

Original operating instructions

TOX[®] FinePress

PFS / PFL / PFW

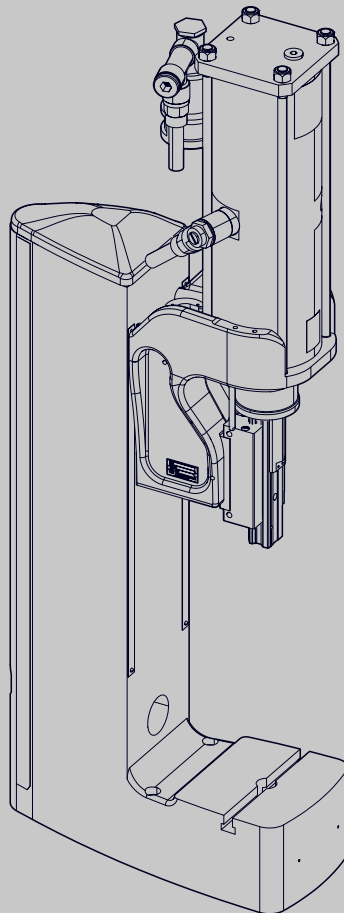


Table of contents

1	Important information	
1.1	Legal note	6
1.2	Exclusion of liability.....	6
1.3	Conformity	6
1.4	Validity of the document	7
1.4.1	Content and target group.....	7
1.4.2	Other applicable documents.....	7
1.5	Gender note.....	7
1.6	Displays in the document.....	8
1.6.1	Display of warnings.....	8
1.6.2	Display of general notes	8
1.6.3	Highlighting of texts and images.....	9
1.7	Contact and source of supply	10
2	Safety	
2.1	Basic safety requirements	11
2.2	Organizational measures.....	12
2.2.1	Safety requirements for the operating company.....	12
2.2.2	Selection and qualifications of personnel	13
2.3	Fundamental hazard potential	14
2.3.1	Electrical hazards	14
2.3.2	Thermal hazards.....	14
2.3.3	Pneumatic hazards	15
2.3.4	Contusions.....	15
2.3.5	Hydraulic hazards	15
2.3.6	Electromagnetic hazards	16
2.3.7	Laser.....	16
2.3.8	Hazardous substances	16
2.3.9	Noise.....	17
2.4	Safety device	17
2.4.1	Safety device on the product	17
2.5	Safety symbols	18

3	About this product	
3.1	Intended use	19
3.1.1	Safe and correct operation	19
3.1.2	Safe and correct design and construction	19
3.1.3	Foreseeable misuse	21
3.1.4	Substances harmful to the wetting properties of lacquers (LABS)	21
3.2	Product identification	21
3.2.1	Type plate	21
3.3	Product overview and function description	22
4	Technical data	
4.1	Type sheet and data sheet	23
4.2	Compressed air quality and pneumatic connection	23
4.3	Compressed air press force table	23
5	Transport and storage	
5.1	Safety during transport	24
5.2	Storage when not in use	25
5.3	Transport by lifting device	26
5.4	Dispatch for repair	27
6	Installation	
6.1	Safety during installation	28
6.2	Requirements for installation	30
6.2.1	Set-up location	30
6.3	Connections FinePress	31
6.4	Installing accessories	32
6.4.1	Installing the control panel (optional)	32
6.4.2	Installing process monitoring (option)	32
6.4.3	Installing the stroke counter (optional)	33
6.4.4	Installing the force sensor (optional)	34
6.4.5	Installing the slide table (optional)	36
6.4.6	Installing travel sensor (option)	37
6.4.7	Installing the tool holding fixture (optional)	39

6.4.8	Install the TDC sensor (option)	40
6.4.9	Install the BDC sensor (option)	42
7	Commissioning	
7.1	Safety during the commissioning	44
7.1.1	Safety device	44
7.2	Requirements for the commissioning	45
7.3	Setting return stroke damping.....	46
8	Operation	
8.1	Safety in operation.....	47
8.1.1	General safety rules during operation.....	47
8.2	Requirements for operation	48
8.3	Process monitoring	48
8.4	Setting the open height of the press head	49
8.5	Fine adjustment of working stroke	51
9	Troubleshooting	
9.1	Safety during troubleshooting	52
9.2	Detecting faults	53
Maintenance table		
10	Maintenance	
10.1	General information	55
10.2	Safety during maintenance	56
10.3	Requirements for maintenance.....	58
10.3.1	Set system to maintenance position	58
10.4	TOX® FinePress maintaining	59
10.4.1	TOX® FinePress inspecting	59
10.4.2	Inspecting the fastening of the press head	60
10.4.3	Inspecting and cleaning movable parts and guides.....	61
10.4.4	Inspecting the setting of the return stroke damping.....	61

11	Repairs	
11.1	Safety during repairs.....	62
12	Disassembly and Disposal	
12.1	Safety during disassembly and disposal.....	63
12.2	Decommissioning	63
12.3	Shutdown.....	64
12.4	Disassembling	65
12.5	Disposal	65
13	Appendices	
13.1	DECLARATION OF INCORPORATION.....	66

Index

1 Important information

1.1 Legal note

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Operating instructions, manuals, technical descriptions and software are originally compiled in German.

1.2 Exclusion of liability

TOX® PRESSOTECHNIK has checked the contents of this publication to ensure that it conforms to the technical properties and specifications of the products or plant and the description of the software. However, discrepancies may still be present, so we cannot guarantee complete accuracy. The supplier documentation included with the system documentation is an exception.

However, the information in this publication is checked regularly and any required corrections are included in subsequent editions. We are grateful for any corrections and suggestions for improvement. TOX® PRESSOTECHNIK reserves the right to revise the technical specifications of the products or plant and/or the software or documentation without prior notice.

1.3 Conformity

The product is compliant with EU guidelines.

See separate Declaration of conformity or installation declaration.

1.4 Validity of the document

1.4.1 Content and target group

This manual contains information and instructions for the safe operation and safe maintenance or servicing of the product.

- All information in this manual is up to date at the time of print. TOX® PRES-SOTECHNIK reserves the right to make technical changes that improve the system or increase the standard of safety.
- The information is intended for the operating company as well as operating and service personnel.

1.4.2 Other applicable documents

In addition to the available manual, further documents can be supplied. These documents must also be complied with. Other applicable documents can be, for example:

- additional operating manuals (e.g. of components or of a whole system)
- Supplier documentation
- Instructions, such as software manual, etc.
- Technical data sheets
- Safety data sheets
- Data sheets
- Schematics

1.5 Gender note

In order to enhance readability, references to persons that also relate to all sexes are normally only stated in the usual form in German or in the corresponding translated language in this manual, thus e.g. "operator" (singular) for male or female, or "operators" (plural) for male or female". This should in no way convey any gender discrimination or any violation of the principle of equality, however.

1.6 Displays in the document

1.6.1 Display of warnings

Warning signs indicate potential dangers and describe protective measures. Warning signs precede the instructions for which they are applicable.

Warning signs concerning personal injuries

DANGER

Identifies an immediate danger!

Death or severe injuries will occur if appropriate safety measures are not taken.

→ Measures for remedial action and protection.

WARNING

Identifies a potentially dangerous situation!

Death or serious injury may occur if appropriate safety measures are not taken.

→ Measures for remedial action and protection.

CAUTION

Identifies a potentially dangerous situation!

Injury may occur if appropriate safety measures are not taken.

→ Measures for remedial action and protection.

Warning signs indicating potential damage

NOTE

Identifies a potentially dangerous situation!

Property damage may occur if appropriate safety measures are not taken.

→ Measures for remedial action and protection.

1.6.2 Display of general notes

General notes show information on the product or the described action steps.



Identifies important information and tips for users.

1.6.3 Highlighting of texts and images

The highlighting of texts facilitates orientation in the document.

✓ Identifies prerequisites that must be followed.

1. Action step 1

2. Action step 2: identifies an action step in an operating sequence that must be followed to ensure trouble-free operation.

▷ Identifies the result of an action.

▶ Identifies the result of a complete action.

➔ Identifies a single action step or several action steps that are not in an operating sequence.

The highlighting of operating elements and software objects in texts facilitates distinction and orientation.

- <In square brackets> identifies operating elements, such as buttons, levers and (valves) stopcocks.
- "with quotation marks" identifies software display panels, such as windows, messages, display panels and values.
- **In bold** identifies software buttons, such as buttons, sliders, checkboxes and menus.
- **In bold** identifies input fields for entering text and/or numerical values.

1.7 Contact and source of supply

Only use original spare parts or spare parts approved by TOX® PRESSOTECHNIK.

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For additional information and forms see

www.tox.com

2 Safety

2.1 Basic safety requirements

The product is state of the art. However, operation of the product may involve danger to life and limb for the user or third parties or damage to the plant and other property.

For this reason the following basic safety requirements will apply:

- Read the operating manual and observe all safety requirements and warnings.
- Operate the product only as specified and only if it is in perfect technical condition.
- Remedy any faults in the product or the plant immediately.

2.2 Organizational measures

2.2.1 Safety requirements for the operating company

The operating company is responsible for compliance with the following safety requirements:

- The operating manual must always be kept available at the operation site of the product. Ensure that the information is always complete and in legible form.
- In addition to the operating manual, the generally valid legal and other binding rules and regulations must be provided for the following content and all personnel must be trained accordingly:
 - Work safety
 - Accident prevention
 - Working with hazardous substances
 - First aid
 - Environmental protection
 - Traffic safety
 - Hygiene
- The requirements and contents of the operating manual must be supplemented by existing national regulations (e.g. for prevention of accidents and for environmental protection).
- Instructions for special operating features (e.g. work organization, work processes, appointed personnel) and supervisory and reporting obligations must be added to the operating manual.
- Take action to ensure safe operation and make sure that the product is maintained in a functional condition.
- Only allow authorized persons access to the product.
- Ensure that all personnel work with awareness of safety and potential dangers with reference to the information in the operating manual.
- Provide personal protective equipment.
- Maintain all safety and information on dangers regarding the product complete and in legible condition and replace as required.
- Do not make any changes, carry out attachments or conversions to the product without the written approval of TOX® PRESSOTECHNIK. Action contrary to the above will not be covered by the warranty or the operating approval.
- Make sure that the annual safety inspections are carried out and documented by an expert.

2.2.2 Selection and qualifications of personnel

The following safety requirements are applicable for the selection and qualifications of personnel:

- Only appoint persons to work on the plant who have read and understood the operating manual, and in particular, the safety instructions before starting work. This is particularly important for persons who only work on the plant occasionally, e.g. for maintenance work.
- Only allow persons appointed and authorized for this work access to the plant.
- Only appoint reliable and trained or instructed personnel.
- Only appoint persons to work in the danger zone of the plant who can perceive and understand visual and acoustic indications of danger (e.g. visual and acoustic signals).
- Ensure that assembly and installation work and the initial commissioning are performed exclusively by qualified personnel who have been trained and authorized by TOX® PRESSOTECHNIK.
- Maintenance and repairs must be performed by qualified and trained personnel only.
- Ensure that personnel who are being trained, instructed or are in an apprenticeship can only work on the plant under the supervision of an experienced person.
- Have work on electrical equipment performed only by electricians or trained persons under the direction and supervision of an electrician in accordance with the electrotechnical regulations.

2.3 Fundamental hazard potential

Fundamental hazard potentials exist. The specified examples draw attention to known hazardous situations, but are not complete and do not in any way provide safety and risk awareness action in all situations.

2.3.1 Electrical hazards

Attention should be paid to electrical hazards particularly inside the components in the area of all assemblies of the control system and motors of the installation.

The following basically applies:

- Have work on electrical equipment performed only by electricians or trained persons under the direction and supervision of an electrician in accordance with the electrotechnical regulations.
- Always keep the control box and/or terminal box closed.
- Before commencing work on electrical equipment, switch off the main switch of the system and secure it against being switched back on inadvertently.
- Pay attention to the dissipation of residual energy from the control system of the servomotors.
- Make sure that the components are disconnected from the power supply when carrying out the work.

2.3.2 Thermal hazards

During operation piece parts may become hot and cause burns when touched.

Hazardous positions are generally marked with a symbol.

See [Safety symbols, Page 18](#)

- Wear individual protective equipment.
- Before starting work, make sure that surfaces have cooled down sufficiently.

2.3.3 Pneumatic hazards

Attention must be paid to pneumatic hazards particularly on the pneumatic supply lines and connection points.

The following basically applies:

- Allow work to be carried out on pneumatic equipment by authorized service personnel only.
- Wear individual protective equipment.
- Do not exceed the permissible pressure.
- First switch on compressed air when all hose connections have been established and secured.
- Do not uncouple any hoses under pressure.
- If hoses slip off, switch off the compressed air supply immediately.

2.3.4 Contusions

Contusions and hand injuries can occur in the radius of action of the product.

The following applies generally:

- Make sure that no persons are located in the danger area during operation.
- During necessary work in the danger area (e.g. maintenance, cleaning), secure the system against unexpected, accidental and unauthorized activation.
- Make sure that parts or tools cannot fall down or descend as a result of stored energy. Use appropriate fuses.

2.3.5 Hydraulic hazards

Attention must be paid to hydraulic hazards particularly on the supply lines, connection points and vent points.

The following applies generally:

- Allow work to be carried out on hydraulic equipment by authorized service personnel only.
- Wear individual protective equipment.
- Do not exceed the permissible pressure.
- Do not remove any hoses under pressure.
- Never vent hydraulic components under pressure.

2.3.6 Electromagnetic hazards

Electromagnetic hazards are to be taken into account in the area of electromagnetically vibrating or oscillating components.

Regular work on and with electromagnetically vibrating or oscillating components can cause disorders in the blood flow of the fingers as well as neurological and motoric dysfunctions.

The following applies generally:

- Wear protective anti-vibration gloves when performing necessary work!
- Electromagnetic fields can have an indirect effect on heart pacemakers and other implants. Adhere to safety distances.

2.3.7 Laser

Depending on the model and features, lasers can be installed for the purpose of recognition. There is a danger of looking into the laser in some situations. If this is not avoided, eye injuries may result.

The following applies generally:

- Do not look into the direct or the reflected beam.
- If the laser beam hits the eye, deliberately close the eyes and move the head immediately out of the beam.
- When using the laser, no optical instruments are to be used for viewing the source of the beam, since this can lead to exceeding the exposure limit values.
- Manipulation (modification) of the laser equipment is inadmissible.

2.3.8 Hazardous substances

The following safety requirements apply when handling chemical substances:

- Observe the applicable safety regulations on handling chemical substances and the information on the manufacturer's safety data sheets of hazardous substances.
- Wear individual protective equipment.
- In the event of eye or skin contact, rinse the affected area, change contaminated clothing and visit a doctor if necessary. Provide appropriate equipment (eye wash bottle, washbasin) near the workplace.
- Groundwater hazardous substances must not get into the ground or sewage system. Collect groundwater hazardous substances and dispose of them properly.

2.3.9 Noise

Depending on the equipment, an increase in the noise level can arise in the sphere of the product.

- Keep the duration of the exposure at a minimum.
- Wear individual protective equipment.

2.4 Safety device

Safety devices are important components of the safety concept and help to prevent accidents.


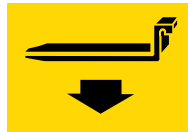




2.4.1 Safety device on the product

The product has no special safety equipment. The operator is responsible for safety equipment (Emergency Stop switch, perimeter fencing, etc.).

2.5 Safety symbols

Safety symbols are important components of the safety concept and help to prevent accidents. The safety symbols provide information about potential hazards that could cause serious injuries.

The following safety symbols can be attached on the product:

Symbol	Hazard	Notes
	Warning of suspended load	Do not stay in the danger zone of the suspended load.
		Identifies fork-lift truck brackets.
		Identifies attachment point.
	Warning of hot surfaces	In the area of motors, drives and fans.
	Warning of electrical voltage	In the area of the entire control box.
	Warning of crushing	Risk of crushing in the working area.

Tab. 1 Safety symbols

3 About this product

3.1 Intended use

The machine in conjunction with the designated tool is used for

- Installing, press fitting
- Punching, pressing (of function elements)
- Riveting, crimping, flaring
- Punching, piercing
- Embossing, marking
- Tensioning, clamping, crimping
- Pressing, compressing
- Clinching, joining

of sheet metal or mechanical modules.

This incomplete machine may not be commissioned until it has been ascertained that the incomplete machine in which the component is to be installed complies with the requirements of the Machinery Directive (2006/42/EC).

3.1.1 Safe and correct operation

Intended use includes the following conduct:

- Only operate with the components for which it is specified.
- Follow all instructions in this operating manual.
- Comply with the specified maintenance intervals and perform maintenance work correctly.
- Operate in compliance with the conditions of the technical data.
- Operation with fully assembled and functional safety devices.
- Activities may only be carried out by persons who are qualified or authorized for this purpose.

Any other use or application beyond this does not come under the scope of intended use.

3.1.2 Safe and correct design and construction

The generated forces can be immense in case of different applications! This can lead to damage or breakage of material. This can cause dangerous situations during operation!

The following aspects are an intrinsic part of the intended design and construction:

- The design and construction must at all time guarantee that the maximum generated forces do not lead to the failure or to a breakage of system components.
- Especially during punching and hole applications must the dynamic forces be effectively limited.
- The dynamic forces must at no time exceed the maximum admissible (static) press forces in the direction of pressure and tension. These are specified for every drive of TOX® PRESSOTECHNIK.
- Dynamic forces must be limited with suitable precautionary measures to ensure that the admissible (static) press forces are not exceeded.
- Suitable precautionary measures can be as follows:
 - Dampings in the tool
 - Limit of the maximum accelerations,
 - Use of optional modules such as damping of cutting impact or press-in
 - etc.
- It must be ensured that there is no unauthorized, inadvertent, mistaken rise of the dynamic and static press forces and return stroke forces designed for the application during operation.

Non-observance of and non-adherence to the maximum admissible press forces and return stroke forces is not valid as intended use and is not permitted.

3.1.3 Foreseeable misuse

Use contrary to intended use includes the following foreseeable misuse:

- Operation under conditions that deviate from the technical data.
- Operation without fully assembled and functional connections.
- Operation without fully assembled and functional safety devices.
- Modifications to the product without prior approval by TOX® PRES-SOTECHNIK and the approving authority.
- Incorrect parameterization.
- Execution of activities by persons who are not qualified or authorized to do so.

The operating company is exclusively responsible for all personal injury and property damage resulting from non-intended use. Non-intended use will not be covered by the warranty or the operating approval.

3.1.4 Substances harmful to the wetting properties of lacquers (LABS)

No substances containing silicone, are knowingly processed and used.

3.2 Product identification

3.2.1 Type plate

The details on the type plate ensure clear identification of components and the specific operating parameters.

The type plate is attached permanently on the component.

3.3 Product overview and function description

The TOX® FinePress is operated purely pneumatic. This pneumatic press of linear effect implements a pneumatic stroke along the entire length.

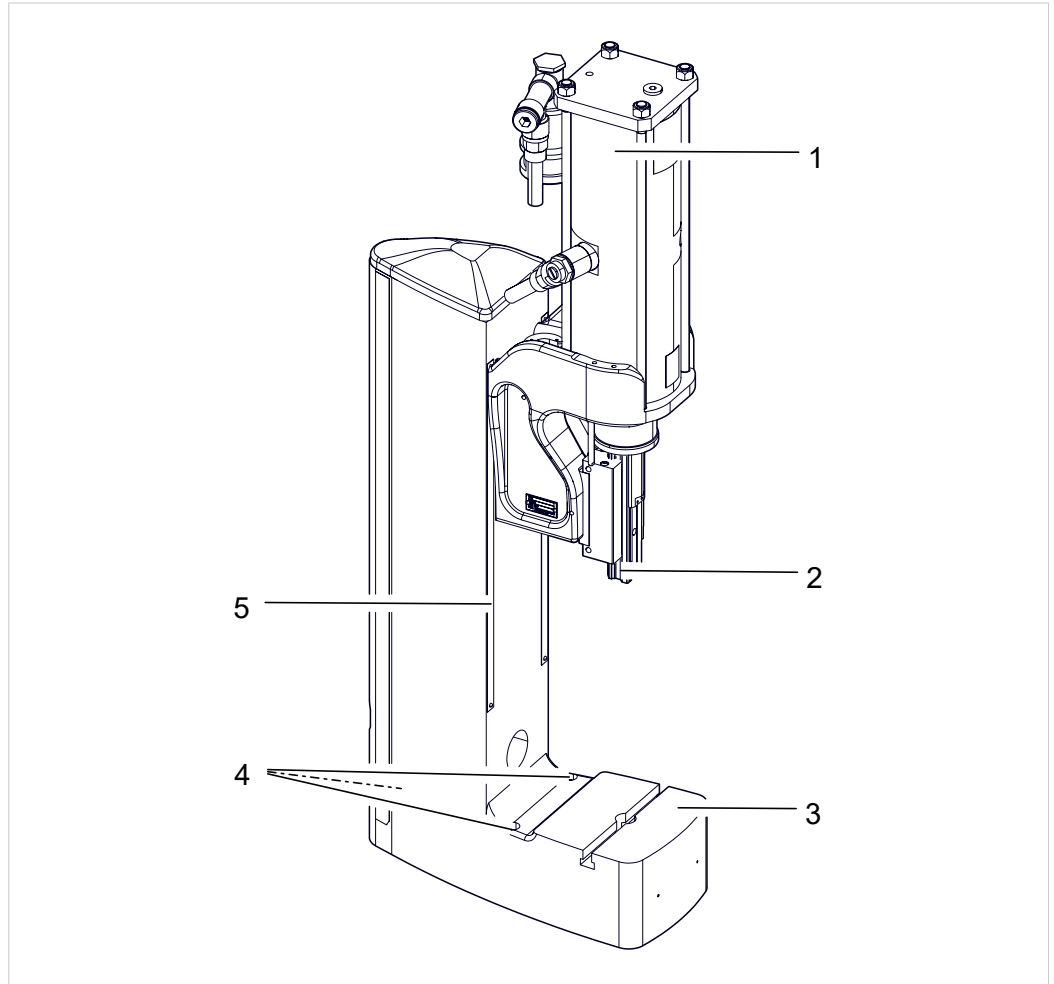


Fig. 1 Product overview

	Designation	Function
1	Drive	Moves the ram onto the workpiece and performs the power stroke.
2	Ram	Transfers the force to the workpiece.
3	Press bed	With T-groove for taking up tools.
4	Fastening holes	For screw fitting to the floor.
5	Height adjustment scale	Facilitates the adjustment of the open height.

4 Technical data

4.1 Type sheet and data sheet

For technical data and installation dimensions see data sheet.
www.tox.com

4.2 Compressed air quality and pneumatic connection

The following is required:

- Filtered and dried compressed air

Lightly oiled compressed air is permitted.

Compressed air quality (according to DIN ISO 8573-1):

Solids		Water dew point		Maximum Oil content	
Class	[μm]	Class	[$^{\circ}\text{C}$]	Class	[mg/m^3]
5	40	4	3	3	1

4.3 Compressed air press force table

Air pressure [bar]	PFx 002 Force F [kN]	PFx 004 Force F [kN]	PFx 008 Force F [kN]	PFx 013 Force F [kN]	PFx 022 Force F [kN]	PFx 033 Force F [kN]	PFx 056 Force F [kN]
2	0.74	1.44	2.9	4.4	7.5	11.4	19.0
2.5	0.93	1.79	3.6	5.4	9.1	14.2	23.5
3	1.12	2.20	4.4	6.6	11.0	17.1	28.4
3.5	1.35	2.55	5.2	7.7	13.1	19.9	33.1
4	1.46	2.94	5.9	8.8	15.2	23.0	38.0
4.5	1.66	3.30	6.7	10.0	17.1	25.7	42.9
5	1.86	3.68	7.4	11.1	19.2	28.8	47.6
5.5	2.03	4.04	8.2	12.2	21.2	31.6	52.4
6	2.23	4.43	8.9	13.4	23.0	34.4	57.4

Tolerance of the technical specifications $\pm 5\%$.

5 Transport and storage

5.1 Safety during transport

WARNING

Hazard from suspended loads!

Severe crushing, impacts and serious accidents as a result of improper transportation and falling load!

- Only use lifting gear that is appropriate and in perfect technical condition, as well as load attachment devices with an adequate safe working load.
- Never stand or work under suspended loads.
- Make sure that that no person is in the danger area.
- When transporting and setting down, make sure that no parts of the body become jammed.
- Wear suitable personal protective equipment (e.g. safety boots).

CAUTION

Injury from toppling and falling products!

- Secure product from toppling, falling and accidentally moving.

- The transportation may only be carried out by authorized personnel.
- The product may only be transported with empty liquid containers.
- The product may only be transported with the transport pallet or transport device provided.
- The product may only be lifted with suitable lifting devices at suitable lifting points.
See [Safety symbols, Page 18](#).
- Note the weight of the product.
See technical data sheet.
- Note the center of gravity of the product.
See general arrangement drawing.

5.2 Storage when not in use

 **CAUTION**

Injury from toppling and falling products!

→ Secure product from toppling, falling and accidentally moving.

The following applies:

- Do not store the product outdoors.
- Protect the product against the influence of the weather.
- Avoid temperature fluctuations, so as to prevent corrosion from condensation.
- Seal connection openings.

5.3 Transport by lifting device

A threaded bore hole is provided for a ring bolt for lifting the TOX® FinePress.

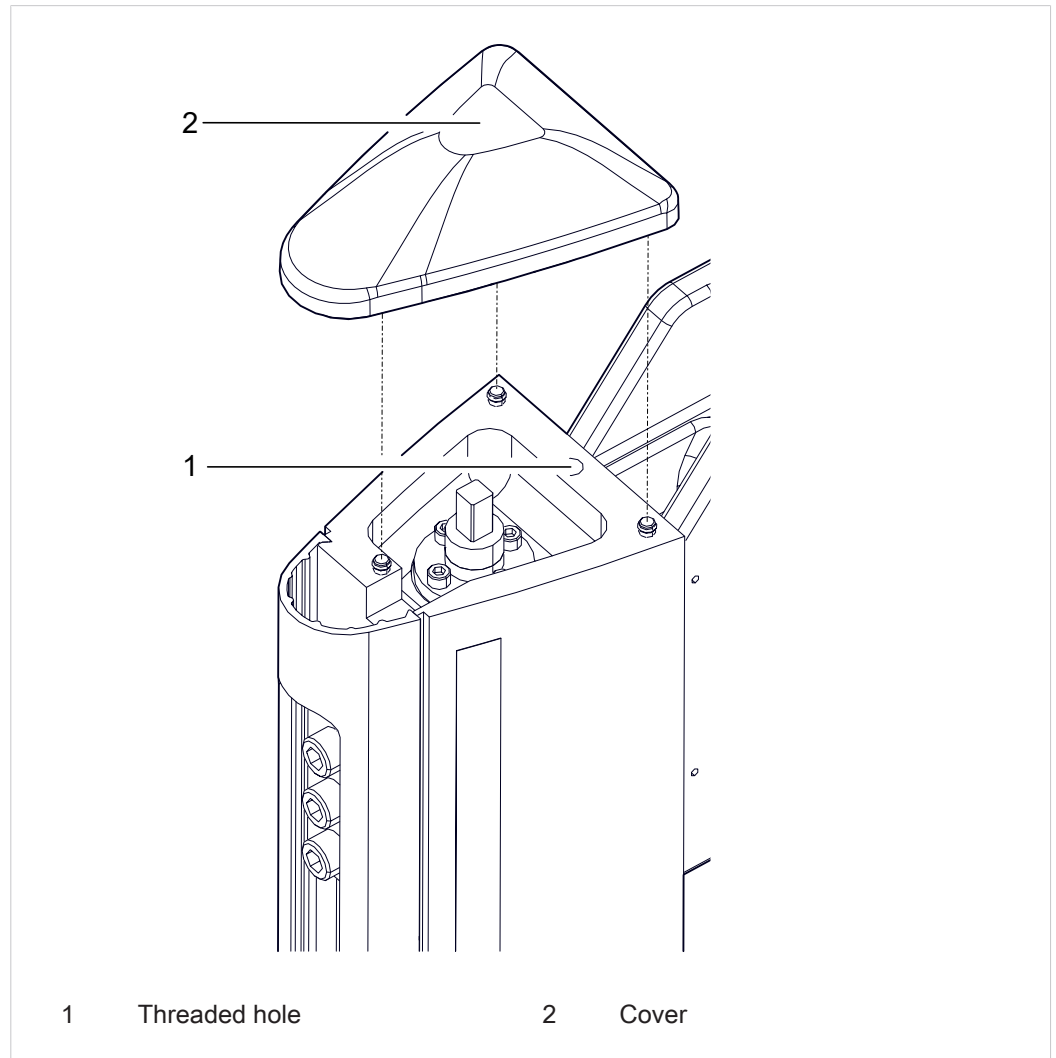


Fig. 2 Transport by lifting device

1. Remove the cover from the press frame.
2. Remove the crank, ring bolt and other loose parts from the TOX® FinePress.
3. Screw the ring bolt into the threaded bore.

5.4 Dispatch for repair

To dispatch the product for repair to TOX® PRESSOTECHNIK, please proceed as follows:

- Fill in the "Accompanying repair form". This we supply in the service sector on our website or upon request via e-mail.
- Send us the completed form via e-mail.
- Then you will receive the shipping documents from us via e-mail.
- Send us the product with the shipping documents and a copy of the "Accompanying repair form".

For contact data see [Contact and source of supply, Page 10](#) or www.tox.com.

6 Installation

6.1 Safety during installation

The installation may only be carried out by trained and authorized personnel.

DANGER

Electrical hazards in case of contact with live parts!

Electric shock, burns or death in case of contact with live parts!

- Have all work on the electrical equipment performed by an electrician.
- Disconnect power supply.
- Wait for residual energy to dissipate safely (at least 3 minutes).

WARNING

Ejecting parts and compressed air from compressed air conducting lines!

Serious injuries to eyes and body cavities!

- Always connect and disconnect lines without pressure.
- Pay attention to maximum permitted pressures.
- Wear individual protective equipment.

WARNING

Hazard from suspended loads!

Severe crushing, impacts and serious accidents as a result of improper transportation and falling load!

- Only use lifting gear that is appropriate and in perfect technical condition, as well as load attachment devices with an adequate safe working load.
- Never stand or work under suspended loads.
- Make sure that that no person is in the danger area.
- When transporting and setting down, make sure that no parts of the body become jammed.
- Wear suitable personal protective equipment (e.g. safety boots).

⚠ CAUTION**Tripping points from laid supply lines!**

Injuries from tripping and falling!


- Avoid tripping points when setting up.
 - Mark unavoidable tripping points with warning sign.
-


6.2 Requirements for installation

6.2.1 Set-up location

The set-up location:

- Must be free from dust and dirt
- Must be a closed room
- Must have a firm, level floor
- Must have sufficient space and easy access to the system parts
- Prevent the spray of sparks
- The floor must have sufficient load bearing capacity for the weight of the system parts and stresses caused by movements
- The stability must be ensured

 Information on technical data, operating conditions, etc. for the intended use can be found in type sheet or the product-specific data sheet and circuit diagram.

 The plant must be screwed to the substrate.

6.3 Connections FinePress

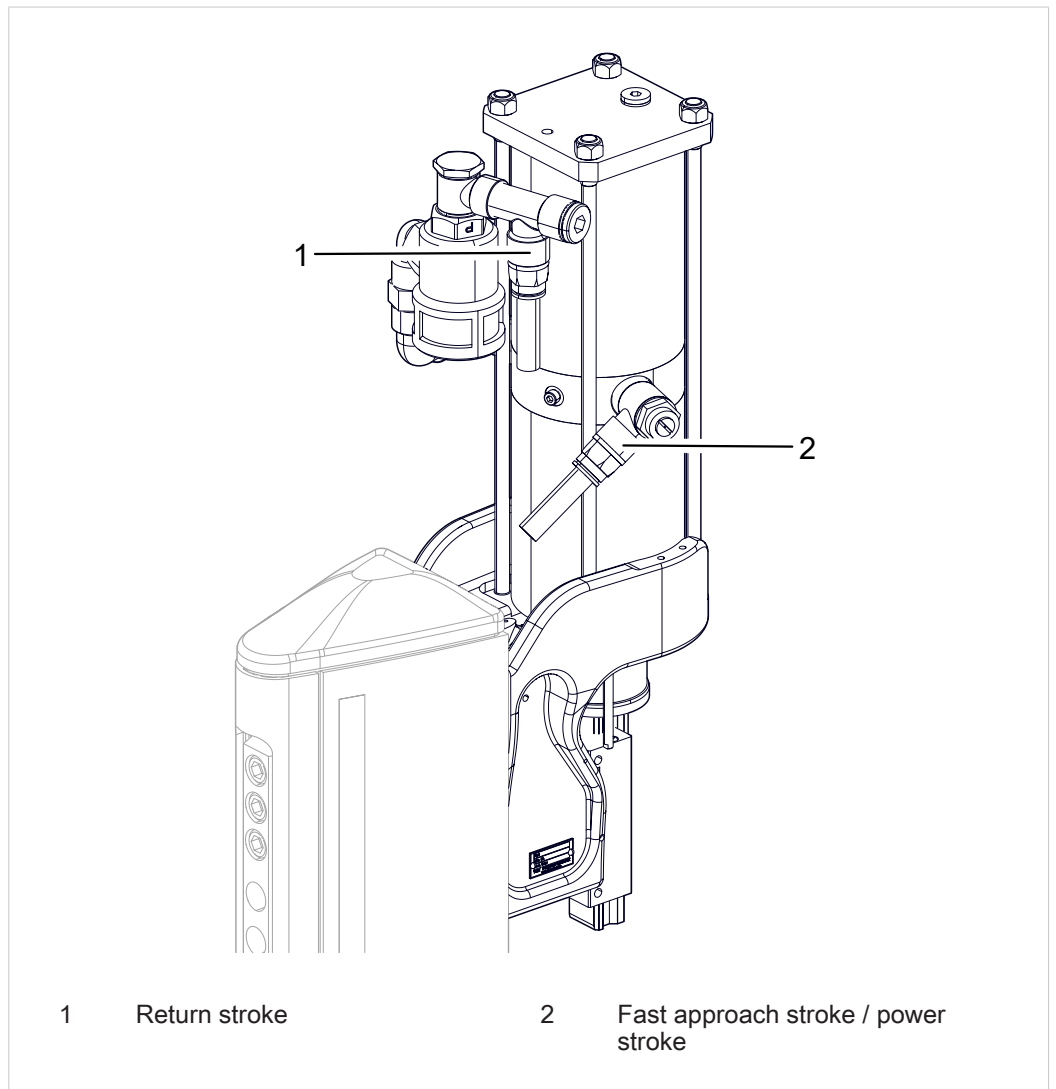


Fig. 3 Connections FinePress

6.4 Installing accessories

6.4.1 Installing the control panel (optional)



The control panel must be firmly screwed to the floor at the appropriate position.

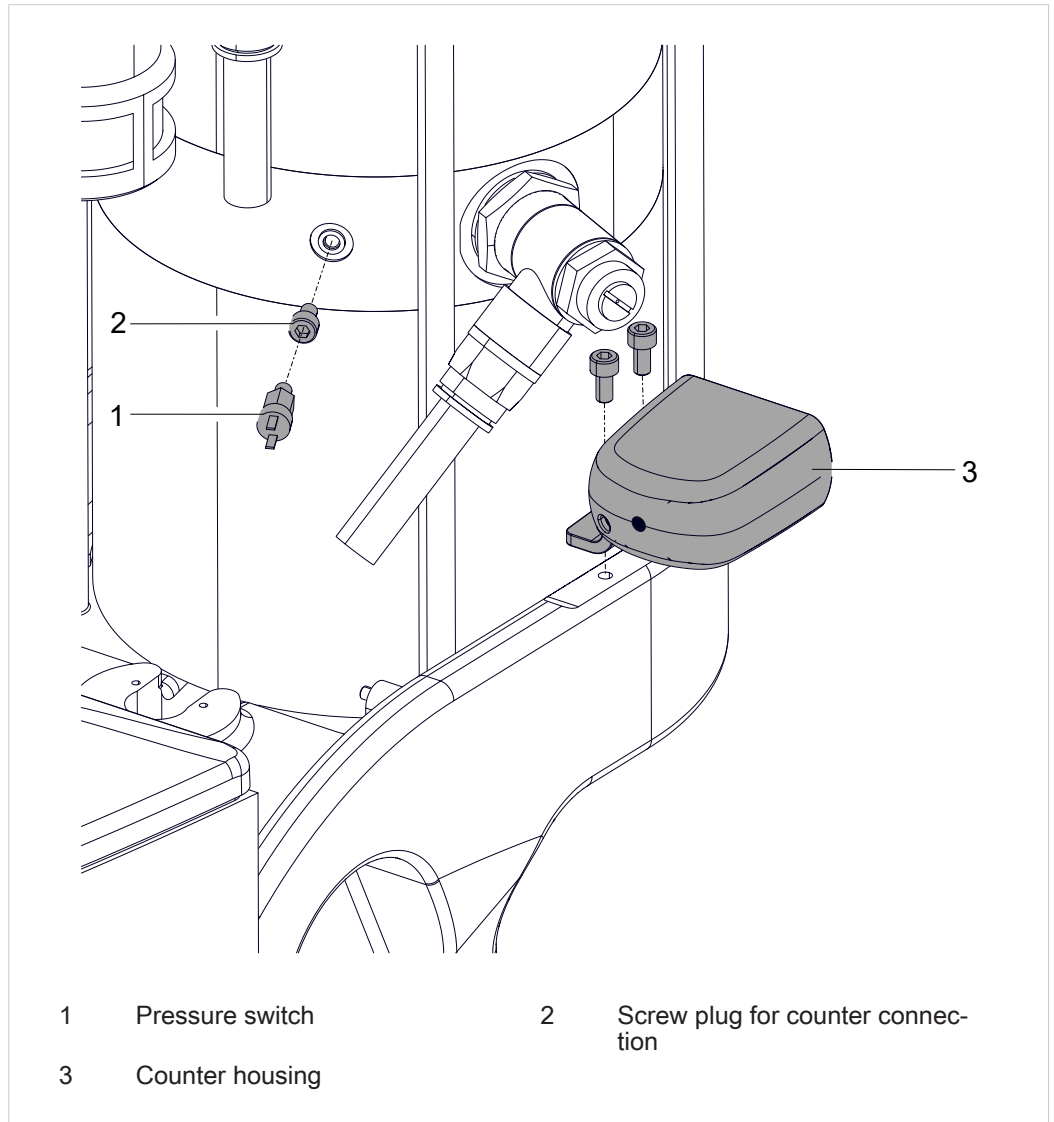
The distances for occupational safety must be observed.

1. Install mobile control panel in such a way that the machine compartment is visible.
2. Screw control panel at the appropriate position in the floor.
3. Connect control panel to the switch cabinet if necessary.
See circuit diagram.

6.4.2 Installing process monitoring (option)

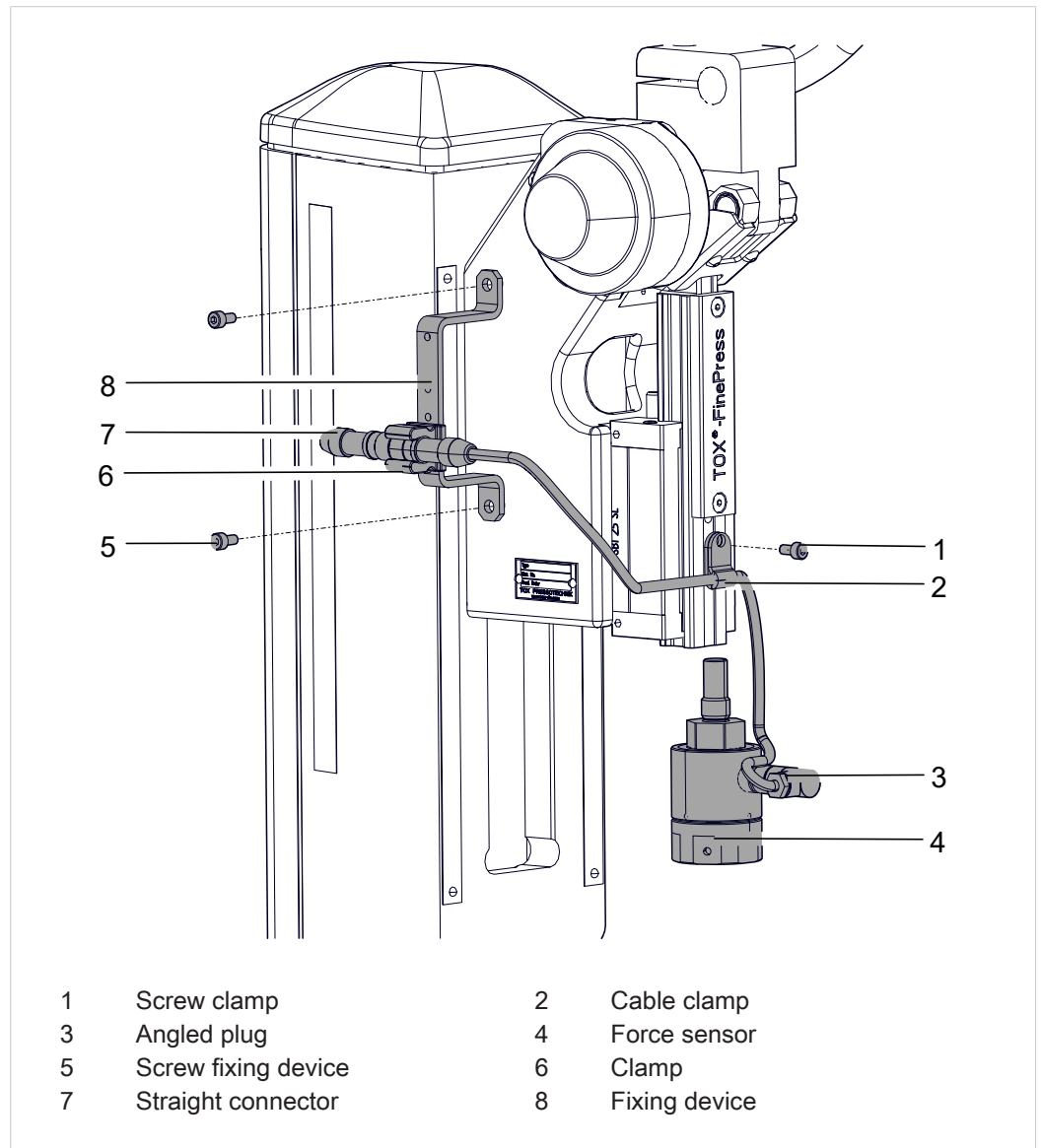
- Please see the separate operating manual for the installation of the process monitoring system.

6.4.3 Installing the stroke counter (optional)

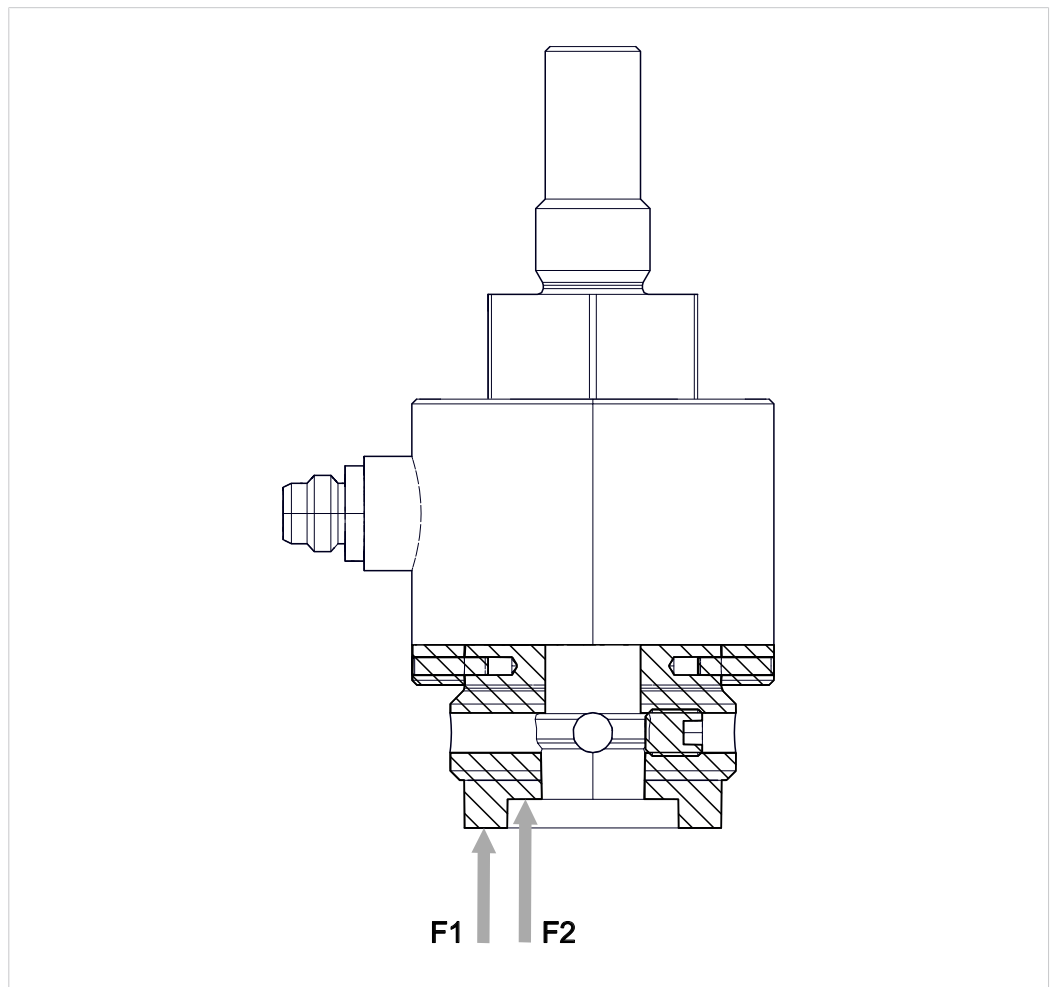


1. Disconnect the cable set from the counter housing.
2. Screw out the screw plug on the counter connection.
3. Install the pressure switch in the counter connection.
4. Install the counter housing on the press head.
5. Connect the cable set with the counter housing and pressure switch.

6.4.4 Installing the force sensor (optional)

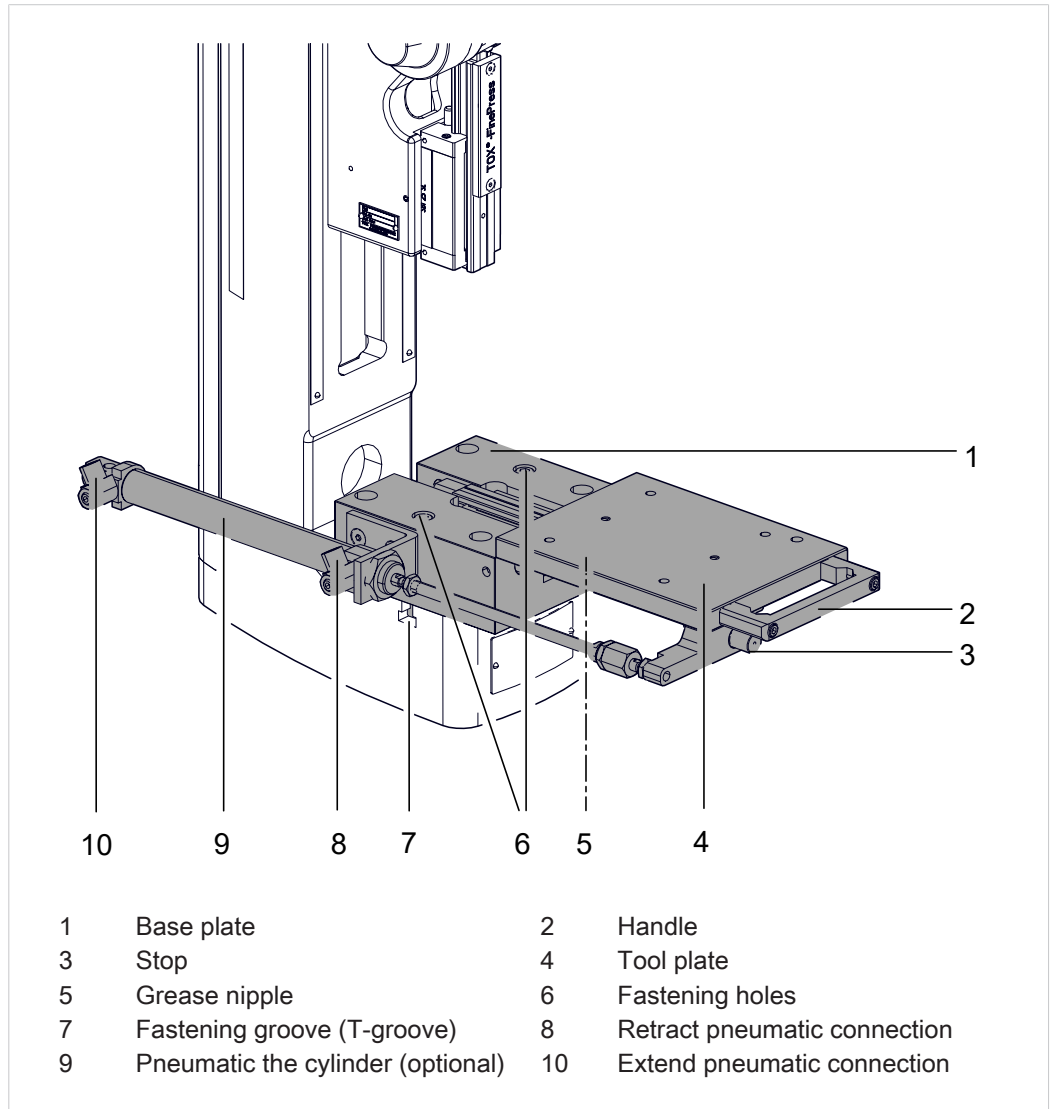


1. Screw the fixing device onto the press head.
2. Screw the force sensor onto the ram.
3. Fasten the cable clamp with the screw.
4. Connect the angled plug to the force sensor.
5. Screw the clamp in the lowest position onto the fixing device.
6. Connect the straight connector to the evaluation unit and insert it into the clamp.



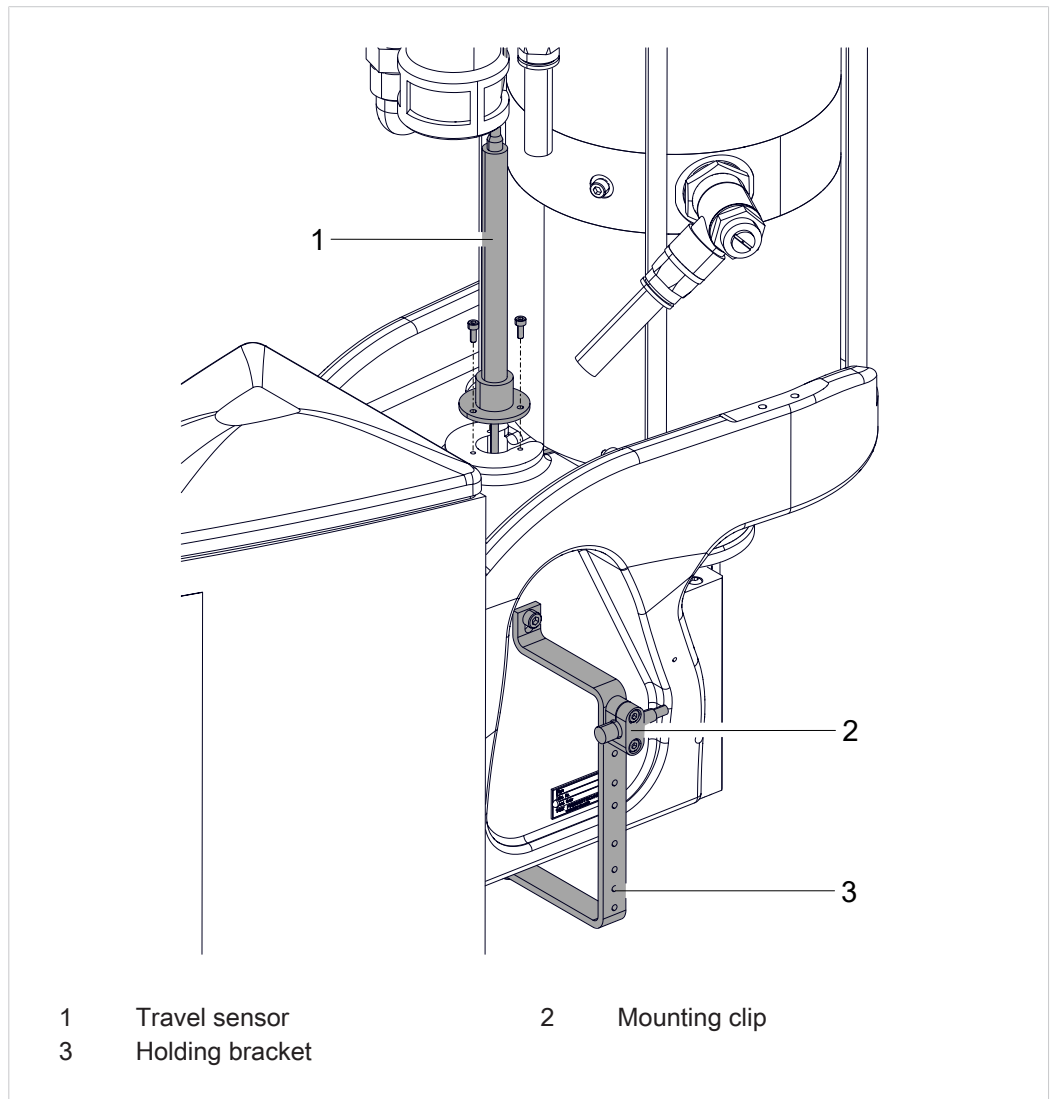
→ **NOTE!** Observe the maximum thread length!
The tool must bear against flange 1 or flange 2.

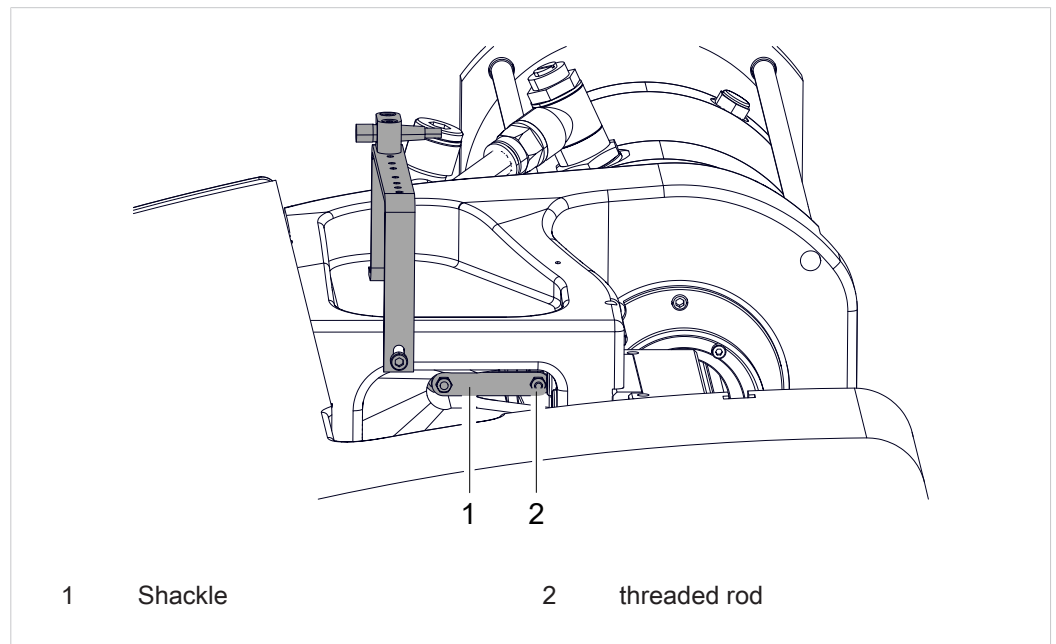
6.4.5 Installing the slide table (optional)



1. Insert the T-groove nuts into the fastening groove of the press frame.
2. Pull out the tool plate until the fastening holes are accessible.
3. Screw the base plate over the mounting holes using the T-groove nuts.
4. The insertion width is set via the stop.

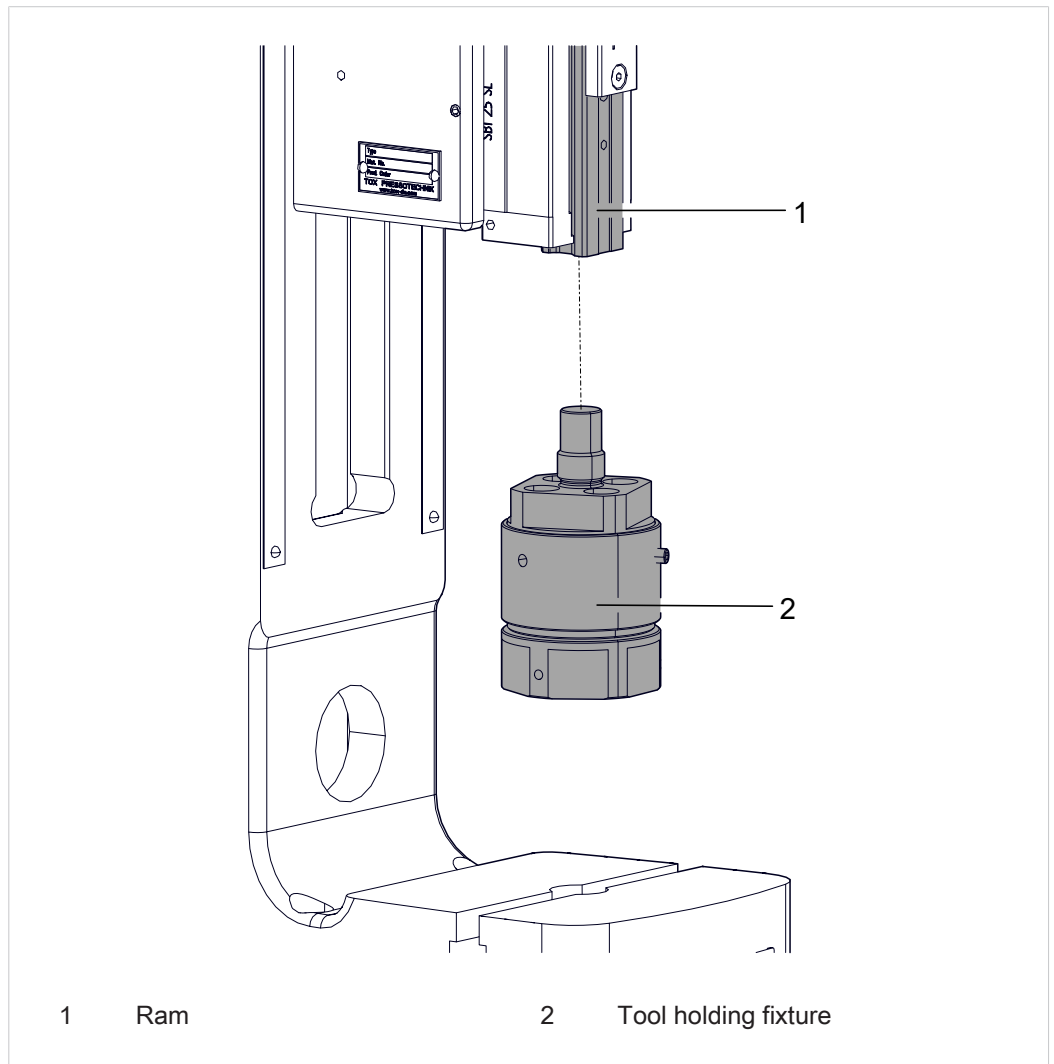
6.4.6 Installing travel sensor (option)





1. Install the holding bracket on the press head.
2. Install the travel sensor on the press head.
3. Connect the travel sensor and threaded rod through the shackle.
4. Connect the cable to the evaluation unit.
5. Install the straight plug in the mounting clip.

6.4.7 Installing the tool holding fixture (optional)



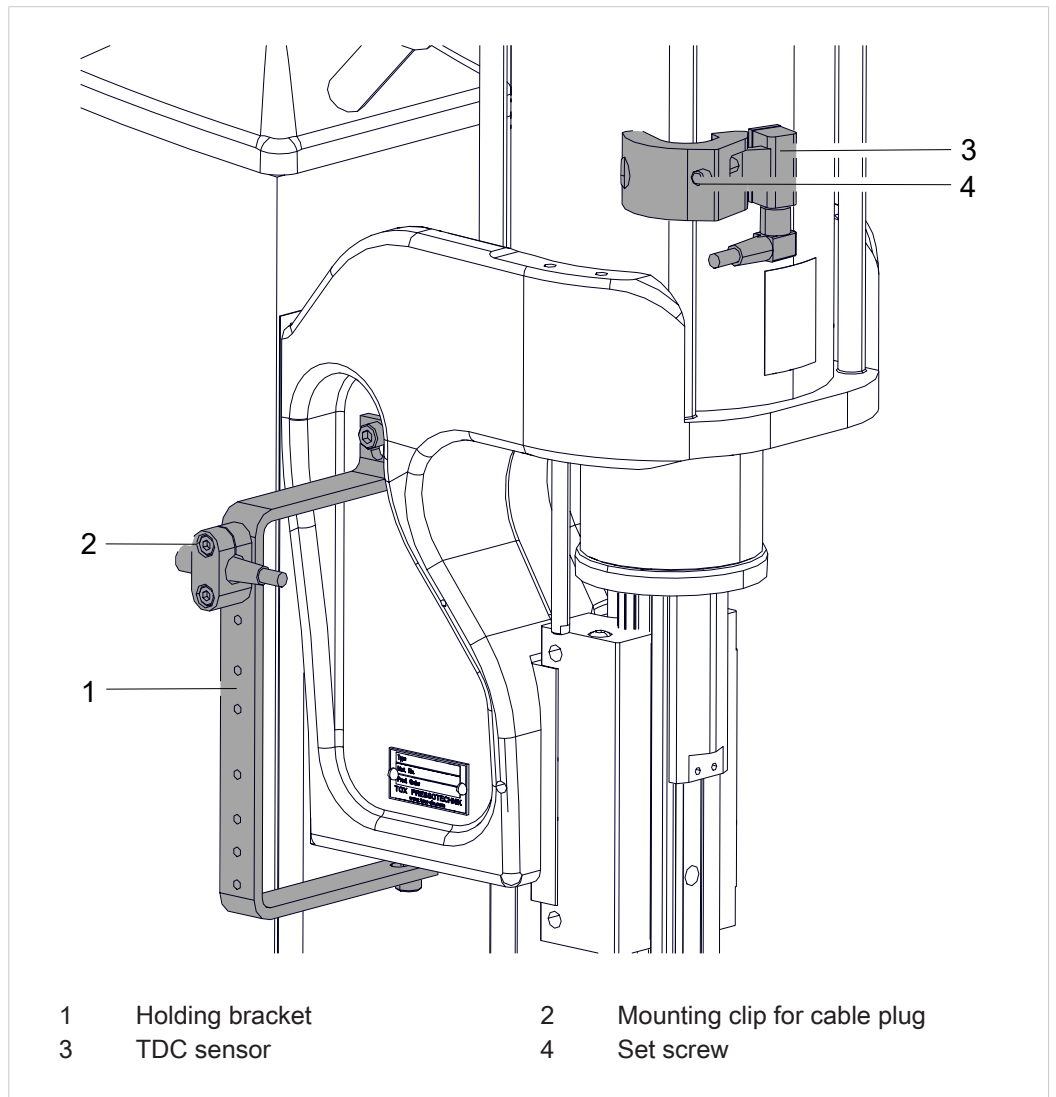
→ The tool holding fixture is screwed into the ram.

For technical data and installation dimensions see data sheet.

www.tox.com



6.4.8 Install the TDC sensor (option)



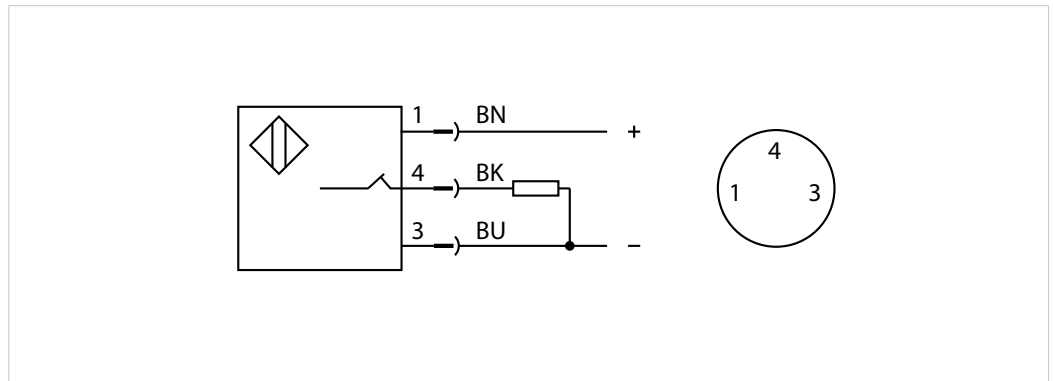
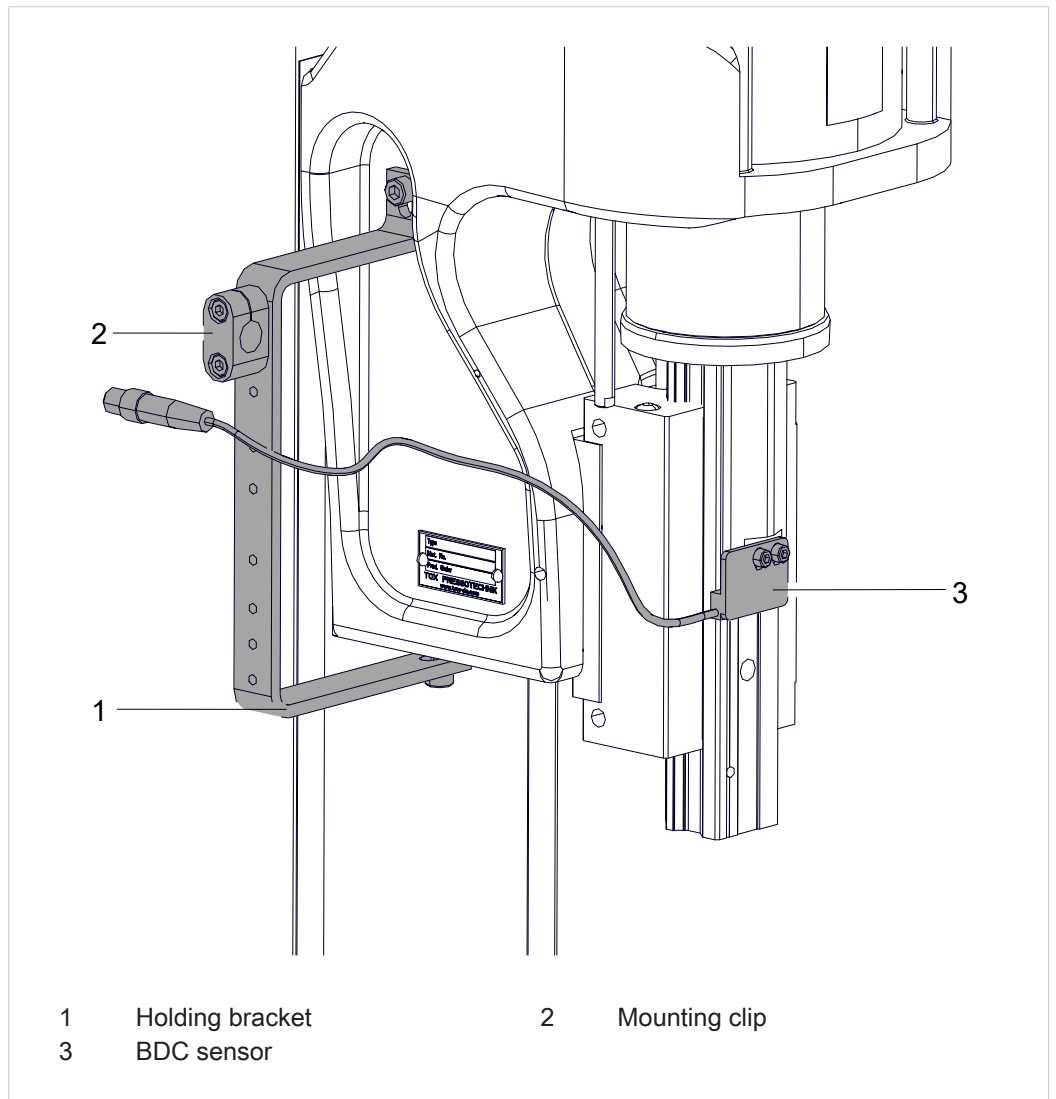


Fig. 4 Allocation of TDC sensor: (BMF 21K-PS-C-2-S49)

1. Install the holding bracket on the press head.
2. Position the TDC sensor with holding angle on the tension rod by shifting until a signal is appears on the measuring instrument.
3. Install the TDC sensor with holding angle on the tension rod.
4. Set the distance from the TDC sensor via the set screw. The TDC sensor must bear against the pneumatic cylinder.
5. Connect the cable and install the straight plug in the mounting clip.

6.4.9 Install the BDC sensor (option)



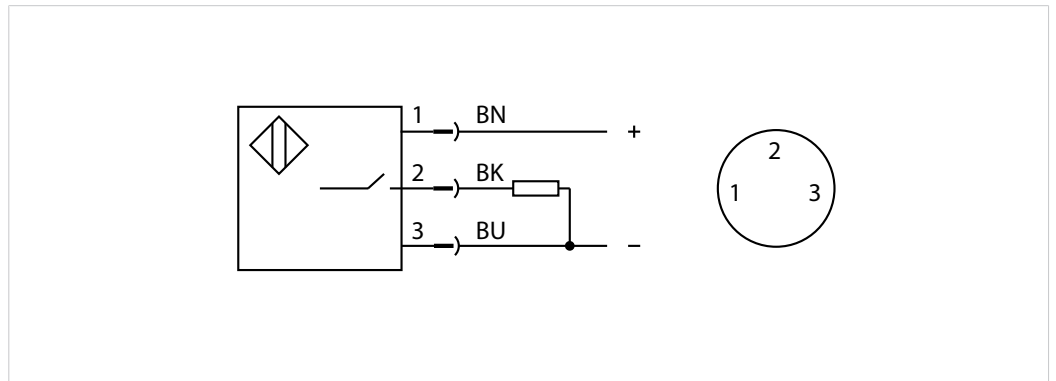


Fig. 5 Allocation of the BDC sensor: (BES R04KC-POC15B-S49-00,13)

1. Install the holding bracket on the press head.
2. Install the BDC sensor on the ram.
3. Connect the cable to the evaluation unit.
4. Install the cable plug in the mounting clip.

7 Commissioning

7.1 Safety during the commissioning

The commissioning may only be carried out by trained and authorized personnel.

7.1.1 Safety device

All safety equipment must be properly assembled and functional.

7.2 Requirements for the commissioning

This incomplete machine may not be commissioned until it has been ascertained that the incomplete machine in which the component is to be installed complies with the requirements of the Machinery Directive (2006/42/EC).

The requirements are:

- All components are properly installed.
- The safety devices of the entire system are properly assembled and functional.
- Any transport locks are removed.
- Supply connections, communication and control connections, material or media hoses are installed properly. The permissible values are complied with.
- The necessary software for controlling the component is installed.
- TOX® PRESSOTECHNIK has released the system and associated components for commissioning.
- No tools, installation equipment or other interfering objects may be left in the tool area or working area.



For the use of pneumatic systems, very small air leakages are possible on the pneumatic screw fittings / seals and basically do not represent a defect. For this there are no measurable limit values and specifications, the awareness takes place acoustically by the operator.

Pneumatic screw fittings can come loose under certain circumstances due to vibrations during transport, differences in temperature or manipulation during installation.

→ Check the firm seating of the pneumatic screw fittings.

7.3 Setting return stroke damping

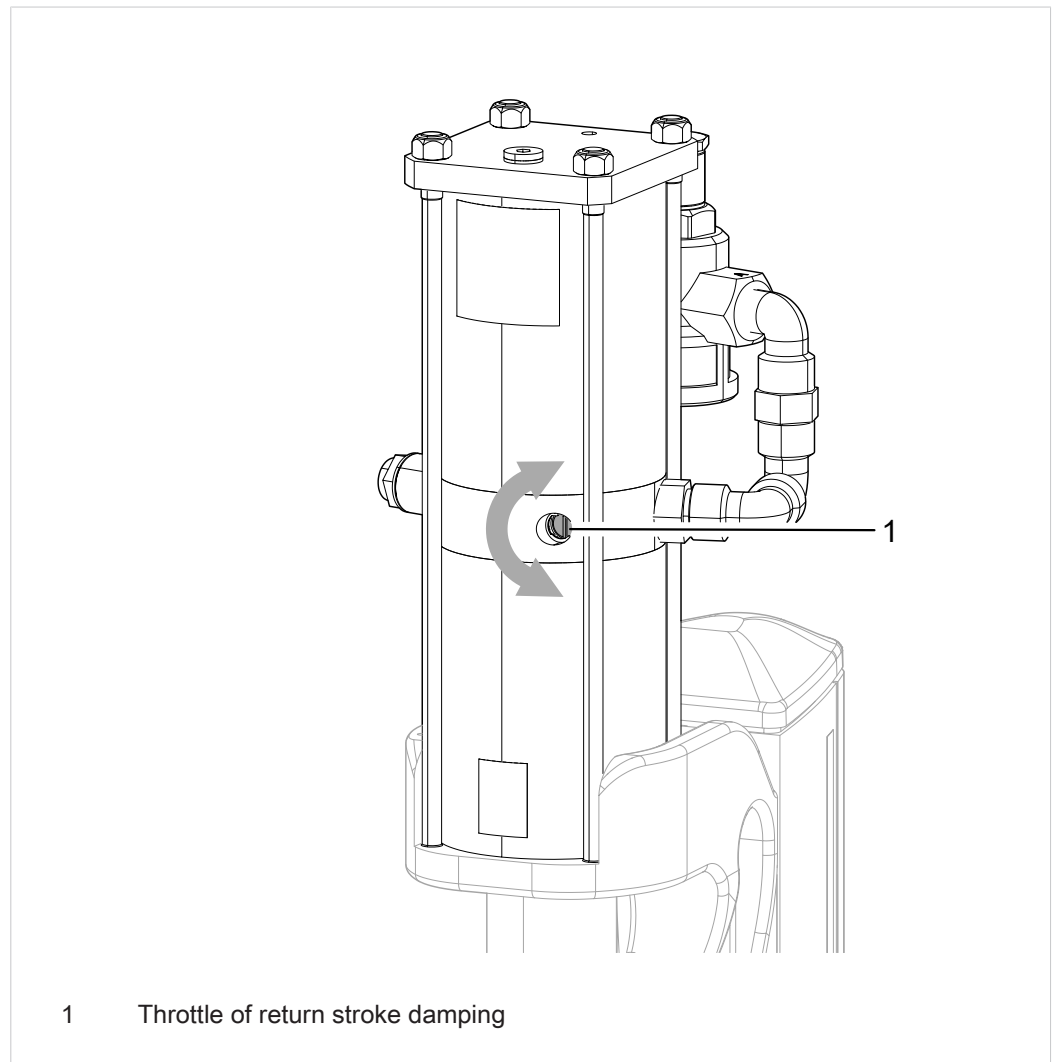


Fig. 6 Setting return stroke damping

i The setting of the throttle depends on the air pressure and the tool weight on the ram.

Turning in a clockwise direction increases the damping effect.

Turning in an anticlockwise direction decreases the damping effect.

The return stroke damping reduces the mechanical load of the drive. The damping effect is too low if a metallic sound is heard when the dead stop is reached.

- ✓ The tool is mounted on the ram.
- ➔ Adjust the throttle so that the return stroke is noticeably damped.
- ▶ No metallic sound is heard in the drive when the dead stop is reached.

8 Operation

8.1 Safety in operation

WARNING

Dangerous machine movements!

Serious contusions and injuries!

- Make sure that that no persons are located in the danger area during operation.

CAUTION

Noise during operation!

Hearing impairment!

- Wear individual protective equipment.

CAUTION

Hazard from flying parts!

Injuries to eyes and body cavities!

- Wear individual protective equipment.

8.1.1 General safety rules during operation

During operation:

- Operate the press only with approved material.
- Never operate the press without piece part or sample material.
- Make sure that that no persons are located within the danger area.
- In the event of the development of unusual noise, stop operation immediately and inform service personnel.
- Carry out a visual inspection.
- If the set stroke dimensions or speeds of the forward stroke or return stroke change unexpectedly, operation is to be stopped immediately and the service personnel informed.

8.2 Requirements for operation

- The safety devices of the entire system are properly assembled and functional.
- All piece parts are intact and properly maintained.
- Supply connections, communication and control connections, material or media hoses are installed properly. The permissible values are complied with.
- The main switches of the system or component are switched on.
- The fault messages on the system or component are acknowledged.

8.3 Process monitoring

See the separate operating manual for the installation of the process monitoring system.

8.4 Setting the open height of the press head

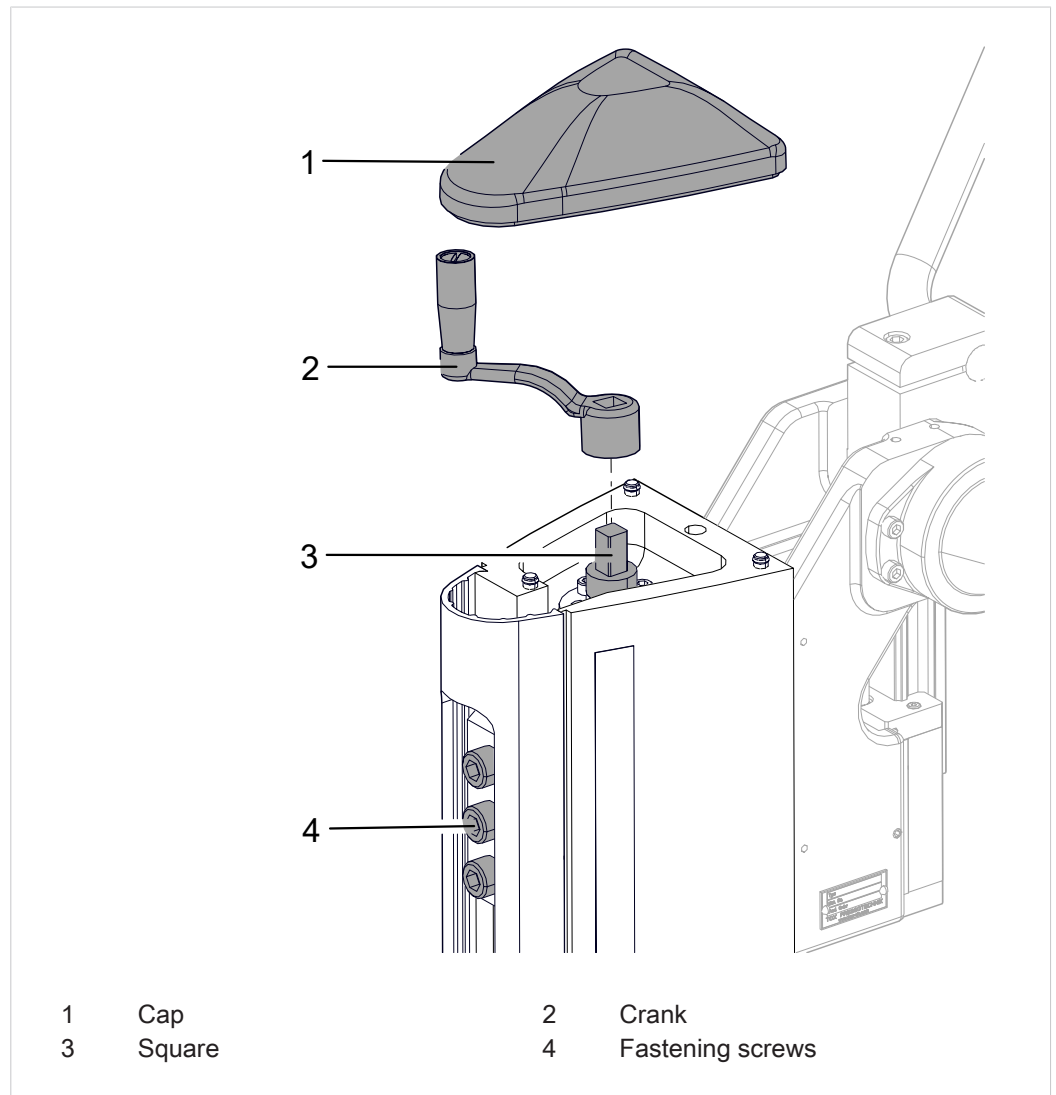


Fig. 7 Setting the open height of the press head

NOTE! Damage on the tool or the workpiece! Calculate the open height before starting operation!

- ✓ Set the fine adjustment on the largest opening. See [Fine adjustment of working stroke, Page 51](#).

- 1. Remove the cover from the press frame.
- 2. Loosen the fastening screws of the clamping plate. Do not unscrew the screws!
- 3. Place the supplied crank onto the square and adjust the open height by turning it.
Turning clockwise - increases the open height.
Turning anti-clockwise - reduces the open height.
- 4. Remove the crank and stow it away.
- 5. Tighten the fastening screws of the clamping plate. Observe the tightening torques, see [Inspecting the fastening of the press head, Page 60](#).
- 6. **NOTE!** Damage on the tool! The tool must be aligned!

- 7. Place the cover on the press frame.

9 Troubleshooting

9.1 Safety during troubleshooting

Troubleshooting may only be carried out by trained and authorized personnel.

The following applies:

- Inform operating personnel before starting repair work.
- Appoint a supervisor.

9.2 Detecting faults

If the press is equipped with a control system, the faults or warnings on the central control unit are displayed and described.

Fault	Cause	Measures
The ram does not extend.	There is a mechanical fault on the guide.	Contact authorized service personnel.
Power stroke does not initiate	Insufficient air pressure	Check the air pressure.
	Pneumatic line on cylinder is defective	Contact authorized service personnel.
	Mechanical defect on pneumatic cylinder	Contact authorized service personnel.
	Fault on control system	Contact authorized service personnel.
The nominal force not reached.	There is a mechanical fault on the guide.	Contact authorized service personnel.
	The press head is not adequately fastened.	Tighten the fastening screws evenly. Observe the tightening torques, see: Inspecting the fastening of the press head, Page 60 .

Maintenance table

The specified intervals are only approximate values. Depending on the area of application, the actual values may differ from the guide values.

Maintenance cycle	Additional information	
Weekly	10.4.1	TOX® FinePress inspecting
Monthly	10.4.3	Inspecting and cleaning movable parts and guides
Quarterly	10.4.4	Inspecting the setting of the return stroke damping
Half-yearly	10.4.2	Inspecting the fastening of the press head

10 Maintenance

10.1 General information

Maintenance may only be carried out by trained and authorized personnel.

The following applies:

- Observe maintenance intervals if present and stipulated.
- Maintenance intervals may vary from the stipulated maintenance intervals.
The maintenance intervals may have to be verified with the manufacturer if necessary.
- Perform only maintenance work that is described in this manual.
- Inform operating personnel before starting repair work.
- Appoint a supervisor.

10.2 Safety during maintenance

DANGER

Electrical hazards in case of contact with live parts!

Electric shock, burns or death in case of contact with live parts!

- Have all work on the electrical equipment performed by an electrician.
- Disconnect power supply.
- Wait for residual energy to dissipate safely (at least 3 minutes).

WARNING

Ejecting parts and compressed air from compressed air conducting lines!

Serious injuries to eyes and body cavities!

- Always connect and disconnect lines without pressure.
- Pay attention to maximum permitted pressures.
- Wear individual protective equipment.

WARNING

Dangerous machine movements!

Serious contusions and injuries!

- Make sure that that no persons are located in the danger area during operation.

NOTE**Incorrect cleaning agents or cleaning procedures, lack of corrosion protection!**

Damage to machine components!

- Clean plastic parts such as panes (safety guard door, housing, etc.) and control elements with cotton cloths (smooth woven structure) and suitable cleaning agents (e.g. clear water and neutral rinsing liquid).
Do not use scouring (abrasive) cleaning agents.
 - Only touch bare spots with gloves.
 - For metallic surfaces use cleaning set, such as industrial cleaner (e.g. Loctite 7063, or Würth Montagekraftreiniger 0890 107), vacuum cleaner, dry cloth and brush.
 - After cleaning, protect bare outer surfaces from corrosion. Coat surfaces with a cloth slightly moistened with anticorrosive fluid.
 - Keep inside surfaces, especially element-carrying parts, dry and free of grease.
-

10.3 Requirements for maintenance

10.3.1 Set system to maintenance position

Unless specified otherwise, before all maintenance work:

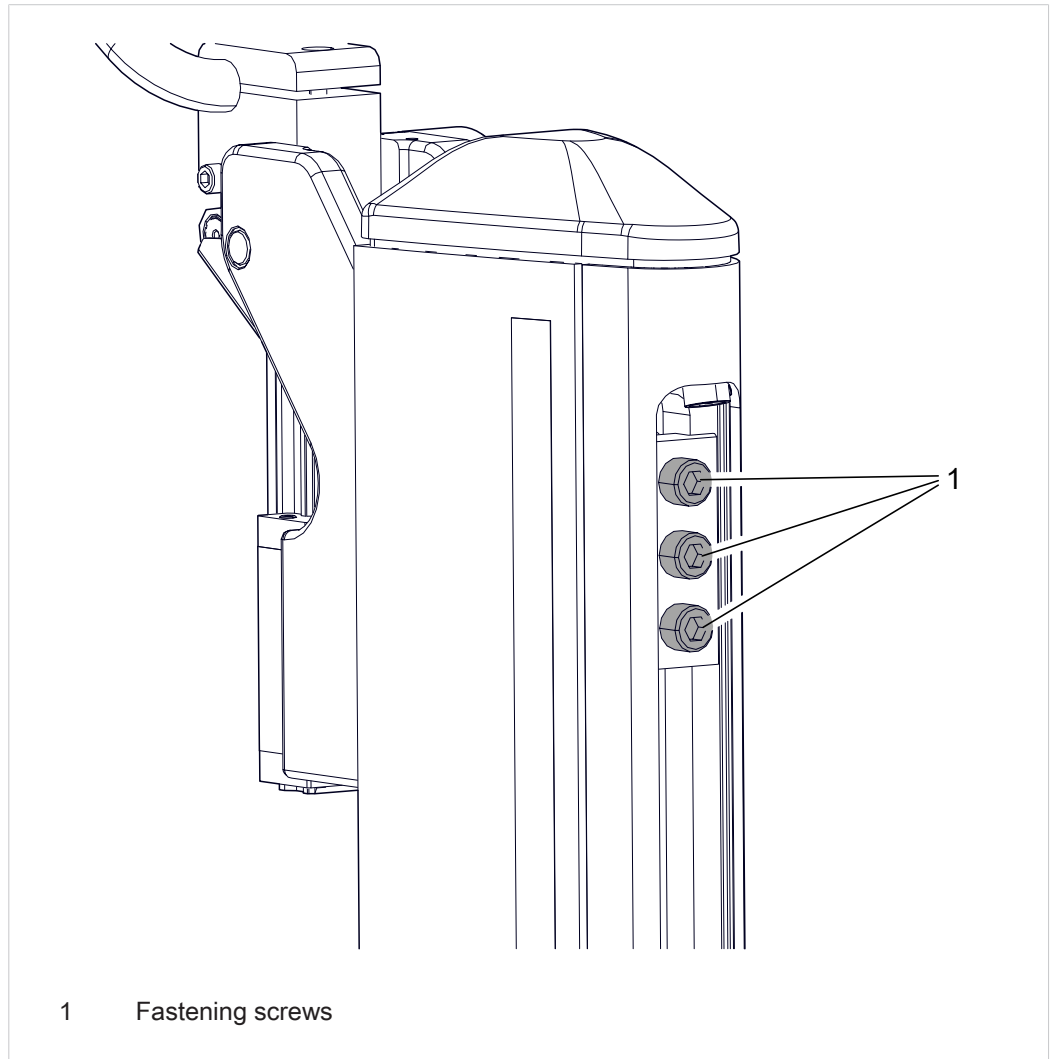
1. Retract the working piston.
 - ▷ Drive is in home position.
2. Install a restraint device if necessary.
3. Switch off the system and secure it against being switched back on.
4. Turn off the compressed air, secure it against being turned on again and vent the lines, unless expressly stated otherwise.
5. Make sure that unauthorized, accidental or unexpected starting up of the machine and initiation or dangerous movements due to latent energies are prevented.

10.4 TOX® FinePress maintaining

10.4.1 TOX® FinePress inspecting

- ✓ System is in maintenance position.
See [Set system to maintenance position, Page 58](#).
- 1. Check the plant, particularly moving parts for wear, obvious defects and damage.
- 2. Check the supply connections for tightness.

10.4.2 Inspecting the fastening of the press head



- ✓ System is in maintenance position.
See [Set system to maintenance position, Page 58](#).

1. Check the tightening torque of the fastening screws.
2. **NOTE!** Damage on the tool! Check the alignment of the tool!

Press type	Screw size	Tightening torque
PFS 002.002	M 12	45 Nm
PFL / PFW 004.002	M 12	90 Nm
PFL / PFW 008.002	M 12	135 Nm
PFL / PFW 013.002	M 12	135 Nm
all	M 16	340 Nm
all	M 20	720 Nm

Tab. 2 Fastening screws of the press head on the frame

10.4.3 Inspecting and cleaning movable parts and guides

- ✓ System is in maintenance position.
See [Set system to maintenance position, Page 58](#).

NOTE

Incorrect cleaning agents or cleaning procedures, lack of corrosion protection!

Damage to machine components!

- Clean plastic parts such as panes (safety guard door, housing, etc.) and control elements with cotton cloths (smooth woven structure) and suitable cleaning agents (e.g. clear water and neutral rinsing liquid).
Do not use scouring (abrasive) cleaning agents.
 - Only touch bare spots with gloves.
 - For metallic surfaces use cleaning set, such as industrial cleaner (e.g. Loctite 7063, or Würth Montagekraftreiniger 0890 107), vacuum cleaner, dry cloth and brush.
 - After cleaning, protect bare outer surfaces from corrosion. Coat surfaces with a cloth slightly moistened with anticorrosive fluid.
 - Keep inside surfaces, especially element-carrying parts, dry and free of grease.
-

- Inspect movable parts and guides, clean and lubricate if necessary.

10.4.4 Inspecting the setting of the return stroke damping

- ✓ System is in maintenance position.
See [Set system to maintenance position, Page 58](#).
- Inspecting the setting of the return stroke damping.
See [Setting return stroke damping, Page 46](#).

11 Repairs

11.1 Safety during repairs

Repairs may only be carried out by trained and authorized personnel.

12 Disassembly and Disposal

12.1 Safety during disassembly and disposal

The dismantling and disposal may only be carried out by trained and authorized personnel.

DANGER

Electrical hazards in case of contact with live parts!

Electric shock, burns or death in case of contact with live parts!

- Have all work on the electrical equipment performed by an electrician.
- Disconnect power supply.
- Wait for residual energy to dissipate safely (at least 3 minutes).

WARNING

Ejecting parts and compressed air from compressed air conducting lines!

Serious injuries to eyes and body cavities!

- Always connect and disconnect lines without pressure.
- Pay attention to maximum permitted pressures.
- Wear individual protective equipment.

CAUTION

Sharp edges caused by material splintering!

Injuries from worn parts!

- Wear individual protective equipment.
- Do not move fingers along the cutting edges.
- Be particularly careful and attentive.

12.2 Decommissioning

Decommissioning means that the plant is not in operation for a longer period of time but remains at the installation site for recommissioning later.

1. Switch off plant at the main switch.
2. Clean the system and protect it against corrosion.
3. Protect plant against loss of data and deep discharge.

12.3 Shutdown

Shutdown means that the system is shut down permanently and/or is prepared for removal.

1. Stop system and wait for it to come to a standstill.
2. Remove material if necessary.
3. Switch off the system at the main switch and secure it against being switched on again.
4. First disassemble or dismantle after switching off the power (electricity, pneumatics) and after residual energy has safely dissipated (at least 3 minutes).
5. Remove electrical supply line (first at the terminal, then on the machine).
6. Remove compressed air supply line.
7. Remove network connection.
8. Clean the system and protect it against corrosion.
9. Protect open cable ends against penetration of dirt.
10. Do not remove cable identifications.

12.4 Disassembling

The system consists of recyclable materials.

NOTE

Environmental damage!

Improper recycling endangers the environment!

- Dispose of materials separately and properly.
- Regional disposal regulations must be observed.

1. Strip the system down into its constituent parts.
2. Dispose of greases and oils separately.
3. Sort the constituent parts by material and dispose of according to the local regulations.

12.5 Disposal



When disposing of packaging, consumables and spare parts, including the machine and its accessories, the relevant national environmental protection regulations must be complied with.



For the environmentally compatible utilization and disposal of its electronic components, please contact the certified disposal company for electronic waste or return it to TOX® PRESSOTECHNIK.

For further information about the take-back and forms see www.tox.com in the service sector.

Regarding questions about disposal please contact TOX® PRESSOTECHNIK GmbH & Co. KG (see [Contact and source of supply, Page 10](#)).

13 Appendices

13.1 DECLARATION OF INCORPORATION

DECLARATION OF INCORPORATION

in accordance with the Machinery Directive (2006/42/EC), Annex II 1 B

Original declaration of incorporation

TOX® PRESSOTECHNIK GMBH & CO. KG herewith declares that the concept and design of the incomplete machine specified hereinafter and the execution traded by us

Designation/function Pneumatic-Press

Product name/module TOX®-FinePress

Model/type PFS, PFL, PFW

Serial number See type plate

complies with the relevant requirements of the Machinery Directive (2006/42/EC).

Insofar as the requirements of Annex 1 apply to the incomplete machine, the relevant health and safety requirements shall be documented in the technical documents according to Annex VII Section B.

Applied harmonized standards:

DIN EN ISO 12100:2011-03 Safety of machinery - General principles for design - Risk assessment and risk minimization

DIN EN ISO 4414:2011-04 Pneumatic fluid power - General rules and safety requirements for systems and their components

This incomplete machine may not be commissioned until it has been ascertained that the incomplete machine in which the component is to be installed complies with the requirements of the Machinery Directive (2006/42/EC).

The technical documents specific to this incomplete machine are available and can be transmitted electronically to national authorities in response to a reasoned request.

The commercial property rights of TOX® PRESSOTECHNIK GMBH & CO. KG shall remain unaffected by this.

The technical documents belonging to the incomplete machine according to Annex VII Part B have been produced.

Documentation officer: Simon Köberle, Riedstraße 4, 88250 Weingarten

Place, date Weingarten, 29.03.2018

Manufacturer TOX® PRESSOTECHNIK GMBH & CO. KG

Signature



Information on the signatory: ppa Albert Rankel

Filing OD

Index

A		E	
Accessories		Electromagnetic	
Installing.....	32	Hazard.....	16
Attachment point	26	Exclusion of liability.....	6
B		F	
Basic safety requirements	11	Faults	
BDC sensor		Detect.....	53
Install	42	Fine adjustment	
C		Working stroke	51
Commissioning	44	FinePress	
Requirements	45	Connections	31
Safety.....	44	Inspecting.....	59
Safety device	44	Maintaining.....	59
Compressed air quality.....	23	Force sensor	
Conformity	6	Installing	34
Connections		Function description.....	22
FinePress.....	31	G	
Contact	10	Gender note.....	7
Control panel		General information	
Installing.....	32	Maintenance.....	55
Contusion		Guidelines	6
Hazard	15	Guides	
Correct		Inspecting	61
Construction.....	19	H	
Design.....	19	Hazard	
D		Contusion	15
DECLARATION OF INCORPORATION.....	66	Electrical.....	14
Decommissioning	63	electromagnetic.....	16
Disassembly	63, 65	Hazardous substances.....	16
Safety.....	63	hydraulic.....	15
Dispatch		Laser	16
Repair	27	Noise	17
Disposal.....	63, 65	Pneumatic	15
Safety.....	63	Thermal	14
Document		Hazard potential.....	14
additional	7	Hazardous substances	16
Validity	7	Hydraulic	
Drive/Fastening		Hazard.....	15
Inspecting	60		

I

Images
 Highlighting 9
 Important information 6
 Information
 Important..... 6
 Inspection
 Drive/Fastening..... 60
 FinePress..... 59
 Guides 61
 Return stroke damping 61
 Installation 28
 Accessories 32
 BDC sensor 42
 Control panel 32
 Force sensor 34
 Process monitoring 32
 Requirement 30
 Safety..... 28
 Set-up location 30
 Slide table 36
 Stroke counter 33
 TDC sensor..... 40
 Tool holding fixture 39
 Intended use..... 19

L

LABS 21
 Laser
 Hazard 16
 Legal note..... 6

M

Maintenance 55
 FinePress..... 59
 General information 55
 Requirement 58
 Safety..... 56
 Maintenance position 58
 Measures
 Organizational..... 12
 Misuse 21
 Mounting
 Travel sensor 37

N

Noise
 Hazard..... 17
 Note
 Gender 7
 General 8
 Legal 6
 Warning signs 8

O

Open height of the press head
 Setting 49
 Operation 47
 Process monitoring 48
 Requirements 48
 Safe 19
 Safety 47
 Safety rules 47
 Organizational measures 12

P

Pneumatic connection 23
 Press force
 Table 23
 Process monitoring
 Installing 32
 Process monitoring system
 Operate 48
 Product overview 22

Q

Qualifications 13

R

Repair
 Dispatch 27
 Repairs..... 62
 Safety 62
 Requirement
 Installation 30
 Maintenance..... 58
 Return stroke damping
 Inspecting 61
 Setting 46

S

Safe
 Construction..... 19
 Design..... 19
 Safety 11
 Commissioning 44
 Disassembly 63
 Disposal 63
 Installation..... 28
 Maintenance 56
 Operation 47
 Repairs 62
 Transport 24
 Troubleshooting 52
 Safety device 17
 Commissioning 44
 safety requirements
 Basic 11
 Operating company 12
 Safety rules
 Operation 47
 Safety symbols 18
 Selection
 Personnel..... 13
 Selection of personnel..... 13
 Setting
 Open height of the press head 49
 Return stroke damping 46
 Set-up location 30
 Shutdown 64
 Slide table
 Installing..... 36
 Source of supply..... 10
 Storage..... 24, 25
 Stroke counter
 Installing..... 33
 Substances harmful to the wetting properties of
 lacquers (LABS)..... 21

T

Target group 7
 TDC sensor
 Install 40
 Technical data 23
 Texts
 Highlighting 9
 Tool holding fixture
 Installing 39
 Transport..... 24
 Attachment point 26
 Safety 24
 Travel sensor
 Installing 37
 Troubleshooting 52
 Safety 52

U

Use
 Intended 19

V

Validity
 Document..... 7

W

Warning signs 8
 Working stroke
 Fine adjustment..... 51

