

Furnace for NORMAL and PURE ceramics
CeramicMaster E3000



USER MANUAL

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1. INTRODUCTION

Thank you for having purchased the CERAMICMASTER **E3000** furnace which, we are sure will all meet all your needs and will satisfy your high demands.

This furnace has been designed according to the requirements of latest industrial standards and we guarantee that you will use it many years as your closest assistant.

However, inappropriate use may damage the equipment and be harmful to personnel. Please observe the relevant safety instructions and read the Operating Instructions carefully.

We wish you pleasant and fruitful work with the CERAMICMASTER **E3000**.

SYMBOLS USED:



This symbol indicates that there is high dangerous tension under the bonnet which it is put on. Switch off the furnace before removing the marked cover.



Symbol for HOT SURFACE;
ATTENTION: HOT SURFACE! DO NOT TOUCH!



This symbol indicates that the machine complies with the requirements of the Directives for Low Tension and Electromagnetic Compatibility as well as for the Standards harmonized with them.

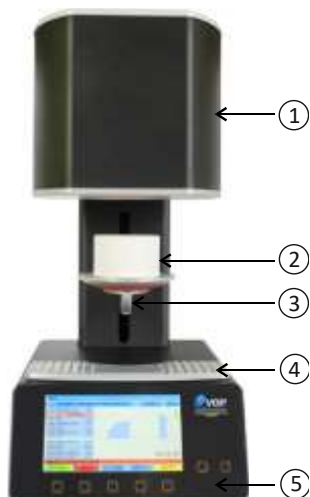
2. SAFETY INSTRUCTIONS

The following instructions must be observed in order to avoid personal injury or equipment failure.

- the furnace must not be run by an operator who is not acquainted with these instructions;
- before turning on the plug in the net contact check if the voltage in the electrical network correspond to the working tension. In case of discrepancy, consult a specialist;
- on no account do not alter the device;
- the notices and stickers must be kept in good condition so that they are easily readable; they should not be removed!
- the machine must not function in case of being damaged and in position to injure the staff or a third person;
- keep the cables out of heat, oil and coarse objects; do not catch the device by the cable when you move it.
- switch off the furnace and pull out the plug of the feeder cable from the contact before each cleaning or upkeep.
- spare parts which are not specified by the manufacturer cannot be used!

CAUTION! If the machine is used by such means not indicated by the manufacturer, the provided protection can get worse!

3. DESCRIPTION OF THE UNIT



- 1 Cover of the chamber
- 2 Ceramic table
- 3 Lift table
- 4 Cooling pad
- 5 Front panel

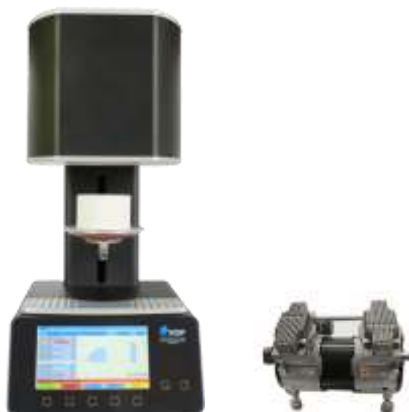


- 6 Mains switch
- 7 Mains fuses 8A/250V
- 8 Plug of power cord
- 9 Plug of pump's power cord
- 10 Fuse for pump 1,25A/250V
- 11 Nozzle of pump's hose



- 14 Hose of the pump
- 16 Vacuum pump

4. INSTALLATION AND INITIAL START-UP



- Carefully get out modules from packages.
- Make sure that the mains voltage is ~230V and the contact is reliably grounded.
- Avoid positioning of furnace and pump in the immediate vicinity of heat sources (radiators), or within the range of the air jet of AC as this may have a negative impact on its operation.
- Place the appliance wherever possible on a non-combustible surface at a distance of not less than 50cm to the nearest wall.
- It is forbidden for the oven to work in enclosed volumes.
- Install the vacuum pump in a well-ventilated locations. Ensure that the apertures in the frame plate are free and that no foreign object can fall into the furnace base.
- Connect pump supply cable to the terminal with label "VACUUM PUMP" on the rear panel.
- Connect the power supply cable to the terminal with label "POWER" on the rear panel.
- Connect vacuum hose to the vacuum fitting with label "VACUUM" on the rear panel.
- The net switch is on the rear panel, on the right. Put the furnace in a position which enables its easy engaging turning off from the master switch as well as from the contact.

ATTENTION! If the above requirements are not met, the risk of malfunctioning the device, as well as the risk of fire, is high.

Ceramic manufacturers indicate that each user is required to find the optimal temperature regimes for the furnace he works with for the respective brand and type of ceramics.

For this purpose, he has to do several phantom models and if necessary adjust the firing temperatures for each layer.

5. PRACTICAL USE

5.1. Short Description

The oven is equipped with a color graphics display showing all the necessary information to work.

The connection between the furnace and the user is accomplished by using the touch buttons located below and to the right of the display.

The action of the touch keys changes depending on the current menu, and by buttons on the right side a program is selected, as well as a change (increasing and decreasing the value) of the currently edited parameter.

5.2. Display Showing



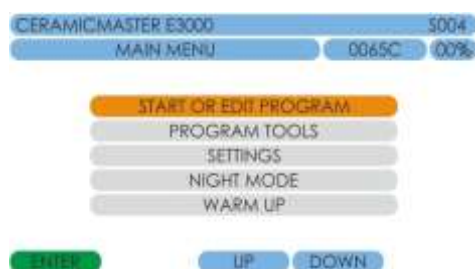
The top row shows the name and number of selected program.

The second row shows the status of the furnace. It is divided into 3 sections.

The first section shows the status, the second shows the current temperature, and the third shows the level of vacuum in the camera.

At the bottom, just above the touch keys, their action is displayed.

5.3. Main Menu



The main menu allows you to select different groups of actions that can be performed. To go to the main menu, press the ESC button several times.

The first row shows the oven name, the thermocouple type, and the version of the software.

Choices:

START OR EDITING PROGRAM – actions are taken to start or edit a work program;

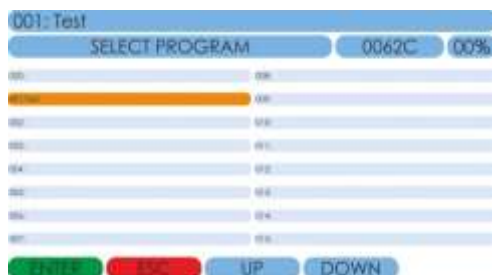
PROGRAM TOOLS – actions are taken with the work programs, such as copying, moving, deleting, and renaming;

SETTINGS – in this menu you can see the errors that are generated by the furnace, change the language, and make additional individual settings, such as time at the end of the program, vacuum level, maximum starting temperature;

NIGHT MODE – it is recommended that this mode be started whenever the furnace is left for a longer time without use, namely at night and at weekends;

WARM UP – Initial heating program. It is always recommended to start at the beginning of each business day;

5.4. Way of Use



If **START OR EDITING PROGRAM** from the MAIN Menu is chosen, a screen with programs appears.

There are 16 screens and each window contains 16 user programs, which can be changed.

By buttons UP and DOWN you can select a desired program from the current screen.

By buttons “+” and “-”, which are located on the right side of screen, you can change the windows.

Select a program and push the button “ENTER”. On the screen you can see a selected program window.

The top row shows the name and number of the current program.

The second row shows the status of the furnace.

On the left side the parameters of the current program with their values are displayed.

On the right, a graph showing the execution stages of the program is displayed. As the program progresses, this graph begins to fill and thus visually displays to what point this program is executed and how much time is left to the end.

The program runs by pressing the START button. However, if something interferes with performance, this button will be invisible, and in the hint line it will write what needs to be done.

For example, if the work table is not in position, the info line shows

NOT READY – TABLE IS NOT DOWN

, and a program can't be started until the work table has been lowered to the bottom.

During the execution of the current work program, the values of the FIRE2 TEMPERATURE and FIRE2 TIME parameters can be changed. This is done by pressing the yellow button EDIT, which appears at the bottom right of the display while the program is running.

After initial switching on the furnace, it displays on the screen the last used program.

5.5. Parameter's Editing



Pressing the yellow button EDIT, located at the far right of the BUTTONS ROW enters into EDIT Mode.

The second line displays EDITING PROGRAM. With the UP and DOWN keys, we select the parameter that we want to change, and with the buttons on the right we increase/decrease the value.

When we edit the parameters that may be hidden for execution, SKIP (NO SKIP) appears above the bottom right touch key.

This button serves to hide / show the relevant parameter.

Parameters that may be hidden are:

- FIRE1 RATE**
- FIRE1 TEMPERATURE**
- FIRE1 TIME**
- COOL TEMPERATURE**
- COOL TIME**

Note that FIRE1_TEMPERATURE data, when this parameter is hidden for execution, affects the programming of ENTRY TEMPERATURE and FIRE2 TEMPERATURE.



Editing the program name and other actions such as copying, moving and exchanging programs is possible through the PROGRAM TOOLS menu, which is available from the main menu.

With the LEFT and RIGHT buttons, the character position in the name is selected, with the + and - buttons choosing the desired character to occupy that position.

6. PARAMETERS

IDLE TEMPERATURE

Temperature, kept in IDLE mode. This is the temperature which the furnace keeps when it doesn't execute a program. Its value is from 150°C to 700°C but it can't exceed (ENTRY TEMP-20)°C.

ENTRY TEMPERATURE

Start temperature. This is the temperature to be reached in the chamber after the program has been started and before the table starts to move up. Its value is from (IDLE_TEMPERATURE + 15°C) to 750°C.

PREDRY TIME

During this time the table stays in lower end position when the temperature in the chamber is equal to ENTRY TEMP. It can be changed from 0s to 1h.

DRY TIME

Time to move the table from the bottom down to the final top position, and can be changed from 5s to 1h.

FIRE1 RATE

Increase rate of temperature to first firing. Accepts values from 30°C / min to 200°C / min.

This parameter can be hidden for execution.

FIRE1 TEMPERATURE

First firing temperature. It accepts values from (ENTRY_TEMPERATURE+20)°C to (FIRE2_TEMPERATURE-20)°C.

This parameter can be hidden for execution.

FIRE1 TIME

This is time to hold the set temperature FIRE1 TEMPERATURE. It accepts values from 0s to 1h.

This parameter can be hidden for execution.

FIRE2 RATE

Increase rate of the temperature for second firing. Accepts values from 30°C /min to 200°C /min.

FIRE2 TEMPERATURE

This is temperature for second firing. It can be changed between (FIRE1 TEMP+20)°C to 1200°C.

FIRE2 TIME

This is time for maintaining the temperature of second firing. It accepts values from 0s to 1h.

COOL TEMPERATURE

Temperature reached during cooling before opening the chamber. It accepts values from 300°C to 1150°C.

This parameter can be hidden for execution.

COOL TIME

Time during which the cooling temperature set by the COOL TEMPERATURE parameter is maintained. It accepts values from 0s to 1h.

This parameter can be hidden for execution.

OPEN TIME

This is time for opening the working table to the lower end position, after COOL TIME has elapsed. It accepts values from 5s to 1h.

VACUUM RUN TEMPERATURE

This is temperature at which the vacuum is switched on. It accepts values from 0°C to 1250°C. If its value exceeds the value recorded in parameter FIRE2_TEMPERATURE, the vacuum will never be turned on.

VACUUM STOP TEMPERATURE

The temperature at which the time recorded in VACUUM STOP TIME starts running, then the vacuum is switched off. It accepts values from 0°C to 1250°C. If its value exceeds the value recorded in the FIRE2 TEMPERATURE, the vacuum will never be turned off.

VACUUM STOP TIME

This is time after which the vacuum is switched off. It starts to run after the temperature in the chamber reaches the value recorded in the VACUUM STOP TEMPERATURE. It can be changed from 0 seconds to 1 hour.

7. ERRORS

Common errors	2	keyboard initialization error;
	3	the network frequency is different from 50Hz or 60Hz;
	6	error in autocalibration;
	8	the furnace was restarted after a power failure in program execution mode;
Errors associated with heating	15	when the temperature rises during program execution, the required rate of increase can not be achieved;
	19	the set temperature has not been reached during the certain time;
	20	the set temperature cannot be reached when cooling;
	21	the set temperature cannot be reached with heating;
	22	interrupted thermocouple or temperature is above 1250 ° C;
	23	the temperature is lower than 5 ° C;
Errors related to the movement of the table	73,74	the top position lift sensor during closing is not reached for the specified time;
	72	the lower position lift sensor is not reached for a certain time;
Errors associated with vacuum	28	the required vacuum is not reached for the specified time;
	30	low vacuum during pressing;
	50	there is residual vacuum at initial switching;
	51	when the vacuum is switched off in program mode it is not dropped completely for the specified time;

When an error occurs, it is displayed on the display and the furnace beeps.

To exit this state, press the STOP button.

8. TECHNICAL DATA

1. Mains voltage	~230 V, ±10%, 50Hz
2. Power consumption	1700 W
2.1. Furnace and vacuum pump	1550 W
2.2. Furnace without vacuum pump	
3. Category of overvoltage	II
4. Vacuum pump data	
4.1. Suction capacity	22 l/min
4.2. Minimum vacuum level	-0,92 bar
5. Maximal firing temperature	1200°C
6. Effective firing chamber dimensions	Φ 95 mm; h 46 mm
7. Overall dimensions of closed furnace:	
7.1. Width	270 mm
7.2. Length	380 mm
7.3. Height	570 mm
8. Model Weight	21 kg
9. Number of user programs	250
10. Working room temperature	18°C - 35°C
11. Level of environment pollution	2
12. The device is designed for usage in normal dental premises up to 2000 m altitude above sea level.	
13. The maximum relative humidity of the air must be 80% for temperatures up to 31°C, decreasing lineally to 50% relative humidity for temperature 40°C.	
14. Working modes	
14.1. Programming mode	
Programming of the parameters is fully described in chapter "5.5.Parameters Editing".	
14.2. Working mode	
It shows a graph of the ongoing program phase.	

9. IMPORTANT PRACTICAL INFORMATION

1. To avoid the occurrence of a fire caused by the oven, do not place objects on its frame and make sure that it is not possible to fall on it.
2. Avoid placing any objects on the frame plate, place only on the face cooling plate.;
3. Marked details (with mark for hot surface) may become hot when using this product for a long time. Do not touch the hot areas.
6. Ensure that the sealing ring in the furnace head and the sealing rim of the furnace base are kept clean and undamaged.
7. It is strongly recommended to use porous ceramic tray
8. If the power supply is interrupted during the working process and:
 - 8.1. If the temperature in the chamber has not decreased by more than 15 degrees, the current program will continue from the stage at which it has been stopped.
 - 8.2. If the temperature in the chamber has decreased by more than 15 degrees, the following message will appear on the display:

LONG TIME POWRE OFF

In this case the program cannot continue. You have to press the button **STOP** in order to exit this state.

WARNING! For precise operation of the unit it is necessary first to heat it up. For this purpose, after switching on the oven, select the preheating function - WARM UP (program №251).

Always keep the firing chamber closed between firings.

10. MAINTENANCE

Clean only with a dry or slightly moist cloth (no solvents!).

Change the safety locks with the announced valus only, namely:

2.5A, slow (class T).

8A, slow (class T).

No repair activity by a service technician who is not authorized by the manufacturer is allowed!

The lifting and carrying should be made only with the both hands from below as the furnace stands on end.

No carrying and transportation in another state except for vertical position is allowed!

11. DELIVERY SCOPE

Furnace Ceramic Master E3000	1 pc
Vacuum pump	1 pc
Power cable	1 pc
Flexible tube for the vacuum	1 pc
Spare fuses	
T 1,25AH / 250V	1 pc
T 8AL / 250V	2 pcs
User Manual	

PRODUCER: "VOP" Ltd.
Ind. Zone "Microelectronica"
Tel. +359 723 66303
Tel. +359 723 66304
2140 Botevgrad
BULGARIA

“VOP” Ltd.
Microelectronica
2140 Botevgrad
Tel. 0723 66303
Tel. 0723 66304

Ceramic Master E3000

WARRANTY SHEET

“VOP” Ltd. warrants the consumer for proper operation of all parts and materials in this product during a period of **12 months** since the day of its purchase.

During this period VOP Ltd. or its authorized persons will repair on its own account all defects which have occur during the normal operation of the machine.

Defects caused by improper transportation, storage and manipulation of the product or due to malfunction of the electrical mains supply are repaired on the account of the customer.

This warranty shall become void if attempts are made to repair the product by persons not authorized by the producer.

Serial Number _____

Invoice number _____

Date _____



MANAGER of “VOP” Ltd

CLIENT:

Serial Number _____

Invoice number _____

Date _____

Voucher Manufacturer