

Herammat® C3 **Herammat® C3 *press***



Operating Manual
Herammat® C3 Ceramic Furnace
Herammat® C3 *press* Ceramic Furnace

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1 Scope of validity

1.1 General

Combilabor® and Heramat® are registered trademarks of Heraeus Kulzer GmbH.
Author 42415SCH

This Instruction Manual applies for:

Heramat® C3 , 230V	66043133
Heramat® C3 <i>press</i> , 230V	66043135
Heramat® C3 , 100V	66043136
Heramat® C3 <i>press</i> , 100V	66043137

1.2 Designation and type of equipment

Equipment type: Heramat® C3 and Heramat® C3 *press*
Equipment number: 09 10 N1 0001 ff. and 09 10 P1 0001 ff.





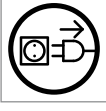
1.3 EC declaration of conformity

We, Heraeus Kulzer GmbH, Grüner Weg 11, 63450 Hanau, Germany, hereby declare that the equipment designated below, by virtue of its development and type, as well as the specific design we have brought into circulation, conforms to the relevant basic safety and health requirements of the EC directive. The declaration shall become invalid if any modification we have not authorized is made to the machine.

Heraeus	
Konformitätserklärung Declaration of Conformity	
Hersteller/Manufacturer:	Heraeus Kulzer GmbH Grüner Weg 11 61450 Hanau / Germany
Hiermit wird bestätigt, dass das Gerät It is herewith confirmed that the unit	
Heramat C3 & Heramat C3 Press	
Keramik-Brennofen zur Verarbeitung von zahntechnischen keramischen Massen und Presskeramik Porcelain furnace for processing of dental ceramic (porcelain) material and press ceramic material	
den grundlegenden Anforderungen / complies with the essential requirements of	
<ul style="list-style-type: none">• der Maschinenerichtlinie (MaschRL) 2006/42/EG• the Machinery Directive 2006/42/EG• der Richtlinie über elektromagnetische Verträglichkeit (EMV) 2004/108/EG• the Directive concerning electromagnetic compatibility (EMC) 2004/108/EC• der Niederspannungsrichtlinie 2006/95/EG• the low tension Directive 2006/95/EG	
mit deren Änderungsrichtlinien entspricht / including their amendments.	
Angewandte Normen / Standards applied:	
EN 61326 ; EN55011 Class B; IEC61000-6-1 ; IEC61000-4-2/3/4/5/6/11	
DIN EN 61010-1:2002-08 entspricht/complies with EN 61010-1:2001 and IEC 61010-1	
DIN EN 61010-2-010:2004-06 entspricht/complies with EN 61010-2-0010:2003	

2 Instructions for safe operation

2.1 Explanation of symbols

Symbol	Word mark	Explanation
	ATTENTION!	Safety-relevant chapters and sections within the Instruction Manual.
	INFORMATION!	Information within the Instruction Manual for optimal use of the unit.
	HOT SURFACE!	Hot surface. Risk of burns.
	ELECTRIC SHOCK!	Caution electric shock. Danger to life if the instructions are not observed.
	ISOLATION FROM MAINS POWER SUPPLY!	Danger of electric shocks if the unit is opened. Disconnect the mains plug before opening.

2.2 Transport damage

Please check the device for transport damage on receipt of the delivery and report this to the forwarding company within 24 hours of delivery. Never work with a damaged unit.

2.3 Obligations of the operator

In addition to adhering to the legal provisions for the manufacturer, the operator must ensure that the legal requirements concerning the working place are adhered to and implemented, e.g. obligation to instruct personnel, labor protection law and all other applicable provisions and legislation.

The operator must prepare written instructions for working on or with the unit, based on the Operating Manual and the work to be carried out, in a comprehensible form and make them available in the language of the employees.

2.4 Unit Book/Instruction Manual

We recommend maintaining a unit book. All tests and essential work (e.g. repairs, modifications) must be documented in this book. Keep this Operating Manual in a safe place so that you can refer to safety instructions and important information at a later time.

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In addition to the information in this Operating Manual, the relevant national laws, regulations and guidelines must be observed for setting up and operating the unit.



ELECTRIC SHOCK!

The mains power cord and plug must be inspected for damage prior to use. In case of damage, the unit must not be connected to the mains supply.



ELECTRIC SHOCK!

Caution: Exposed heating coil!

Do not reach into the heating muffle with metal objects or with bare fingers. Only perform maintenance and cleaning work with the mains plug disconnected. Position firing objects on the firing table in such a way that the heating coil is not touched during the firing process.



HOT SURFACE!

The metal surface around the heating muffle and particularly below the muffle is hot during operation.

There is a risk getting burnt. Avoid touching this surface with bare fingers. Use the tweezers provided.

The exhaust gases arising during work may be safely discharged outside. The nationally applicable environmental protection regulations and measures must be observed.

Work on the unit's electrical equipment may only be performed by trained service personnel and in a safe condition (disconnected from the mains supply).

Only approved original spare parts and accessories may be used. The use of other parts holds unknown risks and must be avoided in all cases.

The functionality and safety of the unit is only guaranteed if the necessary inspections, maintenance and repair work are performed by the Heraeus Kulzer service agents or by personnel trained by us.

Heraeus Kulzer GmbH will not accept any liability for damage to the unit resulting from inexpert repair which has not been performed by Heraeus Kulzer service agents or if original spare parts / accessory parts have not been used in the replacement of these parts.

3 Use in accordance with specifications

The HeraMAT® C3 *press* ceramic and press furnace is a laboratory instrument for fabricating ceramic veneers in dentistry and for processing press ceramic. We recommend using original Heraeus Kulzer "HeraCeram®" series alloys and materials. If other materials are used, the user must ensure that they are state-of-the-art and cause no negative adverse effects to the material and the unit.

If, in the case of damage, a causal link is ascertained between the external materials used and the technical failure/damage/ complaints, Heraeus Kulzer GmbH's guarantee is invalidated.

The unit is suitable to be set up and operated in the following areas: commercial and industrial laboratories, schools, universities, hospitals, etc.

The unit is designed for continuous operation. It is designed for a service life of 10 years. The unit must be operated by dental laboratory technicians or dental laboratory assistants who:

3.1 Working rules



ATTENTION!

The unit must not be used for the purposes listed below:

- The unit must not be used to heat up or prepare food.
- The unit must not be used for work in which flammable gases and vapors are released which burn in air or could form hazardous explosive mixtures.
- The unit is also not suitable for heat treatment of hazardous dust and fibrous materials.
- The unit must not be operated in unventilated rooms.



ATTENTION!

If special problems occur that are not covered in sufficient detail or not at all in this Instruction Manual, please contact the manufacturer for your own safety.



ATTENTION!

Wear the required personal protective equipment, e.g. protective gloves, face mask or headwear, and remove any jewelry beforehand.



ATTENTION!

Dental work must only be placed on the support plate. Avoid placing or storing objects or work on another area of the furnace.

4 Scope of supply

Check on delivery of the unit, whether all components are in perfect condition.

Contact your supplier in case of complaints.

Supply unit: Heramat® C3 or Heramat® C3 *press* unit incl. the following accessories:

Quantity	Accessory	Heramat® C3	Heramat® C3 <i>press</i>
1	Power cord	●	●
1	Vacuum hose, approx. 1.2 m	●	●
2	Hose clamps	●	●
1	Lift key	●	●
1	Firing table	●	●
1	Press table		●
1	Thermo-tray incl. 8 pins	●	●
1	Tweezers	●	●
2	Spare fuses	●	●
1	Pressure hose with couplings for water and dust separator and compressed air (type DN7.2)		●

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5 Design and function

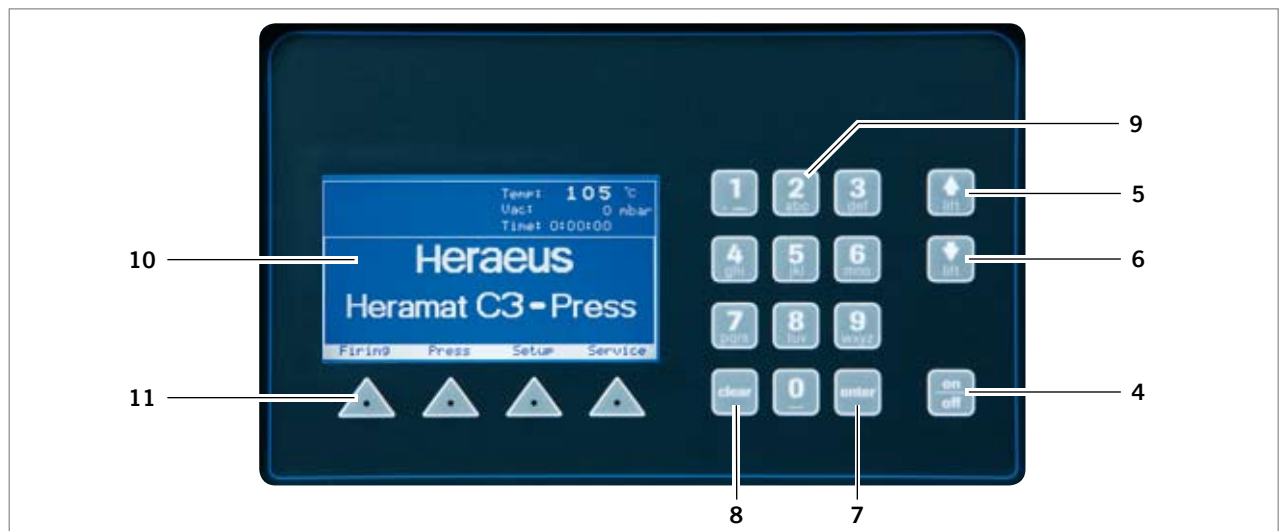
5.1 General view of Heraemat® C3 *press*

5.1.1 Labeling for picture 1 “General view of Heraemat® C3 *press*”

- 1 Heraemat® C3 *press* unit
- 2 Controller
- 3 Press table



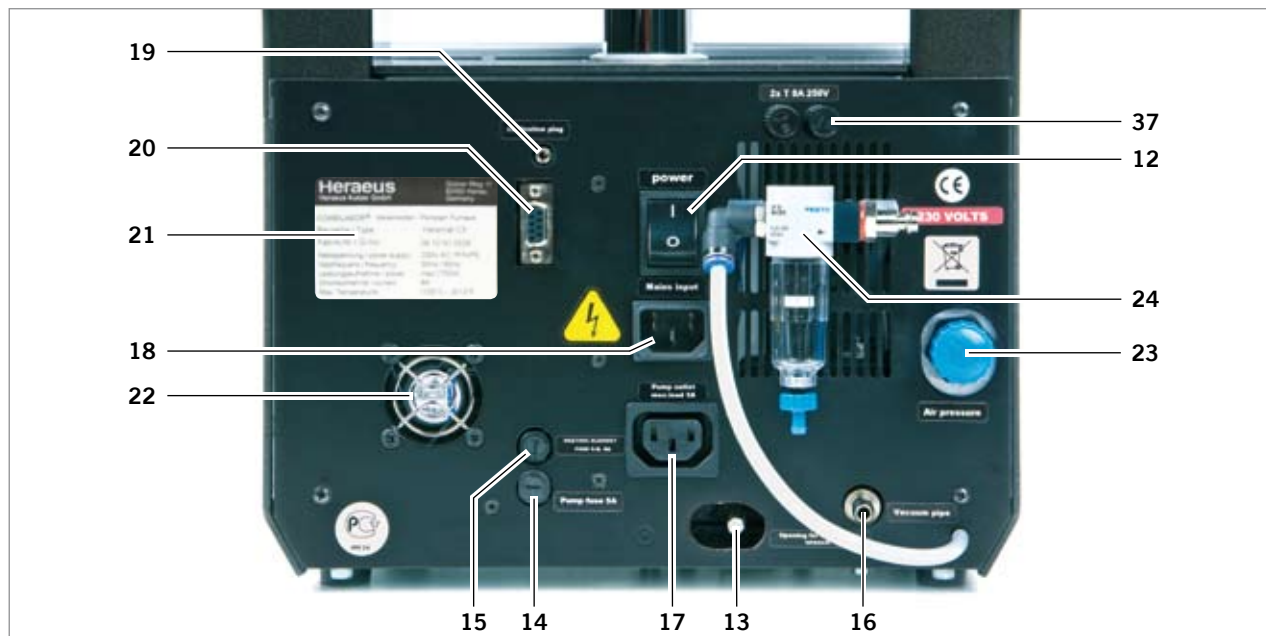
5.2 View of operating interface



5.2.1 Designations “User interface”

- 4 “on/off” key
- 5 “Lift up” key

5.3 Back of the unit



5.3.1 Labeling for “Back of the unit”

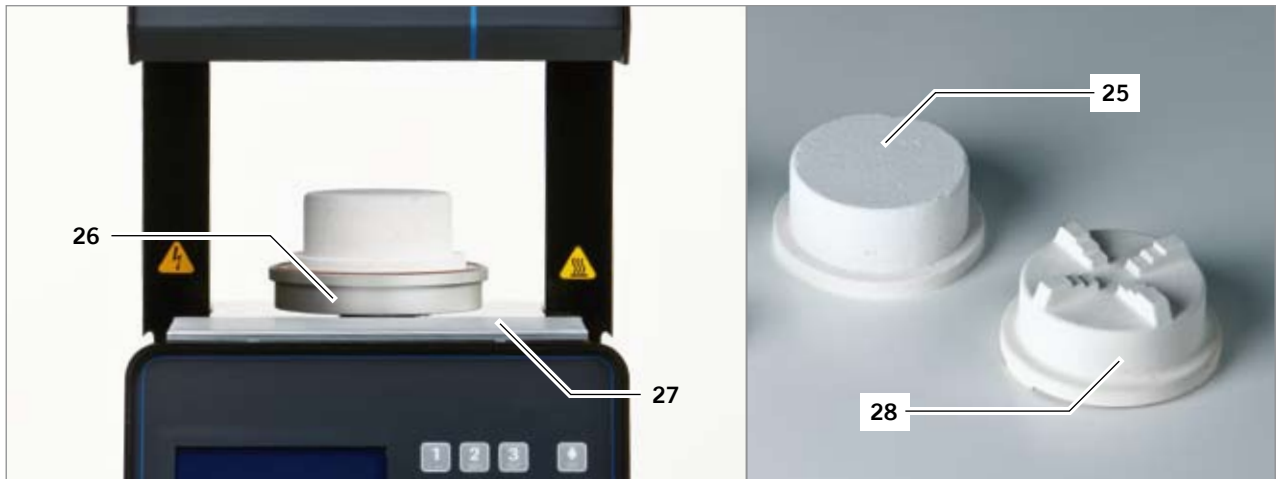
- 12 Main switch
- 13 Opening for screw driver
- 14 Fuse for vacuum pump
- 15 Fuse for heating
- 16 Nozzle for vacuum hose
- 17 Mains power socket – vacuum pump
- 18 Mains power socket – ceramic furnace
- 19 Calibration input
- 20 RS 232 port
- 21 Type plate
- 22 Air vent
- 23 Pressure regulator
- 24 Water separator with compressed air nozzle
- 37 2 x fuse for mains power socket

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5.4 View of lift with firing table



5.4.1 Labeling for “Lift with firing table”

- 25 Firing table (Heramat® C3 and Heramat® C3 *press*)
- 26 Lift platform
- 27 Support plate
- 28 Press table (only Heramat® C3 *press*)

5.5 View of series accessories



5.5.1 Labeling for “View of series accessories”

- 29 Power cord
- 30 Thermo-tray incl. 8 object pins

5.6 Optional accessories firing furnace/press furnace

Vacuum pump CL-P type 7: Item number 66002450

Press muffle 100 g (3-part, consisting of muffle former, silicone ring, muffle gage): Item number 66017844

Press muffle 200 g (3-part, consisting of muffle former, silicone ring, muffle gage): Item number 66016631

6 Description of the unit

6.1 Description of the keys, fields and displays

6.1.1 Data keys

Keys:	Description:
0–9	Digits from 0 – 9 as well as configuration with letters for text entry
enter	Confirm the selection of a program or parameter
clear	Delete the current entry. Please note: The value “0” is not the same as “clear”! The value “0” can be interpreted as a program step!

6.1.2 Control keys

Keys:	Description:
on/off	Turn the furnace ON/OFF. Switch from every screen (except in the case of a running program) into standby mode, (i.e. heating off, display shows start screen).
Lift ↓↑	Raise and lower the lift platform.

6.1.3 Interactive keys

The 4 triangular keys “▲” below the display are configured differently as interactive keys dependent on the menu screen. The respective definition is displayed in the bottom display line.

6.1.4 Displays

The display has 240 x 128 pixels and is colored blue/white.



NOTE:
The colors can vary or are inverted depending on the viewing angle. The colors also change slightly due to warming in operation. This is technology-related and is therefore is not a fault or a reason for complaint.

6.2 Description of the acoustic signals

The acoustic signal is a useful indicator for the key selection and operating processes.

Acoustic signal	Meaning
Single acoustic signal	<ul style="list-style-type: none">● Each keystroke● Hold mode (program on hold, every 5 seconds)

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7 Putting into operation

7.1 Transport

Transport the unit cautiously in a horizontal position. Shocks should be avoided! Packaging and unit must not become damp or wet – store under dry conditions! The unit is not seawater-proof packaged – risk of rusting! Dimensions and weight – see chapter 11 “Technical data”.

Please report transport damage to the forwarder or Heraeus Kulzer GmbH within 24 hours!
Document the damage and do not put the furnace into operation in this case!

7.2 Setting up



ATTENTION!

Check the content of the shipping boxes and compare with the scope of delivery listed in the Operating Manual. See chapter 4 “Scope of delivery”.

Remove all items from the top molded foam insert. Carefully remove the top molded foam insert.
Retain the box and the packaging material for subsequent use, as required.

Cautiously lever the furnace out by holding it in the inside below the heating muffle and place it on the feet.
Do not lever the furnace on the lift rod!

The ceramic furnace must be installed indoors in dry and well ventilated rooms only.



Note:

strong draughts at the installation location will affect the accuracy of the temperature.
Do not install the furnace in the vicinity of air-conditioning units.

The maximum installation altitude is 2000 m above seal level.

The ceramic furnace becomes hot in operation. Install the furnace on a non-flammable base only.

The base must be flat, approx. 350 mm wide and 450 mm deep and be capable of supporting at least 30 kg.

The back must be approx. 100 mm away from the wall to ensure that the ventilation slots are not covered and the connecting cords are not kinked.

7.2.1 Connecting the vacuum pump

1. We recommend the use of our vacuum pump CL-P type 7.



Information for the use of our vacuum pump CL-P type 7:

Prior to putting into operation for the first time, the pump has to be filled with the special oil supplied.
The oil level must be checked each time prior to putting into operation and oil refilled, as required.
(See pump instruction manual). If oil is missing, the final vacuum is not attained, misfirings are possible.



Competitors' vacuum pumps connected to the furnace must be designed for the intended use of the furnace, suitable for the furnace's vacuum valve switching and bear the CE mark. If in doubt, please contact Heraeus Kulzer GmbH.

2. Connect one end of the rubber vacuum hose supplied to the vacuum pump nozzle and the other side to the furnace nozzle.

7.2.2 Connection to the compressed air supply (only Heramat® C3 press)



Caution!

The compressed air must be dry and oil-free.

Air pressure range for furnace operation 2 – 8 bar, for injection-moulding 5 – 8 bar.

Only for Heramat® C3 press: Connect the compressed air hose with the coupling on the water separator on the back of the furnace and connect the compressed air nozzle to the compressed air system of the building. The compressed air is adjusted on the pressure regulator in the graphic display during the pressing program (chapter 8.4.4). The standard pressing pressure is 4.5 bar and is factory preset.

7.2.3 Connecting the furnace to the mains power supply



Caution!

Check the power cord for any damage. In case of damage the power cord must not be used and the furnace put into operation!

Contact your local Heraeus Kulzer dealer, field representative or subsidiary in this case.

1. Make sure that the main switch on the back of the furnace is off.
2. Ensure that the power cord, mains socket and building electrical installation have a functioning protective-conductor connection.
3. Make sure that the power cord, socket, building installation and building fuse corresponds with the furnace's performance data. You will find the performance data on the type plate at the back of the furnace!
4. Connect the power cord to the mains input and connect the power cord to a power outlet.
Position the oven so the socket is accessible at all times.
Recommended clearance between back of oven and wall: 100 mm.
5. Now switch on the main switch.



Screenshot for item 5.: Standby mode



Screenshot for item 6.: Starting screen

6. A single acoustic signal sounds. The furnace identification appears in the display.
The furnace is now in standby mode. No temperature run is started.
7. Press the “on/off” key on the front panel (control panel). The start screen with the current data and interactive buttons appears in the display. The word “Temp” shows the current temperature of the heating muffle.

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7.3 Putting into operation for the first time



- Before performing firing or pressing processes, the furnace must be dried for the first time to remove absorbed moisture which enters the furnace during transport.
- The procedure is described at this point prior to operation and programming to remind you to completely read the Instruction Manual.

7.3.1 First firing of the furnace

1. Connect the furnace correctly (chapter 7.1 and 7.2)
2. Lower the lift platform to the lowest position using the “Lift ↓” key.
3. Place the firing table or press table on the lift platform.
4. Enter the following parameters in an arbitrary empty program (e.g. 40 – 179):

Start temp. 500 °C (932 °F)
Drying 3:00 minutes
Preheating 0:00 minutes
Heating rate 40 °C (72 °F) / minute
Firing temp. 900 °C (1652 °F)
Hold time 3:00 minutes

Note: No tempering, no vacuum!

5. Start the program. This program removes all absorbed moisture from the heating muffle.
Repeat the procedure described above three or four times.



INFORMATION!

The furnace is only ready for operation on completion of this procedure!

8 Operation

8.1 Switching on

Switch on the furnace at the main switch on the back panel. The furnace displays the welcome screen and is in standby mode. No temperature run is started.





Note: The standby screen can also appear during operation: After 20 minutes without operation in the starting screen or program selection, the furnace drops the heating to 100°C (212°F) and waits for another entry from the “on / off” key. This is an energy saving function which can be deactivated.

Operating the furnace always starts by pressing the “on/off” key. The start screen then appears, which also leads to continued operation with the interactive keys.



The interactive fields are always displayed in the bottom line of the respective screen. This line is displayed **inverse**. The 4 associated interactive “▲” keys are located right below the display and are directly assigned to the text display. Keys without direct text assignment are not activated; this is signalized with a double acoustic signal.

The furnace heats up to an operating temperature of 100°C (212°F).



INFORMATION!

Always keep the heating muffle closed whenever possible to prevent moisture entering the heating muffle.

8.1.1 Explanation of the displays

The following are displayed in vertical order:

Temp:	XX XX	°C (°F)
Vac.:	mbar (mmHG)	
Time:	0:00:00	

The current temperature of the heating muffle depends on the previous operating status and can have arbitrary values. The target temperature (standby temperature) is 100°C (212°F).

The displays for “Vacuum” and “Time” are not active here (display the value “0”).

8.1.2 Explanation of the interactive keys:

Firing	Selection of the firing programs
Press	Selection of the pressing programs
Setup	Selection of the setup programs with the settings (about 2)

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8.2 Description of the parameters and their limit values

Firing programs		
Parameter	Range	Remarks
Start temperature	100°C – 800°C (212°F – 1472°F)	Change °C (°F) in setup
Dry time	00:00 – 99:00 min:sec	
Preheat	00:00 – 99:00 min:sec	
Heat rate	10°C/min – 120°C/min (18°F/min – 216°F/min)	Change °C (°F) in setup
High temperature	100°C – 1100°C (212°F – 2012°F)	Change °C (°F) in setup Check plausibility with start temperature
Hold	00:00 – 99:00 min:sec	
Tempering	100°C – 1100°C (212°F – 2012°F)	Change °C (°F) in setup
Tempering time	00:00 – 99:00 min:sec	
Cool time	00:00 – 99:00 min:sec	
Vac on	100°C – 1100°C (212°F – 2012°F)	Change °C (°F) in setup Check plausibility with start temperature
Vac off	100°C – 1100°C (212°F – 2012°F)	Change °C (°F) in setup Check plausibility with firing temperature and tempering
Vac delay	00:00 – 99:00 min:sec	Check plausibility with hold time and tempering

Pressing programs (only for furnaces with pressing function)		
Parameter	Range	Remarks
Start temperature	100°C – 800°C (212°F – 1472°F)	Change °C (°F) in setup
Heat rate	10°C/min – 120°C/min (18°F/min – 216°F/min)	Change °C (°F) in setup
Press temperature	100°C – 1100°C (212°F – 2012°F)	Change °C (°F) in setup
Hold	00:00 – 99:00 min:sec	
Press delay	00:00 – 99:00 min:sec	
Cool time	00:00 – 99:00 min:sec	

Explanation of parameters

START TEMPERATURE

The starting temperature of the program. The firing process starts as soon as it is attained and the interactive key “Start” has been pressed.

DRY TIME

The time in which the platform extends from the lowest position through closing the heating muffle (4 steps).
The special programs 16 + 29 use a waiting time of 4 minutes in the lowest lift position in addition to the drying time.

PREHEAT

Firing program: The heating muffle is closed and the temperature does not increase for the predefined period.

Note: The vacuum pump only starts once the “Preheating” time has expired!

Pressing program: The preheating time of 3:00 minutes is predefined in every pressing program.
With the heating muffle closed, it serves to equalize the temperature of the press table and heating muffle.
The preheating time can be skipped/aborted with the “Open” key.

HEAT RATE

The heating rate in °C (or °F) per minute with which the firing temperature rises linearly.

PRESS TEMPERATURE

The target temperature of the pressing process for the subsequent “Hold time” and “Pressing time”.

HOLD

Firing program: The period in which the furnace remains at the firing temperature before the temperature rises/falls to “Tempering” (if predefined). If no “Tempering” temperature is predefined, “Open” is the next step.

Pressing program: The period in which the furnace remains at “Pressing temperature” before the “Pressing time” is started.

PRESS DELAY

The period in which the press ceramic is pressed in the press muffle. The “Pressing time” is dependent on the movement of the pressing stamp and may be shorter than the predefined value if the pressing stamp has not moved for 1:00 minutes. Pressing is then considered to be completed.

TEMPERING

An additional temperature step only in the firing program. Can be higher or lower than the “firing temperature”.

If higher – heating process is started again. If lower – the heating muffle is opened slightly to allow rapid cooling to the “Tempering” value. The lift platform then closes the heating muffle and the temperature stabilizes.

TEMPERING TIME

The period in which the furnace remains at the “Tempering” value.

COOL TIME

The time requires to lower the lift platform. The lift platform drops in successive steps starting with the closed heating muffle through the lowest position. Heating switches off. The program is completed. A acoustic signal sounds.

VAC ON

Vacuum only starts with the temperature entered, i.e. every value within the selected temperature range between “Starting temperature” and “Firing temperature”.

If the value is equal to the “Starting temperature”, the vacuum is established once the “Preheating time” has expired and before the “Heating rate” starts.



NOTE! If the parameter “Tempering” has been predefined and the value is greater than “Firing temperature”, the vacuum is maintained beyond the “Hold time”, also for “Tempering”, for the predefined “Vacuum hold” time. “Tempering time” and “Vacuum hold” are checked for plausibility in this case.

If no “Tempering” value exists or if “Tempering” is lower than the “Firing temperature”, then “Vacuum hold” is dependent on the “Hold time” (plausibility check).

VAC OFF

The temperature at which the vacuum is released. Every value within the selected temperature range between the “Starting temperature” and “Firing temperatures” is permissible. The value must also not be less than the “Vacuum start” (plausibility).

VAC DELAY

Period for maintaining the vacuum at the “Firing temperature” or (if programmed) “Tempering”.

The time for “Vacuum hold” must not be greater than the “Holding time” or “Tempering time” (plausibility).



Note: Only “Vacuum end” or “Vacuum hold” may be entered.

The parameters are not plausible together. The value entered last is valid, the previous value is automatically deleted!

Note: The vacuum level for the firing program can be set up in the “Setup” menu

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Note:

1. If you program data in a parameter, check the correctness of the data and the interaction (plausibility) with other parameters.
2. Please consider that all parameters have limit ranges. If you enter data above or below these limit values these data are not accepted (double beep).
3. In the case of an error, the warning signal sounds when pressing the “Enter” or “Start” key and the firing process is not initiated. The error message refers you no non-plausible data. The data affected are displayed **inverse**. You can only exit this screen are correcting the data affected (“Save”)!

8.3 Firing

8.3.1 Program selection

After pressing the “Firing” key the program selection appears:



You will find the program list of the preset Heraeus firing and pressing programs in chapter 12. The predefined programs can be arbitrarily changed and saved according to customer requirements.

Explanation of the displays

Only the current heating muffle temperature is displayed in the upper display area:

Temp: XX XX °C (°F)

The current temperature of the heating muffle depends on the previous operating status and can have arbitrary values. The target temperature (standby temperature) is 100°C (212°F).

The firing programs with the saved designation are displayed in the middle display area. The text can be freely selected or changed (chapter 8.3.3).

The program list is scrolled using the “0 – 9” keys or with the interactive keys. The selected program is displayed **inverse**!

Explanation of the interactive keys

8.3.2 "Firing" program parameters

This screen serves to display the program parameters.

For programs that are not pre-programmed, all parameter are set to "0".



Explanation of the displays

The following parameters are displayed in vertical order in the top right display area

Temp: **XX XX** °C (°F)
Vac.: mbar (mmHG)
Time: 0:00:00

- **Temp:** The current temperature of the heating muffle depends on the previous operating status and can have arbitrary values. The target temperature (standby temperature) is 100 °C (212 °F).
- **Vac.:** The relative vacuum value is displayed with the respective unit.
- **Time:** The value includes the total time remaining of a program during the program sequence. The remaining time for the respective active steps is now displayed in the "Graphic" view.

The following are displayed in vertical order:

Prog. **XX**
Prog.Name: **XXXXXX**

The program number and the program name correspond to the previous selection. The word "temporary" may appear behind the word "Prog.Name:", as required, if data are changed in the program sequence (chapter 8.3.6).

The currently stored program data are displayed in the middle display area.

The data can be freely changed ("Edit" key, chapter 8.3.6) and saved ("Save" key, chapter 8.3.7).

Explanation of the interactive keys

Start Immediately start the firing program with the data currently displayed.
Edit Edit (chapter 8.3.6) and save the firing data, as required (chapter 8.3.7).
Copy Save all the program data under another program number without prior change (chapter 8.3.7)

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8.3.3 Starting the firing program

The lift now moves – if the heating muffle was closed at the start – into the opened position and the furnace heats or cools to the starting temperature.



The program only starts once the starting temperature is attained. The program sequence starts immediately the starting temperature is attained. The designation “Prog.” in the display at the top left switches to “Cycle” to display that a program is running.

Explanation of the interactive keys

- Stop** Immediately abort the firing program and display the program data (chapter 8.3.2)
- Modify** Immediately interrupt the program to change and to save current firing data, as required (chapter 8.3.5)
- Night** Activate the night mode – optional setting at the end of the program (chapter 8.3.9)
- Graph** Current display of the program sequence as a graph (chapter 8.3.4)

8.3.4 Graphic display

After a short time in the program sequence; the display automatically switches to the graphic mode:





The graph is gradually completed with white pixels during the program sequence.
The completed graph shows the program progress of hold and heating times, as well as the movement of the lift.

Explanation of the interactive keys

- Stop** Immediately abort the firing program and display the program data (chapter 8.3.2)
- Modify** Immediately interrupt the program to change and save current firing data, as required (chapter 8.3.5)
- Night** Activate the night mode – optional setting at the end of the program (chapter 8.3.9)
- Back** Return to the parameter display of the current program (chapter 8.3.3)

8.3.5 Changing program data during the program sequence “Hold”

The display at the top left switches to “Hold” (blinks). Every 5 seconds an acoustic signal sounds.
The temperature is maintained.

Explanation of the interactive keys

- Keys ↓↑** Scroll through the program data. The selected program is displayed **inverse**!
- enter** The edited and possibly changed data are accepted temporarily. The program sequence is continued.

The data selected can be directly edited. Keys “0 – 9”, “clear”. By processing the data, the word “Temporary” is inserted in the upper display area. This means that program data for the ongoing process have been changed. These temporary data are deleted again at the end of the program. It is no longer possible to save the changed parameters from the “Hold” operating status.



Explanation of the operating keys

- clear** The “clear” key deletes the parameter field entry; display: “0000” or “00:00”.
The parameter field is cancelled for the program sequence.



Note: Deletion leads to an error message for all parameters necessary for the program sequence; the parameter must be entered within its data range; the screen cannot be exited previously.

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8.3.6 Changing program data

After pressing the “Edit” key the display appears as follows:



Note: The word “Temporary” was already inserted due to the change of the “High temperature” parameter!

Explanation of the interactive keys

- Keys ↓↑** Scroll through the program data. The selected parameter is displayed **inverse**!
- Save** Save the changed parameters under the same or another program number and labeling (chapter 8.3.7)
- Back** Return to the parameter screen (chapter 8.3.2)

The data selected can be directly edited. Keys “0 – 9”, “clear”. By processing the data, the word “Temporary” is inserted in the upper display area. This means that program data were only changed for the ongoing or subsequent process by pressing the “enter” key. These temporary data are deleted again at the end of the program.

Explanation of the operating keys

- clear** The „clear“ key deletes the parameter field entry; display: “0000” or “00:00”. The parameter field is cancelled for the program sequence.



Note: Deletion leads to an error message for the parameters necessary for the program sequence; the parameter must be entered within its data range; the screen cannot be exited previously.

- enter** The edited and possibly changed data are accepted temporarily. Then back to chapter 8.3.2. The program can be started with the temporary data. Alternatively, it is possible to permanently save the changed parameters with the interactive key “Save”, see the above explanation for the “Save” key.

8.3.7 Saving programs

If parameters have been changed these are firstly accepted “temporarily”. The program data record can be permanently saved under the same program number and labeling. Use the “Save” key for this purpose.




The program number and the labeling are displayed. The new program number can be directly edited:
Keys “0 – 9”, “clear”.

Explanation of the interactive keys for program entry

- Save** Save the changed program number and jump to the labeling entry.
- Back** Return to the change screen (chapter 8.3.6)

Labeling is undertaken using the letters and characters assigned to the “0 - 9” keys.

Explanation of the interactive keys for labeling entry

- abc/ABC** Switch between upper and lower case letters
-  Cursor to the right to the next text entry point. Starts again at the end
- Save** Save the program data and the labeling under the new program number.
The information “Saving parameters” appears briefly here
- Back** Return to the program data change screen (chapter 8.3.6)

8.3.8 Copying

In this screen, programs with labeling are saved under new program number and labeling without prior change to the data.
Operation – see chapter 8.3.7.

8.3.9 Night mode

The night mode is an additional option that defines the operation of the furnace at the end of the program.
The “Night” key is configured as an interactive button in the display (chapters 8.3.3 and 8.3.4).

There are two ways of arriving in the night mode:

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- The night program “0” can also be directly started manually in the program selection. The lift closes the heating muffle and the temperature remains constant at 100°C (212°F). To cancel the night mode, press the “Continue” key again.



We recommend keeping the heating muffle closed with the lift for work breaks or at the end of work in order to reduce the absorption of moisture..

8.4 Pressing



The following operation is deactivated for ceramic firing furnaces without the pressing function. Please read more in chapter 9.

8.4.1 Program selection

After pressing the “Pressing” key the program selection appears:



The pressing programs with the saved designation are displayed in the middle display area. The text can be freely selected or changed (chapter 8.4.6).

The program list is scrolled using the “0 – 9” keys or with the interactive keys.

Explanation of the interactive keys

Keys ↓↑	Scroll through the program selection (program number P01 – P20)
enter	Select the programs and display the program parameters
Back	Return to the start screen

8.4.2 “Pressing” program parameter

View of the program parameters for the pressing program.

For non-pre-programmed pressing programs, all parameters are set to “0000” or “00:00”.



Explanation of the displays

The following parameters are displayed in vertical order in the top right display area:

Temp: **XX XX** °C (°F)
Vac.: mbar (mmHG)
Time: 0:00:00 (h:min:sec)

- **Temp:** The current temperature of the heating muffle depends on the previous operating status and can have arbitrary values. The target temperature (standby temperature) is 100 °C (212 °F).
- **Vac.:** The relative vacuum value is displayed with the respective unit.
- **Time:** The value includes the total time remaining of a program during the program sequence. The remaining time for the respective active steps is now displayed in the “Graphic” view.

The following are displayed in vertical order:

Prog. PXX (The letter “P” indicates a pressing program!)
Prog.Name: XXXXXX

The program number and the program name corresponds to the previous selection. The word “temporary” may appear behind the

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Explanation of the interactive keys

Start	Immediately start the pressing program with the displayed data (chapter 8.4.3)
Edit	Edit (chapter 8.4.6) and possibly saving of firing data (chapter 8.4.7)
Copy	Save all the program data under another program number and name without prior change (chapter 8.4.8)
Back	Return to the program screen

8.4.3 Start of the pressing program

The program sequence starts after the “Start” key is pressed. The lift now moves – if the heating muffle was closed at the start – into the opened position. This serves as a safety measure to show the user that the furnace is actually empty.

The lift closes again immediately after and the furnace heats up or cools down to the start temperature with the heating muffle closed.

Explanation of the displays

Top display: In place of “Prog.”, the word “Cycle” now appears; this refers to the started program (cf. figure chapter 8.4.2).

Middle display: The information “Preheating. Push button “open” to continue!” is displayed on the right next to the program data.

Explanation of the interactive keys

Stop	Immediately abort the pressing program and display the program data (chapter 8.4.2)
Edit	Immediately interrupt the program to change and save current firing data, as required (chapter 8.4.5)
Open	Lift opens during or after the preheating process to insert the pressing muffle and for subsequent starting the pressing process. The time window for inserting the pressing muffle is 1:00 minute! The interactive key switches to the “Close” function
Graph	Current display of the program sequence as a graph (chapter 8.4.4). The graphic display appears automatically after approx. 30 seconds in the preheating process. The interactive key switches to “Back”
Back	With the “Back” key you switch from the graphic display return to the data display

The program sequence starts immediately the starting temperature is attained. The designation “Prog.” in the display at the top left switches to “Cycle” to display that a program is running.



The program only starts once the starting temperature is attained!

The pressing pressure is displayed in the graphic. See ‘Setting the pressing pressure’ in chapter 8.4.4.





To reduce or skip the preheating time, you can manually lower the lift with the “Open” key to insert the pressing muffle.

Explanation of the interactive keys

- Stop** Immediately abort the pressing program and display the program data (chapter 8.4.2)
- Edit** Immediately interrupt the program to change the current firing data (chapter 8.4.5)
- Close** After pressing the key the actual pressing program starts with the lift function.
The configuration of the key switches to “Night” → see night mode chapter 8.4.4. and chapter 8.4.9
- Graph** Current display of the program sequence as a graph (chapter 8.4.4). The graphic display appears automatically after approx. 30 seconds in the preheating process. The interactive key then switches to “Back”



A period of 1 minute is allowed for inserting the pressing muffle; display as “Time”: 01:00 min. counting down. If this time is exceeded, the program firstly provides for the preheating time of 3:00 min. to run again!

The lift closes automatically and the graphic mode shows this return in the process visibly.
The information “Preheating. Push button “open” to continue!” appears in the data display.
The preheating process can be aborted at any time with the “Open” key (see above).

8.4.4 Graphic display

After approx. 30 sec. in the program sequence; the display automatically switches to the graphic mode:



The graph is only a graphic depiction of the program sequence with all the relevant data. The display can be exited at any time (“Back” key).

The data in the upper display field show the standard values (chapter 8.4.2). The graph with all program parameters is displayed in the middle display field.

As additional information, the remaining run time of the individual program steps is displayed on the left with the designation “Step: 00:00 min.”. To the right the pressing pressure (bar) of the upcoming pressing process is displayed on the right: e.g. “Pressing”: 4.5 bar.

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Setting the pressing pressure



The pressing pressure is factory set to 4.5 bar and is changed directly by adjusting the pressure regulator on the back of the unit (chapter 5.3). It is adapted to the respective conditions, as required; this can also take place during the program sequence.

To adjust the pressing pressure, pull out the blue setting knob slightly (unlock), turn the setting knob slowly until the required pressure is attained and then lock again by pressing.



The graph is gradually completed with white pixels during the program sequence. The completed graph shows the program progress of lift functions, hold and heating times, as well as the movement of the pressing stamp.

Explanation of the interactive keys

Stop	Immediately abort the pressing program and display the program data (chapter 8.4.2)
Edit	Immediately interrupt the program to change the current firing data (chapter 8.4.5)
Night	Activate the night mode – optional setting at the end of the program (chapter 8.4.9)
Back	Return to the parameter display of the current program (chapter 8.4.3)

8.4.5 Changing program data during the program sequence “Hold”

The display at the top left switches from “Cycle” to “Hold” (blinks) and an acoustic signal sounds every 5 seconds. The temperature is maintained.

Explanation of the interactive keys

Keys ↓↑	Scroll through the program data. The selected program parameters are displayed inverse!
enter	The edited and possibly changed data are accepted temporarily. The program sequence is continued.

The data selected can be directly edited. Active keys “0 – 9”, “clear”, “enter”.

By processing the data, the word “Temporary” is inserted in the upper display area. This means that program data for the ongoing process have been changed. These temporary data are deleted again at the end of the program. It is no longer possible to save the changed parameters from the „Hold“ operating status.





Note: Deletion leads to an error message for all parameters necessary for the program sequence; the parameter must be entered within its data range; the screen cannot be exited previously.

enter

The edited and possibly changed data are accepted temporarily. The program sequence is continued. The display at the top left switches to “Cycle”.

8.4.6 Changing program data

After pressing the “Edit” key the display appears as follows:



Note:

The word “Temporary” was already inserted due to the change of the “Heat rate” parameter!

Explanation of the interactive keys

- Keys ↓↑** Scroll through the program data. The selected parameter is displayed **inverse** !
- Save** Save the changed parameters under the same or another program number and labeling (chapter 8.4.7)
- Back** Return to the parameter screen (chapter 8.4.2)

The data selected can be directly edited: Keys “0 – 9”, “clear”. By processing the data, the word “Temporary” is inserted in the upper display area after “Prog.Name:”. This means that program data were only changed and saved for the ongoing or subsequent process by pressing the “enter” key.

These temporary data are deleted again at the end of the program.

Explanation of the operating keys

- clear** The „clear“ key deletes the parameter field entry; display: “0000” or “00:00”. The parameter field is cancelled for the program sequence.



Note: Deletion leads to an error message for the parameters necessary for the program sequence, the parameter must be entered within its data range: the screen cannot be exited previously.

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8.4.7 Saving programs

If parameters have been changed these are firstly accepted “temporarily” (chapter 8.4.6). For permanent storage, the program data record can be saved under its own program number and program name. Use the “Save” key for this purpose.



The program number and program name are displayed. The new program number can be directly edited:
Keys “0 – 9”, “clear”.

Explanation of the interactive keys for program entry

- Save** Save the changed program number and jump to the labeling entry
- Back** Return to the change screen (chapter 8.4.6)

Labeling is undertaken using the letters and characters assigned to the “0 – 9” keys.

Explanation of the interactive keys for labeling entry

- abc/ABC** Switch between upper and lower case letters
- Cursor to the right to the next text entry point. Starts again at the end
- Save** Save the program data and the labeling under the new program number.
The information “Saving parameters” appears briefly here
- Back** Return to the program data change screen (chapter 8.4.6)

8.4.8 Copying

In this screen, programs with labeling are saved under new program number and labeling without prior change to the program number and program name. Operation – see chapter 8.4.7.

8.4.9 Night mode

The night mode is an additional option that defines the operation of the furnace at the end of the program.

The “Night mode” key is configured as an interactive button in the display (chapter 8.4.4). Description – see chapter 8.3.9.



9 Setup Menu

The setup menu includes the possibility of setting the furnace and the customer-specific operating options and languages. The parameters are selected with the “↑↓” keys. The parameters are changed with the “Enter” key. The selection can be arbitrarily varied and is saved automatically on exiting the screen (except chapter 9.4 and chapter 9.5). The conversion of existing programs takes place automatically. The activated parameter is displayed **inverse** !



1. Temperature unit: °C and °F.
2. Vacuum unit: mmHG und mbar
3. Pump cooling on/off (active cooling from the vacuum pump air stream)
4. Temperature adjustment: max. range +/- 50 °C (+/- 90 °F).

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Explanation of the interactive keys:

- + / -** Selection of positive or negative correction value
Example: Display 960°C (1760°F); correction value +20°C (+ 36 °F); actual temperature: 980°C (1796°F).
- Save** Save the new correction value
- Default** Delete the correction value; reset to factory default "0"
- Back** Exit the screen without saving the correction value

The value entered can be deleted with the "clear" key. The "enter" key has no function here.



Note: The entry of a correction value applies the same for all programs! The program parameters are not changed, the temperature correction (offset) takes place in the background.

The changed temperature is not visible for the operator!

Therefore, firstly check the correction value if you suspect temperature problems as the cause of incorrect firings! If frequent changes to settings are necessary, please contact Heraeus Kulzer Service.

5. Vacuum adjustment






Note: The term “max” means that the maximum vacuum achievable with the vacuum pump is aimed for, i.e. the pump runs continuously! No vacuum target value is monitored!

With reference to a)

Explanation of the interactive keys:

-  Selection of the basic setting, see 5a
- Next** Jump to the entry of the correction value 5b
- Default** Reset to factory default “Max”
- Back** Exit the screen without saving the correction value

With reference to b)

Interactive keys after pressing the “Next” key:

- + /-** Selection of positive or negative correction value
- Save** Save the new correction value
- Default** Delete the correction value; reset to factory default “0”
- Back** Exit the screen without saving the basic setting 5a and the correction value 5b

The value is entered with the “0 – 9” keys.

The value entered can be deleted with the “clear” key. The “enter” key has no function here.



Note: The entry of a correction value applies the same for all programs!

The correction of the vacuum (offset) takes place in the background. The changed vacuum value is not visible for the operator! Therefore, firstly check the correction value if you suspect temperature problems as the cause of incorrect firings. If frequent changes to settings are necessary, check the vacuum pump connected and contact Heraeus Kulzer Service as required.

6. Contrast



The contrast setting is a basic setting for all screens. In case of an unsuitable or a changed setting, adjustment can be undertaken directly.



NOTE: The colors can be varied or inverted depending on the viewing angle.

The colors also change slightly due to warming in operation. This is technology-related and is therefore not a fault or a reason for complaint.

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- | | |
|-------------|---|
| 7. English | Language selection with the “ $\uparrow\downarrow$ ” keys; the activated language is displayed inverse |
| 8. French | Language selection with the “ $\uparrow\downarrow$ ” keys; the activated language is displayed inverse |
| 9. German | Language selection with the “ $\uparrow\downarrow$ ” keys; the activated language is displayed inverse |
| 10. Italian | Language selection with the “ $\uparrow\downarrow$ ” keys; the activated language is displayed inverse |

Software version number

The current software version number may be seen below the language selection.



10 Service menu

The Service menu is protected with a 4-digit password. This area is reserved for Service and is not accessible for the customer. None of the parameters to be set by the customer are found in the Service area. Exit the screen with the “Back” key.

11 Servicing



ATTENTION!

The functionality and safety of the unit is only guaranteed if the necessary inspections, maintenance and servicing work are performed by trained personnel.

Heraeus Kulzer GmbH is not liable for any damage to the unit resulting from incorrect repairs not performed by trained service personnel or if parts replaced are not original replacement/accessory parts.



INFORMATION!

It is recommend to conclude a maintenance agreement with our service centers – request a quotation (addresses - see chapter 15.1 “Service partners”).



INFORMATION!

The mains power cord and plug must be inspected for damage prior to use. In case of damage, the unit must not be connected to the mains supply.

**ATTENTION!****Risk of short circuits!**

Always ensure that that no drops of cleaning agent enter the ventilation slits on the housing.



INFORMATION! Check the perfect function of the vacuum pump every 2 weeks with the heating muffle empty. Observe the display. A maximum of 30 seconds after switching on the vacuum the display should have attained the set end value (e.g. – 960 mbar). If this value is not attained or far slower, the cause may be, for example

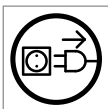
- the seal on the lift on the muffle is soiled or damaged
- the vacuum pump is not working correctly (CL-P type 7: check oil)
- the end switch is poorly adjusted (lift does not close completely).

and poor firing results may result. Contact your Heraeus Kulzer service center (see chapter 15.1 “Service agents”).



ATTENTION! Please observe the following:

- The furnace may only be opened by a service technician authorized by the manufacturer or the supplier of the furnace. There are no parts in the furnace to be maintained by the customer.
- Inadmissible opening of the furnace invalidate the guarantee.
- Competitors' vacuum pumps connected to the furnace must be designed for the intended use of the furnace, suitable for the furnace's vacuum valve switching and bear the CE mark. If in doubt, please contact Heraeus Kulzer GmbH.

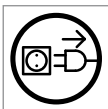
**ATTENTION ISOLATION FROM THE MAINS SUPPLY!****Danger of electric shocks if the unit is opened!**

Disconnect the mains plug before opening! Prior to performing maintenance work on the furnace or in the event of mechanical failure, switch off the power supply (mains switch “I/O”) on the back of the furnace and disconnect the unit from the power supply.

11.1 Replacing fuses

The fuses on the back of the unit are for heating and the vacuum pump (see chapter 5.3 and 5.3.1).

The use and the nominal fuse rating are stated next to the respective fuse. Work instruction:

**ISOLATION FROM MAINS SUPPLY!**

1. Disconnect the unit from the mains supply (pull the mains plug).
2. Open the fuse holder with a regular screwdriver.
3. Replace the defective fuse with the replacement fuse supplied or with fuses of the same rating and same quality. Contact specialist personnel or Heraeus Kulzer Service in case of questions!
4. Check whether the replacement fuse has the correct trigger current value. Fuses with different data (current and voltage) must not be used. Risk of damage to property or personal injury!
5. Insert the fuse into the fuse holder and close the fuse holder again with the screwdriver.
The fuses have no preferred orientation/polarity!
6. In the event of repeated failure, take the unit out of operation (pull the mains plug, protect against putting

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11.2 Inspections



The unit should be inspected at least once a year for the following features and its proper condition ascertained:

- Mechanics (lift, heating, insulation)
- Function (technical data)
- Electrics (D: BGV A3)
- Safety devices of the unit (e.g. acoustic signal, lift movement limit switch, start/stop)
- Repair work (equipment and accessories)



Work on the unit's electrical equipment may only be performed by trained service personnel and in a safe state (disconnected from the mains supply). Only approved original spare parts may be used.

12 Preset programs for Heramat® C3 and Heramat® C3 press

	Heramat® C3 Heramat® C3 press		Start temp.	Trock- nen / Dry time	Vor- wärmen / Pre- heat	Heizrate / Heat rate	Brenn- temp. / High tempera- ture	Haltezeit / Hold	Tempern / Tem- pering	Temper- zeit / Tempe- ring time	Öffnen / Cool time	Vak.-Start / Vac. on	Vak.- Ende / Vac off	Vak.- Halten / Vac delay
	Ofenfunktion	Furnace function	[°C]	[min]	[min]	[°C/min]	[°C]	[min]	[°C]	[min]	[min]	[°C]	[°C]	[min]
0	Nachtmode – nicht änderbar	Night mode – not alterable	100											
1	Silberprobe – nicht änderbar	Silver test – not alterable	500	---	---	50	1060	---	---	---	---	1059	1060	---
2	Ofenreinigung – nicht änderbar	Furnace cleaning – not alterable	600	1:00	1:00	100	1100	20:00	---	---	---	600	---	20:00
HeraCeram®														
3	HeraCeram® Oxidbrand	HeraCeram® Oxide 880	600	---	---	100	880	10:00 4)	---	---	---	600	---	10:00 4)
4	Pre-Opaque	Pre-Opaque	600	5:00	1:00	100	980	10:00	---	---	---	600	---	10:00
5	Pastenopaker Normalprogramm	Pasteopaquer	600	5:00	1:00	100	880	1:00	---	---	---	600	880	---
6	Pulveropaker	Powder opaquer	600	2:00	1:00	100	880	1:00	---	---	---	600	880	---
7	Schultermasse Highfusing margin 1	1st Shoulder material HM	600	3:00	1:00	100	870	1:00	---	---	---	600	870	---
8	Schultermasse Highfusing margin 2	2nd Shoulder material HM	600	2:00	1:00	100	860	1:00	---	---	---	600	860	---
9	Dentin Hauptbrand	1st Dentin bake	600	3:00	2:00	100	860	1:00	---	---	---	600	860	---
10	Dentin Korrekturbrand	2nd Dentin bake	600	3:00	2:00	100	850	1:00	---	---	---	600	850	---
11	Glanzbrand 850	Glaze bake 850	600	2:00	2:00	100	850	0:30	---	---	---	---	---	---
12	Glanzbrand 840	Glaze bake 840	600	2:00	2:00	100	840	0:30	---	---	---	---	---	---
13	Korrekturmasse	Correction material COR	600	2:00	2:00	100	810	1:00	---	---	---	600	810	---
14	Schultermasse Lowfusing margin	Shoulder material LM	600	3:00	2:00	100	790	1:00	---	---	---	600	790	---
15	Lötung (Lote siehe unten)	Lötung (Lote siehe unten)	600	8:00	5:00	55	830	1:30 1)	---	---	---	(600) 1)	---	(1:30) 2)
16	Blendgold-Neu; HeraCeram®; Preciano; Spezialprogramm*	Blendgold New; HeraCeram®; Preciano; Special program*	400	2:00 3)	---	55	900	---	---	---	---	---	---	---
HeraCeram® Sun														
17	HeraCeram® Sun Oxidbrand	HeraCeram® Sun degassing	600	1:00	---	100	800	10:00 4)	---	---	---	---	---	---
18	HeraCeram® Sun Pre-Opaque	HeraCeram® Sun Pre-Opaque	600	5:00	1:00	100	980	5:00	---	---	---	600	---	5:00
19	Basic-/Pasten-Opaker Normalprogr.	Basic-/pasteopaquer	600	5:00	1:00	100	790	1:00	---	---	---	600	790	---
20	Pulveropaker	Powder opaquer	600	3:00	1:00	100	790	1:00	---	---	---	600	790	---
21	Schultermasse Highfusing margin	Shoulder material HM	600	3:00	1:00	100	775	1:00	---	---	---	600	775	---
22	Dentin Hauptbrand	1st Dentin bake	600	3:00	2:00	100	760	1:00	---	---	---	600	760	---
23	Dentin Korrekturbrand	2nd Dentin bake	600	3:00	2:00	100	750	1:00	---	---	---	600	750	---
24	Glanzbrand 750	Glaze bake 750	600	3:00	1:00	100	750	0:30	---	---	---	---	---	---
25	Glanzbrand 740	Glaze bake 740	600	3:00	1:00	100	740	0:30	---	---	---	---	---	---
26	Korrekturmasse	Correction material COR	600	3:00	1:00	100	710	1:00	---	---	---	600	710	---
27	Schultermasse Lowfusing margin	Shoulder material LM	600	3:00	1:00	100	700	1:00	---	---	---	600	700	---
28	Lötung Hera® Sun Lot 2	Soldering Hera® Sun Solder 2	600	8:00	5:00	55	740	1:30 1)	---	---	---	---	---	---
29	Blendgold Neu; HeraCeram® Sun; Preciano; Spezialprogramm*	Blendgold New; HeraCeram® Sun; Preciano; Special program*	400	2:00 3)	---	55	820	---	---	---	---	---	---	---
HeraCeram® Zirkonia														
30	Adhesive	Adhesive	600	5:00	1:00	100	1050	10:00	---	---	---	600	---	10:00
31	Liner	Liner	600	5:00	1:00	100	880	1:00	---	---	---	600	880	---
32	Schultermasse Highfusing margin 1	1st Shoulder material HM	600	3:00	1:00	100	870	1:00	---	---	---	600	870	---
33	Schultermasse Highfusing margin 2	2nd Shoulder material HM	600	2:00	1:00	100	860	1:00	---	---	---	600	860	---
34	Dentin Hauptbrand	1st Dentin bake	600	3:00	2:00	100	860	1:00	---	---	---	600	860	---
35	Dentin Korrekturbrand	2nd Dentin bake	600	3:00	2:00	100	850	1:00	---	---	---	600	850	---
36	Glanzbrand 850	Glaze bake 850	600	2:00	2:00	100	850	0:30	---	---	---	---	---	---
37	Glanzbrand 840	Glaze bake 840	600	2:00	2:00	100	840	0:30	---	---	---	---	---	---
38	Korrekturmasse	Correction material COR	600	2:00	2:00	100	810	1:00	---	---	---	600	810	---
39	Schultermasse Lowfusing margin	Shoulder material LM	600	3:00	2:00	100	790	1:00	---	---	---	600	790	---

1) The hold time can be adapted depending on the object size or solder block volume.

2) The parameters "Vac. start" and "Vac. hold" must only be supplemented when using "Herador Lot V 800". These values are not included in the preset programs and are also not required for all other solders.

3) Special program = 4:00 min. in the lowest lift position (not presented visually) + 2:00 min. furnace close time (visible as program parameter) = 6:00 min. total.

4) Observe the hold times and vacuum specifications according to the technical data table and manufacturer's information, which may vary!

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HeraMat® C3 *press* Ceramic Furnace

	Pressing programs for HeraMat® C3 <i>press</i>						
	Program name	Start temp.	Heat rate	Press temp.	Hold	Press delay	Cool time
		[°C]	[°C/min]	[°C]	[min]	[min]	[min]
P1	<i>HeraCeram® press</i>	700	50	1040	12:00	15:00	0:00
P2	<i>HeraCeram® Sun press</i>	700	50	1040	8:00	12:00	0:00
P3	<i>HeraCeram® Zirkonia PtZ</i>	700	50	990	20:00	12:00	0:00

13 Technical Data

13.1 General Technical Data

Total number of firing programs	180			
Preset firing programs	40			
User-defined firing programs	140			
Total number of pressing programs	20			
Preset pressing programs	3			
User-defined pressing programs	17			
Factory default pressure for pressing process	4,5 bar			
Minimum pressure for pressing process	2 bar			
Maximum pressure for pressing process	8 bar			
Dimensions	B 290 mm x T 380 mm x H 630 mm W 12" x D 15" x H 25"			
Heating muffle	Ø 95 mm x 60 mm			
Firing table	Ø 90 mm			
Pressing table	Ø 90 mm			
Net weight	HeraMat® C3: 22 kg (48.5 lbs) HeraMat® C3 <i>press</i> : 23 kg (50.6 lbs)			
Mains voltage 230 V 115 V 100 V	Power consumption 1750 W 1400 W 1100 W	Current consumption 7,6 A 12,1 A 11,0 A	Mains Fuse (2x) T 8 A – 250 V T 15 A – 250 V T 15 A – 250 V	Heat Fuse T 8 A – 250 V T 15 A – 250 V T 15 A – 250 V
Mains voltage variations	max. + /– 10%			
Protection class	1			
Overvoltage category	II			
Degree of contamination	IP 20			
Mains frequency	50/60 Hz			
Pump input 230 V 100 / 115 V	Power consumption 1000 W 500 W	Fuse T 5.0 A – L 250 V T 6.3 A – L 250 V		
Programmable temperature range	100 °C – 1100 °C			
Maximum vacuum	10 mbar (absolute)			
Heating speed	10 °C/min to 120 °C/min			
Temperature resolution	1 °C			
Time accuracy (steps)	1 second			

13.3 Operating conditions

Temperature 10 °C (50 °F) to 40 °C (104 °F)
Humidity 80 % rel. humidity up to 30 °C (86 °F)
50 % rel. humidity 31 °C (88 °F) up to 40 °C (104 °F)
Installation
location indoors, dry, well ventilated, max. 2000 m above sea level

13.4 Type plate



Example: Type plate Heramat® C3 *press* 230V. Please find the technical data for the other voltage versions from the actual type plate of the furnace.

13.5 Disposing of old equipment in accordance with WEEE

German Electrical and Electronics Devices Law (ElektroG)



This law defines the requirements for product responsibility in accordance with Directive 2002/96/EC of the European Parliament and of the Council on electrical and electronic devices issue 2005-05-03.

Its main purpose is to avoid waste from electrical and electronic devices and in addition recycling.

For detailed information on professional disposal of disused old devices, contact our call center at the toll free number 0800-4372522 or contact your dealer or Heraeus Kulzer subsidiary in your country.



IMPORTANT!

Labeled devices must not be disposed of through the communal waste disposal centers.

14 Circuit diagrams

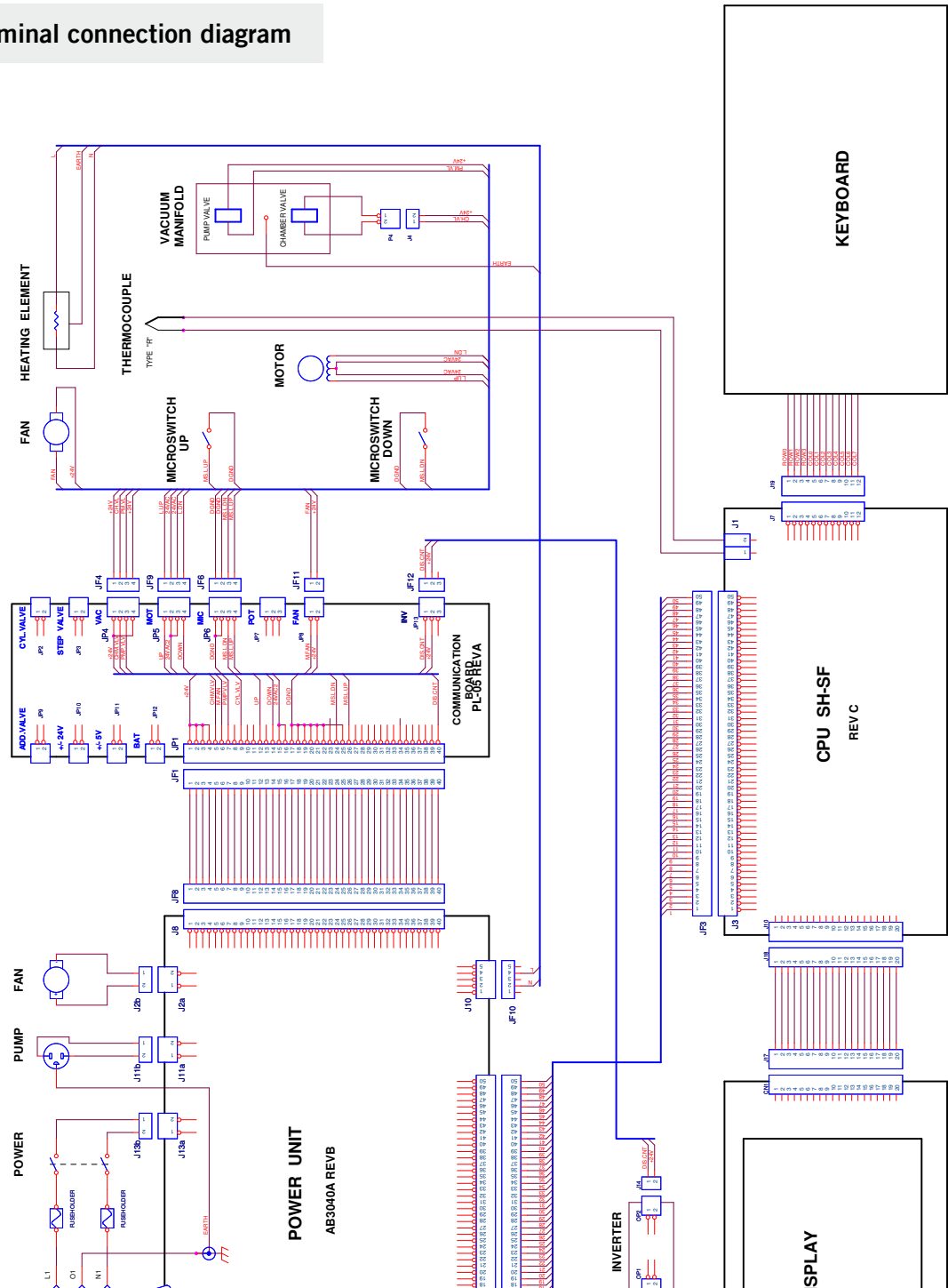
There are no components in the furnace to be maintained by the customer; for this reason there are also no circuit diagrams supplied at this point. The following terminal connection diagram is reserved for the competent specialist personnel for service

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14.1 Terminal connection diagram



15 Service

15.1 Servicepartner / Service agents

Jürgen Mohns Kirchweg 15 23898 Sandesneben Tel.: 0 45 36 / 89 83 02 Fax: 0 45 36 / 89 83 04 Mobil: 0 171 / 195 28 01 mail@jmohns.de	Schulz Medizintechnik Kurze Straße 4 37589 Sebxen Tel.: 0 55 53 / 91 96 30 Fax: 0 55 53 / 91 96 31 Mobil: 0 171 / 770 79 92 info@schulz-sebxen.de	Stefan Preußler Schöndorffstraße 6a 40229 Düsseldorf Tel.: 02 11 / 21 96 83 Fax: 02 11 / 21 96 63 Mobil: 0 171 / 735 76 35 elektropreussler@aol.com	Wolfgang Ermel Porsestraße 37 06862 Roßlau Tel.: 03 49 01 / 548 99 Fax: 03 49 01 / 548 99 Mobil: 0 172 / 345 44 42 wolfgang-ermel@t-online.de
DL Geräteservice Berlin-Brandenburg-Bertram Schilfhof 18 14478 Potsdam Tel.: 03 31 / 588 11 37 Fax: 03 31 / 58 81 14 00 Mobil: 0 176 / 3000 68 68 mail@dentallaborgeraeteservice.de	Friedhelm Kopp GmbH Saalburgring 33 63486 Bruchköbel Tel.: 0 61 81 / 790 14 Fax: 0 61 81 / 74 09 36 Mobil: 0 171 / 514 75 72 f.kopp-gmbh@t-online.de	DGS Mario Salewski Mittelstraße 52 54340 Klüsserath Tel.: 06507 / 70 38 19 Fax: 06507 / 70 38 21 Mobil: 0 170 / 447 56 85 mario.salewski@gmx.de	Peter Becker Peter-Müller-Straße 17 80997 München Tel.: 089 / 812 67 23 Fax: 089 / 812 67 23 Mobil: 0171 / 802 44 11 hup.becker@web.de
Niedner Dental Holzweg 31 07749 Jena Tel.: 0 36 41 / 61 69 53 Fax: 0 36 41 / 21 50 58 Mobil: 0 172 / 362 32 31 info@niedner-dental.de	Klaus Pollinger Fasanenstraße 3 90587 Tuchenbach Tel.: 09 11 / 212 56 44 Fax: 09 11 / 212 56 42 Mobil: 0 177 / 535 52 81 klaus-pollinger@gmx.de	Dentalab GmbH Malchower Weg 128 13053 Berlin Tel.: 0 30 / 98 31 54 12 Fax: 0 30 / 98 31 54 15 Mobil: 0163/ 568 41 65 wolfgang-eckhardt@t-online.de	Hermann Steffen GmbH Flachsland 35 22083 Hamburg Tel.: 0 40 / 29 06 36 Fax: 040 / 29 82 05 50 Mobil: 0 172 / 511 36 48 hermann_steffen_gmbh@t-online.de
Dental-Industrie-Service Frank Schestak Am Sportplatz 1 73269 Hochdorf Tel.: 0 71 53 / 547 89 Fax: 0 71 53 / 582 10 Mobil: 0 172 / 815 59 71 fschestak@t-online.de	Hermann Steffen GmbH (Niederlassung) Hinrichsdorfer Straße 6 18146 Rostock Tel.: 03 81 / 69 95 09 Fax: 03 81 / 69 96 68 Mobil: 0 172 / 383 15 34 hasse.dental@t-online.de	DGS Ullmann Rostockerstraße 38 18069 Sievershagen Tel.: 03 81 / 490 33 13 Fax: 03 81 / 490 33 13 Mobil: 0 171 / 875 21 52 03814903313-0001@t-online.de	Friedhelm Kopp GmbH (Niederlassung) 71229 Leonberg Tel.: 0 61 81 / 790 14 Fax: 0 61 81 / 74 09 36 f.kopp-gmbh@t-online.de

Servicestelle – Servicepartner / Service centers – Service agents

Österreich / Austria

Dental Technik Franz Schepan Oberweiden 136 A-2295 Oberweiden Tel.: +43 2.284.23.70 Fax: +43 2.284.23.70	Heraeus Kulzer Schweiz AG Andy Gschwend Ringstrasse 15A CH-8600 Dübendorf Tel.: +41 43.333.72-50 Mobil: +41 79.506.12.18
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Schweiz / Switzerland

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15.2 Ansprechpartner in den Ländern / Contacts in the countries

LAND / COUNTRY	NAME / ADDRESS
Deutschland / Germany	Heraeus Kulzer GmbH, Produktsupport Labor, Grüner Weg 11, 63450 Hanau Tel. / Phone +49 (0) 61 81 / 35-58 94 oder / or 35-47 73, Fax +49 (0) 61 81 / 35-59 93
Australien / Australia	Heraeus Kulzer Australia Pty. Ltd., Rydecorp, Unit 6, 2 Eden Park Drive, Macquarie Park NSW 2113 Tel. / Phone (02) 8422 6100, Fax (02) 9888 1460
Brasilien / Brazil (America Sul / America del Sur / South America)	Heraeus Kulzer South America Ltda., Av. Marques de São Vicente, 2800 – São Paulo – SP – CEP 05036-040 Tel. / Phone +55 11 30688171, Fax +55 1130688172
China / China	Heraeus Kulzer Dental Ltd., 1585 Gu Mei Road, 200233 Shanghai Tel. / Phone +86 21.649.58488, Fax +86 21.649.51732
Frankreich / France	Heraeus, Division Dentaire, 12, Avenue du Québec, Villebon - B.P.630, 91945 Courtaboeuf Cédex Tel. / Phone +33 169.18.48.48, Fax +33 169.28.78.22
Großbritannien / United Kingdom	Heraeus Kulzer Ltd., Albert Road, Northbrook Street, Newbury, Berkshire, RG14 1DL Tel. / Phone +44 1635.30-500, Fax +44 (0) 1635 524622
Indien / India	Heraeus Kulzer Dental India Private Ltd., Heraeus Kulzer House 344/2, Ladoo Sarai 110030 New Delhi Tel. / Phone +91 116512849, Fax +91 116512869
Italien / Italy	Heraeus Kulzer S.r.l., Via Console Flaminio 5/7, 20134 Milano Tel. / Phone +39 02210.09.41, Fax +39 02210.09.42-83
Japan / Japan	Heraeus Kulzer Japan Co., Ltd., TSK Bldg. 2F, 8-13 Hongo 4-chome Bunkyo-ku, Tokyo 113-0033 Tel. / Phone +81 35803.21-51, Fax +81 35803.21-50
Mexiko / Mexico	Heraeus Kulzer Mexico S.A. de C.V., Homero 527, 301 y 302 Co. Pol., 11560 Mexico Tel. / Phone +52 55.5531-5549, Fax +52 55.5255-1651
Niederlande / The Netherlands	Heraeus Kulzer Benelux B.V., Postbus 986, NL-2003 RZ Haarlem Tel. / Phone +31 23.543.42-50, Fax +31 23.543.42-55
Nordamerika / North America	Heraeus Kulzer, LLC, Headquarters, 300 Heraeus Way, South Bend, IN 46614 Tel. / Phone 1-800-431-1745, Fax 1-800-522-1545
Österreich / Austria	Heraeus Kulzer Austria GmbH, Nordbahnstr. 36/2/4/ Top 4.5, A-1020 Wien Tel. / Phone +43 1.408.09.41, Fax +43 1.408.09.41-70
Schweiz / Switzerland	Heraeus Kulzer Schweiz AG, Ringstrasse 15A, CH-8600 Dübendorf Tel. / Phone +41 43.333.72-50, Fax +41 43.333.72-51
Skandinavien / Scandinavia	Heraeus Kulzer Nordic AB, Box 437, SE-191 24 Sollentuna, Hammarbacken 4B Tel. / Phone +46 8585.777.55, Fax +46 8623.14.13
Spanien / Spain	Heraeus S.A., Forjadores, 16, Prado del Espino, 28660 Boadilla del Monte, Madrid Tel. / Phone +34 91358.03-75, Fax +34 91358.03-68



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