

# HWR

## Operating Manual

### SOLIDStamp

Stamp station 680240, 680245, 680350 and 680355



English version (US market) of the original German manual.  
Keep this manual for future use!

Date: 2020-09-15

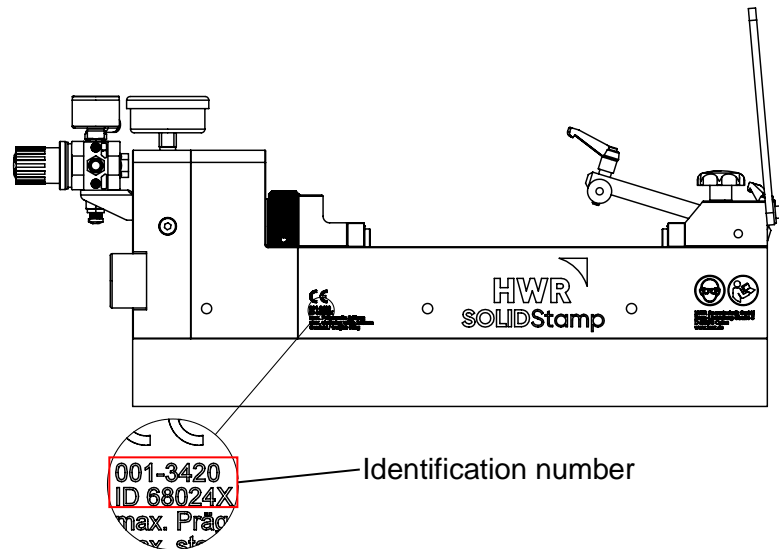
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# HWR

Date on the SOLIDStamp stamp station:



## NOTE

*Please contact HWR Spanntechnik GmbH if you have any questions: Have the identification number ready.*

*We are not liable for errors or mistakes in the documentation.*

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This documentation is only intended for the operating company and its personnel. It contains instructions and notes that may not be copied, distributed or transmitted using data engineering methods, either in whole or in part, or used for competition purposes without authorization.

Violations may result in criminal prosecution.

This operating manual provides information on the installation, operation, and maintenance of the SOLIDStamp stamping station.

**⚠ DANGER**

**Danger due to misconduct.**

Always observe all safety instructions.

---

Make sure you read and understand this operating manual. Always keep this operating manual and other documentation (e.g., manufacturer's documents) readily available at the place where the stamping station is used.

**⚠ DANGER**

**Danger due to incorrect operation.**

Always observe all instructions.

---

The manufacturer may improve its products. This does not, however, imply an obligation to convert SOLIDStamp stamping stations that have already been delivered.

**⚠ DANGER**

**Danger due to inadequate instruction.**

The operating company must instruct everyone who works with the SOLIDStamp stamping station on how to use it correctly.

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**NOTE**

*Please contact your supervisor if you have any questions.*

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## 1 SAFETY

### **⚠ DANGER**

#### **Danger due to misconduct.**

Before you start working with the SOLIDStamp stamping station: make sure to read and follow this operating manual.

---

### **⚠ DANGER**

#### **Danger due to misconduct.**

Always observe all safety instructions.

---

### 1.1 SCOPE OF THE DOCUMENTATION

The operating manual contains:

- Safety instructions
- Product description
- Installation instructions
- Instructions for use
- Maintenance and care manual
- Troubleshooting and error elimination manual
- Technical data

The following must also be observed:

- Air hydraulic pump manual
- The spare parts list

### 1.2 MANUFACTURER NOTES

#### 1.2.1 CUSTOMER SERVICE

Contact the manufacturer if you have any questions or problems.

#### **NOTE**

*Please contact HWR Spanntechnik GmbH if you have any questions: Have the identification number ready.*

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### 1.2.2 WARRANTY AND LIABILITY

Our "General Terms for Sales and Delivery" apply. Warranty and liability claims for personal injury and damage to property are excluded for the following:

- Incorrect use of the SOLIDStamp stamping station
- Incorrect installation, commissioning, operation and maintenance of the SOLIDStamp stamping station
- Failure to observe the instructions on:
  - Storage
  - Installation
  - Operation (e.g. correct stamping of the workpiece)
  - Maintenance and care
  - Troubleshooting and error elimination for the SOLIDStamp stamping station
- Changes to the stamping station
- Faulty monitoring of wear parts
- Repairs carried out incorrectly
- Disasters caused by foreign bodies and force majeure

#### **WARNING**

##### **Danger due to changes to the device.**

Do not convert the device. The manufacturer must authorize the conversion in writing.

#### **WARNING**

##### **Danger due to incorrect spare parts.**

Only use original spare and wear parts supplied by the manufacturer. Using non-original parts is prohibited.

#### **NOTE**

*The manufacturer only and exclusively assumes liability for spare parts that it has supplied.*



### 1.2.3 NOTES ON HANDLING THE DOCUMENTATION

Always keep this operating manual and other documents on the SOLIDStamp stamping station readily available in the immediate vicinity of the stamping station.

 **DANGER**


**Danger due to misconduct.**

Before you start working with the SOLIDStamp stamping station: make sure to read and follow this operating manual. Training provided by the manufacturer alone is not sufficient.




### 1.2.4 EXPLANATION OF THE PICTOGRAMS

#### Warnings

Warnings appear at the beginning of chapters or requested actions that involve the risk of personal injury or property damage.

Element	Meaning
	draws attention to the risk of death or injury
<b>SIGNAL WORD</b>	indicates the severity of the hazard (see following table)
<b>Type of Risk</b>	designates the type and source of danger
Consequences	describes possible consequences if the warning is ignored
▶ Safety measures	indicates how to avoid the danger. You absolutely must comply with these security measures!

#### Meaning of signal words

Signal word	Meaning
 <b>DANGER</b>	Indicates a hazard that surely will result in death or serious injury if you do not avoid the hazard.
 <b>WARNING</b>	Indicates a hazard that may result in death or serious injury if you do not avoid the hazard.
 <b>CAUTION</b>	Indicates a hazard which, if not avoided, could result in minor or moderate injury.
<b>NOTE</b>	Indicates possible property damage. The environment, properties or the machine itself can be damaged if you do not avoid this danger.

## 1.3 INTENDED USE

### 1.3.1 EXCLUSIVE INTENDED USE

The SOLIDStamp stamping station is exclusively designed for stamping parallel components for subsequent form-fit clamping.

#### **NOTE**

*Terms of use are described in the technical data provided in section 7.*

#### **⚠ DANGER**

#### **Danger due to misconduct.**

Any other use is prohibited. No liability for accidents due to misconduct.

### 1.3.2 OBSERVE NOTES AND REGULATIONS

The following must also be observed for correct use:

- All notes from the supplied documentation and
- required maintenance and repairs.

### 1.3.3 OBSERVE ACCIDENT PREVENTION REGULATIONS

Observe the local safety regulations.

### 1.4 WARNING OF INCORRECT OPERATION AND MISUSE

Your SOLIDStamp stamping station has been tested at the factory. In case of incorrect operation or misuse, there are still risks:

- for life and limb of operators, third persons and animals in the vicinity of the SOLIDStamp stamping station,
- for the SOLIDStamp stamping station itself and other material assets of the operating company,
- for the efficient operation of the SOLIDStamp stamping station.

## 1.5 INSTRUCTIONS FOR SAFE OPERATION

### DANGER

#### **Danger due to misconduct.**

Always observe all safety instructions. Pay attention to dangers and take all safety measures. Stay alert.

### WARNING

#### **Danger due to malfunctions.**

Do not use the SOLIDStamp stamping station if any malfunctions are detected.

- ▶ Eliminate any malfunctions immediately.

Only have repairs carried out by specialists. Do not use the SOLIDStamp stamping station again until it is completely safe to do so.

The SOLIDStamp stamping station may only be used if all maintenance work described here has been performed. If any pending maintenance work has not been carried out, operation must be stopped immediately.

## 1.6 OBLIGATIONS

### 1.6.1 OBLIGATION OF THE OPERATING COMPANY

The SOLIDStamp stamping station may only be used by persons who:

- know all safety regulations and have been trained on how to operate the SOLIDStamp stamping station and
- - have completely read and understood the operating manual.

The operating company must carefully select the operating personnel and instruct them on how to use the SOLIDStamp stamping station correctly. The operating company checks to make sure that the personnel are working safely at regular intervals.

The operating company always provides the users with all the documentation.

The operating company must comply with the following rules and regulations:

- the functional limits and safety regulations and
- the ban on structural changes to the stamping station.

**⚠ DANGER**

**Danger due to misconduct.**

The operating company is always responsible for ensuring safety.

---

**1.6.2 REQUIREMENTS FOR OPERATING / SERVICE AND REPAIR PERSONNEL**

The SOLIDStamp stamping station may only be used by trained qualified personnel (specialized in metal and metalworking).

The user must know and comply with their responsibilities (installation, commissioning, operation, maintenance and repair).

**⚠ DANGER**

**Danger due to lack of knowledge.**

Persons who are undergoing training may only work on the SOLIDStamp stamping station under the supervision of an experienced specialist.

---

All persons entrusted with the operation of the SOLIDStamp stamping station undertake to:

- always ensure safety (and the safety of other persons),
- have completely read and understood the operating manual,
- observe the safety regulations,
- only use the SOLIDStamp stamping station if they are familiar with the function of the stamping station and can operate it safely.

**⚠ DANGER**

**Danger due to misconduct.**

make sure to read and follow this operating manual.

- ▶ Pay attention to dangers and take all safety measures.
- 

**⚠ DANGER**

**Danger due to carelessness.**

Stay alert.

- ▶ Protect yourself, your colleagues and bystanders.
-

## 1.7 ACCIDENT PREVENTION REGULATIONS

### 1.7.1 GENERAL INFORMATION

Check the SOLIDStamp stamping station every day for operational safety before it is used for the first time! Observe all safety regulations.

Eliminate any faults immediately. Replace defective parts immediately. The SOLIDStamp stamping station may no longer be used until the fault has been eliminated.

### 1.7.2 PROTECTIVE MEASURES TAKEN BY THE OPERATING COMPANY

#### **Workstation ergonomics**

The workstations for the operating personnel must be designed according to ergonomic guidelines. The operating company must ensure free access (avoiding tripping hazards), and adequate lighting, etc.

#### **Personal protection measures**

Personal protective equipment must be worn according to the guidelines and regulations of the authorities and the company (work clothing, non-slip safety shoes and hair net, etc.).

#### **Access to the machine**

Only authorized persons may be present at the SOLIDStamp stamping station. Access by other persons is prohibited.

### 1.7.3 INSTALLATION AND COMMISSIONING

Before commissioning the SOLIDStamp stamping station, it must be checked that it is in perfect working order. A test run must be carried out before regular operations are started.

### 1.7.4 SAFETY WHEN NOT IN USE

Secure the SOLIDStamp stamping station when it is not being used against commissioning by unauthorized persons (e.g. disconnection of the pneumatic power supply).

Make sure that children do not have access to the SOLIDStamp stamping station.

### 1.7.5 MAINTENANCE AND REPAIR

#### Maintenance intervals

Carry out all required maintenance work in due time.

#### Cleaning products

All surfaces of the SOLIDStamp stamping station must only be cleaned with cleaning products that comply with the applicable hygienic and health standards.

#### Checks

Clamping elements of the SOLIDStamp stamping station must be checked regularly that they are in perfect working order. Defective parts must be replaced immediately by fault-free parts.

After the maintenance and repair work has been completed, check that all components are functioning properly.

#### Disposal

Handle and dispose of used substances and materials properly. This applies to greases and solvents in particular.

### 1.7.6 WORKSTATION

During the stamping process, each person must stand behind the protective screen.

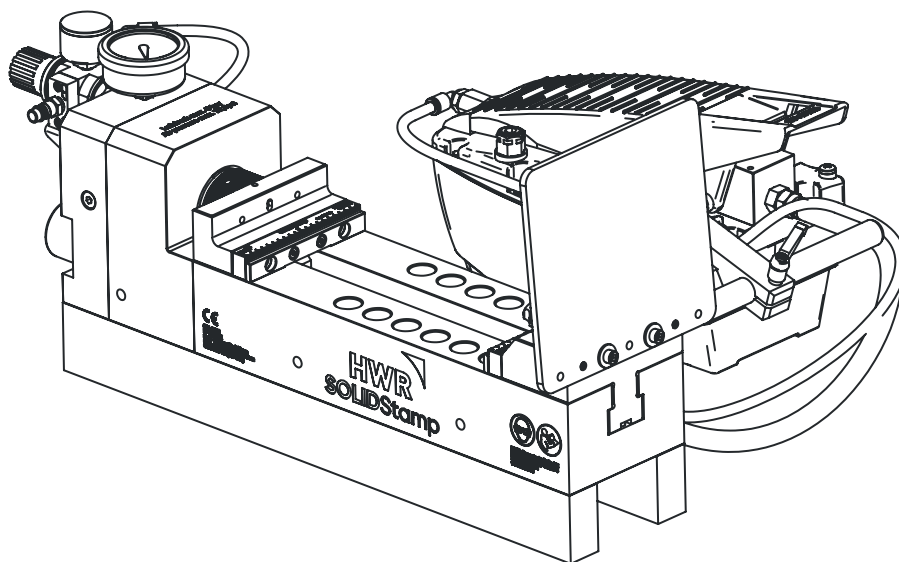


Fig. 1-1: Workstation

## 2 TECHNICAL DESCRIPTION

### 2.1 GENERAL INFORMATION

The SOLIDStamp stamping station is exclusively designed for stamping parallel components for subsequent form-fit clamping.

The stamping station must only be used according to the operating manual of the air hydraulic pump and this operating manual.

### 2.2 OVERVIEW OF THE SOLIDSTAMP STAMPING STATION

#### 2.2.1 DESIGN

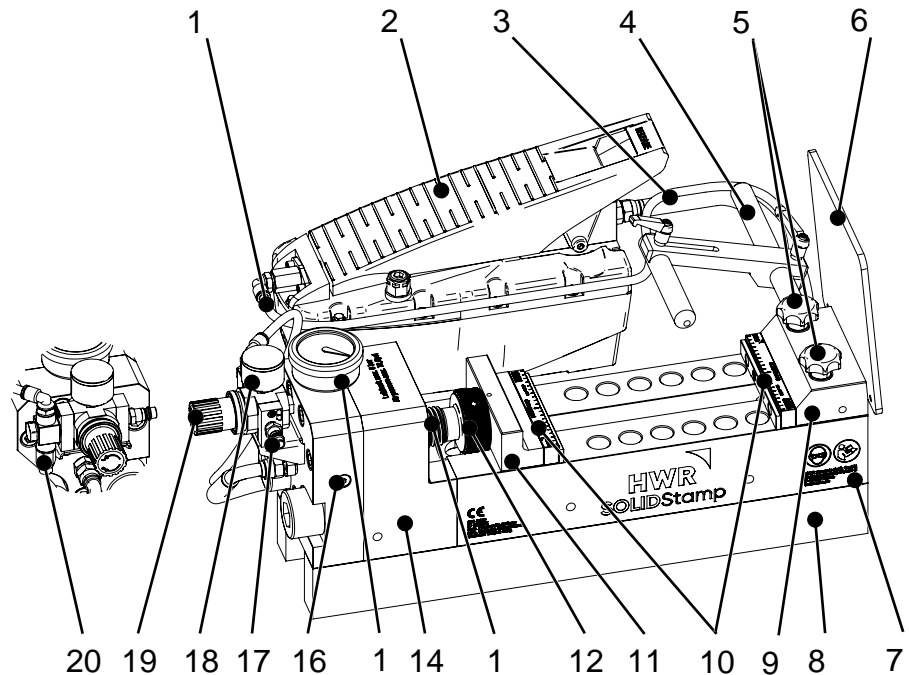


Fig. 2-1: Design of the SOLIDStamp stamping station

- |                             |  |
|-----------------------------|--|
| 1. Pneumatic hose           | 11. Stamping slide                     |
| 2. Air hydraulic pump       | 12. Knurled screw (fine adjustment)    |
| 3. Hydraulic hose           | 13. Stamping piston                    |
| 4. Workpiece stop           | 14. Stamping cylinder                  |
| 5. Positioning studs        | 15. Hydraulic pressure gauge           |
| 6. Protective screen        | 16. Ventilation screw                  |
| 7. Basic body               | 17. Compressed air connection          |
| 8. Stiffening strip         | 18. Pneumatic pressure gauge           |
| 9. Positioning slide        | 19. Pressure control valve (pneumatic) |
| 10. Stamping jaws (2 units) | 20. Safety valve                       |

2.2.2 FUNCTIONAL DESCRIPTION

The SOLIDStamp stamping station is used to stamp a workpiece.

The stamping slide is moved by the air hydraulic pump (1). The air hydraulic pump is supplied with compressed air via the compressed air connection (3). The air pressure is adjusted via the pressure control valve (4).

**NOTE**

*The required hydraulic pressure is automatically provided by adjusting the air pressure.*

The pneumatic pressure is displayed on the pressure gauge (5). The hydraulic pressure is displayed on the pressure gauge (2).

**⚠ DANGER**

**Danger due to incorrect pressure setting.**

The hydraulic pressure must not exceed 4640 psi [320 bar]. The pneumatic pressure must not exceed 72.5 psi [5 bar].

- ▶ Set air pressure to a maximum of 72.5 psi [5 bar] using the pressure control valve.

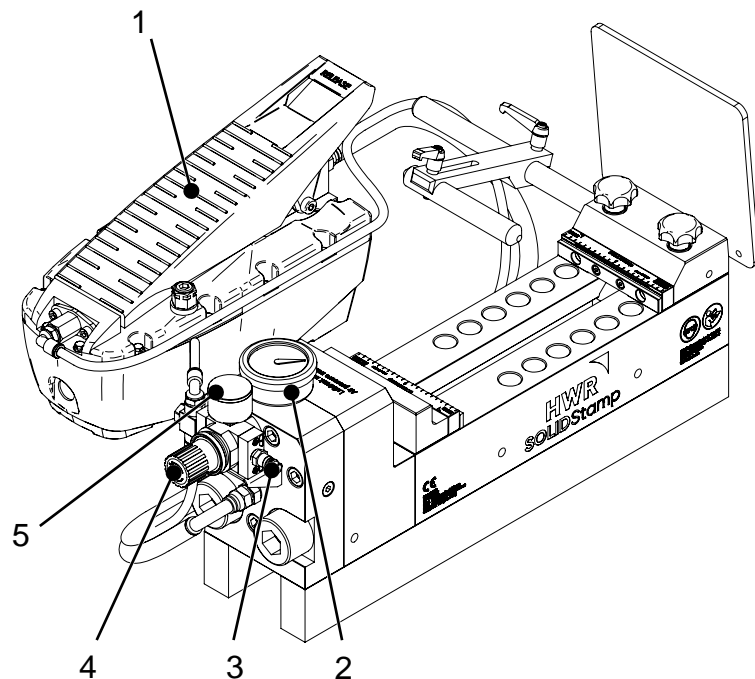


Fig. 2-2: Controls and connection elements



**⚠ DANGER**

**Danger due to misconduct.**

Always observe all safety instructions.

- ▶ Always stand behind the protective screen.

The hydraulic pressure is generated by pressing the foot lever (1) ("PUMP") of the air hydraulic pump. This actuates a single-acting cylinder and the stamping slide (2) moves in the direction of the arrow to the positioning jaw (3).

When the foot lever (1) ("RELEASE") is released, the stamping slide moves back again via springs in the stamping cylinder.

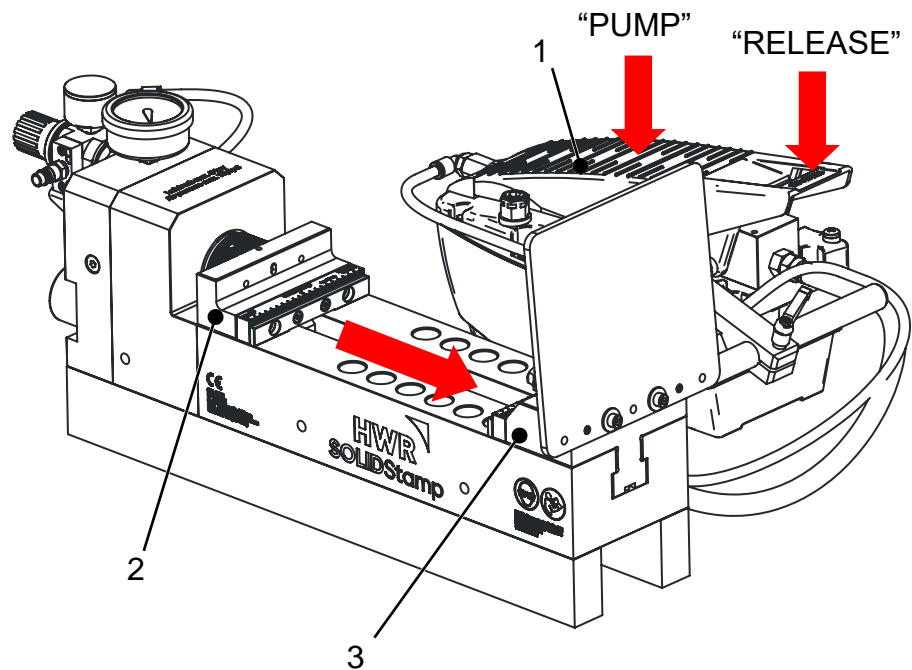


Fig. 2-3: How the SOLIDStamp stamping station operates

## 3 TRANSPORT AND INSTALLATION

### 3.1 GENERAL INFORMATION

During the installation work, make sure that you remain calm and collected. Avoid stress and a hectic pace.

Keep all transport routes clear of obstacles. Keep the installation area clear of disturbing objects during all the work.

#### **DANGER**

##### **Danger due to misconduct.**

Always observe all safety instructions.

- ▶ Read the operating manual of the air hydraulic pump.
- ▶ Do not stand under suspended loads.

#### **CAUTION**

##### **Danger due to lack of protective equipment**

Always observe all safety instructions.

- ▶ Observe regulations.
- ▶ Wear personal protective equipment (PPE).

### 3.2 TRANSPORT

#### 3.2.1 TRANSPORT TOOLS

When the SOLIDStamp stamping station is safely packed, it can be transported with the following tools:

- Trolleys
- Forklift or lifting truck

#### **WARNING**

##### **Danger from falling stamping station.**

Observe the weight of the SOLIDStamp stamping station.

Secure the SOLIDStamp stamping station against falling down on the means of transport.

#### 3.2.2 NOTES ON THE PACKAGING

Make sure to observe the notes and instructions on the packaging (if available).

### 3.2.3 PRECAUTIONS FOR TRANSPORT

#### **WARNING**

##### **Danger due to lack of qualification.**

Transport work must only be carried out by qualified personnel.

#### **DANGER**

##### **Danger due to misconduct.**

During transport, hazards may arise if the transported components are tilted, swiveled or fall. This may cause damage to the device or fatal injuries.

To prevent damage to the device and fatal injuries, you must comply with the following measures:

- The SOLIDStamp stamping station must only be lifted at the designated attachment points.
- Always observe the SOLIDStamp stamping station's center of gravity.
- Load handling equipment and lifting gear must be approved for the weight to be lifted. Observe the length of the load arm.
- Block off the transport routes when the load is suspended. Mark these routes. No one is allowed to be there.

#### **DANGER**

##### **Danger due to misconduct.**

Always observe all safety instructions.

- ▶ Do not stand under suspended loads.

#### 3.2.4 STAMPING STATION TRANSPORT WITH LIFTING EYE BOLT

When lifting, always use the supplied lifting eye bolts (DIN 580).

#### **NOTE**

*The lifting eye bolt is marked with the permissible load.*



Fig. 3-1: Lifting eye bolts

- Step 1** Screw all four lifting eye bolts into the basic body and into the stamping cylinder of the stamping station prior to transport.

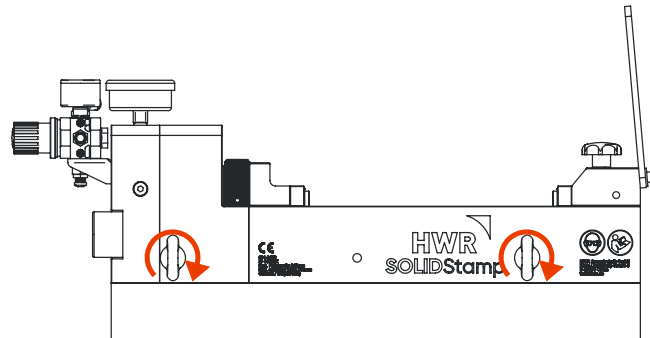


Fig. 3-2: Inserting the lifting eye bolts

- Step 2** Hook the hoist in place.

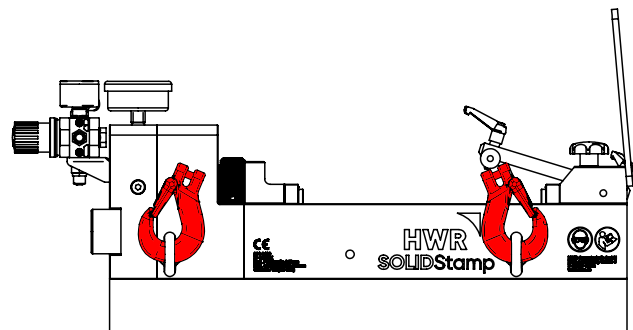


Fig. 3-3: Suspending the hoists

### DANGER

#### **Danger due to misconduct.**

Always observe all safety instructions.

**Step 3** Observe the precautions described in section 3.2.3 during transport.

### 3.2.5 CHECKS AFTER TRANSPORT / RECEIPT OF THE STAMPING STATION

Check the condition of the SOLIDStamp stamping station immediately after receipt (transport damage).

#### **NOTE**

*Report any transport damage that may have occurred to the importer or HWR Spanntechnik GmbH.*

### WARNING

#### **Danger due to malfunctions.**

Do not use the SOLIDStamp stamping station if transport damage is detected.

- ▶ Repair transport damage completely and properly before commissioning.

### 3.3 INSTALLATION REQUIREMENTS

### DANGER

#### **Danger due to lack of qualification.**

The SOLIDStamp stamping station may only be installed by trained and instructed personnel who have also undergone training and received instructions on how to operate the compressed air and the air hydraulic pump.

#### 3.4 CONNECTING THE SOLIDSTAMP STAMPING STATION

- Step 1** Check the oil level of the air hydraulic pump and top it up as necessary (use oil types HLP 22, 36 or 42).

**⚠ WARNING**

**Danger due to misconduct.**

Follow the instructions of the air hydraulic pump manufacturer (OEM documentation).

- Step 2** Check the condition and tightness of the hydraulic hoses (1) and pneumatic hoses (2). Check the tightness of all hose connections. Tighten the screw connections if necessary.

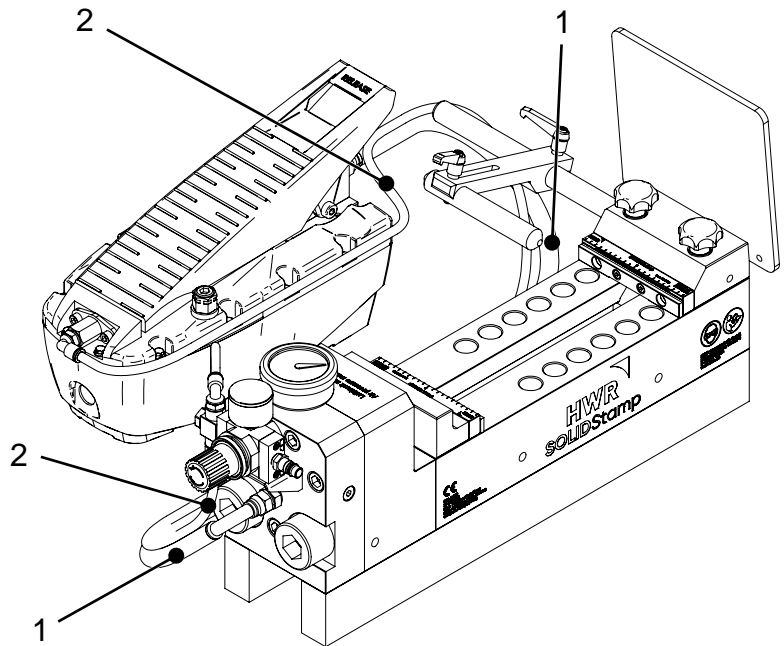


Fig. 3-4: Hydraulic and pneumatic hoses

**⚠ DANGER**

**Danger due to misconduct.**

Hydraulic and pneumatic hoses may be under pressure.

- ▶ Only disconnect or connect the pneumatic and hydraulic hoses if the compressed air supply line has been disconnected beforehand.

**Step 3** Connect the operator-side compressed air supply (4) to the pressure control valve (3).

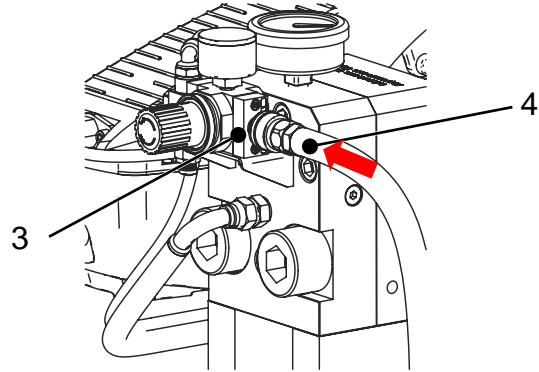


Fig. 3-5: Pneumatic supply connection

### **⚠ WARNING**

#### **Danger due to malfunctions.**

Do not use the SOLIDStamp stamping station if any damage to hydraulic and/or pneumatic hoses is detected.

- ▶ Repair damage completely and properly before commissioning. Replace hoses if necessary.

#### 3.5 VENTING THE SOLIDSTAMP STAMPING STATION

- Step 1** Place the stamping station on its side.  
The ventilation screw (1) must point upwards.

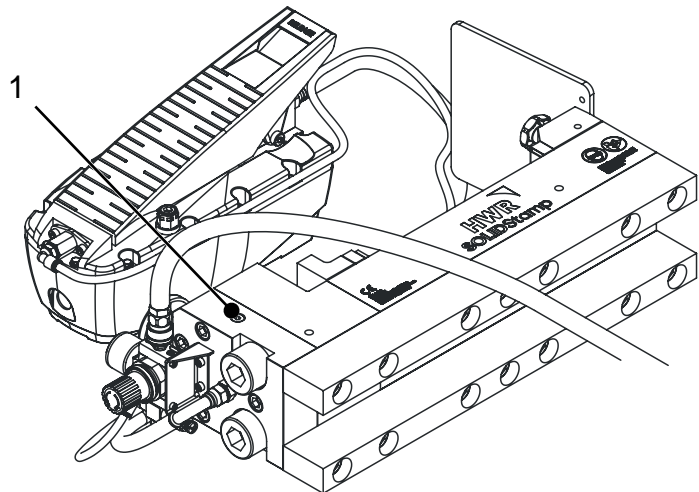


Fig. 3-6: Position of the SOLIDStamp stamping station

#### **⚠ CAUTION**

##### **Danger due to misconduct.**

Make sure it is in the correct position.

- ▶ Do not place the stamping station on pneumatic components.

- Step 2** Set the pneumatic pressure on the pressure control valve (2) to 40.6 psi [2.8 bar].

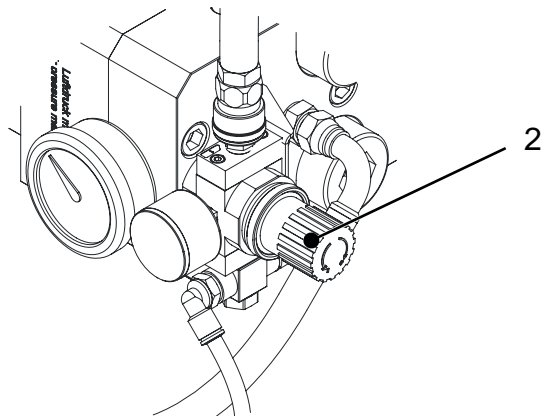


Fig. 3-7: Pressure setting



**Step 3** Loosen the ventilation screw (1).

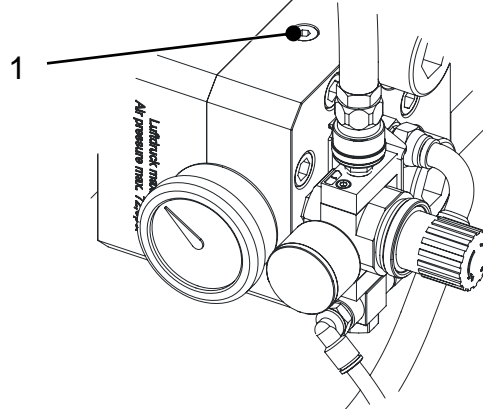


Fig. 3-8: Ventilation screw

**Step 4** Operate the air hydraulic pump ("RELEASE") and vent the stamping station. Close the ventilation screw (1) once air bubbles are no longer visible.

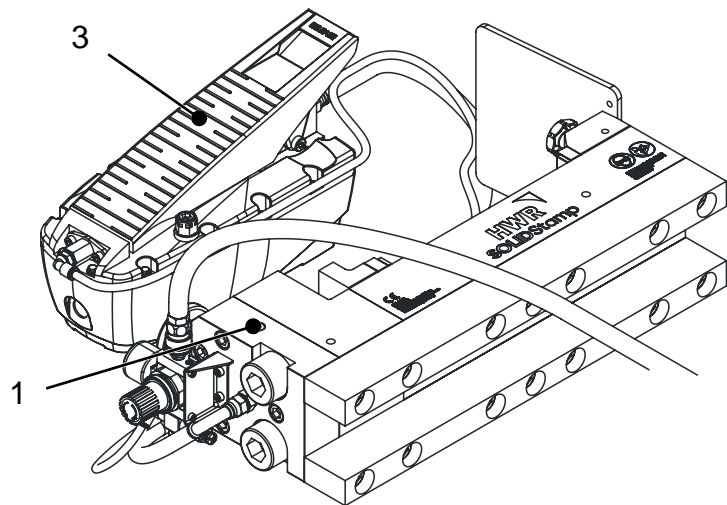


Fig. 3-9: Venting

**Step 5** Reinsert and tighten the ventilation screw (1).

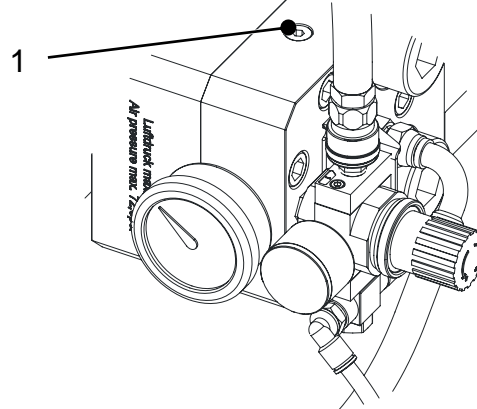


Fig. 3-10: Ventilation screw

**Step 6** Align the stamping station so that the stamping station stands on the stiffening strips (4).

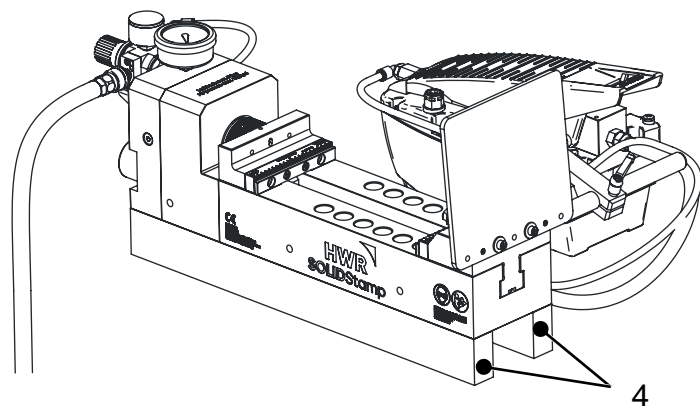


Fig. 3-11: Setup

- Step 7** Check the hydraulic pressure of the stamping station as follows:
- Set the pneumatic pressure on the pressure control valve (2) to 43.5 psi [3 bar].
  - Operate the air hydraulic pump (3) ("PUMP").  
A hydraulic pressure of 2175 psi [150 bar] must be displayed.

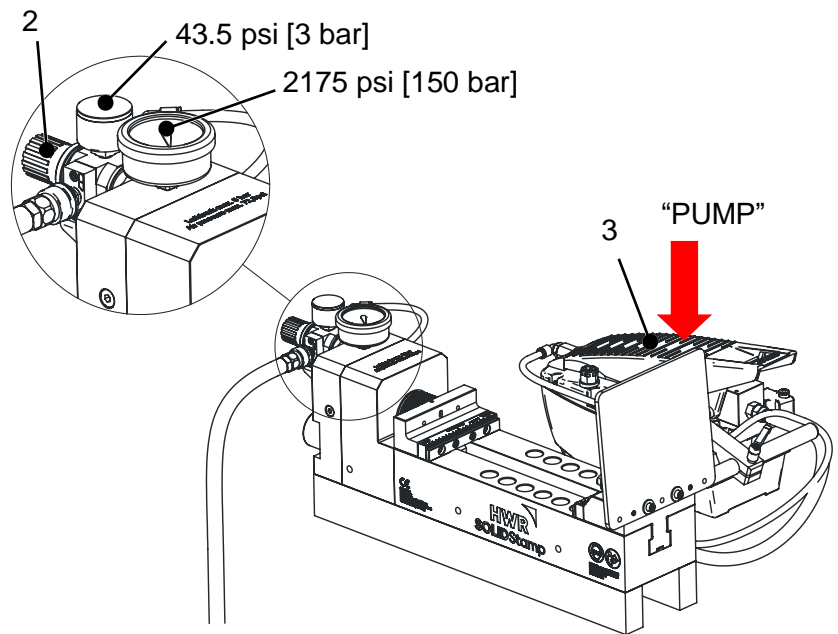


Fig. 3-12: Pressure setting

### **⚠ CAUTION**

#### **Danger due to incorrect ventilation.**

Incorrect venting results in a loss of stamping force.

- ▶ Repeat steps 1 to 6 if necessary.

#### 3.6 INSERTING THE STAMPING JAWS

##### 3.6.1 GENERAL INFORMATION

The standard stamping jaws (up to 35 HRC, ID 680111) or HiEnd stamping jaws (up to 45 HRC; ID 680112) can be used depending on the material to be stamped.

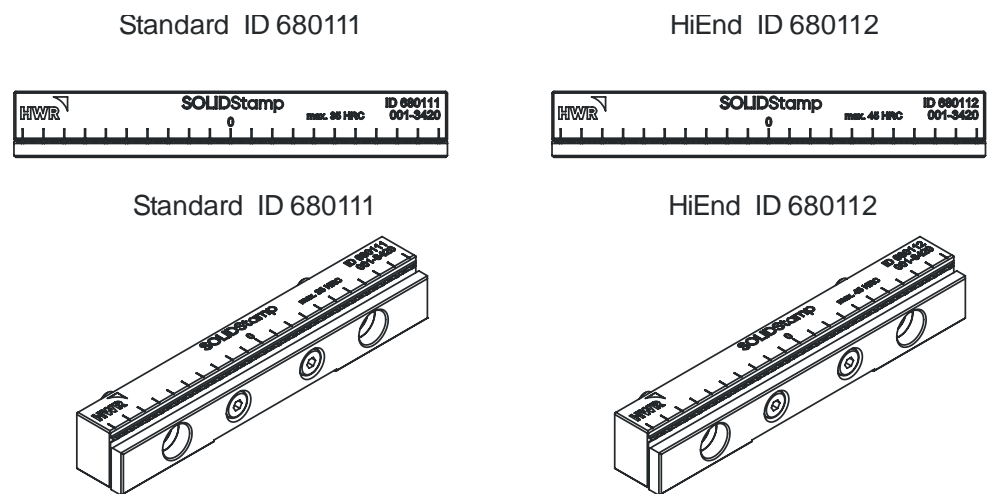


Fig. 3-13: Stamping jaw types

#### NOTE

We recommend using original stamping jaws from HWR Spanntechnik GmbH.  
HWR Spanntechnik does not provide any warranty for stamping jaws purchased from other manufacturers.

#### ⚠ WARNING

##### Danger due to misconduct.

- ▶ Observe the maximum stamping widths of the SOLIDStamp stamping station (see section 7.3).

### 3.6.2 ASSEMBLING THE STAMPING JAWS

**Step 1** Loosen the screws (3) and place the stamping jaws (1) on the basic body (6).

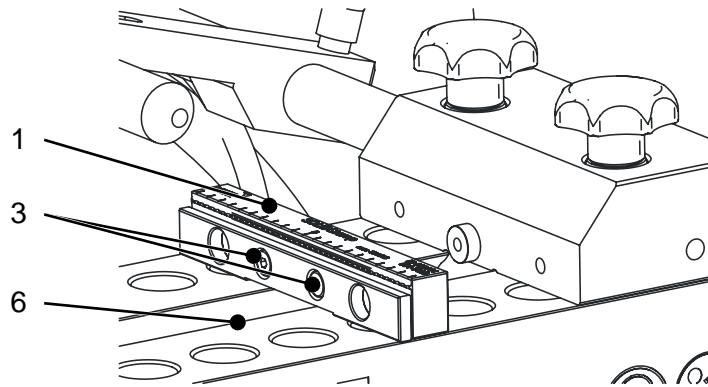


Fig. 3-14: Step 1

**Step 2** Push the stamping jaws (1) to the positioning slide (2) or to the stamping slide.

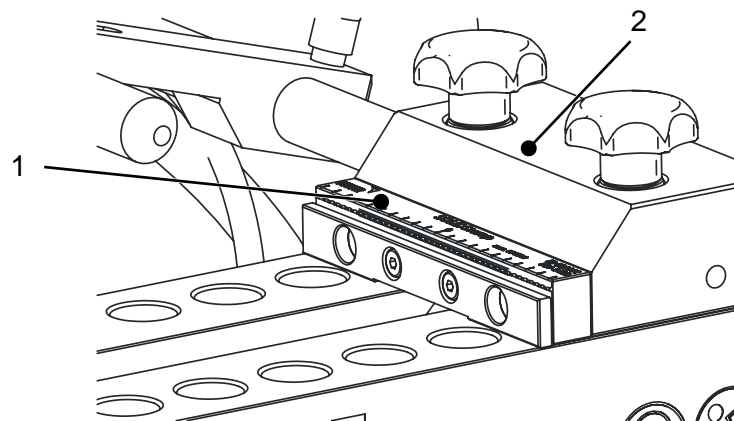


Fig. 3-15: Step 2

#### **⚠ WARNING**

**Danger due to incorrect assembly.**

- ▶ Check that the stamping jaw (1) is securely guided over the center.

**Step 3** Press the stamping jaw (1) onto the basic body (6) and securely attach the stamping jaw (1) to the positioning slide (2) or the stamping slide with the screws (5).

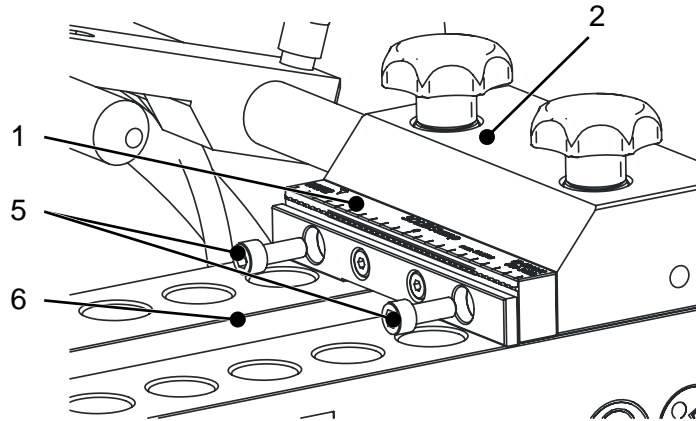


Fig. 3-16: Step 3

**Step 4** Press the sheet (4) onto the basic body (6) and securely fasten it to the stamping jaw (1) with the screws (3).

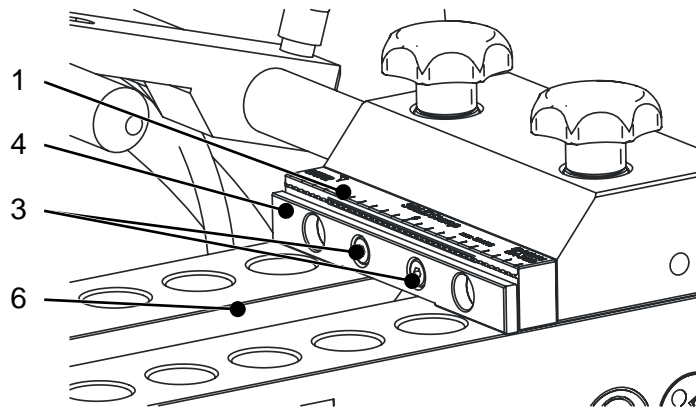


Fig. 3-17: Step 4

## 3.7 INSERTING THE OPTIONAL CENTER MARKING TOOL

### 3.7.1 GENERAL INFORMATION

The optional center marking tool makes it possible to insert the workpiece without stops into the SOLIDGrip centering vice (ID- no. 680010).

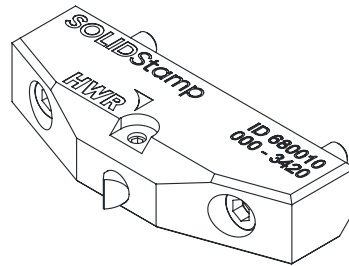


Fig. 3-18: Center marking tool

#### **NOTE**

*The marking on the workpiece is set in the SOLIDGrip centering vice to the center position with the marking "0".*

3.7.2 ASSEMBLING THE CENTER MARKING TOOL

**Step 1** Place the center marking tool (1) on the stamping slide (2). Make sure that the cylindrical pin engages in the center pocket.

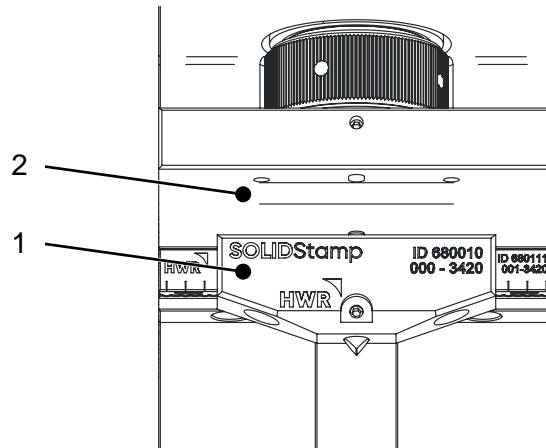


Fig. 3-19: Step 1

**Step 1** Securely fasten the center marking tool (1) to the stamping slide (2) with the screws (3).

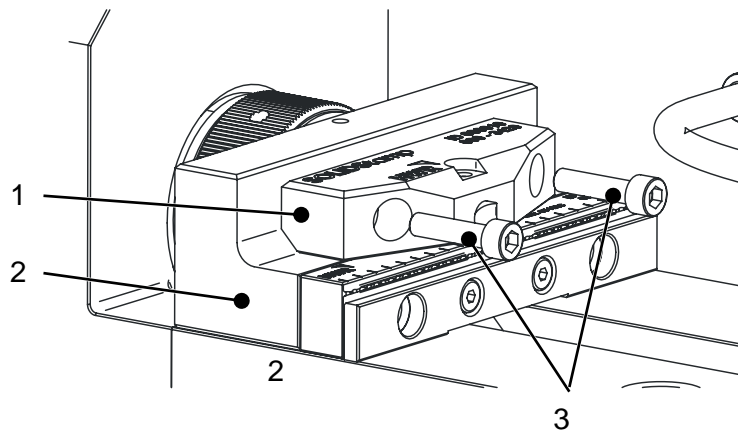


Fig. 3-20: Step 2



## 4 OPERATION

### 4.1 GENERAL INFORMATION

#### WARNING

##### **Danger due to lack of protective equipment**

Always observe all safety instructions.

- ▶ Observe regulations.
- ▶ Wear personal protective equipment (safety goggles).

#### DANGER

##### **Danger due to missing protective screen.**

Protective screen must always be mounted correctly.

- ▶ Always step behind the protective screen when using the SOLIDStamp stamping station.

#### DANGER

##### **Danger due to misconduct.**

Always observe all safety instructions.

- ▶ Read the operating manual of the air hydraulic pump.

### 4.2 PREPARATIONS

#### DANGER

##### **Danger due to misconduct.**

Hydraulic and pneumatic hoses may be under pressure.

- ▶ Check that all hydraulic and pneumatic components are not damaged and securely mounted.

**4.3 WORKPIECE REQUIREMENTS**

All non-brittle materials can be stamped:

- Standard stamping jaws for materials with a hardness of up to 35 HRC
- HiEnd stamping jaws for workpieces up to 45 HRC

Maximum tolerances on stamping surfaces of the workpiece:

- Maximum parallelism deviation 0.039 inch [1 mm]
- Maximum radius 0.059 inch [1.5 mm]

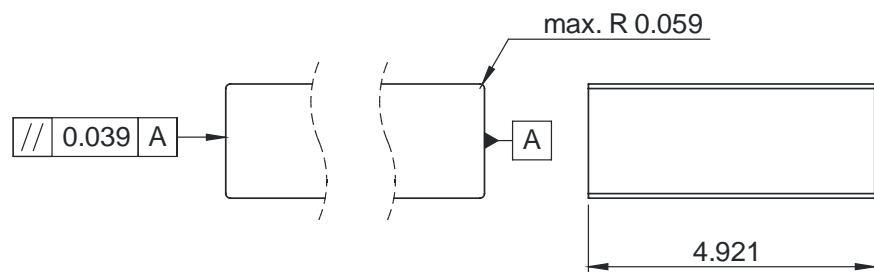


Fig. 4-1: Workpiece requirements

## 4.4 STAMPING THE WORKPIECE

### DANGER

#### **Danger due to misconduct.**

Always observe the maximum hydraulic pressure.

- ▶ Never operate the SOLIDStamp stamping station with hydraulic pressure above 4640 psi [320 bar].

### WARNING

#### **Danger due to a malfunction.**

- ▶ Check that the unit functions correctly, including the pressure adjustment, through stamping strokes without workpieces.

### DANGER

#### **Danger due to misconduct.**

Always observe all safety instructions.

- ▶ Read the operating manual of the air hydraulic pump.

### DANGER

#### **Danger due to misconduct.**

Always observe all safety instructions.

- ▶ Always keep your hands away from clamping points (when stamping the workpiece, when the lifting movement starts).

- Step 1** Use Table 4-1 to determine the required stamping pressure for your workpiece. If your material is not included, the stamping pressure must be determined through testing.

**Step 2** Set the pneumatic pressure on the pressure control valve (1) (max. air pressure 72.5 psi [5 bar]).

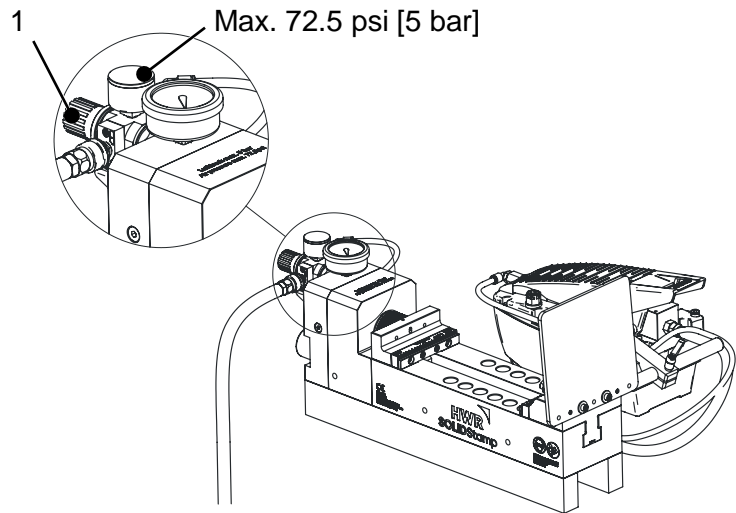


Fig. 4-2: Step 2

**⚠ DANGER**

**Danger due to incorrect pressure setting.**

The hydraulic pressure must not exceed 4640 psi [320 bar]. The pneumatic pressure must not exceed 72.5 psi [5 bar].

- ▶ Set air pressure to a maximum of 72.5 psi [5 bar] using the pressure control valve (1).

**Step 3** Set the fine adjustment (knurled screw (2)) of the stamping slide so that a maximum air gap of 0.039 inch [1 mm] is achieved between the stamping jaw and the workpiece.

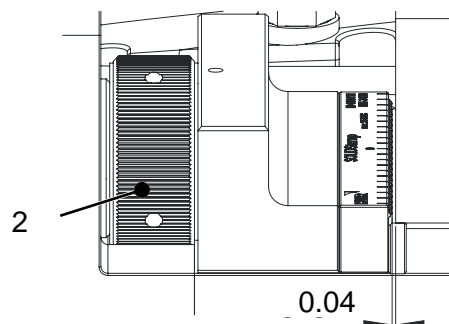


Fig. 4-3: Step 3

**NOTE**

*We recommend an air gap of 0.020 inch [0.5 mm].*

- Step 4** Operate the pump pedal (3) of the air hydraulic pump. Always observe the hydraulic pressure.

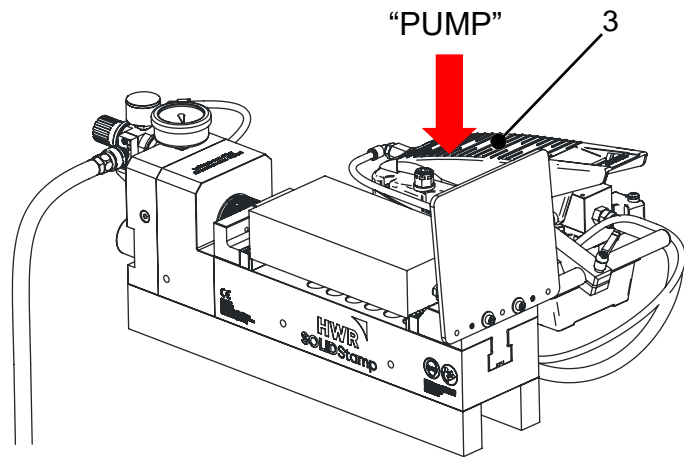


Fig. 4-4: Step 4

- Step 5** Press the pressure release pedal (4) of the air hydraulic pump to open the stamping jaws.

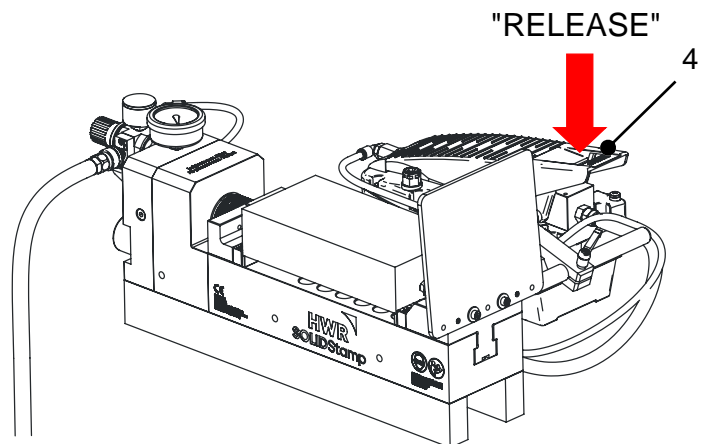


Fig. 4-5: Step 5

**Step 6** Check the stamp as shown in the illustration and readjust the stamping pressure if necessary.

Tensile strength of the material $R_e, R_{P0,2}$	Unit	Stamping length (Length to be stamped on the material)	
		$\leq 1.969$ inch [50 mm]	$\leq 4.921$ inch [125 mm]
200	N/mm <sup>2</sup>	362.6 psi [25 bar]	725 psi [50 bar]
400	N/mm <sup>2</sup>	725 psi [50 bar]	1450 psi [100 bar]
600	N/mm <sup>2</sup>	1088 psi [75 bar]	2175 psi [150 bar]
800	N/mm <sup>2</sup>	1450 psi [100 bar]	2900 psi [200 bar]
1000	N/mm <sup>2</sup>	1813 psi [125 bar]	3626 psi [250 bar]
1200	N/mm <sup>2</sup>	2175 psi [150 bar]	4351 psi [300 bar]

Table 4-1: Reference values

Stamping teeth (5) and stop surfaces (6) must be visible. The maximum depth of the stop surfaces is 0.0039 inch [0.1 mm].

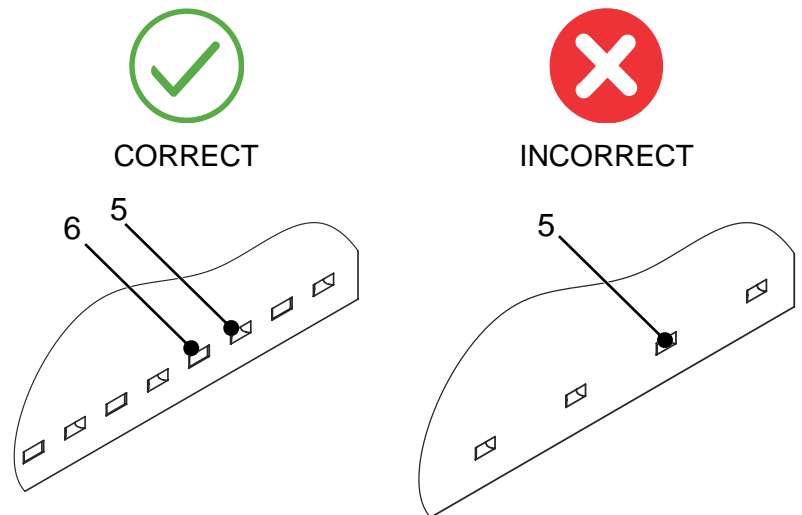


Fig. 4-6: Step 6

## 4.5 DETECTING THE WEAR LIMIT OF THE STAMPING JAWS

### **⚠ DANGER**

#### **Danger due to wear.**

Always pay special attention to the wear of the stamping jaws.

- ▶ Never operate the SOLIDStamp stamping station with worn stamping jaws. Otherwise, it cannot be ensured that the station is securely clamped.

### **NOTE**

*Factors influencing the service life of the stamping jaws include:*

- *Material of the workpiece*
- *Surface condition of the workpiece (e.g. scale layer)*
- *Number of stamping operations*

The wear of the stamping jaws can be checked with the gauging blocks (ID -no. 680020).

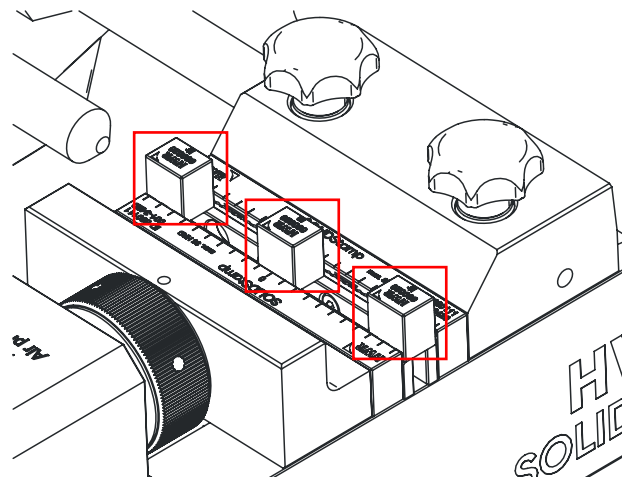


Fig. 4-7: Gauging blocks

**Step 1** Position the positioning and stamping slide at a distance of approx. 0.591 inch [15 mm].

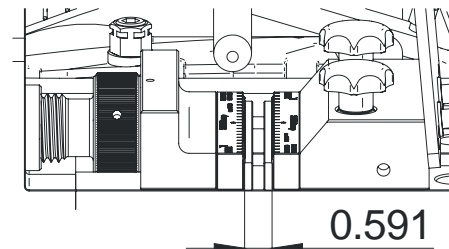


Fig. 4-8: Step 1

**Step 2** Place the gauging blocks (ID- no. 680020) with the lettering “l/r” (with the additional grooves) on the left and right side of the stamping jaws so that they are flush with the outer edge.

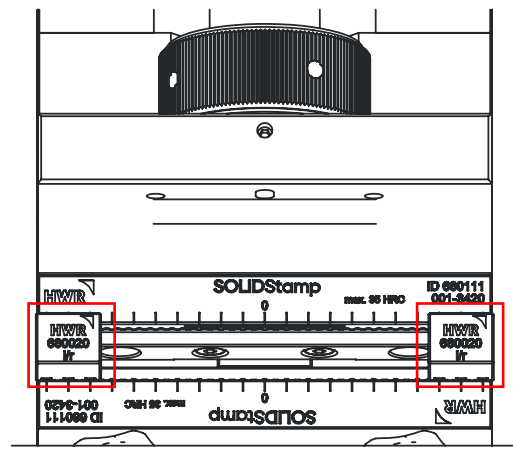


Fig. 4-9: Step 2



- Step 3** Set the stamping jaws (2) and (3) together using the knurled screw (1) (fine adjustment) until the gauging blocks are manually clamped.

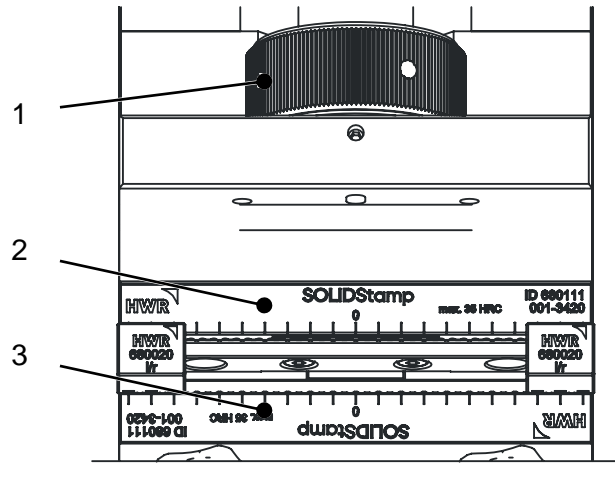


Fig. 4-10: Step 3

- Step 4** Place the gauging block (4) with the marking "m" between the teeth.

- ▶ If the gauging block **does not** fit between the teeth of the stamping jaws, everything is fine.
- ▶ If the gauging block fits between the teeth of the stamping jaws, they must be reworked or replaced.

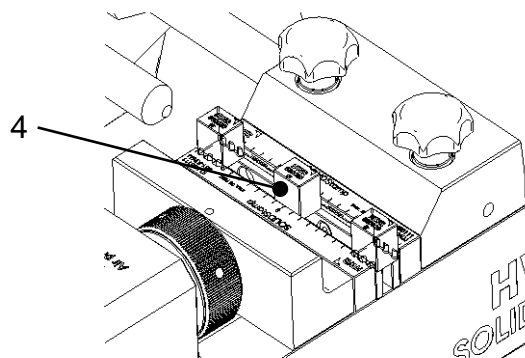


Fig. 4-11: Step 4

### NOTE

*HWR Spanntechnik GmbH can rework the stamping jaws up to a thickness of 0.453 inch [11.5 mm] (measured on the highest tooth) (max. 6 reworking procedures). If a tooth has broken off, the number of possible reworking procedures is reduced.*

### 4.6 REGULAR WORK DURING OPERATION

Perform a regular visual inspection for impurities. If necessary, stop operations and clean the stamping station.

The stamping jaws must be checked regularly that they are in perfect working order.

 **DANGER**

#### **Danger due to misconduct.**

Always observe all maintenance instructions.

- ▶ Read the operating manual of the air hydraulic pump.

## 5 REPAIR

### 5.1 GENERAL INFORMATION

To ensure trouble-free operation, the SOLIDStamp stamping station must be subjected to regular maintenance and care. This includes a functional test and a visual inspection for damage and wear.

#### DANGER

##### **Danger due to misconduct.**

Always observe all maintenance instructions.

- ▶ Read the operating manual of the air hydraulic pump.

Have the necessary materials for cleaning the stamping station readily available.

### 5.2 MAINTENANCE

#### 5.2.1 CHECKS

The supporting and the moving parts must be checked that they are in perfect working order each time before commissioning. Defective parts must be replaced immediately by fault-free parts.

#### DANGER

##### **Danger due to lack of qualification.**

Only trained and instructed personnel may carry out repair and replacement work on the SOLIDStamp stamping station.

#### 5.2.2 SAFETY INSTRUCTIONS

Before starting maintenance and care work, disconnect both the stamping station from the compressed air supply and the hydraulic hose between the air hydraulic pump and the stamping station.

#### DANGER

##### **Danger due to misconduct.**

Always observe all safety instructions. Pay attention to dangers and take all safety measures.

5.3 MAINTENANCE PLAN

Every time before using the stamping station
Visual inspection for condition and function
Operate the stamping station without a workpiece to check the pressure setting
Checking the wear on the stamping jaws
Visual inspection for impurities
Table 5-1: Maintenance work before every use

During operation
Regular visual inspection for impurities
Table 5-2: Maintenance work during operation

After every time the machine is used
Manual cleaning
Table 5-3: Maintenance work after every use

5.4 WORKING AFTER A LONGER DOWNTIME

The technical repair personnel must carry out the following work before each time the machine is commissioned after a long downtime:

After a long downtime
Visual inspection of the condition and function of the stamping station
Clean stamping station if necessary
Table 5-4: After a longer downtime

**⚠ DANGER**

**Danger due to lack of qualification.**

Only trained and appropriately instructed personnel may carry out repair and control and cleaning work on the SOLIDStamp stamping station.

5.5 DISPOSAL

Have the SOLIDStamp stamping station properly disassembled by a trained specialist and separated into its components.

**⚠ DANGER**

**Danger due to incorrect disposal.**

Handle and dispose of used substances and materials, especially oils and solvents, in accordance with the applicable regulations.

## 6 FAULTS

### 6.1 GENERAL INFORMATION

#### DANGER

##### **Danger due to lack of qualification.**

Only trained and instructed personnel may carry out repair and replacement work on the SOLIDStamp stamping station.

### 6.2 IN CASE OF A FAULT

- Step 1** Before troubleshooting, disconnect the compressed air supply at the pressure control valve.
- Step 2** Eliminate the fault.
- Step 3** Connect the compressed air supply to the pressure control valve again.
- Step 4** Start the operating the stamping station again.

#### DANGER

##### **Danger due to incomplete work.**

Observe all safety precautions.

- ▶ Complete the repair.
- ▶ Securely install the SOLIDStamp stamping station.
- ▶ Observe section 4 of this operating manual.
- ▶ Observe operating manual of the air hydraulic pump.

**6.3 POSSIBLE CAUSES OF ERRORS AND THEIR SOLUTIONS**

<b>Error</b>	<b>Cause</b>	<b>Solution</b>
Carriage clamps in guideway	Carriage deformed, contact surface, carriage not level, dirty or damaged	Check and clean guides, replace carriage if necessary.
Decrease in stamping force	Stamping station not vented	Vent the stamping station
	Dirty stamping station	Disassemble, clean and lubricate the stamping station.
	Stamping station malfunction	Send the stamping station to the manufacturer (HWR Spanntechnik GmbH) for inspection and repair.
	Oil level too low	Fill the oil tank of the air hydraulic pump. Observe the operating manual of the pump. Check system and seals for tightness.
Safety valve blows off	Pneumatic pressure has exceeded 72.5 psi [5 bar]	Reset the pneumatic air supply (see section 6.4).
Table 6-1: Error causes and their solutions		

## 6.4 RESETTING THE PNEUMATIC PRESSURE SUPPLY

**Step 1** Disconnect the compressed air supply (1) at the pressure control valve (2).

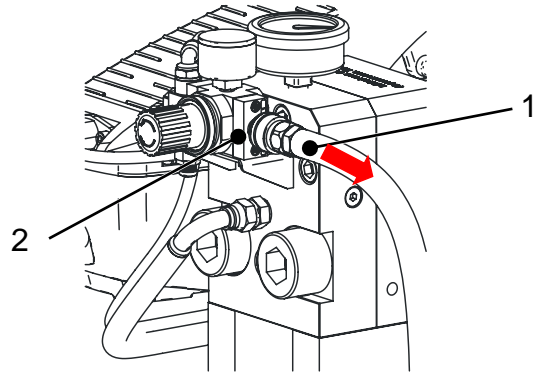


Fig. 6-1: Step 1

**Step 2** Set a lower pressure at the adjustment knob (3) of the pressure control valve.

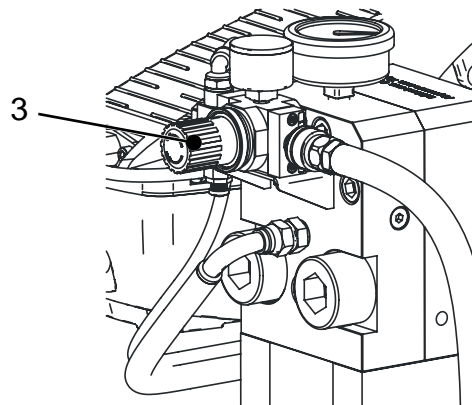


Fig. 6-2: Step 2

**Step 3** Reconnect the compressed air supply (1).

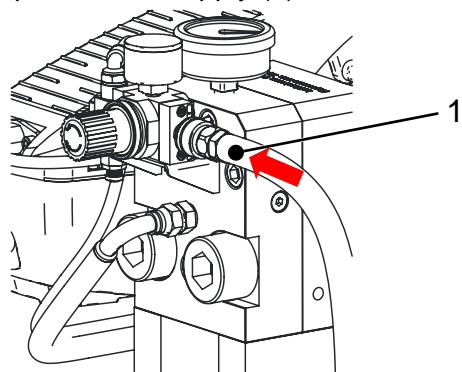


Fig. 6-3: Step 3

## 7 TECHNICAL DATA

### NOTE

*Make sure to also observe the operating manual for the air hydraulic pump.*

### 7.1 GENERAL PRODUCT DATA

Operating time	12 hours/day
Service life	25,000 operating hours
Stampable workpieces	Commercial steels, cast metals and non-ferrous metals
Table 7-1: General product data	

### 7.2 AMBIENT CONDITIONS

Operation	No temperature limitation
Storage	No temperature limitation
Relative humidity	5-85%
Installation site of the stamping station	Level, solid floor sufficiently ventilated
Table 7-2: Ambient conditions	

### 7.3 SOLIDSTAMP DATA

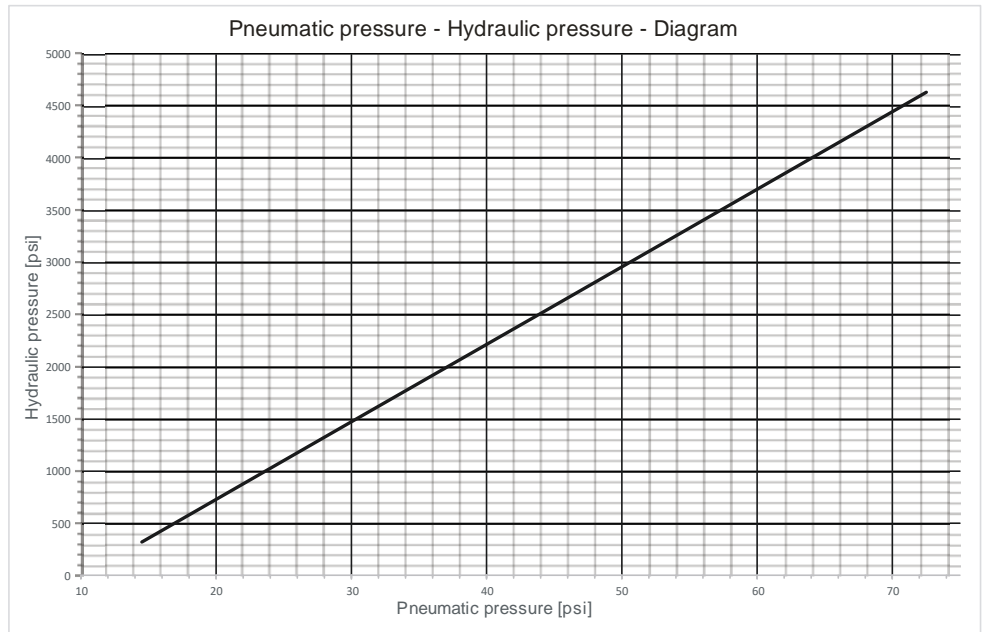
Type	Unit	SOLIDStamp stamping station			
ID no.		680240	680245	680350	680355
Version		Stand-ard	HiEnd	Stand-ard	HiEnd
Total weight	US ton [kg]	0.086 [78]	0.086 [78]	0.098 [89]	0.098 [89]
Maximum material hardness	HRC	35	45	35	45
Maximum stamping width	inch [mm]	9.646 [245]	9.646 [245]	13.976 [355]	13.976 [355]
Maximum stamping length	inch [mm]	4.921 [125]	4.921 [125]	4.921 [125]	4.921 [125]
Piston stroke	inch [mm]	0.236 [6]	0.236 [6]	0.236 [6]	0.236 [6]
Maximum stamping force	kN	140	140	140	140
Maximum pneumatic pressure	psi [bar]	72.5 [5]	72.5 [5]	72.5 [5]	72.5 [5]
Maximum hydraulic pressure	psi [bar]	4640 [320]	4640 [320]	4640 [320]	4640 [320]
Table 7-3: SOLIDStamp data					



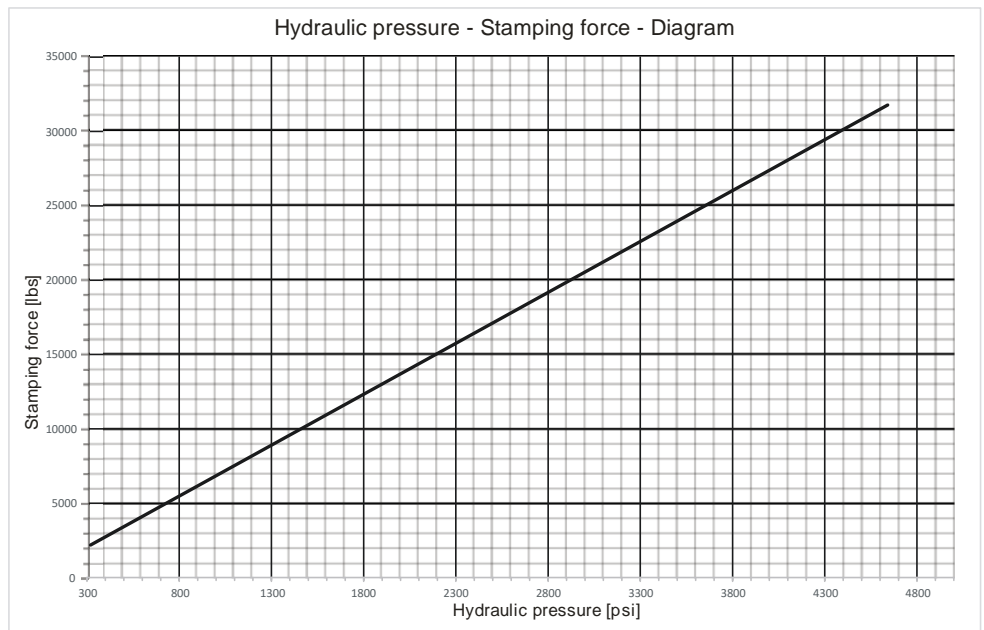
## 7.4 STAMPING FORCE DIAGRAM

### 7.4.1 ADJUSTING THE AIR PRESSURE

Reference values for adjusting the air pressure:



### 7.4.2 ADJUSTING THE STAMPING FORCE



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## 8 SPARE PARTS

### 8.1 GENERAL NOTES

Spare parts may be required for maintaining and repairing the SOLIDStamp stamping station. Order these parts from the manufacturer HWR Spanntechnik GmbH.

#### **NOTE**

*The manufacturer only and exclusively assumes liability for spare parts that it has supplied.*

---

### 8.2 MINIMUM SPECIFICATIONS FOR ORDERING SPARE PARTS

- ID number: e.g. ID 68024X [applied to the product]
- Serial number: e.g. 001-3420 [applied to the product]
- Designation of the spare part
- Order quantity

### 8.3 ORDERING SPARE PARTS BY E-MAIL

#### **⚠ WARNING**

##### **Danger due to incorrect spare parts.**

Only use original spare and wear parts supplied by the manufacturer. Using non-original parts is prohibited.

- 
- |               |  |
|---------------|--|
| <b>Step 1</b> | Refer to figures 8-1 through 8-5 to identify the desired spare part.       |
| <b>Step 2</b> | Fill in the minimum specifications for ordering spare parts in the e-mail. |
| <b>Step 3</b> | Send the order to HWR Spanntechnik GmbH, indicating your company address.  |

#### **NOTE**

*The e-mail address is provided on the inside of the title page of this manual.*

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## 8.4 ORDERING SPARE PARTS BY FAX

### **WARNING**

#### **Danger due to incorrect spare parts.**

Only use original spare and wear parts supplied by the manufacturer. Using non-original parts is prohibited.

- 
- Step 1** Refer to figures 8-1 through 8-5 to identify the desired spare part.
- Step 2** Copy the figure and if possible, the corresponding table 8-1.

### **WARNING**

#### **Danger due to incomplete documentation.**

- ▶ Put the original sheet back into the documentation.

- 
- Step 3** Mark the desired spare part(s) clearly in the copied pages. Please also indicate the desired order quantity if it differs from the stated quantity.
- Step 4** Fax this page or all the pages indicating your company address to HWR Spanntechnik GmbH.

### **NOTE**

*The fax numbers are provided on the inside of the title page of this operating manual.*

---

8.5 DIVISION OF THE STAMPING STATION

**NOTE**

*This figure is for your better overview.*

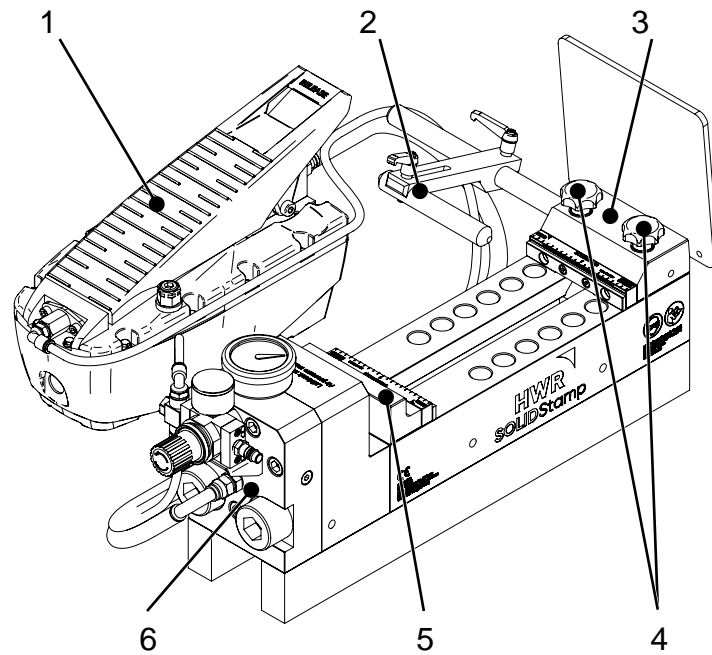


Fig. 8-1: Division of the stamping station

- |                              |                              |
|------------------------------|------------------------------|
| 1. Air hydraulic pump        | 4. Positioning studs         |
| 2. Workpiece stop (8.5.1)    | 5. Stamping slide (8.5.3)    |
| 3. Positioning slide (8.5.2) | 6. Stamping cylinder (8.5.4) |

## 8.5.1 WORKPIECE STOP

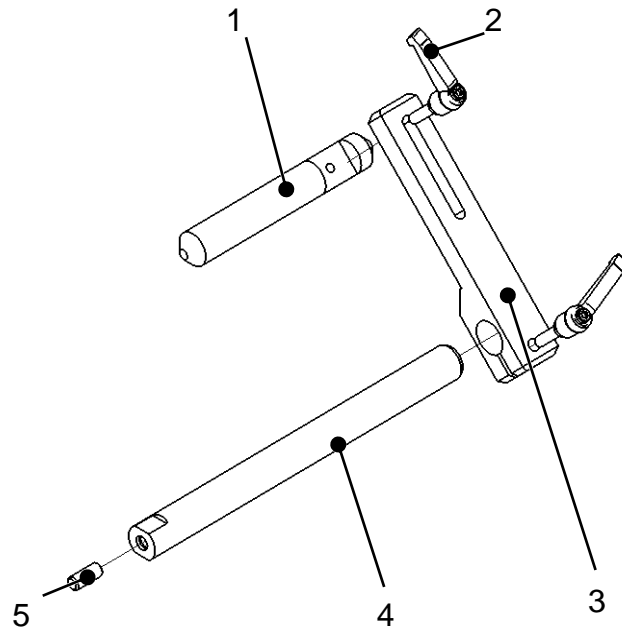


Fig. 8-2: Spare parts for workpiece stop

- |                             |                    |
|-----------------------------|--------------------|
| 1. Workpiece stop           | 4. Positioning rod |
| 2. Clamping lever (2 units) | 5. Grub screw      |
| 3. Positioning arm          |                    |

8.5.2 POSITIONING SLIDE

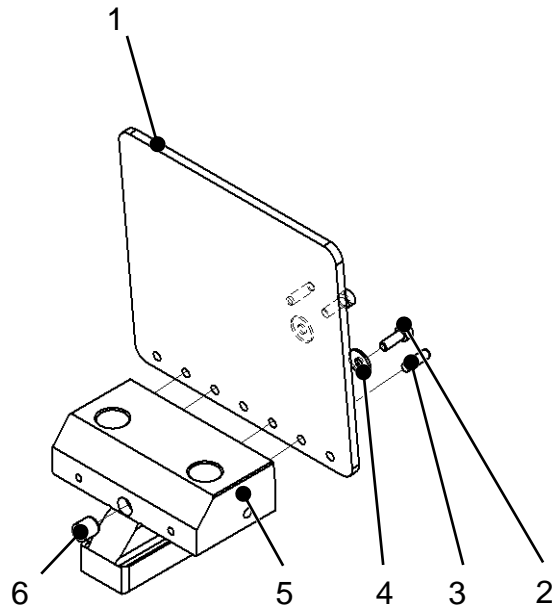


Fig. 8-3: Spare parts for positioning slides

- |                              |                      |
|------------------------------|----------------------|
| 1. Protective screen         | 4. Washer (2 units)  |
| 2. Screw (2 units)           | 5. Positioning slide |
| 3. Cylindrical pin (2 units) | 6. Positioning block |

## 8.5.3 STAMPING SLIDE

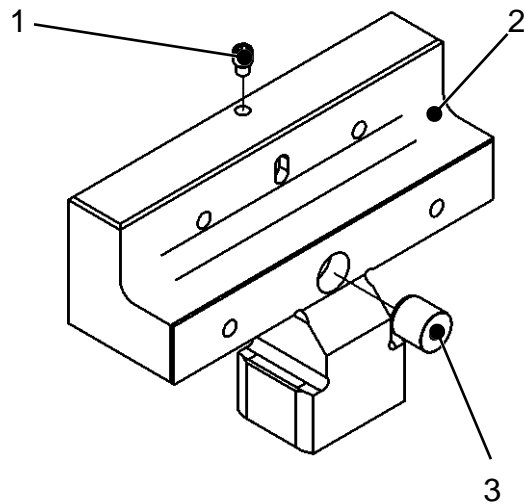


Fig. 8-4: Spare parts for stamping slide

- |                   |                      |
|-------------------|----------------------|
| 1. Screw          | 3. Positioning block |
| 2. Stamping slide |                      |

8.5.4 STAMPING CYLINDER

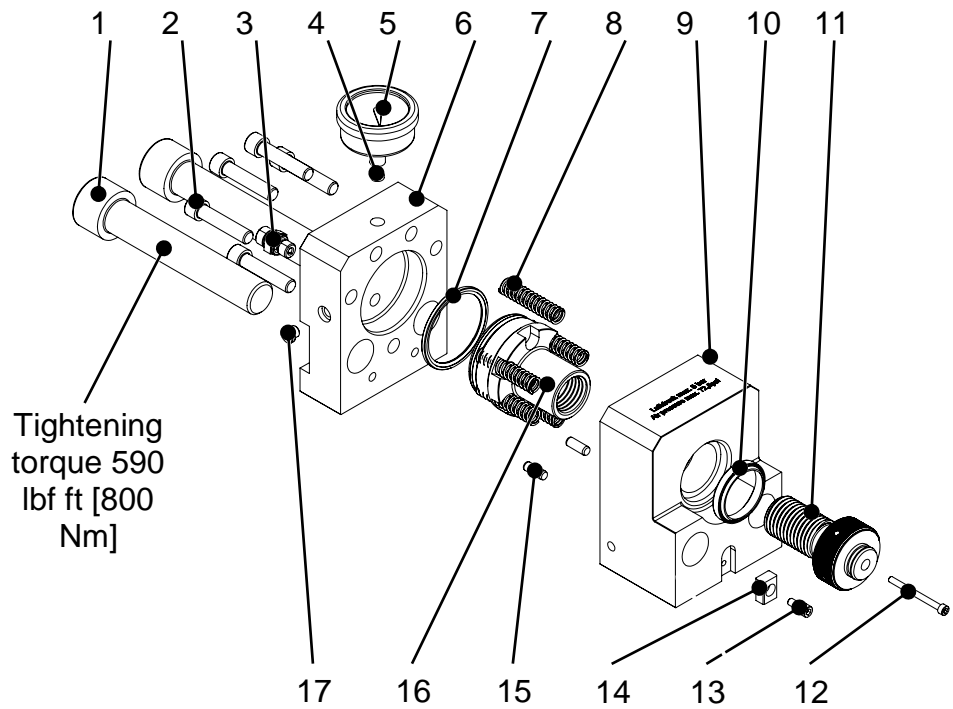


Fig. 8-5: Spare parts for stamping cylinder

- |                             |                               |
|-----------------------------|-------------------------------|
| 1. Screw (2 units)          | 10. Scraper                   |
| 2. Screw (5 units)          | 11. Knurled screw             |
| 3. Screw-in fitting         | 12. Screw                     |
| 4. Sealing ring             | 13. Screw                     |
| 5. Hydraulic pressure gauge | 14. Sliding block             |
| 6. Stamping cylinder        | 15. Cylindrical pin (2 units) |
| 7. Seal                     | 16. Piston                    |
| 8. Return spring            | 17. Ventilation screw         |
| 9. Stamping cylinder        |                               |