SCHAEFFLER

Induction Heaters
SMART Series

User manual

Contact

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ISO	ISO 9001: 2015
Machine ID and certification	See machine plate

Warning!

Read the manual and safety instructions before operating the device

- Check all parts for possible damage during transportation. In case of damage, please contact the forwarder immediately.
- Because our products are continuously subject to improvements, we reserve the right to make changes.

Vor Inbetriebnahme die Betriebsanleitung und die Sicherheitsvorschriften aufmerksam lesen

- Alle Teile auf möglichen Transportschaden kontrollieren. Eventuelle Schäden umgehend der Spedition melden.
- Da unsere Produkte ständig verbessert werden, behalten wir uns Änderungen vor.

Antes de la primera puesta en marcha, lea atentamente el manual de uso y las instrucciones de seguridad

- Revise todos los elementos para detectar posibles daños sufridos durante el transporte. En caso de observar algún daño, avise inmediatamente a la empresa de transporte.
- Debido a que nuestros productos están continuamente sujetos a mejoras, nos reservamos el derecho de realizar cambios.

Lisez le mode d'emploi et les consignes de sécurité avant la mise en service

- Vérifiez pour l'ensemble des pièces que celles-ci n'ont pas été endommagées pendant le transport. En cas de dommages, avertissez immédiatement le transporteur.
- Nos produits étant constamment améliorés, nous nous réservons le droit d'apporter des modifications.

Lees voor ingebruikname eerst de gebruiksaanwijzing en de veiligheidsvoorschriften

- Controleer alle onderdelen op mogelijke transportschade. Waarschuw bij schade onmiddellijk het transportbedrijf.
- Omdat onze producten voortdurend worden verbeterd, behouden wij ons het recht voor om wijzigingen aan te brengen.

Foreword

The induction heating devices HEATER50-SMART, HEATER100-SMART, HEATER150-SMART, HEATER200-SMART, HEATER400-SMART, HEATER600-SMART, HEATER800-SMART and HEATER1600-SMART give rapid, clean operation. Their high efficiency level allows energy-efficient heating and shorter mounting times. This reduces the operating costs. The uniform, controlled heating allows consistently good quality of mounting.

Operation is simple and user-friendly, the touch-sensitive screen is oil-resistant, dustproof and waterproof.

When heating by induction is used, there is no need at all to use oil – this gives particularly good environmental compatibility. The scope of application is very extensive. It is possible to heat the loose inner rings of cylindrical or needle roller bearings as well as sealed and greased bearings. Compared with previous models, further improvements have been made in performance capacity and safety and the part to be heated need no longer be of a minimum mass.

In order to ensure durability in demanding industrial operation, the devices are extremely robust and reliable.

English

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1. About the user manual

1.1 Current version

An induction heating unit is controlled by means of an operator unit with a touch-sensitive screen. The operator software can be developed further and an update is possible free of charge. Changes to the software can lead to adjustments in the user manual. A current version and translations of this user manual, can be found at “www.schaeffler.de/publications-heater” using the search term ‘HEATER-SMART’.

1.2 Availability

This user manual is supplied with each device and can also be ordered retrospectively.

1.3 Legal guidelines

The information in this manual corresponded to the most recent status at the close of editing. The illustrations and descriptions cannot be used as grounds for any claims relating to devices that have already been delivered. Schaeffler Technologies AG & Co. KG accepts no liability for any damage or malfunctions if the device or accessories have been modified or used in an incorrect manner.

1.4 Original user manual

The original user manual is taken to be a user manual in the Dutch language. A user manual in another language is to be taken as a translation of the original user manual.

2. Safety, warnings and potential hazards

2.1 Explanation of the pictograms

	Forbidden for persons with a pacemaker or other sensitive implants.
	Wearing of metal parts, watches and jewellery forbidden.
	Forbidden for persons with metal implants.
	Forbidden for magnetically sensitive data media.
	Read the user manual!
	Wear heat-resistant gloves!
	Wear safety shoes!
	Warning of danger.
	Electric shock hazard.
	Warning of magnetic fields.
	Warning of hot surface.
	Warning of heavy object.

2.2 Description of potential hazards

Warning! Voltage

	Be aware that you are working with an electrical device. On the mains side as well as internally, voltages occur that can lead to serious injury and death if used inexpertly or improperly. ■ Connect the unit to the power according to the information on the rating plate. ■ Before each use, check the power supply cable for damage. ■ Safe disconnection from the power supply must be ensured at all times before starting maintenance and repair work. This can be achieved by removing the power plug from the socket.

Warning! Electromagnetic field

	Be aware that you are working with an device that generates electromagnetic fields. Keep a distance of 1 metre from the unit after switching on.
	These fields can be harmful for persons with active medical aids such as pacemakers.
	These fields can be harmful for persons with passive medical aids such as joint prostheses. The wearing of jewellery can also result in injuries due to burns.
	It is forbidden for persons with active medical aids to be in the immediate vicinity of the unit when it is in operation. The generated electromagnetic field may influence the proper function of such medical aids.
	It is forbidden to wear jewellery when working with the generator and inductors. There is a risk of the jewellery being heated by the electromagnetic field and resulting in injuries due to burns.
	For this reason, persons with passive implants are recommended not to enter the immediate vicinity of the induction heater when it is in operation.

	Furthermore, it cannot be ruled out that the electromagnetic fields could cause damage to electronic and magnetic data media. Keep such equipment away from the induction heater.

Caution! Tripping hazard

 	Limit the risk of injury due to tripping as far as possible. ■ Keep your place of work tidy. Remove any loose and superfluous objects from the immediate vicinity of the unit. ■ Position any (power suply) cables, as low as possible to minimize the risk of tripping.

Caution! Risk of burns

	The workpiece becomes warm to very hot during heating.
	Parts of the unit may also become hot due to contact with the workpiece or the heat radiated by the workpiece.
	Therefore always wear heat-resistant gloves when handling workpieces in order to avoid injury due to burns.

Caution! Risk of injury during lifting

	A number of units in the Schaeffler heater range weigh more than 23 kg and may therefore not be lifted by one person alone. (see technical specs)
	If a unit weighs more than 23 kg, lift it with two persons or use suitable lifting equipment.
	Wear safety shoes to prevent injury from unintentionally falling workpieces and/or machine parts.

2.3 Safety measures to be taken

- The user must carefully read this manual and be familiar with the safety standards in the work practice.
- Follow the instructions in the manual at all times.
- Check the connection voltage against the rating plate on the unit. If the power cord does not have one, make sure it is fitted with the proper plug. This must be fitted by a qualified electrician.
- Never use or store an induction heater in a damp environment.
- Only use Schaeffler induction heaters indoors.
- If using a mobile version; always lock the castors when not moving the device.
- If the heater is equipped with extendable horizontal supports, always secure them with the appropriate locking pin, both in the fully retracted and in the fully extended position.
- Use suitable lifting equipment according to the weight of the ledge or component.
- Never use a metal strap to support workpieces or suspend them in the magnetic field. High currents could start running through the strap, causing it to heat up.
- Do not hold metal objects near ledge and poles.
- Whilst heating, observe a minimum distance of 1 metre from the heater.
- Never remove the induction ledge during heating.
- Do not modify the heater. Never use home-made ledges.
- Always check that the induction ledge is positioned correctly against the poles, so excessive vibration cannot cause personal injury or damage to the device.
- Do not switch on the heater until the core is closed with a ledge.

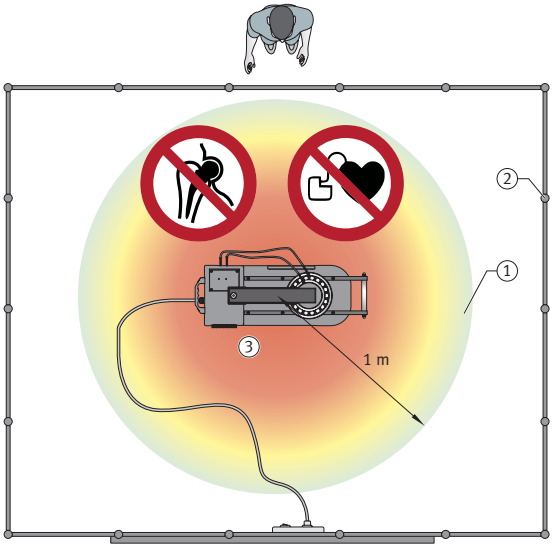
Hazard area

The hazard area of the heating device can represent a danger of death.

DANGER!	
	Danger of heart stoppage in persons fitted with a pacemaker due to the strong electromagnetic field. Ensure that persons fitted with a pacemaker remain outside the hazard area of the heating device. Erect barriers and attach clearly visible warning signs, Figure 1.

WARNING!

Danger of death for persons with artificial heart valves made from metal, hazard of severe burns due to heating of implants by the electromagnetic field, see chapter 2.2.
Ensure that persons with a ferromagnetic implant remain outside the hazard area of the heating device. Erect barriers and attach clearly visible warning signs, Figure 1.



1. Hazard area, 1m

2. Barrier

3. Flat work surface capable of supporting load

Figure 1

2.4 Safety provisions

- The electronic systems switch off automatically if the ambient temperature rises above 70ºC.
- When heating in temperature mode, the heater switches off if no 1°C temperature increase is measured during a time pre-set by the manufacturer.
- The coil of the heater is equipped with a temperature monitor. If the coil becomes too hot, the heating process is switched off entirely.
- Models with a swivel arm are equipped with a safety positioning cam.

An induction heater operates by means of a magnetic field. At a distance of 1 metre, the magnetic field has been reduced to such an extent that it is below the applicable standard of 0.5mT.

3. Introduction

3.1 Application

Schaeffler induction heaters are intended for heating bearings, so they can be assembled easily by means of a shrink fit. Subject to professional assessment, they can also be used to heat bushings, cogwheels, couplings and metal objects that form a closed circuit. Bearings and workpieces are demagnetized automatically after each heating cycle.

Bearings and workpieces can be heated to a maximum temperature of 240ºC (464°F).

Schaeffler induction heaters are suitable for continuous use. However, when heating to a temperature of 240°C (464°F), do not so for more than half an hour.

CAREFUL!

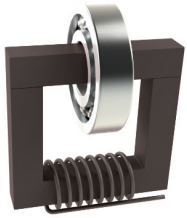
- Bearings may be heated to a maximum of 120°C (248°F).
- Precision bearings may be heated to a maximum of 70°C (158°F). Higher temperatures can affect metallurgical structure and lubrication, resulting in instability and failure.
- Do not use a heater for bearings and workpieces that are outside the minimum and maximum dimensions specified in the technical specifications.
- Never switch off the unit with the main switch while it is still heating up.

3.2 Operating conditions

- Only use the device indoors.
- Fit for use in an industrial environment, at an ambient temperature of 0ºC (32°F) to 50ºC (120°F) and humidity of 5 to 90% – non-condensing.
  At temperatures below 0°C (32°F), the unit stops operating.

3.3 Principle of operation

The operation of the heater is based on inducing a (low frequency) current in the bearing. This is achieved by incorporating the bearing as a secondary winding in a transformer.



The primary winding is connected to the mains by means of an electronic controller. The magnetic field induces a high current (short-circuit current) through the bearing, which then becomes hot. After each heating cycle, the bearing or workpiece is demagnetized.

4. Installation

- Remove the packaging and place the induction heater on a non-ferrous, stable and level surface. Put heaters with wheels on the brake to prevent the heaters from moving.
- A Schaeffler heater is supplied with ledges, 2 temperature sensors, heat-resistant gloves (suitable up to 250°C / 482°F) and acid-free grease.
- Check the connection voltage against the rating plate on the unit.
- Each heater is equipped with a plug. As there is a wide variety of plug types, the attached plug may not fit. In such cases, obtain a proper plug. It must be fitted by a qualified electrician.
- There are different fitting options depending on the type of cable on the heater:

Fitting options HEATER50 - 200 SMART

120V/230V 1 phase heaters		
	Brown	Phase
	Blue	Zero
	Green/Yellow	Ground
120V/240V 1 phase heaters		
	Black	Phase
	White	Zero
	Green	Ground
400V/450V/500V 2 phase heaters		
	Brown	Phase
	Blue or Black	Zero
	Green/Yellow	Ground

480V/600V 2 phase heaters		
	Black	Phase
	White or Black	Zero
	Green	Ground

Fitting options HEATER400 - 1600 SMART

400V/450V/500V 2 phase heaters		
	Brown	Phase
	Black	Phase
	Green/Yellow	Ground

480V/600V 2 phase heaters		
	Black	Phase
	Black	Phase
	Green	Ground

- Ensure that the power supply cable cannot come into contact with the workpiece to be heated. Insert the plug in a socket outlet with grounded connection.
- Switch on the device by means of the main switch. The machine is starting up.
- While the machine is starting up, a logo is displayed on the screen. Starting up takes some time.

- Connect the temperature sensor by inserting the plug into the socket. Make sure that the – and + of the plug correspond to that of the socket.
- The induction heater is now ready for use.

5. Explanation of display, buttons and connections

Touchscreen:

time or temperature
heating mode
settings
information
red temperature = T1
green temperature = T2

Start /Stop button:

heating / automatic demagnetisation

Sensor connections T1 and T2:

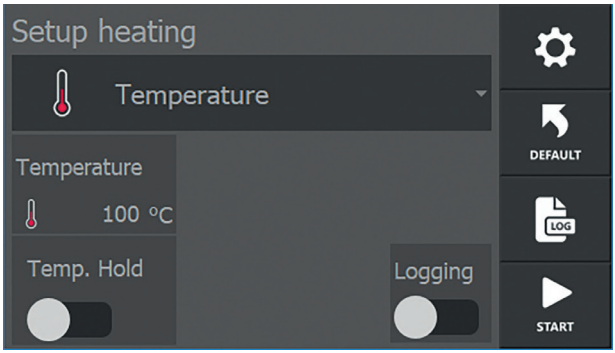
T1 (red on display) is the main temperature that controls the heating process.

T2 (green on display) is an additional measurement that can be used to monitor and adjust a temperature difference, ΔT, in a workpiece during heating.

USB port for logging purposes (stored heating data).

5.1 Explanation of touchscreen operating elements

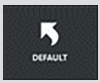
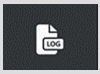
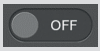
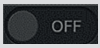
The operating panel consists of a touchscreen.

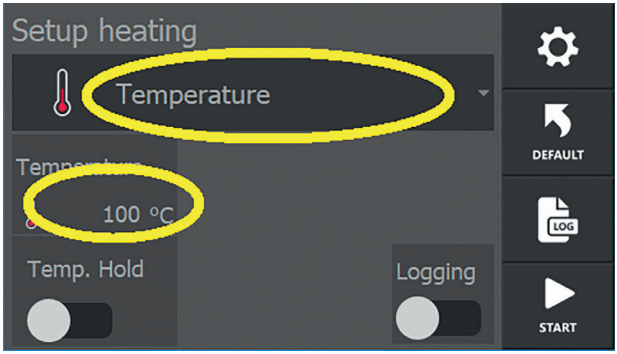


Different pages are displayed on the screen with i.a. different buttons, setting possibilities and operating modes.

The most frequently used buttons and how variables can be set are explained below.

START	Start heating process.
	Stop heating process.
	To settings menu.
ADMIN	To administrator (factory) settings. Not accessible to the end user.
	Back / previous screen.
	To next page.
	To previous page.

	Reset appliance to default settings.
	Call up additional heating information.
	Adapt target heating during heating process.
	Access to log data.
 	Sliders on/off. The corresponding option is switched on or off.
	Slider “not available”. The corresponding option cannot be switched on or off due to settings made elsewhere.

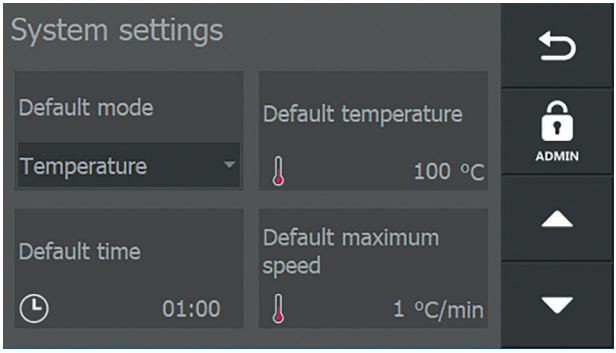


Variables can be set or changed by tapping them.
Usually, a selection menu or keypad is then displayed. This principle applies to every screen. With the help of the sliders, elements can be switched on or off.

6. System settings

6.1 General

The heater offers the possibility to set and adjust parameters according to personal wishes and preferences. The parameters can be set according to the demands made on a heating process. Pressing settings displays the following screen:

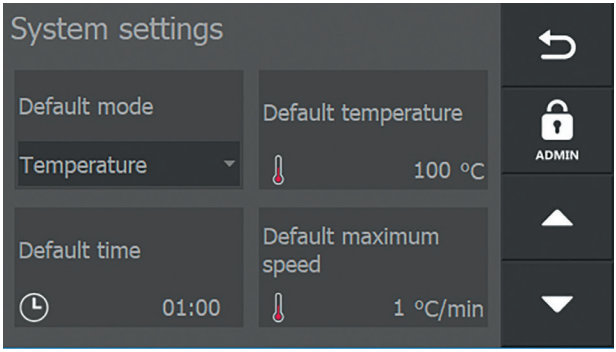


With the buttons “page forward” , “page back” and “back / previous page” the user can navigate through the various settings pages.
Tapping allows its settings to be changed.

About Admin settings

An “ADMIN” button is displayed on this screen.
Settings are made by the manufacturer in the Admin settings. These settings are essential for the type of heater and are not at the user level and are therefore not accessible. These settings are protected by a password.

6.2 Explanation of system settings – screen 1



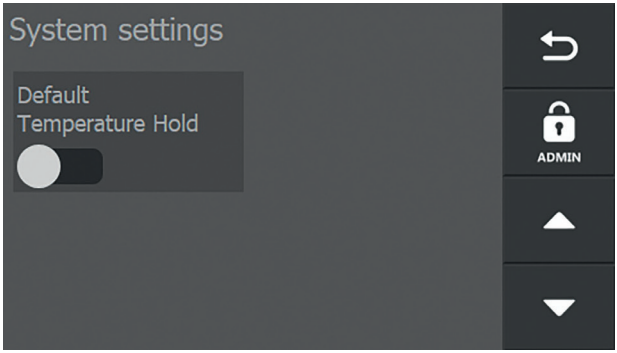
Default mode:
Heating mode to which the heater is set and in which it starts for the first time, or to which it returns if “Default” is pressed.

Default temp:
Setpoint temperature at which the heater starts, or to which it returns if “Default” is pressed.

Default time:
Setpoint time with which the heater starts, or to which it returns if “Default” is pressed.

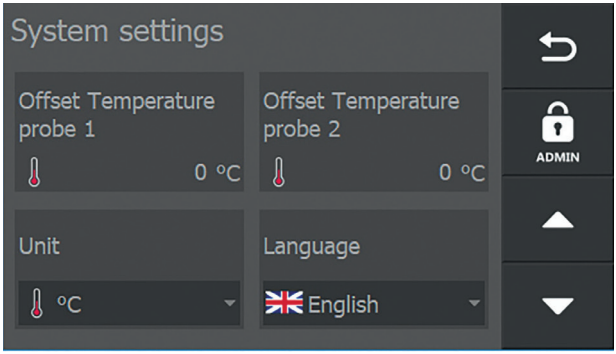
Default max. speed:
Maximum setpoint, maximum heating speed in the temp&speed modes. This does not mean that the heater will always reach this speed. This depends, among other things, on the geometry of the workpiece, the ledge used, etc.

6.3 Explanation of system settings – screen 2



Default Temperature hold:
Default temperature hold on or off

6.4 Explanation of system settings – screen 3



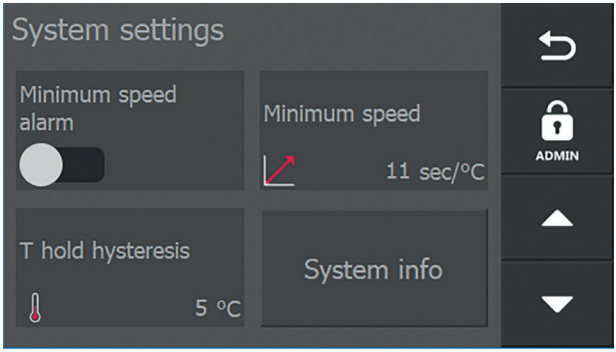
Offset Temperature probe 1:
Calibration / correction readout thermocouple 1

Offset Temperature probe 2:
Calibration / correction readout thermocouple 2

Unit:
Setting of the temperature measurement in °C or °F.

Language:
Setting of the language in which the texts on the screen are displayed. Choice of Dutch, English, German and Italian.

6.5 Explanation of system settings – screen 4



Min. speed alarm:
Alarm if insufficient temperature increase is measured according to the Min. speed limit setting.

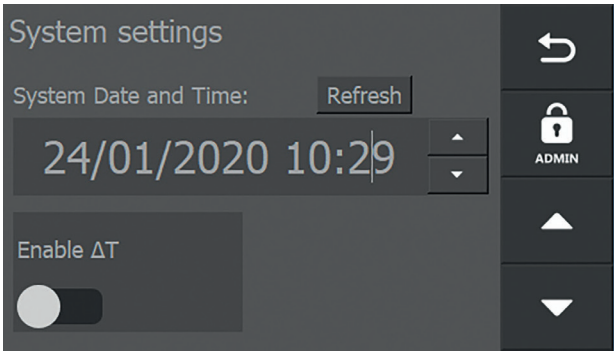
Min. speed:
Minimum temperature gradient.

T hold hysteresis:
Temperature at which the workpiece may be lowered before the heating process restarts automatically

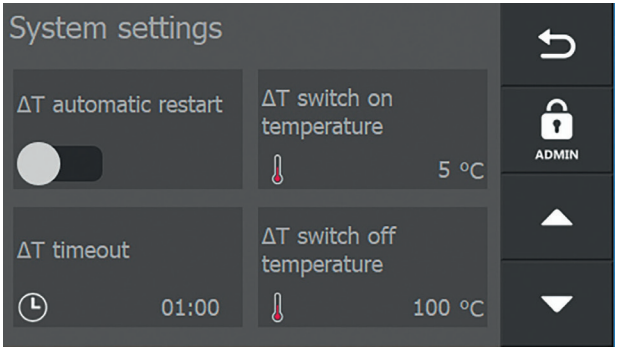
System info:
Information about firmware versions

T hold hysteresis is the setting that belongs to T hold in the set up (heating) screen.

6.6 Explanation of system settings – screens 5 and 6



In this screen, the system date and time can be set.
Depending on whether you want to use the ΔT functionality, switch on “ΔT enabled”.
Only when you switch on “ΔT enabled”, another screen is available in which you can enter the desired settings for this functionality.



ΔT automatic restart:
Activate or deactivate automatic restarting of heating as soon as ΔT is within the permitted limits of “ΔT switch on” again.

ΔT switch on temperature:
The temperature difference between 2 measuring points on a workpiece at which the heating process is allowed to be switched on again after previously being switched off due to exceeding of the limit value for ΔT.

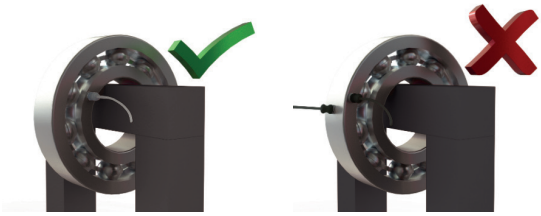
ΔT timeout:
Time within which a restart must take place after exceeding ΔT.

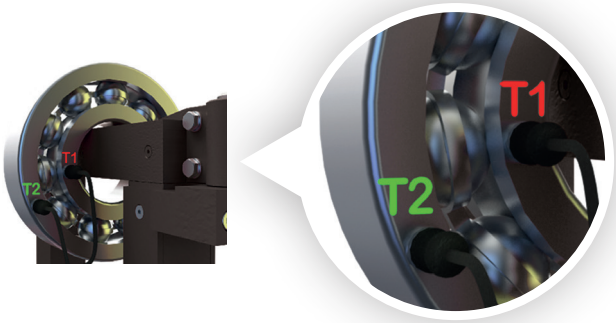
ΔT switch off temperature:
The temperature difference between 2 measuring points on a workpiece at which the heating process is stopped.

7. The magnetic temperature sensor

- 2 Temperature sensors come with the heater and can be reordered as spare parts.
- The magnetic temperature sensor must always be used when heating in one of the “temperature modes”.
- The sensor can be used as a tool for temperature control whilst heating in “time mode”.

- The sensor is suitable for a maximum temperature of 240ºC (464°F).
- In the event of temperatures exceeding 240ºC (464°F), the connection between the magnet and the sensor is interrupted. The heater switches off automatically when the sensor does not detect a temperature increase.
- Special clamp sensors are available for non-magnetic workpieces.
- Make sure that the sensor and workpiece surfaces are clean.
- Always place sensor T1 on a flat area as close as possible to the bore. Connect the sensor by inserting the plug into the socket (in the casing). Make sure that the – and + of the plug correspond to that of the socket. If desired, a second sensor, T2, can be used for additional control or monitoring of a temperature difference, ΔT, between 2 points on the workpiece.





- Correct sensor positions for heating with double temperature measurement and ΔT monitoring.
  T1 (main temperature) on the bore.
  T2 on the outer ring.

CAREFULL!

Handle the sensor with care! It is a vulnerable part of the heater. After use, place the sensor on the side of a vertical pole. Remove the sensor from the workpiece at the plastic part. Do not pull the cable.

8. Method of operation

WARNING!

- Use suitable lifting equipment for heavy ledges and workpieces. Prevent personal injury by improper handling.
- The weight of the workpiece may not exceed the value given in section 8.3 and in the technical specifications. This can cause failure of the device and personal injury.
- Ensure that the power supply cable cannot come into contact with the workpiece to be heated. Damage to the cable can cause electrocution!
- Never use a metal strap to support workpieces or suspend them in the magnetic field. High currents could start running through the strap, causing it to heat up.

A workpiece can be placed in different ways:

Hanging, with ledge through the workpiece

Horizontal, with workpiece around the pole

Hanging, with ledge through the workpiece

Horizontal, with workpiece around the pole

Horizontal, with workpiece around the ledge

Horizontal, with workpiece around the ledge

Large workpieces can be thermally insulated by wrapping them in insulating material, such as a welding blanket. This ensures that the heat stays in the workpiece and does not dissipate.

8.1 Heating a hanging workpiece

- Place the induction ledge with the bearing on the poles. Make sure that the bare-metal side is positioned straight on the poles.

- Always choose an induction ledge that fills the bore of the bearing as much as possible. You can even use 2 ledges at the same time. This promotes optimal, fast and even heating.

- Make sure that the bare-metal sides are sufficiently coated with grease to ensure optimal contact and avoid vibration.
- Swivel arm models: swivel the ledge open (towards you) until it drops in the safety positioning cam. Slide the workpiece over the ledge until it is in the middle. Swivel the ledge back to the pole.

- Always make sure that the workpiece does not come into contact with the plastic housing of the heater. When the heating is finished, follow the instructions in reverse order. Use heat-resistant gloves to move the heated workpiece.

8.2 Heating a horizontal workpiece

- This is only possible if the bore of the workpiece is large enough to fit over the pole.
- Place the workpiece as centrally as possible around the pole on the horizontal supports.
- The workpiece may not be wider than the horizontal supports.
- Always choose the largest induction ledge.
- Make sure that the bare-metal sides are sufficiently coated with grease to ensure optimal contact and avoid vibration.

- Always make sure that the workpiece does not come into contact with the plastic housing of the heater. When the heating is finished, follow the instructions in reverse order. Use heat-resistant gloves to move the heated workpiece.

8.3 Maximum weights for swivel arm models

Table for maximum permitted weights on the horizontal support and the (swivel) ledges:

Type	On supports	Size of (swivel) ledges (mm)										
		7	10	14	20	30	40	50	60	70	80	90
HEATER50-SMART	50 kg	1 kg	2 kg	3 kg	5 kg	10 kg	15 kg	-	-	-	-	-
HEATER100-SMART	100 kg	-	2 kg	3 kg	5 kg	10 kg	15 kg	20 kg	-	-	-	-
HEATER150-SMART	150 kg	-	-	-	10 kg	15 kg	25 kg	40 kg	45 kg	50 kg	-	-
HEATER200-SMART	200 kg	-	-	-	10 kg	15 kg	25 kg	40 kg	45 kg	50 kg	-	-
HEATER400-SMART	400 kg	-	-	-	-	-	-	-	60 kg	-	80 kg	-
HEATER600-SMART	600 kg	-	-	-	-	-	-	-	60 kg	-	-	80 kg
HEATER800-SMART	800 kg	-	-	-	-	-	-	-	-	-	-	-
HEATER1600-SMART	1600 kg	-	-	-	-	-	-	-	-	-	-	-

- Keep to these maximum weights and avoid tilting the heater or damaging the supports, (swivel) ledges or hinge.

CAREFUL!

- Always handle induction ledges with care. They are damaged easily when dropped, knocked against something, etc. Store them immediately after use.

9. Operation

There are 4 heating methods:

Temperature mode

- For controlled heating up to the desired temperature and if you want to make use of the thermostat feature. This feature maintains the heated workpiece at the pre-set temperature for a maximum period of 5 minutes.

Time mode

- Suitable for series production. If the time needed to reach a certain temperature is known, the workpiece can be heated in series with the time mode.
- In the event of an emergency. If the sensor is faulty, as a contingency measure, the workpiece can be heated with the time mode. The temperature may be measured with an external thermometer.

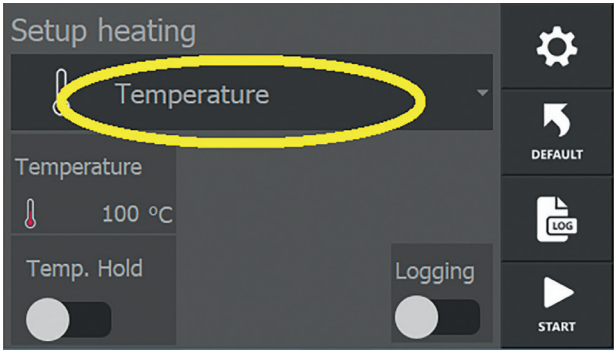
With the temperature or time mode

- For controlled heating up to the desired temperature or duration. Depending on which of these is reached or elapsed first, the heater switches off.

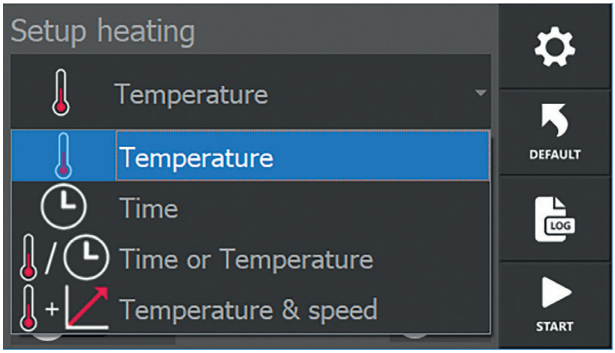
With the temperature & speed mode

- In the case of controlled heating to the desired temperature, whereby a maximum temperature gradient per time unit can be entered, so the workpiece is heated according to a certain curve.

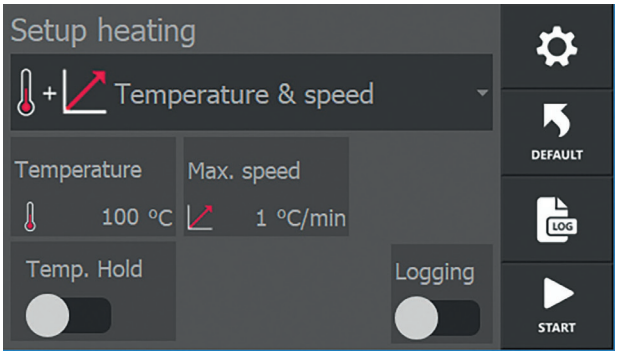
9.1 Selecting heating modes



The various heating modes can be selected by tapping the current mode on the settings screen.



A selection menu appears below the current mode, in which one of the four heating modes can be selected by tapping. The selection made is then displayed under “Mode” and the selection menu disappears from the screen again. More, less or other variable parameters may be displayed, depending on the choice made.

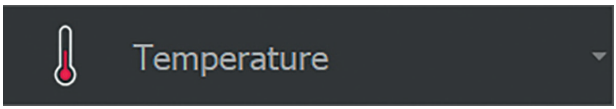


Example screen after selecting “Temp & Speed”.

If required, press **“Default”** to call up the default settings of the heater as set in the settings menu.

About the heating modes

Temperature mode



Heating of workpieces to a set temperature; the temperature of the workpiece is monitored during the whole process. In the settings menu, it is possible to select a double measurement / ΔT measurement here. T1 (temperature sensor 1) is the main sensor here and is the master for the heating process.

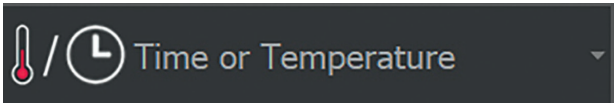
In this mode, one or more temperature sensors have to be used that are positioned on the workpiece to be heated.

Time mode

Heating of workpieces over time. The heating process is performed for a set time. The workpiece temperature is not measured or checked.
This mode can be used when you know in advance how long it takes to heat a given workpiece to a given temperature.

This is the only mode in which the heater can function without temperature sensors being connected.

Time or Temperature mode

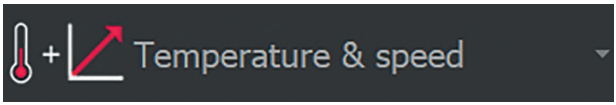


Heating of workpieces to a set temperature with the temperature of the workpiece being monitored during the whole process, or heating over time.

In the settings menu, it is possible to select a double measurement / ΔT measurement here. T1 (temperature sensor 1) is the main sensor here and is the master for the heating process. In this mode, both the desired workpiece temperature and the desired heating time have to be set. The heater switches off when one of the two settings (temperature or time) is reached or has elapsed.

In this mode, one or more temperature sensors have to be used that are positioned on the workpiece to be heated.

Temperature and speed mode



Heating of workpieces to a set temperature; the temperature of the workpiece is monitored during the whole process.
In this mode, a gradient is also entered with which the heating process may take place. In the settings menu, it is possible to select a double measurement / ΔT measurement here. T1 (temperature sensor 1) is the main sensor here and is the master for the heating process.

For example: Heat the workpiece to 120°C with a gradient of 5°C/min.

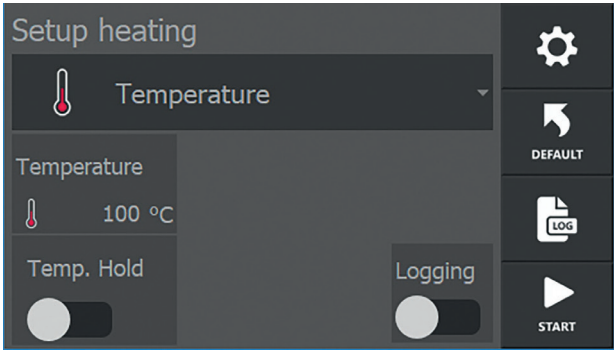
After switching on the process, the heater controls the power output so the heating curve for the workpiece follows the gradient set.
During heating, a white dotted line is shown in the chart, indicating the ideal curve for the heating process. The actual curve will be slightly above this line, since the controller first has to find a balance between temperature increase and the matching power output.

NOTE! This mode functions well only if the gradient set is realistic in relation to the maximum power that the heater can output and input into the workpiece.

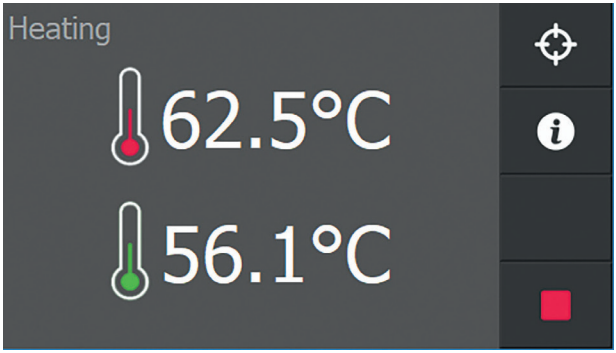
The gradient can be set in X°C/min.
In this mode, one or more temperature sensors have to be used that are positioned on the workpiece to be heated.

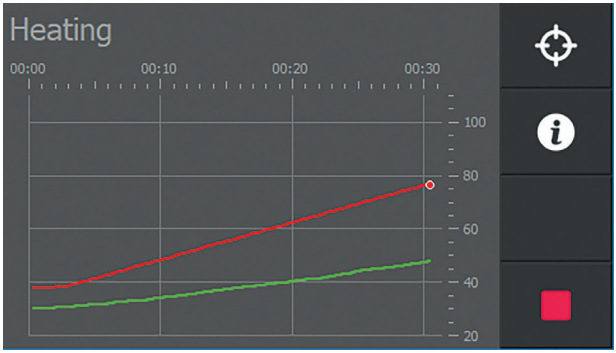
9.2 Heating in temperature mode

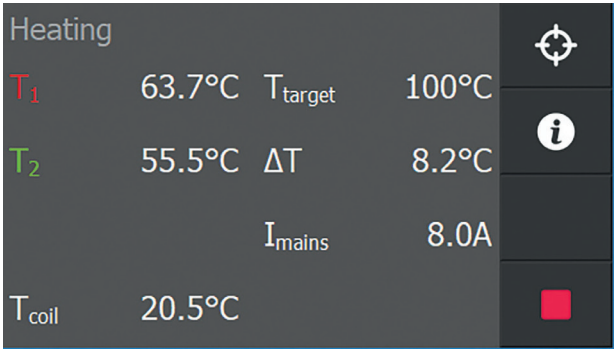
- Position the workpiece and sensor (according to chapters 7 & 8.)
- Switch on the heater and select the temperature mode if necessary.



- If necessary, change the temperature set by pressing the current temperature.
- If desired, switch on the “hold temp.” (thermostat mode) and log functionality by moving the sliders to the right. These will now turn green.
- Press “**START**”. The heating starts, you will hear a slight humming sound.
- The display shows the current temperature of the workpiece.
- If a second sensor is attached to the workpiece, this temperature also appears on the display.





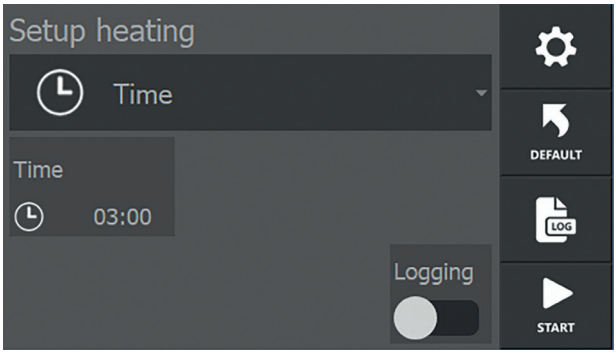


By pressing the info button , the heating process is displayed graphically. Pressing info again displays additional information from the process.

- Unless the thermostat function is switched on, heating will stop automatically when the set temperature is reached. A loud beep sounds, and the display shows information about how the heating process went. The beep can be ended by pressing **“STOP”**.
- When the thermostat function is switched on, unless you press **“STOP”**, the workpiece will be kept at the set temperature for the time set. Heating starts again after the temperature has dropped to the temperature set in the system settings to which the workpiece is allowed to drop. Each time the set temperature is reached, the induction heater sounds a loud beep.
- During this cycle, a clock is displayed at the bottom of the screen with the time remaining for the temperature hold mode. After the temperature hold time has elapsed, the heater sounds a continued loud beep, which can be ended by pressing **“STOP”**.
- Each time the induction heater stops, it automatically demagnetises the workpiece.
- The heating process or thermostat feature can be interrupted by pressing **“STOP”**.

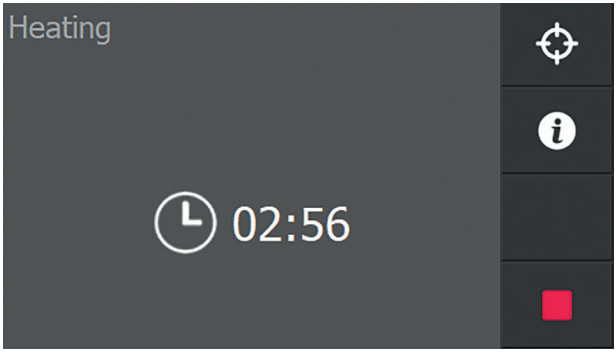
9.3 Heating in time mode

- Position the workpiece and any sensors (according to chapters 7 & 8.) Only use the sensor if you want to check the temperature before the countdown has completed.
- Switch on the heater and select the time mode if necessary.
- If necessary, change the time set by pressing the current time.
- Press **“START”**. The heating starts, you will hear a slight humming sound.
- The display shows the time left until process completion.

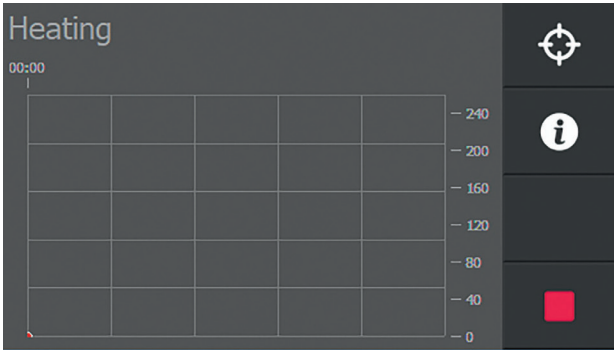


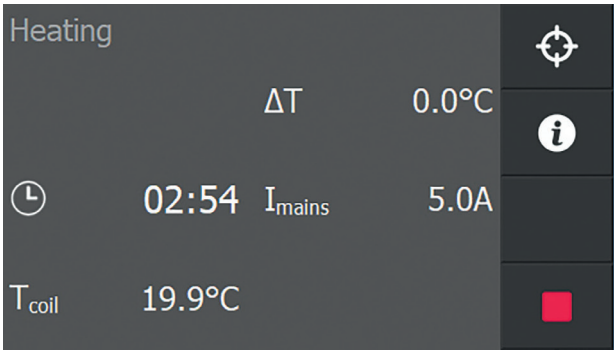
If you have connected the sensors and placed them on the workpiece, the temperatures measured are also shown on the display.

NOTE! In time mode, the process does nothing with these temperatures!



Only when sensors are connected, the heating process is displayed graphically by pressing the info button . Pressing info again displays additional information from the process.

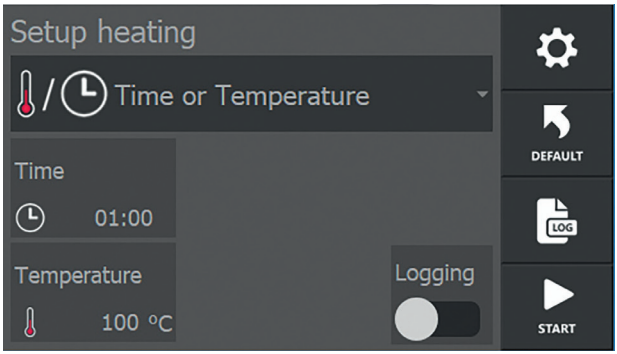




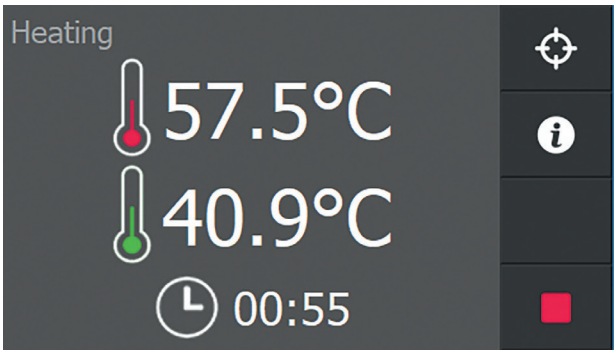
- During heating, the pre-set time counts down to 00:00. When 00:00 is reached, the induction heater switches off. The workpiece is then demagnetized automatically and a loud, continuous beep sounds. Press **“STOP”** to switch off the beep.

9.4 Heating in temperature or time mode

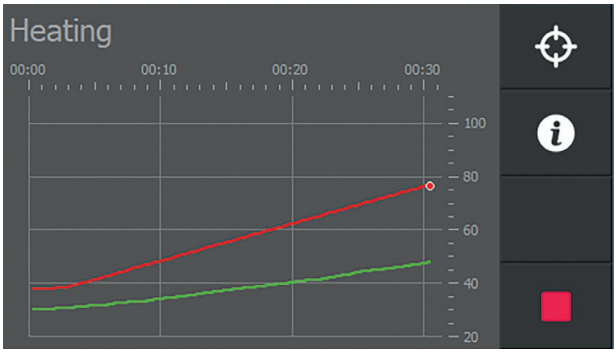
- Position the workpiece and sensor (according to chapters 7 & 8.)
- Switch on the heater and select the temperature or time mode if necessary.

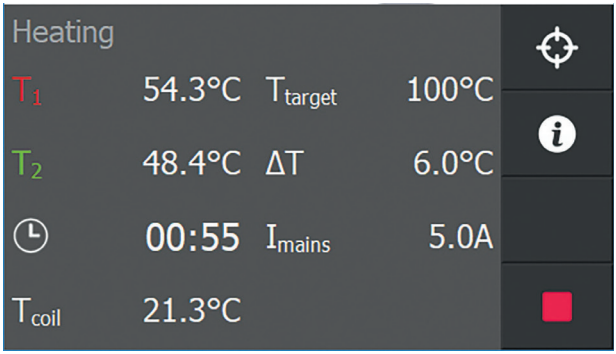


- If necessary, change the temperature and/or time set by pressing the current values.
- Press **“START”**. The heating starts, you will hear a slight humming sound.
- The display shows the temperature and the time left until process completion.



By pressing the info button , the heating process is displayed graphically. Pressing info again displays additional information from the process.

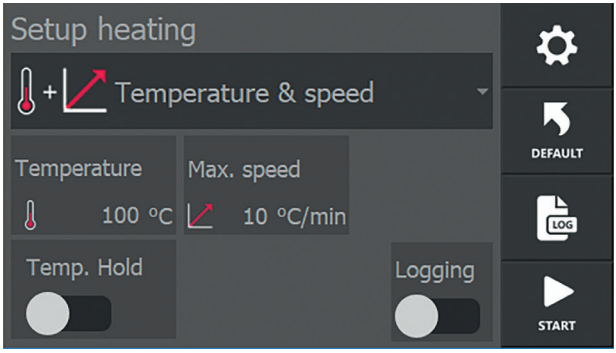




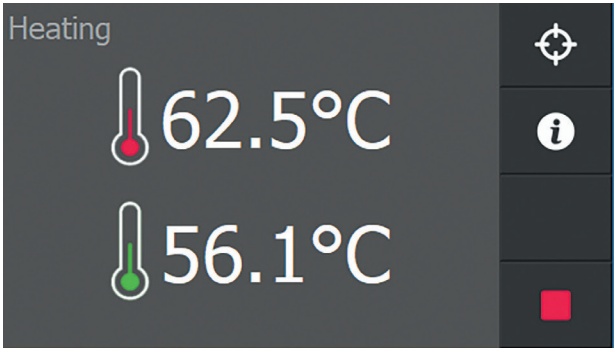
- Heating runs until the set temperature is reached or until the set time has elapsed, whichever comes first. The workpiece is then demagnetized automatically and a loud, continuous beep sounds. Press **“STOP”** to switch off the beep.

9.5 Heating in temperature & speed mode

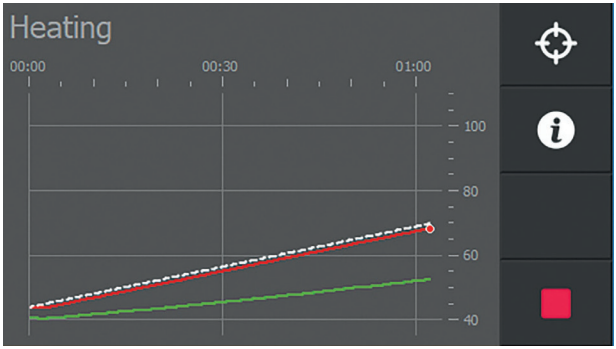
- Position the workpiece and any sensors (according to chapters 7 & 8.)
- Switch on the heater and select the temperature & speed mode if necessary.

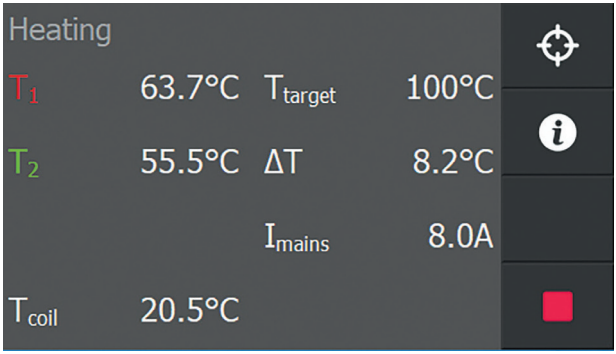


- If necessary, change the temperature and gradient set by pressing the current values.
- Press **“START”**. The heating starts, you will hear a slight humming sound.
- The display shows the current temperature of the workpiece.
- If a second sensor is attached to the workpiece, this temperature also appears on the display.



By pressing the info button , the heating process is displayed graphically.
The white dotted line indicates the gradient at which the process is set. Pressing info again displays additional information from the process.





- Unless the thermostat function is switched on, heating will stop automatically when the set temperature is reached. A loud beep sounds, and the display shows information about how the heating process went. The beep can be ended by pressing **“STOP”**.
- When the thermostat function is switched on, unless you press **“STOP”**, the workpiece will be kept at the set temperature for the time set. Heating starts again after the temperature has dropped to the temperature set in the system settings to which the workpiece is allowed to drop. Each time the set temperature is reached, the induction heater sounds a loud beep.
- During this cycle, a clock is displayed at the bottom of the screen with the time remaining for the temperature hold mode. After the temperature hold time has elapsed, the heater sounds a continued loud beep, which can be ended by pressing **“STOP”**.
- Each time the induction heater stops, it automatically demagnetises the workpiece.
- The heating process or thermostat feature can be interrupted by pressing the **“STOP”** button.

9.6 Workpiece installation

- After pressing **“STOP”**, place the sensor(s) on the side of the pole.
- By pressing **“STOP”**, the workpiece is demagnetized automatically.
- Wear heat-resistant gloves. Place the ledge with the workpiece on a clean surface or if the heater is equipped with a swivel arm, swivel the ledge forwards into the positioning cam, slide the workpiece off.
- Fit the workpiece without delay and prevent cooling down.

9.7 Error messages

The heater continuously monitors process parameters and other variables that are important for the heating process to run as smoothly as possible.
If something is wrong, the heating process usually stops, and a pop-up screen appears with an error message.

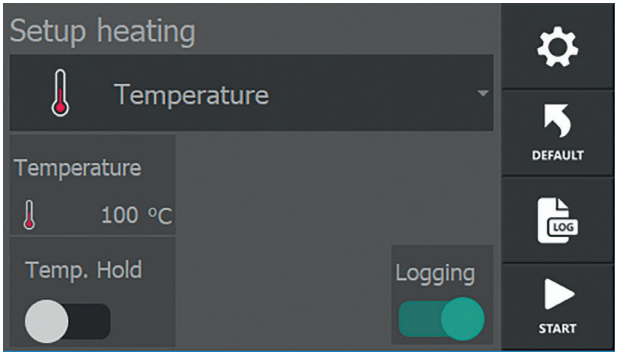
Error message	Nature of the error	Solution
“No temperature increase measured”	Insufficient temperature rise within set time.	Switch off the mode or set it differently. If the error still occurs, consider using a heavier device.
“An internal communication error occurred”	Communication problem between printing that could not be resolved automatically.	Switch off the device with the main switch and wait a few seconds. Then switch the device on again.
“Thermocouple 1 disconnected”	Thermocouple 1 is not connected or defective.	Connect a thermocouple or try a different thermocouple.
“Thermocouple 2 disconnected”	Thermocouple 2 is not connected or defective.	Connect a thermocouple or try a different thermocouple.
“Delta T timeout”	The difference in temperature between the two sensors did not fall below the set limit value within the set time during a ΔT pause.	If desired, increase the pause time for ΔT.
“The mains voltage has dropped below the operating limit”	The supply voltage is lower than 80V.	Check the mains voltage.
“The mains voltage has exceeded the operating limit”	The supply voltage is above 280V.	Check the mains voltage.
“The mains frequency has dropped below 45Hz”	The AC frequency is lower than 45Hz.	Check the mains frequency.
“The mains frequency has exceeded 65Hz”	The AC frequency is higher than 65Hz.	Check the mains frequency.
“The power frequency is too unstable for operation, Attention: the ledge has not been demagnetized!”	The AC frequency is unstable.	Check the mains frequency.
“The environment temperature is below -10°C”	The ambient temperature is lower than -10°C.	Switch off the device and wait until the ambient temperature has risen above -10°C (14°F). If the temperature is within the limit and the error still occurs, please contact your supplier.

“The environment temperature is above 70°C”	The ambient temperature is higher than 70°C.	Switch off the device and wait until the ambient temperature has dropped below 70°C (158°F). If the temperature is within the limit and the error still occurs, please contact your supplier.
“The mains current has exceeded its limit, Attention: the ledge has not been demagnetized!”	An effective current from the mains is too high.	If the problem persists, contact your supplier.
“The coil current has exceeded its limit, Attention: the ledge has not been demagnetized!”	An effective current through the coil is too high.	Switch the device off and on and try again. If the problem persists, contact your supplier.
“The capacitor current has exceeded its limit, Attention: the ledge has not been demagnetized!”	An effective current through the capacitor is too high.	Switch the device off and on and try again. If the problem persists, contact your supplier.
“The coil temperature is too low”	The coil temperature -10°C.	Switch off the device and wait until the ambient temperature has risen above -10°C (14°F). If the temperature is within the limit and the error still occurs, please contact your supplier.
“The coil temperature is too high”	The coil temperature 120°C.	Switch off the device and wait until the ambient temperature has dropped below 120°C (248°F). If the temperature is within the limit and the error still occurs, please contact your supplier.
“A coil current peak was detected, Attention: the ledge has not been demagnetized!”	A current peak has been detected.	Switch off the device and wait a few seconds before switching it on again.
“A coil voltage peak was detected, Attention: the ledge has not been demagnetized!”	A voltage peak has been detected exceeding 500V	Switch off the device and wait a few seconds before switching it on again.

10. Log functionality

10.1 Logging

Each heating mode has a slider on the screen with which the log functionality of the heater “Log” can be activated or deactivated. This functionality offers the possibility of defining certain parameters for the heating process, such as temperature, time, power, operator and workpiece data.

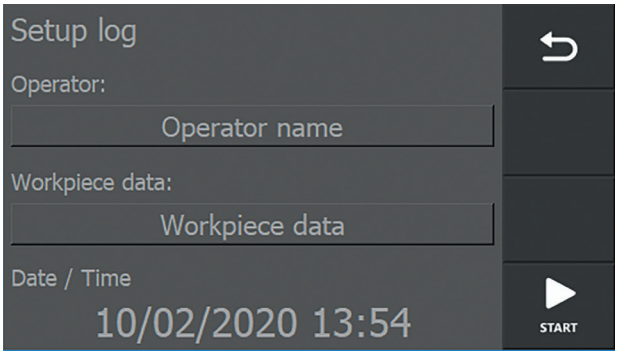


NOTE!

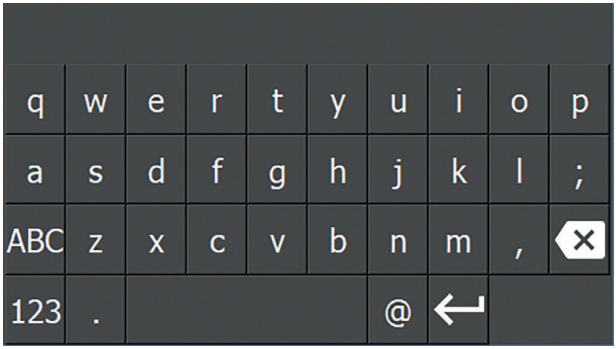
In order to be able to log and export these data, an empty USB data carrier (not supplied) must be plugged in to the USB port provided at the side of the device.

If this functionality is activated, a menu appears each time the “start” button is pressed in which data has to be entered. Only then can heating actually be started.

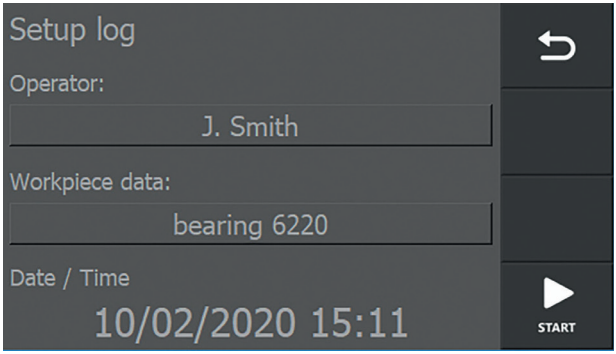
Pressing **“START”** displays the following screen:



Tap the item to be changed/entered. A keypad is displayed.



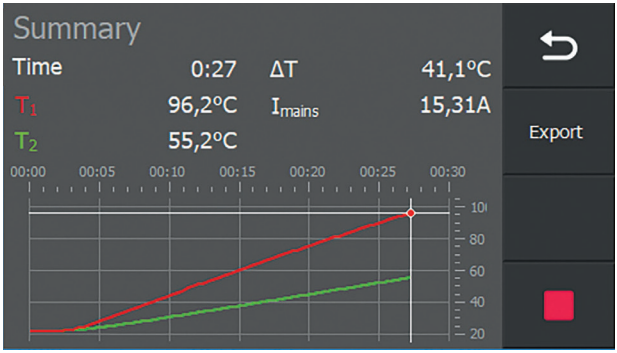
Enter the data and exit with enter. The keypad disappears from the display and the entered data is transferred to the corresponding field.



Repeat the above steps, if necessary, for the other input field.

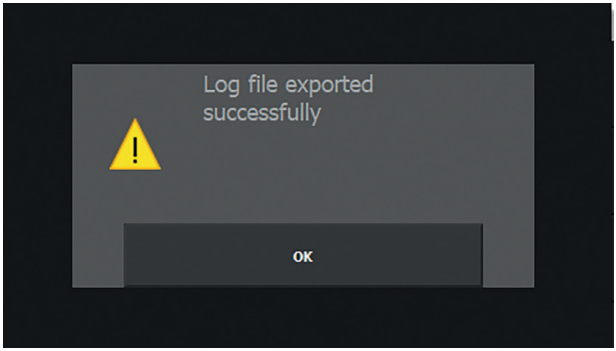
Pressing **“START”** now starts the heating process and the heating data are coupled to the entered data, operator and project name. The system date and time are also included.

When the process has been completed, an overview screen with all the heating data is displayed.



Now the heating data can be exported to a USB data carrier as a CSV file. To do so, tap the **“Export”** button.

The screen below appears as a sign that the export of the log file has been successful. Press **“OK”** to confirm the message and to clear the message from the screen.



The file is now stored as a .CSV file (comma separated variables) that can be imported, for example, into Microsoft Excel for processing as a report.

It is not necessary to export the log files immediately after each heating cycle.
The files are stored on the heater and can be selected from a list at a later stage to view and/or export them to a USB data carrier. See section 10.5.

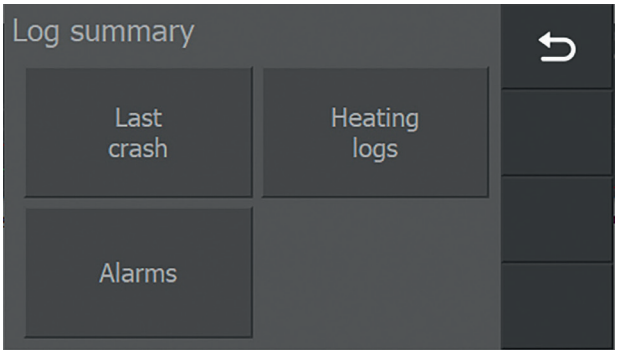
10.2 Access to the log files

In addition to the log functionality, which can be switched on or off, the heater automatically saves certain data from the heating process.
This data includes:

- Last crash, data from the process shortly before the generator failed (crashed) for whatever reason
- Heating logs, data on stored heating processes
- Alarms occurring during the process

Press the **“Log”** button on the right side of the settings screen to view the logs.

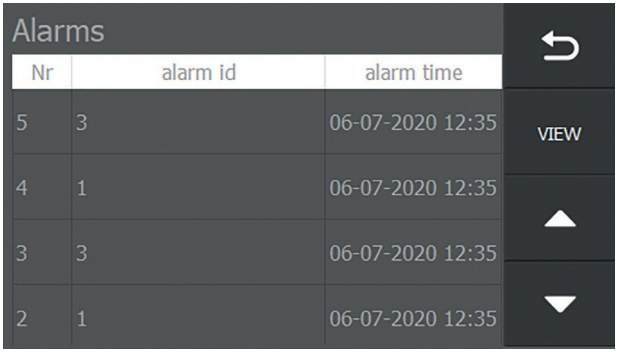
An overview screen is displayed with three types of log.



Leave the screen by pressing **“Previous”**.
Select the log you want to view by pressing it.

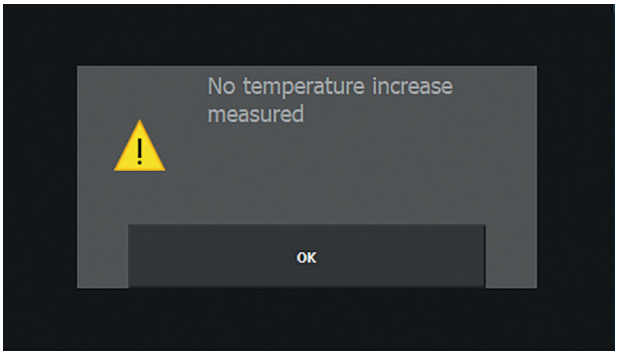
10.3 Alarms

By pressing **“Alarms”** an overview will be displayed of alarms that have occurred.



Use the arrow keys to select which alarm you want to view and then press **“View”**.

The type of alarm is now displayed. For example:

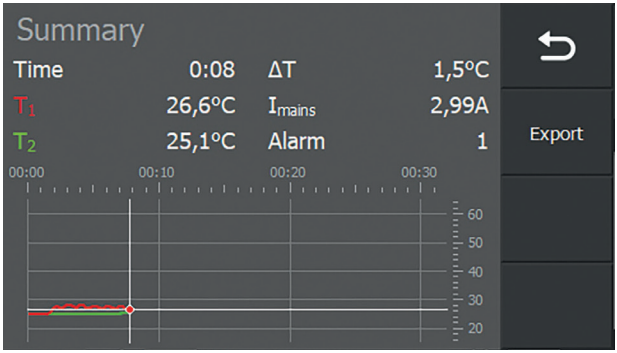


Press **“OK”** to return to the previous overview screen.
To leave the Alarm screen, tap **“Previous”** ⮌.

10.4 Last crash

The last crash log shows – as far as possible – the heating data from shortly before the generator crashed/failed.

In the overview, tap **“Last crash”**.



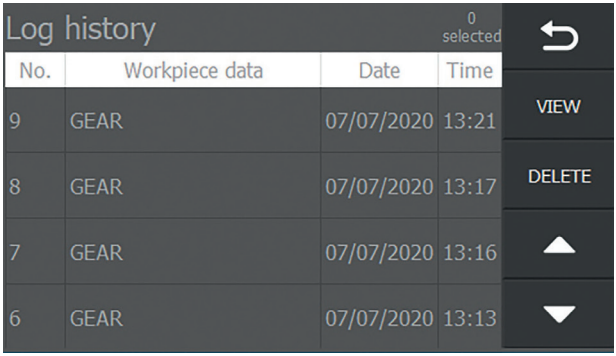
The data from shortly before the crash is displayed.

If a USB data carrier is connected, the heating data can now be exported. To do so, press **“Export”**. When the file has been exported successfully, this will appear on the screen.
Tap **“OK”**, the message disappears from the screen.

Press **“Back / Previous screen”** ⮌ once more to return to the previous screen.

10.5 Heating logs

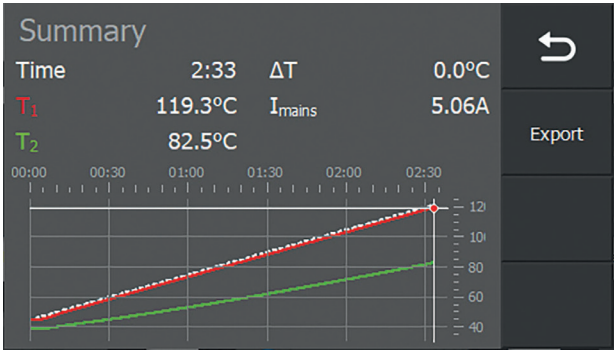
Pressing the **“Heating logs button”** displays a list of saved heating logs.



To scroll through the lines, use the arrow keys.
To select a log, press the corresponding line.

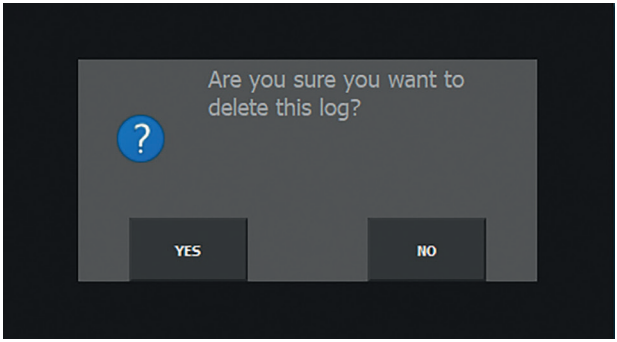
After selecting the desired line/file, select:
View – to display the selected log file on the screen
Delete – to delete the selected log file from the memory

View
Pressing **“View”** after selecting a file displays the heating information of the process.

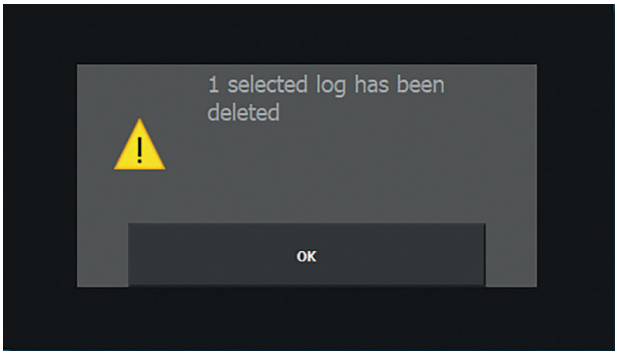


If a USB data carrier is connected, the heating data can also be exported from here. To do so, press **“Export”**. If the file has been exported successfully, a message appears indicating that the export was successful. Press **“OK”** to clear the message from the screen.
Press **“Back / Previous screen”** ⮌ to return to the previous screen.

Delete
If you press **“Delete”** after selecting a log file, the file may be deleted.
A confirmation screen appears.



If you press **“NO”**, you return to the list of log files.
If you press **“YES”**, a confirmation screen appears confirming that the file has been deleted.

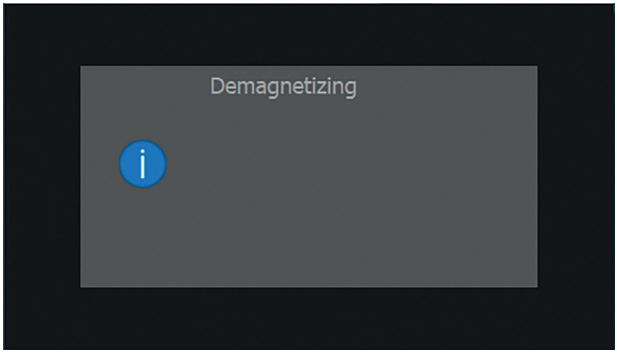


Press **“OK”** to return to the list of log files.

11. Other functionalities

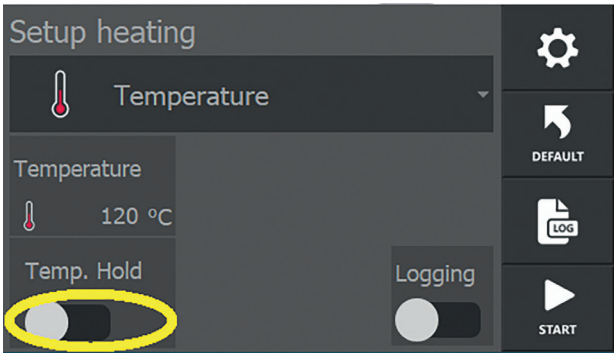
11.1 Demagnetisation

The workpiece is demagnetized each time the heating process stops or is stopped manually. This is briefly displayed on the screen.



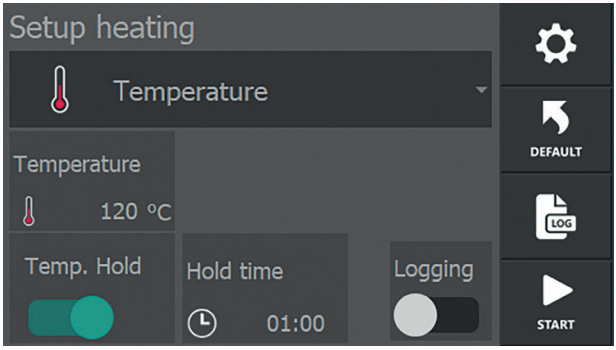
11.2 Hold functionality

In the temperature and the temperature & speed modes the screen displays a slider with which the temperature hold functionality “Temp. Hold” can be switched on or off.

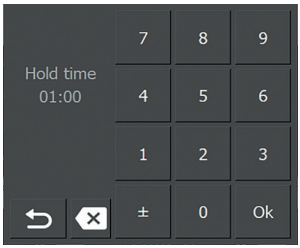


This functionality enables a workpiece to be held at a set temperature once that temperature has been reached. Maintaining the temperature of a workpiece follows a certain switching hysteresis (T hold hysteresis), which can be set in the system settings as described in section 6.4. The temperature set here is the temperature to which a workpiece may drop before the heater switches on again automatically.

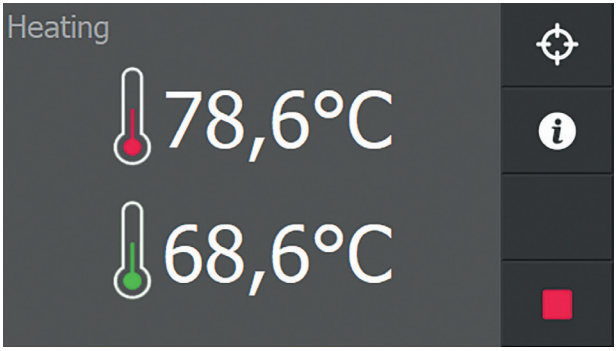
When the Hold Temp functionality is activated, the slider turns green and the hold temp duration of the workpiece is displayed.



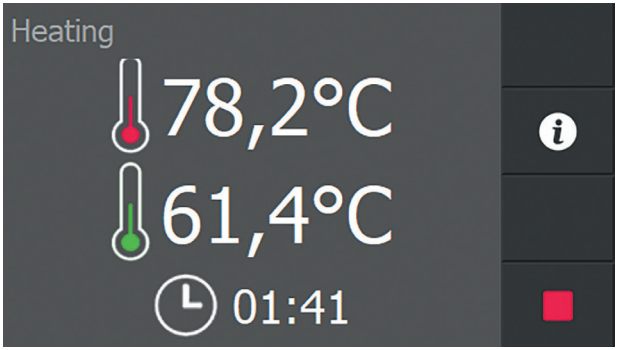
By pressing **“Hold Time”** you can adjust the hold temp duration of the workpiece. The time is entered in mm:ss and can be set between 00:01 and 99:00.



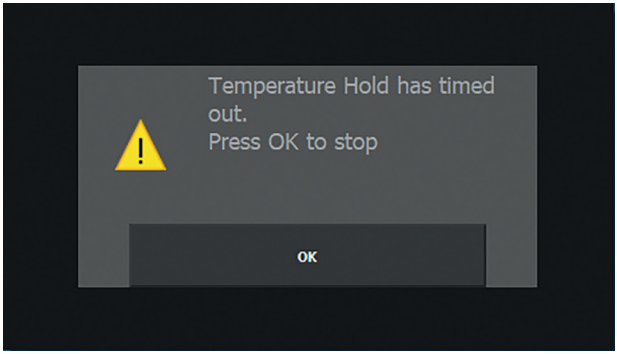
After adjusting the time, press **“Back / Previous screen”** to return.
According to the above settings, the workpiece is heated to 80°C and then kept at 80°C for 2 minutes.



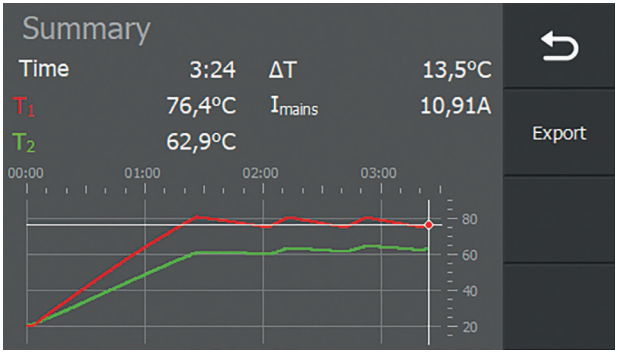
Once the set temperature, in this example 80°C, is reached for the first time, a timer will appear at the bottom of the screen, indicating the remaining time the workpiece is kept at the set temperature.



As soon as this time has elapsed, the heater displays a message indicating that the “temp hold” functionality has elapsed.



Press **“OK”** to leave this screen. The final screen of the heating process is now displayed.



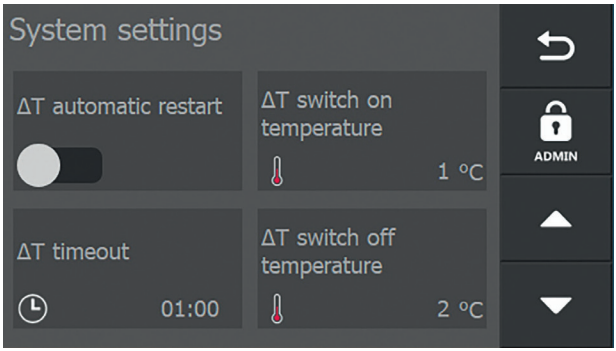
11.3 ΔT functionality

This functionality is used if the temperatures in a workpiece must not differ too much in order to avoid stresses in the material. The functionality is also used for bearings when the temperatures of the inner ring and outer ring must not differ too much. If necessary, ask the supplier of the workpiece what the maximum temperature difference in the workpiece may be.

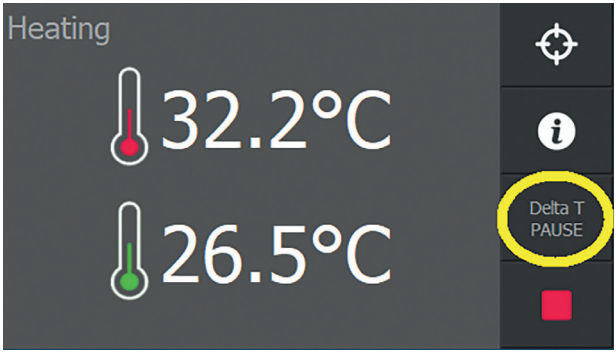
The ΔT functionality is switched on and set as described in section 6.5.

For the ΔT functionality it is necessary that the two sensors (T1 and T2) are connected to the heater and positioned correctly on the workpiece.

Positioning of sensors:
Position sensor T1 (red) at the point where the heat is applied to the workpiece; this is usually the bore. This sensor is the “main sensor” and the master in the heating process. Position sensor T2 (green) elsewhere on the workpiece. Position it in such a way that it is easy to monitor a possible difference in temperature between the two measuring points on the workpiece. See also the image in chapter 7.

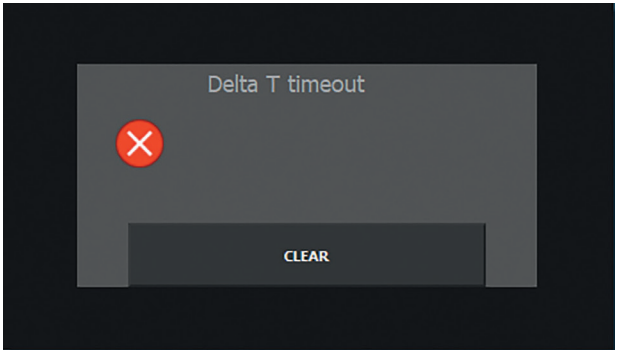


The temperatures T1 and T2 are measured during the heating process. The difference between these two temperatures is calculated continuously. If the difference is larger than the temperature set under “ΔT switch off”, the heating process switches off or pauses.
When the process is paused, the screen indicates “ΔT pause”.



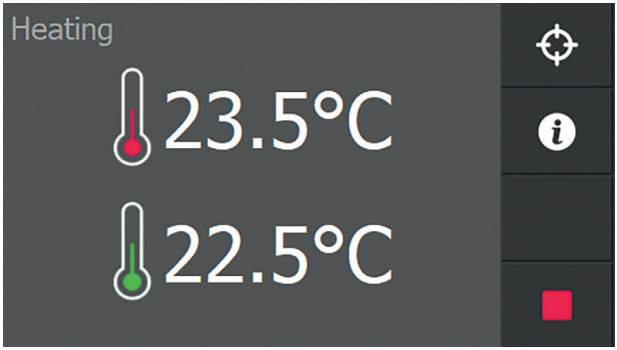
If “Auto restart” is not active, the heating process will not restart automatically and has to be restarted manually.

If “Auto restart” is active, the heating process will restart automatically as soon as the temperature difference is smaller than the temperature set under “ΔT switch on”. This must be achieved within the “ΔT timeout” time. If this is not the case, the error message “ΔT timeout” is displayed, which can be reset by pressing “**Clear**”.

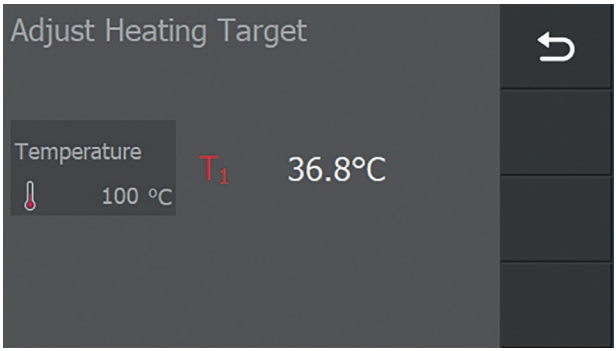


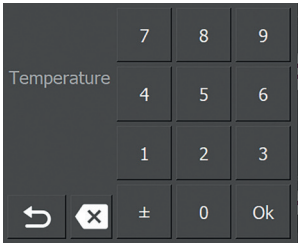
11.4 Target functionality

In all heating modes, a “target” button is displayed in the top right-hand corner during heating. In this example, heating in the temperature mode is used for illustration purposes.



Pressing this button during heating allows the desired temperature or time (target) to be adjusted up or down without having to stop the process.
By pressing “**Target**”, a screen with the current setting and current value is displayed first.





By pressing the set value, a keypad is displayed on which the new value can be entered. After entering the value, press “**OK**” to return to the heating screen.
Only this cycle is then heated to the new “target”.

12. Cleaning, maintenance and troubleshooting

- Clean with a dry cloth. Never clean with water.
- Keep the bare parts of the poles clean. Lubricate regularly with acid-free grease for better contact with the ledges and to prevent corrosion.
- Also lubricate the pivots regularly.

If the heater produces a loud vibrating sound:

- Stop the heating cycle
- Are all contact surfaces clean and greased?
- Is the ledge positioned level on the poles?
  If this is not the case, follow the instructions below to adjust the ledge.

Models with horizontal ledge:

1. Remove dirt, burrs, etc., from the ledge and poles and grease lightly.
2. Place the ledge on the hinge point and rotate it above the poles.

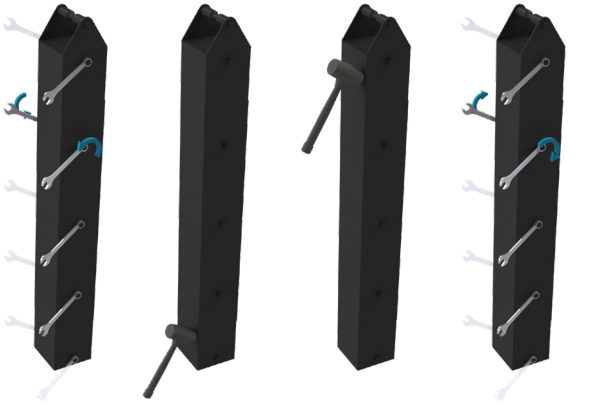
3. Loosen the socket screws and the bolts on the hinge bushing by about half a turn.

4. Switch on the heater by pressing **“start”**. The ledge now sets itself. If necessary, a dead blow (plastic) hammer may be used.

5. When noise reduces, then tighten all bolts and switch off the heater.

Models with vertical ledge:

1. Remove dirt, burrs, etc., from the ledge and poles and grease lightly.
2. Place the ledge in front of the poles.
3. Loosen the bolts on the ledge by about half a turn.
4. Switch on the heater by pressing start. The ledge now sets itself. If necessary, a plastic (dead blow) hammer may be used.
5. When noise reduces, then tighten all bolts and switch off the heater.



3	4	5

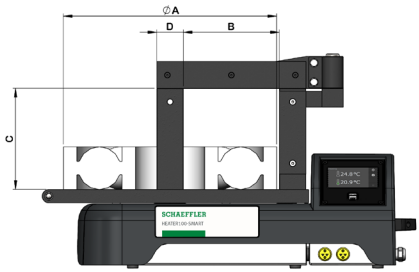
WARNING!

- Carrying out the right maintenance and following the instructions is important.
- Contact your supplier if in doubt about the correct functioning of the device.
- Repairs must be carried out by the manufacturer or a specialist approved by the manufacturer.

13. Technical specifications

13.1 Technical specifications HEATER50-200

Type	HEATER50-SMART	HEATER100-SMART	HEATER150-SMART	HEATER200-SMART
Touchscreen	Yes			
Frequency	50-60Hz			
Temperature measurement	Double, ΔT measurement, Log functionality			
Operating modes	Time, Temperature, Temperature or time, Temperature & speed			
Weight kg	21	31	52	56
Max. temperature	240°C / 464°F			
Max. bearing weight kg	50	100	150	200
Max. OD Ø mm A	400	500	600	600
Space between poles mm B	120	180	210	210
Pole height mm C	130	185	205	205
Pole surface mm D	40x50	50x50	70x80	70x80
Dimensions mm (LxWxH)	600x226x272	702x256x392	788x315x456	788x315x456

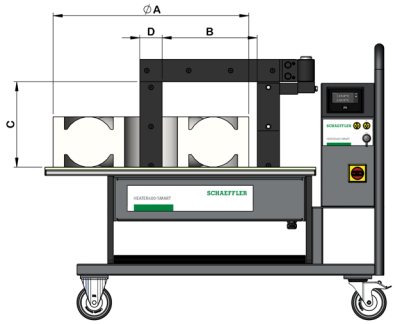


HEATER50 - 200

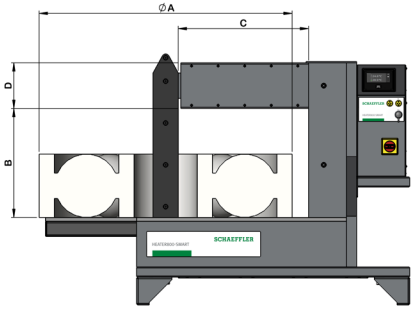
13.2 Technical specifications
HEATER400-1600

Type	HEATER400-SMART	HEATER600-SMART	HEATER800-SMART	HEATER1600-SMART
Touchscreen	Yes			
Frequency	50-60Hz			
Temperature measurement	Double, ΔT measurement, Log functionality			
Operating modes	Time, Temperature, Temperature or time, Temperature & speed			
Weight kg	150	170	250	720
Max. temperature	240°C / 464°F			
Max. bearing weight kg	400	600	800	1600
Max. OD Ø mm A	850	1050	1150	1700
Space between poles mm B	320	400	430	710
Pole height mm C	305	315	515	780
Pole surface mm D	80x100	90x110	180x180	230x230
Dimensions mm (LxWxH)	1214x560x990	1344x560x990	1080x650x955 1080x650x1025*	1520x750x1415 1520x750x1485*

*Height with optional wheels



HEATER400 - 600



HEATER800 - 1600

13.3 Machine ID and certification

See machine plate on the machine.

Available models HEATER50 - 200

Name	Voltage/Amp	kVA	Certification*
HEATER50-SMART-120V	120V/13A	1,5	CE
HEATER50-SMART-230V	230V/13A	3	CE
HEATER50-SMART-120V-US	120V/13A	1,5	QPS
HEATER50-SMART-240V-US	240V/13A	3,1	QPS
HEATER100-SMART-120V	120V/15A	1,8	CE
HEATER100-SMART-230V	230V/16A	3,7	CE
HEATER100-SMART-120V-US	120V/15A	1,8	QPS
HEATER100-SMART-240V-US	240V/16A	3,8	QPS
HEATER150-SMART-230V	230V/16A	3,7	CE
HEATER150-SMART-240V-US	240V/16A	3,8	QPS
HEATER200-SMART-400V	2 ~ 400V/20A	8	CE
HEATER200-SMART-450V	2 ~ 450V/16A	7,2	CE
HEATER200-SMART-500V	2 ~ 500V/16A	8	CE
HEATER200-SMART-480V-US	2 ~ 480V/16A	7,7	QPS
HEATER200-SMART-600V-US	2 ~ 600V/14A	8,4	QPS

CE

c PS US
CERTIFIED
ELECTRICAL SAFETY
LR1601

* Devices with suffix “US”: QPS certified versions for US and Canada are according to USA C22.2 No. 88-19 - Industrial Heating Equipment and UL 499, 14 th Ed. (Nov 7, 2014) - Electric Heating Appliances

Available models HEATER400 - 1600

Name	Voltage/Amp	kVA	Certification*
HEATER400-SMART-400V	400V/30A	12	CE
HEATER400-SMART-450V	450V/25A	12	CE
HEATER400-SMART-500V	500V/24A	12	CE
HEATER400-SMART-480V-US	480V/24A	12	QPS
HEATER400-SMART-600V-US	600V/20A	12	QPS
HEATER600-SMART-400V	400V/45A	18	CE
HEATER600-SMART-450V	450V/40A	18	CE
HEATER600-SMART-500V	500V/36A	18	CE
HEATER600-SMART-480V-US	480V/36A	18	QPS
HEATER600-SMART-600V-US	600V/30A	18	QPS
HEATER800-SMART-400V	400V/60A	24	CE
HEATER800-SMART-450V	450V/50A	24	CE
HEATER800-SMART-500V	500V/48A	24	CE
HEATER800-SMART-480V-US	480V/48A	24	QPS
HEATER800-SMART-600V-US	600V/40A	24	QPS
HEATER1600-SMART-400V	400V/100A	40	CE
HEATER1600-SMART-450V	450V/80A	40	CE
HEATER1600-SMART-500V	500V/80A	40	CE
HEATER1600-SMART-480V-US	480V/80A	40	QPS
HEATER1600-SMART-600V-US	600V/65A	40	QPS

CE

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LR1601

* Devices with suffix “US”: QPS certified versions for US and Canada are according to USA C22.2 No. 88-19 - Industrial Heating Equipment and UL 499, 14 th Ed. (Nov 7, 2014) - Electric Heating Appliances

13.4 Ledges (Yokes)

HEATER50-SMART

Name	Min. bore diam. (mm)	Size mm	Weight kg	Swivel arm	Scope of delivery	Optional
HEATER50.YOKE-10	10	7x7x200	0,08	No	✓	
HEATER50.YOKE-15	15	10x10x200	0,15	No		✓
HEATER50.YOKE-20	20	14x14x200	0,32	No	✓	
HEATER50.YOKE-30	30	20x20x200	0,61	No		✓
HEATER50.YOKE-60	60	40x40x200	2,42	No		✓
HEATER50.YOKE-65	65	40x50x200	3,02	No	✓	

HEATER100-SMART

Name	Min. bore diam. (mm)	Size mm	Weight kg	Swivel arm	Scope of delivery	Optional
HEATER100.YOKE-15	15	10x10x280	0,21	No		✓
HEATER100.YOKE-20	20	14x14x280	0,40	No		✓
HEATER100.YOKE-30	30	20x20x280	0,84	No	✓	
HEATER100.YOKE-45	45	30x30x280	2,40	Yes		✓
HEATER100.YOKE-60	60	40x40x280	3,87	Yes		✓
HEATER100.YOKE-72	72	50x50x280	5,78	Yes	✓	
HEATER100.YOKE-85	85	60x60x280	8,09	Yes		✓

HEATER150-SMART / HEATER200-SMART

Name	Min. bore diam. (mm)	Size mm	Weight kg	Swivel arm	Scope of delivery	Optional
HEATER200.YOKE-15	15	10x10x350	0,27	No		✓
HEATER200.YOKE-20	20	14x14x350	0,51	No		✓
HEATER200.YOKE-30	30	20x20x350	1,06	No		✓
HEATER200.YOKE-45	45	30x30x350	3,67	Yes	✓	
HEATER200.YOKE-60	60	40x40x350	5,51	Yes		✓
HEATER200.YOKE-72	72	50x50x350	7,79	Yes		✓
HEATER200.YOKE-85	85	60x60x350	10,69	Yes		✓
HEATER200.YOKE-100	100	70x70x350	14,01	Yes		✓
HEATER200.YOKE-110	110	70x80x350	15,90	Yes	✓	

HEATER400-SMART

Name	Min. bore diam. (mm)	Size mm	Weight kg	Swivel arm	Scope of delivery	Optional
HEATER400.YOKE-30	30	20x20x500	3,12	Yes		✓
HEATER400.YOKE-45	45	30x30x500	4,95	Yes		✓
HEATER400.YOKE-60	60	40x40x500	7,55	Yes		✓
HEATER400.YOKE-85	85	60x60x500	14,83	Yes		✓
HEATER400.YOKE-115	115	80x80x500	25,40	Yes	✓	

HEATER600-SMART

Name	Min. bore diam. (mm)	Size mm	Weight kg	Swivel arm	Scope of delivery	Optional
HEATER600.YOKE-60	60	40x40x600	8,57	Yes		✓
HEATER600.YOKE-85	85	60x60x600	17,43	Yes		✓
HEATER600.YOKE-115	115	80x80x600	29,10	Yes		✓
HEATER600.YOKE-130	130	90x90x600	37,90	Yes	✓	

HEATER800-SMART

Name	Min. bore diam. (mm)	Size mm	Weight kg	Swivel arm	Scope of delivery	Optional
HEATER800.YOKE-60	60	40x40x725	9,00	No		✓
HEATER800.YOKE-72	72	50x50x725	14,5	No		✓
HEATER800.YOKE-85	85	60x60x725	20,30	No		✓
HEATER800.YOKE-115	115	80x80x725	36,10	No		✓
HEATER800.YOKE-145	145	100x100x725	56,40	No	✓	

HEATER1600-SMART

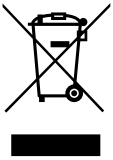
Name	Min. bore diam. (mm)	Size mm	Weight kg	Swivel arm	Scope of delivery	Optional
HEATER1600.YOKE-85	85	60x60x1140	32,5	No		✓
HEATER1600.YOKE-115	115	80x80x1140	56,76	No		✓
HEATER1600.YOKE-145	145	100x100x1140	88,69	No		✓
HEATER1600.YOKE-215	215	150x150x1140	199,56	No	✓	

13.5 Scope of delivery

Scope of delivery	HEATER-SMART
Temperature sensor	2 pc.
Heat protection gloves (up to 250°C)	✓
Acid-free grease	✓
Printed manual (English, German)	✓

14. Waste disposal

Power tools, accessories and packaging must be reused at the end of their life cycle in an environmentally sound manner. Do not dispose of used power tools as residual waste, but bring them to a recycling company that complies with the applicable environmental requirements.



15. Disclaimer

The manufacturer and/or supplier cannot be held liable for any damage to workpieces or consequential damage resulting from incorrect use of the device or damage to workpieces and any consequential damage resulting from a defect in the device.

CERTIFICATE OF CONFORMITY

in accordance with Low Voltage Directive 2014/35/EU

We hereby declare that the product described below is in conformity with the applicable health and safety requirements of the EC Directive in terms of its design and type and in the execution we have brought into circulation. This declaration shall cease to be valid if any modification is made to the product without our agreement.

Product description:	Inductive heater
Product name/type:	■ HEATER50-SMART-120V ■ HEATER50-SMART-230V ■ HEATER100-SMART-120V ■ HEATER100-SMART-230V ■ HEATER150-SMART-230V ■ HEATER200-SMART-400V ■ HEATER200-SMART-450V ■ HEATER200-SMART-500V ■ HEATER400-SMART-400V ■ HEATER400-SMART-450V ■ HEATER400-SMART-500V ■ HEATER600-SMART-400V ■ HEATER600-SMART-450V ■ HEATER600-SMART-500V ■ HEATER800-SMART-400V ■ HEATER800-SMART-450V ■ HEATER800-SMART-500V ■ HEATER1600-SMART-400V ■ HEATER1600-SMART-450V ■ HEATER1600-SMART-500V
Applicable harmonized standards:	Electric Safety ■ EN 60335-1 EMC Emission ■ EN 55011 ■ EN 61000-3-2 ■ EN 61000-3-3 EMC Immunity ■ EN 61000-6-2
Name and address of the authorized person for the technical documentation:	Schaeffler Technologies AG & Co. KG Georg-Schäfer-Straße 30 D-97421 Schweinfurt

H. van Essen
Managing Director
Bega International BV

Place, Date:
Vaassen, 23-11-2021

CE

22.03.R01-EN

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BA75 HEATER-SMART / 01 / en-GB / DE / 2022-03