

# User's Manual

## SP 63-S Mobile V3 High Purity IR Welding Tool



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**The machine has to be operated exclusively with a power supply line equipped with a protective grounding conductor, as a power supply without this safety element may cause severe machine damage. If the machine is operated through a power supply without a grounding conductor, this will void any and all warranty under which the product may be.**

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## 1 Introduction

Dear Customer:

Thank you very much for purchasing our product. We are confident that it will meet your expectations.

The development, manufacture, and check of the mobile, i. e., overhead-welding-enabled, infrared butt-welding machine for thermoplastics has been guided by our concern to offer a unit characterized by superior operation safety and user-friendliness. The unit was manufactured and checked according to the most recent standards as they are applied, and bearing ergonomic aspects in mind.

To ensure maximum operation safety, please conform to the appropriate messages in this booklet and the regulations for the prevention of accidents. Carefully read the User's Manual to avoid damage to the machine or hardware in its environment as well as injury.

This manual is applicable to the following machines:  
**agru SP 63 mobile V 3**

Thank you.

## 2 Safety Messages

This User's Manual contains important instructions for operating the infrared welding machine for thermoplastics safely. Every person who operates the machine will have to conform to the instructions of this manual.

The machine has been developed and checked with respect to welding agru pipes and fittings. For welding other makes, no experiential data are available and/or no liability or warranty can be assumed for the fitness and the reliable operation of the machine.

### 2.1 The User's Manual

The User's Manual is presented according to sections which explain the different functions of the machine. All rights, in particular the right to copy or reproduce (in print or electronic form) and distribute as well as to translate, are reserved and subject to prior written authorization.

### 2.2 Explaining Icons

The following expressions and icons are used in this User's Manual to refer to safety-related issues:



Caution

This icon indicates that non-compliance may result in a hazardous situation that possibly causes bodily injury or material damage.



Important

This icon indicates important messages related to the correct use of the machine. Non-compliance may cause problems of operation and damage to the machine.



Info

This icon indicates tips and useful information for using the machine more efficiently and more economically.

### 2.3 Safety Messages and Information on Remaining Risk

Protect the power supply cord from cutting edges. Have an authorized service shop replace damaged cables or lines immediately.

The machine has to be operated with a 230 V, 50/60 Hz power supply with safety fuse or breaker of 16 A maximum. If power is connected through a power line manifold, the power supply has to feature an earth-leakage circuit breaker.

Use only extension cables with the following conductor sections:

- max. length of cable 25 m (80 ft) min. section 2.5 mm<sup>2</sup>
- max. length of cable 50 m (160 ft) min. section 4.0 mm<sup>2</sup>



Caution

#### Parts Under Power

After opening the machine or removing the cover, parts of it are accessible that may be under power. The machine may be opened exclusively by an authorized service shop and only after it was disconnected from power.



Caution

#### Pipe Facing Tool

Start the pipe facing tool only when it is in its working position. When facing pipes, do not wear jewellery; if needed, wear a hair snood or net. It is forbidden to remove shaving from the machine while the facing process is running. Make sure nobody is present in this danger zone.



Caution

#### Heating Plate and Heating Plate Housing

When working with the machine, be extremely cautious while the heating plate is operating. Since the plate and its housing guard present a very high temperature during the welding process, it must not be operated if unobserved, and sufficient distance to combustible materials in its surroundings has to be ensured. Do not touch the heating plate or the plate housing. **The safety alerts affixed to it have to be complied with strictly.**



Caution

#### Danger of Bruises and Injury

Do not remain in the danger zone while the machine opens or closes and be sure not to have your hands between the moving and the fixed parts of the machine.



Caution

#### Acceptable Work Conditions

The work zone has to be clean and has to have proper lighting. It is dangerous to operate in a humid environment or close to flammable liquids. In regard of this, acceptable work conditions have to be ensured (e.g., sufficient distance between the machine and other functional areas of the workshop).

Overhead work is prohibited, unless:-

- the machine is safely and securely fastened and positioned;
- access to a large area around the worksite is controlled/limited (risk of falling objects); see also Sect. 2.5;
- a hardhat and safety goggles are worn (risk of falling objects and small blades of shaving during component facing)
- proper protection (e.g., by shielding membranes or foils) against humidity, draughts or airflow if there is any risk that they should appear



Important

#### Power Supply Only through Line with Protective Grounding Conductor

The machine has to be operated exclusively with a power supply line equipped with a protective grounding conductor, as a power supply without this safety element may cause severe machine

damage. **If the machine is operated through a power supply without a grounding conductor, this will void any and all warranty under which the product may be.**



#### **Power Only to Operational Machine**

Important

Power must never be applied to the machine before it is completely installed and ready for operation.



#### **User's Manual**

The User's Manual has to be available at any time on the site where the machine is used. If the User's Manual should come to be incomplete or illegible replace it without delay. Feel free to contact us for assistance.

## **2.4 User/Operator Obligations**

- The machine may be operated exclusively by persons who are familiar with the applicable rules, the guidelines for the prevention of accidents, and the User's Manual.
- The machine may be operated only when observed. Only persons who were properly trained by agru or another, authorized organization and whose training was acknowledged by the appropriate certificates are allowed to operate and observe the machine. Other persons must neither operate nor observe it.
- The operating/owning organization engages to check at reasonable intervals if the machine is operated by the users with the intended use and under proper guidelines of safe work.
- The machine must never be operated if not in proper state of repair. Before welding, the user is required to make sure that the state of the machine is in order.
- The user has to make sure that only one person is present in the zone where the machine is operating.

## **2.5 Worksite Description**

- The conditions have to fully ensure that the machine cannot slide. As well the segments of the base plate as the mechanical structure and the base plate have to be securely connected to each other before any components are clamped fast. In case of (overhead) welding operations using the mechanical structure without the base plate, the welding mechanics has to be securely fastened at the components to be jointed with the supplied belts.



Important

For an overhead operation, the full weight of the mechanical structure has to be carried by the belts. **"Hanging" it from the components to be jointed, so the clamps would carry its weight, is prohibited.**

- Worksite access limitations have to be provided. Appropriate equipment to achieve this can be requested from a service point or the selling entity.

## **2.6 Warranty**

Warranty claims may be raised only if the conditions for warranty given in the General Terms and Conditions of Sale and Shipment obtain. One precondition is that proper maintenance according to the required schedule (see Sect. 6.3) is ensured.



The term of warranty under which the welding machine is shipped is 12 months:-  
— from the date of purchase, if the machine is bought as a new machine;

- from the date of first use, if the machine is used independently of purchase (e.g. when lent) or if it is not bought as a new machine.

## 2.7 Transport and Storage

During transport, the machine must be at all times in the transport box it is shipped in.



**Important** Ensure that the heating plate, the facing tool, and all movable/removable parts of the machine are safely stowed away and, if applicable, secured with the transport lock during transport at all times (see explanations and figures in Sect. 4.1).

The transport box should also be used to store the machine. The machine has to be stored in a dry location, be clean or has to be cleaned, and be locked against unwanted operation.

## 2.8 Identifying the Machine

Each machine is identified by a name plate. It shows the machine model (“Typ”), its year of manufacture (“Baujahr”), the serial number (“Geräte-Nr.”), the rated power (“Netz”), and the manufacturer (“Lizenzhersteller”).

Mobile Stumpfschweißmaschine	
Typ	agru SP 63 mobile V 3
Geräte-Nr.	06421123
Netz	230V 50Hz 1700W IP54
Gewicht	ca. 49 kg Baujahr: 2021
Lizenzhersteller	HÜRNER Schweißtechnik GmbH
	Nieder-Ohmener Str. 26
	D - 32325 Mücke

Typ	agru SP 63-mobile
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<b>Exklusives Produkt der Fa.</b>	
agru Kunststofftechnik GmbH	
Ing.-Pesendorfer-Str. 31	
A - 4540 Bad Hall	
Tel. +43 7258 7900	
Fax +43 7258 3863	

## 3 Product Description and Principles of Operation

### 3.1 Intended Use

The agru SP 63 mobile V 3 Welding Machine is designed exclusively for welding thermoplastic pipes and fittings using the butt-welding process with plasticization by infrared beams.

Only the welding parameters shown on the screen display (preprogrammed by the manufacturer or defined by the user) can be selected for a welding operation. If a modification of preinstalled parameters is needed exceptionally, contact agru Kunststofftechnik.

It is also part of the intended use to conform to the instructions provided in the User’s Manual.



**Important** The manufacturer can in no circumstances be held liable for damage or consequential damage that occurs as a result of the non-compliance with the procedures described in the User’s Manual, the modification of the manufacturer-programmed welding parameters, or non-intended use. Any such deviation or modification will void any and all warranties under which the product may be.

### 3.2 Machine Description

The machine can be used as an in-shop installation, and with anodized aluminum and stainless steel components, it is also suited for clean room applications. The machine enables users to enter the data that are relevant for the welding process and for the traceability of the welded joint. From the entered welding parameters, it calculates automatically the applicable forces, times, and temperatures and controls the semi-automatic welding process.

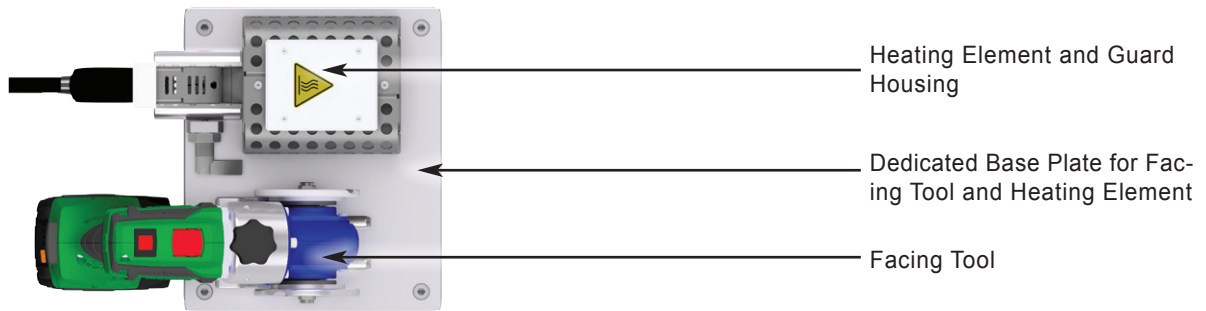
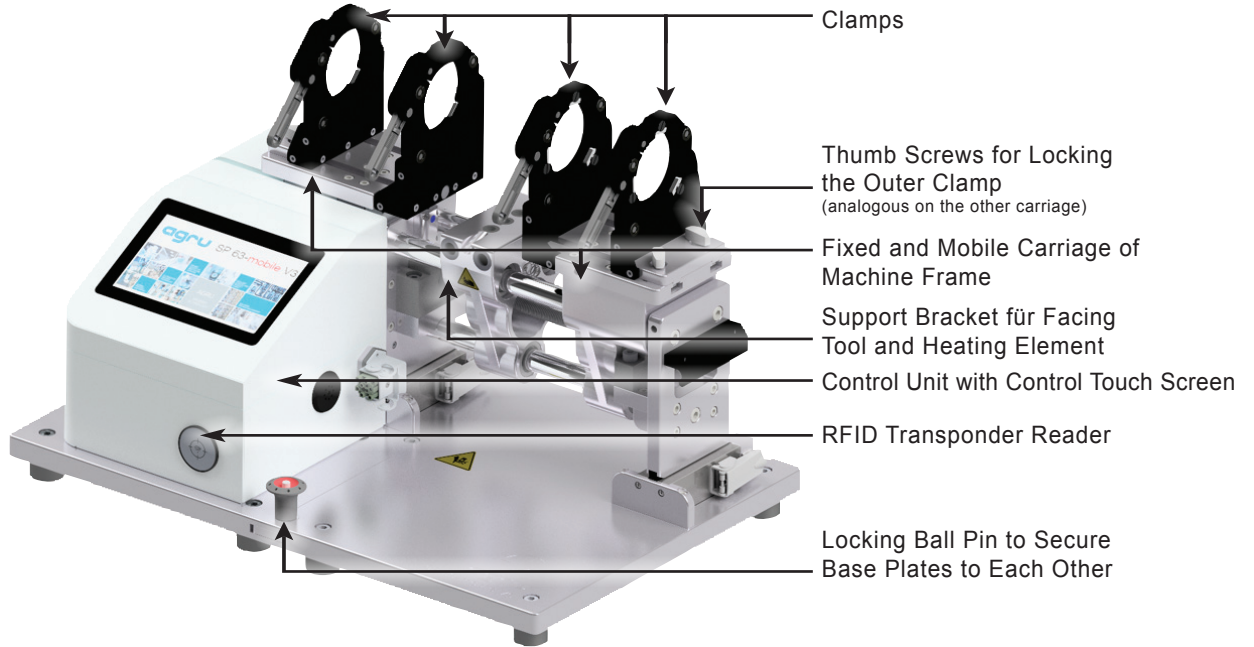
All welding and traceability data are entered either directly at the machine on its touch screen or read from a transponder card by the transponder reader. The welding process is monitored in its entirety and saved to



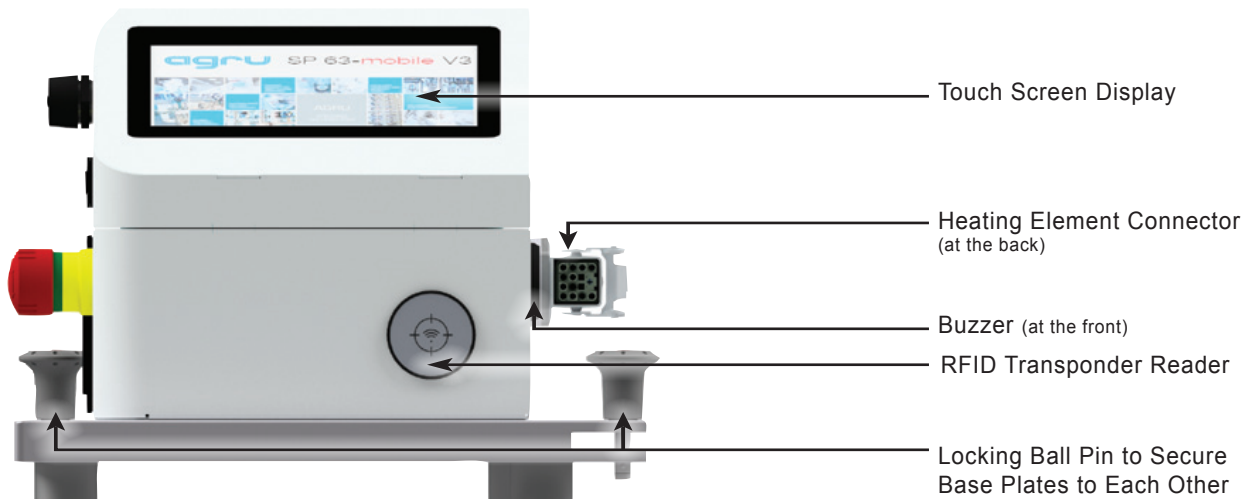
a welding report. All welding reports can be downloaded to a USB stick as an abstract, an extended report or as a DataWork database file.

Using the menus displayed on the touch screen, the machine can be customized to the application in hand (see section 4.3).

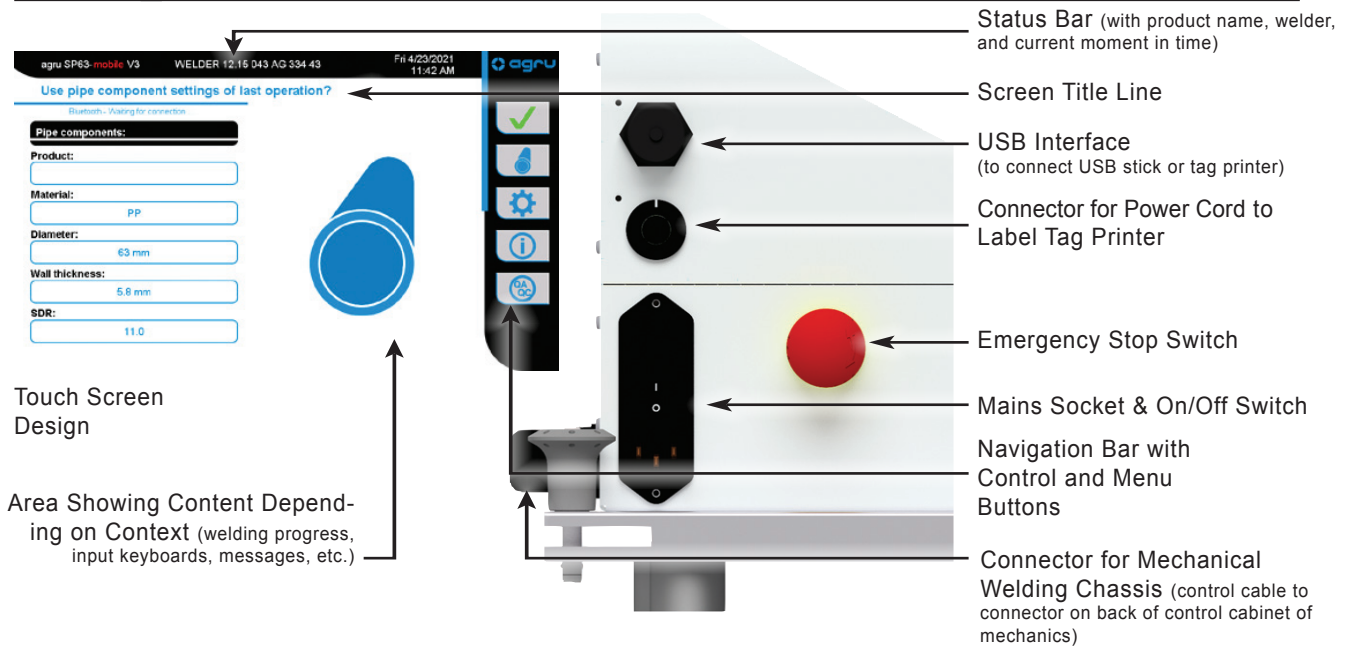
### 3.2.1 Component Overview



### 3.2.2 Control Unit with Touch Screen







### 3.2.3 Specifications

agru SP 63-mobile	
<b>Power Characteristics</b>	
Voltage	230 V
Frequency	50/60 Hz
Total Rated Power	1.7 kW
Heating Element	1.38 kW
Electrical Cordless Power Facing Tool	18V, 5.2Ah (on battery, w/ 2 batteries)
Charger for Power Facing Tool	220 - 240 V AC, 50/60 Hz, 0.085 kW
<b>Welding Operation Specs</b>	
Welding Force	10 - 500 N
Speed of Cordless Facing Tool	approx. 66 rpm (in 2 <sup>nd</sup> gear, speed set to max.)
Ambient Temperature (operation)	+ 10°C to + 40°C (50°F to 104°F)
Ambient Temperature (storage)	- 5°C to + 50°C (23°F to 122°F)
Operating Range	20 - 63 mm (3/4" - 2-1/2")
Travel Stroke of Movable Carriage	approx. 115.5 mm (4-1/2")
<b>Dimensions and Weight</b>	
Dimensions (W x D x H)	
Mechanical Assy (carriage moved apart)	544 x 160 x 348 mm (21-7/16" x 6-5/16" x 13-21/32")
Electronic Assembly	300 x 251 x 237 mm (11-7/8" x 9-7/8" x 9-11/32")
Mechan. & Electron. on Base Plate	575 x 376 x 385 mm (22-5/8" x 14-25/32" x 15-5/32")
Dedic'ed Base Pl. w/ Facer/H. Elem.	260 x 347 x 313 mm (10-1/4" x 13-21/32" x 12-11/32")
Transport Case	800 x 600 x 608 mm (31-1/2" x 23-5/8" x 23-15/16")
Weight	
Mechanical Assembly	15.1 kg (33.2 U.S. lbs)
Electronic Assembly	8.9 kg (19.6 U.S. lbs; on base plate)
Mechan. & Electron. on Base Plate	33.2 kg (73 U.S. lbs)
Facing Tool	4.6 kg (10.1 U.S. lbs)
Heating Element	3.9 kg (8.6 U.S. lbs)
Dedic'ed Base Pl. w/ Facer/H. Elem.	15.3 kg (33.7 U.S. lbs)
Transport Case (w/ mach., access.)	89 kg (196 U.S. lbs)
Transport Case, emptyx	30 kg (66 U.S. lbs)

### 3.3 Welding Process Overview

The welding process is performed as follows:



Prior to welding, the mechanical structure of the machine has to be secured, either to the base plate or to the components Important to be jointed (see Sect. 4.6).

- The facing tool is inserted between the carriages, into its position for clamping the components in the machine, and the clamps themselves are adjusted to the spacer pins of the facing tool.
- The components are clamped and the facing distance is adjusted.
- The facing tool is moved to its position for facing.
- Pipe ends are worked using the pipe facing tool until a continuous blade of shaving material forms.
- Pipe alignment is checked and confirmed by the welder.
- Insertion of the heating element; when inserting it, the heating element has to be clean.
- After the heating element was inserted, closing in the movable carriage is confirmed, and the pipes close in at the predefined force.
- When the carriages close in, they also align the heating element exactly in-between the pipe butts.
- The pipe butts are then heated to the predefined temperature.
- When the heating phase is over, the pipes are moved apart automatically to allow for manually removing the heating element.
- Once the heating element removal is confirmed, the pipes close in on each other again.
- This is followed by a steady force increase until the fusion force is reached.
- The pipe then cools down at the predefined force.
- After the cooling time is over, the force is automatically removed from the carriages and the pipe or fitting can be taken out of it.

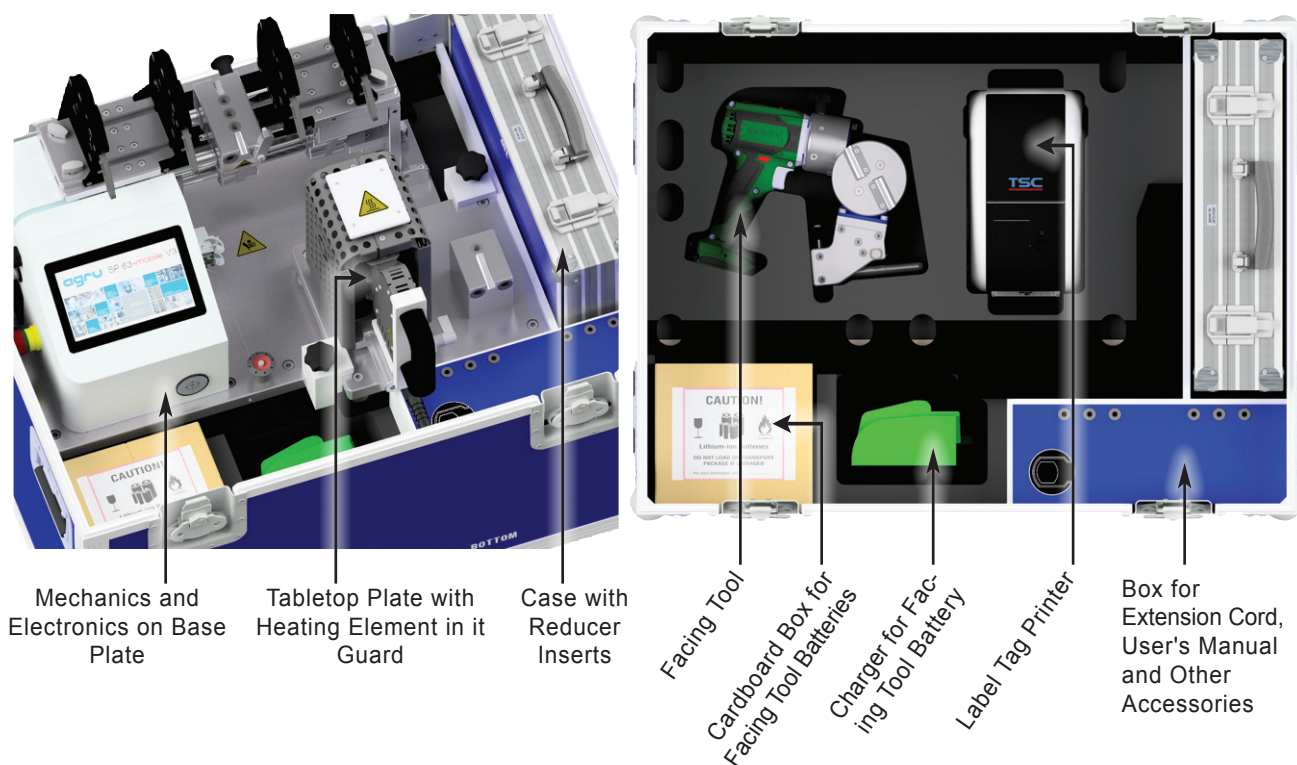
## 4 Operation

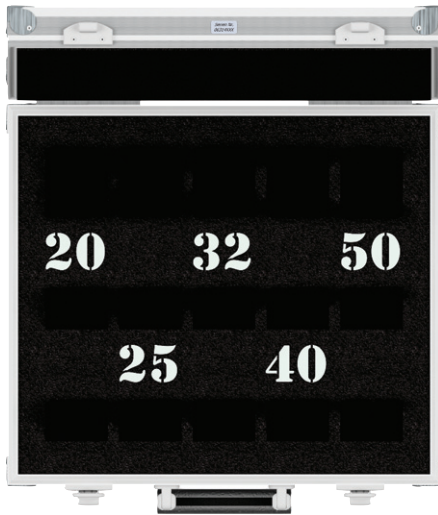
Before putting the machine into operation, review the transport locks and safety auxiliaries as well as the way the machine is set into its transport box. Whenever the machine is moved or shipped, it has to be set into this box and all locks and auxiliaries have to be engaged. The figures below help with understanding the transport helpers.



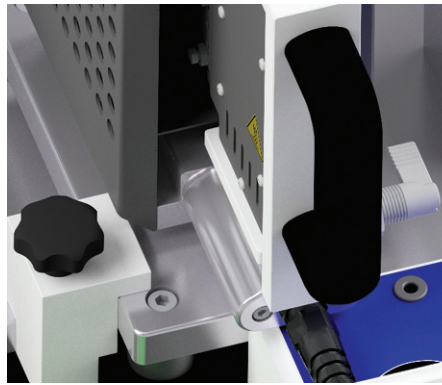
Whenever transported, the roll of labels in the printer has to be removed and the batteries, placed into the cardboard box.

Important

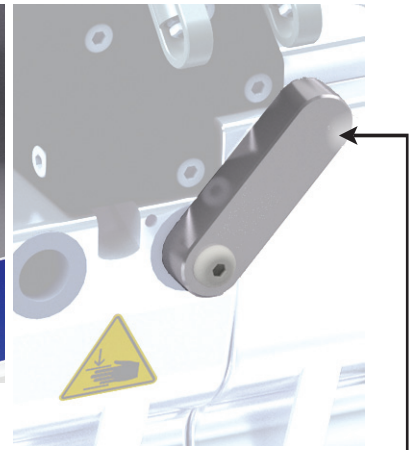




Inside view of the case for the reducer inserts



Star knob (1 of 2) securing the base and tabletop plates, and transport lock (self-locking pin, right edge of drawing) of heating element



Transport lock of carrier bracket for facing tool and heating element and of movable carriage (locking ball pin as the locking item on the other side of the bar)



When installing the reducer inserts, place the narrower inserts into the inner clamps, the broader inserts, into the outer clamps. The insertion and the removal of the inserts is performed **without any tools**. The reducers are secured to the clamps by the force of the magnets only.

#### 4.1 Check-out, Turning on, Selecting the Display Language

Place the machine on a level surface and ensure it cannot slide or secure it safely at the components to be jointed. Sufficient distance has to be kept to other areas in the workshop, especially to those in which combustible materials are used, in order for the heating element temperature of up to 500°C (930°F) not to be hazardous. When starting the machine up, remove the transport locks before applying power to the machine if it was transported before start-up and the locks were engaged. Furthermore, if the label tag printer is planned to be used later on, connect it to the machine and insert the roll of labels before the first welding operation.

Independently of the order of the explanations in this booklet, the steps for setting the machine up and preparing everything for welding are always performed in the following order (see the following figures for reference):

1. Open the transport box.
2. Loosen the transport lock pole using the the star knob.
3. Take the dedicated plate for the facing tool and heating element out of the box, set it on a level surface, making sure it will not slide, and remove the transport lock of the heating element.
4. Take the base plate with the electronics and the mechanics out of the box, set it on a level surface, making sure it will not slide, and remove the transport lock of the movable carriages from in-between the carriages (unlock the locking ball pin and remove it, then slide the transport lock out of its seat in the opposite direction).
5. Take the facing tool out of the box and set it on its tabletop plate.
6. Take the battery charger out of the transport box.
7. Take the battery out of the cardboard box, check the battery level and charge the batteries as needed.
8. Connect the mechanics and the heating element to the electronic control unit.
9. Connect the V-lock power cable to its socket and the mains.
10. Switch the machine on and zero the movable carriage position.
11. Insert the reducers into the clamps.

Depending on the piece that is going to be welded, the outer clamps may have to be repositioned or removed. To do so, loosen the locking thumb screws and either remove the clamp or re-adjust it and secure it by tightening the locking screws again.

If the diameter of the pieces to be welded is smaller than the clamp, insert the reducer inserts. This can be done without using any tools since the inserts are fastened in the clamps by magnetic attraction.



Important

Pipe clamps and reducer inserts have to be clean or must be cleaned before welding starts. To insert or remove the inserts, do not use heavy tools (hammer, wrench). They may damage the inserts and the magnets.



Important

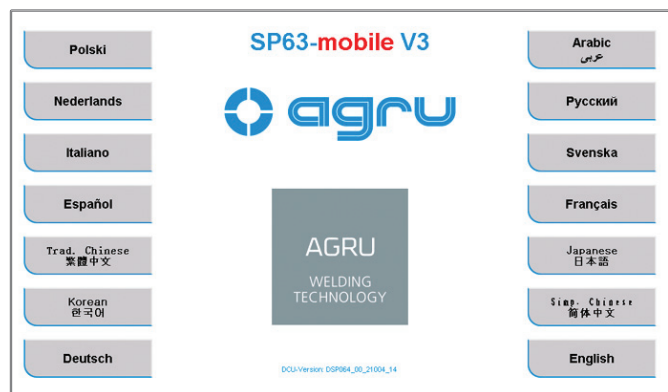
The surfaces of the heating plate have to be free of grease and clean, or they have to be cleaned. Clean the heating element only when it is cold. Refer to a service point for detailed information on the procedures for cleaning the heating element.



Important


Make sure all connectors are tight in their sockets and make sure that the machine is operated only if the conditions for safe and intended use are met (see also section 2).

After preparing the machine for welding and connecting the power supply cord to the mains power supply, the machine is turned on using the On/Off switch. The welcome screen, as reproduced in Display 1, appears on the touchscreen panel. Touch the appropriate button to select the display language that the machine will use. If needed, the system clock will then have to be set, in which case the relevant screen is displayed (see Display 24).



Display 1

After the language was selected, the machine takes the user to the welder code input screen. Without a valid welder identification code, the machine does not move on to the preparation of welding and the welding process, since working with the machine without a welder identification is prohibited.

Read the welder from a transponder card by RFID. If no card with the welder identification code is available, it can also be typed on the keypad and saved to memory by touching the  button.



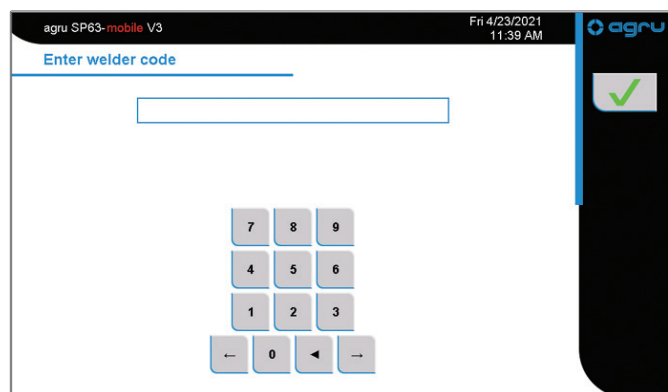
Info

All inputs for which a transponder card is available can be entered by holding the card in front of the RFID reader.



Info

Depending on the software version installed in your machine, some screens may differ slightly on your machine from the reproductions in this manual.



Display 2

When the welder code was entered, the movement position of the movable carriage has to be zeroed (see below). Then the machine displays the so-called default screen (see Display 3). In this display, it is possible to start the welding process and to customize the configuration of the machine.






The welder will enter all settings and perform all control actions on the touchscreen panel.


### Zeroing the Position of the Movable Carriage





Important


Without zeroing the reference position of the movable carriage, proper welding is impossible. Therefore, zeroing will be skipped only when the machine remains at the same spot for the next welding and no emergency stop was triggered. Zeroing the carriage is required and cannot be skipped after the machine was turned on or the emergency stop switch was pressed.

To zero the carriage position, the facing tool has to be removed from in-between the carriages if it still is positioned between them — the machine prompts on the screen to do so —, and the  button must then be pressed for confirmation. If the spacer pins of the facing tool are placed in the recesses of the carriages and possibly refuse to slide out, press the  button. Then, the movable carriage can be moved apart by pressing the carriage mover button  (see the “Important” note at the beginning of Sect. 4.7).

The same holds for the heating element. If it is still set on the carrier between the two carriages of the machine, the user is requested to remove it. Only after the removal was confirmed by pressing the  button, the process continues.

The same query appears again for the pipes/components that might still be in the clamps from the last welding operation. They, too, have to be taken out of them, which has to be confirmed by the  button.



When the welder confirms that there are no pipes in the clamps, the machine asks that the movable carriage be closed in on the fixed one by holding down the carriage mover button , just as for facing, heating or joining, until the message “Zero point adjustment” appears on the screen. When this message is showing, the machine determines the zero point of the movable carriage as compared to the position of the fixed carriage, that will apply for the next welding.

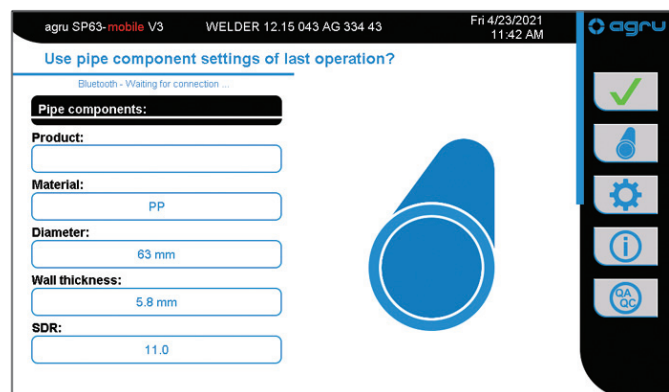
When this reference position/zero point was automatically zeroed and saved to memory in the control unit, the machine asks the welder to move the carriage apart, which indicated that the machine has now been zeroed. To move the carriage apart, press the  button. The machine returns to the default screen (see Display 3). Welding can now be started or parameters can be edited.

## 4.2 Configuring the Machine




In the default screen (Display 3), the key parameters of the last welding are shown (material, diameter, and wall thickness along with SDR rating of the welded pipe). The following current values show, now or only later, after the welding was started, along the bottom edge of the screen: heating element temperature, applied force, input voltage and current, ambient temperature.

In Display 3, the welder has the possibility to:

- immediately start a welding process using the same welding parameters as the previous welding (touch the  button and move on to section 4.6);
- enter new component-related and traceability data and another welder ID code for the next welding (touch the  button and move on to Section 4.3);

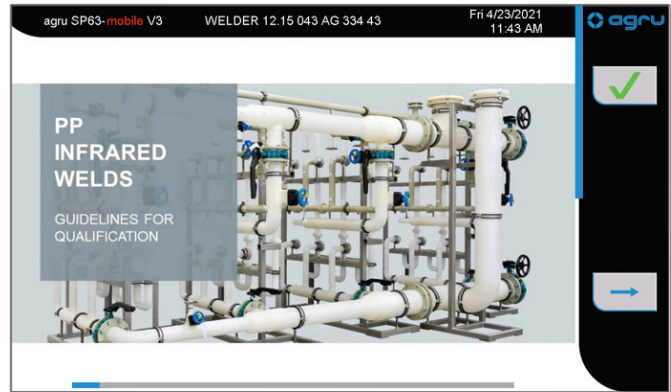


Display 3


- change the machine settings in the configuration menu (touch the  button);
- display information on the welding system itself and its maintenance/service status (touch the  button and see Sect 6.2 for reference);
- view the operator's guidelines for the jointing of thermoplastic components (touch the  button; see Display 4 for reference).







Other functionalities that are called when the default screen is showing, are explained below in this booklet, including how to call them from this screen.













Display 4

After the  button was pressed, the part of the configuration menu available to all shows. Use the arrow button at the bottom of the menu bar at the right-hand edge of the screen to browse through the pages of the configuration menu. The menu has the items listed in the following table.

In the menu, the  button depicted at an option means that touching it will open a submenu in which the configuration itself can be customized. For functions that the user can enable or disable at their own discretion, the  (on) and  (off) buttons indicate the current status. Touching the button will toggle the function from one to the other state.

Any changes in the configuration menu are saved to memory and will be used by the machine in the future when the respective configuration option or the entire menu is quit by pressing the  button.

Designation	Setting	Description / Data to be entered
Report View		In a sub-menu, a welding operation can be selected in a list to display the report recorded of that operation. From this screen, it is also possible to print a label tag for this welding once again (see section 5.2).
Select Number of Labels		In a sub-menu, the number of label tags (0 - 3) to be printed after welding for purposes of identification, can be selected.
Select Unit of Length		In a sub-menu, the unit of length used for displaying welding data can be selected: millimeters or inches.
Select Temperature Unit		In a sub-menu, the temperature unit used for displaying welding data can be selected: centigrade or degrees Fahrenheit.
Buzzer	 	if ON: The audible signal that validates certain steps in the process is turned on; if OFF: At the end of the respective steps no signal can be heard.
Set Volume of Buzzer		In a sub-menu, the volume of the audible signal that the machine emits to validate the execution of a given step in the process can be set.
Automatic Heating		In a sub-menu, a time, for instance on the following morning, can be pre-set when the heating element will start heating up automatically (see sub-section 6.2).
New Report View	 	if ON: The Report View option of the menu calls an extended and more powerful report view, which allows in-depth assessment and analysis (this report view requires entering a Supervisor Code that authorized persons, e.g. a project manager, can set and enter themselves); if OFF: The Report View option of the menu calls the standard, less detailed report view of welding operations (this report view is also displayed if the option is enabled, but the entered access code for the new, extended report review is entered incorrectly).



Bead Force while Welding		if ON: During welding, the diagram depicted on the screen represents the force exercised on the welding bead (i. e., for instance, no force in the heating stage, as the applied force is not exercised on the bead); if OFF: The force depicted by the diagram in the course of the welding process is the value exercised on the force transducer.
Select Language		In a sub-menu, the display language of the machine can be selected (see Display 1 for reference).
Automatic Mode		if ON: steps of the process where the movable carriage of the machine actually moves can be performed by starting its movement using the carriage mover button in the lower left corner of the screen; once started, the movable carriage will move to the left or to the right for the proper duration computed by the machine for the currently ongoing welding process step or available in the recorded process data of a previous welding operation (see the “Important” note at the beginning of Sect. 4.7); if OFF: steps of the process where the movable carriage moves require the carriage mover button to be used as an on-demand switch, i. e., to be maintained in the pressed state for the full duration for which the carriage is meant to move to the left or to the right. In this event, it is under the welder's responsibility to monitor the duration of the movement and the position of the moving carriage.

While the configuration menu is being displayed, two more buttons can be seen in the navigation bar at the right-hand edge of the screen. The button gives access to the system settings of the welding machine. They are meant for specialized staff supposed to set up, service or, if failed, repair the machine; therefore, they are not described in this booklet.

Just as the system settings, the extended operation settings of the welding system, which can be accessed by touching the button, are protected by a second access code, which will be disclosed only to supervising staff with the operator. The parameters below can be customized in the extended set of settings after entering that code.

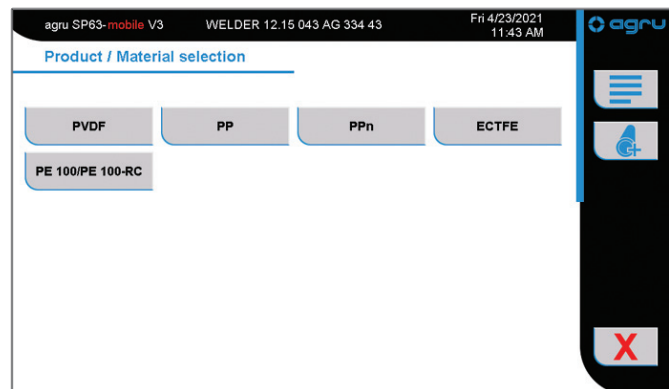
Designation	Setting	Description / Data to be entered
Memory Control		if ON: The machine refuses further welding operations when the memory is full; if OFF: The machine overwrites the oldest report when the memory is full.
Set Date/Time		In a sub-menu, date and time can be set, provided no service of the machine is currently due.
Delete Reports		In a sub-menu, it is possible to delete <b>all</b> welding reports currently in memory; the reports will be deleted only after another two safety warnings were confirmed.
Enter Additional Parameters		In a sub-menu, the characteristic welding parameters can be defined for product/materials that are not available in the control software.
Enter Inventory Number		In a sub-menu, the identifier can be entered by which the machine has been entered in the inventory of its operator.

### 4.3 Changing Key Parameters of the Welding

In the default screen (see Display 3), it is possible to change the specific parameters for the joint to be welded. To do so, press the button. The screen that allows selecting the material of the components that are going to be welded, is then displayed on the screen (see Display 5).



The first selection screen may comprise not only component materials, such as PVDF or PP, but also so-called prod-





Display 5

ucts. A product is a parameter set of technical welding parameters either in memory ex works or defined by the user (see Sect. 4.5 for reference); one of the parameters of the set is the material of the component. In user-defined parameter sets, the product name is at the user's discretion. If one product has several thermoplastic materials for which welding parameters exist in memomry, after selecting that product the user is prompted to select the material used in the upcoming welding operation. If there is only one material for it, the machine moves on to the diameter selection screen, just as after the selection of a material rather than a product on the first selection screen.

To select a product or a component material, touch the appropriate button on the screen. Analogous screens will follow that allow selecting, for the component that is going to be welded, its diameter, its wall thickness, and its SDR value. After every selection made, the machine switches to the next selection screen.

Standard products/materials can be selected on those screens. Furthermore, the machine enables the jointing of additional products/mateirals, i. e., additional parameter sets of characteristic welding data which are either defined as additional parameter sets ex works before the machine ships or set up by the user themselves (see Sect. 4.5).

Additional parameter sets are under an access code that has to be entered and confirmed by touching the  button, as soon as they are accessed using the additional-parameter button . To whom this code is disclosed is at the machine operator's discretion.


The Product/Material or Material selection screens will always be show, even if there is only one material or product in memory. All other selection screen appear only when a selection is actually possible. If, e. g., there is only one diameter in memory for a given material, no diameter selection screen will be displayed.




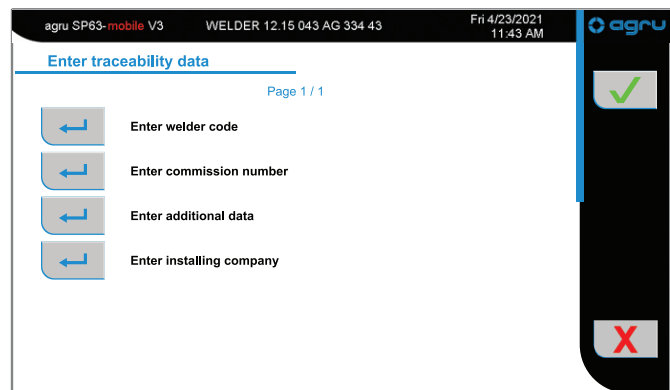
Important

The machine must never be used to weld pipe materials, diameters, and thicknesses other than those available in the welding parameter screens. The manufacturer is in no circumstances liable for damage or consequential damage that occurs as a result of deviations from these pipe data or of modifications or attempted modifications to the control software. Furthermore, this will cancel any claims to warranty expressed for the machine. To make a material available in this screen, it has to be entered previously with all its technical welding parameters in the configuration menu.

#### 4.4 Entering Traceability Data for the Joint

On the screens that allow changing the technical parameters for the upcoming welding operation, by touching the  button, it is possible to access the traceability data for the joint and change them as needed (see Display 6).

Independently of accessing them by touching the  key, the welder identification code has to entered after switching the machine on (see Sect. 4.1 and Display 2), as no welding operation is allowed without a valid welder code.



Display 6

The machine displays a menu that allows selecting the traceability information to be changed (see Display 6). You can confirm all cur-

rent data — those from the previous welding — by simply touching the button.

Change any data that require modification by touching the key at the appropriate menu option. Depending on the kind of data you want to change, the machine displays either a numeric keypad (see Display 2) or an alphanumeric keyboard (see Display 7). To confirm and save your data input to memory on the data input screen, touch the button.

#### 4.5 Definition of Welding Parameters for Additional Materials

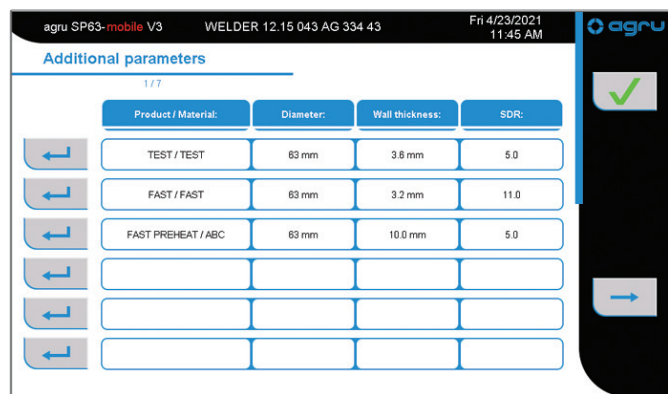
The extended set of settings in configuration menu (see section 4.2) has an option “Enter Additional Parameters” for defining the technical data the machine should use when welding materials not currently available in system memory.

If no additional, operator-defined welding parameter set has been saved to system memory, the screen for the product name appears, to start the input of a full parameter set (see below). If there are, the parameter set overview shows and presents them line by line (see Display 8).



Display 7

The button to the left of an entry in the additional welding parameter overview opens the menu for managing the additional parameter sets. It offers re-entering all parameters of the set just selected, editing its individual parameters, deleting it, and deleting all additional parameter sets. Again, select the desired option by touching the button next to it.

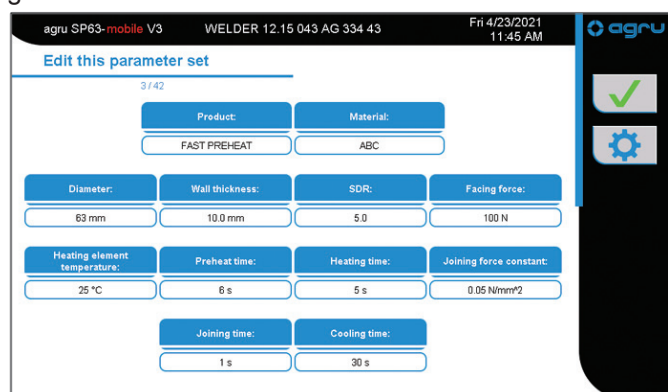


Display 8

Instead of the menu, a screen that allows entering the product name to be saved to the new parameter set is shown if the button next to a blank line was touched. After this, in a series of individual screens enter all welding parameters that the parameter set should hold and set on/off values such as whether or not the components have to be aligned before facing, to the desire state using the toggle switch. Confirm every value by touching the button, to move on to the next screen.

Starting from the management menu, the re-enter parameter set option has the same effect, except the individual input screens are not blank. They will hold the values currently set for the parameter set that was previously selected in the overview, by touching the button next to it to open the management menu.

Selecting the edit parameter set option in the management menu will show a table-style overview of the previously selected parameter set (see Display 9). The individual parameters shown here depend on which on/off values are set to on in that parameter set. The menu-like overview of the on/off values of the set, in which they can be enabled and disabled, is accessible by the button. The individual parameter values can be edited after touching the value itself in the overview table, thereby opening an input screen for that value. When editing parameter sets, too, every change has to be confirmed by the button.



Display 9

Both kinds of deletion in the additional parameter management menu — deletion of the welding parameter set previously selected in the overview list and deletion of all additional welding parameters — require the subsequent confirmation of two warning messages.



If the product/material that was used in the last welding operation is deleted, the product/material selection screen (refer to Sect. 4.3) opens automatically upon closing the parameter set management, then the configuration menu, and a new product/material has to be selected.

#### 4.6 Fastening the Mechanical Structure of the Machine

The mechanical structure (chassis) of the machine is fastened to or unfastened from the base plate using the lock frames that the black anodized-aluminum legs of the structure plug into (see left-hand drawing for reference). The leg is secured inside the frame by the fastening latch at its back (seen only in the right-hand drawing), which, in turn, is kept

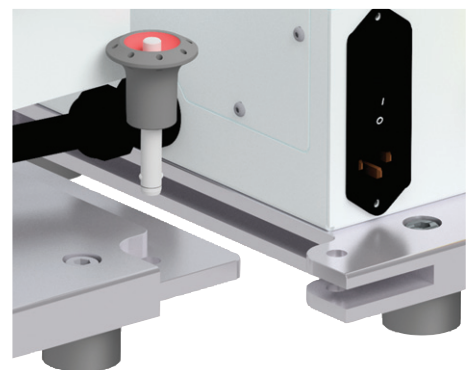


in place by the lock flap hooked into the fastening latch and then tilted towards the back, along the leg. The traction exercised on the fastening latch by the flap can be adjusted by shortening or lengthening the threaded pin that hooks into its mate at the edge of the latch.

The grooves in the base plate help slide the legs of the mechanical structure into the lock frames into which the plug.

**Prior to fastening or unfastening the mechanical structure, disconnect all electrical and control cables; reconnect only when done.**

A second step of fastening the mechanical structure to the base plate, when it is not planned to use it separate from the plate, is to lock the plates to each other by sliding the one into the other and securing it using the locking ball pins at the front right and back left corner of the plate of the electronic control unit (see drawing to the right, which only shows the locking ball pin at the rear). To unlock a locked pin, push down the head of the pin inside the head.



To conclude the preparations of the welding process, connect the two control cables: the one shown on the drawing to the right to the connector at the back of the mechanical structure and the one from the heating element to that on the right-hand side — when looking at the keypad — of the electronic control (see Sect. 3.2.2).



When the mechanical structure is properly fastened to the base plate, the fastening elements ensure a safe welding operation. If the machine is used without the base plate, make sure that it is positioned safely — including sufficiently far away from flammable and combustible substances — at the components to be jointed and that any needed means and auxiliaries of support are indeed used.





Caution

When they are not being used and held by the support between the carriages of the machine, the facing tool and the heating element have to be inserted by their bars meant to hold them, into the respective opening of the tabletop support (see drawing to the right).



#### 4.7 Welding Process

With or without calibrating/zeroing the carriage position (see at the end of Sect. 4.1), the machine returns to the default screen (see Display 3). If technical welding parameters or traceability data have to be changed or entered and this has not been done before, it is still possible at this point after pressing the button (see Sect. 4.3 and 4.4). If it is not needed, the welding process, with the current welding parameters and traceability data, is started by pressing the button.



Info

Possibly the welder has to wait for the heating element to reach the nominal temperature. This would then be indicated on the screen. If the temperature difference between actual and nominal is large, an additional delay may occur during which the final temperature is adjusted.

When the welding process was started, the screen first shows a message telling that the automatic mode is either on or off, that is, moving the movable carriage either requires the carriage mover button in the lower left corner of the screen just to be pressed once to start them and then they are performed automatically, or require the button to be pressed all the time for the movement to be performed for its full duration (refer to the explanation of the automatic mode in the table in Sect. 4.2).



Important

The carriage mover button in the lower left corner of the screen (see Displays 10, 11) that has to be held down to perform an action involving movement of the carriage—automatic mode off—or to be touched to start that movement—automatic mode on—may be represented in three different ways:

- = The next action involving movement will be to close the carriage in on the other one, towards the point of jointing.
- = The next action involving movement will be to move the carriage apart, away from the point of jointing.
- = At this point, the welder has to confirm a step of the process and, as a consequence, the movable carriage will move automatically (with automatic mode both on and off) for a short distance or not at all (with automatic mode off, rather than the round carriage mover button with a check mark in the lower left corner, the key-shaped OK/confirmation button in the upper right corner of the screen will be used for this kind of confirmation).

##### 4.7.1 Facing the Component Butts

The welding process starts by the insertion of the facing tool, then the clamping of the components (see Display 10). For the machine to switch a next step, the preceding step has to be confirmed using the carriage mover button (see the “Important” note at the beginning of Sect. 4.7).





Important



Make sure that the plate carrying the facing tool and the heating element is set on a surface where it can sit safely and does not slide throughout the entire welding process.

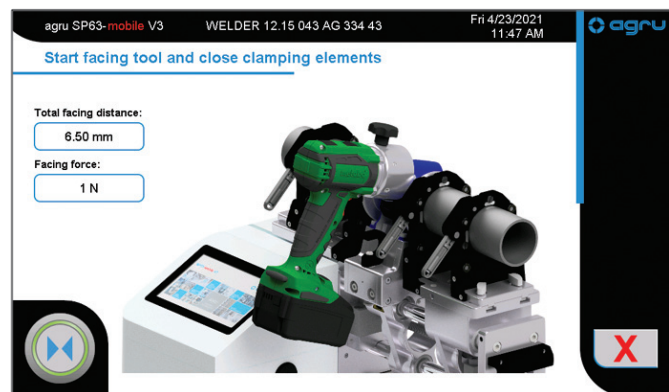


Display 10


First, the machine asks the operator to insert the facing tool into position 1. This is the position for clamping the components. In this position the spacer pins of the facing tool do not sit in the recesses of the clamp bodies in which they are during facing. Slide the facing tool in-between the carriages of the machine in position 1 and confirm it is in place by pressing the carriage mover button  (see the “Important” note at the beginning of Sect. 4.7).


When the facing tool is located between the components, with automatic mode enabled, the machine closes the movable carriage in on the facing tool. Without automatic mode, hold down the  carriage mover button (see the “Important” note at the beginning of Sect. 4.7)


When the mobile carriage has been moved in on the fixed one, clamp the components to be jointed into the clamps. While the screen that requests this of the welder can be seen, it is possible, using the Minus and the Plus buttons, to decrease or increase the distance the carriage will travel during facing (see Display 10). When the facing distance is as desired, confirm by pressing the carriage mover button , and the machine moves the carriage apart for the next process item, or, with automatic mode disabled, hold down the  carriage mover button (see the “Important” note at the beginning of Sect. 4.7).








Display 11


The next process item is to move the facing tool from position 1 to position 2, the position for facing proper. Again, the screen requests this of the welder. To move the facing tool, release its position lock. When it sits in position 2, press the carriage mover button  (see the “Important” note at the beginning of Sect. 4.7).


 Prior to the facing process, checking the direction and the speed of the rotation of the power facer is recommended.

The machine then asks the welder to start the facing tool. Do as you are requested, using the On/Off switch of the power facer, and hold down the carriage mover button  until the machine moves the carriage apart automatically (see Display 11). This indicates that the facing process is correct, considering the previously set facing distance. Then switch the facing tool off at its On/Off switch.

 If the mover button  is released before the carriage moves apart, the facing tool pauses to allow for removing shavings; holding down the  button again to resume facing.

When the machine has moved the carriage apart, the facing tool can be removed from in-between the pipes. Visually check the components and, if they are o.k., confirm this by pressing the  button. If the result of facing is poor, the process can be repeated after pressing the  button. To face the ends once again, in most cases the pipes have to be re-adjusted in the clamps.

 If an error occurs during facing, the machine moves the mobile carriage apart, displaying the corresponding error message.

The facing process can be aborted at any time by pressing the  button.



#### 4.7.2 Checking Alignment

When the component butts are level to satisfaction, it has to be checked if they align properly to each other or if there is an offset. Similar to facing, the screen tells the welder that this is the next step, and the carriage can be closed in on the other by pressing the carriage mover button until the machine stops automatically.

If the pipes align properly, confirm by pressing again, in order to move on in the welding process.

If the alignment offset is too large, or if there is too large or too uneven a distance between the components, press the button. The components may then have to be re-adjusted in the clamps. In both cases, move the carriages apart, to insert the heating plate, if facing is o.k., or to re-adjust and repeat facing, if it is not. To move the carriage apart, press the .

#### 4.7.3 Inserting the Heating Element with or without Preheating

After the alignment/offset check and before the heating element is inserted, the cover caps have to be installed to the far ends of the components. This corresponding request shows on the screen. When the cover caps are installed, confirm by pressing the .

After that confirmation, select on the next screen if preheating the component should occur not at all, only at the right-hand side or on both sides. The desired preheating side is depicted in red color. The rationale behind this is that in a pipe-to-fitting joint, the fitting may have to be heated longer than the pipe end to plasticize.



Display 12



Important

Preheating requires a preheating time  $\neq 0$  s to be defined in system memory. Preheating would be ineffective if it were selected now, but a preheating time of 0 s or none at all has been defined in the material parameters. Therefore, the preheating selection screen shows only if a preheating time is defined.

With or without preheating selected, the machine tells the welder to insert the heating element in-between the components. As soon as it is properly position, the machine recognizes this and automatically moves the mobile clamp/carriage towards the heating element.




Info

A line "Move heating element (to the) right" shows if the option of preheating only the right-hand component was selected. This requires the heating element to be moved slightly to the right manually while the machine closes the mobile carriage in on the fixed one. The machine stops this carriage earlier to allow for preheating the component in the right-hand clamp without closing in the other component too much yet on the heating element. If the welding process was selected to run without or with both-sides preheating, both components close in on the heating element simultaneously. The switch from preheating to the heating stage is automatic.

#### 4.7.4 Heating Stage

In the first welding stage, the pipes close in on the heating element with the defined welding force and are thereby warmed. The stage starts when the mobile carriage is moved in on the fixed one (see Display 13).


During the entire duration of the heating stage, the components continue to soak heat from the heating plate, in order to prepare jointing.


In case of malfunction, the welding process can be aborted by pressing . If the machine detects a malfunction, it aborts welding and displays an error message as soon as the heating element is removed.

#### 4.7.5 Change-over Stage



10 sec prior to the switch to the change-over stage, the heating stage screen shows the message “Change-over is being prepared” and an audible signal sounds (see Display 14) to alert the welder to the imminent change-over for which he will have only a couple of seconds.

At the end of the heating stage the carriages are moved apart automatically and the carriage mover button  appears on the screen (see Display 15). The heating element has to be removed manually from in-between the components and the removal, confirmed by pressing the carriage mover button just popped up. It being confirmed, the carriage closes in again at the defined jointing force.

The welder has to monitor the change-over and pressing , in case a malfunction occurs.

#### 4.7.6 Joining Stage

In the joining stage (or, fusion stage) the machine increases the applied force in accordance with the force ramp calculated for the joint. This stage is also indicated on the screen.




#### 4.7.7 Cooling Stage

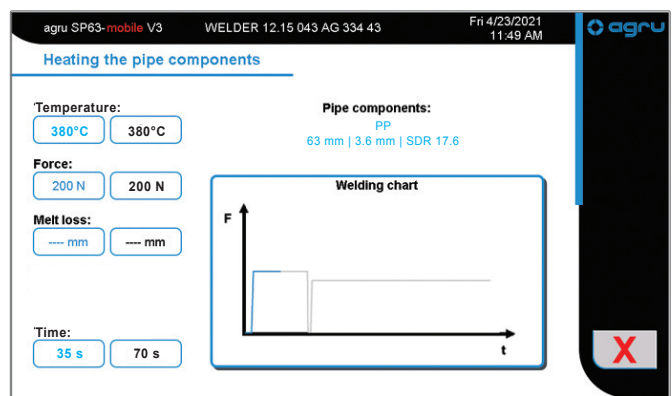
When the full joining force is reached, the machine moves on automatically to the cooling phase (similar to Display 13, the welding process chart indicates the ongoing stage). The cooling time is displayed as it progresses. During cooling, the applied joining force is constantly monitored.

#### 4.7.8 End of Welding

After a successful welding operation, the applied force is released, and the pipes can be taken out of the clamps. The screen tells you so.

If no error was detected during the welding process, the machine allows the welder to evaluate the joint by visual check.

When this prompt is responded to by pressing the , the machine displays the most important welding data (see Display 16). Then, the joint can be declared sound by pressing  or poor, by pressing the . Right after this assessment, a label tag is printed off for the joint.



Display 13

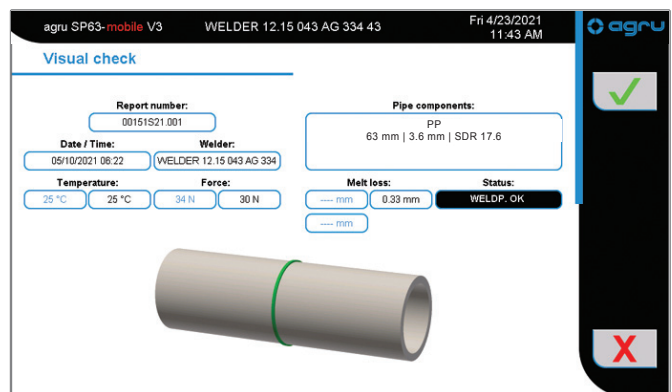


Display 14

must abort welding by



Display 15



Display 16

When the label tag has been printed, the machine shows all errors it has registered since the heating element was removed for the change-over stage, or, that no error occurred at all. This info message can be acknowledged by pressing the button.

#### 4.8 Additional Preparatory Steps for Overhead Welding Operations



Mark and fence off the worksite particularly largely and visibly, in order to prevent any unauthorized access.



The platform or scaffold that is used has to be set up safely and in compliance with all rules applicable at the place of the operation. All workers are required to wear the mandatory personal protective gear.

Using the belts, fasten the mechanical structure of the welding system securely to an element of the building, but **never to the components to be jointed**. Preferably, the lighter and/or easier moving component of the two to be jointed is clamped into the movable carriage of the mechanics.



Caution

An overhead welding operation requires two persons. The platform or scaffold has to be large enough to make room for both workers and all needed tools. It is of particular importance that there is sufficient space around the joint to allow for removing the heating element at change-over without any risk of burns.

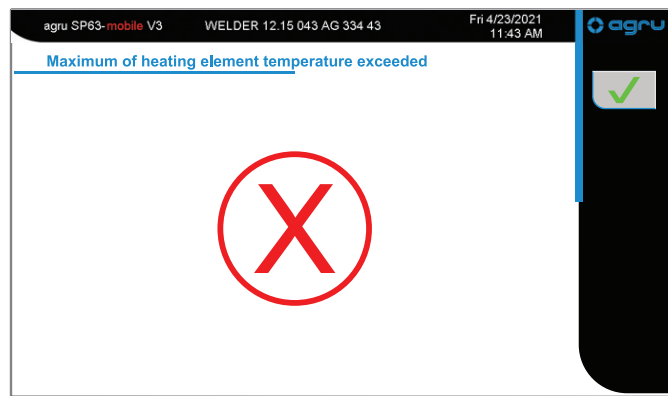
If an extension cable is needed for an overhead welding operation, be

sure that its conductor has the minimum section indicated in Sect. 2.3.

#### 4.9 Aborted Welding Process

All welding-relevant data are constantly monitored while the welding process is running. If one or more of the parameters are out of tolerance and the machine cannot adjust them, the welding process is aborted after a given period of time.

The error that made the welding abort is displayed on the screen (see Display 17), for most of them only as soon as the heating element is taken away from the machine.



Display 17

Type of Error	Description
<b>a. Data Input</b>	
Input Error	Error while entering data on the touchscreen.
Code Error	Error while reading data from a transponder card.
RTC Error	The sender/receiver does not work properly. The error message may also be about whether reading or writing data is flawed.
<b>b. System</b>	
System Error	Malfunction in the control system of the machine; power to the machine has to be turned off and unplugged immediately, and the machine has to be sent to the manufacturer or an authorized service point for check and repair.
Motor not Found	The initialization of the servo-motor that moves the mechanical structure has failed.
Proximity Switch Error	A malfunction in the proximity switch having already been energized at the start of zeroing the position of the movable carriage.
Printer not Ready	The printer or USB stick connected to the machine is not ready (no communication or faulty cable).
Error of Memory	If "empty" error: despite no report in memory, download was started; if "full" error: there are no more unused slots for reports, and memory control is enabled.
No Function Available	A control (key, button) was used for which no function is defined.
Welder Code Expired	The welder identification code is no longer valid.
<b>c. Welding Process</b>	
Temperature above Maximum	The heating element temperature is higher than allowed before the facing process.
Welding Aborted Welding Stopped	The process was aborted by pressing the emergency stop or by the control system or stopped by the welder.
No Extra Material	In a welding process that requires an additional ("extra") material, no such material was entered.
Facing Distance Error	The distance the carriage travelled at facing is too short or too long; welding has to be repeated.
Excessive Force Error	The applied force is out of tolerance; welding has to be repeated.
Excessive Motor Current Servo-motor Error	When moving the mechanical chassis, the motor drew excessive current; welding must be repeated. When welding is done, this error is called Servo-motor Error



Heating Force Error Heating Elem. Temp. Error Heating Elem. Pos. Error Change-over Delay Error Joining Force Error Joining Distance Error Visual Check Error	All quoted errors appear only after the welding process, as an assessment of the welded joint. The error that occurred or the stage in which it occurred is identified. The Visual Check Error identifies a welded joint declared flawed by the user after the welding process, at the visual check.
Power Supply Failure	In the course of the last welding operation, a power supply failure occurred; welding has to be repeated.
Emergency Stop	The welder has turned the machine off using the Emergency Stop switch. If this was done because of a malfunction of the machine, it must not be turned on again, unless it is beyond doubt that it works properly.
No Label Printed	Despite the system's being set to printing label tags after the welding process, no label was printed.
No facing tool inserted No pipe inserted	The clamps are closer together (or touch) than could be expected at the relevant step in the process.

#### 4.10 Indication of Joint Status and Possible Errors on the Tag

The status of the joint and possible errors during jointing are indicated on the printed label tag and in the report saved to memory that can be viewed (see Sect. 5.2), in the form of an abbreviation or a binary figure.

The abbreviation "WELDP. OK" tells you that the welding process was completed correctly. If the letters "PH" precede this expression, the pre-heating feature was enabled for that welding process.

Instead of the "OK" message, the tag and the report that can be viewed may tell you that something went wrong, by an eight-digit binary figure. The relevant meaning of the binary figure can be seen with the help of the code table below.

For instance, if a label tag says, "00010000," an error in the pre-heating stage of the process occurred. For that bit is set to "1" which represents an error in the pre-heating stage. The bits are assigned to the following statuses and errors.

Bit	Fehler or Status	Binary-encoded Code
0	Error by Visual Check	0000 0001
1	Error Heating Element Motor or Position	0000 0010
2	Error Because of Power Supply Failure	0000 0100
3	Error Carriage Movement During Welding	0000 1000
4	Error Pre-heating	0001 0000
5	Emergency Off or Manual Stop of Welding Process	0010 0000
6	Error Heating Element Temperature	0100 0000
7	Error Joining Force	1000 0000
-	Welding Process o.k.	WELDP. OK
-	Welding Process with Pre-heating o.k.	PH-WELDP. OK




Important

In the case of a flawed welding process, bit 4 may be the only one set to "1" or along with another bit. If only bit 4 is set (0001 0000), this indicates a pre-heating error. If it is set alongside another bit (e. g., 0001 0100), it is for information only and tells you that this was a process with pre-heating; the error identified by the other bit is the relevant one (in this example, then, it is an error because of a power supply failure in a welding process in which the pre-heating feature was used).

## 5 Printing Pipe Labels and Downloading Welding Reports


The machine is equipped with USB A interface that gives you the opportunity to connect the tag printer or a USB stick. The interface port correspond to the USB version 2.0 specification (i. e., maximum communication rate of 480 megabits per second).

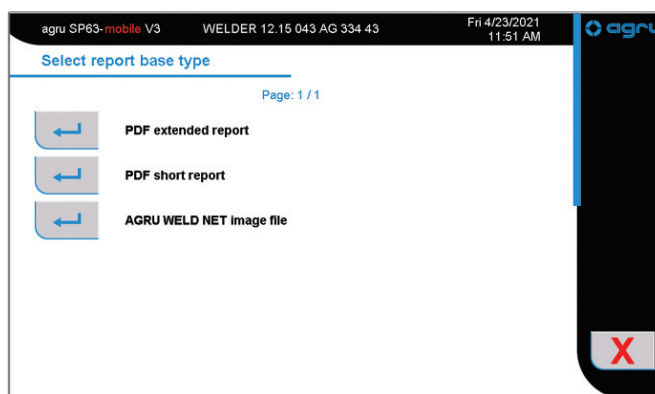
### 5.1 Downloading Welding Reports to a USB Stick

When a USB stick is connected to the interface port while the standard home screen (see Display 3) is showing, the machine displays the menu in which the file type can be selected that is going to be used for downloading the reports (Display 18): use the  button at the desired file format to select it and move on to the next input screen.

After the selection of the file format for download, a similar screen appears and offers five options of what exactly will be downloaded:

- all reports in memory (i. e., since the reports were last deleted)
- the reports that belong to a certain commission or project
- the reports of operations performed by a certain welder
- all reports in a certain range of dates
- all reports in a certain range of reports/report numbers

When an report type transfer that does not send all, but only certain reports to the stick was selected, the operator has to define the desired filter on the next screen. Either he browses through the reports in system memory to select the desired commission or desired welder. Or he enters the start and the end of the desired date range or report range, of which the reports should be downloaded. Whatever the selected option, the input screen that appears adapts to the input currently needed to enter the desired restriction of reports to download. All inputs have to be confirmed by touching the  button.



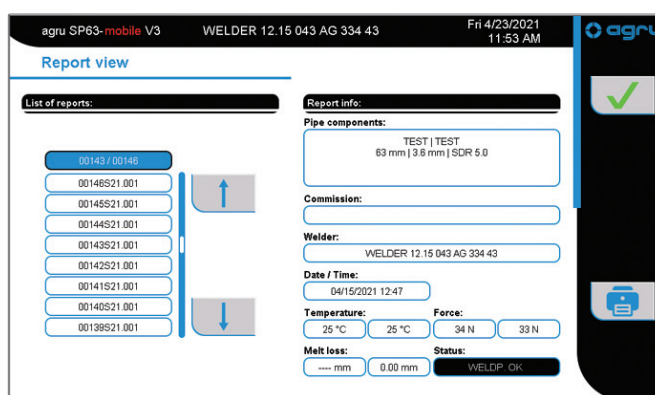
Display 18

After successful download, the machine displays a message telling the welder that the process was o.k.


### 5.2 Showing Reports in Memory, Printing Pipe Label Tags

Using the appropriate option of the configuration menu (see section 4.2), it is possible to display on the screen the welding reports saved to memory. A screen like Display 19 appears. The "Status" field reads "WELD P. OK" if no error occurred, and contains the acronym "PH - WELD P. OK" (for „Pre-Heat“) if the welding operation was performed with the pre-heating feature.

Near the left edge of the Report View screen, you will find a list of all welding reports currently in memory. Above this list, the number of the selected report is given (before the slash), along with the total number of reports in memory (after the slash). To move the selection bar through the list, touch the scrollbar arrows to the right of the list. The longer you touch them, the faster the bar moves. The data from the selected report will populate the fields on the right after it was selected by the bar.



Display 19

To reprint an extra tag of this welding operation in order to identify the component, touch the  button.





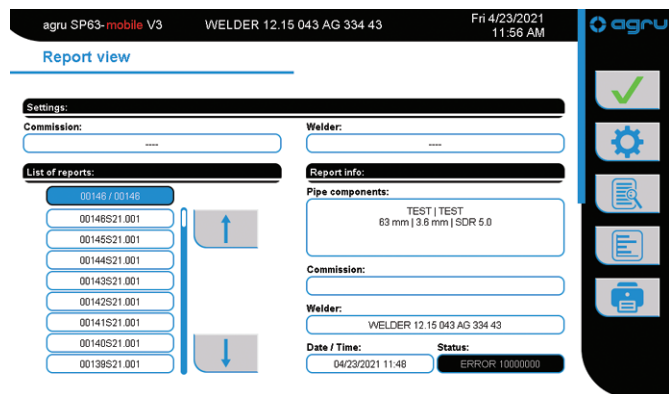
A label tag printed from the report review is identified as a copy by the abbreviation “CPY.” Only labels printed right after the welding operation (see Sect. 4.7.8) are printed with an incremented number that identifies them as “originals” — if this term may be used. The number of tags that should then be printed is defined in the configuration menu (see Sect. 4.2).

Printing label tags is possible only when the tag printer is connected to the USB A port of the machine. If this is not the case, an error is displayed. The printer can still be connected when the error message is showing; the machine recognizes this, the error disappears from the screen, and the printing process starts.

### 5.3 Using the Extended Report Viewer

If the “New Report View” option is enabled in the configuration menu, selecting the “Report View” option of the menu (see Sect. 4.2) will first display an access code input screen and, after the correct code was entered, a report view with more powerful functionalities. If the entered code is incorrect, the “leaner” report view described in Sect. 5.2 will be displayed.

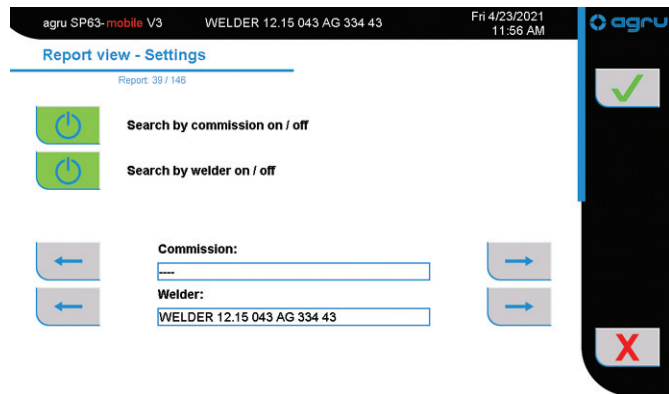
This extended report view (see Display 20) is very similar to the standard view, in its initial screen even presents less data from a report selected in the list of reports, but features the view filters by “Commission” and by “Welder” in the upper portion of the screen and additional function buttons in the navigation bar. The process of selecting a given welding report in the list on the left and of printing a copy of the label tag for that welded joint by touching the button are the same as in the standard report view (see Sect. 5.2).



Display 20

In the report view settings, which can be defined after touching the button, the view filters can be set, thus restricting the list to the reports of a certain project/commission and/or welder. In the settings (Display 21), the “Search by Commission Number” and/or “Search by Welder” can be enabled as a filter.

If the button next to “Search by Welder” is green, i. e., the functionality is enabled, the cursor keys at “Welder” call the previous or next welding report written by another welder. Analogously, if “Search by Commission” is green/on, the previous or next report not belonging to the same project will be shown in the Commission field. This allows selecting a certain project/commission and/or a certain welder, and when the button is touched, the machine returns to the previous screen and displays in the list only the reports that belong to the selected commission and/or the reports that were saved by the selected welder. If the respective filter is not enabled in the upper part of the screen the cursor keys at the criterion in the lower part of the screen will not allow “filtered” browsing through the reports.




Display 21


To disable a previously enabled filter of the list of reports, open the settings too. By touching it, switch the button next to the filter the list should no longer have from green to gray (disabled). Then the list of reports


(see Display 19) will no longer restrict the view to the reports matching that filter criterion.

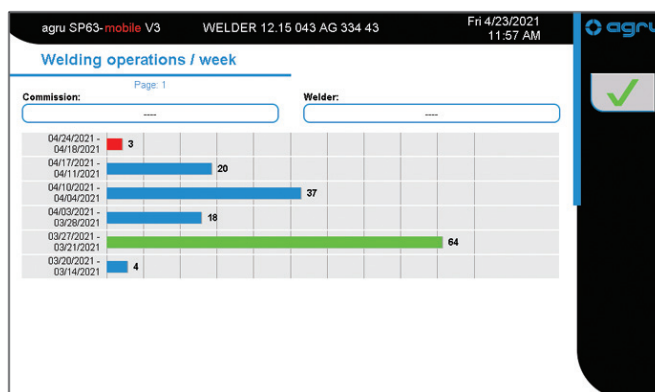
### 5.3.1 Viewing the Full Welding Report

The full welding report can be viewed after touching the  button in the extended report viewer. From the ambient temperature during the welding operation to the assessment by visual check, taking in all force and time values measured in the process and the previously entered traceability data, this detailed view of the report features every single technical information that is relevant for the joint.

### 5.3.2 Ongoing Job Reporting Scheme and Statistical Overview

Since all welding operations are recorded at any rate in an ongoing approach, a statistical overview of the welding operation is available. To open it, touch the  button in the extended report viewer (Display 20).

The next screen is a menu allowing to select whether the number of weldings per week, with components of a certain diameter, material, with error/malfunction, or the standard statistics with number of flawed and proper weldings and total number of welding operations with the machine and currently in memory will be displayed. To select the desired menu option, touch the  button next to it.



Display 22

The statistical overview is presented as a bar chart, where the extreme values are color-coded.


The view filters of the extended report viewer can be used (see at the beginning of Sect. 5.3 above). If they are used, the project/commission and/or welder for which the number of weldings by a given criterion is displayed in the bar chart, are the ones previously set in the settings of the report viewer.

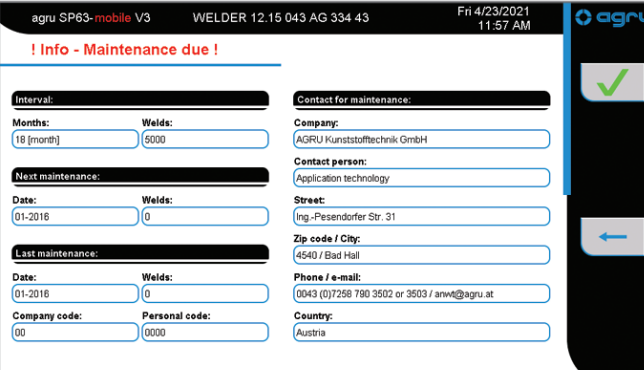
## 5.4 Deleting Reports from Memory

To delete the reports stored in memory, use the appropriate option in the extended set of parameters in the configuration menu (see Sect. 4.2). Upon touching this button, two safety warnings asking if you really want to delete them appear on the screen and have to be confirmed to effectively delete the reports currently in memory.

## 6 System Data

### 6.1 System and Maintenance Information

The home screen (Display 3) allows access to system data (control software version, service and maintenance contact, etc.), which may be requested by the manufacturer or seller in case of malfunctions, as well as to information on the last and next preventative maintenance of the machine. To access the data, touch the  button.



**! Info - Maintenance due !**

Interval:	Welds:	Contact for maintenance:
Months: 18 (month)	Welds: 5000	Company: AGRU Kunststofftechnik GmbH
Next maintenance:	Date: 01-2018	Welds: 0
Last maintenance:	Date: 01-2018	Welds: 0
Company code: 00	Personal code: 0000	Contact person: Application technology
		Street: Ing.-Pesendorfer Str. 31
		Zip code / City: 4540 / Bad Hall
		Phone / e-mail: 0043 (0)7258 790 3502 or 3503 / anw@agru.at
		Country: Austria


Display 23




### 6.2 Enabling Automatic Heating

When the "Automatic Heating" sub-menu was selected in the configuration menu (see sub-section 4.2), the screen shows what is reproduced in Display 24.




This feature allows programming a date and time-of-day when the heating element must start heating up. This gives you the possibility, e.g., to enter this evening a time for the following morning and, then, to start welding right after arriving at the worksite instead of waiting for the heating element to reach the appropriate temperature.

For the automatic heating feature to work, the welding machine has to be connected to the power supply and be switched on all the time from preprogramming a time-of-day to the start of heating. Both power supply failure and switching the machine off result in loss of the preset time.

Enter the desired date and time-of-day on the keypad (after each input, the machine moves on to the next field automatically), then touch the  button. This button shows the current status of the automatic heating: gray = disabled, green = enabled.


 **Important** Enabling the automatic heating feature should be the last action before you leave the worksite. For it causes the power supply to the heating element to be stopped and it cools down. Whilst it is possible to quit the automatic heating setting screen by touching the  button and do other jobs at the machine, when the status button is set to  (on), no more welding operations are possible.

If automatic heating is neither canceled nor disabled, it makes sure that the heating element starts heating at the preset time-of-day and switches itself off after doing so.

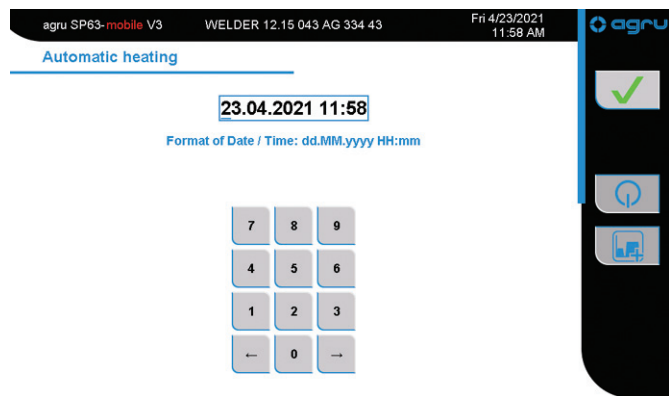
 **Info** If a welding operation with a longer duration is the last one before the end of the workday, power supply to the heating element can be kept alive until that welding is finished. This requires programming the desired automatic date and time for heating, but then touching rather than the  button, the  button to enable it (both buttons will then turn green). If the automatic heating feature is enabled in this manner, the machine allows for another welding operation, to be started immediately after this, and cuts power to the heating element only at the end of its heating stage.  
It is thus possible in case of a relatively long jointing operation as the last one of the workday, to leave the worksite early, **provided no other work instructions or occupational safety rules prohibit this.**

### 6.3 Service and Repair

As the machine is used in applications that are sensitive to safety considerations, it may be serviced and repaired only on our premises or by partners who were specifically trained and authorized. Thus, constantly high standards of operation quality and safety are maintained.

 **Important** Non-compliance with this provision will dispense the manufacturer from any warranty and liability claims for the product and any consequential damage.

All machines that are new or newly programmed during maintenance or upon request are shipped with the most recent software version.



Display 24



At the date of shipment, the service and maintenance interval is set to 18 months or 5000 welding operations (different in some markets), whichever comes first.

## 7 Service and Repair Contact

Asahi/America, Inc.

Tel.: 800-343-3618

655 Andover Street  
Lawrence, MA 01843

Fax: 800-787-6861

Web: [www.asahi-america.com](http://www.asahi-america.com) E-mail: [asahi@asahi-america.com](mailto:asahi@asahi-america.com)



We reserve the right to change technical specifications of the unit without prior notice.

### 7.1 Manufacturer Warranty

The warranty assumed by the licensed manufacturer is effective, on principle, for 1 year or up to 3000 welded joints. Claims for warranty may only be raised if the default parameters present in memory at delivery are/were used for welding and if the nominal temperature is/was lower than or equal to 530°C (990°F).

### 7.2 Technical Documentation

Wiring diagrams, computer-assisted designs and further technical literatures, as complements or more in depth, will be provided by agru Kunststofftechnik upon request at the address given above.

### 7.3 Risk Assessment

A risk assessment under the provisions of the so-called machinery directive 2006/42/EC was conducted for the machine by a qualified person entitled to the performance of such an assessment.

# TOOL DEPARTMENT CONTACTS

## **Equipment Rental**

### **Rental Equipment Manager**

781-388-4618

[toolmanager@asahi-america.com](mailto:toolmanager@asahi-america.com)

### **Rental Administration, Billing & Returns**

781-388-4623

[toolrental@asahi-america.com](mailto:toolrental@asahi-america.com)

## **Field Technician/Onsite Training**

### **Field Training**

617-480-7071

[info@asahi-america.com](mailto:info@asahi-america.com)

## **Technical Service**

### **High Purity, Double Wall or Industrial Piping**

781-321-5409

[pipe@asahi-america.com](mailto:pipe@asahi-america.com)

## **Asahi/America Corporate Headquarters**

### **Asahi/America, Inc.**

655 Andover St.

Lawrence, MA 01843

800-343-3618

[asahi@asahi-america.com](mailto:asahi@asahi-america.com)

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Direct Sales: East 800-232-7244 / Central 800-442-7244 / West: 800-282-7244