

INSTRUCTIONS FOR USE

Ceramic firing and pressing furnace

e.ON

200 neo 250 neo



UGIN'
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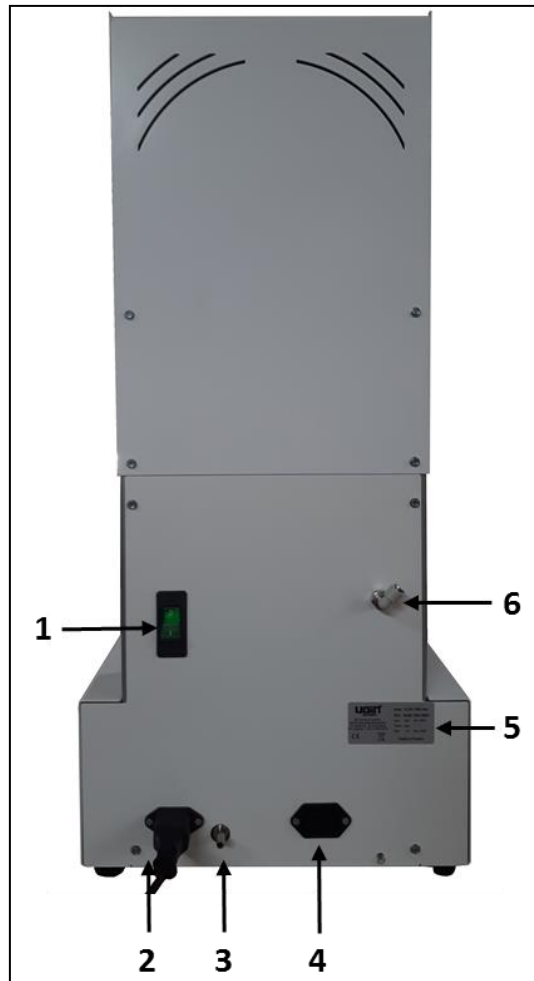
e.ON 200 NEO / e.ON 250 NEO

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Non-contractual images

Translation into English from original in French

A. EQUIPMENT DESCRIPTION



| N° | Description |
|----|---|
| 1 | Power switch ON/OFF |
| 2 | Power socket (furnace) |
| 3 | Connector for vacuum pump |
| 4 | Vacuum pump power socket |
| 5 | Rating plate |
| 6 | Quick coupling $\varnothing 6$ (only for eON 250 NEO) |

B. INSTRUCTIONS FOR USE

1. SAFETY INSTRUCTIONS

1.1. USE

e.ON 200 NEO is a ceramic firing furnace and **e.ON 250 NEO** is a ceramic firing and pressing furnace. These furnace **are intended to firing the ceramic dental prostheses with or without pressing** (*according to furnace model*).

These furnaces have to be operated only by dental professionals.

e.ON 200 NEO and e.ON 250 NEO have to use in the conditions and for the uses described in this manual. Any other use that will be made of it (such as firing other materials, heating food products, etc.) is considered inappropriate. In this case, the manufacturer declines all liability and immediately cancels the equipment warranty.



According to the product’s instructions and functionalities, **it is imperative to read carefully the instructions for use before furnace installation and use.** Retain the manual for future reference.

1.2. SAFETY INSTRUCTIONS

Pictograms’ meaning used in this instructions for use:

| | | | | | |
|---|-----------------|---|-------------------|---|---------------------------|
|  | General warning |  | Electrical hazard |  | Burn hazard - Hot surface |
|---|-----------------|---|-------------------|---|---------------------------|

Observe following safety instructions:

| | |
|---|--|
|  | <ul style="list-style-type: none"> - During operation and after use, the furnace head surface, tray, support pressing, firing base may reach high temperatures: do not touch - Wear suitable gloves and the tweezer (delivered in accessories) for handling prosthetic objects and support pressing/firing base |
|  | <ul style="list-style-type: none"> - The unit has to be connected to an electrical installation in accordance with the applicable standard in the country in which it is being used. This installation has to provide protection against overcurrent, overload and ground faults - This furnace requires its own power line and has to be connected to a circuit breaker - Connect it directly to the mains socket. Do not use multiple sockets - Ensure that the connection cables are in perfect condition to prevent short circuits - Before any technical intervention, the unit has to be switched off (with the breaker) and disconnected from the mains power supply - Do not spill liquid on the ventilation openings or inside the furnace |

| | |
|--|---|
| | <ul style="list-style-type: none"> - Ensure that the pneumatic hoses (power socket and vacuum pump) are in perfect condition - Ensure that the movement of the tray is not blocked by an object, this may result in malfunction of the unit and damage to certain components - The furnace must be placed on a flat surface, keeping sufficient clearance around the unit to ensure proper ventilation - Do not block the ventilation openings to avoid overheating |
| | <ul style="list-style-type: none"> - Firing base and support pressing are made up ceramic fibres. Handle carefully - <u>The heating chamber contains insulating material</u> composed of high temperature insulation wool (alkaline earth silicate), a substance not classified as dangerous according to Regulation 1272/2008/EC (CLP) - They can release dust: remove with a vacuum cleaner - do not blow or use compressed air |
| | <ul style="list-style-type: none"> - For moving, take hold the furnace by its base. Never lift by upper part of furnace: risk material damage - Never use the furnace without firing base / support pressing. Use only those provided by UGIN DENTAIRE. Before use, check it (no dirt or damage). If damage: do not use. Place <u>only</u> one firing base or one support pressing on the tray (do not stack, never simultaneously) |
| | <ul style="list-style-type: none"> - Use only genuine spare parts. The use of non-original spare parts voids any warranty for your device - Do not introduce stranger objects inside the unit during the maintenance operations. It is forbidden to modify the material without authorization - Do not execute different operations of maintenance from those brought back in the manual. Whichever operation not included in this manual, can involve risks - For whichever information concerning installation, maintenance and use, contact the customer's service UGIN DENTAIRE |

1.3. WASTE DISPOSAL

Observe the waste disposal regulations for electrical and electronic equipment: do not dispose of with household waste.

The unit is subject to Directive 2012/19/EU on waste electrical and electronic equipment and to the laws of the country in which it is being used, and must be disposed of in accordance with applicable regulations.

Firing base and support pressing made up refractory ceramic fibres. They must be disposed in accordance with applicable regulations in force.

The insulating material are composed of high temperature insulation wool (alkaline earth silicate), a substance not classified as dangerous according to Regulation 1272/2008/EC (CLP), and classified as non-hazardous waste for disposal. However, such a waste is normally dusty and so must be properly packaged before for disposal. Check any national or regional applicable regulations

2. EC DECLARATION OF CONFORMITY

The equipment's EC declaration of conformity is provided as appendix of instructions for use.

Content of the declaration EC:

- Name and address of the manufacturer:
UGIN DENTAIRE
25 rue de la Tuilerie
38170 SEYSSINET-PARISSET – FRANCE

- UGIN DENTAIRE declares, on its own exclusive responsibility, that the product:
 - Ceramic firing furnace **e.ON 200 NEO**
 - Ceramic firing and pressing furnace **e.ON 250 NEO**
 - Serial number: *see the equipment's EC declaration of conformity*

- Fulfills the essential requirements of health and safety of the following directives:
 - Machinery directive 2006/42/EC
 - Electromagnetic compatibility directive 2014/30/EU

3. TECHNICAL INFORMATION

3.1. TECHNICAL DATA

The ceramic furnaces e.ON 200 NEO and e.ON 250 NEO are intended for firing the ceramic dental prostheses. Then, e.ON 250 NEO model enable to firing with pressing. These furnaces have to be operated only by dental professionals and in the conditions described in this manual (see chapter 1.1 and 3.2).

| | <i>e.ON 200 NEO</i> | <i>e.ON 250 NEO</i> |
|--|---------------------------------|---------------------|
| Dimensions (mm) | | |
| - Width | 320 | 320 |
| - Height | 572 | 719 |
| - Depth | 360 | 360 |
| Weight | 22 Kg | 27 Kg |
| Power consumption | 1 850 W | |
| Supply voltage | 230 V | |
| Frequency | 50/60 Hz | |
| Pneumatic system (pressure level) | minimum 1.7 bar – maximum 6 bar | |
| Noise level | < 70 dB(A) | |

| | <i>e.ON 200 NEO</i> | <i>e.ON 250 NEO</i> |
|--|---------------------|---------------------|
| - 100 ceramic firing programmes 100 corresponding "Favorite" programmes | ✓ | ✓ |
| - 100 special ceramic firing programmes (SP) 100 corresponding "Favorite" programmes | ✓ | ✓ |
| - 50 pressing programmes 50 corresponding "Favorite" programmes | X | ✓ |
| - Touch screen 7" with ANDROID navigation system | ✓ | ✓ |
| - USB port for data transfer and storage, and for use of a mouse for navigation and parameter settings | ✓ | ✓ |
| - Magnetic storage tray for the prosthetic restorations | ✓ | ✓ |
| - 7 languages (French, English, German, Italian, Spanish, Russian and Mandarin Chinese) | ✓ | ✓ |

Legend: ✓ included X not included

3.2. CONDITIONS OF USE, TRANSPORT AND STORAGE

- **Authorised conditions of use**
 - Ambient temperature: +5°C to +40°C
 - Humidity range: maximum relative humidity 80% for temperatures until 31°C, without condensation and decrease linear until 50% to 40°C, without condensation
 - Ambient pressure: up to an altitude of 2000 m above sea level
- **Authorised conditions of storage**
 - Ambient temperature: -20°C to +65°C
 - Humidity range: maximum relative humidity 80%
 - Ambient pressure: up to an altitude of 2000 m above sea level
- **Conditions to transport**
 - Wait the complete cooling before packing/transporting
 - Use the original packaging only, with the protective elements (polystyrene...)
 - Take hold the furnace by its base, never lift by upper part of furnace
 - Install the furnace in the packaging with the protective elements. Also protect the accessories for transportation

3.3. ACCESSORIES

- **Accessories delivered** with the furnace (*included in the packaging*):

| <i>eON 250 NEO</i> | <i>UGIN code</i> | <i>eON 200 NEO</i> | <i>UGIN code</i> |
|--|------------------|--------------------|------------------|
| - 1 support pressing | FCE05THE0058 | - 1 firing base | FCE05THE0057 |
| - 1 firing base | FCE05THE0057 | - 1 tweezers | INS03DBT0026 |
| - 3 alumina pistons Ø 13 | FCE05THE0061 | - 1 USB-stick | FCE05ELQ0070 |
| - 1 cylinder set Ø 35 (100g) | CYL03ACH0003 | - 1 power cable | FCE05ELC0014 |
| - 1 cylinder set Ø 50 (200g) | CYL03ACH0004 | | |
| - 1 casting ring set No.2 (<i>with alumina piston D13mm</i>) | FCE06BAG0004 | | |
| - 1 casting ring set No.3 (<i>with alumina piston D13mm</i>) | FCE06BAG0005 | | |
| - 1 casting ring (Ø 81) | FCE05DIV0052 | | |
| - 1 silicone cylinder (Ø 80) | CYL03FCE0002 | | |
| - 1 cylinder base E max Ø 35 (100g) | FCE05DIV0083 | | |
| - 1 cylinder base E max Ø 50 (200g) | FCE05DIV0084 | | |
| - 1 hook kit | FCE05TOL0117 | | |
| - 1 firing tongs | FCE05DIV0080 | | |
| - 1 tweezers | INS03DBT0026 | | |
| - 1 USB-stick | FCE05ELQ0070 | | |
| - 1 power cable | FCE05ELC0014 | | |
| - 1 PU hose Ø4/6 | FCE05PNE0015 | | |

- **Accessory recommended** (*not delivered with the furnace – to order separately*)
 - Vacuum pump - UGIN DENTAIRE code: FCE01PPE0001

4. INSTALLATION AND START-UP

4.1. UNPACK

- Unpack e.ON 200 NEO / e.ON 250 NEO and check that it is in perfect order (furnace and accessories)
- Any defects can be reported to the carrier
- Remember to get the carrier to sign the delivery note

NOTE: keep the original packaging to transport the furnace (see chapter 3.2)

4.2. INSTALLATION

- Install in a room aired. Observe the conditions indicated in chapter 3.2
- Place the furnace on a level and aired surface. Keep a distance from other objects around not less than 10 or 15 cm. Keep it away from heat sources (for example, radiators and/or other equipment that release heat). Avoid vibrations and shocks
- Do not install in a place with explosion hazard
- Its forbidden placing inflammables, toxic, volatile or explosives around the furnace
- Place the vacuum pump near to the furnace



This unit requires its own power line and has to be connected to a circuit breaker.

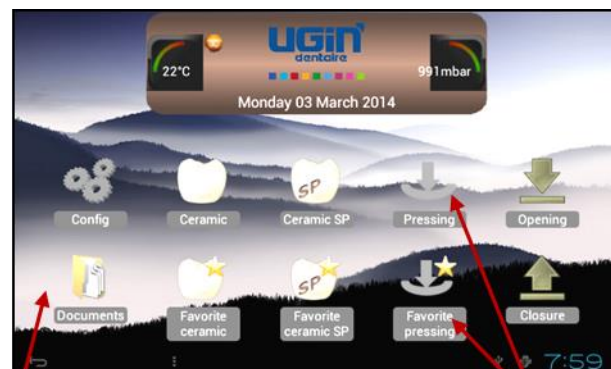
Grounding is mandatory to avoid accidents and the dangers of overheating the power line. Due to the power of furnace: **connect it directly to the mains**, do not use multiple sockets (risk of electrical interference)

4.3. START-UP

NOTE: for marks, see chapter A – equipment description

- 1) Connect the vacuum tube to the vacuum connector at the back of the furnace (**No. 3**)
- 2) Connect the vacuum pump power cord to the vacuum pump power socket (**No. 4**)
- 3) Connect the compressed-air tube to the quick coupling Ø6 (**No. 6**) (*only for e.ON 250 NEO model*)
- 4) Connect the power cord to the power socket (**No. 2**)
- 5) Connect the furnace to the laboratory's pneumatic system (*only for e.ON 250 NEO model*)
IMPORTANT: the minimum pressure required to ensure proper functioning is 1.7 bar. An error message will appear in case of insufficient pressure. The maximum pressure is 6 bar
- 6) Make sure that the mains voltage complies with the voltage indicated on the rating plate (**No. 5**), connect the power cord to a 10/16 A grounded power socket
- 7) Activate the ON/OFF switch (**No. 1**): the application start to loading and the tray go down

- 8) When the tray has reached the lower position, the firing or pressing base can be placed on top
- 9) After approximately 40 seconds, the start screen of the furnace appears (**Fig 1**). The installation is completed



Access key to the instructions for use

eON 200 NEO: these two keys do not appear

Fig 1: start screen

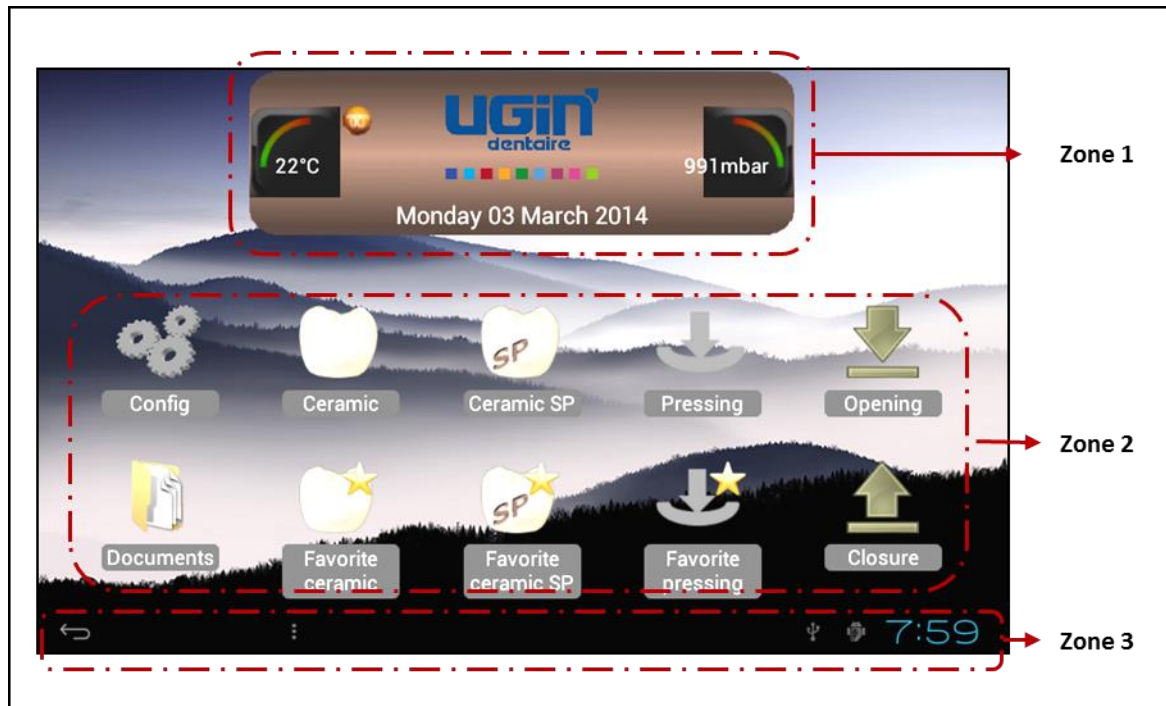


IMPORTANT: even if the use of this furnace is very intuitive, **it is recommended to read the instructions for use** carefully prior to its first use. These instructions are directly accessible by pressing the “document” key

5. USE

5.1. START SCREEN

There are three display zones:



▪ **Display in zone 1:**


- Temperature inside the firing chamber
- UGIN DENTAIRE's logo
- Pressure inside the firing chamber
- Date

▪ **Display in zone 2:**


Display pictograms (e.ON 250 NEO: 10; e.ON 200 NEO: 8)

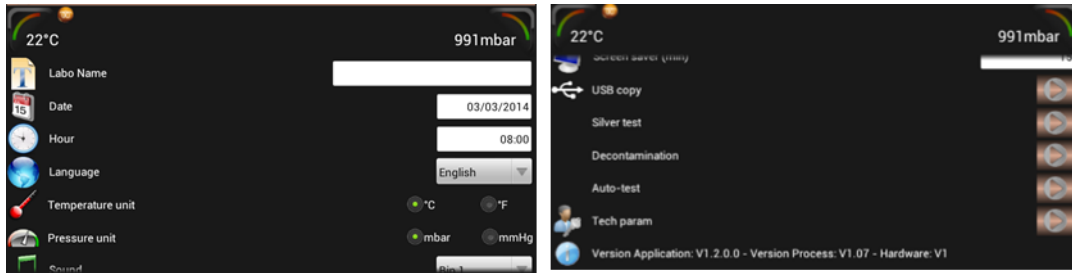
- Equipment **configuration** (*Config.*): see chapter 5.2
- **Ceramic, Favorite ceramic, Ceramic SP, Favorite ceramic SP, Pressing, Favorite pressing**: access to parameters of each program (*see chapters 5.4, 5.5, 5.6*)
- **Opening, Closure**: to raise or lower tray in stand-by mode
- **Documents** : display the instructions for use

▪ **Display in zone 3:**

- **Return key** (*back arrow*)  : present in each screen, to return to the previous screen. It is not displayed in the start screen
- **Hour** (*update in Configuration*)

5.2. CONFIGURATION

When press key “Config.”  , the drop-down menu appears to customize the unit and to access a series of specific functions.



Configuration menu contains 14 parameters.

NOTE: Change the parameters' numeric field:

- press the active zone (white) and select the value (keys ±)
- “Accept” or “Cancel” to validate or not the choice, which allows to return to the previous screen

5.2.1. Labo name



When selecting the white field (on the right), the alphanumeric keypad appears at the bottom of the screen. The user can now enter the name of the laboratory which is then displayed in the start screen (instead of UGIN DENTAIRE’s logo)

5.2.2. Date



5.2.3. Hour



5.2.4. Language



The furnace default language is French. This language can be changed in the drop-down menu. Press the button ▼ and confirms your choice. The change is instantly accepted

5.2.5. Temperature unit



There are two possibilities: Celsius or Fahrenheit degrees.

The default temperature reading is set to Celsius. Press °F to change to Fahrenheit.

5.2.6. Pressure unit



There are two possibilities: millibar (mbar) or millimeters of mercury (mmHg).

The default values are displayed in mbar. Select mmHg to change to millimeters of mercury.

5.2.7. Sound



The furnace is set by default to “Bip 1”. This setting can be changed in the drop-down menu. Press the ▼ button and confirms your choice. The new acoustic signal is now activated

5.2.8. Sound level



When selecting this field, the alphanumeric keypad appears at the bottom of the screen. The sound volume set by default to 100 (maximum) can now be changed. To mute the sound, set the value to 0 (zero)

5.2.9. Screen saver (min)



The indicated value shows the time that will elapse before a screen saver is activated. This setting can be changed from 15 to 30 minutes.

In stand-by mode, the pictograms in the start screen will disappear and the UGIN DENTAIRE’s logo will start moving randomly on the screen. Only the *RETURN* key and the time indication are displayed.

You can leave this mode by touch the screen.


5.2.10. USB copy




When press the key ►, a **menu with 5 lines** appears:

- **Copy program (furnace to USB stick):** to copy the programs setting inside the furnace and the files contents in folder *Documents*
- **Copy program (USB stick to furnace):** to copy the programs contents in USB stick
- **Traceability of the cycles (furnace to USB stick):** to copy the completed cycles
- **Background:** replace the background's image
- **Image display:** to image modification

5.2.10.1. Copy Prog (Furnace → USB)

When a USB stick is inserted into the furnace (on the right) and it is recognized , this function allows to copy all furnace programmes and to transfer the files in the "Documents" folder (see chapter 5.3).

To save the data, select the desired line and wait for completion indicated by the logo . This can take some tens of seconds. The data are copied and the stick can now be removed.


IMPORTANT: the data saved on the USB stick can now be displayed and copied on a computer. 2 folders named "PROG" and "DOCUMENTS" should appear

- **"PROG"** folder contains several files that correspond with the various programmes (eON 250 NEO: 2 x 3 files; eON 200 NEO: 2 x 2 files):
 - 3 files in "BIN" format (**ProgCeram**, **ProgCeramSP** and **ProgPress**) are locked. They contain all programme settings and are saved in a specific format
 - 3 other files (**ProgCeram**, **ProgCeramSP** and **ProgPress**) in "TXT" format can be displayed and printed

NOTE: only 2 programmes for the model without pressing eON 200 NEO: ProgCeram, ProgCeramSP

- **"DOCUMENTS"** folder contains the PDF files of the instructions for use in: they can be displayed and printed

5.2.10.2. Copy Prog (USB → Furnace)

When the USB stick is recognized , this function allows to transfer the programmes on the USB stick to the furnace. They will replace the programmes in the unit.

The same procedure as described in previous chapter *Copy Prog (Furnace→USB)* applies.

NOTE: for safety reasons, only the "BIN" files (locked) can be transferred

5.2.10.3. Traceability of the cycles (Furnace→USB): - -Ceram, - - Ceram SP, - - Press

This line only contains the fully completed cycles.

This function ensures the traceability of the work performed by saving the settings that were used for each one of them. The storage capacity of the programmes is:

- 60 ceramic firing cycles
- 60 SP ceramic firing cycles
- 20 pressing cycles


When these limits are reached, each new cycle will overwrite the oldest on the list. They are transferred in an identical way to the previous chapters.

▪ Example of traceability transfer:

10 Ceram, 3 Ceram SP, 5 Press (except version without pressing)

After selecting the function, the transfer will start:

 **1/10 Ceram, 0/3 Ceram SP, 0/5 Press** (except version without pressing)

Final display: **10/10 Ceram, 3/3 Ceram SP, 5/5 Press** followed by the logo  indicating that the transfer is complete. The stick can now be safely removed.



This operation can take some tens of seconds (depending on the amount of files). After this manipulation, the counters are reset to 0.

5.2.10.4. Background .jpg (USB → Furnace)

The screen background can be replaced with any other image.

However, this image must be saved on the USB stick under the following name: **“ImgFond.jpg”**

Only this file will be recognized by the furnace. It is imperative that the stick contains only one file like this when modifying the background image.

When the stick is recognized , simply select the desired line and wait for the logo  to appear.

To verify that the screen background has been modified, press the *RETURN* key (at the bottom left) to return to the *“Config”* menu and display the new background. The stick can now be safely removed.

5.2.10.5. Image display (USB/Visu/ImgVisu.jpg)

This function allows to display the image of your choice, even within a running cycle. To this end, you need to create (on a computer) a file named **“Visu”** and save the selected image in this file under **“ImgVisu.jpg”**, before copying them to the USB stick.

The desired document can be accessed as described earlier.

You can zoom in to enlarge specific areas. The principle is identical to that of smartphones.

To *«leave»* the image, press the *RETURN* key (at the bottom left) to return to the previous screen. The stick can now be safely removed.

5.2.11. Silver test



This programme has been pre-defined and allows to calibrate the temperature of the unit in case of unsatisfactory firing. These settings cannot be modified.

Open the firing chamber, place a 30 mm silver wire on the firing base and press the START button.

At the end of the programme, the wire should be melted only at the tip.

If not, the calibration offset may need to be modified in each programme (see chapter 5.4.1).

Repeat this process, if necessary.

5.2.12. Decontamination



This programme is similar to the silver wire test and cannot be modified. It allows to clean the firing chamber.

Open the furnace, place a carbon rod CARBONET on the firing base and press the START button to let the cycle run.


5.2.13. Auto-test



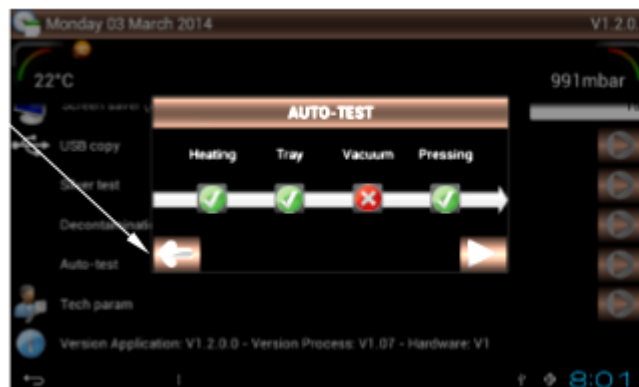
In case of a malfunction, the defective component is indicated.

ATTENTION: do not interrupt the test before completion

At the end of each phase, a logo appears indicating the result of the test.

At the end of test, the key  can be used to return to the previous screen

Exemple :



Auto-test: problem with the vacuum in the firing chamber

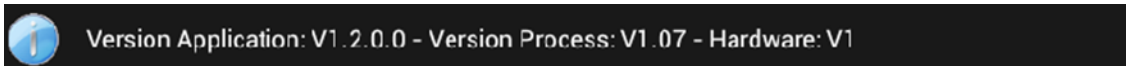
5.2.14. Technician parameters



This function allows to update the software and process versions, and the documents.

These parameters cannot be accessed without a valid code. The code will be provided to the user along with the required updates. Another code is reserved to the service technician for maintenance purposes.

5.2.15. Version Application



These indications refer to the version of the controller software of the furnace.


This may be useful in communications between the user and the supplier of the unit.

5.3. DOCUMENTS



Documents

This function allows to view the instructions for use directly on the furnace's screen. The *.pdf* files can be printed via a computer. This is simply done by transferring them to the USB stick supplied with the furnace (see chapter 5.2.10.1: Copy Prog (Four → USB)).

When press the "Documents" key, a menu of 6 lines appears. Select the desired file to access it. The key arrow  allows to return to the start screen. You can zoom in on specific areas. The principle is identical to that of Smartphones.

IMPORTANT: instructions for use have a specific name. The unit will only recognize the following names:

- **EON-FR.pdf**
- **EON-DE.pdf**
- **EON-ES.pdf**
- **EON-EN.pdf**
- **EON-IT.pdf**
- **EON-RU.pdf**



Two other types of files can be displayed on the furnace:

- 1 video file "**Video.mp4**" (size 1 Go maxi)
- 1 image file "**Image.jpg**"

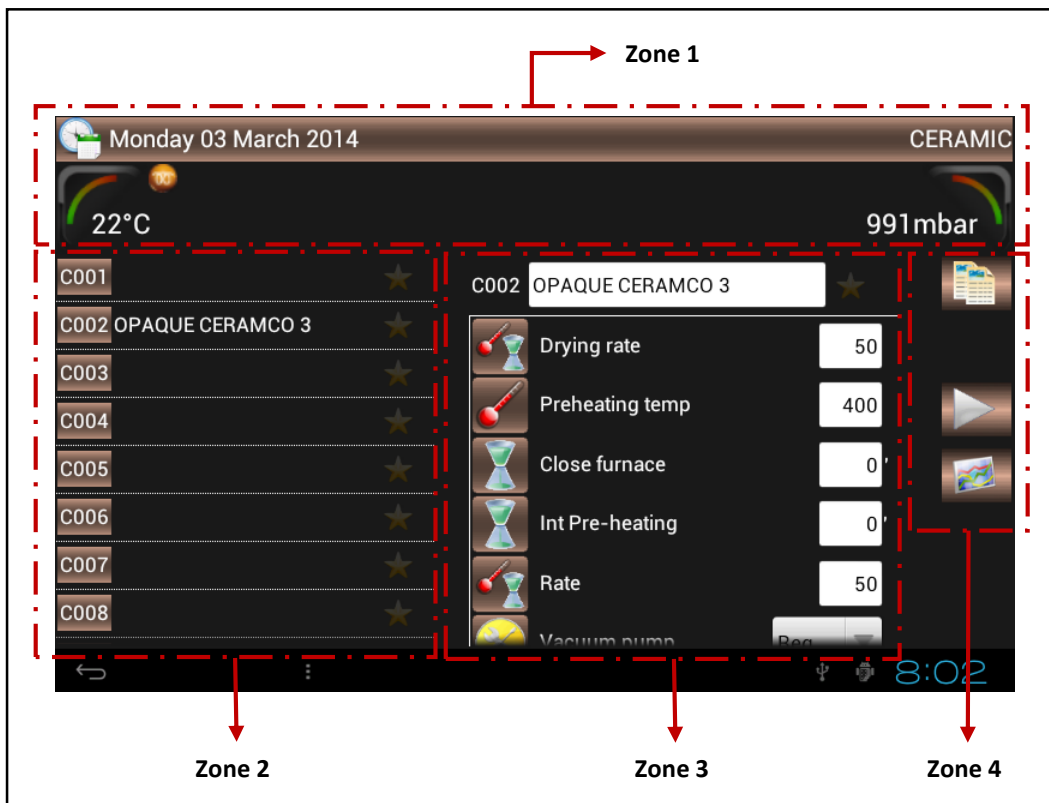
The instructions for use are subject to change. They are updated via the USB stick as described in the section "Technician parameters" (see chapter 5.2.14)

The same procedure applies to the Video and Image files.

5.4. CERAMIC FIRING PROGRAMMES

| Pictogram start screen | Program | Programmes name |
|---|------------------|-----------------|
|  | Ceramic | C001 to C100 |
|  | Favorite Ceramic | C001 to C100 |

The setting screen display after select the program Ceramic or Favorite Ceramic. This screen is composed by four zones display:



▪ **Display zone 1**

- date
- temperature inside the firing chamber
- program type: CERAMIC
- pressure inside the firing chamber

▪ **Display zone 2**

A drop-down from C001 to C100 allow to select the desired program. Each cycle is identified by:

- program's number (C and 3 numbers)
- program's name
- star (activated: "Favorite" program)

▪ **Display zone 3**

This drop-down menu allow to change the settings of selected program:

- Number, program's name, "Favorite" star
- its parameters are shown below

▪ **Display zone 4 :**


Three active keys to:




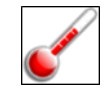
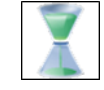





- copy a program
- start the cycle
- display the cycle graph

5.4.1. PROGRAM PARAMETERS (ZONE 3)

IMPORTANT: if the numeric value of the parameter exceeds the minimum/maximum limits, a message will indicate the limits to be observed. If these parameters are not modified, the indicated limits will be taken into account when proceeding to the next parameter

Changes the field numerical:

- Press the field. The value is displayed in green. Carry out the changes with the keypad numerical
- Confirm and press key : pass to following parameter

| | |
|--|--|
|  | <p>Program's name</p> |
| <p>Select the corresponding field (white) to enter or change the name of the programme. This can be done via the alphanumeric keypad that appears. To confirm or cancel, use the button in the lower left of the screen </p> | |
|  | <p>Drying rate (20°C to 150°C/min)</p> |
| <p>Indicates the rate of increase between the standby temperature and the preheating temperature. Value: 20°C/min to 150°C/min</p> | |
|  | <p>Preheating temperature (20°C to 1.000°C)</p> |
| <p>Always ≥ stand-by temperature and ≤ final temperature. Value: 20°C to 1 000°C</p> | |
|  | <p>Close furnace time (0 to 60 minutes)</p> |
| <ul style="list-style-type: none"> - Set at 0: the furnace will close in one continuous movement when the preheating temperature is reached - If the value is > 0: the tray will move in 6 equal stages during the selected time <p>Press  for close the furnace before the end of each stage. When press , the tray stop in position chosen by user. Press again  to movement will continue</p> | |
|  | <p>Preheating time (0 to 60 minutes)</p> |
| <p>Within a running cycle and with the furnace closed, it indicates the holding time at the preheating temperature. Value: 0 to 60 minutes</p> | |
|  | <p>Rate (20 to 150°C/min)</p> |
| <p>Indicates the rate of increase between the preheating temperature and the final temperature Value: 20°C/min to 150°C/min</p> | |



Vacuum pump

This parameter allows to choose between **3 modes of operation** of the vacuum pump.

To modify, press the ▼ key to go to the drop-down menu and confirm your choice.

1. **OFF**: the pump is switched off during the cycle
2. **ON**: continuous operation within its capacity
3. **REG**: active until the required vacuum level (8 mbar), then switches to regular mode via intermittent operation

Example: vacuum level set at 60 mbar

The vacuum reaches 52 mbar (setting -8 mbar), the pump stops and restarts when the vacuum level reaches 68 mbar (setting +8 mbar)

ATTENTION: in REG mode, if the vacuum level (- 8 mbar) cannot be reached, considering the performance of the pump, the operation will continue without interruption within the running cycle



Vacuum start temperature

Always ≥ preheating temperature and ≤ vacuum-off temperature



Vacuum stop temperature

Always ≥ vacuum-on temperature and ≤ final temperature



Vacuum level (0 to 500 mbar)

This parameter is active in the **REG** mode of the vacuum pump, only



Vacuum hold (0'00'' to 59'59'')

It is the **holding time for the vacuum at the final temperature**. Programmable in minutes et seconds. Value: 0 to 59 minutes and 59 seconds



Final temperature (maxi: 1050°C, peak: 1150°C)

Always ≥ preheating temperature and ≤ maximum temperature (1050°C, and peak temperature 1150 °C)



Hold time (0'00'' to 59'59'')

It is the **holding time at the final temperature**. Value: 0 to 59 minutes and 59 seconds




Internal cooling time (0 to 60 minutes)

After the holding time, it indicates the **time during which the chamber remains closed during “natural” cooling**. Value: 0 to 60 minutes. If the value = 0 : next phase will start



External cooling time (0 to 60 minutes)

- **Set at 0: the chamber opens in one phase**, after vacuum flooding and holding time
- If the **value is > 0: the tray is moved in 6 equal stages** during the indicated time. The chamber can be opened in one phase by press the key 



Stand-by temperature (minimum 70°C)

Always \geq night temperature (70 °C) and \leq preheating temperature



Stand-by delay (0 to 60 minutes)

When the furnace has reached the standby temperature, it indicates the remaining time before the controlled closure of the firing chamber. Any action on the screen will delay this operation.



Return night program

This function (selected by default) allows to raise the temperature in the firing chamber to 70°C after 3 hours in stand-by mode. When the user is absent, it limits the electricity consumption while keeping the furnace operational.

IMPORTANT: In night mode, the stand-by screen disappears (black screen). Only the blue LED lights up. It blinks when a cycle is terminated before entering the standby mode. If the furnace remains in standby mode, it lights up continuously



Calibration

Each programme can be calibrated individually. This value is preset at 0 and should ensure the proper results. However, the user can adjust this parameter based on his own assessment criteria.


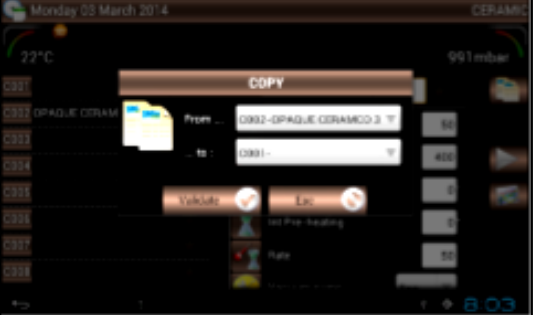




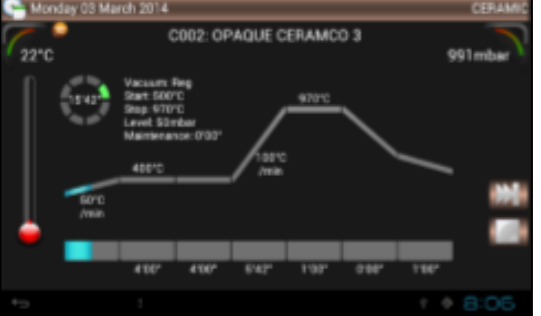

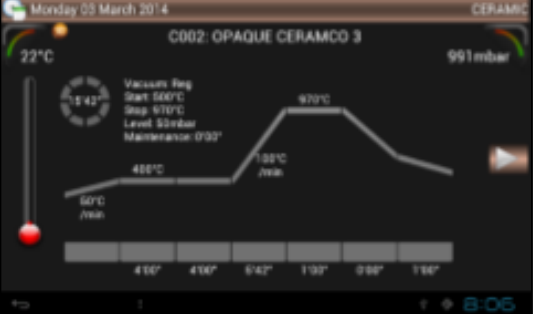
This can be done in stages of one degree (between +50°C and -50 °C). The actual temperature in the furnace is changed without adjusting the displayed value.

Example:

- In case of “underfiring”: raise the calibration value: +5 °C (instead of 0)
- In case of “overfiring”: the value should be lowered: -5 °C (instead of 0)

5.4.2. COPY, START AND GRAPHIC VIEW KEYS (ZONE 4)

Identical for CERAM.SP & PRESSAGE

| | |
|---|--|
|  <p>COPY</p> <p>With this button you can duplicate a program. After selecting the cycle to be copied (source), the “target” program is selected in the drop-down menu via the arrow ▼. Confirm or cancel to end the process. The new programme is saved and can be modified</p> |  |
|  <p>START</p> <p>Allows to start the cycle in the programming screen In this mode, only the keys  and  are active The key  allows to proceed to the next phase</p> <p>IMPORTANT :</p> <ul style="list-style-type: none"> - The time to completion countdown for the cycle only starts when reaching the preheating temperature - The running parameters cannot be modified - The modification of the parameters not yet activated is only taken into account temporarily - The original parameters reappear at the end of the cycle |  |
|  <p>GRAPHIC VIEW</p> <p>Allows to display the parameters of the desired cycle The cycle is started with the “START” key</p> |  |



5.4.3. FAVORITE CERAMIC



Favorite Ceramic

The 100 ceramic firing programmes can be designated as **FAVORITES**. Just select the desired program and press the star next to the name of the cycle. The corresponding parameters can be immediately modified in “Favorite Ceramic” or in “Ceramic”. To remove the programme from **FAVORITES**: deactivate the star.

5.5. SPECIAL CERAMIC FIRING PROGRAMMES (SP)




| <i>Pictogram start screen</i> | <i>Program</i> | <i>Programmes name</i> |
|---|--|------------------------|
|  | Ceramic SP (<i>Special Ceramic</i>) | C101 to C200 |
|  | Favorite Ceramic SP (<i>Favorite Special Ceramic</i>) | C101 to C200 |

Except for the program numbers, the display is identical to that of ceramic firing programmes.

This type of cycle is used for:

- firing dental ceramics requiring an intermediate stage before the final temperature is reached (curing)
- the two-stage program when firing prefabricated ceramic structures

This programme therefore contains several additional parameters:

| | |
|--|---|
|  | Stage temperature |
| Always \geq preheating temperature and \leq final temperature | |
|  | Stage holding time temperature (0'00'' to 59'59'') |
| Indicates the holding time when the temperature of the intermediate stage is reached Value: 0 minutes and 0 secondes to 59 minutes and 59 secondes | |
|  | Rate 2 (20 to 150°C/min) |
| Indicates the rate of increase between the holding temperature and the final temperature | |

5.5.1. FAVORITE CERAMIC SPECIAL



Favorite Ceramic SP

The 100 ceramic special firing programmes can be designated as **FAVORITES**.



Just select the desired program and press the star next to the name of the cycle.

The corresponding parameters can be immediately modified in "Favorite Ceramic SP" or in "Ceramic SP".








To remove the programme from **FAVORITES**: deactivate the star.

NOTE: *FAVORITES* management is identical to ceramic firing

5.6. PRESSING PROGRAMMES

| Pictogram start screen | Program | Programmes name |
|---|--------------------------|-----------------|
|  | Pressing | P01 ti P50 |
|  | Favorite Pressing | P01 to P50 |

Except for the programme numbers, the display is identical to that of ceramic firing and special ceramic firing (SP) programmes. Most parameter settings are identical to the other programmes, and new additional parameters are in this category:

| | |
|---|---|
|  | Drying rate (20 to 150°C/min) <i>(see chapter 5.4.1)</i> |
|  | Preheating temperature (20 to 1.000°C) <i>(see chapter 5.4.1)</i> |
|  | Preheating time (0 to 60 minutes) <i>(see chapter 5.4.1)</i> |
|  | Rate (20 to 150°C/min) <i>(see chapter 5.4.1)</i> |
|  | Vacuum pump Vacuum is absolutely necessary for the pressing cycles (minimum 500 mbar). The vacuum pump has only two modes of operation: Reg or ON <i>(see chapter 5.4.1)</i> |
|  | Vacuum level (0 to 500 mbar) <i>(see chapter 5.4.1)</i> |
|  | Final temperature (maxi : 1050°C, peak: 1150°C) <i>(see chapter 5.4.1)</i> |
|  | Hold time (0'00'' to 59'59'') <i>(see chapter 5.4.1)</i> |
|  | Press type There are three different types of pressing: <ul style="list-style-type: none"> - FIXED: pressing time cannot be changed and is preset at 7 minutes - TEMPO: the user determines the value of the pressing time (maximum 60 minutes) - CADENCE: the user sets the pressing time (maximum 60 minutes). In this mode, pressing is active during 50 % of the time and then stops for 10 seconds, before continuing until pressing is complete NOTE : during the 10 seconds interruption, the cylinder push rod remains fixed while maintaining the pressure level, to allow the injected material to "expand" |



Pressing time (0 to 60 minutes)

This parameter is only active in the **TEMPO** and **CADENCE** mode.
 Even if this value can be modified in the **FIXED** mode, it is not taken into account



Press level (1,5 to 5 bar)


Indicates the pressure in the injection cylinder. Adjustable from 1.3 to 5 bar, must adapt to different types of cylinders for single or multiple point injection:



| <u>Cylinder type:</u> | <u>Press level</u> |
|---|--------------------|
| - Cylinder Ø35 (100g) - 1 point injection Ø12/Ø13 | 1,5 bar |
| - Cylinder Ø50 (200g) - 1 point injection Ø12/Ø13 | 1,5 bar |
| - Cylinder Ø80 (500g) - 2 points injection Ø12 | 2,8 bar |
| - Cylinder Ø80 (500g) - 3 points injection Ø12 | 4,2 bar |

5.6.1. PRESSING CYCLE PHASES

- At the launch of the cycle, the operation of the cylinder is tested (1 movement back and forth)
- At the end of the test, the chamber is closed and the temperature goes up according to the drying rate until the preheating temperature is reached

If the preheating time = 0 or after preheating, an acoustic and optical signal will warn the user that the cylinder can be placed on the pressing base

Press key  allows to open the chamber. The cylinder can be filled

- After inserting the cylinder and press the key  again, the chamber closes and the cycle continues
- Vacuum is on and the temperature goes up until it reaches the holding temperature
- Injection starts at the end of the holding time
- After pressing and vacuum flooding, the chamber opens and the tray stops at 1/3 of its total course
- An acoustic and optical signal will warn the user that the cylinder can be removed
- If press the key , the tray is lowered

5.6.2. CONSEILS DE PRESSAGE

The pressing tests have established the importance of the temperature parameters for the components used during this process. To guarantee proper results, we recommend to observe the following instructions.

IMPORTANT: for operation, the minimum required pressure is 1.7 bar - an error message appears in case of insufficient pressure. The maximum pressure is 6 bar.

▪ Support pressing

When positioning the cylinder, the temperature of the support pressing is decisive.

It is therefore advisable to place it in the cylinder burnout furnace at a preheating temperature equal to that of the pressing furnace (700°C to 800°C).

Another option (to obtain the same result) is to leave the support pressing in the pressing furnace preheated to 700°C or 800°C for about 45 minutes (see setting the preheating time).

NOTE: if the temperature of the support pressing is not close enough to that of the cylinder, the heat loss within the cylinder will be considerable, thus changing the behaviour of the ceramic ingot (in particular for the 500g cylinders).

▪ Pressing cylinder (cylinder burnout furnace programming)

It is advisable to follow the instructions of the investment material manufacturer.

We once again recommend to set the final temperature at 850°C to degas the cylinder.

A vital part of this process remains the holding time at the final temperature, as it will determine the heat level within the cylinder when placing it in the pressing furnace.

The table below indicates the recommended times according to the size of the cylinder.

| <i>Cylinder diameter</i> | <i>Cylinder weight</i> | <i>Final temperature</i> | <i>Holding time</i> |
|--------------------------|------------------------|--------------------------|---------------------|
| Ø 35 mm | 100 g | 850 °C | 20 minutes |
| Ø 50 mm | 200 g | 850 °C | 30 minutes |
| Ø 80 mm | 500 g | 850 °C | 60 minutes |

ATTENTION: add 10 minutes (when holding at 850°C) for each additional cylinder in the cylinder burnout furnace

5.6.3. FAVORITE PRESSING



Favorite Pressing

The 50 pressing programmes can be designated as **FAVORITES**.

Just select the desired program and press the star next to the name of the cycle.

The corresponding parameters can be immediately modified in “*Favorite Pressing*” or in “*Pressing*”.





To remove the programme from **FAVORITES**: deactivate the star.

NOTE: **FAVORITES** management is identical to ceramic firing

5.7. SAVING & PROGRAMMES' TRACEABILITY

This unit is equipped with a USB 2 socket for data backup and transfer.

▪ SAVING THE PARAMETERS (FURNACE / USB)

- 1) Insert the USB stick into the right side of the unit
- 2) Wait until it is recognized and the logo  appears
- 3) Access the 5-lines menu by press the key 
- 4) Select the function **"Copy Prog (Furnace → USB)"**
- 5)  Wait until the data transfer is completed 

For more information on this data backup, see chapter 5.2 - CONFIGURATION

▪ TRACEABILITY OF CYCLES

The same procedure as described above applies.

All full performed cycles are saved on the CPU-card of the furnace.

The saved files in .PDF format allow to view and print all parameters.

Each cycle is saved on a separate page, to avoid any risk of confusion.

For more information on this data backup, see chapter 5.2 - CONFIGURATION

5.8. PERIPHERALS

The USB 2 port allows the connection of a multiport data hub (*not supplied*).

This function may be useful when using a mouse (with or without wire) and a USB stick at the same time.

ATTENTION: *with the hub, the furnace can detect only one USB stick at a time*

6. MAINTENANCE AND TROUBLE-SHOOTING



Before to carry out the maintenance work and/or cleaning,

e.ON 200/250 NEO has to:

- **disconnected from the main power supply** (*switch OFF and unplug to mains socket*)
- **at room temperature: wait the cooling after use** (*risk of burns and/or damage*)

6.1. MAINTENANCE

Observe the following recommendations to ensure the longevity of the device:

- Do not use abrasive, solvents or flammables products for cleaning (outside and inside)
- Clean the machine outside with a soft, dry cloth
- Remove any traces on the screen with a soft cloth and a small amount of special glass cleaner. Cleaning wipes for optic products can also be used
- **Clean the joint of the tray with alcohol regularly**, to ensure the proper functioning of the vacuum system. To avoid any risk of adhesion, it is recommended to sprinkle it with a thin layer of talc powder
- **e.ON 250 NEO: disconnect the compressed air inlet of the furnace about once a month**
This allows to automatically purge the compressed air inlet filter of the furnace to evacuate any moisture in the unit
- **Visual inspection of the support pressing and the firing base before use.** If necessary, clean with a vacuum cleaner to remove any particles (dust). Do not use compressed air. If the support/base is damaged or cracked: do not use and replace-it
- Use a **vacuum cleaner to remove any dust in the chamber firing or in the tray – do not use compressed air**

6.2. PROTECTION

▪ OVERVOLTAGE

This furnace is protected against over-voltage by a system of active and passive filters. As a precautionary measure, we recommend to save all programmes on the USB stick supplied with the unit.

▪ OUTLET VOLTAGE VARIATION

Within a limit of ± 20 volts, the furnace self-corrects the variation and maintains the same accuracy.

▪ INTERRUPTION OF POWER SUPPLY

After a power failure of **less than 15 seconds**, the running cycle continues. When the furnace is switched on again, it is rebooted and the graphics display reappears. No noticeable effect as the programme proceeds.

If the power failure lasts **more than 15 seconds**, the cycle is interrupted as the duration of the incident will substantially change the performance of the programme. The chamber opens and a message indicates that a power interruption has occurred: **MAINS FAILURE** (see chapter 6.3)

▪ OVERHEATING PROTECTION

If the temperature accidentally exceeds the programmed temperature by more than:

- 50°C, for a parameter setting > 800°C, or
- 70°C, for a parameter setting < 800 °C,

the running cycle is interrupted. The chamber opens and the message **HEATING FAILURE** is displayed (see chapter 6.3)

▪ DATA PROTECTION

The control slot contains a **SD mini card memory**. It ensures that all furnace data are saved and can be inserted into another slot in case of irreversible damage of the CPU-card.

6.3. TROUBLE-SHOOTING

When the furnace detect a failure, a message display in the screen, and an alarm sound. Failures' guide:

| Message | Explanation | Cause | Procedure to be followed |
|----------------------------|--|---|--|
| SENSOR FAILURE | Thermocouple disconnected | The temperature sensor is defective or not properly connected | <ul style="list-style-type: none"> - stop the alarm sound: press STOP - turn off furnace (switch ON/OFF) - contact the after-sale service |
| HEATING FAILURE | Maximum permissible temperature is reached | When the final temperature is exceeded by: <ul style="list-style-type: none"> · 50°C for a parameter setting >800°C or · 70°C for a parameter setting <800°C | <ul style="list-style-type: none"> - the chamber opens to prevent damage to the unit - stop the alarm sound: press STOP - turn off furnace (switch ON/OFF) - wait the cooling and try again - if the failure persist, contact the after-sale service |
| MOTOR FAILURE (1/2) | Tray blocked | The tray's movement is interrupted | <ul style="list-style-type: none"> - stop the alarm sound: press STOP - check that any objet don't block the tray's movement, and remove-it if necessary - press the <i>RETURN</i> key to clear the failure on the screen - if the failure persist, contact the after-sale service |
| MOTOR FAILURE (2/2) | Non-conformed open/close time of the furnace | This message is displayed if don't detect a movement of the tray after 30 seconds Probable cause: geared motor failed or not connected | <ul style="list-style-type: none"> - stop the alarm sound: press STOP - press the <i>RETURN</i> key to clear the failure on the screen - turn off furnace (switch ON/OFF) - contact the after-sale service |

| Message | Explanation | Cause | Procedure to be followed |
|---------------------------|--|---|---|
| VACUUM FAILURE | The minimum vacuum level cannot be reached | This message is displayed after 1 minute of operation of the vacuum pump. Probable cause: <ul style="list-style-type: none"> - it is not electrically connected and/or the flexible hose is not connected - solenoid valve for venting systems is defective - the tray does not stay on the bottom of the chamber: leak-tightness is not ensured | <ul style="list-style-type: none"> - stop the alarm sound: press STOP - turn off furnace (switch ON/OFF) - check the pump's connections - check under the tank - clean the tray (<i>vacuum cleaner</i>) - if the failure persists, contact the after-sale service |
| MAINS FAILURE | Power failure within a cycle | This message is displayed when a power loss of <u>more than 15 seconds</u> within a running cycle | <ul style="list-style-type: none"> - stop the alarm sound: press STOP - press the <i>RETURN</i> key to clear the failure on the screen - see chapter 6.2 |
| PRESSURE FAILURE * | Minimal pressure 1.7 bar | In case of insufficient supply pressure or if the pressure is below the minimum value required for operation (1.7 bar) Probable cause: <ul style="list-style-type: none"> - the flexible hose is not connected - insufficient laboratory's system pressure | <ul style="list-style-type: none"> - stop the alarm sound: press STOP - turn off furnace (switch ON/OFF) - check the flexible hose's connection - check the system pressure - if the failure persists, contact the after-sale service |
| PRESSING FAILURE * | No movement of the cylinder | At the beginning of each pressing cycle the cylinder's movement is checked. A failure is displayed if: <ul style="list-style-type: none"> - the pneumatic connection is defective - the sensor of the cylinder position is out of order | <ul style="list-style-type: none"> - stop the alarm sound: press STOP - press the <i>RETURN</i> key to clear the failure on the screen - turn off furnace (switch ON/OFF) - contact the after-sale service |

* only in the model with pressing: eON 250 NEO



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