

Owner's Manual

Crimping Machine CM 25-1.3



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1. Preface

This owner's manual is designed for you to get to know the crimping machine CM 25-1.3 and to properly operate the unit. The owner's manual contains important instructions in order to operate the crimping machine safely and efficiently. Follow the instructions carefully to avoid risks and injuries, decrease repair costs and downtime, and increase the life of the machine. The pneumatic crimping machine CM 25-1.3 is manufactured by using the latest technology and the generally accepted safety regulations. The machine may only be used in proper working condition and with safety and risk awareness. Unauthorized modifications to the machine, including the safety devices, will exclude the manufacturer from any liability. The start of the operation of the machine can be triggered by foot pedal. Optionally, the operation can also be triggered by hand.

Attention

Please obey accident prevention regulations!

2. Technical Data

| | |
|----------------------------------|---|
| Type: | CM 25-1.3 |
| W x H x D: | 325 x 500 x 280 mm |
| Weight: | 30 kg |
| Crimping Force: | 25 kN (2,5 t) at 5 - 6 bar |
| Crimp Time: | < 1 s |
| Crimp Area: | up to 50 mm ² (ferrules); opening width ≤6mm |
| Continuous Sound Pressure Level: | < 70 dB (A) |
| Pneumatic Pressure Needed: | 0,75 l/working stroke at 6 bar operating pressure |
| Operating Pressure: | 5 - 6 bar (compressed dry air, oiled and filtered) |
| Operating Temperature: | -10 ... +55 °C, rel. humidity < 85 %, not condensed |
| Working Pressure: | -10 ... +60 °C |
| Storage Temperature: | -20 ... +70 °C |
| Crimping Dies: | from System Crimping Tool PEW 12 (P/N: 624 000 3) - Rennsteig Werkzeuge GmbH |

2.1. Set-up/ Construction

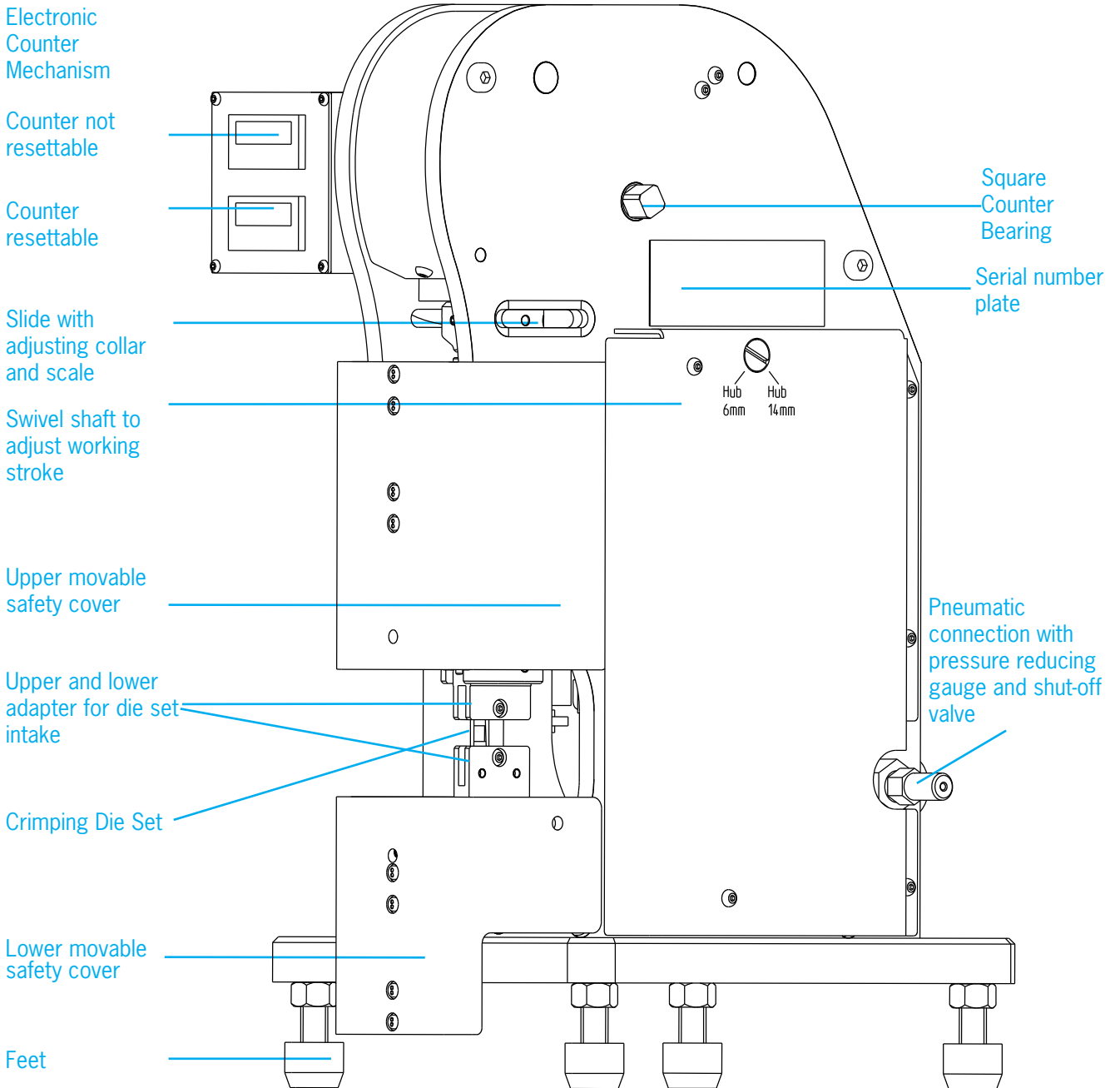


Fig. 1

3. Transportation of Crimping Machine

Always avoid damages when loading and unloading the machine. All damages, which occur during transport, are the responsibilities of the carrier.

Attention

After carefully removing the packaging, the machine must be inspected for possible damages. Any discovered damages must be reported to the manufacturer **RENNSTEIG WERKZEUGE GmbH Viernau**. Please note that certain machine settings will be carried out later at the job site.

4. Limitations of Liability

The manufacturer will not assume any responsibility for the following damages occurring because of:

- Failure to follow the operating instructions
- Improper use
- Use by non-trained and non-skilled personnel
- Unauthorized modifications of the machine
- Technical modifications
- Usage of spare parts, which are not approved by the manufacturer.

5. Requirements for Site-Set-up

- Minimum load capacity of work bench: 45 kg
- Total space requirement for the machine: H x W x D = 500 x 500 x 300 mm
- Area for optimal operator performance: 1,5 m²
- Work bench height : adjusted to the height of the operator
- Sufficient lighting: needs to be provided.
-

6. Set-up of Crimping Machine

1. Place the machine at the final work location. The adjustable feet [Fig. 2/7](#) are used to place the machine firmly onto the work surface and is secured in place with the lock nuts [Fig. 2/6](#). A secure set-up of the machine is of utmost importance!
2. Connect supply hoses for the compressed air. The built-in pressure gauge [Fig. 2/4](#) is set at the factory and limits the air pressure to a max. of 6 bar. Please ensure the proper connection of air supply hose. In order to operate the machine safely, the air pressure needs to be between 5-6 bar.
3. After connecting the supply lines, the machine needs to be inspected for leaks and for the correct operating pressure.

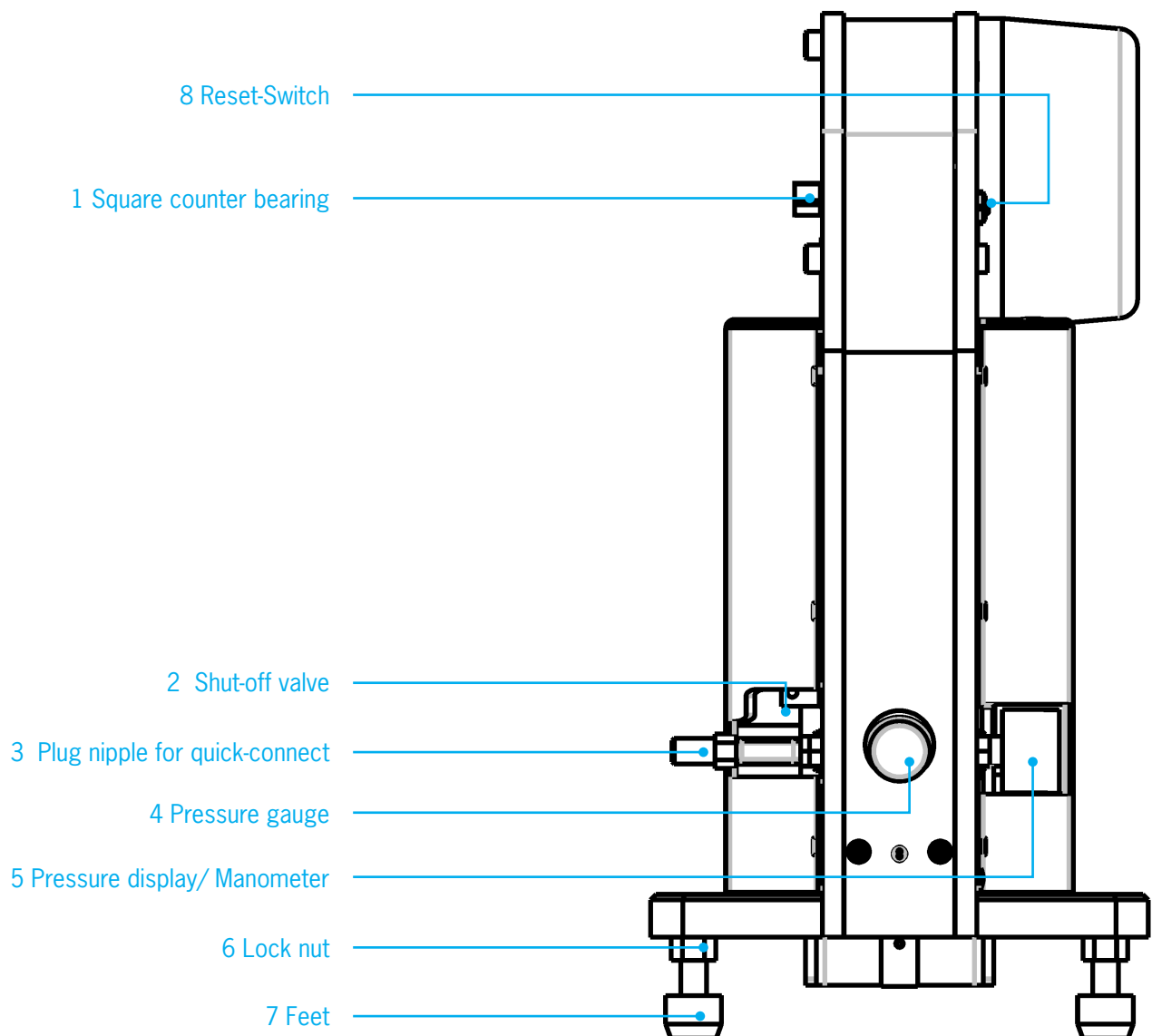


Fig. 2

7. Start-up/ Provisions/ Operation

7.1. Operational Safety

Before starting to use the crimping machine, some important rules need to be followed. The machine may only be used by trained and skilled personnel to avoid injury to persons and damage to the machine. The operator needs to inspect the safety devices and ensure their proper operation before starting any job, for example, the safety covers have to be in place and should not have signs of any damage or a gap wider than 6 mm. Only after inspection the machine is ready to be used.

- Open the shut-off valve [Fig. 2/2](#), connect the air supply hose, this triggers the upper and lower safety covers to close and the crimping die set to move together; machine moves to the starting position
- The selected working stroke can be recognized by the position of the swivel shaft [Fig. 3/4](#) and the distance between the upper and lower die set
- Place, position and secure the crimp contact in the lower die set, optional through the utilization of a locator (positioner)
- Place and position the stripped cable into the contact
- Use the foot pedal to trigger working stroke
- after the crimp process is completed, disengage the foot pedal, the machine will move to its starting position
- Remove the crimped contact

Attention

Crimp processes, whereby the working stroke is smaller than 6 mm, do not require a safety cover. Crimp processes, which require a working stroke from 6mm up to 14 mm, the safety cover closes automatically, before the crimping process starts. After the safety distance of <6 mm is reached, the working stroke is automatically triggered. (See also „7.3 Adjusting the Working Stroke“).

7.2. Safety Mechanism

When the required working stroke is smaller than 6 mm (pinching protection), the safety cover stays in the starting position. When setting the working stroke to 14 mm, the safety covers will close automatically when using the foot pedal. Only then the crimp process will be activated. Changes to the safety mechanism can only take place while observing the legal guidelines of Work Safety Regulations (DIN EN ISO 13857: 2008-06 und DIN EN 349: 2009-01). This concerns especially additional exposures and cut-outs. Those need to be tailored to the individual application and should not reduce the safe operation of the machine. All openings and gaps must be smaller than or equal to 6 mm. The safety covers are replaceable and can be ordered from the manufacturer separately.

7.3. Adjusting the Working Stroke

The crimping machine CM 25-1.3 is designed for various applications. The machine is equipped with two different working strokes. At applications up to 14 mm the automatic safety device is triggered. For structural small connectors and cable with a small cross section, a stroke of <math><6\text{mm}</math> is sufficient. The upper and lower safety cover will not drive together automatically when the foot pedal is activated. For applications of 6 mm or less a safety device is not required by law. When using a stroke up to 14 mm a safety mechanism must be in place while working. The safety covers may not exceed an opening width of 6 mm or more. (see „7.2 Safety Mechanism“).

The switch-over to the other working stroke is done as follows:

- Close the shut-off valve [Fig.3/1](#), disconnect the air supply, then open the shut-off valve
- Release the remaining air by activating the reset switch [Fig.3/2](#), the safety cover will close automatically
- Use a wrench (SW 12) and place it onto the square counter bearing [Fig.3/3](#) and counterclockwise until the crimping dies close (without air pressure)
- Use a screwdriver to push the swiveling shaft against the pressure of the spring and swing it up to the labeled stop [Fig.3/4](#)
- Remove the screwdriver from the swivel shaft; the swivel shaft has to be pushed into position till you hear that it snapped into place

Attention

The switch over to another working stroke needs to take place when no air is in the machine. Please ensure that a die set is placed in the machine.

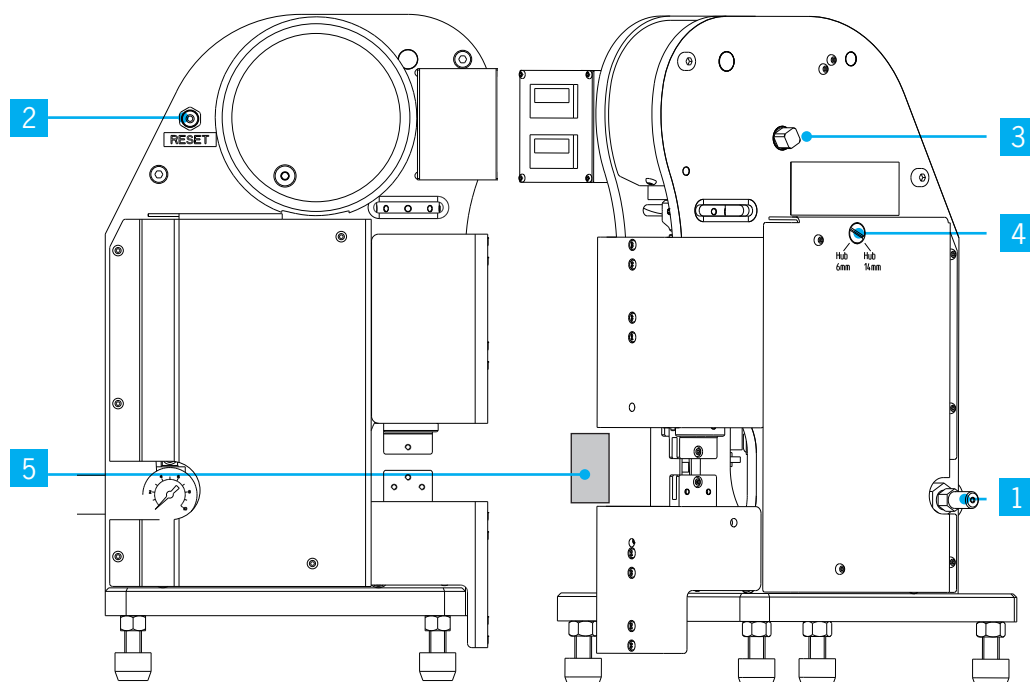


Fig. 3

7.4. Exchange of Crimping Dies

The exchange of crimping dies will be made as follows:

- Close shut-off valve [Fig.2/2](#), disconnect air pressure supply, re-open shut-off valve, open the safety cover by hand
- Place adjustment aid [Fig. 3/5](#) (included) between the upper and lower safety covers to prevent that the safety covers move together when the machine has no air pressure
- Release the remaining air by using the RESET switch [Fig.2/8](#)
- Use a wrench SW 12 and place it onto the square counter bearing [Fig. 3/3](#) turn counterclockwise (in the direction of the red arrows) till the crimping dies are closed (without air pressure)
- Loosen the set screws for the lower crimping die with an Allen wrench SW 2,5 mm [Fig. 4/1](#); open the crimping die by turning the wrench on the square counter bearing slightly
- Pull out the die set in the direction of the red arrows [Fig. 4/3](#) out of the adapters [Fig. 4/2](#)
- Place the new crimping dies into the adapter and tighten the screws lightly
- Turn the wrench on the square counter bearing [Fig. 3/3](#) to move the upper and lower die set together to ensure the proper fit of the dies
- Remove the wrench from the square counter bearing [Fig. 3/3](#)
- Securely tighten the fastening screws in the upper and lower adapter
- Remove adjustment aid [Fig. 3/5](#) between the safety covers; the safety cover will close automatically
- Close the shut-off valve, connect the air pressure supply line, open shut-off valve [Fig.3/1](#)
- The machine moves back to the starting position and is now ready to use.

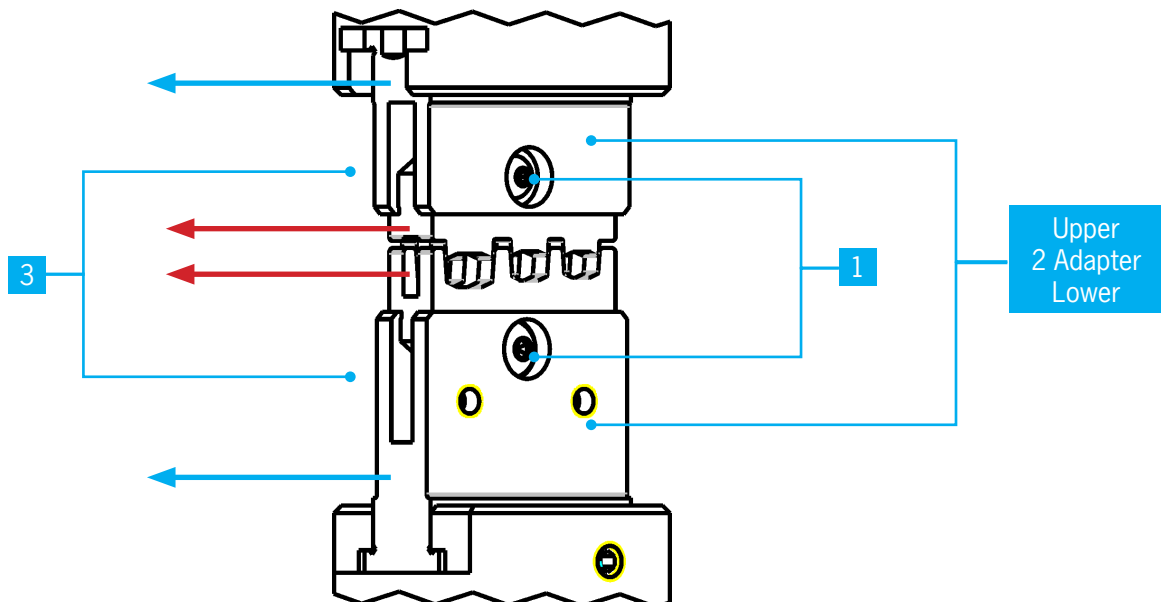


Fig. 4

Attention

Before the CM 25-1.3 is connected to the air pressure supply line, remove the wrench from the square counter bearing.

7.5. Change of Crimping Positions

The crimping die intake can be rotated 360° in increments of 22,5°. The change of crimp position can be done as follows:

- Interrupt air pressure with shut-off valve [Fig.2/2](#) ; remove air supply hose and open shut-off valve, open safety cover by hand
- Place adjustment aid [Fig.3/5](#) (included) between the upper and lower safety covers to prevent that the safety covers move together when the machine has no air pressure
- Release the remaining air by using the RESET switch [Fig.3/2](#)
- Loosen the adapter for the upper and lower intake with one complete turn by placing an Allen wrench through the bore hole in the lower safety cover [Fig.5/1](#)
- Set crimping dies to the desired position in 22,5° increments (locking function)
- Inspect the correct fit of the crimping dies by lining up the top to the bottom and by closing the die set; turn the square counter bearing (in the direction of the arrows) [Fig.3/3](#) with a wrench SW 12 until upper and lower die set touch each other
- Remove wrench SW 12 from the square counter bearing
- Tighten the screws of the adapter in the upper and lower part of the adapter
- Remove the adjustment aid [Fig.3/5](#)
- Close the shut-off valve, connect the machine to the air supply and open the shut-off valve [Fig.2/2](#)
- The machine moves back to the starting position and can now be used.

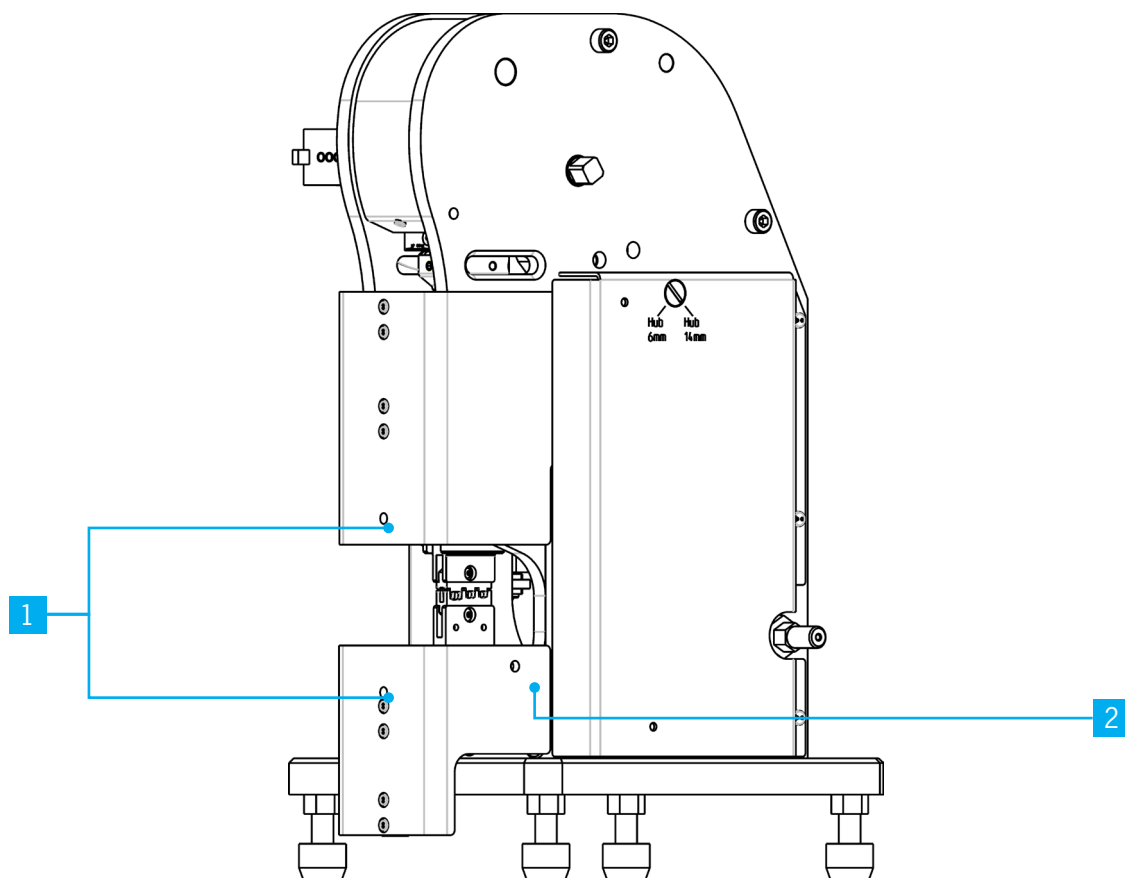


Fig. 5

Attention

Before the CM 25-1.3 is connected to the air pressure supply line, remove the wrench from the square counter bearing.

7.6. Exchanging the Adapters (for larger System Measurements)

The exchange of adapters is done as follows:

- Close shut-off valve [Fig.2/2](#), disconnect air pressure supply hose, open shut-off valve [Fig.2/2](#)
- Release the remaining air by pushing the reset button [Fig.2/8](#), the safety cover will close automatically
- Open safety cover by hand
- Place the adjusting aid [Fig.3/5](#) between the upper and lower safety cover to prevent that the safety covers move together when the machine has no air pressure
- Loosen the upper adapter intake through a bore hole with an Allen wrench SW 2,5 mm [Fig.5/1](#)
- Turn the upper adapter intake by 90° until the fastening screw [Fig.4/4](#) of the upper adapter points towards the user
- Loosen the upper adapter with an Allen wrench SW 2,5 mm
- After loosening the screw, turn back the adapter intake back by 90°
- Loosen the lower adapter through the bore hole in the lower safety cover with an Allen wrench SW 2,5 mm on the right side [Fig.5/2](#)
- Slide the adapter intake out of the machine to the front in the direction of the blue arrows [Fig.4](#)
- Slide optional adapter into the adapter intake up to the positioning pin and secure with an Allen wrench, hereby is important: Narrow slot of adapter on the bottom, wider slot of adapter on top!
- Ensure the proper fit of the crimping die set, if necessary review the chapter “Exchanging Crimping Dies” (see section “7.4 Exchange of Crimping Die Sets”)
- Remove the Allen wrench and the adjustment aid [Fig.3/5](#)
- Close shut-off valve [Fig.2/2](#), connect the air pressure supply hose, reopen shut-off valve [Fig.2/2](#)
- The machine moves back to the starting position and is now ready to be used.

7.7. Crimping Dimension Adjustment

In order to ensure fault-free crimping results, the CM 25-1.3 has been set at the factory in such a manner that the crimp dies are firmly closed at bottom dead center. Under certain conditions, for example, after changing the crimping dies, a readjustment may necessary to align the plunger stroke. The adjustment can be done as follows:

- Interrupt air pressure with shut-off valve [Fig.2/2](#) ; remove air supply hose and open shut-off valve
- Release the remaining air by pressing the reset button [Fig.2/8](#)
- Move the upper and lower die sets apart by turning the square counter bearing (keep RESET [Fig.2/8](#) compressed the entire time) with an SW 12 wrench until the lower dead center and until the scale and setting information are visible [Fig.6](#)
- Loosen the tensioning screw [Fig.6/2](#) with an SW 2,5 mm Allen wrench
- Choose the desired dimensional alignment by using the adjusting ring [Fig.6/3](#). Use the extra holes provided to select the desired setting [Fig.6/1](#).

Turning the adjustment screw by one scale line will change the plunger stroke by 0,05 mm.

- Upon completion of the alignment , secure the adjusting ring [Fig.6/3](#) by tightening the tensioning screw [Fig.6/2](#) (At 180° is another tensioning screw located. In order to ensure a safe clamping only one tensioning screw must be tightened, which ever screw is closer to the operator of the machine.)
- Close the shut-off valve, connect the air supply lines and open the shut-off valve [Fig.2/2](#)

Now, the machine moves back to the starting position and is ready for operation. The crimping process must now be simulated. The fault-free functioning of a machine cycle is tested in this fashion. If a successful cycle is not achieved, the crimping dimensions have to be reduced as described in this chapter (see also section „8.1 Causes of Error and Troubleshooting“). The procedure must be repeated on an actual crimp. The crimping dimension attained must be inspected. In order to perform a proper inspection a „Rennsteig Werkzeuge“ Crimping Height Slide Gauge is recommended for this. It may become necessary to adjust the plunger stroke again until the desired crimping dimension is reached.

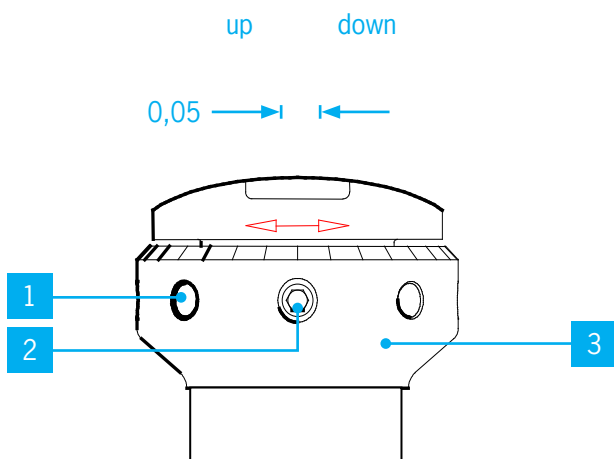


Fig. 6

7.8 Electronic Counter Mechanism

The Crimping machine CM 25-1.3 has two electronic counting mechanisms. The upper counter mechanism is a permanent counter, which cannot be set back by the operator. The lower counter can be reset.

Attention

The counter should not be used in explosion-proof areas and /or areas, which are excluded in the standard EN 61010 part 1.

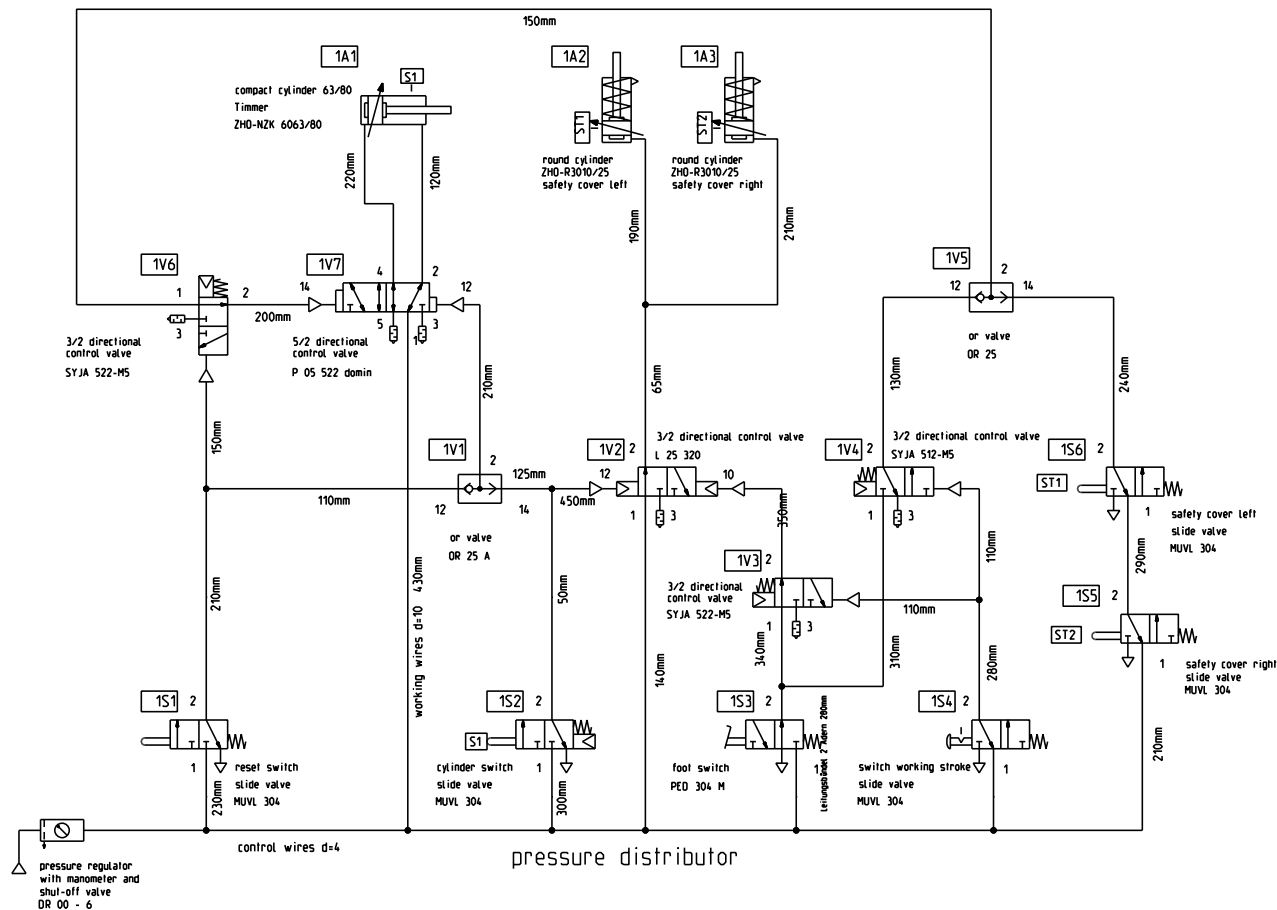
8. Maintenance and Repair

- The crimping machine CM 25-1.3 is maintenance-free.
- Any necessary repairs may only be performed by qualified personnel or certified technicians at the manufacturer; only original equipment parts may be used.
- The electronic counter mechanism has an estimated life of about 8 years. A replacement of the battery is not possible. After such time has passed, the entire counter mechanism needs to be exchanged (ATTENTION: Loss of data for the permanent counter, number of cycles will not be retained).

8.1. Causes of Error and Troubleshooting

| Error | Possible Cause | Solution |
|--------------------------------|---|--|
| Crimp process is not completed | Pressure within the pneumatic system is not working correctly | Pull out pressure regulator and adjust by turning. Check pressure in the system (setup to be 6 bar). |
| | Foreign object in the crimping dies | Close shut-off valve and disconnect air supply hose. Press reset. Remove foreign object(s), if necessary dismount the crimping dies (See 7.4. Exchange of Crimping Dies). |
| | Crimp die sets do not align | Close shut-off valve and disconnect air supply hose. Press RESET. Readjust the crimping die set (see 7.4 Exchange of Crimping Dies). |
| | Wrong contact was used or wire cross cut is too large | Use right contact, choose the right crimping position or choose the correct crimping dies. |
| Machine is blocking. | Plunger is not adjusted correctly (see also „7.7. Crimping Dimension Adjustment“) | Close shut-off valve and disconnect air supply hose. Press RESET. Move upper crimping die to the upper limit stop by turning the wrench on the square counter bearing. Reduce adjustment (see chapter 7.5) |

9. Technical Documentation



10. EU-Declaration of Conformity according to EU Guidelines for Machines 2006/42/EG, Appendix II

The construction of the Crimping Machine

Type: CM 25-1.3

No.:

Year of Construction:

Was developed, constructed and manufactured in compliance with the EU- Guidelines for Machines 2006/42/EG with sole responsibility:

Company: Rennsteig Werkzeuge GmbH
An der Koppel 1
98547 Viernau

Responsible person in charge of documentation: Klaus Bamberger

The following EU-guidelines and harmonized standards were applied:

- Machine Guideline 2006/42/EG
- RoHS-Guideline 2011/65/EU
- DIN EN 12100:2010 Safety of Machines – General Principles of Design– Risk Assessment and Risk Reduction
- DIN EN ISO 13857:2008 Safety of Machines – Safety distances to prevent upper and lower extremities from entering hazardous zones
- EN ISO 13849-1:2008/AC:2009 Safety of Machines – Safety-related Parts of the Control System- Part 1: General Principles of Design
- EN ISO 13849-2:2012 Safety of Machines – Safety-related Parts of the Control System - Part 2: Validation
- DIN EN ISO 4414:2011-04 Fluid Technology - General Rules and Safety-related Regulations concerning Pneumatic Systems and Parts thereof (ISO 4414:2010); German Version EN ISO 4414:2010

Hereby we declare that this delivery includes the entire above described machine.

Viernau, the



CEO Herr Sascha Zmiskol