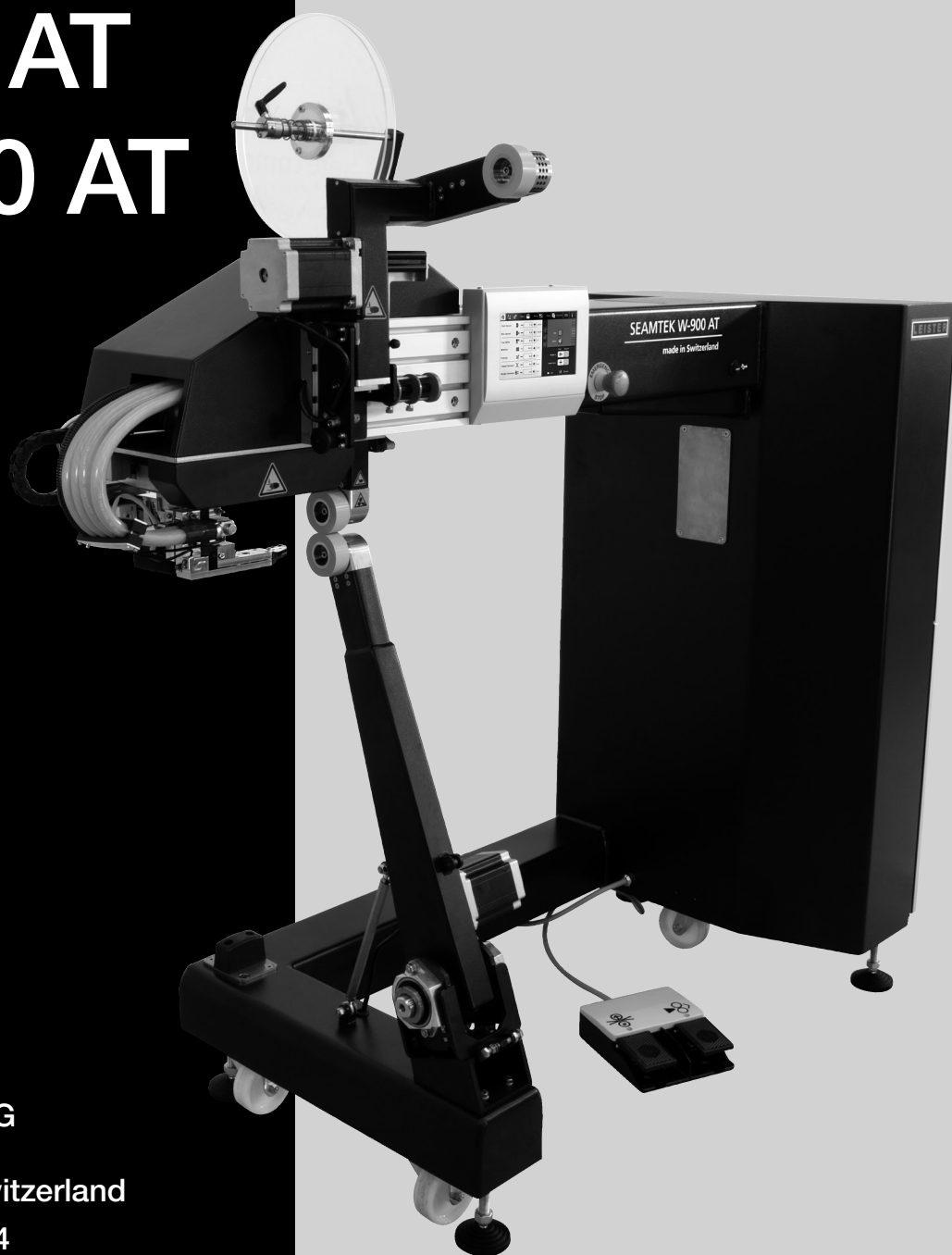


**LEISTER**®



# SEAMTEK W-900 AT W-2000 AT



Leister Technologies AG  
Galileo-Strasse 10  
CH-6056 Kaegiswil, Switzerland

Tel. +41 41 662 74 74  
Fax +41 41 662 74 16

[www.leister.com](http://www.leister.com)  
[sales@leister.com](mailto:sales@leister.com)

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**Congratulations on purchasing your SEAMTEK W-AT.**

You have chosen a first-class hot-wedge welding machine.

It was developed and produced in accordance with the latest advances in the plastics-processing industry. It has also been manufactured using high-quality materials.



Read through the operating instructions before commissioning for the first time. Always store these operating instructions with the device. Do not pass the device on to anyone else without the operating instructions.

## Leister SEAMTEK W-AT Welding machine

Two versions of the SEAMTEK W-AT are available. The SEAMTEK W-900 AT with 900 mm working area and the W-2000 AT with 2000 mm working area. Unless otherwise noted, all function descriptions, instructions, warnings, cautions and symbols apply for both versions. The illustrations are based on the SEAMTEK W-900 AT, the dimensions may differ for the W-2000 AT. In the following, the abbreviation SEAMTEK W-AT refers to both versions.

### 1. SEAMTEK W-AT

Thank you for purchasing this first-class hot-wedge welding machine from Leister. The SEAMTEK W-AT is a computer-controlled hot-wedge welding machine that is used for joining laminated industrial textiles, e.g., polyvinyl chloride (PVC), polyurethane (PU), polyethylene (PE), and polypropylene (PP). Today, these industrial textiles are used for a multitude of important and interesting products, including 3D applications, tents, tarpaulins, inflatable objects, geomembranes, truck tarpaulins, coverings for the agricultural sector, fishing equipment, protective clothing, protective covers, pipes, synthetic leather, and many more.

#### 1.1 Using this Manual

The SEAMTEK W-AT is manufactured by Leister Technologies AG in Kägiswil, Switzerland. These operating instructions provide detailed explanations of the following:

- Setting up and installing the SEAMTEK W-AT
- All operating sequences
- Description and tasks of the various modules that are available when using your SEAMTEK W-AT

These operating instructions also include a list of troubleshooting tips, warranty information, and a clearly structured table of contents. Please read through all of the sections in these operating instructions carefully before using your SEAMTEK W-AT for the first time.

These operating instructions supersede all operating instructions with an earlier date. The older versions no longer apply. When a new version of the operating instructions is issued, this version will be superseded and will no longer apply. Leister Technologies AG makes every effort to ensure that the information contained in this manual is complete and exact. No guarantee, either concrete or implied, is however provided, nor is any liability assumed for the use of this information with respect to either its completeness or accuracy.

This manual may be updated from time to time without prior notice. The latest version of all operating instructions published by Leister Technologies AG can be obtained by authorized users upon request to Leister Technologies AG.

## 2. Overview of Important Safety Instructions

### 2.1 Important Safety Instructions

#### Warning



#### **Danger to life due to high voltage**

Before opening the switch cabinet, the device must be disconnected from the power supply at all poles. (Disconnect the power plug.) Live components and connections may be exposed in the process. Connect the device to an **outlet with a protective conductor**. Any interruption of the protective conductor inside or outside of the device is dangerous. Only use extension cables with protective conductors. Protect the welding machine from moisture and wet conditions.



#### **Risk of fire**

There is a risk of fire if the welding machine is used improperly (e.g., due to the material overheating), particularly in the vicinity of flammable materials.



#### **Risk of burning!**

Do not touch the hot-wedge holder, hot wedge, and stepping motors when they are hot. Do not wear any jewelry or watches, particularly on the hands, arms, and fingers. The device should always be allowed to cool down first.



#### **Risk of poisoning**

Gases are released during the processing of plastics, lacquers, or similar materials that could be aggressive or toxic. Avoid breathing in vapors, even if they seem to be harmless. Make sure the workplace is well-ventilated at all times or wear a breathing mask.



#### **Risk of crushing**

There is a risk of crushing due to the movement of mechanical and/or electromechanical parts. Take the necessary precautions to prevent hazards posed by mechanical parts.



#### **Risk of entanglement**

**Avoid reaching between moving parts** such as the transport rollers in order to prevent objects or body parts becoming entangled.



**Two people** are needed to move the machine. Make sure that the machine cannot topple over.

#### Caution



The **nominal voltage** specified on the device must match the local **line voltage**. If the supply voltage fails, the main switch and the drive must be switched off.



When using the device, a **residual-current circuit breaker** is **required** to protect the personnel working at the site where the device is being used.



The device **must be supervised at all times during operation**. Waste heat can come into contact with flammable materials that are not in view.

Device may be operated only by **trained specialists** or under their supervision. Children are not permitted to operate the device under any circumstances.



When **working on the open system**, do not wear such articles of clothing as scarves, shawls, or neckties. Tie up long hair or protect it by wearing headgear.



#### **Wear protective goggles**

In certain processes, various metal parts and materials are heated to high temperatures and can produce splashes if handled incorrectly. Operating staff and persons in the immediate vicinity of the device must therefore wear protective goggles.

## 2.2 Intended Use

The SEAMTEK W-AT has been designed for the professional welding of thermoplastics.

Use only original Leister spare parts and accessories; otherwise, any warranty or guarantee claims will be invalidated.

## 2.3 Improper Use

Any other use or any use beyond the type of use described is deemed non-intended use.

## 2.4 Welding Vapors



**Danger:** Welding certain materials can result in the formation of poisonous vapors. You must therefore ensure that enclosed rooms are well-ventilated at all times. If this is not possible, the welding vapors must be extracted. Always pay attention to the safety data sheet for the material being processed.

Make sure to use the correct welding parameters. When redetermining the welding parameters, start with a low energy value and increase it until you achieve a good weld result. This will ensure that the weld materials are not burned and will reduce welding vapors. As an accessory, Leister offers an adapter for the SEAMTEK W-AT, which can easily be mounted on an external vacuum device. Please ask your distribution partner about this.

### 2.4.1 Extraction

The vacuum device (Leister accessory 155.410) is supplied without an extraction unit. Therefore, Leister recommends the following unit properties.

<b>Volume flow</b>	(20 °C) 234 m <sup>3</sup> /h	(68 °F) 138 cfm
<b>Hose connection</b>	∅ 90 mm	3.54"

The extracted air can be filtered with an internal filter unit. The unit used must be equipped with a multi-stage filter combination to filter gases and smoke.

If the extracted air is not filtered internally, the exhaust gases can also be conducted out of the building. We recommend the Leister Airpack (119.358) as an external blow-off unit. Local laws and regulations must be observed for this purpose.

## 2.5 Operating Modes

- **Normal operation:** In this mode, the machine welds material. The machine can be used in manual (axes on/off manually), automatic (axes controlled automatically), and semi-automatic operation (mixture of manual and automatic).
- **Setup operation:** Everything must be set up first in order to prepare the machine for normal operation. This is done in the setup operation mode. Some elements of setup operation are performed manually or semi-automatically.
- **Maintenance/service/repairs/installation:** In this mode, the machine is not in operation. The machine must be disconnected from all types of energy supply before performing the relevant tasks.

## 2.6 Specialists and Training

- **Operators:** The personnel responsible for setting up, operating, and cleaning the machine are defined as operators. These personnel are obliged to carefully read the operating instructions and to observe the safety instructions contained therein. In addition, the operators are instructed by the administrators on how to operate the machine.
- **Administrator:** The personnel responsible for the repair, maintenance, installation, and adjustment of the machine are defined as administrators. These personnel must be trained extensively by Leister Technologies AG or by a representative instructed to do so. These personnel are obliged to carefully read the operating instructions and to observe the safety instructions contained therein.
- **Specialists:** Specialists are responsible for commissioning the machine correctly and must have received electronic or electrical training. These personnel are obliged to carefully read the operating instructions and to observe the safety instructions contained therein.

### 3. Technical Data

		SEAMTEK W-900 AT	SEAMTEK W-2000 AT
Nominal voltage	V~	230/240 (US)	
Frequency	Hz	50/60 (US)	
Nominal current	A	17	
Nominal voltage	W	3,900	
Max. welding current	A	≈ 600	
Max. temperature	°C	≈ 680	
Drive speed	m/min	0 – 30	
Electronics		PC panel with PLC	
Max. wheel clamping force	N	238	
Weld seam width	mm	8 – 64	
Emission level	LpA (dB)	≈ 78	
Dimensions of machine (L × W × H)	mm	1500 × 702 × 1500	2650 × 702 × 1500
Dimensions of packaging (L × W × H)	mm	1760 × 926 × 1536	2936 × 926 × 1536
Weight of machine	kg	approx. 238 kg (basic version) approx. 268 kg (fully equipped)	approx. 403 kg (basic version)
Weight of packaging	kg	145	243
Conformity marking		CE	
Protection class I		⊕	

Subject to change without prior notice.

### 4. Transport and Commissioning

#### 4.1 Delivery



Do not use a crane or other similar equipment to lift the machine.

The SEAMTEK W-AT is delivered packaged and well-protected in a transport crate. When moving the machine in the transport crate, pay attention to the symbols for the center of gravity.

#### 4.2 Unloading the Machine from the Transport Crate



**Danger: At least two people are needed** to safely remove the machine from the wooden crate. Make sure that the machine does not topple over.

Turn the **feet (6)** upward until the stop to ensure maximum floor clearance.

To ensure that the machine is unloaded from the transport crate safely, we recommend that you proceed as follows or ask your sales partner.

1. Remove the right side cover of the wooden crate. This cover can also be used as a ramp.
2. Position the right side cover as a ramp in front of the wooden crate and secure the ramp.
3. Then detach all wooden transport securing devices.
4. Turn all four feet (8) upward as far as possible.
5. Using the moving wheel, turn the machine outwards.
6. Slowly move the machine out of the wooden crate. Make sure that the machine does not topple over.

#### 4.3 Transportation on the Company's Premises



**Danger:** Allow the machine to sufficiently cool down prior to being transported.

To move the machine to the desired location on the respective company's premises, the feet (8) must be turned upward as far as possible until there is no longer any contact with the floor and the machine rests on the floor with all three wheels. Make sure that the machine does not topple over.

#### 4.4 Transportation outside of the Company's Premises

To ensure that the machine is well secured, only transport it in the designated transport box.

#### 4.5 Work Environment



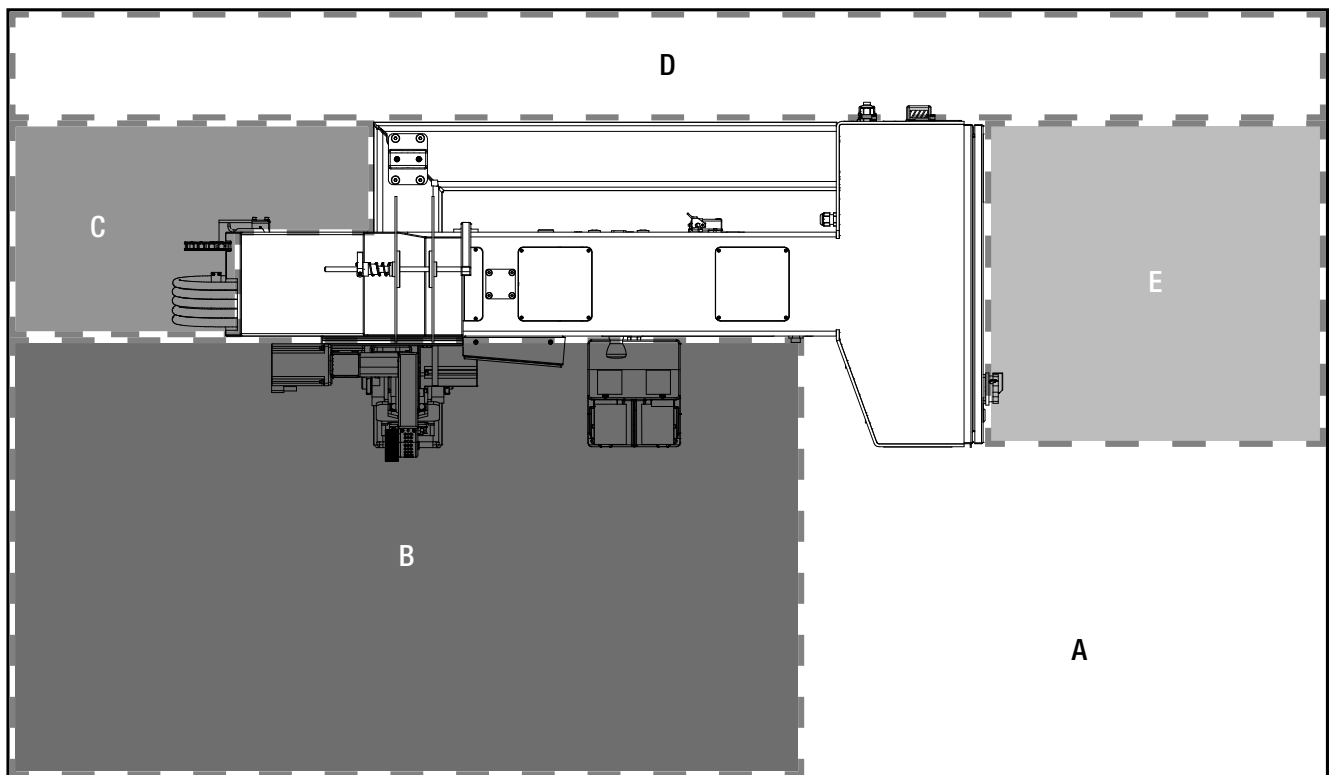
**Danger:** Never use the SEAMTEK W-AT in readily inflammable surroundings and maintain a sufficient distance from combustible materials at all times.  
The SEAMTEK W-AT must only be used in well-ventilated rooms.

- Do not place the SEAMTEK W-AT in the vicinity of sources that cause significant vibrations; for example, other machines, roads, etc.
- To ensure access around the machine, an unobstructed working area of at least 1 m must be available around the machine.
- Depending on the function, the **wedge holder (3)** swings back and forth. Ensure that persons and objects maintain an adequate distance.

#### 4.6 Workplace and Workplace Environment

The SEAMTEK W-AT has castors which allow the machine to be moved easily to a different location. Please make sure that the required space for the machine is maintained, and that the adjustable feet are locked into place whenever the machine has been moved.

The working area may exceed the marked area.



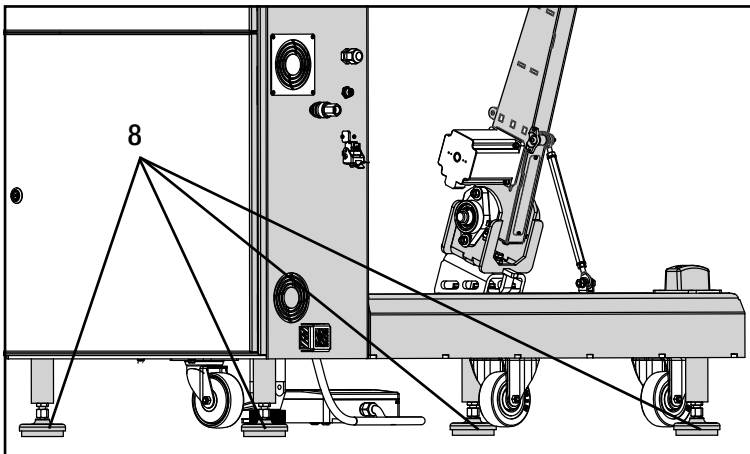
			SEAMTEK W-900 AT	SEAMTEK W-2000 AT
<b>A</b>	Required space for the machine	mm	2460 × 1560	3610 × 1560
<b>B</b>	Working area	mm	1420 × 860	2570 × 860
<b>C</b>	Safety distance	mm	450 × 450	450 × 450
<b>D</b>	Distance to the wall	mm	2460 × 260	3610 × 260
<b>E</b>	Required space for the service doors	mm	710 × 670	710 × 670



Ensure that the machine is only operated in conditions with a maximum humidity of 80% and a maximum ambient temperature of 40°C. Individual components of the machine may no longer function properly if it is used above these limits.

The operator of the machine is responsible for ensuring that the seat height provides the best possible view of the welding process and prevents posture problems. Ideally, a height-adjustable chair designed for this purpose should be used.

#### 4.7 Securely Positioning the Machine



The machine must be placed on an even surface. Turn all **feet (8)** downward until the machine rests equally on all **feet** and is suitably and securely positioned. Use a spirit level to align the machine. Turn all feet equally when turning them upward or downward.

#### 4.8 Commissioning the Machine

Check the machine for damage before commissioning.

##### 4.8.1 Power Supply

###### Connection Plug

The machine must be connected to a residual-current circuit breaker. Residual-current protection devices prevent dangerously high ground fault currents and therefore prevent life-threatening electrical accidents.

###### Power Supply Connector Plug

The SEAMTEK W-AT is supplied without a connector plug. A suitably trained specialist must connect a plug that guarantees the specifications of the machine and complies with all statutory requirements specified in the respective country.

The following specifications regarding the current source and the connector plug must be observed.

Nominal voltage	V	230–240
Frequency	Hz	50/60
Current	A	17

###### Power cord and extension cable

- The nominal voltage specified on the device must match the supply voltage.
- The cable for the **power connection (18) for the machine** must be freely movable and must not impede users or third parties during work (tripping hazard).
- The extension cables must be permitted for the utilization site and be marked accordingly. Take into account the necessary minimum cross-section for extension cables, as required.

## Connection cable

		International (230 V): Function	USA (240 V): Function
Wire colors of the machine connection cable	brown	L1 (230 V AC)	L1 (120V AC)
	light blue	N	L2 (120 V AC)
	yellow/green	PE	PE

## 5. Your SEAMTEK W-AT

### 5.1 Type Plate and Identification

The type designation and serial number are specified on the type plate on your device. Please transfer this information to your operating instructions; in the event of any inquiries to our representatives or authorized Leister service centers, please always refer to this information.



Article no.: 159.159

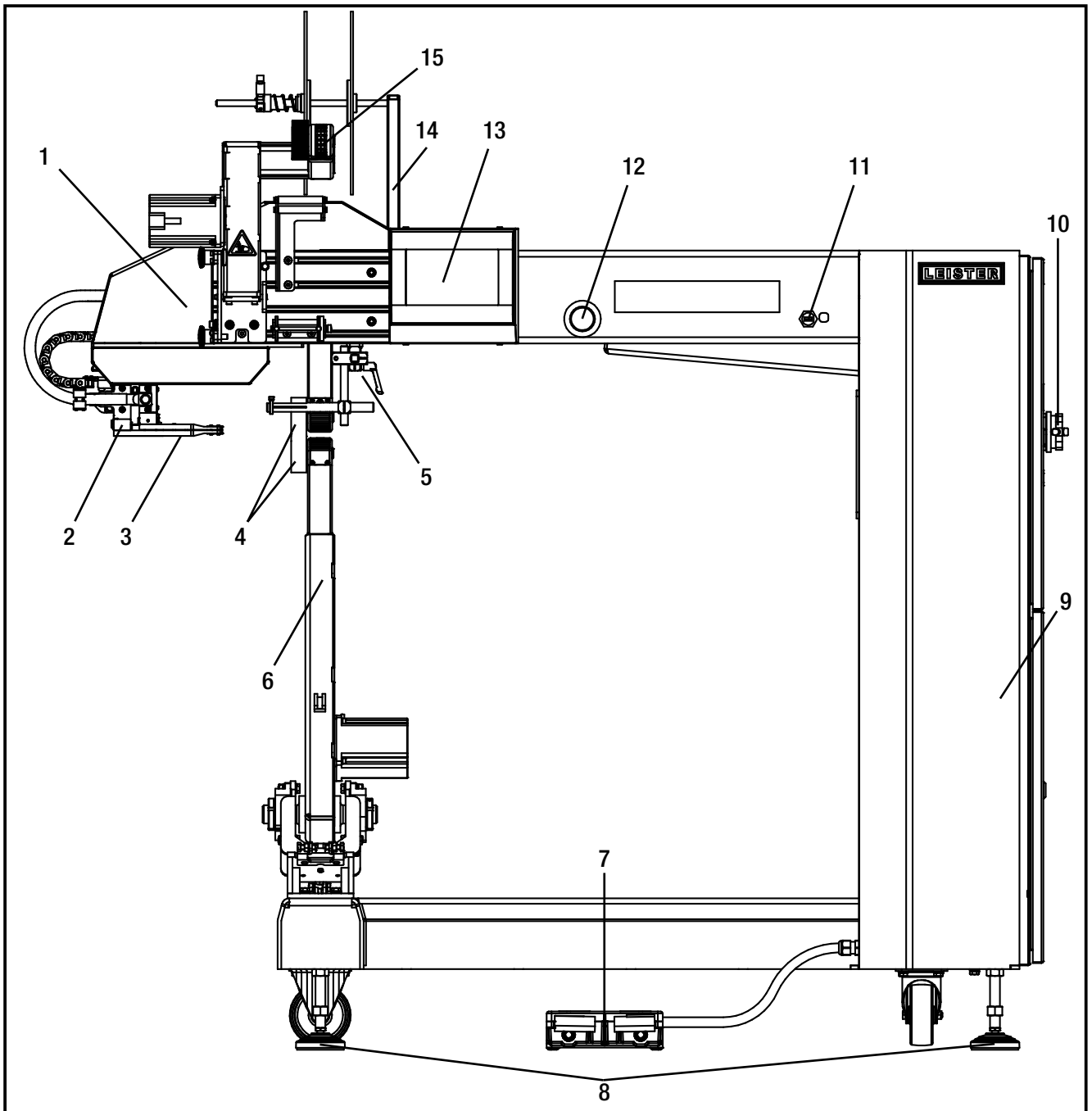
Serial no.: .....

### 5.2 Scope of Delivery (standard model in transport box)

- 1 x SEAMTEK W-AT
- 1 x pedestal, mounted
- 1 x connection cable (without plug)
- 1 x wiring diagram
- 2 x key for switch cabinet
- 1 x operating manual
- 1 x quickarm, optionally mounted (optional accessory)
- 1 x tape delivery system, optionally mounted (optional accessory)

## 6. Overview of Machine Elements

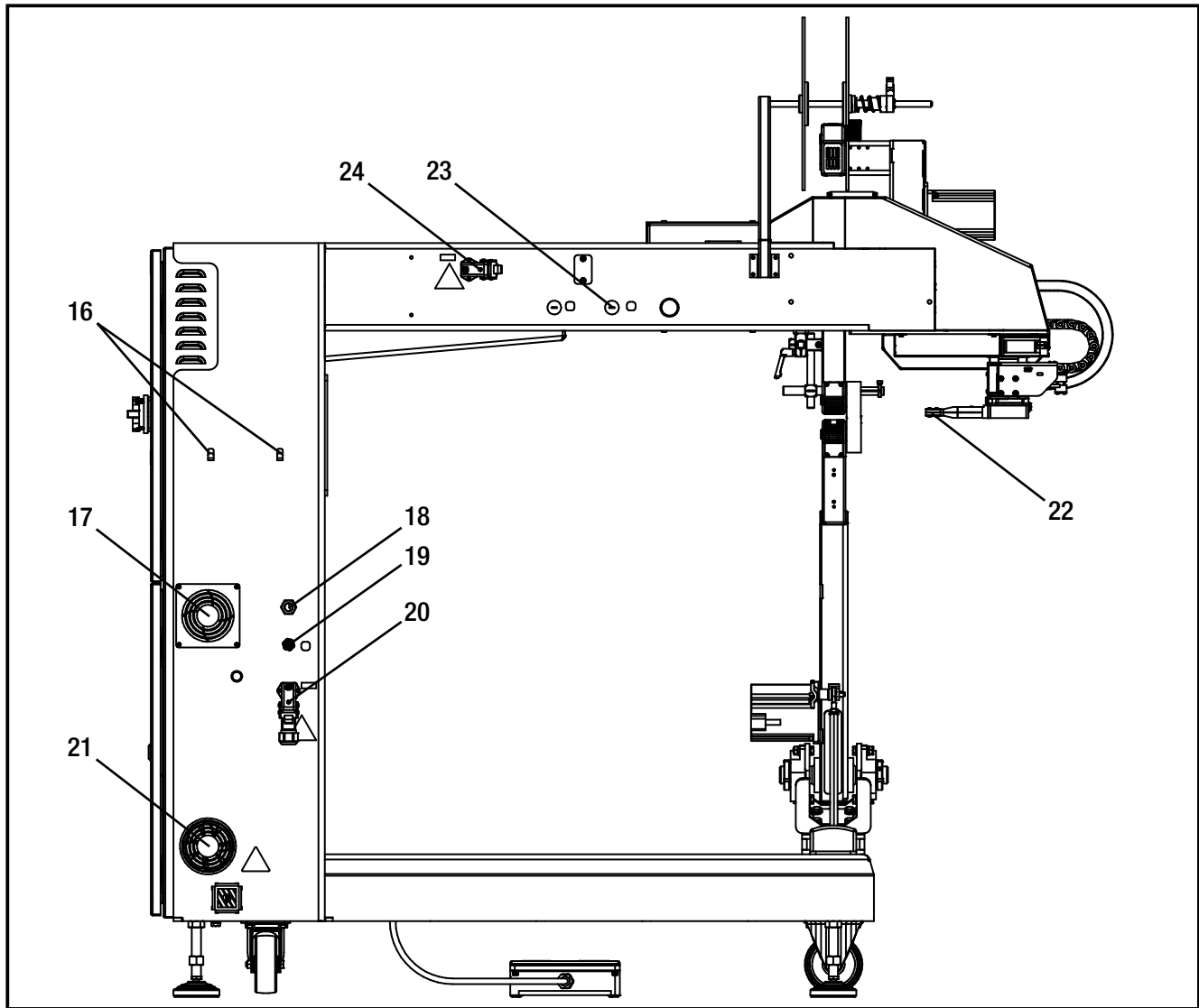
### 6.1 Front View



1. Adjustable Hot Wedge Module (AWM)
2. Wedge bracket fixture
3. Wedge holder
4. Welding wheels
5. Guide holder
6. Pedestal
7. Foot pedal
8. Adjustable feet
9. Switch cabinet
10. Main switch

11. USB connection
12. Emergency stop switch
13. Operating unit
14. Tape delivery system (accessory)
15. Quickarm (accessory)
16. Suspension equipment for pedal
17. Air inlet for switch cabinet cooling
18. Power connection for machine
19. Ethernet output for accessory B

## 6.2 Back View



- 20. Electrical connection for accessory B
- 21. Air outlet for switch cabinet cooling
- 22. Welding wedge
- 23. Ethernet output for accessory A
- 24. Electrical connection for accessory A

## 6.3 Switch Cabinet



The switch cabinet (9) has two separate chambers – an upper and a lower chamber. The chambers must never be opened while the machine is connected to the power supply.



The switch cabinet and, in particular, the elements inside it can reach very high temperatures. The machine must therefore always be allowed to cool down sufficiently before opening the switch cabinet in order to prevent burns.

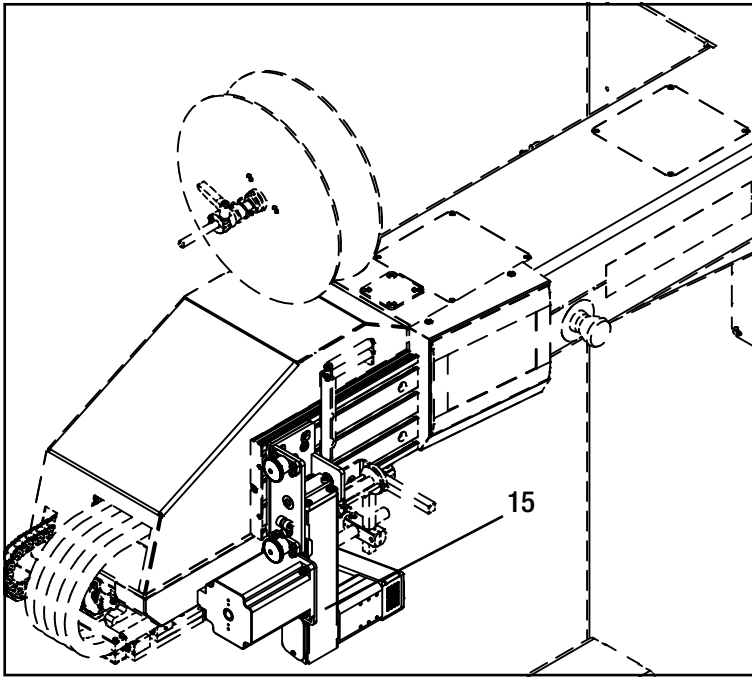
## 6.4 Outlets for Accessories



**The outlets (20 and 24) on the machine are only approved for use with Leister accessories.** The electrical connection is supplied with mains voltage. The closing caps on the electrical connections (20/24) may only be removed when using the corresponding original Leister accessories. Leister is not liable for any non-approved use.

## 6.5 Optional Accessories

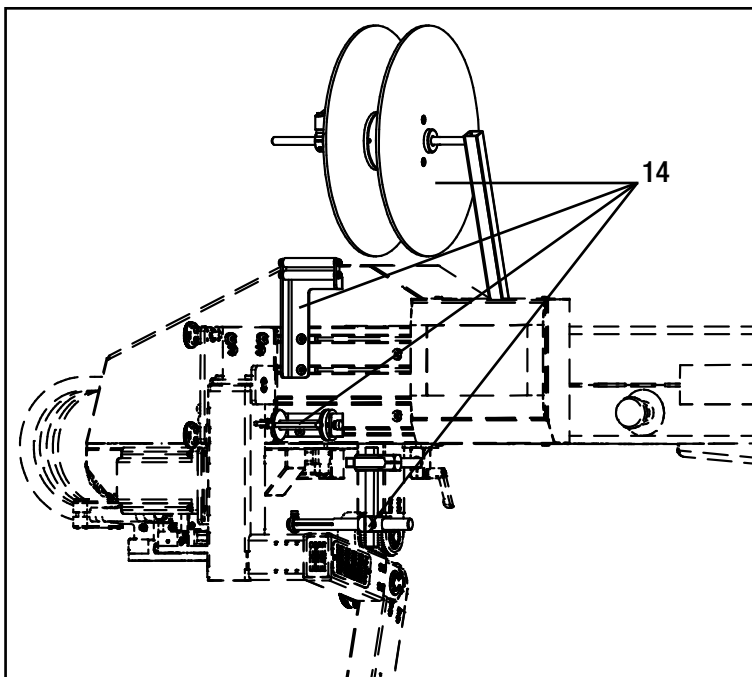
### 6.5.1 Quickarm



This accessory enables the production of endless pipes and hoses.

The machine can be equipped with the **quick-arm (15)** in two different ways. The **quick-arm** is either fitted to the machine directly by Leister or mounted on the machine afterwards by an authorized person.

### 6.5.2 Tape Delivery System

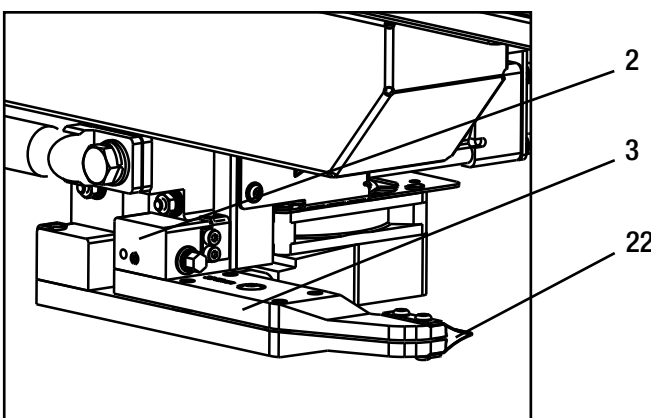


The **tape delivery system (14)** is suitable for supplying tape during the joining process. The system is primarily used for sealing (taping) seams and gluing (bonding) non-weldable materials.

The machine can be equipped with the tape delivery system in two different ways. The tape delivery system is either fitted to the machine directly by Leister or mounted on the machine afterwards by an authorized person.

## 7. Operation and Operating Elements

### 7.1 Hot-Wedge Holder



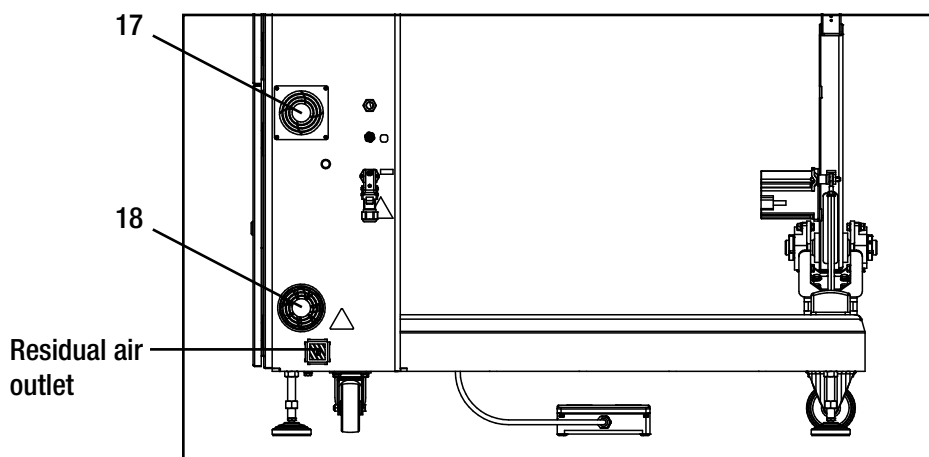
**Danger:** The hot wedge (22), wedge holder (3), wedge bracket fixture (2) and surrounding elements can become very hot. Never touch one of these components while the machine is operating.

The SEAMTEK W-AT is a hot-wedge welding machine. Depending on the respective process, some components can become incredibly hot. Always operate the machine with due caution.

Read Chapter 8 ("Hot Wedge") carefully.

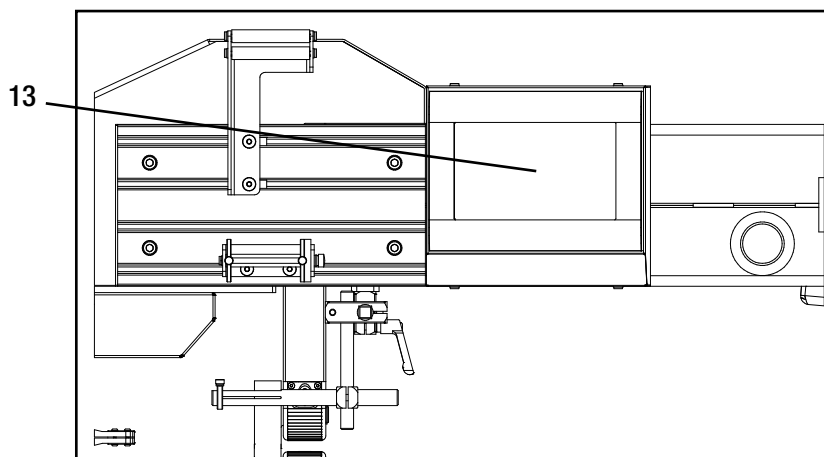
## 7.2 Air Outlet for Switch Cabinet Cooling

The switch cabinet has an integrated circulation system to cool the machine elements and prevent overheating. The cooling air is drawn in at point **17** and the warm exhaust air is discharged at point **18**. These openings must be kept clear at all times to avoid obstructing the air circulation.



## 7.3 Touch Panel Operating Unit

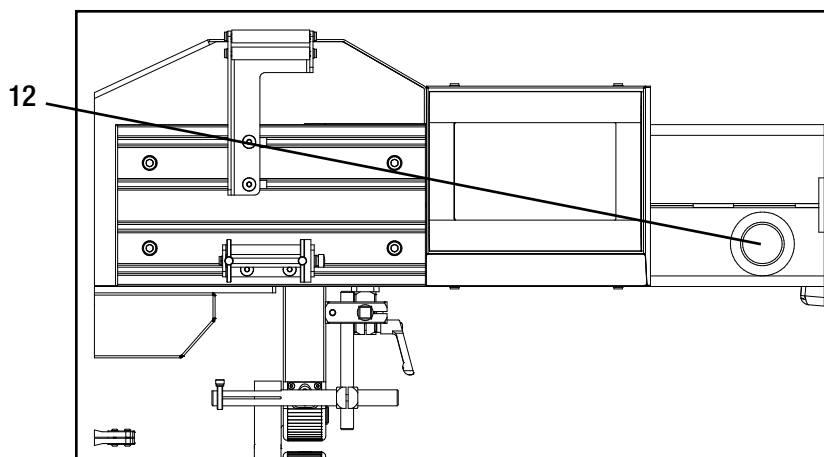
**i** **Caution:** Only use your fingers to operate the touch panel. Do not use non-authorized objects such as pens and tools in order to avoid damaging the **touch panel (13)**.



The **touch panel (13)** can be used to see current operating statuses as well as to edit all welding parameters. Before operating the touch panel, carefully read through **Chapter 9** for information on this subject.

## 7.4 Emergency Stop Button

**i** **Caution:** In emergency situations, press the **emergency stop button (12)** to disconnect the machine from the current supply.



Pressing the **emergency stop button (12)** shuts down the machine in an instant.

### 7.4.1 Emergency Stop Button Function

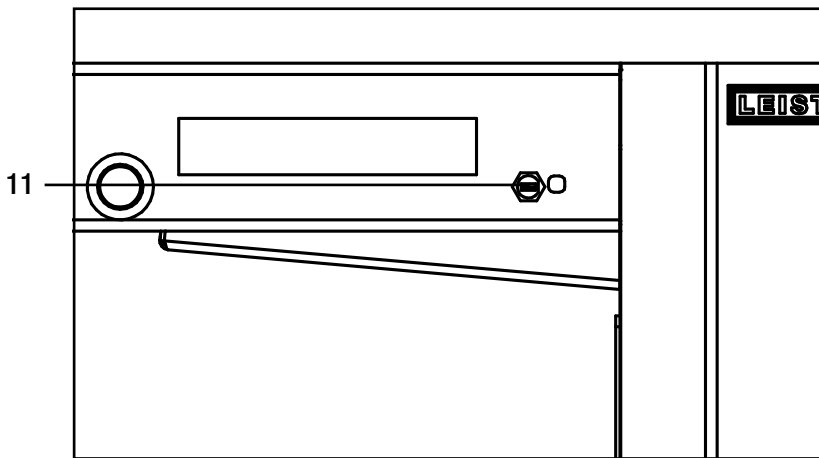
Pressing the emergency stop button during the welding process interrupts the current supply. No axis movements are performed and the power supply to the hot wedge stops immediately. Please note that the **hot wedge (22)**, **hot-wedge holder (3)** and **bracket fixture (2)** may still remain hot for a long time.

The axes can be moved manually after pressing the emergency stop button.

To ensure that the machine is restarted safely, please follow the procedure below:

- Remove all objects from the welding zone (e.g., jammed material).
- Deliberately releasing the emergency stop button restores the power supply to the machine.
- The machine restarts as soon as the emergency stop button is released.
- Select the language and press "Start" to start up the machine.  
Caution: The axes will then move automatically to their initial position.
- The accessories are set to their initial state.

### 7.5 USB Connection

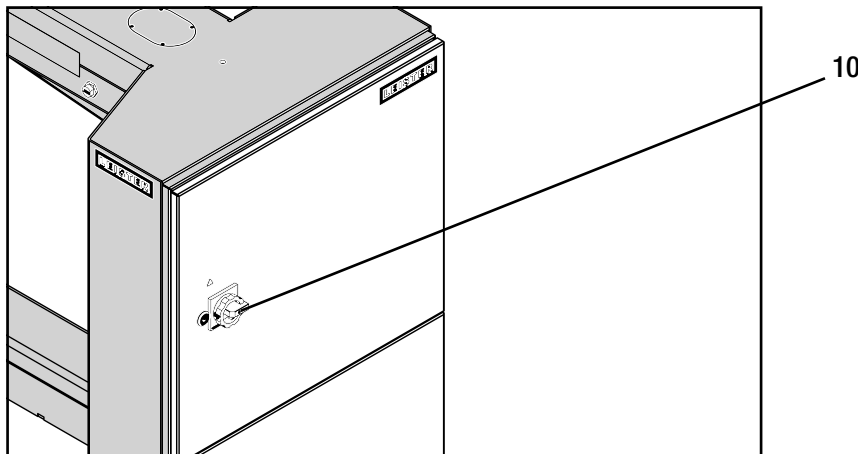


Use the **USB connection (11)** to back up your saved recipes or settings externally or to use them on several SEAMTEK W-AT machines at the same time. Use an empty USB stick and insert it into the USB connection. You can then carry out the desired actions on the information screen on the right-hand side.

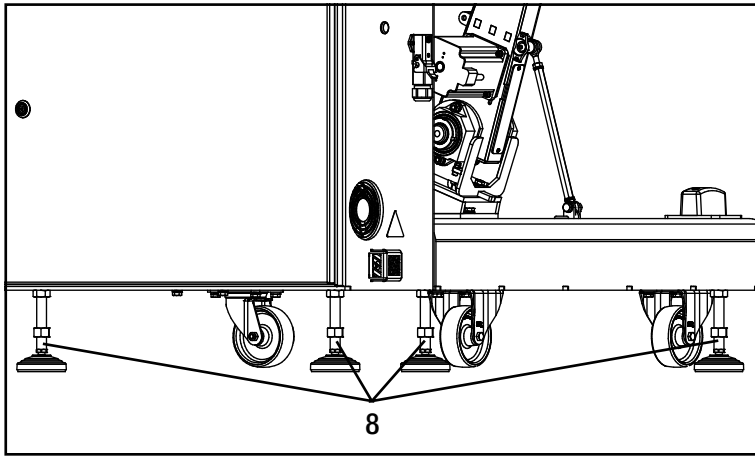
### 7.6 Main Switch



The **main switch (10)** disconnects the machine from the power supply and has the same function as the emergency stop button (**Chapter 7.4**). Switch off the main switch during extended interruptions in order to save power and protect the machine components.



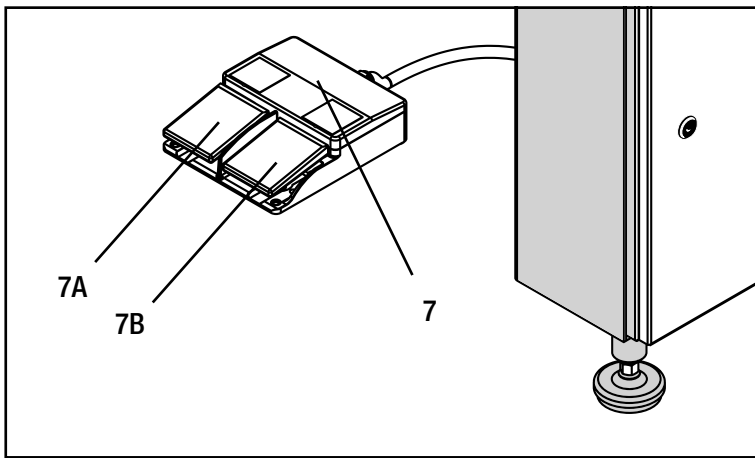
## 7.7 Feet



Turn the **feet (8)** downward **equally** in order to position the machine securely on the ground. Ensure that the machine is suitably and securely positioned before it is commissioned. Use a spirit level to align the machine.

Then lock the threaded rods against the machine frame using the lock nuts.

## 7.8 Pedal Unit



**Danger:** Take care not to confuse the two **pedals (7A + 7B)** of the **pedal unit (7)**. This may result in burns to the hands when positioning the material or if welding is started inadvertently. Line yourself up with the separating wall between the two **pedals (7A + 7B)**.

Using the **left-hand pedal (7A)**, you can lift the upper wheel in order to clamp or remove the material. If the pedal is pressed during the welding process, the hot wedge swivels out and welding is stopped. You can start the welding process by pressing the **right-hand pedal (7B)** once (hot wedge swivels in and the wheels then start turning). The basic speed is set in advance via the **min speed** parameter. Once the process has started, the welding speed can be adjusted steplessly with **pedal 7B**. The maximum speed is set using the **max speed** parameter.

Pedal side	Symbol	Function prior to welding process	Function during welding process
Left-hand pedal (7A)		<b>Press and hold</b> Upper welding wheel lifts up.	<b>Press once</b> Wedge swivels out  <b>Press and hold</b> Welding process ends and the upper welding wheel lifts up.
Right-hand pedal (7B)		<b>Press once</b> Wedge swivels in, welding starts at basic speed	<b>Press down</b> The welding speed gets faster or slower (stepless adjustment) depending on the position of the pedal.



## 7.9 Changing Welding Arm and Welding Arm Options

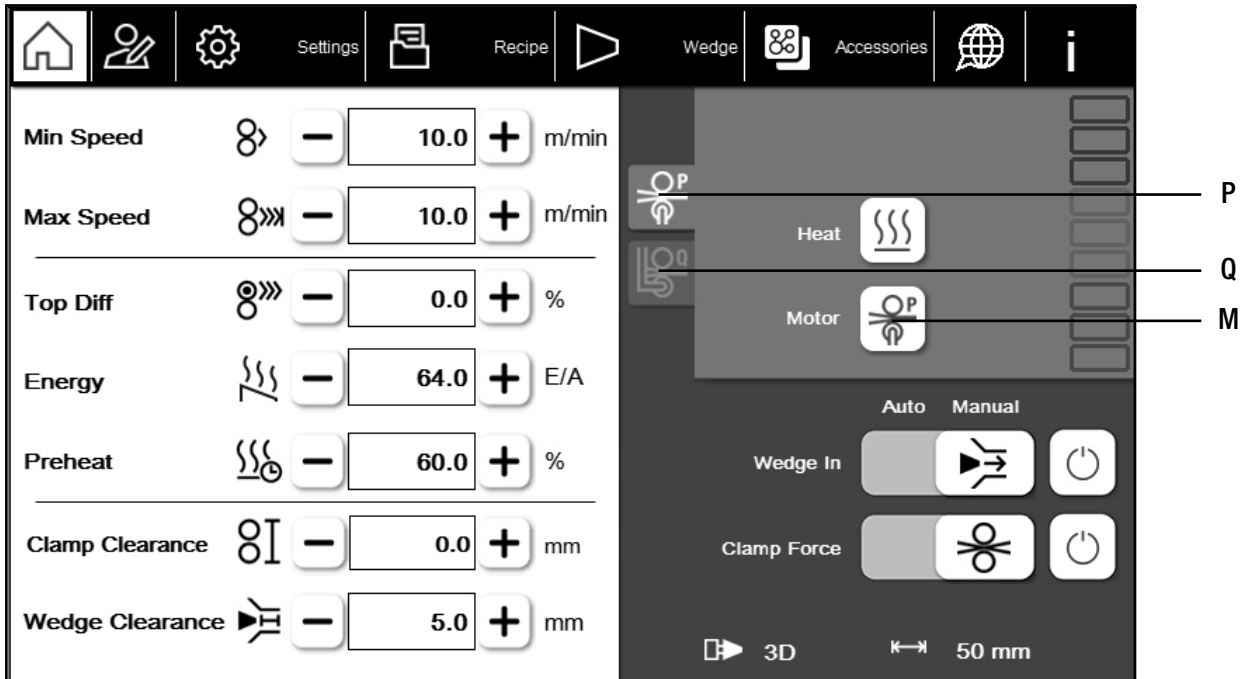


**Caution:** To activate the desired welding arm, the **motor icon (M)** must be switched off. Make sure that the correct welding arm is selected to prevent damage to the drive and hazardous situations.



**Risk of crushing:** There is a risk of crushing due to the movement of mechanical parts. When changing the welding arms, make sure that no body parts become trapped. Set the "Wedge In" and "Clamp Force" sliders to "Manual" to prevent the machine from starting inadvertently.

### 7.9.1 Changing Welding Arm



To change between the individual welding arms, please set all settings to "Manual" and "Off" in advance. The **transport rollers (4)** are now open and the **welding wedge (22)** is in the starting position.

Switch off the motor and select the welding arm you want to activate.

**Pedestal (P)** see **Chapter 7.9.2** / **Quickarm (Q)** see **Chapter 7.9.3**

### 7.9.2 Pedestal

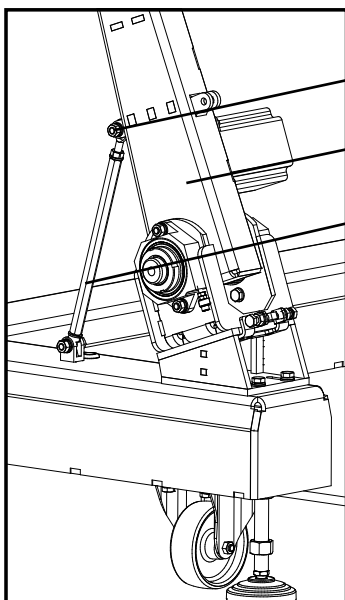


**Caution:**

Always hold the **pedestal (6)** when you detach the **retaining screw (6A)**. Then carefully lay the pedestal down. If the pedestal falls downward unchecked, it may sustain irreparable damage.

When folding down the pedestal, be mindful of a possible crushing risk and keep body parts away from the area between the contact surface and pedestal.

#### Activating / Deactivating the Pedestal



6A

6

6B

Loosen the **screw (6A)** that holds the **threaded rod (6B)** and the **pedestal (6)** together. Then pull the screw out while firmly holding the pedestal. Carefully lay the pedestal down.

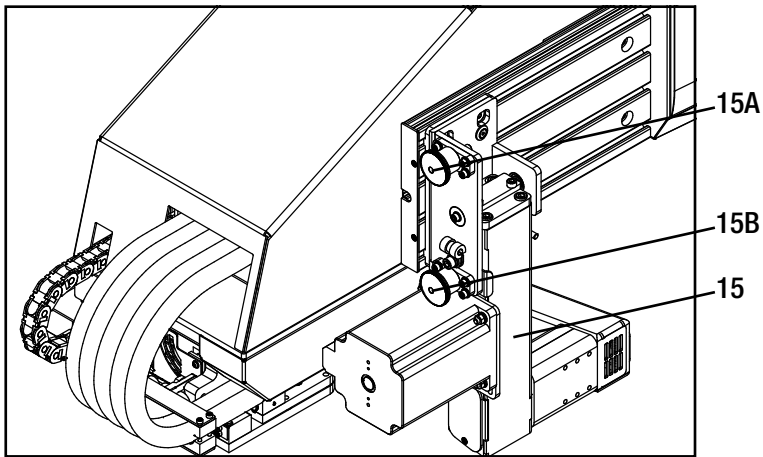
Refit the screw and the corresponding washers so they do not get lost.

Now switch to the quickarm.

To bring the pedestal into the welding position, lift the **pedestal (6)** upward and insert the screw.

### 7.9.3 Quickarm

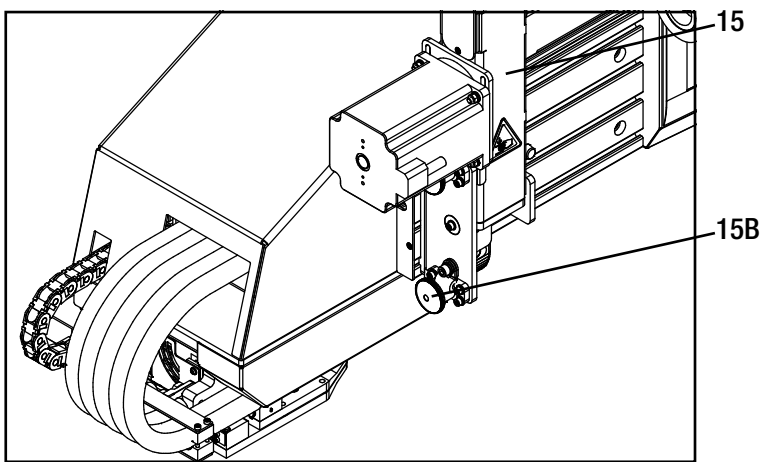
activate



Make sure that the upper **transport roller is open** (see Chapter 7.9.1).

Hold the quickarm (15) and pull the upper **retaining pin (15A)** out to disengage the locking mechanism for the **quickarm**. Now carefully fold the arm downward and fit the **lower retaining pin (15B)** until it fully engages.

Deactivating



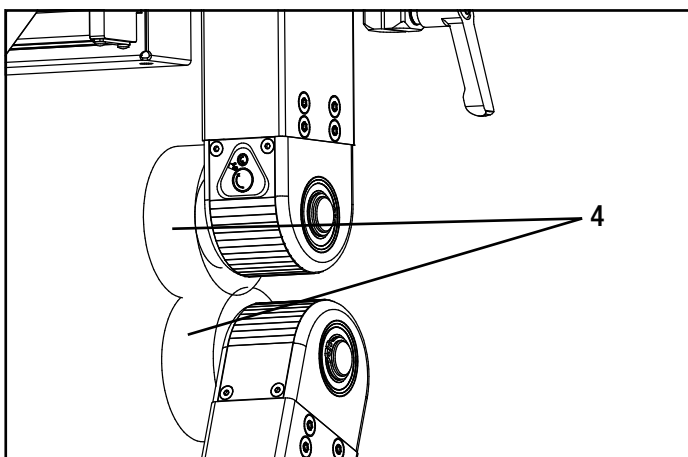
Pull the **lower retaining pin (15B)** out, to disengage the locking mechanism of the **quickarm (15)**. Now fold the arm upward into the upper position and insert the **upper retaining pin (28A)** until it completely engages.

It is essential to ensure that the quickarm is securely fastened to prevent it from folding down and causing injuries.



**Caution:** Never use steel rollers, as there is otherwise a risk of a short circuit. This may also cause machine deformation.

### 7.10 Transport Rollers



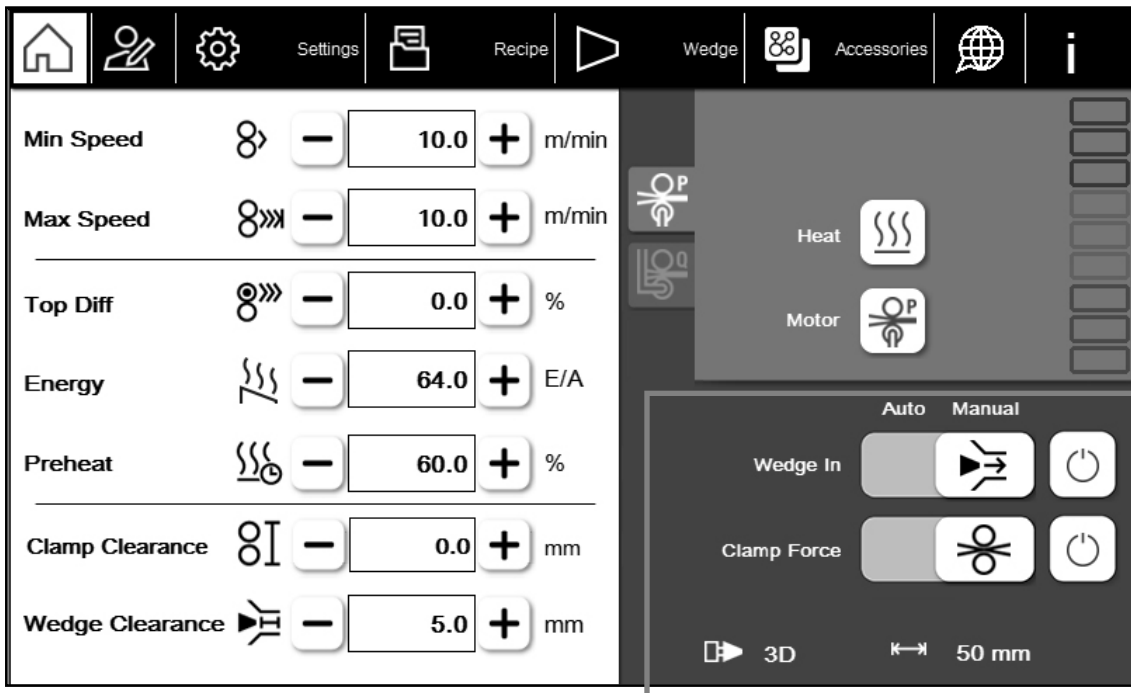
The **transport rollers (4)** are normally the same width as the hot wedge. The width of the hot wedge determines the welding width. In special cases, the roller width may differ from the welding width.

## 7.10.1 Changing the Transport Rollers



**Caution:** Allow all components to cool down before changing the transport rollers in order to prevent burns.

### Changing the transport rollers

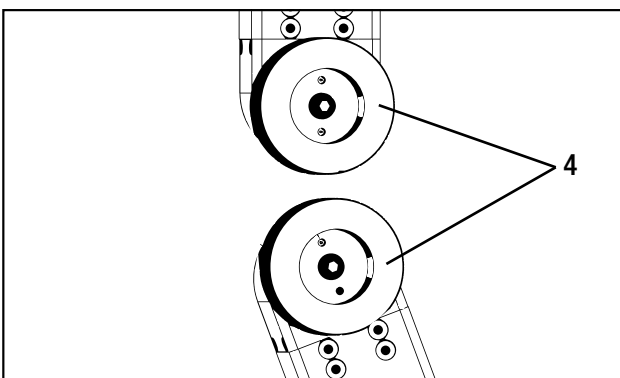


In the "Periphery" area, set the wedge and the clamp force to "Manual" and "Off".

### Risk of crushing

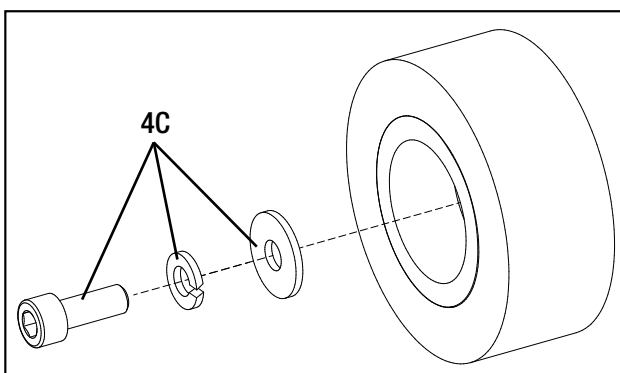


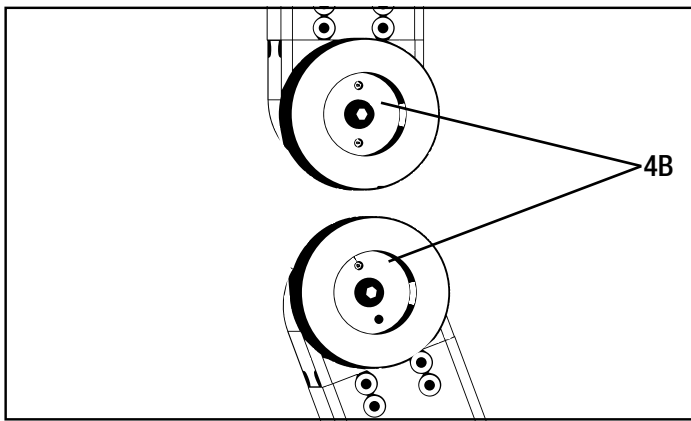
**Danger:** Do not reach between moving components, e.g., the **transport rollers (4)**. When working on the open system, do not wear articles of clothing such as scarves, shawls, or neckties and tie up long hair or protect it by wearing headgear.



The **transport rollers (4)** are now open and can be changed.

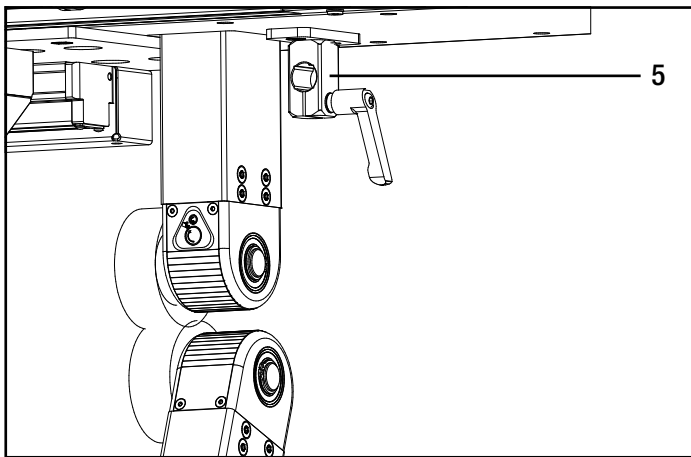
Completely detach the **M6 screws** and remove these together with the spring ring and washer (4C). The **transport rollers (4)** can now be easily removed.





To mount the **transport rollers (4)**, push the **transport roller** onto the **holder (4B)**. Do not use steel rollers. This can cause a short circuit or machine deformation. Make sure that the guide pins of the holder match the friction holes of the **transport roller**. Check the seating of the **transport roller** to ensure that the entire circumference of the roller is fully seated on the holder. Then re-tighten the **M6 screws** together with the spring ring and washer (4C).

## 7.11 Guide Holder



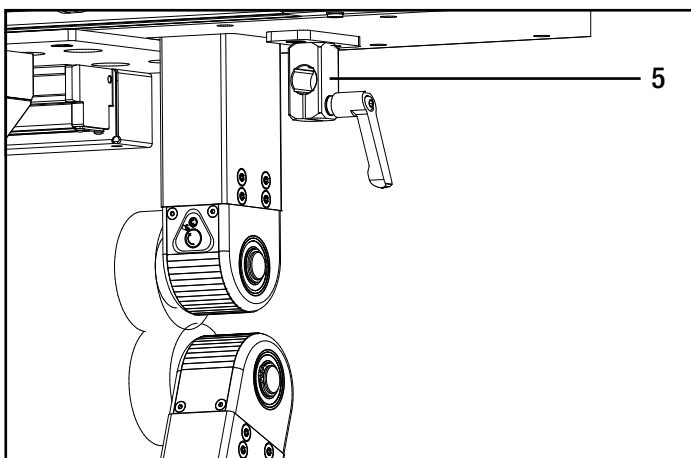
The quick-action coupling enables various accessory guides to be quickly mounted or removed. Turn the clamping lever of the **guide holder (5)** clockwise in order to secure the guide or counterclockwise in order to release it.

### 7.11.1 Mounting and Adjusting the Guide



**Caution:** Adjust the **welding wedge (22)** according to Chapter 8.3 to 8.5 before mounting the guide.

Make sure that the guide cannot collide with the wedge when the wedge swivels in. Start by swiveling in the wedge while the wheels are not turning and mount the guide in the swiveled-in position in order to estimate the distance between the guide and the wheels.



Before fastening a guide, check whether the **welding wedge (22)** has been adjusted. Insert the rod and then clamp

the **guide holder (5)** with the clamping lever. The guide can be moved into the desired position on the clamping elements. Once the guide and the **welding wedge (22)** have been adjusted, check that the hot wedge does not touch anything when swiveling in and out.

Different guides are available as accessories. Ask your Leister sales partner about the numerous options available.

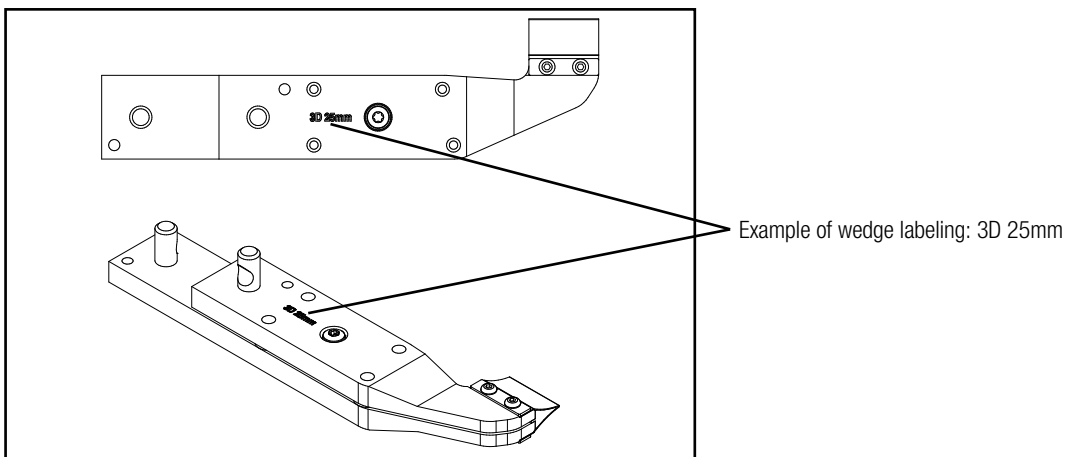
## 8. Hot Wedge

### 8.1 Wedge Types

There are two different types of wedge; which one is used depends on the intended purpose and the required speed. The engraving on the wedge holder (3) indicates the type in question. The number indicates the welding width. The maximum possible welding speed depends on the welding holder that is mounted. When the wedge holder is selected (Chapter 9.6), the possible speed of the wedge in question is automatically limited. Always make sure that you mount the right wedge (22) on the right welding holder.

#### 8.1.1 3D Wedge (3-Dimensional Wedge)

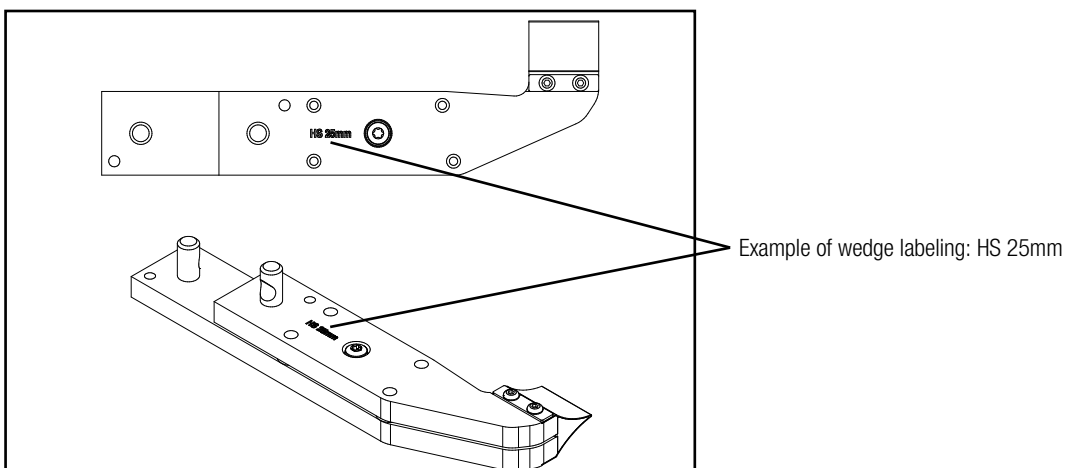
This wedge can be used at up to 10 m/min. This wedge has a small wedge/material contact surface. This means that the material can be guided effectively and the guiding resistance is lower. This wedge is ideal for cases such as curves, products with complex shapes, and applications where a maximum speed of 10 m/min is sufficient.



#### 8.1.2 HS Wedge (High-Speed Wedge)

The larger wedge/material contact surface optimizes the transfer of energy into the material. The maximum speed is 30 m/min.

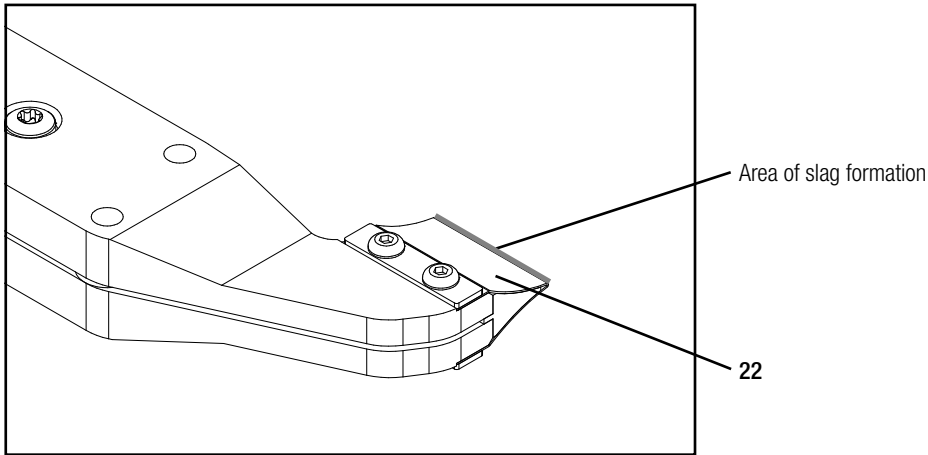
This type of wedge is primarily suited to straight, efficient weld seams.



## 8.2 Wedge Cleaning

When the wedge is positioned properly and the welding parameters are set correctly, very little residue is formed. It is mainly limited to the front part of the wedge (22). If an excessive amount of residue is formed, readjust the wedge and reduce the energy value.

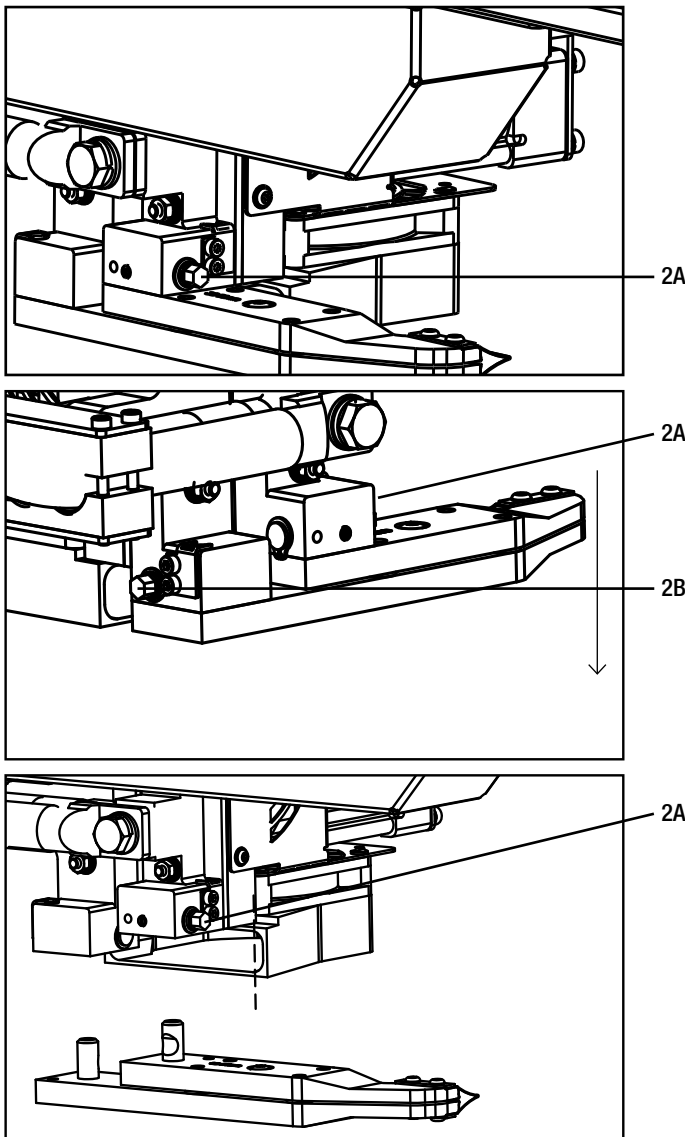
Be sure to clean the wedge with a copper brush every time you retract while the wedge is still hot! If the welding performance worsens or mechanical damage occurs, replace the wedge (Chapter 8.5).



## 8.3 Changing the Wedge Holder / Changing the Welding Width

The wedge holder must be replaced in the event of damage or if the welding width needs to be changed.

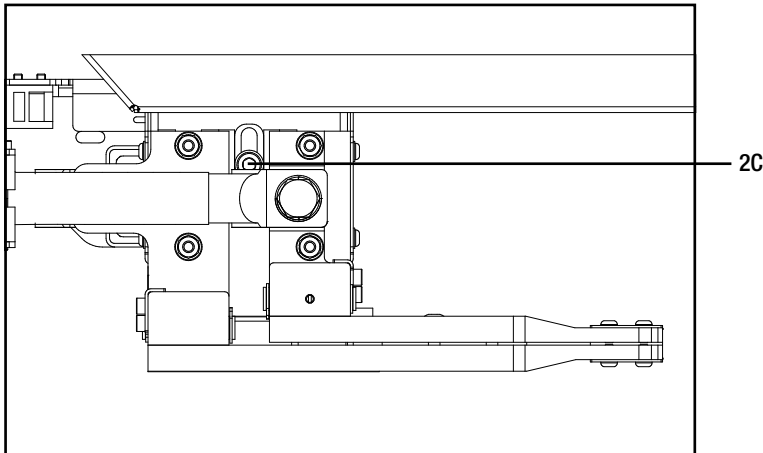
Thanks to the quick-change system, the holder can be replaced quickly and easily. Turn screws 2A and 2B a quarter-turn counterclockwise while holding on to the wedge. The wedge holder can then simply be lowered and removed.



To fit the new wedge holder, insert it from below and then re-tighten screws 2A and 2B in a clockwise direction.

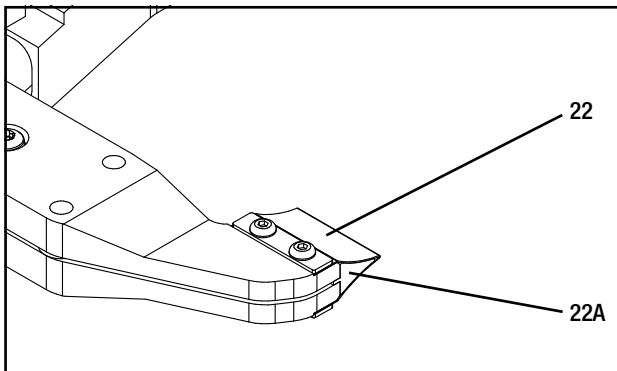
## 8.4 Adjusting the Welding Wedge Height

Slight differences in height are automatically adjusted by the bracket fixture. Nevertheless, the height of the hot wedge must be checked and – if necessary – adjusted every time the wedge holder is changed. Locking screw 2C can be used to adjust the height of the wedge holder/wedge. Loosen the screw slightly while holding on to the holder. Adjust the height of the holder so that the tip of the hot wedge is precisely in the middle of the two closed welding wheels. Then firmly re-tighten the screw. Carry out this step in the swiveled-in position but make sure that the wedge is not in contact with the wheels.

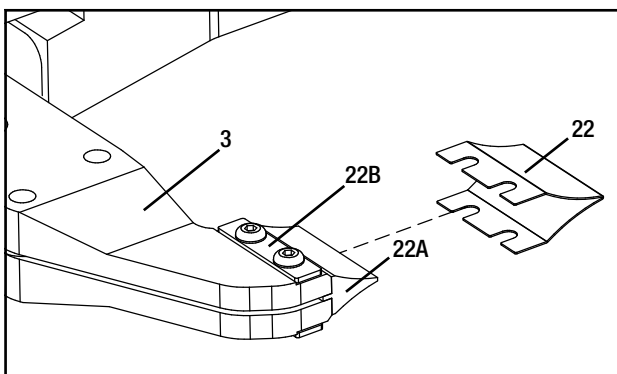


## 8.5 Changing the Wedge

Always use the wedge change wizard (Chapter 9.6) when changing the wedge. This significantly reduces the risk of injury and collisions and minimizes potential errors. Always ensure that the heating is switched off before changing the wedge.



The hot-wedge plate is fastened in place with four screws. Loosen the screws slightly and remove the hot wedge (22)/ the hot-wedge plate. Then check the filler piece (22A) for possible damage. The filler piece holds the wedge in the right shape during the welding process and protects the wedge from mechanical damage. If it is damaged, carefully replace the filler piece.



Push the new hot wedge (22) on to the holder. Lift the upper metal plate slightly so the wedge comes to rest between the holder (3) and the pressure plate (22B). Now use a finger to push the hot wedge as far as it will go and then tighten all four screws.

Now carry out the wedge adjustment program (Chapter 9.6). Remove the upper and lower pressure plates (22B) at regular intervals and clean the wedge contact surfaces on the pressure plate (22B) and the holder (3).

## 9. SEAMTEK W-AT Touch Panel Operating Unit

The **touch panel (13)** consists of a high-quality touchscreen display. Any machine settings can be adjusted on the screen.

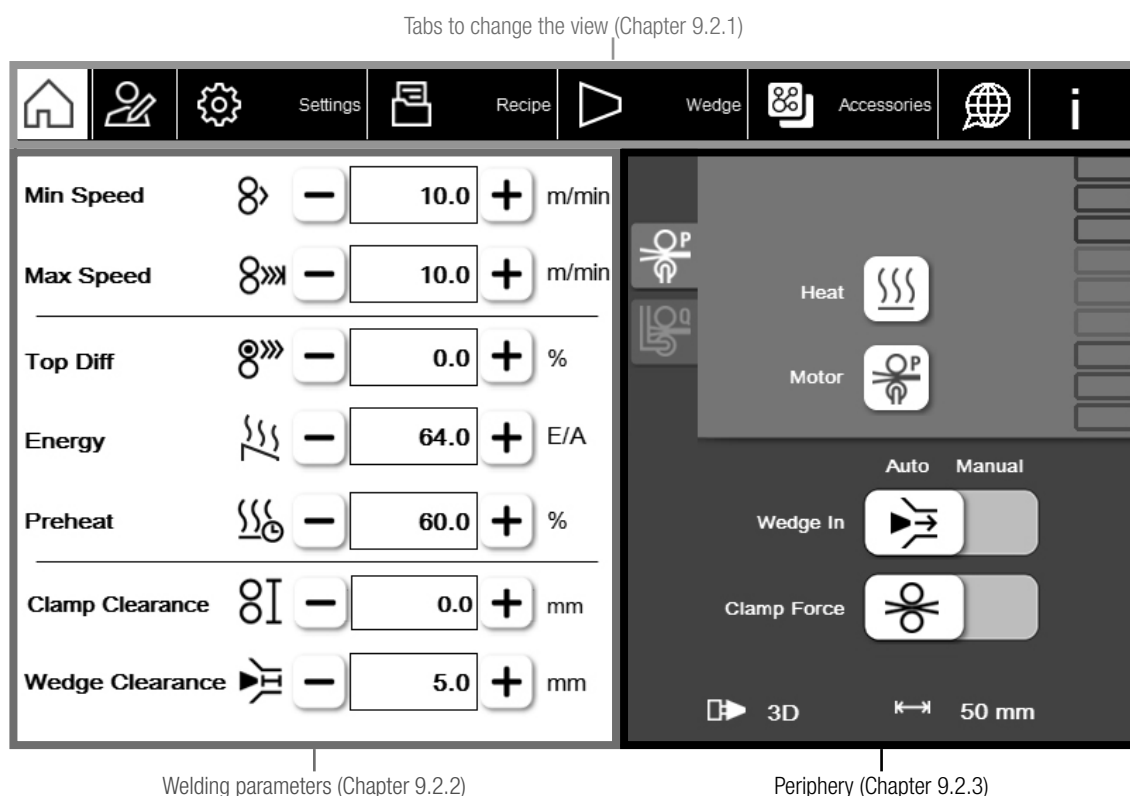
### 9.1 Start Screen

After starting up, the start screen is shown on the display together with a number of languages to choose from. Select your language and press the "Start" button. Note that certain axis initialization movements will be performed when you press "Start".



### 9.2 Home Screen









After startup, the Home screen will be displayed. In this view, all welding parameters can be set and peripheral devices such as the heating and drive can be switched on.












### 9.2.1 Tab for Changing Views

At the upper edge of the screen, tabs for individual screen views can be selected. The view you currently see is indicated by the tab selected. The tab for the current view is in white.















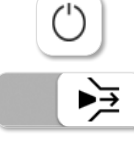


Symbol	Designation
	Home view
	Select user and change the password
	Adjust machine settings
	Load, save, and delete welding recipes
	Adjust or change the wedge
	Select machine accessory
	Choose language
	Information screen (current values, error display and external data storage/load data via USB)

## 9.2.2 Welding Parameters

The welding parameters are located on the left-hand side of the Home view. Press the respective value to change it. Alternatively, you can increase or decrease the value by pressing **-** or **+**.

Designation	Symbol	
Min Speed		The wheel speed can be set from 0 m/min to 30 m/min. The minimum speed is the basic speed after the hot wedge has been swiveled in. This must be >0 m/min when the heating is switched on. The speed must be kept within a range where the welding process can still be properly controlled.
Max Speed		The maximum speed is the speed that can be achieved when the pedal is pressed down fully. The maximum permissible speed varies depending on the type of wedge. The maximum speed is 30 m/min.
Top Diff		The upper wheel can be operated with a differential speed to the lower wheel. In terms of maximum values, the upper wheel can be operated 100% faster (double speed) or up to 99% slower. If the maximum speed of 30 m/min is exceeded by the differential, the value is automatically adjusted to the "speed". The value of the "upper differential %" is maintained.
Energy		The energy is the energy value acting on a defined area. The energy value can be set from 0 E/A to 200 E/A. The theoretical hot-wedge temperature is calculated automatically based on the energy value in relation to the speed.
Preheat		Preheat defines the prewarming energy, taking into account the waiting time of the wedge, the defined energy value, and the start speed. It can be set from -100% to +300%.
Clamp Clearance		The clamp clearance defines the distance between the wheels and thus the contact pressure. The clearance is set in mm. The + direction increases the clamp clearance and the - direction decreases it.
Wedge Clearance		The wedge clearance defines the distance from the hot wedge to the welding wheels/the welding center. The - direction decreases the distance to the wheels and the + direction increases it.

### 9.2.3 Periphery

<b>Heat</b>		The heating is switched off.		The heating is switched on.
<b>Motor</b>		The motor is switched off.		The motor is switched on.
<b>Changing the drive</b>	<p>If you have mounted a <b>quickarm</b> alongside the standard <b>pedestal</b> welding arm, you can make your selection on the right-hand side of the <b>touch panel (13)</b>. The choice of welding arm is represented as an icon on the Home screen. The icons mean the following:</p> <p><b>Note:</b> To change between the two <b>pedestal</b> and <b>quickarm</b> drives, the motor must be deactivated in advance in each case.</p>			
<b>Pedestal drive</b>		By selecting this tab, the "pedestal" drive can be switched on or off.		
		The <b>pedestal</b> drive is switched off.		The <b>pedestal</b> drive is switched on.
<b>Quickarm drive</b>		By selecting this tab, the <b>quickarm</b> drive can be switched on or off.		
		The <b>quickarm</b> drive is switched off.		The <b>quickarm</b> drive is switched on.
<b>Wedge In</b>		"Wedge In" is in "Auto" mode and the wedge is automatically swiveled in by pressing the "Start/Stop Weld" <b>pedal unit</b> .		
		"Wedge In" is in "Manual" mode and the wedge is swiveled out.		"Wedge In" is in "Manual" mode and the wedge is swiveled in.
<b>Clamp Force</b>		The clamp force is closed in "Auto" mode. The clamping pressure selected is applied.		
		The clamp force is in "Manual" mode and open.		The clamp force is in "Manual" mode and closed.
<b>Power indicator for current flow to the wedge</b>		The speed is automatically decreased when the power limit is reached. The welding process is not interrupted in the process.		

**Note:** To weld material, "Wedge In" and "Clamp Force" must be set to "Auto".

### 9.3 User Tab

It is possible to switch between users in this view. The three users have different rights regarding the use and settings of the machine. To change the current user (shaded in gray) (in this case **Admin**), select the relevant level and enter the password. Log in by pressing the "Log in" button. The following standard passwords are defined as passwords:

**Standard passwords:**

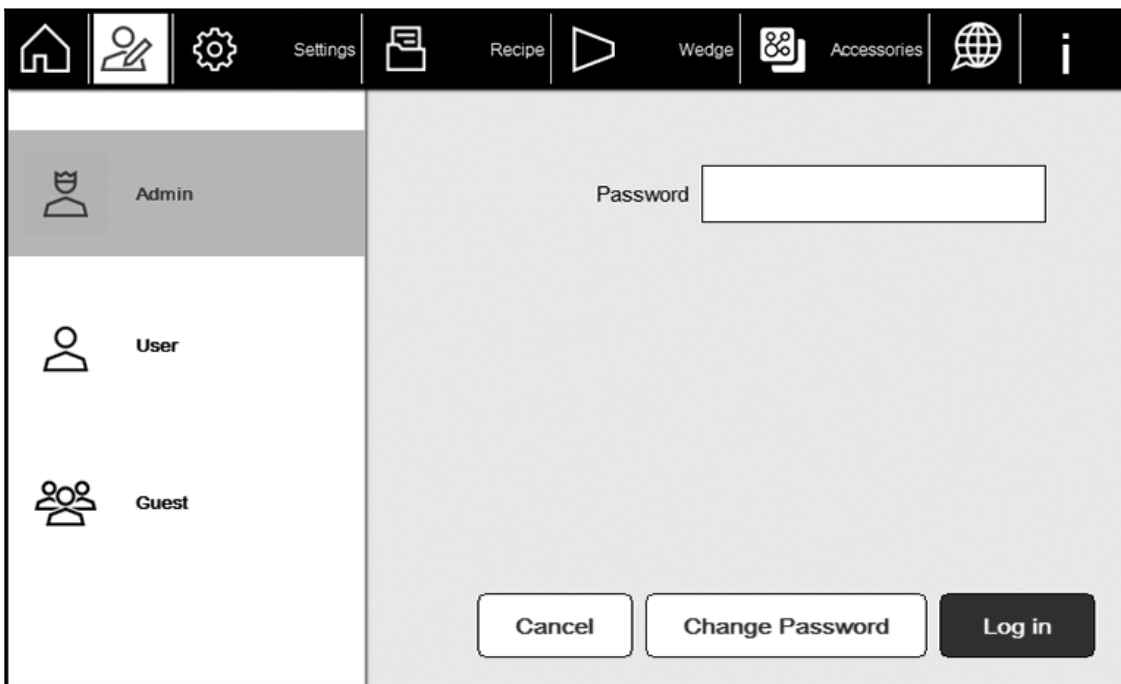
Admin: 11

User: 22

Guest: 33

You can change these standard passwords. First log in as the user for which you would like to change the password and then select **Change Password**.

Now enter the old password. You will then need to enter the new password twice. When entering the password for a second time, make sure that it is identical to the password you entered the first time. Ideally, make a note of the password so that you do not forget it. To reset the password, please contact Leister Technologies AG.



Individual users have different authorizations. The table below gives an overview of the authorizations of individual users.

**Admin:** Full range of functions for commissioning and any repairs to the machine

**User:** Supervisor, standard functions for machine start

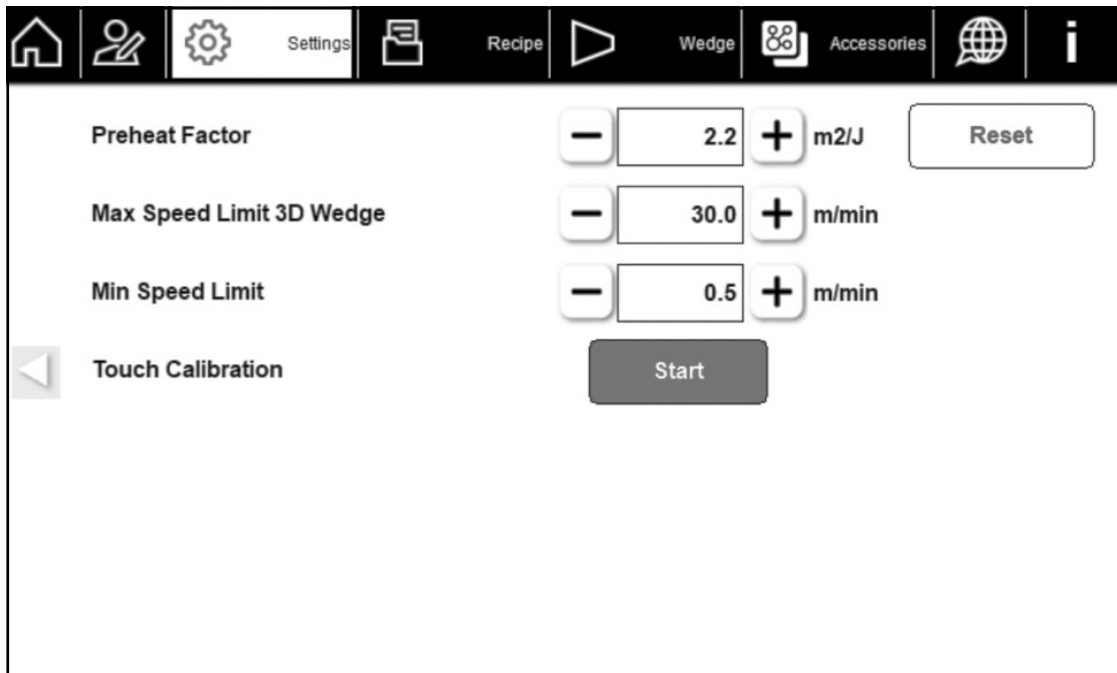
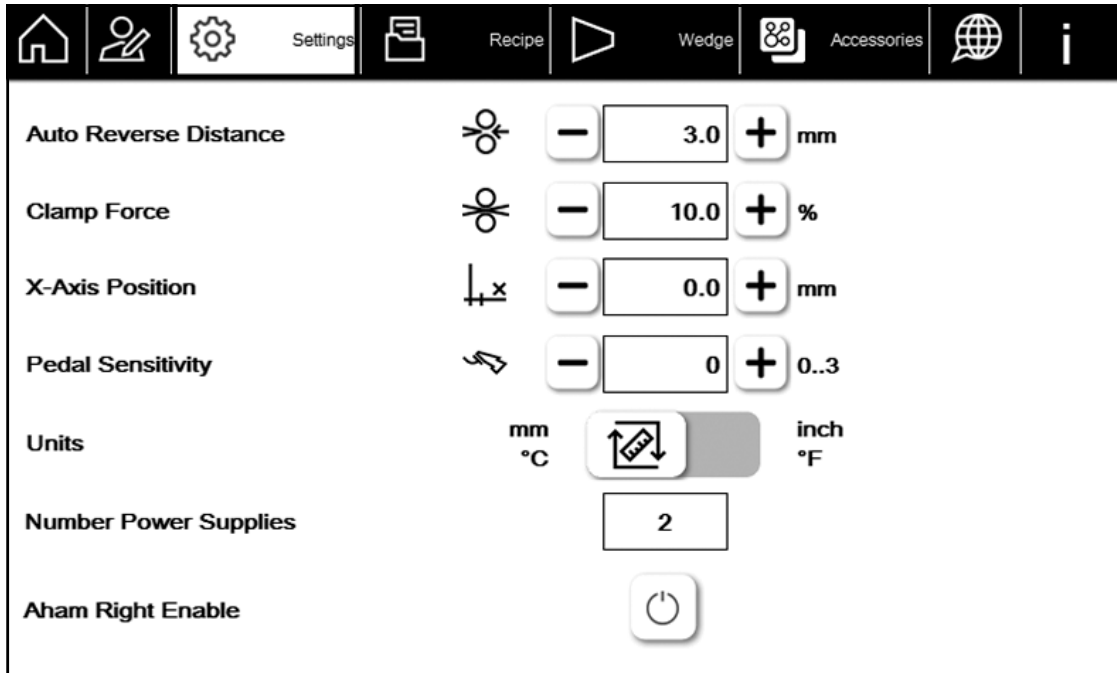
**Guest:** Shop worker, significantly restricted operation

		User		
Screen	Function	Guest	User	Admin
Home	Tabs can be selected	✓	✓	✓
	Welding parameters (left-hand side)	✗	✓	✓
	Periphery (right-hand side)	✗	✓	✓
User	Tabs can be selected	✓	✓	✓
	Enter password	✓	✓	✓
	Change password	✗	✓	✓
Settings	Tabs can be selected	✗	✓	✓
	Auto Reverse Distance	✗	✓	✓
	Clamp Force	✗	✓	✓
	X-Axis Position	✗	✓	✓
	Pedal Sensitivity	✗	✓	✓
	Units	✗	✓	✓
	Number Power Supplies	✗	✗	✓
	Aham Right Enable	✗	✗	✓
	Prewarming factor	✗	✗	✓
	Max speed limit for 3D wedge	✗	✗	✓
	Min Speed Limit	✗	✗	✓
Touch Calibration	✗	✗	✓	
Recipe	Tabs can be selected	✗	✓	✓
	Load recipe	✗	✓	✓
	Save recipe	✗	✓	✓
	Delete recipe	✗	✓	✓
Wedge	Tabs can be selected	✗	✓	✓
	Wedge Change	✗	✓	✓
	Wedge Adjustment	✗	✓	✓
Accessories	Tabs can be selected	✗	✓	✓
	Settings	✗	✓	✓
Language	Tabs can be selected	✗	✓	✓
	Language selection	✗	✓	✓
Info	Tabs can be selected	✓	✓	✓
	Recipe backup	✗	✓	✓
	Recipe recovery	✗	✓	✓
	Meter Values	✗	✓	✓
	Delete counter values	✗	✗	✓
	Axis Setup	✗	✗	✓
	Delete Alarms	✗	✓	✓
Setting the date/time	✗	✗	✓	



## 9.4 Settings Tab

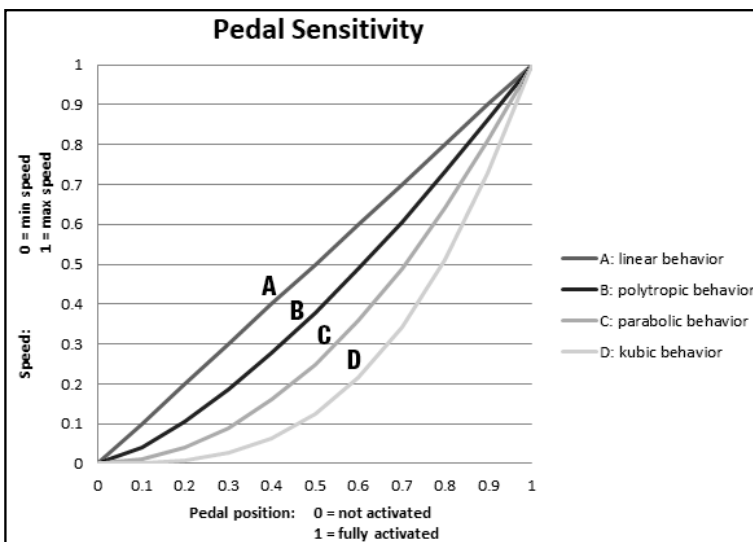
In this view, you can change the machine settings. Depending on the user logged in, certain settings are locked or not visible. To display or change all settings, log in as "Admin". (See also the table of authorizations for individual users). If you have made a change, it will be saved automatically. The next time the system is started up, this new setting will be automatically loaded.

The following adjustments can be made:



Setting	Symbols	Description
Auto Reverse Distance		Distance by which the material is reversed at the end of the weld. With the correct setting, you can achieve a seamless and leak-proof weld seam. As standard, 2 to 3 mm is to be selected.
Clamp Force		Clamp force used to press the wheels against each other in standby mode. The clamp force can only be adjusted if the "Clamp Force" slider is set to "Auto". The clamp force can be adapted to the material or the user requirements.
X-Axis Position		Fine adjustment of the X-axis. You can also set this value via the guided wedge adjustment wizard.

Pedal Sensitivity		This is where you can set the sensitivity of the foot pedal when it is used to change the speed. 0: linear behavior 1: polytropic behavior 2: parabolic behavior 3: cubic behavior
Units		Switching between metric and imperial display
Number Power Supplies		Number of power supplies mounted
Aham Right Enable		Activates the AHAM installed on the right-hand side: Can only be activated if the relevant mechanical components are installed.
Preheat Factor		The default value of the preheat factor should only be changed if the start of the weld is not satisfactory and if adjustments of the preheat in main screen do not help (chapter 9.2.2). If you change the preheat factor it will be saved automatically under the selected wedge (3D or HS) and size. To go back to the factory settings, please press "Reset".
Max speed limit for 3D wedge		Define the upper speed limit for using a 3D wedge. The default speed limit is set at 10 m/min. You can increase this up to 30 m/min.
Min Speed Limit		Define the lower speed limit. The default speed limit is set at 1 m/min. You can decrease this down to 0.5 m/min.  Warning: At a speed lower than 1 m/min the welding quality can no longer be guaranteed. Avoid changing the speed abruptly using the foot pedal.
Touch Calibration		Recalibrating the touch panel



### 9.5 Recipe Tab

In this view, you can save your welding parameters as recipes in order to use them again at a later date. You can also save your recipes on an external storage medium for data backup purposes or load the recipes onto other SEAMTEK W-AT welding machines. This way you can ensure that all your welding machines work with identical welding parameters. Up to 50 recipes can be saved.

The screenshot shows the 'Recipe' tab in the SEAMTEK control interface. On the left, several parameters are displayed with adjustable values:

- Min Speed: 1.0 m/min
- Max Speed: 5.0 m/min
- Top Diff: 0.0 %
- Energy: 110.0 E/A
- Preheat: 5.0 %
- Clamp Clearance: -0.3 mm
- Wedge Clearance: 0.3 mm

On the right, a list of saved recipes is shown, including '34532-PVC' and '79483-PE'. A 'Load' button is visible at the bottom right, with '3D, 25 mm' selected.

<b>Save recipe</b>	Once you have entered your welding parameters in the Home view, select an available recipe in order to save your parameters under this recipe number. Then select "Save" and enter a recipe name in the window. Press "OK" to confirm and save the recipe under the recipe number selected.
<b>Delete recipe</b>	Select the recipe to be deleted and then the button with the wastepaper basket symbol . The recipe is deleted irretrievably.
<b>Load recipe</b>	To load your saved recipes, select the respective recipe and then press "Load". You will then be prompted to confirm your selection with "OK". Once the selected recipe is loaded, the view switches to the Home view. Pay attention to the recipe label at the top right when entering the welding parameters. The label contains the recipe number selected and is visible until the welding parameters are changed.
<b>Relocate recipe</b>	Recipes can be relocated. To do this, select the recipe to be relocated and load the recipe. Now save the loaded parameters in a new recipe location.
<b>Change recipe</b>	Load the recipe to be changed and edit the recipe parameters in the Home view. Delete the previously loaded recipe and save your edited welding parameters under the desired recipe location.

## 9.6 Wedge Tab

This tab contains the "Wedge Change" and "Wedge Adjustment" menu options.

These menus guide you through the process of changing the wedge and/or adjusting its position.

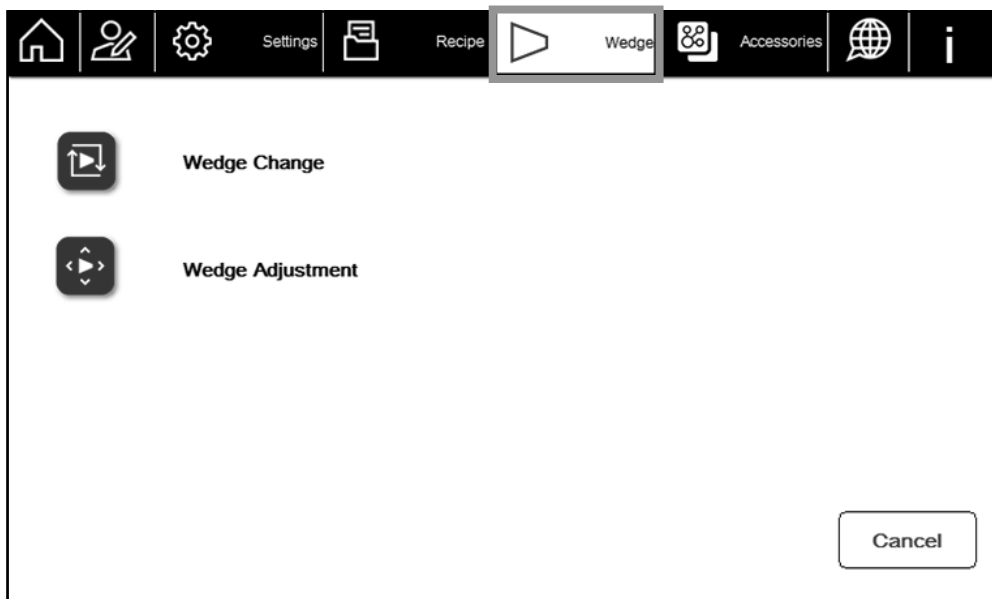
### 9.6.1 Safety Instructions



**Risk of crushing:** When the hot wedge is swiveled in, the movement of the parts presents a risk of crushing and burning.



### 9.6.2 Wedge Adjustment Wizard

Good contact must be ensured between the wedge and the wheels in order to achieve the best possible weld and to maximize the service life of the wedge. We strongly recommend that you use the adjustment wizard to ensure that the wedge is adjusted efficiently.

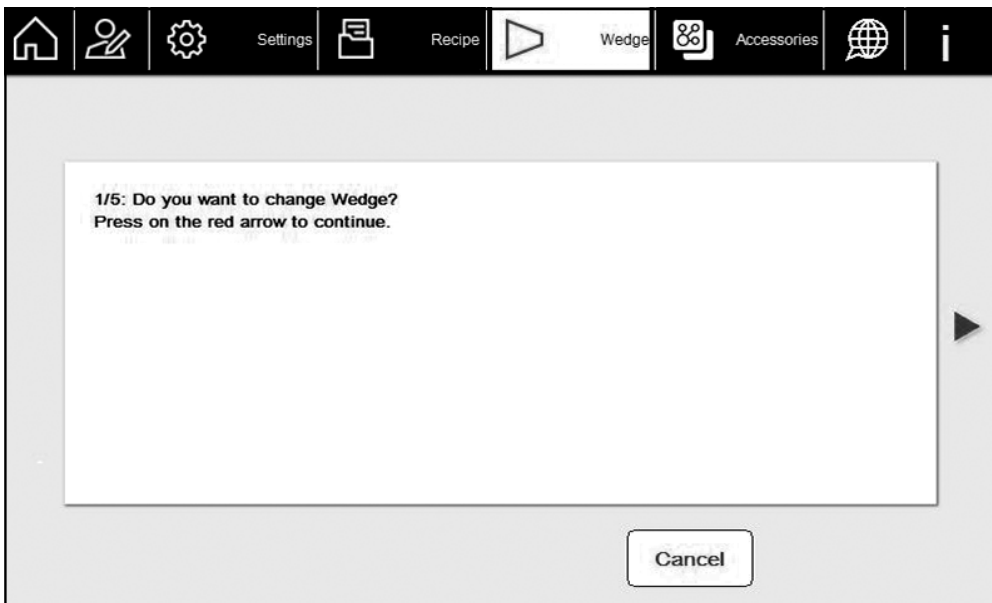


Select the **Wedge** tab. You can then perform either a wedge change or a wedge adjustment by following the instructions in the wizard.



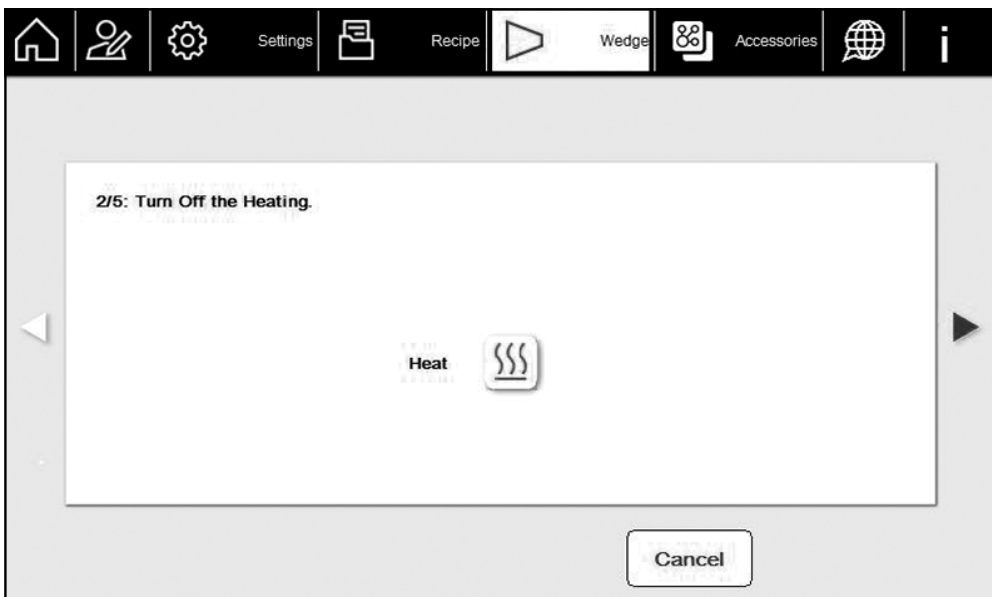
Symbol	Designation
	<p><b>Wedge Change</b> Click on this symbol to change the wedge by following the step-by-step instructions. You can then position the wedge in a subsequent step.</p>
	<p><b>Wedge Adjustment</b> This menu option provides step-by-step instructions for positioning the wedge.</p>

### 9.6.3 Changing the Welding Wedge



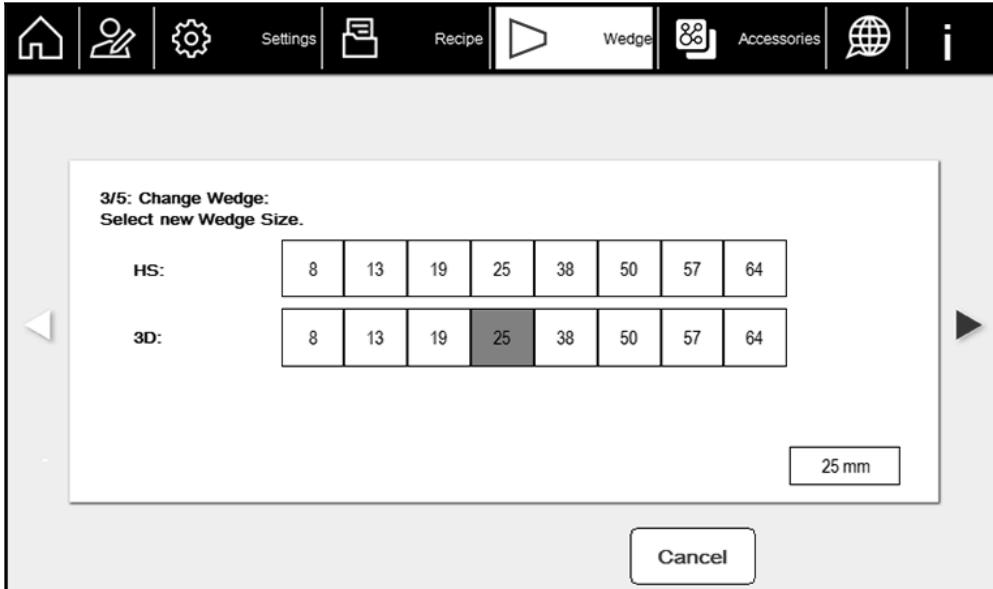
Work through the instructions by performing each step and clicking on the red arrow to continue.

### Switching off the Heating



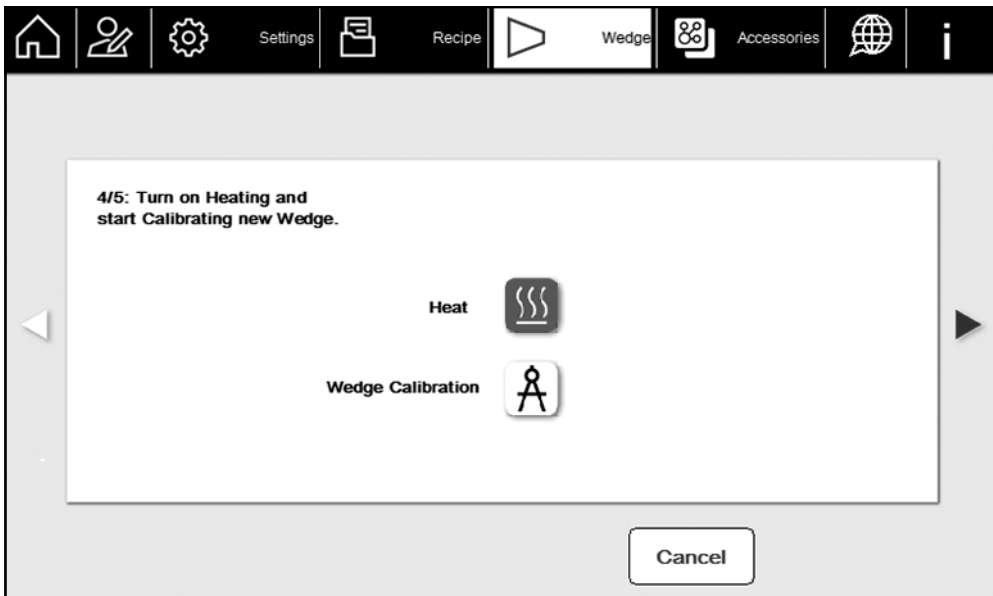
Switch off the heating (if it is switched on) in order to carry out the next step.

## Selecting the right welding holder and welding wedge width



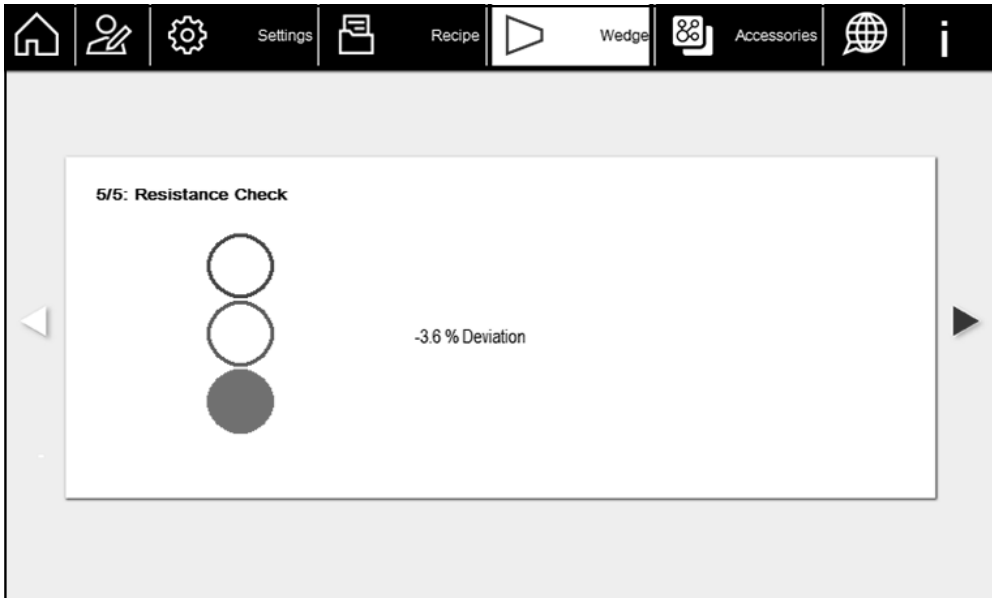
This step is where you change the wedge (Chapter 8.3 to 8.5). You then need to select the right holder and welding width. This step is very important as the software will use this information to calculate the required welding energy in relation to the speed.

## Calibrating the hot wedge



In this step, you need to switch the heating on again in order to calibrate the hot wedge. Then press "Calibrate". The hot wedge will be calibrated on the basis of the resistance value.

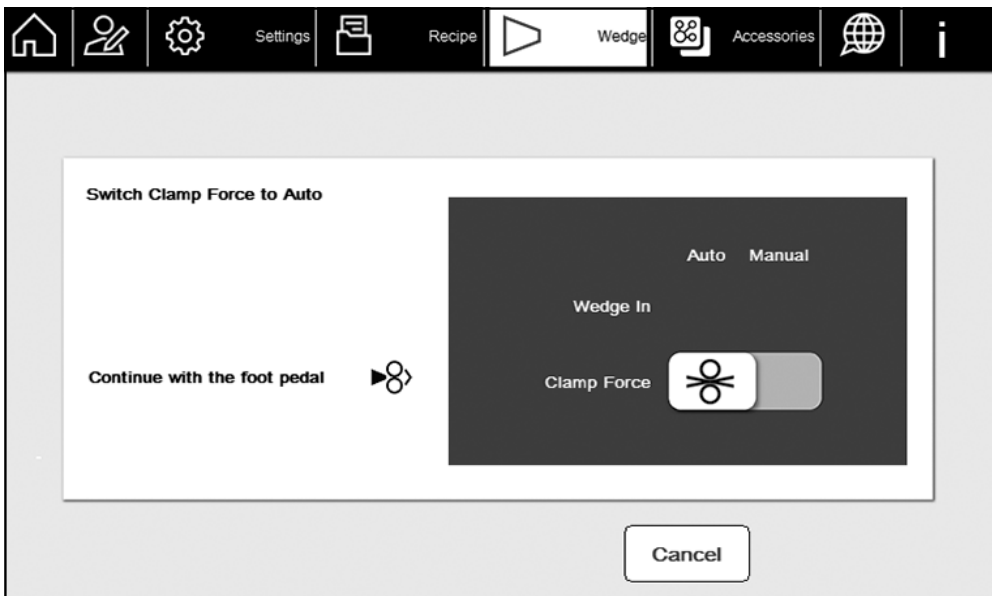
## Resistance check



In this step, the resistance of the hot wedge is checked and compared to the installed data. If the actual resistance deviates too much from the target resistance, the orange or red lamp will light up in the traffic light indicator. In this case, please check whether the hot wedge has been mounted correctly, whether the right welding holder/welding width has been selected, and whether the contact surfaces are free from contamination (see Chapter 8).

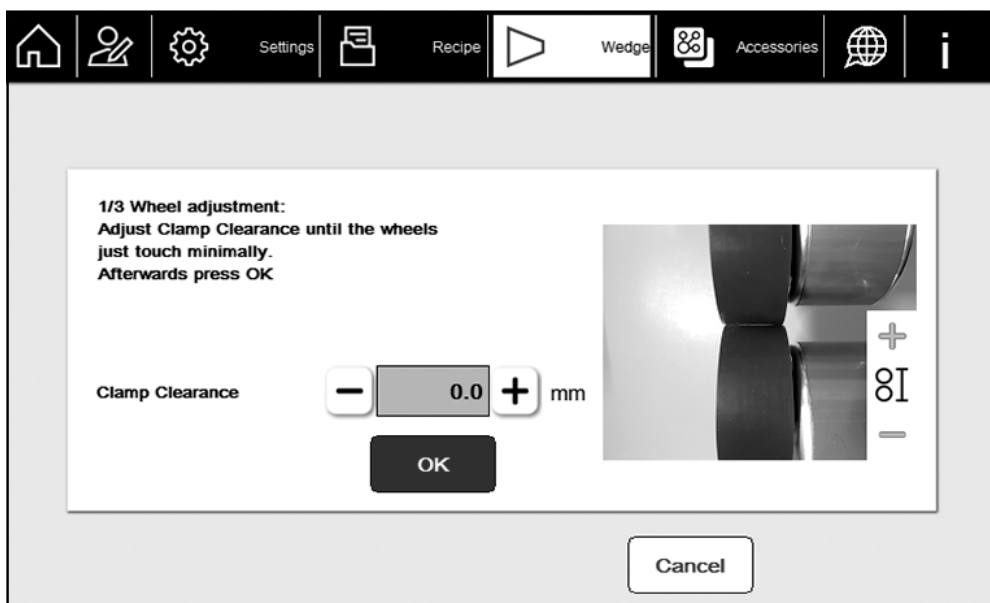
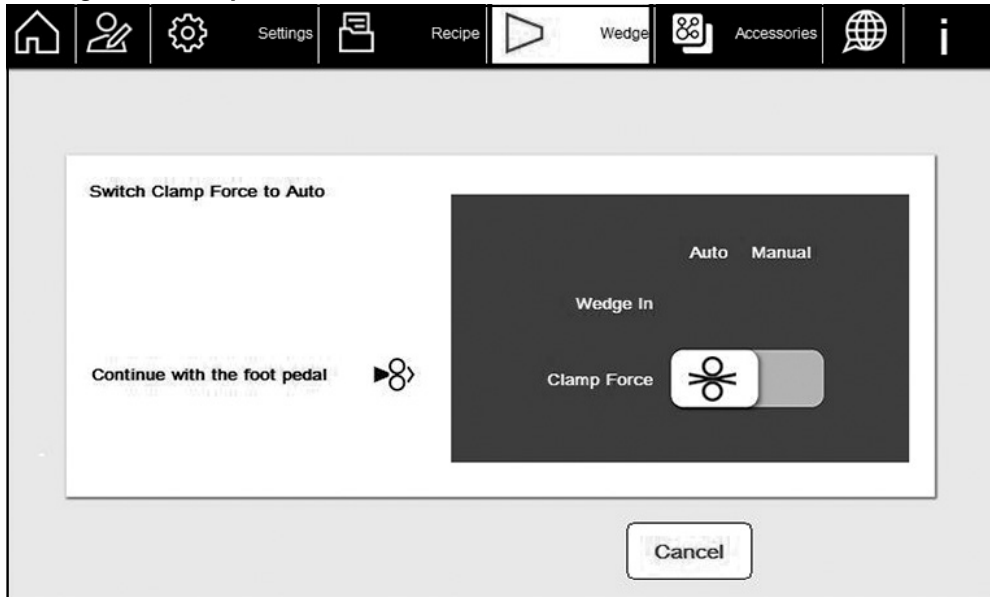
### 9.6.4 Positioning the Welding Wedge

#### Activating the clamp pressure



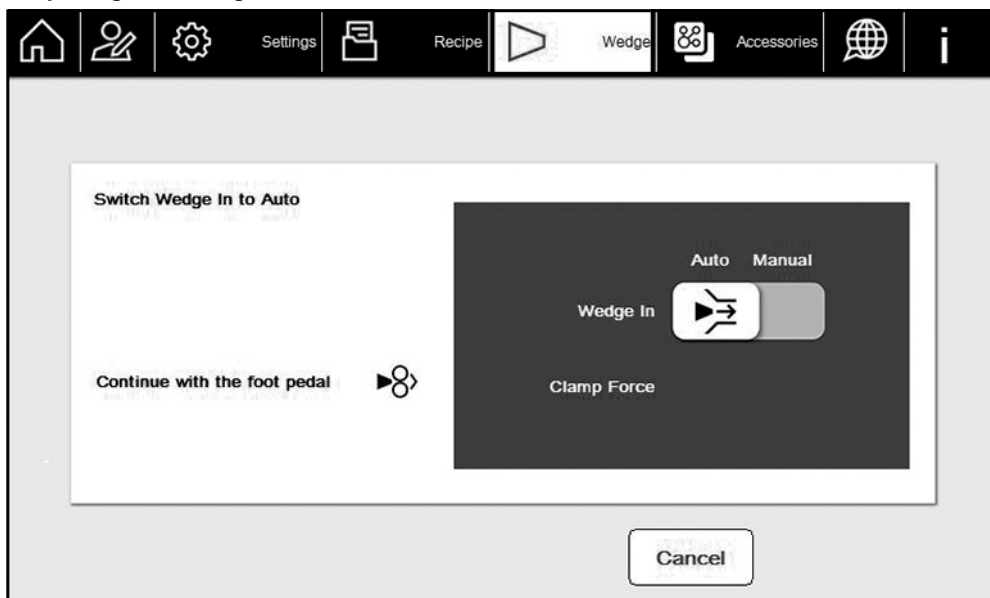
Before adjusting the position of the welding wedge, make sure there are no objects (e.g., mounted guides) within the movement radius of the wedge holder in order to prevent any collisions when the wedge is swiveled in. Switch the slider to "Auto" and carry out the next step by pressing the right-hand foot pedal.

## Setting the wheel pressure



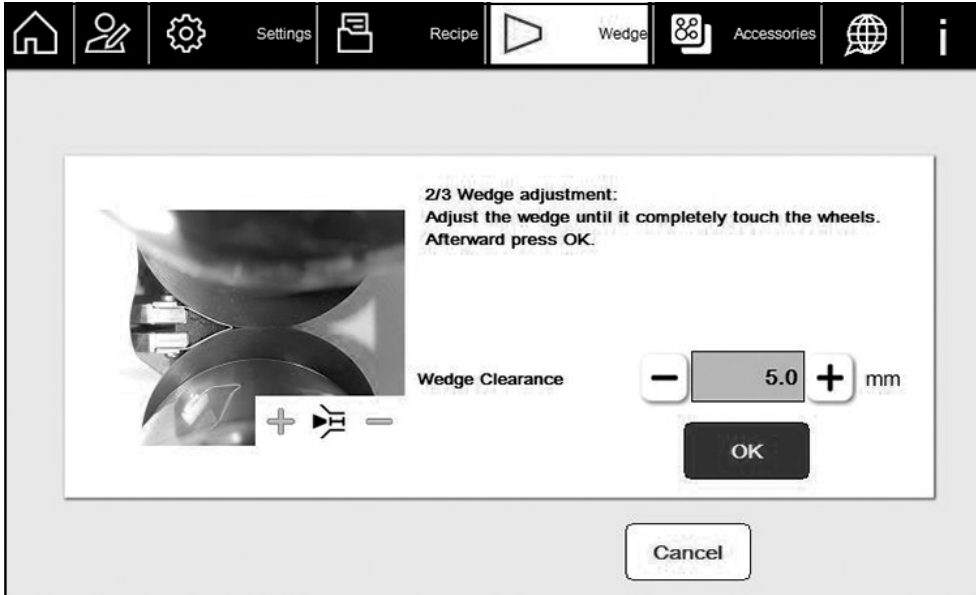
Use the – and + buttons to set the wheel pressure so that the wheels are just touching without exerting any pressure on each other. Then confirm with "OK". The wheels are then automatically pressed together by 1.5 mm.

## Preparing the wedge



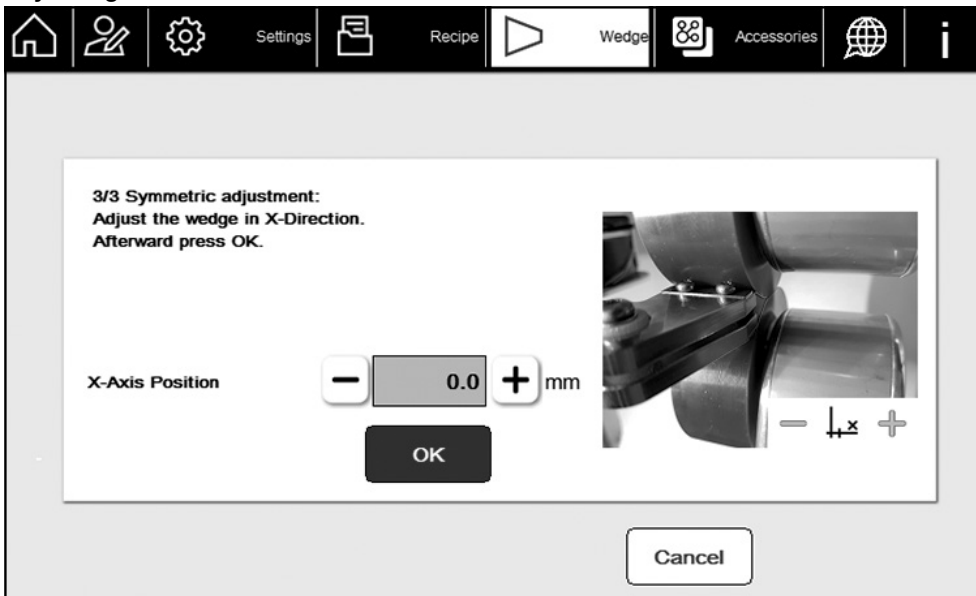
Switch the slider to "Auto" and activate the wedge movement. Press the pedal to move to the next step. **Caution:** When the pedal is activated, the wedge will swivel to the welding position.

## Setting the wedge clearance to the wheels



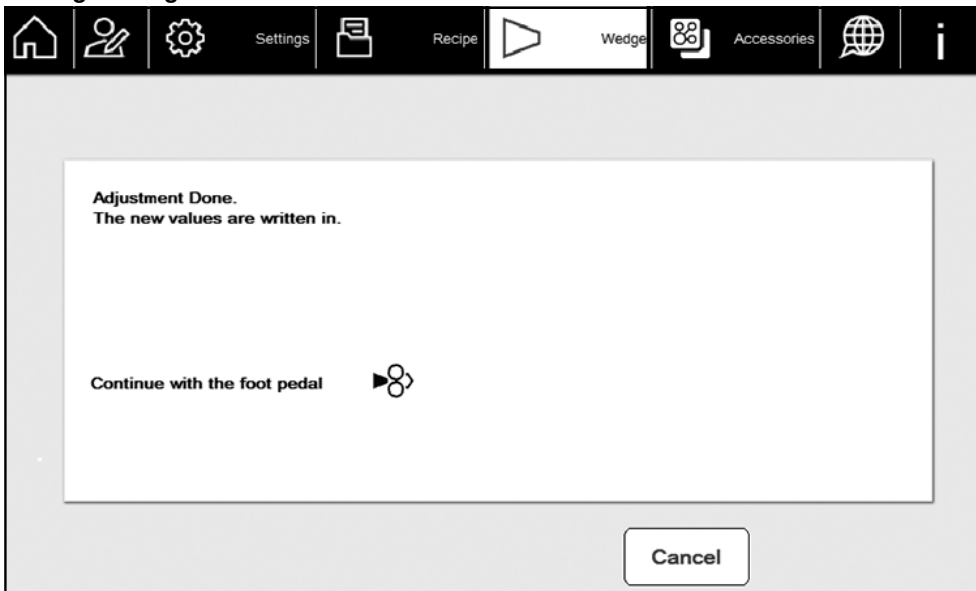
First check that the height of the welding wedge has been set correctly in accordance with Chapter 8.4. Move the wedge in the Y-direction using the – and + buttons. Position the wedge so that it is in line with the wheels along its entire length, as shown in the picture. (Please be aware that if you have thicker/heavier material the ideal position can vary. In case of an axis error, move the wedge out a little!) Select "OK" to confirm.

## Adjusting the X-axis



Then adjust the X-axis alignment of the wedge so that the entire wedge width is in contact with the wheels.

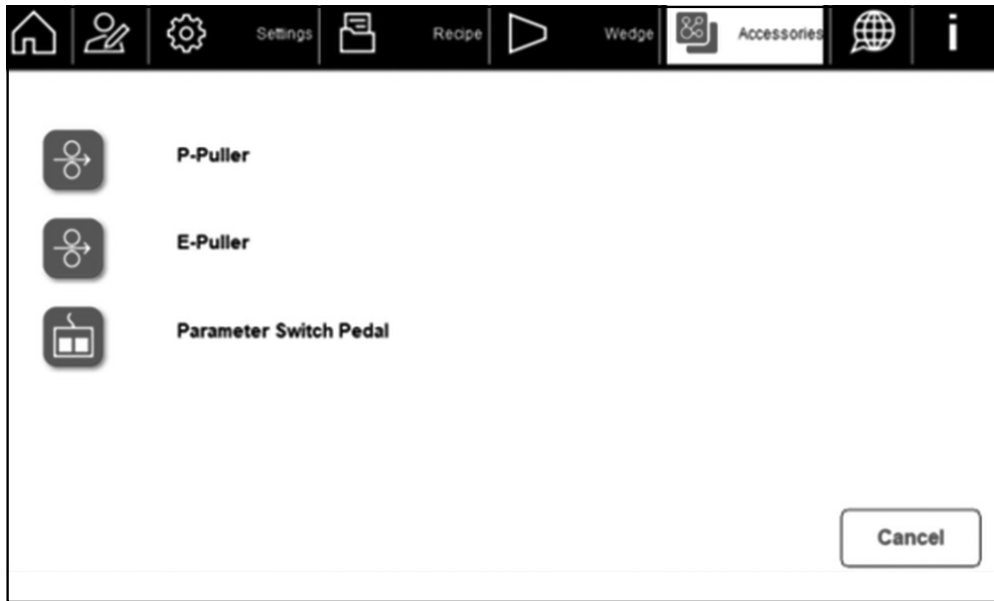
## Saving settings



Pressing the foot pedal saves the values and moves the hot wedge back to its initial position.

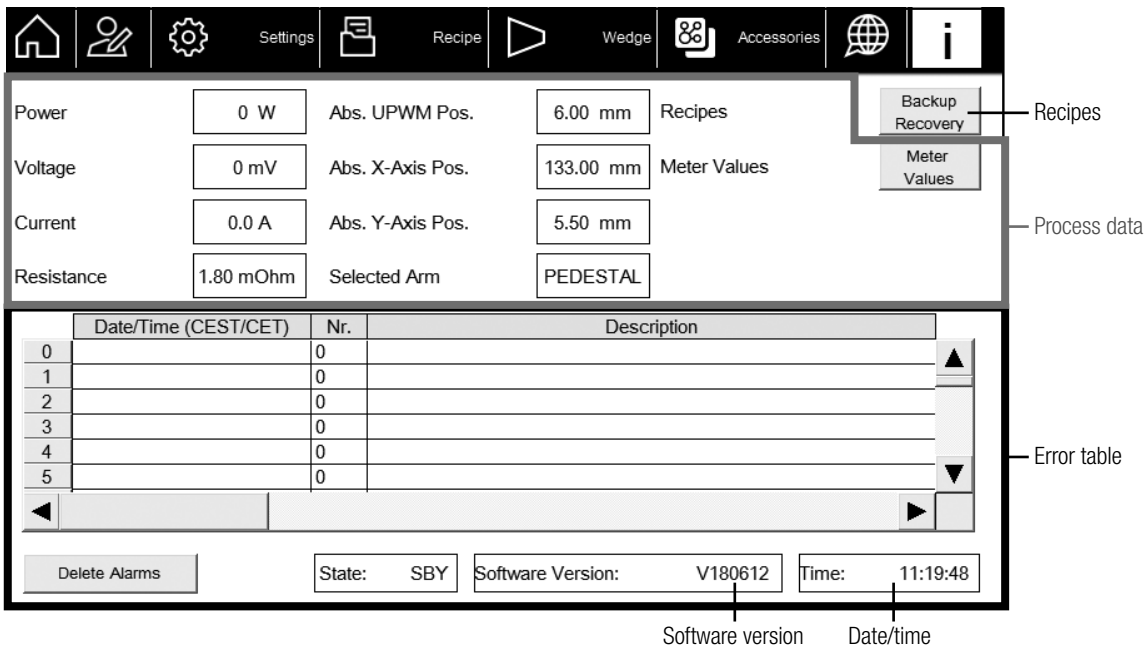
### 9.7 Accessories Tab

In the Accessories view, additional devices such as a P-Puller or Parameter Switch Pedal can be switched on or off and parameterized. To operate these devices, please observe the operating instructions separately enclosed with the product.



### 9.8 Information Tab

Various items of process data can be viewed on the information screen. In addition, in the event of an error, errors are displayed in the alarm list with the date/time of the first occurrence, error number, and a brief error description. If an error occurs, please refer to Chapter 12 Warning and Error Messages (Troubleshooting/Q&A). This tab also allows you to save recipes to an external USB stick.



#### Setting the date/time

To change the date and time, the user must be logged in as an administrator (chapter 9.3). Then click on the Time field and make your adjustments.

## 10. Welding Sequence and Tips

### 10.1 Welding Sequence



**Caution:** Never use machine with a heated wedge without weld material. The material is needed for cooling the wedge. Risk of overheating and destroying the wedge. Weld material prevents the wedge being drawn in.

#### Preparing a weld/test mode

To prepare a weld, the welding parameters must be defined. We recommend gradually adjusting the parameters while using small test strips and the same material pairing until a good weld seam can be achieved.

#### Performing a weld

Once the welding wedge has been adjusted, the weld can be controlled using the pedal. Press the left-hand pedal (7A) of the **pedal unit (7)** to raise the upper wheel. Now place the material as required and release the pedal. The material is now compressed with the defined clamping pressure. Start the welding process with the right-hand pedal (7B) of the **pedal unit**. The **welding wedge (22)** moves to the welding position and the wheels turn at the defined start speed. Depending on the pre-heating time set, the **transport rollers (4)** begin to turn after a delay and transport the material. Guide the material freely or using the optional guides. If necessary, you can increase the speed steplessly with the same pedal (7B) by pressing the pedal down. Continue the welding process until the end. As soon as the welding process has stopped, you can end the process using the left-hand pedal (7A) and remove the material.

#### Switching off the machine

Allow the machine to cool down completely in the swiveled-out position. You can then operate the **main switch (10)** and switch off the machine.

### 10.2 Tips for a Better Weld Result

Small changes in wedge position (wedge clearance), clamp clearance and energy level make a big difference in the weld quality and look. If you want to improve your weld quality do several test welds with slightly different adjustments.

#### Material tension

Try to feed the material into the welding zone with as little tension in the material as possible. In practice, tension is inevitable but can be significantly reduced by feeding in the material correctly.

Pay attention to how the material leaves the welding zone too. The still warm weld seam should not immediately fall downward upon leaving the welding zone. The cooling phase should also be as tension-free as possible. It is advisable to use a table or other similar object on which the material can rest after it leaves the welding zone.

#### Speed

Feeding in material requires experience. Personnel new to the process should start with a lower welding speed to get a feel for feeding in the material. The speed can then be increased in increments.

#### Cold run-through

To begin with, practice the welding sequence with a complex shape without swiveling in the **welding wedge (22)**. In the "Periphery" area, set the **wedge (22)** to "Manual". By doing this, you can get a feel for the weld shape without damaging the material to be processed.

#### Be ready to stop the welding process

Always be ready to interrupt the welding process with the left-hand pedal (7A) of the **pedal unit (7)**. In the event of a material feed error, this enables you to stop the welding process quickly and realign the material.

#### Saving recipes

Save recipes in a logical place for repeat orders. This makes it considerably easier to determine parameters when welding the same material again.

#### Guides

Use the guides that are available as accessories. Correctly adjusted guides guide the material and enable a consistent weld seam. Ask your distributor for information on the various guides available.

#### Regular breaks

Working on the SEAMTEK W-AT requires a high level of concentration. Take a break if you feel tired.

## 11. SEAMTEK W-AT Warning and Error Messages

### 11.1 Error Levels

Any errors that occur are separated into two levels by the machine control unit. The errors are differentiated on the basis of their impact on the process, machine, and persons.

**Table 1: error differentiation**

Error Level	Designation	Impact	Action
1 or 1xx	Technical warning	No or minor impact on the process	Note display in error list. Tab for the information screen is displayed in red.
2 or 2xx	Error: Process error	Significant impact on the ongoing process.	Display in error list and tab for the information screen is displayed in red. (E.g., axis error)
3 or 3xx	Error: Emergency	Immediate danger for persons or destruction of components	Emergency display on screen; safe shutdown of system if possible.

### 11.2 Error List

The error number is shown for the Leister Support team in the information text. Error numbers using a basis of 100 indicate the error level, e.g., 201 is a level 2 error. Error 301 is a level 3 error. All errors that are trapped and/or signaled by the control unit are then listed.

**Table 2: list of all errors**

Error No.	Level	Info Text	Description
110	1	Warning 110: UPWM-Axis: Total Axis Clearance > 10 mm	Clamp Clearance (UPWM-Axis) is more than 10 mm
111	1	Warning 111: Heat turned off due to low min speed	Heat turned off due to low min speed
112	1	Warning 112: E-Puller could not reach Clamp Clearance.	Clamp Clearance is over the actual E-Puller position. → increase clamp clearance
120	1	Warning 120: Touch Calibration failed, ADS Return Code	Trouble in calibration procedure of Touch Panel. Restart machine if warning is recurrent.
200	2	Error 200: P-Puller Motor Driver Error	Driver error (Puller). Check for Overload.
201	2	Error 201: Upper Motor Driver Error (Upper Wheel Module).	Driver error (Upper Wheel Module). Check for Overload.
202	2	Error 202: Lower Motor Driver Error (Pedestal or Quickarm)	Beckhoff Treiber Error (Pedestal or Quickarm) Check for Overload.
204	2	Error 204: Reading Machine Settings File. Check Machine Settings. Passwords set to standard	In StateMachine() Machine Settings File can not be read. Standard Values applied
205	2	Error 205: Error Setup X-Axis. g_eStateMachine = INIT	In StateMachine() X-Axis initial position can not be reached, check if X-Axis is mechanically blocked
206	2	Error 206: Error Setup Y-Axis. g_eStateMachine = INIT	In StateMachine() Y-Axis initial position can not be reached, check if Y-Axis is mechanically blocked



207	2	Error 207: Error Setup UPWM-Axis. g_eStateMachine = INIT	In StateMachine() UPWM-Axis initial position can not be reached, check if UPWM-Axis is mechanically blocked
208	2	Error 208: Cannot open Backup Source File.	Recipe File on PLC (SPS) corrupted. Do recover your Data from your Memory Stick.
209	2	Error 209: Can not open Backup Destination File.	Missing Memory Stick.
210	2	Error 210: Can not read Backup Source File.	Recipe File on PLC (SPS) corrupted. Do recover your Data from your Memory.
211	2	Error 211: Can not write Backup Destination File.	Missing Memory Stick.
212	2	Error 212: Can not close Backup Destination File.	Missing Memory Stick.
213	2	Error 213: Can not close Backup Source File.	Recipe File on PLC (SPS) corrupted. Do recover your Data from your Memory.
214	2	Error 214: Can not open Recovery Source File.	Recipe File on Memory Stick corrupted. Do backup your Data from PLC (SPS) to Memory Stick.
215	2	Error 215: Can not open Recovery Destination File.	Recipe File on PLC corrupted.
216	2	Error 216: Can not read Recovery Source File.	Recipe File on Memory Stick corrupted. Do backup your Data from PLC (SPS) to Memory Stick.
217	2	Error 217: Can not write Recovery Destination File.	Recipe File on PLC (SPS) corrupted.
218	2	Error 218: Can not close Recovery Destination File.	Recipe File on PLC (SPS) corrupted.
219	2	Error 219: Can not close Recovery Source File.	Recipe File on Memory Stick corrupted. Do backup your Data from PLC (SPS) to Memory Stick.
220	2	Error 220: Open File in Read Machine Settings	In SettingsRead() Error Machine Settings Open File. All Passwords set to Standard
221	2	Error 221: Read CSV Line in Read Machine Settings	InSettingsRead() Error Read CSV Line Machine Settings
222	2	Error 222: Close File in Read Machine Settings	In SettingsRead(), Error Closing File
223	2	Error 223: X-Axis Error from Controller	In ErrCheck() check if parameter settings are correct or X-Axis is mechanically blocked, check Aham right enable setting
224	2	Error 224: Y-Axis Error from Controller	In ErrCheck()
225	2	Error 225: UPWM-Axis Error from Controller.	check if parameter settings are correct or Y-Axis is mechanically blocked
226	2	Error 226: Error UPWM-Axis. Busy during WpAbs-State. INOUT_SMALLSTEP.	In ErrCheck()
227	2	Error 227: Error UPWM-Axis. Busy during WpAbs-State. IN_ABSOLUT	check if parameter settings are correct or UPWM-Axis is mechanically blocked

Error No.	Level	Info Text	Description
228	2	Error 228: Error UPWM-Axis. Busy during WpPush-State	In UPWM_AxisWPush() Movement not possible, UPWM-Axis is already operating
229	2	Error 229: Error UPWM-Axis. Busy during Cp-State	In UPWM_AxisCp() Movement not possible, UPWM-Axis is already operating
230	2	Error 230: Open File in Write Machine Settings	In SettingsWrite() Error Machine Settings Open File
231	2	Error 231: Write CSV Line in Write Machine Settings	In SettingsWrite() Error Write CSV Line Machine Settings
232	2	Error 232: Close File in Write Machine Settings	In SettingsWrite(), Error Closing File
233	2	Error 233: Error UPWM-Axis. Busy during RW State	In UPWM_AxisManRw() Movement not possible, UPWM-Axis is already operating
234	2	Error 234: Error UPWM-Axis. Busy during Cp-State	In UPWM_AxisManCp() Movement not possible, UPWM-Axis is already operating
235	2	Error 235: Error UPWM-Axis. Busy during RW State	In UPWM_AxisRw() Movement not possible, UPWM-Axis is already operating
236	2	Error 236: Error positioning UPWM-Axis. Position can not be reached	In UPWM_AxisMove() check if parameter settings are correct or UPWM-Axis is mechanically blocked
237	2	Error 237: Error UPWM-Axis. Busy during WpAbs-State. INOUT_SMALLSTEP.	In UPWM_AxisCpMinusPush() Movement not possible, UPWM-Axis is already operating
238	2	Error 238: Error UPWM-Axis. Busy during WpAbs-State. IN_ABSOLUT	In UPWM_AxisCpMinusPush() Movement not possible, UPWM-Axis is already operating
239	2	Error 239: LV-Wedge Resistance / Temperature too high	In LvWedge() Wedge requires recalibration, change wedge
240	2	Error 240: Open File in Read Recipes	In RecipesRead(), Error Recipes Open File
241	2	Error 241: Read CSV Line in Read Recipes	In RecipesRead (), Error Read CSV Line Recipes
242	2	Error 242: Close File in Read Recipes	In RecipesRead (), Error Closing File
243	2	Error 243: Error positioning X-Axis. Position can not be reached	In X_AxisMove() check if parameter settings are correct or X-Axis is mechanically blocked
244	2	Error 244: Error positioning Y-Axis. Position can not be reached	In Y_AxisMove() check if parameter settings are correct or Y-Axis is mechanically blocked
245	2	Error 245: Error X-Axis. Busy during OUT-State	In X_AxisOut() Movement not possible, X-Axis is already operating
246	2	Error 246: Error X-Axis. Busy during IN-State	In X_AxisIn() Movement not possible, X-Axis is already operating
247	2	Error 247: Error Y-Axis. Busy during IN-State	In Y_AxisIn() Movement not possible, Y-Axis is already operating

<b>Error No.</b>	<b>Level</b>	<b>Info Text</b>	<b>Description</b>
248	2	Error 248: Error Y-Axis. Busy during OUT-State	In Y_AxisOut() Movement not possible, Y-Axis is already operating
250	2	Error 250: Open File in Write Recipes	In RecipesWrite() Error Machine Settings Open File
251	2	Error 251: Write CSV Line in Write Recipes	In RecipesWrite (), Error Write CSV Line Machine Settings
252	2	Error 252: Close File in Write Recipes	In RecipesWrite (), Error Closing File
253	2	Error 253: Can not finish X-/Y-Axis IN-Movement Backup Source File.	In InManState() Check if parameter settings are correct or X-Y-Axis is mechanically blocked
254	2	Error 254: Can not finish X-/Y-Axis IN-Movement	In InState() Check if parameter settings are correct or X-Y-Axis is mechanically blocked, check Aham right enable setting
255	2	Error 255: Can not get System Time	In PlcTime() Can not get System Time
256	2	Error 256: Can not get System Time	In PlcTime() Can not set System Time
257	2	Error 257: LvWedge Current / Current too low	In LvWedge () Error occured in Current Measurement. Check connection between Shunt and PLC
258	2	Error 258: Can not open Backup Source File.	Machine Settings File on PLC (SPS) corrupted. Do recover your Data from your Memory Stick.
259	2	Error 259: Can not open Backup Destination File.	Missing Memory Stick.
260	2	Error 260: Can not read Backup Source File.	Machine Settings File on PLC (SPS) corrupted. Do recover your Data from your Memory.
261	2	Error 261: Can not write Backup Destination File.	Missing Memory Stick.
262	2	Error 262: Can not close Backup Destination File.	Missing Memory Stick.
263	2	Error 263: Can not close Backup Source File.	Machine Settings File on PLC (SPS) corrupted. Do recover your Data from your Memory.
264	2	Error 264: Can not open Recovery Source File.	Machine Settings File on Memory Stick corrupted. Do backup your Data from PLC (SPS) to Memory Stick.
265	2	Error 265: Can not open Recovery Destination File.	Machine Settings File on PLC (SPS) corrupted.
266	2	Error 266: Can not read Recovery Source File.	Machine Settings File on Memory Stick corrupted. Do backup your Data from PLC (SPS) to Memory Stick.
267	2	Error 267: Can not write Recovery Destination File.	Machine Settings File on PLC (SPS) corrupted.
268	2	Error 268: Can not close Recovery Destination File.	Machine Settings File on PLC (SPS) corrupted.
269	2	Error 269: Can not close Recovery Source File.	Machine Settings File on Memory Stick corrupted. Do backup your Data from PLC (SPS) to Memory Stick.

Error No.	Level	Info Text	Description
278	2	Error 278: PWR_SUP_LVW / current too low	In LvWedge() Power Supply lacks in weld current. Power Supply needs maintenance or low setting in Energy parameter
279	2	Error 279: LvWedge Voltage / Voltage too low	In LvWedge() Error occurred in Voltage Measurement. Check connection between Wedge and Wedge holder. Wedge is broken or damaged.
290	2	Error 290: Supervision, EL6080 NOVRAM, Load: FB Read/Write busy for t>200ms	Can not read Meter Hours during Startup of Supervision Extension. Shutdown SEAMTEK W-AT Machine and restart.
291	2	Error 291: Supervision, EL6080 NOVRAM, fbWrite.bError	fbWrite Error in INIT State of EL6080. Shutdown SEAMTEK W-AT Machine and restart.
292	2	Error 292: Supervision, EL6080 NOVRAM, fbWrite.bWcState	Invalid Working Counter of EL6080. Shutdown SEAMTEK W-AT Machine and restart.
293	2	Error 293: Supervision, EL6080 NOVRAM, Write: FB busy for t>200ms	Can not write Meter Hours during Startup of Supervision Extension. Delete Error Message in i-Tab. If Error reappears shutdown SEAMTEK W-AT Machine and restart.
294	2	Error 294: Supervision, EL6080 NOVRAM, Load: FB Read/Write busy for t>200ms	Can not read Meter Hours during Startup of Supervision Extension. Shutdown SEAMTEK W-AT Machine and restart.
295	2	Error 295: EL6080 NOVRAM, Cyclic Access not possible	Can not store and load data. Restart machine if Error is recurrent.
296	2	Error 296: E-Puller Motor Driver Error.	Driver error (E-Puller). Check for Overload. → material jammed, increase clamp clearance
297	2	Error 297: E-Puller Calibration Error.	Check E-Puller machine setup.
310	3	Error 310: LV-Wedge Controller Error. Restart Machine	LV-Wedge PID Controller has Error. Restart Machine.

## 12. Maintenance



### Danger to life due to high voltage

Before opening the switch cabinet, the device must be disconnected from the power supply at all poles. (Disconnect the power plug.)

Live components and connections may be exposed in the process.



Maintenance work may only be performed by **trained specialists**.

### 12.1 Maintenance Intervals

Time period	Monitoring and maintenance work	Replacement parts	Tools
As necessary	<ul style="list-style-type: none"> <li>• <b>Clean hot wedge and replace if necessary</b></li> <li>• Clean or replace the air filter</li> <li>• Adjustment of pedestal, quickarm, and UWM</li> </ul>	Air filter	Plastic scraper, brass brush
Daily/ prior to commissioning	<ul style="list-style-type: none"> <li>• Check the stability of the machine</li> <li>• Check the machine and power cable for damage</li> </ul>	–	–
Weekly	Clean the entire machine with a damp cloth	–	Damp cloth
6 months	Clean or replace the filter for the switch cabinet. Depending on the ambient conditions.	Filter Art. 156.762	Isopropyl alcohol, compressed air

### 12.2 Replacing the Suction Filter

No.	Designation	Text	Figure
1	Filter in switch cabinet	<p>The air filter is to be cleaned as necessary.</p> <ul style="list-style-type: none"> <li>• Detach the countersunk screw (26, A).</li> <li>• Remove the chromium steel cover (26, B).</li> <li>• Remove the filter mat (26, C) and rinse the mat under cold water.</li> <li>• Blow down and dry the filter mat with compressed air.</li> <li>• Re-fit the filter (70), cover (60), and screws (100).</li> </ul> <p>The filter must be replaced every two years.</p>	

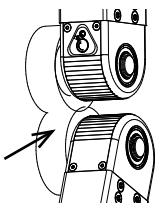
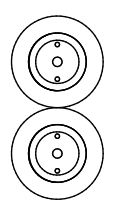
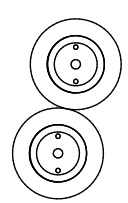
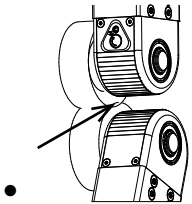
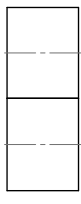
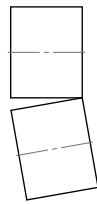
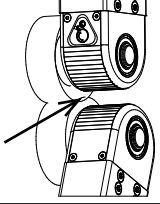
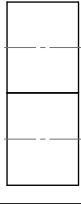
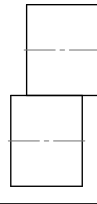
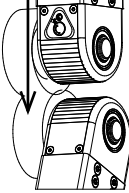
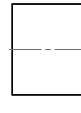
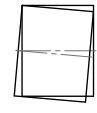
### 12.3 Machine Fault

Machine blockages can occur if the weld material is not lead downstream of the welding zone unimpeded. If a machine fault/blockage occurs during the welding process, end the weld immediately with the left-hand pedal (7A) of the **pedal unit (7)**. **If a hazardous situation arises, switch off the machine immediately with the emergency stop button (12).**

Set the sliders in the "Periphery" area to "Manual" so the wheels are opened. Carefully remove the material causing the blockage.

### 12.4 Adjusting the Welding Arms

Good wheel positioning is very important to ensure good contact between the wedge, weld material, and wheels. If you are getting poor welding results even though the wedge is positioned correctly, check the running of the wheels. Contact your Leister sales partner for more information about the arm settings.

Alignment	Illustration of viewing direction	Well-positioned wheels	Poorly positioned wheels
Vertical axis			
Horizontal parallelism			
Vertical axis			
Straight running			

## 13. Accessories

Find out about the extensive range of accessories available at [www.leister.com](http://www.leister.com).

Use only original Leister spare parts and accessories; otherwise, any warranty or guarantee claims will be invalidated. You can find more information at [www.leister.com](http://www.leister.com).

## 14. Add-ons

There is a wide range of accessories and add-ons available. Contact your Leister sales partner or take a look at [www.leister.com](http://www.leister.com).

## 15. Service and Repair

Repairs must only be carried out by authorized Leister service centers.

Leister service centers guarantee a professional and reliable repair service with original spare parts in accordance with circuit diagrams and spare parts lists. You will find the address of your authorized service center on the last page of these operating instructions. You can find more information at [www.leister.com](http://www.leister.com).

## 16. Training

Leister Technologies AG and its authorized service centers offer welding courses and training sessions. You can find more information at [www.leister.com](http://www.leister.com).

## 17. Warranty

- The guarantee or warranty rights granted for this device by the direct distribution partner/salesperson apply from the date of purchase.
- In the event of a guarantee or warranty claim (verification by invoice or delivery note), manufacturing or processing errors will be rectified by the sales partner through replacement delivery or repair.
- Other guarantee or warranty claims are excluded within the framework of mandatory law.
- Damage resulting from natural wear, overload, or improper handling is excluded from the warranty.
- Wearing parts and wedges are excluded from warranty obligations or guarantees.
- Guarantee or warranty claims cannot be asserted for devices that have been converted or changed by the purchaser or for which non-original Leister spare parts have been used.

## 18. Disposal



Electrical equipment, accessories, and packaging should be recycled in an environmentally friendly way. When you are disposing of our products, please observe the national and local regulations. **For EU countries:** Do not dispose of electrical equipment with household refuse.

## 19. Quick Reference Guide

### 19.1 Switching on/Starting

1. Switch the machine on via the main switch (10).
2. Select the language and press **Start**.
3. Select the "Wedge" tab to adjust the wedge.
4. Set the minimum speed, maximum speed, and energy value.
5. In the "Periphery" area, set the wedge and the clamp force to "Auto".
6. Use the left-hand pedal (7A) of the pedal unit (7) to position the material.
7. Start the welding process by pressing the right-hand pedal (7B) of the pedal unit (7) once.
8. Use the right-hand pedal to adjust the speed based on the speed values you have selected.
9. Press the left-hand pedal (7A) once to stop the welding process. Press the pedal (7A) again to lift the wheels.

### 19.2 Switching off

1. Switch off the heating with the **Heating On/Off button**.
2. Switch off the **main switch (10)**.
3. Pull out mains voltage plug

## 20. Declaration of conformity

### EU Declaration of Conformity

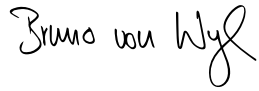
**Leister Technologies AG, Galileo-Strasse 10, 6056 Kaegiswil, Switzerland** confirms that this product in the version put into circulation by us, fulfils the requirements of the following EU directives.

Directives: 2006/42/EC, 2014/30/EU, 2011/65/EU

Harmonized EN ISO 12100, EN 60204-1, EN 61000-6-2, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12,

Standards: EN 62311, EN 60204-1, EN IEC 63000

Kaegiswil, 04/15/2021



Bruno von Wyl, CTO



Christoph Baumgartner, GM

### UK Declaration of Conformity

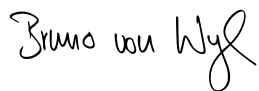
**Leister Technologies AG, Galileo-Strasse 10, 6056 Kaegiswil, Switzerland** confirms that this product in the version put into circulation by us, fulfils the requirements of the following UK Statutory Instruments.

Directives: 2008 No. 1597, 2016 No. 1091, 2012 No. 3032

Harmonized BS EN ISO 12100, BS EN 61000-6-2, BS EN 61000-6-4, BS EN 61000-3-11, BS EN 61000-3-12,

Standards: BS EN 62311, BS EN 60204-1, BS EN IEC 63000

Kaegiswil, 04/01/2021



Bruno von Wyl, CTO

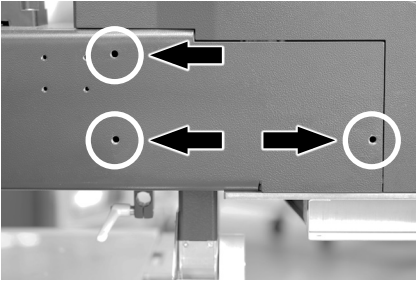


Christoph Baumgartner, GM

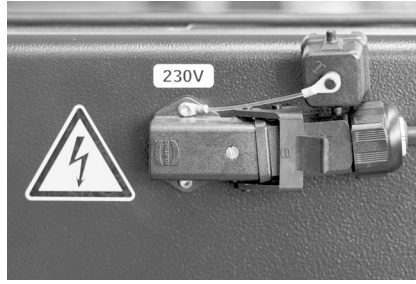


## 21. Appendix

### E-Puller Set Up



1. Mount the puller with the three M8 screws (included) on the frame.



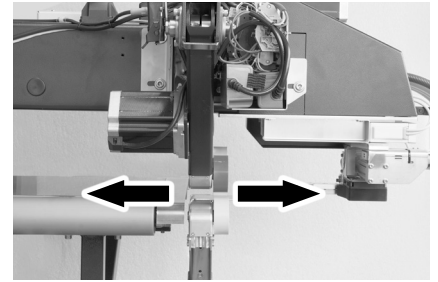
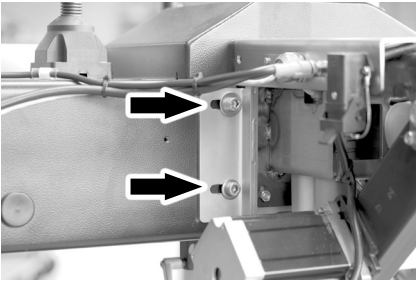
2. Connect power cable.



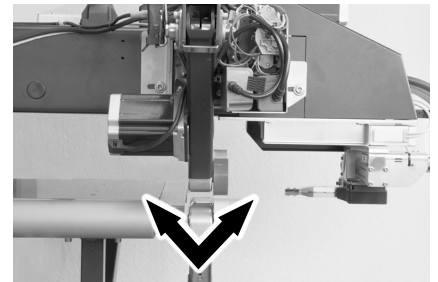
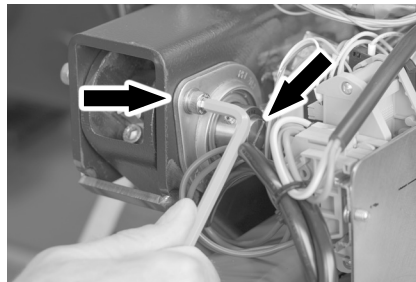
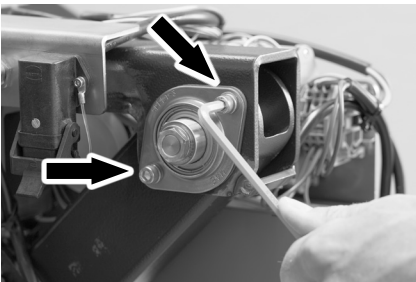
3. Connect network cable.

Once mounted, proceed with the alignment.

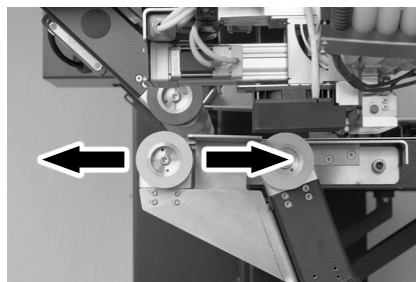
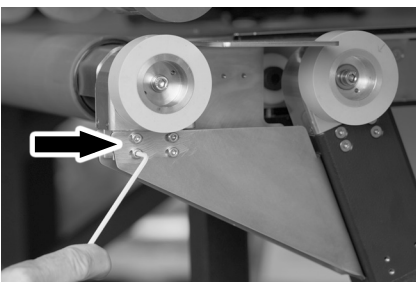
4. Loosen the three, M8 screws for lateral alignment. Make sure to align exactly with the main rollers.



5. Loosen the four, M6 screws to adjust the angle of the upper roller. Make sure to have it flat on the lower roller.

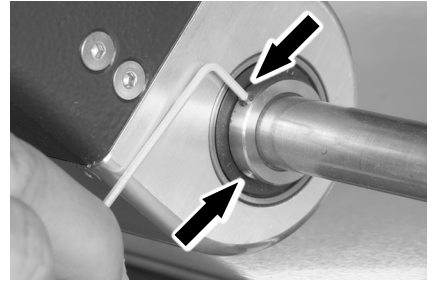
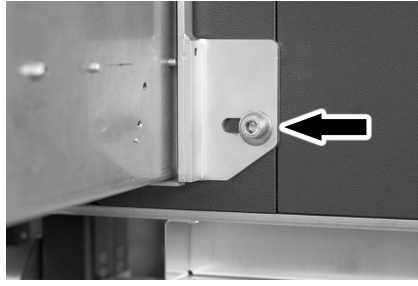
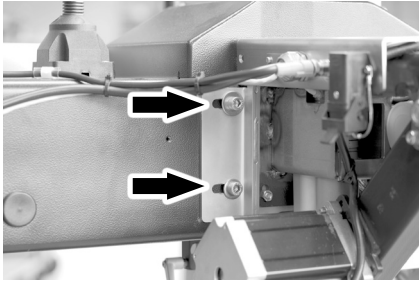


6. Loosen the eight, M4 screws to adjust the alignment of the lower roller.

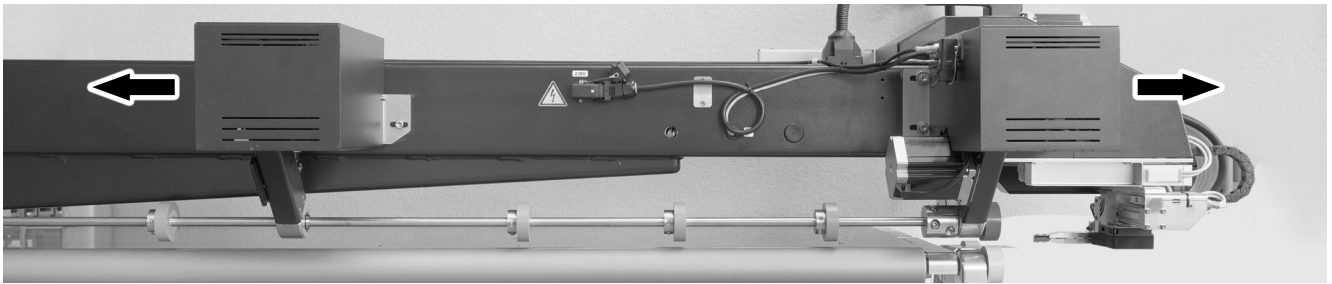


## Puller and Table 2000 E set up

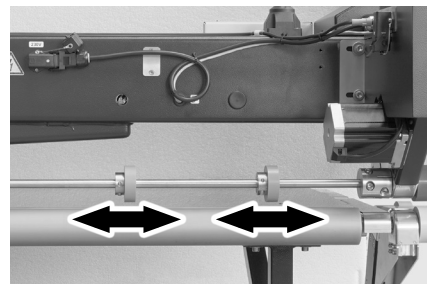
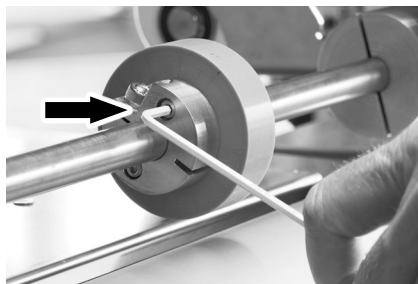
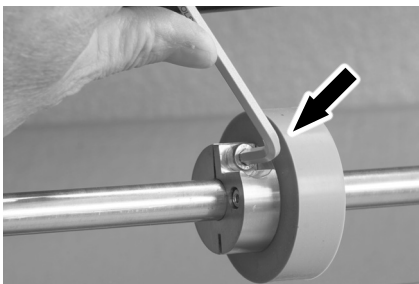
1. Loosen the six, M8 screws on the left and right puller unit and the four, M3 screws from the puller axle adjustment ring.



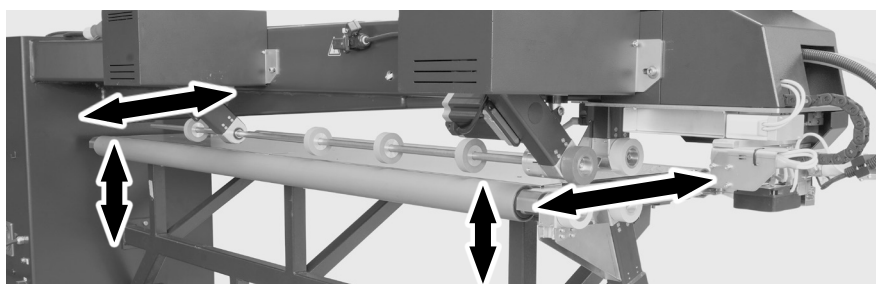
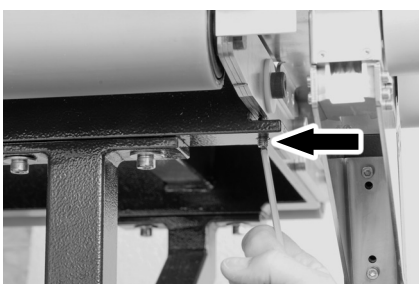
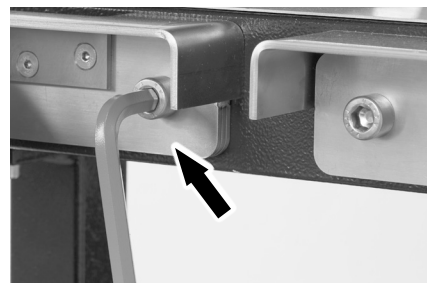
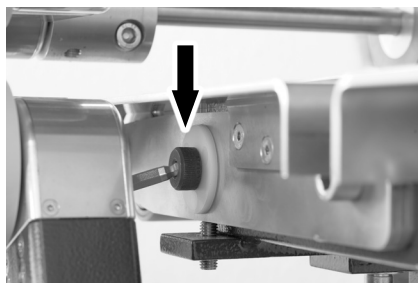
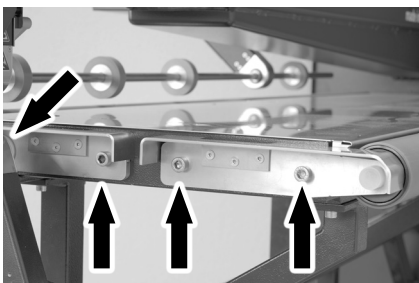
2. Insert the whole puller unit until it's linear to the front roller.



3. Adjusting the puller wheels to your needs.



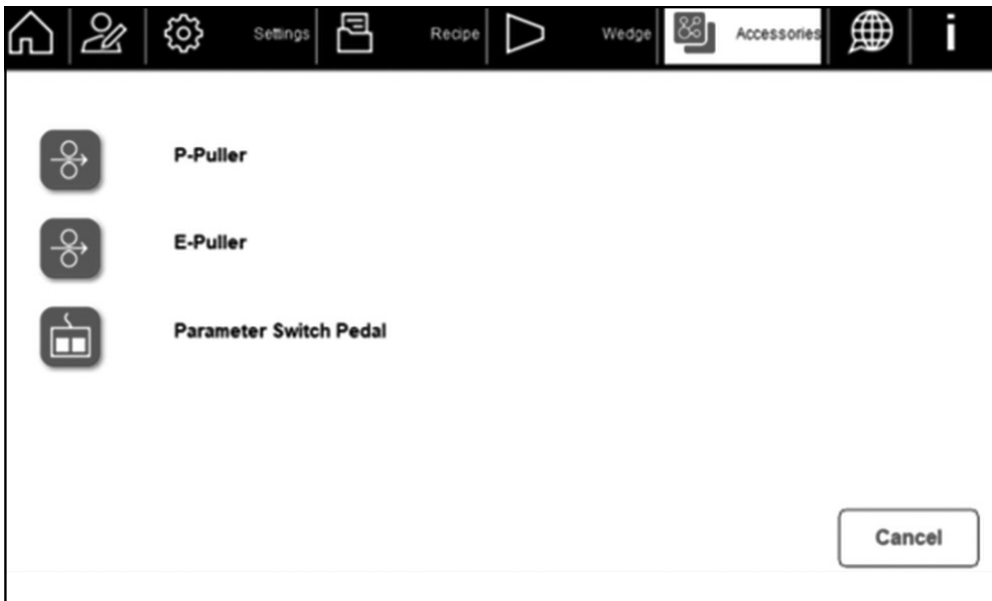
4. To adjust the table rollers, loosen the four, M10 screws. Now you can adjust the roller distance to the table (parallel) and the horizontal alignment with the two, M10 set screws.



Please select your type of puller:

P-Puller = Pneumatic Puller (you have a pneumatic connection)

E-Puller = Electronic Puller (you don't have a pneumatic connection)



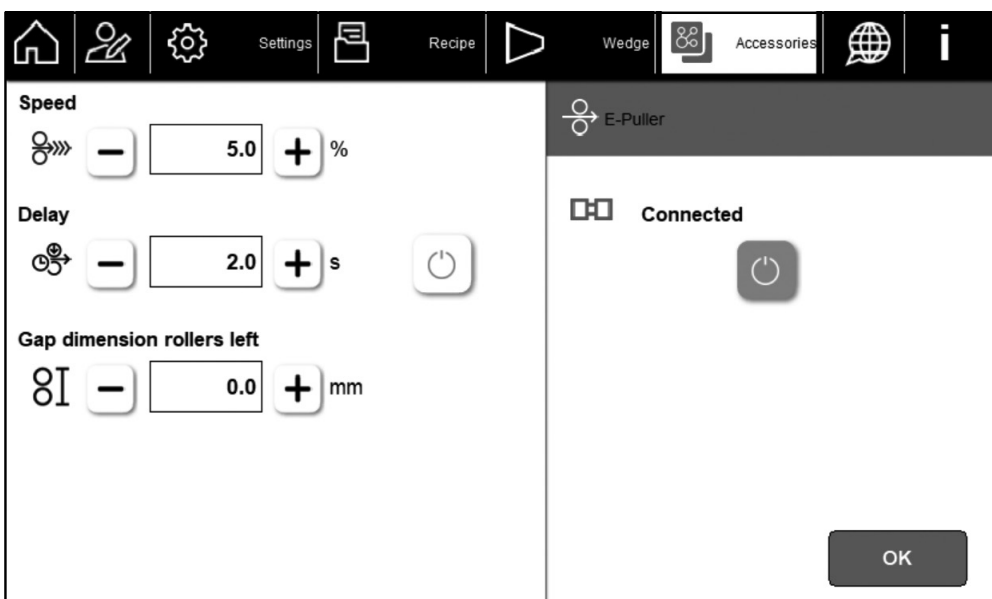
Activate the Puller on the HMI:

1. Go to the "Accessories" tab
2. Activate the Puller by pressing the "ON-OFF" Icon (green on, white off)

Adjust the Puller speed on the left side of the screen (speeds are adjusted in percentages). If the speed is set to 5%, the puller wheel will rotate 5% faster than the wheel of the base machine. This value is usually selected at 2-5%.

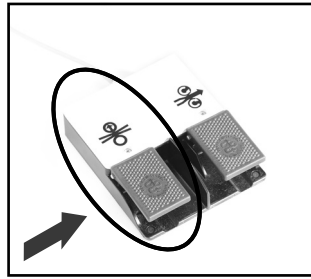
**Note:**

The Puller has to be connected. If it isn't, check the electrical connections



### Raising the wheel

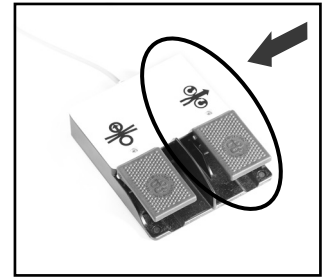
The Puller is operated with the base pedal. Push the "raise wheel" pedal and the top puller wheel will lift up. The top puller wheel follows the actions of the top pedestal wheel.



### Starting

Press "start welding" pedal and the Puller will start running.

Go back to "Raise wheel" to stop.



### Delay

Activate and define puller delay

→ Activate the "Delay" by pressing the "ON-OFF" Icon (green on, white off)

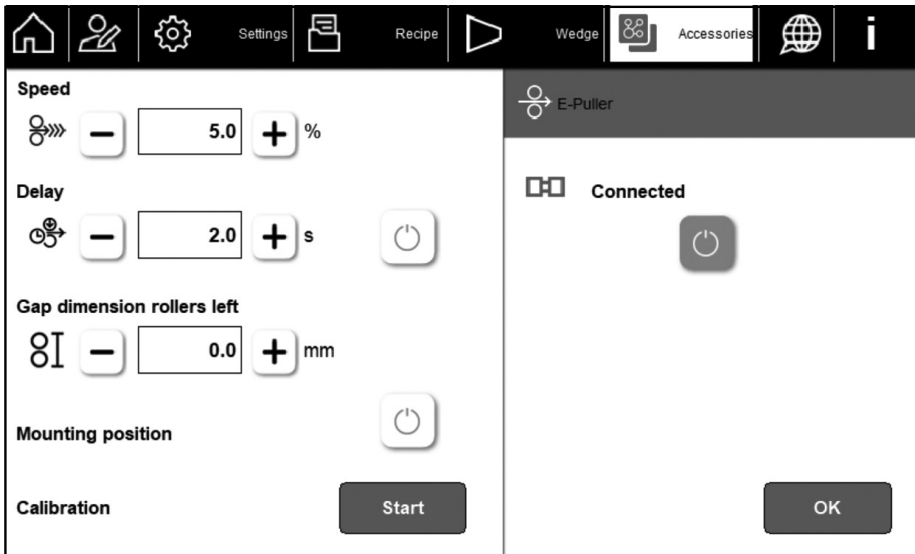
The puller will clamp with the specified delayed value entered.



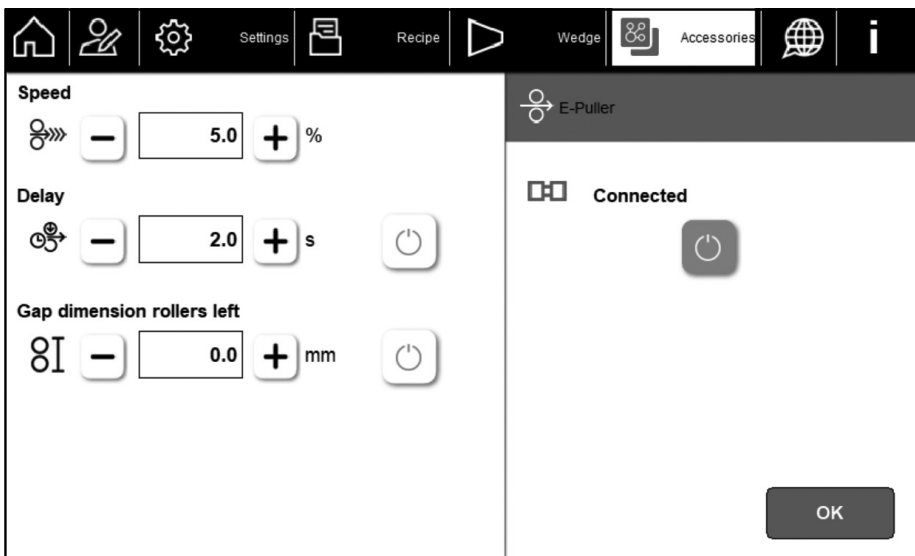
## Clamp Clearance

Adjust clamp clearance to your desired value. If you decrease the clamp clearance, the pressure of the rollers on the material will increase.

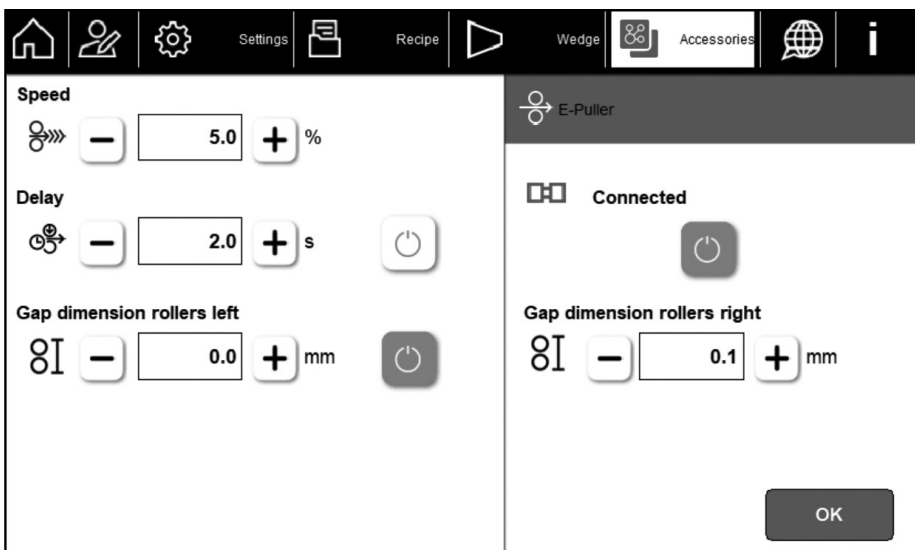
On the 2000 version you have the option to adjust (define) the clamp clearance on the left and the right side independently. As soon as you activate the on/off button next to the gap dimension, the right selection will pop up.



900 Version



2000 Version  
Same gap dimensions



2000 Version  
Different gap dimensions

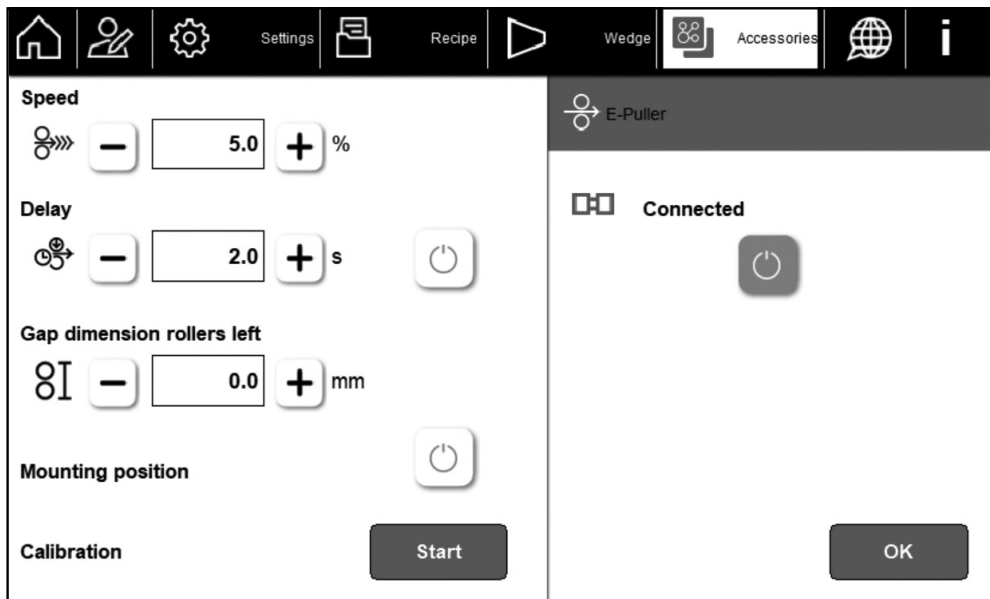
## Admin Login

If you activate the mounting position, the Puller moves into the factory mounting position. Afterwards, loosen the four screws holding the puller to the frame. Adjust the puller by moving it up or down until the wheels touch a little bit.

Caution: Electrical hazard, if housing is open.

## E-Puller Calibration

Start E Calibration to adjust to standard clamp clearance (pressure)



## Error Codes E-Puller

Error No.	Level	Info Text	Description
112	1	Warning 112: E-Puller could not reach Clamp Clearance.	Clamp Clearance is over the actual E-Puller position. → increase clamp clearance
296	2	Error 296: E-Puller Motor Driver Error.	Driver error (E-Puller). Check for Overload. → material jammed, increase clamp clearance
297	2	Error 297: E-Puller Calibration Error.	Check E-Puller machine setup.





Your authorized service center is:

Leister Technologies AG  
Galileo-Strasse 10  
CH-6056 Kaegiswil, Switzerland  
Tel. +41 41 662 74 74  
Fax +41 41 662 74 16  
[www.leister.com](http://www.leister.com)  
[sales@leister.com](mailto:sales@leister.com)