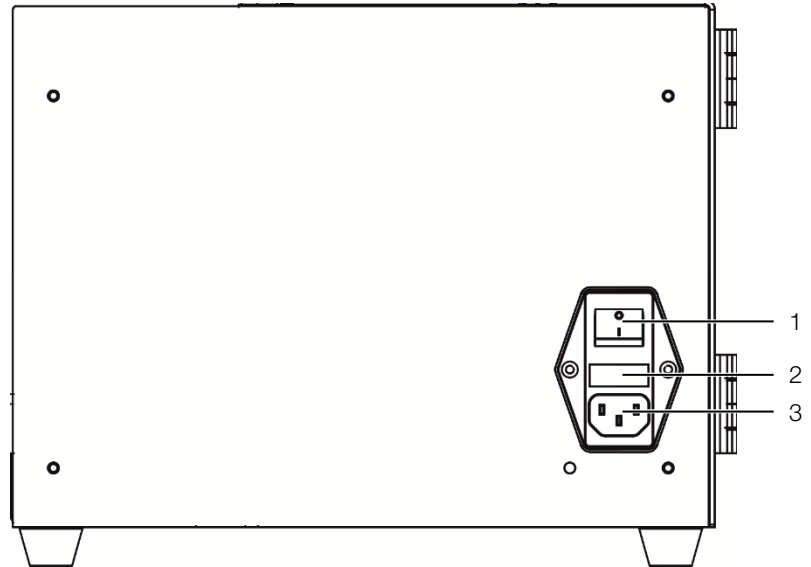


Fig. 3: Connection plate

Key

- 1 ON/OFF power switch
- 2 Fuses (2 x T2AH250V)
- 3 Mains plug

5.3 Inserting the belt roll

- Place the belt roll (see fig. 4, item 1) so that clockwise unrolling is possible.
- Open the twist lock (see fig. 4, item 2) and swivel the flap to the side. The transport pin must be at the bottom!

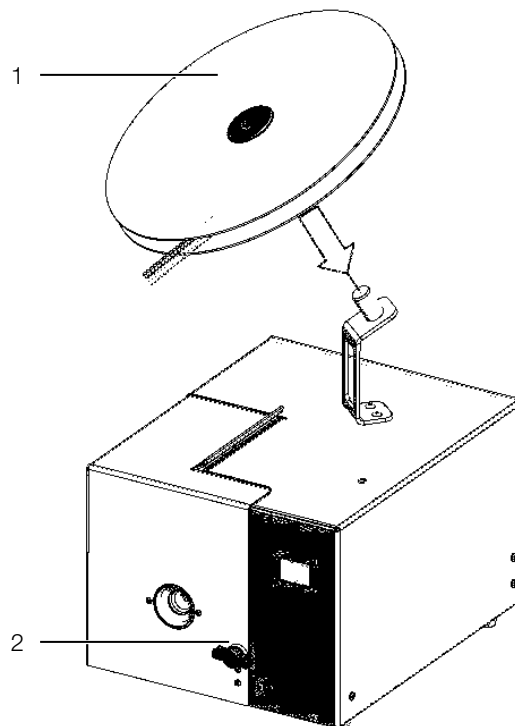


Fig. 4: Inserting the belt roll

- Push the wire end ferrule belt into the magazine until the lowermost ferrule latches. But not further, because otherwise a malfunction can occur.
- Check this by applying slight tension to the belt.

5 Setting up the machine

EN

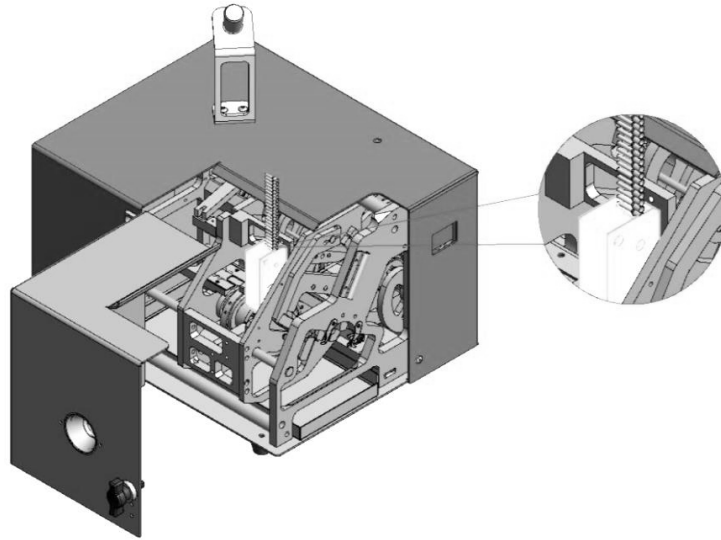


Fig. 5: Feeding in the wire end ferrules

- Close the flap via the twist lock.
- Roll up the loose wire end ferrule belt.



Fig. 6: End position

5.4 Cross-section setting



Fig. 7: "Display" menu display

Key

- 1 Die size
- 2 Insulation stripping stage
- 3 Conductor cross-section
- 4 Day quantity counter
- 5 Initial position symbol

Cross-section [mm ²]	Die size	Insulation stripping stage
0.50	I	1, 2, 3
0.75		4, 5, 6
1.00	II	7, 8, 9
1.50		10, 11, 12
2.50	III	13, 14, 15
Blade replacement	I II III	99

Tab. 1: Setting values

5.4.1 Die size setting

- Open the twist lock.
- Swivel the flap to the side.



Caution!

There is risk of finger injuries by the fixed ferrule separating blade.

- Do not touch the blade when the drum is turned.

- Press the drum backwards (see fig. 8, item 1) and turn (see fig. 8, item 2) to the desired die size.
- Release the drum until it latches.
The current nest is displayed with the bars (see fig. 8, item 3).
- Check by turning whether the drum has latched.

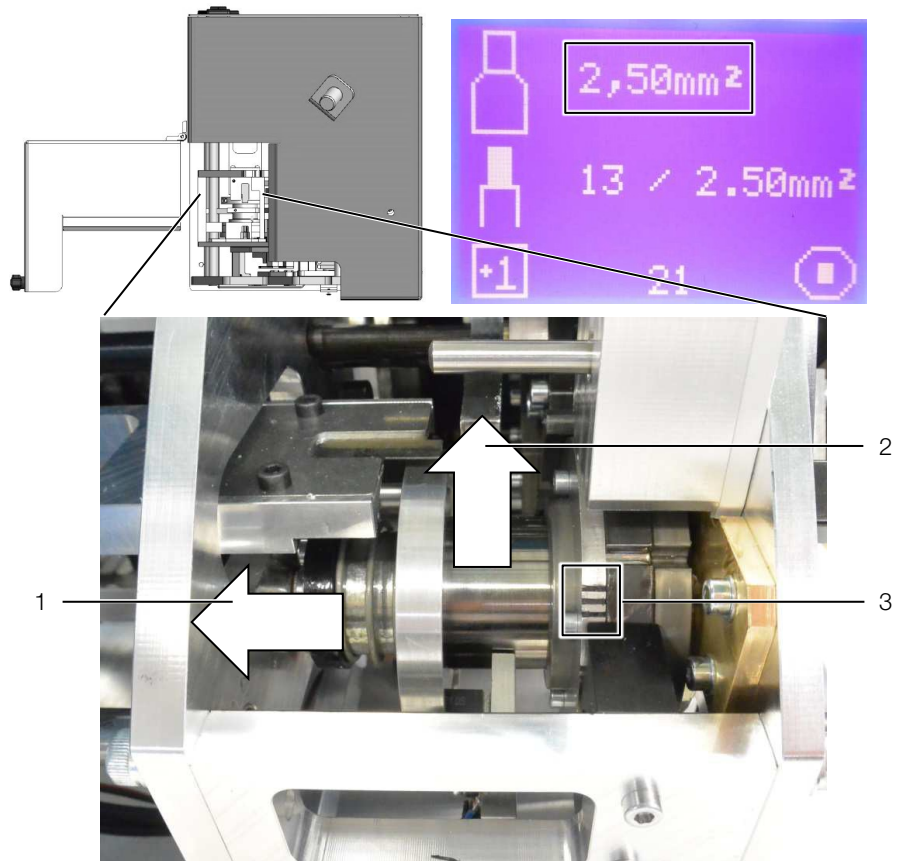


Fig. 8: Setting the die size

5 Setting up the machine

EN

5.4.2 Insulation stripping stage setting

Required tool:

- Allen key size 4

The insulation stripping stage / conductor cross-section is shown in the touch display.

- Turning clockwise increases the cross-section.



Fig. 9: Insulation stripping stage setting

5.5 Replacing the belt roll

- Open the twist lock.
 - Swivel the flap to the side.
 - Press the transport pin upwards completely (see fig. 10, item 1) and remove the wire end ferrule belt (see fig. 10, item 2) from the magazine.
- Continue in accordance with section 5.3 "Inserting the belt roll".

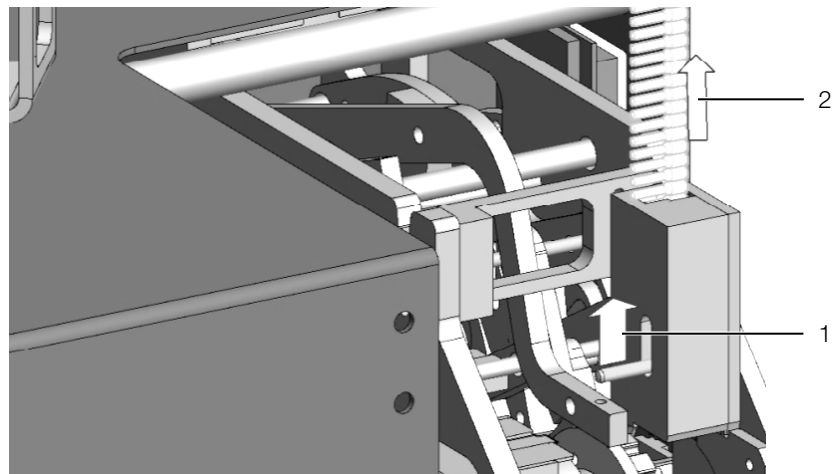


Fig. 10: Replacing the belt roll






5.6 Conductor insertion / conductor cutting



Note:

- The cable must be cut straight and must not have any kinks or bends.
- Push the cable through the insertion funnel into the contact.

<p>40 mm</p> <p>Correct</p>	Correct	Incorrect	Inclined cut

 <p>Incorrect</p>			Protected conductor
			Removed conductor
			Crushed conductor
			Recessed conductor

Tab. 2: Wire entry

6 Menu

6.1 Jogging operation

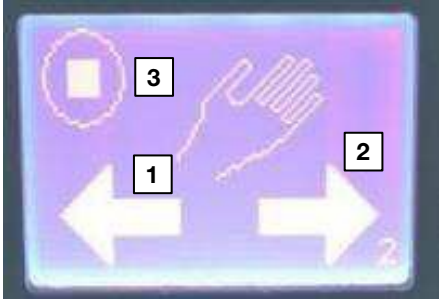

Jogging operation display "Initial position"	Jogging operation display "Not in initial position"
	

Fig. 11: Jogging operation

- Machine at initial position / switched on.
- One of the insulation stripping stages 1 to 15 must be set.
- Switch off the machine.
- Open the flap.
- Remove the belt.
- Close the flap.
- Keep the display pressed.
- Switch on the machine (machine in jogging operation).
- The display switches to the "Jogging operation initial position" display.
- Traverse backwards (see fig. 11, item 1) or forwards (see fig. 11, item 2) in jogging operation using the arrow keys.
- Traverse the machine manually until the initial position (see fig. 11, item 3) is reached again.
- Alternatively: Press the hand symbol for 3 seconds.
- This causes the machine to travel automatically to the initial position.
- Switch off the machine.
- Insert the belt roll.
- Switch on the machine.

6.2 Counters

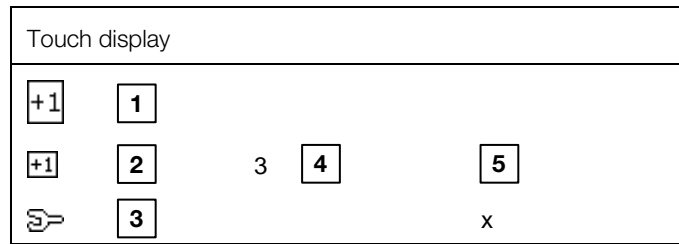


Fig. 12: Counters

Key

- 1 Total counter
- 2 Day counter
- 3 Service counter
- 4 Menu number
- 5 Filling level monitoring status: x = active; 0 = inactive

6.2.1 Reset daily quantity counter

– Machine at initial position / switched on.

- Press the display for 3 seconds.
- Press the display for 5 seconds.
- Confirm the display briefly.

6.2.2 Service counter

When the quantity (200,000 items) in the "Service" field is attained, "Service" flashes when switched on next time.

- Press the touch display once to acknowledge the display.

This indicates that the next service is now due and the machine should be sent to the manufacturer.

6.3 Filling level monitoring

The filling level monitoring checks whether the start switch has been pressed sufficiently long. This function is active as standard.

Deactivate/activate the function

- Set insulation stripping stage 99.
- Press the touch display for 3 seconds.
The current status of the filling level monitoring is displayed:
X = On, O = Off.
- Tap the touch display briefly to change the status.
- Press the touch display for 3 seconds.
The display switches to the "Test inputs" menu.
- Press the touch display for 3 seconds.
The display switches to the production menu.
- Set the desired insulation stripping stage (see section 5.4.2 "Insulation stripping stage setting").

6.4 Test menu

Status display of the inputs (0 or 1).

- Set insulation stripping stage 6.
- Switch the machine on and off again.
- Tap the touch display ten times quickly.
The menu is exited when the touch display is pressed for at least 2 seconds.

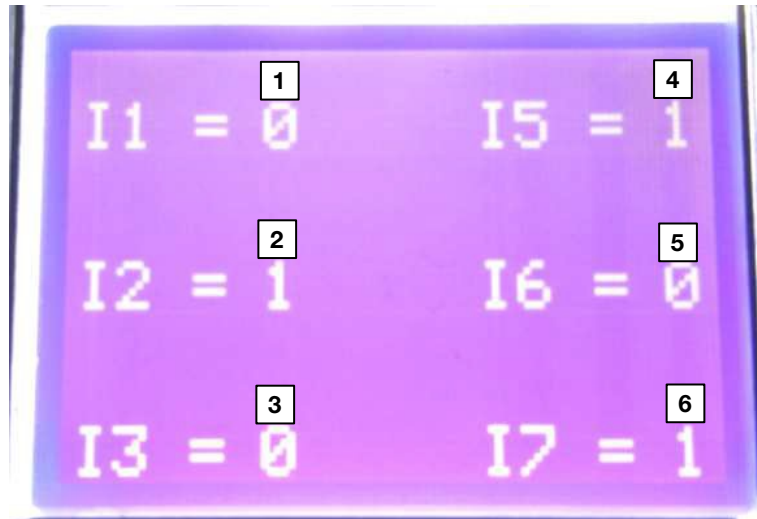


Fig. 13: Counters

Key

- 1 Start: Microswitch
- 2 Drum position
- 3 Drum position
- 4 Drum position
- 5 Stop: Light barrier
- 6 Flap

7 Maintaining the machine



Warning!

Electrical shock caused by working on live components!

- Before working on the machine, it must be disconnected from the power grid.

7.1 Authorised maintenance personnel

Maintenance work may be performed only by specially trained and instructed personnel.

7.2 Maintenance notes



Note:

- Never clean the machine interior with compressed air.
- Do not use spray oil or spray grease.
- If possible, use silicone or PTFE oils (Teflon oil), e.g. Divinol GWA ISO 46.
- Use lubricating greases suitable for roller bearings and sliding surfaces.
- The display and the touch screen are made of plastic and must not come into contact with hard objects. The touch-screen surface can be cleaned with a soft cloth without any solvents.

7.3 Lubricant

Lubricating grease

- Recommended grease: BP Energrease PR-EP 00

Lubricating oil

– Recommended oil: WD-40 Classic

7.4 Maintenance schedule

7.4.1 Daily maintenance

Component	Activity
Machine	■ Empty the refuse drawer.

Emptying the refuse drawer

■ Observe the insertion position of the refuse drawer.

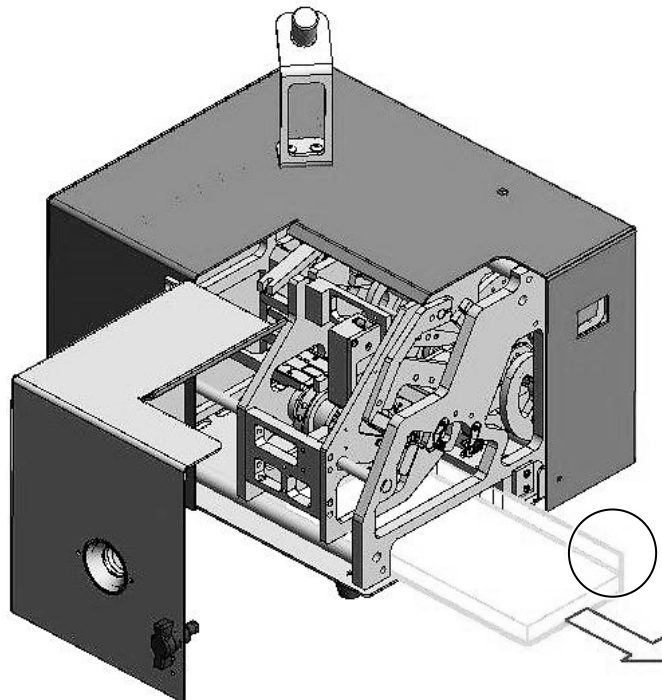


Fig. 14: Refuse drawer

7.4.2 Monthly maintenance

- Open the flap.
- Oil the support (see fig. 15, item 1) and bearing assembly (see fig. 15, item 2) of the crimping drum.

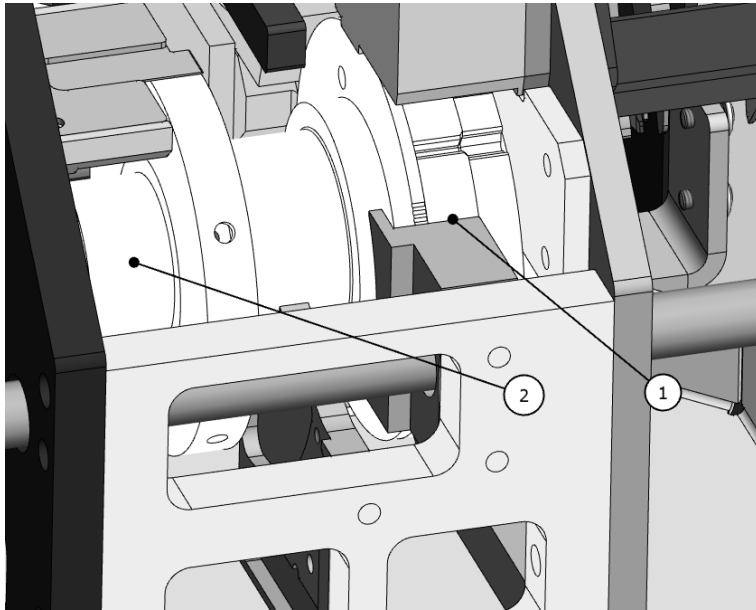


Fig. 15: Oiling the crimping drum

7.4.3 6-monthly maintenance

- Dismantle the housing.
- Oil the gap between the setting wheel and the insulation stripping stage.
- To do this, place the machine at 45°.
- Allow lubricating oil to flow into the gap (see fig. 16, item 1) between the setting wheel and the cover.

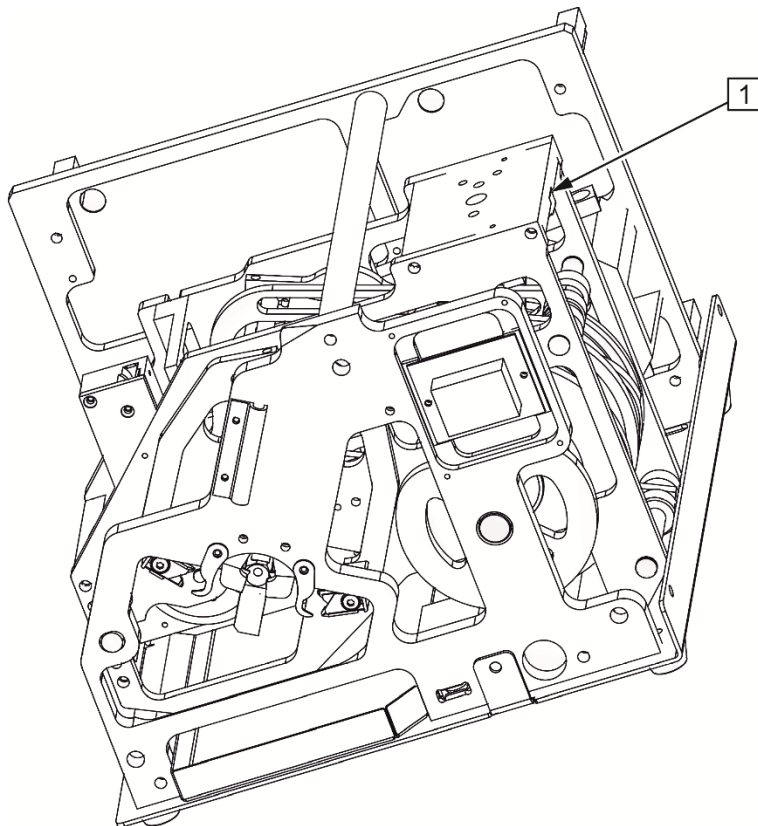


Fig. 16: Oiling insulation stripping stage setting

7 Maintaining the machine

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Component	Activity
Shafts	■ Grease all marked shafts and guides of the machine.

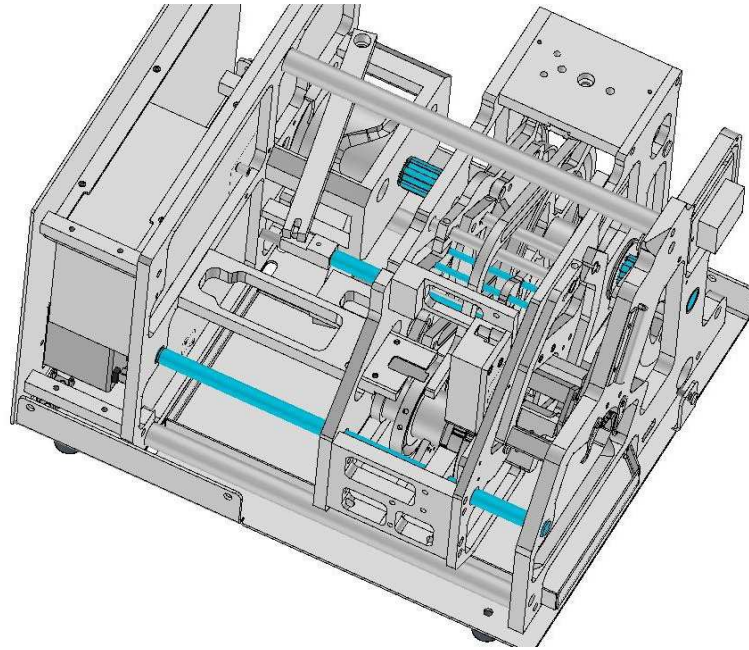


Fig. 17: Shafts

Component	Activity
Cams	■ Apply the above-mentioned grease with a brush to the grooves for all marked components.

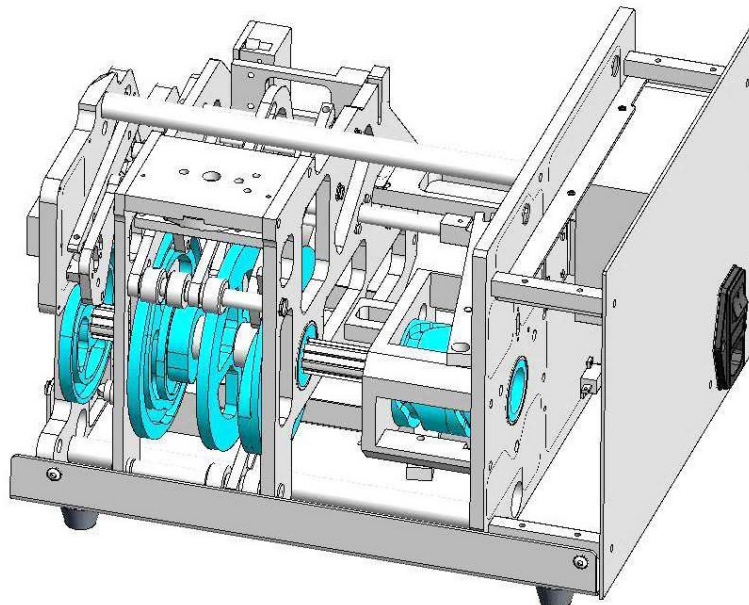


Fig. 18: Side view, right

7.5 Replacing the insulation stripping blade



Warning!

Electrical shock caused by working on live components!



■ **Before working on the machine, it must be disconnected from the power grid.**



Caution!

There is risk of finger injuries at the insulation stripping blades.

■ **Never touch the blade.**

- Set insulation stripping stage 99.
- Switch off the machine.
- Open the flap and remove the belt.
- Close the flap.
- Press the display and switch on the machine.
The machine travels to the blade replacement position, see display.
- Switch off the machine.
- Open the flap.
- Remove the screws (see fig. 19, item 1).
- Replace the insulation stripping blade (see fig. 19, item 2).
- Insert the insulation stripping blade in the blade holder until the limit stop.
- Close the flap.
- Switch on the machine, see display.
- Press the display for 3 seconds.
The machine travels automatically to the initial position.
- Select the insulation stripping stage.
- Switch off the machine.
- Insert the wire end ferrule belt.

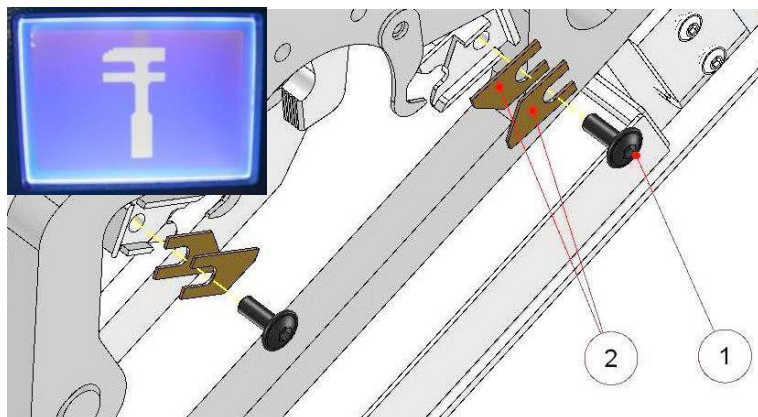


Fig. 19: Replacing the insulation stripping blade

7.6 Replacing ferrule separating blade



Caution!

There is risk of finger injuries at the ferrule separating blade.

■ **Never touch the blade.**

- Switch off the machine.

7 Maintaining the machine

EN

- Open the flap.
- Press the transport pin upwards.
- Remove the belt.
- Loosen the screw with an Allen key size 4 (see fig. 20, item 1).
- Remove the magazine at the top (see fig. 20, item 2).

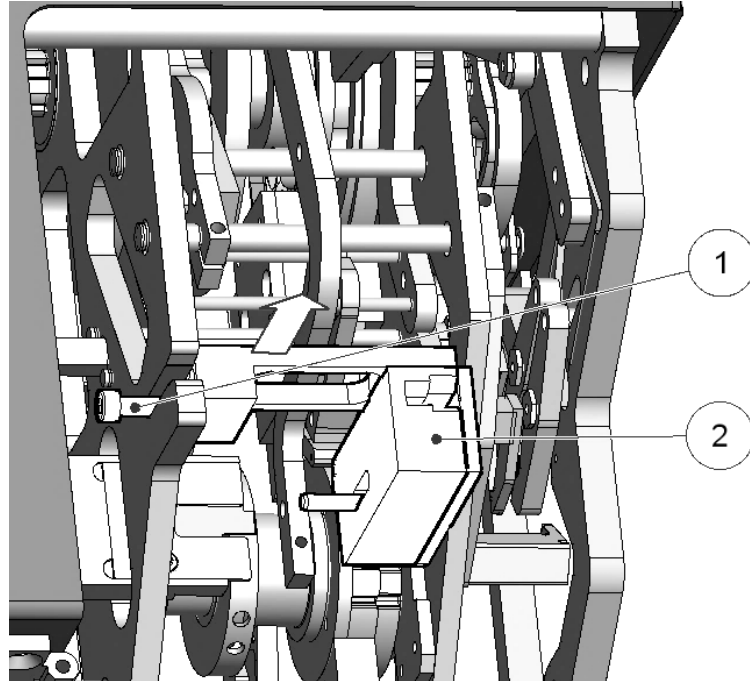


Fig. 20: Magazine

- Remove the two screws with an Allen key size 2.5 (see fig. 21, item 3).
- Remove the separating blade cover (see fig. 21, item 4).
- Replace the ferrule separating blade (see fig. 21, item 5).

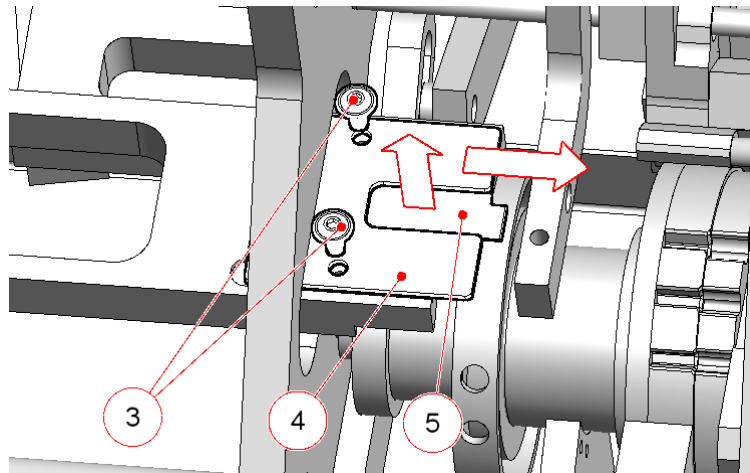


Fig. 21: Replacing the ferrule separating blade

The installation is performed in the reverse order.

- Observe the installation position of the ferrule separating blade.

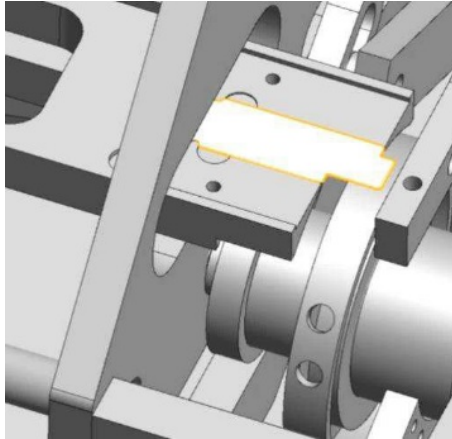


Fig. 22: Ferrule separating blade installation position

- Install the magazine.

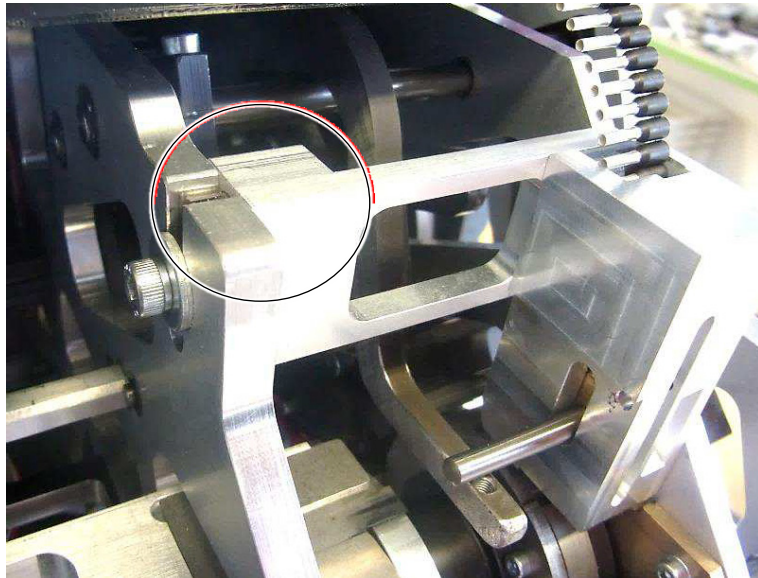


Fig. 23: Installing the magazine

- Ensure that the upper edge is flush!

8 Troubleshooting



Warning!

Electrical shock caused by working on live components!

- Before working on the machine, it must be disconnected from the power grid.

8.1 Personnel for troubleshooting

Faults may be rectified only by trained personnel (fitters) and qualified electricians.

8.2 Machine does not start


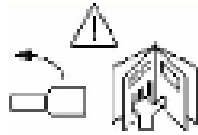



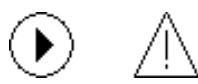
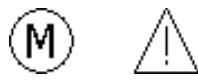
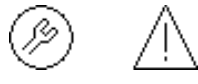
Cause	Correction
The power supply is interrupted.	■ Check the mains cable and the fuses.

Cause	Correction
Filling level monitoring active and start switch pressed too briefly.	<ul style="list-style-type: none"> ■ Acknowledge the fault: Press touch display. ■ Introduce the conductor correctly.




8.3 Ferrules placed too deep in the transport unit

Cause	Correction
The blade cuts in the wire end ferrule: Current too high, machine switches off.	<ul style="list-style-type: none"> ■ Switch off the machine. ■ Start the machine in jogging operation (see section 6.1 "Jogging operation"). ■ Travel forwards or backwards. ■ Remove the belt. ■ Inspect for further damage.

8.4 Error messages

Display on touch display	Cause	Correction
	The flap is open.	<ul style="list-style-type: none"> ■ Close the flap.
	Ferrule not removed after work cycle.	<ul style="list-style-type: none"> ■ Remove the ferrule (see section 8.5 "Removing the wire end ferrule").
	Triggering mechanism pressed too briefly (machine does not start).	<ul style="list-style-type: none"> ■ Press the touch display once briefly.
	Triggering mechanism pressed too briefly (machine starts).	<ul style="list-style-type: none"> ■ Press the touch display once briefly. ■ Check the crimp quality.
	Stop switch fault – The stop switch does not switch. – The stop switch is still pressed.	<ul style="list-style-type: none"> ■ Press the touch display once briefly.
	Start switch fault – Start switch not free.	<ul style="list-style-type: none"> ■ Check the start switch for blockage. ■ Press the touch display once briefly.
	Conductor introduced too early	<ul style="list-style-type: none"> ■ Introduce conductor later.
	Motor fault – The motor does not run or jams (current too high).	<ul style="list-style-type: none"> ■ Press the touch display once briefly.
	Service message – Service quantity attained.	<p>Service</p> <ul style="list-style-type: none"> ■ Deleted there.

9 Machine decommissioning and disposal

Display on touch display	Cause	Correction
	Drum position incorrect or does not match the insulation stripping stage.	The drum must be at the correct position. – Jogging operation
	Setting error – The insulation stripping stage and the die size do not match.	■ Press the touch display once briefly.
	Machine not at the initial position.	■ Travel in jogging operation to initial position.



Note:
If there are further faults, contact the manufacturer.

8.5 Removing the wire end ferrule

- Open the front flap (see fig. 1, item 3).
- Search for missing wire end ferrule.
- If required, remove the transport unit (see section 7.6 "Replacing ferrule separating blade").
- Remove the wire end ferrule.
- If required, reinstall the transport unit.
- Close the front flap.
- Tap the touch display briefly.

9 Machine decommissioning and disposal

9.1 Machine decommissioning

- Switch off the machine.
- Withdraw the mains plug.
- Pack the machine in the original packaging.

The machine is now prepared for transport and disposal, if necessary.

9.2 Machine disposal

- Decommission the machine as described in section 9.1 "Machine decommissioning".
- Ensure the machine disposal in accordance with the national and local regulations.

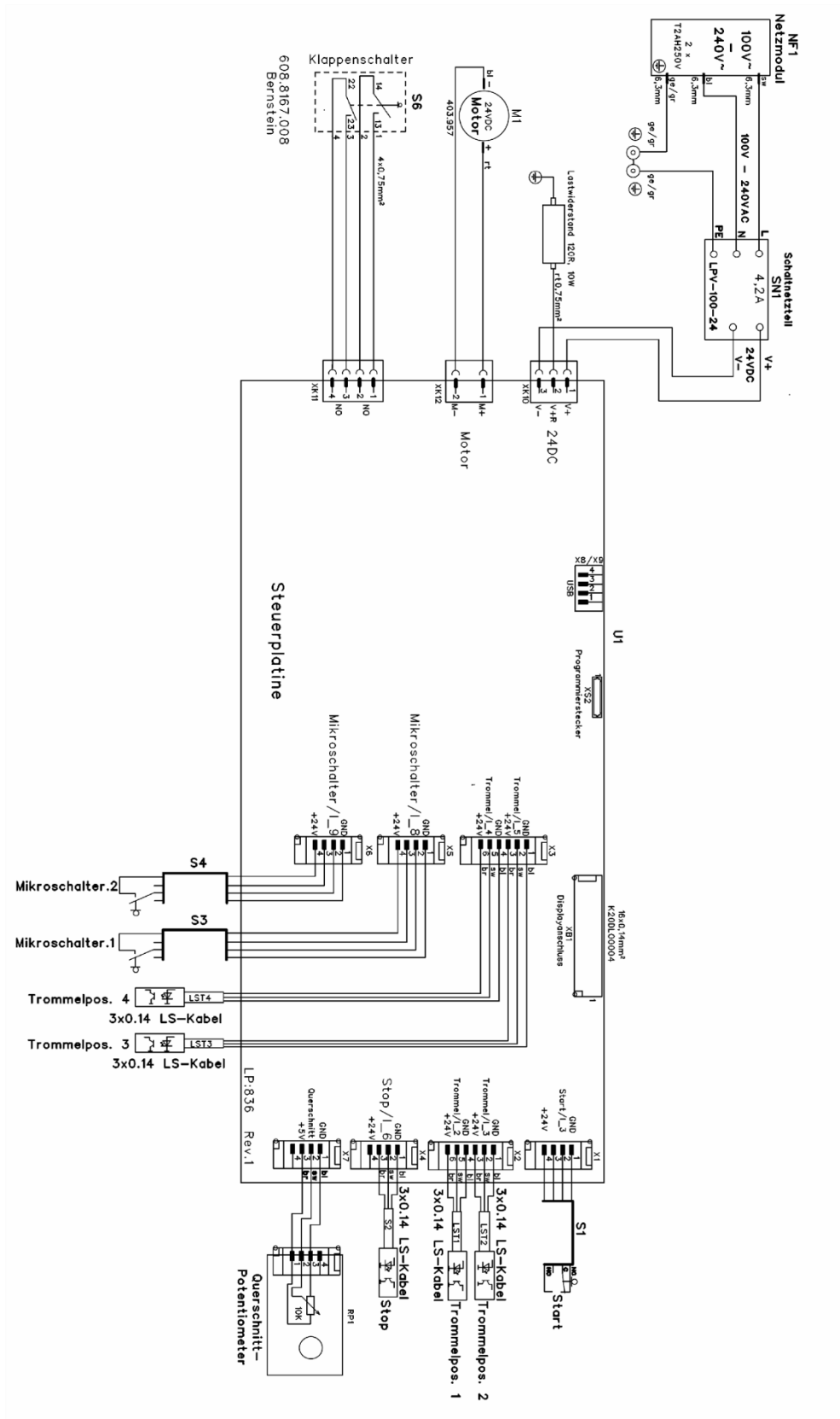


Machine disposal as house refuse is not permitted.
The machine should be disposed of environmentally conform and properly.



Note:
You can send the product to Rittal for disposal. Contact your responsible country representative.

10 Electrical connection diagram



11 Spare parts list and accessories

No.	Designation	Model no.
2	AS wire end ferrules belt 0.5 mm ² 8 mm long	4050.746
3	AS wire end ferrules belt 0.75 mm ² 8 mm long	4050.747
4	AS wire end ferrules belt 1.00 mm ² 8 mm long	4050.748
3	AS wire end ferrules belt 1.5 mm ² 8 mm long	4050.749
3	AS wire end ferrules belt 2.5 mm ² 8 mm long	4050.750



Note:

- In the event of an order, specify the serial number of the machine.

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