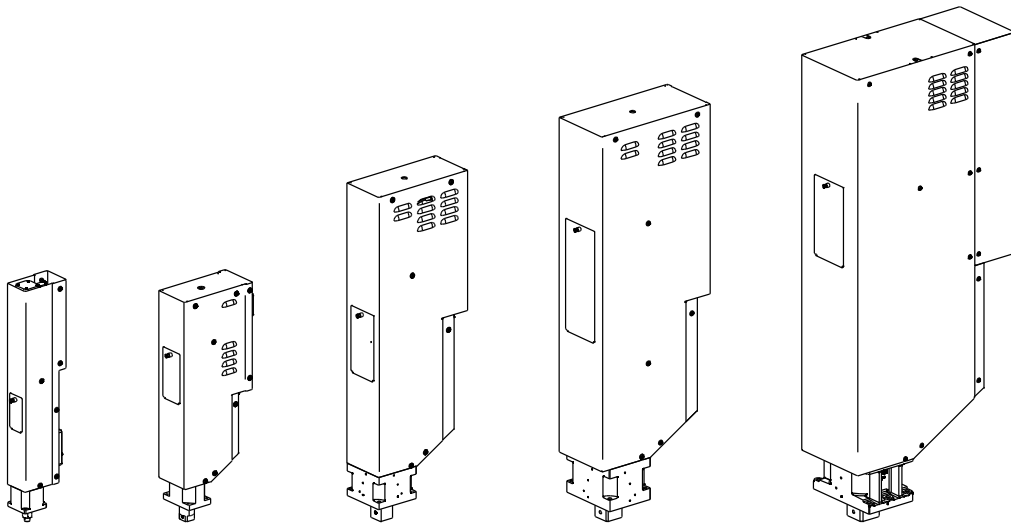




Translation of the Original-Assembly Instructions

# SCHMIDT® ServoPress

605-680



### Further applicable documents

This instruction for use contains information about the delivered press. The essential information includes the following:

- Mounting and commissioning of the press
- Operation and functions of the press
- Maintenance and servicing of the press

Information describing the **press system** used, its design, operation and maintenance is contained in separate instructions.

For further information, refer to the "Instructions for Use - SCHMIDT Manual workstation" respectively the "Assembly Instructions - SCHMIDT Components for automation".

Information describing the **control** and its design is contained in separate instructions.

For further information, refer to the operating instructions of the control.

Information about the user interface of the **control unit** and the integrated functions is contained in separate instructions.

For further information, refer to the "Operating Instructions – SCHMIDT PRC HMI".

**Order-specific information** can be found in the "Technical Documentation". These can include:

- Declarations of conformity or incorporation
- Test protocols
- Spare parts lists
- Circuit diagrams

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## Table of contents

<b>1</b>	<b>Safety</b> .....	<b>4</b>
1.1	Designated use .....	4
1.2	Organizational measures of the owner .....	5
1.3	Residual risks.....	5
1.4	Noise emission of the press .....	6
1.5	Standards and regulations .....	7
<b>2</b>	<b>ServoPress</b> .....	<b>8</b>
2.1	Structure.....	8
2.2	Function .....	8
<b>3</b>	<b>Assembly and start-up</b> .....	<b>9</b>
3.1	Delivery .....	9
3.2	Transport.....	9
3.3	Installation of the press .....	10
3.4	Mounting tools.....	13
3.5	Adjusting the working area.....	15
3.6	Connecting the press .....	16
<b>4</b>	<b>Maintenance and servicing</b> .....	<b>17</b>
4.1	Cleaning the press .....	17
4.2	Adjusting the force measurement .....	18
4.3	Lubricating the spindle .....	18
4.4	Filling the grease reservoir.....	18
4.5	Troubleshooting .....	22
4.6	Customer service .....	23
<b>5</b>	<b>Decommissioning and disposal</b> .....	<b>24</b>
5.1	Decommissioning.....	24
5.2	Disposal .....	24
<b>6</b>	<b>Appendix</b> .....	<b>26</b>
6.1	Technical data.....	26
6.2	Life limit .....	28
6.3	Dimensions .....	29

## 1 Safety

The press is designed and built in accordance with the valid safety regulations and state-of-the-art methods and is tested for function and safety. The press is/will be a component of the press system.

To ensure operational safety, note:

- Chapter "Designated use"
- Chapter "Organizational measures of the owner"
- Chapter "Residual risks"
- Chapter "Standards and regulations"

Independently of the indications specified in this manual, the current country specific regulations regarding work safety and health protection are valid.

### 1.1 Designated use

The press can be used as follows:

- As component in a SCHMIDT manual workstation during pressing processes with manual loading and unloading.  
**OR**
- As part of a press system together with SCHMIDT components for automation. In this case, the press system/tool has to be designed in such a way that is not possible to reach into the hazard zone.

Any other use for any purposes other than those described above is considered contrary to its designated use. The manufacturer cannot be held liable for damages resulting from this.

Please do not make any changes to the components. The manufacturer cannot be held liable for damages resulting from this. These changes are at the sole risk of the owner.

Designated use also includes

- compliance with the documentation and
- compliance with the inspection and maintenance instructions of the manufacturer

## 1 Safety

---

### 1.2 Organizational measures of the owner

The press may only be operated in technically perfect condition.

**Manual** The instructions concerning start-up, operation and maintenance described in this manual must be observed.

This manual must be stored within easy reach at the workplace.

**Personnel** The persons responsible for the work on the press must have read the manual and, in particular, chapter "1 Safety" before starting work. This also applies to persons who work on the machine only occasionally.

The press must be operated, checked and maintained properly. The competences for these operations must be defined clearly.

**Protective devices** Use the press only if all the required protective devices have been installed completely and are in a functional state. The protective devices must not be bypassed or deactivated.

**Risk assessment** Depending on the working process, tool, size and work piece material, an additional working area protection may be needed. The owner is responsible for this.

According to the country-specific regulations, perform risk assessment and take the appropriate safety measures if necessary.

### 1.3 Residual risks

Safe press operation requires proper interaction of press, control, pressing tool, safety device(s) and action of the users in accordance with safety procedures.

Certain places at the press cannot be protected without limiting the functionality and usability of the press. Therefore, despite all constructive safety measures, there is still a residual risk.



#### **DANGER**

##### **Injuries or death caused by touching live parts**

When carrying out assembly and maintenance work, you may come into contact with parts that carry dangerous voltage during operation. Touching live parts may cause death.

☞ Any work on the electrical system or equipment must be carried out only by trained electricians or by specially instructed persons under the control and supervision of a trained electrician and in accordance with the applicable electrical engineering rules and regulations.

## 1 Safety

---



### **WARNING**

#### **Risks for persons**

When working with the press, the operator must not endanger himself/herself or other persons.

- ☞ Operate the press only if no other person is in the hazard zone.



### **WARNING**

#### **Risk of burns from heated parts**

Press operations can heat up tools and workpieces. There is a risk of coming into contact with the heated parts. This can result in burns to the body. Heated parts can also cause fires.

- ☞ Wear protective clothing.
- ☞ Install an appropriate protective device.

Further information regarding the safe operation of the press can be found in the corresponding chapters of this manual.

## 1.4 Noise emission of the press



### **WARNING**

#### **Different noise emission values**

The noise emission values determined according to EN ISO 16092-1 (Machine tools safety - Presses - Part 1: General safety requirements) Annex F may deviate from the noise emissions under real operating conditions. Depending on the local conditions, a higher sound level value may occur.

The noise level value emitted by the press can be found in chapter "6.1 Technical data".

#### Measures for noise reduction

The stroke speed of the press has a significant influence on the noise level value. Reducing the speed reduces the noise emission.

For further information, refer to the "Instructions for Use - SCHMIDT Manual workstation" respectively the "Assembly Instructions - SCHMIDT Components for automation".

### 1.5 Standards and regulations

Some important standards and regulations to be observed when operating a press are listed below. However, this list serves merely for your information. SCHMIDT Technology cannot be held liable for the completeness of this list.

- Machine directive 2006/42/EC
- EN ISO 12100 (Safety of machinery - General principles for design - Risk assessment and risk reduction)
- EN ISO 13854 (Safety of machinery - Minimum gaps to avoid crushing of parts of the human body)
- EN ISO 13857 (Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs)
- EN ISO 16092-1 (Machine tools safety - Presses - Part 1: General safety requirements)
- EN ISO 16092-2 (Machine tools safety - Presses - Part 2: Safety requirement for mechanical presses)

## 2 ServoPress

### 2.1 Structure

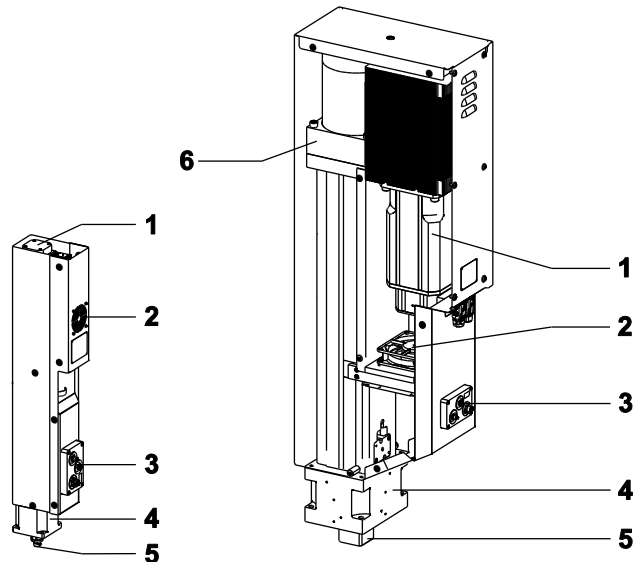


Figure 1: Structure (example)

1	Servo motor	4	Flange
2	Fan	5	Ram
3	Process data acquisition	6	Belt drive

### 2.2 Function

When using the ServoPress, the force of the servo motor is transmitted to the ram via a backlash-free spindle drive.

The presses 605-617 are equipped with a ball screw. The presses 620-680 with a planetary roller screw.

The motor is controlled by the servo converter according to the parameters (position, force and speed) defined in the control. Thus the ram travels along the defined operating profile.

The servo converter and the power supply unit are located in a switch cabinet.

The integrated brake is used as device for retention of ram in home position and prevents the lowering of the ram in currentless condition.

In case of an overload, the ServoPresses 616-680 have a mechanical clutch that separates the motor from the drive.

The maintenance-free, temperature-controlled fan built into the ServoPress ensures highly reliable operation.

#### Force/stroke-monitoring

The "stroke" measurement is carried out via an absolute position measuring system directly on the ram. The "force" signal is detected via an integrated force sensor.

These signals are processed and evaluated in process data acquisition. The results are then transmitted to the connected control unit.



### 3 Assembly and start-up



#### CAUTION

##### Safety instructions

- ☞ The press must only be installed and put into operation by a skilled person.
- ☞ Any work on the electrical equipment of the press must be carried out only by trained electricians or by specially instructed persons under the control and supervision of a trained electrician and in accordance with the applicable electrical engineering rules and regulations.
- ☞ Observe the dimensions, weights and setting values listed in the manual or the data sheets.
- ☞ Check the press, accessories and all supply lines for possible damage prior to each start-up.
- ☞ Switch off a defective press immediately and have the disturbances repaired as soon as possible.

Improper transport, installation and commissioning is prone to accidents and can cause damage or malfunctions to the delivered components for which SCHMIDT Technology does not grant any liability or guarantee.

#### 3.1 Delivery

- ☞ Check the delivered components for visible transport damage.
- ☞ Report any transport damage immediately to the following authorities:
  - the carrier
  - the dispatch department of SCHMIDT Technology

##### Packing

- ☞ Keep the original packaging and transport aids, if present, for later transports and/or for further storage.

#### 3.2 Transport

Short internal transport distances reduce the risk of accidents.

- ☞ Use sufficiently dimensioned transport equipment.
- ☞ During transport, ensure that the component(s) are handled properly.

The components may only be transported on a suitable stable base (e.g. pallet).

- ☞ Do not lift the press at the tool magazine area or at mounted parts.
- ☞ Secure loose parts accordingly before transport.

### 3.3 Installation of the press



#### WARNING

##### Lifting heavy loads

If the lifting equipment or lifting gear is insufficiently dimensioned or incorrectly attached, suspended loads may fall down.

- ☞ Use a lifting equipment with sufficient load capacity.
- ☞ Use a sufficiently dimensioned lifting gear to lift the component.
- ☞ Do not step below suspended components.



#### WARNING

##### Falling loads

The lifting screw may become loose from the threaded hole due to uncontrolled rotation during lifting.

- ☞ Use pivot-mounted lifting screws.
- ☞ Always mount all lifting screws for lifting.
- ☞ Make sure that the component does not rotate during lifting.

#### Operating location

The press must be installed safely (in terms of work safety) at its future operating location.

The future operating location must be designed for the weight of the press, including tools. Apart from weight of the press itself, the stress caused by the working process (dynamics and vibrations) must be taken into account.

The space required for the press and any supply lines that may be present must be taken into account.

#### Frame/H-frame (optional)

Before start-up, the frame/H-frame must be screwed down to the press base (optional) or to another stable table plate.

For further information on the fastening bores and the weight of the component, please refer to chapter "6.1 Technical data".

#### Lifting the frame/H-frame

##### ServoPress 605

This frame can be lifted by hand.

### 3 Assembly and start-up

#### ServoPress 616-680

To lift the frame/H-frame, you need a lifting equipment.

- ☞ If necessary, take the optionally delivered accessories out of the frame/H-frame.
- ☞ Mount the lifting screws at the frame/H-frame.
- ☞ Attach the transport equipment at the lifting screws.
- ☞ Carefully lift the frame/H-frame.  
The frame/H-frame may swing out.
- ☞ Pay attention to the center of mass of the frame/H-frame.

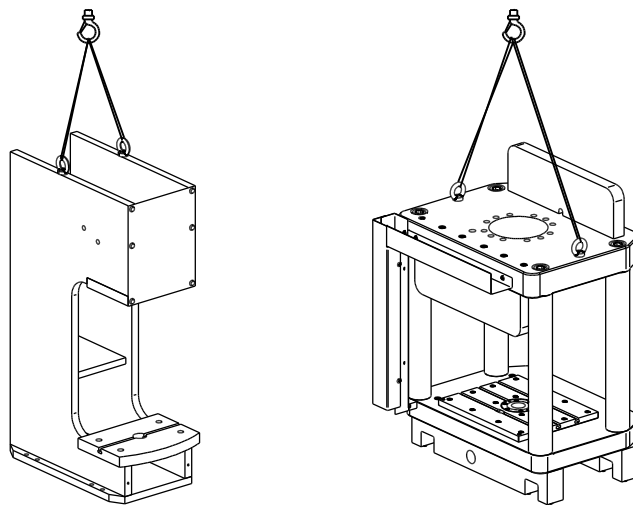


Figure 2: Frame/H-frame with lifting equipment (example)

#### **Mounting the frame/H-frame**

- ☞ Put the frame/H-frame on the press base or on the.  
If the type 4 H-frame is to be used without a SCHMIDT press base, the two support strips on the underside of the H-frame may have to be removed.
- ☞ If necessary, check if both axes of the frame/H-frame are horizontal and compensate the differences.
- ☞ Screw the frame/H-frame down on the press base or on the mounting plate.

#### **Press**

Before start-up, the press must be screwed down to the frame or to another stable frame system.

For further information on the fastening bores and the weight of the component, please refer to chapter "6.1 Technical data".

#### **Lifting the press**

#### ServoPress 605

This press can be lifted by hand.

### 3 Assembly and start-up

#### ServoPress 616-680

To lift the press, you need a lifting equipment.

- ☞ Screw the lifting screw(s) into the threaded hole(s) provided for this purpose. This is/are located on the top of the press.
- ☞ Fasten the lifting gear to the lifting screw(s).

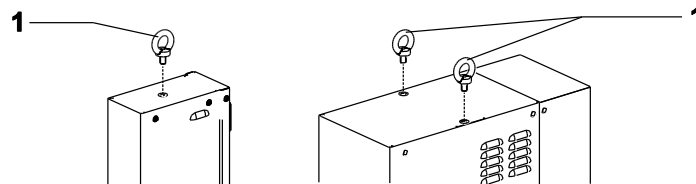


Figure 3: Top view of a press

- 1 Lifting screws

#### Mounting the press

- ☞ Place the press onto the frame/frame system.
- ☞ Make sure that the fastening holes of the press are lined up precisely with the holes in the frame/frame system.
- ☞ Screw the press tightly from below with the following torques.
- ☞ Use screws with the appropriate property class.

Press type	Screw	Property class	Torque
605	4 x M5x25	10.9	8 Nm
616	4 x M6x25	10.9	14 Nm
617	4 x M8x35	10.9	32 Nm
620	4 x M12x50	12.9	135 Nm
650-655	6 x M14x60	12.9	215 Nm
660-680	10 x M14x60	12.9	215 Nm



#### CAUTION

##### Dimension of frame system not suitable

If you ordered a press without the standard frame from SCHMIDT Technology, you must install the press onto a suitable frame system. If the frame system is not adequately dimensioned, problems such as the production of defective parts or even damage to the press system can occur.

- ☞ Choose your frame system according to the maximum force of your press.
- ☞ Observe the dimensions and weight of the press used.

## 3.4 Mounting tools



### DANGER

#### Injuries caused by closing tools

When working with the press, there is a risk that persons will interfere with the closing action of the tools. This may result in injuries such as crushed fingers and hands.

- ☞ Take necessary safety measures that prevent persons from interfering with the closing action.
- ☞ Inform the personnel about this source of risk!

### Upper tool



### CAUTION

#### Construction of the tools

The owner or the entrusted construction engineer must make sure that the construction of the tools complies with the safety regulations and that the necessary safety measures will be observed.

- ☞ Observe the maximum allowed weight for the upper tool.

You will find ram dimensions, the maximum dimensions and the maximum weights for the upper tools in chapter "6.1 Technical data".

For mounting the upper tool, a centric dowel pin hole with a set screw is available for fixing it.

- ☞ Insert the clamping pin into the dowel pin hole of the ram.
- ☞ Fasten the upper tool using the set screw.

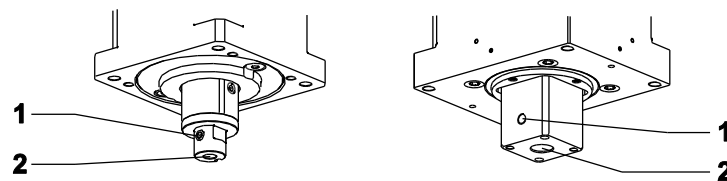


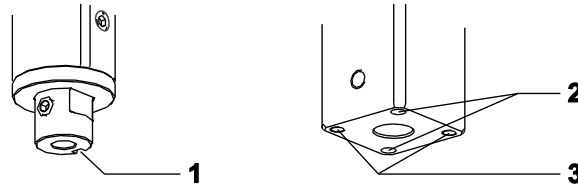
Figure 4: Fastening options at the ram (example)

1 Set screw

2 Dowel pin hole

### 3 Assembly and start-up

**Distortion lock**      The ram has a distortion lock for the upper tool.



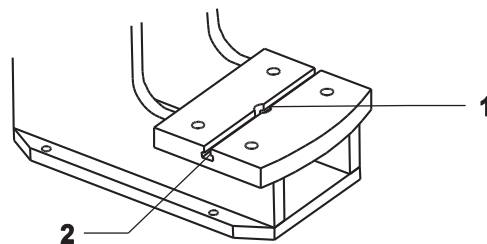
**Figure 5: Distortion lock on the ram (example)**

- |   |                                 |   |                                    |
|---|---------------------------------|---|------------------------------------|
| 1 | Slot (ServoPress 605)           | 3 | Threaded hole (ServoPress 616-680) |
| 2 | Dowel hole (ServoPress 616-680) |   |                                    |

### Lower tool

For mounting the lower tool, a table bore and a T-slot are available.

- ☞ Place the lower tool on the table plate.
- ☞ Screw the lower tool down to the table plate.



**Figure 6: Frame with table plate (example)**

- |   |            |   |        |
|---|------------|---|--------|
| 1 | Table bore | 2 | T-Slot |
|---|------------|---|--------|

For frames with a screwed fixture mounting plate, the fixture mounting plate is aligned with the ram but not pinned.

## 3.5 Adjusting the working area

### Constructive restrictions



#### CAUTION

#### Damage to the press or to the tool

The available operating stroke is limited by various system functions (e.g. initialization/ reference run, spindle lubrication, etc.). These system functions move the ram above or below the topmost position.

- ☞ Make sure that the execution of system functions does not result in collisions with the tool or tools.
- ☞ During tool construction, include a corresponding adapter in the planning if necessary.

#### Ram extension at home position

After the reference run, which is used to tare the force measurement, the ram moves to the TDC position. The taring takes place via the spindle rotation.

If the reference run is started in a position  $\geq$  the value under point 3 "Max. stroke during reference run from home position", the stroke is ended 0,5 mm above the parameterized TDC position.

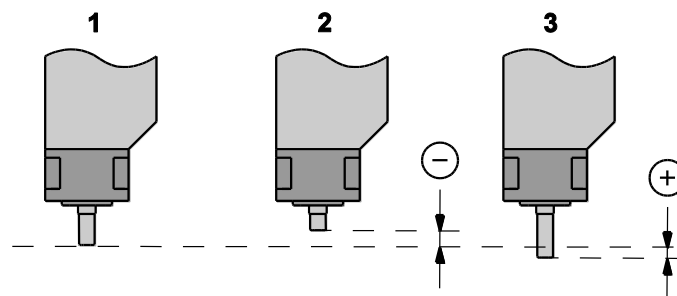


Figure 7: Restrictions of the working stroke (example)

Press	605	616	617	620	650/655	660/680
1 Ram extension at home pos. (top working pos.) [mm]	40	50	60	60	60	67
2 Max. negative stroke [mm]	- 20,5	- 22,2	- 21,9	- 15,4	- 7	0
3 Max. stroke during ref. run from home position * [mm]	+ 5,5	+ 5,5	+ 11	+ 5,5	+ 11	+ 22

\* If the reference run is not started from the home position but lower, the ram moves in negative direction.

### Adjusting the working stroke

The individual parameters of the working stroke are defined in the control unit.

For further information, refer to the "Instructions for Use - SCHMIDT Manual workstation" respectively the "Assembly Instructions - SCHMIDT Components for automation".

## 3.6 Connecting the press



### DANGER

#### Injuries or death caused by touching live parts

When carrying out assembly and maintenance work, you may come into contact with parts that carry dangerous voltage during operation. Touching live parts may cause death.

- ☞ Any work on the electrical system or equipment must be carried out only by trained electricians or by specially instructed persons under the control and supervision of a trained electrician and in accordance with the applicable electrical engineering rules and regulations.

#### Press

All connections of the press are labeled.

- ☞ Observe the enclosed circuit diagram.

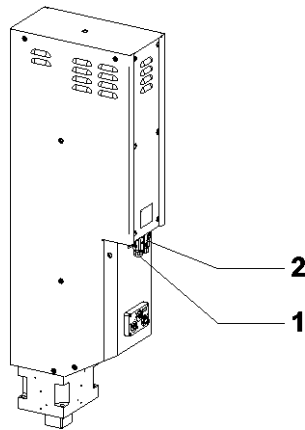


Figure 8: Connections (example)

- |                         |                          |
|-------------------------|--------------------------|
| 1 A10/X1 power (orange) | 2 A10/X2 encoder (green) |
|-------------------------|--------------------------|

#### Process data acquisition

All connections of the process data acquisition are labeled.

- ☞ Observe the enclosed circuit diagram.

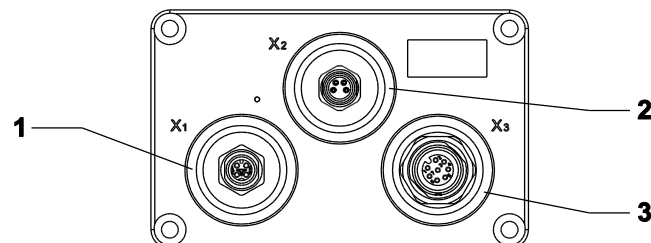


Figure 9: Connections (example)

- |                    |           |
|--------------------|-----------|
| 1 X1 EtherCAT-P In | 3 X3 Data |
| 2 X2 EtherCAT Out  |           |



### 4 Maintenance and servicing



#### CAUTION

##### Safety instructions

- ☞ The press must only be serviced by a skilled person.
- ☞ Any work on the electrical equipment of the press must be carried out only by trained electricians or by specially instructed persons under the control and supervision of a trained electrician and in accordance with the applicable electrical engineering rules and regulations.
- ☞ All spare parts must comply with the technical requirements specified by SCHMIDT Technology. This is always guaranteed in the case of original spare parts.

Unless expressly described otherwise, do not start with the maintenance and servicing work until

- the press has been disconnected from the power/voltage supply,
- the press system has been switched off and secured against being switched on again,
- the dangerous movements have come to a standstill,
- unauthorized, inadvertent or unexpected starting of dangerous movements as a result of stored energy is prevented.

#### Maintenance intervals

Interval	Activity
Every week (every 50 operating hours)	see chapter "4.1 Cleaning the press"
Every year (every 3,000 operating hours)	see chapter "4.2 Adjusting the force measurement"
Automatically (suggested by the control)	see chapter "4.3 Lubricating the spindle"
Automatically (suggested by the control)	see chapter "4.4 Filling the grease reservoir"

Further information about the necessary activities you get in the individual chapters.

#### 4.1 Cleaning the press



#### CAUTION

In any case do not use any solvent based cleaners.

##### Press

- ☞ Clean the press with a lightly oiled cloth.

##### Ram/spindle

- ☞ Move the ram/spindle to the BDC position.
- ☞ Clean the ram/spindle with a lightly oiled cloth.
- ☞ Clean the scale on the ram with a soft, lint-free cloth wetted with isopropyl alcohol.

### 4.2 Adjusting the force measurement

Since the force-measuring system is usually used for measuring characteristic quantities relevant to quality, it should be calibrated and, if necessary, adjusted at reasonable intervals established by the owner. EN ISO 9001 (Quality management systems - Requirements) makes a calibration of the system mandatory at regular intervals.

Calibration is also offered as a service by the SCHMIDT Customer Service.

### 4.3 Lubricating the spindle

Depending on the configured operating profile, the point in time for the next lubrication is calculated. When the given time has come, the control will request you to lubricate.

For further information, refer to the "Instructions for Use - SCHMIDT Manual workstation" respectively the "Assembly Instructions - SCHMIDT Components for automation".

### 4.4 Filling the grease reservoir



#### WARNING

#### Shearing of finger(s)

The upward or downward movement of the used grease depot or spindle nut creates a danger zone during operation of the press. Fingers can be sheared off when reaching into this danger zone.

- ☞ Mount the inspection cover on the inspection opening before switching on the press system.
- ☞ **NEVER** operate the press without the inspection cover installed.

If the grease reservoir is almost empty, a message to refill the grease reservoir is displayed.

To fill the grease reservoir, the ram of the press moves to a special position. This happens automatically after answering the message.

#### Switching off the press system

If you are prompted ...

- ☞ Switch off the press system with the main switch on the switch cabinet.

## 4 Maintenance and servicing

### ServoPress 605-620

For the ServoPresses 605-620, the grease reservoir must be filled manually using the lubrication nipple.

There is an inspection opening at the front of each press. Underneath is

- the used grease reservoir
- the lubrication nipples (ServoPress 605-620)

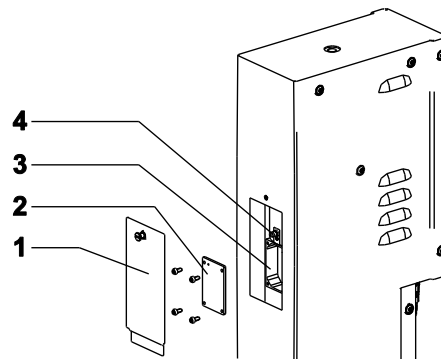


Figure 10: Inspection opening (example)

- |   |                             |   |                       |
|---|-----------------------------|---|-----------------------|
| 1 | Inspection cover            | 3 | Used grease reservoir |
| 2 | Cover used grease reservoir | 4 | Lubrication nipples   |

#### Cleaning the used grease reservoir

During each lubrication process, old, used grease is automatically transported to the used grease reservoir.

- ☞ Dismount the inspection cover.
- ☞ Dismount the cover of the used grease reservoir.
- ☞ Remove the used grease from the reservoir.
- ☞ Clean the used grease reservoir and the cover of the used grease reservoir.

#### Filling the grease reservoir

The grease reservoir must be filled with a grease gun.

- ☞ Remove the cover of the lubrication opening (only ServoPress 620).
- ☞ Use a grease gun to press in grease at the lubrication nipple.
- ☞ Insert the cover in the lubrication opening (only ServoPress 620).

Press type	Amount of grease required	Grease	Material no.
605	28 cm <sup>3</sup>	KLÜBERPLEX BEM 34-131N	554906 (grease cartridge)*
616	44 cm <sup>3</sup>	KLÜBERPLEX BEM 34-131N	554906 (grease cartridge)*
617	64 cm <sup>3</sup>	KLÜBERPLEX BEM 34-131N	554906 (grease cartridge)*
620	69 cm <sup>3</sup>	KLÜBERPLEX BEM 34-131N	554906 (grease cartridge)*

\* A maintenance set (material no. 564524), which includes a grease gun, a grease cartridge and a hose, is optionally available.

## 4 Maintenance and servicing



### CAUTION

#### Contamination of the machine

If the lubrication opening is not covered up again after finishing lubrication, the functioning of the press can be affected by increasing contamination.

☞ Before starting the press system, insert the cover on top of the lubrication opening.

☞ Mount the cover of the used grease reservoir.

☞ Mount the inspection cover.

### ServoPress 650-680

For the ServoPresses 650-680, the spindle and the spindle bearing is automatically lubricated via an integrated grease gun.

If the grease cartridge of the grease gun is almost empty, it must be replaced.

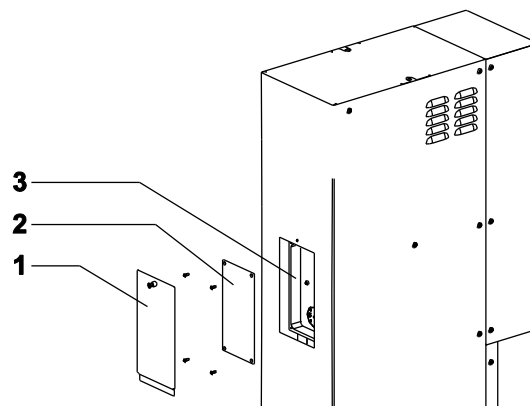


Figure 11: Inspection opening (example)

- |  |                                |
|--|--------------------------------|
| <p>1 Inspection cover</p> <p>2 Cover used grease reservoir</p> | <p>3 Used grease reservoir</p> |
|--|--------------------------------|

#### Cleaning the used grease reservoir

During each lubrication process, old, used grease is automatically transported to the used grease reservoir.

☞ Dismount the inspection cover.

☞ Dismount the cover of the used grease reservoir.

☞ Remove the used grease from the reservoir.

☞ Clean the used grease reservoir and the cover of the used grease reservoir.

☞ Mount the cover of the used grease reservoir.

☞ Mount the inspection cover.

## 4 Maintenance and servicing

### Replacing the grease cartridge

- ☞ Remove the back cover of the press.
- ☞ Loosen the grease gun mounting screw.
- ☞ Swing the grease gun out of the housing.  
Pay attention to existing cables and hoses.
- ☞ Press the unlocking lever on the grease gun.
- ☞ Fully extend the plunger rod.
- ☞ Unscrew the grease gun housing.
- ☞ Remove the empty grease cartridge.
- ☞ Remove the covers on the new grease cartridge.
- ☞ Place the new grease cartridge into the grease gun housing in the direction of the arrow.
- ☞ Screw the grease gun housing into place.  
Make sure that the housing is properly secured.
- ☞ Push the plunger rod completely into the grease gun.
- ☞ Swing the grease gun into the housing.  
Pay attention to existing cables and hoses.
- ☞ Secure the grease gun via the mounting screw.
- ☞ Carefully loosen the bleed screw and bleed the grease cartridge.
- ☞ Tighten the bleed screw again hand-tight.
- ☞ Reinstall the back cover of the press.

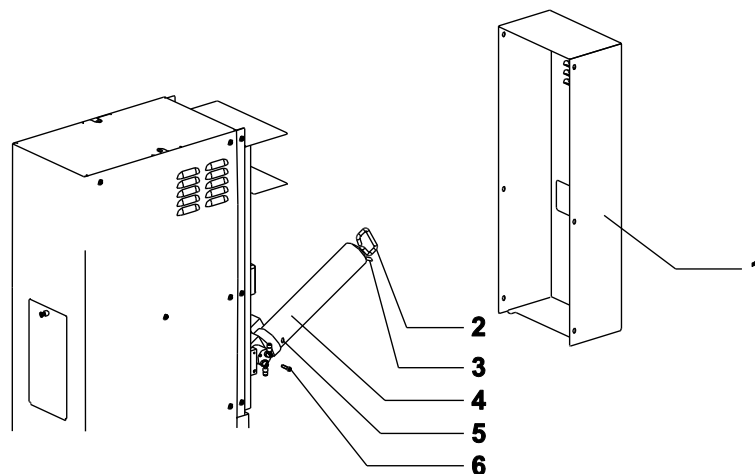


Figure 12: Replacing the grease cartridge (example)

- |   |                 |   |                |
|---|-----------------|---|----------------|
| 1 | Back cover      | 4 | Grease gun     |
| 2 | Plunger rod     | 5 | Bleed screw    |
| 3 | Unlocking lever | 6 | Mounting screw |

Press type	Amount of grease required	Grease	Material no.
650-680	400 cm <sup>3</sup>	KLÜBERPLEX BEM 34-131N	554906 (grease cartridge)

## 4 Maintenance and servicing

### Starting the press system

- ☞ Switch on the press system with the main switch on the switch cabinet.

After restarting the system, a message is displayed whether grease has been refilled.

- ☞ If you acknowledge the message by pressing the "Yes" button, the press system is again ready for operation.
- ☞ If you acknowledge the message by pressing the "No" button, you must repeat the entire process.



### CAUTION

#### Damage to the press

If the message was acknowledged by pressing the "Yes" button but no grease has been filled, you will damage the press. Increased friction will result in the destruction of the spindle and the spindle bearing.

- ☞ Fill the grease reservoir as soon as the system issues the request.
- ☞ Replace the grease cartridge as soon as the system issues the request!
- ☞ Use only full grease cartridges for replacement purposes.

## 4.5 Troubleshooting

Fundamental functions are automatically monitored by the press. A flashing signal on the ring-shaped status display of the process data acquisition indicates the various operating states.

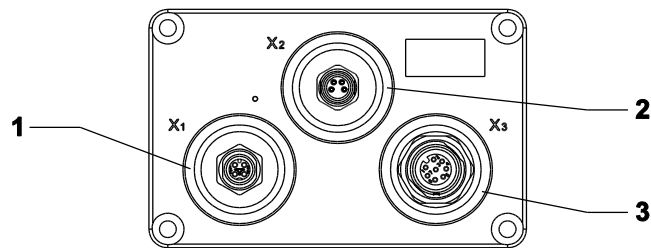


Figure 13: Status display (example)

- 1 Status display "X1"
- 2 Status display "X2"
- 3 Status display "X3"

24 V DC / EtherCAT inactive  
 INIT / No LINK  
 INIT / LINK OK & No ACT  
 INIT / LINK OK & ACT OK  
 Pre-Operational  
 Safe-Operational  
 Press ready  
 Process data acquisition  
 RangeCalc  
 Press not referenced  
 FW-Update (Bootloader active)  
 FW-Update (FoE in FW active)

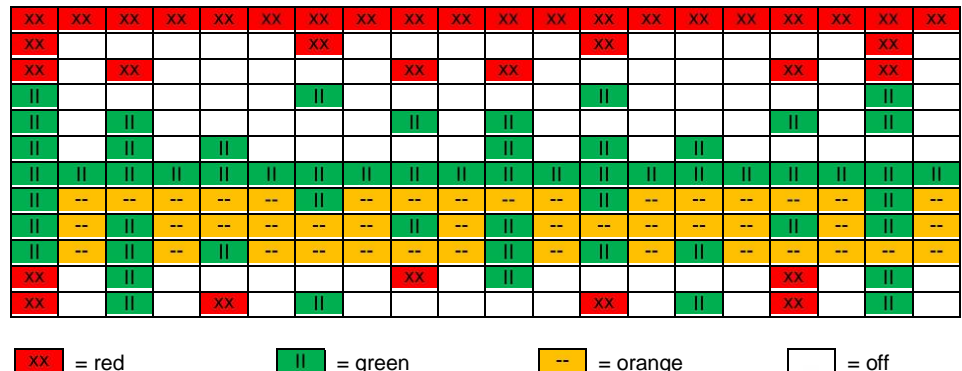


Figure 14: Flashing signals X1

## 4 Maintenance and servicing

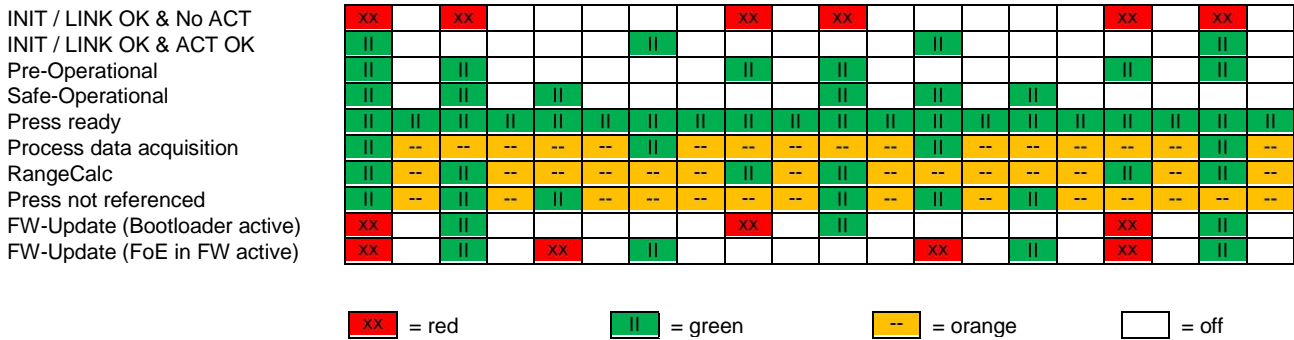


Figure 15: Flashing signals X2

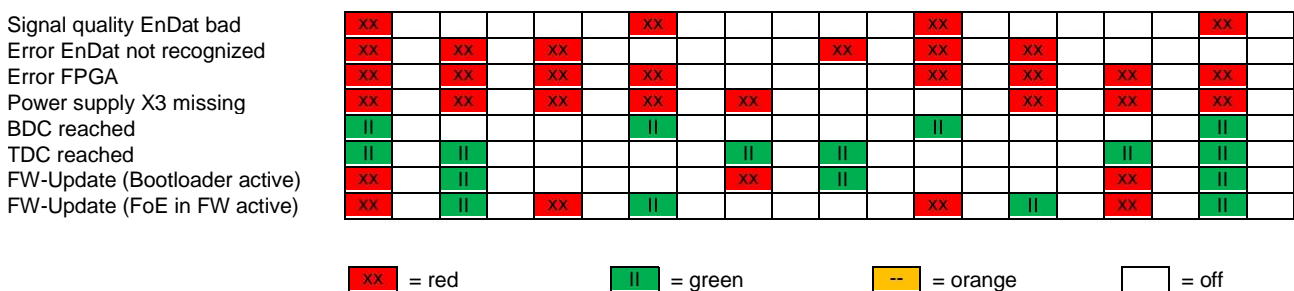


Figure 16: Flashing signals X3

### 4.6 Customer service

Contact the SCHMIDT Technology Customer Service department when you encounter difficulties with the press system or the software.

For prompt processing, keep the material no. and serial no. of the components of the press system at hand. This data can be found on the type plate of the

- press
- control
- SafetyModule/switch cabinet
- press base
- slide table

#### Describing problem in detail

☞ If necessary, write down the message.

☞ Inform the SCHMIDT Customer Service:

When and how often has the problem occurred, and what changes have been made recently?

### 5 Decommissioning and disposal



#### CAUTION

##### Risk of injury due to insufficiently trained personnel

- ☞ The components must be decommissioned by a trained professional.
- ☞ Any work on the electrical system or equipment must be carried out by trained electricians or by specially instructed persons only under the control and supervision of a trained electrician and in accordance with the applicable electrical engineering rules and regulations.
- ☞ The components must only be decommissioned in a de-energized state (no current / no pressure).
- ☞ Secure the components against unintentional start-up.

#### 5.1 Decommissioning

Decommissioning is defined as an extended period without usage of the components. In this case, the components must be protected from external influences.

- ☞ If necessary, disconnect the components from the power supply.
- ☞ Ensure proper packaging of the components if they remain unused for longer periods.
- ☞ Store the components in such a way that they are not exposed to significant temperature fluctuations. Otherwise, the condensed moisture resulting from it could cause corrosion.

#### 5.2 Disposal

Parts and components that have reached the end of their service life e.g. due to wear, corrosion or mechanical loads must be disposed of properly in accordance with the national regulations after disassembly.

##### Disassembly

- ☞ Remove all liquids (e.g. oil) and any grease.
- ☞ If necessary, remove all cables and lines.
- ☞ Disassemble the components according to common practices in mechanical engineering.

##### Disposal

- ☞ Separate all components according to recycling requirements:
  - Metal recycling (steel, iron, aluminium ...)
  - Plastics recycling
  - Cables and lines
  - Electronics waste (electronic components)
  - Hazardous waste (oil, grease, battery ...)



## 5 Decommissioning and disposal

---

Dispose of the remaining components according to the nature of their material.

- ☞ Dispose of the separated components according to local regulations or with the help of a specialized waste management company.

Information on environmentally compatible disposal is available from the local authorities or specialized waste management companies.

## 6 Appendix

### 6.1 Technical data

Press type	All presses listed below
Operating time	20 years
Environmental conditions	according to EN 60204-1:2007, EN 61000-6-2:2005 and EN 61000-6-4:2007
Power supply system	TT/TN

Press	605	616	617	620
Ram stroke [mm]	0 - 150	0 - 200	0 - 300	0 - 400
Force				
- F at 100% duty cycle [kN]	0,5	3	7,5	20
- F <sub>max</sub> at 25% duty cycle 20 s [kN]	1,0	5	14	35
Force sensor [kN]	3	10	25	50
Resolution PDA				
- Stroke [µm/inc]	2,2	3,2	4,6	6,1
- Force [N/inc]	0,3	1,5	3,75	10
Resolution				
- Position control [µm]	0,1	0,1	0,1	0,1
Ram				
- Speed [mm/s]	0 - 300	0 - 200	0 - 200	0 - 200
- Bore [mm]	6H7	10H7	20H7	20H7
- Dimensions [mm]	ø 25	ø 40	42 x 42	55 x 55
Tool				
- Weight [max. kg]	5	15	25	50
- Dimensions [max. mm]	160 x 140	220 x 175	250 x 200	300 x 220
Noise level value * [dB(A)]	68	70	68	75
Weight [approx. kg]	12	25	64	113

Press	650	655	660	680
Working stroke [mm]	0 - 500	0 - 500	0 - 350	0 - 350
Force				
- F at 100% duty cycle [kN]	50	80	110	200
- F <sub>max</sub> at 25% duty cycle 20 s [kN]	75	110	160	250
Force sensor [kN]	100	160	200	300
Resolution PDA				
- Stroke [µm/inc]	7,6	7,6	5,4	5,4
- Force [N/inc]	24	32	48	75
Resolution				
- Position control [µm]	0,1	0,1	0,1	0,1
Ram				
- Speed [mm/s]	0 - 200	0 - 100	0 - 100	0 - 50
- Bore ø [mm]	20H7	20H7	20H7	20H7
- Dimensions [mm]	65 x 65	65 x 65	ø 90	ø 90
Tool				
- Weight [max. kg]	100	100	100	100
- Dimensions [max. mm]	370 x 230	370 x 230	370 x 230	370 x 230
Noise level value * [dB(A)]	73	73	73	73
Weight [approx. kg]	225	225	283	283

\* in the idle run (without tool at the maximum speed) at the operator's place (at a height of 1,6 m and approx. 1 m from the press). For measures to reduce noise, please refer to chapter "1.4 Noise emission of the press".

## 6 Appendix

Frame		405	416	417	420
Working height	[mm]	246	300	387	518
Frame height	[mm]	510	630	780	1080
Mounting surface	[mm]	160 x 325	220 x 390	250 x 430	300 x 528
Table					
- Size	[mm]	160 x 140	220 x 175	250 x 200	300 x 220
- Bore	[Ø mm]	20H7	20H7	40H7	40H7
- Height	[mm]	93	113	128	155
Weight	[approx. kg]	33	76	102	221

Frame		450-500	450-600	660-500	660-600
Working height	[mm]	512	612	500	600
Frame height	[mm]	1050	1150	1097	1197
Mounting surface	[mm]	370 x 600	370 x 600	390 x 725	390 x 725
Table					
- Size	[mm]	300 x 230	370 x 230	370 x 230	370 x 230
- Bore	[Ø mm]	40H7	40H7	40H7	40H7
- Height	[mm]	190	190	220	220
Weight	[approx. kg]	328	343	522	552

H-frame		Type 4
Working height	[mm]	150 - 500
H-frame height	[mm]	942
Mounting surface	[mm]	630 x 553
Table		
- Size	[mm]	370 x 300
- Bore	[Ø mm]	40H7
- Height	[mm]	78
Clearance	[mm]	490 x 220
Weight	[approx. kg]	470

The performance data are related to 1000 m height above sea level.

## 6.2 Life limit

Press	Life limit [cycles] *
605, 616, 617, 620, 650, 660	20.000.000
655, 680	10.000.000

\* according to standard operating profile

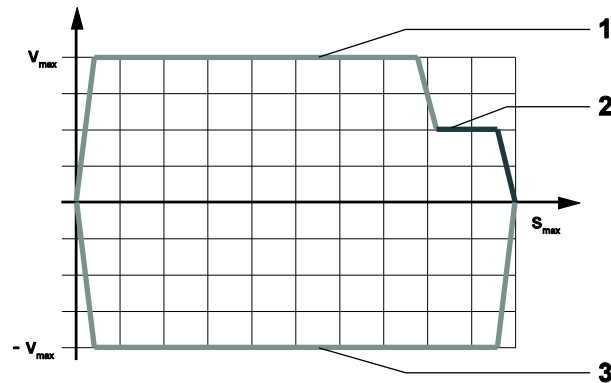


Figure 17: Standard operating profile

- 1 Advancing movement
- 2 Pressing movement  $F_{nom}$
- 3 Return stroke

Speed	All presses
Advancing movement [mm/s]	100% of $v_{max}$
Pressing movement $F_{nom}$ [mm/s]	50% of $v_{max}$
Return stroke [mm/s]	100% of $v_{max}$

Stroke	605	616	617	620
Advancing movement [mm]	56,2	87,0	112,5	150,0
Pressing movement $F_{nom}$ [mm]	18,8	13,0	37,5	50,0
Return stroke [mm]	75,0	100,0	150,0	200,0

Stroke	650	655	660	680
Advancing movement [mm]	200,0	236,5	131,2	167,8
Pressing movement $F_{nom}$ [mm]	50,0	13,5	43,8	7,2
Return stroke [mm]	250,0	250,0	175,0	175,0

### 6.3 Dimensions

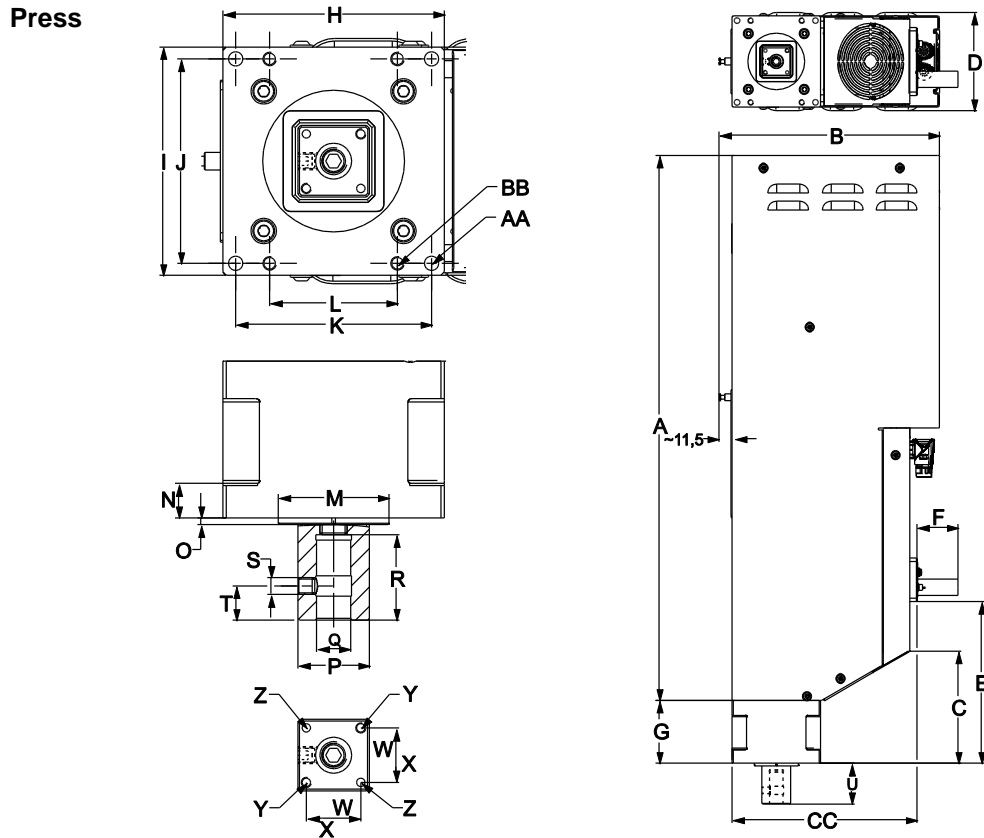


Figure 18: Dimensions

Press		605	616	617	620	650/655	660/680
A	[mm]	574	535	800	957	1130	1249
B	[mm]	155	252	318	384	555	552
C	[mm]	62	119	165	210	260	200
D	[mm]	89	124	144	190	244	249
E	[mm]	105	497	237	256	823	370
F	[mm]	~ 60	~ 60	~ 60	~ 60	~ 60	~ 60
G	[mm]	62	63,5	92	120	120	-
H	[mm]	75	75	130	140	150	230
I	[mm]	75	109	134	180	235	230
J	[mm] ± 0,1	60	88	120	160	210	130/210
K	[mm] ± 0,1	60	63	115	120	130	130
L	[mm] ± 0,1	40	59,4	75	-	-	-
M	∅ [mm]	45h6	45h6	65h6	90h6	100h6	120h6
N	[mm]	10,5	15	19	32	28	-
O	[mm]	3,5	3,5	4	5	5	8
AA	∅ [mm]	5,5	6,3	8,4	10,3	12,1	-
BB	∅ [mm]	M5	M6	M8	M12	M14	M14
CC	[mm]	130	239	272	344	542	482
P	[mm]	∅ 14	32 x	42 x	55 x	65 x 65	∅ 90
Q	∅ [mm]	6H7	32	42	55	20H7	20H7
R	[mm]	18	10H7	20H7	20H7	50	50
S	∅ [mm]	M5	30	50	50	M10	M10
T	[mm]	8	M8	M10	M10	20	20
U	[mm]	40	10	20	20	60	67
W (pin bore)	[mm] ± 0,02		50	60	60	40	40
X (thread)	[mm]		22	32	40	40	40
Y	∅ [mm]		22	32	40	M8	M8
Z	∅ [mm]		M5	M6	M8	8H7	8H7
			5H7	5H7	8H7		

## 6 Appendix

### Frame

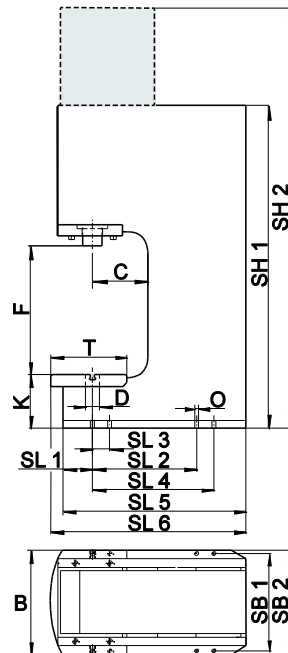


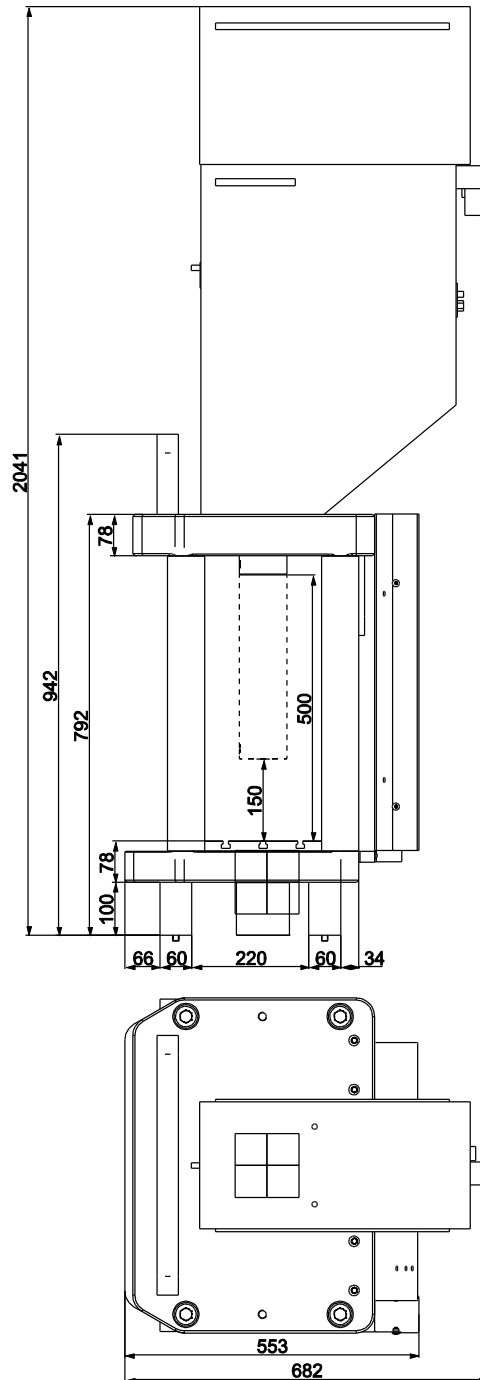
Figure 19: Dimensions

Frame for ServoPress		605	616	617	620
Frame		405	416	417	420
C	[mm]	130	130	150	160
D	∅ [mm]	20H7	20H7	40H7	40H7
F	[mm]	246	300	387	518
K	[mm]	93	113	128	155
B x T	[mm]	160 x 140	220 x 175	250 x 200	300 x 220
SB2 x SL5	[mm]	160 x 325	220 x 390	250 x 430	300 x 528
O	∅ [mm]	9	11	11	13
SL1	[mm]	50	80	80	85
SL2	[mm]	220	250	250	300
SL3	[mm]	-	-	-	50
SL4	[mm]	-	-	-	350
SL5	[mm]	325	390	430	528
SL6	[mm]	345	405	460	563
SH1	[mm]	510	630	780	1080
SH2	[mm]	1015	1062	1467	1810
SB1	[mm]	140	200	220	280
SB2	[mm]	160	220	250	300

Frame for ServoPress		650/655		660	
Frame		450-500	450-600	660-500	660-600
C	[mm]	160	160	160	160
D	∅ [mm]	40H7	40H7	40H7	40H7
F	[mm]	512	612	500	600
K	[mm]	190	190	220	220
B x T	[mm]	300 x 230	370 x 230	370 x 230	370 x 230
SB2 x SL5	[mm]	370 x 600	370 x 600	390 x 725	390 x 725
O	∅ [mm]	12,5	12,5	12,5	12,5
SL1	[mm]	95	95	95	95
SL2	[mm]	350	350	400	400
SL3	[mm]	50	50	50	50
SL4	[mm]	400	400	500	500
SL5	[mm]	600	600	725	725
SL6	[mm]	635	635	761	761
SH1	[mm]	1050	1150	1097	1197
SH2	[mm]	2012	2112	2036	2136
SB1	[mm]	350	350	370	370
SB2	[mm]	370	370	390	390

**6 Appendix**

**H-frame  
(for ServoPress 660-  
680)**



**Figure 20: Dimensions**

## **Contact**

**Germany** SCHMIDT Technology GmbH  
Feldbergstr. 1  
D-78112 St. Georgen  
Tel. +49 (7724) 899-0  
info@schmidttechnology.de  
www.schmidttechnology.de

**France** SCHMIDT Technology SAS  
6 rue des Frères Lumières  
F-67170 Brumath  
Tel. +33 (0)3 88 62 68 53  
info@schmidttechnology.fr  
www.schmidttechnology.fr

**Switzerland** SCHMIDT Technology GmbH  
Industriestr. 6  
CH-4528 Zuchwil  
Tel. +41 (0)32 513 23 24  
infoCH@schmidttechnology.ch  
www.schmidttechnology.ch

**United Kingdom** SCHMIDT Technology Ltd  
United Kingdom (UK)  
Tel. +44 (0) 118930 5464  
sales@schmidttechnology.co.uk  
www.schmidttechnology.co.uk

**USA** SCHMIDT Technology Corp.  
Cranberry Corporate Center  
280 Executive Drive  
USA-Cranberry Twp., PA 16066  
Tel. +1 (724) 772-46 00  
info@schmidtpresses.com  
www.schmidtpresses.com