



Portable Miniature Vacuum Porcelain Furnace

TR-DH2

User Manual

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1.SAFETY AND CLEANING

1. Porcelain furnace is use for firing ceramic materials of teeth.
2. The device must be put at least 25-30cm away from the wall.Be assure that the Porcelain furnace must be under normal ventilation environment.The sockets must be put near the power source.The instrument board behind must be connected firmly.
3. Do not operate near by inflammable.
4. Please use dry or a little wet cloth clean the surface of the Porcelain furnace.Do not use solvent or other liquid cleaner to purify the control panel.Please do not let the liquid seep into the Porcelain furnace.
5. Damages caused by mis-operation can not be included in warranty scope.
6. In order to the best work environment,we suggest you use a exclusive circuit. The socket use an overload resistant protector would be best.The three-phase circuit must have a dedicated line for a reliable grounding wire.
7. Before any maintenance,you must plug off from the electrical socket .
8. In order to avoid any accident of serious scald,please use proper instrument to put in or move the objects .
9. Do not use nippers or other instrument to operate the furnace,these instruments may damage the screen or the membrane.
10. Use the door wrench to open the furnace door. Be sure to pay attention to the high temperature prompt to prevent scalding.
11. The inner place of the furnace include fireproof cera mic-fiber and porcelain dust,these may be released by the movement of opening.Once these materials are inhaled by human,it may cause cancer.The dust can irritate the skin and eyes,cause the respiratory tract hoarse or fester.Do not use condense air blow the dust into the work environment.

CAUTIONS:

1. Please read the instruction carefully before you use the furnace. If you do not use the device according to the manual, the life span of the Porcelain furnace may be reduced.
2. The producer do not take the responsibility of lost caused by fault operation or misunderstand of the instruction.
3. Before move or assemble the furnace, please cool down the temperature.
4. Be careful for the part of high temperature when the device is operating.
5. The device is constructed according to a state of the art design and recognized safety regulations. However, if it is used inappropriately, hazards for the health and safety of the user or third parties may arise as well as the risk of damaging the device and other valuable assets.
6. After the back-plate has been removed, a voltage of up to 400 volts may still exist in components in the area of the power supply unit on the circuit board, even when the device is switched off.

The manufacturer is not liable for accidents to the user occurring when the device is open!

1. The standard for the user disassemble the instrument privately is depend on whether the easily damaged sticker is damaged.
2. Never start heating when the furnace door is not closed. In order to prevent hot objects falling to the desktop, please use a fireproof just like stainless steel desktop.
3. In continuous operation (max. final temperature, max. firing time), some parts of the firing chamber may reach high temperatures (above 70 °C).
4. When the furnace is connected to the main power supply, do not touch the furnace core with your hands and metal objects to prevent electric shock and scald.
5. When storing, you must wait for the furnace temperature to drop below 50 °C, otherwise it may cause fire.

2、 THE INTRUCTION FOR THE Porcelain furnace

21 THE FUNCTIONS OF Porcelain furnace:

- Hyperbolic ceramic furnace function, the program can be set to single curve mode or hyperbolic mode, hyperbolic mode provides a complete crystallization process for glass-ceramic crystallization.
- Voice prompt function.
- High quality temperature automatic adjustment function, to ensure that the actual temperature error within + / - 1 degrees.
- Portable for easy transfer and storage.
- Quartz spiral furnace.
- Automatic temperature calibration before each baking procedure.
- The built-in vacuum pump can reach - 90kpa at most.
- True color touch screen, easy to operate.
- 99 custom programs and built-in programs.
- Automatic detection of furnace door closing before heating.

22 THE INTRODUCTION OF SPECIFICATIONS:

OPERATION:

The velocity of temperature increasing: 100°C/min max.
(212° F /minute)

The max temperature: : 1100°C max
(2012° F)

The time which can be kept at the max temperature: 2 H

Vacuum level:1-101%

ELECTRIC POWER:

Operation range: 100-120V 50/60HZ 230V 50/60HZ

Electric current: 14.5ampere@110V 7.0ampere@230V

Power: max 1500w

TYPICAL SPECIFICATION:

WXDXH :width 18cm Depth 25cm Height 38.5cm

Usable measure (firing chamber): 7*7 cm square

Net weight: 12Kg

Weight include the package:13Kg

23 AMBIENT CONDITIONS

- Indoor use
- Ambient temperature: 2°C to 40°C
- Relative humidity 80% at 31°C
- Maximum altitude: 1500 m (**Special Model:3500m**)
- Rated voltage fluctuations must not exceed plus/minus 10% of the rated voltage

24 DEVICE IN BOX COMPLETE WITH:

- 1 firing pan
- 1 spare wrench for furnace door
- 1 connection cable for the mains power supply
- 1 instructions
- 1 Burning rack

3. SAFETY INSTRUCTIONS

3.1 PICTOGRAMS



This pictogram warns injured voltage. Before opening the device, it must be pulling out the mains plug.



This pictogram warns the hot surfaces. Burn injuries may occur.



This pictogram warns may cause personal injury or damage to the device.



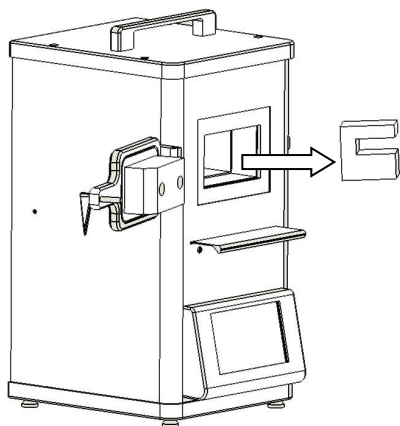
This pictogram show useful tips, explanations and additional information.

4.INSTALLMENT AND START UP

4.1 THE PLACE OF INSTALLMENT

- The Porcelain furnace must be installed in the dry room,and it must be put at least 25cm away from the wall.
- If the temperature is below 15 °C (59 °F) (e.g. after transport), leave the device to stand for approx. 30 minutes before using it for the first time at room temperature.
- Ensure that the device is on a heat-resistant surface. The radiation and heating of the device is in the non-hazardous range. However, heat-sensitive surfaces of furniture and veneers could become somewhat discolored over time due to the constant influence of heat.
- Please avoid direct sunlight.
- MUST NOT put flammable around the Porcelain furnace.
- Do not put combustible articles within the radiation range of the furnace.

4.2 Before starting up, please take out the refractory cotton inside the furnace core.



5. FURNACE HARDWARE (AND ACCESSORIES) INSTRUCTIONS

5.1 FUSES

On the back of the device, there are 1 device fuses. The identification plates show information about the fuse ratings used in the device. Fuses with other ratings must not be used.

230V **T8H250V** 100/110V **T20H250V**

5.2 FAN

The device bottom is equipped with a fan. Activation, deactivation of the fan are controlled automatically. The fan prevents excessive heating of the device and contributes to its general operating safety. For safety reasons, the device must not be operated without a fan. The furnace must be placed on a flat table, and there must be no objects blocking the air inlet on the table.

5.3 SPARE PARTS

Spare parts must comply with the technical requirements determined by the manufacturer. This is always assured when using original spare parts .

6. WARRANTY AND LIABILITY

The PHOENIX furnace provide 1 years (Furnace, Resistance wire, Thermocouple provide one-year warranty) limited warranty: warranty starting from goods delivery for the first vendors.

7. DESCRIPTION OF THE FURNACE

7.1 OPERATION PANEL



7.2 BUTTONS NAMES:

[FIRING] :Entering the 1 step sintering interface.

[2 STEP/GLAZE] :Enter the 2 step sintering interface.

[STANDARD]:Standard procedure selection.

[CUSTOM]:Custom program selection.

[PROGRAM]:Program parameter setting interface.

[SET]:Other settings.

7.3 THE DISPLAYS INTERFACE

P 01: The current chosen program ID is 01. The following is the status of the programme.

1 STEP = 1 step programme; **2 STEP** = 2 step programme

TEMPERATURE 10C: The furnace temperature 10°C.

7.4 CHOOSE A CURRENT FIRING PROGRAM

Press [**CUSTOM**] enter program ID choose interface , as follow



Press program number ,then it will jump a soft keyboard. Use the key 0-9 input a program ID which you want, input the number, press OK complete the current program number choose.

If input wrong program number ,press BACK to cancel.

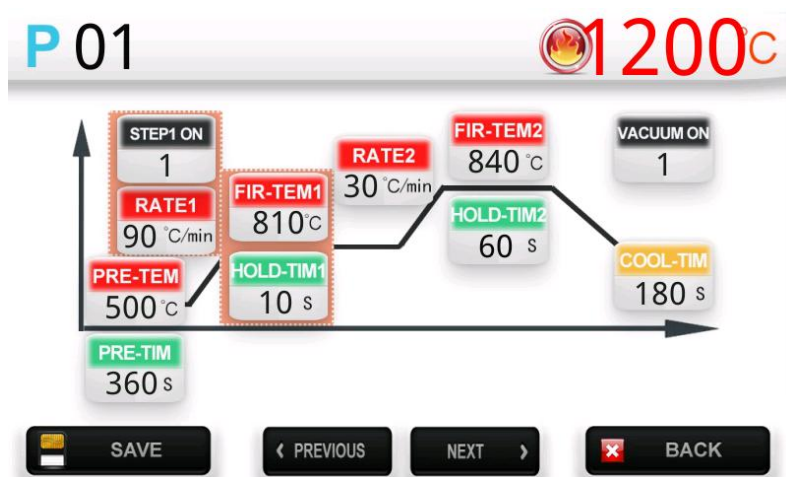
You can also use the **PROGRAM SETING** interface to select the program with "**previous page, next page**" button.

You can also press "**STANDARD PROGRAM**" to call the built-in program directly.

NOTE:The built-in program of Standard Program corresponds to the program number, and the standard program 1 corresponds to the program number 1. The parameters of standard built-in program 1 can be edited by editing program 1.

7.5 SET PARAMETERS FOR A PROGRAM

Press **[program-set]** to enter the program parameter setting interface. Press **"previous page, next page"** to select a program, and finally input 11 parameters in turn to complete the parameter setting of the current program.



Input parameters ok then please press key **[SAVE]** to save, Press **[CANCEL]** back.

Parameters table:

Parameter prompt	Description	Unit	
1.1 PRE-TEM	Pre drying temperature	℃	
1.2 PRE-TIM	Pre drying time	s	
1.3 STEP1 ON	The first temperature curve switch.		Set to 1 to activate, the first temperature curve is executed. Set to 0 to close, the program skips the first section of temperature curve and directly executes the second section of temperature curve.
1.4 RATE1	Temperature rate of the first temperature curve	℃/min	
1.5 FIR-TEM1	Maximum temperature of the first temperature curve	℃	
1.6 HOLD-TIM1	High temperature holding time of the first temperature curve	s	
1.7 RATE2	Temperature rate of the second temperature curve	℃/min	
1.8 FIR-TEM2	Maximum temperature of the second temperature curve	℃	
1.9 HOLD-TIM2	High temperature holding time of the second temperature curve	s	
1.10 COOL-TIM	Cooling time	s	
1.11 VACUUM ON	Vacuum switch		When it is set to 1, the whole process turns on the vacuum, and when it is set to 0, it turns off the vacuum

Step 1 on: when it is set to 1, the program is hyperbolic program, and the main interface displays "2step". When set to 0, The program is identified as a single curve program. The main interface displays "1step".

Vacuum on: when it is set to 1, the vacuum will be turned on in the whole process, and when it is set to 0, the vacuum will be turned off.

Error parameters remind:

When you input a program parameter or other parameters, you input a parameter the system can not run, or the parameter with Logic errors, system will automatic change into the maximum/minimum limit value.

7.6 COMPREHENSIVE PARAMETER SETTING

Press [SET] into SET interface,as follow:



7.7 BUTTONS NAMES:

[VACUUM TEST]: Start a Vacuum test.

[TEM FIX]: Fix the temperature correction.

[IDEL TEM]: Input the idle temperature. Idle temperature is Porcelain furnace not in firing ,a temperature value user hope to it static.

[RESTORE FACTORY]:Restore to factory settings.

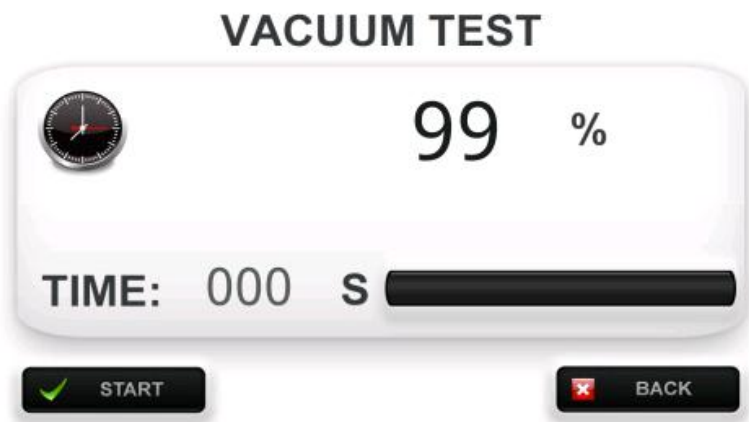
[CLEAN MODE]:Porcelain furnace impurity.

[SOUND]: Set Sound ON or OFF.

[ABOUT]:About Porcelain furnace.

[BACK]:Back to main interface.

7.8 VACUUM TEST



Press [**START**] to start vacuum test.

Notice before the test must be closed the furnace door.

If the vacuum degree is higher than 75% after 100 seconds, the porcelain Vacuum test pass. If it is lower than 75%, please contact the dealer for maintenance.

Effect of altitude on vacuum degree:

In high altitude areas, the vacuum display value will become lower, which is a normal phenomenon, which is caused by the relative pressure sensor inside the instrument. Although the value shows low, the actual vacuum is sufficient.

Specifically: the altitude of 1000m corresponds to 60%, and the altitude of 2000m corresponds to 55%

Press [**STOP**] to STOP vacuum test.

7.9 TEMPERATURE FIX

TEMPERATURE CORRECTION



Temperature adjustment automatically before every firing procedure. But we still provide manual methods of temperature correction.

When the thermocouple is used for a long time, the thermocouple itself will produce deviation. We provide manual calibration to correct this error.

The specific operation is to use the silver ball for calibration, place the silver ball on the burning rack, and observe the silver ball after running the calibration procedure: complete melting minus 5 degrees, non melting plus 5 degrees. The semi melting state is normal temperature. Continuous fine adjustment and correction of parameters can adjust the furnace temperature to an accurate range.

Fix value 200 as the center, to increase this number means that reduce the actual temperature, reduce this number means increasing the actual temperature, usually this value is 200 .

Press **[SAVE]** to save temperature correct.

Press **[BACK]** to back to main interface.

7.10 RESTORE FACTORY

FACTORY SETTINGS



Press **[RESTORE]** to restore to factory setting .

Press **[BACK]** to back to main interface.



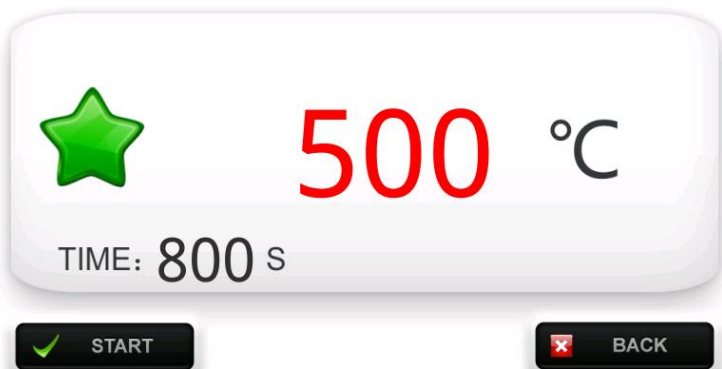
Press **[RESTORE]**A dialog box will pop up for asking the user continue or NOT,press **CONTINUE** to restore the factory data.**CANCEL** to abort.



This operation will restore all parameters back to factory set.

7.11 CLEAN MODE

FIRE CLEANING



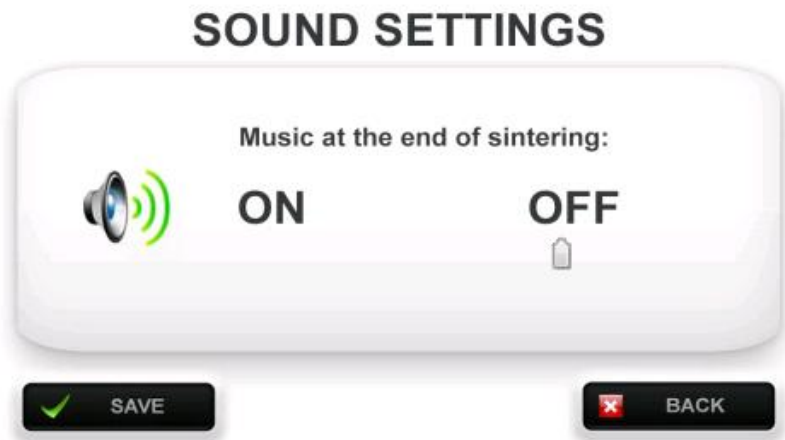
Press **[START]** to start clean mode .

Press **[BACK]** to back to main interface.

Please put the activated carbon in the furnace core and close the furnace door.

User must proper treatment the activated carbon which is used, discarded will occurrence fire.

7.12 SOUND



Use the scroll bar select sound ON or OFF.

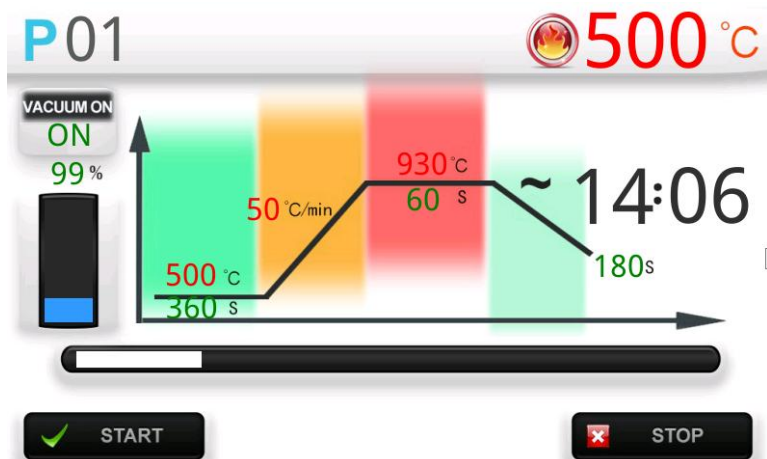
Press [**SAVE**] to save sound statu .

Press [**BACK**] to back to main interface.

7.13 ABOUT

Contains the version dates and other information.

7.14 START A 1 STEP FIRING PROGRAM



1. Open the furnace door.
2. Place the denture in the furnace door.
3. Close the furnace door and ensure that the furnace door is sealed.

4. Press **[Firing]** in 1step firing interface,press **[START]** to start a 1 step firing program,the current firing program number which is the Program ID display number.At this time, the furnace will automatically start vacuum detection. When it is detected that the furnace door has been closed, the program will automatically start heating up. The furnace will automatically complete the sintering process. When the sintering process is completed, the furnace will automatically sound an music to remind that the sintering has been completed (if the sound function is activated).

7.15 START 2 STEP FIRING PROCESS



1. Open the furnace door.
2. Place the denture in the furnace door.
3. Close the furnace door and ensure that the furnace door is sealed.

4. Press “**2 STEP/GLAZE**” button to enter the **2 STEP** interface. press **[START]** to start a 2 step firing program, the current firing program number which is the Program ID display number. At this time, the furnace will automatically start vacuum detection. When it is detected that the furnace door has been closed, the program will automatically start heating up. The furnace will automatically complete the sintering process. When the sintering process is completed, the furnace will automatically sound an music to remind that the sintering has been completed (if the sound function is activated).

7.16 STOP A FIRING PROGRAM

When a firing program is running, press **[STOP]** to stop a firing program, system will back to the main Interface and temperature will stable at stand by temperature when the program end.

7.17 TAKE OUT THE DENTURE AFTER SINTERING

After sintering, when the temperature must drop below 300 °C , turn off the power before opening the furnace door and taking out the denture. Tweezers or pliers must be used to pull out the burning frame as a whole. Do not touch the furnace door or furnace core to prevent scalding. After taking out the burning frame, please close the furnace door.

The furnace must be placed on the fire-resistant table to prevent fire caused by hot object falling off!

8. TROUBLE SHOOTING

In case of the following fault, please contact customer service:

- Hardware failures: Memory chips ,real time chips,or the other problem, Power off to restart.
- Temperature failures: After start up,the display of temperature too large,or temperature too small.may be the thermocouple damage cause the Porcelain furnace temperature display too hot or too cold.for this ,please turn off the power and restart,then to cheak out the temperature control.
- The parameters value for program may beyond the Max value,the Factory Settings of max temperature cannot exceed 1100 (units $^{\circ}\text{C}$), vacuum value cannot exceed 110 (%), time can not exceed 9999 (S), limit temperature cannot exceed 1000 ($^{\circ}\text{C}$).

Vacuum pump troubleshooting:

- Check the connection of vacuum pump tube with furnace connector. Check the vacuum Power Fuse. Detection the moisture inside the furnace.
- Start vacuum testing, check the pump on or off
- Confirm vacuum pump power plug connect Porcelain furnace socket
- Check vacuum tubes road leaks.
- Check on the platform of the furnace whether o-rings have crack, or particles may cause leakage, check with cooperate of surface.
- Use external instrument check vacuum pump value