

ZIRCONIA SINTERING FURNACE

Operational Manual



Thank you for your order of our products. To avoid any misuse and damage, please read the operation instruction carefully before operation

Precautions

- ⚠ Do not heat flammable and explosive materials.
- ⚠ In order to protect the furnace clean and intact, please choose a suitable bantering plate.
- ⚠ The electric furnace using a special high-purity heating rods. Maintenance replacement later, in order to ensure the bantering effect, please use the original parts.
- ⚠ It is strictly forbidden to disassemble the hearth and distribution box of electric furnace arbitrarily, so as to avoid circuit failure.
- ⚠ It is recommended that the temperature of the electric furnace is cooled to below 300 °C before opening the door. Otherwise, thermal shock to the refractory caused by the cold air may cause the lining to crack.
- ⚠ In the process of using this electric furnace, small cracks in the lining are normal. If there are multiple penetrating cracks, may affect the furnace insulation and heating performance.
- ⚠ It is recommended to tighten the clamp on the cold end of the heating rod every 3 months to avoid frequent contact between the conductive strip and the heating rod due to frequent thermal expansion and contraction, resulting in electric arc and breaking the cold end of the heating rod.
- ⚠ Please read this manual carefully before operating the furnace.

Contents

1.Introduction	4
2. Technical Specifications	4
3. Bantering furnace schematic	4
4.Temperature Controller	5
5.Operation instruction of touch screen	5
5.1 Screen introduction	5
5.2 Select menu	7
6.Touch screen temperature process program setting	7
6.1 Program choose and download	8
6.2 amendments to the procedure	9
6.3 Preservation of proceedings	10
6.4 Historical curve	10
6.5 running and ending procedures	11
7.Replacement of silicon molybdenum rod method	11

1.Introduction

- The crystal furnace designed for bantering Draconian. Heating element using high purity silicon molybdenum rods, Draconian without any pollution, and has a high surface temperature, not easy to deformation, the advantages of long life.
- Furnace material made of crystalline mull ceramic fiber is vacuum-adsorbed to strictly control the iron impurity content in the forming process, which can meet the requirements of various rapid bantering and make the crystallization environment of Draconian more pure.
- This product has been widely used in domestic and foreign workers.

2. Technical Specifications

Name	Unit	Parameter
Working Power	KW	1.5 KW
Voltage	V	AC220V,50/60Hz,Single phase
Max. Temperature	°C	1700
Continuous working temperature	°C	1600
Suggested heating rate	°C/min	≤ 20
Temperature accuracy controlled	°C	± 1
Heating element		MoSi2 Heater
Connection of heating element		In series
Thermal Couples		B type
Dimension of inside chamber	inch	100x100x100mm

3. Bantering furnace schematic



4. Temperature Controller

1) Adopt advanced AI artificial intelligence adjustment algorithm, no overshoot, can achieve any slope rise and fall control, with jump (cycle), run, pause and stop programmable / operational commands.

2) Measurement accuracy: 0.2 level

3) Alarm function: upper limit alarm, input open alarm.

4) 50 sections of program control functions

5. Operation instruction of touch screen

5.1 Screen introduction

☞ Before you run the furnace, make sure the power supply is connected correctly

Then press the power switch (power lock) , touch screen dispatcher.(Fig.1)



Fig. 1

☞ When the touch screen is turned on, the furnace type is displayed first (Fig. 2). After a few seconds, it will display the main screen. (Fig. 3).



Fig.2

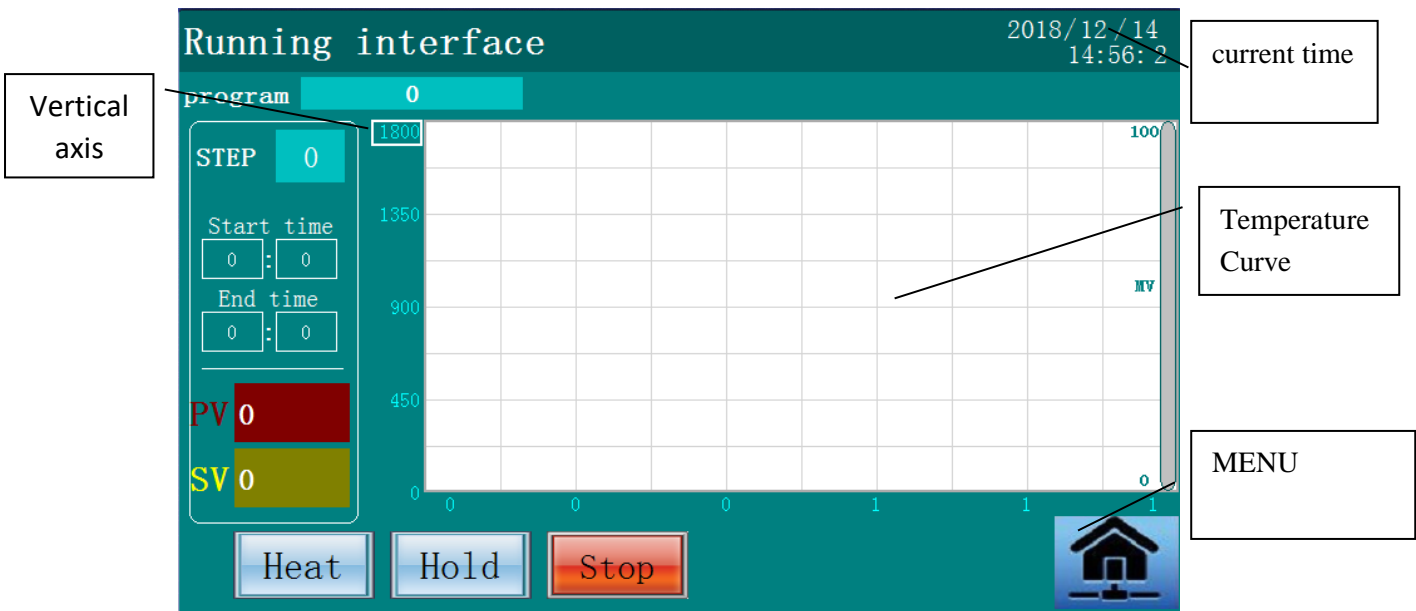


Fig.3

- program: heating program that has been downloaded to the thermometer (temperature process to be run)
- Vertical axis: this value can be changed as needed.
- Step: the section (step) that shows the current running process heating program. Jump segments (steps) can be used as needed through the ordinal number in the box.
- Start time: the start time of a heating program. (perform "heating" start time)
- End time: the end time of the heating program.
- PV: The actual temperature in the furnace measured by thermocouple.
- SV: heating program set the target temperature, more with the program.

- Heat: click on this key, perform program "run" operation, and do "run status indication", the action appears green.
- Hold: click on this button, perform program "hold" operation, and do "pause status indication", the action appears yellow.
- Stop: click on this key, perform program "stop" operation, and do "stop status indication", the action appears red.
- Menu: click on this button and switch to the "Select menu" screen.
- MV: Status bar for output power of the device (expressed as a percentage, with a range of 0 / 100%)

5.2 Select menu

- Click "menu" from run Interface to the Select menu screen (Fig. 4)

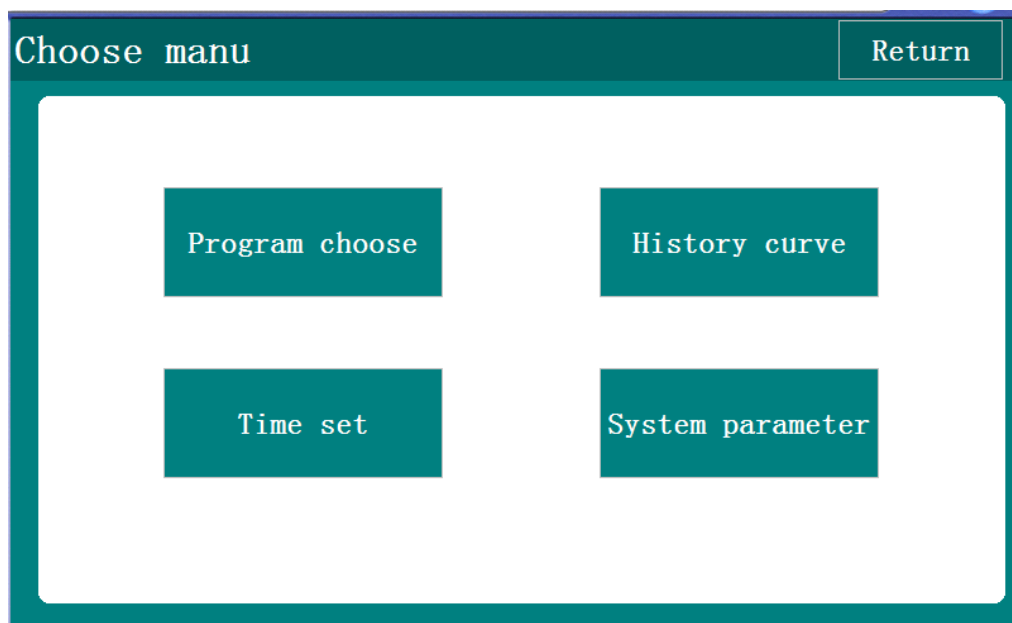


Fig. 4

- Program choose: temperature process editing, storage and download; can store up to 100 temperature process procedures.
- Historical Curves: view History "PV", "SV", "vacuum" (optional)
- Time set: according to local time, you can calibrate the time of touch screen.
- System parameters: recording the main parameters of the equipment, factory has been adjusted, users do not need to modify. **Incorrect changes may cause equipment to fail to function properly.**
- Data export (optional): select the history curve menu, enter the page through the external "USB" interface, as needed to export historical "PV", "SV", "vacuum" data, export format is ".CSV", Users can open it through "Excel".

Note: when using data export, the "U" disk capacity must be less than or equal to 8G.

6.Touch screen temperature process program setting

6.1 Program choose and download

- From "run interface" click on "menu" to "select menu" screen, click "program choose", "program select 1" window appears (fig.5)

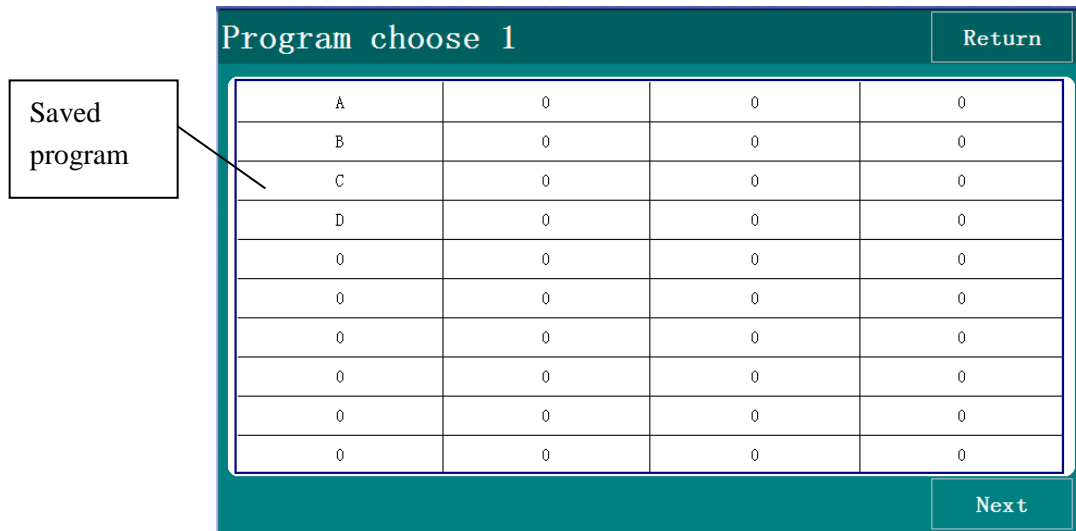


fig.5

- Click on the program to edit and the "Program parameters" interface appears (fig.6)

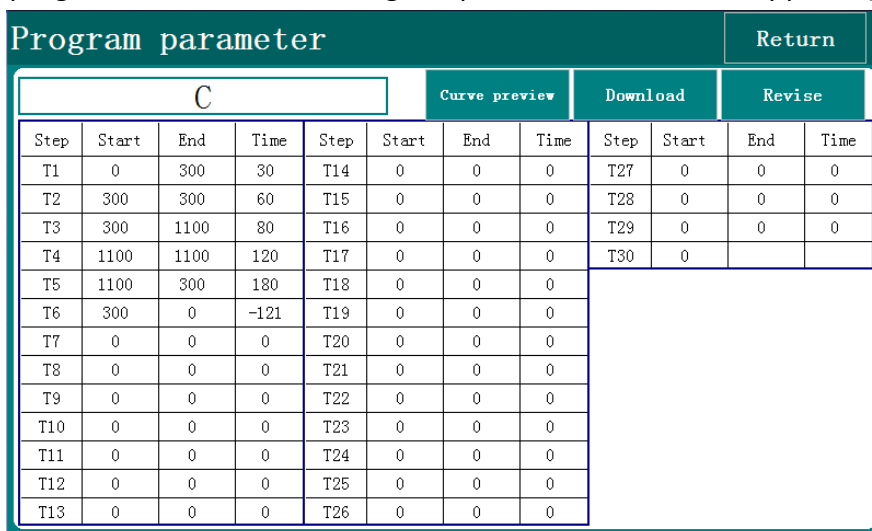


fig.6

- Click "Curve Preview" to check that the curve is in line with production, experimental process (Fig. 7). If the match, click on the "download program" after returning, according to the prompt operation, the program download successfully appear prompt screen (fig. 8). After a successful download, the program name appears in the current Run time window of run Interface.

Note:

Start temperature, end temperature, time: from start temperature through time to end temperature.

The end of the program needs to change the time parameter to-121, which means the program stops

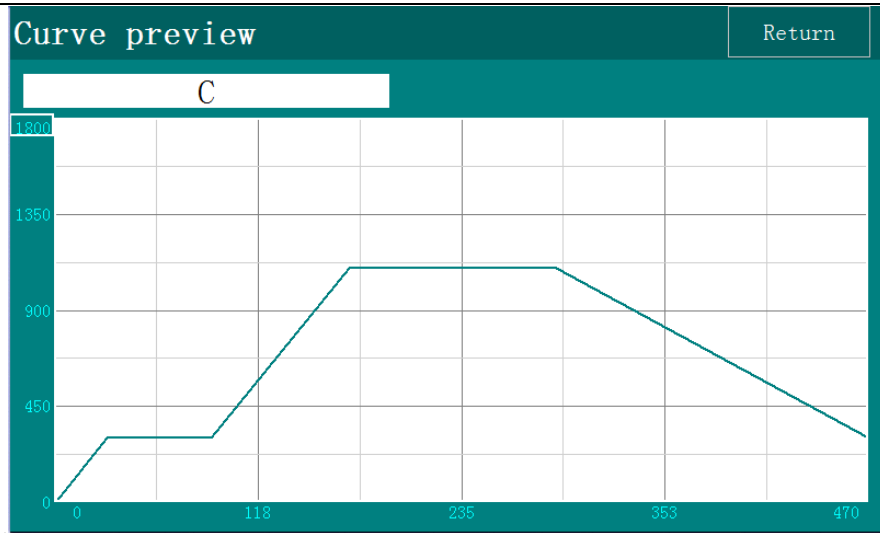


fig. 7

Program parameter												Return		
C												Curve preview	Download	Revise
Step	Start	End	Time	Step	Start	End	Time	Step	Start	End	Time			
T1	0	300	30	T14	0	0	0	T27	0	0	0			
T2	300	300	60	T15	0	0	0	T28	0	0	0			
T3	300	1100	80	T16	0	0	0	T29	0	0	0			
T4	1100	1100	120	T17	0	0	0	T30	0					
T5	1100	300	180	T18	0	0	0							
T6	300	0	-121	T19	0	0	0							
T7	0	0	0	T20	0	0	0							
T8	0	0	0	T21	0	0	0							
T9	0	0	0	T22	0	0	0							
T10	0	0	0	T23	0	0	0							
T11	0	0	0	T24	0	0	0							
T12	0	0	0	T25	0	0	0							
T13	0	0	0	T26	0	0	0							

fig. 8

6.2 amendments to the procedure

Click on "program modification", and then click on the corresponding location for program name, start temperature, end temperature, time change (fig.9), change the end, click on the "confirm" key on the soft keyboard to confirm (fig.10).

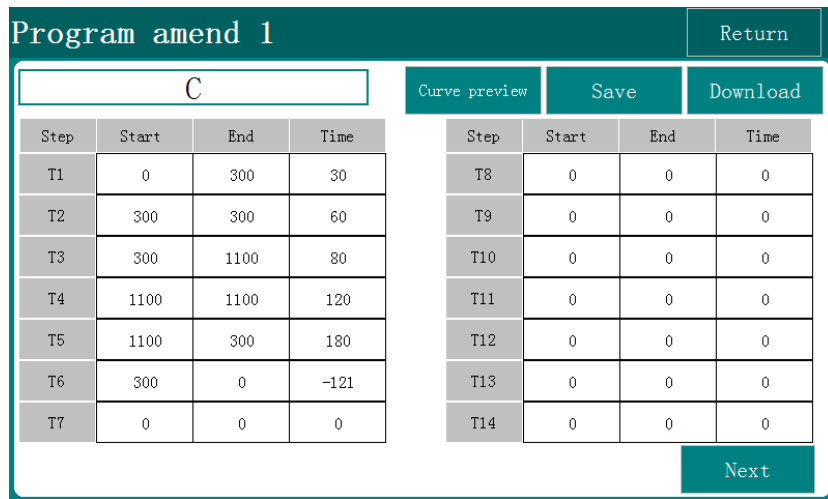


fig. 9

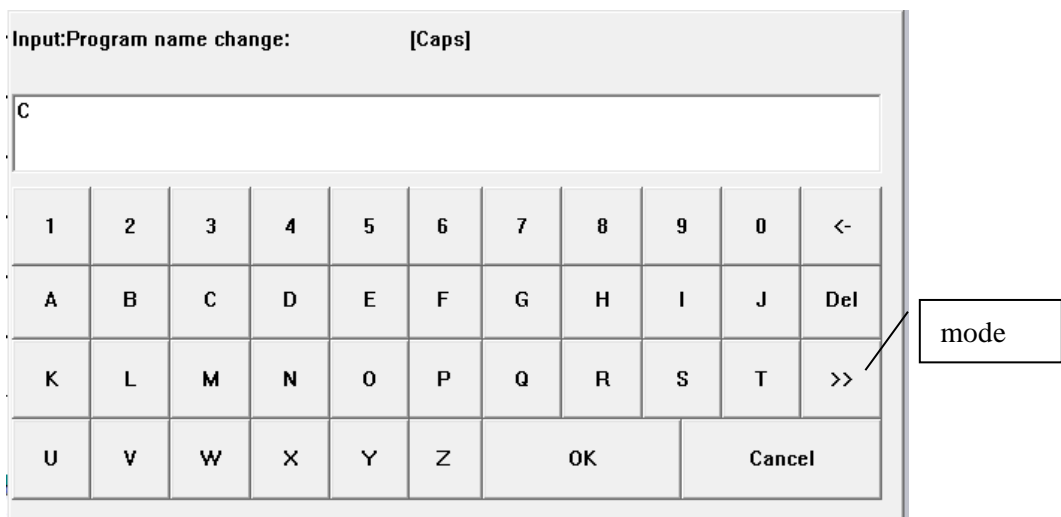


fig. 10

6.3 Preservation of proceedings

The program is modified, checked by "curve preview", click on "save program", save the program, save the program successfully and appear the prompt screen (Fig.11)

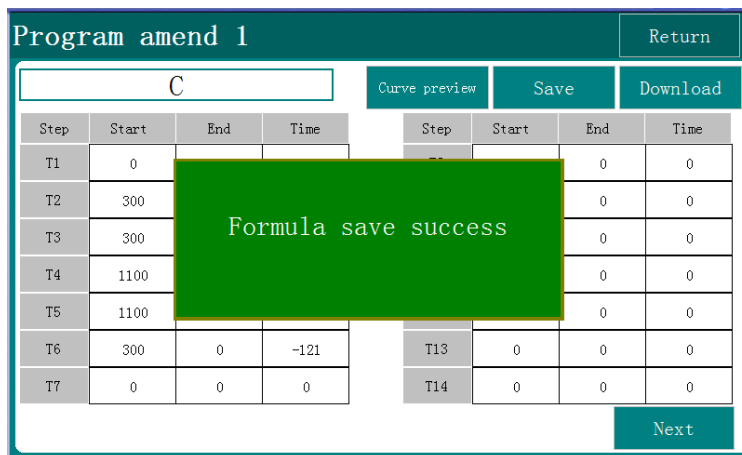


fig. 11

6.4 Historical curve

- From "run Interface" click on "menu" to "Select menu" screen, click "History Curve", "Program selection 1" window appears (fig.12)

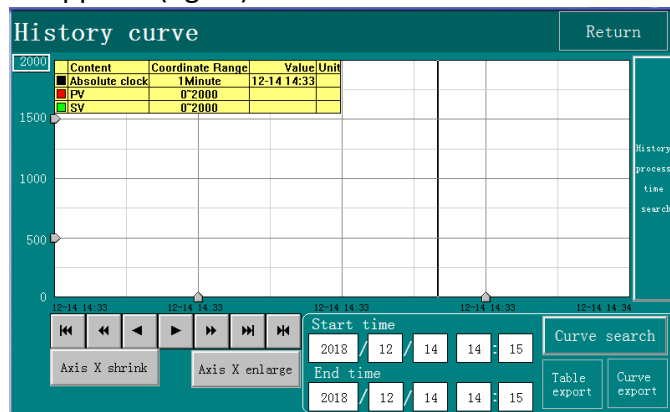


fig. 12

- X-axis shrink: graphical interface display time becomes longer.
- X-axis magnification: the display time of the graphical interface is shortened.
- History process time search: you can view the run and end time of the history heating program.
- Curve query: a parameter curve that queries history through start time and end time.
- Curve derivation: exporting historical data (functions same as data)

6.5 running and ending procedures

- Before running the program, first press the button "turn on", the main circuit contactor suction. To close the program, close the touch screen program and press the button "turn off" to disconnect the main circuit contactor.
- Enter the main operating interface. There are three buttons green, yellow and red. Green button for "run", click on "run", this time the furnace began to heat up according to the temperature program. During the heating process, if you need to pause, click on "hold", temperature program pause. Click stop and the program ends.

7.Replacement of silicon molybdenum rod method

- ⚠ Our company uses high purity silicon molybdenum rods for Draconian bantering without causing any pollution to Draconian crowns or bridges. As the silicon molybdenum rod is a vulnerable part, replace the silicon molybdenum rod, please be careful operation.
- ☞ Use a screwdriver to remove the screw on the top iron cover and remove the top cover. (Figure 15)
- ☞ Unscrew the screws at the top of the stainless steel clip on the silicon molybdenum rod and remove the catch. (Figure 16)
- ☞ Remove the braid. (Figure 17)

- ☞ Directly out of the broken silicon molybdenum rod, remove the stainless steel ceramic card. (Figure 18)
- ☞ Carefully remove the stick. (Figure 19)
- ☞ Replace the new silicon molybdenum rod, followed by a fixed stainless steel ceramic card, woven belt and stainless steel clip. (Figure 20)



Fig.15



Fig.16



Fig.17



Fig.18



Fig.19



Fig.20

- ⚠ Silicone molybdenum rod cold end fixed braid and stainless steel clip, be sure to tighten to prevent poor contact and ignition off the cold end of silicon molybdenum rod. For every 3 months, please tighten a certain braid and stainless steel clip to prevent the thermal expansion and contraction caused by poor contact.

If you have any comments, please contact us at our company.

Your support is the driving force of our growth!

