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1 Technical information

1.1 General description

- high-performance technology – greatest temperature accuracy due to temperature regulation by 2 temperature sensors – optimum, time-saving, user-friendly and ergonomic handling with optimum firing results, takes up a minimum amount of space
- casing with steel painted or stainless steel finish
- platforms for depositing hot firing trays
- firing chamber lined with high-quality insulating material
- quartz firing muffle
- temperature sensors (platinum / rhodium – platinum)
- automatic temperature adjustment
- temperature accuracy plus/minus 2 °C
- connection for data transfer to a PC

1.2 External control element with the following features

- clearly designed, easy to use 6.4" TFT (Thin Film Transistor" colour/graphics display
- simple to operate, user-friendly (self-explanatory)
- Can be viewed in graphics or tabular mode
- user-friendly, ergonomic and easy-to-clean keypad
- internal memory for approx. 2000 firing programs
- external program memory card for firing programs of up to 10 users with max. 200 programs each (special accessories)
- network connection (Ethernet) for integrating into PC network
- connection for PC keyboard

1.3 Program features

- clearly defined categories for firing programs according to material groups
- all parameters freely selectable, numerical and alphanumeric
- firing programs can be copied
- firing data storage for quality assurance and transferring to PC (PC program available under special accessories)
 - The following data are stored:
 - all firing program parameters
 - job no.
 - date of firing
 - user(s)
 - serial no. of furnace
- free programming of 3 lift positions and interval times for pre-drying
- free programming of lift positions for cooling
- temperature rise can be set in °C/min or in minutes
- vacuum pump can be programmed to switch on at the beginning of the temperature rise
- temperature rise can be programmed not to start until maximum vacuum level (pre-vacuum) is reached or sustained
- program parameters can be altered for the course of one program run with the # key
- the job number can be entered
- tabular view of the current users' names

1.4 Utility programs for

- setting for standby temperature
- lift speed – lift test
- setting for signal time
- selecting function with STOP key, abort program by pressing 1x or 2x
- operating time counter for the firing muffle – total operating time of the furnace
- calling up furnace serial no.
- software information
- service hotline no.
- temperature adjustment program with Silver Test Set
- automatic temperature adjustment
- storing firing data
- setting the brightness level of the display
- date / time setting
- viewing and storing utility parameters
- viewing and storing program parameters
- selecting the language
- displaying parameter limits

1.5 Safety functions

- temperature sensor monitoring
- temperature monitoring
- vacuum monitoring
- power failure protection
- programme protection
- lift monitoring

1.6 Technical specifications

width: 240 mm depth: 340 mm height: 460 mm
casing: steel/stainless steel
weight: 14,0 kg
firing chamber (utilizable space): diameter: 90 mm height: 55 mm
maximum temperature of firing chamber: 1190 °C

1.7 Electronic specifications

power supply: 230 Volts AC, 50/60 Hz *or* 100/110 Volts AC, 50/60 Hz
maximum power consumption: 1.5 kW
classification: safety class I
power supply for vacuum pump: 230 Volts AC., 50/60 Hz *or* 100/110 Volts AC, 50/60 Hz, max. 0.2 kW

1.8 Supply schedule

Furnace supplied in special packing case complete with:

- 1 control panel
- 1 connecting cable for control panel
- 1 firing tray
- 1 connecting cable for heating apparatus, type HO5RR-FG1.0 mm²
- 1 pair of furnace tweezers
- 1 set of firing trays A + B
- 1 set of firing trays G
- 1 operating manual

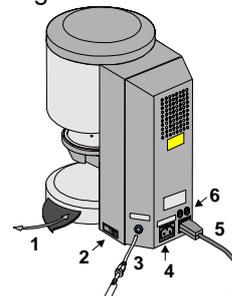
Vacuum pump optionally available: 230 Volts, 50/60 Hz *or* 100/110 Volts AC, 50/60 Hz
weight approx. 6.4 kg

2 Installing the furnace and setting up for use

2.1 Place for setting up

- Position the furnace in a dry, heated room in such a way that the minimum distance between all sides of the furnace and any wall should be at least 25 cm.
- In the case of temperatures under 15°C (e.g. after transport), leave the furnace to stand at room temperature for at least 30 min.
- Make sure the furnace is placed on a temperature-resistant surface. The radiant heat from the furnace, and the heat of the furnace itself are at a safe level. However, sensitive furniture surfaces and veneers may become slightly discoloured in time as a result of proximity to a constant heat source.
- Keep the furnace away from direct sunlight.
- Do not place any flammable objects near the furnace.
- Do not let the control panel come into direct contact with the heat radiating range of the furnace.

Fig. 1



1. Tray for depositing hot objects
2. Mains switch
3. Vacuum connection
4. Vacuum pump connection
5. Mains power connection
6. Fuses

2.2 Connecting the furnace to the mains power supply

Attention: please heed section 3, "Safety advice"!

- Connect the furnace to the mains with the mains power lead supplied (Fig. 1). A suitable connecting cable is a cable type for heating apparatus, HO5RR-F 3G1, 0 mm². Avoid using a junction box with extension cable - fire hazard in the case of overloading.
- Connect the vacuum pump (Fig. 1).
- Plug in the connecting cable of the control panel to the side of the furnace and open out (Fig. 2, point 1).
- Connect the connecting cable to the control panel (Fig. 3).
- Insert Smart media card into the drive.
- Switch on the furnace with the mains switch (Fig. 1, point 1), lift moves to lower position.
- Wipe the lift plate and the lift plate seal clean. (dust particles from the insulation resulting from transport of the furnace).
- Place the firing tray on the lift support plate. (Fig. 2, point 2).
- Put furnace into operation by pressing the **Standby** key (see also the section on standby operation).

Fig. 2

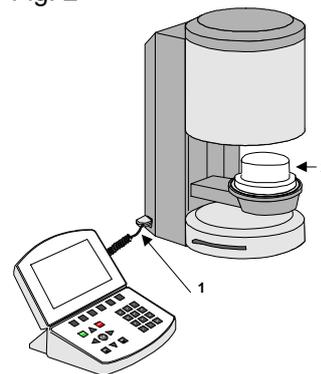
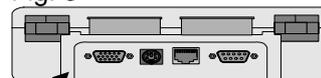


Fig. 3



Connection, 15-polar

2.3 Switching off the furnace, putting out of operation

When the furnace is not in operation the lift should be moved into the firing chamber and the furnace switched off at the mains switch (Fig. 1, point 2). Close the firing chamber to protect the insulation and prevent moisture. Close the lift by pressing the **lift** key. To switch off the furnace, press the **finish** key and confirm with the **yes** key. When the message **END** appears, the furnace can be switched off at the mains switch.

3 Safety advice

For your own safety, please read through these safety instructions carefully before putting the furnace into operation.

3.1 Safety advice regarding identification plates

Disconnect furnace from the mains before opening!

This is a warning symbol about dangerous electrical current. Disconnect furnace from the mains power supply (fig. 3) before opening it for repairs or maintenance work.

Attention: when the rear plate is removed parts in the vicinity of the socket-power unit on the PC-board can still have a remaining charging voltage of up to 400 Volts.



The manufacturer cannot be held liable in the case of accidents happening to the user while the furnace is open.

Attention: Do not place any objects near the lift support plate. When the furnace is switched on, the lift moves into the lower position. Fired restorations can be placed on the extendable trays at the sides of the furnace (Fig 4, point 2).

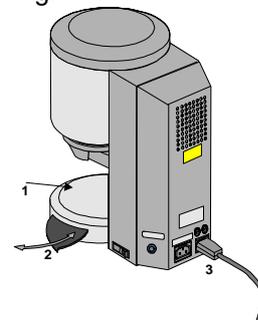


Never operate the furnaces without the firing tray on the lift support plate (see Fig. 2, point 2).

When the furnace is in constant operation (max. end temperature, max. firing time), parts of the firing chamber may reach high temperatures (over 70°C).

Never reach your hand into the open firing chamber – danger of touching parts that are hot or under electrical current.

Fig. 4



3.2 Cleaning the furnace

Always disconnect from the mains power supply before cleaning !! (Fig. 4 point 3)

It is not necessary to clean the interior of the firing chamber, it is sufficient to clean the casing with a damp cloth at regular intervals; this contributes to operational safety. Do not touch the keys of the control panel with hot objects, e.g. tweezers. Clean the control panel only with a dry cloth.

Never use cleaning agents or flammable liquids for cleaning the furnace.

3.3 Fuses

At the rear of the furnace are 2 fuses.

The fuses used in the furnace are indicated on the designation plates.

Other fuse types may not be used.

(Abb.5, Pkt.1)

(Abb.5, Pkt.2)

230 Volt:

T 1 H 250 V

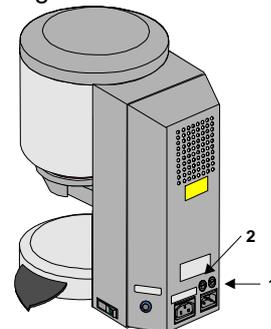
T 8 H 250 V

100/110 Volt:

T 3,15 H 250 V

T 15 H 250 V

Fig. 5



3.4 CE mark



The CE-mark is the legally binding statement which confirms that the furnace satisfies the Essential Requirements of the EC Council Directive 73 / 23 / EEC (concerning low voltage) and the Council Directive 89 336 / EEC (concerning EMV)

3.5 Ventilator

The unit is equipped with a ventilator that switches on at half performance at a firing chamber temperature of 605°C – 800°C after a firing program has started, and then increases to full performance until the end of the program and cooling to 600°C. The ventilator prevents the furnace from overheating and contributes to the general operational safety. In the event of a failure in the ventilator, an error message will be shown in the display (see section on error messages). For reasons of safety the furnace should not be operated without a ventilator. Make sure the top cover of the firing chamber and the openings on the rear plate are not blocked or obstructed by any objects.

3.6 Mains power failure

The furnace is equipped with power failure protection. This prevents the program from aborting, thus avoiding incorrect firing in the event of a short-term power failure. The power failure protection is activated as soon as the mains power is cut off while a firing program is running.

In the case of a mains power failure lasting less than 15 seconds:

The program continues running and is not aborted, during this time the display is out of action. For your information the message *Recover (program interruption)* is shown in the display after the mains power is on again. To clear this message press the key *Continue* (confirm).

In the case of a mains power failure lasting more than 15 seconds:

The program is aborted, the display is out of operation. Once the mains power is on again, the message "*Power failure*" is shown on the display. Press the key *Continue* (confirm) to delete this message.

Attention: After the mains power is on again, the control element takes approx. 20 seconds to switch on again.

4 Program parameters

The firing programs contain the following parameters that can be set and can be programmed in the graphics or tabular mode.

Pre-drying temperature	200 °C – 700 °C
Pre-drying time	0:00 – 40:00 min. (entry in min/sec.)
Temperature rise rate	2:00 – 40:00 min. or 20°C/min – 120°C/min (see Section 5, "Temperature rise")
End temperature	max. 1200°C
Hold time for end temperature	0:00 – 40:00 min. (entry in min/sec)
Cooling temperature	min.: 200°C max.: according to end temperature selected.
Hold time for cooling temperature	0 – 40:00 min
Vacuum start and vacuum level*	Starts together with the temperature rise (Starts automatically at pre-drying temperature. or select start in the temperature range from 200°C – 1100°C)
Pre-vacuum	1:00 – 5:00 min (see pre-vacuum)

Lift positions for pre-drying and cooling can only be programmed in graphics mode.

3 lift positions for pre-drying	0% - 100% (100% = lift completely closed) (see also section on lift positions for pre-drying)
1 lift position for cooling	0% - 100% (see also section on lift positions for cooling)

5 Temperature rise

In the program the temperature rise is shown in °C/min and in min/sec. The entry value can be selected in °C/min (20°C – 120°C) or min/sec (2:00 – 40:00). The unit automatically calculates and displays the second value. Values entered outside the permitted range are not accepted, and the last valid entry value is displayed. If the entry of a value for temperature rise in min/sec. is lower than the calculated temperature rise of 20°C/min, or higher than the maximum value of 120°C, a valid temperature rise time is automatically entered in min./sec.

If the pre-drying temperature or the firing temperature is altered after entering the temperature rise rate, the value °C/min is corrected, the time in min/sec. remains as long as this value is within the permitted range.

5.1 Vacuum display

The vacuum display shows the value in %.
Assuming atmospheric pressure of 1000 mbar at sea level,

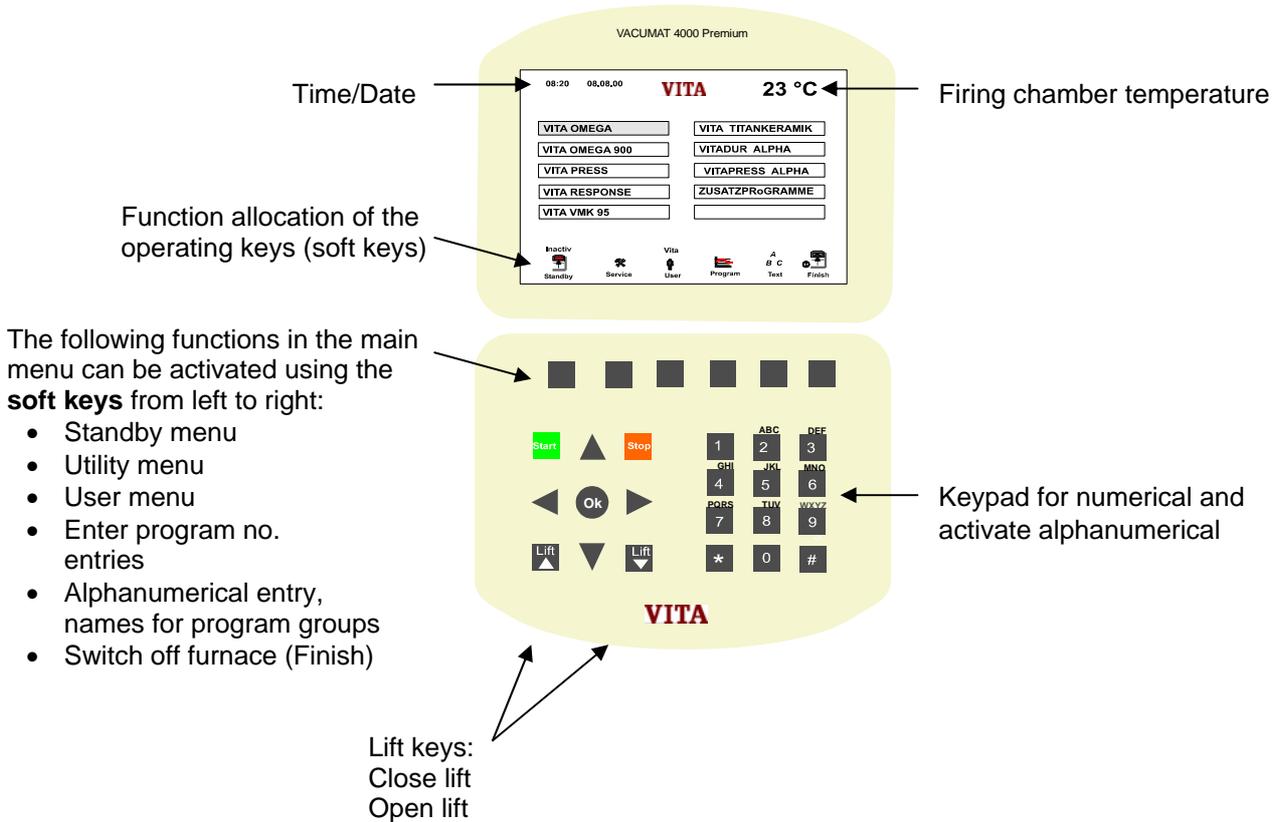
100 % = - 1000 mbar (not obtainable)
95 % = -950 mbar or 50 mbar absolute
90 % = -900 mbar or 100 mbar absolute

The vacuum value reached depends on the performance of the vacuum pump used and lies in the range of 85 – 95% (150 mbar – 50 mbar absolute)

If during a firing program the vacuum level of 30% is not reached within 15 sec., the firing program is aborted and the error message *Vacuum* is shown on the display (see section on error messages). Return with key "Continue" (confirm) and 2 x Standby key.

6 Main menu

First switch on the furnace at the mains switch; the display shows the following:



(Please see the appropriate sections for more details on these points)

Further functions of keys

- Direction keys up/down = for selecting a program group
- Direction keys right/left = for selecting program groups on the next or previous page
- Lift keys = opening/closing lift
- Start key = for activating fast cooling of the firing chamber (see section on fast cooling in the firing chamber)
- Stop key = end fast cooling
- OK key = confirm selected program group and changing to tabular view

6.1 Button occupation within the writing modus

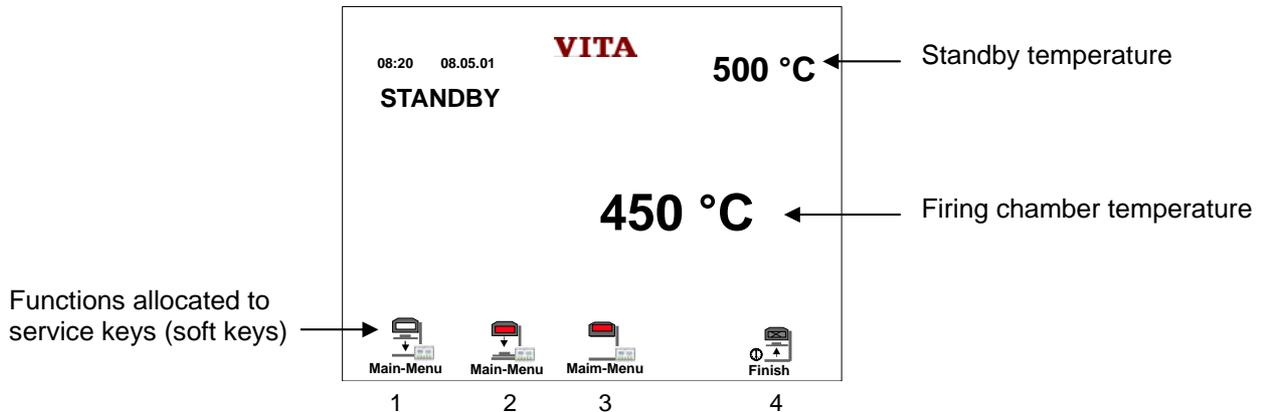
During pressing the individual buttons repeated the following symbols will be written:

Button # = store Button * = delete

Pressing buttons							
Number	1x	2x	3x	4x	5x	6x	7x
0	Space	0					
1	.	,	?	!	—	&	1
2	A	B	C	2	Ä	Å	ç
3	D	E	F	3	É		
4	G	H	I	4			
5	J	K	L	5			
6	M	N	O	6	Ö	Ñ	
7	P	Q	R	S	7		
8	T	U	V	8	Ü		
9	W	X	Y	Z	9		

6.2 Activating / ending Standby menu

- Switch on furnace at mains switch – lift in lower position – menu ON is displayed,
- Press STANDBY key – display shows STANDBY – lift closed – heating activated



The following functions are possible in the Standby menu, (Soft keys: keys 1 – 4 from left to right)

1. End standby, heating off, lift open, back to main menu
2. End standby, heating on, lift open, back to main menu
3. Standby still active, heating on, lift stays closed, back to main menu
4. Switch off furnace (finish)

The standby temperature can be altered in the utilities program (see section on utility programs)

6.3 User menu

This menu can accommodate up to 10 users. Each user can store up to 200 firing programs and prevent unauthorized access by means of a personal code.

In the main menu, press the **user** key, display shows the following (e.g. Fig. 1)

6.3.1 Entering/altering user names:

Select line with the **up/down** key press **text** key, cursor shows position, alphanumerical entries can be made using keypad, after entering, continue with cursor key **#**, store with **OK** key.

fig. 1

Name	Code	program	program
VITA		75	

6.3.2 Delete user

- Select line with **up/down** key,
- Press key *
- Confirm with **yes** key

6.3.3 Coding / decoding user

- Select appropriate line with **up/down** key
- Press **code** key
- Enter a 4-digit code no.
- Save with **OK** key
- Select active/inactive by pressing **on/off** key
- Save with **OK** key, screen shows user, field marked when the code is active

Attention: Loss of code no. means the control element must be sent to manufacturer.

6.4 Program groups

6.4.1 Selecting program group

Press the **up/down** keys in the menu program groups until you come to the required field. Further pages for program groups are shown by a left/right arrow in the display. These are selected with the keys **right/left**. Confirm the selected program group with the **OK** key – program table is now shown in the display. Return to main menu with the **main menu** key

6.4.2 Making / changing program groups

- Select program group or empty field
- Press **Text** key, cursor indicates the position
- Alphanumerical entry using the keyboard
- After entry, press the # cursor key to continue
- Save with **OK** key

6.4.3 Deleting the program group

- Select program group
- Press the * key
- Confirm with **Yes** key
- Program group is deleted

Attention: Once a program group has been deleted, all other programs belonging to this are also deleted.

6.4.4 Entering program no.

By entering a program no. it is possible to change directly to graphics mode.

- Press **program** key in the main menu. Entry field for program no. now appears on the display.
- Enter program number using the keypad
- Confirm with **OK** key – display now shows graphics mode.

For entering, altering, deleting program parameters and Start/Stop, see sections 7 and 8.

6.5 Fast cooling of the firing chamber

To enable the furnace to be used again quickly for further firings, the (vacuum) pump can be switched on with the **Start** key.

The lift support plate must be in its lowermost position and the temperature in the firing temperature must be higher than the standby temperature.

After cooling to 50 °C below the standby temperature, the pump is switched off, the lift moves into its upper position and the temperature rises to the standby temperature:

7 Entering program – tabular mode

Calling up tabular mode when furnace is switched on
Confirm program group with the **OK** key – display shows program table.

Tabular mode offers the following possibilities:

- Entering / changing the program names
- Entering / altering the program parameters (except lift positions, see graphics mode)
- Copying the program
- Deleting the program
- Changing to graphics mode
- Changing to operation main menu
- Starting program
- Stopping program

7.1 Entering / altering the program names / parameters

Select the appropriate line with the **up/down** keys, the line selected is highlighted. With the **right/left** keys the appropriate column is selected, the value or cursor is displayed in red in an empty column.

7.1.1 Entering / altering program names

- Select column for program names
- Press the **Text** key, cursor indicates the position
- Alphanumerical entries using the keypad
- After entering, continue by pressing the cursor key **# ???**
- Store program names by pressing **OK** key

Program name is stored, and at the same time basic values are entered into the table.

7.1.2 Entering / altering program parameters

- Select program line with **up/down** key (marked in colour)
- Select program value with **left/right** key (marked in red)
- Enter program parameters with the keypad, possible values are shown in the display with min/max.
- Save by pressing key **#** for a single program run
or
- Save permanently by pressing **OK** key.

7.2 Storing program parameters

A program parameter entered is stored with the **OK** key.

Attention! If program parameters are confirmed with the **#** key, this is valid only for one program run, after this the previous value reappears.

7.2.1 Copying programs

- Select an empty line
- Press **Text** key
- Enter program name – confirm single entry by pressing key **#** - save with **OK** key
- Select required program with the **up/down** key
- Press **Copy** key
- Press **up/down** key to return to newly selected program
- Insert program with **Paste** key
- Save with **OK** key

7.2.2 *Deleting the program*

- Select the desired program.
- Press the * key
- Press the **Yes** key – the program is now deleted.

7.2.3 *Changing to graphics mode*

Press the **program** key – graphics mode is now displayed.

7.2.4 *Changing to Operation On*

Press the key **main menu** – program groups are now shown in the display.

7.2.5 *Program Start/Stop*

Press the **Start** key – the active section of the program is now shown in green, the program starts running. With the **program** key it is possible to change over to graphics mode.

Press the **Stop** key, program is aborted. By means of utility program, it is possible to program the **Stop** key so that it is necessary to press the key **twice** to make the program abort.

8 Program entry – graphics mode

Calling up from Operation On:

- Select program group
 - Press key **OK** – display shows tabular mode
 - Press **program** key – display shows graphics mode
- or

Calling up from Operation On:

- Press **program** key
- Enter program no. using the keyboard
- Press **OK** key – display shows graphics mode

8.1 Entering program parameters in graphics mode

All program parameters can be changed into graphics mode. The alterations will also be activated in the tabular mode of the program. A value entered must be stored by pressing the **OK** key. If a value entered has been confirmed with the **#** key, it is valid for one program run only, after which the value previously stored will be valid once more.

The graphics mode offers the following possibilities:

- Entering/altering the program parameters
- Starting and stopping the program

The following settings can be selected using the soft keys:

- Entering/altering the lift positions for pre-drying
- Selecting pre-vacuum
- Selecting vacuum
- Selecting slow cooling
- Entering job no. (see Firing Data System)
- Changing to tabular view

8.1.1 Entering / altering program parameters

- Select program value with **right/left** key – value is displayed in red
- Enter program values using the keyboard, possible entry values are shown in the display with min/max (display is activated in the utilities program - Parameter Limits).
- Save with **OK** key.

Attention: If program settings are confirmed with the **#** key, this is valid for one program run only, after which the previous value is valid again.

8.1.2 Program Start/Stop

Press the **Start** key – the section of the program that is active is displayed in green, the program runs its course. The **Table** key can be pressed to change to tabular mode.

Press the **Stop** key to abort the program. The **Stop** key can be programmed in the utility program so that the key must be pressed twice before the program is aborted.

8.1.3 Entering / altering lift positions for pre-drying

- Press key marked **Liftpos** – the value for position 1 is shown in red.
- Select position with **up/down** key and enter the value
or
- Press the **right/left** keys to change from position to interval time and enter using keypad.

Possible entry values are shown in the display and the following settings are possible:

Pos. 1 = 0 – 30 % time 0 – 120 sec.
 Pos. 2 = max. 50 % time 0 – 120 sec.
 Pos. 3 = max. 80 % remaining pre-drying time (is entered automatically)

In order to find the correct lift position it is possible after selecting the position (value is displayed in red) to move the lift into the desired position by pressing the **Lift** key, and confirming the value with the **OK** key. End with the key **Lift Pos.**, lift moves into lower position

8.1.4 Selecting pre-vacuum

In the case of a program with vacuum, the vacuum is built up in the firing chamber before the temperature rise begins.

Activating the vacuum:

- Press the key **Vor Vac** (pre-vacuum)
- Enter time setting via the keyboard (max. 5 min)
- Save with the **OK** key

Deactivating pre-vacuum.

- Press **Vor Vac** key – field for pre-vacuum appears
- Press the * key – pre-vacuum is deleted.

8.1.5 Selecting vacuum

- Press the **vacuum** key – field for vacuum appears
 Basic settings for vacuum start, stop and vacuum level appear.
 Start at the beginning of the temperature rise
 Stop after the heating-up time is completed/the end temperature is reached
 Vacuum level 100%
- Press **Start** key (program starts)
or
- Press **vacuum** key

If other values are required, (possible entry values are shown in the display)

- press **right/left** key – the selected area is indicated in red
- Enter value with keyboard
- Save by pressing **OK** key
- End by pressing **vacuum** key

The possible entry values appear in the display.

8.1.6 Deleting vacuum

- Press **vacuum** key
- Press * key – vacuum is now deleted.

8.1.7 *Selecting slow cooling*

- Press **cooling** key – cooling appears
- Save with **OK** key
- Press **right/left** key – selected value, temperature, time or lift position will appear in red
- Enter value with the keypad
- Save with **OK** key
- End with **cooling** key

The following entry values appear in the display

8.1.8 *Delete slow cooling*

- Press **cooling** key
- Press * key – cooling is deleted

8.1.9 *Entering job no.*

It is only possible to enter a job number when **On** is selected in the utility program for save firing data (see Firing Data System).

- Press key "job no." – field for job no. appears
- Enter job no. (max. 6 digits)
- Save with **OK** key

8.1.10 *Selecting tabular view*

Press **Table** key – display shows tabular view.

9 Utility programs

The utility programs are called up in the main menu with the **service** key.

The display shows the service screen last selected

1st page

08:20	20.07.01	VITA	500 °C
SERVICE			
STANDBY - TEMPERATURE	HEAT-HOUR		
LIFT-SPEED	DEVICE-ID		
SIGNAL-TIME	SOFTWARE-VERSION		
STOP-PRESS	HOTLINE		
DEVICE-HOUR	TEMPERATURE-ADJUST		
		▶	
Main-Menu			

2nd page

08:20	20.07.01	VITA	500 °C
SERVICE			
AUTO-ALIGN	DATE-SETTINGS		
BUZZER	SERVICE-PARAMETER		
SAVE PROGRESS-DATA	PROGRAM-PARAMETER		
DISPLAY-SETTINGS	LANGUAGE		
TIME-SETTINGS	PARAMETER-LIMITS		
		◀ ▶	
Main-Menu			

3rd page

08:20	20.07.01	VITA	500 °C
SERVICE			
HEATING-CHANGE			
HOLD-TEMP-PROGRAM			
		◀	
Main-Menu			

The desired menu is selected with the **Up/Down** key and called up with the **OK** key.

Further pages for program groups are shown with an arrow for page forwards/back and called up with **right/left** keys.

9.1 Standby temperature

- Select standby temperature.
- Confirm with **OK** key.
- Enter value.
- Store with **OK** key.
- Return to service (utilities) menu by pressing **service** key
or
- press **main menu** key to return to main menu.

9.2 Lift Speed

- Select lift speed.
- Confirm with **OK** key.
- Select entry field with **up/down** key.
- Enter value.
- Store with **OK** key.
- Selected speed will be shown by pressing button START
- Return to service (utilities) menu by pressing **service** key
or return to main menu by pressing **main menu** key.

9.3 Signal time

- Select signal time.
- Confirm with **OK** key.
- Enter value.
- Store with **OK** key.
- Return to service (utilities) menu by pressing **service** key
or
- return to main menu by pressing **main menu** key.

9.4 Stop key

For aborting the program, the Stop key can be programmed so that the program is aborted after pressing once or after pressing twice.

- Select function Stop key.
- Confirm with **OK** key.
- Select with key + **1** or **2**.
- Store with **OK** key.
- Return to service (utilities) menu by pressing **service** key
or
- return to main menu by pressing **main menu** key.

9.5 Operating hours

The operation time while the unit is switched on is recorded.

- Select total operation time.
- Confirm with **OK** key.
- Display shows operating time of the furnace in hours.
- Return to service (utilities) menu by pressing **service** key
or
- return to main menu by pressing **main menu** key.

9.6 Operating hours - firing

The operating time of the heating is recorded (incl. standby mode)

- Select operating time for the heating.
- Confirm with **OK** key.
- Display shows operating time of the heating in hours.
- Return to service (utilities) menu by pressing **service** key
or
- return to main menu by pressing **main menu** key.

9.7 Unit no. of furnace

- Select furnace no.
- Confirm with **OK** key.
- Display shows unit no. of the furnace.
- Return to service (utilities) menu by pressing **service** key
or
- return to main menu by pressing **main menu** key.

9.8 Software version

- Select software no.
- Confirm with **OK** key.
- Display shows software version of the furnace and operating panel.
- Return to service (utilities) menu by pressing **service** key
or
- return to main menu by pressing **main menu** key.

9.9 Hotline

- Select Hotline.
- Confirm with **OK** key.
- Display shows Hotline no.
- Return to service (utilities) menu by pressing **service** key
or
- return to main menu by pressing **main menu** key.

9.10 Temperature adjustment – checking with Silver Test Set

With this program and the VITA Silver Test Set (VITA order no. B 230) the temperature in the firing chamber can be tested and readjusted in a temperature range of plus/minus 20°C. When carrying out a temperature adjustment it is essential to heed the instructions for the silver test (instructions given in the Silver Test Set). Not heeding these instructions leads to incorrect measurements and hence to incorrect settings.

- Select temperature adjustment, display shows corrected value in the display.
- Set value using the **plus** or **minus** keys.
- Confirm with **OK** key.
- Return to service (utilities) menu by pressing **service** key
or
- return to main menu by pressing **main menu** key
or
- select test program by pressing the **program** key.
- Check/alter program values.
- Start the program with the **Start** key.

When program run is completed, return to service (utilities) menu by pressing service key if necessary enter corrected value and then re-start the test program.

The first test run ought to have the following program parameters:

Pre-drying temperature	600°C
Pre-drying time	1:00 min
Temperature rise	6:00 min
End temperature	955°C
Hold time for end temperature	4:00 min

After this program run is completed the silver must not be melted. For the second program run raise the end temperature to 965°, after which the silver must be melted into a ball.

9.10.1 Silver Test Set VITA order no. B 230

VITA Silver Test Set for testing the temperature containing:

- Description of the procedure
- 6 ceramic bases
- 3 silver rods, each 70 mm long and 1.5 mm Ø

9.11 Automatic temperature adjustment

The automatic temperature adjustment starts after the furnace is switched on after an interval of 100 operating hours of the muffle. During this time the message Auto Electronic is shown in the display for approx. 15 seconds.

The conditions are:

- Automatic temperature adjustment must be ON.
- 100 operating hours of the muffle must have elapsed.
- Temperature in the firing chamber must be less than 50°C.

This temperature adjustment takes into account and corrects all deviations of the electronic components in the area of the temperature measuring circle. This will enable a constant temperature of +/- 1°C to be reached even after long operating time of the furnace.

- Select automatic temperature adjustment.
- Confirm with **OK** key.
- Select with **On/Off** key.
- Save with **OK** key.
- Return to utilities menu by pressing **service** key
or
- return to main menu by pressing **main menu** key.

9.12 Key signal

The acoustic signal given when pressing a key can be selected using this program.

- Select key signal.
- Confirm with **OK** key.
- Select with **on/off** key.
- Save with **OK** key.
- Return to service (utilities) menu by pressing **service** key
or
- return to main menu by pressing **main menu** key.

9.13 Storing firing data

When using the FDS system (Firing Data System), which is available under special accessories, the data storing in this program must be activated. The Special Accessory pack contains the software for the PC as well as the required connection cables (see section on connection to PC for data transfer).

- Select store firing data.
- Confirm with **OK** key.
- Select with **On/Off** key.
- Save with **OK** key.
- Return to service (utilities) menu by pressing **service** key
or
- return to main menu by pressing **main menu** key.

9.14 Display settings

The brightness of the display can be altered to a small extent.

- Select display settings.
- Confirm with **OK** key.
- Select value with **plus/minus** key.
- Store with **OK** key.
- Return to service (utilities) menu by pressing **service** key
or
- return to main menu by pressing **main menu** key.

9.15 Time Settings

- Select time settings.
- Confirm with **OK** key.
- Select field for entering hours/minutes/time format with **up/down** key.
- Enter value using the keypad or **plus** key.
- Confirm with **OK** key.
- Return to service (utilities) menu by pressing **service** key
or
- return to main menu by pressing **main menu** key.

The time format (24 h or 12 h) is selected with **Inc** key and confirmed with the **OK** key.

9.16 Date settings

- Select date settings.
- Confirm with **OK** key.
- Select field for entering Month/Day/Year format with **up/down** key.
- Enter values using the keypad.
- Save by pressing **OK** key.
- Return to service (utilities) menu by pressing **service** key
or
- return to main menu by pressing **main menu** key.

Select date format (DD:MM.YYYY or MM:DD.YYYY)

9.17 Service parameters

Insert Smart Card (disk)

Choose between the following options:

Read from Smart Card (disk) => store in the furnace (device)

or

Read from furnace (device) => store on Smart Card (disk)

Attention: before reading / writing please heed comments in section on Smart Card

- Select service parameters.
- Confirm with **OK** key.
- Select desired field with **up/down** key.
- Press **Start** key – data read/stored in 5 seconds.

Attention: within these 5 seconds it is **possible to abort** the program by pressing the **Stop** key.

- Return to service (utilities) menu by pressing **service** key
or
- return to main menu by pressing **main menu** key.

9.18 Program parameters

Insert Smart Card (disk)

Choose between the following options:

Read from Smart Card (disk) => store in the furnace (device)

or

Read from furnace (device) => store on Smart Card (disk)

Attention: before reading / writing please heed comments in section on Smart Card

- Select program parameters.
- Confirm with **OK** key.
- Select desired field with **up/down** key.
- If desired select operator – select operator – and return to service menu with **service** key.
- Press **Start** key – after 5 seconds data are read/stored.

Attention: within these 5 seconds the it is **possible to abort** the program by pressing the **Stop** key.

- Return to service menu by pressing **service** key
or
- return to main menu by pressing **main menu** key.

9.19 Languages

- Select languages.
- Confirm with **OK** key.
- Select desired language.
- Store with **OK** key.
- Return to service menu by pressing **service** key
or
- return to main menu by pressing **main menu** key.

9.20 Parameter limits

Switch on / switch off display of possible program parameters in the entry mode.

- Select parameter limits.
- Confirm with **OK** key.
- Select with **On/Off** key.
- Confirm with **OK** key.
- Return to service menu by pressing **service** key
or
- return to main menu by pressing **main menu** key.

9.21 Exchanging the muffle (exchanging heating)

The time for changing the muffles can be entered and stored. The display shows the last 2 times entered.

- Select Exchanging the Muffle.
- Confirm with **OK** key.
- Select desired field with **up/down** key, enter day/month/year.
- Confirm with **OK** key.
- Return to service menu by pressing **service** key
or
- return to main menu by pressing **main menu** key.

9.22 Temperature hold program

This program enables materials to be atmospherically fired in a low temperature range.

- Select temperature hold program.
- Confirm with **OK** key.
- Select desired field with **up/down** key and enter program values.
- Save altered values with **OK** key.
- Press **Start** key.
- After program run, return to service menu with **service** key
or
- return to main menu by pressing **main menu** key.

10 Connecting to PC for data transfer

This enables you to store your firing data for the purpose of quality assurance and proof of quality of dental ceramic restorations.

With the aid of the FDS system (**Firing Data System**), available as special accessories, the firing data of the firing program can be stored in a PC database together with further information such as: job no. type of furnace, serial number of furnace, date and time. A graphic representation of the program run is also shown. Various search criteria make it possible to search for and find a particular firing program at a later date/time. The connection is made to the PC. The FDS system includes all the parts required for connection, as well as the corresponding software and instructions for use.

11 Smart Card (disk)

The Smart Card supplied with the furnace (external memory card) includes the utility programs as well as the firing programs which have been factory stored in the furnace. The Smart Card can be equipped with a write protection (situated in the sleeve of the Smart Card). This makes sure that the factory-stored firing programs and service parameters are not overwritten.

It should be noted that values altered and stored in the furnace when transferring to the Smart card overwrite the values stored on the Smart card.

If changes have been made to the utility programs or firing programs, the factory stored settings can be re-stored in the furnace at any time.

With the Smart Card, which is available under Special Accessories, it is possible to store all customer-specific programs externally. The Smart Card can also be used in a user-specific manner, i.e. every user of the furnace can store his own programs on the Smart Card. The programs can be stored in the memory of the furnace under the name of the user, stored, coded and used. (see section on coding user).

Software updates can likewise be transferred from the Smart Card to the internal memory.

12 Error Messages

Errors occurring during operating time are shown on the display and can be deleted with the key **Continue**. If the fault persists, the message is repeated and the furnace will work when only when the fault has been remedied. Should you have any questions with regard to recurrent faults you can call our **Hotline no. 07761/562222**.

It may be necessary to open the furnace for checking and remedying a fault. Should this be the case, please heed the safety instructions described in the section "**Safety advice**".

The following error messages are shown in the display:

- Vacuum level of 30 % not reached within 15 sec.
- Firing temperature exceeded by 20 °C.
- Heating-up temperature exceeded by 30 °C.
- Temperature sensor out of order or interrupted.
- End switch for lower lift position not reached or out of order.
- Fault in the ventilator.
- Lift out of order.
- Lift blocked.
- Power failure lasting more than 10 seconds.
- Recover, power failure of less than 10 seconds.
- Muffle or fuse out of order.
- Program memory full.

13 Firing Charts

These firing charts are valid for all furnaces in the VITA VACUMAT® Series

VITA OMEGA	Pre-drying °C	→ min.	↗ min.	↗ °C/min	Temp. approx. °C	→ min.	VAC min.
Oxidation firing	Please heed alloy manufacturers instructions!						
Wash opaque firing (powder)	600	2.00	3.00	117	950	1.00	3.00
Wash opaque firing (paste)	500	6.00	6.00	75	950	1.00	6.00
Opaque firing (powder)	600	2.00	3.00	110	930	1.00	3.00
Opaque firing (paste)	500	6.00	6.00	72	930	1.00	6.00
Shoulder porcelain firing with "MARGIN"	600	6.00	6.00	57	940	1.00	6.00
Dentine firing	600	6.00	6.00	55	930	1.00	6.00
1 st correction firing	600	6.00	6.00	53	920	1.00	6.00
2 nd correction firing	600	6.00	6.00	52	910	1.00	6.00
Glaze firing	600	---	3.00	110	930	1.00	---
Glaze firing with VITA Akzent® Fluid	600	4.00	3.00	110	930	1.00	---
Glaze firing with Akz 25 glaze	600	4.00	3.00	100	900	1.00	---

For many years now excellent results have been obtained with alloys in conjunction with VITA Metal Ceramics (OMEGA, OMEGA 900, VMK 95) when the thermal expansion coefficient of the alloy, measured in the range from 25°C – 600°C, corresponds to $14.0 - 14.4 \times 10^{-6} \times K^{-1}$. In the case of higher thermal expansion coefficients of the alloy, the cooling phase for the temperature range from 900°C – 700°C must not take less than 3 minutes.

VITA RESPONSE®	Pre-drying °C	→ min.	↗ min.	↗ °C/min	Temp. approx. °C	→ min.	VAC min.
Oxidation firing	Please heed alloy manufacturers instructions!						
Wash opaque firing (powder)	400	2.00	6.00	67	800	1.00	6.00
Wash opaque firing (paste)	400	6.00	6.00	67	800	1.00	6.00
Opaque firing (powder)	400	2.00	6.00	65	790	1.00	6.00
Opaque firing (paste)	400	6.00	6.00	67	800	1.00	6.00
Shoulder porcelain firing with "MARGIN"	400	6.00	6.00	65	790	1.00	6.00
Dentine firing	400	6.00	6.00	63	780	1.00	6.00
1 st Correction firing	400	6.00	6.00	63	780	1.00	6.00
2 nd Correction firing	400	6.00	6.00	63	780	1.00	6.00
Correction firing with COR	400	4.00	6.00	58	750	1.00	6.00
Glaze firing without glaze	400	2.00	4.00	95	780	1.00	---
Glaze firing with VITA GLAZE-LT	400	4.00	4.00	90	760	1.00	---

VITA OMEGA 900	Pre-drying °C	→ min.	↗ min.	↗ °C/min	Temp. Approx. °C	→ min.	VAC min.
Oxidation firing	Please heed alloy manufacturers instructions!						
Wash opaque firing (powder)	600	2.00	4.00	75	900	2.00	4.00
Wash opaque firing (paste)	500	6.00	6.00	67	900	3.00	6.00
Opaque firing (powder)	600	2.00	4.00	75	900	1.00	4.00
Opaque firing (paste)	500	6.00	6.00	67	900	2.00	6.00
Shoulder porcelain firing with "MARGIN"	600	6.00	6.00	50	900	2.00	6.00
Dentine firing	600	6.00	6.00	50	900	1.00	6.00
1 st correction firing	600	6.00	6.00	48	890	1.00	6.00
2 nd correction firing	600	6.00	6.00	48	890	1.00	6.00
Correction firing with COR	600	4.00	6.00	33	800	1.00	6.00
Glaze firing	600	---	4.00	75	900	2.00	---
Glaze firing with VITA Akzent [®] Fluid	600	4.00	4.00	75	900	2.00	---
Glaze firing with Akz 25 glaze	600	4.00	4.00	75	900	1.00	---

VITAPRESS VITA OMEGA 900 / IOV	Pre-drying °C	→ min.	↗ min.	↗ °C/min	Temp. approx. °C	→ min.	VAC min.
VITAPRESS die material hardening	500	6.00	9.00	61	1.050	2.00	0.00
VITAPRESS VITA OMEGA 900 / IOV	500	6.00	8.00	60	980	2.00	8.00
GLAZE-LT	400	4.00	4.00	90	760	1.00	0.00
VITAPRESS VITA OMEGA 900 CORRECTIVE	500	4.00	6.00	70	780	1.00	6.00

VITA OMEGA 900 BLEACHED SHADE REPRODUCTION PORCELAINS	Pre-drying °C	→ min.	↗ min.	↗ °C/min	Temp. approx. °C	→ min.	VAC min.
Oxidation firing	Please heed alloy manufacturers instructions!						
Wash opaque firing	600	2.00	4.00	75	900	2.00	4.00
Covering opaque firing	600	2.00	4.00	75	900	1.00	4.00
Dentine firing	600	6.00	6.00	50	900	1.00	6.00
1 st correction firing	600	6.00	6.00	48	890	1.00	6.00
2 nd correction firing	600	6.00	6.00	48	890	1.00	6.00
Glaze firing	600	---	4.00	75	900	2.00	---
Glaze firing with VITA Akzent [®] Fluid	600	4.00	4.00	75	900	2.00	---
Glaze firing with Akz 25	600	4.00	4.00	75	900	1.00	---

For many years now excellent results have been obtained with alloys in conjunction with VITA Metal Ceramics (OMEGA, OMEGA 900, VMK 95) when the thermal expansion coefficient of the alloy, measured in the range from 25°C – 600°C, corresponds to $14.0 - 14.4 \times 10^{-6} \times K^{-1}$. In the case of higher thermal expansion coefficients of the alloy, the cooling phase of the temperature range from 900°C – 700°C must not take less than 3 minutes.

VITA VMK 95	Pre-drying °C	→ min.	↗ min.	↗ °C/min	Temp. approx. °C	→ min.	VAC min.
Oxidation firing	Please heed alloy manufacturers instructions!						
Wash opaque firing (powder)	600	2.00	4.00	88	950	1.00	4.00
Wash opaque firing (paste)	500	6.00	6.00	75	950	1.00	6.00
Opaque firing (powder)	600	2.00	4.00	83	930	1.00	4.00
Opaque firing (paste)	500	6.00	6.00	72	930	1.00	6.00
Shoulder porcelain firing with "MARGIN"	600	6.00	6.00	55	930	1.00	6.00
Dentine firing	600	6.00	6.00	55	930	1.00	6.00
1 st Correction firing	600	6.00	6.00	55	930	1.00	6.00
2 nd Correction firing	600	6.00	6.00	55	930	1.00	6.00
Correction firing with COR	600	4.00	6.00	50	900	1.00	---
Glaze firing	600	---	4.00	83	930	1.00	---
Glaze firing with VITA Akzent [®] Fluid	600	4.00	4.00	83	930	1.00	---
Glaze firing with Akz 25	600	4.00	4.00	75	900	1.00	---

For many years now excellent results have been obtained with alloys in conjunction with VITA Metal Ceramics (OMEGA, OMEGA 900, VMK 95) when the thermal expansion coefficient of the alloy, measured in the range from 25°C – 600°C, corresponds to $14.0 - 14.4 \times 10^{-6} \times K^{-1}$. In the case of higher thermal expansion coefficients of the alloy, the cooling phase of the temperature range from 900°C – 700°C must not take less than 3 minutes.

VITA TITANIUM CERAMIC	Pre-drying °C	→ min.	↗ min.	↗ °C/min	Temp. approx. °C	→ min.	VAC min.
Paste bonder firing	400	6.00	6.00	67	800	1.00	6.00
Powder bonder firing	400	2.00	6.00	67	800	1.00	6.00
Opaque firing	400	2.00	4.00	98	790	1.00	5.00
Shoulder porcelain firing	400	6.00	7.00	53	770	1.00	8.00
Dentine firing	400	6.00	7.00	53	770	1.00	8.00
1 st and 2 nd Correction firing	400	6.00	7.00	53	770	1.00	8.00
Glaze firing without glaze	400	---	4.00	93	770	1.00	5.00
Stains firing*	400	4.00	3.00	100	700	1.00	---
Glaze firing with glaze Akz25	400	4.00	4.00	93	770	1.00	5.00

* The VITA Akzent stains can be used for the stains firing.

VITADUR [®] ALPHA	Pre-drying °C	→ min.	↗ min.	↗ °C/min	Temp. approx. °C	→ min.	VAC min.
Core firing	600	---	6.00	87	1.120	2.00	6.00
Dentine firing	600	6.00	6.00	60	960	1.00	6.00
1 st and 2 nd Correction firing	600	6.00	6.00	58	950	1.00	6.00
Glaze firing	600	---	4.00	85	940	1.00	---
Glaze firing with VITA Akzent [®] Fluid	600	4.00	4.00	85	940	1.00	---
Glaze firing with glaze Akz 25	600	4.00	4.00	80	920	1.00	---

VITAPRESS VITADUR® ALPHA / IOV	Pre-drying °C	→ min.	↗ min.	↗ °C/min	Temp. approx. °C	→ min.	VAC min.
VITAPRESS die material, hardening	500	6.00	9.00	61	1.050	2.00	0.00
VITAPRESS VITADUR® ALPHA / IOV	500	6.00	8.00	64	1.010	2.00	8.00
VITA Akzent Glaze Akz25	600	4.00	4.00	60	840	1.00	0.00
VITAPRESS VITADUR® ALPHA CORRECTIVE	500	4.00	6.00	53	820	1.00	6.00

VITADUR ALPHA BLEACHED SHADE REPRODUCTION PORCELAINS	Pre-drying °C	→ min.	↗ min.	↗ °C/min	Temp. approx. °C	→ min.	VAC min.
Dentine firing	600	6.00	6.00	60	960	1.00	6.00
1 st + 2 nd correction firing	600	6.00	6.00	58	950	1.00	6.00
Glaze firing	600	---	4.00	85	940	1.00	---
Glaze firing with VITA Akzent® Fluid	600	4.00	4.00	85	940	1.00	---
Glaze firing with Akz 25	600	4.00	4.00	85	940	1.00	---

Additional firing programs	Pre-drying °C	→ min.	↗ min.	↗ °C/min	Temp. approx. °C	→ min.	VAC min.
Spectra-Gold	550	---	3.00	90	820	1.00	---
Furnace soldering 1	600	5.00	5.00	40	e.g. 800	3.00	---
Furnace soldering 2	600	1.00	3.00	66	e.g. 800	4.00	---

Soldering in the VITA VACUMAT®

Method 1

Pre-heat the restoration in the muffle preheating oven with flux and solder for 15 – 20 min. at 400°C.

Program 93

The end temperature is the operating temperature of the corresponding solder + 50 °C.

pre-drying 5.00 min.
heating-up 5.00 min.
hold time 3.00 min.

Method 2

Pre-heat the restoration in the muffle pre-heating oven with flux but still without solder for 15-20 min. at 400 °C

Program 94

End temperature is the operating temperature of the corresponding solder + 50 °C

pre-drying 1.00 min.
heating-up 3.00 min.
hold time 4.00 min.

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