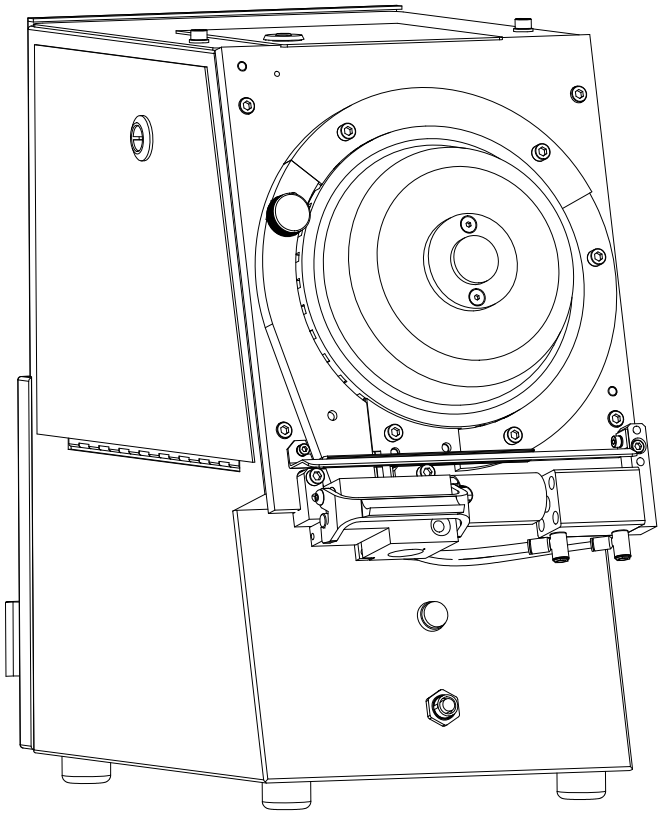
Emhart Teknologies
TUCKER™

Assembly Instructions

Feeding Units

ERF/ERD/EPS



Please read the assembly instructions before any operation!

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Translation of the original assembly instructions MTA ERF ERD EPS 01

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1 General Information

1.1 Information Regarding the Assembly Instructions

These assembly instructions contain important information regarding the handling of this device. The compliance with all security advisories and operation instructions is a precondition for a safe operation.

Furthermore the local accident prevention regulations and the general safety regulations effective for the application area of the device have to be observed.

Please read the assembly instructions carefully before any operation! It is a part of the product and has to be stored in an accessible location in the direct vicinity of the device for use by the appropriate personnel.

1.2 Limitation of Liability

All instructions and information in these assembly instructions have been compiled in consideration of the valid standards and regulations, the state of the art as well as our experience of many years.

The manufacturer assumes no liability for damages due to:

- Non-observance of the assembly instructions.
- Not intended use.
- Employment of unskilled personnel.
- Arbitrary rebuilding.
- Technical modifications.
- Use of non-licensed replacement parts.

On special design, on demands of additional order options or due to latest technical modifications the actual shipment may differ from the explanations and expositions described here.

Effective are the obligations agreed in the supply contract, the general terms and conditions as well as the delivery conditions of the supplier and the legal regulations valid to the time of conclusion of the contract.

Technical modifications within the improvement of the usage properties and the further development are reserved.

1.3 Symbol Legend

Warning notices

The warning notices in this operation manual are indicated by symbols. The notes commence with a signal word which expresses the extent of the danger.

Observe the notes and act with caution to avoid accidents and damage to persons and property.

DANGER!

… points to a directly dangerous situation which can lead to death or severe injuries if it is not avoided.

WARNING!

… points to a possibly dangerous situation which can lead to death or severe injuries if it is not avoided.

CAUTION!

… points to a possibly dangerous situation which can lead to slight injuries if it is not avoided.

!

CAUTION!

… points to a possibly dangerous situation which can lead to damage of property if it is not avoided.

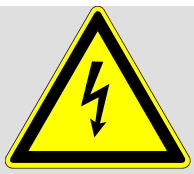
Tips and recommendations

NOTE!

… highlights useful tips and recommendations as well as information for an efficient and failure-free operation.

Special security advisories

In order to draw attention to special dangers, the following symbols are used in connection with security advisories:



DANGER!
Danger to life by electric current!
… indicates perilous situations by electric current. Disregarding of the security advisories can lead to severe injuries or death.
The operations which need to be carried out may only be executed by electronic technicians.

1.4 Copyright Protection

This instruction is protected by copyright and only intended for internal purposes.

The provision of the instruction to a third party, duplications in all kinds and forms - also in extracts - as well as the utilisation and/or communication of the content are, aside from internal purposes, not permitted without a written authorization of the manufacturer.
Non-compliances obligate to damages. Further claims remain reserved.

1.5 Replacement Parts

WARNING!
Safety risk due to false replacement parts!
False or defective replacement parts can affect the safety as well as lead to damages, malfunctions or total breakdown.
Therefore:
- Use original TUCKER replacement parts.

Purchase replacement parts via licensed dealer or directly at manufacturer. Address see page 2.

1.6 Guarantee Instructions

For material and manufacturing faults, the guarantee period for this feeding unit amounts to 1 year from delivery date on. Excluded from this is damage that is caused by accident or by incorrect handling.

The guarantee covers free-of-charge replacement of the faulty component. In this connection, liability for consequential damage is excluded.

Guarantee void in case of attempts to repair by personnel that has not been trained by the manufacturer and/or when using spare parts that TUCKER has not approved of. In the event of a defect the non-conforming appliance must be sent to the next TUCKER agent or directly to the manufacturer.

The guarantee claim lapses when attempts at repair are carried out by unauthorised or unqualified persons. In the event of a defect the non-conforming appliance must be sent to the next TUCKER agent or directly to the manufacturer. For further information concerning national representation, our customer service is at your disposal. The corresponding contact data can be found on page 2.

1.7 After Sales Service

Our service department is available for technical support.

Information about the responsible contact person is available via telephone, fax, E-Mail or anytime via the Internet, please see manufacturer address on page 2.

Furthermore, our employees are constantly interested in new information and experiences that result from the single applications and could be helpful for improving our products.

1.8 Remark to the Declaration of Incorporation

Note!
A declaration of incorporation for the inc of an incomplete machine with the corresponding details according to the EC machinery directive 2006/42/EG, appendix II, paragraph B is attached to the documents.

2 Safety

This paragraph gives a review about all important safety aspects for an optimal protect of the personnel as well as for the safe and failure-free operation.

Disregard of the operating instructions and security advices mentioned in this manual could lead to serious dangers.

2.1 Responsibility of the Operating Company

The stud feeding unit is used industrially. Therefore the operating company of the unit is liable to the legal obligations of operational safety.

In addition to the operational safety advisories in this assembly instructions the safety-, accident prevention- and environmental regulations in force for the area of application need to be observed.

Please consider particularly the following:

- The operating company has to inform himself about the valid industrial safety regulations and determine additional dangers in an assessment of hazards which occur by the special working conditions on the site of the unit. He has to implement these for the operation of the unit in the form of operating instructions.
- The operating company has to verify that the operating instructions are state of the art during the complete operating time of the unit. If necessary, the operating company is to adjust the operating instructions to the valid rules and regulations.
- The operating company has to manage and determine the responsibilities for installation, operation, maintenance and cleaning in an explicit manner.
- The operating company has to ensure that all employees dealing with the unit have read and understood this manual. Moreover, the operating company has to train the operating personnel in regular intervals and has to provide information on possible dangers.
- The operating company has to provide the personnel with the required protective equipment.

2.2 Personnel Requisition

2.2.1 Qualification

WARNING!
Risk of injury on insufficient qualification!
Improper handling can lead to serious damage to persons and property.
Therefore:
- All activities are to be carried out by skilled personnel only!

The following qualifications for different areas of operations are named in the assembly instructions:

- **Instructed person**

  Has been informed about the tasks assigned and possible dangers of improper execution of an instruction by the operating company.

- **Qualified personnel**

  Qualified personnel are able to carry out the assigned tasks due to their qualified training, knowledge and job experience. In addition, the personnel are able to recognize and avoid possible dangers on their own.

- **Electrician**

  The electrician is able to carry out activities on electric units due to his qualified training, knowledge and job experience. In addition, he is able to recognize and avoid possible dangers on his own.
  The electrician has been trained for the special site he is working on and knows about the relevant rules and regulations.

Only persons who can be expected to carry out their work in a reliable manner can be accepted as personnel. Persons whose reactivity is influenced, e.g. by drugs, alcohol or medicaments, are not admitted.

- Please consider the regulations at site specific to age and profession when choosing personnel!

2.2.2 Trespassers

WARNING!
Danger for trespassers!
Trespassers who do not fulfil the requirements mentioned in this document do not know about the dangers of this working area.
Therefore:

- Keep trespassers away from the working area.
- When in doubt, approach persons and banish them from the working area.
- Interrupt your work as long as there are trespassers within the working area.

2.2.3 Instruction

The personnel have to be instructed regularly by the operating company. For a better traceability the implementation of the instruction should be recorded.

Date	Name	Kind of instruction	Instruction carried out by	Signature

2.3 Intended Use

2.3.1 Self-Piercing Rivet Feeder

The Self-piercing rivet feeder is designed exclusively for the intended use mentioned in this manual.

The feeder ERF is intended to mount self-piercing rivets in industrial and commercial areas and only for application in premises. The feeder ERF has been designed for automatic operation in robots, semiautomatic operation and manual operation.

Intended use also includes observing all the symbols and information in the assembly instructions.

WARNING!

Risk by not intended use!

Every not intended use and/or different use of the device is considered as misuse and can lead to dangerous situations.
Therefore:

- No operation with other system components which are not indicated in the assembly instructions
- No use with rivet tools of other manufacturers.
- No use of improper rivets.
- No use in explosive areas.
- No use in damp locations.

Claims of any kind because of damages due to not intended use are excluded.

2.3.2 Self-Piercing Rivet Divider ERD

The self-piercing rivet divider is designed exclusively for the intended use mentioned in this manual.

The divider ERD is intended to mount self-piercing rivets in industrial and commercial areas and only for application in premises. The divider ERD can only operate in conjunction with two self piercing rivet feeders. The divider ERD has been designed for automatic operation in robots, semiautomatic operation and manual operation.

Intended use also includes observing all the symbols and information in the assembly instructions.

WARNING!

Risk by not intended use!

Every not intended use and/or different use of the device is considered as misuse and can lead to dangerous situations.
Therefore:

- No operation with other system components which are not indicated in the assembly instructions
- No use with rivet tools of other manufacturers.
- No use of improper rivets.
- No use in explosive areas.
- No use in damp locations.

Claims of any kind because of damages due to not intended use are excluded.

2.3.3 Pre-Separation EPS

The pre-separation EPS is designed exclusively for the intended use mentioned in this manual.

The pre-separation EPS is intended to mount self-piercing rivets in industrial and commercial areas and only for application in premises. The pre-separation EPS can only operate in conjunction with a self piercing rivet feeder. The pre-separation EPS has been designed for automatic operation in robots, semiautomatic operation and manual operation.

Intended use also includes observing all the symbols and information in the assembly instructions.

WARNING!

Risk by not intended use!

Every not intended use and/or different use of the device is considered as misuse and can lead to dangerous situations.
Therefore:

- No operation with other system components which are not indicated in the assembly instructions
- No use with rivet tools of other manufacturers.
- No use of improper rivets.
- No use in explosive areas.
- No use in damp locations.

Claims of any kind because of damages due to not intended use are excluded.

2.4 Personal Protective Equipment

At work wearing personal protective equipment is essential to minimize the risks for the health.

- During working time always wear the required protective equipment for the respective work.
- Observe the signs regarding the personal protective equipment which exist in the working area.

Strictly to wear Strictly to wear at working:

Protective glasses

For the protection of the eyes from foreign bodies.

Protective clothing

is close-fitting work wear with low tear strength, with tight-fitting sleeves and without flared parts. It is principally used to protect against capture by moving machinery parts. Do not wear rings, necklaces and other jewellery.

Safety boots

For the protection from heavy, falling parts and from slipping on slippery surfaces.

Wear on special work

Protective gloves

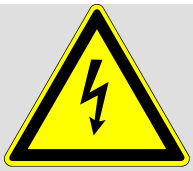
For the protection of the hands against friction, abrasives, stabbing or deeper injuries as well as for the protection against contact with hot surfaces.

2.5 Special Risks

The residual risks which arise from the hazard analysis are described in the following chapter.

Please consider the below mentioned security advices and warnings in the following chapters of this manual to reduce health hazards and to avoid dangerous situations.

Electric current



DANGER!
Danger of life by electric current!
Contact with components under current is perilous. Damage of the electrical isolation or of several components can be perilous.
Therefore:

- On damages of the electrical isolation cut-off immediately the power supply and induce repairing.
- Work on the electric installation may only be executed by qualified electricians/electronic technicians.
- Do not connect or disconnect the live plug connector.
- On maintenance- and corrective maintenance work disconnect the feeding units from the power supply.
- Pay attention to the minimum bending radius of the electrical connecting cables.
- First, connect the feeding units in an orderly fashion before you link the feeding units with the control unit and the other system components.
- Lay all electric supply cables in a completely rolled out state so as to avoid any electromagnetic influences, e.g. inductive heat build-up.
- Prior to each putting-into-operation perform a visual inspection of the electric connecting cables and plugs.
- Never reach into open, non-utilised sockets.

Moved components

WARNING!

Risk of injury by moved components!

Rotating and/or linearly moved components could cause severe injuries.

Therefore:

- Do not grasp in or handle on moved components while operation.
- No not open the coverings while operation.
- Consider the follow-up time.
  Before opening the covers ensure that parts do not move anymore.

Pneumatic

WARNING!

Risk of injury by pneumatic energy!

Pneumatic energies could cause severe injuries.

Pneumatically driven parts could move unexpectedly.

On damages of several components air can discharge under high pressure and damage e.g. the eyes.

Therefore:

- Wear protective glasses when working on the ERT tool.
- Use only clean and oil-free air.
- Pay attention to the minimum bending radius of the pneumatically connecting cables.
- When repairing at location of operation the ERT tool must be cut off from compressed-air supply.
- Check all pneumatic lines and the feeding tube for intactness before commissioning.
- In all cases any kind of maintenance and adjustments must be agreed on with the operating personnel.

WARNING!

Hand injuring!

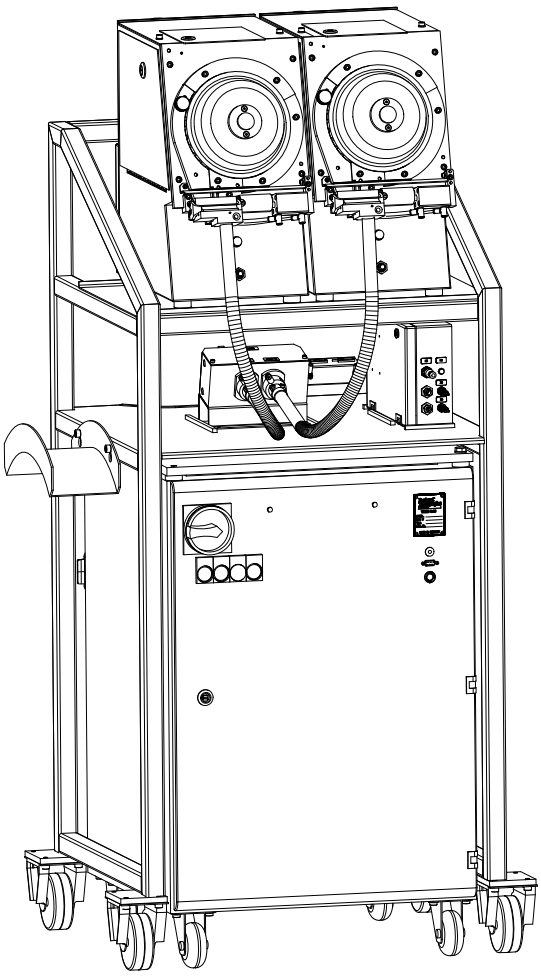
Get your hands off from areas with this warning sign.

- Risk of crush or worse injury to hands.

2.6 Safety Installations

The Self-Piercing rivet feeding units are intended for the application within an installation. The self-piercing rivet feeding units are to be integrated into the safety concept of the self-piercing rivet installation.

2.7 Installation of the Appliance



- The housing cover of the feeding units may not be used as a shelf area.
- Ensure that the base area is smooth and stable and makes it possible to reach the feeding units unhindered.
- Do not place the feeding units on liquid-bearing pipelines so as to avoid liquid penetration.
- To allow ambient temperature exchange a minimum clearance of 2 m between the feeding units and permanent heat sources must be complied with
- Place the ERF feeders into the points on the frame provided for this.
- Ensure that all connections are able to be reached without danger.

3 Technical Data

3.1 General Specifications Feeder ERF

	Specification	Value	Unit
	Weight without rivets	approx. 35	kg
	Length	approx. 600	mm
	Width	approx. 270	mm
	Height	approx. 480	mm
	System of protection: Protected against dust penetration	IP 54 according to IEC 529	Splash-Protected
	Operating temperature	15 - 40	°C
	Stocking temperature	-25 - 55	°C
	Relative humidity of air, not condensing	5 to 95	%
	Working position	0 ± 2	Grad
Noise emission	Sound pressure level	< 75	dB (A)
Electrical	Control voltage 24V DC / 230V AC	Provided in the ERC control unit	
Pneumatically	Operating pressure; manually regulated by maintenance unit	6 to 8	Bar
	Operating pressure max	8	Bar

3.2 General Specifications Divider ERD

	Specification	Value	Unit
	Weight	ca. 8,5	Kg
	Length	ca. 240	mm
	Width	ca. 355	mm
	Height	ca. 180	mm
	System of protection: Protected against dust penetration	IP 54 according to IEC 529	Splash-Protected
	Operating temperature	15 - 40	°C
	Stocking temperature	-25 - 55	°C

Divider ERD

	Specification	Value	Unit
	Relative humidity of air, not condensing	5 to 95	%
	Working position	Indefinite	
Noise emission	Sound pressure level	< 75	dB (A)
Type of rivets: D3,3	Length	4 - 5	mm
D5,3	Length	6,5	mm
D5,3	Length	5 - 8	mm
Electrical	Control voltage 24V DC	Provided in the ERF feeder	
Pneumatically	Operating pressure	6 to 8	Bar
	Hose connection Ø = 8 mm	Provided in the ERF feeder	
	Operating pressure max.	8	Bar

3.3 General Specification Pre-Separation ESP

	Specification	Value	Unit
	Weight	ca. 6,5	Kg
	Length	ca. 190	mm
	Width	ca. 350	mm
	Height	ca. 100	mm
	System of protection: Protected against dust penetration	IP 53 according to IEC529	Protected against drizzle
	Operating temperature	15 - 40	°C
	Stocking temperature	-25 - 55	°C
	Relative humidity of air, not condensing	5 to 95	%
Type of rivets D5,3	Length	5 to 8	mm
Electrical	Control voltage 24V DC	Provided in ERF feeder	
Pneumatically	Operating pressure	6 to 8	Bar
	Hose connection Ø = 8 mm	Provided in the LSC or from the customer	
	Operating pressure max.	8	Bar

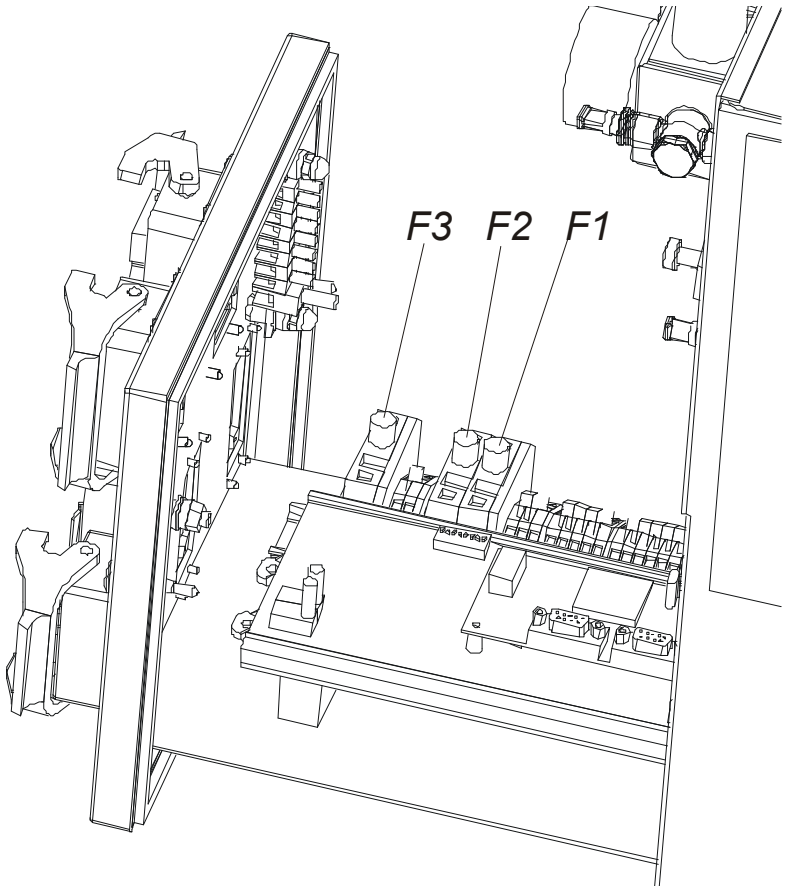
3.4 Equipment Fuses

DANGER!

Opening the control cabinet as well as the replacement of the fuses inside the equipment is to be carried out by qualified personnel only!

Fuse elements

Control insertion	Fuse	Nominal voltage (V)	Nominal current (A)	Tripping characteristic
5x20 mm	F1	250	2	semi time lag
5x20 mm	F2	250	2	semi time lag
5x20 mm	F3	250	2	semi time lag

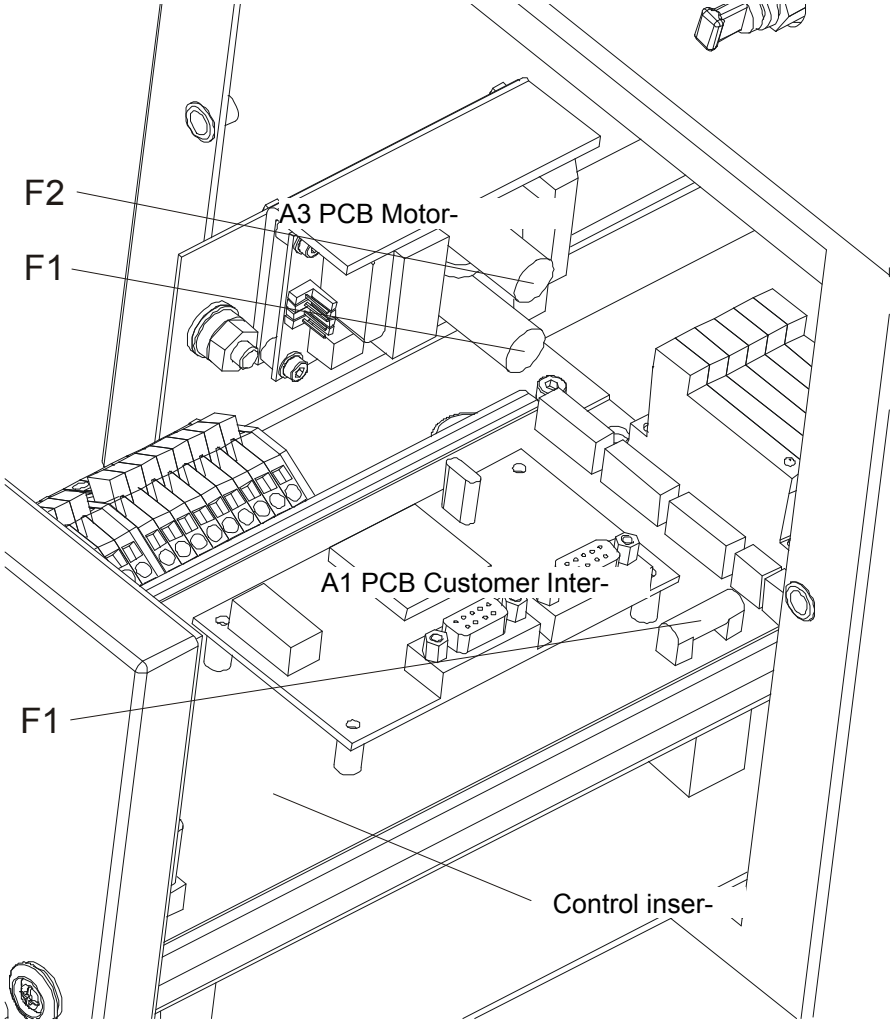


NOTE!

Defective fuse elements are always to be replaced by the same design of fuses with identical nominal values!

PCB Customer Interface	Fuse	Nominal voltage (V)	Nominal current (A)	Tripping characteristic
5x20 mm	A1 - F1	250	1	semi time lag

PCB Motor-Interface	Fuse	Nominal voltage (V)	Nominal current (A)	Tripping characteristic
5x20 mm	A3 - F1	250	0,315	semi time lag
5x20 mm	A3 - F2	250	0,315	semi time lag



NOTE!
Defective fuse elements are always to be replaced by the same design of fuses with identical nominal values!

3.5 Fastening Torques for Metric Screws

Values according VDI 2230 under utilization of the minimum yield stress of 75%

Metric screws	Fastening torques		
	Thread size	Property class 8.8	Property class 10.9
	M3	1,1 Nm	1,65 Nm
	M4	2,5 Nm	3,65 Nm
	M5	4,9 Nm	7,25 Nm
	M6	8,3 Nm	12,50 Nm
	M8	20,8 Nm	30,00 Nm
	M10	40,8 Nm	60,00 Nm

3.6 Table of Control Cables/Hoses

Components	Maximum length	Minimum bending radius	Diameter
Control cable ERC-feeder	approx. 8 m	150 mm	Ø 16 mm
Control cable Master Feeder-Slave Feeder	approx. 2 m	150 mm	Ø 16 mm
Control cable ERF-Linear slide control	approx. 15 m	150 mm	Ø 15 mm
Control cable ERF pre-separation EPS	approx. 15 m	250 mm	Ø 15 mm
Feeding tube	approx. 15 m *	250 mm	Ø 27 mm

* Complete length of all feeding tubes between feeder and rivet spindle

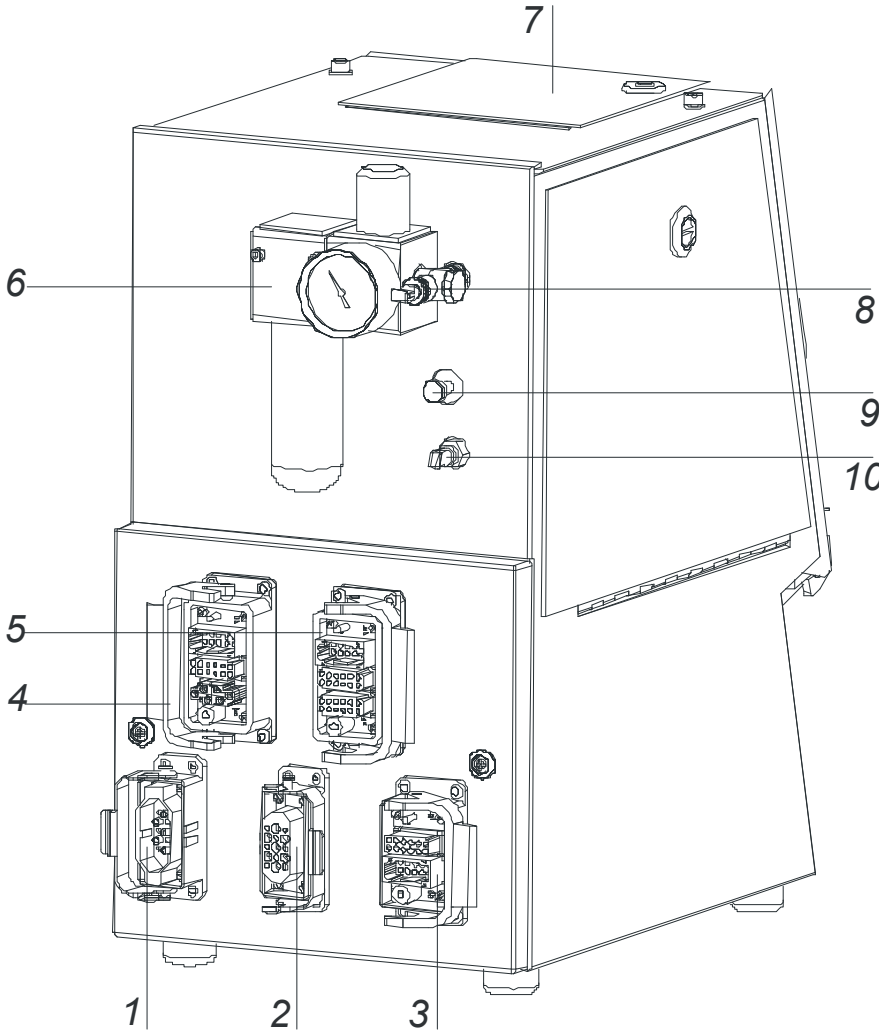
3.7 Accessories

	Specification	Type	Order number
Cleaning agent	Abrasive web, middling fine	3M Scotchbrite CF-HP 07448	M145 018
	Support ceramic file		M110 877
	Ceramic file		M110 876

4 System Components

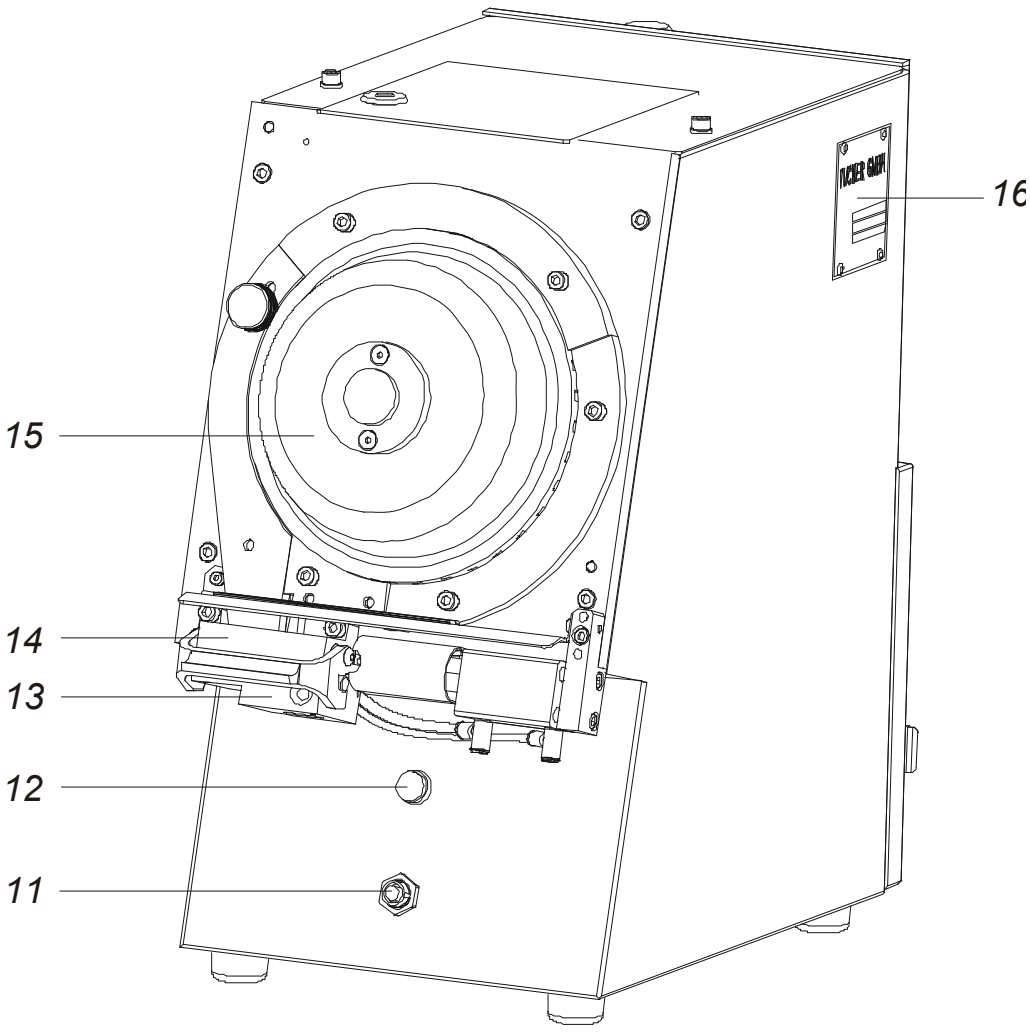
In this chapter you will receive an overview concerning the system components feeder ERF, divider ERD and pre-separation EPS. Here you will find information on the connections and the control elements. Familiarise yourself with the system components before installation.

4.1 Rivet Feeder ERF



1. **Connection X1:** The feeder is connected to the customer control or to the master feeder by means of the electrical control cable.
2. **Connection X2:** The feeder is connected to the following “ERF Feeder” by means of the electrical control cable.
3. **Connection X3:** The Master feeder ERF is connected to the divider ERD by means of the electrical control cable.

4. **Connection X4:** The feeder is connected to the program selection box “Interface foot switch” by means of the control cable (manual application).
5. **Connection X5:** The Master feeder ERF is connected to the linear slide control LSC or to the pre-separation EPS by means of the control cable.
6. **Maintenance unit with air connection:** Connecting of the compressed air to the rivet feeder and setting the operating pressure. Connection by a G1/4" internal-thread adapter (not form part of the delivery contents).
7. **Filling flap:** Colour according to rivet dimension. Fill the feeder with rivets by means of the filler flap.
8. **Compressed-air:** Connecting of the compressed air to the rivet divider.
9. **Throttle:** The pressure of the air blast is adjusted at the throttle.
10. **Compressed-air connection Ø 8:** Here a manometer can be connected to read off the adjusted pressure of the air blast (optionally).

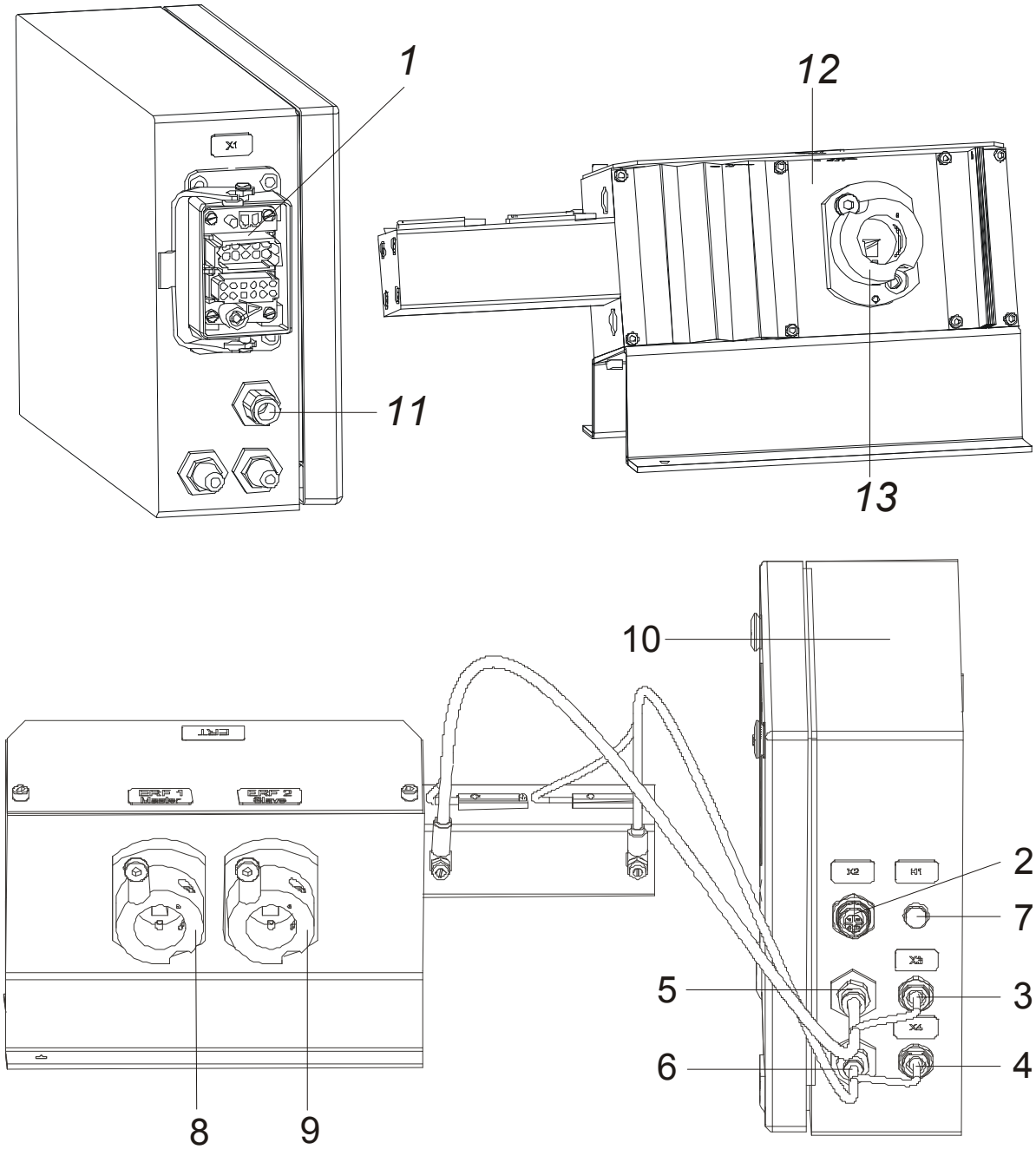


11. **Proximity switch:** Connecting for the feed tube proximity switch.
12. **Level control signal lamp:**
    The lamp lights up when the separation drum is sufficiently full.
    Normal flashing of the lamp (35/min): The rivets in the drum fall below the level.
    Fast flashing of the lamp (150/min): Fault at the rivet feeder.
13. **Feeding tube:** Feed tube connection.
14. **Separation:** The separation ensures that only individual rivets are transported.
15. **Rivet drum:** The rivets for the riveting process are aligned in the cylinder.
16. **Type plate:** The name of the manufacturer and other characteristic data are on the type plate.

4.2 Rivet Divider ERD

Terminal box

Slider



1. **Electrical connection X1:** Plug socket for the electrical connecting cable to the master feeder.
2. **Electrical connection X2:** Plug socket for proximity switch of rivet checking behind the divider.

3. **Electrical connection X3:** Here the sensor for the piston rod–sided end position of the cylinder is connected. If the LED on the cylinder lights up the end position is reached. The divider is in position “Master“.

4. **Electrical connection X4:** Here the sensor for the piston–sided end position of the cylinder is connected. If the LED on the cylinder lights up, the end position is reached. The divider is in position “Slave“.

5. **Compressed-air connection:** The slider is connected to the terminal box by means of a pneumatic hose (Ø 6).

6. **Compressed-air connection:** The slider is connected to the terminal box by means of a pneumatic hose (Ø 4).

7. **Light emitting diode:** When the LED H1 lights up, the divider is operative.
8. **Connection feeding tube ERF1:** The divider is connected to the master feeder by means of a feed tube.

9. **Connection feeding tube ERF2:** The divider is connected to the slave feeder by means of a feed tube.

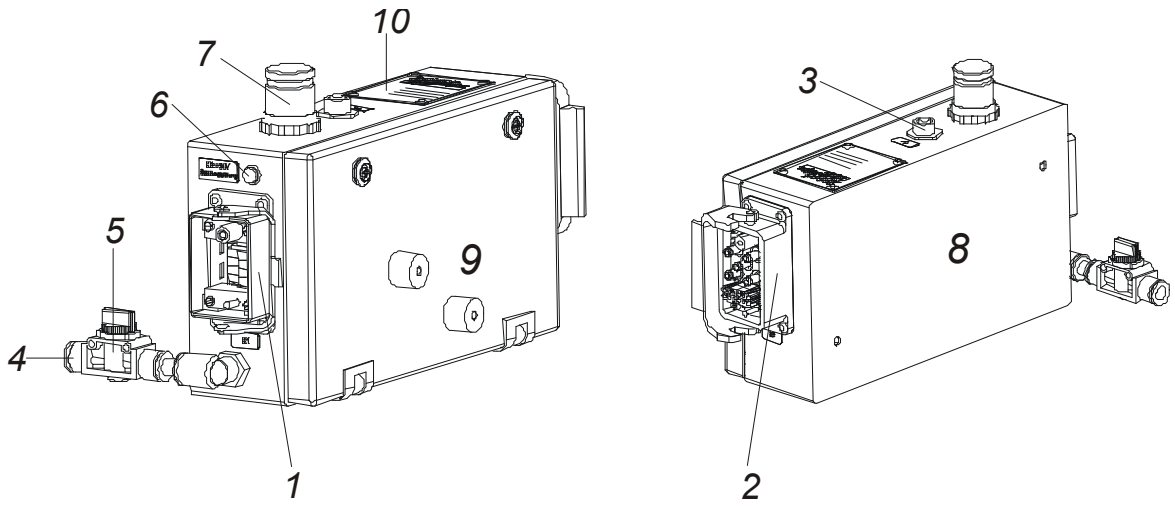
10. **Kit terminal box:** The terminal box is fixed to the position intended on the frame. Guide rails delimit the position.

11. **Compressed-air:** Here the compressed-air supply of the T-fitting of the master feeder (chapter 3.1) is connected (Ø 8).

12. **Kit slider:** The kit slider is fixed at the frame; use the intended drilling template fort hat purpose.

13. **Feeding tube ERT:** The divider is connected to the ERT tool by means of a feeding tube.

4.3 Control Pre-Separation



1 **Electrical connection X1:** The control pre-separation is connected to the master feeder or to the LSC by means of the electrical control cable.

2 **Electrical and pneumatically connection X2:** The control pre-separation is connected to the pre-separation by means of the electrical and pneumatic supply lines.

3 **Electrical connection X3:** Plug socket for the proximity switch of feeding tube.

4 **Compressed-air:** Here the compressed-air supply is connected to the LSC or to another suitable compressed-air supply.

5 **Shut-off valve with quick-action ventilating:** On maintenance work at the pre-separation the compressed-air supply to the pre-separation can be disconnected here by means of the shut-off valve. The system pre-separation will be completely bled.

6 **Light emitting diode:** When the LED lights up, the control pre-separation is operative.

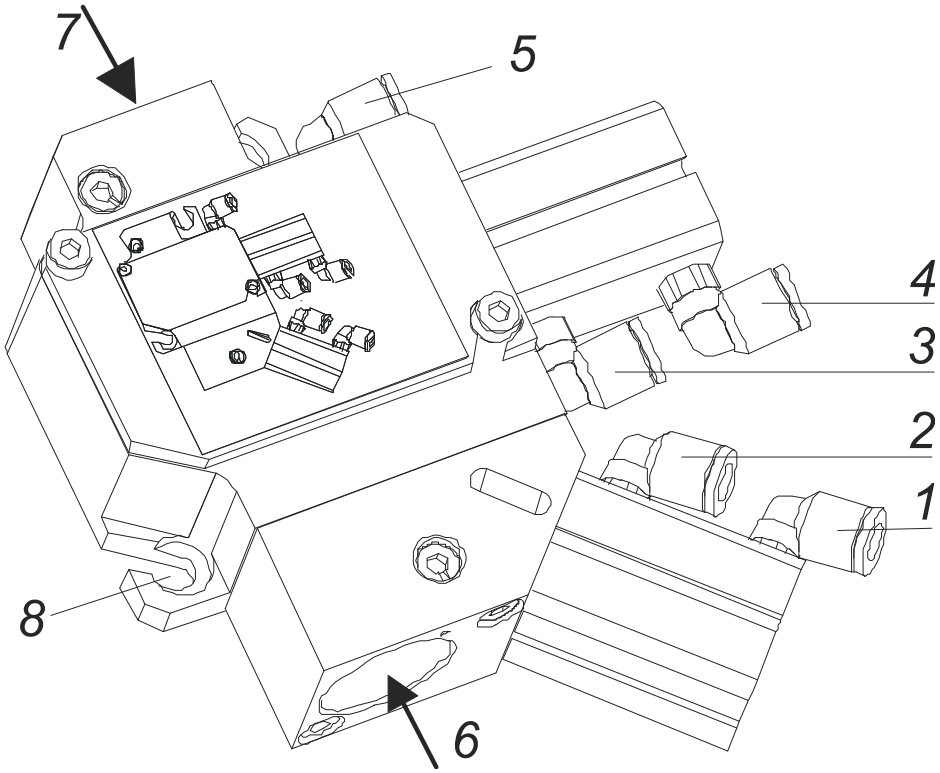
7 **Pressure regulator valve:** The feeding air blast can be adjusted individually at the pressure regulating valve.

8 **Drilling template:** This drilling template is intended for fixing to the linear slide control LSC.

9 **Drilling template:** This drilling template is intended for fixing of the pre-separation.

10 **Type plate:** The name of the manufacturer and other characteristic data are on the type plate.

4.4 Pre-Separation EPS



1 **Pneumatic connection:** “Stopper closed“
Connection for the green compressed-air hose.

2 **Pneumatic connection:** “Stopper open“
Connection for the blue compressed-air hose.

3 **Pneumatic connection:** “Slider position chamber 2“
Connection for the black compressed-air hose.

4 **Pneumatic connection:** “Slider position chamber 1“
Connection for the red compressed-air hose.

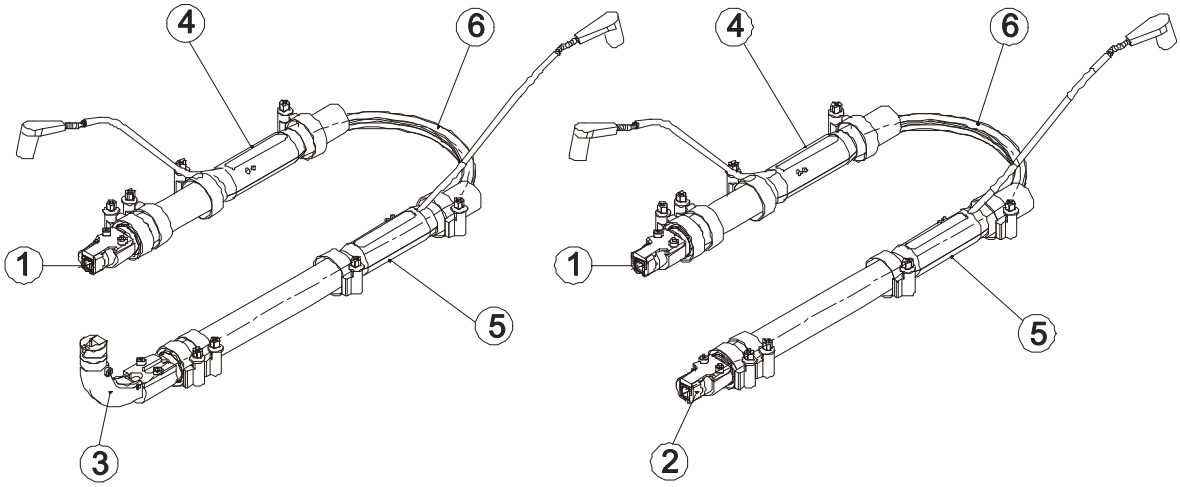
5 **Pneumatic connection:** “air blast“
Connection for the pellucid compressed-air hose.

6 **Feeding tube ERT:**
The pre-separation is connected to the ERT tool by means of a feeding tube.

7 **Feeding tube ERD:** Connecting for proximity switch ”Feeding tube” by means of the plug denoted “X3” on the control pre-separation EPS.

8 **Mounting points:** The drilling template is intended for the fixing to the control pre-separation EPS and allows a quick replacement of the unit by the “keyhole design”.

4.5 Feeding Tube



1. **Tube connection:** Connecting feeding tube to the ERF feeder.

2. **Feeding tube standard (0°) connection:** The tube is supplied with a straight attachment for standard application.

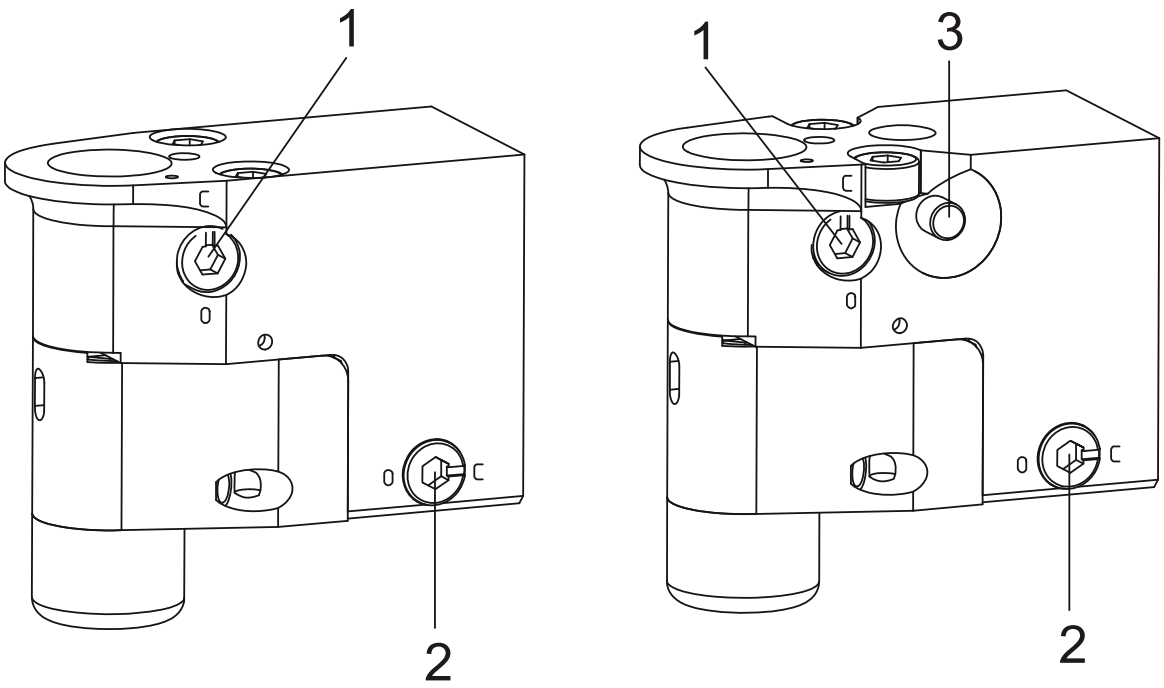
3. **Feeding tube 90° connection:** Certain applications require a 90° elbow tube connection, which can also be supplied.

4. **Proximity switch:** This proximity switch signals that a rivet has been individually separated. The proximity switch is split so that the entire cable package does not have to be exchanged during a change of switch.

5. **Proximity switch:** This proximity switch signals that a rivet has reached the rivet (die) head. The proximity switch is split so that the entire cable package does not have to be exchanged during a change of switch.

6. **Feeding tube:** With regard to the feed tube this concerns an optimised profile tubes with long service life and secure guiding qualities.

4.6 Receiver

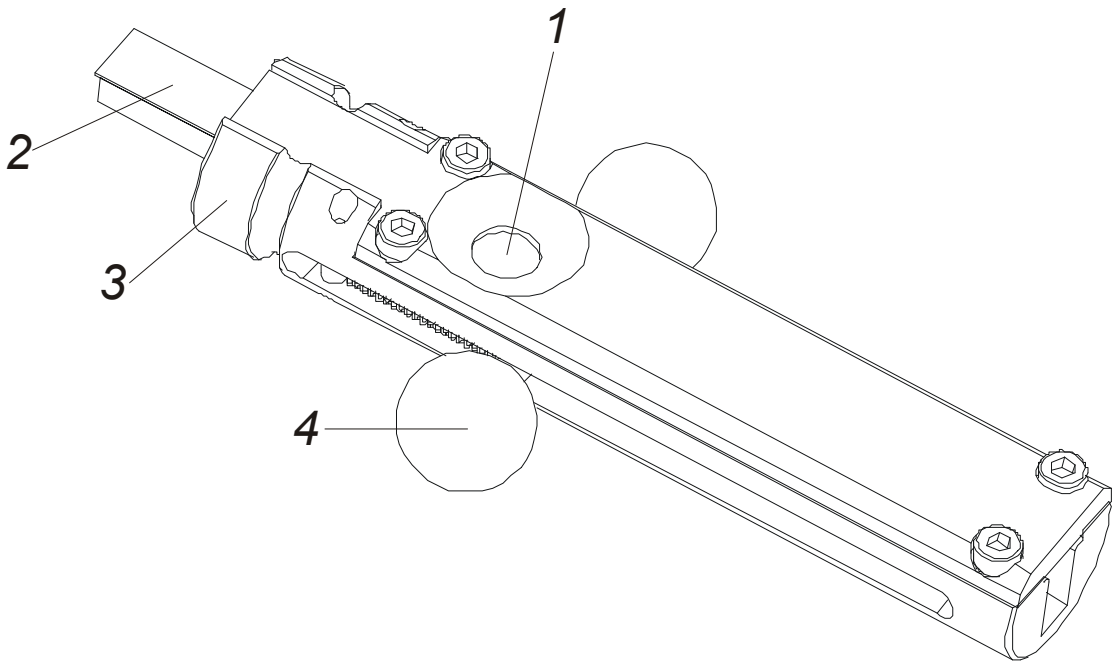


1 **Quick-action lock SRT tool:** The quick-action lock connects the receiver and the ERT tool.

2 **Quick-action lock feeding tube:** The quick-action lock connects the receiver and the rivet feeder ERF.

3 **Quick-release mechanism:** With the help of the quick-release mechanism you can remove a rivet from the receiver without having to dismantle the receiver from the rivet spindle.

4.7 Manual Feeding Device



1. **Loading:** Opening for insertion of the rivet.
2. **Loading slider:** The loading slider transports the inserted rivet from the loading opening into the rivet channel of the receiver.
3. **Coupling:** The coupling piece allows a fixing in correct positional arrangement of the feeding unit directly at the receiver.
4. **Manual operation:** By means of the manual operation the loading slider is actuated.

5 Connection and Installation

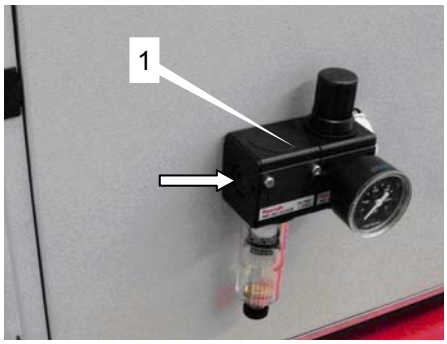
Start up the feeding units only if you have completely and orderly installed all system components and linked them with each other.

CAUTION!
Only connect the feeding units with the ERC control unit switched off. Clearly label the control unit against unexpected restart!

In this chapter at hand it is described how you connect the feeding units. Depending on application, the supply can be linked with the feeding units and the rivet spindle by means of divider or a pre-separation.
You will find the details regarding connection of individual system components among one another in the operating instructions for each of the system components.
First, assemble all mechanical devices in accordance with the respective operating instructions before you connect the electrical and pneumatic supply lines. Check whether all system components are in good condition, and then place the system components in such a manner that all connections are accessible without danger.
The possibilities are dealt with in the following chapter.

CAUTION!
Always consult TUCKER when the feeding units are to be installed in an already existing system as well as when connecting foreign appliances.

5.1 Connection Compressed air



The pneumatic connection between the maintenance unit (1) of the ERF and the compressed-air pipe system is a customer-specific design.

The compressed-air line is to be connected to the maintenance unit (Arrow) of the ERF by means of a hose line and a G 1/4" internal-thread adapter.

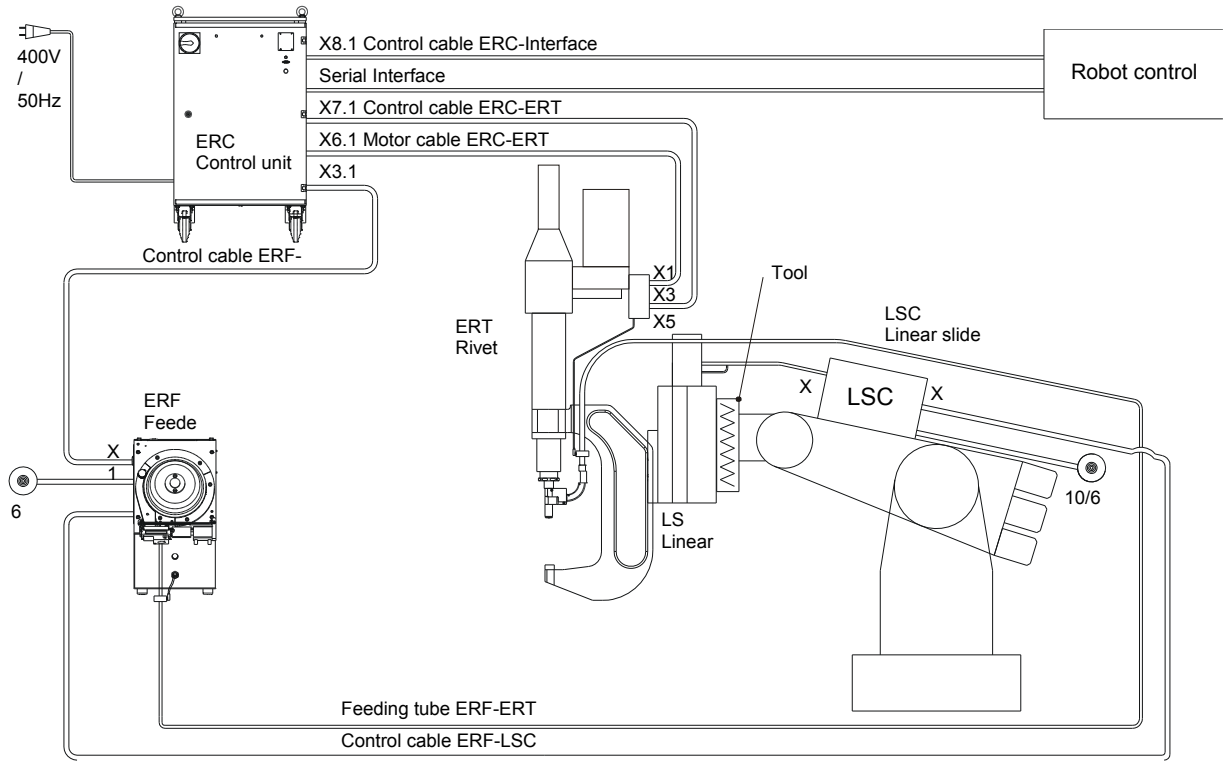
NOTE!
In order to avoid having to switch off the entire compressed-air supply on the mains side when replacing the ERF, we recommend the use of a G 1/4" adapter with a self-sealing quick-fit connector system!

5.2 Connecting Feeder without Divider

If the self-piercing rivet installation is operated only with one type of rivet, link the control unit ERC and rivet spindle directly with the feeder.

5.2.1 Connecting Feeder to the Control Unit

The connection for the electrical control cable to the ERF feeder is located on the back side, and is labelled with the designation “X1”. The connection for the electrical control cable to the control unit is located inside the housing and is labelled with the designation “X3.1”.



For connection observe the following sequence:

- The control unit ERC must be switched off at the main switch.
- Connect one end of the electrical control cable to connection “X1” on the feeder. Connect the other end to the connection to plug "X3.1" on the ERC control unit.

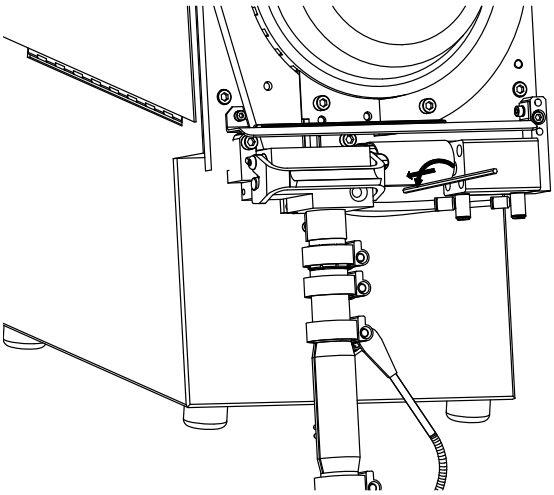
Details about control cables and hoses see chapter 3.6

The compressed-air supply is to be connected to the maintenance unit of the feeder back.

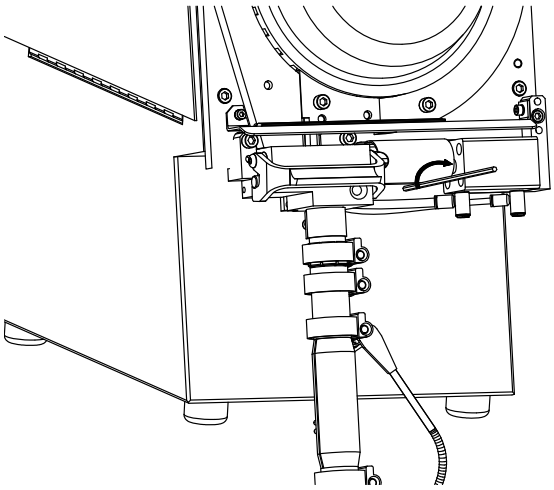
5.2.2 Connecting Feeder to Rivet Spindle

A feed tube with quick-action lock connects the ERF feeder and the rivet spindle. The rivet spindle is supplied with rivets by means of the feed tube.

Connecting feed tube to ERF feeder



open

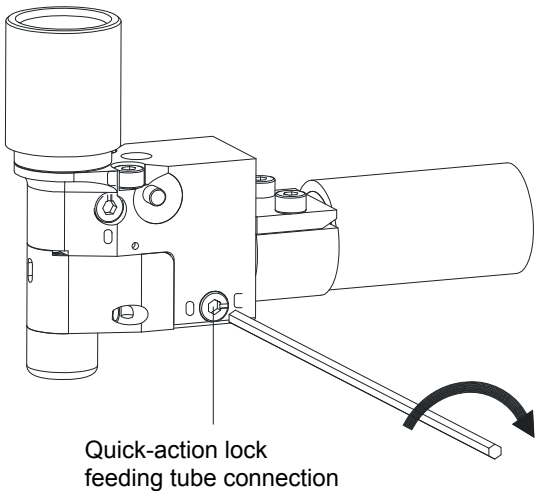


close

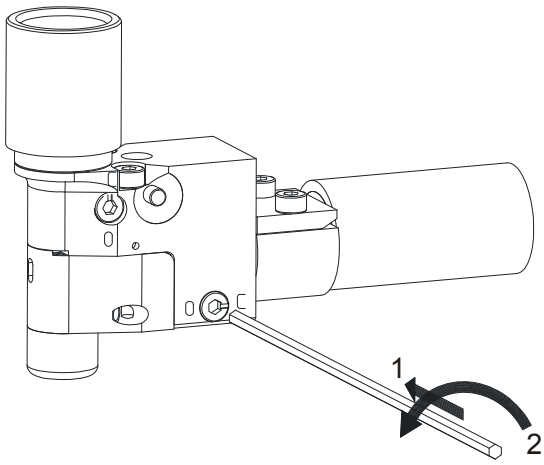
For connection observe the following sequence:

- Press an Allen key (size 3 mm) into the connection of the coupling plate on the feeder.
- Loosen the connection on the feeder by pressing and a half-turn to the left.
- The feeding tube must be inserted safely and correctly in the connector of the coupling plate.
- Turn the Allen key a half-turn to the right to connect the feeding tube to feeder.
- Now connect the connector of the feeding tube sensor with the socket at the feeder.

Connecting feed tube to rivet spindle



close



open

For connection observe the following sequence:

- Press an Allen key (size 3 mm) into the connection of the receiver.
- Loosen the quick-action locks on the receiver by pressing (1) and a half-turn to the left (2).
- The feeding tube must be inserted safely and correctly in the connector of the receiver.
- Turn the Allen key a half-turn to the right to connect the feeding tube to receiver.
- Now connect the connector of the feeding tube sensor with the socket at the feeder (see assembly instructions ERT).

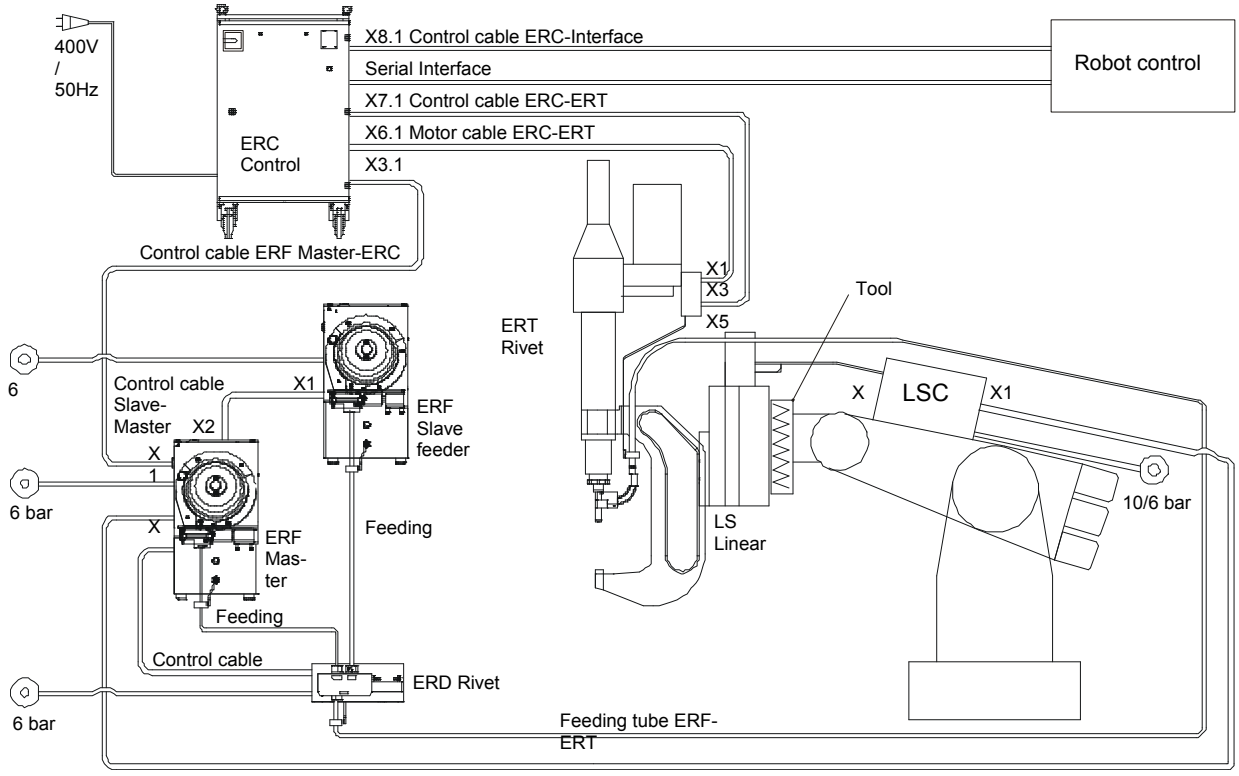
Details about control cables and hoses see chapter 3.6

5.3 Connecting Feeder with Rivet Divider

By the use of a divider two rivets of a different length with the same diameter can be fed to the rivet spindle. In this case two feeders (Master and Slave) are used with one rivet spindle. The feeders must be connected by means of a rivet divider.

5.3.1 Connecting Master Feeder to Control Unit

The connection for the electrical control cable to the control unit is located on the back master feeder side, and is labelled with the designation “X1“.
The connection for the electrical control cable to the control unit is located inside the housing and is labelled with the designation “X3.1”.



For connection observe the following sequence:

- The control unit ERC must be switched off at the main switch.
- Connect one end of the electrical control cable to connection “X1” on the master feeder. Connect the other end to the connection to plug "X3.1" on the control unit ERC.

Details about control cables and hoses see chapter 3.6

5.3.2 Connecting Slave Feeder to Master Feeder

The connection for the electrical control cable is located on the back Slave feeder side, and is labelled with the designation “X1“.The connection for the electrical control cable is located on the back Master feeder side, and is labelled with the designation “X2“.

For connection observe the following sequence:

- The control unit ERC must be switched off at the main switch.
- Connect one end of the electrical control cable to connection “X1” on the Slave feeder. Connect the other end to the connection to plug “X2” on the Master feeder.

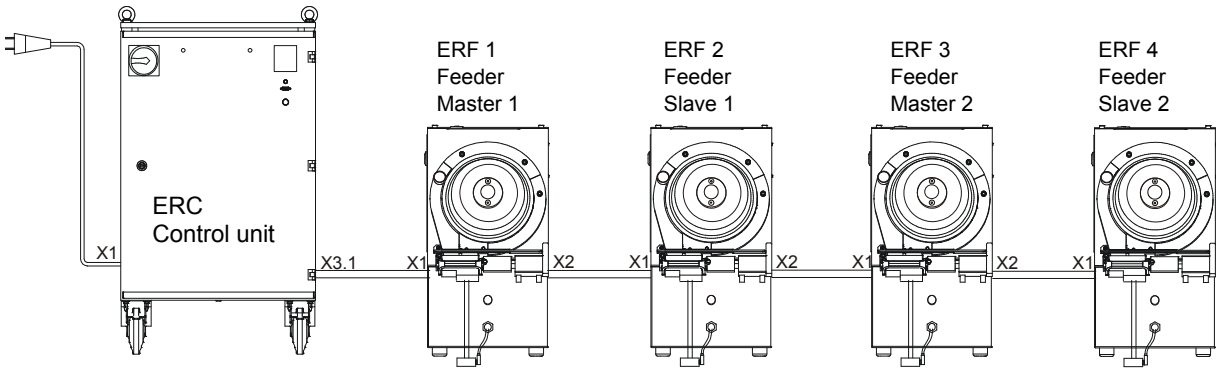
Details about control cables and hoses see chapter 3.6

5.3.3 Connecting Divider to Slave and Master Feeder

The connection for the electrical control cable is located on the back side on the terminal box and is labelled with the designation “X1”. The connection for the electrical control cable is located on the back master feeder side, and is labelled with the designation “X3“.

A divider can only be connected each with the first feeder (Master) or at maximum extension of 4 feeders additionally at the second feeder (Master). The sequence results from the arrangement of the feeders.

- Feeder ERF 1 = Master 1 (incipient at control unit ERC)
- Feeder ERF 2 = Slave 1
- Feeder ERF 3 = Master 2
- Feeder ERF 4 = Slave 2



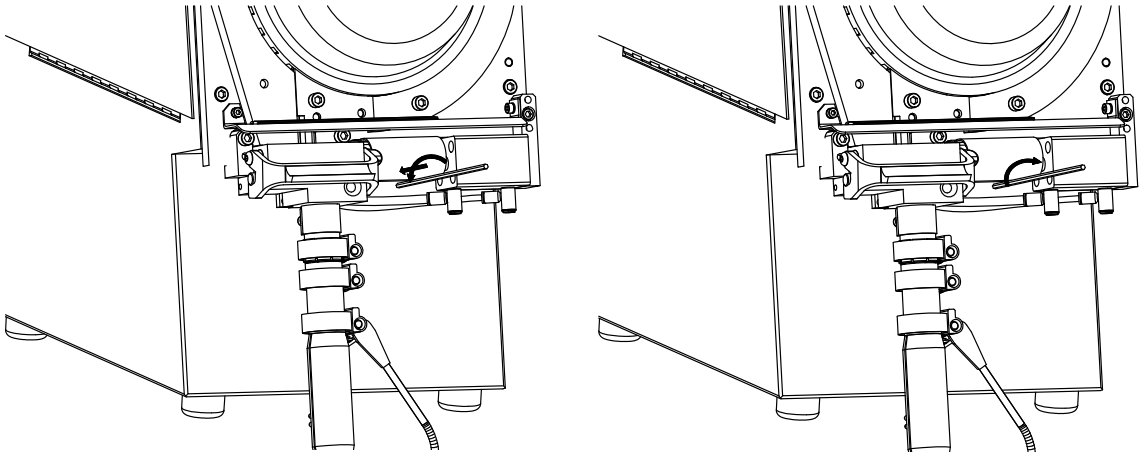
CAUTION!

Before connection of the compressed air to the divider disconnect the feeder of the compressed-air supply!

For connection observe the following sequence:

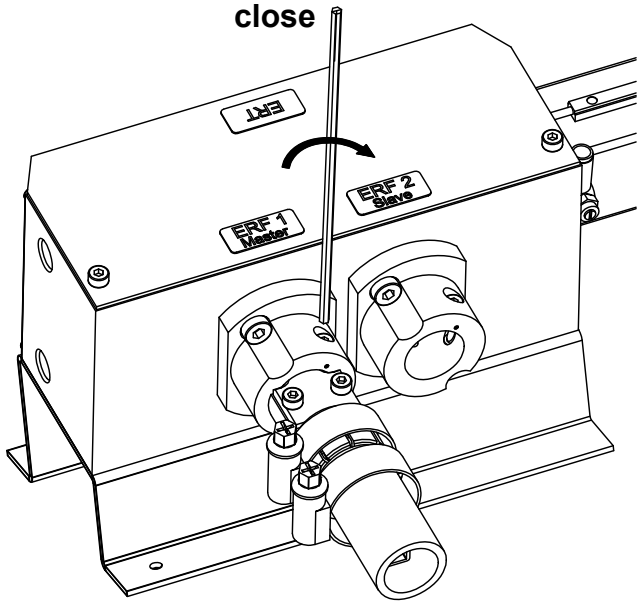
- The control unit ERC must be switched off at the main switch.
- Connect one end of the electrical control cable to connection “X1” on the rivet divider ERD. Connect the other end to the connection to plug “X3” on the Master feeder 1.

The connections for the pneumatic feed tubes to the feeders are located on the front feeder side, below the rivet separation.



open **close**

The connections for the feed tubes to the divider are located on the front slider side, below the rivet separation and are labelled with the designation “ERF 1-Master” and “ERF 2-Slave”.



Kit slider

- Press an Allen key (size 3 mm) into the connection of the coupling plate, before connecting the feeding tube to the Master feeder ERF 1.
- Loosen the connection on the feeder by pressing and a half-turn to the left.
- The feeding tube must be inserted safely and correctly in the connector of the coupling plate.
- Turn the Allen key a half-turn to the right to connect the feeding tube to feeder.
- Now connect the connector of the feeding tube sensor with the socket at the Master feeder.
- Now connect the other end of the feeding tube from the Master feeder ERF 1 to the connection to plug “ERF 1-Master” on the rivet divider.
- Press an Allen key (size 3 mm) into the connection of the rivet divider, before connecting the feeding tube.
- Loosen the connection on the divider by pressing and a half-turn to the left.
- The feeding tube must be inserted safely and correctly in the connector of the rivet divider.
- Turn the Allen key a half-turn to the right to connect the feeding tube to divider.
- Following the same procedure connect the second feeding tube to the Slave feeder ERF 2 and connect the divider connection “ERF 2 Slave“.

NOTE!
Pay attention that the correct feeding tube is mounted at the corresponding feeder. On an incorrect assembly the wrong rivet will be fed.

WARNING!
HAND INJURING!
Risk of crushing at the outlet of the divider due to fast moving parts.
- Do not grab into the danger zone during operation.

The connection for the compressed-air supply of the divider is situated on the back of the terminal box and will be connected to the Master feeder with a compressed-air line of Ø 8mm.

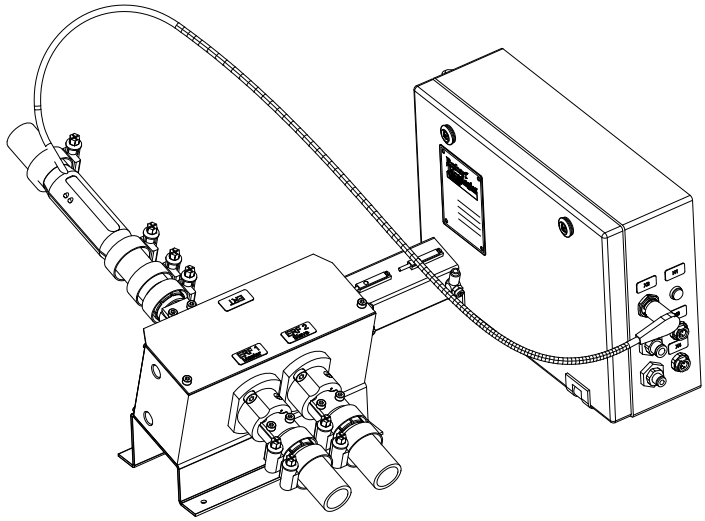
- Connect the compressed-air line of the divider to the air connection of the Master feeder. For this purpose remove the dummy plug at the T-fitting of the Master feeder.

5.3.4 Connecting Divider with Spindle or Tool Changer System

A feeding tube connects the rivet divider with the rivet spindle or the tool changer system. The rivet spindle is supplied with rivets by means of the feeding tube.

The connection for the feeding tube to the divider is located on the back slider side and is labelled with the designation “ERT”. The feeding tube will be connected with the receiver at the rivet spindle. If a quick-change system is used, the feeding tube is connected to the hose coupling of the quick-change system. The connection elements for the tubes at the quick-change system are identical in construction with the elements of the divider. On quick-change systems the control cables/connectors have to be aligned depending on the type of the change system.

If you have questions concerning tool changer systems contact the manufacturer, see service address on page 2.

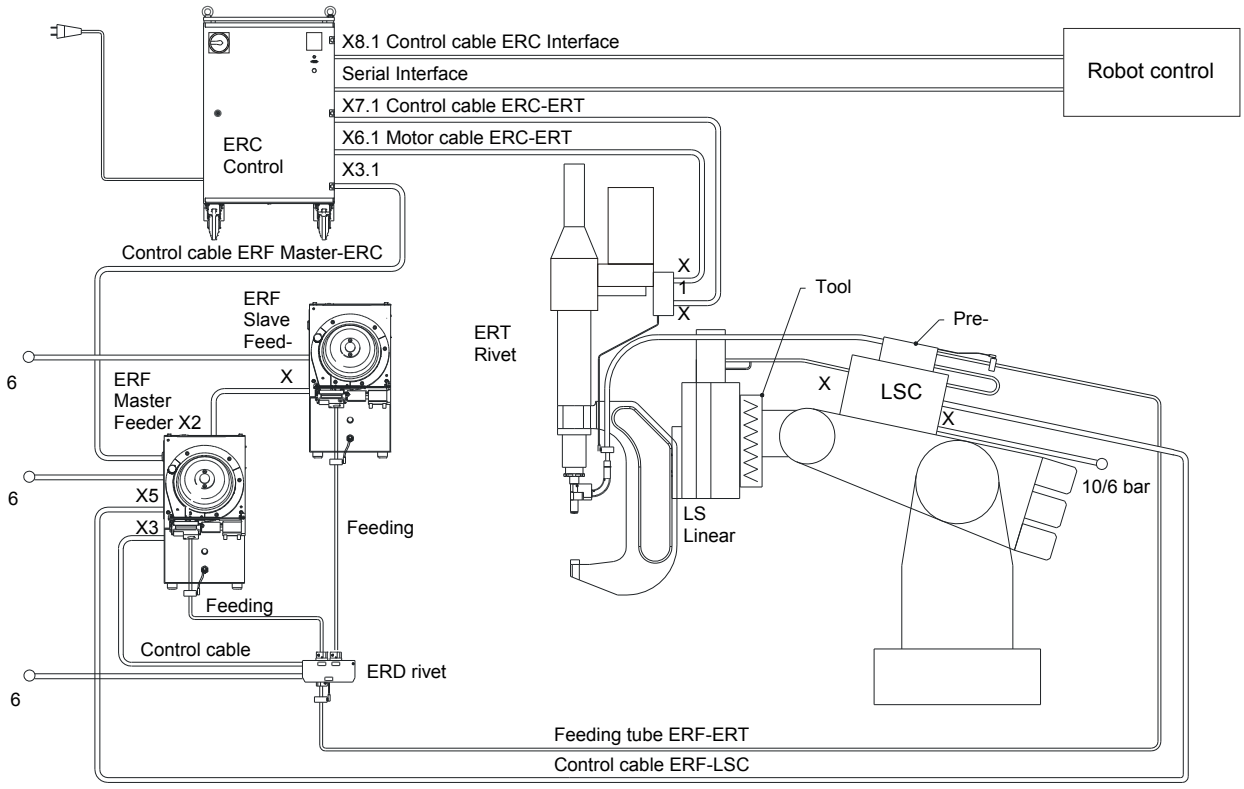


For connection observe the following sequence:

- The control unit ERC must be switched off at the main switch.
- Press an Allen key (size 3 mm) into the connection of the rivet divider.
- Loosen the connection on the feeder with the Allen key by pressing and a half-turn to the left.
- The feeding tube must be inserted safely and correctly in the connector of the rivet divider.
- Turn the Allen key a half-turn to the right to connect the feeding tube to divider.
- If existing, connect the connector of the feeding tube sensor with the socket at the rivet divider.
- Connect the other end of the feeding tube to the receiver (Chapter 5.1.2).

5.4 Connecting Feeder with Divider and Pre-Separation

On the use of two feeders (Master- and Slave feeder) in the application, the feeders have to be connected via a divider. The pre-separation is an optional kit, which is intended for the stocking of two rivets (of different length and of the same diameter). The kit pre-separation must be mounted as close as possible to the rivet tool so as the feeding time as short as possible.



5.4.1 Control Pre-Separation

The control of the pre-separation is connected via the linear slide control. If no linear slide is used, the control is connected directly at the Master feeder.

5.4.1.1 Connecting Control Pre-Separation to LSC

Connect one end of the electrical control cable to connection “X1” on the control pre-separation. Connect the other end to the connection to plug “X2” on the linear slide control LSC.

CAUTION!
Before connection of the compressed-air to the pre-separation disconnect the linear slide control from the compressed-air supply!

The connection for the compressed-air supply of the pre-separation is situated at the maintenance unit of the linear slide control (chapter 3.3) and will be connected with a compressed-air line of Ø 8 mm to the T-fitting.

Connect the compressed-air line of the pre-separation to the air supply of the linear slide control. For this purpose remove the dummy plug at the T-fitting of the maintenance unit.

5.4.1.2 Connecting Control Pre-Separation to Master Feeder

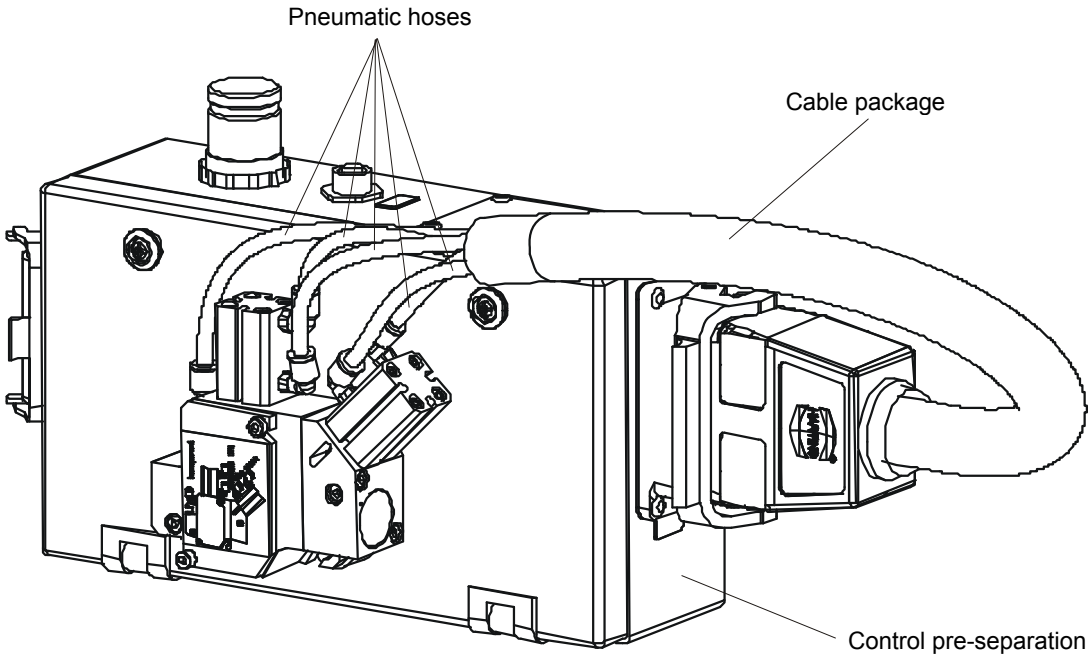
Connect one end of the electrical control cable to connection “X1” on the control pre-separation. Connect the other end to the connection to plug “X5” on the back side of the Master feeder.

The connection for the compressed-air supply of the pre-separation is situated at the control of the pre-separation and is connected to the compressed-air supply of the robot by the means of Ø 8 mm. If necessary a maintenance unit has to be assembled in front of the pre-separation (not included in delivery of the pre-separation).

- Connect the compressed-air supply at the maintenance unit of the feeder.

5.4.2 Connecting Pre-Separation EPS to Control EPS

Connect the plug of the cable package at the connection X2 of the control pre-separation, connect the 5 coloured pneumatic tubes at the other end to the pre-separation (fast plug) according to the colour allocation (see chapter 4.4).

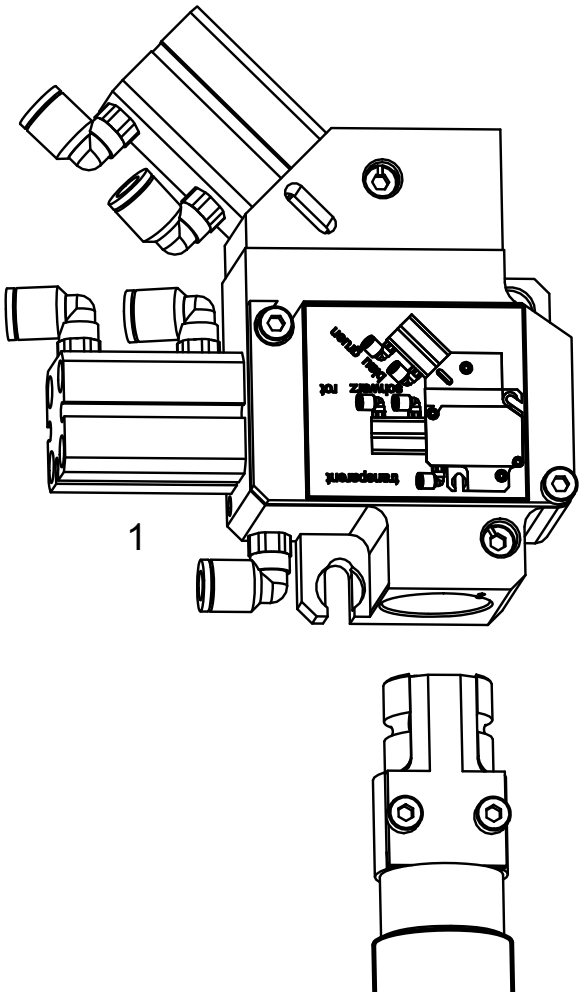


5.4.3 Connecting Pre-Separation to Rivet Divider

The feeding tube connects the pre-separation and the rivet divider.

The connection for the feeding tube at the pre-separation is situated on the side of the air blast supply (1). At the divider the feeding tube is connected to the connection with the designation ERT (chapter 5.2.4).

- Connect the feeding tube intended to the divider ERD. Press an Allen key (size 3 mm) into the connection of the coupling plate.
- Loosen the connection on the divider by pressing and a half-turn to the left.
- The feed tube must be inserted safely and correctly in the connector of the rivet divider.
- Turn the Allen key a half-turn to the right to connect the feed tube to divider.
- Now connect the connector of the feeding tube sensor with the socket at the rivet divider.



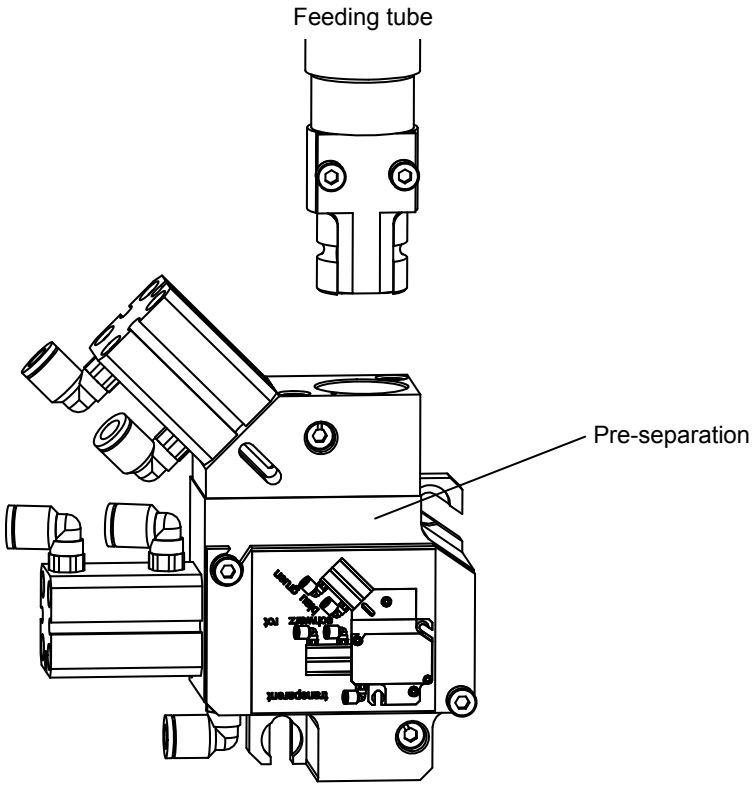
5.4.4 Connecting Pre-Separation to Spindle or Tool Changer System

A feeding tube connects the pre-separation with the rivet spindle or with the quick-change system. The rivet spindle is supplied with rivets by the feeding tube.

The connection for the feeding tube at the pre-separation is situated at the side of the stopper (2). The feeding tube is connected with the receiver at the rivet spindle.

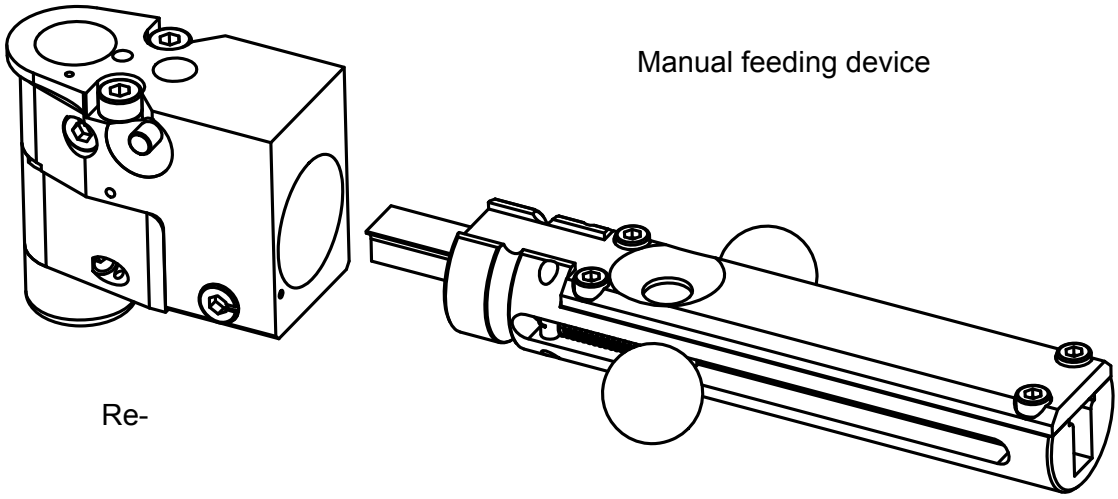
If a quick-change system is used, the feeding tube is connected to the hose coupling of the quick-change system. The connection elements for the tubes at the quick-change system are identical in construction with the elements of the divider.

- Connect the feeding tube intended to the pre-separation EPS. Press an Allen key (size 3 mm) into the connection of the coupling plate.
- Loosen the connection on the pre-separation by pressing and a half-turn to the left.
- The feed tube must be inserted safely and correctly in the connector of the pre-separation.
- Turn the Allen key a half-turn to the right to connect the feed tube to the pre-separation.
- Now connect the proximity switch of the feed tube with the socket X3 at the control pre-separation (see chapter 4.3).



5.5 Connecting Manual Feeding Device

The manual feeding unit is designed for the use in test mode and allows the conveying of several rivets of different lengths into the receiver without a feeder.



- Loosen the connection on the receiver by pressing and a half-turn to the left.
- Stick the manual feeding device with the coupling fitting precisely to the connection at the receiver.
- Turn the Allen key a half-turn to the right to connect the manual feeding device to the receiver.

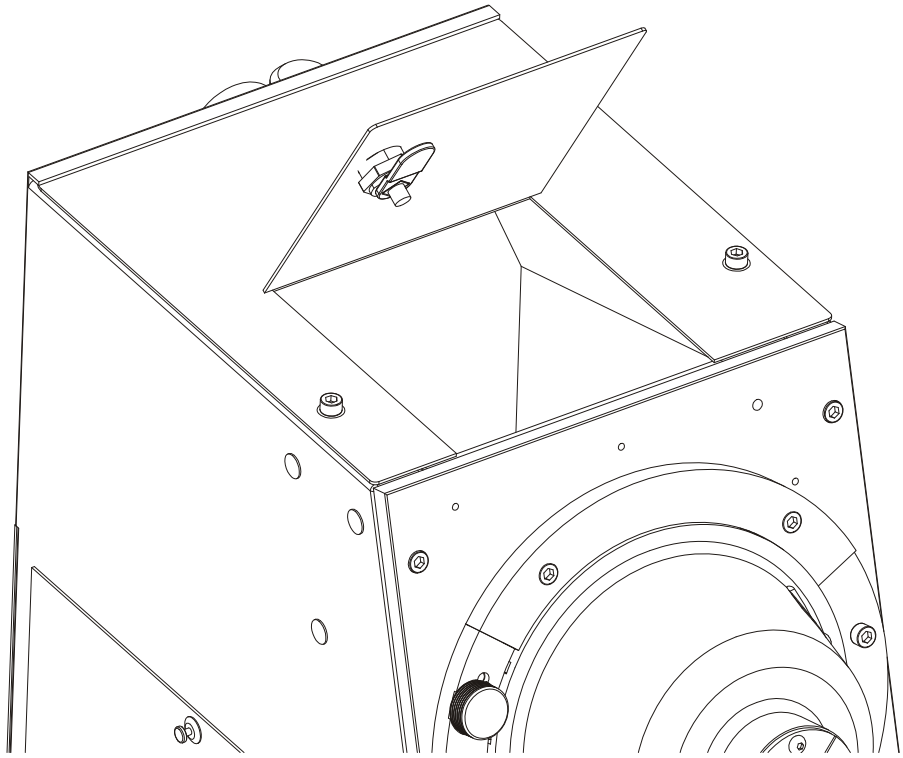
6 Operating the Rivet Feeder

In conjunction with the ERC control unit the ERF rivet feeder guarantees the separation and feeding of the rivets in keeping with the requisite riveting process.

6.1 Replenish Rivets

Open the filler flap on the rivet feeder and pour the rivets into the rivet filling box.

CAUTION!
On filling the rivet feeder mind that no impurities or wrong rivet dimensions arrive at the replenishing box.
This could cause malfunctions and damages to the installation.



- Compare the colour coding of the rivet with the colour coding on the rivet feeder cover. They must concur. In this way, you avoid charging with the wrong rivets
- Open the filler flap with the key.
- Pour the rivets into the rivet filling box.
- Close the filler flap.

6.2 Check Correct Level

Function lamp:

The "Level" lamp shows the correct level in the separation drum and the readiness for service of the feeder.

The lamp lights up:

The feeder is ready for service and the separation drum is sufficiently full.

Normal flashing of the lamp (35/min):

The rivets in the drum fall below the level. You must fill up with rivets.

Fast flashing of the lamp (150/min):

Fault at the rivet feeder.

7 Transport, Packaging and Storing

7.1 Security Advice for the Transport

Improper transport

CAUTION!
Damages caused by improper transportation.
Improper transport could cause serious damage of property.
Therefore.

- Transport and lifting operations are to be carried out exclusively using the crane eyes designed for this purpose.
- If no crane eyes are provided due to space considerations, transport the feeding units with extreme care, without damaging the units.
- Avoid shocks and heavy vibrations.

7.2 Transport Check

Upon delivery, the equipment, including accessories, should be checked for completeness and damage. On externally visible transport damage, proceed as follows:

- Do not accept the delivery or only accept with reservation.
- Note the extent of damage on the transport documents or on the delivery note of the deliverer.
- Induce complaint.

NOTE!
Complain each defect as soon as recognized. Claims for damages can only be asserted within the effective time for complaints.

7.3 Terms and Conditions for Overseas Transport

NOTE!
For onward transportation overseas use sea freight transport crate with the corresponding number of desiccant pouches for packing according to DIN 55473! The manufacturer bears no liability for damages caused by improper onward transportation.

The number of desiccant pouches depends on the size of the transport crate. Make sure that sufficient desiccant pouches are added to the transport crate.

Observe the humidity indicator of the desiccant pouch acc. to DIN 55473.

NOTE!
The desiccant pouch activity disintegration wrapping may only be removed directly before use. After removals from the packaging immediately seal tightly again.

- Pack the unit being shipped in a plastic shrink wrapping and weld.
- Place the device welded into the plastic into the transport crate and add sufficient desiccant pouches.
- Close transport crate.

Transport crate	Number of desiccant pouches
HZK 1, 2, 3, 4, 5, 6	6
HZK 7	4
HZK 8, 9, 10, 11	6
HZK 12, 13, 14	4

7.4 Packaging

The respective packaging pieces are packed according to the transport conditions to expect. Exclusively non-polluting materials were used for packaging.
The packaging shall protect the respective components against transport damages, corrosion and other damages until assembly. Therefore do not destroy the packaging and remove just shortly before assembly.

Packaging materials handling

Dispose packaging material according to the respectively valid legal regulations and local directives.

CAUTION!
Damage caused to the environment due to wrong disposal!
Packaging materials are valuable raw materials and can be further used in a lot of cases or can be prepared reasonably and recycled.
Therefore:
- Dispose packaging materials environmentally friendly.
- Regard the locally effective regulations for waste disposal. Charge a specialist with the disposal if applicable.

7.5 Storing

Storing of the packaging pieces

Store the packaging pieces under the following conditions:

- Do not store out of doors.
- Store dry and dust-free.
- Protect against insolation.
- Avoid mechanical vibrations.
- Stocking temperature: -25 to +55 °C.
- Relative humidity of air (not condensing): 5 to 95 %.
- On storage longer than 3 months the general condition of all parts and the packaging has to be checked regularly. Refresh or exchange the conservation if necessary.

NOTE!
Notes regarding storage which exceed the requirements mentioned here are possibly on the packaging pieces. These are to be observed respectively.

8 Maintenance and Cleaning

8.1 Safety

Personnel	• The maintenance work described can be executed by the operator, unless it is marked differently. • Some maintenance work may only be executed by specially trained experts. • Maintenance work on the electric installation basically may only be executed by specialists for electronics.

Improper execution of maintenance work

WARNING!
Risk of injury due to improper executed maintenance work!
Improper maintenance can lead to heavy damage to persons and property.
Therefore:
- Before start of work arrange for a sufficient space for assembly.
- If components have been removed pay attention to a correct assembly, install all fastening elements again and observe screw tightening torques.

8.2 Maintenance and Cleaning Schedule

The maintenance work essential for an optimal and failure-free operation is described in the following chapters.

In case of detection of an increased abrasion during regular checks, shorten the required maintenance intervals accordingly to the actual signs of abrasion.

If you have questions concerning maintenance work and intervals contact the manufacturer, see service address on page 2.

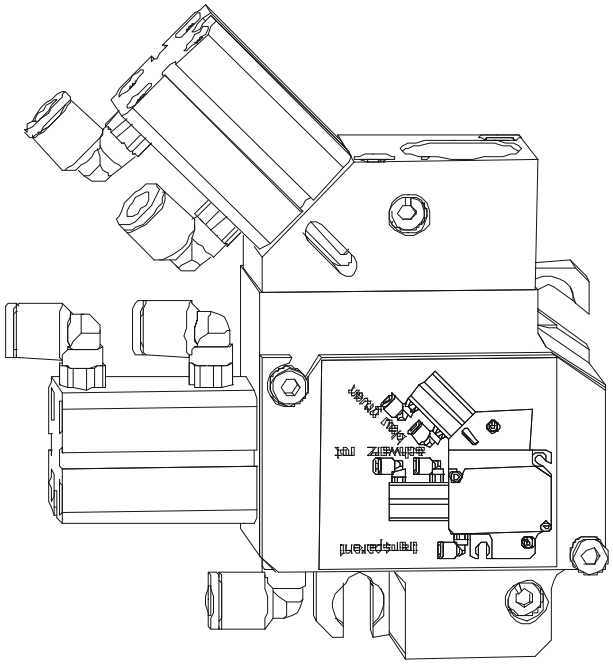
Interval	Wearing work	To be carried out by
daily	Check connection cables, pneumatic lines, plug connectors and feeding tubes for mechanical damage and loose contacts	Operator
weekly	Emptying maintenance unit	Qualified personnel
monthly or all 80000 cycles	Control cables: Check of mechanical or electrical damage and the min. bending radius of the cables. Check the securely seated of strain relief	Qualified personnel
	Rivet divider: Check the securely seated of feeding tubes and cylinder switches. Optical check of mechanical or electrical damage.	Qualified personnel
	Feeding tubes Check the feeding tube for tight fit in the connection components. Check the positioning pins of the connection components for function; otherwise the tube can be mounted distortedly. Check the hose clips for stability and check the mounting sheet for correct and tight fit. Optical check of mechanical or electrical damage.	Qualified personnel
annually	Complete overhaul and check for wear	Manufacturer

8.3 Pre-Separation (Small Cleaning)

Monthly or all 80000 cycles

Proceed as follows:

- Remove feeding tubes.
- Release the two screws from the cover of pre-separation.
- Swivel the cover in that way that it opens up the whole interior.
- Clean the housing interior with compressed air.
- Check function of stopper and slider.
- Assemble the pre-separation and connect the feeding tubes.

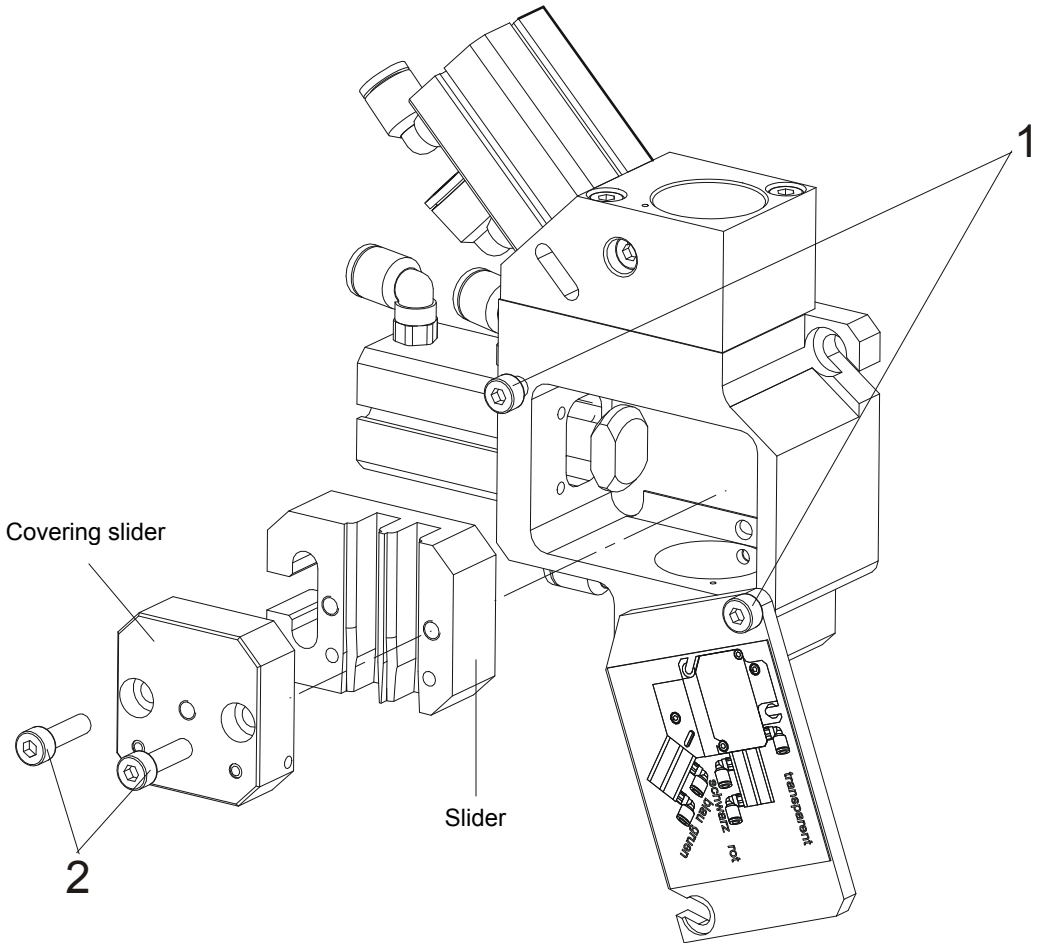


8.4 Pre-Separation (Large Cleaning)

Three months or all 250000 cycles

Proceed as follows:

- Close the shut-off valve at the control pre-separation, wait until you hear a clear hearable noise for confirmation of the ventilation.
- Release the two screws (1) from the cover of pre-separation.
- Swivel the cover in that way that it opens up the whole interior of the housing.
- Pull-out the complete slider from the housing.
- Release the two screws (2) on the slider covering and pull off the covering upwards.
- Clean all parts with fleece and remove damage parts.



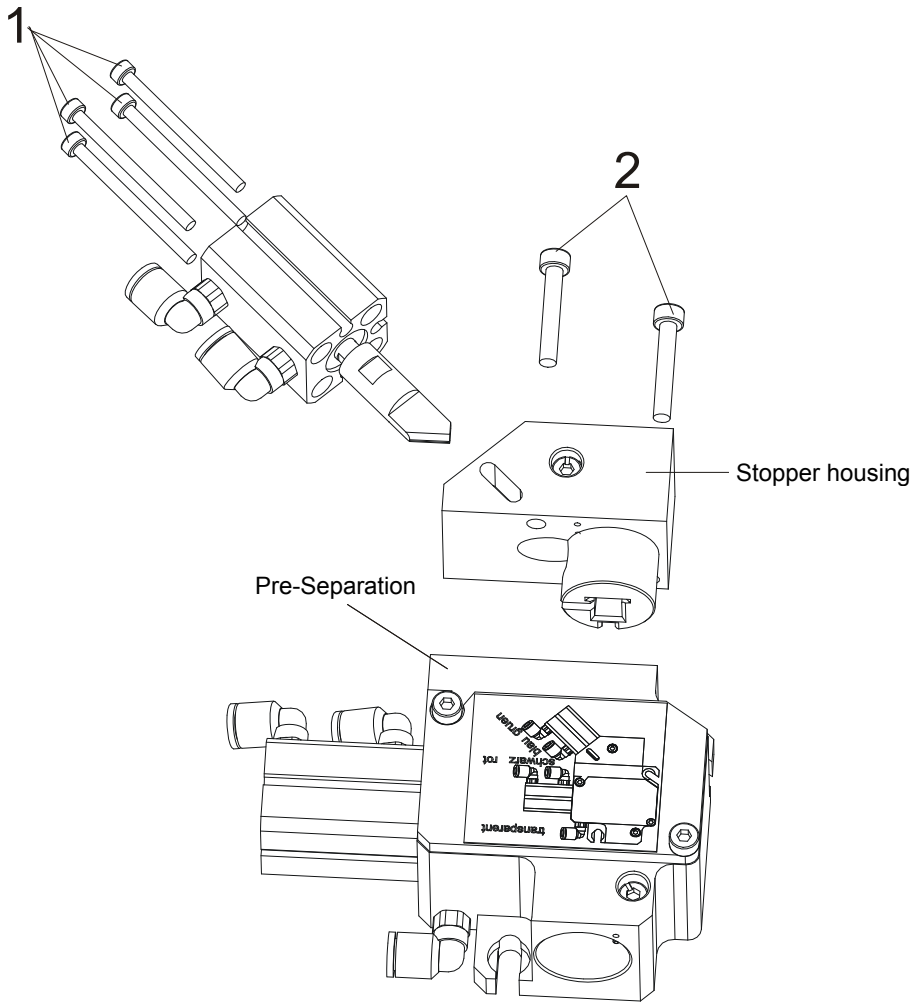
Reassemble is carried out in the opposite sequence.

8.5 Stopper with Housing

Three months or all 250000 cycles

Proceed as follows:

- Close the shut-off valve at the control pre-separation, wait until you hear a clear hearable noise for confirmation of the ventilation.
- Release the four screws (1) from the stopper cylinder.
- Pull-out the cylinder from the stopper housing.
- Release the two screws (2) from stopper housing.
- Pull-out the stopper housing from the pre-separation.
- Clean all parts with fleece and remove damage parts.



Reassemble is carried out in the opposite sequence.

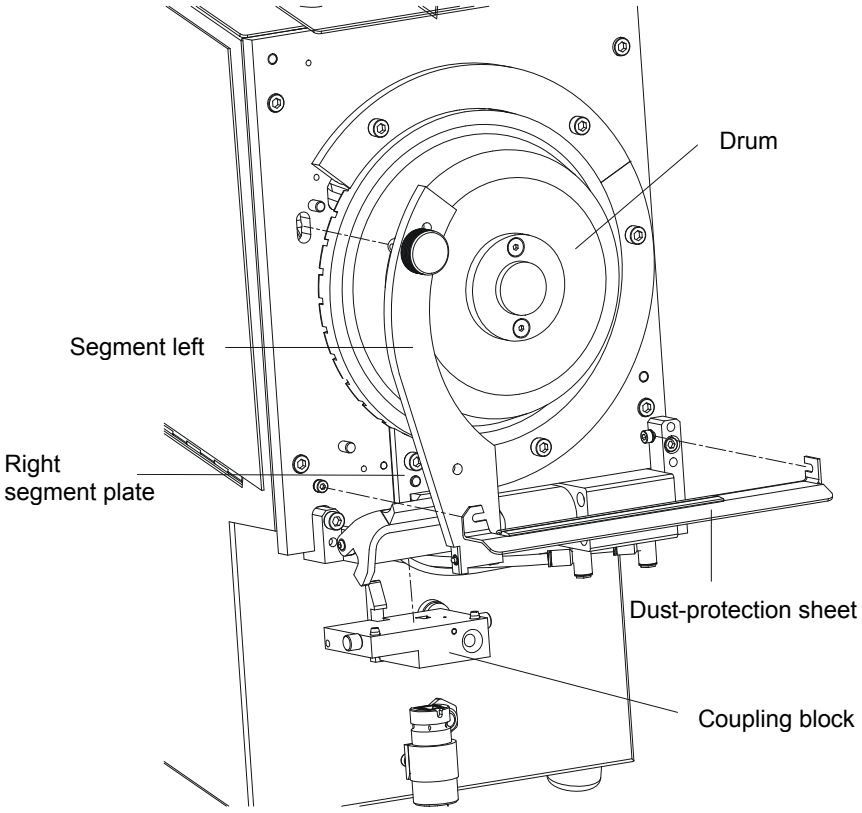
8.6 Self-Piercing Rivet Feeder (Small Cleaning)

Three months or all 250000 cycles

Proceed as follows:

- Ensure that the compressed-air supply at the maintenance unit of the feeder is interrupted and the needle of the manometer shows “0 bar”.
- Remove the protective sheet by releasing the screws approx. 1 revolution
- Remove coupling block and the left segment.

  Attention! Rivets could fall out of the run-in rail.
- Clean the contact surface of the slider at the coupling block at the top with fleece. **Attention!** Do not use any sharp objects to avoid scratches.
- Clean the left segment with fleece, remove deposits.
- Test the spring pin in the left segment for easy movement, replace if necessary.
- Hold tight the drum and clean the inlet with fleece.
- Mount and fasten the left segment.
- Insert the coupling block.
- Load the feeding rails with rivets.
- Mount the dust-protection sheet.



8.7 Self-Piercing Rivet Feeder (Large Cleaning)

Semi annually or all 500000 cycles

Proceed as follows:

- Ensure that the compressed-air supply at the maintenance unit of the rivet feeder is interrupted and the needle of the manometer shows “0 bar”.
- Remove protective sheet by releasing the screws approx. 1 revolution.
- Remove coupling block and the left segment.
- Attention! Rivets could fall out of the run-in rail.
- Clean the contact surface of the slider at the coupling block with fleece.
- **Attention!** Do not use any sharp objects for cleaning to avoid scratches.
- Clean the left segment with fleece, remove deposits. Test the spring pin in the left segment for easy movement, replace if necessary.
- Remove the protective covering over the separating cylinder; release the screws approx. 1 revolution.
- Remove the locking device between separation slide and cylinder.
- Take out the separation slide and clean with fleece.
- Dismount the right segment plate. Loosen screw and plate; pull away forward, as the segment is pinned. Afterwards clean with fleece.
  Attention! Rivets could still fall out of the separation drum.
- Clean the feeding rails at the feeder with fleece.
- After this assemble the right segment and screw it on, but do not tighten yet.
- Insert the separation slide.
- Fasten the separation slide with the piston rod. Pay attention to a tight fit of the fastening element.
- Mount the protective covering.
- Insert and fasten the left segment.
- Afterwards insert the coupling block.
- Turn the drum; the right segment must not draggle, and then tighten the right segment.
- Load the feeding rails with rivets.
- Mount the dust-protection sheet.
- Reconnect the compressed-air supply at the maintenance unit of the ETF.
- Check the self-piercing rivet feeder for function and re-separate a few rivets.

8.8 Feeding Tubes

Three months or all 250000 cycles

NOTE!
The durability of the feeding tubes strongly depends on the feeding tube-laying. Therefore: Regard the bending radii!

Proceed as follows:

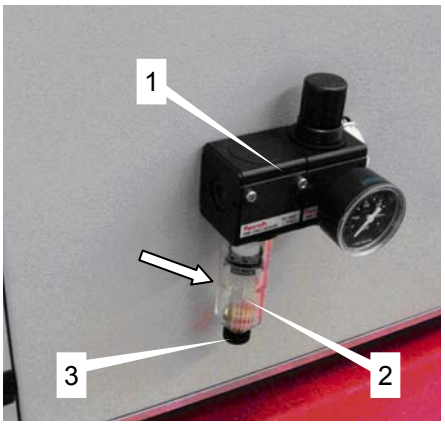
- Release the proximity switch cable from feeder and rivet spindle.
- Loosen the quick-action locks on the feeder and receiver by pressing and a half-turn to the left with an Allen key (size 3 mm).
- Replace the feeding tube.
- Turn the Allen key a half-turn to the right to lock the quick-action locks.
- Now connect the proximity switch of the feed tube with the socket at the feeder and rivet spindle.

NOTE!
The replaced tube can easily be repaired in the workshop. For this purpose disassemble the single elements and insert a new inner tube.

8.9 Emptying the Maintenance Unit

■ Execution by qualified personnel only

- Switch off compressed air and secure against resetting.



Check condensate level

Check, if the level of the condensate in the collecting receiver (2) of the maintenance unit (1) has reached the marking (see arrow).

Remove condensate

Put a suitable collecting tray under the drain screw (3) and drain the condensate by turning the drain screw.

Tighten the drain screw (3) and remove collecting tray.

9 Disposal

Unless no recovery- or disposal arrangement was made disassembled parts have to be recycled:

- Scrap metals.
- Recycle plastic elements.
- Dispose sorted all the rest of the components according material properties.

CAUTION!
Damage caused to the environment due to wrong disposal!
Electronic waste, electronic components, lubricants and other additives are subject to treatment of hazardous waste and may be disposed only by licensed certified specialists!

The local authority or special disposal specialists provide information regarding an environmentally friendly disposal.

Notizen/Notes:

Translation of the Original Declaration of Incorporation

Declaration of Incorporation acc. to the EC Machinery Directive 2006/42/EC,

Document number: EBE ERF 01

Manufacturer:	**Authorized person to compile the relevant documentations:**
	Technische Dokumentation
TUCKER GmbH	TUCKER GmbH
Max-Eyth-Straße 1	Max-Eyth-Straße 1
35387 Gießen	35387 Gießen
Deutschland	Deutschland

Product name: ERF
Self-piercing rivet feeder for setting rivets

Serial number:

Year of manufacture:

The manufacturer declares that the above-mentioned product is a partly completed machinery according to the EC Machinery Directive 2006/42/EC. The product is to be solely used for installation in a machine or partly completed machine and therefore does not comply with all existing requirements of the EC Machinery Directive.
A list of the applied and complied with basic requirements of the EC Machinery Directive is attached to this declaration.
The special technical documents according to appendix VII, paragraph B have been generated. The above-mentioned authorized person commits to transmit the relevant product documents in response to a reasoned request by the national authorities. The submission is carried out by post in hardcopy form or via electronic data carriers. The putting into service of the product is prohibited till it has been made sure that the machine that is to be installed into the above-mentioned product complies with all basic requirements of the EC Machinery Directive.

The above product follows the provision of the following EC Directives:

Number: 2006/42/ EC Machinery Directive
2004/108/ EC “Electromagnetic Compatibility“

References of directives according to publication in Official Journal of the European Union

Issued by: Manfred Müller, General Manager

Location, date: Giessen,

Legally binding signature:

This declaration certifies compliance with the named Directives.
The appendix is an integral part of this declaration.
The safety instructions on the supplied product information sheet are to be followed.

1.1 Appendix to the Declaration of Incorporation

List of applied and adhered to basic safety and health requirements for construction and assembly of machines with respect to the product mentioned on page 1.

Number-Appendix	Description	Adhered to
1.	Essential health and safety Requirements	
1.1.	General remarks	
1.1.3.	Materials and products	X
1.1.4.	Lightning	X
1.1.5.	Design of machinery to facilitate its handling	X
1.1.6.	Ergonomics	X
1.2.	Control system	
1.2.1.	Safety and reliability of control system	X
1.2.3.	Starting	X
1.2.4.	Stopping	
1.2.4.1.	Normal stop	X
1.2.4.2.	Operational stop	X
1.2.4.3.	Emergency stop	X
1.2.4.4.	Assembly of machinery	X
1.2.6.	Failure of power supply	X
1.3.	Protection against mechanical hazard	
1.3.1.	Risk of loss stability	X
1.3.2.	Risk of break-up during operation	X
1.3.3.	Risks due to falling ejected objects	X
1.3.4.	Risks due to surface, edges or angels	X
1.3.7.	Risks related to moving parts	X
1.3.8.	Choice of protection against risks arising from moving parts	
1.3.8.1.	Moving transmission parts	X
1.3.8.2.	Moving parts involved in the process	X
1.4.	Required characteristics of guards and protective devices	
1.4.2.	Special requirements for guard	
1.4.2.1.	Fixed guards	X
1.4.2.2.	Interlocking movable guards	X
1.5.	Risks due other hazards	
1.5.1.	Electricity supply	X
1.5.2.	Static electricity	X
1.5.4.	Errors of fitting	X
1.5.5.	Extreme temperature	X

Number-Appendix	Description	Adhered to
1.5.6.	Fire	X
1.5.7.	Explosion	X
1.5.8.	Noise	X
1.5.9.	Vibration	X
1.5.10.	Radiation	X
1.5.11.	External radiation	X
1.5.12.	Laser radiation	X
1.5.13.	Emissions of hazardous materials and substances	X
1.6.	Maintenance	
1.6.4.	Operator intervention	X
1.7.	Information	
1.7.1.1.	Information and information devices	X
1.7.1.2.	Warning devices	X
1.7.2.	Warning of residual risks	X