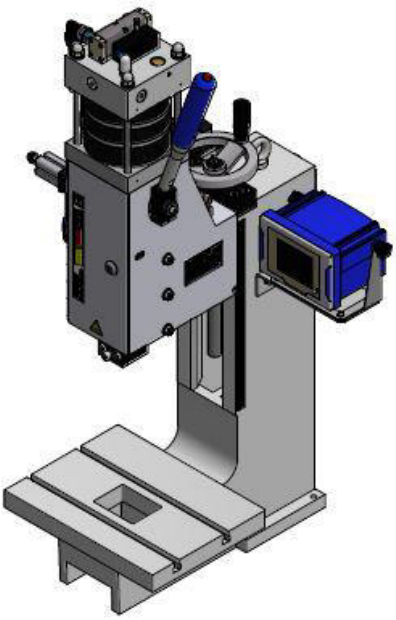
Gechter GmbH Werkzeug- und Maschinenbau

Translation of the original operating manual

English

Hand lever press with air assistance

Type: **HKPL-DS standard, MS and MC**
4-8-12 kN, 13-20 kN, 33-45-56 kN



Example representation

The operating manual must be read prior to the initial commissioning!

Observe the safety instructions!

Keep for future use!

This documentation is not subject to any change service!

November 2016	**-**	**May 2019**	**Version: 00**
June 2019	**-**	**December 2020**	**Version: 01**
January 2021			**Version: 02**

Information

i

This operating manual is part of the technical documentation of the press according to the EC press guideline.

This operating manual complies with the "Directive 2006/42/EC of the European Parliament and the Council on the Approximation of the Legal and Administrative Provisions of the Member States Relating to Presses" (Press Directive), appendix I, point 1.7.4.

CE

This operating manual is aimed at those responsible in the plant who must hand this over to the personnel responsible for the installation, connection, use and maintenance of the press.

The responsible persons must ensure that the information contained in the operating manual and in the accompanying documents has been read and understood.

The operating manual must be stored in a known and easy-to-access location and must also be consulted even in cases of minor doubt.

The manufacturer assumes no liability for damage to people, animals or objects as well as the press itself, which is caused from improper use, neglect or insufficient observance of the safety criteria contained in this operating manual or that is caused by modifying the press or using unsuitable spare parts.

Archiving

- Always store the operating manual on the press!
- Always keep the manual handy!

Symbols and Signal Words

The following symbols and signal words are used in this documentation. The combination of a pictogram and a signal word classifies the respective safety note. The symbol may vary depending on the type of hazard.

ANSI Z535.6	
DANGER	DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	WARNING indicates a hazardous situation which, if not avoided, could relust in death or serious injury.
CAUTION	CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE	NOTICE is used to address practices not related to physical injury.
SAFETY INSTRUCTIONS	Safety instructions (or equivalent) signs indicate specific safety-related instructions or procedures.

Content

I

1. Identification

Hand lever press with air assistance

Type: 4-8-12 kN HKPL-DS, 13-20 kN HKPL-DS, 33-45-56 kN HKPL-DS

Expected service life: 10 years

Gechter GmbH Werkzeug- und Maschinenbau
Ostring 3
90587 Obermichelbach

GERMANY

Tele-phone: 0911 / 982873-20
Fax: 0911 / 982873-99
E-mail: verkauf@gechter.com

1.1 Use in accordance with the intended purpose

The hand lever press with air assistance HKPL-DS is used for pressing, joining, assembly, riveting, punching, bending, embossing and cutting work as well as work with sufficiently insulated heated tools.

The press is suitable for processing metal, cardboard, plastic, rubber, leather and metal powder.

Any other or extended use of the press is considered as unintended and is thus incorrect. This may impair the safety and its protection. The company Gechter GmbH Gechter GmbH Werkzeug- und Maschinenbau is not liable for any damages resulting from this.

Proper use also includes:

- observing all instructions in the operating manual
- observing all safety instructions
- complying with the inspection and maintenance work

NOTICE	
Observe the "Technical data" in the chapter "Installation and Function". This describes the exact technical specifications for proper use.	

1.2 Reasonably Foreseeable Misapplication

Reasonably foreseeable misapplication, which may result in dangers to the user, third party or to the press, for all operating modes is constituted by:

- using the press and its electrical equipment contrary to the intended use
- feeding components whose shape deviates from the shape intended for the press
- operating the press outside of the physical application limits described in the "Commissioning / operation" chapter
- changing the operating pressure to deviate from the value specified in the technical data
- changing the control software without prior consultation with the company Gechter GmbH Werkzeug- und Maschinenbau
- changes to the press as well as additions and conversions without prior consultation with the company Gechter GmbH Werkzeug- und Maschinenbau
- operating the press contrary to the provisions of the operating manual with respect to safety instructions, installation, operation, maintenance and repair, setup and faults
- bypassing or decommissioning safety and protective precautions on the press
- operating the press in the event of obvious faults
- repair, cleaning and maintenance work without switching off the press

⚠ WARNING

Risk of injury from unauthorized changes

Dangers result from unauthorized changes to the press or to the control cabinet and from the use of spare parts from other manufacturers.

Only original spare parts and wear parts from the manufacturer may be used. Do not perform any changes, additions or conversions without approval from the company Gechter GmbH Werkzeug- und Maschinenbau.

2. General Information

2.1 Warranty and liability

In general, the "General terms and conditions of sale and delivery" of the company Gechter GmbH Werkzeug- und Maschinenbau shall apply. These are available to the operator at the latest upon contract conclusion.

Warranty and liability claims in the event of personal injury or property damage are excluded if they are due to one or more of the following reasons:

- improper use of the press
- improper assembly, commissioning, operation and maintenance
- operating the press with defective safety devices
- disregarding instructions in the operating manual
- unauthorized structural changes
- deficient maintenance, repair and service measures
- cases of disaster caused by foreign bodies or force majeure

2.2 Target group of the operating manual

Target Group

The operating manual is intended for the operator and personnel with the following areas of expertise:

Work area	Expertise
Installation, transport and storage	Technically trained personnel
Commissioning, operation and decommissioning	Trained personnel
Setup	Technically trained personnel
Service and maintenance	Technically trained personnel
Troubleshooting	Technically trained personnel

Definition according to DIN EN 60204-1:

Trained personnel:
A person who has been instructed and trained where necessary by an expert regarding the tasks to be transfered as well as the possible dangers in the event of improper behavior and who has been instructed on the necessary protective equipment and protective measures.

Technically trained personnel:
A person whose professional training, knowledge and experience as well as knowledge of relevant standards allows him/her to assess the assigned work and detect possible dangers.

Qualification of the operating personnel:

Work may only be carried out on the machine independently by people who

- have been instructed and trained on the system by expert or service personnel of Gechter GmbH Werkzeug- und Maschinenbau and who are therefore familiar with the technology
- are physically and mentally capable to do so

Outside of the Federal Republic of Germany, the applicable accident prevention regulations, safety provisions and youth employment protection laws of the respective country shall apply.

2.3 Objectives of the operating manual

This operating manual is intended as an aid and contains all necessary information that must be taken into consideration for the general safety, transport, installation, operation, maintenance and setup.

This operating manual with all of the safety instructions (as well as all additional documents of the modules from third party suppliers) must:

- be observed, read and understood by all people who work on the press (especially knowledge of the safety instructions)
- be freely accessible to everyone
- be consulted in cases of even the slightest doubt (safety)

Goals:

- Avoid accidents
- Increase the service life and reliability of the press
- Reduce production downtime costs

3. General Safety Instructions

3.1 Scope and Symbols

	⚠ WARNING	
	**Danger to life, risk of injury and cause of physical damage** Failure to observe the operating manual and all of the safety instructions contained therein may result in dangers. Carefully read the operating manual prior to the initial commissioning. Meet the required safety conditions prior to the initial commissioning. General safety instructions and also the special safety instructions inserted in other chapters are to be observed.	

The machine is built in keeping with the latest technological developments and according to the recognized technical safety rules. In order to exclude dangers to the life and limb of the user, third parties or other damage during its use, only use the press for the intended use and in the clearly technically safe and perfect condition.

Property damage and physical injuries that are due to the instructions in the operating manual being ignored are the responsibility of the press operator of the persons commissioned by said operator.
Faults that may impair the safety must be rectified immediately.
All safety and hazard information about the press is to be observed and constantly kept in a good legible condition.

3.1.1 Safety symbols – pursuant to DIN 4844-2

	⚠ WARNING	
	**Risk of injury from ignoring the safety symbols** Dangers arise from ignoring the warning information about the press and in the operating manual. Observe the warning information in the "Appendix" chapter.	

3.2 Obligations

⚠ WARNING

Risk of death from negligence

Despite numerous protection and safety devices, there are still hazards in the event of negligent behavior when using the press.

Always work on the press with great care and caution. Failure to observe the safety instructions will lead to the loss of any claims for compensation.

The following conditions may increase the hazard potential of the press:

- Failure of important functions of the press
- Failure of prescribed methods for maintenance and repair
- Hazard of personnel from electric, mechanical or thermal effects

3.2.1 Operator responsibilities

A safe technical condition and safe use of the press is the prerequisite for safe operation. That is why the press operator is obligated to ensure that the following points are observed:

- Ensure that the press is only operated by trained and authorize personnel!
- Prohibit safety-impairing and dangerous working methods! If necessary, review the personnel's actions!
- Have personnel confirm they have understood the operating manual with their signature!
- Ensure that a copy of the entire operating manual is always handy and available at the press!
- Regularly check the complete and legible condition of the operating manual!
- Prescribe the wearing of appropriate personal protective equipment (PPE) for work with an increased risk of injury!
- Determine the responsibilities according to the different task areas (operation, maintenance)!
- Require the operating and maintenance personnel to report any occurring and recognizable safety defects to their superiors immediately!

3.2.2 Obligations of the operating personnel

⚠ WARNING

Risk of injury from an improper condition of the press

There are risks when working on the press that are caused by faults or malfunctions, including of the safety equipment during operation.

Check the proper condition of the safety equipment, the supply lines and the overall condition once per shift.

Do not switch on the press. Secure it from accidental actuation. Only switch on the press once the proper condition has been established or damage or defects have been rectified.

NOTICE

Immediately inform superiors if one of the aforementioned points occurs!

⚠ WARNING

Risk of injury when used by unauthorized personnel

There are hazards if unauthorized personnel intervene in the press.

Secure the press from unauthorized use when leaving the press.

Secure the press from unauthorized reactivation after work is completed.

The press may only be operated after briefing or training.

NOTICE

The operating personnel are required to personally behave so as to contribute to preventing work accidents and their consequences.

⚠ WARNING

Risk of injury from ignoring the instructions for use

Unauthorized use of the press will result in dangers.

Observe all given instructions. Do not carry out any work that you are not authorized to perform. Contact appropriate technical personnel if necessary.

⚠ WARNING

Risk of injury from a lack of personnel qualification

There are risks for people and proper use due to insufficiently qualified personnel.

The press may only be operated by personnel who have been instructed by the company Gechter GmbH Werkzeug- und Maschinenbau. The operator shall precisely regulate the area of responsibility, competence and monitoring of the personnel.

The personnel for the areas of expertise named in the chapter "Target Group of the Operating Manual" must have the corresponding qualification for this work (training, briefing). If necessary, this can be done by the manufacturer on behalf of the operator.

In the event of non-compliance, all warranty claims are void.

3.2.3 Orientation values for lifting and carrying frequencies

Gender	Load weight in kg	Lifting, setting down, moving and holding	Carrying up to a carrying distance of		
			5 to <10 m	10 to <30 m	≥ 30 m
Men	< 10	in general without restriction			
	10 to < 15	up to 1000x/layer	up to 500x/layer	up to 250x/layer	up to 100x/layer
	15 to < 20	up to 250x/layer	up to 100x/layer		up to 50x/layer
	20 to < 25	up to 100x/layer	up to 50x/layer		
	≥ 25	only in conjunction with special preventative measures			
Women	< 5	in general without restriction			
	5 to < 10	up to 500x/layer	up to 500x/layer	up to 250x/layer	up to 100x/layer
	10 to < 15	up to 250x/layer	up to 100x/layer		up to 50x/layer
	≥ 15	only in conjunction with special preventative measures			

	**⚠ WARNING** **Risk of injury from ignoring the table values** Exceeding the permissible load weights, the carrying distance as well as the duration of the lifting, moving and holding may cause health damage. Observe the table values above.	

3.3 Working, service and protection areae

Hazardous areas at the press that are particularly important are to be marked with warning signs and safety symbols. They are clearly recognizable for people working in this area.
The working, service and protection area of the press form the hazardous area.

	**⚠ WARNING** **Risk of injury from ignoring the hazard area** There are dangers from mechanical energy. Do not set down or store anything in the working and service area. Set down tools so they do not pose any risks to personnel.	

	**⚠ WARNING** **Risk of injury and death from ignoring the safety instructions and the safety distance** There are risks from ignoring the safety instructions and the safety distance to the press. Observe the safety instructions and signs on the press and in this operating manual. Maintain the appropriate safety distance to the press.	

3.4 Safety Devices

The press is provided with various safety devices. These are intended to prevent dangers to the life and limb of the people working on the press caused by mechanical effects as well as to limit the physical damage to the press.

NOTICE

Never bypass, remove or render ineffective any devices.

Do not operate the press if the protective devices are not fully installed and functional.

You can find additional information about the different safety devices in the chapter "Installation and Function".

3.5 Dangers from Energy

Source of danger	Example
Electric power	▪ Switching cabinet, freely accessible live assemblies
Mechanical energy	▪ freely accessible tools
Pneumatic energy	▪ Defective pneumatic system
Emissions	▪ Airborne noise

3.5.1 Dangers from electric power

⚠ WARNING

Risk of death from hazardous electric voltage

- Electric residual energy remains in the lines, equipment and devices when the system is switched off.
- Work on the electrical power supply system may only be carried out by technically trained and qualified electricians. Switch off the power at the main switch. Disconnect the system from the power supply system. Secure the switch from unauthorized actuation by using a lock. Store the key in a safe place.
- Disconnect the system from the power supply system if active system parts are accessible with tools. Always keep the control cabinet closed. Access only by authorized personnel.

Regularly check the system's electrical equipment. Replace scorched cables. Regularly examine all moving cables for damage in the context of repair and maintenance work. Rectify any loose connections.

3.5.2 Dangers from mechanical energy

	**⚠ WARNING** **Danger of injury from pulling in or catching** There is a danger of getting pulled in from moving press parts. Appropriate protective clothing must be worn when working on the press with an increased risk of injury.	

	**⚠ WARNING** **Risk of crushing and amputation** Dangers are created if protective covers are removed. Do not open any protective covers. Do not remove any connections and covers from protective housing.	

	NOTICE Notify the operating personnel of dangers from mechanical energy.	

3.5.3 Dangers from pneumatic energy

⚠ WARNING

Risk of injury from pneumatic energy

Dangers can arise when aerating and venting the press if pneumatic actuators are accidentally put into motion.

Do not open any pneumatic fittings as long as there is still pressure in the pneumatic lines. Disconnect the connecting coupling between the maintenance module and main pneumatic line.

Switch off the press before working on the pneumatic press. Set the main start-up valve of the maintenance module to "OFF" and secure with a U-lock.

NOTICE

Notify the operating personnel of dangers from pneumatic energy.

Regularly examine all pneumatic hoses for damage in the context of repair and maintenance work.

3.5.4 Emissions: Airborne noise

The continuous sound pressure level emitted from the press is < 80 dB(A). A higher or lower sound pressure level may occur depending on the local conditions.

⚠ WARNING

Risk of injury from operating noise

Hearing damage may occur from the continuous sound pressure level emanating from the press.

If necessary, protect yourself from hearing loss by wearing ear protection.

3.6 Residual dangers

There can be residual risks that are not apparent despite all precautions taken!

Residual risks can be reduced if the safety instructions and the intended use as well as the operating manual are observed in their entirety!

	**⚠ WARNING** **Risk of injury from faults** Faults or operating conditions that can affect the safety of operating personnel force the shutdown of the press by disconnecting the power supply. A proper restoration of the intended condition is required.	

	**⚠ WARNING** **Risk of crushing and hand injury** There is a risk of injury from the movement of press components. During the pressing operation, it is strictly forbidden to reach into the working areas of the press. Observe the risk of crushing and hand injury during cleaning, setup, maintenance and fault rectification.	

	**⚠ WARNING** **Risk of slipping** The floor near the press can be dirty after operation or faults on the press. Pay attention to dirty areas and clean the floor if necessary.	

	**⚠ WARNING** **Access is prohibited for unauthorized persons** There are dangers if unauthorized personnel enter into the hazardous area of the press. The operator shall ensure that unauthorized personnel (e.g. visitors) do not have access to the hazardous areas (service area, protected areas).	

3.7 Hazards in specific life cycles

3.7.1 Installation

	**⚠ WARNING** **Risk of injury from raised loads** There are dangers from human misconduct and insufficiently secured loads. Only have the work carried out by personnel specially trained for transport work. Never step under raised loads. Secure the load from shifting positions.	

	**⚠ WARNING** **Risk of injury from unsecured transport routes** There is a risk of tripping and slipping when transporting the press. Make sure that the paths, ramps and steps over which loads are moved are equipped to be trip-proof, free of obstacles and well-lit. Ensure surefootedness with coarse floors.	

	**⚠ WARNING** **Danger of injury when starting the press** There are dangers when the press automatically starts. Secure the press from switching on unintentionally during installation. Ensure that no one has access to the press during installation. If necessary, prohibit third parties from entering the hazardous area.	

3.7.2 Commissioning / Operation

	**⚠ WARNING** **Danger of injury from electric and special residual energy (pneumatic)** There is still residual energy in lines and press components even if the energy supply is switched off. Never operate the press unattended. Before switching on the press, ensure that no one is in danger and only authorized personnel work on the press. If necessary, prohibit third parties from residing near the press. Operating personnel are not permitted to work on the electrical supply.	

	**⚠ WARNING** **Risk of injury from mechanical energy** There are mechanical risks, such as crushing, pulling in, catching. Never operate the press without protective devices. In cases of emergency, actuate the EMERGENCY STOP palm button to immediately stop the press. Before commissioning the press, all protective and locking devices and other protective functions incorporated in the control system must be functioning. These devices may only be removed if the press is at a standstill and during maintenance work.	

	**⚠ WARNING** **Risk of slipping due to leaking operating materials** The floor near the press can be dirty after operation or faults on the press. Pay attention to dirty areas and clean the floor if necessary.	

3.7.3 Setup

⚠ WARNING

Risk of crushing and hazard to life if unauthorized personnel intervene

There are hazards if retrofitting work is carried out by unauthorized personnel.

Secure the press from unintentional and unauthorized reactivation and disconnect it from the power supply and air supply before the retrofitting work. Release all press parts.

NOTICE

Unauthorized modifications and changes to the press are prohibited!

Only parts approved by the manufacturer may be used!

3.7.4 Service and maintenance

⚠ WARNING

Risk of injury from mechanical energy

There are risks from electric and mechanical energy as well as specific residual risks on the press.

Only have maintenance and repair work carried out by unauthorized instructed personnel.

First begin the maintenance if dangerous movements from stored energy (pneumatic) are no longer possible.

Ensure that no one stays in the hazardous area. If necessary, prohibit third parties from residing near the press.

NOTICE

Unauthorized modifications and changes to the press are prohibited!

Only parts approved by the manufacturer may be used!

3.8 Additional Information

For all work on the press, the accident prevention provisions of professional associations also apply.

Also to be noted:

- applicable binding regulations for accident prevention
- applicable binding regulations at the site of use
- the recognized technical rules for safety and professional work
- existing regulations for environmental protection
- other applicable regulations

	NOTICE	
	Employee training with respect to hazards and the required protective measures must be repeated regularly, but at least once a year. Operating instructions are required in the interest of occupational safety, which the operator must create! In addition to the operating manual, these instructions are to be fully observed by the press operator!	

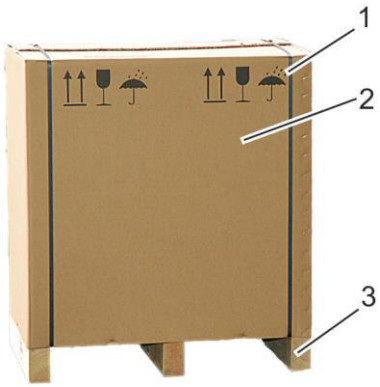
4. Installation

	NOTICE	
	Observe the basic safety instructions in the "Safety Instructions" chapter. In addition, observe all safety instructions in the manufacturer documentation found in the appendix.	

- Visually inspect that all sling gear is undamaged and in good condition!
- Prevent ropes and lifting straps from chafing on sharp edges and corners by using special aids, such as intermediate layers of soft material, protected corners, wooden corner pieces!
- Screw in the full length of hooks and eye bolts!
- Do not repair or use any damaged or bent hooks and eye bolts!
- Do not attach any loads from which any liquids that may be present could leak during transport!
- Check the delivered parts for completeness, damage or other abnormalities!
- During transport, observe the valid safety and accident prevention regulations (BGV D8, D6)!
- Ensure adequate ventilation at the installation site!
- If you have questions about transport, setup and installation of the press, contact the company Gechter GmbH Werkzeug- und Maschinenbau!
- Refer to the "Identification" chapter for contact options!

4.1 Transport process

The press is delivered on a pallet. This must remain under the press during transport to the site of installation in order to avoid any tipping or bumping during transport.



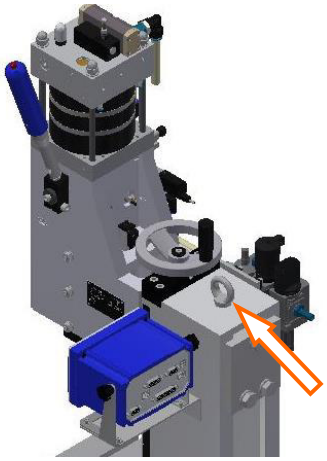
Example representation

- Bring the transport crate to the final site of installation with suitable transport equipment (lift truck / forklift).
- Wear appropriate protective clothing during transport work!
- For transport, only use technically flawless and functional hoisting gear with sufficient load-bearing capacities!
- Lift the press at the marked attachment points (3)!
- Ensure that the load-bearing capacity of the hoisting gear as well as the load receiving and transport equipment correspond to the loads specified for the press!
- For larger presses, have trained transport personnel carry out the transport!
- Remove the transport straps (1).
- Remove the pallet packaging (2).
- Remove the safety screws.

4.2 Setting up the system

	NOTICE	
	If the available compressed air network exceeds the permissible operating pressure, this is limited to the permissible maximum pressure by the maintenance unit pressure regulator.	

	NOTICE	
	The press is delivered assembled and ready for operation. An assembly of accessories may be necessary in certain cases (observe the separate instructions for accessories).	



Example: Eye bolt for transport

4.2.1 Space required

- Observe the exact specifications of the installation dimensions in the following schematic diagrams of the press (specifications in millimeters)!
- Observe the required load-bearing capacity of the workbench (see "Technical Data" chapter)!

The provided location must be firm and level!

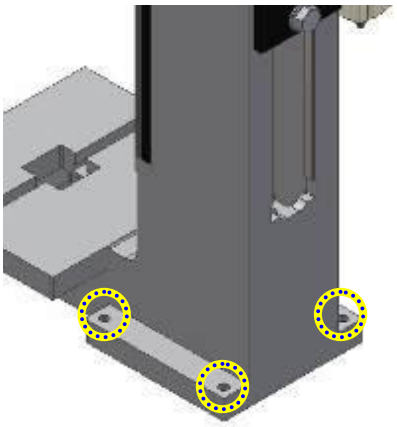
4.2.2 General conditions

The installation location must have a power and compressed air connection.

- Install the system so that the separating devices are easy to access!

4.2.3 Fastening the press

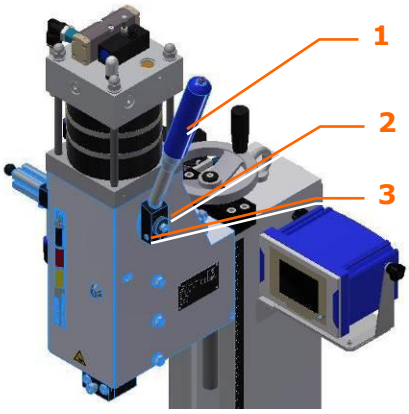
Fasten the press with hexagon bolts, washers and nuts through the bores on the press base feet.



Fastening the press

4.2.4 Assembling the hand lever

- Screw the hand lever into the receptacle of the universal shaft on the right side of the device.
- Tighten the hexagon socket screws with the Allen key.
- Use an open-end wrench to tighten the hand lever with lock nut against the receptacle.
- Tighten the hand lever in the lever clamping with an Allen key.



Assembling the hand lever

1 Lever

2 Lock nut

3 Hexagon socket screw

4.3 Connect the press (power supply

- Route all of the cables required for operating materials according to the wiring diagram!
- Lay the cables in the cable ducts provided!
- Install the supply lines on site so that the press can be supplied with compressed air!

The following are required to operate the press:

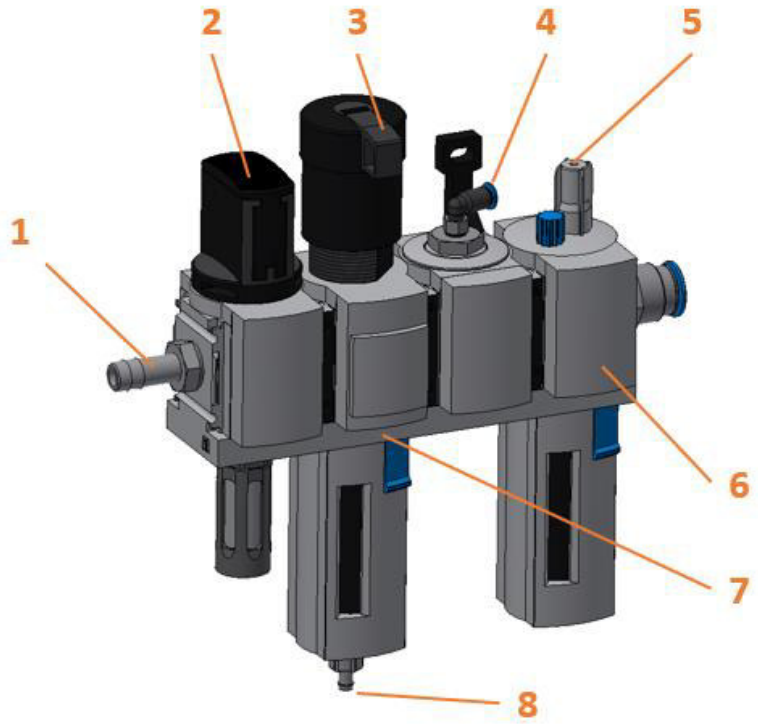
- It must be checked at the system's electrical connection whether the existing supply voltage coincides with the supply voltage specified on the system
- The fuse protection is specified in the chapter "Technical Data"
- Ground conductors and connection cables must have the same cross-section
- The connection occurs via an isolated ground receptacle 230 V AC

- A central compressor is required for the correct pneumatic connection of the press that provides dry and cooled air in the sufficient quantity and pressure.
- The press is equipped with a pressure regulator and maintenance module.
- The condensation tank of the pneumatic maintenance module must be emptied regularly.

4.3.1 Pneumatically connect the press

A maintenance unit for pneumatic presses is mandatory pursuant to DIN EN 13736. The Gechter presses are thus supplied with an appropriate maintenance unit by default.
The pneumatic connection is made at the maintenance unit coupling socket.

- Connect the external pneumatic connection to the hose nozzle.
- Set the switch-on valve to passage.
- Remove the pressure adjustment knob.
- Set the operating pressure at the pressure adjustment knob of the maintenance unit according to the permissible operating pressure (see Technical Data).
- Press down the pressure adjustment knob. (The pressure reducing valve is secured in the down position before adjustment).
- Set the oiler of the maintenance unit to 1 drop per 80 strokes with the knurled screw.



1	Hose nozzle	**5**	Adjusting screw for oiler
2	Switch-on valve	**6**	Oiler
3	Pressure adjustment knob	**7**	Pressure regulator with condensate separator
4	Junction	**8**	Drain plug

4.4 Operating Conditions

Physical operating conditions	
Ambient temperature:	+10 °C to +55 °C
Air humidity:	30% to 60%
Elevation:	max. 2000 m above sea level
Contamination:	No high contamination from dust, acids, corrosive gases
Special conditions:	▪ No direct sunlight ▪ The operators must install additional lighting equipment if the working area is insufficiently lit ▪ Sufficient ventilation of the working area (load on the operator) ▪ The press does not have any explosion protection

Natural and artificial lighting of workplaces according to BGR 131-1 (Oct. 2008)		
	Work area	Surrounding area
Work areas where employees reside regularly for a longer period of time when carrying out activities or in the course of daily work.	300 lux	200 lux
Work areas where optophysiological or production-related requirements call for values of 500 lux or greater, such as office workplaces, laboratories, workplaces in healthcare, or work areas with special hazards, such as working with circular saws.	500 lux	300 lux
Work areas where employees do not reside regularly for a longer period of time or in the course of daily working hours, e.g. for work in the warehouse and that do not present any particular hazards.	200 lux	200 lux

4.4.1 Press lighting

NOTICE

The press does not have its own lighting equipment and is therefore to be integrated into to the hall lighting available at the site of installation!
The operators are to install additional lighting equipment if the lighting of the working area at the press is insufficient!

4.5 Aligning the system

You need the following tools to align the attached press elements:

- Fitter toolbox
- Spirit level

➲ Check the horizontal position of all components with the spirit level!

Spirit level

4.6 Operating equipment

➲ Please refer to the documentation for supplier components in the appendix!

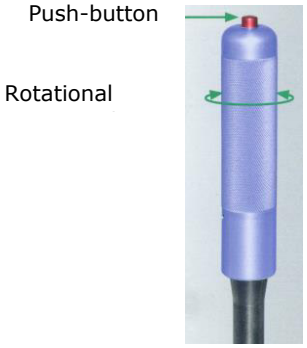
➲ When using cleaning agents, follow the operator's current work instructions!

➲ Refer to the "Lubrication" chapter for specifications about lubricating the press!

5. Setup and function

5.1 Description

The hand lever press with air assistance is a continued development of the hand toggle press and represents a link between the hand and pneumatic press.
The entire stroke of the HKPL-DS consists of an approach and a pneumatic power stroke. By actuating the hand lever, the operating personnel moves the approach stroke into its lower final position. In this position, the operating personnel have the option to trigger the pneumatic power stroke again either by actuating the push button or by a slight rotational movement on the hand lever.



The main advantage of this press design is the low-fatigue working, since only the return spring force of the approach stroke has to be overcome. No other physical force must be applied for the
actual work process.

The air-assisted hand lever press is used for riveting, punching, bending, embossing, cutting, pressing and joining work for which a power stroke of
< 6 mm suffices. A constant work performance of the operator can be assumed due to the low physical force input.

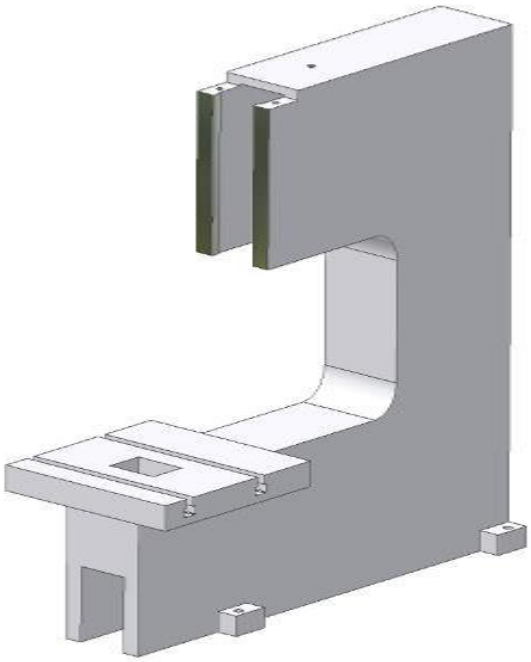
The press is suitable as a work station both in a sitting and standing position. It is primarily fastened to an existing workbench or a sturdy base frame.

The press reaches its nominal performance at a maximum operating pressure of 6 or 7 bar, but can be operated with proportionally decreasing force with correspondingly less pressure of up to about 3 bar. It can be optimally adapted to the work process by means of variable adjustment and setting options.

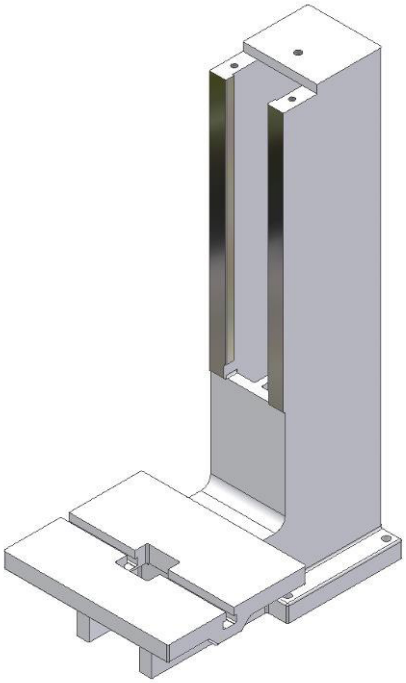
The hand lever press with air assistance HKPL-DS may only be used for pressing, joining, assembly, riveting, punching, bending, embossing and cutting work as well as work with sufficiently insulated heated tools. The device is only suitable for processing metal, cardboard, plastic, rubber, leather and metal powder.

5.2 Standard versions

A modified stand version may be required in certain circumstances for the respective application case. The following other versions are available for the hand lever press with air assistance.



Stands with a greater overhang height



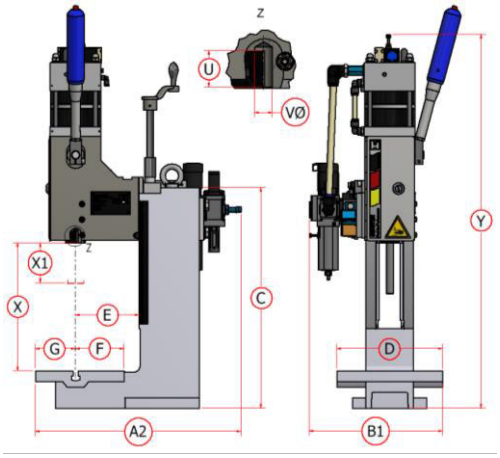
Stands with a larger installation

5.3 Technical Data

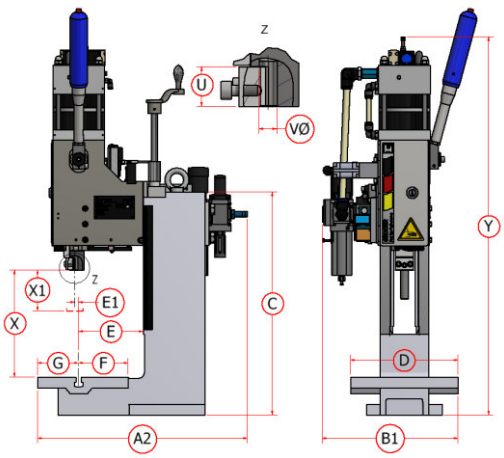
5.3.1 Technical data 4-8-12 kN HKPL-DS

Dimensions and weights

HKPL-DS



HKPL-DS-MS/MC



Dimensions and weights									
	4 kN			8 kN			12 kN		
	1	2	3	1	2	3	1	2	3
A2	390	580	390	390	580	390	390	580	390
B1	260	260	260	260	260	260	260	260	260
C	415	507	525	415	507	525	415	507	525
D	200	200	200	200	200	200	200	200	200
E	120	300	120	120	300	120	120	300	120
E1 (MS/MC)	+7	+7	+7	+7	+7	+7	+7	+7	+7
F	92	120	93	92	120	93	92	120	93
G	75	85	75	75	85	75	75	85	75
U	21	21	21	21	21	21	21	21	21
V ø	10H7	10H7	10H7	10H7	10H7	10H7	10H7	10H7	10H7
X_{min}	73	180	130	73	180	130	73	180	130
X_{max}	240	245	340	240	245	340	240	245	340
X_{min} (MS/MC)	32	139	89	32	139	89	32	139	89
X_{max} (MS/MC)	199	204	299	199	204	299	199	204	299
X_1	46/6	46/6	46/6	46/6	46/6	46/6	46/6	46/6	46/6
Y	673	755	785	705	800	817	738	821	850
Weight (kg)	36	80	49	40	82	51	42	85	53
MS/MC	38	80	49	40	82	51	42	85	53

1 Standard press

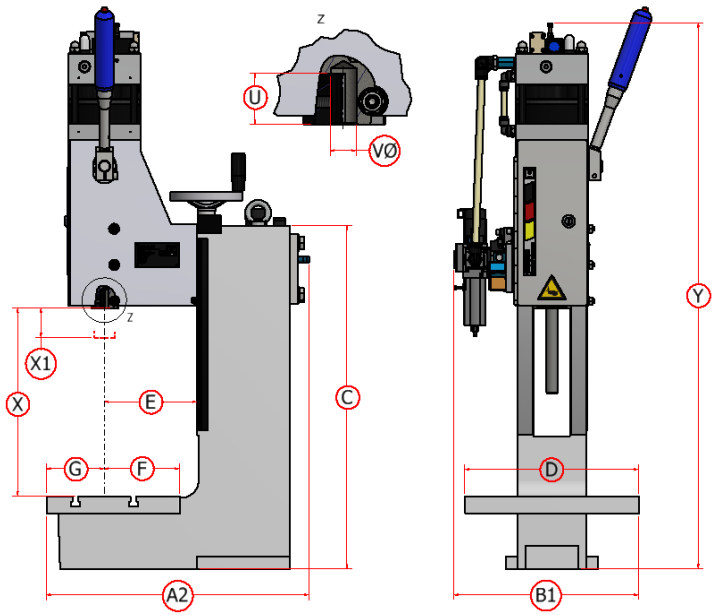
2 Enlarged overhang

3 Enlarged installation height

Technical data - press	
Clamping pin Clamping bore:	Ø 10 H7
Approximate weight (without tool)	See dimensions and weights
Tightening torque of the clamping screw:	90 Nm
Tightening torque of the cylinder head screw:	30 Nm
Pneumatic connection line:	1/4"
Operating pressure min - max:	3 – 7 bar
Permissible storage temperature:	0 – 50 °C
Permissible sea height:	0 – 2000 m

5.3.2 Technical data 13-20 kN HKPL-DS

Dimensions and weights



Dimensions and weights									
	13 kN			20 kN					
	1	2	3	1	2	3			
A2	454	632	467	454	632	467			
B1	320	320	320	320	320	320			
C	590	670	690	590	670	690			
D	300	300	300	300	300	300			
E	160	300	160	160	300	160			
F	130	130	130	130	130	130			
G	100	100	100	100	100	100			
U	29	29	29	29	29	29			
V ø	15H7	15H7	15H7	15H7	15H7	15H7			
X_{min}	100	220	150	100	220	150			
X_{max}	320	320	420	320	320	420			
X_{min} (MS/MC)	54	174	104	54	174	104			
X_{max} (MS/MC)	274	274	374	274	274	374			
X_1	58/6	58/6	58/6	58/6	58/6	58/6			
Y	945	1025	1045	977	1059	1078			
Weight (kg)	94	148	100	96	150	102			
MS/MC	94	148	100	96	150	102			

1 Standard press

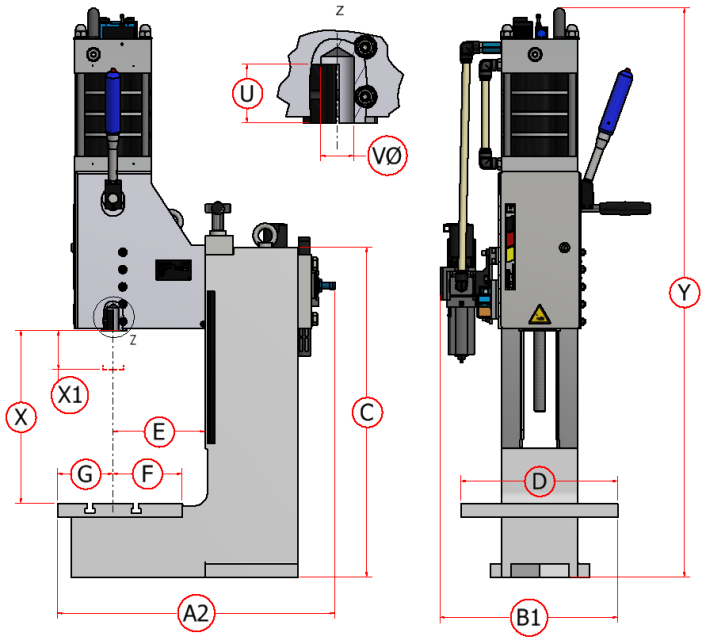
2 Enlarged overhang

3 Enlarged installation height

Technical data - press	
Clamping pin Clamping bore:	Ø 15 H7
Approximate weight (without tool)	See dimensions and weights
Tightening torque of the clamping screw:	120 Nm
Tightening torque of the cylinder head screw:	45 Nm
Pneumatic connection line:	3/8"
Operating pressure min - max:	3 – 7 bar
Permissible storage temperature:	0 – 50 °C
Permissible sea height:	0 – 2000 m

5.3.3 Technical data 33-45-56 kN HKPL-DS

Dimensions and weights



Dimensions and weights									
	33 kN			45 kN			56 kN		
	1	2	3	1	2	3	1	2	3
A2	602	731	602	602	731	602	602	731	602
B1	386	386	386	386	386	386	386	386	386
C	715	769	815	715	769	815	715	769	815
D	340	340	340	340	340	340	340	340	340
E	200	300	200	200	300	200	200	300	200
F	150	150	150	150	150	150	150	150	150
G	120	120	120	120	120	120	120	120	120
U	45	45	45	45	45	45	45	45	45
V ø	25H7	25H7	25H7	25H7	25H7	25H7	25H7	25H7	25H7
X_{min}	120	230	225	120	230	225	120	230	225
X_{max}	375	370	470	375	370	470	375	370	470
X_{min} (MS/MC)	54	164	159	54	164	159	54	164	159
X_{max} (MS/MC)	309	304	404	309	304	404	309	304	404
X_1	59/6	59/6	59/6	59/6	59/6	59/6	59/6	59/6	59/6
Y	1193	1244	1290	1234	1285	1337	1283	1333	1383
Weight (kg) MS/MC	203	267	215	208	272	220	213	277	225
	203	267	215	208	272	220	213	277	225

1 Standard press

2 Enlarged overhang

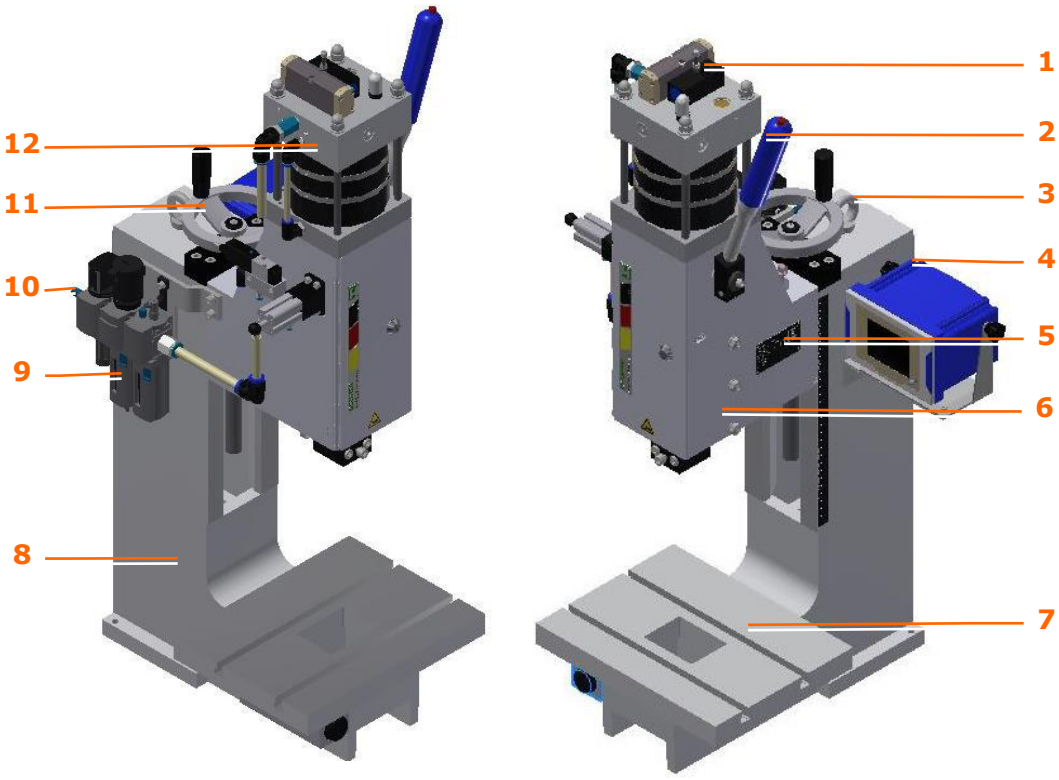
3 Enlarged installation height

Technical data - press	
Clamping pin Clamping bore:	Ø 25 H7
Approximate weight (without tool)	See dimensions and weights
Tightening torque of the clamping screw:	170 Nm
Tightening torque of the cylinder head screw:	100 Nm
Pneumatic connection line:	1/2"
Operating pressure min - max:	3 – 7 bar
Permissible storage temperature:	0 – 50 °C
Permissible sea height:	0 – 2000 m

5.3.4 Nameplate

"Nameplate" example

5.4 Overall view – Overview / Work stations



Example representation

1	Delay valve	**7**	Press table
2	DS hand lever	**8**	Press stand
3	Transport eye bolt	**9**	Maintenance unit
4	Head clamp	**10**	Pneumatic connection
5	Nameplate	**11**	Guide part height adjustment
6	Guide part	**12**	Press cylinder

5.4.1 Work stations of the operating personnel

The following positions are occupied by operating personnel at the press:

- Operator position immediately in front of the press
- At components in the area of the press for correcting faults or for implementing maintenance and repair work

5.4.2 Tasks of the operating personnel

The operator must carry out the following activities during automatic operation in order to ensure a trouble-free operation:

- Insert parts
- Trigger the work cycle
- Removal of the machined workpiece after the pressing process
- Identify faults and inform specialist personnel if possible
- Commissioning of the press while instructing the setup personnel after a fault or conversion

5.5 Components - Pneumatics

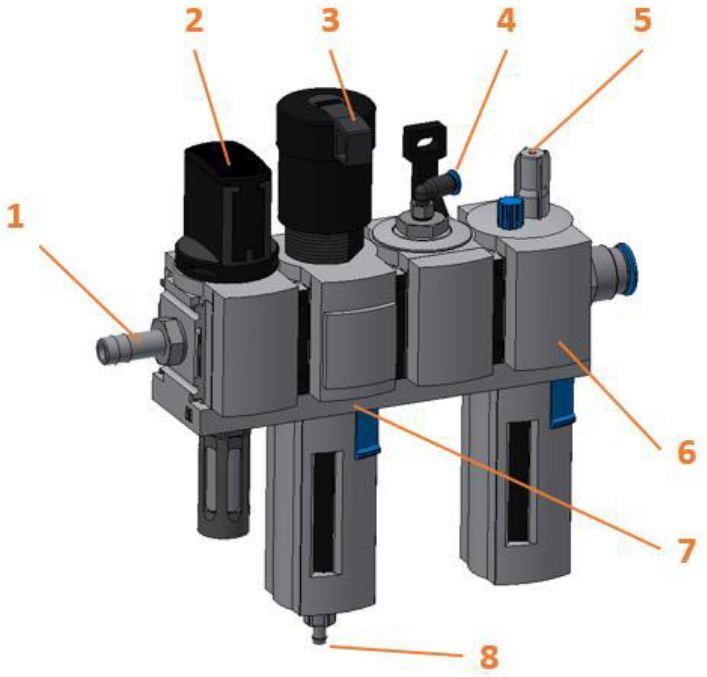
The main connection of the pneumatics is located on the manual switch-on valve of the maintenance module.

WARNING **Risk of injury from pneumatic energy**

Dangers can arise when aerating and venting the system if pneumatic actuators are accidentally put into motion.

Do not open any pneumatic screwed connections as long as there is still pressure in the pneumatic lines. Disconnect the connecting coupling between the maintenance module and main pneumatic line.

Switch off the pneumatic system before working on it or leaving it. Set the switch-on valve of the maintenance module to "OFF" and secure with a U-lock.



1	Hose nozzle	**5**	Adjusting screw for oiler
2	Switch-on valve	**6**	Oiler
3	Pressure adjustment knob	**7**	Pressure regulator with condensate separator
4	Junction	**8**	Drain plug

5.6 Accessories (optional)

5.6.1 "maXYmos" press force monitoring system

The "maXYmos" press force monitoring system is a force displacement measurement system for pressing and joining processes.
In addition to a modern and practical housing design, the monitor impresses with clarity and practicality in the menu navigation and functionality.
"maXYmos" can be smoothly operated and the process information can be shown clearly via the rich contrast color touchscreen.

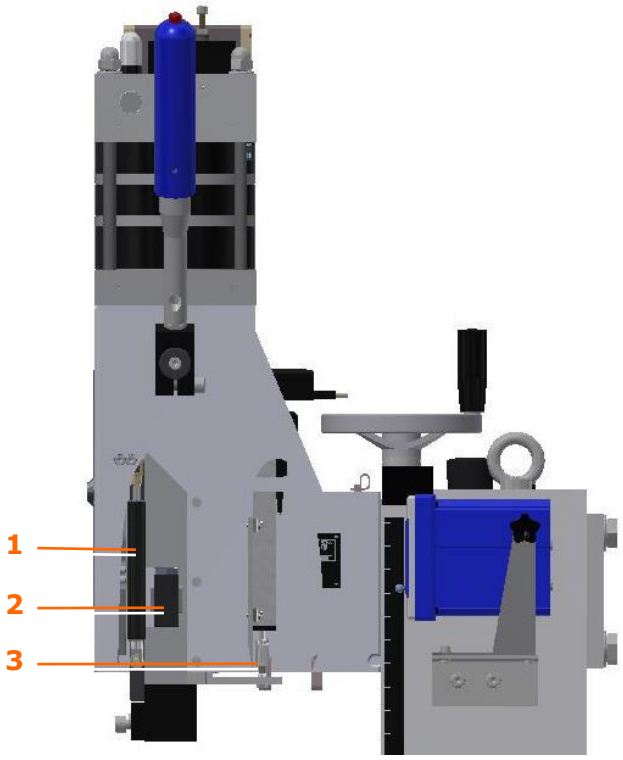
	NOTICE	
	A separate operating manual is available for the "maXYmos" press force monitoring system.	

5.6.2 Force displacement measurement system

Standard force sensors are used for the measurement system that are based on the principle of the strain gauge (DMS).

In addition to the force, it is usually helpful to measure the displacement of the press to be able to evaluate the relationship between force and displacement. A displacement sensor is additionally connected to the measurement system for this purpose.

The hydraulic brake cylinder ensures the safe return of the hand lever to the original position of the upper part. It reduces the reset force of the return spring until reaching the upper part.



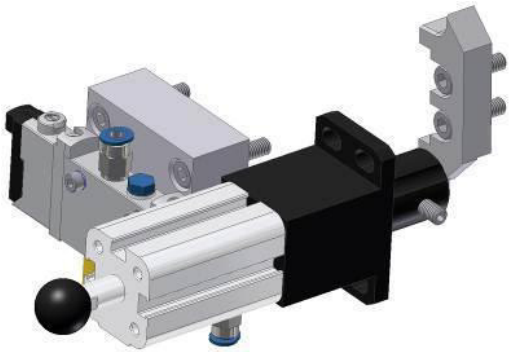
Force displacement measurement system

1 Hydraulic brake cylinder
2 Force sensor
3 Displacement sensor

	NOTICE	
	The force sensor is to be calibrated annually by the company Gechter. The documentation of the company Kistler has additional information about the control system and the user interface.	

5.6.3 Motion Control (MC)

HKPL-DS-MC, Press Motion Control movement sequence control system for hand lever presses with air assistance. In order to obtain a HKPL-DS-MC press, a press motion movement sequence control system (mechanics module) is installed and control electronics are integrated in the display device in addition to the HKPL-DS components.



Motion Control

Press type HKPL-DS-MC

- With mechanical lock in the lower part and/or upper part
- With evaluation of OK parts and NOK parts
- With the option of integration into the superordinate evaluation
- With emergency unlocking
- With damped recoils of the hand lever due to the shock absorber

5.6.3.1 General Information

The hand lever press with press force monitoring (force displacement) allows for an online quality check where NOK and OK parts can be separated directly after the pressing process.

The continuous cyclical evaluation of the pressing force and pressing displacement main parameters thus allows for an immediate quality control with direct manual separation during the work process.

The operator is thus able to only pass on OK parts.

In addition, the lock makes is possible to only enable further work if, for example, a supervisor or fitter has given the approval (additional key switch required).

The press type HKPL-DS-MC can be incorporated into a superordinate production control system where the results of the press force monitoring per production batch are processed further internally and, for example, result in QA, organizational or maintenance measures.

The base components are:

- Press HKPL-DS
- "maXYmos BL" measurement system
- Path measurement
- Machine data HKPL-DS-MC
- Force measurement
- Lock of the press in the upper part and lower part
- Damped return of the hand lever
- Emergency unlocking
- Pressing duration setting

5.6.3.2 Functional Description

System Start

Establish the air supply via the switch-on valve after switching on the measurement system. The pressure manometer shows the pressure present.

Operating mode "Lock for NOK parts"

The press is fed in the original position (hand lever above in the upper part).

After meeting all technical safety requirements related to the tool (not included in the scope of delivery), the working stroke can be triggered by moving the hand lever down.

In the lower part position, the operating personnel triggers the pneumatic power stroke. The force and displacement parameters are evaluated in the measurement system. If the evaluation results in an OK part, the reset motion (hand lever to the upper part) can be completed and the part can be removed. The counter for OK parts counts upwards and the press is in the original position.

If the evaluation results in a NOK part, further actuation of the press is blocked by the mechanical lock. The lock is released after acknowledgment on the operating part of the monitoring system ("OK"). After the reset motion (upper part), the faulty part can be gone back to in a defined manner. The counter for NOK parts counts upwards and the press is in the original position again.

The press can be locked three ways in the event of the measurement result of NOK parts. This is the locking in the lower part, locking in the upper part and locking in the lower and upper part. The setting is made in the monitoring system.

5.6.3.3 Lock of the press in the upper part and lower part

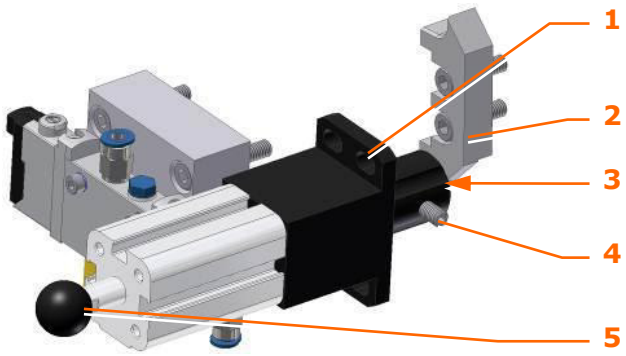
It is possible to lock in the upper part and/or lower part in order to create defined conditions for the evaluation by the press monitoring system and to give the operator the option to separate OK and NOK parts.

The corresponding settings can be made in the press force monitoring system (see the operating instructions of the company Kistler).

Setting the lock

To lock, a spring-pretensioned locking pin engages in a counterpiece and is possibly pneumatically unlocked after the evaluation in the monitoring system.

The adjustment of the return stroke lock (lock in the lower part) serves as the setting parameter for the mechanical lock. The correct setting point is to be adjusted at the pressure switch for the power stroke triggering.
The lock must occur in the lower part just before triggering the power stroke. For the adjustment, the mounting flange is to be loosened, adjusted via the adjusting pin and then secured again. The lock in the upper part is thus also indirectly adjusted.



1	Clamping flange	**4**	Adjusting pin
2	Counterpiece lock	**5**	"Emergency unlocking" ball handle
3	Locking pin		

NOTICE
The review of the mechanical lock can be found in the inspection/maintenance plan

5.6.3.4 Damped return of the hand lever

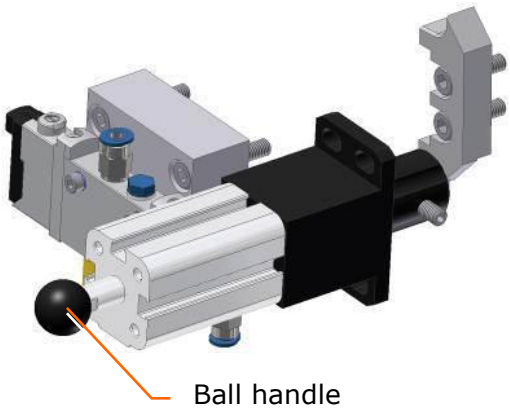
The hydraulic brake cylinder ensures the safe return of the hand lever to the original position of the upper part. It reduces the reset force of the return spring until reaching the upper part. This prevents an impact and thus the endangerment of the operating personnel in combination with a large holding time of the power stroke in the upper part, the acknowledgment of messages at the input field and the incorrect operation of the press (the operator releasing the lever).

The brake cylinder is adjusted similarly to the data sheet from ACE.

5.6.3.5 Emergency unlocking

	⚠ WARNING	
	**Danger of injury from the hand lever jumping up!** Hold on to the hand lever tightly during the entire work cycle. Release the hand lever once this has reached the uppermost position.	

The press is provided with a mechanical unlocking to be able to retract the locking pin, for example after the control system fails, and to bring the plunger into the initial position by hand with the tool.
To unlock, pull the piston rod out with the ball handle (hold onto the hand lever!).



6. Commissioning / Operation

NOTICE

Observe the safety chapter

The basic safety information for the press is located in the "Safety Information" chapter.

In addition, observe all safety instructions in the manufacturer documentation found in the appendix.

- Note the hazardous areas. See the chapter "Working, service and protection area"!
- After switching on the system, do not perform any cleaning work in the action areas of the system!

6.1 Commissioning

- Check the system and all associated electrical mechanical components for damage!

⚠ WARNING

Risk of injury from damage and defects

Specify the responsibility of the commissioning personnel.
Before commissioning, check the press to ensure it has the correct setting and ensure the presence of the required protective and safety devices. If defects are identified, stop the press until these defects are rectified.

Immediately replace defective press components. Use the additional documents in the appendix of this operating manual to ensure an undoubted identification of the component.

Do not remove or bypass any safety devices or work without them.

Check the installation conditions during the initial commissioning or after a longer standstill!

6.1.1 Functional check before operation

	**⚠ WARNING** **Risk of injury from damage and defects** There is a risk of death from damage and defects on the press. Do not operate the press in the case of localized and identified damage. Replace defective components.	

Carry out the following activities before switching on the press:

- Check the press and all associated mechanical components for damage
- Check the setting of the pressure control equipment for the nominal pressure
- Carry out maintenance as per the instructions
- Check all operating supply fill levels (e.g. oiler compressed air)

6.2 Operation

	**⚠ WARNING** **Danger of injury from the hand lever jumping up!** There is a danger of injury from contusion from the hand lever jumping up after the press holding time expires. Hold on to the hand lever tightly during the entire work cycle. Hold onto the hand lever (which is in the lower position in a pressure-free state during fault work) before resuming the compressed air supply. Release the hand lever once this has reached the uppermost position.	

	**⚠ WARNING** **Crushing and hand injuries** Dangers are created if protective covers are removed. Do not open any protective covers. Do not remove any connections and covers from protective housing.	

	**⚠ WARNING** **Risk of injury from material dust!** Dust that makes its way into the airways or eyes when processing metal powder or similar may lead to injuries. Always use an exhaust system during powder processing. Never work without a respirator mask during powder processing. Never work without a protective goggles during powder processing.	

6.2.1 Press process work steps

NOTICE

Due to the number of application possibilities of the hand lever press with air assistance, detailed work steps cannot be described. The respective work steps must be specified by the operator.

The following work steps describe a simplified pressing process in order to illustrate the general pressing process:

- Take the workpiece from the stock.
- Place the workpiece in the press tool.
- Execute the approach stroke of the upper die with the hand lever.
- Trigger the manual power stroke.
- Remove the workpiece from the pressing tool and place to the side.

NOTICE

The return stroke of the upper die is automatically initiated after the holding time for the power stroke expires.

7. Decommissioning

	NOTICE	
	Observe the safety chapter Observe the basic safety instructions in the "Safety Instructions" chapter. In addition, observe all safety instructions in the manufacturer documentation found in the appendix.	

- Secure the press from unauthorized reactivation after work is completed!
- Only have the power supply disconnected by authorized personnel!

7.1 Switching off the press

- Clear the press!
- Switch off the optional components!
- Disconnect the supply of operating materials (air)!

7.2 Shutting down the press (longer period of time)

- Carry out the following storage measures if it is intended to decommission the press for longer than 4 weeks!

Empty:

- Drain condensate at the maintenance module
- Remove parts

Disconnection of the energy sources:

- Power supply line (option)
- Air supply line

Storage:

- Cover the press to protect it from contaminants
- Slightly oil the bare metal parts to protect them from corrosion
- Store the press on transport pallets
- Fasten moving parts

7.3 Relocate the press

➲ Carry out the following work steps if the press is to be relocated!

Empty:

- Drain condensate at the maintenance module
- Remove parts

Disconnection of the energy sources:

- Power supply line (option)
- Air supply line

Relocate:

- Cover the press to protect it from contaminants
- Slightly oil the bare metal parts to protect them from corrosion
- Store the press on transport pallets
- Fasten moving parts

IMPORTANT

Observe the transport information in the "Transport process" chapter!

7.4 Storing the system

The storage facility must be cool and dry in order not to favor corrosion of individual parts of the system.
The room temperature of the storage facility must constantly be between 10°C and 25°C. The humidity of the storage room may not exceed 50%.

➲ Pack the press parts so that they are not damaged by external influences during storage!

➲ If necessary, use cardboard and other packaging material!

➲ Secure the press parts from accidental tipping over and instability!

7.5 Disposing of the press

➲ Dispose of the packaging material according to the local regulations!

Dispose of cardboard, protective packaging made of plastic and preservatives separately and properly!

The disposal of the press (also press parts, operating materials) depends on the local disposal regulations as well as the environmental protection laws in the country of application.

If the press has reached the end of its life cycle, a safe and proper disposal is to be ensured during its disassembly, especially when it comes to parts or substances that are harmful to the environment. This includes, for example, lubricants, plastics and batteries.

➲ Have the press disposed of by an approved professional company due to the risk of possible environmental pollution!

8. Setup and accessories

NOTICE

Observe the safety chapter
Observe the basic safety instructions in the "Safety Instructions" chapter.

In addition, observe all safety instructions in the manufacturer documentation found in the appendix.

8.1 Setup process

⚠ WARNING

Danger of injury from the hand lever jumping up!

There is a danger of injury from contusion from the hand lever jumping up after the press holding time expires.

Hold on to the hand lever tightly during the entire work cycle.

Hold onto the hand lever (which is in the lower position in a pressure-free state during fault work) before resuming the compressed air supply.

Release the hand lever once this has reached the uppermost position.

⚠ WARNING

Risk of injury from pneumatic energy

When working on the press, e.g. changing tools, the press must be disconnected from the compressed air supply by switching the switch-on valve.

Do not open any pneumatic fittings as long as there is still pressure in the pneumatic lines. Disconnect the connecting coupling between the maintenance module and main pneumatic line.

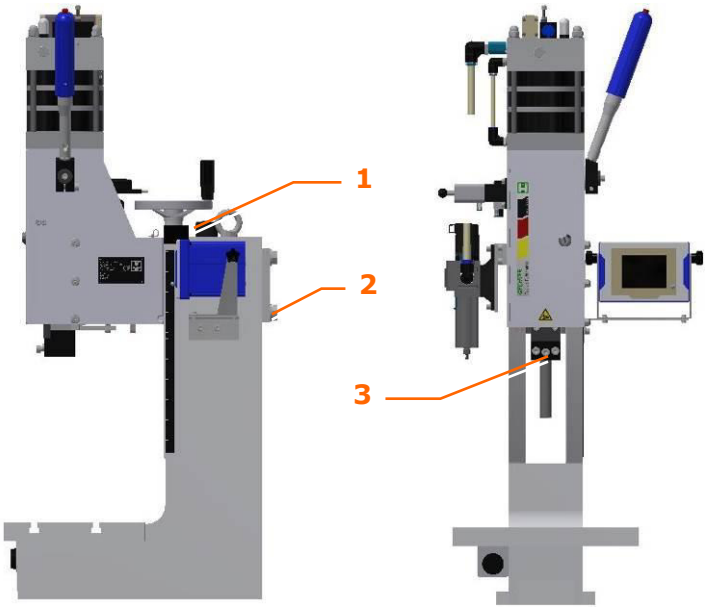
 	**⚠ WARNING** **Risk of crushing and hand injury** There is a risk of crushing your hand and fingers during setup work when the tool or press cylinder is lowered. Have setup work only carried out by professionals. The door on the front side of the guide unit must always be closed when working with the press. Before operating the hand lever, ensure that the tool area is clear. Do not hold your hand in the tool area during a test stroke. When working on the press, e.g. changing tools, the press must be disconnected from the compressed air supply by switching the switch-on valve.	

The press must be retrofitted when changing the types.

- Observe the individual station descriptions in the chapter "Installation and Function".
- For the retrofitting, use the corresponding tool diagrams with illustrations of the components to be retrofitted.
- Connect the components or accessory parts to be retrofitted in a manner that is identical to the normal installation.
- Observe the special handling requirements and instructions in the "Installation" chapter.

8.1.1 Tightening torques for screws

The screw connections are to be tightened with the corresponding tightening torque to ensure a secure hold of the assemblies.

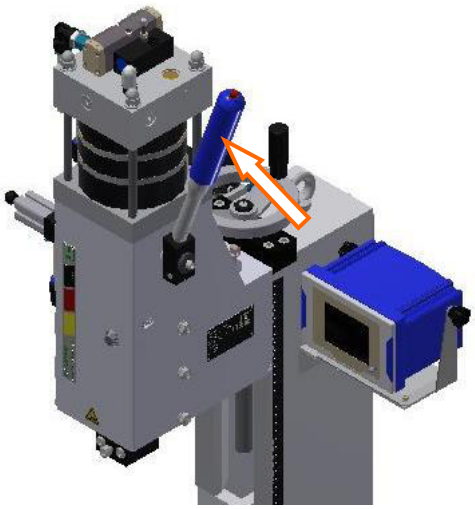


Tightening torques									
	HKPL-DS 4/8/12			HKPL-DS 13/20			HKPL-DS 33/45/56		
	1	2	3	1	2	3	1	2	3
Torque (Nm)	6.5	90	11	6.5	120	25	6.5	170	25

8.1.2 Bringing the slide into the basic position

The following description of the work processes assumes the basic position of the press (cylinder in the top position).

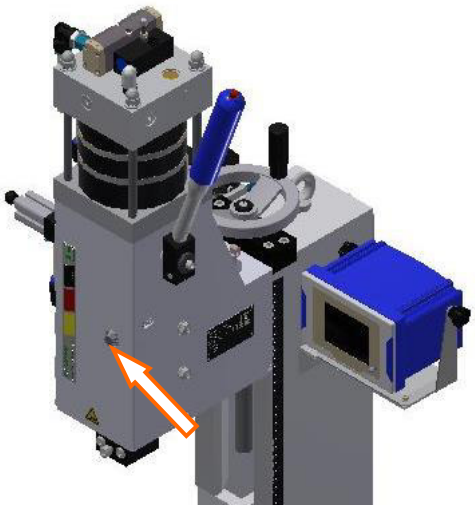
➲ Move the press hand lever all the way up.



Hand lever in the basic position

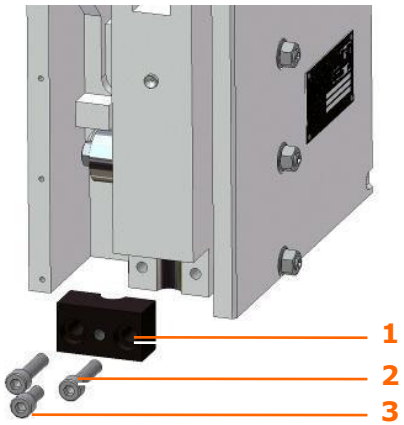
8.1.3 Remove the clamping piece

➲ Open the door on the front side of the guide unit with the key.



Open door

- Unscrew the pin retaining screw in the clamping piece with an Allen key.
- Unscrew the tensioning screws with an Allen key.
- Remove the clamping piece forward.



Remove the clamping piece

1	Clamping piece	**3**	Pin retaining screw
2	Clamping screw		

	NOTICE	
	Observe the installation position (marking) so that the clamping piece can be reinstalled without contorting it.	

8.1.4 Clamping the tool

By default, the following dimensions must be observed for the tool:

Measured variable	Dimensions (mm)		
	4/8/12 KN	13/20 KN	33/45/56 KN
Length of the clamping pivot, max.	21	29	45
Clamping bore, ø	10H7	15H7	25H7

⚠ WARNING

The dimensions of the tool may not be greater than those of the press table. If the tool protrudes beyond the press table, particular care should be taken.

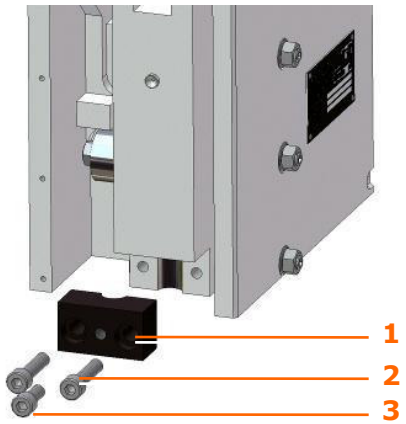
8.1.5 Setup

NOTICE

Observe the installation position (marking) so that the clamping piece can be reinstalled without contorting it.

The following activities are carried out:

- Insert the clamping pins of the tool or stamp/upper die by pressing the bottom side of the slide into the half shell of the clamping bore.
- Insert the clamping piece and retighten both tensioning screws.
- Screw the pin retaining screw all the way into the clamping piece with an Allen key. The pin retaining screw now presses on the cone and pulls the upper die all the way up against the half shell of the clamping bore.



Clamp the tool

1 Clamping piece

2 Clamping screw

3 Pin retaining screw

NOTICE

The upper die must be clamped first and then the lower die in order to avoid the tool from being miscut and deformed.

The clamping pivot of the upper die may not rest on the base of the receiving bore in the sled, as otherwise the clamping pin of the tool can become jammed in the receiving bore when working with the press.

NOTICE

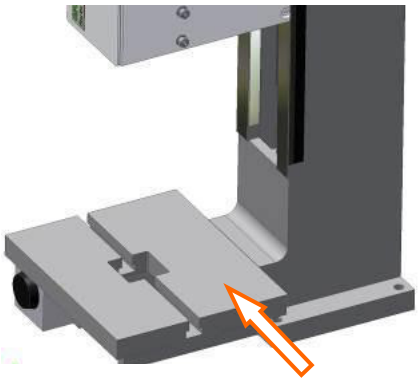
T-shaped sliding blocks are available to clamp the lower die.

For 4.8 and 12 kN HKPL 1x DIN 650, M8x10 middle symmetrical.

For 13 and 20 kN HKPL 2x DIN 650, M8x10 middle symmetrical.

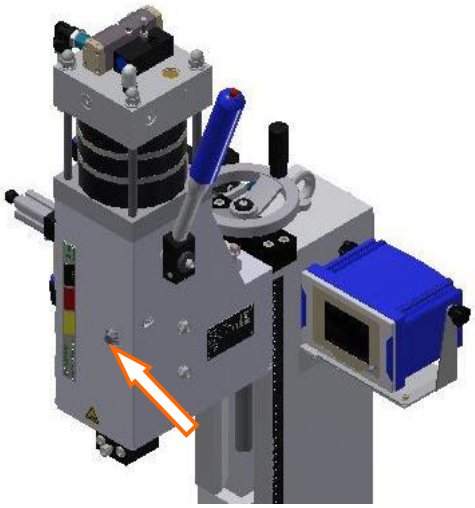
For 33, 45 and 56 kN HKPL 2x DIN 650, M8x12 middle symmetrical.

➲ Fasten the tool to the press table.



Press table

➲ Close the door, remove the key and store safely.



Close the door

8.1.6 Adjust the height

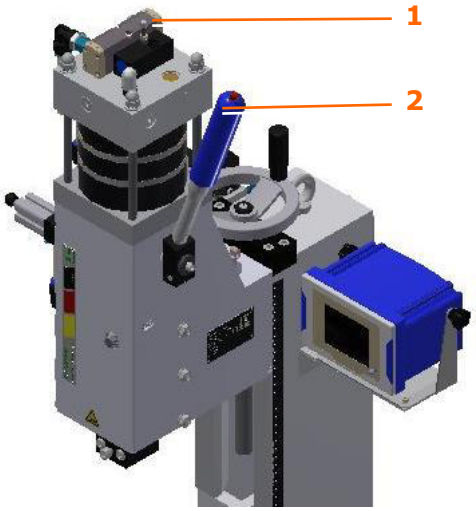
	WARNING	
	**Danger of injury from the hand lever jumping up!** Hold on to the hand lever tightly during the entire work cycle. Release the hand lever once this has reached the uppermost position.	

Prerequisites for adjusting the height:

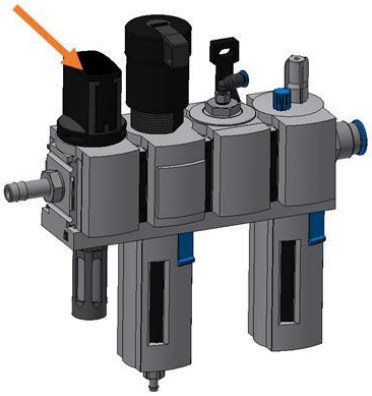
- The press is connected to the compressed air supply
- A tool is clamped

Carry out the following activities:

- Trigger a stroke with the hand lever.
- Hold tight onto the hand lever so that the press carriage is in the lowermost position (lower dead center).
- Close the switch-on valve.



Actuate the hand lever



Switch-on valve

1 Delay valve

2 Lever

NOTICE

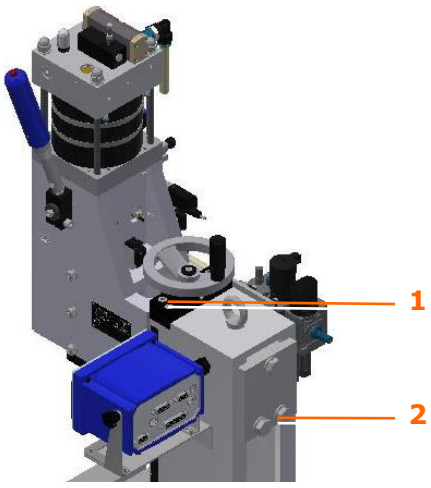
Since the press has a time control for the power stroke, this work step must be carried out quickly, since the press otherwise automatically moves back into the basic position. In order to possibly lengthen the holding time in the lower dead center, the knurled screw of the delay valve must be turned to the right.

⚠ WARNING

Risk of crushing and hand injury from dropping guide unit

Never unscrew the clamping screws of the guide unit.

- Loosen the clamping screws of the guide unit with a ring wrench, but do not unscrew it all the way.
- Loosen the clamping screw at the threaded spindle with an Allen screw, but do not unscrew it all the way.



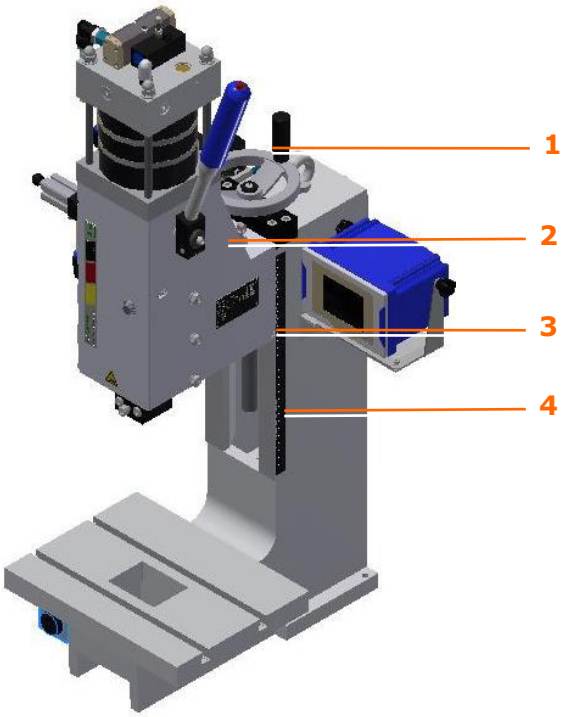
Loosen the clamping screws

1	Clamping screw of the threaded spindle	**2**	Clamping screw of the guide unit

NOTICE

A scale is attached to the stand that displays the height of the guide unit via a marking.

➲ Adjust the guide unit up or down to the desired with the hand wheel.



Adjust the height

1	Crank	**3**	Marking
2	Guide unit	**4**	Scale

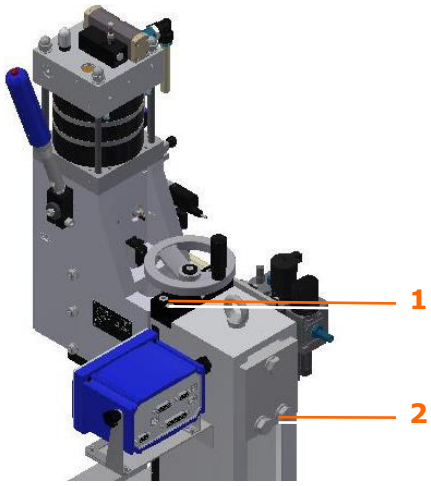
⚠ WARNING

Danger of injury from the hand lever jumping up!

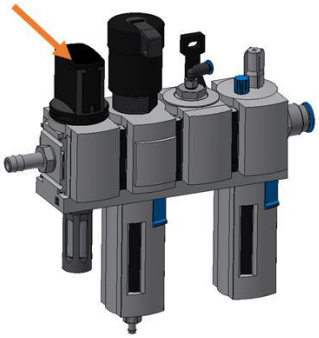
Hold on to the hand lever tightly during the entire work cycle.

Release the hand lever once this has reached the uppermost position.

- Tighten the clamping screws of the guide unit to the specified tightening torque.
- Remove the thread play by turning the threaded spindle counter-clockwise.
- Secure the threaded spindle from twisting with the clamping screw.
- Switch on the switch-on valve.



Tighten the clamping screws

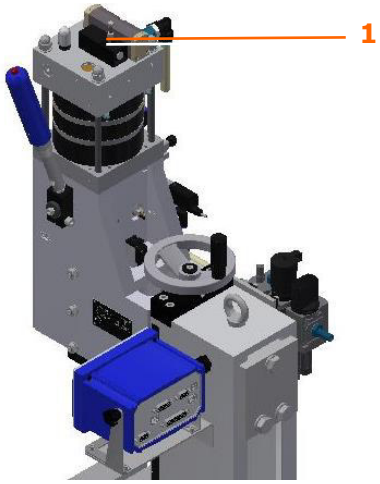


Switch-on valve

1 Clamping screw of the threaded spindle

2 Clamping screw of the guide unit

- Adjust the knurled screw to the desired holding time again at the delay valve.



Knurled screw of the delay valve

1 Delay valve

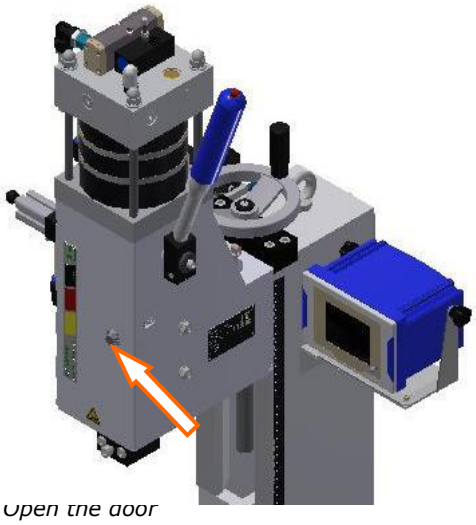
8.1.7 Adjust the approach stroke

NOTICE

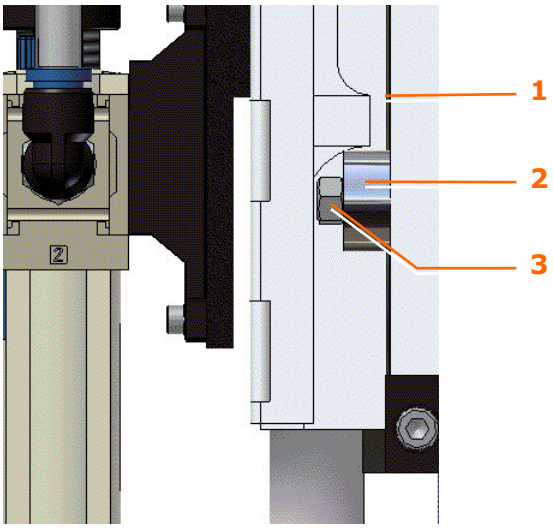
The return stroke limitation or the length of the approach stroke cannot be adjusted for models with the measurement system MS00.

Carry out the following activities:

- Open the door on the front side of the guide unit with the key.
- Loosen the hex nut with an open-end wrench.
- Bring the press carriage into the desired position.
- Move the T-groove screw with the stop washer.
- Tighten the hex nut.
- Close the front door and store the key safely.



Open the door



Adjust the approach stroke

1 T-groove screw

2 Stop washer

3 Hex nut

8.1.8 Adjusting the power stroke

NOTICE

The power stroke of the hand lever press with air assistance is set to 5.9 mm ex works and cannot be changed.

8.1.9 Adjusting the pressure

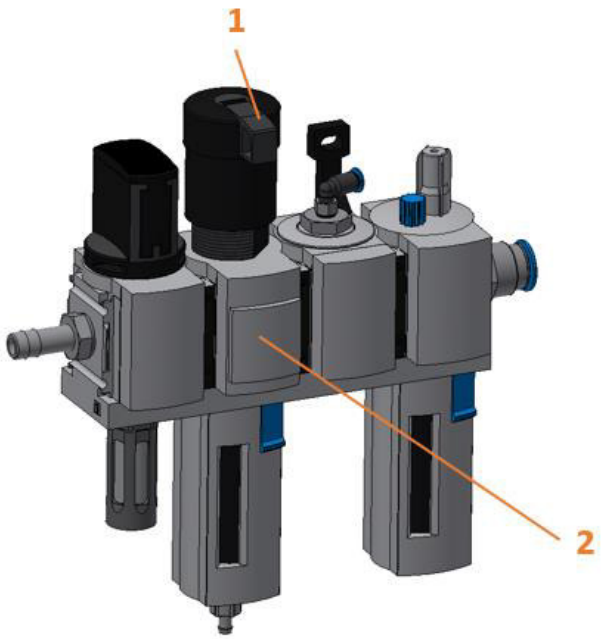
NOTICE

The pressure for the required force can be adjusted with the maintenance unit pressure reducer. The force increases or decreases proportionately to the pressure. It is not always necessary in the process to work with the maximum operating pressure. If the permissible maximum pressure is exceeded, a higher wear of individual parts, a destruction of joint parts or the breakage of the machine stand cannot be ruled out.

Design	Operating pressure
HKPL-DS	3 – 7 bar

Carry out the following activities:

- Pull out the pressure adjusting knob of the pressure reducing unit.
- Raise or lower the pressure by turning the pressure adjusting knob. The actual pressure is read at the pressure display.
- Press down the pressure adjusting knob of the pressure reducing unit.



Maintenance unit

1 Pressure adjustment knob **2** Pressure display

8.1.10 Adjusting the holding time

NOTICE

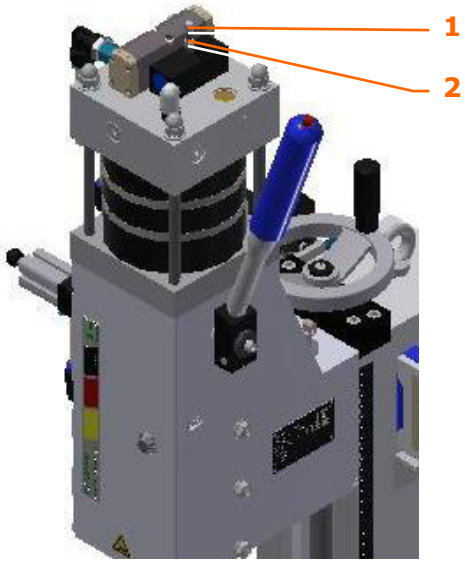
The knurled screw of the delay valve can be used to adjust the holding time, i.e. the time in which this is preserved after triggering the power stroke before the pneumatic cylinder returns to its upper original position.

In order to extend the holding time, rotate the knurled screw to the right (clockwise)

In order to shorten the holding time, rotate the knurled screw to the left (counter-clockwise).

Carry out the following activities:

- Loosen the lock nut with an open-end wrench.
- Turn the knurled screw until the correct holding time is reached.
- Tighten the lock nut with an open-end wrench.



Adjusting the holding time

1 Knurled screw **2** Lock nut

8.1.11 Trial run

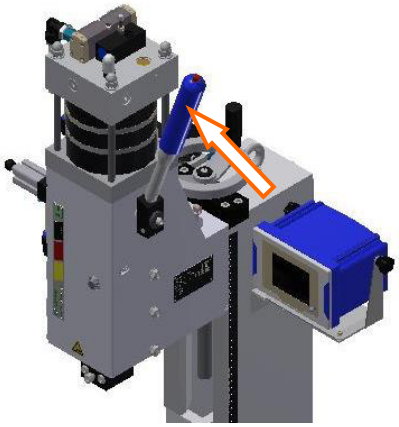
	**⚠ WARNING** **Danger of crushing and hand injury from the tool or press carriage lowering.** Before operating the hand lever, ensure that the tool area is clear. Do not hold your hand in the tool area during a test stroke.	

	**⚠ WARNING** **Danger of injury from the hand lever jumping up!** There is a danger of injury from contusion from the hand lever jumping up after the press holding time expires. Hold on to the hand lever tightly during the entire work cycle. Hold onto the hand lever (which is in the lower position in a pressure-free state during fault work) before resuming the compressed air supply. Release the hand lever once this has reached the uppermost position.	

Carry out the following activities:

➲ Operate the press hand lever

The press stroke (approach stroke) is carried out and the approach run is traveled.
If the press tool is attached, the power stroke part of the press stroke is manually triggered by the operating personnel at the hand lever.



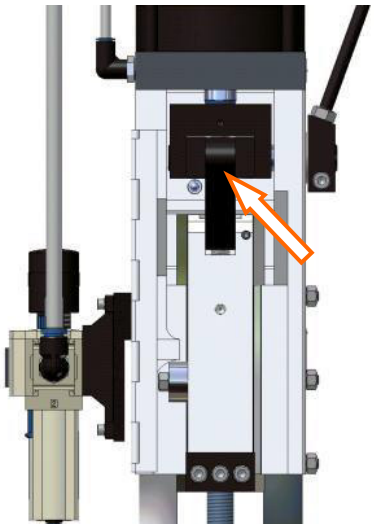
Actuating the hand lever

NOTICE

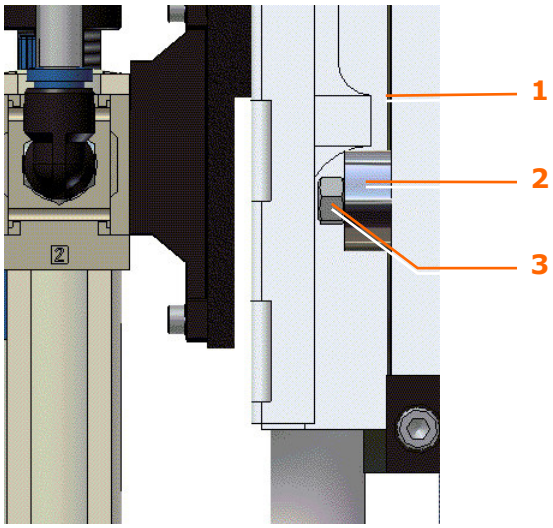
At the same time, the limit switch starts a pneumatic timing element that retracts the press cylinder again after the set delay expires.

➲ Pivot the hand lever upwards.

the return stroke of the press is supported by the return spring when moving back (can be adjusted by the return stroke limitation on the left of the press carriage).



Elbow joint



Adjusting the approach stroke

1 T-groove screw

2 Stop washer

3 Hex nut

NOTICE

The return stroke limitation or the length of the approach stroke cannot be adjusted for models with the measurement system.

8.2 Accessories

- Only use accessory parts from the press manufacturer Gechter GmbH!
- Please refer to the "Appendix" chapter for an exact breakdown of the accessory parts!
- Refer to the "Identification" chapter for contact options!
- Please refer to the chapter "Spare parts and ordering" for information about the ordering process of accessory parts!

8.2.1 Precision fine adjustment PFE

NOTICE

The precision fine adjustment PFE cannot be used with the MS/MC options!

⚠ WARNING

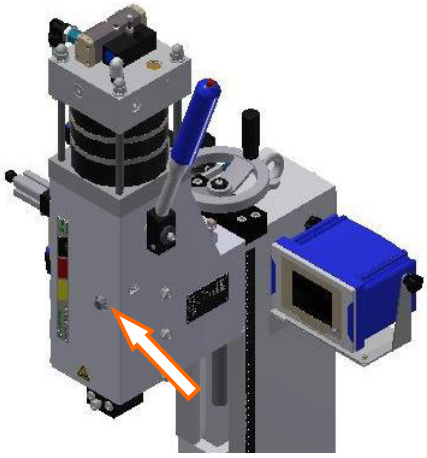
Risk of injury from pneumatic energy

When working on the press, e.g. changing tools, the press must be disconnected from the compressed air supply by switching the switch-on valve.

Disconnect the connecting coupling between the maintenance module and main pneumatic line.

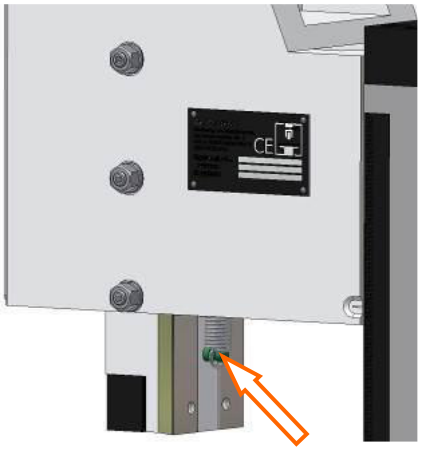
Carry out the following activities:

- Open the door on the front side of the guide unit with the key.



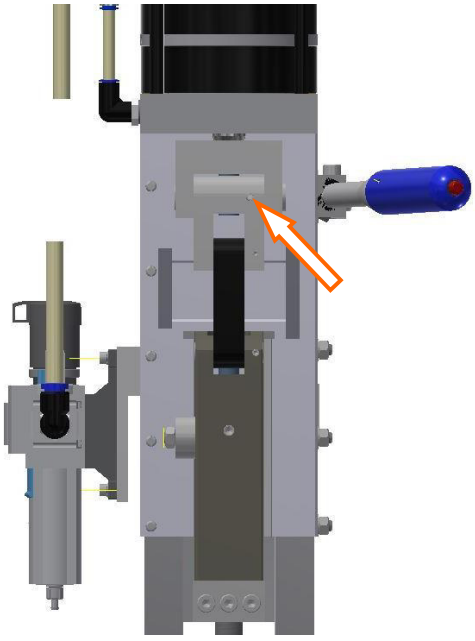
Open door

- Turn the guide unit to the uppermost position.
- Unhinge the lower spring eye from the half-length taper grooved pin with a screwdriver.



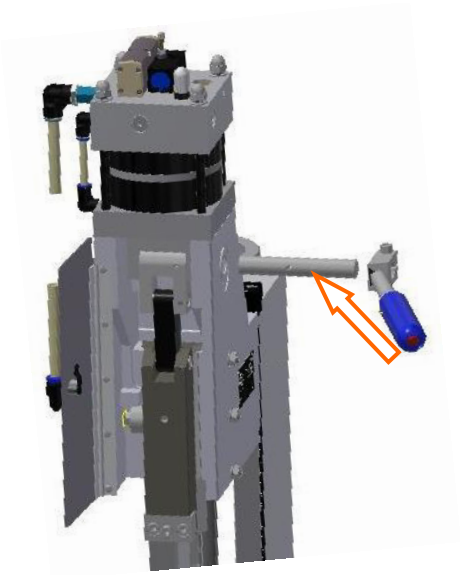
Unhinge the return spring

- Punch the shear clamping stud down with a punch (remove)



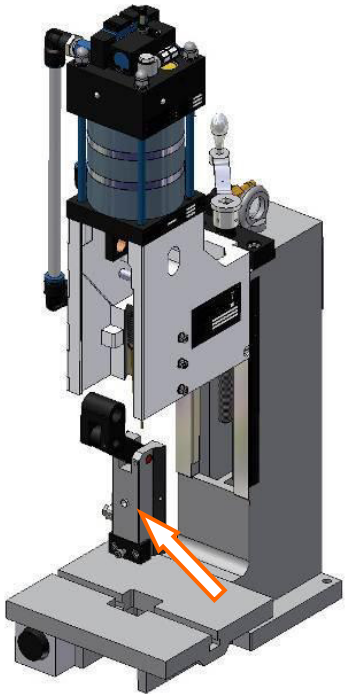
Remove the shear clamping stud

➲ Use your left hand to hold the press carriage and use your right hand to pull out the hand lever axis.



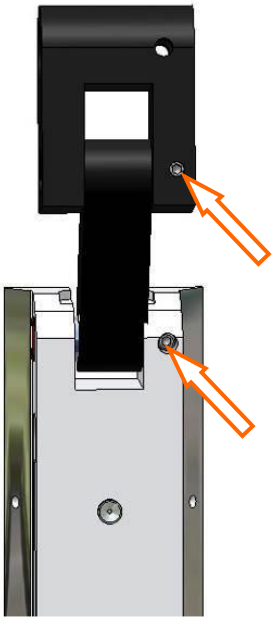
Remove the hand lever axis

➲ Pull the press carriage downwards and out of the guide.



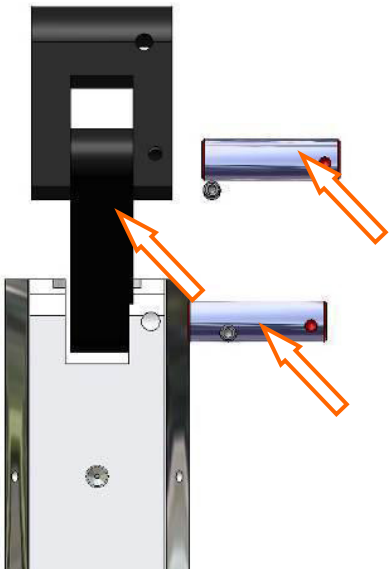
Pull out the press carriage

Remove both threaded pins



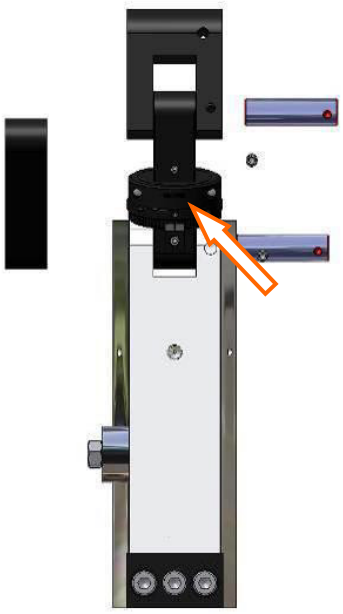
Removing the threaded pins

Remove the pivot pin and strap



Remove the pivot pin and strap

➲ Insert the PFE

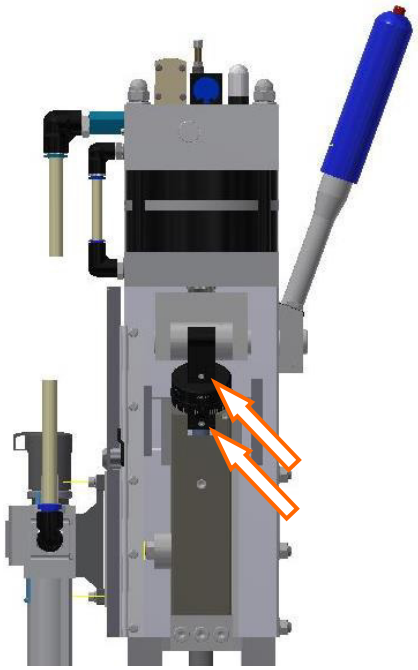


Insert the PFE

➲ Assemble the press in the reverse order.

	NOTICE	
	Tighten the threaded pins with the corresponding torque according to DIN M5x8.	

➲ Release both threaded pins to adjust the PFE



Releasing the threaded pins

➲ Adjust the PFE according to the scale.

➲ Tighten both threaded pins.

Scale

	NOTICE	
	A dash on the scale corresponds to 0.025 mm Travel distance max. 3 mm	

8.2.2 Precision depth adjustment PTE

⚠ WARNING

Risk of injury from pneumatic energy

When working on the press, e.g. changing tools, the press must be disconnected from the compressed air supply.

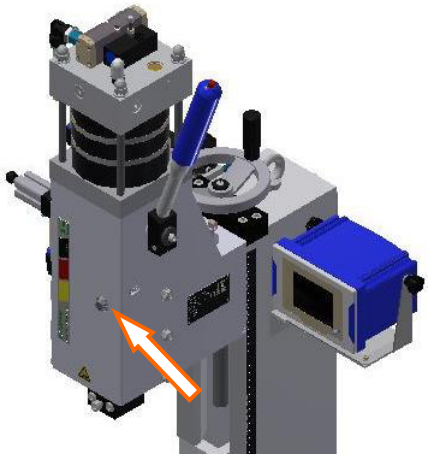
Disconnect the connecting coupling between the maintenance module and main pneumatic line.

NOTICE

The precision depth adjustment PTE can be adjusted by 3 mm. A dash on the scale corresponds to 0.025 mm.

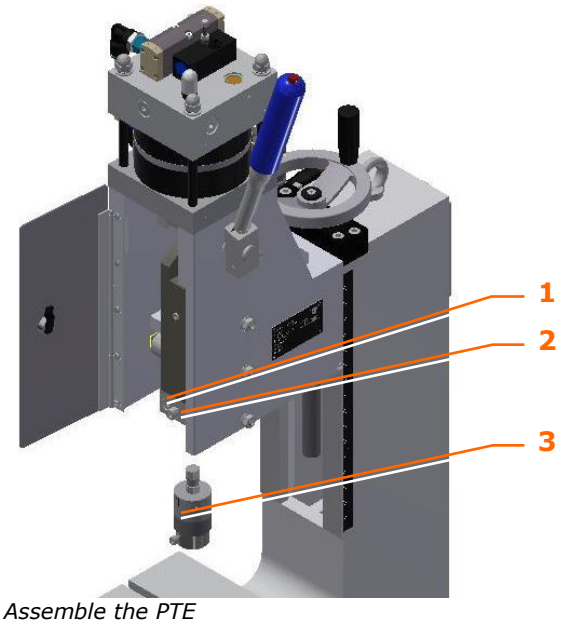
Carry out the following activities:

➲ Open the door on the front side of the guide unit with the key.



Open door

- Loosen the pin retaining screw in the clamped piece
- Loosen the clamping screw
- Insert the PTE (Gechter lettering to the front).



Assemble the PTE

1	Pin retaining screw	**3**	Precision depth stop PTE
2	Clamping screw		

- Release the threaded pin
- Adjust the depth according to the scale
- Tighten the threaded pin

Adjusting the PTE

8.2.3 Sliding table

⚠ WARNING

Risk of injury from pneumatic energy

When working on the press, e.g. changing tools, the press must be disconnected from the compressed air supply.

Disconnect the connecting coupling between the maintenance module and main pneumatic line.

⚠ WARNING

Danger of crushing and hand injury from the tool or press carriage lowering.

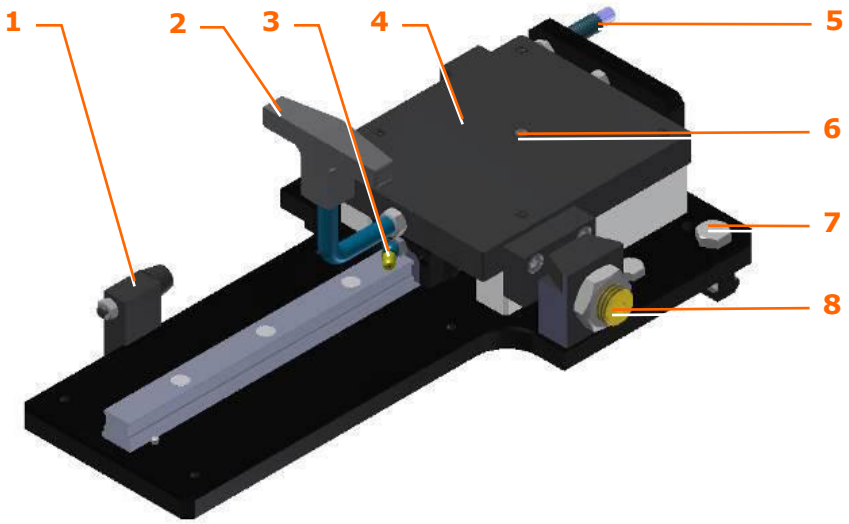
Ensure the tool area is clear before actuating the hand lever!

Do not hold your hand in the tool area during a test stroke.

8.2.3.1 Inserting the sliding table and tool

Carry out the following activities:

- Place the sliding table on the press table.
- Push the T-shaped sliding block into the T-grooves of the press table
- Bring the sliding table into the press position.
- Position the middle bore of the sliding table mounting plate flush with the clamping bore of the plunger and tighten.
- Centrically attach the tool (customer-side) on the mounting plate.



Sliding table with the spring pressure piece in the press position

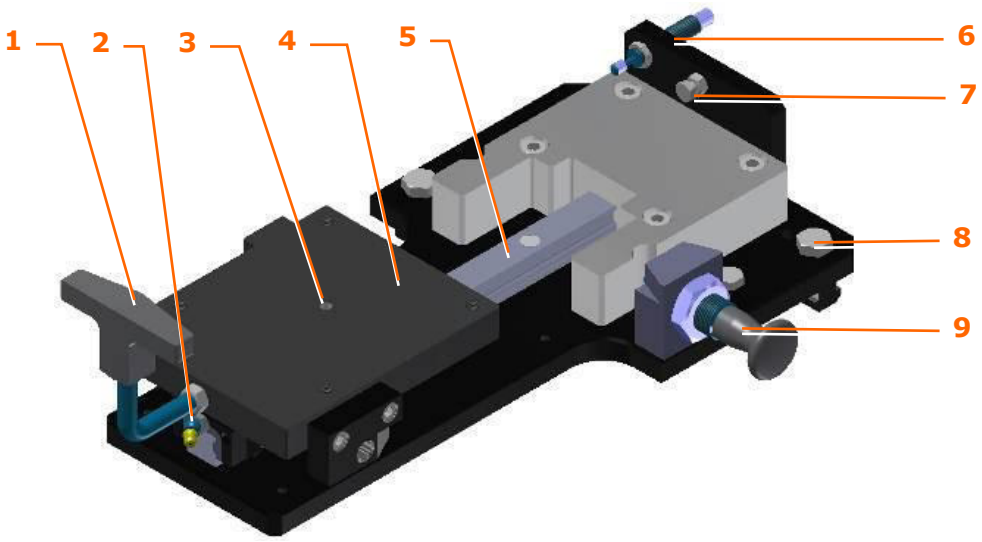
1	Rear end stop	**5**	Shock absorber
2	Push handle	**6**	Center hole
3	Lubricating nipple	**7**	Fastening screw
4	Mounting plate for tools	**8**	Spring pressure piece (press position)

Operation:

- Move the sliding table into the loading and removal position.
- Insert the workpiece
- Bring the sliding table into the press position. The spring pressure piece automatically locks into place.
- Carry out the pressing process
- Move the sliding table into the loading and removal position.

NOTICE

The sliding table with locking pin is used to absorb non-vertical forces.



Sliding table with locking pin in the loading and removal position

1	Push handle	**6**	Shock absorber
2	Lubricating nipple	**7**	Front end stop
3	Center hole	**8**	Fastening screw
4	Mounting plate for tools	**9**	Locking pin (press position)
5	Linear guidance		

Operation:

- Release the locking pin by hand.
- Move the sliding table into the loading and removal position.
- Insert the workpiece
- Bring the sliding table into the press position. The locking pin automatically locks into place.
- Carry out the pressing process.
- Unlock the locking pin.
- Move the sliding table into the loading and removal position.

NOTICE

Lubricate the sliding table once daily.

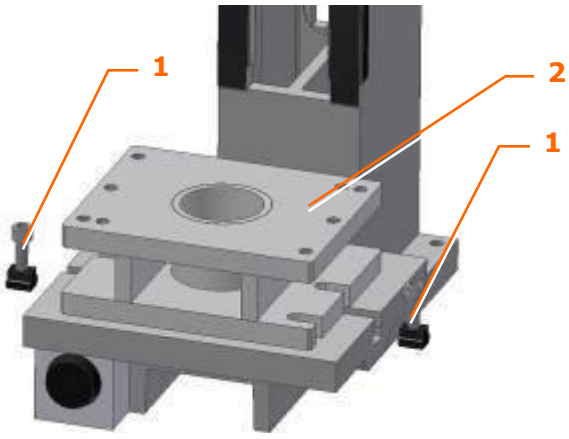
8.2.4 Clamping bracket

	**⚠ WARNING** **Danger of injury from pneumatic energy.** When working on the press, e.g. changing tools, the press must be disconnected from the compressed air supply by actuating the switch-on valve.	

	**⚠ WARNING** **Danger of crushing and hand injury when mounting the clamping bracket.** Ensure the tool area is clear before actuating the hand lever! Do not hold your hand in the tool area during a test stroke.	

Carry out the following activities:

- Slide the T-groove screws into the guides.
- Place the clamping bracket on the press table.
- Align the clamping bracket.
- Tighten the clamping bracket on the press table



Clamping bracket

1 T-groove screws **2** Clamping bracket

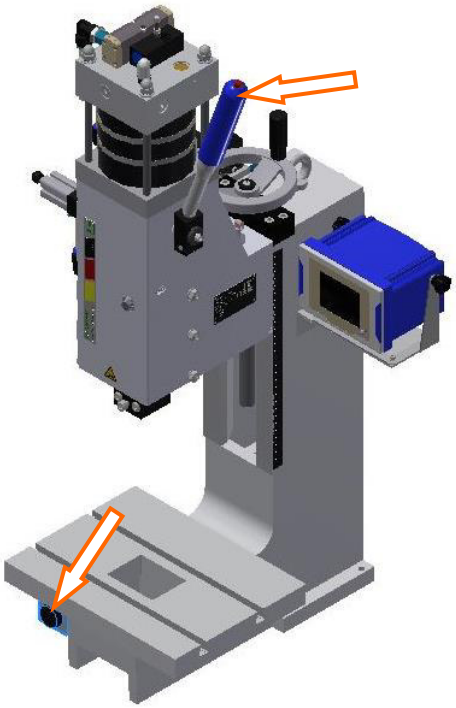
8.2.5 Button control

NOTICE

When retrofitting or repairing the button control, the service department of Gechter GmbH Werkzeug- und Maschinenbau is to be contacted.

Carry out the following activities:

- Push the lever down.
- Hold the lever.
- Trigger the power stroke.

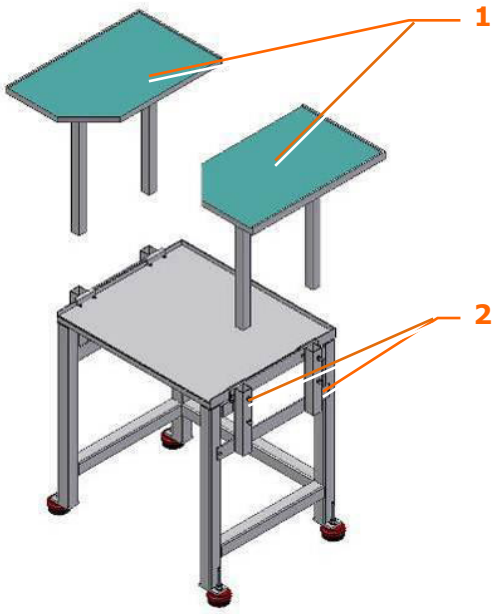


Button control

8.2.6 Substructure

Carry out the following activities:

- Make the screw connections with the spaces of the lateral supporting plates as required by the customer.
- Loosen the lateral fastening screws.
- Slide the lateral supporting plates into the guides.
- Adjust the desired height and tighten the fastening screws.



Substructure

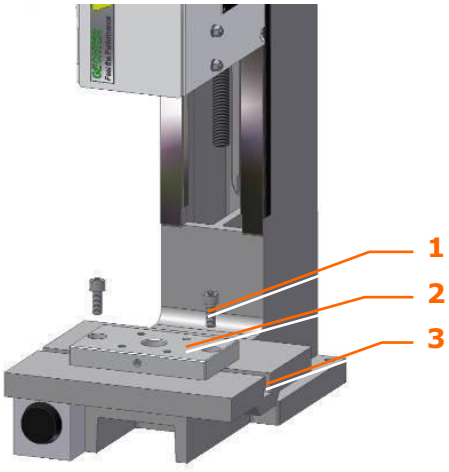
1 Lateral storage tables

2 Guides

8.2.7 Centering plate

Carry out the following activities:

- Slide the T-shaped sliding blocks into the T-groove guide.
- Place the centering plate on the press table.
- Affix the centering plate with the centering pin.
- Tighten the centering plate onto the press table with the fastening screws.



Centering plate

1 Fastening screw

2 Centering plate

3 T-shaped sliding blocks

8.3 Recommissioning

- Put the press back into operation after the setup process! Use the chapters "Functional check prior to operation" and "Commissioning / Operation" as orientation!
- Attach the removed protective devices prior to the initial recommissioning!

9. Service and maintenance

9.1 Maintenance safety

NOTICE

Observe the safety chapter!

Observe the basic safety instructions in the "Safety Instructions" chapter.

In addition, observe all safety instructions in the manufacturer documentation found in the appendix.

⚠ WARNING

Risk of injury from improperly executed maintenance work!

Maintenance work may only be performed by technically trained personnel.

⚠ WARNING

Risk of crushing your hand and fingers!

There is a risk of crushing your hand and fingers if the tool falls in the event of a loss of pressure.

Ensure the tool area is clear before actuating the hand lever!

Do not hold your hand in the tool area during a test stroke.

⚠ WARNING

Risk of injury from pressurized components!

Shut off the compressed air supply prior to carrying out maintenance work.

The compressed air supply may only be switched on for the functional check.

⚠ WARNING

Danger of injury from the hand lever jumping up!

Hold on to the hand lever tightly during the entire work cycle.

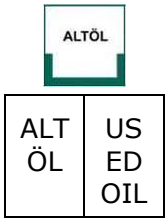
Hold onto the hand lever (which is in the lower position in a pressure-free state during fault work) before resuming the compressed air supply.

Release the hand lever once this has reached the uppermost position.

- Observe the general accident prevention regulations and VDE guidelines!
- Carry out the prescribe adjustment, maintenance and repair work on schedule!
- Replace defective system parts as quickly as possible!
- Inform the operating and supervisory personnel before starting maintenance and repair work!
- Attach informational signs to the control panel and control cabinet!

Maintenance tasks can also be carried out by the press operator if said operator has received training or instruction for this purpose.
In the process, it must be stated in writing what interventions the press operator may perform and for which interventions the press operator must inform the appointed specialist.

- Only use tools in perfect condition!
- Keep suitable containers available for any small parts to be removed!
- Only use original spare parts approved by the manufacturer!



IMPORTANT

Ensure that greases and other pollutants do not make their way into the drainage system. Collect waste oil and other environmentally harmful substances.

Properly dispose of these.

9.2 Technical Support

NOTICE

The following maintenance instructions are only intended as recommendations by the manufacturer!

The press operator is required to document maintenance-related observations and to expand and specify the maintenance instructions in this operating manual accordingly!

The maintenance instructions for purchased parts are also to be observed!

The following sections describe the maintenance work required for optimal and fault-free device operation.

If increased wear is identified during regular checks, the required maintenance intervals are to be shortened according to the actual signs of wear.

Please contact the company GECHTER Werkzeug- und Maschinenbau GmbH for questions about maintenance work and intervals.

➲ Please refer to the "Identification" chapter for how to contact the customer service of Gechter GmbH!

Observe the following specified time intervals for inspection and maintenance:

Interval	Maintenance work	Personnel
if necessary	**Press**: clean **Press carriage**: Lubricate the prism guide	Operator
Daily	**Press carriage**: Lubricate the prism guide (sliding guide oil Shell T 68 or equivalent)	Technically trained person-
Weekly	**Pneumatics**: Check for leaks	Technically trained person-
Monthly	**Maintenance unit**: Check the condensate level, empty if necessary; Check the oil level, top off with oil if necessary (Use the type of oil according to the maintenance unit instructions) Check the sound absorber, replace if necessary	Technically trained personnel
Annually	**Cylinder**: Replace the seal set **Force sensor:** Calibrate	Gechter GmbH

NOTICE

National laws or provisions of more frequent inspection and/or maintenance of the device are to be observed.

9.2.1 Cleaning the press

	**⚠ DANGER** **Danger of explosion from flammable cleaning agents!** There is a risk of explosion if benzine is used for cleaning. It is highly flammable, electrostatically chargeable and can produce an explosive gas-air mixture. Use halogen-free cold cleaners with a high flash point for cleaning.	

	**⚠ WARNING** **Danger of injury from ignoring the manufacturer's specifications!** The press function may be impaired if the manufacturer's cleaning instructions are ignored. Comply with all environmental protection regulations during cleaning.	

Dust and heat leave residues on the press components an can cause functional disruptions.

Do not use any sharp tools for cleaning as they can damage the paint and thus cause corrosion.

Proceed as follows when cleaning the outside of the press:

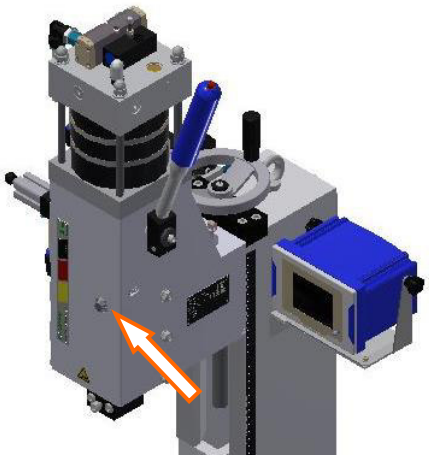
- Only perform cleaning work with cloths, brushes and vacuum cleaners!
- Remove all aids after the cleaning is complete!
- Check the function of the cleaned area!

9.2.2 Lubricate the prism guide

	NOTICE	
	Do not use grease as this cannot spread through the channels inside the sled.	

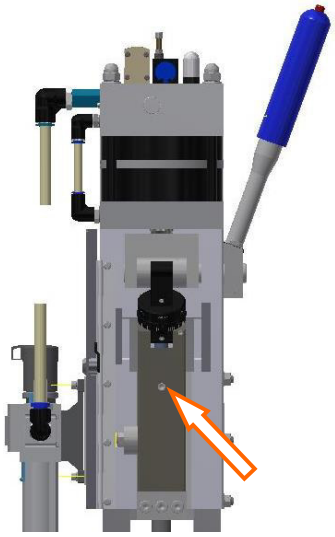
The lubrication nipple for the prism guide is located behind the door on the front of the press sled.

➲ Open the door on the front side of the guide unit with the key.



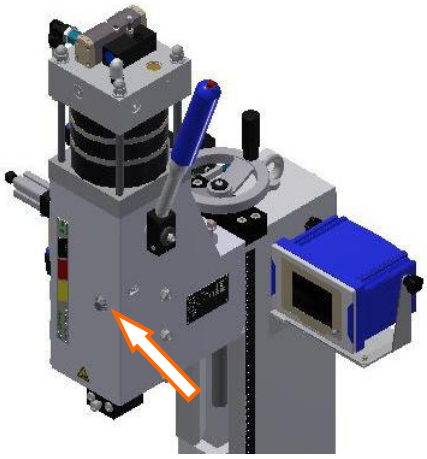
Open door

➲ Lubricate the lubrication point with an oil press (e.g. sliding guide oil Shell T 68).



Lubrication point

➲ Close the door, remove the key and store safely.



Close the door

9.2.3 Maintaining the maintenance unit

Check the condensate drain monthly. Empty it when necessary.

Empty the condensate container:

- Close the switch-on valve.
- Provide an appropriate container to collect the condensate.
- Release the condensate drain plug and allow the condensate to drain into the container.
- Close the condensate drain plug.
- Switch on the switch-on valve.

1 Switch-on valve

2 Condensate drain plug

9.2.4 Check the maintenance unit oil level

NOTICE

Ensure that the oiler is bled when refilling the oil. Otherwise the residual oil and compressed air will escape in an uncontrolled manner.

Check the oil level of the maintenance unit monthly. Top off the oil if necessary (Use the type of oil according to the maintenance unit instructions).

Topping off the oil:

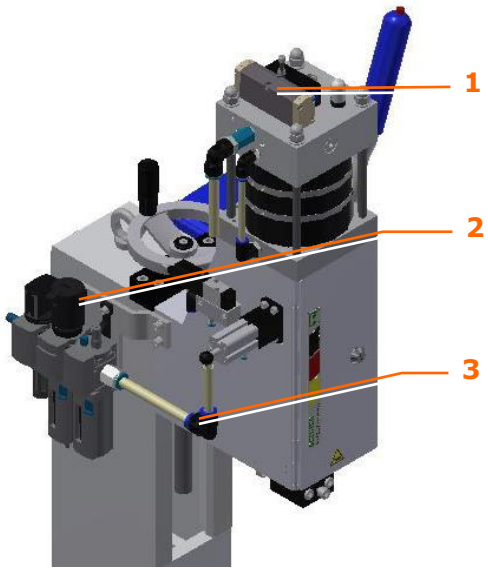
- Close the switch-on valve.
- Unscrew the oiler glass of the maintenance unit.
- Fill oil (note the min. and max. display).
- Screw on the oiler glass of the maintenance unit.
- Switch on the switch-on valve.

1 Switch-on valve

2 Oiler

9.2.5 Checking the pneumatic fittings

- If necessary, check the screwed connections, fixed connection and plug connections for loosening, leaks and correct seat and correct if necessary.



1 Valve and time control unit
2 Maintenance unit
3 Plug connection

- Note the information attached to the press components, such as the nameplate, arrows for direction of rotation, etc.!
- For maintenance and servicing work, always retighten loosened screw connections!
- Re-attach the removed protective equipment prior to the initial recommissioning! Convince yourself of their proper functioning!
- After the maintenance and repair work is complete, carry out a functional test (trial run)!
- Check the proper functioning of all safety devices!
- Remove hand tools, screws, aids or objects from the active areas of the press!
- When using extension lines, ensure that this may not be longer than 20 m with the drum and not longer than 10 m without a drum!

9.3 Packing system parts

- The information for repackaging press parts is to be observed if the parts are to be sent in for repair.
- Use cardboard or other packaging material to package the press parts if necessary so that they are not damaged from external influences during transport.
- Secure press parts from unintentional tipping and instability during transport.

9.4 Wear and spare parts lists

	NOTICE	
	When replacing parts that serve the safety of the press, only original parts or equivalent parts may be used, i.e. parts that have the same safety standard.	

The list of wear and spare parts for the individual press components is found in the "Wear and spare parts lists" in the appendix to this operating manual.

9.5 Identification Plates

➲ Reinstall all removed identification plates after replacing cables, lines and operating equipment!

9.6 Logging Maintenance Work

➲ Document all prescribed maintenance work on the press!

10. Faults

In the event of faults that cannot be independently rectified, contact the manufacturer's customer service department!

⚠ WARNING

Risk of hand injury from ignoring the hazardous area!

Dangers arise from human misconduct.

Never remove jammed parts and foreign bodies with just your hand. Use appropriate tools.

- Inform specialist personnel immediately in the event of faults!
- The system must be electrically and pneumatically disconnected before repair work!
- Switch off the press if necessary!
- Turn the main switch to the "0" position!
- Secure the main switch with a padlock!
- Set the main start-up valve of the pneumatic system to "OFF" and secure with a U-lock!
- Attach the following notice sign to the system!

Es wird gearbeitet!	It's being worked on!
Ort:	Location:
Datum:	Date:
Entfernen des Schildes nur durch:	The sign may only be removed by:

NOTICE

Faults and their rectification, which are not covered int his chapter, are listed in the respective additional documents.

10.1 Technical Support

	NOTICE	
	Please refer to the "Identification" chapter for how to contact the customer service of Gechter GmbH!	

10.1.1 Fault table

Error description	Cause	Remedial measure	Personnel
The nominal press force is not reached	The seal kit is worn	Have the press inspected by GECHTER GmbH or request a technician	Gechter GmbH
	The compressed air does not have the correct operating pressure	Adjust the compressed air with the maintenance unit pressure regulator	Operator
	The press sled does not have enough play	Adjust the adjustment gib	Technically trained personnel
Air is escaping from the press when it is at a standstill	Leaks	Have the press inspected by GECHTER GmbH or request a technician	Gechter GmbH
	Compressed air intake too high	Check the maintenance unit setting	Technically trained personnel
The press sled moves laterally or jams	The press sled has too much or too little play	Adjust the adjustment gib	Technically trained personnel
The press sled moves downward too slowly	The sound absorber is dirty	Replace the sound absorber	Technically trained personnel
The press sled moves downward too slowly / too quickly	Wrong setting of the exhaust air throttle (delay valve)	Adjust the exhaust air throttle	Technically trained personnel
The hand lever only moves upwards with difficulty	Return spring broken	Install a new return spring	Technically trained personnel
	The press sled does not have enough play	Adjust the adjustment gib	Technically trained personnel

10.1.2 Adjusting the Adjustment Gib

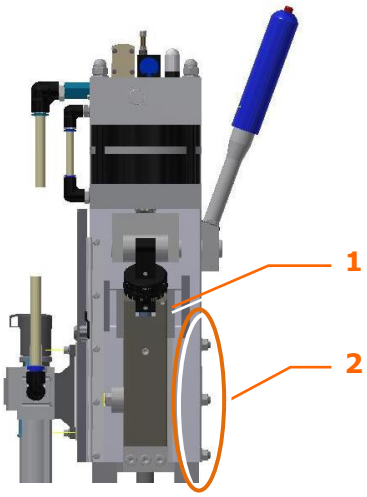
If the press sled has too little or too much play, i.e. it either can jam or move laterally, the adjustment gib must be adjusted.

Carry out the following activities:

- Loosen three or five lock nuts on the right side of the guide unit with an open-end wrench.
- Align the adjustment gib evenly and in parallel by turning the threaded pins with an Allen key so that it has the same play up and down.
- Tighten three or five lock nuts on the right side of the guide unit with an open-end wrench.

NOTICE

The adjustment gib may not be set too tightly since the press will not reach its specified press force and increased wear will occur.



Adjusting the Adjustment Gib

1 Adjustment gib **2** Lock nuts

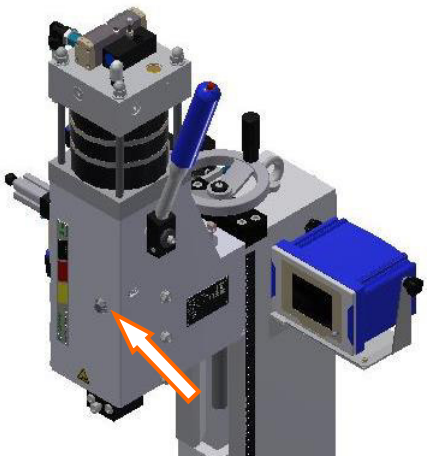
10.1.3 Changing the return spring

If the return spring breaks, it must be replaced.

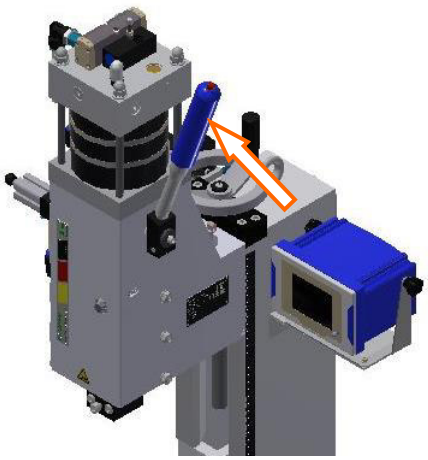
Carry out the following activities:

- Turn the guide unit all the way up.
- Open the door on the front side of the guide unit with the key.
- Bring the hand lever into the working position.

The press stroke (approach stroke) is carried out and the approach run is traveled.
If the press tool is attached, the power stroke part of the press stroke is manually triggered by the operating personnel at the hand lever.



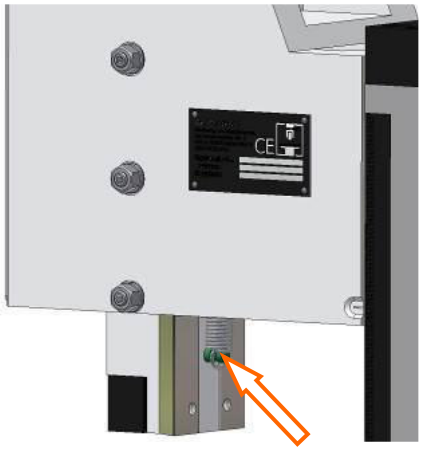
Open door



Actuate the hand lever

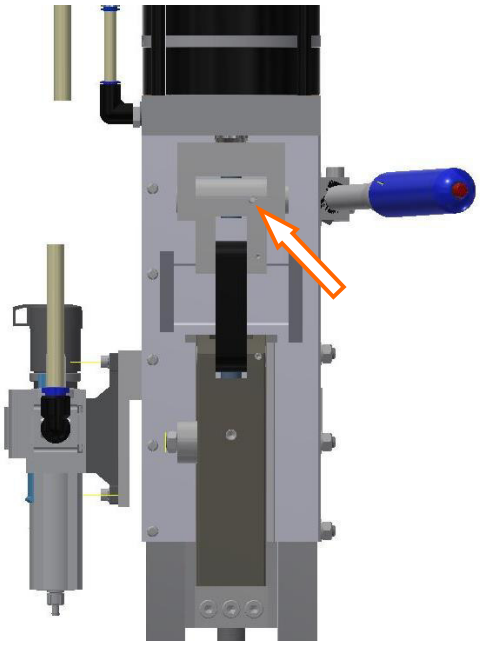
- Disconnect the pressure supply by closing the switch-on valve.

➲ Unhinge the lower spring eye from the half-length taper grooved pin with a screwdriver.



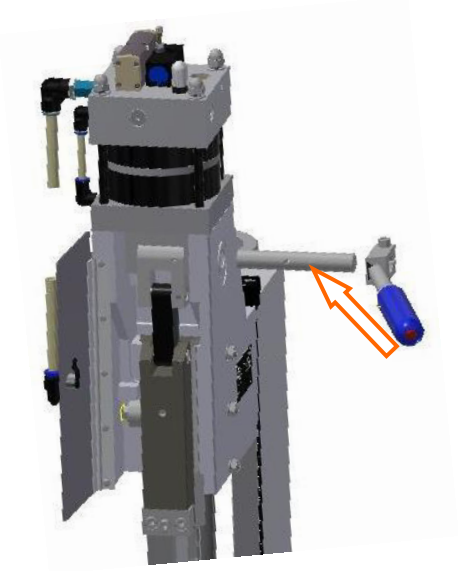
Unhinge the return spring

➲ Punch the shear clamping stud down with a punch (remove)



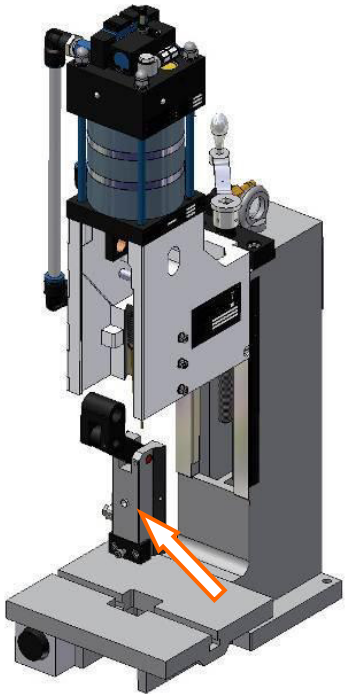
Remove the shear clamping stud

➲ Use your left hand to hold the press carriage and use your right hand to pull out the hand lever axis.



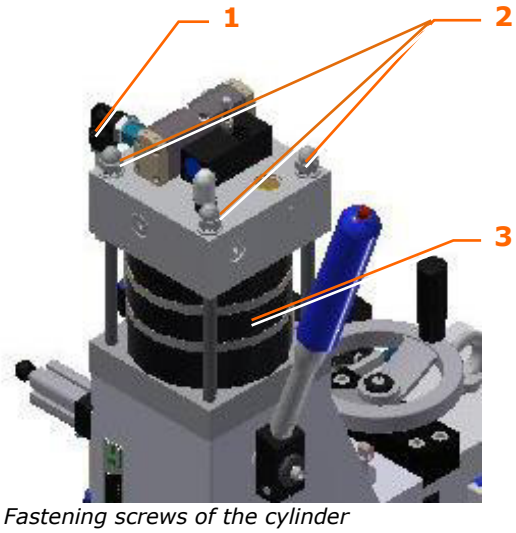
Remove the hand lever axis

➲ Pull the press carriage downwards and out of the guide.



Pull out the press carriage

- Unscrew the fastening screws of the cylinder.
- Loosen the compressed air supply from the angled screw coupling.
- Lift the cylinder and set aside.



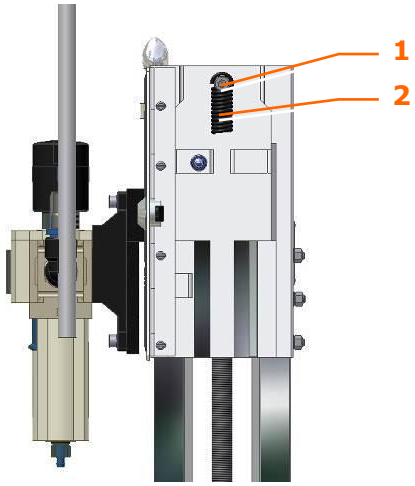
Fastening screws of the cylinder

1 Compressed air line

2 Retaining screws

3 Cylinder

- Unscrew the attachment pin from the cylinder with the residual spring piece.
- Insert the new return spring in the attachment pin.

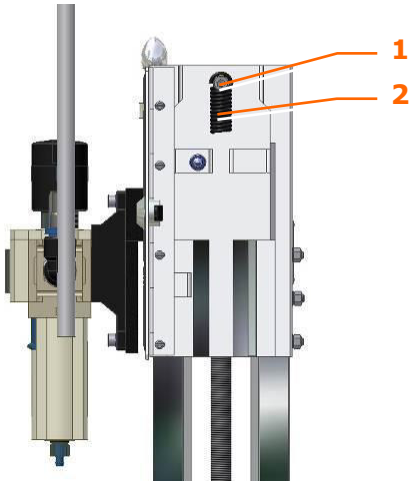


Unscrew the attachment pin

1 Attachment pin

2 Return spring

Rotate the attachment pin in the cylinder with the new return spring.

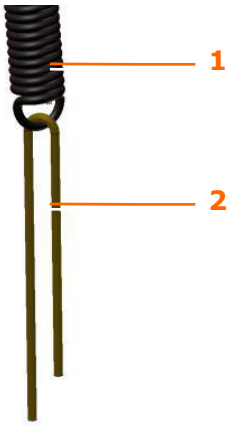


Screw in the attachment pin

1 Attachment pin

2 Return spring

To insert the return spring in the lower half-length taper grooved pin, guide a tear-proof binding cord or a piece of cable into the lower spring eye.

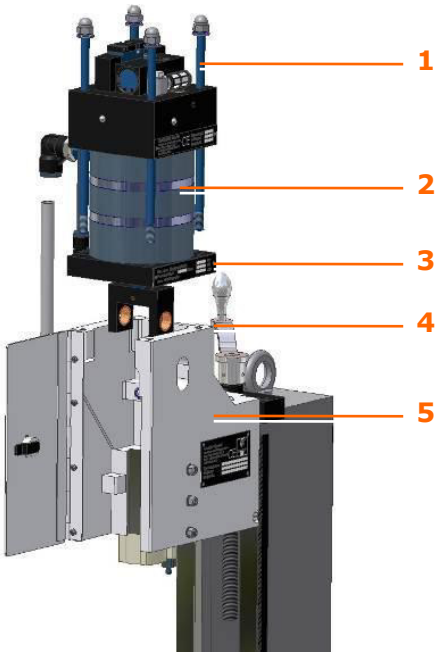


Cord in the spring eye

1 Return spring

2 Cord

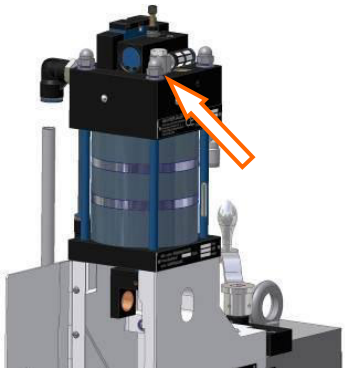
- Place the cylinder on the guide unit.
- Insert the cylinder into the bores with the alignment pin.



Attach the cylinder

1	Fastening screw	**4**	Alignment pin bore
2	Cylinder	**5**	Guide unit
3	Alignment pin		

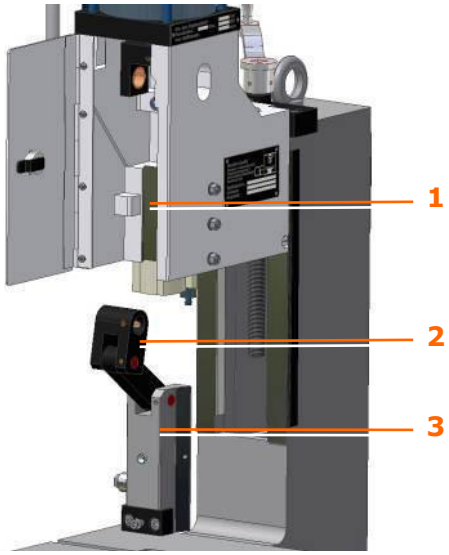
- Tighten screws to the specified torque (see technical data) with a torque wrench, cross-wise.



Tightening the screws

- Carefully push the press carriage into the guide from below.
- Bring the fork piece into the vertical position with the elbow joint strap.

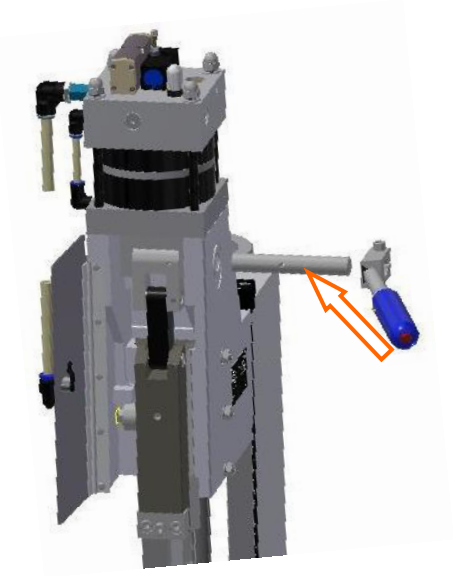
Loosen the adjustment gib to insert the press carriage. Adjust the adjustment gib after insertion.



Insert the press carriage

1	Carriage guidance	**3**	Press sled
2	Elbow joint		

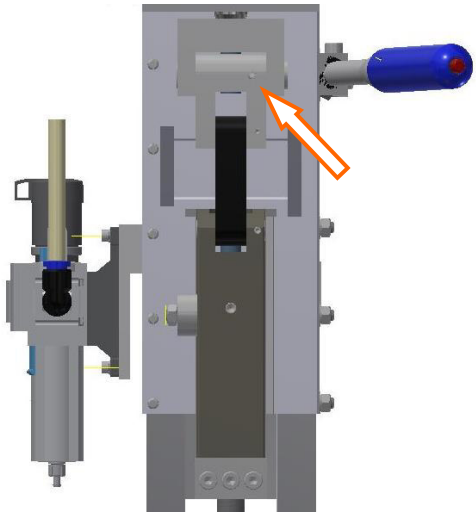
- Push the hand lever axis from the right through the guide unit bore into the fork piece of the elbow joint.



Attach the hand lever axis

➲ Drive in the new shear clamping stud flush in front with a punch.

The hand lever must be play-free and easy to operate.



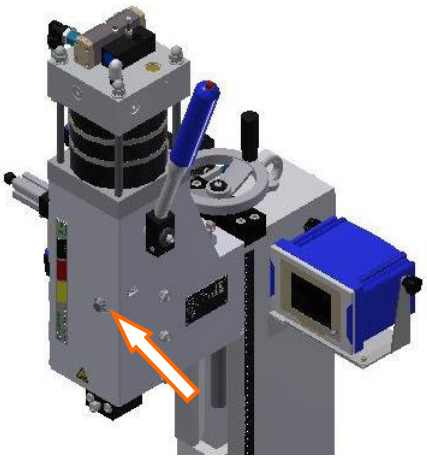
Drive in the shear clamping stud

	**⚠ WARNING** **Danger of injury from the hand lever jumping up!** Hold on to the hand lever tightly during the entire work cycle. Release the hand lever once this has reached the uppermost position.

➲ Connect the return spring in the half-length taper grooved pin by means of the binding cord or the cable.

Connect the return spring

- Close the door, remove the key and store safely.
- Supply the press with compressed air by opening the switch-on valve. The press carriage should now move easily and play-free.



Close the door

Switch-on valve

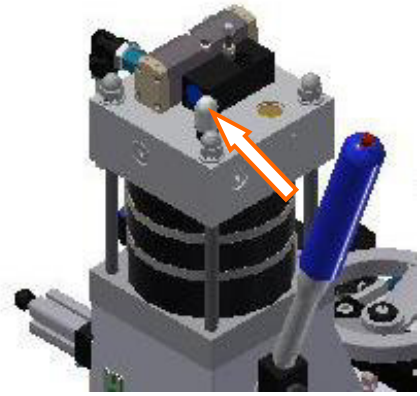
10.1.4 Replacing the sound absorber

➲ Disconnect the press from the compressed air supply by closing the switch-on valve.

Close the switch-on valve

➲ Manually unscrew the sound absorber from the sound absorber seat.

➲ Manually screw the new sound absorber into the sound absorber seat.



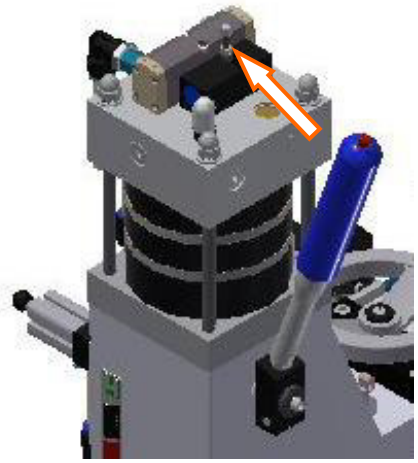
Replacing the sound absorber

➲ Supply the press with compressed air by opening the switch-on valve.

Open the switch-on valve

10.1.5 Adjusting the delay valve

- Loosen the lock nut with an open-end wrench.
- Adjust the stroke speed with the knurled screw.
  Left-hand rotation: Slower stroke movement
  Right-hand rotation: Faster stroke movement
- Tighten the lock nut with an open-end wrench.



Knurled screw

11. Spare parts and ordering

11.1 Spare parts

➲ Only use spare parts and other parts from the system manufacturer Gechter GmbH!

See the spare parts list in the appendix to this documentation for additional information!

NOTICE

Note

In general, the "General terms and conditions of sale and delivery" of Gechter GmbH shall apply. These are available to the operator at the latest upon contract conclusion. You confirm the order with your signature!

11.2 Order

➲ Contact the following address when ordering spare parts:

Gechter GmbH Werkzeug- und Maschinenbau
Ostring 3
90587 Obermichelbach

GERMANY

Tele-phone: 0911 / 982873-20
Fax: 0911 / 982873-99
E-mail: verkauf@gechter.com

The following information is required when ordering:

- Press type
- Press number
- Year of manufacture

12. Appendix

12.1 Register directory

Supplementary documents to this operating manual are attached in the following. The individual elements are separated from each other with index sheets.

- **DECLARATION OF COMPLIANCE**
- **PARTS LISTS / SPARE PARTS LISTS**
- **SEE WWW.GECHTER.COM DOWNLOAD**
- **DOCUMENTATION FOR SUPPLIER COMPONENTS (OPTIONAL)**